

IOS Link Client Risk Register
Full Project Rev 5
5th November 2009

ID	Hazard	Effect/Consequence	Mitigation	Mitigation in place	After Mitigation						
					Prob	Dist	Min cost	Most likely cost	Max cost	Cost dist	output after mitigation
STATUTORY AND PLANNING											
SP/H1	Failure to obtain DfT funding	Project aborted	None. Fatal								0
SP/H2	Failure to obtain Convergence funding	Project aborted	Value engineering, manage expectations and work with funders								0
SP/H3	Shortfall in funding	Fatal risk. Council has no resolution to increase Prudential Borrowing.	Value engineering, manage expectations and work with funders								0
SP/H4	Failure to secure St.Marys HRO	Fatal risk. Unable to secure planning permission	St.Mary's HRO made								0
SP/H5	Failure to secure Penzance HRO	Fatal risk. Unable to secure planning permission	Ensure robust process through legal and Parliamentary Agents								0
SP/H6	Delay with Penzance HRO	Delay in receiving Planning approval. Delays whole project increasing cost through inflation. (5% on works). Causes vessel re-tender.	1. Seek DfT approval to later delivery 2. seek DfT approval to phase delivery. 3. Extend vessel tender period or period for tender acceptance.	Supplied information to DfT							
SP/H7	Delay in purchase of Crown Estates land	Delay to release of funding and construction	Land is in Crown ownership. Use Duchy contacts to smooth process and agree terms. Confirmation in writing from Crown Estates	Regular updates at RP							0
SP/H8	Failure to agree land access, eg serve notice on tenants and users.	Delay to construction start. (4 weeks @ £100k per week)	Serve notices in good time. Duchy & CC (Rod Porter) to investigate		2%	0.02	£ 200,000	£ 400,000	£ 800,000	466667	9333
SP/H9	Legal challenge following SoS decision	Delay (30 days)	Ensure robust process by CC and DfT (DfT already confirmed correct process has been followed)		2%	0.02	£ 500,000	£ 1,000,000	£ 1,500,000	1000000	20000
SP/H10	Delay in Penzance Planning Approval for main construction	Further delay in funding approval and construction start (inflationary effects) & vessel build award	1. Ensure planning documents are complete. 2. be sure on HRO precedence (seek counsel opinion) 3. seek Counsel opinion on status of 1990 HRO (now confirmed as extant and would allow reclaim area to be built)	yes	10%	0.1	£ 100,000	£ 200,000	£ 300,000	200000	20000
SP/H11	Failure to secure planning approval for temporary site compound on Jubilee Gardens Car Park, Penzance	Site compound located further away from site	Investigate other sites eg main harbour car park, Trinity House								
SP/H12	Delay in Penzance Listed building consent	Further delay in funding approval and construction start (inflationary effects) & vessel build award	Early engagement with GOSW		10%	0.1	£ 100,000	£ 200,000	£ 300,000	200000	20000
SP/H13	Delay in St.Mary's Planning Approval	Delay in funding approval and construction start (inflationary effects) & vessel build award	1. Ensure planning documents are complete. 2. be sure on HRO precedence (seek counsel opinion)								
SP/H14	Delay due to Council approvals processes	Delay to funding approvals and construction start	1. Programme key committee dates, Exec & Planning. 2. Brief Members to improve knowledge		2%	0.02	£ 200,000	£ 500,000	£ 800,000	500000	10000
SP/H15	Delay in HRH approval of St.Mary's design	Delay in planning submission (St Mary's)	1. Brief Duchy to seek HRH comments early								0
SP/H16	Environmental constraints applied to working methods/programme during design	More expensive working methods	Engage with consultees during design - Penzance conservation officer and relevant bodies for licenses		20%	0.2	£ 100,000	£ 250,000	£ 500,000	283333	56667
SP/H17	Revision/addition to statutory Environmental designation	Additional surveys and mitigation	Unknown								
SP/H18	Extra cost to discharge Planning conditions (Pz) not included in target cost	cost and time	1. Pre-planning liaison 2. Investigate other funding sources		20%	0.2	£ 200,000	£ 400,000	£ 750,000	450000	90000

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SP/H19	Extra cost to discharge Planning conditions (St Marys) not included in target cost	cost and time	conditions to be appraised and discharged with planning officer before works start on site as far as possible		20%	0.2	£ 100,000	£ 200,000	£ 350,000	216667	43333
SP/H20	HRH approval for materials and changes throughout construction	Delay and increased cost due to higher spec			25%	0.25	£ 10,000	£ 150,000	£ 300,000	153333	38333
SP/H20	Delay to award of construction contract	Delay to start	inflated costs for harbour works - assume 0.25% per month (3% pa) on base cost £23m		10%	0.1	£ 57,500	£ 115,000	£ 172,500	£ 115,000	£ 11,500
SP/V	Failure to obtain Convergence Funding for Vessel (mobile infrastructure)	Project fails.	Seek flexibility in DfT funding.	DfT now part funding vessel with Prudential Borrowing							0
SP/V	Failure to obtain sufficient DfT funding to meet funding gap (full amortized cost - max loan as defined by charter fee offer=loan repayments)	Project fails	None. Fatal								0
SP/V	Failure to obtain Prudential Borrowing	Fatal	Briefing members								0
SP/V	Shortfall in Convergence Funding for vessel	Project fails or increased Prudential Borrowing, increasing cost of service.	1. Keep RDA briefed.	N/A. Superseded							0
SP/V 5	Vessel delivery prior to completion of harbour works	cost of vessel storage/security/insurance etc	1. Plan to complete harbour works 6 mths ahead of vessel delivery. 2. Closely monitor harbour build to forecast any delays.	1. Vessel programmed for Apr 2012 delivery, after harbours complete Oct 2011.	5%	0.05	250,000	500,000	750,000	25000	1250
SP/V 6	Combined vessel design not confirmed by Marine Verification-	Vessel re-design and MSBC re-work requires additional preparatory costs and causes project delay	1. Provide all information to marine consultant 2. further cost comparison for Business case review update	Info. provided to R&J Maritime Ltd. Result awaited.							0
SP/V 7	State Aid challenge	Delay to appointment of operator	1. One State Aid challenge already responded to 2. Be aware of possible challenge	1. Counsel advice already received 2. Business case includes for recovery of full amortised costs							0
SP/V	Vessel delivery after existing vessels cease to operate	Loss of 'going concern'. Patronage may transfer to air modes but more likley adversely affect ability for islanders to access key services.	Deliver by spring 2012 (subject to award by end Dec 2009). Sci 3 likely to be taken out of service. Effect loss of income for year 1 for operator and CC incur extra finance costs		25%	0.25	50,000	200,000	500,000	50000	12500
SP/V 9	Failure to identify a preferred operator at the end of the Competitive dialogue process due to dislike of shipyard and agreements	Unable to seek loan. Retendering will lead to delay in appointment	None								
SP/V 10	TUPE challenge in the event of current operator not winning operations contract and transfer of personnel from IOSSCo to new operator	Removal of risk of competition	None	Counsel advice being sought in respect of 'rights' of IOSSCo under current leases.	25%	0.25	20,000	100,000	500,000	25000	6250
OPERATIONS											
OP/H1	National Policy - Port security increases beyond requirements of level 1 for normal operations	Difficulty in operating at higher level without extra resources/longer check in/processing	test design for level 2 operations		10%	0.1	£ 25,000	£ 100,000	£ 300,000	£ 141,667	£ 14,167

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OP/H2	Targeted threat to service (level 3)	Complete search required of all passengers, luggage and freight or suspension of service - cost to operator or CC?	suspend service		2%	0.02	£ 25,000	£ 50,000	£ 200,000	£ 91,667	£ 1,833
OP/H3	Increased frequency of overtopping and inability to access freight area	1. Unable to operate for these periods 2. Project does not fulfil purpose.	1. Design for max storm return period. 2. consider building layout and access/egress points to operate for maximum period. Effect will be suspension of operation and freight damage	Sea wall height designed for 1:50yr storm and rising sea levels. Unacceptable to provide wall of greater height	10%	0.1	£ 100,000	£ 250,000	£ 500,000	£ 283,333	£ 28,333
OP/H4	Safety - HSE restrict existing harbour uses	Ferry service unable to operate until project completed. Loss of going concern of sea passengers. Investment required to continue current operations.	1. Delivery programmed asap. 2. Existing harbour safety outside project control although interim measures could be provided if required	Project being progressed as quickly as possible.	20%	0.2	£ 10,000	£ 25,000	£ 100,000	£ 45,000	£ 9,000
OP/H5	Increased damage to fenders	higher maintenance costs			5%	0.05	£ 25,000	£ 100,000	£ 200,000	£ 108,333	£ 5,417
OP/V1	Vessel patronage drops below levels forecast	Loss of income for operator-risk of inability to pay charter fee	1. Ensure competent operators via procurement pre-qual. 2. Regular review of operator performance. 3. Increase CIOS, DoC and CC marketing.	1. Competent operators on operator short list 2. Progressing to programme to maintain service. 3. Considering clauses for operator contract	5%	0.05	£ 125,000	£ 250,000	£ 500,000	£ 291,667	£ 14,583
OP/V2	Patronage increases beyond expected levels	Increased landing fees = increased wear on facilities	Net effect zero								
OP/V3	Competition on route	Loss of income and inability of operator to pay charter fee	1. Include in business model 2. Highlight risk to all potential operators	1. Business case includes period of competition 2. Risk discussed with all	10%	0.1	£ 250,000	£ 500,000	£ 1,000,000	£ 583,333	£ 58,333
OP/V4	Dollar exchange rate and oil prices worsen	Increase in operating costs (across all travel modes)	1. Pass on via charges to users (boat still cheaper than air travel) 2. Include estimates of future rates in business model 3. consider fuel price surcharge mechanism		20%	0.2	£ 250,000	£ 500,000	£ 1,000,000	£ 583,333	£ 116,667
OP/V5	Increased vessel capital cost	Need to recover higher interest and capital costs via charter fee.	1. Early tender (with long acceptance period) 2. Advise funders of potential higher vessel price to secure additional grant fund	1. Tendering in depressed market should secure good tender prices. 2. DfT advised of potential for higher vessel cost	10%	0.1	£ 150,000	£ 300,000	£ 600,000	£ 350,000	£ 35,000
OP/V6	Legal challenge to appointment of operator	Delay, or worst case re-tender.	1. Ensure transparency of process and treat all tenderers the same 2. Appoint advisor on competitive dialogue	1. Transparent tender process adopted 2. Happold Consulting appointed to advise on CD.	15%	0.15	£ 150,000	£ 300,000	£ 600,000	£ 350,000	£ 52,500
OP/V7	Boat sinks or is damaged	Loss of asset or break in service	Insure vessel for capital replacement and to allow replacement charter in interim	Vessel insurance included in business model							0
OP/V8	Operator goes into liquidation	Loss of strategic management from service. Unplanned re-tender costs and some loss of income.	1. Regular review of operators accounts to look for early warnings 2. Council manages service using operational staff in interim whilst seeking another operator		10%	0.1	£ 100,000	£ 200,000	£ 400,000	£ 233,333	£ 23,333
OP/V9	Operator performs badly	Business in poor state to retender	Regular monitoring		5%	0.05	£ 500,000	£ 1,000,000	£ 1,500,000	£ 1,000,000	£ 50,000

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OP/V10	Due to late award, vessel not ready to commence service on 010412	CC required to make 1st payments on loan or incur additional interest and Operator may seek recovery for loss of income	Allow £200k per month max 2 months			0.3								
					30%		£ 100,000	£ 200,000	£ 400,000	£ 233,333	£ 70,000			
OP/V11	MCA deem operator safety plans unacceptable and demands modifications to vessel fitments and procedures	1. cost of changes to vessel may be liability of owner 2 operator may incur increased costs	experienced operator and early engagement of MCA through build			0.05								
					5%		£ 10,000	£ 250,000	£ 700,000	£ 320,000	£ 16,000			
OP/V12	Vessel unable to stay on berth due more than planned downtime due to weather/sea	1 cancelled sailings 2. extra crew costs. Allow 2-10 days				0.03								
					3%		£ 4,000	£ 12,000	£ 20,000	£ 12,000	£ 360			
COMMERCIAL AND STRATEGIC														
CS/H	Increased workload of Contractors due to Olympics	Increased cost and programme delays	Early contractor involvement											
CS/H	Variation in construction inflation rate over DfT rate of inflation	Increased cost	1. Allow predicted variances in costs and risk allowance 2. DfT require 2.5% national and 2.8% local. Include any variance over 5.3%	Birse cost includes some inflation.	5%	0.05	£ 250,000	£ 400,000	£ 600,000	416666.6667	£ 20,833			
CS/H	Increases in Landfill Tax/ disposal charges	Increased cost	Minimise volume of material going to landfill	1. Dredged material reduced in Pz harbour 2. Plan to keep dredged material in reclaim area. 3. test dredged material against WAC	5%	0.05	£ 250,000	£ 500,000	£ 750,000	500000	£ 25,000			
CS/H	Increases in aggregate taxes	Increased cost	Encourage use of local recycled materials	None	5%	0.05	£ 250,000	£ 500,000	£ 750,000	500000	£ 25,000			
CS/H	Additional works required	Cost and programme increases	Carefully review design and target cost to ensure all Employer's requirements are included	1. Project manager on site to be fully aware of budget constraints. 2. Instruct only essential changes. 3. Review all Works Information	5%	0.05	£ 150,000	£ 300,000	£ 500,000	316666.6667	£ 15,833			
CS/H	Harbour tender price significantly exceeds project budget	Fatal risk. Unable to award contract	Keep scope of works and costs under review	Review harbour price as it develops										
CS/H	Foot and mouth or other natural disaster	Delay and increased cost	None	None	1%	0.01	£ 400,000	£ 800,000	£ 1,200,000	800000	£ 8,000			
CS/H	Sub-contractor liquidation	Adverse impact on harbours progress	Short list only robust, tried and tested, suppliers.	Enquiries being sought from Birse knowledge and	10%	0.1	£ 25,000	£ 50,000	£ 75,000	50000	£ 5,000			
CS/H	claims from businesses affected by the works	claims	ensure all businesses are open for deliveries and customers and engage PR liason officer		20%	0.2	£ 500	£ 20,000	£ 50,000	23500	£ 4,700			
CS/M	Increased workload of shipyards	Programme delays over and above 2 months allowed below (v10)			5%	0.05	£ 50,000	£ 200,000	£ 400,000	216666.6667	£ 10,833			
CS/M	Shipyard goes into liquidation (during tender period)	Loss of yard from shortlist	Prequal of yards for financial stability and adequate number of yards to accommodate lower return rates. Only if too many yards drop out would tender need to be repeated											
CS/M	Shipyard goes into liquidation during construction	Delay in vessel delivery. Need to seek other yard to complete construction	Contract clauses to protect Council from losses	Shortlisted yards tested financially and will be visited prior to award of contract Bond	15%	0.15	£ 50,000	£ 150,000	£ 750,000	316666.6667	£ 47,500			

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CS/M	Variation in Market Inflation rate over DfT rate of inflation	Increased cost. Possible rate rise through contract.	1. Allow for predicted variances in costs and risk allowance 2. DfT require 2.5% national and 2.8% local. Include any variance over 5.3%	1. Exclude inflation from contract. 2. Fixes inflation to ship yards tender price.	5%	0.05	£ 100,000	£ 200,000	£ 300,000	200000	£ 10,000
CS/M	increased cost of variations during build due to exchange rate changes Euros to GBP	Increased cost			10%	0.1	£ 250,000	£ 500,000	£ 750,000	500000	£ 50,000
CS/M	Additional vessel works required	Cost and programme increases	Carefully review design and target cost to ensure all Employer's requirements are included	1. Project manager to be fully aware of budget constraints. 2. Instruct only essential changes. 3. Review all final documentation.	40%	0.4	£ 250,000	£ 750,000	£ 1,200,000	733333.3333	£ 293,333
CS/M	Vessel tender price significantly exceeds project budget	Unable to award contract	Keep scope of works and costs under review	1. Vessel design to min'm requirements 2. Alternative tenders sought to guard against no affordable option.							
CS/M	Industrial action at ship yard	Delay and cost	Ensure only yards with good history of delivery are short listed.	Ship yards short listed with good records.	5%	0.05	£ 100,000	£ 200,000	£ 300,000	200000	£ 10,000
CS/M	Operator charter fee does not meet required level during life of contract	Costs will not be recovered from operator. No subsidy will be approved by Council.	Keep operating costs to minimum	1. Advise Duchy and Penwith to reduce harbour dues. 2. Minimise facility costs by not overproviding. 3. Seeking early price indication from operators. 4. based on CC calcs provide details of anticipated charter fees required from operators 4. apply factors for fuel and port due surcharge to allow operator to increase fares							0
CS/M	New buildings and vessel do not meet requirements of new operator	Increased operating costs through inefficient working	Include operator in review of facilities and vessel design	1. Seek opinion on designs from tendering operators 2. Once appointed involve operator asap	10%		£ 50,000	£ 75,000	£ 100,000		0
DESIGN DEVELOPMENT (PRE-WORKS)											
DD/H4	Ability of CC to bankrole this stage (£1.35M)	Incur finance costs	Profile finances and seek Exec approval	Approved by 5-March 2008 Exec							
DD/H2	Non payment of funding from PDC (£100K)	Non recovery of costs	Letter of funding support obtained before contract award and staged claims	Invoice paid. Superseded.							
DD/H3	Non payment of funding from DoC (£500K)	Non recovery of costs	1. Letter of funding support obtained before contract award and staged claims 2. Duchy being kept appraised of progress via RP								
DD/H4	Non payment of prep.funding from DfT (£750K)	Only in event of no funding award therefore fatal risk	Regular contact with DfT to address funding conditions	Keeping DfT appraised of developments via e-mail and meetings							

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DD/H5	Inability of project team to monitor costs	1. Escalated costs 2. Inability of Council and partners to fund project development	1. Experienced staff and scrutiny by internal audit 2. Seek additional funds from partners and RDA	Costs being reviewed and managed at RP and internal Board Meetings	2%	0.02	£ 25,000	£ 35,000	50000	£ 36,667	£ 733
DD/V4	Ability of CCC to bankrole this project (£82.5K)	Fatal risk	Report to Exec committee to seek approval	Exec approval secured							
DD/V2	Non payment of funding from SWRDA/EU (£250K)	Non-recovery of costs	Comprehensive feedback through project	RDA currently paying invoices and key stakeholder in project	25%	0.25	£ 50,000	£ 150,000	£ 250,000	£ 150,000	£ 37,500
DD/V3	Inability of project team to monitor costs	1. Escalated costs 2. Inability of Council and partners to fund project development	1. Experienced staff and scrutiny by internal audit 2. Seek additional funds from partners and RDA	Costs being reviewed and managed at RP and internal Board Meetings	2%	0.02	10,000	£ 50,000	£ 100,000	£ 53,333	£ 1,067
ACCOUNTING											
Ac/H1	Works exceeding budget	Employer and Contractor incur overspend	Target cost contract promoting savings & apportionment of overexpenditure between partners	y	5%	0.05	£ 50,000	£ 300,000	£ 1,000,000	£ 450,000	£ 22,500
Ac/H2	Ability of CC to bankrole this project	Finance costs significant	Financial profile of project	y	5%	0.05	£ 10,000	£ 35,000	£ 70,000	£ 38,333	£ 1,917
Ac/H3	Clawback of funding by DfT and Convergence	Non-recovery of costs	Comprehensive feedback through project	y							
Ac/H4	Recovery of European funding	Loss of funding for non-eligible costs	Ensure only eligible works included								0
Ac/H5	ability of project manager/financial team to monitor costs	Escalated costs	experienced staff and scrutiny proactively by internal audit	y	1%	0.01	£ 50,000	£ 200,000	£ 500,000	£ 250,000	£ 2,500
Ac/H6	Inadequate financial records to defend against claims	Escalated costs	experienced staff and scrutiny proactively by internal audit & brief staff on contract	y	1%	0.01	£ 100,000	£ 500,000	£ 900,000	£ 500,000	£ 5,000
Ac/H7	claims exceed budget value (part 1 claims)	Escalated costs years 1-7 after completion	Project for long term benefit of community- engagement with community before and during construction	y	1%	0.01	£ 50,000	£ 100,000	£ 500,000	£ 216,667	£ 2,167
Ac/H8	failure to satisfy district and internal audit	Increased management time	Internal audit programme devised in advance	y	1%	0.01	£ 20,000	£ 50,000	£ 100,000	£ 56,667	£ 567
Ac/H9	failure to adhere to start/end dates of funding	Loss of funding/ non recovery of costs	contract and financial management to ensure convergence dates are met	y	1%	0.01	£ 100,000	£ 500,000	£ 2,000,000	£ 866,667	£ 8,667
Ac/H40	increased frequency of maintenance to harbours	increased costs	design out and use of durable materials	y							
Ac/H11	Claims from third parties	Potential loss	Insurance	y	1%	0.01	£ 5,000	£ 500,000	£ 1,000,000	£ 501,667	£ 5,017
Ac/H12	Claims against Professional Indemnity	Potential loss	Insurance	y	1%	0.01	£ 200,000	£ 500,000	£ 1,000,000	£ 566,667	£ 5,667
Ac/V1	Build exceeding budget	Employer and Contractor incur overspend - cost of obtaining extra finance	1.Lump sum contract providing fixed price 2. develop risk register and contingency 3. Client rep on site	£ 1,500,000	3%	0.03	£ 50,000	£ 500,000	£ 1,000,000	£ 516,667	£ 15,500
Ac/V2	Ability of CC to bankrole works stage (up to £1M per month claims from Contractor)	Finance costs	Efficient claims process with Convergence and DfT- Prudential borrowing to pick up all other costs	£ 50,000							
Ac/V3	Clawback of funding by DfT	Non-recovery of costs	Comprehensive feedback through project	£ 1,000,000	1%	0.01	£ 100,000	£ 500,000	£ 1,000,000	£ 533,333	£ 5,333

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Ac/V 4	Ability of project manager/financial team to monitor costs	Escalated costs	experienced staff and scrutiny proactively by internal audit	£ 750,000	1%	0.01	£ 25,000	£ 50,000	£ 200,000	£ 91,667	£ 917
Ac/V 5	Inadequate financial records to defend against claims	Escalated costs	experienced staff and scrutiny proactively by internal audit & brief staff on contract	£ 2,000,000	2%	0.02	£ 50,000	£ 1,000,000	£ 2,000,000	£ 1,016,667	£ 20,333
Ac/V 6	failure to satisfy district and internal audit	Increased management time	Internal audit providing continuous input	£ 100,000	1%	0.01	£ 10,000	£ 50,000	£ 100,000	£ 53,333	£ 533
Ac/V 7	failure to adhere to start/end dates of funding	Loss of funding/ non recovery of costs	contract and financial management	£ 1,000,000	2%	0.02	£ 50,000	£ 500,000	£ 1,000,000	£ 516,667	£ 10,333
Ac/V 8	failure to provide a solution that is financial-sustaining	Shortfall in reserve fund and loss of operator	audit system established with operator	£ 500,000							
Ac/V 9	increased frequency of maintenance to vessel	increased costs	design out and use of durable materials	£ 100,000	1%	0.01	£ 10,000	£ 50,000	£ 100,000	£ 53,333	£ 533
10	Claims from third parties	Potential loss	Insurance	£ 1,000,000	4%	0.04	£ 100,000	£ 500,000	£ 1,000,000	£ 533,333	£ 21,333
11	Claims against Professional Indemnity	Potential loss	Insurance	£ 1,000,000	1%	0.01	£ 100,000	£ 500,000	£ 1,000,000	£ 533,333	£ 5,333
Ac/V 12	Operator ceases to trade during life of the project	loss of service - loss of 'goodwill' of continuing established business	None	£ 1,000,000							
DESIGN											
D/H 1	Failure of design to meet requirements	Design not fit for purpose	Select Experienced Designers	Birse/Halcrow-appointed							
D/H 2	Change in legislation / design standards during project	Revised design, delay and cost increases	1. awareness of proposed changes to standards 2. transfer risk to Birse		1%	0.01	£ 100,000	£ 300,000	£ 500,000	£ 300,000	£ 3,000
D/H 3	Approval of design by local highway authority	Cost of highway works	Design by Cornwall Highways team		25%	0.25	£ 25,000	£ 39,000	£ 60,000	£ 41,333	£ 10,333
D/H 4	Higher level of sewerage provision than anticipated - DoC risk (works to harbourside hotel)		Consultation with CIOS technical officer		3%	0.03	£ 50,000	£ 75,000	£ 100,000	£ 75,000	£ 2,250
D/H 5	Ground investigation leads to design changes		undertake additional SI as required								0
D/H 6	Unforeseen restrictions of mains sewer beneath Penzance harbour	Restrictions sought early	Further consultation with South West Water		10%	0.1	£ 20,000	£ 40,000	£ 60,000	£ 40,000	£ 4,000
D/H 7	Contaminated dredging and need to remove to licensed tip (allowance for road transport to Swindon and imported fill - 10% max)	Significant increased cost									0
D/H 8	Change in construction quantities due to inaccurate topographical survey or revised design for overtopping protection	Increased cost									0
D/H 9	Increased statutory undertaker costs due to inaccurate information	Increased cost and delay			10%	0.1	£ 10,000	£ 25,000	£ 50,000	£ 28,333	£ 2,833

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D/H 10	Insufficient designer resources-	evaluation of consultants										£ -
D/H 11	Changes to design brief	Increased cost and delay	ongoing design reviews		50%	0.5	£ 5,000	£ 12,000	£ 20,000	£ 12,333	£ 6,167	
D/H 12	Design revision due to safety audit	Minor design changes	stage 2 audit completed. Consultation with highway and harbour authorities. Stage 3 audit at risk to contractor		2%	0.02	£ 1,000	£ 5,000	£ 10,000	£ 5,333	£ 107	
D/H 13	Change of key staff in client organisation	Loss of knowledge and delay	Regular meetings and briefings. Planned handover		1%	0.01	£ 25,000	£ 40,000	£ 50,000	£ 38,333	£ 383	
D/H 14	Change of key staff in contractor/ designer	Loss of knowledge and delay	Regular meetings and briefings. Planned handover		2%	0.02	£ 10,000	£ 20,000	£ 30,000	£ 20,000	£ 400	
D/H 15	lack of agreement with DoC over cost share for harbourside building alterations	CC bears additional cost	discussions		20%	0.2	£ 25,000	£ 200,000	£ 400,000	£ 208,333	£ 41,667	
D/H 16	St Marys - additional cost as a result of structural design (post target cost)	design incomplete, concepts	20% increase in building costs		40%	0.4	£ 90,900	£ 181,800	£ 325,000	£ 199,233	£ 79,693	
D/H 17	St Marys - additional cost as a result of architectural design (post target cost)	n incomplete, architectural cor	10% increase in building costs.		40%	0.4	£ 50,000	£ 95,000	£ 170,000	£ 105,000	£ 42,000	
D/H 18	Penzance - additional cost as a result of architectural design (post target cost)				40%	0.4	£ 25,000	£ 50,000	£ 90,000	£ 55,000	£ 22,000	
D/H 18	changes to quays and building layouts as a result of operator input	Input from operator to building layouts effect cost/programme			40%	0.4	£ 10,000	£ 100,000	£ 500,000	£ 203,333	£ 81,333	
D/V 1	Delay to programme caused by insufficient design resources (consultant)	Delay in programme	Evaluation of consultant and early indication of progression to next phase		2%	0.02	£ 10,000	£ 50,000	£ 100,000	£ 53,333	£ 1,067	
D/V 2	Failure of design to deliver maximum performance requirements	operational restrictions and less growth in patronage. Retender of operator tender will lead to lower charter fee say £0.1m pa less than expected			5%	0.05	£ 600,000	£ 1,200,000	£ 2,000,000	£ 1,266,667	£ 63,333	
D/V 3	Design revision due to safety audit (MCA)	Minor design changes	Ongoing dialogue with MCA	this is a risk to employer and operator	3%	0.03	£ 5,000	£ 10,000	£ 20,000	£ 11,667	£ 350	
D/V 4	Change of key staff in client organisation	Loss of knowledge and delay	Regular meetings and briefings with planned handover. NY and TW involved for dual cover.		2%	0.02	£ 20,000	£ 50,000	£ 100,000	£ 56,667	£ 1,133	
D/V 5	Change of key staff in consultant organisation	Loss of knowledge and delay	Regular meetings and briefings with planned handover		3%	0.03	£ 15,000	£ 30,000	£ 60,000	£ 35,000	£ 1,050	
D/V 6	Failure to achieve workable interface with vessel	Operational restrictions	Liaison between Marine Consultant and Contractor	PM liaises with both sub-project teams	1%	0.01	£ 20,000	£ 50,000	£ 75,000	£ 48,333	£ 483	
D/V 7	sediment movements in harbours not as predicted by modelling	faster build up of silt in harbours requiring more frequent dredging. Extra costs	Increase port dues for all users after event occurs therefore cost of 1 dredge only		15%	0.15	£ 250,000	£ 500,000	£ 750,000	£ 500,000	£ 75,000	

CONSTRUCTION

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C/H1	Late delivery of statutory undertakers works	Delay and additional cost	1. Planning 2. Survey stats, public and private on quays	1. Surveys undertaken. 2. Birse to manage any undertaker work to ensure properly programmed.	2%	0.02	£ 50,000	£ 100,000	£ 150,000	£ 100,000	£ 2,000
C/H2	Adverse weather	Unable to meet productivity levels included in programme. Delay and additional costs.	1. programme to include float for normal weather risk 2. consider transferring risk to Birse		3%	0.03	£ 50,000	£ 100,000	£ 150,000	£ 100,000	£ 3,000
C/H3	Adverse seas	1. tidal work delayed 2. delivery of materials delayed 3. storm damage 4. reduced productivity	1. programme to include float for normal weather risk 2. consider transferring risk to Birse		5%	0.05	£ 5,000	£ 25,000	£ 50,000	£ 26,667	£ 1,333
C/H4	Delay to programme caused by ongoing harbour operations	Delay and additional cost	programme float to include for normal operations	1. Ensure covered in contract for Birse to ensure operations not restricted.	10%	0.1	£ 50,000	£ 125,000	£ 250,000	£ 141,667	£ 14,167
C/H5	Unforeseen ground conditions - including lack of SI & unsuitability of ground	Increased costs. Change in construction method	undertake additional site investigations		2%	0.02	£ 150,000	£ 300,000	£ 500,000	£ 316,667	£ 6,333
C/H6	Accidental spillage causing pollution	Prosecution and fine.	best practice		1%	0.01	£ 250,000	£ 500,000	£ 750,000	£ 500,000	£ 5,000
C/H7	Unexpected archaeology discovered on site	delay and cost of recording features	1. Initials surveys 2. Watching brief		2%	0.02	£ 50,000	£ 100,000	£ 250,000	£ 133,333	£ 2,667
C/H8	Unexpected explosives discovered on site	delay and cost of removal/disposal	undertake munitions study		1%	0.01	£ 100,000	£ 250,000	£ 500,000	£ 283,333	£ 2,833
C/H9	Changes at stage 3 safety audit	Minor alterations	Approval at stage 2		2%	0.02	£ 25,000	£ 50,000	£ 100,000	£ 58,333	£ 1,167
C/H1	Inadequate construction quality	Cost and delay of changes	Supervision and selection of sub contractors		3%	0.03	£ 45,000	£ 90,000	£ 150,000	£ 95,000	£ 2,850
C/H1	Delay in obtaining licences and consents	Delay (non-critical)	Liason and best practise proposals	To construction risk register							
C/H1	failure to source adequate stone from sources identified at tender stage	Delay and cost	early identification of material sources		2%	0.02	£ 35,000	£ 70,000	£ 140,000	£ 81,667	£ 1,633
C/H1	Shortage of accommodation for workforce	Restricted working or bring in accommodation barge (IOS)	1. provision of limited accommodation identified by DoC 2. Birse to consult with Kier's		5%	0.05	£ 250,000	£ 500,000	£ 700,000	£ 483,333	£ 24,167
C/H1	Inadequate supply of plant and materials and infrastructure (water and power etc)	Programme delay	Planning for St.Mary's remote location	1. Site batching considered 2. Early enquiries sought	5%	0.05	£ 100,000	£ 200,000	£ 350,000	£ 216,667	£ 10,833
C/H1	Change in quantities	Increased cost and delay	Transfer risk to Contractor	Activity schedule adopted, NEC option C							0
C/H1	Inadequate contractual records	Unable to defend against compensation events	Employ experienced staff and ensure good PM contact		2%	0.02	£ 50,000	£ 250,000	£ 400,000	£ 233,333	£ 4,667
C/H17	Unforeseen Environmental constraints leading to design changes	change in construction method	ongoing dialogue with consultees		2%	0.02	£ 200,000	£ 400,000	£ 650,000	£ 416,667	£ 8,333
C/H1	Vessel access ramps	Increased cost above £1m included	Involve operator in proposals		15%	0.15	£ 50,000	£ 200,000	£ 500,000	£ 250,000	£ 37,500
C/H1	Asbestos in buildings (over and above allowance in construction risk register)	increased cost and delay	stage 3 surveys prior to start of works		10%	0.1	£ 25,000	£ 100,000	£ 200,000	£ 108,333	£ 10,833
C/H2	damage due to severe storm above 1 in 10 year event				3%	0.03	£ 50,000	£ 250,000	£ 500,000	£ 266,667	£ 8,000
C/H2	protestors disrupt works (above that allowed in target cost)				25%	0.25	£ 50,000	£ 100,000	£ 300,000	£ 150,000	£ 37,500
C/H22	Additional major events during construction period	programme due to major events rec	No major identified risk, major events to be included in initial programme - disruption = extra time on site		5%	0.05	£ 12,500	£ 25,000	£ 50,000	£ 29,167	£ 1,458

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C/H 23	Failure to relocate fuel pipeline (St Marys) before site commencement	to relocate pipeline before pro	Delay to project, increase in prelims. Low risk, 2 month window. <i>Changed to CC risk.</i>		10%	0.1	£ 20,000	£ 25,000	£ 30,000	£ 25,000	£ 2,500
C/V1	Poor supply of plant and materials	Late delivery	Impose liquidated damages and agree programme as part of contract	Include contract clauses	5%	0.05	£ 250,000	£ 500,000	£ 1,000,000	£ 583,333	£ 29,167
C/V2	Insufficient shipyard resources	Delay	Vet shipyards as part of tender process		5%	0.05	£ 100,000	£ 200,000	£ 400,000	£ 233,333	£ 11,667
C/V3	Inadequate construction quality	Operational consequences	Ongoing supervision by MC during vessel build	Marine consultant to supervise build. Operator input for build	5%	0.05	£ 100,000	£ 250,000	£ 500,000	£ 283,333	£ 14,167
C/V4	Adverse weather/seas delaying trials	Delay in delivery of vessel to port	programme to include float for normal weather risk		5%	0.05	£ 250,000	£ 500,000	£ 750,000	£ 500,000	£ 25,000
C/V5	Adverse weather/seas delaying delivery	unable to start service on time	shipyard will incur penalty clause on late delivery that may be used by CC to offset some of loan interest		5%	0.05	£ 50,000	£ 100,000	150000	£ 100,000	£ 5,000
C/V6	Inadequate contractual records	Unable to defend against claims	Ensure supervisor is vetted and communicates with project manager	£ 4,000,000	2%	0.02	1,000,000	£ 2,000,000	£ 4,000,000	£ 2,333,333	£ 46,667
C/V7	Client requires increased margin over future design changes and instructs increase in beam (to improve stability results)	increased cost			5%	0.05	300,000	£ 400,000	£ 500,000	£ 400,000	£ 20,000
DESIGN											
D/V 1	Change in design legislation / standards	Revised design - delay and cost increases	Awareness of proposed changes in standards		3%	0.03	£ 250,000	£ 500,000	£ 1,000,000	£ 583,333	£ 17,500
D/V	Delay in approval by MCA/Class	Delay in vessel delivery	Programme float to include normal time for approvals		5%	0.05	£ 50,000	£ 100,000	£ 300,000	£ 150,000	£ 7,500
D/V 3	Failure of design to deliver minimum performance requirements	delay in delivery of new vessel	Regular design reviews		5%	0.05	£ 20,000	£ 50,000	£ 100,000	£ 56,667	£ 2,833
D/V 4	Failure to pass sea trials	Delay in coming into service	Good quality marine consultant supervision		5%	0.05	£ 100,000	£ 250,000	£ 500,000	£ 283,333	£ 14,167
											2,355,202