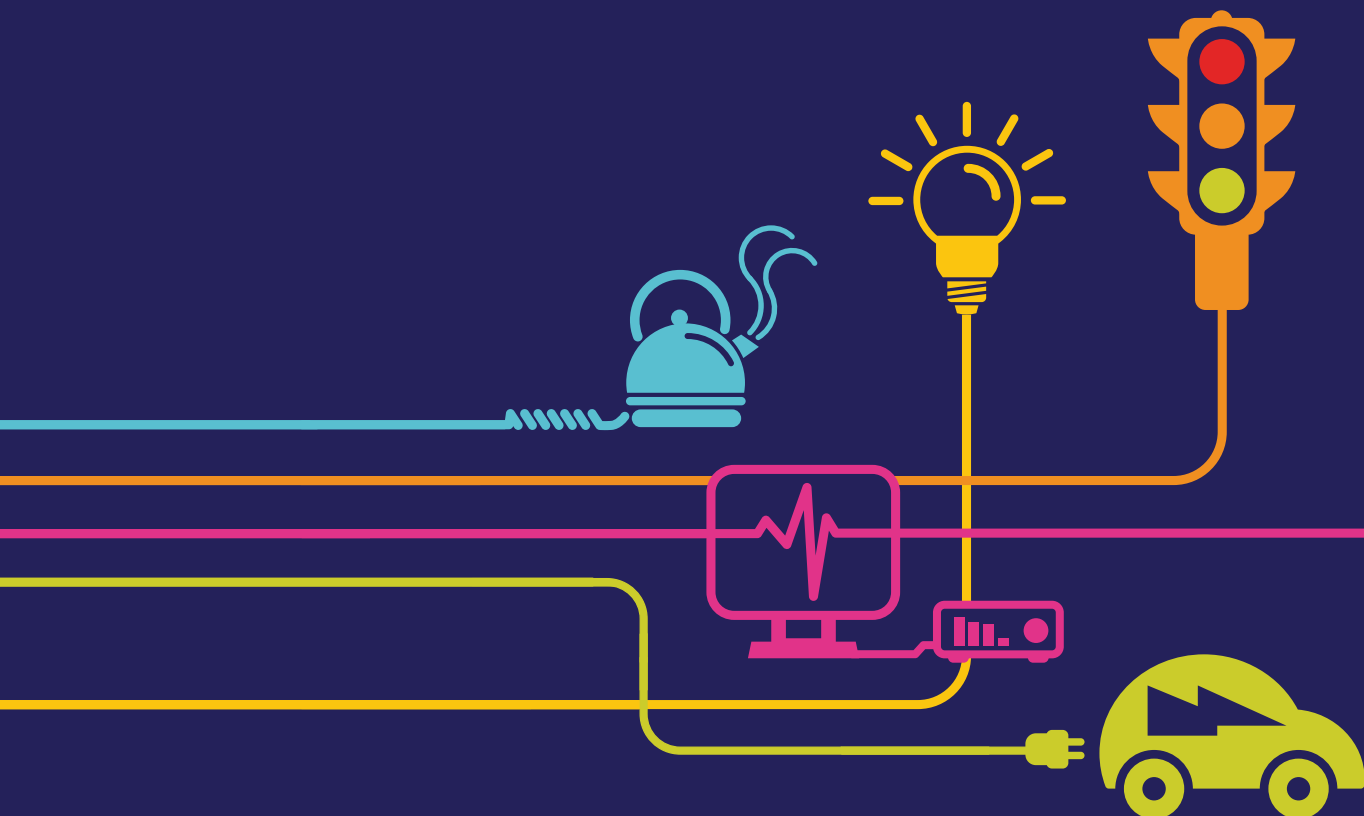


Environmental Statement Hydrology and Water Resources Appendices

Hinkley Point C Connection Project

*Regulation 5(2)(a) of the Infrastructure Planning
(Applications: Prescribed Forms and Procedure)
Regulations 2009*



Environmental Statement

Hinkley Point C Connection Project

5.10.2 – Hydrology and Water Resources – Appendices

Appendix	Title
10A	River Water Quality Data
10B	Hydrology and Water Resources Impact Assessment Table
10C	400kV Underground Cables Hydrological Assessment
10D	132kV Underground Cables Hydrological Assessment
10E	Water Framework Directive Assessment

Document Control			
Document Properties			
Organisation		National Grid	
Author		Appendices 10A-10B (RSK); Appendices 10C-10D (National Grid); and Appendix 10E (TEP)	
Approved By			
Title		Environmental Statement – Hydrology and Water Resources - Appendices	
Document Reference		Volume 5.10.2	
Date	Version	Status	Description/Changes
09/05/14	A	Live	Final version for DCO submission

Appendix 10A – River Water Quality Data

Hinkley Point C Connection Project Volume 5.10 Appendix 10A: River Water Quality Data															
WATERBODY		King's Sedgemoor Drain	Huntspill	Brue	Axe	Lox Yeo	Oldbridge River	River Yeo	Blackditch Rhyne	River Land Yeo	River Kenn	River Kenn	Portbury Ditch	Easton in Gordano Stream	Bristol Avon
WATERBODY ID		GB108052021150	GB108052021210	GB108052021260	GB109052021570	GB109052021580	GB 109052021620	GB109052021640	GB109052021650	GB109052027320	GB109052021670	GB109052021680	GB109052027330	GB109053027470	GB530905415405
PROTECTED AREA DESIGNATIONS				Bathing Water Directive			Not Designated			Bathing Water Directive					
		Freshwater Fish Directive	Freshwater Fish Directive	Freshwater Fish Directive	Freshwater Fish Directive	Freshwater Fish Directive		Freshwater Fish Directive	Freshwater Fish Directive	Freshwater Fish Directive	Freshwater Fish Directive	Freshwater Fish Directive	Freshwater Fish Directive		Freshwater Fish Directive
			Natura 2000 (Habitats and/or Brids Directive)	Natura 2000 (Habitats and/or Brids Directive)				Natura 2000 (Habitats and/or Brids Directive)		Natura 2000 (Habitats and/or Brids Directive)		Natura 2000 (Habitats and/or Brids Directive)	Natura 2000 (Habitats and/or Brids Directive)	Natura 2000 (Habitats and/or Brids Directive)	Natura 2000 (Habitats and/or Brids Directive)
					Drinking Water Protected Area										
				Urban Waste Water Treatment Directive											
HYDROMORPHOLOGICAL DESIGNATION		Artificial	Artificial	Heavily Modified	Not Designated A/HMWB	Not Designated A/HMWB	Artificial	Hevily Modified	Artificial	Artificial	Not Designated A/HMWB	Artificial	Artificial	Artificial	Heavily Modified
Reason:		Land Drainage	Land Drainage	Land Drainage			Land Drainage	Water Regulation (Impoundmentt Release)	Land Drainage	Land Drainage		Land Drainage	Land Drainage	Flood Protection, Land Drainage	Flood Protection, Navigation, Quayline
ECOLOGICAL POTENTIAL															
Current Status:		Moderate	Moderate	Poor	Moderate	Moderate	Moderate	Moderate	Good	Moderate	Moderate	Good	Moderate	Good	Good
BIOLOGICAL ELEMENTS															
Element:	Fish	Not Assessed	High	Poor	Moderate			Poor				Poor			
	Invertebrates	High	Moderate	Good	High	Good		High		Moderate		Moderate	Good		
	Macrophytes	Moderate	Not Assessed	Not Assessed	Not Assessed	Not Assessed									
	Phytobenthos	Moderate	Not Assessed	Poor	Not Assessed	Moderate									
SUPPORTING ELEMENTS															
Element:	Ammonia (phys-chem)	Good	High	Good	High	High	High	High	High	High	High	High	High		
	Dissolved Oxygen	Poor	Good	Good	Good	High	High	High	Good	Good	Good	Good	Good	Poor	
	pH	High	High	High	High	High	High	High	High	High	High	High	High	High	
	Phosphate	Poor	Moderate	Poor	Moderate	Good	Poor	Poor	High	Moderate	Moderate	High	Good	Good	
	Temperature	High	Good	High	High	High	High	High	High	High	High	High	High	High	
	Arsenic			High											
	Copper	High	High	High	High			High		High		High	High	High	
	Iron			High											
	Zinc	High	High	High	High			High		High		High	High	High	
	Ammonia	Good	High	Good	High	High	High	High	High	High	High	High	High	High	
SUPPORTING CONDITIONS															
Element:	Quality and Dynamics of Flow	Supports Good	Supports Good	Supports Good	Supports Good	Does Not Support Good	Supports Good		Supports Good	Does Not Support Good	Supports Good	Supports Good	Supports Good	Supports Good	
	Morphology				Supports Good	Supports Good					Supports Good				
	Tidal Regime - Freshwater Flow														Supports Good
ECOLOGICAL POTENTIAL ASSESSMENT															
Element:	Mitigation Measures Assessment			Good			Good	Good	Good	Good		Good	Good	Good	Good
MITIGATION MEASURES THAT HAVE DEFINED ECOLOGICAL POTENTIAL															
Mitigation Measure:													Appropriate techniques to align and attenuate flow to limir detrimental effects of these features (drainage)	Appropriate techniques to align and attenuate flow to limir detrimental effects of these features (drainage)	

Hinkley Point C Connection Project Volume 5.10 Appendix 10A: River Water Quality Data

[illegible]

Appendix 10B – Hydrology and Water Resources Impact Assessment Table

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
All OHL Route - Groundwater and subsurface flows	Low - deep groundwater	400kV OHL Pylons Piling Caps / foundation pads	400kV OHL Pylons Piling Caps / foundation pads	Interruption of groundwater flows	Permanent, until decommissioning and the removal of foundations / piling caps	Low adverse	Minor adverse	Low Likelihood	Foundations caps will unlikely interact with deep groundwater	Minor adverse	Outlined in a site specific Drainage Investigation Plan to be completed pre construction. Mitigation would be dependent on ground conditions	Minor adverse
All OHL Route - Groundwater and subsurface flows	Low - shallow groundwater	400kV OHL Pylons Piling Caps / foundation pads	400kV OHL Pylons Piling Caps / foundation pads	Interruption of groundwater flows and potential for localised flooding	Permanent, until decommissioning and the removal of foundations / piling caps	Low adverse	Minor adverse	Likely	Foundations caps will have a minor impact on existing groundwater flows. New flow pathways will form around the caps / pads	Minor adverse	Outlined in a site specific Drainage Investigation Plan to be completed pre construction. Mitigation would be dependent on ground conditions	Minor adverse
Drains south of Kings Sedgemoor Drain (KSD)	Low (Water Quality- not classified under WFD status)	400kV OHL; access	Haul road	Large Increase in sediment laden runoff (Concentrated suspended solids / muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils will settle on bed of watercourse inhibiting growth on the beds; Small low flow watercourse;	Minor adverse	Source control measures, settlement troughs or tanks; CEMP guidelines	Negligible
Drains south of Kings Sedgemoor Drain (KSD)	Low (Water Quality- not classified under WFD status)	400kV OHL; access	Haul road	Small increase in sediment laden runoff (Concentrated suspended solids / muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils will settle on bed of watercourse inhibiting growth on the beds; Small low flow watercourse;	Minor adverse	Source control measures, settlement troughs or tanks; CEMP guidelines	Negligible
Drains south of Kings Sedgemoor Drain (KSD)	Low (Water Quality- not classified under WFD status)	Horseley Levels Cable Sealing End Compounds	Horseley Levels Sealing Cable End Compounds	Large increase in sediment laden runoff	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils will settle on bed of watercourse inhibiting growth on the beds; Small low flow watercourse;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains south of Kings Sedgemoor Drain (KSD)	Low (Water Quality- not classified under WFD status)	Horseley Levels Cable Sealing End Compounds	Horseley Levels Sealing Cable End Compounds	Small increase in sediment laden runoff	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils will settle on bed of watercourse inhibiting growth on the beds; Small low flow watercourse;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains south of Kings Sedgemoor Drain (KSD)	Low (Water Quality- not classified under WFD status)	Horseley Levels Cable Sealing End Compounds	Horseley Levels Sealing Cable End Compounds	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, CEMP guidelines	Negligible
Drains south of Kings Sedgemoor Drain (KSD)	Low (Water Quality- not classified under WFD status)	Horseley Levels Cable Sealing End Compounds	Horseley Levels Sealing Cable End Compounds	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, CEMP guidelines	Negligible
Drains south of Kings Sedgemoor Drain (KSD)	Low (Water Quality- not classified under WFD status)	Horseley Levels Cable Sealing End Compounds	Working area (stationary vehicles)	Large scale spillages of miscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Drip trays, Bunded tanks, Source control measures, CEMP guidelines	Negligible
Drains south of Kings Sedgemoor Drain (KSD)	Low (Water Quality- not classified under WFD status)	Horseley Levels Cable Sealing End Compounds	Working area (stationary vehicles)	Small spillages of miscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Drip trays, Bunded tanks, Source control measures, CEMP guidelines	Negligible
Drains south of Kings Sedgemoor Drain (KSD)	Low (Water Quality- not classified under WFD status)	Horseley Levels Cable Sealing End Compounds	Working area (stationary vehicles)	Large scale spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Drip trays, Bunded tanks, Source control measures, CEMP guidelines	Negligible
Drains south of Kings Sedgemoor Drain (KSD)	Low (Water Quality- not classified under WFD status)	Horseley Levels Cable Sealing End Compounds	Working area (stationary vehicles)	Small spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column. Moderate likelihood	Minor adverse	Drip trays, Bunded tanks, Source control measures, CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL; access	Haul Road	Large spillages of miscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Larger watercourse (approx 30m width) with higher flow will aid dilution and dispersal; very low likelihood	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL; access	Haul Road	Small Spillages of miscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Larger watercourse (approx 30m width) with higher flow will aid dilution and dispersal; moderate likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL; access	Haul Road	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 30m width) with flow will aid dilution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL; access	Haul Road	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 30m width) with flow will aid dilution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL pylon ZGA3,- ZGA7	Construction Working Area	Large spillages of miscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	High levels of harmful chemical compound; Larger watercourse (approx 30m width) with higher flow will aid dilution and dispersal	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL pylon ZGA3,- ZGA7	Construction Working Area	Small spillages of miscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Larger watercourse (approx 30m width) with higher flow will aid dilution and dispersal	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL pylon ZGA3,- ZGA7	Construction Working Area	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 30m width) with flow will aid dilution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL pylon ZGA6; 400kV OHL pylon ZGA7	Construction Working Area	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 30m width) with flow will aid dilution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL pylon ZGA3,- ZGA7	Construction Working Area	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Larger watercourse (approx 30m width) with flow aids dilution and dissolution; Increase of settlement time reduces impact	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL pylon ZGA3,- ZGA7	Construction Working Area	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Lower volumes of harmful chemical compound; Larger watercourse (approx 30m width) with flow aids dilution and dissolution; Increase of settlement time reduces impact, though increased likelihood of event	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL pylon ZGA3,- ZGA7	Construction Working Area (Stationary Vehicles)	Large spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Larger watercourse (approx 30m width) with flow aids dilution and dissolution; Increase of settlement time reduces impact	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
King Sedgemoor Drain	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL pylon ZGA3,- ZGA7	Construction Working Area (Stationary Vehicles)	Small spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Moderate adverse	Likely	Lower volumes of harmful chemical compound; Larger watercourse (approx 30m width) with flow aids dilution and dissolution; Increase of settlement time reduces impact, though increased likelihood of event	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL pylons ZGA7 and ZGA8; F Route 132kV OHL removal	Construction working area	Large spillages of miscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL pylons ZGA7 and ZGA8; F Route 132kV OHL removal	Construction working area	Small spillages of miscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL pylons ZGA7 and ZGA8; F Route 132kV OHL removal	Construction working area	Large increase in Sediment Laden Runoff (concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL pylons ZGA7 and ZGA8; F Route 132kV OHL removal	Construction working area	Small increase in Sediment Laden Runoff (concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL pylons ZGA7 and ZGA8; F Route 132kV OHL removal	Construction working area	Large spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL pylons ZGA7 and ZGA8; F Route 132kV OHL removal	Construction working area	Small spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	Low	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL pylons ZGA7 and ZGA8; F Route 132kV OHL removal	Construction working area (stationary vehicles)	Large spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL pylons ZGA7 and ZGA8; F Route 132kV OHL removal	Construction working area (stationary vehicles)	Small spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route 132kV OHL removal; access	Haul Road	Large spillages of miscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route 132kV OHL removal; access	Haul Road	Small spillages of miscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route 132kV OHL removal; access	Haul Road	Large increase in sediment laden runoff (concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route 132kV OHL removal; access	Haul Road	Small increase in sediment laden runoff (concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route 132kV OHL removal; access	Haul Road (moving vehicles)	Large spillages of immiscible fuels, oils and lubricants	Temporary- Temporary - Construction Phase - Lifetime of haul road	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Drains in the area between K. S. D to North Woolavington	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route 132kV OHL removal; access	Haul Road (moving vehicles)	Small spillages of immiscible fuels, oils and lubricants	Temporary- Temporary - Construction Phase - Lifetime of haul road	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column. Moderate likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	negligible
Drains in area between Woolavington and Huntspill River (non Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route 132kV OHL removal; access	Haul Road	Large spillages of miscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in area between Woolavington and Huntspill River (non Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route 132kV OHL removal; access	Haul Road	Small spillages of miscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in area between Woolavington and Huntspill River (non Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route 132kV OHL removal; access	Haul Road	Large increase in sediment laden runoff	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils will settle on bed of watercourse inhibiting growth on the beds;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in area between Woolavington and Huntspill River (non Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route 132kV OHL removal; access	Haul Road	Small increase in sediment laden runoff	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with low levels of concentrated / heavy soils will settle on bed of watercourse inhibiting growth on the beds;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in area between Woolavington and Huntspill River (non Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL pylons; ZGA9, 10, 12, 13- C L2; F Route 132kV removal	Construction Working Area	Large spillages of miscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in area between Woolavington and Huntspill River (non Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL pylons; ZGA9, 10, 12, 13- C L2; F Route 132kV removal	Construction Working Area	Small spillages of miscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in area between Woolavington and Huntspill River (non Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL pylons; ZGA9, 10, 12, 13- C L2; F Route 132kV removal	Construction Working Area	Large increase in Sediment Laden Runoff	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in area between Woolavington and Huntspill River (non Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL pylons; ZGA9, 10, 12, 13- C L2; F Route 132kV removal	Construction Working Area	Small increase in Sediment Laden Runoff	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in area between Woolavington and Huntspill River (non Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL pylons; ZGA9, 10, 12, 13- C L2; F Route 132kV removal	Construction Working Area	Large Spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Drains in area between Woolavington and Huntspill River (non Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL pylons; ZGA9, 10, 12, 13- C L2; F Route 132kV removal	Construction Working Area	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Drains in area between Woolavington and Hunsplill River (non-Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL pylons; ZGA9, 10, 12, 13- C L2; F Route 132kV removal	Construction Working Area (Stationary Vehicles)	Large spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Drains in area between Woolavington and Hunsplill River (non-Axe/Brue maintained watercourses)	Low (Water Quality- not classified under WFD status)	400kV OHL pylons; ZGA9, 10, 12, 13- C L2; F Route 132kV removal	Construction Working Area (Stationary Vehicles)	Small spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column. Moderate likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Drains from Woolavington to Hunsplill River (Axe/Brue Rhyne location)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons ZGA11, LD1; F Route 132kV removal	Construction working area	Large spillages of miscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Woolavington to Hunsplill River (Axe/Brue Rhyne location)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons ZGA11, LD1; F Route 132kV removal	Construction working area	Small spillages of miscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Woolavington to Hunsplill River (Axe/Brue Rhyne location)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons ZGA11, LD1; F Route 132kV removal	Construction working area	Large increase in Sediment Laden Runoff	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Woolavington to Hunsplill River (Axe/Brue Rhyne location)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons ZGA11, LD1; F Route 132kV removal	Construction working area	Small increase in Sediment Laden Runoff	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Woolavington to Hunsplill River (Axe/Brue Rhyne location)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons ZGA11, LD1; F Route 132kV removal	Construction working area	Large spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Drains from Woolavington to Hunsplill River (Axe/Brue Rhyne location)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons ZGA11, LD1; F Route 132kV removal	Construction working area	Small spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Drains from Woolavington to Hunsplill River (Axe/Brue Rhyne location)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons ZGA11, LD1; F Route 132kV removal	Construction working area (stationary vehicles)	Large Spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Drains from Woolavington to Hunsplill River (Axe/Brue Rhyne location)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons ZGA11, LD1; F Route 132kV removal	Construction working area (stationary vehicles)	Small spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column. Moderate likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Hunsplill River	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL: F Route 132kV removal	Construction working areas; Foundation caps and crane pads for pylon LD3 and LD4; access	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Larger watercourse (approx 70m width) with higher flow will aid dilution and dispersal	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hunsplill River	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL: F Route 132kV removal	Construction working areas; Foundation caps and crane pads for pylon LD3 and LD4; access	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Larger watercourse (approx 70m width) with higher flow will aid dilution and dispersal; lower significance but higher likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Huntspill River	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL; F Route 132kV removal	Construction working areas; Foundation caps and crane pads for pylon LD3 and LD4; access	Large increase in Sediment Laden Runoff	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 70m width) with flow will aid dilution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Huntspill River	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL; F Route 132kV removal	Construction working areas; Foundation caps and crane pads for pylon LD3 and LD4; access	Small increase in Sediment Laden Runoff	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 70m width) with flow will aid dilution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Huntspill River	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL; F Route 132kV removal	Construction working areas; Foundation caps and crane pads for pylon LD3 and LD4; access	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely to settle on bed	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Huntspill River	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL; F Route 132kV removal	Construction working areas; Foundation caps and crane pads for pylon LD3 and LD4; access	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely to settle on bed; higher likelihood of lesser spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Huntspill River to River Brue	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route removal, access	Construction working area, Haul Road	Large increase in sediment laden runoff	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Huntspill River to River Brue	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route removal, access	Construction working area, Haul Road	Small increase in sediment laden runoff (Concentrated suspended solids / muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Huntspill River to River Brue	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route removal, access	Construction working area, Haul Road	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Huntspill River to River Brue	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route removal, access	Construction working area, Haul Road	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Huntspill River to River Brue	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route removal, access	Construction working area, Haul Road	Large spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Huntspill River to River Brue	Low (Water Quality- not classified under WFD status)	400kV OHL; F Route removal, access	Construction working area, Haul Road	Small spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
River Brue	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL; F Route removal, access	Construction working areas; Foundation caps and crane pads for pylon LD9 and LD10; access	Large increase in sediment laden runoff	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
River Brue	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL; F Route removal, access	Construction working areas; Foundation caps and crane pads for pylon LD9 and LD10; access	Small increase in sediment laden runoff (Concentrated suspended solids / muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
River Brue	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL; F Route removal, access	Construction working areas; Foundation caps and crane pads for pylon LD9 and LD10; access	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
River Brue	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL; F Route removal, access	Construction working areas; Foundation caps and crane pads for pylon LD9 and LD10; access	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
River Brue	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL; F Route removal, access	Construction working areas; Foundation caps and crane pads for pylon LD9 and LD10; access	Large spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
River Brue	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL; F Route removal, access	Construction working areas; Foundation caps and crane pads for pylon LD9 and LD10; access	Small spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains of Southwick and Northwick (Northwick Rd)	Low (Water Quality- not classified under WFD status)	400kV OHL; pylons LD11 to 19; F Route 132kV Removal	Construction working area, Haul Road	Large Increase in Sediment Laden Runoff	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains of Southwick and Northwick (Northwick Rd)	Low (Water Quality- not classified under WFD status)	400kV OHL; pylons LD11 to 19; F Route 132kV Removal	Construction working area, Haul Road	Small increase in Sediment Laden Runoff (concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains of Southwick and Northwick (Northwick Rd)	Low (Water Quality- not classified under WFD status)	400kV OHL; pylons LD11 to 19; F Route 132kV Removal	Construction working area, Haul Road	Large spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains of Southwick and Northwick (Northwick Rd)	Low (Water Quality- not classified under WFD status)	400kV OHL; pylons LD11 to 19; F Route 132kV Removal	Construction working area, Haul Road	Small spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains of Southwick and Northwick (Northwick Rd)	Low (Water Quality- not classified under WFD status)	400kV OHL; pylons LD11 to 19; F Route 132kV Removal	Construction working area, Haul Road	Large spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains of Southwick and Northwick (Northwick Rd)	Low (Water Quality- not classified under WFD status)	400kV OHL; pylons LD11 to 19; F Route 132kV Removal	Construction working area, Haul Road	Small spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL; pylons LD 20 - 28; F Route 132kV removal	Construction working area, Haul Road	Large increase in Sediment Laden Runoff (concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons LD 20 - 28; F Route 132kV removal	Construction working area, Haul Road	Small increase in Sediment Laden Runoff (concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons LD 20 - 28; F Route 132kV removal	Construction working area, Haul Road	Large spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons LD 20 - 28; F Route 132kV removal	Construction working area, Haul Road	Small spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons LD 20 - 28; F Route 132kV removal	Construction working area, Haul Road	Large spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL: pylons LD 20 - 28; F Route 132kV removal	Construction working area, Haul Road	Small spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column. Moderate likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL:pylon LD28 - LD39; F Route 132kV removal	Construction working area, Haul Road	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL:pylon LD28 - LD39; F Route 132kV removal	Construction working area, Haul Road	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL:pylon LD28 - LD39; F Route 132kV removal	Construction working area, Haul Road	Large spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL:pylon LD28 - LD39; F Route 132kV removal	Construction working area, Haul Road	Small spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL:pylon LD28 - LD39; F Route 132kV removal	Construction working area, Haul Road	Large spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Northwick to Pill Road (Mark Yeo)	Low (Water Quality- not classified under WFD status)	400kV OHL:pylon LD28 - LD39; F Route 132kV removal	Construction working area, Haul Road	Small spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column. Moderate likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Mark Yeo	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL: pylon LD28 (including scaffolding), F Route removal	Construction working area; Haul Road crossing	Large increase in Sediment Laden Runoff (concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Minor adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse (approx 7m width) with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Mark Yeo	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL: pylon LD28 (including scaffolding). F Route removal	Construction working area; Haul Road crossing	Small increase in Sediment Laden Runoff (concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse (approx 7m width) with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Mark Yeo	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL: pylon LD28 (including scaffolding). F Route removal	Construction working area; Haul Road crossing	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Mark Yeo	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL: pylon LD28 (including scaffolding). F Route removal	Construction working area; Haul Road crossing	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Mark Yeo	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL: pylon LD28 (including scaffolding). F Route removal	Construction working area; Haul Road crossing	Large spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Mark Yeo	Low (Water Quality- Poor Ecological status as classified under WFD status)	400kV OHL: pylon LD28 (including scaffolding). F Route removal	Construction working area; Haul Road crossing	Small spillages of cement or other manufacturing pollutants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD29 to LD34; Haul Road	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD29 to LD34; Haul Road	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD29 to LD34; Haul Road	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD29 to LD34; Haul Road	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD29 to LD34; Haul Road	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD29 to LD34; Haul Road	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	F Route 132kV OHL removal	Construction working area; access	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	F Route 132kV OHL removal	Construction working area; access	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	F Route 132kV OHL removal	Construction working area; access	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	F Route 132kV OHL removal	Construction working area; access	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	F Route 132kV OHL removal	Construction working area; access	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	F Route 132kV OHL removal	Construction working area; access	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	F Route 132kV OHL removal	Construction working area; Access (stationary vehicles)	Large spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Drains from Mark Yeo to Old River Axe	Low (Water Quality- not classified under WFD status)	F Route 132kV OHL removal	Construction working area; Access (stationary vehicles)	Small spillages of immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column. Moderate likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Area surrounding proposed compound / laydown area at Rooks Bridge	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Tamock laydown area	Vehicle washing / wheel washing	Washing of large amounts effluent into surrounding ditches	Temporary- Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Dependent on number of vehicles washed and time frame undertaken; Watercourses in the area predominantly small field drains and ditches with low flow and no ecological designation; Any pollution would most likely remain in the receptor ditches due to the low flow	Minor adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substance, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible
Area surrounding proposed compound / laydown area at Rooks Bridge	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Tamock laydown area	Vehicle washing / well washing	Washing of lesser amounts effluent into surrounding ditches	Temporary- Temporary - Construction Phase	Medium adverse	Minor adverse	Likely	Dependent on number of vehicles washed and time frame undertaken; Watercourses in the area predominantly small field drains and ditches with low flow and no ecological designation; Any pollution would most likely remain in the receptor ditches due to the low flow;	Minor adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substance, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Area surrounding proposed compound / laydown area at Rooks Bridge	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Tamock laydown area	On site storage of fuels and oils	Failure of holding structures and discharge into surrounding ditches	Temporary - Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Dependent on volume of fuel and oil which is discharged into surrounding ditches; Failure of structures would result in substantial volume of fuels and oils discharging into the surrounding drains and ditches; The surrounding watercourses are small field drains and ditches with low flow and no ecological designation, therefore any spillages of fuels and oils would likely be contained within an area close to the laydown area; total failure of storage structures is highly unlikely	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Area surrounding proposed compound / laydown area at Rooks Bridge	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Tamock laydown area	On site soil storage	Soil mobilisation towards surrounding watercourses, settlement within low flow watercourse	Temporary - Temporary - Construction Phase	High adverse	Moderate adverse	Likely	Dependent on the mass of mobilised materials and potential contaminants contained within; The surrounding watercourses are low flow ditches which would lead to quick settlement on the beds and the banks of the ditches and little transport away from the site, with potential significant impacts on the aquatic flora and fauna;	Moderate adverse	CEMP guidelines for correct stockpiling of spoil, Incident response to deal with any ingress of water into the compound which could mobilised significant volumes of spoil. Bunding to keep construction area free from potential flooding	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD34 - 35	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourse (approx 8m width) with low flow; Distance to watercourse	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD34 - 35	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourse (approx 8m width) with low flow; Distance to watercourse	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD34 - 35	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD34 - 35	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD34 - 35	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed; Distance to watercourse	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD34 - 35	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood; Distance to watercourse	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL	Construction Areas (stationary vehicles)	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed; Distance to watercourse	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV OHL	Construction Areas (stationary vehicles)	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood; Distance to watercourse	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	F Route 132kV OHL removal	Construction working area for pylon on north bank; access	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourse (approx 8m width) with low flow; Distance to watercourse	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	F Route 132kV OHL removal	Construction working area for pylon on north bank; access	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourse (approx 8m width) with low flow; Distance to watercourse	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	F Route 132kV OHL removal	Construction working area for pylon on north bank; access	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	F Route 132kV OHL removal	Construction working area for pylon on north bank; access	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	F Route 132kV OHL removal	Construction working area for pylon on north bank; Access	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed; Smaller Watercourse (approx 8m width)	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	F Route 132kV OHL removal	Construction working area for pylon on north bank; Access	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed; Smaller Watercourse (approx 8m width); increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	F Route 132kV OHL removal	Construction working area for pylon on north bank; Access	Large spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column; Smaller Watercourse (approx 8m width)	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Old River Axe (Drain)	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	F Route 132kV OHL removal	Construction working area for pylon on north bank; Access (stationary vehicles)	Small spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column. Smaller Watercourse (approx 8m width); Moderate likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD35 and LD38	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow.	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD35 and LD38	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow.	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD35 and LD38	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD35 and LD38	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD35 and LD38	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction working areas; Foundation caps and crane pads for pylon LD35 and LD38	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction Areas (stationary vehicles)	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV OHL	Construction Areas (stationary vehicles)	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; excavated materials-Topsoil and subsoils stockpiles	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow.	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; excavated materials-Topsoil and subsoils stockpiles	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Highly likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. Higher likelihood due to extent of excavations and groundworks	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; drilling equipment	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; drilling equipment	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; drilling equipment	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; drilling equipment	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV Underground cables	Construction Areas (stationary vehicles and plant)	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV Underground cables	Construction Areas (stationary vehicles and plant)	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV Underground cables	Construction Areas (stationary vehicles and plant)	Large spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Hydrological features from Old River Axe to River Axe	Low (Water Quality- not classified under WFD status)	400kV Underground cables	Construction Areas (stationary vehicles and plant)	Small spillages of immiscible / immiscible fuels, oils and lubricants	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column. Moderate likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Area surrounding proposed compound / laydown area to the NW of Biddisham (location of CSE)	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	South of Mendips CSE laydown area	Vehicle washing	Washing of large amount of effluent into surrounding ditches	Temporary- Temporary - Construction Phase	High adverse	Moderate adverse	Likely	Dependent on number of vehicles washed and time frame undertaken; Watercourses in the area predominantly small field drains and ditches with low flow and no ecological designation; Any pollution would most likely remain in the receptor ditches due to the low flow	Moderate adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substance, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible
Area surrounding proposed compound / laydown area to the NW of Biddisham (location of CSE)	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	South of Mendips CSE laydown area	Vehicle washing	Washing of smaller amount of effluent into surrounding ditches	Temporary- Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Dependent on number of vehicles washed and time frame undertaken; Watercourses in the area predominantly small field drains and ditches with low flow and no ecological designation; Any pollution would most likely remain in the receptor ditches due to the low flow	Minor adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substance, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible
Area surrounding proposed compound / laydown area to the NW of Biddisham (location of CSE)	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	South of Mendips CSE laydown area	On site storage of fuels and oils	Failure of holding structures and discharge into surrounding ditches	Temporary- Temporary - Construction Phase	High adverse	Moderate adverse	Likely	Dependent on volume of fuel and oil which is discharged into surrounding ditches; Failure of structures would result in substantial volume of fuels and oils discharging into the surrounding drains and ditches; The surrounding watercourses are small field drains and ditches with low flow and no ecological designation, therefore any spillages of fuels and oils would likely be contained within an area close to the laydown area; total failure of storage structures is highly unlikely	Moderate adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors;	Negligible
Area surrounding proposed compound / laydown area to the NW of Biddisham (location of CSE)	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	South of Mendips CSE laydown area	On site soil storage	Soil mobilisation towards surrounding watercourses, settlement within low flow watercourse	Temporary- Temporary - Construction Phase	Medium adverse	Minor adverse	Likely	Dependent on the mass of mobilised materials and potential contaminants contained within; The surrounding watercourses are low flow ditches which would lead to quick settlement on the beds and the banks of the ditches and little transport away from the site, with potential significant impacts on the aquatic flora and fauna;	Minor adverse	CEMP guidelines for correct stockpiling of spoil; Incident response to deal with any ingress of water into the compound which could mobilised significant volumes of spoil; Bunding to keep construction area free from potential flooding	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Construction working areas; Haul road	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Minor adverse	CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Construction working areas; Haul road	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Minor adverse	CEMP guidelines	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Cable bridge over River Axe	Large increase sediment runoff during bridge construction at banks	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Moderate adverse	Construction method statements and CEMP	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Cable bridge over River Axe	Small increase sediment runoff during bridge construction at banks	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution; Higher likelihood due to the amount of groundwork involved close to watercourse	Minor adverse	Construction method statements and CEMP	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Alternative option: HDD under River Axe	Accidental discharge of HDD slurry	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Highly concentrated suspended solids in HDD slurry. If pathway to watercourse found in ground, would cause significant increase in sediment load in river without 'benefit' of increased flow ad dilution would get in wet weather.	Moderate adverse	Construction method statements and CEMP	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Construction working areas; Haul road;	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Larger watercourse (approx 15m width) with higher flow will aid dilution and dispersal	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Construction working areas; Haul road;	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Larger watercourse (approx 15m width) with higher flow will aid dilution and dispersal; lower significance but higher likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Excavated areas and materials; Topsoil and subsoil stockpiles	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow.	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Excavated areas and materials; Topsoil and subsoil stockpiles	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Highly likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. Higher likelihood due to extent of excavations and groundworks	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Construction working areas; Haul road	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Construction working areas; Haul road	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Construction Areas (stationary vehicles)	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
River Axe	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	400kV Underground cables	Construction Areas (stationary vehicles)	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Old Lox Yeo	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	400kV underground cables	Working areas, trenches and access	Interruption of flow in watercourse	Temporary - Construction Phase	Medium adverse	Moderate adverse	Highly likely	Small scale watercourse with flow; During construction flow may need to be diverted, flumed or stored and infiltrated to ground	Major adverse	Over pumping; Temporary culvert; Ditch diversion; Interceptor trenches; Diversion of flows upstream of crossing; Strengthening of ditches to protected underlying cable route, CEMP guidelines	Minor adverse
Old Lox Yeo	Low (Water Quality - not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; excavated materials-Topsoil and subsoils stockpiles	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. Higher likelihood due to extent of excavations and groundworks	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Old Lox Yeo	Low (Water Quality - not classified under WFD status)	400kV Underground cables	HDD under Old Lox Yeo	Accidental discharge of HDD slurry	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Highly concentrated suspended solids in HDD slurry. If pathway to watercourse found in ground, would cause significant increase in sediment load in river without 'benefit' of increased flow ad dilution would get in wet weather.	Moderate adverse	Construction method statements, and CEMP	Negligible
Old Lox Yeo	Low (Water Quality - not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; drilling equipment	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons, CEMP guidelines	Negligible
Old Lox Yeo	Low (Water Quality - not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; drilling equipment	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons, CEMP guidelines	Negligible
Old Lox Yeo	Low (Water Quality - not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; drilling equipment	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Old Lox Yeo	Low (Water Quality - not classified under WFD status)	400kV Underground cables	Construction working areas; Haul road; drilling equipment	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Area surrounding proposed compound / laydown area to the NE of Loxton	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Vehicle washing	Washing of large amounts of effluent into surrounding ditches	Temporary- Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Dependent on number of vehicles washed and time frame undertaken; Watercourses in the area predominantly small field drains and ditches with low flow and no ecological designation; Any pollution would most likely remain in the receptor ditches due to the low flow	Minor adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substances, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Area surrounding proposed compound / laydown area to the NE of Loxton	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Vehicle washing	Washing of small amounts of effluent into surrounding ditches	Temporary - Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Dependent on number of vehicles washed and time frame undertaken; Watercourses in the area predominantly small field drains and ditches with low flow and no ecological designation; Any pollution would most likely remain in the receptor ditches due to the low flow	Minor adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substance, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible
Area surrounding proposed compound / laydown area to the NE of Loxton	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	On site storage of fuels and oils	Failure of holding structures and discharge into surrounding ditches	Temporary - Temporary - Construction Phase	High adverse	Moderate adverse	Likely	Dependent on volume of fuel and oil which is discharged into surrounding ditches; Failure of structures would result in substantial volume of fuels and oils discharging into the surrounding drains and ditches; The surrounding watercourses are small field drains and ditches with low flow and no ecological designation, therefore any spillages of fuels likely to be contained within the ditches	Moderate adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Area surrounding proposed compound / laydown area to the NE of Loxton	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	On site soil storage	Soil mobilisation towards surrounding watercourses, settlement within low flow watercourse	Temporary - Temporary - Construction Phase	Medium adverse	Minor adverse	Likely	Dependent on the mass of mobilised materials and potential contaminants contained within; The surrounding watercourses are low flow ditches which would lead to quick settlement on the beds and the banks of the ditches and little transport away from the site, with potential significant impacts on the aquatic flora and fauna;	Minor adverse	CEMP guidelines for correct stockpiling of spoil; Incident response to deal with any ingress of water into the compound which could mobilised significant volumes of spoil; Bunding to keep construction area free from potential flooding	Negligible
Area surrounding proposed compound / laydown area to the NE of Loxton	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Area surrounding proposed compound / laydown area to the NE of Loxton	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Area surrounding proposed compound / laydown area to the NE of Loxton	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Area surrounding proposed compound / laydown area to the NE of Loxton	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Minor watercourses – Webbington Road to land south of Lox Yeo River	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	400kV underground cables	Working areas, trenches and access	Interruption of flow in drains and ditches	Temporary - Construction Phase	Medium adverse	Moderate adverse	Highly likely	Typically only small, shallow ditches; During construction flows in ditches may need to be diverted, flumed or stored and infiltrated to ground	Major adverse	Over pumping; Temporary culvert; Ditch diversion; Interceptor trenches; Diversion of flows upstream of crossing; Strengthening of ditches to protected underlying cable route; CEMP guidelines	Minor adverse

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Minor watercourses – Webbington Road to land south of Lox Yeo River	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	400kV underground cables	Working areas, trenches and access	Dewatering / contamination of pond features	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Supply to ponds could be impeded either through modifications to overland flow, or to groundwater ingress	Moderate adverse	Avoid pond locations; Relocation of pond if flows are to be affected; Management of incoming water flows into the 'old' pond with need diverting to new pond	Minor adverse
Minor watercourses – Webbington Road to land south of Lox Yeo River	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	400kV underground cables	Working areas, trenches and access	Interruption of land drainage network	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Location and number of land drains is difficult to assess. Pipes causing an obstacle will need to be severed and diverted; Underground cable route generally constructed at lower depth than the field drainage network.	Moderate adverse	Temporary fluming and / or diverting of land drainage pipes; Reinstated land drainage pipes after construction of underground section	Minor adverse
Minor watercourses – Webbington Road to land south of Lox Yeo River	Low (Water Quality- not classified under WFD status)	400kV UG; F Route removal, access, culverting, compound	Haul Road, culvert access points and Compound associated with work 2C, 400UG - CR22 to CR26	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow.	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Minor watercourses – Webbington Road to land south of Lox Yeo River	Low (Water Quality- not classified under WFD status)	400kV UG; F Route removal, access, culverting, compound	Haul Road, culvert access points and Compound associated with work 2C, 400UG - CR22 to CR26	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. Higher likelihood due to extent of excavations	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Minor watercourses – Webbington Road to land south of Lox Yeo River	Low (Water Quality- not classified under WFD status)	400kV UG; F Route removal, access, culverting, compound	Haul Road, culvert access points and Compound associated with work 2C, 400UG - CR22 to CR26	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Minor watercourses – Webbington Road to land south of Lox Yeo River	Low (Water Quality- not classified under WFD status)	400kV UG; F Route removal, access, culverting, compound	Haul Road, culvert access points and Compound associated with work 2C, 400UG - CR22 to CR26	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Minor watercourses – Webbington Road to land south of Lox Yeo River	Low (Water Quality- not classified under WFD status)	400kV UG; F Route removal, access, culverting, compound	Haul Road, culvert access points and Compound associated with work 2C, 400UG - CR22 to CR26	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Minor watercourses – Webbington Road to land south of Lox Yeo River	Low (Water Quality- not classified under WFD status)	400kV UG; F Route removal, access, culverting, compound	Haul Road, culvert access points and Compound associated with work 2C, 400UG - CR22 to CR26	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Lox Yeo (main river)	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV UG; F Route removal, access and watercourse crossings	Lox Yeo HDD crossing	Interruption of sewer network	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Works could disrupt the sewer network emerging from the Winscombe STW	Moderate adverse	Ref construction method statements and CEMP; Incident response plan	Minor adverse
Lox Yeo (main river)	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road; Culverts to allow access and crossings of watercourses 400UG- CR26 to CR28	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Smaller 'main river' Watercourse (approx 7m width) with moderate flow to aid with dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Lox Yeo (main river)	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road; Culverts to allow access and crossings of watercourses 400UG- CR26 to CR28	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Smaller 'main river' Watercourse (approx 7m width) with moderate flow to aid with dispersal	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Lox Yeo (main river)	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road; Culverts to allow access and crossings of watercourses 400UG- CR26 to CR28	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Smaller 'main river' Watercourse (approx 7m width) with moderate flow to aid with dispersal and dilution	Moderate adverse	Source control measures, settlement lagoons;	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Lox Yeo (main river)	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road; Culverts to allow access and crossings of watercourses 400UG- CR26 to CR28	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Smaller 'main river' Watercourse (approx 7m width) with moderate flow to aid with dispersal and dilution; lower significance but higher likelihood	Minor adverse	CEMP guidelines	Negligible
Lox Yeo (main river)	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road; Culverts to allow access and crossings of watercourses 400UG- CR26 to CR28	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Moderate flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Lox Yeo (main river)	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road; Culverts to allow access and crossings of watercourses 400UG- CR26 to CR28	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Moderate flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Lox Yeo (main river)	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV UG; F Route removal, access and watercourse crossings	HDD under Lox Yeo	Accidental discharge of HDD slurry	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Highly concentrated suspended solids in HDD slurry. If pathway to watercourse found in ground, would cause significant increase in sediment load in river without 'benefit' of increased flow ad dilution would get in wet weather.	Moderate adverse	Ref construction method statements and CEMP	Negligible
Winscombe Sewage Treatment Works	Medium (due to close proximity of underground cable route to the works)	400kV UG; F Route removal, access, culverting, compound	Lox Yeo HDD crossing	Interruption of sewer network	Temporary- Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Works could disrupt the sewer network emerging from the Winscombe STW	Minor adverse	Ref construction method statements and CEMP; Incident response plan	Minor adverse
Area surrounding proposed compound / laydown area NE of Winscombe STW	Medium (upstream tributary of the Lox Yeo, water quality of tributary is not classified under the WFD status, though the Lox Yeo retains a Moderate ecological status.	Construction compound and laydown area	Vehicle washing	Washing of large amounts of effluent into surrounding ditches	Temporary- Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Dependent on number of vehicles washed and time frame undertaken; Watercourse adjacent to the site is a tributary of the Lox Yeo with no ecological designation, however the Lox Yeo is only a short distance downstream; Any pollution would most likely enter	Moderate adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substances, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible
Area surrounding proposed compound / laydown area NE of Winscombe STW	Medium (upstream tributary of the Lox Yeo, water quality of tributary is not classified under the WFD status, though the Lox Yeo retains a Moderate ecological status.	Construction compound and laydown area	Vehicle washing	Washing of small amounts effluent into surrounding ditches	Temporary- Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Dependent on number of vehicles washed and time frame undertaken; Watercourse adjacent to the site is a tributary of the Lox Yeo with no ecological designation, however the Lox Yeo is only a short distance downstream; Any pollution would most likely enter the Lox Yeo after a short duration in the tributary	Minor adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substance, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible
Area surrounding proposed compound / laydown area NE of Winscombe STW	Medium (upstream tributary of the Lox Yeo, water quality of tributary is not classified under the WFD status, though the Lox Yeo retains a Moderate ecological status.	Construction compound and laydown area	On site storage of fuels and oils	Failure of holding structures and discharge into surrounding ditches	Temporary- Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Dependent on volume of fuel and oil which is discharged into surrounding ditches; Failure of structures would result in substantial volume of fuels and oils discharging into the surrounding drains and ditches; Watercourse adjacent to the site is a tributary of the Lox Yeo with no ecological designation, however the Lox Yeo is only a short distance downstream; Any pollution would most likely enter the Lox Yeo after a short duration in the tributary; total failure of storage structures is highly unlikely	Moderate adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Area surrounding proposed compound / laydown area NE of Winscombe STW	Medium (upstream tributary of the Lox Yeo, water quality of tributary is not classified under the WFD status, though the Lox Yeo retains a Moderate ecological status.	Construction compound and laydown area	On site soil storage	Soil mobilisation towards surrounding watercourses, settlement within low flow watercourse	Temporary - Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Dependent on the mass of mobilised materials and potential contaminants contained within. The Watercourse adjacent to the site is a tributary of the Lox Yeo with flow towards the Lox Yeo. Any sediment would most likely towards the Lox Yeo after a short duration in the tributary with low levels of deposition. There are potential impacts on the aquatic flora and fauna;	Moderate adverse	CEMP guidelines for correct stockpiling of spoil; Incident response to deal with any ingress of water into the compound which could mobilised significant volumes of spoil; Bunding to keep construction area free from potential flooding	Negligible
Area surrounding proposed compound / laydown area NE of Winscombe STW	Medium (upstream tributary of the Lox Yeo, water quality of tributary is not classified under the WFD status, though the Lox Yeo retains a Moderate ecological status.	Laydown area	Stationary vehicles and plant	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Dependent on the volume and type of mobilised materials and potential contaminants contained within and discharged to surrounding watercourses; The Watercourse adjacent to the site is a tributary of the Lox Yeo with flow towards the Lox Yeo. Any sediment would most likely towards the Lox Yeo after a short duration in the tributary with low levels of deposition. There are potential impacts on the aquatic flora and fauna;	Moderate adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Area surrounding proposed compound / laydown area NE of Winscombe STW	Medium (upstream tributary of the Lox Yeo, water quality of tributary is not classified under the WFD status, though the Lox Yeo retains a Moderate ecological status.	Laydown area	Stationary vehicles and plant	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Dependent on the volume and type of mobilised materials and potential contaminants contained within and discharged to surrounding watercourses; The Watercourse adjacent to the site is a tributary of the Lox Yeo with flow towards the Lox Yeo. Any sediment would most likely towards the Lox Yeo after a short duration in the tributary with low levels of deposition. There are potential impacts on the aquatic flora and fauna;	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Area surrounding proposed compound / laydown area NE of Winscombe STW	Medium (upstream tributary of the Lox Yeo, water quality of tributary is not classified under the WFD status, though the Lox Yeo retains a Moderate ecological status.	Laydown area	Stationary vehicles and plant	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Dependent on the volume and type of mobilised materials and potential contaminants contained within and discharged to surrounding watercourses; The Watercourse adjacent to the site is a tributary of the Lox Yeo with flow towards the Lox Yeo. Any sediment would most likely towards the Lox Yeo after a short duration in the tributary with low levels of deposition. There are potential impacts on the aquatic flora and fauna;	Moderate adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Area surrounding proposed compound / laydown area NE of Winscombe STW	Medium (upstream tributary of the Lox Yeo, water quality of tributary is not classified under the WFD status, though the Lox Yeo retains a Moderate ecological status.	Laydown area	Stationary vehicles and plant	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Dependent on the volume and type of mobilised materials and potential contaminants contained within and discharged to surrounding watercourses; The Watercourse adjacent to the site is a tributary of the Lox Yeo with flow towards the Lox Yeo. Any sediment would most likely towards the Lox Yeo after a short duration in the tributary with low levels of deposition. There are potential impacts on the aquatic flora and fauna;	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Minor watercourses and ponds between Lox Yeo River and Sandford Substation	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	400kV underground cables	Working areas, trenches and access	Dewatering and Interruption of flow in drains and ditches	Temporary - Construction Phase	Medium adverse	Moderate adverse	Highly likely	Typically only small, shallow ditches; During construction flows in ditches may need to be diverted, flumed or stored and infiltrated to ground	Major adverse	Over pumping; Temporary culvert; Ditch diversion; Interceptor trenches; Diversion of flows upstream of crossing; Strengthening of ditches to protected underlying cable route; CEMP guidelines	Minor adverse
Minor watercourses and ponds between Lox Yeo River and Sandford Substation	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	400kV underground cables	Working areas, trenches and access	Dewatering / contamination of pond features	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Supply to ponds could be impeded either through modifications to overland flow, or to groundwater ingress	Moderate adverse	Avoid pond locations; Relocation of pond if flows are to be affected; Management of incoming water flows into the 'old' pond with need diverting to new pond.	Minor adverse
Minor watercourses and ponds between Lox Yeo River and Sandford Substation	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	400kV underground cables	Working areas, trenches and access	Interruption of land drainage network	Temporary - Construction Phase	Medium adverse	Moderate adverse	Highly likely	Location and number of land drains is difficult to assess, Pipes causing an obstacle will need to be severed and diverted; Underground cable route generally constructed at lower depth than the field drainage network.	Major adverse	Temporary fluming and / or diverting of land drainage pipes; Reinstated land drainage pipes after construction of underground section	Minor adverse (interruption to network) Minor Beneficial (reinstatement of lost drains)
Minor watercourses and ponds between Lox Yeo River and Sandford Substation	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	400kV underground cables	Working areas, trenches and access	Interruption of sewer network	Temporary - Construction Phase	Low adverse	Moderate adverse	Likely	Potential interaction with sewers under the A368	Moderate adverse	CEMP guidelines, cables buried at a depth greater than any sewer infrastructure; Infrastructure to be maintained through trenching	Minor adverse
Minor watercourses and ponds between Lox Yeo River and Sandford Substation	Low (water quality not assessed under WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road and culverting for access; watercourse crossings 400UG-CR30 to 35	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow.	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Minor watercourses and ponds between Lox Yeo River and Sandford Substation	Low (water quality not assessed under WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road and culverting for access; watercourse crossings 400UG-CR30 to 35	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. Higher likelihood due to extent of excavations and groundworks	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Minor watercourses and ponds between Lox Yeo River and Sandford Substation	Low (water quality not assessed under WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road and culverting for access; watercourse crossings 400UG-CR30 to 35	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow.	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Minor watercourses and ponds between Lox Yeo River and Sandford Substation	Low (water quality not assessed under WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road and culverting for access; watercourse crossings 400UG-CR30 to 35	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. Higher likelihood due to extent of excavations and groundworks	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Minor watercourses and ponds between Lox Yeo River and Sandford Substation	Low (water quality not assessed under WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road and culverting for access; watercourse crossings 400UG-CR30 to 35	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Minor watercourses and ponds between Lox Yeo River and Sandford Substation	Low (water quality not assessed under WFD)	400kV UG; F Route removal, access and watercourse crossings	Haul Road and culverting for access; watercourse crossings 400UG-CR30 to 35	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Construction working areas; Haul road	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Smaller Watercourse with lower flows will aid sedimentation;	Minor adverse	CEMP guidelines	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Construction working areas; Haul road	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Smaller Watercourse with lower flows will aid sedimentation;	Minor adverse	CEMP guidelines	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Cable bridge over Towerhead Brook	Large increase sediment runoff during bridge construction at banks	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Smaller Watercourse with lower flows will aid sedimentation;	Moderate adverse	Ref construction method statements and CEMP	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Cable bridge over Towerhead Brook	Small increase sediment runoff during bridge construction at banks	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Smaller Watercourse with lower flows will aid sedimentation; Higher likelihood due to the amount of groundwork involved close to watercourse	Minor adverse	Ref construction method statements and CEMP	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Alternative option: HDD under Towerhead Brook	Accidental discharge of HDD slurry	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Highly concentrated suspended solids in HDD slurry. If pathway to watercourse found in ground, would cause significant increase in sediment load in river without 'benefit' of increased flow ad dilution would get in wet weather.	Moderate adverse	Ref construction method statements and CEMP	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Construction working areas; Haul road;	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Smaller Watercourse with lower flows will not aid in the dispersal and transport of pollutants from the local area	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Construction working areas; Haul road;	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Smaller Watercourse with lower flows will not aid in the dispersal and transport of pollutants from the local area; lower significance but higher likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Excavated areas and materials; Topsoil and subsoil stockpiles	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow.	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Excavated areas and materials; Topsoil and subsoil stockpiles	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. Higher likelihood due to extent of excavations and groundworks	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Construction working areas; Haul road	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Construction working areas; Haul road	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Construction Areas (stationary vehicles)	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Towerhead Brook	Low (Ordinary watercourse and water quality not assessed under WFD)	400kV Underground cables	Construction Areas (stationary vehicles)	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Compound at Towerhead	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Vehicle washing	Washing of large amounts of effluent into surrounding ditches	Temporary-Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Dependent on number of vehicles washed and time frame undertaken; Watercourses in the area predominantly small field drains and ditches with low flow and no ecological designation; Any pollution would most likely remain in the receptor ditches due to the low flow	Minor adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substance, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible
Compound at Towerhead	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Vehicle washing	Washing of small amounts of effluent into surrounding ditches	Temporary-Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Dependent on number of vehicles washed and time frame undertaken; Watercourses in the area predominantly small field drains and ditches with low flow and no ecological designation; Any pollution would most likely remain in the receptor ditches due to the low flow	Minor adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substance, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible
Compound at Towerhead	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	On site storage of fuels and oils	Failure of holding structures and discharge into surrounding ditches	Temporary-Temporary - Construction Phase	High adverse	Moderate adverse	Likely	Dependent on volume of fuel and oil which is discharged into surrounding ditches; Failure of structures would result in substantial volume of fuels and oils discharging into the surrounding drains and ditches; The surrounding watercourses are small field drains and ditches with low flow and no ecological designation, therefore any spillages of fuels and oils would likely be contained within an area close to the laydown area, however there is potential for flow into the Lox Yeo; total failure of storage structures is highly unlikely	Moderate adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Compound at Towerhead	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	On site soil storage	Soil mobilisation towards surrounding watercourses, settlement within low flow watercourse	Temporary-Temporary - Construction Phase	Medium adverse	Minor adverse	Likely	Dependent on the mass of mobilised materials and potential contaminants contained within; The surrounding watercourses are low flow ditches which would lead to quick settlement on the beds and the banks of the ditches and little transport away from the site, with potential significant impacts on the aquatic flora and fauna;	Minor adverse	CEMP guidelines for correct stockpiling of spoil; Incident response to deal with any ingress of water into the compound which could mobilised significant volumes of spoil; Bunding to keep construction area free from potential flooding	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Compound at Towerhead	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Compound at Towerhead	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Compound at Towerhead	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Compound at Towerhead	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Sandford Substation and Site compound3B	Medium – Parish Rhyne	Sandford Substation and Site compound3B	Diversion of Parish Rhyne	Permanent alteration in channel, potential to effect flood risk and water quality	Construction and operational phase – Permanent change	High adverse	Major adverse	Highly likely	Permanent alteration in channel	Major adverse	Hydraulic modelling to ensure proposed routing of Rhyne can convey existing flows and seek enhancement to ecological quality of the watercourse. Will require IDB and EA Consent; Water Framework Directive Assessment	Minor adverse/ Minor Beneficial
Sandford Substation and Site compound3B	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Vehicle washing	Washing of large amounts of effluent into surrounding ditches	Temporary- Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Dependent on number of vehicles washed and time frame undertaken; Watercourses in the area predominantly small field drains and ditches with low flow and no ecological designation; Any pollution would most likely remain in the receptor ditches due to the low flow	Minor adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substance, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible
Sandford Substation and Site compound3B	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Vehicle washing	Washing of small amounts of effluent into surrounding ditches	Temporary- Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Dependent on number of vehicles washed and time frame undertaken; Watercourses in the area predominantly small field drains and ditches with low flow and no ecological designation; Any pollution would most likely remain in the receptor ditches due to the low flow	Minor adverse	CEMP guidelines relating to wheel washing and discharge; Incident response planning (including identification of hazardous substance, potential pathways e.g. drains and cable tunnels and potential receptors.	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Sandford Substation and Site compound3B	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	On site storage of fuels and oils	Failure of holding structures and discharge into surrounding ditches	Temporary- Temporary - Construction Phase	High adverse	Moderate adverse	Likely	Dependent on volume of fuel and oil which is discharged into surrounding ditches; Failure of structures would result in substantial volume of fuels and oils discharging into the surrounding drains and ditches; The surrounding watercourses are small field drains and ditches with low flow and no ecological designation, therefore any spillages of fuels and oils would likely be contained within an area close to the laydown area, however there is potential for flow into the Lox Yeo; total failure of storage structures is highly unlikely	Moderate adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Sandford Substation and Site compound3B	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	On site soil storage	Soil mobilisation towards surrounding watercourses, settlement within low flow watercourse	Temporary- Temporary - Construction Phase	Medium adverse	Minor adverse	Likely	Dependent on the mass of mobilised materials and potential contaminants contained within; The surrounding watercourses are low flow ditches which would lead to quick settlement on the beds and the banks of the ditches and little transport away from the site, with potential significant impacts on the aquatic flora and fauna;	Minor adverse	CEMP guidelines for correct stockpiling of spoil; Incident response to deal with any ingress of water into the compound which could mobilised significant volumes of spoil; Bunding to keep construction area free from potential flooding	Negligible
Sandford Substation and Site compound3B	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Sandford Substation and Site compound3B	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Sandford Substation and Site compound3B	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Sandford Substation and Site compound3B	Low (only small drains and ditches in the area, water quality has is not classified under the WFD status)	Laydown area	Stationary vehicles and plant	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	CEMP guidelines relating to appropriate storage of fuels and oils specified bunding and fuel and oil interceptors; Incident response planning	Negligible
Sandford Substation to Congresbury Yeo	Low (Water Quality not assessed under the WFD)	400kV OHL; F Route removal, access; AT 132kV removal, culverts, new AT route	Haul Road and removal of F and AT route, Construction of 400kV OHL (T Pylon) including culverted access crossings AT30-CR01.03; AT28R-CR01-05; LD39-CR19, LD39-CR01, LD53-CR01-03	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Sandford Substation to Congressbury Yeo	Low (Water Quality not assessed under the WFD)	400kV OHL; F Route removal, access; AT 132kV removal, culverts, new AT route	Haul Road and removal of F and AT route, Construction of 400kV OHL (T Pylon) including culverted access crossings AT30-CR01.03; AT28R-CR01-05; LD39-CR19, LD39-CR01, LD53-CR01-03	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Sandford Substation to Congressbury Yeo	Low (Water Quality not assessed under the WFD)	400kV OHL; F Route removal, access; AT 132kV removal, culverts, new AT route	Haul Road and removal of F and AT route, Construction of 400kV OHL (T Pylon) including culverted access crossings AT30-CR01.03; AT28R-CR01-05; LD39-CR19, LD39-CR01, LD53-CR01-03	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Sandford Substation to Congressbury Yeo	Low (Water Quality not assessed under the WFD)	400kV OHL; F Route removal, access; AT 132kV removal, culverts, new AT route	Haul Road and removal of F and AT route, Construction of 400kV OHL (T Pylon) including culverted access crossings AT30-CR01.03; AT28R-CR01-05; LD39-CR19, LD39-CR01, LD53-CR01-03	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Sandford Substation to Congressbury Yeo	Low (Water Quality not assessed under the WFD)	400kV OHL; F Route removal, access; AT 132kV removal, culverts, new AT route	Haul Road and removal of F and AT route, Construction of 400kV OHL (T Pylon) including culverted access crossings AT30-CR01.03; AT28R-CR01-05; LD39-CR19, LD39-CR01, LD53-CR01-03	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Sandford Substation to Congressbury Yeo	Low (Water Quality not assessed under the WFD)	400kV OHL; F Route removal, access; AT 132kV removal, culverts, new AT route	Haul Road and removal of F and AT route, Construction of 400kV OHL (T Pylon) including culverted access crossings AT30-CR01.03; AT28R-CR01-05; LD39-CR19, LD39-CR01, LD53-CR01-03	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Sandford Substation to Congressbury Yeo	High- SSSI status of Puxton Moor SSSI (Water Quality not assessed under the WFD)	400kV OHL; F Route removal; AT removal, crossings	Haul Road and removal of F and AT route, Construction of 400kV OHL pylons LD39- LD53	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (ditches and drains) low flow; SSSI designation	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Sandford Substation to Congressbury Yeo	High- SSSI status of Puxton Moor SSSI (Water Quality not assessed under the WFD)	400kV OHL; F Route removal; AT removal, crossings	Haul Road and removal of F and AT route, Construction of 400kV OHL pylons LD39- LD53	Small increase in Sediment Laden Runoff (Suspended solids)	Temporary - Construction Phase	Low adverse	Moderate adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourse (approx 8m width) with low flow; Distance to watercourse	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Sandford Substation to Congressbury Yeo	High- SSSI status of Puxton Moor SSSI (Water Quality not assessed under the WFD)	400kV OHL; F Route removal; AT removal, crossings	Haul Road and removal of F and AT route, Construction of 400kV OHL pylons LD39- LD53	Increase in soil leachate	Temporary - Construction Phase	Low adverse	Moderate adverse	Low likelihood	Low levels of leachate; Low flow watercourse will not aid dilution and dispersal; SSSI	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Sandford Substation to Congressbury Yeo	High- SSSI status of Puxton Moor SSSI (Water Quality not assessed under the WFD)	400kV OHL; F Route removal; AT removal, crossings	Haul Road and removal of F and AT route, Construction of 400kV OHL pylons LD39- LD53	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution; SSSI designation	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Sandford Substation to Congressbury Yeo	High- SSSI status of Puxton Moor SSSI (Water Quality not assessed under the WFD)	400kV OHL; F Route removal; AT removal, crossings	Haul Road and removal of F and AT route, Construction of 400kV OHL pylons LD39- LD53	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages; SSSI designation	Major adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Sandford Substation to Congresbury Yeo	High- SSSI status of Puxton Moor SSSI (Water Quality not assessed under the WFD)	400kV OHL; F Route removal; AT removal, crossings	Haul Road and removal of F and AT route, Construction of 400kV OHL pylons LD39- LD53	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed; SSSI designation	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Sandford Substation to Congresbury Yeo	High- SSSI status of Puxton Moor SSSI (Water Quality not assessed under the WFD)	400kV OHL; F Route removal; crossings	Haul Road and removal of F and AT route, Construction of 400kV OHL pylons LD39- LD53	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood; SSSI designation	Major adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Congresbury Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD52-53	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Congresbury Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD52-53	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Congresbury Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD52-53	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Larger watercourse (approx 10m width) with higher flow will aid dilution and dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Congresbury Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD52-53	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Larger watercourse (approx 10m width) with higher flow will aid dilution and dispersal; lower significance but higher likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Congresbury Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD52-53	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Congresbury Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD52-53	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	High- SSSI status of Biddle Street Yatton SSSI (Water Quality not assessed under the WFD)	400kV OHL; AT route, N Route, F Route removal, access roads	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access points; LD62- CR05 & 06	Large increase in Sediment Laden Runoff (Suspended solids)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (ditches and drains) low flow; SSSI designation	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	High- SSSI status of Biddle Street Yatton SSSI (Water Quality not assessed under the WFD)	400kV OHL; AT route, N Route, F Route removal, access roads	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access points; LD62- CR05 & 06	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Moderate adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourse (approx 8m width) with low flow; Distance to watercourse	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	High- SSSI status of Biddle Street Yatton SSSI (Water Quality not assessed under the WFD)	400kV OHL; AT route, N Route, F Route removal, access roads	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access points; LD62- CR05 & 06	Increase in soil leachate	Temporary - Construction Phase	Low adverse	Moderate adverse	Low likelihood	Low levels of leachate; Low flow watercourse will not aid dilution and dispersal; SSSI	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	High- SSSI status of Biddle Street Yatton SSSI (Water Quality not assessed under the WFD)	400kV OHL; AT route, N Route, F Route removal, access roads	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access points; LD62- CR05 & 06	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution; SSSI designation	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Congresbury Yeo to Kenn Moor Road	High- SSSI status of Biddle Street Yatton SSSI (Water Quality not assessed under the WFD)	400kV OHL; AT route, N Route, F Route removal, access roads	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access points; LD62-CR05 & 06	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages; SSSI designation	Major adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	High- SSSI status of Biddle Street Yatton SSSI (Water Quality not assessed under the WFD)	400kV OHL; AT route, N Route, F Route removal, access roads	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access points; LD62-CR05 & 06	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed; SSSI designation	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	High- SSSI status of Biddle Street Yatton SSSI (Water Quality not assessed under the WFD)	400kV OHL; AT route, N Route, F Route removal, access roads	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access points; LD62-CR05 & 06	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood; SSSI designation	Major adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	Low (water quality not assessed under WFD)	400kV OHL; F Route removal; access rods including culverts	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access crossings; LD54-CR17; LD54-CR01; LD62-CR05; LD62-CR01	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	Low (water quality not assessed under WFD)	400kV OHL; F Route removal; access rods including culverts	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access crossings; LD54-CR17; LD54-CR01; LD62-CR05; LD62-CR01	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	Low (water quality not assessed under WFD)	400kV OHL; F Route removal; access rods including culverts	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access crossings; LD54-CR17; LD54-CR01; LD62-CR05; LD62-CR01	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	Low (water quality not assessed under WFD)	400kV OHL; F Route removal; access rods including culverts	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access crossings; LD54-CR17; LD54-CR01; LD62-CR05; LD62-CR01	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	Low (water quality not assessed under WFD)	400kV OHL; F Route removal; access rods including culverts	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access crossings; LD54-CR17; LD54-CR01; LD62-CR05; LD62-CR01	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Congresbury Yeo to Kenn Moor Road	Low (water quality not assessed under WFD)	400kV OHL; F Route removal; access rods including culverts	Haul Road and removal of F Route, Construction of 400kV OHL (T Pylon) including culverted access crossings; LD54-CR17; LD54-CR01; LD62-CR05; LD62-CR01	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	High- Water Quality assessed as Good for Black Ditch Rhyme and the River Kenn under the WFD and due to SSSI status of Tickenham, Nailsea and Kenn Moor SSSI	400kV OHL; access roads including culverts	Haul Road and removal of F and W Route, W Route undergrounding;	Large increase in Sediment Laden Runoff (Suspended solids)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds the low flow watercourses (Blackditch Rhyme approx 8m); and be more disburbed but diluted in the higher flows of the River Kenn (approx 13m width)	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Kenn Moor Road to Land Yeo to north of Nailsea	High- Water Quality assessed as Good for Black Ditch Rhine and the River Kenn under the WFD and due to SSSI status of Tickenham, Nailsea and Kenn Moor SSSI	400kV OHL; access roads including culverts	Haul Road and removal of F and W Route, W Route undergridding;	Small increase in Sediment Laden Runoff (Suspended solids)	Temporary - Construction Phase	Low adverse	Moderate adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on beds the low flow watercourses (Blackditch Rhine approx 8m); and be more dispersed but diluted in the higher flows of the River Kenn (approx 13m width)	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	High- Water Quality assessed as Good for Black Ditch Rhine and the River Kenn under the WFD and due to SSSI status of Tickenham, Nailsea and Kenn Moor SSSI	400kV OHL; access roads including culverts	Construction of 400kV OHL (T Pylon) including culverted access crossings LD70 CR01- LD70 CR014 LD74 CR01- LD74 CR11 LD76 CR01- LD70 CR02 W Route CR 01- W Route CR 07	Large increase in Sediment Laden Runoff (Suspended solids)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds the low flow watercourses (Blackditch Rhine approx 8m); and be more dispersed but diluted in the higher flows of the River Kenn (approx 13m width)	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	High- Water Quality assessed as Good for Black Ditch Rhine and the River Kenn under the WFD and due to SSSI status of Tickenham, Nailsea and Kenn Moor SSSI	400kV OHL; access roads including culverts	Construction of 400kV OHL (T Pylon) including culverted access crossings LD70 CR01- LD70 CR014 LD74 CR01- LD74 CR11 LD76 CR01- LD70 CR02 W Route CR 01- W Route CR 08	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on beds the low flow watercourses (Blackditch Rhine approx 8m); and be more dispersed but diluted in the higher flows of the River Kenn (approx 13m width)	Major adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	High- Water Quality assessed as Good for Black Ditch Rhine and the River Kenn under the WFD and due to SSSI status of Tickenham, Nailsea and Kenn Moor SSSI	400kV OHL; access roads including culverts	Construction of 400kV OHL (T Pylon) including culverted access crossings LD70 CR01- LD70 CR014 LD74 CR01- LD74 CR11 LD76 CR01- LD70 CR02 W Route CR 01- W Route CR 08	Increase in soil leachate	Temporary - Construction Phase	Low adverse	Moderate adverse	Low likelihood	Low levels of leachate; Low flow the low flow watercourses (Blackditch Rhine approx 8m) will not aid dilution and dispersal and be more dispersed but diluted in the higher flows of the River Kenn (approx 13m width)	Minor adverse	Source control measures, settlement lagoons; Bunds; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	High- Water Quality assessed as Good for Black Ditch Rhine and the River Kenn under the WFD and due to SSSI status of Tickenham, Nailsea and Kenn Moor SSSI	400kV OHL; access roads including culverts	Construction of 400kV OHL (T Pylon) including culverted access crossings LD70 CR01- LD70 CR014 LD74 CR01- LD74 CR11 LD76 CR01- LD70 CR02 W Route CR 01- W Route CR 08	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow (Blackditch Rhine approx 8m) will not aid dilution and dispersal and be more dispersed but diluted in the higher flows of the River Kenn (approx 13m width)	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	High- Water Quality assessed as Good for Black Ditch Rhine and the River Kenn under the WFD and due to SSSI status of Tickenham, Nailsea and Kenn Moor SSSI	400kV OHL; access roads including culverts	Construction of 400kV OHL (T Pylon) including culverted access crossings LD70 CR01- LD70 CR014 LD74 CR01- LD74 CR11 LD76 CR01- LD70 CR02 W Route CR 01- W Route CR 08	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Harmful chemical compound; Small watercourse with low flow (Blackditch Rhine approx 8m) will not aid dilution and dispersal and be more dispersed but diluted in the higher flows of the River Kenn (approx 13m width)	Major adverse	Source control measures, settlement lagoons;	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	High- Water Quality assessed as Good for Black Ditch Rhine and the River Kenn under the WFD and due to SSSI status of Tickenham, Nailsea and Kenn Moor SSSI	400kV OHL; access roads including culverts	Construction of 400kV OHL (T Pylon) including culverted access crossings LD70 CR01- LD70 CR014 LD74 CR01- LD74 CR11 LD76 CR01- LD70 CR02 W Route CR 01- W Route CR 08	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Low flow watercourse (Blackditch Rhine approx 8m) will not aid dilution and dispersal and be more dispersed but diluted in the higher flows of the River Kenn (approx 13m width)	Moderate adverse	Source control measures, settlement lagoons;	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	High- Water Quality assessed as Good for Black Ditch Rhine and the River Kenn under the WFD and due to SSSI status of Tickenham, Nailsea and Kenn Moor SSSI	400kV OHL; access roads including culverts	Construction of 400kV OHL (T Pylon) including culverted access crossings LD70 CR01- LD70 CR014 LD74 CR01- LD74 CR11 LD76 CR01- LD70 CR02 W Route CR 01- W Route CR 08	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Harmful chemical compound; Low flow watercourse (Blackditch Rhine approx 8m) will not aid dilution and dispersal and be more dispersed but diluted in the higher flows of the River Kenn (approx 13m width)	Major adverse	Source control measures, settlement lagoons;	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Construction working areas; Haul road;	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. SSSI designation	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Construction working areas; Haul road;	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. SSSI designation	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Construction working areas; Haul road;	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution; SSSI designation	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Construction working areas; Haul road;	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages; SSSI designation	Major adverse	Source control measures, settlement lagoons;	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Excavated areas and materials; Topsoil and subsoil stockpiles	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. SSSI designation	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Excavated areas and materials; Topsoil and subsoil stockpiles	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Highly likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. Higher likelihood due to extent of excavations and groundworks. SSSI designation	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Construction working areas; Haul road	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed; SSSI designation	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Construction working areas; Haul road	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood; SSSI designation	Major adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Construction Areas (stationary vehicles)	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed; SSSI designation	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Construction Areas (stationary vehicles)	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood; SSSI designation	Major adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Working areas, trenches and access	Interruption of flow in drains and ditches	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Typically only small, shallow ditches; During construction flows in ditches may need to be diverted, flumed or stored and infiltrated to ground	Moderate adverse	Over pumping; Temporary culvert; Ditch diversion; Interceptor trenches; Diversion of flows upstream of crossing; Strengthening of ditches to protected underlying cable route; CEMP guidelines	Minor adverse
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Working areas and trenches	Dewatering / contamination of pond features	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Supply to ponds could be impeded either through modifications to overland flow, or to groundwater ingress	Minor adverse	Avoid pond locations; Relocation of pond if flows are to be affected; Management of incoming water flows into the 'old' pond with need diverting to new pond	Minor adverse
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Working areas and trenches	Interruption of land drainage network	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Location and number of land drains is difficult to assess; Pipes causing an obstacle will need to be severed and diverted; Underground cable route generally constructed at lower depth than the field drainage network.	Moderate adverse	Temporary fluming and / or diverting of land drainage pipes; Reinstated land drainage pipes after construction of underground section	Minor adverse (interruption to network) Minor Beneficial (reinstatement of lost drains)
Kenn Moor Road to Land Yeo to north of Nailsea	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV undergrounding	Working areas and trenches	Interruption of sewer network of Blackfriars Road and Queens Road	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Disruption to sewer network could have implications on West Nailsea	Moderate adverse	CEMP guidelines, utilities records to be used to highlight location of services	Minor adverse
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	Construction working areas; Haul road	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Minor adverse	CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	Construction working areas; Haul road	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Minor adverse	CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	HDD under Land Yeo	Accidental discharge of HDD slurry	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Highly concentrated suspended solids in HDD slurry. If pathway to watercourse found in ground, would cause significant increase in sediment load in river without 'benefit' of increased flow ad dilution would get in wet weather.	Moderate adverse	Construction method statements and CEMP	Negligible
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	Construction working areas; Haul road;	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Larger watercourse (approx 15m width) with higher flow will aid dilution and dispersal	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	Construction working areas; Haul road;	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Larger watercourse (approx 15m width) with higher flow will aid dilution and dispersal; lower significance but higher likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	Excavated areas and materials; Topsoil and subsoil stockpiles	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow.	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	Excavated areas and materials; Topsoil and subsoil stockpiles	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Highly likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches) with low flow. Higher likelihood due to extent of excavations and groundworks	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	Construction working areas; Haul road	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	Construction working areas; Haul road	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	Construction Areas (stationary vehicles)	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality in accordance with WFD Moderate Ecological Status)	W Route 132kV undergrounding	Construction Areas (stationary vehicles)	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD80-81	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD80-81	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD80-81	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Larger watercourse (approx 10m width) with higher flow will aid dilution and dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD80-81	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Larger watercourse (approx 10m width) with higher flow will aid dilution and dispersal; lower significance but higher likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD80-81	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Land Yeo	Medium (Water Quality assessed as Moderate ecological under the WFD)	400kV OHL; F Route removal, access;	Haul Road and removal of F, Construction of 400kV OHL pylons LD80-81	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Area around Churchill Substation	Drainage Ditch located to the east of the substation around Y01R; low sensitivity (water quality not assessed under WFD).	Working area 4L and associated works around Churchill Substation	Access road and extension of existing substation site incorporating associated cable connections	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Area around Churchill Substation	Drainage Ditch located to the east of the substation around Y01R; low sensitivity (water quality not assessed under WFD).	Working area 4L and associated works around Churchill Substation	Access road and extension of existing substation site incorporating associated cable connections	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Area around Churchill Substation	Drainage Ditch located to the east of the substation around Y01R; low sensitivity (water quality not assessed under WFD).	Working area 4L and associated works around Churchill Substation	Access road and extension of existing substation site incorporating associated cable connections	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Area around Churchill Substation	Drainage Ditch located to the east of the substation around Y01R; low sensitivity (water quality not assessed under WFD).	Working area 4L and associated works around Churchill Substation	Access road and extension of existing substation site incorporating associated cable connections	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Area around Churchill Substation	Drainage Ditch located to the east of the substation around Y01R; low sensitivity (water quality not assessed under WFD).	Working area 4L and associated works around Churchill Substation	Access road and extension of existing substation site incorporating associated cable connections	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Area around Churchill Substation	Drainage Ditch located to the east of the substation around Y01R; low sensitivity (water quality not assessed under WFD).	Working area 4L and associated works around Churchill Substation	Access road and extension of existing substation site incorporating associated cable connections	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Land to the North of M5 to Portishead Substation	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV Underground cables	Working areas, trenches and access	Interruption of flow in drains and ditches	Temporary - Construction Phase	Medium adverse	Moderate adverse	Highly likely	Typically only small, shallow ditches; During construction flows in ditches may need to be diverted, flumed or stored and infiltrated to ground	Major adverse	Over pumping; Temporary culvert; Ditch diversion; Interceptor trenches; Diversion of flows upstream of crossing; Strengthening of ditches to protected underlying cable route; CEMP guidelines	Minor adverse
Land to the North of M5 to Portishead Substation	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV Underground cables	Working areas, trenches and access	Dewatering / contamination of pond features	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Supply to ponds could be impeded either through modifications to overland flow, or to groundwater ingress	Moderate adverse	Avoid pond locations; Relocation of pond if flows are to be affected; Management of incoming water flows into the 'old' pond with need diverting to new pond	Minor adverse
Land to the North of M5 to Portishead Substation	Medium (hydrological regime including existing flow conveyance routes, land drains and other existing surface water features)	W Route 132kV Underground cables	Working areas, trenches and access	Interruption of land drainage network	Temporary - Construction Phase	Medium adverse	Moderate adverse	Highly likely	Location and number of land drains is difficult to assess, Pipes causing an obstacle will need to be severed and diverted; Underground cable route generally constructed at lower depth than the field drainage network.	Major adverse	Temporary fluming and / or diverting of land drainage pipes; Reinstated land drainage pipes after construction of underground section	Minor adverse (interruption to network) Minor Beneficial (reinstatement of lost drains)

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route and Construction of 400kV OHL (Option A) including minor works at existing Portishead Substation.	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD-97 to LD-99, including foundation and crane pads; culverts: LD95-CR01 and LD96-CR01	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 10m width) with flow will aid dilution;	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route and Construction of 400kV OHL (Option A) including minor works at existing Portishead Substation.	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD-97 to LD-99 including foundation and crane pads; culverts: LD95-CR01 and LD96-CR01	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route and Construction of 400kV OHL (Option A) including minor works at existing Portishead Substation.	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD-97 to LD-99 including foundation and crane pads; culverts: LD95-CR01 and LD96-CR01	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Larger watercourse (approx 10m width) with higher flow will aid dilution and dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route and Construction of 400kV OHL (Option A) including minor works at existing Portishead Substation.	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD-97 to LD-99 including foundation and crane pads; culverts: LD95-CR01 and LD96-CR01	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Larger watercourse (approx 10m width) with higher flow will aid dilution and dispersal; lower significance but higher likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route and Construction of 400kV OHL (Option A) including minor works at existing Portishead Substation.	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD-97 to LD-99 including foundation and crane pads; culverts: LD95-CR01 and LD96-CR01	Large spillages of Cements and other construction materials including fuels and oils	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route and Construction of 400kV OHL (Option A) including minor works at existing Portishead Substation.	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD-97 to LD-99 including foundation and crane pads; culverts: LD95-CR01 and LD96-CR01	Small spillages of Cements and other construction materials including fuels and oils	Temporary - Construction Phase	low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route.; W Route undergrounding Access and Haul roads. Construction of Pylons P-LD95 and P-LD96 including foundation and crane pads	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 10m width) with flow will aid dilution;	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route.; W Route undergrounding Access and Haul roads. Construction of Pylons P-LD95 and P-LD96 including foundation and crane pads	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 15m width) with flow will aid dilution;	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	HDD under Portbury Ditch	Accidental discharge of HDD slurry	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Highly concentrated suspended solids in HDD slurry. If pathway to watercourse found in ground, would cause significant increase in sediment load in river without 'benefit' of increased flow ad dilution would get in wet weather.	Moderate adverse	Construction method statements and CEMP	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route.; W Route undergrounding Access and Haul roads. Construction of Pylons P-LD95 and P-LD96 including foundation and crane pads	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Larger watercourse (approx 10m width) with higher flow will aid dilution and dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route.; W Route undergrounding Access and Haul roads. Construction of Pylons P-LD95 and P-LD96 including foundation and crane pads	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Larger watercourse (approx 10m width) with higher flow will aid dilution and dispersal; lower significance but higher likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route.; W Route undergrounding Access and Haul roads. Construction of Pylons P-LD95 and P-LD96 including foundation and crane pads	Large spillages of Cements and other construction materials including fuels and oils	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Ditch	Medium (Water Quality assessed as Moderate ecological under the WFD)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route.; W Route undergrounding Access and Haul roads. Construction of Pylons P-LD95 and P-LD96 including foundation and crane pads	Small spillages of Cements and other construction materials including fuels and oils	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Minor adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Wharf Nature Reserve	Medium (SNCI)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route; Undergrounding of W Route Access and Haul roads. Construction of Pylons ; P-LD97 and 98 including foundation and crane pads	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (ditches and drains) low flow; SNCI designation	Moderate adverse	Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Wharf Nature Reserve	Medium (SNCI)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route; Undergrounding of W Route Access and Haul roads. Construction of Pylons ; P-LD98 and 99 including foundation and crane pads	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses with low flow; SNCI designation	Moderate adverse	Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Wharf Nature Reserve	Medium (SNCI)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	HDD under Portbury Nature Reserve	Accidental discharge of HDD slurry	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Highly concentrated suspended solids in HDD slurry. If pathway to watercourse found in ground, would cause significant increase in sediment load in river without 'benefit' of increased flow as dilution would get in wet weather.	Moderate adverse	Construction method statements and CEMP	Negligible
Portbury Wharf Nature Reserve	Medium (SNCI)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route; Undergrounding of W Route Access and Haul roads. Construction of Pylons ; P-LD98 and 99 including foundation and crane pads	Small increase in soil leachate	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low levels of leachate; Low flow watercourse will not aid dilution and dispersal; SNCI	Minor adverse	Source control measures, settlement lagoons, CEMP guidelines	Negligible
Portbury Wharf Nature Reserve	Medium (SNCI)	Access roads Removal of F Route, W Route , undergrounding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route; Undergrounding of W Route Access and Haul roads. Construction of Pylons ; P-LD98 and 99 including foundation and crane pads	Large spillages of miscible / immiscible substance	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution; SNCI designation	Moderate adverse	Source control measures, settlement lagoons, CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Portbury Wharf Nature Reserve	Medium (SNCI)	Access roads Removal of F Route, W Route , undergirding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route; Undergirding of W Route Access and Haul roads. Construction of Pylons ; P-LD98 and 99 including foundation and crane pads	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages; SNCI designation	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Portbury Wharf Nature Reserve	Medium (SNCI)	Access roads Removal of F Route, W Route , undergirding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route; Undergirding of W Route Access and Haul roads. Construction of Pylons ; P-LD98 and 99 including foundation and crane pads	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed; SNCI designation	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Portbury Wharf Nature Reserve	Medium (SNCI)	Access roads Removal of F Route, W Route , undergirding of W Route and Construction of 400kV OHL (Option B)	Scaffolding associated with the removal of the F and W Route; Undergirding of W Route Access and Haul roads. Construction of Pylons ; P-LD97 and 98 including foundation and crane pads	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Medium adverse	Moderate adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood; SNCI designation	Moderate adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
M5 to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option A)	Access and Haul roads. Construction of Pylons LD99-LD106 (Option A) including foundation and crane pads	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
M5 to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option A)	Access and Haul roads. Construction of Pylons LD99-LD106 (Option A) including foundation and crane pads	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
M5 to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option A)	Access and Haul roads. Construction of Pylons LD99-LD106 (Option A) including foundation and crane pads	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
M5 to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option A)	Access and Haul roads. Construction of Pylons LD99-LD106 (Option A) including foundation and crane pads	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
M5 to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option A)	Access and Haul roads. Construction of Pylons LD99-LD106 (Option A) including foundation and crane pads	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
M5 to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option A)	Access and Haul roads. Construction of Pylons LD99-LD106 (Option A) including foundation and crane pads	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Portishead Substation to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option B)	Access and Haul roads. Construction of Pylons P-LD102A-LD106 (Option B) including foundation and crane pads	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Portishead Substation to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option B)	Access and Haul roads. Construction of Pylons P-LD102A-LD106 (Option B) including foundation and crane pads	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Portishead Substation to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option B)	Access and Haul roads. Construction of Pylons P-LD102A-LD106 (Option B) including foundation and crane pads	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Portishead Substation to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option B)	Access and Haul roads. Construction of Pylons P-LD102A-LD106 (Option B) including foundation and crane pads	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Portishead Substation to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option B)	Access and Haul roads. Construction of Pylons P-LD102A-LD106 and LD107 (Option B) including foundation and crane pads	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Portishead Substation to Marsh Lane (Portbury Docks)	Low (water quality not assessed under WFD)	Construction of 400kV OHL (Option B)	Access and Haul roads. Construction of Pylons P-LD102A-LD106 (Option B) including foundation and crane pads	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Easton in Gordano Stream (Drove Rhyne to West Bank of River Avon)	High (water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Access and Haul roads. Construction of Pylons LD106 and LD107 including foundation and crane pads	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Moderate flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, Moderate sized watercourse in close proximity to outfall to the Bristol Avon	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Easton in Gordano Stream (Drove Rhyne to West Bank of River Avon)	High (water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Access and Haul roads. Construction of Pylons LD106 and LD107 including foundation and crane pads	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Moderate adverse	Likely	Moderate flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, Moderate sized watercourse in close proximity to outfall to the Bristol Avon	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Easton in Gordano Stream (Drove Rhyne to West Bank of River Avon)	High (water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Access and Haul roads. Construction of Pylons LD106 and LD107 including foundation and crane pads	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Moderate flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, Moderate sized watercourse in close proximity to outfall to the Bristol Avon	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Easton in Gordano Stream (Drove Rhyne to West Bank of River Avon)	High (water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Access and Haul roads. Construction of Pylons LD106 and LD107 including foundation and crane pads	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Moderate flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, Moderate sized watercourse in close proximity to outfall to the Bristol Avon	Major adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Easton in Gordano Stream (Drove Rhyne to West Bank of River Avon)	High (water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Access and Haul roads. Construction of Pylons LD106 and LD107 including foundation and crane pads	Large spillages of Cements and other construction materials including fuels and oils	Temporary - Construction Phase	High adverse	Major adverse	Low likelihood	Moderate flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, Moderate sized watercourse in close proximity to outfall to the Bristol Avon	Moderate adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Easton in Gordano Stream (Drove Rhyne to West Bank of River Avon)	High (water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Access and Haul roads. Construction of Pylons LD106 and LD107 including foundation and crane pads	Small spillages of Cements and other construction materials including fuels and oils	Temporary - Construction Phase	Medium adverse	Major adverse	Likely	Moderate flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, Moderate sized watercourse in close proximity to outfall to the Bristol Avon	Major adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
River (Bristol) Avon	High (Water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD107, and LD108 including foundation and crane pads	Large spillages of miscible substances	Temporary - Construction Phase	Medium adverse	Major adverse	Low likelihood	Harmful chemical compound; Flow in watercourse (approx 170m width) will aid dilution and dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
River (Bristol) Avon	High (Water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD107, and LD108 including foundation and crane pads	Small spillages of miscible substances	Temporary - Construction Phase	Negligible adverse	Negligible adverse	Likely	Harmful chemical compound; Flow in watercourse (approx 170m width) will aid dilution and dispersal	Negligible	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
River (Bristol) Avon	High (Water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD107, and LD108 including foundation and crane pads	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Major adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 170m width) with flow will aid dilution;	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
River (Bristol) Avon	High (Water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Pylons LD107, and LD108 including foundation and crane pads	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Negligible adverse	Negligible adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Larger Watercourse (approx 170m width) with flow will aid dilution;	Negligible	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
River (Bristol) Avon	High (Water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD107, and LD108 including foundation and crane pads	Large spillages of Cements and other construction materials	Temporary - Construction Phase	Medium adverse	Major adverse	Low likelihood	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
River (Bristol) Avon	High (Water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD107, and LD108 including foundation and crane pads	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Negligible adverse	Negligible adverse	Likely	Higher flow of receptors; fresh concrete highly alkaline and corrosive heavy solid less likely settle on bed without dilution or dispersal increased likelihood of small scale spillages	Negligible	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
River (Bristol) Avon	High (Water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD107, and LD108 including foundation and crane pads	Large spillages of immiscible fuels, oil and lubricants from stationary vehicles and machinery	Temporary - Construction Phase	Medium adverse	Major adverse	Low likelihood	High flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column.	Moderate adverse	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
River (Bristol) Avon	High (Water quality assessed as Good ecological status under the WFD)	Construction of 400kV OHL; removal of F Route	Scaffolding associated with the removal of the F and W Route. Access and Haul roads. Construction of Pylons LD103, 104 and 104a including	Small spillages of immiscible fuels, oil and lubricants from stationary vehicles and machinery	Temporary - Construction Phase	Negligible adverse	Negligible adverse	Likely	High flow of receptors; highly pollutant; likely to float on water in the first instance. Only when (eventually) start to degrade as they move through water column. Moderate	Negligible	Bunded areas, Source control measures, settlement lagoons, CEMP guidelines	Negligible
Royal Edward Dock and Avonmouth Docks	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Minor adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons, CEMP guidelines	Negligible
Royal Edward Dock and Avonmouth Docks	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons, CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Royal Edward Dock and Avonmouth Docks	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Royal Edward Dock and Avonmouth Docks	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Royal Edward Dock and Avonmouth Docks	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Royal Edward Dock and Avonmouth Docks	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Royal Edward Docks to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Minor adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Royal Edward Docks to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Royal Edward Docks to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Royal Edward Docks to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from Royal Edward Docks to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Construction of 400kV OHL	Access and Haul roads. Construction of Pylons LD109-LD112 including foundation and crane pads	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from River Avon to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Removal of 132kV F Route	Access and working areas	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Minor adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Hydrological features from River Avon to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Removal of 132kV F Route	Access and working areas	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from River Avon to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Removal of 132kV F Route	Access and working areas	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from River Avon to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Removal of 132kV F Route	Access and working areas	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from River Avon to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Removal of 132kV F Route	Access and working areas	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from River Avon to New Rhine (off Avonmouth Way)	Low (water quality not assessed under WFD)	Removal of 132kV F Route	Access and working areas	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in vicinity of Avonmouth Substation	Low (water quality not assessed under WFD)	Substation extension	Substation extension	Large spillages of Cements and other construction materials	Construction and Operational phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourses with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in vicinity of Avonmouth Substation	Low (water quality not assessed under WFD)	Substation extension	Substation extension	Small spillages of Cements and other construction materials	Construction and Operational phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourses inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in vicinity of Avonmouth Substation	Low (water quality not assessed under WFD)	Substation extension	Substation extension	Large spillages of immiscible fuels, oil and lubricants from stationary vehicles and machinery	Construction and Operational phase	High adverse	Moderate adverse	Low likelihood	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Drains in vicinity of Avonmouth Substation	Low (water quality not assessed under WFD)	Substation extension	Substation extension	Small spillages of immiscible fuels, oil and lubricants from stationary vehicles and machinery	Construction and Operational phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from New Rhine (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	400kV OHL construction and F Route 132kV removal	Access and Haul roads. Construction of Pylons LD120 - LD124 including foundation and crane pads; F Route removal	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Minor adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	400kV OHL construction and F Route 132kV removal	Access and Haul roads. Construction of Pylons LD120 - LD124 including foundation and crane pads; F Route removal	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	400kV OHL construction and F Route 132kV removal	Access and Haul roads. Construction of Pylons LD120 - LD124 including foundation and crane pads; F Route removal	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	400kV OHL construction and F Route 132kV removal	Access and Haul roads. Construction of Pylons LD120 - LD124 including foundation and crane pads; F Route removal	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	400kV OHL construction and F Route 132kV removal	Access and Haul roads. Construction of Pylons LD120 - LD124 including foundation and crane pads; F Route removal	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	400kV OHL construction and F Route 132kV removal	Access and Haul roads. Construction of Pylons LD120 - LD124 including foundation and crane pads; F Route removal	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	G Route 132kV undergrounding	Construction working areas; Haul road; excavated materials-Topsoil and subsoils stockpiles	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small Watercourses (drains and ditches)	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	G Route 132kV undergrounding	HDD under watercourses	Accidental discharge of HDD slurry	Temporary - Construction Phase	Medium adverse	Minor adverse	Low likelihood	Highly concentrated suspended solids in HDD slurry. If pathway to watercourse found in ground, would cause significant increase in sediment load in river without	Minor adverse	Construction method statements and CEMP	Negligible
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	G Route 132kV undergrounding	Construction working areas; Haul road; drilling equipment	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	G Route 132kV undergrounding	Construction working areas; Haul road; drilling equipment	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	G Route 132kV undergrounding	Construction working areas; Haul road; drilling equipment	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from New Rhyne (off Avonmouth Way) to M49 Railway Bridge	Low (water quality not assessed under WFD)	G Route 132kV undergrounding	Construction working areas; Haul road; drilling equipment	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Avonmouth Sewage Treatment Works	Medium (due to close proximity of underground cable route to the works)	132kV G Route undergrounding	Cable HDD	Interruption of sewer network	Temporary - Construction Phase	Medium adverse	Moderate adverse	Low likelihood	Works could disrupt the sewer network emerging from the Winscombe STW	Minor adverse	Construction method statements and CEMP; Incident response plan	Minor adverse
Hydrological features from the M49 Railway Bridge to Seabank Substation	Low (water quality not assessed under WFD)	400kV OHL construction	Access and Haul roads. Construction of Pylons LD125 - LD131 including foundation and crane pads	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Minor adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Hydrological features from the M49 Railway Bridge to Seabank Substation	Low (water quality not assessed under WFD)	400kV OHL construction	Access and Haul roads. Construction of Pylons LD125 - LD131 including foundation and crane pads	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from the M49 Railway Bridge to Seabank Substation	Low (water quality not assessed under WFD)	400kV OHL construction	Access and Haul roads. Construction of Pylons LD125 - LD131 including foundation and crane pads	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from the M49 Railway Bridge to Seabank Substation	Low (water quality not assessed under WFD)	400kV OHL construction	Access and Haul roads. Construction of Pylons LD125 - LD131 including foundation and crane pads	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from the M49 Railway Bridge to Seabank Substation	Low (water quality not assessed under WFD)	400kV OHL construction	Access and Haul roads. Construction of Pylons LD125 - LD131 including foundation and crane pads	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features from the M49 Railway Bridge to Seabank Substation	Low (water quality not assessed under WFD)	400kV OHL construction	Access and Haul roads. Construction of Pylons LD125 - LD131 including foundation and crane pads	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Seabank Substation-adjacent watercourses	Low (water quality not assessed under the WFD)	Substation extension	Substation extension	Large spillages of Cements and other construction materials	Construction and Operational phase	High adverse	Moderate adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourses with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Seabank Substation-adjacent watercourses	Low (water quality not assessed under the WFD)	Substation extension	Substation extension	Small spillages of Cements and other construction materials	Construction and Operational phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourses inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Seabank Substation-adjacent watercourses	Low (water quality not assessed under the WFD)	Substation extension	Substation extension	Large spillages of immiscible fuels, oil and lubricants from stationary vehicles and machinery	Construction and Operational phase	High adverse	Moderate adverse	Low likelihood	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Seabank Substation-adjacent watercourses	Low (water quality not assessed under the WFD)	Substation extension	Substation extension	Small spillages of immiscible fuels, oil and lubricants from stationary vehicles and machinery	Construction and Operational phase	Low adverse	Minor adverse	Likely	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Bunded areas, Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features at Hinkley Point	Low (water quality not assessed under the WFD)	400kV OHL line entry upgrading; Removal of 400kV OHL and 275kV OHL	Access and Haul roads. Construction of Pylons ZZ7 to ZZ1; VQ3A to VQ1; Removal of 400kV OHL and 275kV OHL	Large increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Medium adverse	Minor adverse	Low likelihood	Runoff with higher levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution;	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Description	Sensitivity	Proposed Development Component	Construction Activity	Effect	Duration	Magnitude	Significance (Sensitivity x Magnitude)	Likelihood	Reason for likelihood designation	Resulting Significance (Significance x likelihood)	Proposed Mitigation Measures	Significance of Expected Residual Effect
Hydrological features at Hinkley Point	Low (water quality not assessed under the WFD)	400kV OHL line entry upgrading; Removal of 400kV OHL and 275kV OHL	Access and Haul roads. Construction of Pylons ZZ7 to ZZ1; VQ3A to VQ1; Removal of 400kV OHL and 275kV OHL	Small increase in Sediment Laden Runoff (Concentrated solids and muds)	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Runoff with lower levels of concentrated / heavy soils could settle on bed of watercourse inhibiting growth on the beds; Small watercourse with low flow aids sedimentation; Little dilution or dissolution; short settlement time increases local impact	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features at Hinkley Point	Low (water quality not assessed under the WFD)	400kV OHL line entry upgrading; Removal of 400kV OHL and 275kV OHL	Access and Haul roads. Construction of Pylons ZZ7 to ZZ1; VQ3A to VQ1; Removal of 400kV OHL and 275kV OHL	Large spillages of miscible / immiscible substances	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features at Hinkley Point	Low (water quality not assessed under the WFD)	400kV OHL line entry upgrading; Removal of 400kV OHL and 275kV OHL	Access and Haul roads. Construction of Pylons ZZ7 to ZZ1; VQ3A to VQ1; Removal of 400kV OHL and 275kV OHL	Small spillages of miscible / immiscible substances	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Lower volumes of harmful chemical compound; Small watercourse with low flow would lead to less dispersion; Little dilution or dissolution, though an increased likelihood of small spillages	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features at Hinkley Point	Low (water quality not assessed under the WFD)	400kV OHL line entry upgrading; Removal of 400kV OHL and 275kV OHL	Access and Haul roads. Construction of Pylons ZZ7 to ZZ1; VQ3A to VQ1; Removal of 400kV OHL and 275kV OHL	Large spillages of Cements and other construction materials	Temporary - Construction Phase	High adverse	Moderate adverse	Low likelihood	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible
Hydrological features at Hinkley Point	Low (water quality not assessed under the WFD)	400kV OHL line entry upgrading; Removal of 400kV OHL and 275kV OHL	Access and Haul roads. Construction of Pylons ZZ7 to ZZ1; VQ3A to VQ1; Removal of 400kV OHL and 275kV OHL	Small spillages of Cements and other construction materials	Temporary - Construction Phase	Low adverse	Minor adverse	Likely	Low flow of receptors; fresh concrete highly alkaline and corrosive heavy solid will settle on bed, increased likelihood	Minor adverse	Source control measures, settlement lagoons; CEMP guidelines	Negligible

Appendix 10C – 400kV Underground Cables Hydrological Assessment



Hinkley to Avonmouth 400kV Underground Cable Transmission

Hydrological Assessment

August 2013

National Grid

Hinkley to Avonmouth 400kV Underground Cable Transmission

Hydrological Assessment

August 2013

National Grid

Issue and revision record

Revision	Date	Originator	Checker	Approver	Description	Standard
A	27 August 2013	S Gosling C Bolton	R Morris	J Weeks	First Issue	

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it..

Contents

Chapter	Title	Page
1	Introduction	1
1.1	Background	1
1.2	Aims	1
2	Existing Hydrology	2
2.1	Proposed Route Alignment	2
2.2	Watercourses	3
2.3	Ditches	6
2.4	Ponds	7
2.5	Springs	9
2.6	Topography and Overland Flow	9
2.7	Land Drainage	11
2.8	Groundwater Flooding	12
2.9	Fluvial Flooding	12
2.10	Other Features	13
2.11	Borehole Data	13
3	Constraints	14
3.1	Watercourses	14
3.2	Ditches	14
3.3	Ponds	15
3.4	Springs	15
3.5	Overland Flow	15
3.6	Land Drainage	16
3.7	Ground Water Flooding	16
3.8	Fluvial Flooding	16
3.9	Vegetation	17
3.10	Buried Structures	17
4	Proposed Mitigation	18
4.1	Construction Mitigation	18
4.1.1	Overland flows	18
4.1.2	Watercourses	18
4.1.3	Ditches	19
4.1.4	Ponds	19
4.1.5	Springs	19
4.1.6	Overland Flow	20
4.1.7	Land Drainage	20
4.1.8	Groundwater Flooding	20
4.1.9	Fluvial Flooding	20
4.1.10	Highway Crossings	21
4.2	Permanent Works Mitigation	21
4.2.1	Watercourses and Ditches	21

4.2.2	Ponds	21
4.2.3	Springs	21
4.2.4	Groundwater	21
4.2.5	Land Drainage	22
4.2.6	Fluvial and Overland Flooding	22
4.2.7	Buried Structures	22
5	Conclusion	23
6	References	24
Appendices		25
Appendix A. Scheme Drawings		26
Appendix B. Historical Borehole Logs		27

1 Introduction

1.1 Background

National Grid is proposing to install a 400,000 volt (400kV) electricity connection between Bridgwater and Seabank, near Avonmouth. Mott MacDonald Ltd has been commissioned by National Grid to provide a hydrological assessment for a 8km long proposed section of underground electricity cabling which crosses the Mendip Hills Area of Outstanding Natural Beauty (AONB).

The underground section of the 400kV route will link the new above ground cables south of Loxton in Somerset to a new substation being constructed north of Sandford in North Somerset. This area contains hydrological features which may be impacted during the construction and operation of the new underground connection.

Mott MacDonald undertook site walkover surveys along and adjacent to the proposed underground 400kV route on 2nd – 4th July and on 11th July 2013. An additional section known as the Bridgwater Tee was surveyed on 30th July 2013 and is located to the north-west of the town of Bridgwater.

1.2 Aims

This report outlines the identification, assessment and constraints of the hydrological features that are within the proposed 400kV corridor and outlines mitigation measures that can be implemented during construction and the longer term operation of the assets. The report provides an outline strategy for the mitigation measures and is not to be considered as a prescriptive design document. The following are therefore not considered:

- Geotechnical considerations and soil types;
- Ecological mitigation measures;
- Sites with historical or archaeological heritage;
- Consultation with landowners and other stakeholders.

2 Existing Hydrology

2.1 Proposed Route Alignment

The proposed underground cabling route runs across the Mendips Area of Outstanding Natural Beauty (AONB) from a compound north-west of Biddisham at approximate National Grid Reference (NGR) 337323 154278, 8km northeast to Sandford substation at approximate NGR ST 41575 60713.

The section known as the Bridgwater Tee is located approximately 11 miles to the south of the primary 400kV section. It is at approximately NGR 332019,139613, ST 32019 39613 and is approximately 750m long.

The proposed cable route is presented on drawings MMD-322069-C-DR-400UG-XX-1300 to MMD-322069-C-DR-400UG-XX-1303. Refer to Appendix A.

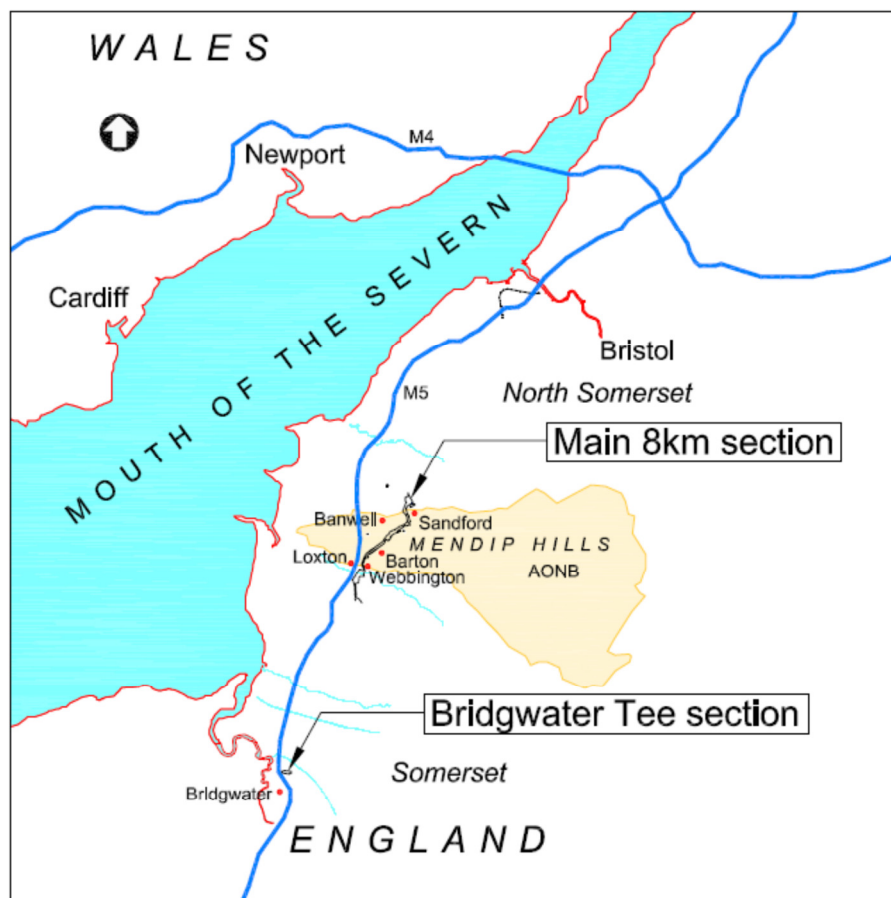


Figure 1 – Location of 400kV underground cable routes

2.2 Watercourses

The proposed underground cable route crosses the following watercourses:

- River Axe
- Lox Yeo River
- Old course of Lox Yeo River
- Towerhead Brook

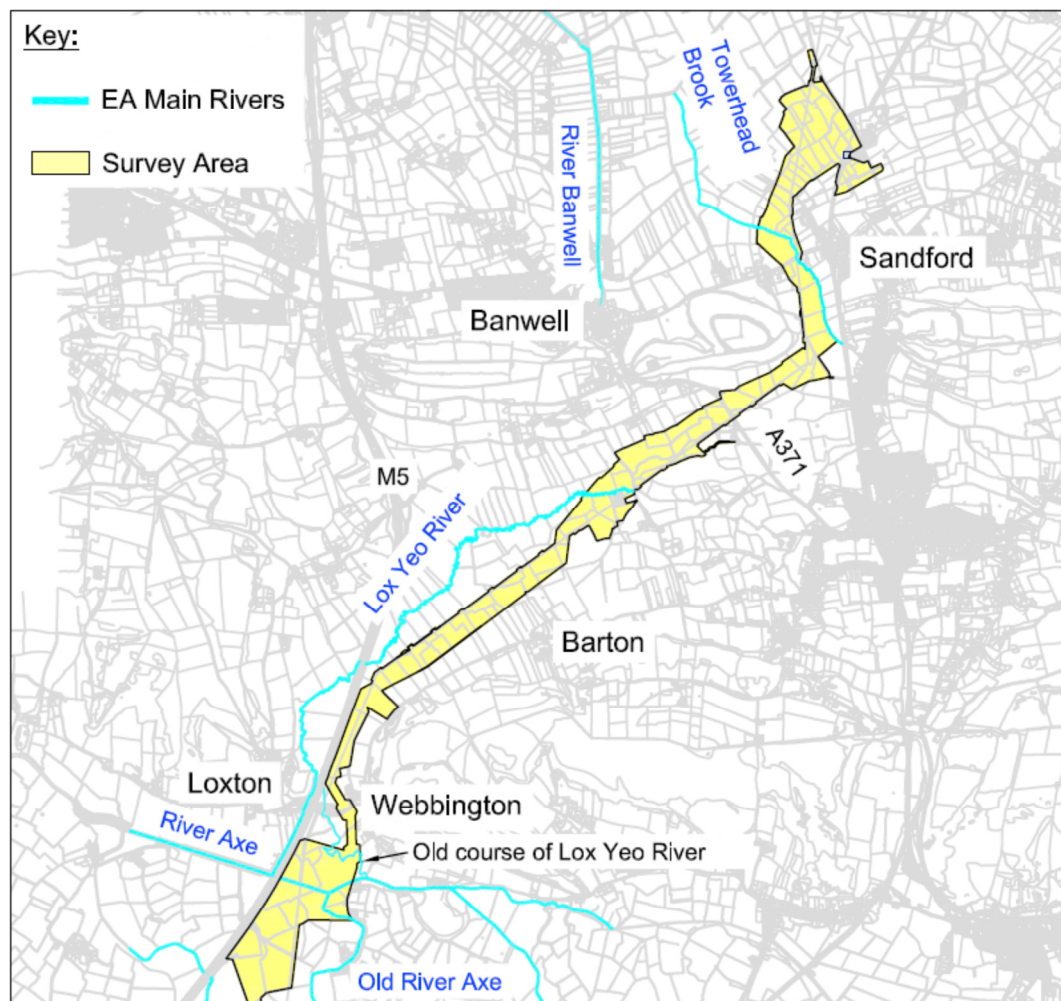


Figure 2 – Rivers along the primary 400kV cable route

The cable route crosses the River Axe once near the southern end and passes close to the Old River Axe. The majority (5.6km) of the route is within the Lox Yeo River valley. This river flows in a south-west direction from south of Sandford and discharges into the River Axe near Webbington. Flows from the old Lox Yeo River were diverted into a newer channel on the western edge of the M5 motorway. The route crosses the old course of the Lox Yeo River just north of the River Axe and crosses the Lox Yeo River itself at Winscombe Sewage Treatment Works (STW), north of Barton.



Figure 3 –Section of the River Axe

The northern section of the route is in the Towerhead Brook valley. This watercourse flows in a north-west direction across the route of the new cable route from south of Sandford before discharging into the River Banwell to the north-west of Sandford. The route crosses the Towerhead Brook once to the west of Sandford.



Figure 4 –Section of the Lox Yeo River

The Bridgwater Tee section lies to the south of King's Sedgemoor Drain.

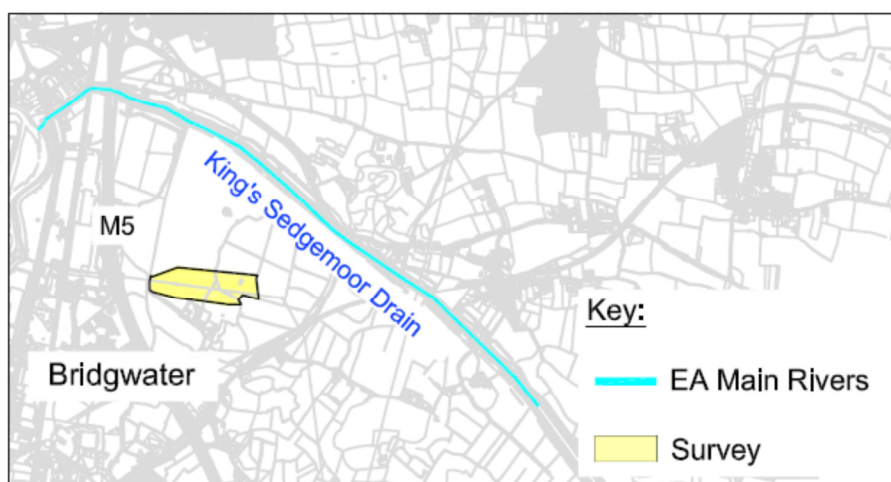


Figure 5 – Rivers along the Bridgwater Tee 400kV cable route

The watercourses are classified as follows:

- Main rivers, managed by the Environment Agency (EA);
- Ditches and smaller rivers managed by local authorities, known locally in Somerset as rhynes;
- Other ditches managed by landowners.

Internal Drainage Boards (IDBs) manage a large number of watercourses in the area. Those managed by the Somerset Drainage Boards consortium are called 'Viewed Rhynes', and cover the southern area of the connection. Those around Sandford are managed by the North Somerset Levels IDB. Mapping from both IDBs has been used in the preparation of this report. For the purposes of this report, all ditches and watercourses are considered individually with regard to their flow direction and potential for flooding.

2.3 Ditches

Mapping from both Ordnance Survey (OS) and IDBs, and observations from the site walkover team have enabled the identification of drainage ditches along the route of the proposed underground cable connection.

Ditches are common along the entire proposed cable route. Ditches usually surround the edges of fields at the southern end (1.3km) of the route and in the Bridgwater Tee section. Few ditches were identified during the site visit between Webbington and the hamlet of Barton. The ditches here are generally located where the land levels out in the bottom of the valley near the Lox Yeo River.



Figure 6 – Typical ditch along proposed cable route

From Barton to the A371 crossing, south-east of Banwell, fields are generally bounded by ditches. The route here follows the course of the Lox Yeo River.

Between the A371 crossing and Sandford there is only one main ditch, which is located at the bottom of the southern slope of Banwell Plain, and runs east to west to form a tributary of the Lox Yeo River.

North of Sandford the topography of the land is flatter, forming the southern edge of the North Somerset Levels. Fields here are generally bounded by ditches, which discharge in a predominantly northern direction into the rhynes which drain the levels and flow into the River Banwell and Oldbridge River.

2.4 Ponds

During site walkovers in July, many of the ponds were observed to have partially or fully dried. The majority of ponds that have been identified are located at the northern end of the 400kV cable route, north of Sandford. In the section north of Sandford there are approximately seven ponds along the proposed route alignment. There are also four ponds located north of Barton with a further two identified near Webbington at the south end of the route. Ponds along the route are generally small, around two to fifteen metres in diameter.



Figure 7 – Typical pond along proposed cable route

In the Bridgwater Tee section there are two ponds with the largest being around 40m long. In this section there is a reservoir approximately 70m by 40m, contained above the natural ground levels by embankments.



Figure 8 – Existing reservoir at the Bridgwater Tee section

2.5 Springs

Three springs were identified from OS mapping prior to the site visit:

- One 30m away from the survey area north of Barton;
- One 240m away from the survey area north of Barton;
- One on the route immediately to the south of the A371 crossing.

The approximate locations of these springs were identified during the site walkover survey although only one near the A371 crossing appeared to be issuing any water at the time of the visit.

During a visit to fields south of Webbington, a landowner notified the team of a further spring. The precise location of this spring was not clear during the walkover survey although it is possible that one of the ponds in this area receives water from this spring.

2.6 Topography and Overland Flow

As described in Section 2.2, the proposed alignment of the 400kV underground cable route lies within the valleys of the Lox Yeo River and the Towerhead Brook. The elevation of the route is 35m Above Ordnance Datum (AOD) to the south-west of Sandford, adjacent to the Towerhead Brook. The ground falls away to

the north of this point to be less than 10m AOD within 500m of the high point, and then generally remains between 5m and 10m AOD further north.



Figure 9 – Topography near to Webbington

From the high point of 35mAOD, the elevation falls to the south-west along the route at a shallower gradient, to reach an elevation of below 10m AOD at a distance of 1.9km. Between the A371 crossing (which lies at approximately 25m AOD) and the high point, the land slopes in a transverse direction across the line of the route from the higher elevations to the north to the lower south.

To the south-west of the A371 crossing, the ground elevation remains around 7-10m AOD for the remainder of its length, except for a 1km section immediately north of Webbington. At Webbington, the route passes through a natural gap in the Mendip Hills, through which the M5 also passes. To the west, Crook Peak rises to 190m AOD, and to the east is Loxton Hill, rising to 175mAOD.

South of Webbington, the land is approximately 6m AOD for the southernmost 1.1km of the route. This is the northern edge of the Somerset Levels.

The Bridgwater Tee section is a flat area at 6m AOD which is part of the Somerset Levels.

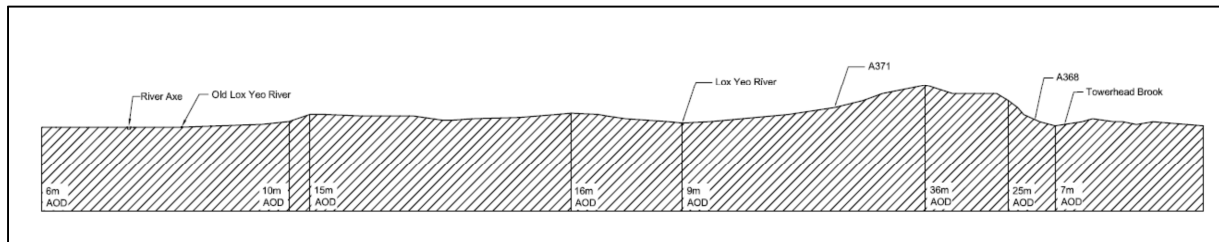


Figure 10 – Long Section along the 400kV cable route

The level topography suggests that overland flow should not be significant in the Bridgwater Tee section, the section south of the crossing of the old course of the Lox Yeo River, and the section north of Sandford. For the majority of the route the land slopes approximately perpendicular to the proposed route, which will cause surface water to flow across the proposed route. The flow direction is generally from the south-east between Webbington and Barton, and from the north-west between the A371 crossing and Sandford. South-west of Sandford, where the route runs adjacent to the Towerhead Brook, the land slopes both parallel and perpendicular to the proposed route (i.e. from south to north).

2.7 Land Drainage

Land drainage is common along the cable route. No formal records of private land drainage have been obtained, however many ground profiles exhibit signs of land drainage being installed. These are marked on the drawings in Appendix A. Based on the observations made on site, the low-lying topography and overhead photography, it should be assumed that the majority of fields along the proposed route contain land drainage.



Figure 11 – Depression in field suggesting land drainage

Evidence of land drainage were prevalent in lower lying, flatter areas such as to the south of Webbington, and around Sandford. In the section from the A371 crossing to the Towerhead brook crossing there were little or no signs of land drainage.

2.8 Groundwater Flooding

Envirocheck mapping has been obtained from the Landmark Information Group. This mapping shows the estimated ground water flooding susceptibility along the proposed route. The section of the route north from Webbington to the A371 crossing is on a hillside and has the highest susceptibility to flooding from groundwater of the route, as springs are identified within this area. The route north of Sandford is also highly susceptible to flooding from groundwater. This area is flat and contains several ponds.

The EA Interactive Mapping Tool 'What's in Your Backyard?' (Ref. 1) indicates that the cable route is not within a Groundwater source Protection Zone.

2.9 Fluvial Flooding

The Envirocheck mapping indicates that the area of the proposed route to the south of Webbington has a high risk of fluvial flooding. The Envirocheck mapping shows the areas at risk of flooding for a 1 in 100 year return period event.

Flooding from rivers and seas has been considered using the EA 'What's In Your Backyard?' mapping tool and this indicates that the majority of the route is not at risk. The exceptions to this include:

- A 1000m (approximately) section of the route west of Sandford, adjacent to Towerhead Brook;
- A 400m (approximately) section where the route crosses the Lox Yeo River north of Barton;
- The southernmost 1.1km section south of Webbington

The area south of Webbington, adjacent to the River Axe, is a low lying area, and the topography enables the flooding extent potential to be significant.

- The Bridgwater Tee section

The Bridgwater Tee section lies approximately half a mile south of the King's Sedgemoor Drain. There is an embankment which runs along the drain and may offer flood protection, although the land is still identified as a risk from fluvial flooding.

Flooding from reservoirs has been checked using the EA mapping and is a risk only for the few fields which form the northern extremity of the route, about 1000m north of Sandford. This area is also at risk from fluvial flooding.

2.10 Other Features

The proposed cable route passes directly through Winscombe Sewage Treatment Works (STW), which is located at NGR 340077, 157885, to the north-east of Barton. This contains several buried sewage tanks as well as an area of concrete hard standing for vehicle access.

There is an EA Final Effluent Sample Point on the opposite bank of the Lox Yeo River from Winscombe STW. This could be the outlet of Winscombe STW, although as it is on the opposite bank it would seem unlikely. The STW will have a Final Effluent discharge point, and the most likely location would be the Lox Yeo River on the same bank as the STW, although this was not seen during the survey.

During the site visit, a concrete slab was identified which was thought to be a septic tank or similar buried chamber. This is to the south of Webbington at NGR ST3814755292. It is possible that there are further chambers or pipework along the route although these were not identified by the site survey.

2.11 Borehole Data

A number of historical borehole logs exist for positions along or near to the route and records are available from the British Geological Survey Website. These are primarily along the M5 corridor and in the vicinity of Winscombe STW. The locations and borehole logs are summarised in Appendix B; these indicate the depths to rock level and to the water table.

A detailed ground investigation has not been carried out at the time of this study.

3 Constraints

3.1 Watercourses

It is anticipated that the cable route will be constructed such that the impact on watercourses and ditches is minimised.

The proposed route will include four river crossings:

- River Axe
- Lox Yeo River
- Old course of Lox Yeo River
- Towerhead Brook

The River Axe is classified as a main river by the Environment Agency and is the largest river on the route. At the crossing point, the river is over 15m wide with approximately banks over 2m. The land use at this point is cattle farmland bounded by hedgerows. The river crossing will impact on the cable construction and also the supply routes and construction traffic.

The old course of the Lox Yeo River is crossed between the River Axe and Webbington. At the crossing point, the river is approximately 3m wide with banks over 1m. The land use at this point is arable farmland bounded by hedgerows. Only a small flow remains in this section, as observed during the site visit. The magnitude of flow is more proportionate with a ditch.

The Lox Yeo River is a small main river near Winscombe STW. At the crossing point, the river is approximately 4m wide with banks over 1m. The land use at this point is cattle farmland bounded by hedgerows. Nearby are Webbington STW and a minor road crossing of the river which may be affected depending on the exact route chosen.

Towerhead Brook is a small watercourse west of Sandford. At the crossing point, the river is approximately 2m wide with banks under 1m. The land use at this point is farmland and thick hedgerows, with the A368 running perpendicular to the cable route.

3.2 Ditches

In general, the ditches found along the cable route were man-made drainage channels, following field boundaries. The ditches were often found to be located within hedges. Typically the ditches range from 1m to 3m in width between upper banks and are estimated to be between 0.5m and 2m in depth from ground level. The ditches appear to be cut into the existing ground, with no evidence of concrete or other engineered banks and bed.

It should be noted in mind that the ground around near to the ditches is often softer and wetter. Consideration is required for the construction activities and construction haul routes in these areas.

It is anticipated that the cables will be constructed below the level of many of the ditches, therefore not posing a permanent constraint on the cable route.

The cable route south of Webbington (including the Bridgwater Tee) contains several ditches. During the July 2013 site walkover some of the ditches south of the River Axe contained water and those between the River Axe and Webbington were generally dry.

There were no ditches identified for approximately 1.3km of the connection route north of Webbington but there were several observed closer to Barton, at the base of slopes to the south-east of the route.

North of Barton the route crosses several ditches which drain from the south to the Lox Yeo River north of the route. Between Winscombe STW and the A371 crossing this reverses and ditches generally drain north to south across the route. The route crosses more ditches north of Sandford, and these generally drain in a south to north direction.

3.3 Ponds

The ponds along the route are a constraint for several reasons. Firstly the level of water within ponds may give an indication to a high level of groundwater in the area. Secondly the ponds are often connected with a drainage ditch network. Additionally there may be environmental and ecological impacts, although these are outside the scope of this report.

The constraints for each pond will depend on its size and water supply. If it is supplied by groundwater this supply may be impeded if the cable route is designed to pass underneath or adjacent. If the pond is supplied by surface water the flows will need to be managed as for a watercourse, and the pond will need to be kept supplied with water.

3.4 Springs

For all springs affected by the cable route, the primary constraint is that the water flow issuing from a spring could gradually damage the cable surround or wash away the bed material or saturate excavations causing instability.

The cable route construction has the potential to temporarily or permanently divert or cut off flows issuing from natural springs.

3.5 Overland Flow

Due to the topography of the river valleys, it can be expected that overland flow could occur.

From Webbington to north of Barton this can be anticipated as flowing from the south-east across the route alignment. From the A371 crossing to the Towerhead Brook crossing, the overland flow would be anticipated to flow from the north nearer the A371 and more from the west nearer the Towerhead Brook

crossing. As the land to the south of Webbington and to the north of the Towerhead Brook crossing is generally flat, the overland flow is not expected to be as significant.

In the Bridgwater Tee section this can be anticipated as flowing from south to north to the King's Sedgemoor Drain.

Overland flow could affect the construction process by saturating or flooding the excavations. There is also a risk of soil erosion and transportation of sediment into or away from the construction area.

3.6 Land Drainage

Drainage pipes flowing across the proposed cable route will provide an obstacle to the construction of the cable routes. The drainage pipes affected will need to be severed and temporarily diverted. After construction it may be possible to reinstate the original drainage.

It is anticipated that the cable route will be constructed at a lower depth than the majority of land drainage, and this is therefore not likely to produce constraints in the permanent condition. The exception is if the receiving ditches are diverted; the land drainage may not be able to be reinstated in the current configuration.

3.7 Ground Water Flooding

For the sections of the cable route that are susceptible to groundwater flooding, there is a risk that this groundwater could flood excavations and the above-ground site works, haul roads and compounds during the construction period.

Groundwater will need to be considered in the design of the cable route for the permanent case as high groundwater will pose a risk of flotation. The cable route construction may also affect groundwater flow paths in some locations.

3.8 Fluvial Flooding

Fluvial flooding poses a risk to construction work, particularly in the sections of the cable route described in Section 2.9. Floodwater will place constraints on excavations, above-ground site works, haul roads and compounds and flood protection will need to be managed during construction.

The completed cable route will be underground; therefore disruption to fluvial flooding in the permanent case should be minimal, provided ground levels and vegetation are returned to their original state. The exception to this would be if watercourses or ditches are permanently realigned, altering flow paths of floodwater. Floodwater may also produce an additional loading on the ground above the cable which will need to be accounted for in the design.

3.9 Vegetation

The majority of fields along the route are bordered by hedges. These vary in size - many are made up of smaller bushes, but a number are or contain predominantly taller trees. Elsewhere there are isolated areas of tall trees, and also often individual trees within fields. Particular examples of note include the sections around the Old River Axe south of Webbington, Winscombe STW, and the area just to the south of Sandford. Large roots from these trees such as these are likely to impede construction.

3.10 Buried Structures

There is a risk of contamination due to sewage in the vicinity of Winscombe STW. This area also contains buried structures which could impede construction and water flows through the area. Similarly, there may be manholes and small chambers along the route, including a possible septic tank near Webbington. At the sewage works there will be buried pipework taking sewage to the works, some of which may be pressurised in rising mains.

The cable route will need to avoid buried chambers or other drainage structures. To achieve this, the route alignment may need to be adjusted and/or the structures will need to be removed and diverted. In the permanent condition, the cable construction may lie underneath drainage pipework.

4 Proposed Mitigation

4.1 Construction Mitigation

4.1.1 Overland flows

To control the potential for overland flows entering the excavations, it is proposed that interceptor / infiltration trenches should be constructed parallel to the connection route as shown in drawing 322069-C-DR-400UG-XX-1304. Measures are needed to prevent the flows entering the construction area, diverting the flows away from the excavations to avoid flooding.

These should be constructed for the entire length of the route and where possible will allow water to drain to the ground by infiltration or alternatively discharge to a nearby watercourse in keeping with principles of sustainable drainage. Consideration should be given to suspended silt and sediment and possible contaminants in the water. The option of discharging into soakaways along the cable route should also be considered depending on the ground conditions and water table.

Additional trenches perpendicular to, and underneath, the cable route may be required to divert flows to a watercourse on the opposite side of the cable route.

The preferred method of draining the trenches should be established once ground investigations are completed.

4.1.2 Watercourses

Crossings will be required for four rivers - the Lox Yeo River, the old course of the Lox Yeo River the Towerhead Brook and the River Axe.

It has not been finalised how the River Axe is to be crossed but it is likely that either the cable route will be constructed underneath the bed level or on a new bridge construction. A bridge may not be favourable with the EA due to potential impact on flooding.

For the Lox Yeo River and Towerhead Brook crossings, it is anticipated that the cable route will pass underneath the watercourses and will be constructed by directional drilling, or other no-dig techniques. Water is likely to collect within the drive and reception pits, and the water will need to be pumped or otherwise diverted into the watercourse once it has been treated and cleaned. This will require agreement with the EA.

The old course of the Lox Yeo Brook could be considered similar to a drainage ditch; however an assessment of the size and flows in this section should be carried out to determine whether no-dig construction should be the preferred method of mitigation. The alternative would be to manage the flows through an open-cut construction either by over-pumping or installing a temporary culvert pipe or channel. Depending on the local topography, it may be possible to construct a pipe culvert to divert the watercourse under the cable route. The culvert could be remain in place for the permanent condition.

For the above crossings, water levels will need to be monitored during construction. Water flows will need to be managed (by controlling the flow or by allowing a larger flow to by-pass the area locally) where crossing the construction area to avoid flooding.

4.1.3 Ditches

During construction of the cable route all ditch flows that are impacted by the temporary works will need to be managed.

Flows from ditches can be collected in the interceptor / infiltration trenches mentioned in Section 4.1.1 and drain by either ground infiltration or discharge to a watercourse. Additional ditches perpendicular to the cable route are likely to be required at strategic points in these sections.

For ditches which cross the construction area, it should be investigated whether it is possible to divert flows to alternative watercourses on their upstream sides. This will depend on the topography and capacities of nearby ditches and watercourses. Alternatively it may be necessary to provide temporary connections to allow flows to cross the construction area (for example temporary culverts or over-pumping).

Strengthening of ditches may also be required in order to protect from the cable route passing below, however if the cable is at sufficient depth this risk should be mitigated.

Flows in the ditches will need to be managed as for those of the watercourses.

4.1.4 Ponds

Consideration should be given to the source of incoming water to ponds. The inflows could be due to high groundwater or a connection from a drainage ditch or overland flow or a combination of these. Whilst the cable may pass under a pond in the permanent condition, it is preferred to be avoided by locally realigning the cable route or by relocating the pond. For all relocation options, environmental aspects will need to be considered as part of the assessment.

If the pond is to be relocated, the incoming water flows will need to be maintained and possibly diverted to the relocated pond position.

4.1.5 Springs

It would be advisable for the route to avoid the spring locations if possible. If this is not possible, groundwater will need to be drawn down in the location of the spring by installing additional gravity pipework, dewatering or providing sump pumping. Water issuing from springs will need to be diverted around the construction area to its original course

4.1.6 Overland Flow

The construction site should be protected from overland flow by the interceptor / infiltration trenches as described in Section 4.1.1. Additional protection should be provided by bunds along the edges of the construction area between the interceptor trenches and the excavation. These should be designed to withstand hydrostatic pressures from the depth of water alongside. They will be required on the uphill side of the construction area.

Typical cross-sections of proposed mitigation measures are shown in drawing 322069-C-DR-400UG-XX-1304 (Appendix A).

4.1.7 Land Drainage

Land drainage conveyed with pipework that is parallel to the cable route and is outside of the working area should be largely unaffected. Land drainage that crosses the connection route should be diverted into the interceptor / infiltration trenches described in Section 4.1.1. It is likely that sections of the existing land drainage system will be removed during construction and reinstated afterwards with agreement of the landowner.

4.1.8 Groundwater Flooding

In order to reduce the risk of groundwater flooding, the groundwater level should be lowered by a suitable method for high risk areas. This is likely to be well-point dewatering for areas with a particularly high water table and / or a large area at risk, and in-situ pumping for other areas. Groundwater levels should be monitored prior to construction in order to confirm the degree to which the construction will be affected. The collected groundwater should be discharged to the interceptor / infiltration trenches or a watercourse, whichever is most suitable for the location. Prior to discharge to a watercourse any groundwater will require protection and filtering from silts, oils and other contaminants.

4.1.9 Fluvial Flooding

As a similar approach to the overland flow mitigation, the construction areas should be protected from fluvial flooding by the use of bunds on both sides of the excavation. The bunds are likely to be required in the area equivalent to the 1 in 100 year return period area indicated on the drawings in Appendix A. The bund size may be reduced to an appropriate return period to suit the expected construction programme.

It should be noted that the Environment Agency and the IDB use the Somerset and North Somerset Levels to manage floodwater to protect other areas. Therefore the Levels has factors other than rainfall that influences flooding locations.

4.1.10 Highway Crossings

At highway crossings, all existing highway drainage will need to be intercepted and separated from surface and groundwater flows in the construction area. This may involve pumping across the construction area, or providing a culvert underneath. Consideration should be given to the topography of the area and that many of the lanes are at a lower level than the surrounding fields and may convey surface water runoff from the fields. Oils and grits may need to be removed from the highway drainage before discharge to a watercourse, subject to approval by the Environment Agency or Local Authority / IDB.

4.2 Permanent Works Mitigation

4.2.1 Watercourses and Ditches

In cases where the cable route passes underneath watercourses and ditches, it is likely that there will be no further constraints in the permanent case. Typical construction details for these permanent crossings can be found in drawing 322069-C-DR-400UG-XX-1304. On occasions where a permanent culvert to take the ditch or watercourse over the cable route is utilised, this should be in place prior to the cable route being constructed. The design of such a culvert should be sized with regard to the permanent drainage arrangement and take into account any changes in surface or groundwater flow as a result of the works.

4.2.2 Ponds

Preferably any ponds located on the cable route should be relocated to a suitable position with landowner agreement as the connection will generally be shallower than the base level of the ponds. If ponds are retained on or close to the cable route they should be assessed after construction is complete to ensure they are not adversely affected by the works.

4.2.3 Springs

Should the cable route pass close to or at the location of a spring, additional sub-surface drainage may be required to divert flows around the cable route. Additional strengthening of the concrete surround of the cable trench may be required. The natural course of the spring water should be maintained after, and preferably during, construction.

4.2.4 Groundwater

The measures employed to lower or redirect groundwater flows during construction should be removed afterwards so that groundwater levels return to their pre-construction conditions. On-going monitoring may be required once construction is complete to ensure this.

It is anticipated that the cables will be encased in concrete which should negate concerns of flotation due to groundwater. Consideration should be given as to the flow paths of groundwater around the construction

area, and provision should be made to facilitate the natural flow routes. This may involve additional layers of permeable sub-base material underneath or around the cables to allow flows to cross the line of the route.

4.2.5 Land Drainage

Land drainage that has been altered during construction should be reinstated. Due to the depth of the cable it is likely that the new drainage pipes will pass over the cable construction, estimated to have 1m of cover between the construction and ground level.

It may not be possible for a land drainage pipe to discharge to its original watercourse. In this situation, flows will need to be conveyed to an appropriate alternative watercourse to ensure the ditch operation is maintained.

4.2.6 Fluvial and Overland Flooding

Bunds should be removed once construction is complete, and ground levels returned to those before construction. This should ensure that previous flow paths are restored. Where there has been a permanent change to the surface levels and / or features, for example a new concrete structure, there may need to be local changes in ground levels to provide compensation flood storage. This should be assessed and agreed in collaboration with the EA.

4.2.7 Buried Structures

The cable route should avoid the location of buried structures where possible. Alternatively these structures may be removed following agreement with the owner. Sewer plans should be checked to confirm the EA sampling location opposite Winscombe STW, and to determine the location of the STW discharge point.

5 Conclusion

This report outlines the identification, assessment and constraints of the hydrological features that are within the proposed 400kV corridor. These include one major river crossing, three other river crossings, ditches, ponds, springs, land drainage. There is also potential for flooding from groundwater and fluvial waters. Please refer to drawings MMD-322069-C-DR-400UG-XX-1300 to MMD-322069-C-DR-400UG-XX-1303 for full details of the cable, route, the site observations and the areas that provide construction and operational constraints for the scheme.

The mitigation sections provide outline measures that can be implemented during construction and for the longer term operation of the assets. Please refer to drawing 322069-C-DR-400UG-XX-1304 for details of proposed outline hydrological mitigation measures. These should be developed and integrated into the detailed designs for the scheme.

Prior to any detailed designs, the scheme constraints and the proposed mitigation measures should be developed further and agreed with the Environment Agency and the IDB. These authorities will need to approve the temporary and the permanent mitigation measures for each section of the proposed cable route.

Prior to construction details, the following actions are recommended in order to confirm the constraints and mitigation measures in the report and to provide sufficient detail to finalise the design of the cable route:

- **Topographical survey** - including an assessment of high and low points along the route, and confirmation of expected overland flow paths and which fields drain to which ditches and watercourses;
- **Ground Investigation** – to confirm expected locations of groundwater flooding and permeability of the ground strata.
- **Analyse rainfall data** – to confirm overland flows and identify likely periods of fluvial flooding during the construction period; and to confirm flows in ditches and watercourses;
- **Groundwater monitoring** – to record water levels before, during and after construction;
- **Soil Analysis** – with regard to potential for erosion and sediment movement from surface flows, particularly during construction works;
- **Obtain Utility Information** – obtain plans and any construction drawings or inspection reports in order to investigate likely sources of construction obstructions;
- **Pipe Hydraulics** - any changes in existing pipe routes should be assessed. This could be a significant issue at Winscombe STW;
- **Landowner Consultation** – obtain additional information to confirm existing land drainage, land use and preferences with regard to mitigation works;
- **Environmental Assessment** – in order to determine relocation options for ponds, diversion of ditches and discharge flows; thus protecting areas of environmental significance.

6 References

1. Environment Agency. (2013). *What's in your backyard Interactive Mapping Tool*.
<http://www.environment-agency.gov.uk/>
2. Landmark Information Group, Envirocheck mapping, received 26/07/08 for the main section and 12/08/2013 for the Bridgwater Tee; order references 47907323 for the main section and 48314539 for the Bridgwater Tee.
3. British Geological Survey data from website (2013): <http://www.bgs.ac.uk/>
4. Ordnance Survey mapping (2013). Reproduced from Ordnance Survey maps. By permission of the Ordnance Survey on behalf of the controller her majesty's stationery office. © Crown Copyright Ordnance Survey. OS licence no. 100048471.

Appendices

Appendix A. Scheme Drawings	26
Appendix B. Historical Borehole Logs	27

Appendix A. Scheme Drawings

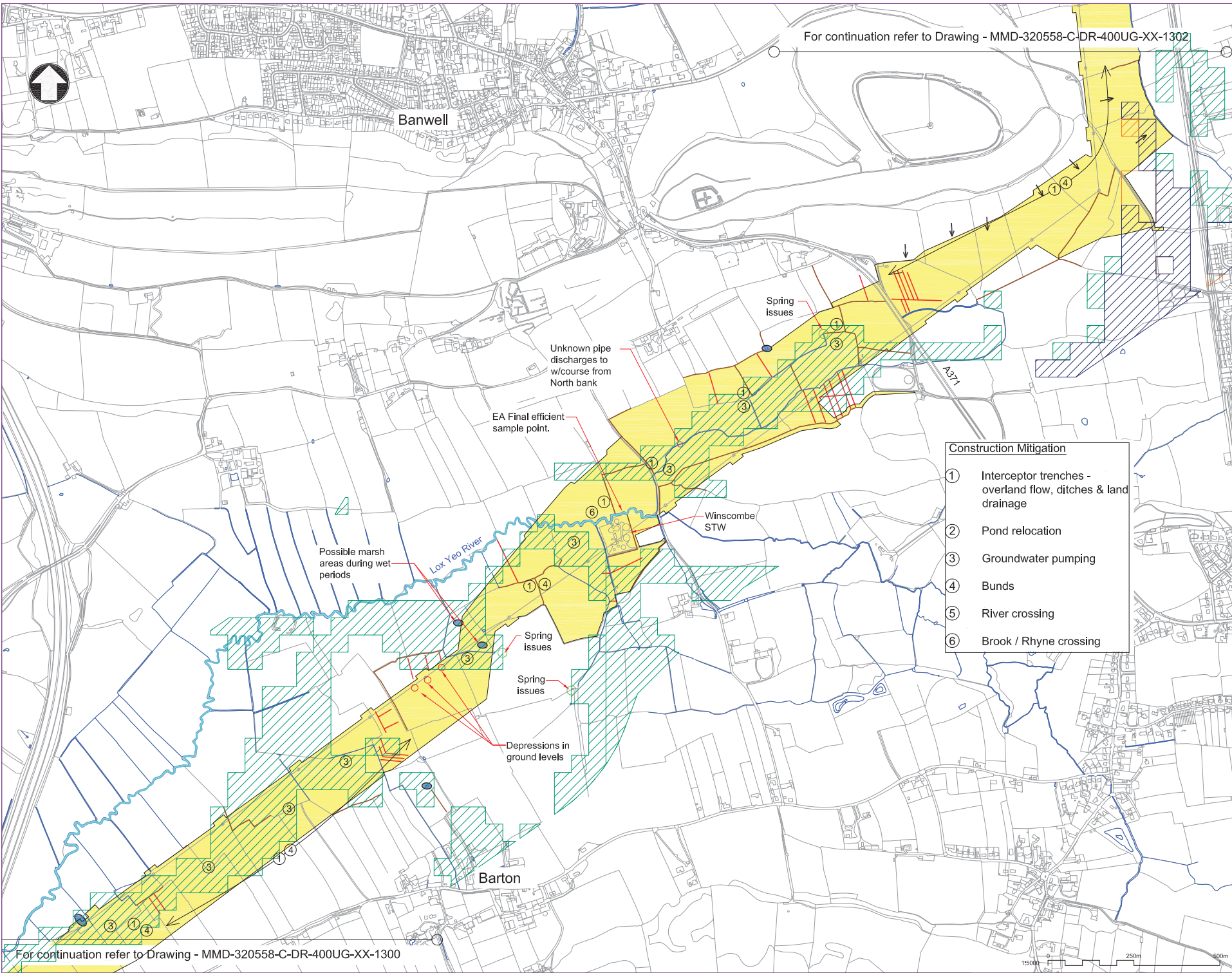
MMD-322069-C-DR-400UG-XX-1300 – 400kV Hydrology, Sheet 1 of 4

MMD-322069-C-DR-400UG-XX-1301 – 400kV Hydrology, Sheet 2 of 4

MMD-322069-C-DR-400UG-XX-1302 – 400kV Hydrology, Sheet 3 of 4

MMD-322069-C-DR-400UG-XX-1303 – 400kV Hydrology, Sheet 4 of 4

MMD-322069-C-DR-400UG-XX-1304 – Typical Plan & Section of Proposed Mitigations



For continuation refer to Drawing - MMD-320558-C-DR-400UG-XX-1302



Banwell

Unknown pipe discharges to w/course from North bank

EA Final efficient sample point.

Spring issues

Construction Mitigation

- 1 Interceptor trenches - overland flow, ditches & land drainage
- 2 Pond relocation
- 3 Groundwater pumping
- 4 Bunds
- 5 River crossing
- 6 Brook / Rhine crossing

Winscombe STW

Possible marsh areas during wet periods

Lox Yeo River

Spring issues

Spring issues

Depressions in ground levels

Barton



Key

	Land drains
	Chamber
	Pond
	Ditch (identified by MM)
	Pipes
	Spring issues
	Survey extents
	EA main rivers
	Watercourse
	Highways
	Embankment / Mound
	Depression
	Direction of overland flow

Following Data received from Landmark:

	Ground Water Flooding
	High Susceptibility
	Moderate Susceptibility
	Moderate High Susceptibility
	100 Year Return - Fluvial Flooding
	Depth 0-200
	Depth 201-500

- Notes
1. Do not scale any items or information from this drawing.
 2. Hydrological features may be present outside survey areas.
 3. Land drainage shown where identified from site visits and overhead photography. Land drainage may also be present in other areas.
 4. Ecological mitigations are outside the scope of this drawing.
 5. Hydrological features shown are in indicative locations only. They are not to be relied on for detailed design.

REPRODUCED FROM ORDNANCE SURVEY MAPS, BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT. ORDNANCE SURVEY, OS LICENCE NO. 100048471

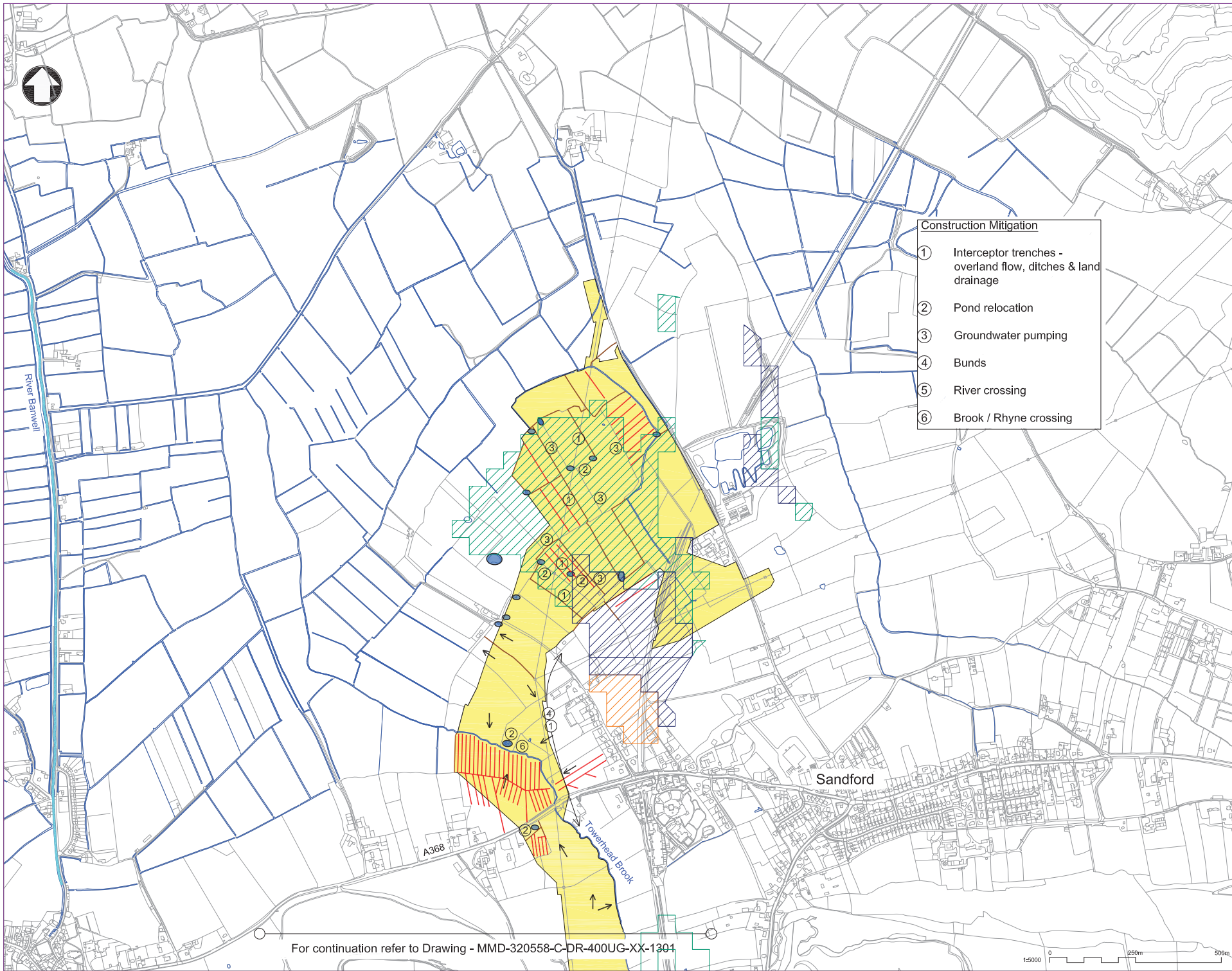
MMD-322069-C-DR-400UG-XX-1301

P1	25/06/13	For Information	SJR		
ISSUE	DATE	COMMENTS	DRAWN	CHWD	APPO
TITLE:					

NATIONAL GRID
HINKLEY C CONNECTION PROJECT
400KV HYDROLOGY

nationalgrid	
Warwick Technology Park, Galsworthy Hill, Warwick, CV34 4DA	
REVISION No.	APPLICATION
20897	XXXXXX
ACAD	A1
DRAWING No.	SCALE
13/NG/0227	X/XX/XX/X
1:5000	SCALE
ISSUE	ISSUE
SHEET 2 OF 4	SHEET X OF X
P1	P1

For continuation refer to Drawing - MMD-320558-C-DR-400UG-XX-1300



Site Map

WALES

↑

MOUTH OF THE SEVERN

Bristol

WENDIP HILLS

SOMERSET

Notes

- Do not scale any items or information from this drawing.
- Hydrological features may be present outside survey areas.
- Land drainage shown where identified from site visits and overhead photography. Land drainage may also be present in other areas.
- Ecological mitigations are outside the scope of this drawing.
- Hydrological features shown are in indicative locations only. They are not to be relied on for detailed design.

REPRODUCED FROM ORDNANCE SURVEY MAPS. BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT. ORDNANCE SURVEY. OS LICENCE NO. 100048471

MMD-322069-C-DR-400UG-XX-1302

ISSUE	DATE	COMMENTS	DRAWN	CHKD	APPD
P1	25/06/13	For Information	SJR		

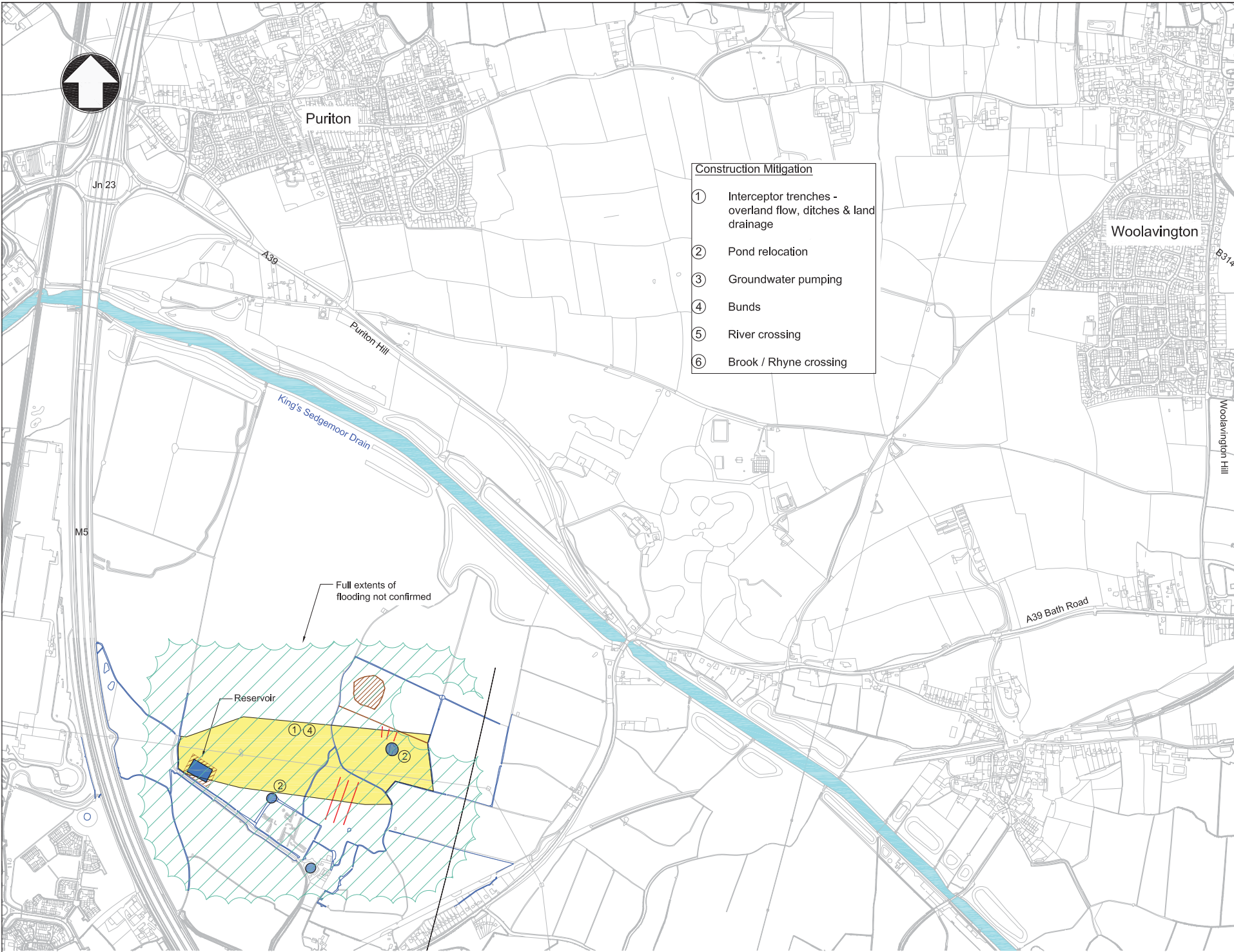
NATIONAL GRID
HINKLEY C CONNECTION PROJECT
400KV HYDROLOGY

nationalgrid
Warwick Technology Park, Gallows Hill, Warwick, CV34 9DA

NO	DESCRIPTION	APPLICATION	ACAD
20897	XXXXXX		A1

NO	DESCRIPTION	SCALE
13/NG/0227	X/XX/XX/X	1:5000

SHEET 3 OF 4 SHEET X OF X ISSUE P1



- Construction Mitigation
- ① Interceptor trenches - overland flow, ditches & land drainage
 - ② Pond relocation
 - ③ Groundwater pumping
 - ④ Bunds
 - ⑤ River crossing
 - ⑥ Brook / Rhine crossing



Key

- Land drains
- Chamber
- Pond
- Ditch (Identified by Mf)
- Pipes
- Spring issues
- Survey extents
- EA main rivers
- Watercourse
- Highways
- Embankment / Mound
- Depression
- Direction of overland flow

Following Data received from Landmark:

- Water Flooding
- Coastal Flooding

- Notes
- 1. Do not scale any items or information from this drawing.
 - 2. Hydrological features may be present outside survey areas.
 - 3. Land drainage shown where identified from site visits and overhead photography. Land drainage may also be present in other areas.
 - 4. Ecological mitigations are outside the scope of this drawing.
 - 5. Hydrological features shown are in indicative locations only. They are not to be relied on for detailed design.

REPRODUCED FROM ORDNANCE SURVEY MAPS, BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT. ORDNANCE SURVEY, OS LICENCE NO. 100048471

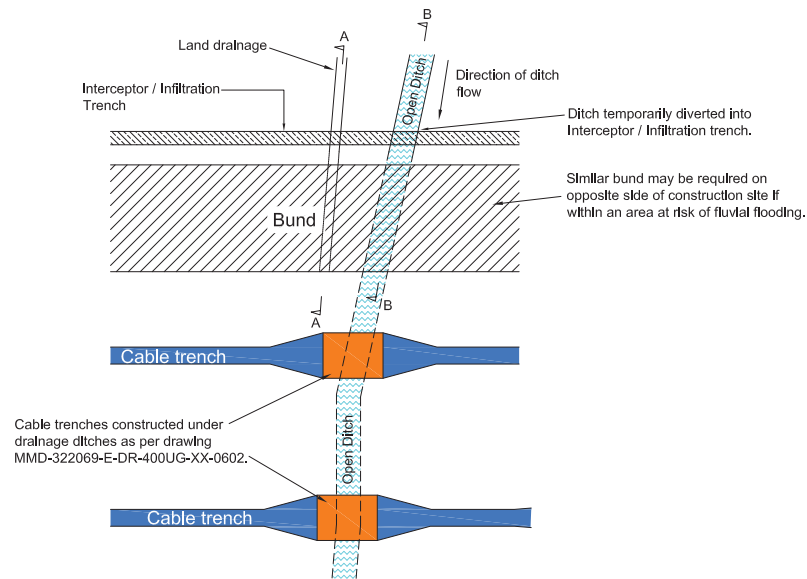
MMD-322069-C-DR-400UG-XX-1303

P1	06/07/13	FOR INFORMATION	SJR						
ISSUE	DATE	COMMENTS	DRAWN	CHWD	APPO				
TITLE:									

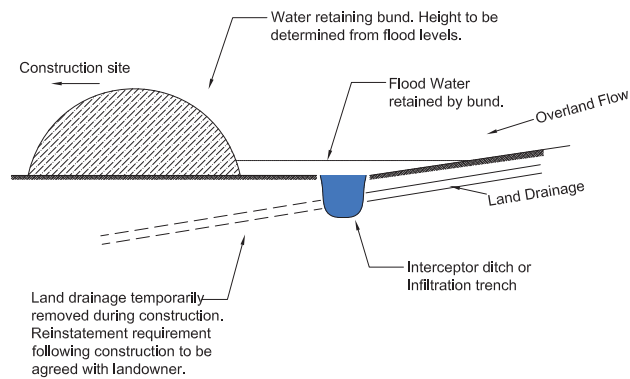
NATIONAL GRID
HINKLEY C CONNECTION PROJECT
400KV HYDROLOGY

nationalgrid
Warrick Technology Park, Galles Hill, Warrick, CV34 9DA

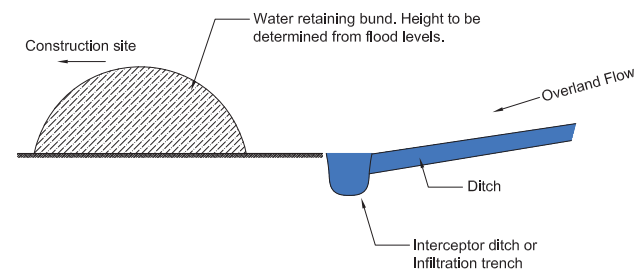
NO. PROJECT	APPLICATION	ACAD
20897		A1
NO. DRAWING	DRAWING	SCALE
N/A		
SHEET 4 OF 4		ISSUE
		P



Typical Plan Across Proposed Mitigation Construction Area



Section A-A



Section B-B

Typical Sections Across Proposed Mitigation Construction Area

Notes

1. Do not scale any items or information from this drawing.
2. Ecological mitigations are outside the scope of this drawing.
3. This drawing is indicative of proposed mitigation measures only and must not be used for construction purposes.

REPRODUCED FROM ORDNANCE SURVEY MAPS, BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT ORDNANCE SURVEY, OS LICENCE NO. 100048471

MMD-DRAWING No.

MMD-322069-C-DR-400UG-XX-1304

ISSUE	DATE	COMMENTS	DRAWN	CHKD	APPD
-------	------	----------	-------	------	------

TITLE
NATIONAL GRID
HINKLEY C CONNECTION
PLAN & SECTIONS
OF PROPOSED MITIGATIONS

nationalgrid

Warwick Technology Park, Gibbes Hill, Warwick, CV34 6DA

NO.	REVISION/NO.	APPLICATION/NO.	ACAD
20897		XXXXXX	A1
NO.	DRAWING/NO.	SCALE	
N/A		XXXXXX	
SHEET	1 OF 1	SHEET X OF X	P

Appendix B. Historical Borehole Logs

Table B.1: Summary of Historical Borehole Information from British Geological Survey (BGS)

BGS Reference Number	Easting	Northing	BH Length	Ground Level		Depth to rock (m)	Depth to Water Table (m)	Water Table variations
				BGS (mAOD)	OS (mAOD)			
ST35SE22	337270	154620	6.09	6.25	-	n/a	2.59	
ST35NE30	337560	155030	10.66	6.17	-	8.84	2.59	
ST35NE52	337690	155330	9.14	6.2	-	n/a	2.24	
ST35NE25	337780	155510	12.49	6.46	-	7.92	3.35	
ST35NE57	337936	155869	9.7	7.59	-	4.8		Possibly at 2.95m below ground
ST35NE22	337900	155900	5.2	7.16	-	3.8	3.05	
ST35NE51	338040	156270	1.98	8.9	-	1.37	Not encountered	
ST35NE48	338110	156520	13.71	6.13	-	13.9	2.74	
ST35NE23	337830	155680	9.44	9.6	-	8.31	3.05	
ST45NW15	340010	157840	7.8	-	15	2.3	1.4	
ST45NW22	340050	157850	8.05	-	15	2.2	1.8	
ST45NW17	340020	157770	10.05	-	15	6.5	3.35	
ST45NW19	340050	157770	9.25	-	20	6.0	2.6	
ST45NW20	340070	157790	7.5	-	20	6.5	1	
ST45NW16	340010	157800	9.25	-	20	7.8	2.2	
ST45NW21	340060	157830	7.05	-	20	5.3	1.2	
ST45NW13	341930	158840	5.0	36.5	-	3	Not encountered	
ST45NW12	341950	158900	4.8	41.9	-	n/a	Not encountered	
ST45NW11	341950	158910	5.0	42.35	-	n/a	Not encountered	

Appendix 10D – 132kV Underground Cables Hydrological Assessment



Hinkley to Avonmouth 132kV Underground Cable Transmission

Hydrological Assessment

September 2013

National Grid

Hinkley to Avonmouth 132kV Underground Cable Transmission

Hydrological Assessment

September 2013

National Grid

Issue and revision record

Revision	Date	Originator	Checker	Approver	Description	Standard
A	4 September 2013	S Gosling C Bolton	R Morris	N Price	First Issue	

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose. The consultant has followed accepted procedure in providing the services but given the residual risk associated with any prediction and the variability which can be experienced in flood conditions, the consultant takes no liability for and gives no warranty against actual flooding of any property (client's or third party) or the consequences of flooding in relation to the performance of the service. This report has been prepared for the purposes of outlining hydrological features and possible mitigation measures along the proposed cable route only.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it..

Contents

Chapter	Title	Page
1	Introduction	1
1.1	Background	1
1.2	Aims	1
1.3	Methodology	1
2	Existing Hydrology	3
2.1	Proposed Route Alignment	3
2.2	Watercourses	5
2.3	Ditches	10
2.4	Ponds	12
2.5	Springs	14
2.6	Topography	14
2.7	Land Drainage	17
2.8	Groundwater	19
2.9	Fluvial and Marine Flooding	19
2.10	Highways	20
2.11	Other Features	21
2.12	Borehole Data	23
3	Constraints	24
3.1	Watercourses	24
3.2	Ditches	24
3.3	Ponds	25
3.4	Springs	25
3.5	Surface Water Runoff	25
3.6	Land Drainage	26
3.7	Ground Water	26
3.8	Fluvial and Marine Flooding	27
3.9	Highways	27
3.10	Buried Structures	27
4	Mitigations	28
4.1	Construction Mitigation	28
4.2	Permanent Works Mitigation	31
5	Conclusion	34
6	References	35

Appendices	36
Appendix A. Historical Borehole Logs	37
Appendix B. Scheme Drawings	39

1 Introduction

1.1 Background

National Grid (NG) is proposing to install a 132,000 volt (132kV) electricity connection as part of its upgrade programme of routes between Bridgwater in Somerset and Seabank, near Avonmouth. Mott MacDonald Ltd has been commissioned by National Grid to provide a hydrological assessment for several lengths of underground electricity cabling. The total route length covered by this report is 12km.

The route assessed by Mott MacDonald includes nine separate areas as described in Section 2 below. These areas contain hydrological features which may be impacted during the construction and operation of the new underground cable route.

Mott MacDonald undertook site walkover surveys along and adjacent to the proposed underground 132kV route on 29th – 31st July, 5th – 6th August, 14th August and 17th August 2013.

1.2 Aims

This report outlines the identification, assessment and constraints of the hydrological features that are within the proposed 132kV corridor and outlines mitigation measures that should be considered during construction and the longer term operation of the assets. The report provides an outline strategy for the mitigation measures and is not a prescriptive design document. The following are therefore not considered:

- Geotechnical considerations and soil types;
- Ecological mitigation measures;
- Historical or archaeological heritage;
- Consultation with landowners and other stakeholders.

1.3 Methodology

In producing this report a review of available information has been carried out, including the following:

- Site walkover surveys (these did not include any physical measurement);
- Inspection of Ordnance Survey maps;
- Inspection of Borehole Logs from British Geological Survey;
- Inspection of mapping obtained from Internal Drainage Boards (IDBs);
- Inspection of flooding and groundwater maps obtained from Landmark Information Group (Landmark) who work in partnership with the Environment Agency, British Geological Survey, Ordnance Survey and others;
- Inspection of aerial photography from the internet.

Using the information gathered, the following assessments have been made:

- Identification of watercourses affected by the construction route;
- Estimation of flow patterns along the route for overland and groundwater flow;
- Estimation of where land drainage is.

This report aims to summarise these observations and assessments in identifying the existing hydrology and construction constraints imposed by the watercourses and groundwater. From this it outlines implications of the proposed scheme along the routes with mitigation measures, and finally recommends further investigations.

2 Existing Hydrology

2.1 Proposed Route Alignment

This report considers the following nine areas along the route corridor referred to as Area 2 to Area 10 (note that Area 1 is part of the proposed 400kV route known as the Bridgwater Tee, and not assessed in this report).

This section should be read in conjunction with drawings MMD-322069-C-DR-WPD-XX-1301 to MMD-322069-C-DR-WPD-XX-1307 in Appendix B, which indicate the extent of each Area, the hydrological features identified during the study, and the construction mitigation measures suggested.

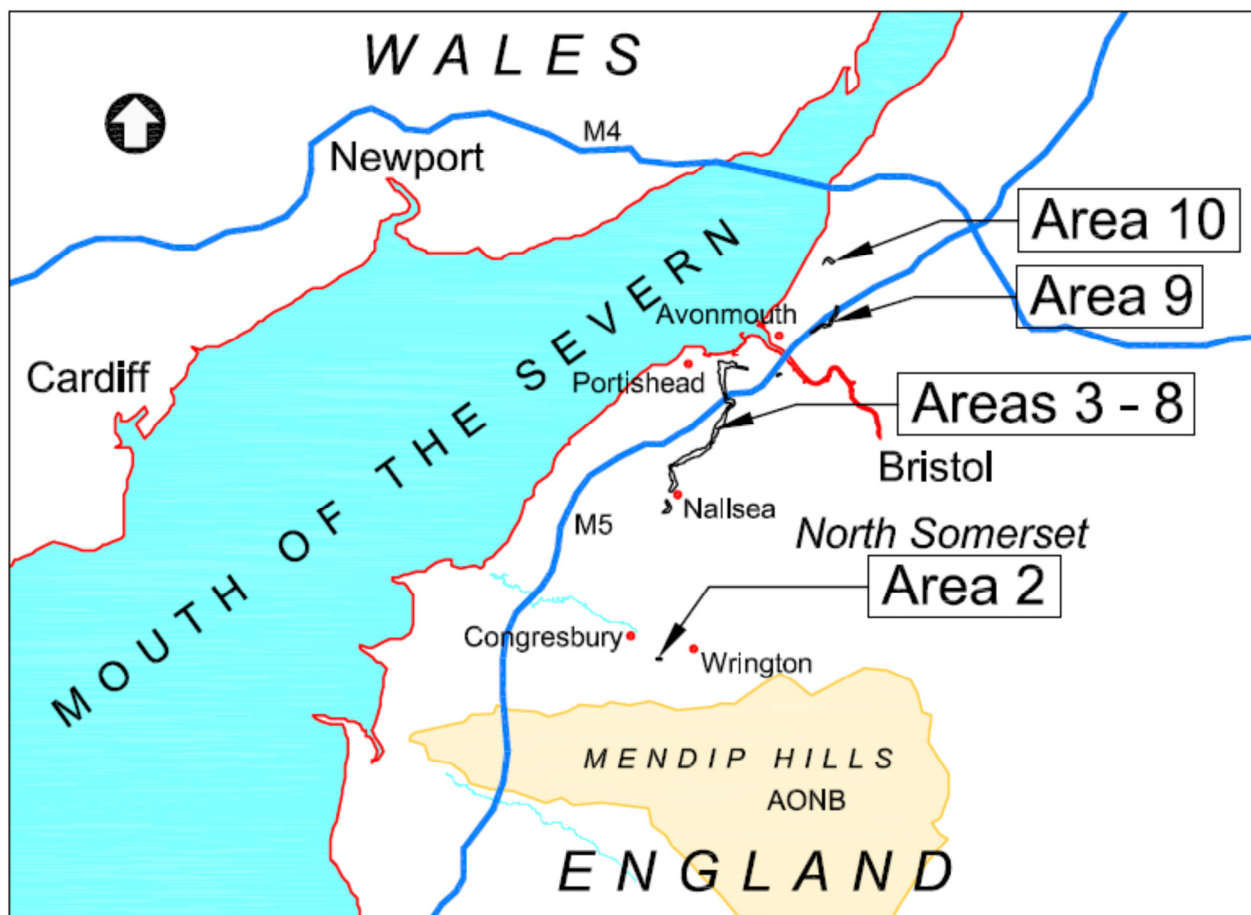


Figure 2.1: Location of 132kV underground cable routes

■ Area 2

This is a 270m long section located between NGR ST 45178 62195 and NGR ST 45449 62147, to the south-east of the village of Congresbury in North Somerset. Part of the NG Churchill Substation is located in this section. Refer to drawing MMD-322069-C-DR-WPD-XX-1301.

■ Area 3

This is a 1.1km (approximately) long section located between NGR ST 45522 69442 and NGR ST 46004 70507, to the south-west of the town of Nailsea in North Somerset. Refer to drawing MMD-322069-C-DR-WPD-XX-1302.

■ Area 4

This is a 1.5km (approximately) long section located between NGR ST 46004 70507 and NGR ST 46105 71904 to the north-west of the town of Nailsea in North Somerset. Refer to drawing MMD-322069-C-DR-WPD-XX-1303.

■ Area 5

This is a 1.7km (approximately) long section located between NGR ST 46105 71904 and NGR ST 47658 72616 to the north of the town of Nailsea in North Somerset. Refer to drawing MMD-322069-C-DR-WPD-XX-1303.

■ Area 6

This is a 2.7km (approximately) long section located between NGR ST 47658 72616 and NGR ST 48929 74948 to the south-west of the village of Portbury in North Somerset. Refer to drawing MMD-322069-C-DR-WPD-XX-1304.

■ Area 7

This is a 2.2km (approximately) long section located between NGR ST 48929 74948 and NGR ST 48307 76990 between the village of Portbury and the town of Portishead in North Somerset. Refer to drawing MMD-322069-C-DR-WPD-XX-1305.

■ Area 8

This is a 250m (approximately) long section located at NGR ST 51296 76340 within the Royal Portbury Dock in North Somerset. Access to this area could not be arranged for the Mott MacDonald survey team, so report sections for this area are based on aerial photography and mapping information only. Refer to drawing MMD-322069-C-DR-WPD-XX-1305.

■ Area 9

This is a 2km (approximately) long section located between NGR ST 52884 78470 and NGR ST 54231 79755 in the Avonmouth area near Bristol. Refer to drawing MMD-322069-C-DR-WPD-XX-1306.

■ Area 10

This is a 450m (approximately) long section located at NGR ST 53800 82050 adjacent to Seabank power station in South Gloucestershire, north of Avonmouth. Refer to drawing MMD-322069-C-DR-WPD-XX-1307.

The following sections summarise the existing hydrology identified within Area 2 to Area 10.

2.1.1 Terminology

- Watercourses

For the purposes of this report the term “Watercourse” is used to refer to Main Rivers, rhynes and other smaller watercourses such as streams. Watercourses are covered in Section 2.2.

- Main Rivers

These are designated by the Environment Agency (EA) who manage them.

- Rhynes

A rhyme is generally a straighter drainage channel, commonly found in the level flood plain areas, and historically constructed to drain marshland. A rhyme may also be a Main River. They are primarily used to drain groundwater and control flooding.

It should be noted that the spelling “rhyme” is generally used in Somerset and North Somerset (i.e. Areas 2 to 8), and the spelling “rhine” in South Gloucestershire (i.e. Areas 9 to 10). The spelling “rhyme” has been used throughout this report, except where there are given names (on OS mapping for instance) with the spelling Rhine.

- Ditches

For the purposes of this report, a ditch is generally found at field boundaries. Ditches, usually managed by landowners, are covered in Section 2.3. They are primarily used to drain surface water. Ditches may be Ordinary Watercourses, as defined by the EA.

- Land Drainage

For the purposes of this report, this term has been used to refer to buried pipes which collect drainage from fields. Refer to Section 2.7.

- IDB

Internal Drainage Boards (IDBs) manage a large number of watercourses in the area. The North Somerset Levels IDB manages the area around the proposed 132kV route for Areas 2 to 8. The Lower Severn IDB manages Area 9 and Area 10.

2.2 Watercourses

There are no Main Rivers within Areas 2, 3, 5, 6, 8, 9, and 10. Areas 4 and 7 include main rivers and Area 9 includes rhynes. Areas 4, 7 and 9 are described below.

2.2.1 Area 4

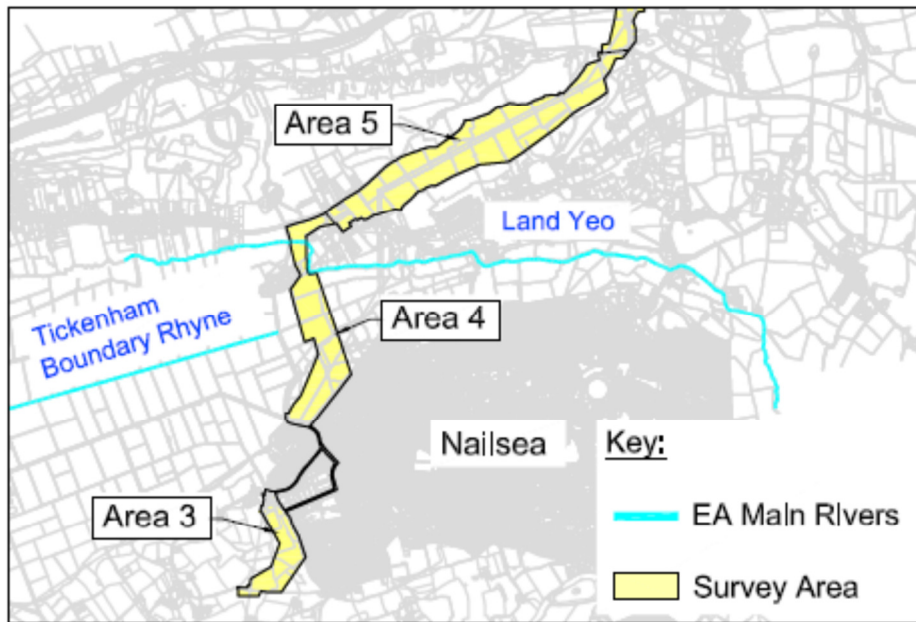


Figure 2.2: Plan of Areas 3 to 5 including relevant Main Rivers

There is one EA main river which crosses the proposed cable route in Area 4. This is the Land Yeo and it crosses the proposed cable route at Tickenham Court, flowing in a westerly direction towards Clevedon. This is 5m to 6m in width with banks 1m high (approximately) in this section, and is bounded by rough grassland.



Figure 2.3: Land Yeo in Area 4.

The majority of the fields in Area 4 are bounded by rhynes including Tickenham Boundary Rhyne. Parish Brook flows along the western edge of the proposed route on the north-western edge of Nailsea, and passes under Hanham Way through a culvert. The brook is around 2m wide with 1m high banks in this section, and is bounded to the west by a road called Causeway and a line of trees, and to the east by grassland. In the central part of Area 4 the rhynes generally feed into the Tickenham Boundary Rhyne which flows in a westerly direction across Area 4. This rhyne is approximately 4m wide with banks 1m high and is bounded by managed grassland. This section of the land forms part of the North Somerset Levels.



Figure 2.4: Parish Brook in Area 4 (culvert under Hanham Way)

To the south of Tickenham Court there is a rhyne called Middle Yeo which includes a penstock in the centre of the proposed cable route corridor. OS mapping indicates that this rhyne used to continue west past Tickenham Court, however it appears to have been diverted into rhynes which flow south to join the Tickenham Boundary Rhyne. There is a strip of raised ground running north to south from Tickenham Court to the penstock which may cover a pipeline; this does not appear on aerial photography (Ref. 5).



Figure 2.5: Penstock on Middle Yeo rhyne in Area 4

2.2.2 Area 7

Between the M5 and A369 the route crosses a 2m wide rhyne, which is maintained by the North Somerset Levels Internal Drainage Board. At this location the rhyne has 1m high banks and is bounded by rough grassland to the west, and managed grassland with cattle to the east. This rhyne turns to flow northwards and discharge into a 7m wide rhyne flowing east to west. Both of these rhynes contained water at the time of the site visit. The proposed route will also cross the 7m wide rhyne which is classified by the EA as a main river. This rhyne has banks between 1m and 2m high, and is bounded on the north by the A369 road and a line of trees, and on the south by managed grassland.



Figure 2.6: Example rhyne in Area 7

The route also crosses a rhyne (name unknown) adjacent to the sub-station at the north-west of the area. This rhyne flows from the south, following the route of the sea bank flood defence. In the area of interest,

the rhyne is 10m (approximately) wide with banks between 2m and 3m high. It is bounded to the north by an electrical substation and to the south by a nature reserve. It was observed to contain water at the time of the site visit.

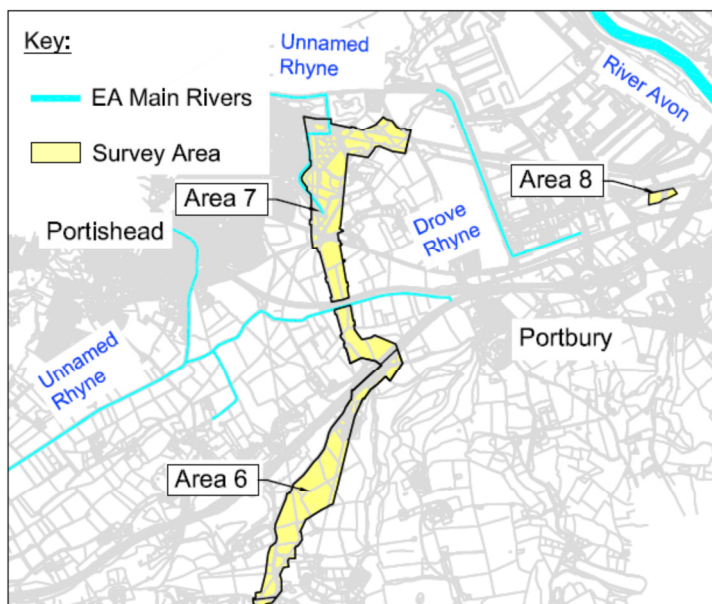


Figure 2.7: Plan of Areas 6 to 8 including relevant Main Rivers

2.2.3 Area 9

The route through Area 9 will cross the Shirehampton Rhine, New Rhine, Kings Weston Rhine, Mere Bank Rhine, the Salt Rhine and two further rhynes (names unknown). All of these rhynes were observed to contain water during the site visits, although water levels were low in the Shirehampton Rhine.

At the western end of Area 9 the route crosses the 1m wide Shirehampton Rhine and the 2m wide New Rhine. Both of these rhynes have 1m to 2m high banks and are surrounded by grassland. There is also a private road adjacent to New Rhine to the west. New Rhine turns where the cable route crosses it to run in a south-west to north-east direction in the direction of the route. For a distance of approximately 260m the route follows the course of the New Rhine. The rhine here is shallow and was observed to be dry during the site visit.

As the route extends east it crosses the 3m wide Kings Weston Rhine and then crosses the 3m wide Mere Bank Rhine beneath the M49 motorway. Both rhynes are between 1m and 2m deep, and have grass and trees to the west with grass and roads to the east.

Between the M49 and M5 motorways the route crosses a 2.5m wide rhine (name unknown) which has 1m to 2m high banks and is bounded by a track to the south, with grass to the north. After this the route crosses the 2m wide Newlands Rhine and the 3m wide Salt Rhine (running parallel to the Newlands Rhine) in a north-westerly direction. The Newlands Rhine has 1m high banks and is bounded by grass to the

south and a track to the north. The Salt Rhine has 1m high banks and is bounded by grass to the north and a track to the south.

2.3 Ditches

Mapping from both Ordnance Survey (OS) and IDBs, and observations from the site walkover team have enabled the identification of drainage ditches along the route of the proposed 132kV cable connections.

2.3.1 Area 2

A ditch was observed along a field boundary at the western end of Area 2.

2.3.2 Area 3

A small number of ditches were observed along field boundaries in the south of Area 3.

2.3.3 Area 4

In addition to the rhynes described in Section 2.2.1 a small number of ditches were observed in field boundaries in the southern section of Area 4 near to Nailsea.



Figure 2.8: Ditch in Area 4 under farm building

2.3.4 Area 5

There were very few ditches observed in this area; those present were small ditches within hedgerows and were difficult to identify.

2.3.5 Area 6

A ditch was located to the east of Whitehouse Lane. This small ditch flows between two ponds and flows east. Other ditches were outside of the cable route corridor.

2.3.6 Area 7

Plots of land in this area were generally bounded by ditches. In general the ditches encountered along the route were man-made trenches which followed the field boundaries and these were largely observed to be dry at the time of the site visits. The ditches generally cross the proposed cable route. The vast majority of ditches have been cut into the ground and were not observed to be lined; however one ditch, just north of the M5 motorway, appeared to be lined with concrete. The course of this ditch is approximately parallel to the direction of the proposed route.

At the southern end of Area 7, between the M5 and A369, the ditches contained water during the site visits and drain northwards into the 2m and 7m wide rhynes mentioned in Section 2.2.2.

Between the A369 and the disused railway line the observed ditches are shallow (less than 1m deep) and the majority were dry during the site visit. One dry ditch immediately north of the A369 lies in line with the proposed route and other ditches generally lie perpendicular to the route.

North of the disused railway line, fields are commonly bounded on all sides by ditches. These were observed to be dry during the site visits. These ditches appear to drain into a rhyne (name unknown) adjacent to the sea bank flood defence and electricity sub-station at the northern end of Area 7.

2.3.7 Area 8

Ordnance Survey mapping shows a ditch in the rough land between two hard standing areas which are used for vehicle storage. This ditch discharges to a pond immediately north of the area. Access to this area was not available during the site visits.

2.3.8 Area 9

Ditches were generally observed at the boundary of fields throughout this area and they drain into the rhynes mentioned in Section 2.2.3. During the site visit the ditches in the area were predominantly dry.

The ditches in Area 9 are generally perpendicular to the proposed cable route; however there are some ditches between the M48 and M5 motorways which flow parallel to the route and are within the proposed cable route area. Two of these flow into a rhyne (name unknown) and are located close to the centreline of the route, each running parallel with the route for about 100m.

A further ditch runs near to the edge of, but within, the proposed cable route area. This is approximately parallel to the route for 250m (approximately) and discharges into a rhyne (name unknown). A fourth ditch,

which discharges into the Salt Rhine, runs parallel to the direction of the route, close to the construction centreline for a distance of approximately 150m.

2.3.9 Area 10

Area 10 was observed to be bounded by ditches on the south-east and north-east edges. These drain into the Red Rhine north of Area 10. Ordnance Survey mapping shows a further ditch along the western edge of the field, however this was not observed on the site visit.

2.4 Ponds

A number of ponds were identified along the proposed route.

There were no ponds within Areas 2, 4, 8 and 10. Areas 3, 5, 6, 7 and 9 include ponds and are described separately below.

2.4.1 Area 3

One pond was identified immediately outside the south-west boundary of Area 3 within a depression at a field boundary. It was partially dry during the site visit, but the full size is estimated to be between 5m and 10m in diameter.

2.4.2 Area 5

A dry pond of between 3m and 5m diameter was observed at the northern boundary of Area 5. The pond was located in a hedgerow adjacent to an un-surfaced track.

2.4.3 Area 6

Two ponds were identified within Area 6. One was to the east of the high point at Whitehouse Lane, which drains to the ditch described in Section 2.3.5. The size could not be confirmed as the pond was located in dense vegetation, but is estimated to be up to 20m long and up to 10m wide.

The other pond is in the north of Area 6 and is between 3m and 5m diameter. It is on a hillside and within 200m of the M5 motorway.

Several ponds were located in close proximity to the proposed route. One was within private land, approximately 90m by 30m. It is located to the west of the high point at Whitehouse lane and drains to the west. The other was in a hedgerow within Noah's Ark Zoo Farm, fed by the ditch in Section 2.3.5 and is 30m by 10m (approximately). The surveyors were informed by a staff member at the zoo that water from

this pond flows into a sink hole and underneath the Zoo, before emerging in a stream close to Moat House Farm further east.

2.4.4 Area 7

There are several ponds in Area 7 that are within the proposed cable route corridor. One pond is in the field immediately south of the disused railway line. This has been identified from aerial photography (Ref. 5) and could not be confirmed on site due to the presence of livestock in the field. It is approximately 26m long and 9m wide and is located close to the centreline of the proposed route. This pond was dry at the time of the visit. Aerial photography (Ref. 5) suggests a further pond of about 4m in length may be present in the field immediately to the north of the disused railway, but this could not be confirmed during the site visits due to the presence of livestock in the field.

Aerial photography (Ref. 5) suggests the presence of a pond located close to the centreline of the proposed route, north of the disused railway line. This area is approximately 70m long and 6m wide but was dry during the site visits.

There is a cluster of seven large ponds at the Portishead Ashlands Nature Reserve in the northern section of Area 7, to the south of an electricity substation. These contained water during the site visit and they cover an area of 1.3 Ha (approximately). OS mapping indicates that these are interconnected. A further large pond is indicated on Ordnance Survey mapping on the eastern side of the sub-station. This pond, approximately 70m long and 20m wide, was not accessible during the site visits due to dense vegetation.



Figure 2.9: Pond in Area 7 at Portishead Ashlands Nature Reserve

Between the 70m long pond north of the railway line and the nature reserve there are six smaller ponds located within the proposed cable route corridor but nearer the Area 7 boundary. These contained a shallow depth of water during the site visits.

To the east of the nature reserve there are five more ponds within the proposed cable route corridor. Four of these are approximately 16m long and 6m to 7m wide. The fifth pond is approximately 26m long and 8m wide. Two of these ponds were observed during the site visits to contain water. The presence of water in the other three could not be confirmed during the site visits due to dense vegetation.

2.4.5 Area 9

One pond was observed during the site visit to Area 9. This is located near the northern end between the M5 and M49 motorways. During the site visit it was not possible to confirm whether there was water in the pond due to dense vegetation. The pond is approximately 6m long.

2.5 Springs

There were no springs identified within any of the nine areas of the proposed cable route, either from the site surveys or from Ordnance Survey (OS) mapping.

2.6 Topography

The topography of the route generally comprises a mixture of flood plain and lowland hills. The land use is primarily agricultural, but several areas include wetlands, industrial and urban sections. Areas 3 to 7 form a continuous section, whereas Areas 2, 8, 9 and 10 are stand-alone sections with little variation in topography.

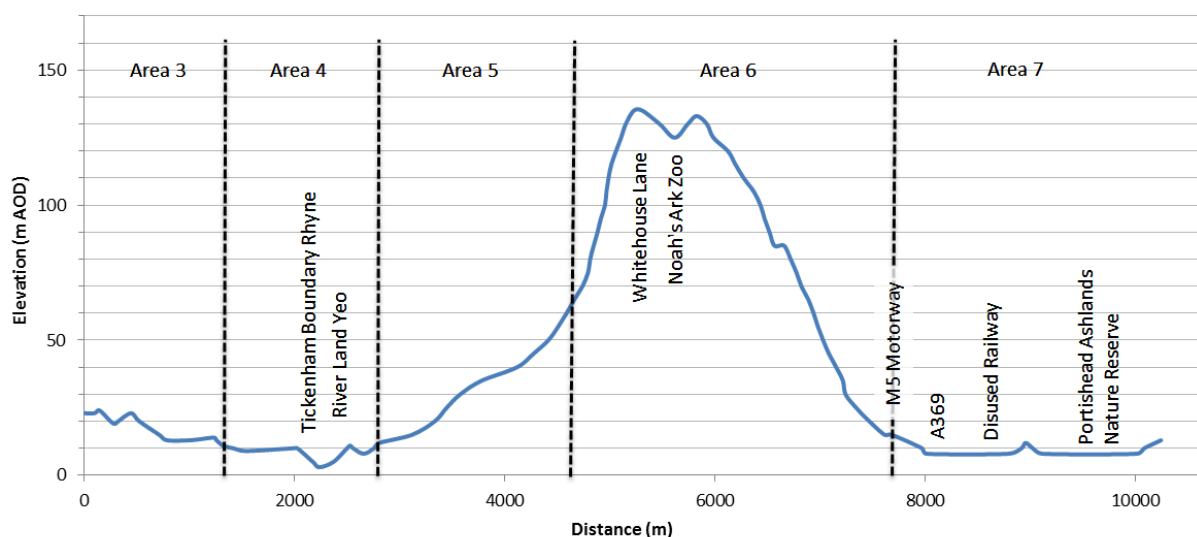


Figure 2.10: Long Section for Areas 3 to 7

2.6.1 Area 2

This area is between 15m and 20m (approximately) Above Ordnance Datum (AOD) and slopes gently down to the north-west towards the River Yeo.

2.6.2 Area 3

This area generally slopes from 25m AOD in the south to around 12m AOD to the north-east (approximately). The northern section lies adjacent to, and includes, roads on the periphery of Nailsea. These roads are residential and industrial.

2.6.3 Area 4

This area includes a flat section of the North Somerset levels around 5m AOD, between the northern edge of Nailsea and Tickenham court. At both the northern and southern end of Area 4, the land rises to around 10m AOD.

2.6.4 Area 5

Area 5 is within a valley rising from around 10m AOD on the boundary with Area 4, to around 75m AOD on the boundary of Area 6.



Figure 2.11: Landscape in Area 5

2.6.5 Area 6

Area 6 crosses a ridge which forms the boundary between the North Somerset levels to the south, and the Gordano Valley to the north. Area 6 rises steeply from the interface with Area 5, climbing over a distance of 550m to 140m AOD at the crest, at Whitehouse Lane. The route falls to the north over a distance of 1.8km to approximately 20m AOD at the boundary with Area 7 at the M5 motorway.

2.6.6 Area 7

In the fields immediately north of the M5 motorway the elevation falls from approximately 20m AOD adjacent to the motorway to less than 10m AOD over a distance of 260m to the north. Generally the topography remains level and below 10m AOD for the northern section of Area 7. The exceptions to this include an 80m length above 10m AOD just north of the disused railway line, and a 180m long section immediately west of Sheepway Lane, where the elevation rises to between 10m and 15m AOD.

2.6.7 Area 8

Area 8 is predominantly paved and level. The area includes a 23m wide vegetation strip crossing the area in a north-south direction; here the elevation falls slightly to the north, along the course of a ditch. The elevation of the paved area is between 5m and 10m AOD.

2.6.8 Area 9

Area 9 is approximately level at 7m AOD with little variation in topography.

2.6.9 Area 10

Ordnance Survey mapping confirms that the entire area is below 10m AOD. The high point is close to the centre of Area 10, and the elevation falls away towards all boundaries.



Figure 2.12: Landscape of Area 10

2.7 Land Drainage

No formal records of private land drainage have been obtained, however some ground profiles exhibit signs of land drainage being installed such as parallel linear depressions in fields, and some land drainage pipes were observed at outfalls to watercourses during the site surveys. These are marked on the drawings in Appendix B. Based on the observations made on site, the low-lying topography and aerial photography (Ref. 5), it should be assumed that many of the fields along the proposed cable route contain land drainage.

2.7.1 Area 2

A pipe (possibly land drainage) was observed which discharges into a ditch in the east of Area 2. No other evidence of land drainage was observed, however due to the agricultural land use and topography it can be expected that land drainage is present in this area, excluding within the NG substation.

2.7.2 Area 3

Land drainage was not identified, either during the site visits or on aerial photography; however it is possible that land drainage is present.

2.7.3 Area 4

Several pipe outlets into watercourses / ditches were observed on the site visits, which combined with the level topography, suggest that land drainage is present in the majority of fields in Area 4.

2.7.4 Areas 5 and 6

Signs of land drainage were not observed on the site visits or on aerial photography; however it is possible that land drainage is present, particularly on the level fields in the west of Area 5 and in the north of Area 6.

2.7.5 Area 7

Land drainage was not identified between the M5 motorway and the A369. North of the A369, ground profiles observed in most fields exhibited signs of land drainage (such as linear field depressions). Observations suggest that land drainage is generally parallel to the proposed route, with occasional cross connections running perpendicular. Observations in two fields between the disused railway line and the nature reserve suggest that land drainage here is laid perpendicular to the proposed route.

2.7.6 Area 8

Land drainage is not anticipated in this area because it is predominantly a paved surface. There is likely to be surface water drainage.

2.7.7 Area 9

Ground profiles in most fields in this area exhibit signs of land drainage. The ground profiles within 200m each side of the M49 motorway did not exhibit signs of land drainage; however, due to the topography of this area it should be assumed that land drainage may be present.



Figure 2.13: Possible land drainage in Area 9 (linear depressions in field)

Field depressions observed in this area suggest that the majority of land drainage here runs parallel to the direction of the proposed route, with the exception of two fields between the M49 and M5 which exhibit signs that land drainage is almost perpendicular to the direction of the route.

2.7.8 Area 10

No evidence of land drainage was identified in Area 10.

2.8 Groundwater

Mapping has been obtained from the Landmark Information Group. This mapping shows the estimated ground water flooding susceptibility along the proposed cable route, and is displayed on the drawings in Appendix B.

The areas at risk include the whole of Area 3, the majority of Area 7 and a few small pockets within Area 5.

The EA Interactive Mapping Tool '*What's in Your Backyard?*' (Ref. 1) has also been used to assess the route with regard to groundwater. According to this website, the southern half of Area 6 is designated as a Groundwater Source Protection Zone.

2.9 Fluvial and Marine Flooding

The mapping provided by Landmark Information Group (Landmark) has been used to make an initial assessment of which areas are at risk of fluvial or marine flooding. The mapping shows the areas at risk of flooding for a 1 in 100 year return period event.

Flooding from rivers and the sea has been considered using the EA '*What's In Your Backyard?*' mapping tool and this combined with the mapping from Landmark indicates that the following sections of the route are at risk.

- A 1.2km long (approximately) section of Area 4 from the northern edge of Nailsea to the Land Yeo crossing;
- The whole of Area 7;
- The central section of Area 8;
- The whole of Area 9;
- The whole of Area 10.

Flooding from reservoirs has been checked using EA mapping. There is a risk for a 250m length (approximately) of Area 4 south of Tickenham Court. This area also includes a fluvial flooding risk.

2.10 Highways

The proposed route crosses the M5 motorway on the boundary of Areas 6 and 7, and the M49 in Area 9. Both of the motorways at these locations are built on embankments. Surface water drainage from these highways is collected by gulleys and drainage channels within the carriageway construction.



Figure 2.14: M49 motorway in Area 9

In the northern part of Area 3 the proposed cable route is aligned in two parallel sections, each approximately 600m long, along roads through Nailsea. Both routes have existing highway drainage. Residential and industrial properties along these roads may also contribute surface water runoff to the drainage.

The following roads were observed to include highway drainage, although no drawings or formal records have been seen:

- B3133 and NG substation compound entrance in Area 2;
- B3130 on boundary of Areas 4 and 5;
- Whitehouse Lane, which crosses Area 6;
- Caswell Cross, at the northern end of Area 6;
- A369 in Area 7;
- Sheepway in Area 7;
- Kings Weston Lane in Area 9.

Throughout the route there are country lanes which are crossed by the route. The lanes do not appear to have specific drainage systems, but drain to nearby ditches and watercourses.

2.11 Other Features

- Area 2 contains an electricity substation. This area is predominantly concrete hard standing, and includes drainage gulleys for surface water. No details of the below ground drainage system were available. The substation is lower than the surrounding area.



Figure 2.15: Substation in Area 2

- Area 8 consists of two areas of hard standing, which are likely to include surface water drainage channels and gulleys.
- East Tickenham Pumping Station is located immediately outside the boundary of Area 4, adjacent to the Land Yeo. It is operated by Wessex Water.
- There is a rising main pipe which crosses the Land Yeo in Area 4. It is possible that this is taking sewage away from East Tickenham Pumping Station, but this has not been confirmed as sewer record plans have not been reviewed.



Figure 2.16: Pipe crossing Land Yeo in Area 4

- Manhole Covers were identified in Area 4. Utility plans have not been reviewed so it has not been confirmed whether these are for foul or surface drainage or other utilities.
- In both Area 4 and Area 6 there were a small number of concrete slabs. These may contain additional foundations underneath.
- In Area 9 there is an embankment which crosses beneath a viaduct section of the M49 motorway. The embankment is 2m high (approximately) and the width is 4m (approximately) at the base and 2m (approximately) at the crest. Its function is unknown but the embankment could be for flood defence, or alternatively enclose a sewer or other service pipe.



Figure 2.17: Embankment under M49 in Area 9

- Bristol Sewage Treatment Works is located to the west boundary of Area 9, and a Pumping Station is marked on OS mapping on the opposite side of the route corridor at the same point as the

embankment mentioned. There could therefore be large sewers near this location, although sewer record plans have not been reviewed.

2.12 Borehole Data

A number of historical borehole logs exist for positions along or near to the route and records are available from the British Geological Survey Website. The borehole logs and locations are summarised in Appendix A; these indicate the depths to rock level and to the water table. There was no data available for either Area 2 or Area 8, and for Areas 3 and 10 there were no boreholes which included groundwater levels.

A detailed ground investigation has not been carried out at the time of this study.

3 Constraints

3.1 Watercourses

It is anticipated that the cable route will be constructed such that the impact on watercourses and ditches is minimised wherever possible.

The proposed route will include a number of crossings of rivers and larger rhynes (greater than about 2m wide) as discussed in Section 2.2:

- Tickenham Boundary Rhyne (Area 4);
- Land Yeo (Area 4);
- Two unnamed rhynes (Area 7);
- Shirehampton Rhine (Area 9);
- New Rhine (Area 9);
- Kings Weston Rhine (Area 9);
- Mere Bank Rhine (Area 9);
- Unnamed rhyne (Area 9);
- Newlands Rhine (Area 9);
- Salt Rhine (Area 9).

As well as the constraint of requiring the construction of a crossing, these watercourses will all have a flow that will need to be managed, in order to keep the construction area dry, and to maintain flow within the watercourse. The watercourses will often have steep banks down to the water level and they may be bounded by soft ground. The watercourses could also become a receptor and form a pathway for any pollution that may result during construction activities.

3.2 Ditches

In general, the ditches found along the cable route were man-made drainage channels, following field boundaries. The ditches were often found to be located within hedges. Typically the ditches range from 1m to 3m in width between upper banks and are estimated to be between 0.5m and 2m in depth from ground level. The ditches appear to be cut into the existing ground, with no evidence of concrete or other hard engineered banks and bed.

It should be noted that the ground near to the ditches is often softer and wetter. Consideration is required for the construction activities and construction haul routes in these areas.

It is anticipated that the cables will be constructed below the level of many of the ditches, therefore not posing a permanent constraint on the cable route.

3.3 Ponds

The ponds in Areas 6, 7 and 9 are a constraint. As noted in Section 2.4, there are no ponds in Areas 2, 4, 8, and 10, and the ponds in Areas 3 and 5 are either on the edge or just outside the cable route corridor, so their impact will need to be considered once the final alignment is chosen. The level of water within ponds may indicate a high groundwater level in the area. Alternatively the ponds are connected to a drainage ditch network. There may be environmental and ecological impacts, although these are outside the scope of this report.

The constraints for each pond will depend on its size and water supply. If it is supplied by groundwater this supply may be impeded if the cable route is designed to pass underneath or adjacent. If the pond is supplied by surface water the flows will need to be managed as for a watercourse, and the supply to the pond will need to be maintained.

The interconnected ponds in Area 7 which form the Portishead Ashlands Nature Reserve form a significant barrier between the south of the route and the electricity sub-station to the north-west. It is understood that the current preference is for the cable route to bypass the nature reserve to the east; however if this is not possible other alternatives will need to be considered.

There are anticipated to be no constraints

3.4 Springs

Although no springs were identified on the route, it is possible that some exist. For any springs affected by the cable route, the primary constraint is that the water flow issuing from a spring could gradually damage the cable surround or wash away the bed material or saturate excavations causing instability.

The cable route construction has the potential to temporarily or permanently divert or cut off flows issuing from natural springs.

3.5 Surface Water Runoff

Due to the topography along the proposed cable route, it can be expected that overland flow could occur. Overland flow could affect the construction process by saturating or flooding the excavations. There is also a risk of soil erosion and transportation of sediment into or away from the construction area.

- **Area 2** - There is a low risk of overland flow running south-west to north-east across Area 2.
- **Area 3** – There is slight risk of overland flow running south to north across Area 3.
- **Area 4** – The level topography suggests that overland flow is unlikely to be a risk in Area 4.

- **Area 5** – Overland flow is likely to occur, both transversely from the sides (i.e. from the north and south), and longitudinally from the top of the valley (Area 6).
- **Area 6** – Overland flow is likely to occur in Area 6, particularly running from south to north in the northern half, and away from the high point in all directions in the southern half of Area 6.
- **Area 7** – Overland flow is possible at the southern section of this area. Due to topography the flow would generally be expected to run from south to north along the line of the proposed route, rather than across the line of the route. Overland flow may also occur north of the disused railway line. Here the flows are anticipated to run from north-east to south-west, across the proposed route. Further overland flow may occur at the north-eastern end of the route, with flow in a direction from south to north.
- **Areas 8 and 9** – Overland flow is unlikely due to the level topography.
- **Area 10** - Overland flow in this area would be from the middle of the site and could run in all directions towards the edges of the field.
-

3.6 Land Drainage

Drainage pipes laid across the proposed cable route will provide an obstacle to the construction of the cables. The drainage pipes affected may need to be severed and temporarily diverted. After construction it may be possible to reinstate the original drainage.

It is anticipated that the cable route will be constructed at a lower depth than the majority of land drainage, and this is therefore not likely to produce constraints in the permanent condition. The exception would be if the receiving ditches are diverted; in which case the land drainage may not be able to be reinstated in the current configuration.

3.7 Ground Water

For the sections of the cable route that are susceptible to groundwater flooding, there is a risk that this groundwater could flood excavations and the above-ground site works, haul roads and compounds during the construction period.

Groundwater will need to be considered in the design of the cable route for the permanent case as high groundwater will pose a risk of flotation. The cable route construction may also affect groundwater flow paths in some locations.

A Groundwater Source Protection Zone is specified by the EA as being used for public drinking water supply, and therefore the section of Area 6 which is designated as such will be at risk of contamination from site drainage percolating into the ground.

3.8 Fluvial and Marine Flooding

Flooding from rivers and marine flooding from high sea levels poses a risk to construction work, particularly in the sections of the cable route described in Section 2.9. Floodwater will place constraints on excavations, above-ground site works, haul roads and compounds; flood protection or other mitigation will need to be considered.

The completed cable route will be underground; therefore there should be no change to the performance of the land during flooding situations, provided ground levels and vegetation are returned to their original state. The exception to this would be if watercourses or ditches are permanently realigned, altering flow paths of floodwater. Floodwater may also produce an additional loading on the ground above the cable which will need to be accounted for in the design.

3.9 Highways

Motorways and other highways such as the A369 provide significant barriers to the cable route construction. Whilst the construction itself is outside the scope of this report, there will be constraints effecting the hydrology and drainage. This includes embankments which will affect overland flow, severing of existing drainage, contamination of drainage and affect flow paths and flooding.

3.10 Buried Structures

There are manholes and small chambers along the route – covers and concrete slabs were noted in areas such as Nailsea (Areas 3 and 4), Whitehouse Lane (Area 6) and other built up areas. Near to East Tickenham Pumping Station and Bristol Sewage Works there may be buried pipework including pressurised rising mains, although the pumping station and sewage works footprints are outside of the proposed cable route boundary. The pipe crossing the Land Yeo in Area 4 is likely to be a pressurised rising main. The ground may become contaminated by sewage if a sewage pipe ruptures; therefore mitigations will be required in order to protect the area.

4 Mitigations

The following measures should be considered to mitigate the hydrological constraints and risks during construction and operation of the assets.

4.1 Construction Mitigation

4.1.1 Watercourses

Crossings will be required for two EA main rivers and a number of rhynes as described in Section 2.2.

For the Land Yeo and larger rhynes (over 2m wide and 1m deep approximately) it is anticipated that the cable route will pass underneath the watercourses and will be constructed by directional drilling, or other no-dig techniques. Water is likely to collect within the drive and reception pits, and the water will need to be pumped or otherwise diverted into the watercourse once it has been treated and cleaned. This will require agreement with the EA.

The smaller rhynes (under 2m wide and 1m deep approximately) could be considered similar to a drainage ditch; however an assessment of the size and flows should be carried out to determine whether no-dig construction should be the preferred method of mitigation. The alternative would be to manage the flows through an open-cut construction either by over-pumping or installing a temporary culvert pipe or channel. Depending on the local topography, it may be possible to construct a pipe culvert to divert the watercourse under the cable route. Approvals may be required from the IDB for diversions of watercourses under their management.

For the above crossings, water levels will need to be monitored during construction. Water flows will need to be managed (by controlling the flow or by allowing a larger flow to by-pass the area locally) where crossing the construction area to avoid flooding.

4.1.2 Ditches

During construction of the cable route all flows within ditches that are impacted by the temporary works will need to be managed. Flows from ditches can be collected in new interceptor / infiltration trenches and drain by either ground infiltration or discharge to a watercourse.

For ditches which cross the construction area, it should be investigated whether it is possible to divert flows to alternative watercourses on their upstream sides. This will depend on the topography and capacities of nearby ditches and watercourses. Alternatively it may be necessary to provide temporary connections to allow flows to cross the construction area (for example temporary culverts or over-pumping).

Strengthening may be required to protect ditch banks and beds from the cable construction process, however if the cable is at sufficient depth this risk should be sufficiently reduced. Flows in the ditches will need to be managed as for those in watercourses.

4.1.3 Ponds

Consideration should be given to flows into and out of ponds. The inflows could be due to high groundwater or a connection from a drainage ditch or overland flow or a combination of these. Whilst the cable may pass under a pond in the permanent condition, it is preferred that this is avoided by locally realigning the cable route. Although not preferred, the existing pond could be relocated. For all relocation options, environmental aspects will need to be considered as part of the assessment.

If a pond is to be relocated, the incoming water flows will need to be maintained and diverted to the relocated pond position, with new outfalls connected to the existing discharge points, where appropriate.

The nature reserve in Area 7 is a particularly large area of ponds and wetlands, and is likely to require significant mitigations. It is understood that the preference is for a route diversion to avoid the ponds, particularly given the land ownership and ecological issues associated with pond relocation or routing through the area. From available mapping provided by Landmark Information Group and EA mapping it is thought that the ponds are not supplied by groundwater. If watercourses to the ponds are diverted or the nature reserve is bunded, the ponds may dry up. If the ponds are to be retained, it is possible that the cables could be routed underneath the ponds by using directional drilling or another no-dig technique.

4.1.4 Springs

Should springs be identified, it would be advisable for the route to avoid these if possible. If this is not possible, groundwater will need to be drawn down in the location of the spring by installing additional gravity pipework, dewatering or providing sump pumping. Water issuing from springs will need to be diverted around the construction area to its original course

4.1.5 Surface Water Runoff

To manage the risk of surface water runoff entering the excavations, it is proposed that interceptor / infiltration trenches should be constructed parallel to the cable route as shown in drawing 322069-C-DR-WPD-XX-1308. Measures are needed to prevent flows from flooding the works.

To protect the works, the construction of interceptor / infiltration trenches should be considered for the up-slope side of the route. Where possible the trenches will allow water to drain to the ground by infiltration or alternatively discharge to a nearby watercourse in keeping with principles of sustainable drainage. Consideration should be given to suspended silt and sediment and possible contaminants in the water. The option of discharging into soakaways along the cable route should also be considered depending on the ground conditions and water table.

Additional trenches perpendicular to, and underneath, the cable route may be required to divert flows to a watercourse on the opposite side of the cable route.

The preferred method of draining the trenches should be established once ground investigations are completed.

4.1.6 Land Drainage

Land drainage conveyed within pipework parallel to the cable route and outside of the working area should be largely unaffected. Land drainage that crosses the connection route should be diverted into the interceptor / infiltration trenches described in Section 4.1.2. It is expected that sections of the existing land drainage system will be removed during construction and reinstated afterwards, with agreement from the landowner.

4.1.7 Groundwater

In order to reduce the risk of groundwater flooding, the groundwater level should be lowered by a suitable method for high risk areas. This is likely to be well-point dewatering for areas with a particularly high water table and / or a large area at risk, and in-situ pumping for other areas. Groundwater levels should be monitored prior to construction in order to confirm the degree to which the construction will be affected. The collected groundwater should be discharged to the interceptor / infiltration trenches or a watercourse, whichever is most suitable for the location. Prior to discharge to a watercourse all groundwater will require protection and filtering from silts, oils and other contaminants (particularly for higher risk areas such as Portbury and Avonmouth). Lowering of groundwater and discharge of collected groundwater to watercourses may need agreement from the EA or IDB.

For groundwater flooding protection, interceptor / infiltration trenches should be constructed either side of the route. Where possible the trenches will allow water to drain to the ground by infiltration or alternatively discharge to a nearby watercourse in keeping with principles of sustainable drainage. Consideration should be given to suspended silt and sediment and possible contaminants in the water. The option of discharging into soakaways along the cable route should also be considered depending on the ground conditions and water table.

For the section of Area 6 which is a Groundwater Source Protection Zone, the construction site will need particular care regarding groundwater. It may be possible to divert the route around this area, but should the route pass through it, special consideration will be needed to prevent groundwater contamination and pollution from site activities. This should be managed in consultation with the EA.

4.1.8 Fluvial and Marine Flooding

As a similar approach to the surface water runoff mitigation, consideration should be given to protection of construction areas from fluvial and marine flooding, for example by the use of bunds on both sides of the excavation. The bunds are likely to be required in the area equivalent to the 1 in 100 year return period area indicated on the drawings in Appendix B. The bund size may be reduced to an appropriate return period to suit the expected construction programme. However, there remains a low probability that the 1 in

100 year flood will occur during the short duration of the construction period. The risk and probability of occurrence needs to be considered and the protection designed accordingly.

It should be noted that the Environment Agency and the IDBs use the Avonmouth area and the North Somerset Levels to manage floodwater to protect other areas. Therefore the Levels have factors other than rainfall that influence flooding locations.

4.1.9 Highway Crossings

At highway crossings, all surface and groundwater flows in the construction area will need to be intercepted and separated from existing highway drainage. This may involve pumping across the construction area, or providing a temporary pipe/culvert, maintaining the highway drainage through the construction phase.

Consideration should be given to the topography of the area and that many of the lanes are at a lower level than the surrounding fields and may convey surface water runoff from the fields. Oils and grits may need to be removed from the drainage before discharge to a watercourse, subject to approval by the Environment Agency or Local Authority / IDB.

The motorway crossings are likely to be constructed underneath the carriageway using directional drilling or another no-dig technique. Where the route crosses a motorway, it is likely that the cable route will pass underneath the highway drainage. Runoff from such embankments should be considered as for overland flow (see Section Appendix B), although it is likely that they are drained separately as part of the highway construction.

4.2 Permanent Works Mitigation

4.2.1 Watercourses and Ditches

In situations where the cable route passes underneath watercourses and ditches, it is likely that there will be no further constraints in the permanent case. Typical construction details for these permanent crossings can be found in drawing 322069-C-DR-WPD-XX-1308 in Appendix B. The design of such a culvert should be sized with regard to the permanent drainage arrangement including consideration of climate change, and take into account any changes in surface or groundwater flow as a result of the works.

4.2.2 Ponds

Refer to Section 4.1.3. Permanent works mitigation measures are the same as the construction measures. Where ponds are retained, they should be assessed after construction is complete to ensure they are not adversely affected by the construction works.

4.2.3 Springs

Should the cable route pass close to a spring, additional sub-surface drainage may be required to divert flows around the cable route. Additional strengthening of the concrete surround of the cable trench may be required. The natural course of the spring water should be maintained after, and preferably during, construction.

4.2.4 Land Drainage

Land drainage that has been altered during construction should be reinstated. Due to the depth of the cable it is likely that the new drainage pipes will pass over the cable construction, estimated to have 1m of cover between the construction and ground level.

It may not be possible for a land drainage pipe to discharge to its original watercourse. In this situation, flows will need to be conveyed to an appropriate alternative watercourse to ensure the land drainage effectiveness is maintained.

4.2.5 Groundwater

Any measures employed to lower or redirect groundwater flows during construction should be removed afterwards so that groundwater levels return to their pre-construction conditions. On-going monitoring may be required once construction is complete to ensure this by comparing with a pre-construction baseline and should be done in consultation with the environmental regulator.

It is anticipated that the cables will be encased in concrete which should negate concerns of flotation due to groundwater. Consideration should be given as to the flow paths of groundwater around the construction area, and provision should be made to facilitate the natural flow routes. This may involve additional layers of permeable sub-base material underneath or around the cables to allow flows to cross the line of the route.

4.2.6 Flooding and Surface Water Runoff

Any bunds should be removed once construction is complete, and ground levels returned to those before construction. This should ensure that previous flow paths are restored. Where there has been a permanent change to the surface levels and / or features, for example a new concrete structure, there may need to be local changes in ground levels to provide compensation flood storage. This should be assessed and agreed in consultation with the EA.

4.2.7 Buried Structures

The cable route should avoid the location of buried chambers or other drainage structures where possible. To achieve this, the route alignment may need to be adjusted and/or the structures will need to be removed and diverted. Alternatively these structures may be removed following agreement with the owner.

Sewer plans should be checked to confirm the arrangement of pipework around the East Tickenham pumping station, including any discharges to watercourses, plus the rising main crossing of the Land Yeo. In the permanent condition, the cable construction may lie underneath drainage pipework.

5 Conclusion

The hydrological features and risks that have been identified within the proposed 132kV route corridor include crossing one small river, a number of large rhynes, ditches, ponds, and land drainage. There is also potential for flooding from groundwater, surface water runoff, fluvial and marine waters. Drawings MMD-322069-C-DR-WPD-XX-1301 to MMD-322069-C-DR-WPD-XX-1307 in Appendix B illustrate the cable route, the site observations and the areas that provide construction and operational constraints for the scheme.

Suggested mitigation measures for the both the construction and operational phases are illustrated on drawing 322069-C-DR-WPD-XX-1308. These should be developed and integrated into the detailed designs for the scheme.

Prior to any detailed design, the scheme constraints and mitigation measures should be developed further and agreed with the Environment Agency and / or the appropriate IDB. These authorities will need to approve the temporary and the permanent mitigation measures for each section of the proposed cable route.

The following actions are recommended in order to confirm the constraints and mitigation measures in the report and to provide sufficient detail to finalise the design of the cable route:

- **Topographical survey** - including an assessment of high and low points along the route, and confirmation of expected overland flow paths;
- **Ground Investigation** – to confirm groundwater levels and permeability of the ground strata;
- **Analyse rainfall data** – to confirm overland flows and identify likely locations of fluvial flooding during the construction period; and to confirm flows in ditches and watercourses;
- **Groundwater monitoring** – to record water levels before, during and after construction;
- **Soil Analysis** – with regard to potential for erosion and sediment movement from surface flows, particularly during construction works;
- **Obtain Utility Information** – obtain plans and any construction drawings or inspection reports in order to investigate likely sources of construction obstructions;
- **Pipe Hydraulics** - any proposed changes in existing pipe routes should be assessed. This could be a significant issue in the area near to East Tickenham Pumping station;
- **Landowner Consultation** – obtain additional information to confirm existing land drainage, land use and preferences with regard to mitigation works;
- **Environmental Assessment** – in order to determine constraints and options for the relocation of ponds, diversion of ditches and discharge flows; thus protecting areas of environmental significance.

6 References

1. Environment Agency. (2013). *What's in your backyard Interactive Mapping Tool*.
<http://www.environment-agency.gov.uk/>
2. Landmark Information Group, Envirocheck mapping, received 12/08/13; order references 48314325 for Area 2, 48314200 for Area 3, 48314240 for Areas 4 to 8, 48314370 for Area 9, and 48314467 for Area 10.
3. British Geological Survey data from website (2013): <http://www.bgs.ac.uk/>
4. Ordnance Survey mapping (2013). Reproduced from Ordnance Survey maps. By permission of the Ordnance Survey on behalf of the controller her majesty's stationery office. © Crown Copyright Ordnance Survey. OS licence no. 100048471.
5. Google Maps aerial photography (reviewed August 2013): <https://maps.google.co.uk/>

Appendices

Appendix A. Historical Borehole Logs	37
Appendix B. Scheme Drawings	39

Appendix A. Historical Borehole Logs

Table A.1: Summary of Historical Borehole Information from British Geological Survey (BGS)

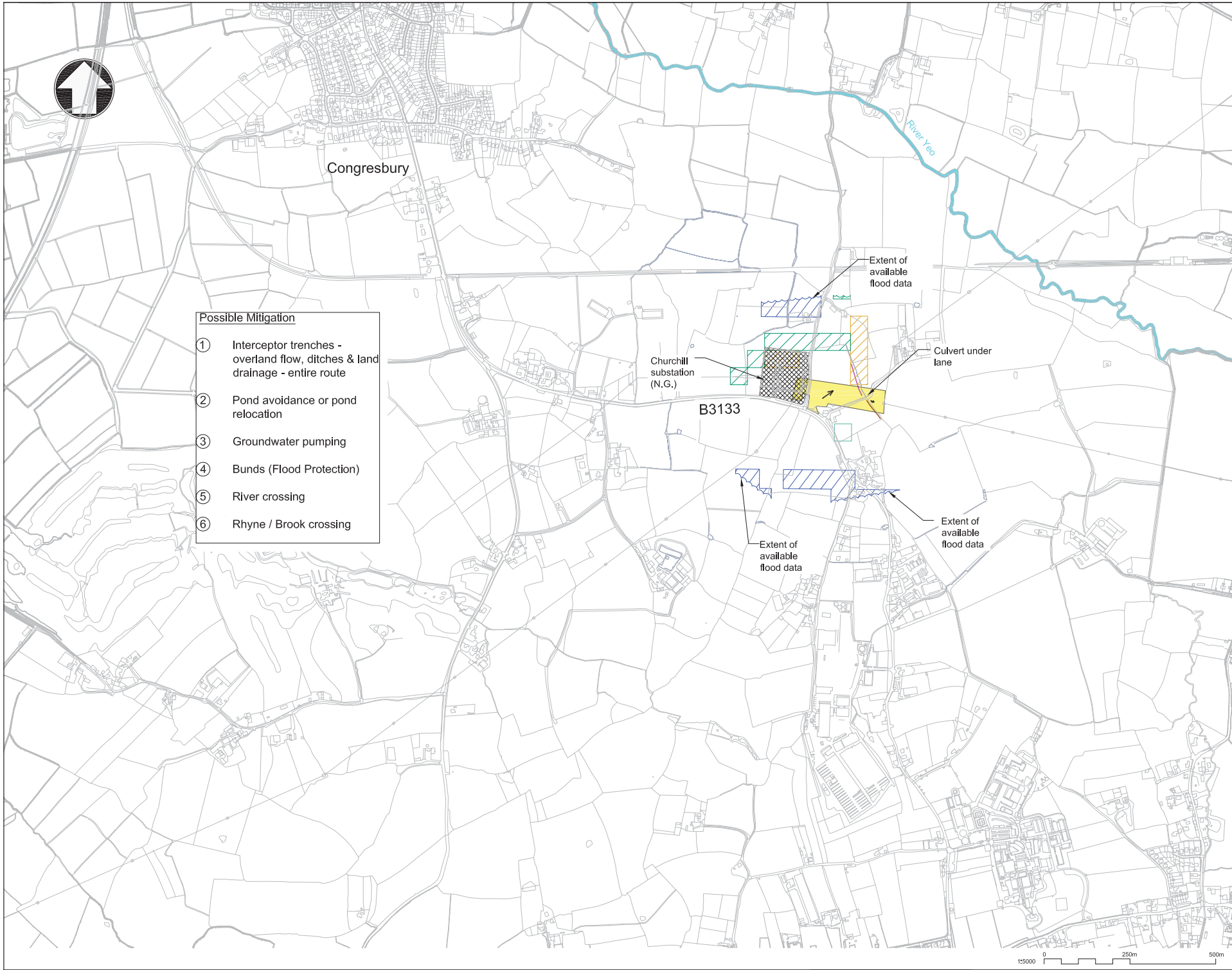
Area	BGS Ref. Number	Easting	Northing	BH Length	Ground Level (mAOD)		Depth to rock (m)	Depth to Water Table (m)	Water Table variations	Notes
					BGS	OS				
2	-	-	-	-	-	-	-	-		No boreholes in this area
3	-	-	-	-	-	-	-	-		No boreholes with water in this area
4	ST47SE3	345830	171640	2.36	8.38	-	n/a	1.37		
5	ST47SE142	346190	171980	60.00	-	15	n/a	9.00		
6	ST47SE56	348960	174940	4.57	18.6	-	n/a	4.3		No water encountered
7	ST47NE33	348550	175440	6.7	5.7	-	n/a	1.20	down to 5.00	
7	ST47NE34	348720	175490	10.5	5.8	-	n/a	2.1	between 1.30m and 7.50m	
7	ST47NE39	348610	176340	22	+10.39	-	n/a	6.55		
7	ST47NE68	348260	176570	35.5	6.9	-	n/a	1		
7	ST47NE69	348420	176590	43.8	7.15	-	n/a	10		
7	ST47NE66	348270	176870	41.5	7	-	n/a	2	down to 10.00m	
7	ST47NE46	348910	176540	25.6	13.41	-	n/a	7.47		
7	ST47NE40	348760	176720	20	7.92	-	n/a	1.37		
7	ST47NE45	348980	176760	21.94	9.75	-	n/a	4.72		
7	ST47NE47	349060	176410	25.6	13.41	-	n/a	6.1		
7	ST47NE48	349200	176750	24.99	12.8	-	n/a	6.4		
7	ST47NE44	349080	176990	19.5	7.32	-	n/a	0.61		
7	ST47NE41	348850	176980	19.5	7.32	-	n/a	1.37		
7	ST47NE67	348470	176910	20.3	7.3	-	n/a	2.4		
7	ST47NE64	348250	177080	60	10.6	-	n/a	10.5	also at 17.30m	

Area	BGS Ref. Number	Easting	Northing	BH Length	Ground Level (mAOD)		Depth to rock (m)	Depth to Water Table (m)	Water Table variations	Notes
					BGS	OS				
8	-	-	-	-	-	-	-	-		No boreholes in this area
9	ST57NW 161	353180	178300	20.25	-	10	n/a	10		
9	ST57NW 162	353200	178320	18.05	-	10	n/a	18.05		
9	ST57NW 503	353264	178326	21	7.53	-	n/a	7.5	between 7.50m and 7.90m	
9	ST57NW 352	352940	178580	56.69	6.71	-	n/a	2.44	down to 3.66m	
9	ST57NE2 9	352960	178600	56.69	-	10	18.3	2.44	down to 3.66m	
9	ST57NW 166	353610	178650	30	6.09	-	n/a	2.6		
9	ST57NW 95	353810	178750	18.28	7.44	-	n/a	1.22		
9	ST57NW 157	353640	178980	16	6.15	-	n/a	2		
9	ST57NW 100	354230	179080	18.28	6.34	-	12.2	1.83		
9	ST57NW 362	354130	179150	70.71	6.71	-	20.42	3.66	down to 4.57m	
9	ST57NW 31	354130	179190	70.71	6.71	-	n/a	3.66	down to 4.57m	
9	ST57NW 498	353951	179289	28.5	6.48	-	n/a	6		
9	ST57NW 158	353980	179300	12	6.47	-	n/a	2.45		
10	-	-	-	-	-	-	-	-		No boreholes with water in this area

Note 1) – only records of boreholes where water was encountered are shown here,

Note 2) – for Area 9, only records of boreholes greater than 10m long are shown here.

Appendix B. Scheme Drawings



- Possible Mitigation
- ① Interceptor trenches - overland flow, ditches & land drainage - entire route
 - ② Pond avoidance or pond relocation
 - ③ Groundwater pumping
 - ④ Bunds (Flood Protection)
 - ⑤ River crossing
 - ⑥ Rhyne / Brook crossing

Site Map

Key

- Land drains
- Chamber
- Pond
- Ditch (Identified by MM)
- Pipes
- Spring Issues
- Survey extents
- EA main rivers
- Watercourse (As shown on OS Map layer)
- Highways
- Embankment / Mound
- Depression
- Direction of overland flow

Following Data received from Landmark:

Ground Water Flooding

- Potential for groundwater flooding to occur at surface
- Potential for groundwater flooding of property situated below ground level

Fluvial Flooding

- 100 Year Return Period

Notes

- Do not scale any Items or Information from this drawing.
- Hydrological features may be present outside survey areas.
- Land drainage shown where identified from site visits and overhead photography. Land drainage may also be present in other areas.
- Ecological mitigations are outside the scope of this drawing.
- Hydrological features shown are in indicative locations only. They are not to be relied on for detailed design.

REPRODUCED FROM ORDNANCE SURVEY MAPS. BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT. ORDNANCE SURVEY. OS LICENCE NO. 100048471

MMD-322069-C-DR-WPD-XX-1301

NO	DESCRIPTION	DATE	BY	CHKD	APPRO

P1	03/09/13	FOR INFORMATION	NM	RGM	NP
ISSUE	DATE	COMMENTS	DRAWN	CHKD	APPRO
TITLE:					

NATIONAL GRID
HINKLEY C CONNECTION PROJECT
132 KV HYDROLOGY

AREA 2

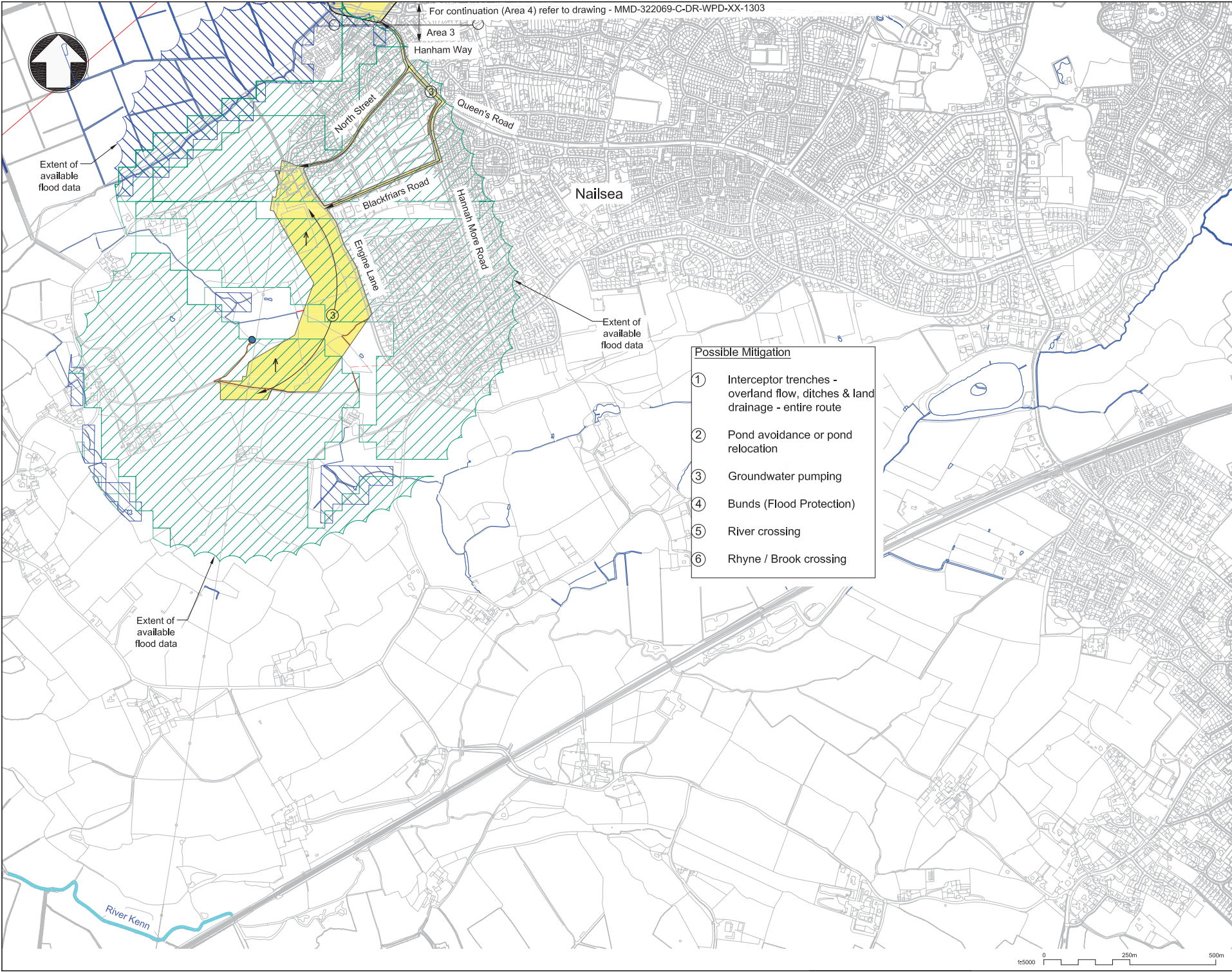
nationalgrid
Warwick Technology Park, Galsborough Hill, Warwick, CV34 9DA

NO	DESCRIPTION	SCALE	ACAD
20897	XXXXXX	A1	
N/A	X/XX/XX/X	SCALE 1:5000	

SHEET 1 OF 7

SHEET X OF X

P1



Site Map

Key

- Land drains
- Chamber
- Pond
- Ditch (identified by MMI)
- Pipes
- Spring Issues
- Survey extents
- EA main rivers
- Watercourse (As shown on OS Map layer)
- Highways
- Embankment / Mound
- Depression
- Direction of overland flow
- Following Data received from Landmark:
- Ground Water Flooding
 - Potential for groundwater flooding to occur at surface
 - Potential for groundwater flooding of property situated below ground level
- Fluvial Flooding
 - 100 Year Return Period

Notes

- Do not scale any items or information from this drawing.
- Hydrological features may be present outside survey area.
- Land drainage shown where identified from site visits and overhead photography. Land drainage may also be present in other areas.
- Ecological mitigations are outside the scope of this drawing.
- Hydrological features shown are in indicative locations only. They are not to be relied on for detailed designs.

REPRODUCED FROM ORDNANCE SURVEY MAPS, BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT ORDNANCE SURVEY. OS LICENCE NO. 100048471

MMD-322069-C-DR-WPD-XX-1302

ISSUE	DATE	COMMENTS	DRAWN	CHKD	APPRO
P1	03/09/13	FOR INFORMATION	NM	RGM	NP

TITLE:

NATIONAL GRID
HINKLEY C CONNECTION PROJECT
132KV HYDROLOGY

AREA 3

nationalgrid
Warwick Technology Park, Gallops Hill, Warwick, CV34 9DA

NO. PROJECT	APPLICATION	ACAD
20897	XXXXXX	A1

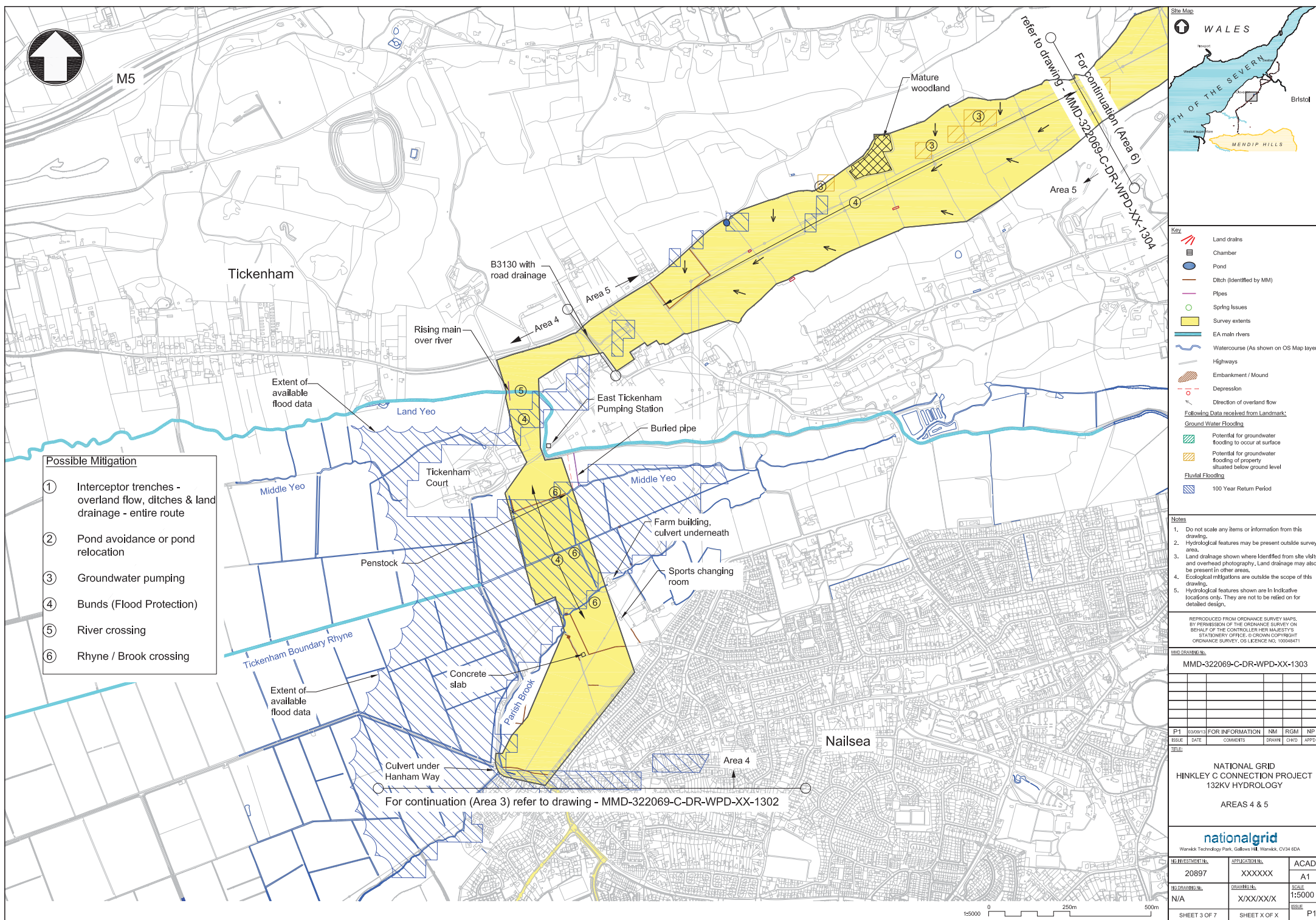
NO. DRAWING	DRAWING	SCALE
N/A	X/XX/XX/X	1:5000

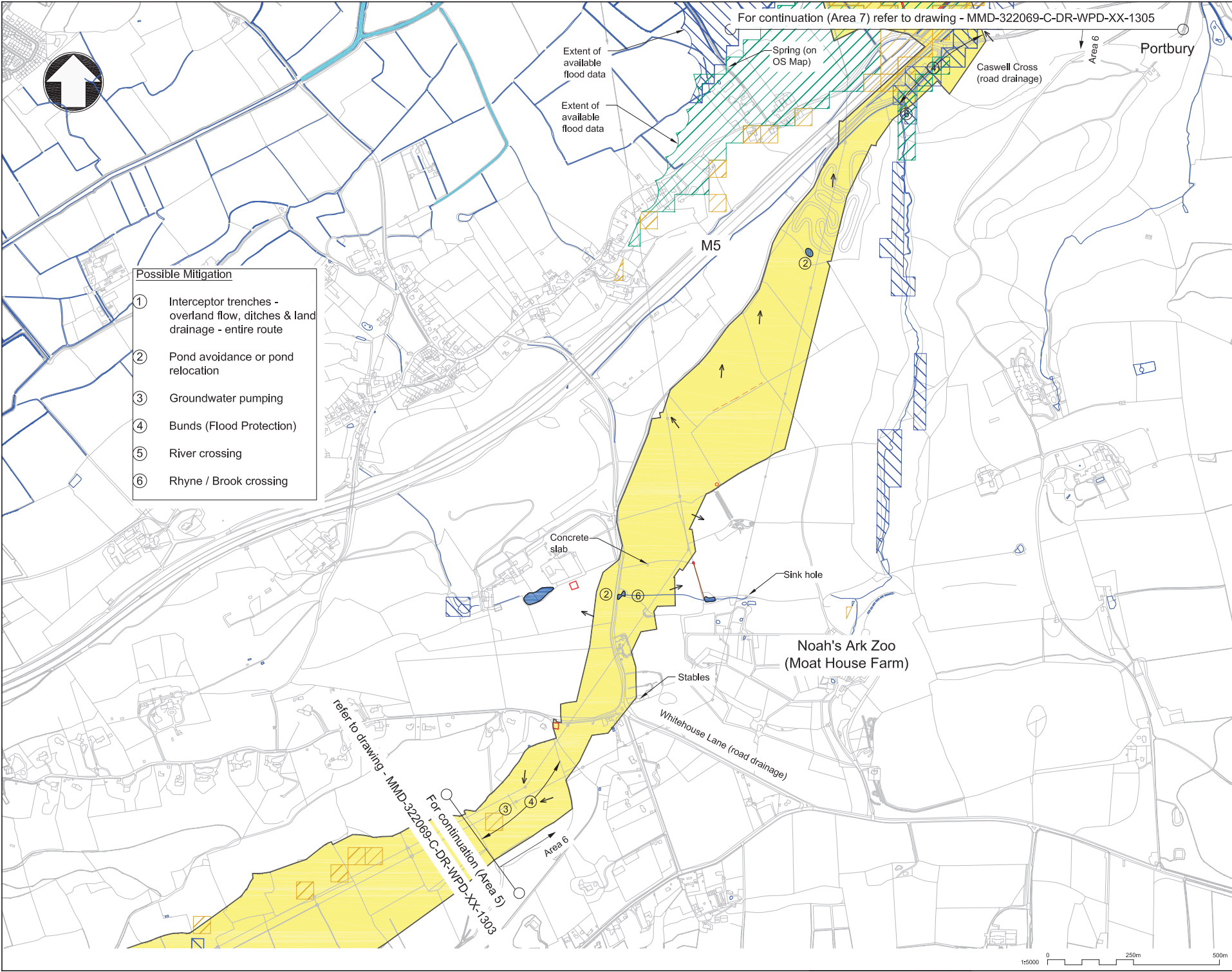
SHEET 2 OF 7

SHEET X OF X

ISSUE

P1





- Possible Mitigation**
- ① Interceptor trenches - overland flow, ditches & land drainage - entire route
 - ② Pond avoidance or pond relocation
 - ③ Groundwater pumping
 - ④ Bunds (Flood Protection)
 - ⑤ River crossing
 - ⑥ Rhyne / Brook crossing

Site Map

For continuation (Area 7) refer to drawing - MMD-322069-C-DR-WPD-XX-1305

Portbury

Caswell Cross (road drainage)

Area 6

M5

Noah's Ark Zoo (Moat House Farm)

Stables

Whitehouse Lane (road drainage)

Sink hole

Concrete slab

refer to drawing - MMD-322069-C-DR-WPD-XX-1303

For continuation (Area 5)

Area 6

Key

- Land drains
- Chamber
- Pond
- Ditch (identified by MM)
- Pipes
- Spring issues
- Survey extents
- EA main rivers
- Watercourse (As shown on OS Map layer)
- Highways
- Embankment / Mound
- Depression
- Direction of overland flow
- Following Data received from Landmark:
- Ground Water Flooding
 - Potential for groundwater flooding to occur at surface
 - Potential for groundwater flooding of property situated below ground level
- Fluvial Flooding
 - 100 Year Return Period

Notes

- Do not scale any items or information from this drawing.
- Hydrological features may be present outside survey areas.
- Land drainage shown where identified from site visits and overhead photography. Land drainage may also be present in other areas.
- Ecological mitigations are outside the scope of this drawing.
- Hydrological features shown are in indicative locations only. They are not to be relied on for detailed design.

REPRODUCED FROM ORDNANCE SURVEY MAPS, BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT. ORDNANCE SURVEY, OS LICENCE NO. 100048471

MMD DRAWING

MMD-322069-C-DR-WPD-XX-1304

NO.	REVISION	DATE	FOR INFORMATION	NM	RGM	NP
P1	03/09/13					

ISSUE

DATE	COMMENTS	DRAWN	CHKD	APPD

TITLE

NATIONAL GRID
HINKLEY C CONNECTION PROJECT
132KV HYDROLOGY

AREA 6

nationalgrid

Warwick Technology Park, Galloway Hill, Warwick, CV34 8DA

NO.	REVISION	DATE	FOR INFORMATION	NM	RGM	NP
20897			XXXXXX			

SCALE

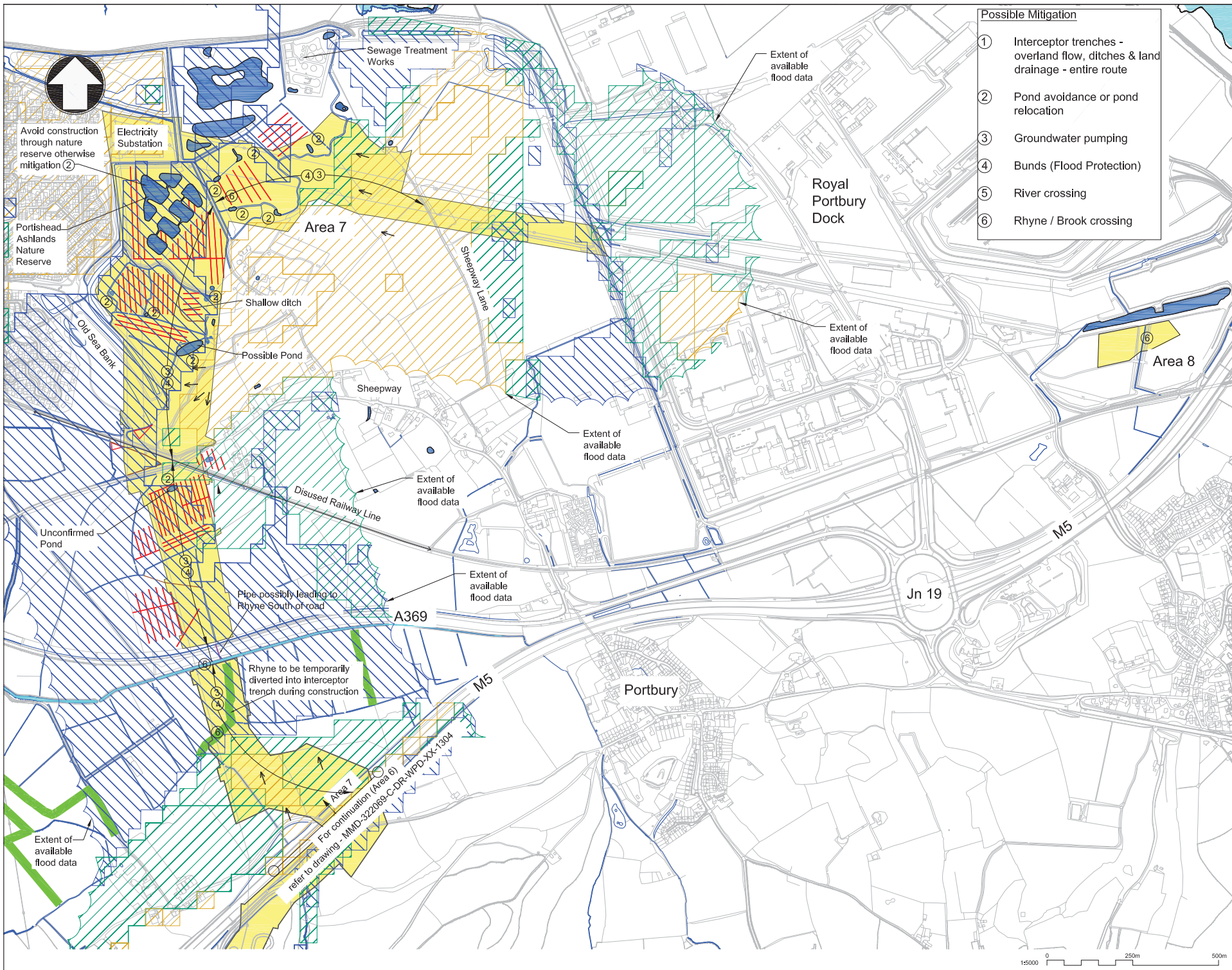
1:5000

ISSUE

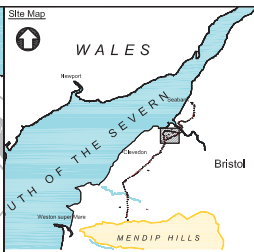
SHEET 4 OF 7

SHEET X OF X

P1



- Possible Mitigation**
- 1 Interceptor trenches - overland flow, ditches & land drainage - entire route
 - 2 Pond avoidance or pond relocation
 - 3 Groundwater pumping
 - 4 Bunds (Flood Protection)
 - 5 River crossing
 - 6 Rhyne / Brook crossing



- Key**
- Land drains
 - Chamber
 - Pond
 - Ditch (Identified by MM)
 - Pipes
 - Spring Issues
 - Survey extents
 - EA main rivers
 - Watercourse (As shown on OS Map layer)
 - Highways
 - Embankment / Mound
 - Depression
 - Direction of overland flow
- Following Data received from Landmark:**
- Ground Water Flooding**
 - Potential for groundwater flooding to occur at surface
 - Potential for groundwater flooding of property situated below ground level
- Fluvial Flooding**
- 100 Year Return Period

- Notes**
1. Do not scale any items or information from this drawing.
 2. Hydrological features may be present outside survey areas.
 3. Land drainage shown where identified from site visits and overhead photography. Land drainage may also be present in other areas.
 4. Ecological mitigations are outside the scope of this drawing.
 5. Hydrological features shown are in indicative locations only. They are not to be relied on for detailed design.
- REPRODUCED FROM ORDNANCE SURVEY MAPS BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT. ORDNANCE SURVEY. OS LICENCE NO. 100048471

MM DRAWING:
MMD-322069-C-DR-WPD-XX-1305

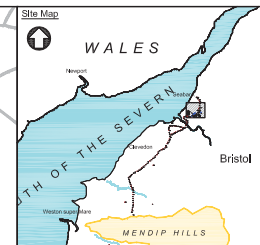
P1	30/09/13	FOR INFORMATION	NM	RGM	NP
ISSUE	DATE	COMMENTS	DRAWN	CHWD	APPO

NATIONAL GRID
HINKLEY C CONNECTION PROJECT
132KV HYDROLOGY
AREAS 7 & 8

nationalgrid Warwick Technology Park, Galsworthy Hill, Warwick, CV34 9DA		
PROJECT NO. 20897	APPLICATION XXXXXX	ACAD A1
DRAWING NO. N/A	DRAWING DATE X/XX/XX/X	SCALE 1:5000
SHEET 5 OF 7		ISSUE P1



Bristol Channel



- Key**
- Land drains
 - Chamber
 - Pond
 - Ditch (identified by MM)
 - Pipes
 - Spring Issues
 - Survey extents
 - EA main rivers
 - Watercourse (As shown on OS Map layer)
 - Highways
 - Embankment / Mound
 - Depression
 - Direction of overland flow
- Following Data received from Landmark:**
- Ground Water Flooding**
 - Potential for groundwater flooding to occur at surface
 - Potential for groundwater flooding of property situated below ground level
 - Fluvial Flooding**
 - 100 Year Return Period

- Notes**
- Do not scale any items or information from this drawing.
 - Hydrological features may be present outside survey areas.
 - Land drainage shown where identified from site visits and overhead photography. Land drainage may also be present in other areas.
 - Ecological mitigations are outside the scope of this drawing.
 - Hydrological features shown are in indicative locations only. They are not to be relied on for detailed design.

REPRODUCED FROM ORDNANCE SURVEY MAPS BY PERMISSION OF THE ORDNANCE SURVEY ON BEHALF OF THE CONTROLLER HER MAJESTY'S STATIONERY OFFICE. © CROWN COPYRIGHT. ORDNANCE SURVEY. OS LICENCE NO. 100048471

MMD-322069-C-DR-WPD-XX-1306

ISSUE	DATE	COMMENTS	DRAWN	CHKD	APPR
P1	03/09/13	FOR INFORMATION	NM	RGM	NP

NATIONAL GRID
HINKLEY C CONNECTION PROJECT
132KV HYDROLOGY

AREA 9
LOCATION PLAN

nationalgrid
Warwick Technology Park, Goffers Hill, Warwick, CV34 9DA

REVISION	APPLICATION	ACAD
20897	XXXXXX	A1
REVISION	DRAWING	SCALE
N/A	X/XX/XX/X	1:5000
SHEET 6 OF 7	SHEET X OF X	ISSUE P1

Possible Mitigation

- 1 Interceptor trenches - overland flow, ditches & land drainage - entire route
- 2 Pond avoidance or pond relocation
- 3 Groundwater pumping
- 4 Bunds (Flood Protection)
- 5 River crossing
- 6 Rhyne / Brook crossing

Avonmouth

Extents of available flood data

Bristol Sewage Treatment Works

Culvert under motorway

M49

M5

Scall Rhyne

Kings Weston Rhyne

Mere Bank Rhyne

New Rhyne

Ditch

Shirehampton Rhyne

Culvert beneath traveller park access

Jn 18

Linear embankment under motorway

Newlands Rhyne

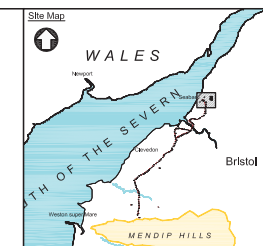
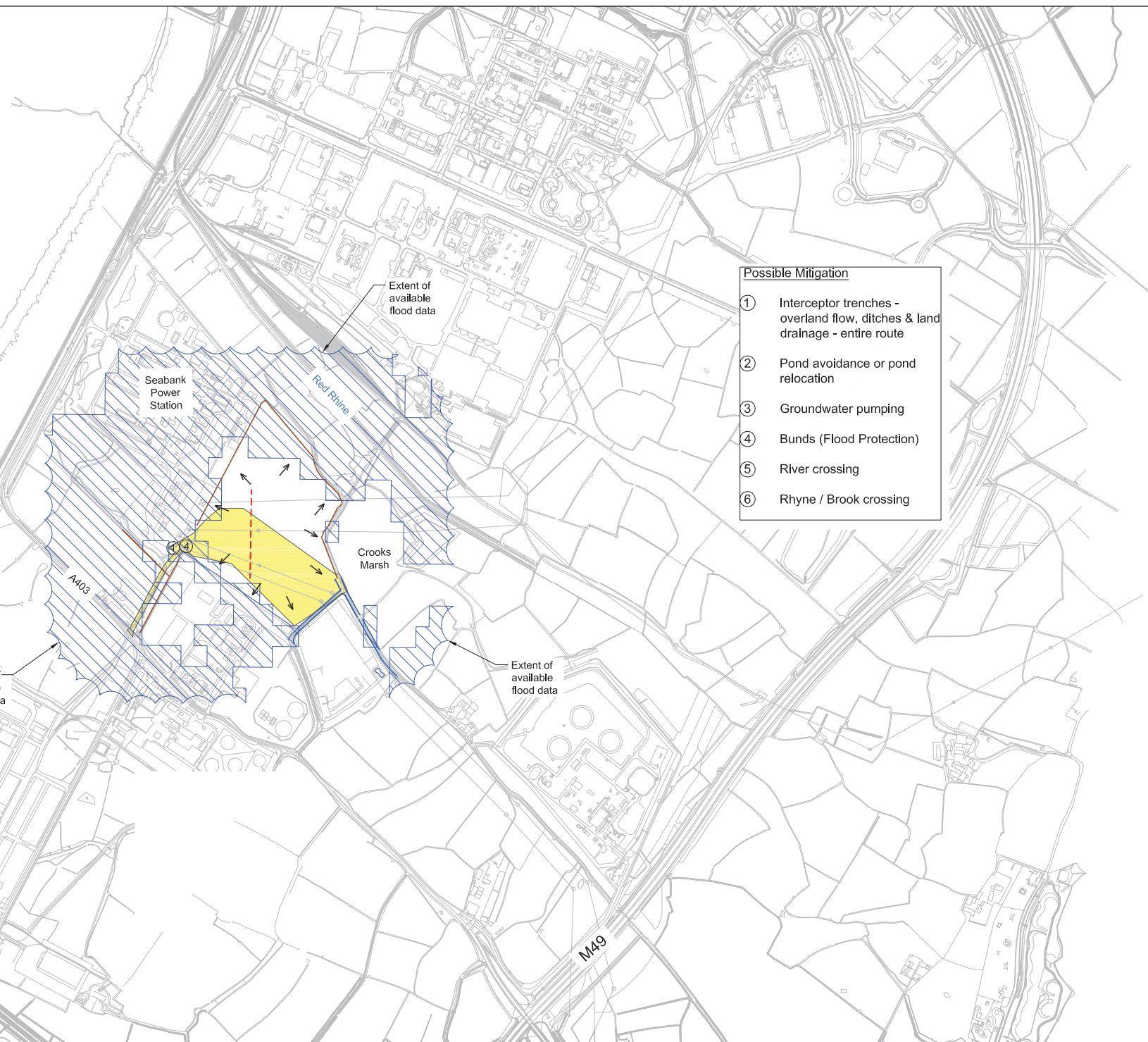
Pumping Station

Lawrence Weston














0 250m 500m



Bristol
Channel





Key

- | | |
|---|--|
|  | Land drains |
|  | Chamber |
|  | Pond |
|  | Ditch (Identified by MIM) |
|  | Pipes |
|  | Spring issues |
|  | Survey extents |
|  | EA main rivers |
|  | Watercourse (As shown on OS Map layer) |
|  | Highways |
|  | Embankment / Mound |
|  | Depression |
|  | Direction of overland flow |

Following Data received from Landmark

Ground Water Flooding

- | | |
|---|--|
|  | Potential for groundwater flooding to occur at surface |
|  | Potential for groundwater flooding of property situated below ground level |

Fluvial Flooding

- 100 Year Return Period

Notes

1. Do not scale any items or information from this drawing.
2. Hydrological features may be present outside survey area.
3. Land drainage shown where identified from site visit and overhead photography. Land drainage may also be present in other areas.
4. Ecological mitigations are outside the scope of this drawing.
5. Hydrological features shown are indicative locations only. They are not to be relied on for detailed design.

REPRODUCED FROM ORDNANCE SURVEY MAPS.
BY PERMISSION OF THE ORDNANCE SURVEY ON
BEHALF OF THE CONTROLLER HER MAJESTY'S
STATIONERY OFFICE. © CROWN COPYRIGHT
ORDNANCE SURVEY, OS LICENCE NO. 100048471

MND DRAWING No. _____

MMD-322069-C-DR-WPD-XX-1307

P1	03/09/13	FOR INFORMATION	NM	RGM	NR
ISSUE	DATE	COMMENTS	DRAWN	CHK'D	APP'D
TITLE:					

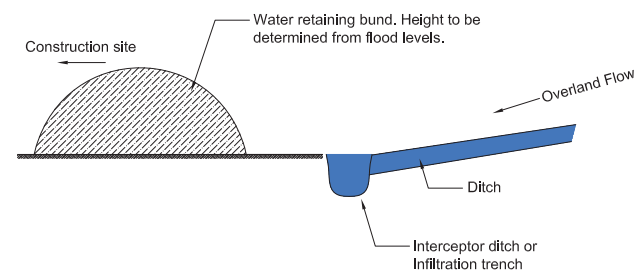
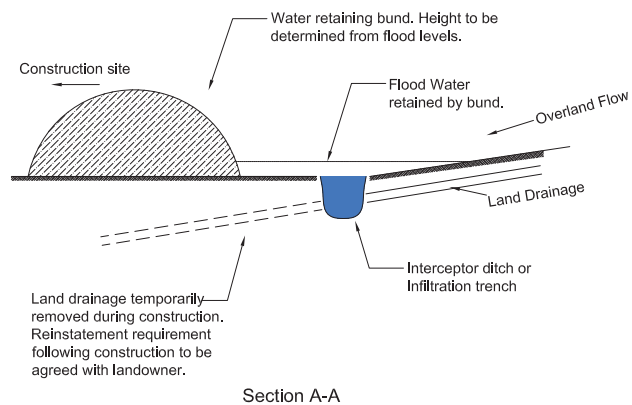
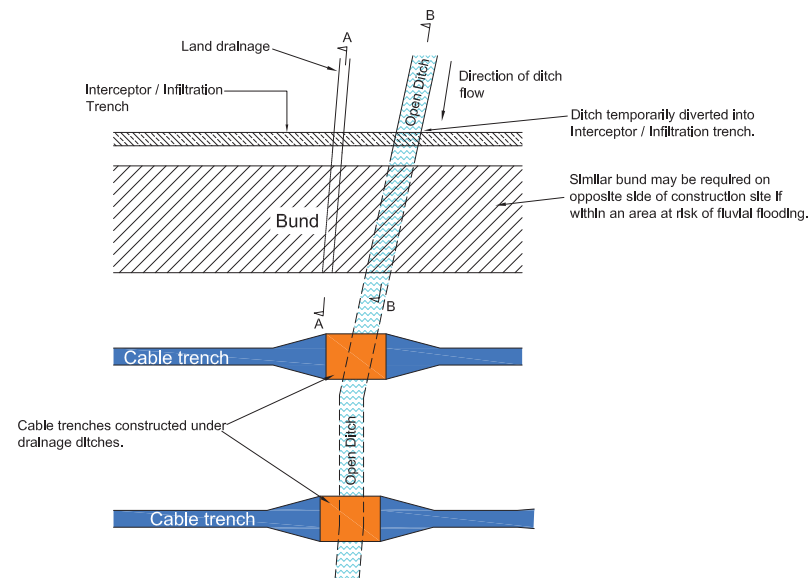
NATIONAL GRID
HINKLEY C CONNECTION PROJECT
132KV HYDROLOGY

AREA 10
LOCATION PLAN

nationalgrid

Warwick Technology Park, Gallows Hill, Warwick, CV34 6DA

<u>NO INVESTMENT No.</u>	<u>APPLICATION No.</u>	<u>ACAD</u>
20897	XXXXXX	A1
<u>NO DRAWING No.</u>	<u>DRAWING No.</u>	<u>SCALE</u>
N/A	X/XX/XX/X	1:5000
		<u>ISSUE</u>
SHEET 7 OF 7	SHEET X OF X	P



Typical Sections Across Proposed Mitigation Construction Area

- | |
|-------|
| Notes |
|-------|

REPRODUCED FROM ORDNANCE SURVEY MAPS.
BY PERMISSION OF THE ORDNANCE SURVEY ON
BEHALF OF THE CONTROLLER HER MAJESTY'S
STATIONERY OFFICE. © CROWN COPYRIGHT
ORDNANCE SURVEY. OS LICENCE NO. 100048471

NATIONAL GRID HINKLEY C CONNECTION PLAN & SECTIONS OF PROPOSED MITIGATIONS

<u>HG INVESTMENT No.</u>	<u>APPLICATION No.</u>	<u>ACAD</u>
20897	XXXXXX	A1
<u>HG DRAWING No.</u>	<u>DRAWING No.</u>	<u>SCALE</u>
N/A	XXXXXX	
		<u>ISSUE</u>
SHEET 1 OF 1	SHEET X OF X	P

Appendix 10E – Water Framework Directive Assessment

Water body Kings Sedgemoor Drain

Baseline Conditions		
Waterbody ID	GB108052021150	GB108052021400
Grid Reference		
Current Overall Potential	Moderate	Moderate
Status Objective (Overall)	Good by 2027	Good by 2028
Status Objective(s)	Good ecological potential by 2027	Good ecological potential by 2028
Justification if overall objective is not good status by 2015	Disproportionately expensive, Technically infeasible	Disproportionately expensive, Technically infeasible
Protected Area Designation	Freshwater Fish Directive	Freshwater Fish Directive
SSSI Related	No	No
Hydromorphological Designation		
	Artificial	Artificial
Reason for Designation	Land Drainage	Land Drainage
Current Ecological Quality	Moderate Potential	Moderate Potential
2015 Predicted Ecological Quality	Moderate Potential	Moderate Potential
Current Chemical Quality	Does not require assessment	Does not require assessment
2015 Predicted Chemical Quality	Does not require assessment	Does not require assessment
Elements Failing Good Status		

			Modification/ activity	4 temporary haul road ditch crossings; use of box culverts approx length 10m. Full details of culvert installation method are in Volume 5.3.2			
				WFD Assessment			
			Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Hydromorphological Elements							
Hydrological regime	Quantity and dynamics of water flow	Supports Good	Supports Good	Restrictions to flow regime	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	No significant effects	
	Connection to groundwater bodies	No info	No info	N/A	N/A	N/A	
River continuity	Migration of aquatic organisms	No info	No info				
	Sediment transport	No info	No info	Short term potential for sediment transport during installation of culvert	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	No significant effects	
Morphological conditions	River depth and width variation	No info	No info	Change to river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	No significant effects	

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	Coastal/estarine depth variation	No info	No info	N/A	N/A	N/A
	Structure and substrate of the river bed	No info	No info	The banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; four ditch crossings in KSD catchment; negligible magnitude of effect; medium sensitivity: negligible effect
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; four ditch crossings in KSD catchment; negligible magnitude of effect; medium sensitivity: negligible effect
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A
	Wave exposure	No info	No info	N/A	N/A	N/A
Biological elements						
Phytoplankton	Taxonomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swathes (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	Average abundance	No info	No info			
	Planktonic bloom frequency and intensity	No info	No info			
	Biomass	No info	No info			
Macrophytes and phytobenthos	Taxonomic composition	Moderate	Moderate			
	Average macrophytes and phytobenthic abundance					
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	High	High			
	Abundance					
Fish Fauna	Species composition and abundance	No info	No info			
	Presence of type-specific disturbance sensitive species	No info	No info			
	Age structure of fish communities	No info	No info			
Critical sensitive habitats/species	SACs	No info	No info			
	SPAs	No info	No info			
	RAMSAR	No info	No info			
	SSSI	No info	No info			
	Priority habitats and species:	No info	No info			
Physico-chemical elements						
	Salinity	No info	No info	N/A	N/A	N/A
	Ammonia	Good	Good	No change predicted	None	No significant effects
	Dissolved Oxygen	Poor	Moderate	No change predicted	None	No significant effects

	Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
pH	High	High	Potential reduction in pH as a result of concrete washoff from box culverts	Box culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages.	No significant effects
Phosphate	Poor	Moderate	No change predicted	None	No significant effects
Temperature	High	High	No change predicted	None	No significant effects
Transparency	No info	No info	Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	No significant effects
Pollution by all priority substances identified as being discharged into the water body	No info	No info	No change predicted	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	No significant effects
Pollution by other substances identified as being discharged in significant quantities into the water body	No info	No info	No change predicted	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	No significant effects

Water body **Huntspill**

Baseline Conditions	
Waterbody ID	GB108052021210
Grid Reference	ST 32826 44130
Current Overall Potential	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological potential by 2027
Justification if overall objective is not good status by 2015	Disproportionately expensive, Technically infeasible
Protected Area Designation	Freshwater Fish Directive, Natura 2000 (Habitats and/or Birds Directive)
SSSI Related	No
Hydromorphological Designation	Artificial
Reason for Designation	Land Drainage
Current Ecological Quality	Moderate Potential
2015 Predicted Ecological Quality	Moderate Potential
Current Chemical Quality	Does not require assessment
2015 Predicted Chemical Quality	Does not require assessment
Elements Failing Good Status	

			Modification/ activity	Temporary haul road ditch crossings:24 crossings; 268m of loss (96m short term of approx 3 to 6 weeks only during installation) comprising 17 crossings of 10m length; 7 of 14m . Use of mixture of box and circular (pipe)culverts, and bridges (14m length). Full details of bridge and culvert installation methods are in Volume 5.3.2			
				WFD Assessment			
			Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Hydromorphological Elements							
Hydrological regime	Quantity and dynamics of water flow	Supports Good	Supports Good	Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow; none of the ditches to be crossed had fast flowing water when surveyed (2013)	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	No significant effects	
	Connection to groundwater bodies	No info	No info	N/A	N/A	N/A	
River continuity	Migration of aquatic organisms	No info	No info				
	Sediment transport	No info	No info	Short term potential for sediment transport during installation of culvert; footings for bridges, either side of watercourse could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	No significant effects	

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Morphological conditions	River depth and width variation	No info		Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	No significant effects
	Coastal/estuarine depth variation	No info	No info	N/A	N/A	N/A
	Structure and substrate of the river bed	No info	No info	For culverts, the banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; twenty ditch crossings in Huntspill catchment of 10m; low magnitude of effect; medium sensitivity: minor adverse effect
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; twenty ditch crossings in Huntspill catchment of 10m; low magnitude of effect; medium sensitivity: minor adverse effect
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A
	Wave exposure	No info	No info	N/A	N/A	N/A
Biological elements						
Phytoplankton	Taxonomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swaths (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	Average abundance	No info	No info			
	Planktonic bloom frequency and intensity	No info	No info			
	Biomass	No info	No info			
Macrophytes and phytobenthos	Taxonomic composition	No info	No info			
	Average macrophytes and phytobenthic abundance					
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	Moderate	Moderate			
	Abundance					
Fish Fauna	Species composition and abundance	High	High			
	Presence of type-specific disturbance sensitive species	No info	No info			
	Age structure of fish communities	No info	No info			
Critical sensitive habitats/species	SACs	No info	No info			
	SPAs	No info	No info			
	RAMSAR	No info	No info			

	Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
SSSI	No info	No info			
Priority habitats and species:	Water vole present	No info			
Physico-chemical elements					
Salinity	No info	No info	N/A	N/A	N/A
Ammonia	High	High	No change predicted	None	No significant effects
Dissolved Oxygen	Good	Good	No change predicted	None	No significant effects
pH	High	High	Potential reduction in pH as a result of concrete washoff from box culverts	Culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages, especially during installation of pipe culverts and footings for bridges.	No significant effects
Phosphate	Moderate	Moderate	No change predicted	None	No significant effects
Temperature	Good	Good	No change predicted	None	No significant effects
Transparency	No info	No info	Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	No significant effects
Pollution by all priority substances identified as being discharged into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	No significant effects
Pollution by other substances identified as being discharged in significant quantities into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	No significant effects

Water body BRUE

Baseline Conditions	
Waterbody ID	GB108052021260
Grid Reference	ST 37410 50521
Current Overall Potential	Poor
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological potential by 2027, Good chemical status by 2015
Justification if overall objective is not good status by 2015	Disproportionately expensive
Protected Area Designation	Bathing Water Directive, Freshwater Fish Directive, Natura 2000 (Habitats and/or Birds Directive), Urban Waste Water Treatment Directive
SSSI Related	No
Hydromorphological Designation	heavily modified
Reason for Designation	Land drainage
Current Ecological Quality	Poor potential
2015 Predicted Ecological Quality	Moderate potential
Current Chemical Quality	Good
2015 Predicted Chemical Quality	Good
Elements Failing Good Status	

		Modification/ activity		Temporary haul road ditch crossings: 16 crossings; 154m losses (64m short term of approx 3 to 6 weeks only during installation). Crossings typically 10m length. Use of mixture of box and circular (pipe)culverts. Full details of culvert installation methods are in Volume 5.3.2		
				WFD Assessment		
		Current Status	Predicted Status by 2015	Potential effects	Mitigation	Residual Effects
Hydromorphological Elements						
Hydrological regime	Quantity and dynamics of water flow	Supports Good	Supports Good	Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow; none of the ditches to be crossed had fast flowing water when surveyed (2013)	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Connection to groundwater bodies	No info	No info	N/A	N/A	N/A
River continuity	Migration of aquatic organisms	No info	No info			

		Current Status	Predicted Status by 2015	Potential effects	Mitigation	Residual Effects
	Sediment transport	No info	No info	Short term potential for sediment transport during installation of culvert; footings for bridges, either side of watercourse could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	Negligible
Morphological conditions	River depth and width variation	No info	No info	Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Coastal/estuarine depth variation	No info	No info	N/A	N/A	N/A
	Structure and substrate of the river bed	No info	No info	For culverts, the banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; 16 ditch crossings in Brue catchment of 4m; low magnitude of effect; low sensitivity: negligible effect
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank	Short term adverse effect; 16 ditch crossings in Brue catchment of 4m; low magnitude of effect; low sensitivity: negligible effect
Tidal Regime	Freshwater flow	No info	No info			
	Wave exposure	No info	No info			

		Current Status	Predicted Status by 2015	Potential effects	Mitigation	Residual Effects
Biological elements						
Phytoplankton	Taxanomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swathes (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	Average abundance	No info	No info			
	Planktonic bloom frequency and intensity	No info	No info			
	Biomass	No info	No info			
Macrophytes and phytobenthos	Taxanomic composition	Poor	Moderate			
	Average macrophytes and phytobenthic abundance					
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	Good	Good			
	Abundance					
Fish Fauna	Species composition and abundance	Poor	Poor			
	Presence of type-specific disturbance sensitive species					
	Age structure of fish communities					
Critical sensitive habitats/species	SACs	No info	No info			
	SPAs	No info	No info			
	RAMSAR	No info	No info			
	SSSI	No info	No info			
	Priority habitats and species:	Water vole present	No info			
Physico-chemical elements						
	Salinity	No info	No info	N/A	N/A	N/A
	Ammonia	Good	Good	No change predicted	None	None
	Dissolved Oxygen	Good	Good	No change predicted	None	None
	pH	High	High	Potential reduction in pH as a result of concrete washoff from box culverts	Culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages, especially during installation of pipe culverts and footings for bridges	Negligible
	Phosphate	Poor	Moderate	No change predicted	None	None
	Temperature	High	High	No change predicted	None	None

	Current Status	Predicted Status by 2015	Potential effects	Mitigation	Residual Effects
Transparency	No info	No info	Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	Negligible
Pollution by all priority substances identified as being discharged into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible
Pollution by other substances identified as being discharged in significant quantities into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible

Water body

Mark Yeo

Baseline Conditions	
Waterbody ID	GB108052021250
Grid Reference	ST 38728 46388
Current Overall Potential	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological potential by 2027
Justification if overall objective is not good status by 2015	Disproportionately expensive, Technically infeasible
Protected Area Designation	Not designated
SSSI Related	No
Hydromorphological Designation	Artificial
Reason for Designation	Land Drainage
Current Ecological Quality	Moderate Potential
2015 Predicted Ecological Quality	Moderate Potential
Current Chemical Quality	Does not require assessment
2015 Predicted Chemical Quality	Does not require assessment
Elements Failing Good Status	

Modification/ activity	Temporary haul road ditch crossings and 400kV Underground cable ducting: 70 crossings; 925m losses (412m short term of approx 3 to 6 weeks only during installation). Crossings length typically varying between 10m and 17m length; apart from for 400kV Underground Cable crossings (45m). Installation of culverts and open cut trench and ducting under culverts. Four cable crossings. 45m length per crossing. Use of mixture of box and circular (pipe)culverts and bridges . Full details of bridge and culvert installation methods are in Volume 5.3.2		
	WFD Assessment		
Predicted Status	Potential effects	Mitigation	Residual Effects

Current Status

Predicted Status

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Hydrological regime	Quantity and dynamics of water flow			Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow; none of the ditches to be crossed had fast flowing water when surveyed (2013)	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	No significant effects
	Connection to groundwater bodies	Supports Good	Supports Good			
River continuity	Migration of aquatic organisms	No info	No info	N/A	N/A	N/A
	Sediment transport			Short term potential for sediment transport during installation of culvert; footings for bridges, either side of watercourse could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	No significant effects
Morphological conditions	River depth and width variation	No info	No info	Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	No significant effects
	Coastal/estuarine depth variation	No info	No info	N/A	N/A	N/A

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	Structure and substrate of the river bed	No info	No info	For culverts, the banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; 99 ditch crossings in Mark Yeo catchment of between 10 and 17m (79 are 10m); 4 of 45m.
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; 99 ditch crossings in Mark Yeo catchment of between 10 and 17m (79 are 10m); 4 of 45m.
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A
	Wave exposure	No info	No info	N/A	N/A	N/A
Biological elements						
Phytoplankton	Taxonomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swathes (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low		
	Average abundance	No info	No info			
	Planktonic bloom frequency and intensity	No info	No info			
	Biomass	No info	No info			
Macrophytes and phytobenthos	Taxonomic composition	No info	No info			
	Average macrophytes and phytobenthic abundance					
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	No info	No info			
	Abundance					
Fish Fauna	Species composition and abundance	No info	No info			
	Presence of type-specific disturbance sensitive species	No info	No info			
	Age structure of fish communities	No info	No info			
Critical sensitive habitats/species	SACs	No info	No info			

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	SPAs	No info	No info	magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	RAMSAR	No info	No info			
	SSSI	No info	No info			
	Priority habitats and species:	Water vole present	No info			
Physico-chemical elements						
	Salinity	No info	No info	N/A	N/A	N/A
	Ammonia	No info	No info	No change predicted	None	None
	Dissolved Oxygen	No info	No info	No change predicted	None	None
	pH			Potential reduction in pH as a result of concrete washoff from box culverts	Culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages, especially during installation of pipe culverts and footings for bridges.	Negligible
		No info	No info			
	Phosphate	No info	No info	No change predicted	None	None
	Temperature	No info	No info	No change predicted	None	None
	Transparency			Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	Negligible
		No info	No info			
	Pollution by all priority substances identified as being discharged into the water body			Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible
	No info	No info				
Pollution by other substances identified as being discharged in significant quantites into the water body			Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible	
	No info	No info				

Water body

Axe

Baseline Conditions	
Waterbody ID	GB109052021570
Grid Reference	ST 33495 56590
Current Overall Status	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological status by 2027
Justification if overall objective is not good status by 2015	Dipproportionately expensive
Protected Area Designation	Drinking Water Protected Area, Freshwater Fish Directive
SSSI Related	No
Hydromorphological Designation	Not designated - artificial/heavily modified water body
Reason for Designation	
Current Ecological Quality	Moderate
2015 Predicted Ecological Quality	Moderate
Current Chemical Quality	Does not require assessment
2015 Predicted Chemical Quality	Does not require assessment
Elements Failing Good Status	

		Modification/ activity		Temporary haul road and cable crossings: 4 crossings; 116m losses (80m short term of approx 3 to 6 weeks only during installation). There will be one temporary haul road crossing of the river Axe (45m), using a bailey bridge. There are two options for the cable crossing: either HDD or cable bridge.		
				WFD Assessment		
		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Hydromorphological Elements						
Hydrological regime	Quantity and dynamics of water flow	Supports Good	Supports Good	Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow. HDD option for cables would result in no effects on flow.	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center culverts with the existing stream channel whenever possible	No significant effects
	Connection to groundwater bodies	No info	No info	N/A	N/A	N/A
River continuity	Migration of aquatic organisms	No info	No info			

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	Sediment transport	No info	No info	Short term potential for sediment transport during installation of culvert; footings for bridges, either side of watercourse could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	No significant effects
Morphological conditions	River depth and width variation	Supports Good	Supports Good	Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	No significant effects
	Coastal/estuarine depth variation	No info	No info	N/A	N/A	N/A
	Structure and substrate of the river bed	No info	No info	For culverts, the banks and bed of the ditch will be lined with Lotrok geomembrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; low sensitivity. Negligible effect.
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; low sensitivity. Negligible effect.
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A
	Wave exposure	No info	No info	N/A	N/A	N/A
Biological elements						
Phytoplankton	Taxonomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swathes (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat		
	Average abundance	No info	No info			
	Planktonic bloom frequency and intensity	No info	No info			
	Biomass	No info	No info			
Macrophytes and phytobenthos	Taxonomic composition	No info	No info			
	Average macrophytes and phytobenthic abundance					
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	High	High			

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	Abundance			fragmentation during dry working and disturbance effects. These short-term effects are addressed through the		
Fish Fauna	Species composition and abundance	Moderate	Moderate	Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	Presence of type-specific disturbance sensitive species					
	Age structure of fish communities					
Critical sensitive habitats/species	SACs	No info	No info			
	SPAs	No info	No info			
	RAMSAR	No info	No info			
	SSSI	No info	No info			
	Priority habitats and species:	water vole present	No info			
Physico-chemical elements						
	Salinity	No info	No info	N/A	N/A	N/A
	Ammonia	High	High	No change predicted	None	None
	Dissolved Oxygen	Good	Good	No change predicted	None	None
	pH	High	High	Potential reduction in pH as a result of concrete washoff from box culverts	Culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages, especially during installation of pipe culverts and footings for bridges.	Negligible
	Phosphate	Moderate	Moderate	No change predicted	None	None
	Temperature	High	High	No change predicted	None	None
	Transparency	No info	No info	Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	Negligible
	Pollution by all priority substances identified as being discharged into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible
	Pollution by other substances identified as being discharged in significant quantities into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible

Water body

Lox Yeo

Baseline Conditions	
Waterbody ID	GB109052021580
Grid Reference	ST 38841 57296
Current Overall Status	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological status by 2027
Justification if overall objective is not good status by 2015	Technically infeasible
Protected Area Designation	Freshwater Fish directive
SSSI Related	No
Hydromorphological Designation	Not designated (artificial/heavily modified water body)
Reason for Designation	
Current Ecological Quality	Moderate
2015 Predicted Ecological Quality	Moderate
Current Chemical Quality	Does not require assessment
2015 Predicted Chemical Quality	Does not require assessment
Elements Failing Good Status	

				Modification/ activity			
					Temporary haul road crossing: 27 crossings; 845m losses (620m short term of approx 3 to 6 weeks only during installation). Crossings of between 10 and 45m length (latter for ducting of 400kV cables). Installation of culverts and open cut trench and ducting under culverts. Use of mixture of box and circular (pipe) culverts, and bridges. Full details of bridge and culvert installation methods are in Volume 5.3.2. Lox Yeo cable crossing to be via HDD; haul road to be via temporary bridge.		
					WFD Assessment		
		Current Status	Predicted Status		Potential effects	Mitigation	Residual Effects
Hydromorphological Elements							
Hydrological regime	Quantity and dynamics of water flow				Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow. HDD for cables would result in no effects on flow.	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center culverts with the existing stream channel whenever possible	No significant effects
	Connection to groundwater bodies	No info	No info		N/A	N/A	N/A
River continuity	Migration of aquatic organisms	No info	No info				
	Sediment transport				Short term potential for sediment transport during installation of culverts; footings for bridge, either side of watercourse, could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	No significant effects
		No info	No info				

Morphological conditions	River depth and width variation	No info	No info	Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	No significant effects
	Coastal/estuarine depth variation	No info	No info	N/A	N/A	N/A
	Structure and substrate of the river bed	No info	No info	For culverts, the banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; low sensitivity. Negligible effect.
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; low sensitivity. Negligible effect.
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A
	Wave exposure	No info	No info	N/A	N/A	N/A
Biological elements						
Phytoplankton	Taxonomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swathes (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	Average abundance	No info	No info			
	Planktonic bloom frequency and intensity	No info	No info			
	Biomass	No info	No info			
Macrophytes and phytobenthos	Taxonomic composition	No info	No info			
	Average macrophytes and phytobenthic abundance	No info	No info			
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	No info	No info			
	Abundance	No info	No info			
Fish Fauna	Species composition and abundance	No info	No info			
	Presence of type-specific disturbance sensitive species	No info	No info			
	Age structure of fish communities	No info	No info			
Critical sensitive habitats/species	SACs	No info	No info			
	SPAs	No info	No info			
	RAMSAR	No info	No info			
	SSSI	No info	No info			
	Priority habitats and species:	water vole present	No info			

Physico-chemical elements						
	Salinity	No info	No info	N/A	N/A	N/A
	Ammonia	No info	No info	No change predicted	None	None
	Dissolved Oxygen	No info	No info	No change predicted	None	None
	pH			Potential reduction in pH as a result of concrete washoff from box culverts	Culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages, especially during installation of pipe culverts and footings for bridges.	Negligible
		No info	No info			
	Phosphate	No info	No info	No change predicted	None	None
	Temperature			Potential heating effects as cable runs alongside and then under Lox yeo.	Embedded mitigation includes the design of the cables: well compacted thermally suitable indigenous backfill would be placed over this. The design of the cable would include XLPE insulation (or similar) surrounding the conductor therefore further reducing potential impacts from heat generation. In terms of effects on watercourses, where the cable route is proposed to cross under a watercourse, the cables would be set at a depth of at least 3m below the hard bed of the watercourse, further dissipating any heat from the cables. A National Grid topic paper on the potential heating effect of cables on water concluded that a water course would have a temperature rise of 0.043 °C due to a 400kV cable circuit	Negligible
		No info	No info			
	Transparency			Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	Negligible
		No info	No info			
	Pollution by all priority substances identified as being discharged into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any <u>spillages</u> .	Negligible
	Pollution by other substances identified as being discharged in significant quantities into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible

Water body Oldbridge River

Baseline Conditions	
Waterbody ID	GB109052021620
Grid Reference	ST 39374 64322
Current Overall Potential	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good Ecological Potential by 2027
Justification if overall objective is not good status by 2015	Disproportionately expensive
Protected Area Designation	Not Designated
SSSI Related	No
Hydromorphological Designation	Artificial
Reason for Designation	Land Drainage
Ecological Potential (and certainty)	Moderate (Uncertain)
Chemical Status	Does not require assessment
Predicted Chemical Status by 2015	Does not require assessment
Elements Failing Good Status	Phosphate

Modification/activity	Diversion of Parish Rhyne			Temporary haul road ditch crossings: 45 crossings; 587m losses (272m short term of approx 3 to 6 weeks only during installation). Crossings typically 10m length; 2 at 45m (400kV cable crossings). Use of mixture of box and circular (pipe)culverts. Full details of culvert installation methods are in Volume 5.3.2		
	WFD assessment			WFD assessment		
Predicted status	Potential effects	Mitigation	Residual Effects	Potential effects	Mitigation	Residual Effects
Supports Good	Change in flow regime	Diversion designed to mimic or enhance existing flow regime	No significant effect on future quantity and dynamics of water flow	Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow; none of the ditches to be crossed had fast flowing water when surveyed (2013)	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
No info	N/A	N/A	N/A	N/A	N/A	N/A
No info						
No info	Short term transport of sediment from new channel into downstream existing channel following connection	Use of baffles to slow and filter water flow during connection. If possible, connection made during periods when ditch is dry (as it sometimes is).	No significant effect	Short term potential for sediment transport during installation of culvert; footings for bridges, either side of watercourse could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	Negligible
No info	Change in depth and width	Diversion designed to mimic or enhance existing channel characteristics	No significant effect	Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
No info	N/A	N/A	N/A	N/A	N/A	N/A

	Structure and substrate of the river bed	No info	No info	Change in structure and substrate of the river bed	Diversion designed to mimic or enhance existing structure and substrate of river bed	No significant effect	For culverts, the banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; low magnitude of effect; low sensitivity; negligible effect
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Change to structure of riparian zone	Site specific planting along the banks of the diversion will enhance structure and diversity of riparian	No significant adverse effect; possible enhancement	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; low magnitude of effect; low sensitivity; negligible effect
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A	N/A	N/A	N/A
	Wave exposure	No info	No info	N/A	N/A	N/A	N/A	N/A	N/A
Biological elements									
Phytoplankton	Taxonomic composition	No info	No info	8.1.6 Parish Rhyne (survey reference TEP1323) was initially identified for survey of ditch invertebrates and flora but was dry at the time of survey. The ditch was vegetated and a list of the plant species present made, and found to include a moderate diversity of marginal and aquatic species (full details provided in Appendix 8N). Nearby ditches TEP1318, 1320 and 1330 were found to support similar assemblages. No s41 list species were recorded during the course of the surveys, nor protected species such as GCN, water vole or otter. Proposed realignment of the Parish Rhyne is therefore anticipated to have an impact on WFD ecological parameters of Low magnitude whilst diversion works are underway. Following implementation of the site-specific landscape planting plans, this is predicted to reduce to Not significant in the long-term, once planting has established	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swatches (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.				
	Average abundance	No info	No info						
	Planktonic bloom frequency and intensity	No info	No info						
	Biomass	No info	No info						
Macrophytes and phytobenthos	Taxonomic composition	No info	No info						
	Average macrophytes and phytobenthic abundance	No info	No info						
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info						
Benthic invertebrate fauna	Composition	No info	No info						
	Abundance	No info	No info						
Fish Fauna	Species composition and abundance	No info	No info						
	Presence of type-specific disturbance sensitive species	No info	No info						
	Age structure of fish communities	No info	No info						
Critical sensitive habitats/species	SACs	No info	No info						
	SPAs	No info	No info						
	RAMSAR	No info	No info						
	SSSI	No info	No info						
	Priority habitats and species:	Water vole present	No info						
Physico-chemical elements									
	Salinity	No info	No info	N/A	N/A	N/A	N/A	N/A	N/A
	Ammonia	High	High	No effect	None	None	No effect	None	None
	Dissolved Oxygen	High	High	No effect	None	None	No effect	None	None
	pH	High	High	No effect	None	None	No effect	None	None
	Phosphate	Poor	Moderate	No effect	None	None	No effect	None	None
	Temperature	High	High	No effect	None	None	No effect	None	None
	Transparency	No info	No info	Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Use of baffles to slow and filter water flow during connection. If possible, connection made during periods when ditch is dry (as it sometimes is).	No significant effects	Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Use of baffles to slow and filter water flow during connection. If possible, connection made during periods when ditch is dry (as it sometimes is).	No significant effects
	Pollution by all priority substances identified as being discharged into the water body	No info	No info	No priority substances being discharged	None	None	No priority substances being discharged	None	None
	Pollution by other substances identified as being discharged in significant quantities into the water body	No info	No info	No discharges of other substances in the water body	None	None	No discharges of other substances in the water body	None	None

Water body River Yeo

Baseline Conditions	
Waterbody ID	GB109052021640
Grid Reference	ST 41917 64603
Current Overall Status	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological potential by 2027
Justification if overall objective is not good status by 2015	Disproportionately expensive; technically infeasible
Protected Area Designation	Freshwater Fish Directive, Natura 200, Nitrates Directive
SSSI Related	No
Hydromorphological Designation	heavily modified
Reason for Designation	Water regulation (impoundment release)
Current Ecological Quality	Moderate
2015 Predicted Ecological Quality	Moderate
Current Chemical Quality	Does not require assessment
2015 Predicted Chemical Quality	Does not require assessment
Elements Failing Good Status	

		Modification/activity				
				Temporary haul road ditch crossings; 10 crossings; 108m losses (40m short term of approx 3 to 6 weeks only during installation) Typically 10m length. Use of mixture of box and circular (pipe)culverts. Full details of bridge and culvert installation methods are in Volume 5.3.2		
				WFD Assessment		
		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Hydromorphological Elements						
Hydrological regime	Quantity and dynamics of water flow	No info	No info	Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow; none of the ditches to be crossed had fast flowing water when surveyed (2013)	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Connection to groundwater bodies	No info	No info	N/A	N/A	N/A
River continuity	Migration of aquatic organisms	No info	No info			

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	Sediment transport	No info	No info	Short term potential for sediment transport during installation of culvert; footings for bridges, either side of watercourse could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	Negligible
Morphological conditions	River depth and width variation	No info	No info	Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Coastal/estuarine depth variation	No info	No info	N/A	N/A	N/A
	Structure and substrate of the river bed	No info	No info	For culverts, the banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; 10 ditch crossings in Yeo catchment of 4m; low magnitude of effect; low sensitivity: negligible effect
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; 10 ditch crossings in Yeo catchment of 4m; low magnitude of effect; low sensitivity: negligible effect
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A
	Wave exposure	No info	No info	N/A	N/A	N/A
Biological elements						
Phytoplankton	Taxonomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst		
	Average abundance	No info	No info			

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	Planktonic bloom frequency and intensity	No info	No info	numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swathes (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	Biomass	No info	No info			
Macrophytes and phytobenthos	Taxonomic composition	No info	No info			
	Average macrophytes and phytobenthic abundance					
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	High	High			
	Abundance					
Fish Fauna	Species composition and abundance	Poor	Poor			
	Presence of type-specific disturbance sensitive species					
	Age structure of fish communities					
Critical sensitive habitats/species	SACs	No info	No info			
	SPAs	No info	No info			
	RAMSAR	No info	No info			
	SSSI	No info	No info			
	Priority habitats and species:	Water vole present	No info			
Physico-chemical elements						
	Salinity	No info	No info	N/A	N/A	N/A
	Ammonia	High	High	No change predicted	None	None
	Dissolved Oxygen	High	High	No change predicted	None	None
	pH			Potential reduction in pH as a result of concrete washoff from box culverts	Culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages, especially during installation of pipe culverts and footings for bridges.	Negligible
		High	High			
	Phosphate	Poor	Moderate	No change predicted	None	None
	Temperature	High	High	No change predicted	None	None
	Transparency			Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	Negligible
		No info	No info			

	Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Pollution by all priority substances identified as being discharged into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible
Pollution by other substances identified as being discharged in significant quantities into the water body			Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages	Negligible

Water body River Kenn, Blackditch Rhyne,
Tickenham, Nailsea and Kenn
Moors SSSIs

Baseline Conditions			
Waterbody ID	GB909001001006 (SSSI)	GB109052021680 (R Kenn)	GB109052021650
Grid Reference	ST 42841 67207	ST 44337 69462	ST 43190 67607
Current Overall Potential	Good	Good	Good
Status Objective (Overall)	Good by 2015	Good by 2015	Good by 2015
Status Objective(s)	Good ecological potential by 2027	Good ecological potential by 2028	Good ecological potential by 2029
Justification if overall objective is not good status by 2015	Disproportionately expensive; technically infeasible	Disproportionately expensive; technically infeasible	Disproportionately expensive; technically infeasible
Protected Area Designation	Freshwater Fish Directive	Freshwater Fish Directive, Natura 2000 (Habitats and/or Birds Directive)	Freshwater Fish Directive
SSSI Related	Yes	No	No
Hydromorphological Designation		Artificial	Artificial
Reason for Designation		Land drainage	Land drainage
Current Ecological Quality		Good potential	Good potential
2015 Predicted Ecological Quality		Good potential	Good potential
Current Chemical Quality		Does not require assessment	Does not require assessment
2015 Predicted Chemical Quality		Does not require assessment	Does not require assessment
Elements Failing Good Status			

		Modification/ activity	Temporary haul road ditch crossings: 46 crossings; 533m losses (209m short term of approx 3 to 6 weeks only during installation). Crossings typically 10 to 14m length. Use of mixture of box and circular (pipe)culverts. Full details of culvert installation methods are in Volume 5.3.2		
			WFD Assessment		
		Current Status	Predicted Status	Potential effects	Residual Effects
Hydromorphological Elements					

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Hydrological regime	Quantity and dynamics of water flow	Supports good	Supports good	Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow; none of the ditches to be crossed had fast flowing water when surveyed (2013)	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Connection to groundwater bodies	No info	No info	N/A	N/A	N/A
River continuity	Migration of aquatic organisms	No info	No info			
	Sediment transport	No info	No info	Short term potential for sediment transport during installation of culvert; footings for bridges, either side of watercourse could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	Negligible

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Morphological conditions	River depth and width variation	No info	No info	Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Coastal/estuarine depth variation	No info	No info	N/A	N/A	N/A
	Structure and substrate of the river bed	No info	No info	For culverts, the banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; low magnitude of effect; high sensitivity: minor effect
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; low magnitude of effect; high sensitivity: minor effect

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A
	Wave exposure	No info	No info	N/A	N/A	N/A
Biological elements						
Phytoplankton	Taxonomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swathes (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	Average abundance	No info	No info			
	Planktonic bloom frequency and intensity	No info	No info			
	Biomass	No info	No info			
Macrophytes and phytobenthos	Taxonomic composition	No info	No info			
	Average macrophytes and phytobenthic abundance					
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	No info	No info			
	Abundance					
Fish Fauna	Species composition and abundance	No info	No info			
	Presence of type-specific disturbance sensitive species	No info	No info			
	Age structure of fish communities	No info	No info			
Critical sensitive habitats/species	SACs	No info	No info			
	SPAs	No info	No info			
	RAMSAR	No info	No info			
	SSSI	No info	No info			
	Priority habitats and species:	Water vole present	No info			
Physico-chemical elements						
	Salinity	No info	No info	N/A	N/A	N/A
	Ammonia	High	High	No change predicted	None	None
	Dissolved Oxygen	Good	Good	No change predicted	None	None

	Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
pH	High	High	Potential reduction in pH as a result of concrete washoff from box culverts	Culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages, especially during installation of pipe culverts and footings for bridges.	Negligible
Phosphate	High	High	No change predicted	None	None
Temperature	High	High	No change predicted	None	None
Transparency	No info	No info	Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	Negligible
Pollution by all priority substances identified as being discharged into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible
Pollution by other substances identified as being discharged in significant quantities into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible

Water body

Blind Yeo

Baseline Conditions	
Waterbody ID	GB109052021660
Grid Reference	ST 41207 70026
Current Overall Potential	Moderate
Status Objective (Overall)	Good by 2015
Status Objective(s)	Good ecological potential by 2015
Justification if overall objective is not good status by 2015	Technologically infeasible
Protected Area Designation	Freshwater Fish Directive, Natura 2000 (Habitats and/or Birds Directive)
SSSI Related	No
Hydromorphological Designation	Artificial
Reason for Designation	Flood Protection, Land Drainage, Urbanisation
Current Ecological Quality	Moderate
2015 Predicted Ecological Quality	Moderate
Current Chemical Quality	Does not require assessment
2015 Predicted Chemical Quality	Does not require assessment
Elements Failing Good Status	

		Modification/ activity				
				Temporary haul road ditch crossings: 7 crossings; 82m losses (28m short term of approx 3 to 6 weeks only during installation). Crossings typically 10 to 14m length. Use of mixture of box and circular (pipe)culverts. Full details of culvert installation methods are in Volume 5.3.2		
				WFD Assessment		
		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Hydromorphological Elements						
Hydrological regime	Quantity and dynamics of water flow	Does not support good	Does not support good	Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow; none of the ditches to be crossed had fast flowing water when surveyed (2013)	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Connection to groundwater bodies	No info	No info	N/A	N/A	N/A
River continuity	Migration of aquatic organisms	No info	No info			

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	Sediment transport	No info	No info	Short term potential for sediment transport during installation of culvert; footings for bridges, either side of watercourse could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	Negligible
Morphological conditions	River depth and width variation	No info	No info	Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Coastal/estuarine depth variation	No info	No info	N/A	N/A	N/A
	Structure and substrate of the river bed	No info	No info	For culverts, the banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; 10 ditch crossings in Yeo catchment of 4m; low magnitude of effect; low sensitivity: negligible effect
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; low magnitude of effect; low sensitivity: negligible effect
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	Wave exposure	No info	No info	N/A	N/A	N/A
Biological elements						
Phytoplankton	Taxanomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swathes (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	Average abundance	No info	No info			
	Planktonic bloom frequency and intensity	No info	No info			
	Biomass	No info	No info			
Macrophytes and phytobenthos	Taxanomic composition	No info	No info			
	Average macrophytes and phytobenthic abundance					
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	High	High			
	Abundance					
Fish Fauna	Species composition and abundance	Moderate	Good			
	Presence of type-specific disturbance sensitive species					
	Age structure of fish communities					
Critical sensitive habitats/species	SACs	No info	No info			
	SPAs	No info	No info			
	RAMSAR	No info	No info			
	SSSI	No info	No info			
	Priority habitats and species:	Water vole present	No info			
Physico-chemical elements						
	Salinity	No info	No info	N/A	N/A	N/A
	Ammonia	High	High	No change predicted	None	None
	Dissolved Oxygen	Bad	Bad	No change predicted	None	None
	pH	High	High	Potential reduction in pH as a result of concrete washoff from box culverts	Culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages, especially during installation of pipe culverts and footings for bridges.	Negligible
	Phosphate	Good	Good	No change predicted	None	None
	Temperature	High	High	No change predicted	None	None

	Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Transparency	No info	No info	Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	Negligible
Pollution by all priority substances identified as being discharged into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible
Pollution by other substances identified as being discharged in significant quantities into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible

Water body

Land Yeo

Baseline Conditions	
Waterbody ID	GB109052027320
Grid Reference	GB109052021690
Current Overall Status	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological potential by 2027
Justification if overall objective is not good status by 2015	Water regulation (impoundment release)
Protected Area Designation	Freshwater Fish Directive
SSSI Related	No
Hydromorphological Designation	Artificial
Reason for Designation	Heavily Modified Waterbody
Current Ecological Quality	Moderate
2015 Predicted Ecological Quality	Moderate
Current Chemical Quality	Does not require assessment
2015 Predicted Chemical Quality	Does not require assessment
Elements Failing Good Status	

				Modification/ activity	Temporary haul road ditch crossings: 1 crossing 10m length. Use of mixture of box and circular (pipe)culverts. Full details of culvert installation methods are in Volume 5.3.2		
					WFD Assessment		
		Current Status	Predicted Status		Potential effects	Mitigation	Residual Effects
Hydromorphological Elements							
Hydrological regime	Quantity and dynamics of water flow	No info	No info		Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow; none of the ditches to be crossed had fast flowing water when surveyed (2013)	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Connection to groundwater bodies	No info	No info		N/A	N/A	N/A
River continuity	Migration of aquatic organisms	No info	No info				
	Sediment transport	No info	No info		Short term potential for sediment transport during installation of culvert; footings for bridges, either side of watercourse could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	Negligible

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Morphological conditions	River depth and width variation	No info	No info	Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Coastal/estarine depth variation	No info	No info	N/A	N/A	N/A
	Structure and substrate of the river bed	No info	No info	For culverts, the banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; low magnitude of effect; low sensitivity: negligible effect
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; low magnitude of effect; low sensitivity: negligible effect
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A
	Wave exposure	No info	No info	N/A	N/A	N/A
Biological elements						
Phytoplankton	Taxonomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swathes (where lengths are typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	Average abundance	No info	No info			
	Planktonic bloom frequency and intensity	No info	No info			
	Biomass	No info	No info			
Macrophytes and phytobenthos	Taxonomic composition	No info	No info			
	Average macrophytes and phytobenthic abundance					
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	No info	No info			
	Abundance					
Fish Fauna	Species composition and abundance	No info	No info			
	Presence of type-specific disturbance sensitive species	No info	No info			
	Age structure of fish communities	No info	No info			
Critical sensitive habitats/species	SACs	No info	No info			
	SPAs	No info	No info			
	RAMSAR	No info	No info			
	SSSI	No info	No info			
	Priority habitats and species:	Water vole present	No info			
Physico-chemical elements						
	Salinity	No info	No info	N/A	N/A	N/A
	Ammonia	No info	No info	No change predicted	None	None
	Dissolved Oxygen	No info	No info	No change predicted	None	None

	Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
pH	High	High	Potential reduction in pH as a result of concrete washoff from box culverts	Culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages, especially during installation of pipe culverts and footings for bridges.	Negligible
Phosphate	No info	No info	No change predicted	None	None
Temperature	No info	No info	No change predicted	None	None
Transparency	No info	No info	Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	Negligible
Pollution by all priority substances identified as being discharged into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible
Pollution by other substances identified as being discharged in significant quantities into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible

Water body

Portbury Ditch

Baseline Conditions	
Waterbody ID	GB109052027330
Grid Reference	ST 44844 73299
Current Overall Potential	Moderate
Status Objective (Overall)	Good by 2027
Status Objective(s)	Good ecological potential by 2027
Justification if overall objective is not good status by 2015	Disproportionately expensive
Protected Area Designation	Freshwater Fish Directive, Natura 2000 (Habitats and/or Birds Directive)
SSSI Related	No
Hydromorphological Designation	Artificial
Reason for Designation	Land drainage
Current Ecological Quality	Moderate
2015 Predicted Ecological Quality	Moderate
Current Chemical Quality	Does not require assessment
2015 Predicted Chemical Quality	Does not require assessment
Elements Failing Good Status	

		Modification/ activity				
				Temporary haul road ditch crossings: 16 crossings; 310m losses (210m short term of approx 3 to 6 weeks only during installation). Crossings typically 10m length and 35m length (latter for ducting of 132kV cables). Installation of culverts and open cut trench and ducting under culverts. Use of mixture of box and circular (pipe)culverts. Full details of culvert installation methods are in Volume 5.3.2		
				WFD Assessment		
		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Hydromorphological Elements						
Hydrological regime	Quantity and dynamics of water flow			Restrictions to flow regime from culverts; bridges will be clear span and have no effect on flow; none of the ditches to be crossed had fast flowing water when surveyed (2013)	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
		Support good	Supports good			
	Connection to groundwater bodies	No info	No info	N/A	N/A	N/A
River continuity	Migration of aquatic organisms	No info	No info			

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	Sediment transport	No info	No info	Short term potential for sediment transport during installation of culvert; footings for bridges, either side of watercourse could be within 10m of bank tops and there is potential for mobilisation of sediment during the excavation period.	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed. PPG5, working in or near watercourses will be followed to avoid silty water runoff during installation of bridge footings.	Negligible
Morphological conditions	River depth and width variation	No info	No info	Potential change to river depth and width from culverts; bridges will be clear span and have no effect on river depth and width	Maintain the original and natural full bank capacity (cross-sectional area) of the channel; Align and center the culvert with the existing stream channel whenever possible	Negligible
	Coastal/estuarine depth variation	No info	No info	N/A	N/A	N/A
	Structure and substrate of the river bed	No info	No info	For culverts, the banks and bed of the ditch will be lined with Lotrok geo-membrane 2300 or similar. With all pipe culvert installations a concrete bed must be laid onto which the pipe will be installed. The trench for this bed shall be excavated by machine bucket. There will be a temporary loss of 10m of river bed and banks at each culvert.	The length of each culvert will be minimised to cover the width of the haul road only. Installation will be supervised by an ecological clerk of works. The culverts are temporary and once removed, banks and beds will be reinstated to existing conditions.	Short term adverse effect; low magnitude of effect; low sensitivity: negligible effect
	Quantity, structure and substrate of the coastal/estuary bed	No info	No info	N/A	N/A	N/A
	Structure of the riparian zone/intertidal zone	No info	No info	Potential for damage to structure of riparian zone. Up to 10m.	The profile of the ditch banks will remain the same and the soil strip at ground level will begin at least 10m away from the ditch bank.	Short term adverse effect; low magnitude of effect; low sensitivity: negligible effect
Tidal Regime	Freshwater flow	No info	No info	N/A	N/A	N/A
	Wave exposure	No info	No info	N/A	N/A	N/A
Biological elements						
Phytoplankton	Taxonomic composition	No info	No info	Across the networks of ditches, the installation of culvert and bridge water crossings would incur loss of the natural bank morphology in the medium-term whilst the culverts remain in place (up to four years). Whilst numerous, the number of crossings are individually short (typically requiring bank and channel modifications over lengths of between 13m and 17m, taking into consideration headwalls and working areas) except within the 400kV and 132kV underground cable swathes (where lengths are		
	Average abundance	No info	No info			
	Planktonic bloom frequency and intensity	No info	No info			
	Biomass	No info	No info			

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
Macrophytes and phytobenthos	Taxonomic composition	No info	No info	typically 45m and 35m respectively), although these greater lengths are temporary, during the 3-6 weeks period of cable duct installation. This would be a shorter period for 132kV where only 2 cable ducts are required. Culvert lengths themselves would be between 6m and 9m. There is also a time lag post-removal of culverts whilst bank and channel vegetation re-establishes (typically two years). Collectively the modifications account for a small proportion of the total network. 8.1.5 Potential effects on flora and fauna principally relate to the period of installation or removal of culverts and cable trenches, when there is risk of killing and injury of protected species, localised extinction of rare invertebrates within the SSSI, habitat fragmentation during dry working and disturbance effects. These short-term effects are addressed through the Watercourse Crossing Method Statement and other relevant species method statements in the Biodiversity Mitigation Strategy (Volume 5.26.3). The effect in the cable swathe is reduced to Low magnitude following mitigation and Negligible for the other ditch crossings, when mitigation is taken into account.		
	Average macrophytes and phytobenthic abundance					
Other aquatic flora (e.g. macroalgae, angiosperms, sea grass, sea weed salt marsh)	Composition	No info	No info			
Benthic invertebrate fauna	Composition	Good	Good			
	Abundance					
Fish Fauna	Species composition and abundance	No info	No info			
	Presence of type-specific disturbance sensitive species	No info	No info			
	Age structure of fish communities	No info	No info			
Critical sensitive habitats/species	SACs	No info	No info			
	SPAs	No info	No info			
	RAMSAR	No info	No info			
	SSSI	No info	No info			
	Priority habitats and species:	Water vole present	No info			
Physico-chemical elements						
	Salinity	No info	No info	N/A	N/A	N/A
	Ammonia	High	High	No change predicted	None	None
	Dissolved Oxygen	Poor	Poor	No change predicted	None	None
	pH			Potential reduction in pH as a result of concrete washoff from box culverts	Culverts to be cleaned before use. Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any concrete spillages, especially during installation of pipe culverts and footings for bridges.	Negligible
		High	High			
	Phosphate	Good	Good	No change predicted	None	None
	Temperature	High	High	No change predicted	None	None
	Transparency			Potential reduction in transparency with increased sediment load and turbidity as connection made into existing channel downstream	Limited by bunding at either end of the culvert length, overpumping of upstream water to downstream channel and pumping out of water in 'culvert section'. Pumping to be done at slow rate to avoid scouring/disturbance of river bed.	Negligible
		No info	No info			
Pollution by all priority substances identified as being discharged into the water body				Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible
		No info	No info			

		Current Status	Predicted Status	Potential effects	Mitigation	Residual Effects
	Pollution by other substances identified as being discharged in significant quantities into the water body	No info	No info	Spillages of miscible/immiscible substances	Pollution control measures, as identified in CEMP Volume 5.26.1 to manage potential for any spillages.	Negligible

Crossing Reference	TEP ID	IDB Control	EA Control	Running Water?	Water Vole Present?	Underground section	Width	Culvert/ Bridge Length	Short term loss	Medium term loss	EA River Catchment	Crossing within SSSI	SSSI Name
VQ3C-CR01	TEP2927	NO	NO	Yes	NO	No	3.00	10	4	6	Stogursey Brook	Yes	Bridgwater Bay SSSI
VQ3C-CR02	TEP2926	NO	NO	Yes	NO	No	3.00	10	4	6	Stogursey Brook	No	N/A
Total losses for the Stogursey Brook watercourse catchment									8	12			
VQ043R-CR01	TEP148	NO	NO	No	NS	No	Unknown	10	4	6	King's Sedgemoor Drain	No	N/A
VQ043R-CR02	TEP162	NO	NO	No	NS	No	Unknown	10	4	6	King's Sedgemoor Drain	No	N/A
VQ043R-CR03	TEP169	NO	NO	No	NS	No	6.50	10	4	6	King's Sedgemoor Drain	No	N/A
VQ043R-CR04	TEP174	NO	NO	No	NS	No	4.46	10	4	6	King's Sedgemoor Drain	No	N/A
Total losses for King's Sedgemoor Drain watercourse catchment									16	24			
C-ZGA4-CR01	TEP237	YES	NO	No	Yes	No	3.70	14	4	10	Huntspill River	No	N/A
C-ZGA4-CR02	TEP238	NO	NO	No	Yes	No	3.60	10	4	6	Huntspill River	No	N/A
C-ZGA4-CR03	TEP211	NO	NO	No	No	No	3.50	10	4	6	Huntspill River	No	N/A
C-ZGA4-CR04	TEP210	NO	NO	No	NS	No	2.70	10	4	6	Huntspill River	No	N/A
C-ZGA4-CR05	TEP209	NO	NO	No	NS	No	2.20	10	4	6	Huntspill River	No	N/A
C-ZGA12-CR01	TEP256	NO	NO	No	No	No	3.20	10	4	6	Huntspill River	No	N/A
C-ZGA13-CR01	TEP285	NO	NO	No	NS	No	5.00	10	4	6	Huntspill River	No	N/A
C-LD3-CR01	TEP281	NO	NO	No	Yes	No	3.80	10	4	6	Huntspill River	No	N/A
C-LD3-CR02	TEP303	NO	NO	No	NS	No	Unknown	10	4	6	Huntspill River	No	N/A
C-LD3-CR03	TEP313	NO	NO	No	NS	No	Unknown	10	4	6	Huntspill River	No	N/A
C-LD3-CR04	TEP314	NO	NO	No	NS	No	Unknown	10	4	6	Huntspill River	No	N/A
C-LD3-CR05	TEP319	YES	NO	No	NS	No	Unknown	14	4	10	Huntspill River	No	N/A
C-LD3-CR06	TEP301	YES	NO	No	Yes	No	3.00	14	4	10	Huntspill River	No	N/A
C-LD3-CR07	TEP327	YES	NO	No	Yes	No	3.50	14	4	10	Huntspill River	No	N/A
C-LD3-CR08	TEP341	YES	NO	No	Yes	No	6.00	14	4	10	Huntspill River	No	N/A
C-LD3-CR09	TEP346	YES	NO	No	Yes	No	Unknown	14	4	10	Huntspill River	No	N/A
C-LD9-CR01	TEP373	NO	NO	No	Yes	No	3.80	10	4	6	Huntspill River	No	N/A
C-LD9-CR02	TEP372	NO	NO	No	Yes	No	4.60	10	4	6	Huntspill River	No	N/A
C-LD9-CR03	TEP359	NO	NO	No	No	No	3.60	10	4	6	Huntspill River	No	N/A
C-LD9-CR04	TEP364	NO	NO	No	Yes	No	4.70	10	4	6	Huntspill River	No	N/A
C-LD9-CR05	TEP364	NO	NO	No	Yes	No	4.70	10	4	6	Huntspill River	No	N/A
C-LD9-CR06	TEP375	NO	NO	No	No	No	3.00	10	4	6	Huntspill River	No	N/A
C-LD9-CR07	TEP381	NO	NO	No	Yes	No	5.00	10	4	6	Huntspill River	No	N/A
C-LD9-CR08	TEP388	YES	NO	No	Yes	No	6.00	14	4	10	Huntspill River	No	N/A
Total losses for Huntspill River watercourse catchment									96	172			
C-LD10-CR01	TEP1074	NO	NO	No	No	No	4.50	10	4	6	Mark Yeo	No	N/A
C-LD10-CR02	TEP1062	NO	NO	No	No	No	3.60	10	4	6	Mark Yeo	No	N/A
C-LD10-CR03	TEP1065	NO	NO	No	No	No	3.40	10	4	6	Mark Yeo	No	N/A
C-LD10-CR04	TEP1058	NO	NO	No	No	No	4.60	10	4	6	Mark Yeo	No	N/A
C-LD10-CR05	TEP1054	NO	NO	No	No	No	4.60	10	4	6	Mark Yeo	No	N/A
C-LD10-CR06	TEP1048	NO	NO	No	No	No	5.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR07	TEP1048	NO	NO	No	No	No	5.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR08	TEP1046	NO	NO	No	No	No	4.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR09	TEP1030	NO	NO	No	No	No	5.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR10	TEP1024	NO	NO	No	Yes	No	5.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR11	TEP1023	NO	NO	No	Yes	No	5.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR12	TEP1019	NO	NO	No	NS	No	5.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR13	TEP1015	NO	NO	No	Yes	No	5.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR14	TEP1018	NO	NO	No	NS	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR15	TEP1012	NO	NO	No	No	No	4.50	10	4	6	Mark Yeo	No	N/A
C-LD10-CR16	TEP1001	NO	YES	No	Yes	No	7.80	10	4	6	Mark Yeo	No	N/A
C-LD10-CR17	TEP991	NO	YES	No	Yes	No	4.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR18	TEP992	NO	NO	No	NS	No	4.70	10	4	6	Mark Yeo	No	N/A
C-LD10-CR19	TEP978	NO	NO	No	Yes	No	3.60	10	4	6	Mark Yeo	No	N/A
C-LD10-CR20	TEP976	NO	NO	No	Yes	No	3.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR21	TEP971	NO	NO	No	Yes	No	4.20	10	4	6	Mark Yeo	No	N/A
C-LD10-CR22	TEP952	NO	NO	No	NS	No	5.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR23	TEP945	NO	NO	No	Yes	No	5.00	10	4	6	Mark Yeo	No	N/A

Crossing Reference	TEP ID	IDB Control	EA Control	Running Water?	Water Vole Present?	Underground section	Width	Culvert/ Bridge Length	Short term loss	Medium term loss	EA River Catchment	Crossing within SSSI	SSSI Name
C-LD10-CR24	TEP934	YES	NO	No	Yes	No	8.00	14	4	10	Mark Yeo	No	N/A
C-LD10-CR25	TEP924	NO	NO	No	Yes	No	4.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR26	TEP910	NO	NO	No	Yes	No	5.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR27	TEP911	NO	NO	No	NS	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR28	TEP905	NO	NO	No	Yes	No	2.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR29	TEP903	NO	NO	No	Yes	No	4.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR30	TEP891	NO	NO	No	Yes	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR31	TEP885	NO	NO	No	Yes	No	2.50	10	4	6	Mark Yeo	No	N/A
C-LD10-CR32	TEP862	NO	NO	No	NS	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR33	TEP874	NO	NO	No	No	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR34	TEP863	YES	NO	No	No	No	2.80	14	4	10	Mark Yeo	No	N/A
C-LD10-CR35	TEP861	YES	NO	No	Yes	No	Unknown	14	4	10	Mark Yeo	No	N/A
C-LD10-CR40	TEP780	NO	NO	No	NS	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR41	TEP772	NO	NO	No	NS	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR42	TEP760	NO	NO	No	Yes	No	3.00	10	4	6	Mark Yeo	No	N/A
C-LD10-CR43	TEP756	NO	NO	No	Yes	No	4.50	10	4	6	Mark Yeo	No	N/A
C-LD10-CR44	TEP734	NO	NO	No	Yes	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR45	TEP727	NO	NO	No	Yes	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR46	TEP723	NO	NO	No	No	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR47	TEP708	NO	NO	No	Yes	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR48	TEP2930	NO	NO	No	No	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR49	TEP2931	NO	NO	No	No	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD10-CR50	TEP2932	NO	NO	No	No	No	Unknown	10	4	6	Mark Yeo	No	N/A
C-LD38-CR01 (was 400-UG-CR04)	TEP1122	NO	NO	No	NS	No	4.13	10	4	6	Mark Yeo	No	N/A
C-LD38-CR02 (was C-LD38-CR01)	TEP1121	NO	NO	No	Yes	No	4.50	10	4	6	Mark Yeo	No	N/A
C-LD38-CR03 (was C-LD38-CR02)	TEP1112	NO	NO	No	Yes	No	4.00	10	4	6	Mark Yeo	No	N/A
C-LD38-CR04 (was C-LD38-CR03)	TEP1110 TEP1099	NO	NO	No	Yes	No	4.00		4	6	Mark Yeo	No	N/A
400-UG-CR01	TEP3048	NO	NO	No	No	Yes	Unknown	13	4	9	Mark Yeo	No	N/A
400-UG-CR02	TEP1137	NO	NO	No	Yes	Yes	5.08	13	4	9	Mark Yeo	No	N/A
400-UG-CR03	TEP1128	YES	NO	No	Yes	Yes	Varies	17	4	13	Mark Yeo	No	N/A
400-UG-CR04 (was 400-UG-CR05)	TEP1127	NO	NO	No	Yes	Yes	Unknown	13	4	9	Mark Yeo	No	N/A
400-UG-CR05 (was CR06)	TEP1136	YES	NO	No	Yes	Yes	Unknown	13	4	13	Mark Yeo	No	N/A
400-UG-CR06 (was CR07)	TEP1141	NO	NO	No	Yes	Yes	6.00	17	4	9	Mark Yeo	No	N/A
400-UG-CR07 (was CR08)	TEP1147	NO	NO	No	Yes	Yes	2.67	13	4	9	Mark Yeo	No	N/A
400-UG-CR08 (was CR09)	TEP1148	YES	NO	Yes	Yes	Yes	4.08	13	4	13	Mark Yeo	No	N/A
400-UG-CR09 (was CR10)	TEP1156	NO	NO	No	Yes	Yes	11.95	17	4	9	Mark Yeo	No	N/A
400-UG-CR10 (was CR11)	TEP1171	NO	NO	No	Yes	Yes	4.32	13	4	9	Mark Yeo	No	N/A
400-UG-CR11 (was CR12)	TEP1178	NO	NO	No	Yes	Yes	3.11	13	4	9	Mark Yeo	No	N/A
400-UG-CR12 (was CR13)	TEP1200	NO	NO	No	Yes	Yes	4.25	13	4	9	Mark Yeo	No	N/A
400-UG-CR13 (Was CR14)	TEP1200	NO	NO	No	Yes	Yes	4.43	13	4	9	Mark Yeo	No	N/A
400-UG-CR14 (was CR15)	TEP1206	NO	NO	No	Yes	Yes	5.43	45	36	9	Mark Yeo	No	N/A
400-UG-CR15 (was CR16)	TEP1209	NO	NO	No	Yes	Yes	5.93	45	36	9	Mark Yeo	No	N/A
400-UG-CR16 (was CR17)	TEP1206	NO	NO	No	Yes	Yes	11.44	13	4	9	Mark Yeo	No	N/A
400-UG-CR17 (Was CR18)	TEP1196	NO	NO	No	Yes	Yes	5.93	13	4	9	Mark Yeo	No	N/A
400-UG-CR18 (was CR19)	TEP1209	NO	NO	No	Yes	Yes	Unknown	13	4	9	Mark Yeo	No	N/A
400-UG-CR19 (was CR20)	TEP1213	NO	NO	No	Yes	Yes	11.44	45	36	9	Mark Yeo	No	N/A
400-UG-CR20 (was CR21)	TEP1212	NO	NO	No	Yes	Yes	4.10	45	36	9	Mark Yeo	No	N/A
400-UG-CR22 (was CR23)	TEP1215	NO	NO	No	Yes	Yes	10.00	13	4	9	Mark Yeo	No	N/A
Total losses for Mark Yeo river catchment									412	513			
C-LD9-CR09	TEP402	NO	NO	No	Yes	No	4.00	10	4	6	River Brue	No	N/A
C-LD9-CR10	TEP416	YES	NO	No	Yes	No	4.00	14	4	10	River Brue	No	N/A
C-LD9-CR11	TEP420	NO	NO	No	Yes	No	4.00	10	4	6	River Brue	No	N/A
C-LD9-CR12	TEP441	NO	NO	No	Yes	No	4.00	10	4	6	River Brue	No	N/A
C-LD10-CR36	TEP832	NO	NO	No	Yes	No	4.00	10	4	6	River Brue	No	N/A
C-LD10-CR37	TEP826	NO	NO	No	NS	No	3.00	10	4	6	River Brue	No	N/A
C-LD10-CR38	TEP816	NO	NO	No	Yes	No	4.20	10	4	6	River Brue	No	N/A
C-LD10-CR39	TEP815	NO	NO	No	Yes	No	4.20	10	4	6	River Brue	No	N/A
C-LD10-CR51	TEP2933	NO	NO	No	No	No	Unknown	10	4	6	River Brue	No	N/A
C-LD10-CR52	TEP2935	NO	NO	No	No	No	Unknown	10	4	6	River Brue	No	N/A
C-LD10-CR53	TEP2943	NO	NO	No	NS	No	Unknown	10	4	6	River Brue	No	N/A
C-LD10-CR54	TEP2937	NO	NO	No	No	No	Unknown	10	4	6	River Brue	No	N/A

Crossing Reference	TEP ID	IDB Control	EA Control	Running Water?	Water Vole Present?	Underground section	Width	Culvert/ Bridge Length	Short term loss	Medium term loss	EA River Catchment	Crossing within SSSI	SSSI Name
C-LD10-CR55	TEP2938	NO	NO	No	Yes	No	Unknown	10	4	6	River Brue	No	N/A
C-LD10-CR56	TEP573	NO	NO	No	No	No	Unknown	10	4	6	River Brue	No	N/A
C-LD10-CR57	TEP547	NO	NO	No	Yes	No	Unknown	10	4	6	River Brue	No	N/A
C-LD10-CR58	TEP556	NO	NO	No	Yes	No	Unknown	10	4	6	River Brue	No	N/A
Total losses for River Brue river catchment									64	90			
400-UG-CR21 (was CR22)	TEP2991	NO	YES	Yes	Yes	Yes	4.09		N/A	N/A	River Axe	No	N/A
400-UG-CR23 (was CR24)	TEP2991	NO	NO	Yes	Yes	Yes	Unknown	13	4	9	River Axe	No	N/A
400-UG-CR24 (was CR25)	TEP1233	NO	NO	Yes	NS	Yes	10.00	13	4	9	River Axe	No	N/A
400-UG-CR25 (was CR26)	TEP1241	NO	NO	No	No	Yes	9.25	45	36	9	River Axe	No	N/A
400-UG-CR26 (was CR27)	TEP1248	NO	NO	No	No	Yes	5.86	45	36	9	River Axe	No	N/A
Total losses for River Axe river catchment									80	36			
400-UG-CR27 (was CR28)	TEP2999	NO	NO	No	Yes	Yes	4.56	45	36	9	Lox Yeo	No	N/A
400-UG-CR28 (was CR29)	TEP1263	NO	NO	No	No	Yes	Unknown	45	36	9	Lox Yeo	No	N/A
400-UG-CR29 (was CR30)	TEP1263	NO	NO	No	No	Yes	4.09	10	4	6	Lox Yeo	No	N/A
400-UG-CR30 (was CR31)	TEP2919	NO	NO	No	No	Yes	4.09	10	4	6	Lox Yeo	No	N/A
400-UG-CR31 (was CR32)	TEP2919	NO	NO	No	No	Yes	3.68	45	36	9	Lox Yeo	No	N/A
400-UG-CR32 (was CR33)	TEP3002	NO	NO	No	No	Yes	3.68	10	4	6	Lox Yeo	No	N/A
400-UG-CR33 (was CR34)	TEP3002	NO	NO	No	No	Yes	Unknown	45	36	9	Lox Yeo	No	N/A
400-UG-CR34 (was CR35)	TEP3049	NO	NO	No	No	Yes	Unknown	45	36	9	Lox Yeo	No	N/A
400-UG-CR35 (was CR36)	TEP3004	NO	NO	No	No	Yes	3.25	10	4	6	Lox Yeo	No	N/A
400-UG-CR36 (was CR37)	TEP3004	NO	NO	No	No	Yes	Unknown	45	36	9	Lox Yeo	No	N/A
400-UG-CR37 (was CR38)	TEP1282	NO	NO	Yes	No	Yes	2.45	10	4	6	Lox Yeo	No	N/A
400-UG-CR38 (was CR39)	TEP3006	NO	NO	Yes	No	Yes	2.45	45	36	9	Lox Yeo	No	N/A
400-UG-CR39 (was CR40)	TEP3006	NO	NO	Yes	No	Yes	5.02	10	4	6	Lox Yeo	No	N/A
400-UG-CR40 (was CR41)	TEP3008	NO	NO	No	No	Yes	5.02	45	36	9	Lox Yeo	No	N/A
400-UG-CR41 (was CR42)	TEP3011	NO	NO	No	No	Yes	3.74	45	36	9	Lox Yeo	No	N/A
400-UG-CR42 (was CR43)	TEP3012	NO	NO	Yes	No	Yes	Unknown	45	36	9	Lox Yeo	No	N/A
400-UG-CR43 (was CR44)	TEP3015	NO	NO	No	No	Yes	5.04	45	36	9	Lox Yeo	No	N/A
400-UG-CR44 (was CR45)	TEP1294	NO	NO	No	No	Yes	Unknown	13	4	9	Lox Yeo	No	N/A
400-UG-CR45 (was CR46)	TEP1298	NO	NO	Yes	Yes	Yes	2.75	13	4	9	Lox Yeo	No	N/A
400-UG-CR46 (was CR47)	TEP2921	NO	YES	No	No	Yes	7.47	45	36	9	Lox Yeo	No	N/A
400-UG-CR47 (was CR48)	TEP2920	NO	NO	No	No	Yes	4.21	45	36	9	Lox Yeo	No	N/A
400-UG-CR48 (was CR49)	TEP3024	NO	NO	No	No	Yes	3.58	45	36	9	Lox Yeo	No	N/A
400-UG-CR49 (was CR50)	TEP2922	NO	NO	No	No	Yes	4.93	45	36	9	Lox Yeo	No	N/A
400-UG-CR50 (was CR51)	TEP1303	NO	NO	Yes	Yes	Yes	3.81	13	4	9	Lox Yeo	No	N/A
400-UG-CR51 (was CR52)	TEP3216	NO	NO	No	NS	Yes	4.49	13	4	9	Lox Yeo	No	N/A
400-UG-CR52 (was CR53)	TEP1307	NO	NO	No	No	Yes	3.69	13	4	9	Lox Yeo	No	N/A
400-UG-CR53 (was CR54)	TEP2923	NO	NO	No	No	Yes	3.73	45	36	9	Lox Yeo	No	N/A
Total losses for Lox Yeo river catchment									620	225			
400-UG-CR54 (was CR55)	TEP2924	NO	NO	No	No	No	4.12	45	36	9	Oldbridge River	No	N/A
400-UG-CR55 (was CR56)	TEP3050	NO	NO	No	No	No	12.77	45	36	9	Oldbridge River	No	N/A
400-UG-CR56 (was CR57)	TEP1312	NO	NO	Yes	No	No	6.193	13	N/A	N/A	Oldbridge River	No	N/A
400-UG-CR57 (was CR58)	TEP1312	NO	NO	Yes	No	No	5.79	13	4	9	Oldbridge River	No	N/A
400-UG-CR58 (was CR59)	TEP3051	NO	NO	No	No	No	5.79	45	36	9	Oldbridge River	No	N/A
400-UG-CR59	TEP1317	NO	NO	No	NS	No	Unknown		4	9	Oldbridge River	No	N/A
400-UG-CR60	No TEP ID	NO	NO	No	NS	No	Varies		N/A	N/A	Oldbridge River	No	N/A
C-LD39-CR01	TEP1721	YES	NO	No	NS	No	Unknown	14	4	10	Oldbridge River	No	N/A
C-LD39-CR02	TEP1718	NO	NO	No	Yes	No	Unknown	10	4	6	Oldbridge River	No	N/A
C-LD39-CR03	TEP1705	NO	NO	No	No	No	Unknown	10	4	6	Oldbridge River	No	N/A
C-LD39-CR04	TEP1694	NO	NO	No	No	No	2.50	10	4	6	Oldbridge River	No	N/A
C-LD39-CR05	TEP1674	NO	NO	No	No	No	2.50	10	4	6	Oldbridge River	No	N/A
C-LD39-CR06	TEP1667	NO	NO	No	No	No	2.20	10	4	6	Oldbridge River	No	N/A
C-LD39-CR07	TEP1642	NO	NO	No	Yes	No	3.50	10	4	6	Oldbridge River	No	N/A
C-LD39-CR08	TEP1641	NO	NO	No	No	No	2.80	10	4	6	Oldbridge River	No	N/A
C-LD39-CR09	TEP1606	YES	NO	No	Yes	No	4.40	14	4	10	Oldbridge River	No	N/A
C-LD39-CR10	TEP1596	NO	NO	No	NS	No	Unknown	10	4	6	Oldbridge River	No	N/A
C-LD39-CR11	TEP1586	NO	NO	No	Yes	No	3.50	10	4	6	Oldbridge River	No	N/A
C-LD39-CR12	TEP1565	NO	NO	No	Yes	No	4.20	10	4	6	Oldbridge River	No	N/A
C-LD39-CR13	TEP1554	NO	NO	No	Yes	No	3.40	10	4	6	Oldbridge River	No	N/A
C-LD39-CR14	TEP1525	NO	NO	No	Yes	No	3.50	10	4	6	Oldbridge River	No	N/A
C-LD39-CR15	TEP1491	YES	NO	No	Yes	No	Unknown	14	4	10	Oldbridge River	No	N/A
C-LD39-CR16	TEP1471	YES	NO	No	Yes	No	Unknown	14	4	10	Oldbridge River	No	N/A
C-LD39-CR17	TEP1450	NO	NO	No	Yes	No	3.20	10	4	6	Oldbridge River	No	N/A
C-LD39-CR18	TEP1410	YES	NO	No	Yes	No	5.00	14	4	10	Oldbridge River	No	N/A

Crossing Reference	TEP ID	IDB Control	EA Control	Running Water?	Water Vole Present?	Underground section	Width	Culvert/ Bridge Length	Short term loss	Medium term loss	EA River Catchment	Crossing within SSSI	SSSI Name
C-LD39-CR19	TEP1388	NO	NO	No	Yes	No	5.80	10	4	6	Oldbridge River	No	N/A
C-LD39-CR20	TEP1379	YES	NO	No	Yes	No	6.00	14	4	10	Oldbridge River	No	N/A
C-LD39-CR21	TEP1364	NO	NO	No	No	No	Unknown	10	4	6	Oldbridge River	No	N/A
C-LD39-CR22	TEP1350	NO	NO	No	No	No	5.50	10	4	6	Oldbridge River	No	N/A
C-LD39-CR23	TEP1344	NO	NO	No	No	No	11.50	10	4	6	Oldbridge River	No	N/A
C-LD39-CR24	TEP1346	NO	NO	No	No	No	Unknown	10	4	6	Oldbridge River	No	N/A
C-LD39-CR25	TEP1331	NO	NO	No	No	No	6.00	10	4	6	Oldbridge River	No	N/A
AT-Route-CR01	No TEP ID (middle of field)	NO	NO	No	No	No	varies		N/A	N/A	Oldbridge River	No	N/A
AT-Route-CR02	TEP3043	NO	NO	No	No	No	4.15	10	4	6	Oldbridge River	No	N/A
AT30-CR01	TEP1330	NO	NO	No	No	No	2.89	10	4	6	Oldbridge River	No	N/A
AT30-CR02	TEP1338	YES	NO	No	NS	No	6.65	14	4	10	Oldbridge River	No	N/A
AT30-CR03	TEP1348	NO	NO	No	NS	No	3.00	10	4	6	Oldbridge River	No	N/A
AT29-CR01	TEP1559	NO	NO	No	NS	No	2.00	10	4	6	Oldbridge River	No	N/A
AT29-CR02	TEP1502	NO	NO	No	NS	No	3.70	10	4	6	Oldbridge River	No	N/A
AT29-CR03	TEP1474	NO	NO	No	NS	No	3.00	10	4	6	Oldbridge River	No	N/A
AT29-CR04	TEP1447	NO	NO	No	NS	No	3.50	10	4	6	Oldbridge River	No	N/A
AT29-CR05	TEP1441	NO	NO	No	NS	No	3.50	10	4	6	Oldbridge River	No	N/A
AT29-CR06	TEP1392	YES	NO	No	NS	No	5.50	14	4	10	Oldbridge River	No	N/A
AT29-CR07	TEP1382	NO	NO	No	NS	No	Unknown	10	4	6	Oldbridge River	No	N/A
C-LD53-CR01	TEP1759	NO	NO	No	No	No	3.00	10	4	6	Oldbridge River	No	N/A
C-LD53-CR02	TEP1765	NO	NO	No	Yes	No	4.80	10	4	6	Oldbridge River	No	N/A
C-LD53-CR03	TEP1807	YES	NO	Yes	Yes	No	6.50	14	4	10	Oldbridge River	No	N/A
Total losses for Oldbridge River river catchment										272	315		
Y1R-CR01	TEP3047	NO	NO	No	NS	No	Varies	10	4	6	River Yeo	No	N/A
C-LD53-CR04	TEP2912	NO	YES	Yes	Yes	No	11.00	10	4	6	River Yeo	Yes	Biddle Street, Yatton SSSI
C-LD53-CR05	TEP1815	NO	NO	No	Yes	No	4.50	10	4	6	River Yeo	Yes	Biddle Street, Yatton SSSI
C-LD53-CR06	TEP1827	NO	NO	No	Yes	No	4.00	10	4	6	River Yeo	Yes	Biddle Street, Yatton SSSI
C-LD53-CR07	TEP1833	NO	NO	No	NS	No	4.00	10	4	6	River Yeo	Yes	Biddle Street, Yatton SSSI
C-LD54-CR14	TEP1921	NO	NO	No	Yes	No	4.00	10	4	6	River Yeo	No	N/A
C-LD54-CR15	TEP1909	NO	NO	No	Yes	No	1.80	10	4	6	River Yeo	No	N/A
C-LD54-CR16	TEP1883	YES	NO	No	Yes	No	5.00	14	4	10	River Yeo	No	N/A
C-LD54-CR17	TEP1880	YES	NO	No	Yes	No	5.00	14	4	10	River Yeo	No	N/A
C-LD54-CR18	TEP1857	NO	NO	No	Yes	No	2.90	10	4	6	River Yeo	No	N/A
Total losses for River Yeo river catchment										40	68		
C-LD54-CR01	TEP2913	NO	NO	No	No	No	Unknown	10	4	6	Kenn Moor SSSI	No	N/A
C-LD54-CR02	TEP2033	NO	NO	No	No	No	3.50	10	4	6	Kenn Moor SSSI	No	N/A
C-LD54-CR03	TEP2025	NO	NO	No	NS	No	3.00	10	4	6	Kenn Moor SSSI	No	N/A
C-LD54-CR04	TEP2031	YES	NO	No	NS	No	3.00	14	4	10	Kenn Moor SSSI	No	N/A
C-LD54-CR05	TEP2000 TEP2015	YES	NO	No	NS	No	2.00	14	4	10	Kenn Moor SSSI	No	N/A
C-LD54-CR06	TEP1993	NO	NO	No	Yes	No	2.00	10	4	6	Kenn Moor SSSI	No	N/A
C-LD54-CR07	TEP3217	YES	NO	No	NS	No	3.50	14	4	10	Kenn Moor SSSI	No	N/A
C-LD54-CR08	TEP1992	YES	NO	No	Yes	No	3.00	14	4	10	Kenn Moor SSSI	No	N/A
C-LD54-CR09	TEP1966	NO	NO	No	Yes	No	3.50	10	4	6	Kenn Moor SSSI	No	N/A
C-LD54-CR10	TEP1954	NO	NO	No	No	No	3.60	10	4	6	Kenn Moor SSSI	No	N/A
C-LD54-CR11	TEP1942	NO	NO	No	Yes	No	5.00	10	4	6	Kenn Moor SSSI	No	N/A
C-LD54-CR12	TEP1932	NO	NO	No	No	No	3.00	10	4	6	Kenn Moor SSSI	No	N/A
C-LD54-CR13	TEP1927	NO	NO	No	Yes	No	4.00	10	4	6	Kenn Moor SSSI	No	N/A
C-LD62-CR01	TEP2097	NO	NO	No	Yes	No	4.20	10	4	6	Kenn Moor SSSI	No	N/A
C-LD62-CR02	TEP2093	NO	NO	No	No	No	4.00	10	4	6	Kenn Moor SSSI	No	N/A

Crossing Reference	TEP ID	IDB Control	EA Control	Running Water?	Water Vole Present?	Underground section	Width	Culvert/ Bridge Length	Short term loss	Medium term loss	EA River Catchment	Crossing within SSSI	SSSI Name
C-LD62-CR03	TEP2086	NO	NO	No	No	No	3.50	10	4	6	Kenn Moor SSSI	No	N/A
C-LD62-CR04	TEP2059	NO	NO	No	NS	No	4.20	10	4	6	Kenn Moor SSSI	No	N/A
C-LD70-CR01	TEP2099	YES	NO	No	No	No	3.00	14	4	10	Kenn Moor SSSI	No	N/A
C-LD70-CR02	TEP2117	YES	NO	No	Yes	No	3.10	14	4	10	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR03	TEP2116	NO	NO	No	No	No	3.00	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR04	TEP2119	NO	NO	No	Yes	No	4.00	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR05	TEP2118	NO	NO	No	Yes	No	4.00	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR06	TEP2128	NO	NO	No	Yes	No	4.00	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR07	TEP2153	NO	NO	No	Yes	No	8.50	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR08	TEP2137	NO	NO	No	Yes	No	4.00	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR09	TEP2142	NO	NO	No	No	No	4.20	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR10	TEP2145	YES	NO	No	Yes	No	3.40	14	4	10	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR11	TEP2139	NO	NO	No	Yes	No	3.30	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR12	TEP2160	NO	NO	No	Yes	No	4.90	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD70-CR13	TEP2167	NO	NO	No	Yes	No	2.50	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR01	TEP2182	YES	NO	Yes	Yes	No	3.50	14	4	10	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR02	TEP2188	YES	NO	No	Yes	No	3.00	14	4	10	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR03	TEP2195	NO	NO	No	Yes	No	3.00	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR04	TEP2192	NO	NO	No	Yes	No	5.00	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR05	TEP2208	NO	NO	No	Yes	No	3.50	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR06	TEP2209	NO	NO	No	Yes	No	3.50	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR07	TEP2216	NO	NO	No	NS	No	3.50	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR08	TEP2218	NO	NO	No	Yes	No	3.50	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR09	TEP2233	NO	NO	No	NS	No	2.60	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR10	TEP2239	NO	NO	No	Yes	No	3.30	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD74-CR11	TEP2223	NO	NO	No	Yes	No	4.00	10	4	6	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD78-CR01	TEP2309	YES	NO	No	No	No	Unknown	14	4	10	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
W-ROUTE-CR01	TEP3052	NO	NO	No	No	No	Varies	10	4	6	Kenn Moor SSSI	No	N/A
W-ROUTE-CR02	TEP2294	YES	NO	Yes	Yes	No	3.50	14	4	10	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
W-ROUTE-CR03	TEP3053	NO	NO	No	NS	No	4.90	35	29	6	Kenn Moor SSSI	No	N/A
W-ROUTE-CR04	TEP2294	YES	NO	No	Yes	No	0.25	14	4	10	Kenn Moor SSSI	Yes	Tickenham, Nailsea & Kenn Moors SSSI
Total losses for Kenn Moor SSSI river catchment										209	324		
C-LD76-CR01	TEP2282	YES	NO	No	NS	No	4.20	14	4	10	Blind Yeo	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD76-CR02	TEP2291	NO	NO	No	Yes	No	5.00	10	4	6	Blind Yeo	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD76-CR03	TEP2286	NO	NO	No	NS	No	2.80	10	4	6	Blind Yeo	Yes	Tickenham, Nailsea & Kenn Moors SSSI

Crossing Reference	TEP ID	IDB Control	EA Control	Running Water?	Water Vole Present?	Underground section	Width	Culvert/ Bridge Length	Short term loss	Medium term loss	EA River Catchment	Crossing within SSSI	SSSI Name
C-LD76-CR04	TEP2279	NO	NO	No	Yes	No	2.80	10	4	6	Blind Yeo	Yes	Tickenham, Nailsea & Kenn Moors SSSI
C-LD78-CR02	TEP2314	YES	NO	No	Yes	No	4.00	14	4	10	Blind Yeo	Yes	Tickenham, Nailsea & Kenn Moors SSSI
W-ROUTE-CR05	TEP2314	YES	NO	No	Yes	No	5.03	14	4	10	Blind Yeo	Yes	Tickenham, Nailsea & Kenn Moors SSSI
W-ROUTE-CR06	TEP2914	NO	NO	No	Yes	No	Varies	10	4	6	Blind Yeo	Yes	Tickenham, Nailsea & Kenn Moors SSSI
Total losses for Blind Yeo river catchment									28	54			
W-ROUTE-CR07	TEP2333	NO	YES	Yes	Yes	No	11.31	10	4	6	Land Yeo	No	N/A
Total losses for Land Yeo river catchment									4	6			
W-ROUTE-CR08	TEP2339	NO	NO	No	No	No	Unknown	35	29	6	Portbury Ditch	No	N/A
W-ROUTE-CR09	TEP2915	YES	NO	No	Yes	No	5.44	35	25	10	Portbury Ditch	No	N/A
W-ROUTE-CR10	TEP2413	NO	NO	No	NS	No	4.2	10	4	6	Portbury Ditch	No	N/A
W-ROUTE-CR11	TEP2444	NO	NO	No	NS	No	13.52	35	29	6	Portbury Ditch	No	N/A
W-ROUTE-CR12	TEP2446	NO	NO	No	Yes	No	14.81	35	29	6	Portbury Ditch	No	N/A
W-ROUTE-CR13	TEP2452	NO	NO	No	No	No	8.69	35	29	6	Portbury Ditch	No	N/A
W-ROUTE-CR14	TEP2461	NO	NO	No	NS	No	Varies	35	29	6	Portbury Ditch	No	N/A
C-LD95-CR01	TEP2916	NO	YES	No	No	No	6.00	10	4	6	Portbury Ditch	No	N/A
C-LD96-CR01	TEP2925	NO	NO	No	No	No	8.00	10	4	6	Portbury Ditch	No	N/A
P-LD99-CR01	TEP2464	NO	NO	No	NS	No	13.65	10	4	6	Portbury Ditch	No	N/A
P-LD99-CR02	TEP2484	NO	NO	No	Yes	No	8.31	10	4	6	Portbury Ditch	No	N/A
P-LD99-CR03	TEP2486	NO	NO	No	NS	No	19.56	10	4	6	Portbury Ditch	No	N/A
P-LD99-CR04	TEP2490	NO	NO	No	NS	No	Varies	10	4	6	Portbury Ditch	No	N/A
P-LD99-CR05	TEP2484	NO	NO	No	Yes	No	Unknown	10	4	6	Portbury Ditch	No	N/A
BW-P-CR01	TEP2484	NO	NO	No	Yes	No	Varies	10	4	6	Portbury Ditch	No	N/A
P-LD101-CR01	TEP2465	NO	NO	No	NS	No	Unknown	10	4	6	Portbury Ditch	No	N/A
Total losses for Portbury Ditch river catchment									210	100			
C-LD114-CR01	TEP2510	NO	NO	No	No	No	4.00	10	4	6	Chestle Pill	No	N/A
C-LD114-CR02	TEP2514	NO	NO	No	Yes	No	Unknown	10	4	6	Chestle Pill	No	N/A
G-ROUTE-CR01	TEP2511	NO	NO	No	No	No	3.60	35	29	6	Chestle Pill	No	N/A
G-ROUTE-CR02	TEP3218	NO	NO	No	NS	No	Unknown	35	29	6	Chestle Pill	No	N/A
G-ROUTE-CR03	TEP2523	NO	NO	No	Yes	No	9.95	35	29	6	Chestle Pill	No	N/A
G-ROUTE-CR04	TEP2541	NO	NO	No	Yes	No	7.77	10	4	6	Chestle Pill	No	N/A
G-ROUTE-CR05	TEP2536	YES	NO	No	Yes	No	6.00	14	4	10	Chestle Pill	No	N/A
G-ROUTE-CR06	TEP2537	YES	NO	No	No	No	6.00	14	4	10	Chestle Pill	No	N/A
G-ROUTE-CR07	TEP2543	YES	NO	No	Yes	No	Unknown	14	4	10	Chestle Pill	No	N/A
G-ROUTE-CR08	TEP2549	NO	NO	No	NS	No	Unknown	10	4	6	Chestle Pill	No	N/A
G-ROUTE-CR09	TEP2570	NO	NO	No	No	No	Unknown	10	4	6	Chestle Pill	No	N/A
G-ROUTE-CR10	TEP2569	YES	NO	No	NS	No	5.86	14	4	10	Chestle Pill	No	N/A
G-ROUTE-CR11	TEP2577	YES	NO	No	NS	No	4.84	35	25	10	Chestle Pill	No	N/A
G-ROUTE-CR12	TEP2584	YES	NO	No	Yes	No	4.72	35	25	10	Chestle Pill	No	N/A
G-ROUTE-CR13	TEP2594	NO	NO	No	NS	No	Unknown	35	29	6	Chestle Pill	No	N/A
G-ROUTE-CR14	TEP2601	NO	NO	No	No	No	Unknown	35	29	6	Chestle Pill	No	N/A
C-LD118-CR01	TEP2543	YES	NO	No	Yes	No	Unknown	14	4	10	Chestle Pill	No	N/A
C-LD119-CR01	TEP2622	YES	NO	No	Yes	No	9.00	14	4	10	Chestle Pill	No	N/A
C-LD120-CR01	TEP2623	YES	NO	No	Yes	No	9.00	14	4	10	Chestle Pill	No	N/A
C-LD120-CR02	TEP2609	YES	NO	No	NS	No	Unknown	14	4	10	Chestle Pill	No	N/A
C-LD121-CR01	TEP2666	NO	NO	No	NS	No	Unknown	10	4	6	Chestle Pill	No	N/A
C-LD121-CR02	TEP2651	NO	NO	No	No	No	Unknown	10	4	6	Chestle Pill	No	N/A
C-LD121-CR03	TEP2649	NO	NO	No	No	No	Unknown	10	4	6	Chestle Pill	No	N/A
C-LD121-CR04	TEP2643	NO	NO	No	No	No	Unknown	10	4	6	Chestle Pill	No	N/A
C-LD125-CR01	TEP2699	NO	NO	No	NS	No	Unknown	10	4	6	Chestle Pill	No	N/A
C-LD127-CR01	TEP2715	NO	NO	No	No	No	Unknown	10	4	6	Chestle Pill	No	N/A
Seabank-CR01	TEP2714	NO	NO	No	NS	No	4.00	10	4	6	Chestle Pill	No	N/A
Seabank-CR02	TEP2720	NO	NO	No	Yes	No	3.50	10	4	6	Chestle Pill	No	N/A
Total losses for Chestle Pill river catchment									279	208			
GRAND TOTAL watercrossings alone									1,044	1,826			
GRAND TOTAL additional 400kV UG swathe (25x watercourses crossed)									900	225			
GRAND TOTAL additional 132kV UG swathe (14x watercourses crossed)									394	96			