

Risk Type	Risk Number	Author	Date Identified	Risk Cause (Due to... Because of...)	Risk Description (Lack of.... Failure to...)	Risk Impact (Leads to.... Results in....)	Pre-Counter Measure			Risk Mitigation / Counter Measures	Progress with Mitigation / Counter Measures	Post-Mitigation / Counter Measure			Prospect of hitting target score	Target Resolution Date	Risk Owner	Lead Officer	Opportunity	Date Reviewed	Status		
							Likelihood	Impact	Risk Score			Risk Level	Likelihood	Impact								Risk Score	Risk Level following mitigation
F Environmental	F22	WSP	02 Apr 19	#1 Sufficient surveys not completed. #2 Large routes so surveying total areas not possible #3 SSSIs and significant sites in the vicinity of the routes	Unknown buried structures/archaeology may be encountered during trial trenching and construction works	#1 Risk to pre-construction programme and cost from survey requirements pre-application. #2 Re-route scheme to avoid designated / non-designated structures.	2	3	6	MEDIUM	Archaeological desk study, geotech surveys, trial trenching along preferred route(s), avoid any nationally significant archaeology Work with Historic England and the archaeological officer of SCC to agree scope of the assessment. Identify a suitable WSI in advance of intrusive works to ensure that archaeological matters are appropriately addressed at all suitable stages.	desk study in progress	2	2	4	LOW	GREEN						Open
R Planning / DCO	R1	WSP	02 Apr 19	#1 Programme slippage	There is a risk that statutory consultation may need to be held over the holiday period to meet the programme	#1 Precedent set for future consultations #2 Potential delay to consultation	2	3	6	MEDIUM	Plan consultation well in advance, seek authority to consult, realistic programme, seek opportunities to regain programme	prepared delivery programme. Consultation in June	2	2	4	LOW	GREEN						Open
F Environmental	F23		02 Apr 19	#1 The proposed scheme may impact directly or indirectly designated areas #2 The proposed scheme may impact directly or indirectly species.	Landowners may seek designation of additional ecology constraints on proposed alignment	#1 Change of alignment to avoid ecological designated areas/species. #2 Increased cost due to onerous mitigation measures by design #3 Delays to the scheme due to further survey requirements.	4	4	16	MEDIUM	Early engagement with SCC ecology, NE and EA, land compensation to enhance CWS or manage/maintain habitats	Strategy to be developed with SCC.	3	2	6	MEDIUM	GREEN						Open
G Third parties stats	G5	WSP	02 Apr 19	#1 Design does not take consideration of gas main work constraints	HP gas main works may not be able to proceed within inner zone 83m each side of pipe	may result in scheme which is less well matched with transport objectives	2	2	4	LOW	seek guidance from LPA and HSE - need to outline the detail, clarify with planning authority. Risk low and will be managed by design.	Strategy to be developed with pipeline operator, SCC and LPA	1	2	2	LOW	GREEN						Open
B Programme / Contract	B8	SCC	02 Apr 19	#1 Costs are based on a cost per KM and not specific scheme info	The high level cost estimates may currently be inaccurate	#1 Reduced BCR and subsequently VFM rating. #2 Scheme costs increase. #3 Reputational damage with the local stakeholders and the DfT	4	5	20	HIGH	use qualified and experienced QS team, lessons learned and benchmarking against other schemes eg TUOC, Norwich NDR, Lowestoft	TUOC & Lowestoft teams approached for feedback	2	2	4	LOW	GREEN						Open
B Programme / Contract	B10	SCC	02 Apr 19	#1 Estimates fail to take full account of operational costs	Operational Costs not considered in scheme budget	Scheme not accurately priced as post-construction costs unaccounted for within overall scheme budget. - economic case and SCC buy in	1	3	3	LOW	lessons learned from Norwich NDR Ensure whole life costs are incorporated in SOBC submission	initial cost estimates to be prepared	1	2	2	LOW	GREEN						
P Construction	P2	WSP	02 Apr 19	#1 Variation between actual site conditions and assumptions used in design	Insufficient Geotechnical Investigation and other surveys	on-site changes to design, delay, costs	3	3	9	MEDIUM	Update 2D model to 3D. Consider extending scope to include procurement of Lidar data or similar for 3D modelling. Consider scope of GI	Not progressed yet for SOBC	2	3	6	MEDIUM	GREEN						
F Environmental	F26	WSP	02 Apr 19	#1 Traffic flows increase to a wider range of locations than anticipated	The project may introduce a greater traffic flow and congestion to wider areas than the models envisaged	#1 Increased mitigation costs to residents impacted. #2 Scheme opposition in the wider impacted locations #3 Increased pollutant concentration in the atmosphere and increased noise emissions.	3	3	9	MEDIUM	select options further from dense residential areas, early noise assessments, HIA, EIA, identify mitigation extents	traffic modelling to inform noise assessment	1	2	2	LOW	GREEN						Open
D Weather	D1	WSP	02 Apr 19	#1 Construction programme does not consider the weather constraints #2 Programme slippage/ acceleration may lead to construction taking place during 'higher' risk weather periods #3 Contractors push all weather risk to the client	Adverse weather conditions/flooding eg greater than 1 in 10 year storm may impact the construction programme	#1 Delays to ground works #2 Compensation for contractors	3	2	6	MEDIUM	time works to minimise risk, contingency in delivery programme/budget	delivery programme under development	2	2	4	LOW	GREEN						Open
E Design Risk Products / Materials	E5	SCC	02 Apr 19	#1 RS Audit highlights safety concerns #2 Lack of engagement with road safety engineers	Road Safety Audit may lead to changes in designs	#1 Cost implication of late design changes #2 Programme implication of further design reviews	1	3	3	LOW	seek early review/ input from Road safety engineers Mitigate through design	Road safety engineering input to be sought at appropriate stage	1	3	3	LOW	GREEN						Open
E Design Risk Products / Materials	E6	SCC	02 Apr 19		Proceeding with the preliminary design in the absence of GI	Potential change to foundations if proposed GI does not confirm desktop information. Cost and programme impact.	2	3	6	MEDIUM	assume worst case- piled foundations, undertake intrusive testing early in the design process		1	2	2	LOW	GREEN						
B Programme / Contract	B13	SCC	02 Apr 19	Route choice for survey not known;	Land Access for surveys e.g. topo not obtained within survey time frame	All survey teams are unable to conduct relevant surveys in time.	3	3	9	MEDIUM	land referencing at early stage once shortlisted options emerge, seek land access with sufficient notice period for statutory process Identify with ecologists during SOBC	some land referencing initiated previously	2	2	4	LOW	GREEN						
F Environmental	F1	WSP	02 Apr 19		During construction protected species not previously identified may be found to be present in location of project	Make area safe for protected species Relocate where applicable Schedule relocation at suitable time Delays to project and associated cost for rehoming and delays	2	4	8	MEDIUM	Maintain survey data and ensure it is up to date, time ecology species surveys to maximise shelf life	ecology surveys programmed	2	3	6	MEDIUM	GREEN						
F Environmental	F2	WSP	02 Apr 19		Contamination is discovered on the land	Additional cost for testing and treating and removal	2	3	6	MEDIUM	Undertake desk based assessment and intrusive investigation of appropriate areas pre-submission of the application to target these areas.	desk top study initiated	1	3	3	LOW	GREEN						
F Environmental	F3	WSP	02 Apr 19		Lack of access to undertake environmental surveys	Incomplete surveys and hence assessments may not be suitable for submission to the determining authority	4	3	12	MEDIUM	Work with landowners to agree access and undertake worst case assessment if suitable to do so. Ensure programme has sufficient time for access and seasonal surveys (including statutory powers notifications).	initial landowner meetings held. Seek solution which is acceptable to affected parties programme planned for statutory notices	2	2	4	LOW	GREEN						
F Environmental	F4	WSP	02 Apr 19		Invasive species may be found to be present in location of project	Additional cost for testing and treating and removal prior to construction commencing	2	2	4	LOW	Undertake a suitable survey to identify the presence of these species - opportunity to improve situation	phase 1 surveys in July identify risk early	1	2	2	LOW	GREEN					opportunity to remove invasive species	
F Environmental	F5	WSP	02 Apr 19		Archaeological remains that require significant intrusive investigation are found to be present	Risk to pre-construction programme and cost from survey requirements pre-application. Re-route scheme to avoid	3	4	12	MEDIUM	Work with Historic England and the archaeological officer of SCC to agree scope of the assessment. Identify a suitable WSI in advance of intrusive works to ensure that archaeological matters are appropriately addressed at all suitable stages.	desk study initiated	2	4	8	MEDIUM	GREEN						
F Environmental	F6	SCC			Failure to reach agreement with relevant consultees with regard to significant environmental impacts and mitigation. Eg SSSI	Potential objections to the project that could jeopardise delivery	3	4	12	MEDIUM	Consider upgrading of existing routes or opt for new routes. benchmarking of other recent schemes. Strict contractor requirements - onerous CEMP. Procurement of contractor progressed at same time as application docs. Experienced contractor. treatment controls and SW attenuation	see above SAC risk	2	3	6	MEDIUM	GREEN						

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F Environmental	F7	SCC			Negative impact due to environmental objectors to the scheme e.g. Wensum Valley Alliance, Campaign for Rural England	Potential objectors to the project that could jeopardise public support	4	3	12	MEDIUM	Meet with relevant bodies eg CPRE as the scheme progresses through development, including workshops for specific groups to address and reduce concerns where feasible. Stakeholder management plan to be developed.	Plan to engage with CPRE and Wensum Alliance at the appropriate stage	3	3	9	MEDIUM	GREEN				
F Environmental	F8	SCC			Noise impacts are deemed to require mitigation	Mitigation required such as acoustic fencing or false cutting; this could lead to additional land take or visual impacts. Cost	3	2	6	MEDIUM	Noise assessment in EIA - seek adequate buffer zone from nearest receptors. Incorporate bunding in areas in closest proximity to residential receptors at outline design phase. Flexibility in highway fencing arrangements to incorporate a solid acoustic barrier if required. modelling to inform noise assessments and mitigation design.	traffic modelling to inform noise assessment	2	2	4	LOW	GREEN				
F Environmental	F9	SCC			Significant adverse environmental effects identified in the application	Application would progress with a significant effect presented in the Environmental Statement. This may be deemed unacceptable the determining authority compared to the benefits it would deliver	4	4	16	MEDIUM	See F10 with regard to ensuring that the mitigation is not wholly inappropriate. Work with engineers to try and 'design out' significant effects so that they don't arise in the first place.	considering wide range of options	3	3	9	MEDIUM	GREEN				
F Environmental	F10	SCC			Unclear guidance for mitigation of environmental impacts.	Use of 'Rochdale Envelope' results in mitigation measures that are too onerous given the eventual impacts identified. Only applies to DCO	2	4	8	MEDIUM	Undertake assessment as soon as practicable to do so, such that measures can be incorporated into the design at an early stage. Work with engineers to ensure that the worst case is not an unrealistic worst case.		2	3	6	MEDIUM	GREEN				
F Environmental	F13	SCC			Aboriginal surveys identify mitigation works requiring off site works	Cost and programme impact of identifying these locations. Due to Ancient woodlands in proximity to scheme - could have land take impacts (eg 1:10 ratio of removal:replacement).	3	3	9	MEDIUM	Programme an arboricultural survey of the preferred route as soon as feasible. Design to avoid Ancient Woodlands (and potential Ancient Woodland)		2	3	6	MEDIUM	GREEN				
G Third parties stats	G7	SCC			Failure to check planned maintenance work with STATS	Planned STATS maintenance work conflicts with the proposed scheme construction	3	3	9	MEDIUM	liaise early with utilities undertakers		2	2	4	LOW	GREEN				
H Flooding	H1	WSP			River levels raise leading to flooding during construction	Increased costs & construction delays	3	3	9	MEDIUM	programme to include sufficient contingency, consider potential protection/interventions, minimise scheme footprint in flood plain		2	3	6	MEDIUM	GREEN				
I Existing Structures	I3	WSP			Lack of records/details for existing structures means suitability to accommodate increased traffic cannot be established	Additional time needed for detailed inspection of the structure, and for assessment of the structure. Capacity of structure/suitability for use as part of the scheme cannot be established or is established late. Inaccurate assumptions made in the mean time (See I2 above).	2	3	6	MEDIUM	Identify records available for structures along corridors at early stage. Identify any gaps and how to address the missing information.		1	2	2	LOW	GREEN				
F Environmental	K2	WSP			If the documents that make up the Scope are not delivered to sufficient quality by the time the OJEU is due to be placed, the procurement will be delayed.	Programme delay	3	3	9	MEDIUM	programme sufficient time for legal review and document approvals		2	3	6	MEDIUM	GREEN				
	K5	WSP			If the Site Information is imprecise or ambiguous the interpretation most favourable to the Contractor will be used and prices will increase (Clause 60.3 of the ECC).	Cost uncertainty	3	3	9	MEDIUM	undertake surveys ahead of construction, scope tender precisely to minimise variability		2	3	6	MEDIUM	GREEN				
	K6	WSP			If the scope is not sufficiently precise and comprehensive, it will need to be changed later and the Contractor will be entitled to compensation (Clause 60.1 (1) of the ECC).	Cost uncertainty	3	3	9	MEDIUM	undertake surveys ahead of construction, scope tender precisely to minimise variability		2	3	6	MEDIUM	GREEN				
	K7	WSP			The bridge may require significant imported materials, resulting in increased vulnerability to exchange rate fluctuations.	Cost uncertainty	3	3	9	MEDIUM	minimise flood plain footprint - viaduct option reduces embankment extents and reliance on imported fill		2	2	4	LOW	GREEN				
L Approvals	L2	WSP			There is a risk that failing to address objections prior to submission will require additional resources through planning/examination and potential programme delays.	The impact of the risk is additional resource requirements addressing and agreeing issues. Risk is also that programme for determination is extended.	3	3	9	MEDIUM	stakeholder management plan, early engagement, public consultation	Plan to engage LLGs	2	2	4	LOW	GREEN				
	L3	WSP			There is a risk that if Special Category Land is to be included in the DCO as an interest to be compulsorily purchased, the DCO will be subject to a Special Parliamentary Procedure ("SPP").	The impact of the risk is a potential delay	3	3	9	MEDIUM	seek to achieve design which avoids known constraints		2	2	4	LOW	GREEN				
	L5	WSP			There is a risk that the planning process is extended eg due to lack of resource at DfT/PINS/LPA - does this impact the project with any cost? What is the actual impact to the project if external parties drive the delay	The impact of the risk is potential programme delay and additional cost	3	3	9	MEDIUM	consult with approval body and seek pre-app advice on timescales and resource		2	3	6	MEDIUM	GREEN				
	L8	SCC			Risk of Judicial Review post decision - the current programme does not make allowance for judicial review	Scheme could fail Judicial Review	2	3	6	MEDIUM	follow statutory processes and consult at appropriate times		2	5	10	MEDIUM	GREEN				
	L9	SCC			Changes to designations (eg ecology within study area)	Resulting in an insufficient assessment and a subsequent challenge to the scheme.	4	3	12	MEDIUM	work with landowners and their consultants, site surveys for ecology ground truthing and liaison with SCC ecology	meetings with SCC ecology planned	3	3	9	MEDIUM	GREEN				
	L11	SCC			Land interests do not return requested information in time for the Book of Reference submission.	Vital interests are therefore excluded and not notified.	2	3	6	MEDIUM	early engagement with affected parties		2	3	6	MEDIUM	GREEN				
	L12	SCC			Failure to confirm which options to take to either Consultation or to form a part of the application.	Delay to programme, consultation is not robust. Change to scheme design	2	4	8	MEDIUM	member group and LIG engaged in pre-consultation prep		2	3	6	MEDIUM	GREEN				
	L6	SCC			Lack of consideration given to planning policy	Proposed scheme is not compliant with national networks / local planning policy resulting in it not being granted.	2	5	10	MEDIUM	review of policy at each stage and updates		2	4	8	MEDIUM	GREEN				
	L7	SCC			Scheme submitted for consultation / examination is not sufficiently developed in terms of design	Greater support required at the examination as more questions will be asked by the examining authority - may need redesign or extra mitigation	3	4	12	MEDIUM	robust design process, peer review and benchmarking, EIA		3	3	9	MEDIUM	GREEN				

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N Ground conditions	N1	WSP			Potential for unexploded ordnance	Delay in start of the scheme Analysis and study Removal costs	2	3	6	MEDIUM	desk study to review historic use of land, review county archive bomb map etc, geophys surveys and scans prior to construction		2	2	4	LOW	GREEN					