A66 Northern Trans-Pennine Project
TR010062

3.4 Environmental Statement Appendix 14.11 Non-Significant Effects

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3.4 ENVIRONMENTAL STATEMENT APPENDIX 14.11 NON-SIGNIFICANT EFFECTS

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14.11 Non-significant effects

Table 1: Summary of non-significant effects (construction)

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
Routewide						
All watercourses subject to assessment	Water supply/quality Recreation Value to economy Conveyance of flow Biodiversity	Very High to Low	Alteration to baseflows as a result of embankments during construction impacting surface water quantity	Mitigation outlined in Annex B7 Ground and surface water management plan of the Environmental Management Plan (EMP) (Application Document 2.7) will maintain existing flow regime.	Negligible	Neutral to slight adverse
All watercourses subject to assessment	Water supply/quality Recreation Value to economy Conveyance of flow Biodiversity	Very High to Low	Alteration to baseflows as a result of cuttings and structures during construction impacting surface water quantity	Cutting or structure drainage maintains flow directions and existing catchment areas wherever possible. Detailed assessment of groundwater-surface water interaction will be undertaken during detailed design. Adherence to the Ground and surface water management plan (Annex B7 of the EMP (Application Document 2.7)).	Negligible	Neutral to slight adverse
All watercourses subject to assessment	Water supply/quality Recreation	Very High to Low	Abstractions from surface water features as a result of construction	Contractor is required to consult with the Environment Agency and apply for an abstraction licence. This	Negligible	Neutral to slight adverse

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
	Value to economy Conveyance of flow Biodiversity		methods impacting surface water quantity	licence application would involve its own further assessment and limits to be placed on abstraction volumes and time frames.		
All watercourses subject to assessment	Water supply/quality Recreation Value to economy Conveyance of flow Biodiversity	Very High to Low	Pollution incident and accidental spillage as a result of construction impacting surface water quality	The ground and surface water management plan (Annex B7 Ground and Surface Water Management Plan of the EMP (Application Document 2.7)) includes best practice measures for the storage of hazardous substances, the siting of higher risk activities (e.g. vehicle washdown areas) and the maintenance of plant.	Negligible	Neutral to slight adverse
All watercourses subject to assessment	Water supply/quality Recreation Value to economy Conveyance of flow Biodiversity	Very High to Low	Temporary dewatering and loss of channel during construction of surface water crossings impacting hydromorphology	The ground and surface water management plan (Annex B7 Ground and Surface Water Management Plan of the EMP (Application Document 2.7)) conditions that flow directions and existing catchment areas are maintained wherever possible during construction of watercourse crossings.	Negligible	Neutral to slight adverse

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
				Mitigation outlined in Habitats Regulations Assessment Stage 1: Likely Significant Effects Report (Application Document 3.5) and Habitats Regulations Assessment Stage 2: Statement to Inform Appropriate Assessment (Application Document 3.6) will be adhered to.		
All groundwater bodies subject to assessment (Principal and Secondary Aquifers) and associated receptors	Water quality WFD status Baseflow Value to economy	Very High to Low	Pollution incident and accidental spillage as a result of construction impacting groundwater quality	Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) includes best practice measures for the storage of hazardous substances, the siting of higher risk activities (e.g. vehicle washdown areas) and the maintenance of plant.	Negligible	Neutral to slight adverse
All groundwater bodies subject to assessment and associated receptors (abstractions and groundwater-surface water interactions)	Water quality WFD status Baseflow Value to economy	Very High to Low	Temporary works associated with construction of cuttings, embankments, structures, and drainage has the potential to affect	Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) includes best practice pollution prevention measures.	Negligible	Neutral to slight adverse

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
			groundwater quality (although generally localised)			
All groundwater bodies subject to assessment and associated receptors (abstractions and groundwater-surface water interactions)	Water quality WFD status Baseflow Value to economy	Very High to Low	Grouting/concreting works for foundations or slope stability etc have the potential to impact groundwater quality (in particular if fissures or dissolution features are encountered during construction which can act as preferential flow paths.	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) including voids treatment protocol and Foundation Works Risk Assessment (FWRA).	Negligible	Neutral to slight adverse
All groundwater bodies subject to assessment and associated receptors (abstractions and groundwater-surface water interactions)	Water quantity Water quality WFD status Baseflow Value to economy	Very High to Low	Underground structures and/or foundations have the potential to alter groundwater flow paths.	Appropriate drainage design around structures to maintain flow directions and existing catchment areas (e.g. prevent mounding). Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) including voids treatment protocol and FWRA.	Negligible	Neutral to slight adverse

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
All groundwater bodies subject to assessment and associated receptors (abstractions and groundwater-surface water interactions)	Water quantity Water quality WFD status Baseflow Value to economy	Very High to Low	Groundwater table lowered as a result of excavations, and temporary dewatering operations. Potential reduction in baseflow to receptors and water resource loss.	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7). All temporary abstractions and discharges to have a tailored risk assessment, alongside appropriate regulatory licenses, consents and permits. Continued liaison with local and regulatory stakeholders to ensure that sufficient and appropriate control measures are implemented. Additional surveying of areas at high risk of impact, following additional site investigation and detailed design. Design of drainage for temporary works (e.g., construction compounds, haul roads, temporary water management) to maintain	Negligible	Neutral to slight adverse

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
				water balance within specific sub-catchment.		
All groundwater bodies subject to assessment and associated receptors (abstractions and groundwater-surface water interactions)	Water quantity Water quality WFD status Baseflow Value to economy	Very High to Low	Temporary works may result in reduction in recharge area, and capture groundwater and surface water within the catchment area.	Design of drainage for temporary works (e.g., construction compounds, haul roads, temporary water management) to maintain water balance within specific sub-catchment.	Negligible	Neutral to slight adverse
Land Drainage, Abstractions (licensed and unlicensed) and Discharges	Water quantity Water quality WFD status Baseflow Value to economy	Very High to Low	Direct impacts on existing land drainage, abstraction and discharge infrastructure as a result of construction works (i.e. within footprint)	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7). Any intercepted land drainage, abstractions or discharges will need to be appropriately maintained, reinstated or compensated (in consultation with the relevant stakeholders).	Negligible	Neutral to slight adverse
Groundwater-surface water interactions	Water quantity Water quality	Very High to Low	Interception of springs within the footprint	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7).	Negligible	Neutral to slight adverse

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
	WFD status Baseflow Value to economy			Design of drainage for temporary works (e.g., construction compounds, haul roads, temporary water management) to maintain water balance within specific sub-catchment. Where springs are intercepted that are utilised by stakeholders, appropriate reinstatement or compensation to be implemented (in consultation with the relevant stakeholders).		
GWDTE of low, moderate and high dependency	Biodiversity	High	Temporary impacts due to drawdown in groundwater levels and disruption to flow, associated with construction activities, impacting on habitats with the	Cutting or structure drainage maintains flows and existing catchment areas wherever possible. Detailed assessment of groundwater-surface water interaction during detailed design to ensure mitigation design is effective. Adherence to Annex	Negligible	Negligible risk[1]

[11] Residual risk is applied as per Appendix B in Design Manual for Roads and Bridges (*DMRB) LA 113 Road drainage and the water environment (DMRB LA 113)*, this is equivalent to a slight adverse effect and therefore not significant

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
			potential to support GWDTEs.	B7 Ground and surface water management plan of the EMP (Application Document 2.7).		
The Project Third party land (including surrounding properties and land use activities)	Nationally significant infrastructure Value to economy Sensitive human receptors	Very High	Fluvial flood risk to the site during construction. Temporary land take within Flood Zone 1.	Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) outlines flood risk mitigation, such as locating storage outside of floodplain and flood early warning systems where required.	No change	Neutral
The Project Third party land (including surrounding properties and land use activities)	Nationally significant infrastructure	Very High	Pluvial flood risk to the site during construction.	Construction drainage (including suitably sized temporary settlement and drainage basins, drainage ditches and culverts) to be installed early in the construction period as per the EMP (Application Document 2.7)	No change	Neutral
M6 Junction 40 to Kemplay Bank						
Groundwater Source Protection Zone (SPZ) (Zone III)	Regulated abstraction SPZ Water quality Water quantity	Medium	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply.	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and	Negligible	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
			(Alterations in groundwater quality and/or quantity that would impact the SPZ as a result of the works are anticipated to be negligible due to works in M6 Junction 40 to Kemplay Bank area not intercepting bedrock which the relevant abstractions are pulling from.)	pollution prevention measures.		
Abstraction well 2776004056/R01 at Penrith Industrial area (Permo-Triassic Sandstone)	Regulated abstraction Water quality Water quantity	High	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the licensed abstraction	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.	No change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
			as a result of the works are anticipated to be negligible due to works in M6 Junction 40 to Kemplay Bank area not intercepting bedrock which abstractions are pulling from.)			
Abstraction well 277600644 at Penrith and District Farmers Auction Mart (Permo-Triassic Sandstone)	Regulated abstraction Water quality Water quantity	High	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the licensed abstraction as a result of the works anticipated to be negligible due to works in M6 Junction 40 to Kemplay Bank area not intercepting	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.	No change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
			bedrock which abstractions are pulling from.)			
The Project Third party land (including surrounding properties and land use activities)	Nationally significant infrastructure Value to economy Sensitive human receptors	Very High	Fluvial flood risk to the site during construction. Temporary land take within Flood Zone 1.	Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) outlines flood risk mitigation, such as locating storage outside of floodplain and flood early warning systems where required.	No change	Neutral
Penrith to Temple Sowerby						
Groundwater SPZ (Zone III)	Regulated abstraction SPZ Water quality Water quantity	Medium	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the SPZ as a result of the works anticipated to be negligible. The groundwater level in	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.	Negligible	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
			the Penrith Sandstone is anticipated to be below the cuttings formation level in this area.)			
Temple Sowerby to Appleby						
Agricultural abstraction well (Licence number: 2776003013) at Spittals Farm (Permo-Triassic Sandstone)	Regulated abstraction Water quality Water quantity	High	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the licensed abstraction, as a result of the works, anticipated to be negligible. Limited cuttings into the bedrock in the vicinity of the abstraction that would lower the water table.)	Adherence Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.	No change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
Agricultural abstraction well (Licence number: 2776003012/R01) in Kirkby Thore (Permo-Triassic Sandstone)	Regulated abstraction Water quality Water quantity	High	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the licensed abstraction, as a result of the works, anticipated to be negligible. Limited cuttings into the bedrock in the vicinity of the abstraction that would lower the water table.)	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.	No change	Neutral
Two industrial abstraction wells (Licence number: 2776003011) in Kirkby Thore (Permo-Triassic Sandstone)	Regulated abstraction Water quality Water quantity	High	Abstraction infrastructure (two wells) will be lost as a result of direct construction impacts. Loss of wells will lead to loss of water supply.	Alternative source of supply (e.g. mains supply or alternative boreholes in a new location) provided in consultation with stakeholders and the Environment Agency, if appropriate. Adherence to Annex B7	Negligible	Slight adverse

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
				Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.		
Unlicensed private abstraction (<20m3/d) south-west of Sleastonhow Farm	Unlicensed abstraction Water quality Water quantity	Medium	Temporary works in vicinity has potential to impact groundwater quality and quantity available for supply.	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and FWRA, with appropriate control and compensation measures implemented as appropriate.	No change	Neutral
The Project Third party land (including surrounding properties and land use activities)	Nationally significant infrastructure Value to economy Sensitive human receptors	Very High	Fluvial flood risk to the site during construction. Temporary land take within Flood Zone 1.	Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) outlines flood risk mitigation, such as locating storage outside of floodplain and flood early warning systems where required.	No change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
Appleby to Brough						
Abstraction well NW/076/0001/009 at Eastfield Farm (Permo-Triassic Sandstone)	Regulated abstraction Water quality Water quantity	High	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the licensed abstraction, as a result of the works, anticipated to be negligible. Limited cuttings into the bedrock in the vicinity of the abstraction that would lower the water table.)	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.	No change	Neutral
Abstraction well 2776001135/R01 at West View Brough, Kirkby Stephen (Permo-Triassic Sandstone)	Regulated abstraction Water quality Water quantity	High	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply.	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and	No change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
			(Alterations in groundwater quality and/or quantity that would impact the licensed abstraction, as a result of the works, anticipated to be negligible. Limited cuttings into the bedrock in the vicinity of the abstraction that would lower the water table.)	pollution prevention measures.		
Potential groundwater-surface water interaction (northeast of proposed Sandford Junction)	Water quality Water quantity Baseflow (to GWDTE)	Medium	Construction works lead to a reduction or cessation of flow at groundwater-surface water interactions which feed local GWDTE's, surface water features and vegetation.	Detailed assessment undertaken at detailed design stage to identify risk and ascertain if additional mitigation is needed as outlined below. Lining of cutting to prevent groundwater ingress, and drainage blanket beneath/surrounding to prevent disruption to groundwater flow (e.g. mounding) OR scheme components redesigned within LoD to prevent impact	Negligible	Slight adverse

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
				on receptor can be implemented.		
Flitholme Spring	Unlicensed source of supply Water quality Water quantity	Medium	Abstraction infrastructure will be lost as a result of direct construction impacts. Loss of infrastructure will lead to loss of water supply.	Alternative source of supply (e.g. mains supply or alternative infrastructure in a new location) provided in consultation with stakeholders and Environment Agency, if appropriate. Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.	Negligible	Slight adverse
Wildboar Hill Springs	Water quality Water quantity Baseflow	Medium	Construction works may lead to a reduction or cessation of flow at springs which feed local surface water features and vegetation.	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7). Surveying of areas at risk in the area prior to commencement of construction will assist in the identification of spring locations and enable a further	Negligible	Slight adverse

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
				assessment of risk to be undertaken. Design of drainage for temporary works (e.g., construction compounds, haul roads, temporary water management) to maintain water balance within specific sub-catchment. Where springs are intercepted that are utilised by stakeholders, appropriate reinstatement or compensation to be implemented (in consultation with the relevant stakeholders).		
The Project Third party land (including surrounding properties and land use activities)	Nationally significant infrastructure Value to economy Sensitive human receptors	Very High	Fluvial flood risk to the site during construction. Temporary land take within Flood Zone 1.	Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) outlines flood risk mitigation, such as locating storage outside of floodplain and flood early warning systems where required.	No change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
Bowes Bypass						
Groundwater-surface water interaction – S19	Water quality Water quantity Baseflow	Medium	Construction works may lead to a reduction or cessation of flow at springs which feed local surface water features and vegetation.	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7). Design of drainage for temporary works (e.g., construction compounds, haul roads, temporary water management) to maintain water balance within specific sub-catchment.	Negligible	Neutral
Western Bowes Springs	Water quality Water quantity Baseflow	Medium	Construction works lead to a reduction or cessation of flow at springs which feed local surface water features and vegetation.	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7). Surveying of areas at risk in the area prior to commencement of construction will assist in the identification of spring locations and enable a further assessment of risk to be undertaken.	Negligible	Slight adverse

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
				Design of drainage for temporary works (e.g., construction compounds, haul roads, temporary water management) to maintain water balance within specific sub-catchment. Where springs are intercepted that are utilised by stakeholders, appropriate reinstatement or compensation is to be implemented (in consultation with the relevant stakeholders).		
Cross Lanes to Rokeby						
Groundwater-surface water interaction – S21	Water quality Water quantity Baseflow	Medium	Construction works may lead to a reduction or cessation of flow at springs which feed local surface water features and vegetation.	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7). Design of drainage for temporary works (e.g., construction compounds, haul roads, temporary water management) to maintain	Negligible	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
				water balance within specific sub-catchment.		
Stephen Bank to Carkin Moor						
Groundwater SPZ (Zone I) [Associated with abstraction license 2/27/23/661/R01]	Regulated abstraction SPZ Water quality Water quantity	High	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the licensed abstraction, as a result of the works, anticipated to be negligible. Limited cuttings into the bedrock in the vicinity of the abstraction that would lower the water table.)	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring.	No change	Neutral
Groundwater SPZ (Zone I) [Associated with	Regulated abstraction SPZ	High	Alterations in groundwater quality and/or quantity that could lead to	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post	No change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
abstraction license Blackhill Farm]	Water quality Water quantity		loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the licensed abstraction, as a result of the works, anticipated to be negligible. Limited cuttings into the bedrock in the vicinity of the abstraction that would lower the water table.)	construction monitoring.		
Abstraction License (2/27/23/661/R01)	Regulated abstraction Water quality Water quantity	High	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the licensed abstraction,	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.	No Change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
			as a result of the works, anticipated to be negligible. Limited cuttings into the bedrock in the vicinity of the abstraction that would lower the water table.)			
Abstraction License (Blackhill Farm)	Regulated abstraction Water quality Water quantity	High	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the licensed abstraction, as a result of the works, anticipated to be negligible. Limited cuttings into the bedrock in the vicinity of the abstraction that	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.	No Change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
			would lower the water table).			
Groundwater-surface water interaction – S1	Water quality Water quantity Baseflow	Medium	Construction works leads to a reduction or cessation of flow at springs which feed local surface water features and vegetation.	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7). Design of drainage for temporary works (e.g., construction compounds, haul roads, temporary water management) to maintain water balance within specific sub-catchment.	Negligible	Neutral
A1(M) Junction 53 Scotch Corner						
Abstraction License (2/27/23/702/R1)	Regulated abstraction Water quality Water quantity	High	Alterations in groundwater quality and/or quantity that could lead to loss/deterioration of supply. (Alterations in groundwater quality and/or quantity that would impact the licensed abstraction, as a result of the	Adherence to Annex B7 Ground and surface water management plan of the EMP (Application Document 2.7) in particular pre, during and post construction monitoring and pollution prevention measures.	No change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential impact before essential mitigation	Essential mitigation/enhancement	Impact magnitude	Residual effect
			works, anticipated to be negligible. No cuttings in the Scotch Corner area)			

Table 2: Summary of non-significant effects (operation)

Receptor	Attribute	Receptor sensitivity	Potential Impact before essential mitigation	Essential mitigation/ enhancement	Impact magnitude	Residual effect
Routewide						
All groundwater bodies subject to assessment (Principal and Secondary Aquifers) and associated receptors	Water quality WFD status Baseflow Value to economy	Very High to Low	Pollution incident and accidental spillage as a result of operation impacting groundwater quality.	Drainage basin design with in-built treatment measures to mitigate potential impacts to groundwater quality.	Negligible	Neutral to slight adverse
All groundwater bodies subject to assessment and associated receptors (abstractions and groundwater-surface water interactions)	Water quantity Water quality WFD status Baseflow Value to economy	Very High to Low	Groundwater table lowered as a result of permanent cuttings and highways drainage; impacting local hydrological regime and reducing baseflow to receptors.	Drainage will maintain water captured in the drainage within the same catchment resulting in minimal net loss to the water balance.	Negligible	Neutral to slight adverse

Receptor	Attribute	Receptor sensitivity	Potential Impact before essential mitigation	Essential mitigation/ enhancement	Impact magnitude	Residual effect
All groundwater bodies subject to assessment and associated receptors (abstractions and groundwater-surface water interactions)	Water quantity Water quality WFD status Baseflow Value to economy	Very High to Low	Structures and/or foundations have the potential to alter groundwater flow paths.	Appropriate drainage design around/beneath structures to maintain flow directions and existing catchment areas.	Negligible	Neutral to slight adverse
All groundwater bodies subject to assessment and associated receptors (abstractions and groundwater-surface water interactions)	Water quantity Water quality WFD status Baseflow Value to economy	Very High to Low	Highway and drainage may result in reduction in recharge area, and capture groundwater and surface water which would previously have infiltrated into the ground or run-off into local surface water features (which subsequently may be in continuity with the groundwater).	Drainage will maintain water captured in the drainage within the same catchment resulting in minimal net loss to the water balance.	Negligible	Neutral to slight adverse

Receptor	Attribute	Receptor sensitivity	Potential Impact before essential mitigation	Essential mitigation/ enhancement	Impact magnitude	Residual effect
GWDTE of low, moderate, and high dependence (with the exception of Flitholme Fen and Flitholme Woodland)	Biodiversity	High	Permanent impact due to drawdown in groundwater levels and disruption to flow associated with cuttings impacting on habitats with the potential to support GWDTEs.	Further National Vegetation Classification (NVC) surveys and detailed assessment of groundwater-surface water interaction to be undertaken during detailed design at areas identified as having the potential to support moderate and high GWDTE. Implementation, if necessary, of mitigation outlined in ES Appendix 14.7: Groundwater Dependent Terrestrial Ecosystem Assessment (Application Document 3.4).	Negligible	Negligible risk[2]
All watercourses subject to assessment	Conveyance of flow Sediment transfer Biodiversity	Very High to Low	New crossings and realignments impacting on existing hydromorphology	Mitigation outlined in ES Appendix 14.4: Hydromorphology Assessment (Application Document 3.4).	Negligible	Neutral to slight adverse
The Project	Essential infrastructure	Very High	Fluvial flood risk to the Project during operation	Where Order Limits are within flood risk Zone 2 or Zone 3, the sequential and exception test have been completed. Highway drainage design includes compensatory flood	No Change	Neutral

[2] Residual risk is applied as per Appendix B in *DMRB LA 113*, this is equivalent to a slight adverse effect and therefore not significant

Receptor	Attribute	Receptor sensitivity	Potential Impact before essential mitigation	Essential mitigation/ enhancement	Impact magnitude	Residual effect
				storage where required, as outlined in ES Appendix 14.12: Flood Risk Assessment and Outline Drainage Strategy (Application Document 3.4).		
The Project	Essential infrastructure	Very High	Pluvial flood risk to the Project during operation	Highway drainage design includes attenuation of surface water and cut off drains on adjacent land as outlined in ES Appendix 14.12: Flood Risk Assessment and Outline Drainage Strategy (Application Document 3.4).	No Change	Neutral
Third party land (including surrounding properties and land use activities)	Residential properties Community services Agricultural Land	High Medium Medium	Fluvial flood risk increasing downstream of the Project	Floodplain compensation areas included in the design to offset losses from the Project being built in the floodplain. Modelling of the Project design has confirmed that there is no increased Fluvial risk downstream of the Project Details within ES Appendix 14.12: Flood Risk Assessment and Outline Drainage Strategy (Application Document 3.4).	No Change	Neutral
Third party land (including surrounding	Residential properties	High	Pluvial flood risk increasing	Highway drainage designed to accommodate peak rainfall	No Change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential Impact before essential mitigation	Essential mitigation/ enhancement	Impact magnitude	Residual effect
properties and land use activities)	Community services Agricultural Land	Medium Medium	downstream of the Project	plus climate change allowance. Flow rates restricted to ensure no increase compared to baseline. As outlined in ES Appendix 14.12: Flood Risk Assessment and Outline Drainage Strategy.		
Penrith to Temple Sowerby						
The Project	Essential infrastructure	Very High	Fluvial flood risk to the Project during operation from overland flow routes	Reprofiling of the farmland between the Unnamed Tributary of River Eamont 3.3 and the Light Water is proposed to maintain this conveyance route, for the 1 in-100 year plus 94% climate change event.	No Change	Neutral
Temple Sowerby to Appleby						
Trout Beck Unnamed Tributary of Trout Beck 4.6 Unnamed Tributary of Trout Beck 4.2 Unnamed Tributary of Trout Beck 4.5 Unnamed Tributary of Trout Beck 4.3	Conveyance of flow Sediment transfer Biodiversity	Very High to Low	New crossings and realignments impacting on existing hydromorphology	Mitigation outlined in ES Appendix 14.4: Hydromorphology Assessment (Application Document 3.4).	Negligible	Neutral to slight adverse

Receptor	Attribute	Receptor sensitivity	Potential Impact before essential mitigation	Essential mitigation/ enhancement	Impact magnitude	Residual effect
Trout Beck River Eden	Conveyance of flow Sediment transfer Biodiversity	Very High	New crossing and associated piers disrupting flow and sediment transport	Mitigation has been embedded in the design. Detailed design will include further modelling of the proposed bridge crossing piers and refinement of design, and construction monitoring as outlined in ES Appendix 14.9: Detailed Geomorphological Modelling (Application Document 3.4).	Negligible	Slight adverse
Third-party land	Residential properties Community services Agricultural Land	High Medium Medium	Pluvial flood risk increasing downstream of the Project	Highway drainage designed to accommodate peak rainfall plus climate change allowance. Flow rates restricted to ensure no increase compared to baseline. As outlined in ES Appendix 14.12: Flood Risk Assessment and Outline Drainage Strategy (Application Document 3.4).	No Change	Neutral
Third-party land	Residential properties Community services Agricultural Land	High Medium Medium	Fluvial flood risk increasing downstream of the Project	Additional flood storage compensation areas included in the design. As outlined in ES Appendix 14.12: Flood Risk Assessment and Outline Drainage Strategy (Application Document 3.4).	No Change	Neutral

Receptor	Attribute	Receptor sensitivity	Potential Impact before essential mitigation	Essential mitigation/ enhancement	Impact magnitude	Residual effect
Appleby to Brough						
Crooks Beck Cringle Beck Eastfield Sike Lowgill Beck Moor Beck Moor Beck (Offtake) Unnamed Tributary of the Cringle Beck 6.1 Unnamed Tributary of the Lowgill Beck 6.1 Unnamed Tributary of the Lowgill Beck 6.7 Unnamed Tributary of the Mire Sike 6.12 Woodend Sike Yosgill Sike	Conveyance of flow Sediment transfer Biodiversity	Very High to Low	New crossings and realignments impacting on existing hydromorphology	Mitigation outlined in Appendix 14.4: Hydromorphology Assessment (Application Document 3.4).	Negligible	Neutral to slight adverse
Hayber Beck Moor Beck Moor Beck (Offtake) Eastfield Sike Crooks Beck	Conveyance of flow Sediment transfer Biodiversity	Very High	New crossing and flood compensation structures disrupting flow and sediment transport	Mitigation has been embedded in the design. Further investigation at detailed design to explore the potential for re-naturalisation of the channel, and the addition of green scour protection, as outlined in ES Appendix 14.9: Detailed Geomorphological	Negligible	Slight adverse

Receptor	Attribute	Receptor sensitivity	Potential Impact before essential mitigation	Essential mitigation/ enhancement	Impact magnitude	Residual effect
				Modelling (Application Document 3.4).		
Third-party land	Residential properties Community services Agricultural Land	High Medium Medium	Pluvial flood risk increasing downstream of the Project	Highway drainage designed to accommodate peak rainfall plus climate change allowance. Flow rates restricted to ensure no increase compared to baseline. As outlined in ES Appendix 14.12: Flood Risk Assessment and Outline Drainage Strategy (Application Document 3.4).	No Change	Neutral
Third-party land	Residential properties Community services Agricultural Land	High Medium Medium	Fluvial flood risk increasing downstream of the Project	Additional flood storage compensation areas included in the design as outlined in ES Appendix 14.12: Flood Risk Assessment and Outline Drainage Strategy (Application Document 3.4).	No Change	Neutral