

**Government Estimate  
of  
Reasonable Modification Costs**

Lake Pontchartrain, LA and Vicinity, HLP,  
London Avenue Outfall Canal, Parallel Protection,  
Mirabeau Avenue to Leon C. Simon Blvd. Floodwall,  
Orleans Parish, LA

**DACW29-94-C-0079**

CIN 05: Close Gaps to Elevation 11.5 on West Side of Canal  
and Sta. 109+53 to Sta. 108+37  
Definitization of UCO-01

U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS  
FOOT OF PRYTANIA STREET  
NEW ORLEANS, LOUISIANA

COMMANDER: Kenneth H. Clow, Colonel, CE

*Revised  
CE*

DATE OF ESTIMATE: 14 September 1995

ESTIMATOR: Donna Urban

**FOR OFFICIAL  
USE ONLY**

## REASONABLE CONTRACT ESTIMATE WORKSHEET

PROJECT: Contract No. DACW29-94-C-0079, Lake Pontchartrain, Louisiana and Vicinity, High Level Plan, London Ave. Outfall Canal, Parallel Protection, Mirabeau Avenue to Leon C. Simon Blvd. Floodwall, Orleans Parish, LA

SUBJECT: Emergency Flood Closures - Close Gaps to Elevation 11.5 on West Side of Canal and Sta. 109+53 to Sta. 108+37, Definitization of UCO-01

### Plan of Operations

This modification provides for the installation and removal of emergency closures on the west side of the canal in the vicinity of Robert E. Lee Blvd. and from sta. 109+53 to sta. 108+37 due to Hurricane Erin.

Commencing on July 31, 1995, the following work was performed in preparation of Hurricane Erin.

#### INSTALLATION

- Pulled up new sheet piles in the vicinity of WB/L Sta. 119+65± up to Elev. +11.5' from Elev. +5.75' (7/31/95)
- Pulled up 6 pieces of new sheet pile between WB/L Stas. 108+93 and 108+82 to an elevation of +11.5' from Elev. +5.75' (7/31/95)
- Knocked down the existing concrete cap from between WB/L Stas. 108+10 and 108+45 because these piles were already cut at Elev. +6.75'. (7/31/95)
- Pulled up 22 pieces of CZ-101 x 21'-9" pile, up to Elev. +11.5', between WB/L Stas. 108+40 and 108+82. (8/1/95)
- Attached 1-3"x3" angle iron with rubber seal to W. Monolith #134 (WB/L Sta. 108+95) with anchor bolts (12" O.C.) (8/1/95)
- Drove 2 pieces of CZ-101x 21'-9" piles between existing piles and new piles to make closure at WB/L Sta. 108+40. (8/1/95)
- Partially welded 1 - 3"x3" angle iron to sheet piles at WB/L Sta. 109+63. (8/1/95)
- Pulled up 15 pieces of CZ-101 x 21'-9" between W. Monoliths #134 and #136 to approximate Elev. +11.0'. (8/1/95)

## **Plan of Operations (Continued)**

### **INSTALLATION (Continued)**

- Completed closure between new I-Wall and old concrete cap in vicinity of WB/L Sta. 119+65±. (8/1/95)
- Sandbagged on protected side of closure at WB/L Sta. 119+65± to Elev. +6.5'. (8/1/95)
- Welded up holes in sheet pile that were previously cut out for resteel installation. (8/1/95)
- Welded sheet piles to angle irons at closure tie-ins. (8/1/95)
- Installed 2 - 3" angle irons with rubber seals ( 1 at 109+24 and 1 at 109+53). (8/2/95)
- Welded 100% angle iron to sheet pile at WB/L Sta. 108+95. (8/2/95)
- Pulled up 15 pieces of CZ-101 piles to Elev. +11.5' between WB/L Sta. 109+24 to 109+53. (8/2/95)
- Placed visqueen and sandbags at all tie-ins. (8/2/95)

### **REMOVAL**

Commencing on August 4, 1995, the following work was performed after being directed by the Area Engineer to remove the gap closure:

- Removed the breach closures between WB/L stas. 108+40 and 109+53. (8/4/95)
- Removed 1 foot of backfilled material from protected side of sheet piles between WB/L stas. 108+40 and 108+95 and 109+24 and 109+53. (8/4/95)
- Redrove 46 pieces of CZ-101 x 21'-9" pile to a top Elev. +5.75' from +11.5'. (8/4/95)
- Removed sandbags and visqueen from WB/L Stas. 109+53, 109+24, 108+95 and 108+40±. (8/4/95)
- Removed plugs to cover resteel holes in sheet piles. (8/4/95)
- Replaced all resteel and rewelded #6 rebars to the tops of sheet piles for west monoliths #132, #133 and #135 for cathodic protection. (8/7/95)

## **Plan of Operations (Continued)**

### **REMOVAL (Continued)**

- Reshot correct elevations for permanent sheet piles that were redriven to final grade of +5.75', between WB/L stas. 108+40 to 109+53. (8/8/95)

### **Labor & Equipment**

When preparing the Government estimate, it was determined that in some instances the labor hours exceeded the equipment hours. In these instances, the difference in the hours between the labor and equipment was expended filling sandbags.

### **Remaining Work**

- In the vicinity of sta. 119+65, welds and angle irons will be removed, and sheet piles will be redriven to Elev. +5.75'

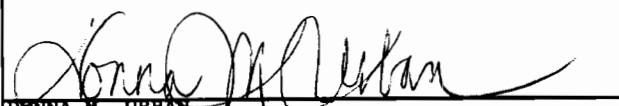
**Reasonable Contract Estimate**

Project: DACW29-94-C-0079, CIN 05

Description: Close Gaps to Elev. 11.5 on West Side of Canal and Sta. 109+53 to Sta. 108+37

Worksheet no.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
1	Emergency Flood Protection	1	LS	\$18,905.53	\$18,905.53
2	Redrive piling, remove welds and angle iron at Sta. 119+65	1	LS	\$1,078.69	\$1,078.69
3	FOOH	3	DAY	\$958.08	\$2,874.24
<b>Total:</b>					<b>\$22,858.46</b>



**DONNA M. URBAN**  
CIVIL ENGINEERING TECHNICIAN

Estimator: DMU      Date: \_\_\_\_\_  
 Checker: JM *JM*      Date: \_\_\_\_\_

Reasonable Contract Estimate - Detail Summary Sheet:

Prime Contractor

Project:  
 DACW29-94-C-0079, CIN 05  
 Close Gaps to Elev. 11.5 on West Side of Canal and Sta. 109+53 to Sta. 108+37

Bid Item			Equip	Mob & Demob	Labor	Mat'ls	Supply	Sub Total	Dist 24.21%	Total Cost	Unit Cost	Amount
Designation	Qty	Unit										
Emergency Flood Protection	1	LS	\$4,524.19		\$8,281.33	\$1,757.19	\$657.50	\$15,220.21	\$3,685.32	\$18,905.53	\$18,905.53	\$18,905.53
Redrive piling, remove welds and angle iron at Sta. 119+65	1	LS	\$366.24		\$502.18			\$868.42	\$210.27	\$1,078.69	\$1,078.69	\$1,078.69
FOOH	3	DAY						\$771.32	\$186.76	\$958.08	\$958.08	\$2,874.24
Overhead	13.90%											
Profit	7.98%											
Bond	1.00%											
Total:	24.21%											
<b>Totals</b>			<b>\$4,890.43</b>		<b>\$8,783.51</b>	<b>\$1,757.19</b>	<b>\$657.50</b>	<b>\$16,859.94</b>	<b>\$4,082.35</b>	<b>\$20,942.29</b>		<b>\$22,858.46</b>

**Reasonable Contract Estimate Worksheet - Equipment and Labor**

Project:

DACW29-94-C-0079, CIN 05

Close Gaps to Elev. 11.5 on West Side of Canal and Sta. 109+53 to Sta. 108+37

Unit of Equipment	No.	Hours	Rate	Amount
Mantis 3612 Crane (Rented)(\$6,540/month) plus operating costs	1	24	37.16	891.84
Komatsu 200 Backhoe	1	30	34.87	1,046.10
MKT Geotechnical V-5 Vibratory Hammer w/power pack	1	17	26.94	457.98
Case 580C loader/backhoe	1	22	10.93	240.46
Tractor/Trailer (Lowboy), 35 ton, 2 axle	1	8	4.55	36.40
Multi Quip 170 amp Welder	1	25.5	1.56	39.78
Komatsu D37P Dozer	1	13	16.25	211.25
Blade for Komatsu D37P	1	13	2.19	28.47
Truck, International, 50,000 GVW, 3 axle, 240 hp	1	8	25.37	202.96
Koehring 535 Crane	1	4	35.11	140.45
<b>Standby</b>				
Case 580C loader/backhoe	1	2	2.93	5.86
Komatsu D37P Dozer	1	2	3.90	7.80
Koehring 535 Crane	1	16	11.29	180.59
<b>Operating Costs</b>				
Mantis 3612 Crane	1	24	24.30	583.20
Welder	1	25.5	1.45	36.98
<b>Subtotal:</b>				<b>4,110.12</b>
<b>Mobilization and Demobilization:</b>				
Small Tools: 5.00% of labor:				414.07
<b>Total Equipment Cost:</b>				<b>4,524.19</b>
<b>Labor</b>	<b>No.</b>	<b>Hours</b>	<b>Rate</b>	<b>Amount</b>
Carpenter Foreman	1	29	24.70	716.39
PEO Dozer & Backhoe (KOMATSU)	1	26	22.05	573.22
Truck Driver	1	8	17.19	137.50
PEO Crane	1	30	25.00	750.00
PEO Crane (Overtime)	1	3	34.80	104.40
Cement Finisher	1	12	23.28	279.38
Cement Finisher (Overtime)	1	2.5	32.41	81.03
Laborer	1	24	17.19	412.50
Laborer	1	26	12.50	325.00
Laborer	1	20	12.50	250.00
Laborer (Overtime)	2	2.5	17.00	85.00
Laborer	1	22	11.78	259.19
Laborer (Overtime)	1	1.5	16.40	24.60
Laborer	1	31	12.50	387.50
Laborer (Overtime)	1	0.5	16.40	8.20
Carpenter	2	28	23.14	1,295.88
Carpenter (Overtime)	2	5.5	32.20	354.20
PEO Backhoe (CASE 580C)	1	26	16.20	421.28
PEO Backhoe (Overtime)	1	3.5	22.55	78.93
Carpenter	1	26	23.14	601.66
Carpenter (Overtime)	1	5.5	32.22	177.21
Cement Finisher	1	14	23.28	325.94
Cement Finisher (Overtime)	1	1	32.41	32.41
Iron Worker Foreman	1	6	39.06	234.38
Iron Worker	2	6	24.64	295.69
PEO Pile Driver	1	2	23.14	46.28
Laborer	1	2	11.78	23.56
<b>Total Labor Cost:</b>				<b>8,281.33</b>
<b>Total equipment and labor:</b>				<b>12,805.52</b>
Remarks:	Date:	14 Sep 95	Estimator:	DMU
			Checker:	JM

DACW29-94-C-0079, CIN 05  
 LABOR & EQUIPMENT HOURS  
 Item #1, Emergency Flood Protection

**LABOR**

	7/31/95	8/1/95	8/2/95	8/3/95	8/4/95	8/7/95	8/8/95	TOTAL HOURS
Supt.(Tassin) (SALARIED)	4	11	11	2	6	4	2	40
CQC (Justice) (SALARIED)	4	9	5.5	2	6	0	2	28.5
Carp. Foreman (Verdun)	0	11	7	2	6	3	0	29
Operator (Backhoe, Dozer) (Comeaux)	4	8	0	0	6	6	2	26
Truck Driver (Harper)	4	0	0	0	0	4	0	8
Operator (Crane) (Leonard)	4	8	7	2	6	3	0	30
Cement Finisher (Lee)	4	8	0	0	0	0	0	12
Labor (8.00) (Jackson)	4	8	0	2	6	6	0	26
Labor (11.00) (Thome)	4	8	4	2	6	0	0	24
Labor (8.00) (Dillon)	4	8	0	2	6	0	0	20
Carpenter (Brown)	4	8	8	2	6	0	0	28
Carpenter (Turgeau)	4	8	8	2	6	0	0	28
Labor (7.54) (Thompson)	4	8	8	2	0	0	0	22
Labor (7.54) (Bailey)	4	8	8	2	6	3	0	31
Operator (Backhoe) (Audibert)	4	8	8	0	6	0	0	26
Cement Finisher (Jones)	4	8	0	2	0	0	0	14
Carpenter (Delaune)	4	8	8	0	6	0	0	26
Ironworker Foreman (J. Dunnam)	0	2	0	0	0	4	0	6
Iron Worker (C. Dunnam)	0	2	0	0	0	4	0	6
Iron Worker (M. Dunnam)	0	2	0	0	0	4	0	6
Pile Driver (Thibodaux)	0	0	0	0	0	0	2	2
Labor (7.54) (Rodi)	0	0	0	0	0	0	2	2
Operator (Crane) (Audibert)	0	0	0	0	0	0	2	2

**OVERTIME**

	7/31/95	8/1/95	TOTAL HOURS
Operator (Crane) (Leonard)	3	0	3
Cement Finisher (Lee)	2.5	0	2.5
Labor (8.00) (Jackson)	2.5	0	2.5
Labor (8.00) (Dillon)	2.5	0	2.5
Carpenter (Brown)	2.5	3	5.5
Carpenter (Turgeau)	2.5	3	5.5
Labor (7.54) (Thompson)	0.5	1	1.5
Labor (7.54) (Bailey)	0.5	0	0.5
Operator (Backhoe) (Audibert)	1	2.5	3.5
Cement Finisher (Jones)	1	0	1
Carpenter (Delaune)	2.5	3	5.5

**EQUIPMENT**

	7/31/95	8/1/95	8/2/95	8/3/95	8/4/95	8/7/95	8/8/95	TOTAL HOURS	STANDBY HOURS
Mantis 3612 Crane (Rented)	4	8	5	0	6	1	0	24	0
Komatsu 200 Backhoe (#1)	4	8	6	2	5	2	2	29	0
MKT V-5 Vibratory Hammer w/ Power Pack	4	4	3	0	6	0	0	17	0
Case 580C Loader/Backhoe	2	4	8	2	5	1	0	22	2
Komatsu D37P Dozer	2	4	4	0	3	0	0	13	2
Tractor/Trailer (Lowboy)	4	0	0	0	0	4	0	8	0
Multi-Quip 170 amp Welder	4	10.5	11	0	0	0	0	25.5	0
Komatsu 200 Backhoe (#2)	0	0	0	0	0	1	0	1	0



**Reasonable Contract Estimate Worksheet - Material and Supplies**

**Project:**

DACW29-94-C-0079, CIN 05

Close Gaps to Elev. 11.5 on West Side of Canal and Sta. 109+53 to Sta. 108+37

Material	Unit	Quantity	Price	Amount
Sandbags	EA	500	0.23	115.00
Sand (Mason)	CY	25	20.00	500.00
Visqueen (20' X 100')	ROLL	1	57.00	57.00
CZ-101 x 21'-9" sheetpiling (2 pcs)	SF	157	5.80	910.60
Anchor Bolts	EA	50	0.59	29.50
<b>Sales Tax</b>			<b>9.00%</b>	<b>145.09</b>
<b>Total</b>				<b>1,757.19</b>
Supplies	Unit	Quantity	Price	Amount
Sam Lloyd Welding Service (invoiced for 10 hrs)	LS	1	357.50	357.50
Angle Iron, 60 LF, 3"x3"x1/4"; 25# Welding Rods; 20' 3-Bulb Waterstop; Sinkoflex (15 pcs)	LS	1	300.00	300.00
<b>Total Supplies Cost</b>				<b>657.50</b>
<b>Total Material and Supplies:</b>				<b>2,414.69</b>
<b>Remarks:</b>	<b>Date:</b>	<b>14 Sep 95</b>	<b>Estimator:</b>	<b>DMU</b>
			<b>Checker:</b>	<b>JM</b>

**Reasonable Contract Estimate Worksheet - Equipment and Labor**

Project:

DACW29-94-C-0079, CIN 05

Close Gaps to Elev. 11.5 on West Side of Canal and Sta. 109+53 to Sta. 108+37

Unit of Equipment	No.	Hours	Rate	Amount
<b>Redrive pilings, remove welds &amp; angle irons</b>				
MKT Geotechnical V-5 Vibratory Hammer w/power pack	1	1	26.94	26.94
Multi Quip 170 amp Welder	1	4	1.56	6.24
Truck, International, 50,000 GVW, 3 axle, 240 hp	1	4	25.37	101.48
Tractor/Trailer (Lowboy), 35 ton, 2 axle	1	4	4.55	18.20
Mantis 3612 Crane (Rented)(\$6,540/month)	1	2	37.16	74.32
Case 580C loader/backhoe	1	4	10.93	43.72
Koehring 535 Crane	1	2	35.11	70.23
<b>Subtotal:</b>				<b>341.13</b>
<b>Mobilization and Demobilization:</b>				
<b>Small Tools:</b>	<b>5.00%</b>	<b>of labor:</b>		<b>25.11</b>
<b>Total Equipment Cost:</b>				<b>366.24</b>
Labor	No.	Hours	Rate	Amount
Carpenter Foreman	1	4	24.70	98.81
PEO Dozer & Backhoe	1	2	22.05	44.09
PEO Crane	1	2	25.00	50.00
Laborer	1	8	12.50	100.00
Truck Driver	1	4	17.19	68.75
Carpenter	1	2	23.14	46.28
Laborer	1	8	11.78	94.25
<b>Total Labor Cost:</b>				<b>502.18</b>
<b>Total equipment and labor:</b>				<b>868.42</b>
<b>Remarks:</b>		<b>Date:</b>	<b>Estimator:</b>	<b>DMU</b>
		<b>14 Aug 95</b>	<b>Checker:</b>	<b>JM</b>

DACW29-94-C-0079, CIN 05  
LABOR & EQUIPMENT HOURS

Item #2, Redrive Pilings, remove welds and angle iron at Sta. 119+65

### LABOR

	TOTAL HOURS
Carpenter-Foreman (Verdun)	4
Operator (Comeau)	2
Operator (Leonard)	2
Laborer (Jackson)	8
Truck Driver (Harper)	4
Carpenter (Turgeau)	2
Laborer (Bailey)	8

### EQUIPMENT

	TOTAL HOURS
Truck	4
Tractor/Trailer (Lowboy)	4
MKT V-5 Vibratory Hammer w/ Power Pack	1
Multi-Quip 170 amp Welder	4
Mantis 3612 Crane	2
Case 580C Loader/Backhoe	4
Koehring 535 Crane	2

**DISTRIBUTED COST**

Field Office Overhead

Occupation	Designation	No.	Day	Rate (Day)	Amount
	Superintendent	1	1	200.00	\$200.00
	QC Manager	1	1	160.00	\$160.00
	Draftsman				
	Rodman, Chainman				
	Clerk				
	Timekeeper				
	Mechanic				
	Truck Driver				
	Guards, Janitor	1	1	60.00	\$60.00
	Foreman				
					\$420.00
Comp. & Lia. Ins., Soc. Sec. & State Ins.			45.00%		\$189.00
Subtotal:					\$609.00
Plant					
Rate includes rental operating supplies, field repairs	Automobile Truck, stake Truck, pickup Skiffboat Deck Barge Crew Boat	2	1	20.00	\$40.00
Subtotal:					\$40.00
Miscellaneous					
Field office expenses: office, first aid, and safety supplies: communications electricity, fuel ice Maintenance, insurance on buildings Travel, living expenses, services Power to operate pumps and for job lights Interest on operating capital			1	50.00	\$50.00
Env. Prot. \$12.32 X 1 Hr/Day			1	12.32	\$12.32
Subtotal:					\$62.32
Facilities					
Offices, warehouses, shops, or hosp. facilities					
Radio Telephones					\$40.00
Port-O-Let					\$20.00
Subtotal:					\$60.00
Field Office Overhead:					\$771.32

## Wage Rate Calculations

Project:

DACW29-94-C-0079, CIN 05

Close Gaps to Elev. 11.5 on West Side of Canal and Sta. 109+53 to Sta. 108+37

Location:

Operational Shifts:

Estimator: DMU

Checker: JM

Craft Description (a)	Basic hourly rate (b)	Overtime		Sub total (b + d) (e)	Taxes & Ins		Sub total (e + g) (h)	Fringe Benefits (i)	Travel or Subsist (j)	Total Cost (h + i + j) (k)
		Mult of (b) (c)	Amt. (b x c) (d)		% of (e) (f)	Amt. (e x f) (g)				
Carpenter Foreman	15.81			15.81	0.5625	8.89	24.70			24.70
PEO Dozer & Backhoe	14.11			14.11	0.5625	7.94	22.05			22.05
Truck Driver	11.00			11.00	0.5625	6.19	17.19			17.19
PEO Crane	16.00			16.00	0.5625	9.00	25.00			25.00
Cement Finisher	14.90			14.90	0.5625	8.38	23.28			23.28
Laborer	11.00			11.00	0.5625	6.19	17.19			17.19
Laborer	8.00			8.00	0.5625	4.50	12.50			12.50
Laborer	7.54			7.54	0.5625	4.24	11.78			11.78
Carpenter	14.81			14.81	0.5625	8.33	23.14			23.14
PEO Backhoe	10.37			10.37	0.5625	5.83	16.20			16.20
Iron Worker Foreman	25.00			25.00	0.5625	14.06	39.06			39.06
Iron Worker	15.77			15.77	0.5625	8.87	24.64			24.64
PEO Pile Driver	14.81			14.81	0.5625	8.33	23.14			23.14

ENG FORM 4715(E)

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### Equipment Rate Calculations

Project:

DACW29-94-C-0079, CIN 05

Close Gaps to Elev. 11.5 on West Side of Canal and Sta. 109+53 to Sta. 108+37

Location:

Operational Shifts:

Estimator:

DMU

Checker:

JM

Equipment Description	Unit No.	Year New	Hourly Rate (2-1)	Owner Expense (2-1)	Standby Rate (2-1)	Key No. (3-1)	Age Adj Factor (3-1)	Age Adj Factor (3-2)	Equip Life (App D)	Shift (3-3)	DEP (2-2)	FCCM (2-2)	Adj Owner Expense	Adj Hourly Rate	Adj Standby Rate
Komatsu 200 Backhoe	H25KM003		34.87	18.36	11.02	H25	1	1	8,000	1.00	14.69	3.67	18.36	34.87	11.02
MKT Geotechnical V-5 Vibratory Hammer w/power pack	P30MK001		26.94	10.95	6.52	P30	1	1	6,000	1.00	7.61	1.79	10.95	26.94	6.52
Case 580C loader/backhoe	L50CS002		10.93	4.71	2.93	L50	1	1	10,000	1.00	3.57	1.14	4.71	10.93	2.93
Tractor/Trailer (Lowboy), 35 ton, 2 axle	T45XX013		4.55	2.53	1.62	T45	1	1	10,000	1.00	1.83	0.70	2.53	4.55	1.62
Multi Quip 170 amp Welder	W35H0002		1.56	0.19	0.12	W35	1	1	8,000	1.00	0.15	0.04	0.19	1.56	0.12
Komatsu D37P Dozer	T15KM002		16.25	6.32	3.9	T15	1	1	10,000	1.00	4.84	1.48	6.32	16.25	3.90
Blade for Komatsu D37P	T10KM002		2.19	1.20	0.73	T10	1	1	10,000	1.00	0.94	0.26	1.20	2.19	0.73
Truck, International, 50,000 GVW, 3 axle, 240 hp	T50		25.37	9.12	5.44	T50	1	1	8,000	1.00	7.36	1.76	9.12	25.37	5.44
Koehring 535 Crane	C85N0009		40.36	22.81	14.47	C85	0.77	0.78	15,000	1.00	16.69	6.12	17.56	35.11	11.29

**Profit Factor**  
Prime Contractor

Project: DACW29-94-C-0079, CIN 05 Estimator: DMU  
Description: Close Gaps to Elev. 11.5 on West Side of Canal and Sta. 109+53 to Sta. 108+3 Checker: JM

Factor	Rate	Weight (0.03-0.012)	Value
1. Degree of Risk	20	0.050	1.00%
2. Relative Difficulty of Work	15	0.075	1.13%
3. Size of Job	15	0.120	1.80%
4. Period of Performance	15	0.030	0.45%
5. Contractor's Investment	5	0.075	0.38%
6. Assistance by Government	5	0.120	0.60%
7. Subcontracting	25	0.105	2.63%
<b>Profit Factor:</b>			<b>7.98%</b>

**Reasons for Weights Assigned**

1. Low Risk; post price
2. Average
3. Less than \$100,000.00
4. No additional time required
5. Average
6. No assistance
7. Subcontracting (20%)