

### Supporting Data for Estimated Unit Price

06/23/2009

Unique No.      Description  
**60201-0800      24-INCH PIPE CULVERT**

Bid History Unit Price  
 Software used: EES

Average:                      Quantity      Unit                      Unit Price                      Amount  
 Median:                      200      LNFT                                                                0.00  
 Weighted:

Award Date	State	Project No.	Quantity	Low Bidder	2nd Low	3rd Low	4th Low	5th Low	Total Engr's Est.	Terrain	Urban Rural
03/17/2009	CA	CA PRA SEKI 10(9)	140	160.00 79.32	300.00 113.76	260.00 133.88	370.00 113.76	300.00	8,700,000	M	R
05/27/2008	CA	CA ERFO 4(1), 6(1)	160	90.65 143.01	130.00 122.86	153.00	130.00	0.00	1,579,588	M	R
09/12/2007	CA	CA ERFO 8(1)	164	142.00	122.00	0.00	0.00	0.00	950,000	M	R
09/12/2007	CA	CA NPS YOSE 16(2)	150	<del>1000.00</del> 80.60	500.00 161.20	0.00 179.80	0.00 121.52	0.00	6,387,180	R	R
03/18/2005	CA	CA PRA YOSE 14(3) &	200.1	65.00	130.00	145.00	98.00	0.00	5,294,445	R	R

\* Unit prices inflated using CFLHD unit price inflation estimating spreadsheet

\* Average of low bids =  $\frac{160.00 + 79.32 + 143.01 + 80.60}{4} = \$115.73$

Use \$120

---Inflate bid history unit prices from the award date to current date. Use the spreadsheet at [http://www.cflhd.gov/design/\\_documents/eng-estimate/Construction\\_Inflation.xls](http://www.cflhd.gov/design/_documents/eng-estimate/Construction_Inflation.xls)  
 ---Add handwritten notes and show calculations

### Supporting Data for Estimated Unit Price

06/26/2009

Unique No.      Description  
**61501-1100**      **Sidewalk, asphalt**

Bid History Unit Price  
 Software used: EES

Average:	Quantity	Unit	Unit Price	Amount
Median:	200	m2		0.00
Weighted:				

Award Date	State	Project No.	Quantity	Low Bidder	2nd Low	3rd Low	4th Low	5th Low	Total Engr's Est.	Terrain	Urban Rural
07/15/2005	UT	PRA DINO 10(2) & 100(1)	376.2	29.06 <span style="background-color: yellow;">34.49</span>	35.88 <span style="background-color: yellow;">42.58</span>	0.00	0.00	0.00	3,597,400	R	R

← converted from USCust. projects -  
 see next sheet

$$\text{Average} = \frac{\$34.49 + \$42.58 + \$55.72}{3} = \$44.26$$

use \$45

---Look at both US Customary and Metric projects to get the most bid history information available.  
 ---Inflate bid history unit prices from the award date to current date. Use the spreadsheet at [http://www.cflhd.gov/design/\\_documents/eng-estimate/Construction\\_Inflation.xls](http://www.cflhd.gov/design/_documents/eng-estimate/Construction_Inflation.xls)  
 ---Add handwritten notes and show calculations



## Bid History Unit Price Analysis

Bid History Unit Price  
Software used: EEBACS

Report Date: 06/24/09  
15 out of 42

Project No: CA TEST CHRISTINE 1(1)  
Project Name: March 3 2009 Temporarily blank  
FLMA No: 127018

Schedule(s): A  
Schedule Type(s): Base

Milestone: 70%  
Date Complete: In Progress

Pay Item No.	Pay Item Type	Description	Quantity	Unit	Unit Price Used	Amount
20301-1900	N	REMOVAL OF PIPE CULVERT	5	EACH	\$2,000.00	\$10,000.00

Picked: 17      Average: \$1,527.22      High: \$3,197.25      Low: \$640.51

**Remarks:** Three culverts are deep. One culvert is near existing utilities (difficult to remove).

**Bid History Filters:**

Pay Item Number: 20301-1900  
Quantities: ALL  
Award Dates: From 20  
States: CA

Inflation Index: California Highway CCI  
Schedule Construction Type:  
Terrain:  
Density:

Select an appropriate inflation factor.

Type remarks into EEBACS to provide information on how the unit price was selected.

Award Date	States	Pay Item No. Schedule	Description	Quantity	Low 1	Low 2	Low 3	Low 4	Low 5	Total Amount	Schedule Construction Type	Terrain	Density	
01/30/07	CA	20301-1900	REMOVAL OF PIPE CULVERT CA PRA LAVO 10(2)	5.9%	5	\$1,200.00	\$3,300.00			\$8,111,720.50	3	M	Rural	
		A				\$1,270.80	\$3,494.70							
01/20/06	CA	20301-1900	REMOVAL OF PIPE CULVERT PFH 119-2(4)	-1.46%	57	\$650.00	\$1,500.00	\$550.00		\$15,494,923.75	R	M	Rural	
		A				\$640.51	\$1,478.10	\$541.97						
05/04/05	CA	20301-1900	REMOVAL OF PIPE CULVERT CA 24-2(1)	3.06%	22	\$1,000.00	\$1,200.00	\$2,500.00		\$5,062,897.00	3	M	Rural	
		A				\$1,030.60	\$1,236.72	\$2,576.50						
03/18/05	CA	20301-1900	REMOVAL OF PIPE CULVERT CA PRA YOSE 14(3) & 16(5)	3.06%	4	\$650.00	\$2,350.00	\$950.00	\$1,545.00	\$5,279,287.50	B	R	Rural	
		A				\$669.89	\$2,421.91	\$979.07	\$1,592.28					
08/05/04	CA	20301-1900	REMOVAL OF PIPE CULVERT PFH 120-1(3)	27.89%	5	\$2,500.00	\$1,855.00			\$3,898,324.00	3	M	Rural	
		A				\$3,197.25	\$2,372.36							
07/26/04	CA	20301-1900	REMOVAL OF PIPE CULVERT CA RRP DOED 10(1)	27.89%	3	\$850.00	\$1,030.00	\$2,800.00	\$1,000.00	\$1,161,904.00	R	R	Urban	
		B				\$1,087.06	\$1,317.27	\$3,580.92	\$1,278.90					
01/16/04	CA	20301-1900	REMOVAL OF PIPE CULVERT ERFO/PRA SEQU 10(7)	27.89%	4	\$1,000.00	\$1,200.00	\$10,000.00	\$6,755.00	\$4,000.00	\$1,981,104.00	R	M	Rural
		A				\$1,278.90	\$1,534.68	\$12,789.00	\$8,638.97	\$5,115.60				



Bid History Unit Price Analysis

Bid History Unit Price  
Software used: EEBACS

Report Date: 06/25/09  
1 out of 1

Project No: CA TEST CHRISTINE 1(1)  
Project Name: March 3 2009 Temporarily blank  
FLMA No: 127018

Schedule(s): B  
Schedule Type(s): Base

Milestone: 70%  
Date Complete: In Progress

Pay Item No.	Pay Item Type	Description	Quantity	Unit	Unit Price Used	Amount
60101-0000	N	CONCRETE	430	CUYD	\$1,650.00	\$709,500.00
Picked: 3		Average: \$1,654.76		High: \$2,166.95		Low: \$1,378.96
Remarks: Limited bid history data - only one CA project since 2005.						

**Bid History Filters:**  
Pay Item Number: 60101-0000  
Quantities: ALL  
Award Dates: From 2005 to 2009  
States: CA

Inflation Index: California Highway CCI  
Schedule Construction Type:  
Terrain:  
Density:

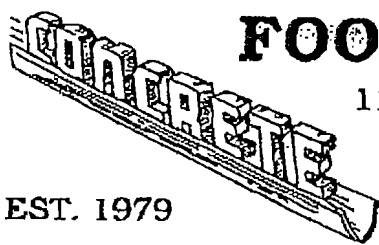
Award Date	States	Pay Item No. Schedule	Pay Item Description Project	Inflation	Quantity	Low 1	Low 2	Low 3	Low 4	Low 5	Total Amount	Schedule Construction Type	Terrain Density
05/04/05	CA	60101-0000 A	CONCRETE CA 24-2(1)	3.06%	28						\$5,062,897.00	3	M Rural

28  
small quantity - expect higher unit price

10/29/08 - Quote for concrete was \$175/cuyd for materials.  
Assume \$825/cuyd for forming, reinforcement, and placing.

Use  $\$175 + \$825 = \$1000/cuyd$

---Document discussions with suppliers.  
---Describe any assumptions made during the unit price analysis.



# FOOTHILL READY-MIX INC.

11415 HWY 99 W., RED BLUFF, CA 96080  
(530) 527-2565 • FAX (530) 527-6976  
No. California 1-800-624-8141



EST. 1979

October 28, 2008

Ross Dawson  
Federal Highway Administration  
Via Fax 934-5672

Contact suppliers  
as appropriate and  
maintain  
documentation.


Here is the "ballpark price" you requested for a job 2.5 hours (by truck) west of Corning, Ca. This "ballpark price" is based upon a number of assumptions, some of which are as follows:

1. It is a 2.5 hour trip to the jobsite and 2.5 hour return trip.
2. Truck will be on the job one hour or less, six hour roundtrip.
3. Delivery time over 6 hours will be billed at the rate of \$95.00 per hour.
4. Concrete will be air-entrained, 6%.
5. Prices of materials and fuel will stay constant or drop.
6. No sales tax will be charged.
7. Delivery will be made during normal business hours, Monday thru Friday, excluding Holidays.
8. Concrete will be batched at our Plant, set retardation to be used.
9. Price is based upon full loads only and includes air and set retardation.

The price for 6 & 7 sack is as follows:

6 sack .....	\$165.78/cy
7 sack .....	\$173.78/cy

Please feel free to contact me if you have questions, comments or need more information.

Sincerely,  
  
Kevin L. Brumbaer  
President & Gen Mgr.

Cost-based Unit Price  
Software used: spreadsheet

**Cost-Based Unit Price:  
Aggregate Base**

Project Name and Number: CA RRP Example Project

Pay Item Number: 30101-0000  
Description: AGGREGATE BASE  
Quantity: 50,000  
Unit: TON

ASSUMPTIONS		
Description	Assumed Value	Remarks
<b>Haul Assumptions</b>		
Type of truck	Belly Dump	
Truck haul capacity (tons)	22	See RS Means for truck haul capacity
Number of trucks	5	
Load time (minutes)	10	Default = 10; includes turnaround time
Dump time (minutes)	15	Default = 15; includes turnaround time
Haul speed (MPH)	25	Slower speed when fully loaded
Return speed (MPH)	35	Speed limit along haul route
Haul distance (miles)	5	Distance from pit to project
Shift length (hours)	10	
Efficiency Factor	90%	Default = 90%; inefficiencies include breakdowns, weather, coffee breaks, etc
<b>Finishing Assumptions</b>		
Finishing production rate	0.25 mi/day	From RS Means

HAUL EQUIPMENT (COST PER HOUR) <sup>(1)</sup>			
Description	Quantity	Cost / Hour	Total Cost / Hour
Haul truck (owner / operators) <sup>(2)</sup>	5	\$ 90.00	\$ 450.00
Cat 966 Loader	1	\$ 42.85	\$ 42.85
Cat 120H Motor Grader	2	\$ 34.40	\$ 68.80
Cat CS-433E Roller	1	\$ 31.15	\$ 31.15
6,000 Gallon Water Truck	1	\$ 56.50	\$ 56.50
Cat PS-360C Pneumatic Roller	1	\$ 16.45	\$ 16.45
			\$ -
<b>TOTAL</b>			<b>\$ 665.75</b>

(1) These are typical types of equipment used in this operation. Adjust for any project-specific requirements.

(2) Assume that the cost of the truck drivers are included in the cost of the truck for owner / operators.



HAUL LABOR (COST PER HOUR) <sup>(1)</sup>									
Description	Quantity	Cost / Hour <sup>(2)</sup>	Subtotal	Payroll Burden	Subtotal	Overhead	Subtotal	Profit	Total Cost / Hour
Operators	6	\$ 30.59	\$ 183.56	35%	\$ 247.81	10%	\$ 272.59	10%	\$ 299.85
Foreman w/truck	1	\$ 51.50	\$ 51.50	35%	\$ 69.53	10%	\$ 76.48	10%	\$ 84.13
Superintendent w/truck	1	\$ 61.50	\$ 61.50	35%	\$ 83.03	10%	\$ 91.33	10%	\$ 100.46
Dumpman	1	\$ 23.89	\$ 23.89	35%	\$ 32.25	10%	\$ 35.48	10%	\$ 39.02
Scale person	1	\$ 23.89	\$ 23.89	35%	\$ 32.25	10%	\$ 35.48	10%	\$ 39.02
<b>TOTAL</b>									<b>\$ 562.49</b>

(1) These are typical types of labor used in this operation. Adjust for any project-specific requirements.

(2) Use Davis-Bacon labor rates (<http://www.gpo.gov/davisbacon/allstates.html>). Include fringes. Not all labor classifications have rates in Davis-Bacon, use judgement where rates aren't avail:

CYCLE TIME		
	Hours	Remarks
Load Time =	0.17	
Haul Time =	0.20	
Dump Time =	0.25	
Return Time =	0.14	
<b>HOURS PER CYCLE</b>	<b>0.84</b>	Adjusted by efficiency factor

Number of Cycles =	455
Total Number of Hours =	382.2
Total Cost to Haul and Place Aggregate Base =	\$ 469,431.77
<b>Haul and Place Unit Price =</b>	<b>\$ 9.39</b>

**HAUL UNIT PRICE = \$ 9.39 per ton**

Calculated Number of Haul Days* =	38
*Add time for weekends and expected rain delays	

MATERIALS					
Description	Cost / Unit	Unit	Prime Mark-up	Total	Remarks
Material Price at Pit	\$ 12.00	ton	10%	\$ 13.20	Quote from Rogue Aggregate on 03/20/08 (541-840-3490)

Document quotes from suppliers.

**MATERIALS UNIT PRICE = \$ 13.20 per ton**

FINISHING EQUIPMENT					
Description <sup>(1)</sup>	Quantity	Unit	Cost / Hour	Total Cost / Hour	Remarks
Cat 120H Motor Grader	275	Hours	\$ 34.40	\$ 9,460.00	8.6 miles at 0.25 miles/day = 34 days
6,000 Gallon Water Truck	275	Hours	\$ 56.50	\$ 15,537.50	
Cat PS-360C Pneumatic Roller	275	Hours	\$ 16.45	\$ 4,523.75	
<b>TOTAL</b>				<b>\$ 29,521.25</b>	

(1) These are typical types of equipment used in this operation. Adjust for any project-specific requirements.

(2) Assume that the cost of the truck drivers are included in the cost of the truck for owner / operators.

FINISHING LABOR										
Description <sup>(1)</sup>	Quantity	Cost / Unit <sup>(2)</sup>	Subtotal	Payroll Burden <sup>(3)</sup>	Subtotal	Overhead <sup>(4)</sup>	Subtotal	Profit <sup>(5)</sup>	Total Cost / Hour	Remarks
Operators	6	\$ 30.59	\$ 183.56	35%	\$ 247.81	10%	\$ 272.59	10%	\$ 299.85	
Foreman w/truck	1	\$ 51.50	\$ 51.50	35%	\$ 69.53	10%	\$ 76.48	10%	\$ 84.13	
Superintendent w/truck	1	\$ 61.50	\$ 61.50	35%	\$ 83.03	10%	\$ 91.33	10%	\$ 100.46	
Dumpman	1	\$ 23.89	\$ 23.89	35%	\$ 32.25	10%	\$ 35.48	10%	\$ 39.02	
Scale person	1	\$ 23.89	\$ 23.89	35%	\$ 32.25	10%	\$ 35.48	10%	\$ 39.02	
<b>TOTAL</b>									<b>\$ 562.49</b>	

(1) These are typical types of labor used in this operation. Adjust for any project-specific requirements.

(2) Use Davis-Bacon labor rates (<http://www.gpo.gov/davisbacon/allstates.html>). Include fringes. Not all labor classifications have rates in Davis-Bacon, use judgement where rates aren't avail;

(3) Default payroll burden = 35%

(4) Default overhead = 10%

(5) Default profit = 10%

Finishing Equipment Price =	\$ 29,521.25
Finishing Labor Price =	\$ 562.49
<b>Total Cost / Unit for Finishing =</b>	<b>\$ 0.60</b>

FINISHING UNIT PRICE = \$ 0.60

TOTAL UNIT PRICE  
(HAUL + FINISHING + MATERIAL) =

\$ 23.19 per ton

UNIT PRICE USED = \$ ~~24.00~~

- discussed with CFT during meeting on 4/27/08.
- increase unit price to account for anticipated local market conditions - a lot of work in the area - recent CA bid tabs show increases in aggregate unit costs
- use \$30/ton

Discuss unit prices with the CFT. Document collaboration among CFT members.

Cost-based Unit Price  
Software used: spreadsheet

1 ea. Type 2A drop inlet (based on quote from supplier)	\$ 2,800.00
Freight from supplier to project site	\$ 850.00
Equipment (use backhoe bid price from recent project nearby this project site)	\$ 125.00
Laborer (2 laborers. 1 hour each. \$25.00/hr)	\$ 50.00
Subtotal	\$ 3,825.00
Overhead (10%)	\$ 382.50
Subtotal	\$ 4,207.50
Profit (10%)	\$ 420.75
Total	\$ 4,628.25

\* Using BHUP, average unit price of similar catch basins is \$3,744.51. Since there is only 1 Type 2A needed for this project, expect higher unit price. Also this project is more remote.

\* Use \$4700/EA

↑  
---Use a simple materials/equipment/labor calculation to compare with bid history information.  
---Show assumptions.

# Bid History Unit Price Analysis

Report Date: 06/25/09  
1 out of 1

Project No: CA TEST CHRISTINE 1(1)  
Project Name: March 3 2009 Temporarily blank  
FLMA No: 127018

Schedule(s): A  
Schedule Type(s): Base

Milestone: 70%  
Date Complete: In Progress

Pay Item No.	Pay Item Type	Description	Quantity	Unit	Unit Price Used	Amount
60404-TEMP	N	CATCH BASIN, TYPE 2A	1	EACH	\$0.00	\$0.00

Picked: 6      Average: \$3,744.51      High: \$6,698.90      Low: \$1,545.90

**Remarks:** Different types of catch basins - not quite the same as on this project

**Bid History Filters:**

Pay Item Number: 60404  
Quantities: ALL  
Award Dates: From 2004 to 2009  
States: CA

↑  
Type remarks into EEBACS  
to document assumptions.

Inflation Index: California Highway CCI  
Schedule Construction Type:  
Terrain:  
Density:

Award Date	States	Pay Item No. Schedule	Pay Item Description Project	Inflation	Quantity	Low 1	Low 2	Low 3	Low 4	Low 5	Total Amount	Schedule Construction Type	Terrain	Density
05/04/05	CA	60404-0000 A	CATCH BASIN CA 24-2(1)	3.06%	35	\$3,900.00 \$4,019.34	\$1,900.00 \$1,958.14	\$5,500.00 \$5,668.30			\$5,062,897.00	3	M	Rural
05/04/05	CA	60404-1000 A	CATCH BASIN, TYPE 1 CA 24-2(1)	3.06%	3	\$6,500.00 \$6,698.90	\$2,500.00 \$2,576.50	\$1,500.00 \$1,545.90			\$5,062,897.00	3	M	Rural

See previous sheet  
for additional notes.

Cost-based Unit Price  
Software used: EEBACS

Cost Based Unit Price

Report Date: 06/25/09  
1 out of 2

Project No: CA TEST CHRISTINE 1(1)  
Project Name: March 3 2009 Temporarily blank  
FLMA No: 127018

Schedule(s): A  
Schedule Type(s): Base

Milestone: 70%  
Date Complete: In Progress

Pay Item No.	Pay Item Type	Description	Unit	Unit Price Used	Amount
15705-2000	N	SOIL EROSION TURBIDITY	LNFT	\$70.00	\$14,000.00

Describe production rates used and any assumptions.

Total Equipment, Material, and Labor: \$12,739.85  
Total Cost/Pay Item Unit: \$63.70 LNFT

Remarks: Assumed production rate = 950 LNFT per day. Assume 1 day per site. Assume 1 extra day for preparing the site.

Type remarks for each item to show what factors went into the analysis.

Equipment

Type	Quantity	No. Units	Unit	Cost/Unit	Total	Overhead & Profit	Total Cost	Remarks
Flat bed light truck	1	3	DAY	\$518.37	\$1,555.11	0.00%	\$1,555.11	From RS Means 2008 - cost/unit shown already adjusted to include overhead and profit.
Trencher attachment	1	3	DAY	\$166.61	\$499.83	0.00%	\$499.83	From RS Means 2008 - cost/unit shown already adjusted to include overhead and profit.
Skid steer loader	1	3	DAY	\$544.15	\$1,632.45	0.00%	\$1,632.45	From RS Means 2008 - cost/unit shown already adjusted to include overhead and profit.
Total							\$3,687.39	
Overhead & Profit							\$0.00	
Total with O&P							\$3,687.39	

**Cost Based Unit Price**

Report Date: 06/25/09  
2 out of 2

Project No: CA TEST CHRISTINE 1(1)  
Project Name: March 3 2009 Temporarily blank  
FLMA No: 127018

Schedule(s): A  
Schedule Type(s): Base

Milestone: 70%  
Date Complete: In Progress

**Labor**

Type	Quantity	No. Units	Unit	Cost/Unit	Total	Overhead & Profit	Total Cost	Remarks
Skid steer operator	1	27	HOUR	\$15.00	\$405.00	20.00%	\$486.00	
Laborers	4	36	HOUR	\$11.38	\$1,638.72	20.00%	\$1,966.46	From Davis-Bacon - includes payroll burden
Total							\$2,043.72	
Overhead & Profit							\$408.74	
Total with O&P							\$2,452.46	

**Materials**

Type	No. Units	Unit	Cost/Unit	Total	Overhead & Profit	Total Cost	Remarks
Turbidity curtain	200	LNFT	\$30.00	\$6,000.00	10.00%	\$6,600.00	Quote from Boom Environmental Products
Total						\$6,000.00	
Overhead & Profit						\$600.00	
Total with O&P						\$6,600.00	

Document quotes from suppliers.

