

Project Title		Runswick Bay		HGL Proj Code:	473342
Calculation Title:		StAR Costs Benefits & Sensitivity		Serial No:	
Project Manager		Marcelo Cali		No. of Sheets:	19
Status				Prepared by:	SMJ
Schematic		Preliminary		Date:	24/06/15
Tender		Other (state)		Checked by:	MC
Final for Construction			Economics for PAR	Date:	17/07/15
Levels of Verification				Approved by:	MC
1	Self-check by originator and approval	<input type="checkbox"/>	3B Comparison with similar proven designs and approval	<input type="checkbox"/>	Date: 27/07/15
2	Calculation Review and approval	<input type="checkbox"/>	4 External check and internal approval	<input type="checkbox"/>	Computer Analysis:
3	Detailed check and approval	<input type="checkbox"/>	5 Other verification as stated in Management	<input type="checkbox"/>	Yes: <input checked="" type="checkbox"/> No: <input type="checkbox"/>
3A	Alternative calculations and approval	<input type="checkbox"/>			Program(s): MS Excel
					Hardware: N/A

Contents (continue on calculation sheet if necessary)

- [Explanatory Notes](#)
- [Preferred option summaries](#)
- [Sensitivity Tests](#)
- [Benefit Cost Assessment](#)
- [5yr Costs Calculations and Summary Tables](#)

NB: Calculations should state or refer to design input data and methodology

CONTENTS AMENDMENT RECORD

Rev	Status	Date	Description	Page	By	Chk'd	App'd
0		23-Jun-15	Cost, benefit and Sensitivity Tables for use in the PAR		SMJ	-	MC
1		27/07/2015	Client review identified need for higher supporting costs. Costs increased.	all	MC		MC

Runswick Bay PAR - Economic Calculations July 2015

Notes 23 June 2015

1. The sheet "Summary CV PV - 5yr Costs" has been copied from "Runswick Bay Costs v6 (use for YW contribution calc).xls" and modified in order to calculate the Yr 0 to 4 and Yr 5 to 100 PV costs for Capital & Maintenance. Non-preferred options are shaded grey.
2. The sheet "BC Summary PAR" is a modified version of sheet "Summary" from "Runswick Bay Strategy FCERM-AG 31.10.13 (Rev2 Jul 2014).xlsx".
3. Costs updated to March 2015 using either cost uplift of 4% or recent contractors rates
4. Damage uplift (property values) from Aug. 2013 to March 2015 estimated to be 4%.
5. Costs and contributions include contribution in kind by Yorkshire Water (£200k), and confirmation of £100k contribution by residents.

Notes 09 July 2015

6. Env. enhancement and mitigation increased from 3% to 7.5%

Notes 24 July 2015

7. Client review identified need for higher supporting costs. Costs increased.

CH2MHILL®		CALCULATION SHEET			
Calculation title:	Runswick Bay PAR	Created by:	SMJ	Project code:	473342
		Date:	23/06/15	Serial no:	
Subject:	Summary of Strategy for PAR	Verified by:	MC	Sheet no:	1
		Date:	27/07/15	Revision:	1

Notes

Preferred Option Cash Costs Year on Year (£)

Cash Cost	To Year 0	Year 1	Year 2	Year 3	Year 4	Five Year	Future Years	Overall Total
	2015/16	2016/17	2017/18	2018/19	2019/20	Totals		
	(£)	(£)	(£)	(£)	(£)	(£)	(£)	(£)
SBC staff costs (PAR)	2,000					2,000		2,000
Consultants fees (PAR)	20,000					20,000		20,000
Costs to PAR Totals	22,000	0	0	0	0	22,000	0	22,000
Capital								
<i>Rock Armour</i>								
Construction		502,587				502,587		502,587
Site investigation and survey (10%)	50,259					50,259		50,259
Environmental mitigation (7.5%)		37,694				37,694		37,694
Environmental enhancement (incl.)		0				0		0
Site supervision (7.5%)		37,694				37,694		37,694
SBC staff costs	25,000	25,000				50,000		50,000
Consultants fees	35,000	20,000				55,000		55,000
Yorkshire Water Service Diversion		200,000				200,000		200,000
Optimism Bias (30%)	33,078	246,893				279,970		279,970
Capital Totals	143,336	1,069,868	0	0	0	1,213,204	0	1,213,204
Contributions		-360,000				-360,000		-360,000
Capital Totals less contributions	143,336	709,868	0	0	0	853,204	0	853,204
Non-Capital								
<i>Rock Armour</i>								
Maintenance	832	832	832	832	832	4,160	272,150	276,310
Other (env. etc 5%)	42	42	42	42	42	208	13,608	13,816
Fees etc (12%)	100	100	100	100	100	499	32,658	33,157
Optimism Bias (30%)	292	292	292	292	292	1,460	95,525	96,985
<i>Southern Def. Works</i>								
Maintenance	832	832	832	832	832	4,160	729,593	733,753
Other (env. etc 5%)	42	42	42	42	42	208	36,480	36,688
Fees etc (12%)	100	100	100	100	100	499	87,551	88,050
Optimism Bias (30%)	292	292	292	292	292	1,460	256,087	257,547
Non capital Totals	2,531	2,531	2,531	2,531	2,531	12,655	1,523,652	1,536,307
Overall Totals	167,867	712,399	2,531	2,531	2,531	887,859	1,523,652	2,411,511

Preferred option five year cash totals including inflation (k)

Year	0	1	2	3	4	5 yr totals
Inflation at 2%	0	14,248	102	155	209	14,714
Totals incl. inflation at 2%	167,867	726,647	2,633	2,686	2,740	902,573

Summary Preferred Option Cash Costs Year on Year (£k)

Cash Cost	Year 0	Year 1	Year 2	Year 3	Year 4	Five Year	Future Years	Overall Total
	2015/16	2016/17	2017/18	2018/19	2019/20	Totals		
	(£K)	(£K)	(£K)	(£K)	(£K)	(£K)	(£K)	(£K)
Cash Capital	165	710	0	0	0	875	0	875
Cash Non capital	3	3	3	3	3	13	1,524	1,536
Cash Total	168	712	3	3	3	888	1,524	2,412

CH2M HILL	PROJECT			
Calculation title:	Runwick Bay PAR	Created by:	SMU	473342
		Date:	24/06/15	
Subject:	Table of all cash costs for inflation & overall check	Verified by:	MC	1
		Date:	27/07/15	1

Notes

1. Inflation rate assumed to be 2% pa. 2%

		CASH - CAPITAL										CASH - NON CAPITAL ROCK ARMOUR						NON-CAP TOTALS		OVERALL TOTALS
Year		Rock Armour	Southern Defences	All add ons (13%)	SBC Staff Costs	Consultants Fees	YW Service Diversion	Optimism Bias (30%)	Sub Total	Contribs.	CAPITAL TOTALS	Scheme Maint.	Defence Maint.	Other (env. etc 5%)	Fees etc (12%)	Optimism Bias (30%)				
Totals 1st 5 Years (0 to 4)		502,587	0	125,647	52,000	75,000	200,000	279,970	1,235,204	-360,000	875,204	4,160	4,160	416	998	351,612	1,523,652	1,523,652		
Totals Years 5 to 100:		0	0	0	0	0	0	0	0	0	0	272,150	729,593	50,087	120,209	351,612	1,523,652	1,523,652		
Inflation factor Overall Totals:		502,587	0	125,647	52,000	75,000	200,000	279,970	1,235,204	-360,000	875,204	276,310	733,753	50,503	121,208	354,532	1,536,307	2,389,511		
2014	2015				2,000	20,000		Nil	22,000		22,000									
2015	2016	0	0	0	25,000	20,000		18,000	78,000		78,000	832	832	83	200	584	2,531	80,531		
1.02	2016	2017	1	502,587	0	125,647	25,000	20,000	200,000	261,970	1,135,204	-360,000	775,204	832	832	83	200	584	2,531	
1.040	2017	2018	2	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	777,735	
1.061	2018	2019	3	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.082	2019	2020	4	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.104	2020	2021	5	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.126	2021	2022	6	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.149	2022	2023	7	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.172	2023	2024	8	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.195	2024	2025	9	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.219	2025	2026	10	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.243	2026	2027	11	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.268	2027	2028	12	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.294	2028	2029	13	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.319	2029	2030	14	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.346	2030	2031	15	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.373	2031	2032	16	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.400	2032	2033	17	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.428	2033	2034	18	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.457	2034	2035	19	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.486	2035	2036	20	0	0	0	0	0	0	0	28,300	163,262	9,578	22,988	67,239	291,367	291,367			
1.516	2036	2037	21	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531		
1.546	2037	2038	22	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.577	2038	2039	23	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.608	2039	2040	24	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.641	2040	2041	25	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.673	2041	2042	26	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.707	2042	2043	27	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.741	2043	2044	28	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.776	2044	2045	29	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.811	2045	2046	30	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.848	2046	2047	31	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.885	2047	2048	32	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.922	2048	2049	33	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
1.961	2049	2050	34	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.000	2050	2051	35	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.040	2051	2052	36	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.081	2052	2053	37	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.122	2053	2054	38	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.165	2054	2055	39	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.208	2055	2056	40	0	0	0	0	0	0	0	28,300	163,262	9,578	22,988	67,239	291,367	291,367			
2.252	2056	2057	41	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531		
2.297	2057	2058	42	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.343	2058	2059	43	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.390	2059	2060	44	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.438	2060	2061	45	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.487	2061	2062	46	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.536	2062	2063	47	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.587	2063	2064	48	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.639	2064	2065	49	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.692	2065	2066	50	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.745	2066	2067	51	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.800	2067	2068	52	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.856	2068	2069	53	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.913	2069	2070	54	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
2.972	2070	2071	55	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
3.031	2071	2072	56	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
3.092	2072	2073	57	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
3.154	2073	2074	58	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
3.217	2074	2075	59	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	
3.281	2075	2076	60	0	0	0	0	0	0	0	28,300	163,262	9,578	22,988	67,239	291,367	291,367			
3.347	2076	2077	61	0	0	0	0	0	0	0	0	0	832	832	83	200	584	2,531	2,531	

CH2MHILL®		CALCULATION SHEET			
Calculation title:	Runswick Bay PAR	Created by:	SMJ	Project code:	473342
		Date:	23/06/15	Serial no:	
Subject:	Preferred Option Costs for PAR	Verified by:	MC	Sheet no:	1
		Date:	27/07/15	Revision:	1

Notes

1. Input values drawn from "Summary CV PV - 5yr Costs" and "5yr PV Costs Pref. Options PAR"

Preferred Option (Option 6) PV Costs Year on Year (£)

Cost	Year 0	Year 1	Year 2	Year 3	Year 4	Five Year	Future Years	Overall Total
	2015/16	2016/17	2017/18	2018/19	2019/20	Totals		
	(£)	(£)	(£)	(£)	(£)	(£)	(£)	(£)
Capital								
Rock Armour								
Construction		485,592				485,592		485,592
Site investigation and survey (5%)	48,559					48,559		48,559
Environmental mitigation (7.5%)		36,419				36,419		36,419
Environmental enhancement (incl.)		0				0		0
Site supervision (7.55%)		36,419				36,419		36,419
SBC staff costs	25,000	24,150				49,150		49,150
Consultants fees	35,000	19,320				54,320		54,320
Yorkshire Water Service Diversion		193,200				193,200		193,200
Optimism Bias (30%)	32,568	238,530				271,098		271,098
Capital Totals	141,127	1,033,630	0	0	0	1,174,757	0	1,174,757
Contributions		-347,760				-347,760		-347,760
Capital Totals	141,127	685,870	0	0	0	826,997	0	826,997
Non-Capital								
Rock Armour								
Maintenance	832	804	777	750	725	3,888	54,687	58,575
Ex. southern defences maintenance	832	804	777	750	725	3,888	183,317	187,205
PV Other (env. etc 5%)	83	80	78	75	73	389	11,900	12,289
PV fees etc (12%)	200	193	186	180	174	933	28,560	29,494
Optimism Bias (30%)	584	564	545	527	509	2,729	83,539	86,269
Non capital Totals	2,531	2,445	2,363	2,283	2,206	11,827	362,004	373,831
Total	143,658	688,316	2,363	2,283	2,206	838,825	362,004	1,200,829

Summary Preferred Option PV Costs Year on Year (£k)

Cost	Year 0	Year 1	Year 2	Year 3	Year 4	Five Year	Future Years	Overall Total
	2015/16	2016/17	2017/18	2018/19	2019/20	Totals		
	(£k)	(£k)	(£k)	(£k)	(£k)	(£k)	(£k)	(£k)
PV Capital	141	686	0	0	0	827	0	827
PV Non capital	3	2	2	2	2	12	362	374
PV Total	144	688	2	2	2	839	362	1,201

Table 6-3 Summary PV Costs of Preferred Option

Cost	Year 0	Year 1	Year 2	Year 3	Year 4	Five Year	Future Years	Overall Total
	2015/16	2016/17	2017/18	2018/19	2019/20	Totals		
	(£k)	(£k)	(£k)	(£k)	(£k)	(£k)	(£k)	(£k)
PV Capital	141	686	0	0	0	827	0	827
PV Maintenance	3	2	2	2	2	12	362	374
PV Total	144	688	2	2	2	839	362	1,201

CH2MHILL		CALCULATION SHEET		
Runswick Bay PAR	Created by:	SMJ	Project code:	473342
	Date:	23/06/15	Serial no:	
Summary PV Costs	Verified by:	MC	Sheet no:	1
	Date:	27/07/15	Revision:	1

Notes

1. Optimism Bias included at 30%
2. PAR preparation fees 2015/16 included at £20k
3. YW service diversion cost included at £250k gross (PV £242k)
4. Contributions included at £350k gross (PV £338k)
5. Includes southern defences maintenance costs

Summary Table PV Costs First 5 yrs and Years 5 to 100

Option number	PV Costs £			
	Option 2	Option 6	Options 7 & 8	Option 3
Option name	Do Minimum (20 years)	Rock armour fillet	Rock groyne and reduced rock fillet	Rock armour apron
Capital Scheme Implementation Costs				
Construction costs	0	485,592	929,868	1,023,650
Site investigation and survey (10%)	0	48,559	92,987	102,365
Environmental mitigation (7.5%)	0	36,419	69,740	76,774
Environmental enhancement (incl.)	0	0	0	0
Site supervision (7.5%)	0	36,419	69,740	76,774
SBC staff costs	0	49,150	49,150	49,150
Consultant fees	0	54,320	54,320	54,320
Yorkshire Water service diversion	0	193,200	193,200	193,200
Optimism Bias (30%)	0	271,098	437,702	472,870
Sub Total	0	1,174,757	1,896,707	2,049,103
Maintenance (Year 0-4)				
New works maintenance	3,888	3,888	3,888	3,888
Existing southern defences maintenance	3,888	3,888	3,888	3,888
PV Other (env. etc 5%)	389	389	389	389
PV fees etc (12%)	933	933	933	933
Optimism Bias (30%)	2,729	2,729	2,729	2,729
Sub Total	11,827	11,827	11,827	11,827
Total Costs Year 0-4	11,827	1,186,585	1,908,535	2,060,930
Future Costs (Year 5-100)				
Capital	0	0	0	0
Maintenance	30,260	54,687	105,198	45,629
Existing southern defences maintenance	94,289	183,317	183,317	183,317
PV Other (env. etc 5%)	6,227	11,900	14,426	11,447
PV fees etc (12%)	14,946	28,560	34,622	27,474
Optimism Bias (30%)	43,717	83,539	101,269	80,360
Sub Total	189,439	362,004	438,831	348,228
Total PV Cost	201,266	1,548,589	2,347,366	2,409,158

Summary Table PV Costs First 5 yrs and Years 5 to 100 including contributions

Option number	PV Costs £			
	Option 2	Option 6	Options 7 & 8	Option 3
Option name	Do Minimum (20 years)	Rock fillet	Rock groyne and reduced rock fillet	Rock armour apron
Implementation (Year 0-5)				
PV costs no contributions	11,827	1,186,585	1,908,535	2,060,930
PV value of contributions	0	347,760	347,760	347,760
PV Costs incl. contributions	11,827	838,825	1,560,775	1,713,170
Future Costs (Year 6-100)				
PV costs (no contributions anticipated)	189,439	362,004	438,831	348,228
Total PV costs no contributions	201,266	1,548,589	2,347,366	2,409,158
Total PV Cost incl. contributions	201,266	1,200,829	1,999,606	2,061,398

CH2MHILL					
Calculation title:	Runswick Bay PAR	Created by:	SMJ	Project code:	473342
		Date:	23/06/15	Serial no:	
Subject:	Option Base Costs for PAR	Verified by:	MC	Sheet no:	1
		Date:	27/07/15	Revision:	1

Notes

1. The 2013 rates and quantities are taken from "Runswick Bay Costs v6 (use for YW contribution calc).xls" . Note there is no automatic link.
2. The Rates for PAR are current best estimates based upon Aug. 2013 rate indexed to March 2015, or more recent data if available.

Changing these values updates the spreadsheet



Rock rate primary armour £	110.66	(Contractor rate May 2015 £105.59)
Rock Rate underlayer £	97.00	(Contractor rate May 2015 £92.55)
Factor for reduction in armour length at southern end Ops. 3 & 6 (210/230)	0.913	
Factor for reduction in armour length at southern end Ops. 7&8 only (170/190)	0.895	
Cost index Aug 2013 to March 2015	4.0%	

Item	2013 Rate	Rate for PAR	Unit	Option 3		Option 6		Option 7&8	
				Qty.	Cost £k	Qty.	Cost £k	Qty.	Cost £k
CAPITAL WORKS									
<i>Excavation for toe protection</i>	4.70	4.89	m3	498	2,432	264	1,290	223	1,089
Disposal of excavated beach	48.85	50.80	m3	498	25,281	264	13,406	223	11,319
<i>Excavation for toe protection - groyne</i>	4.70	4.89	m3					360	1,760
Disposal of excavated beach - groyne	48.85	50.80	m3					360	18,289
<i>Primary rock armour</i>									
Primary rock material and placement	110.66	110.66	m3	3,953	437,391	2,655	293,817	2,048	226,638
Primary rock material and placement - groyne	110.66	110.66	m3					2,719	300,885
Placement recovered core material	19.74	20.53	m3					2,908	59,700
<i>Rock underlayer</i>									
Rock underlayer material and placement	86.03	97.00	m3	2,253	218,579				
Compaction of fill material	0.72	0.75	m3	2,253	1,680				
Access steps thro' rock to beach	n/a	30,000	nr.	1	30,000	1	30,000	1	30,000
Subtotal					715,362		338,512		649,679
Preliminaries	20	25	%	715,362	178,841	338,512	84,628	649,679	162,420
Insurances	3.5	3.5	%	715,362	25,038	338,512	11,848	649,679	22,739
Subtotal					919,241		434,988		834,837
Contractor's Fee	7.5	7.5	%	919,241	68,943	434,988	32,624	834,837	62,613
Contractor's Risk budget	3	7.5	%	919,241	68,943	434,988	32,624	834,837	62,613
Licences	2351	2351	nr.	1	2,351	1	2,351	1	2,351
Total Capital					1,059,478		502,587		962,414
Item	2013 Rate	Rate for PAR	Unit	Option 3		Option 6		Option 7&8	
				Qty.	Cost £k	Qty.	Cost £k	Qty.	Cost £k
MAINTENANCE WORKS									
Annual survey	800.00	832.00	nr	1	832	1	832	1	832
<i>Patch repairs</i>									
Concrete Patch repair	12.70	13.21	m	210	2,774			179	2,364
Concrete Patch repair	38.10	39.62	m			210	8,321		
Rock armour reprofiling	8,142	10,500	nr	1	10,500	1	10,500	1	10,500
Rock armour reprofiling - groyne	32,567	33,870	nr					1	33,870
Preliminaries	30.00	30.00	%	13,274	3,982	18,821	5,646	46,733	14,020
Insurance	3.50	3.50	nr	13,274	465	18,821	659	46,733	1,636
Subtotal					17,720		25,126		62,389
Contractor's Fee	7.50	7.50	%	17,720	1,329	25,126	1,884	62,389	4,679
Contractor's Risk budget	3.00	3.00	%	17,720	532	25,126	754	62,389	1,872
Licence	536.00	536.00	nr	1	536	1	536	1	536
Total Maintenance					20,117		28,300		69,476

Southern Defences

Item description	Rate	Unit	Quantity	Cost	Frequency	
Annual survey	800	832	nr	1	832	1
Rock armour reprofiling	32567	nr	1	32,567		
Drainage works	25000	nr	1	25,000		
Shear key piling	50000	nr	1	50,000		
Concrete Patch repair	25.40	m	75	1,905		
Preliminaries	25.00	%	109,472	27,368		
Insurance	3.50	%	109,472	3,832		
Subtotal				140,672		
Contractor's Fee	7.50	%	140,672	10,550		
Contractor's Risk budget	3.00	%	140,672	4,220		
Licence	741.00	nr	1	741		
Total				156,183	20	
Total including cost indexing				162,430	20	

Other Items

	%age constr. cost	Cash Disc. factor	Yr 0 1.000	Yr 1 0.966	Yr 2 0.934
PAR Preparation Fees Year 0 - estimate		22,000	22,000		
Yorkshire Water Diversion costs		200,000		193,200	
SBC staff costs £50,000 total)		50,000	25,000	24,150	
Consultants fees £55,000 total)			35,000	19,320	
Early Contractor Involvement (ECI)	Nil				
Cost consultant fees	Nil				
Site investigation & survey	10%				
Environmental mitigation	7.5%				
Environmental enhancement	incl. above				
Site supervision	7.5%				
Compensation	Nil				
Contributions (incl. 30% uplift on YW costs)		360,000		347,760	