COFFEE FACTORY REUSE TANK PUMP STORE	PROJECT NO: 01E-002-23

DRAFT COST ESTIMATE	£268.82
DRAFT STORE SIZE	18sq.ft

SCOPE OF WORK
1. Pipe installation from reuse tank to fermentation tanks.
2. Excavation of water pump store site.
3. Pump store construction with door and lock.
3. Electric outlets installation from factory mains supply to pump store site.
5. Installation of plaque on pump store.
6. Water pump quality assurance and testing.

ACTIVITY ON NODE DIAGRAM

Program Evaluation and Review Technique

Activity	Optimistic	Most likely	Pessimistic	PERT duration	Actual
Planning	0.5	1	1.0	1	1
Excavation	0.5	1	1.0	1	0
Formwork	0.5	1	1.0	1	0
Concrete Pouring	0.5	1	1.0	1	1
Concrete curing	0.5	1	1.0	1	0
Metal store fabrication	0.5	1	2.0	1	1
Piping	1	1	1.0	1	1
TOTAL	4	7	8	7	4

COST ESTIMATE AND COST CONTROL

Hard costs estimate

TYPE	COST	Quantity	Working days	Cost per unit	Amount
Site					
	Land (3ft x 6ft = 18sq.ft)				£0.00
Materials					
	Cement	1		740	£3.98
	Condits	7		150	£5.65
	Pipes 1"	4		450	£9.68
	Elbows	12		50	£3.23
	Unions	4		100	£2.15
	Clips	1		100	£0.54
	Electricity cable	44 metres		5600	£30.11
	Thread	1		30	£0.16
	Ball cork	1		350	£1.88
	Foot valve	1		900	£4.84
	male adaptor	2		100	£1.08
	Plug	1		150	£4.84
	Socket	1		100	£0.54
	Patrice box	1		100	£0.54
	Booster pump	1		4800	£25.81
	Hose pipe	1		6100	£32.80
	Metal 1x1x16gauge	3		1030	£16.61
	Metal sheet 4x8x16gauge	1.13		5000	£30.24
	Bush	2		60	£0.65
	Rods (kg)	1		250	£1.34
	Cutting disk	1		200	£1.08
	Shaft (ft)	1		80	£0.43
	Rio (ft)	1		50	£0.27
	Technology cost	1	1	94	£0.51
	Total				£178.92
Labour					
	Electrician	2	1	900	£9.68
	Plumber	1	1	1700	£9.14
	Blacksmith	1	1	2500	£13.44
	Foremen	2	1	525	£5.65
	Total				£37.90
Equipment					
	Motorcycle	2		350	*£3.76*
	Pickup	1		1200	*£6.45*
	Hoe	1			*£0.00*
	Panga	1			*£0.00*
	Axe	1			*£0.00*
	Spade	1			*£0.00*
	Pliers	1			*£0.00*
	Hacksaw	1			*£0.00*
	Tester screw driver	1			*£0.00*
	Dewalt 20v drill	1			*£0.00*
	Dewalt 20v jigsaw	1			*£0.00*
	Total				*£10.22*
Total					*£227.04*

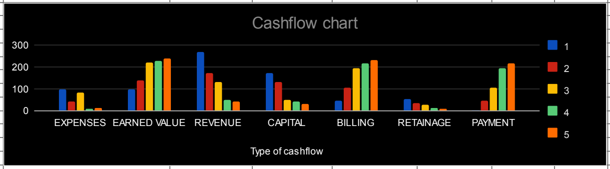
	Class	Type	DAY 1	BCAC	ACWP	BCWP	DAY 3	BCAC	ACWP	BCWP	DAY 5	BCAC	ACWP	BCWP
	Procurement													
		Transport		£0.00	£0.27	£0.27		£8.06	£8.06	£8.06		£3.98	£3.98	£3.98
		Materials		£95.97	£95.97	£95.97		£59.52	£59.52	£59.52		£0.00	£0.81	£0.81
		AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
	Design													
		Preliminary design												
		Schematic design												
		Technology cost		£0.00	£0.83	£0.83		£0.00	£0.78	£0.78		£0.00	£0.07	£0.07
		AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
	Construction													
		Labor cost						£8.06	£13.44	£13.44				
		Equipment cost										£6.45	£5.65	£5.65
		AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
#N/A	**TOTAL**			£98.97	£97.06	£97.06		£78.64	£81.80	£81.80		£13.43	£10.50	£10.50

Class	Type	DAY 2				DAY 4			
Procurement									
	Transport		£0.00	£0.00	£0.00		£0.00	£1.08	£1.08
	Materials		£25.32	£25.32	£25.32		£3.23	£3.23	£3.23
	AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
Design									
	Preliminary design								
	Schematic design								
	Technology cost		£0.00	£0.54	£0.54		£0.00	£0.27	£0.27
	AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
Construction									
	Labor cost		£12.90	£14.52	£15.05		£0.00	£2.69	£2.69
	Equipment cost								
	AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
TOTAL			£41.23	£40.38	£40.91		£6.23	£7.26	£7.26

CASHFLOW

DAY	EXPENSES	EARNED VALUE	REVENUE	CAPITAL	BILLING	RETAINAGE	PAYMENT
1	£97.06	£97.06	£268.82	£171.75	£43.30	£53.76	£0.00
2	£40.91	£137.98	£171.75	£130.84	£103.63	£34.35	£43.30
3	£81.80	£219.78	£130.84	£49.04	£193.61	£26.17	£103.63
4	£7.26	£227.04	£49.04	£41.78	£217.23	£9.81	£193.61
5	£10.50	£237.54	£41.78	£31.28	£229.18	£8.36	£217.23
6		£237.54	£31.28	£31.28	£231.28	£6.26	£229.18

			TOTAL	£227.04						


Cashflow chart
300
200
100
0
EXPENSES
EARNED VALUE
REVENUE
CAPITAL
BILLING
RETAINAGE
PAYMENT
Type of cashflow
1
2
3
4
5

	COST OF INVESTMENT		ESTIMATE AMOUNT OF PROJECT VALUE FROM ELECTRICITY BILL SAVINGS										
			YEAR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
SEASON													
Early crop		*Nil*	*£10.65*	*£7.60*	*£13.03*	*£16.91*	*£19.69*	*£21.66*	*£23.08*	*£24.09*	*£24.81*	*£25.32*	*£25.69*
Late crop		*£268.82*	*£21.29*	*£15.21*	*£26.07*	*£33.83*	*£39.37*	*£43.33*	*£46.16*	*£48.18*	*£49.62*	*£50.65*	*£51.39*
Total			*£31.94*	*£22.81*	*£39.10*	*£50.74*	*£59.06*	*£64.99*	*£69.24*	*£72.26*	*£74.43*	*£75.97*	*£77.08*
Early crop NPV			*-£66.92*										
Late crop NPV			*£134.98*										
TOTAL NPV			*£336.87*										
IRR	*25.32%*												

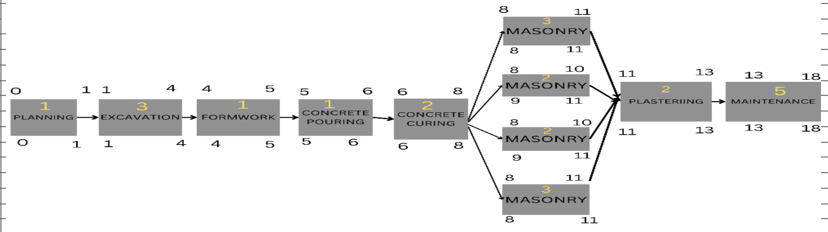
Assumptions
1. Labor provides 9 working hours for 5 working days.
2. Work does not take place during weekends and public holidays.
3. Agent CM is the type of construction management.
4. Risk is regulated by 25% of project budget.
5. BCI to CPI index is less than 1.4.
6. Risk of project complpetion is undertaken by Agent CM.
7. Environment, health and safety standards are met at construction site.
8. The scope of the project must be satisfied prior to final payment date.
9. Allowable project cost does not exceed market value of project at 40% IRR.
10. Risk of equipment investment, repair and maintainance is undertaken by Agent CM.
11. Project duration does not exceed calculated project duration.
12. Operations and maintenance of reuse tank pump is undertaken by PM.

COFFEE FACTORY WATER RE USE TANK FOUNDATION	PROJECT NO: 01F-001-23

DRAFT COST ESTIMATE	£1,011.80
DRAFT TANK SIZE	240sq.ft

SCOPE OF WORK
1. Tunnel extension from coffee collection point to reuse tank
4. Exacavation of water reuse tank site.
2. Reuse tank construction with staircase leading into water tank.
3. Water inlets and outlets in the reuse tank.
5. Installation of plaque on reuse tank.

ACTIVITY ON NODE DIAGRAM



Program Evaluation and Review Technique

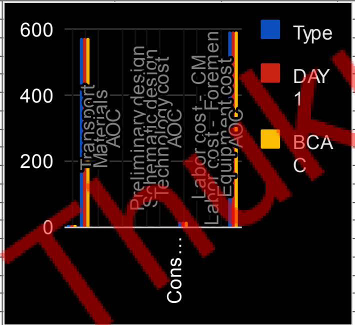
Activity	Optimistic	Most likely	Pessimistic	PERT duration	Actual
Planning	1	1	2	1	1
Excavation	2	3	3	3	1
Formwork	1	1	3	1	1
Concrete Pouring	1	1	2	1	1
Concrete curing	2	2	3	2	1
Walls masonry	4	3	4	3	3
plastering	3	2	3	2	2
Maintainance	5	5	7	5	5
TOTAL	14	13	20	14	10

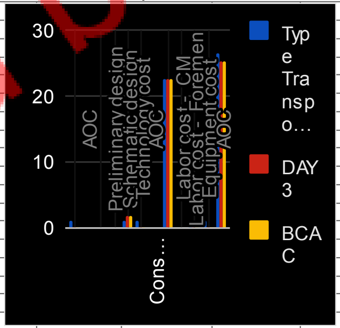
COST ESTIMATE AND COST CONTROL

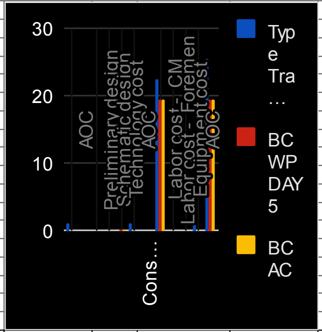
Hard costs estimate

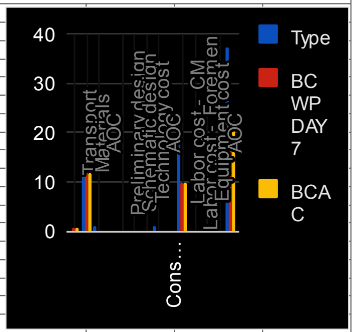
TYPE	COST	Quantity	Working days	Cost per unit	Amount
Site					
	Land (8ft x 30ft = 240sq.ft)				
Materials					
	Stone	500ft		55/52	147.85/139.78
	Cement	30 bags		720/700	96.77/112.90
	Sand	12 tonnes		25000/26000	134.41/139.78
	Water proofer	30 packs		300/150	40.32/25.00
	ballast	7 tonnes		12500/13000	67.20/69.89
	hardcore stones	7tonnes		13000/10000	69.89/53.76
	hardcore stones	5tonnes		5000	£26.88
	hook iron	5 kg		180	£4.84
	mesh wire (heavy gauge)	8 pcs		1100/1000	47.31/43.01
	4" pipe	1		1000	£5.38
	Lid	1		100	£0.54
	PVC glue	1		200	£1.08
Labour					
	Excavation	9	1	1111	£53.76
	Construction - CM	2	10	1200	£129.03
	Masons	2	10	600	£64.52
	Foreman	1	3	600	£9.68
Equipment					
	Pick up truck				£0.00
	wheelbarrow	2 pcs			£0.00
	Crowbar	1			£0.00
	Pliers	1			£0.00
	Hacksaw	1			£0.00
	Dewalt 20v drill	1			£0.00
	Dewalt 20v jigsaw	1			£0.00
Total					919.90/870.05

Earned Value Method Analysis



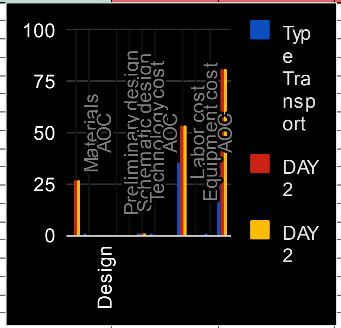


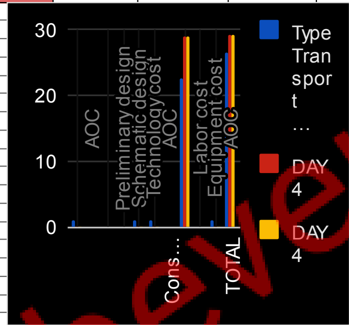


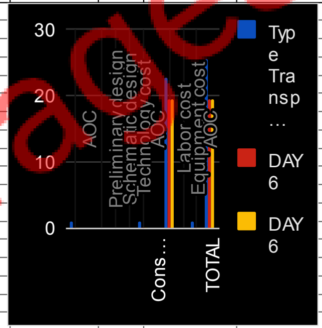


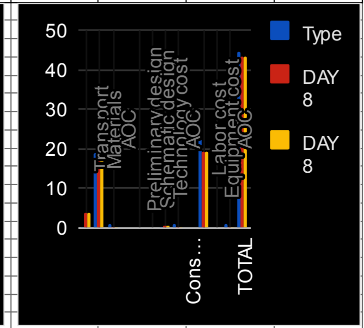
Class	**Type**	DAY 1	**BCAC**	**ACWP**	**BCWP**	DAY 3	**BCAC**	**ACWP**	**BCWP**		**BCAC**	**ACWP**	**BCWP**		**BCAC**	**ACWP**	**BCWP**
										DAY 5				DAY 7			
Procurement																	
	Transport		£5.38	£5.38	£5.38										£0.00	£0.54	£0.54
	Materials		£571.77	£571.77	£571.77										£11.83	£11.83	£11.83
	AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
Design																	
	Preliminary design		£0.00	£0.00	£0.00												
	Schematic design																
	Technology cost		£1.00	£2.02	£2.02		£1.00	£1.68	£1.68		£0.00	£0.22	£0.22		£0.00	£0.11	£0.11
	AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
Construction																	
	Labor cost - CM		£12.90	£12.90	£12.90		£22.58	£22.58	£22.58		£22.58	£19.35	£19.35		£22.58	£9.68	£9.68
	Labor cost - Foremen																
	Equipment cost						£0.00	£1.08	£1.08								
	AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
TOTAL			£594.05	£592.08	£592.08		£26.58	£25.34	£25.34		£25.58	£19.57	£19.57		£37.41	£22.15	£22.15

Class	Type	DAY 2				DAY 4				DAY 6				DAY 8			
Procurement																	
	Transport														£0.00	£3.76	£3.76
	Materials		£0.00	£26.88	£26.88										£18.82	£19.89	£19.89
	AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
Design																	
	Preliminary design																
	Schematic design																
	Technology cost		£1.00	£0.43	£0.43		£1.00	£0.11	£0.11						£0.00	£0.22	£0.22
	AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00
Construction																	
	Labor cost		£35.48	£53.76	£53.76		£22.58	£29.03	£29.03		£22.58	£19.35	£19.35		£22.58	£19.35	£19.35
	Equipment cost																
	AOC		£1.00	£0.00	£0.00		£1.00	£0.00	£0.00		£1.00	£0.07	£0.07		£1.00	£0.00	£0.00
TOTAL			£39.48	£81.07	£81.07		£26.58	£29.14	£29.14		£25.58	£19.42	£19.42		£44.40	£43.23	£43.23

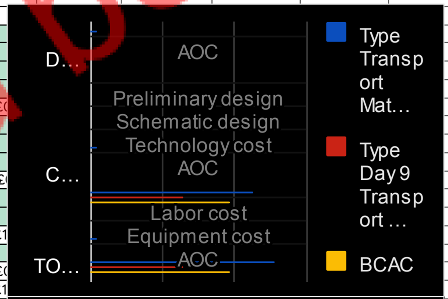


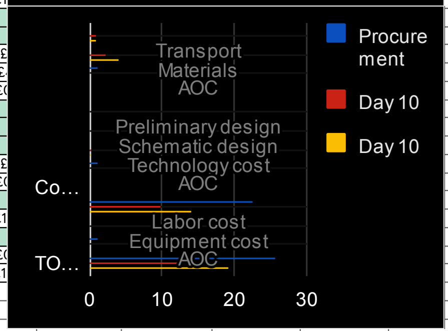






Class	Type		BCAC	ACWP	BCWP
		Day 9			
Procurement					
	Transport				
	Materials				
	AOC		£1.00	£0.00	£0
Design					
	Preliminary design				
	Schematic design				
	Technology cost		£0.00	£0.07	£0
	AOC		£1.00		
Construction					
	Labor cost		£22.58	£12.90	£1
	Equipment cost				
	AOC		£1.00	£0.00	£0
TOTAL			£25.58	£12.97	£1
		Day 10			
Procurement					
	Transport		£0.00	£0.81	£
	Materials		£0.00	£2.15	£
	AOC		£1.00	£0.00	£0
Design					
	Preliminary design				
	Schematic design				
	Technology cost		£0.00	£0.16	£
	AOC		£1.00	£0.00	£0
Construction					
	Labor cost		£22.58	£9.68	£1
	Equipment cost				
	AOC		£1.00	£0.00	£0
TOTAL			£25.58	£12.80	£1

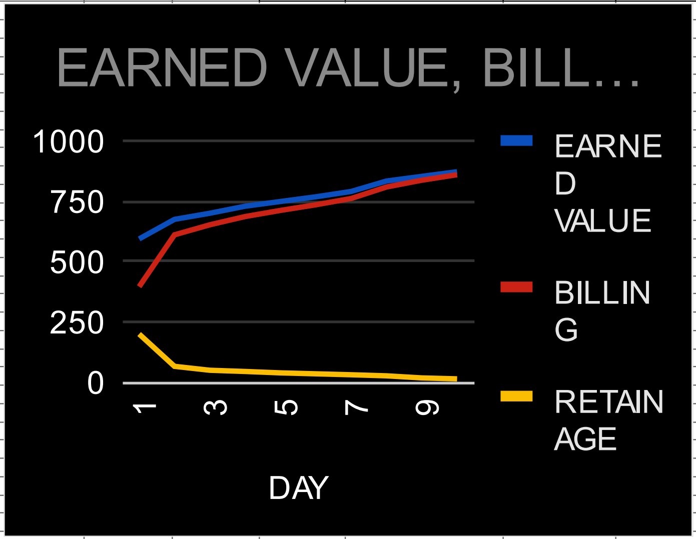


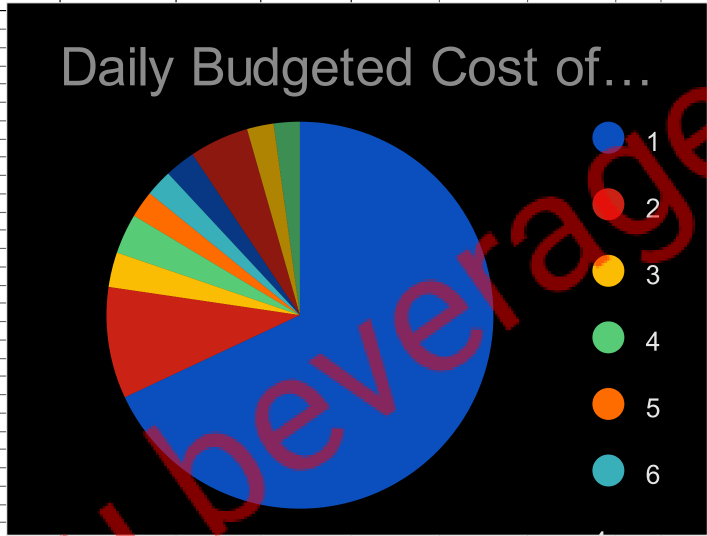


CASHFLOW

DAY	EXPENSES	EARNED VALUE	REVENUE	CAPITAL	BILLING	RETAINAGE	PAYMENT
1	£592.08	£592.08	£912.53	£320.46	£394.12	£197.96	£0.00
2	£81.07	£673.15	£320.46	£239.38	£609.06	£64.09	£394.12

3	£25.34	£698.49	£239.38	£214.04	£650.61	£47.88	£609.06
4	£29.14	£727.63	£214.04	£184.90	£684.82	£42.81	£650.61
5	£19.57	£747.20	£184.90	£165.33	£710.22	£36.98	£684.82
6	£19.42	£766.62	£165.33	£145.91	£733.56	£33.07	£710.22
7	£22.15	£788.77	£145.91	£123.76	£759.59	£29.18	£733.56
8	£43.23	£832.00	£123.76	£80.53	£807.25	£24.75	£759.59
9	£19.42	£851.43	£80.53	£61.10	£835.32	£16.11	£807.25
10	£19.03	£870.46	£61.10	£42.07	£858.24	£12.22	£835.32
TOTAL	£870.46						





	COST OF INVESTMENT		ESTIMATE AMOUNT OF PROJECT VALUE FROM ELECTRICITY BILL SAVINGS										
			YEAR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
SEASON													
Early crop		*Nil*	*£268.82*	*£192.01*	*£329.16*	*£427.13*	*£497.10*	*£547.09*	*£582.79*	*£608.29*	*£626.51*	*£639.52*	*£648.81*
Late crop		*£913.26*	*£376.34*	*£268.82*	*£460.83*	*£597.98*	*£695.95*	*£765.92*	*£815.90*	*£851.61*	*£877.11*	*£895.32*	*£908.33*
Early crop NPV			*£4,185.14*										
Late crop NPV			*£6,224.50*										
TOTAL NPV			*£11,322.91*										
IRR	*1139.83%*												
				Early crop NPV today	#N/A								
		IRR TODAY	#N/A	Late crop NPV today	#N/A								
				Total NPV	#N/A								

Assumptions							
1. Labor provides 9 working hours for 5 working days.							
2. Work does not take place during weekends and public holidays.							
3. Agent CM is the type of construction management.							
4. Risk is regulated by 25% of project budget.							
5 BCI to CPI index is less than 1.4.							
6. Risk of project complpetion is undertaken by Agent CM.							
7. Environment, health and safety standards are met at construction site.							
8. The scope of the project must be satisfied prior to final payment date.							
9. Allowable project cost does not exceed market value of project at 40% IRR.							
10. Risk of equipment investment, repair and maintainance is undertaken by Agent CM.							
11. Project duration does not exceed calculated project duration.							
12. Operations and maintenance of reuse tank is undertaken by PM.							