Construction Cost Estimate

Pilot Study - Fire Training Area (OU8)

Loring Air Force Base
Limestone, Maine
Operable Unit 8

December 1994
Title: AFCCEE Collection

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Print or Type Name: Laura Peña
Signature: Laura Peña
Telephone: 210-536-1431
AQ Number: M01-03-0127

TOTAL P. 02
PRELIMINARY (45%) CONSTRUCTION COST ESTIMATE

PILOT STUDY

FIRE TRAINING AREA

LORING AIR FORCE BASE LIMESTONE, MAINE

OPERABLE UNIT 8

CONTRACT NO. F41624-94-D-8054

DELIVERY ORDER NO. 0001

Prepared For:

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE

BROOKS AIR FORCE BASE, TEXAS

Prepared By:

URS CONSULTANTS, INC.

DECEMBER 1994
LORING AIR FORCE BASE
PILOT STUDY - FIRE TRAINING AREA
CONSTRUCTION COST ESTIMATE

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• COST SUMMARY
• DETAILED COST ESTIMATE BREAKDOWN
• QUANTITY BACKUP
• UNIT PRICE BACKUP
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<thead>
<tr>
<th>COST ESTIMATE SUMMARY</th>
<th>INVITATION/CONTRACTOR</th>
<th>EFFECTIVE PRICING DATE</th>
<th>DATE PREPARED</th>
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<td>CODE (Check one)</td>
<td>DRAWING NO.</td>
<td>SHEET 1 OF 1 SHEET</td>
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<td>🔧</td>
<td>12/14/94</td>
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The following are explanatory notes on the preparation of this construction estimate for 45% Design completion phase.

1. Individual costs are Summar 1994 dollars.

2. Unit costs with a Source of Cost indicated as "BID" are based on the average bid price of a minimum of five contractor bids for similar work items in New York City. Costs are totals with Overhead and Profit included.

3. Unit cost with a Source of Cost indicated as "MEANS" are based on R.S. Means Company, Inc. 1994 Reference Books. Overhead and Profit are applied on the Summary Sheet (sheet 1 of 11) Overhead and Profit are assumed to be a total of 20% for this level estimate.

4. This estimate is organized by construction items or major action, not by specification section or design discipline.

5. Assume a three (3) month Construction Period for this 45% Design; subject to further review in the 90% Design.

6. Lump Sum cost for electrical work assumed at $125,000 for this 45% Design. Cost assumption is based on previous costs for similar work. A detailed cost break down will be provided with 90% Design.

7. Level of safety for all operations is assumed to be Level "D".
LEVEL B
CONSTRUCTION COST ESTIMATE
PILOT STUDY - FIRE TRAINING AREA
45% DESIGN
LORING AIR FORCE BASE
LIMESTONE, MAINE

SUMMARY

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<th>Description</th>
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<td>Quality Assurance 1%</td>
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<td>Supervision &amp; Administration 8%</td>
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<tr>
<td>Engineering &amp; Design 1.5%</td>
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<td>Total Budget Costs</td>
<td>$ 1,274,900</td>
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DETAILED COST ESTIMATE BREAKDOWN
## COST ESTIMATE SUMMARY

**PROJECT:** PILOT STUDY - FIRE TRAINING AREA  
**LOCATION:** LORING AIR FORCE BASE - LIMESTONE, MAINE

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<td><strong>PROCESS INSTALLATION:</strong></td>
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**LOCATION:** LORING AIR FORCE BASE - LORING, MAINE

**PROJECT:** PILOT STUDY - FIRE TRAINING AREA

**CODE (Check one)**

- A
- C

**INVITATION/CONTRACTOR**

- Effective Pricing Date

**DATE PREPARED**

- 12/14/94

**DRAWING NO.**

- SHEET 2 OF 11 SHEET

**CHECKED BY**

- R.P.T.
## COST ESTIMATE SUMMARY

### PROJECT:
Pilot Study - Fire Training Area

### LOCATION:
Loring Air Force Base - Limestone, Maine

### INVITATION/CONTRACTOR:

### CODE (Check one):
- A
- B
- C
- Other

### EFFECTIVE PRICING DATE:
12/14/94

### DATE PREPARED:
12/14/94

### DRAWING NO.:

### SHEET 3 OF 11 SHEET

### ESTIMATOR:
M.J.W.

### CHECKED BY:
R.P.T.

### TASK DESCRIPTION

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### SUBTOTAL:

- **$167,625.29**

A:LORCOST/WHJrj 12/14/94
# COST ESTIMATE SUMMARY

**PROJECT:** PILOT STUDY - FIRE TRAINING AREA  
**LOCATION:** LORING AIR FORCE BASE - LIMESTONE, MAINE

**INVITATION/CONTRACTOR CODE**  
- A  
- B  
- C  
- OTHER

**EFFECTIVE PRICING DATE:** 12/14/94  
**DATE PREPARED:**  
**DRAWING NO.:**  
**ESTIMATOR:** M.I.W.  
**CHECKED BY:** R.P.T.

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# COST ESTIMATE SUMMARY

**PROJECT:** PILOT STUDY - FIRE TRAINING AREA

**LOCATION:** LORING AIR FORCE BASE - LEMESTONE, MAINE

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# COST ESTIMATE SUMMARY

**PROJECT:** PILOT STUDY - FIRE TRAINING AREA  
**LOCATION:** LORING AIR FORCE BASE - LIMESTONE, MAINE

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<th>TASK DESCRIPTION</th>
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<th>EQUIPMENT</th>
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<td>MH UNITS</td>
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**INVITATION/CONTRACTOR:**  
**CODE (Check one):** A  X  B  C  OTHER  
**DRAWING NO.:**  
**ESTIMATOR:** M.J.W  
**DATE PREPARED:** 12/14/94  
**SHEET 6 OF 11 SHEET**  
**CHECKED BY:** R.P.T.
# COST ESTIMATE SUMMARY

**PROJECT:** PILOT STUDY - FIRE TRAINING AREA  
**LOCATION:** LORING AIR FORCE BASE - LIMESTONE, MAINE

<table>
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**SUBTOTAL**  
$10,030.18  
**TOTAL PIPING, VALVES & FITTINGS**  
$45,440.50
### COST ESTIMATE SUMMARY

**PROJECT:** PILOT STUDY - FIRE TRAINING AREA  
**LOCATION:** LORING AIR FORCE BASE - LIMESTONE, MAINE  
**DATE PREPARED:** 12/14/94

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**CODE** (Check one)  
_A_  
_X_ B  
_C_  
.Other

**DRAWING NO.**  

**ESTIMATOR**  
M.J.W.

**CHECKED BY**  
R.P.T.
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SUBTOTAL                  $1,071.51
TOTAL TREATMENT BUILDING CONSTRUCTION $107,521.39
## COST ESTIMATE SUMMARY

**PROJECT:** PILOT STUDY - FIRE TRAINING AREA  
**LOCATION:** LORING AIR FORCE BASE - LIMESTONE, MAINE

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**TOTAL ELECTRICAL WORK:** $125,000.00
QUANTITY BACK-UP
Excavation:

Precast Manhole:

\[
6' \times 6' \times 7' = 252 \text{ ft}^3 \times \frac{1}{27} = 9.371 \text{ cu yd}
\]

100 yd x 6 Manholes = 600 cu yd

Influent Pipe/Conduit:

\[
7\frac{1}{2}' \times 3\frac{1}{2}' \times 230' = 6037.5 \text{ ft}^3 \times \frac{1}{27} = 229.6 \text{ cu yd}
\]

Allow 20% overexcavation for bracing: 229.6 + 20% = 275 cu yd

Effluent Pipe/Conduit:

\[
7\frac{1}{2}' \times 2\frac{1}{2}' \times 785' = 7275 \text{ ft}^3 \times \frac{1}{27} = 269.4 \text{ cu yd}
\]

Allow 20% overexcavation for bracing: 269.4 + 20% = 323 \Rightarrow 325 cu yd

Monitoring Well Conduit:

\[
1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 1180' = 1180 \text{ ft}^3 \times \frac{1}{27} = 43.7 \text{ cu yd}
\]

\Rightarrow 45 cu yd
Access Road: 25' x 2' = 50 SF

Crushed Stone:

Precast Manholes = 6' x 6' x 1/2' = 18 $^3$ ft$^3$/27 = 0.67 CY x 6 = 4 CY

Influent Pipe/Conduit = 1-6" x 3-6" x 230' = 1207.5 $^3$ ft$^3$/27 = 44.7 CY 745 CY

Effluent Pipe/Conduit = 1-6" x 2-40" x 48.5' = 1455 $^3$ ft$^3$/27 = 53.8 CY 55 CY

Monitoring Well Conduits = 6" x 1-0' x 1180' = 580 $^3$ ft$^3$/27 = 218 = 726 CY

Total = 126 CY

Asphalt Resurfacing:

Access Road: 25' x 2' = 50 SF

Sealing & Grubbing:

Recovery Trench = 60' x 20' = 1200 SF

Piping Trench = 120' x 10' = 1200 SF

Total = 2400 SF = 0.5 ACRE 3000 SF / 43560 = 0.1 ACRE

Note: For equipment & piping direct take offs from plans and specs were used.

General Backfilling:

Influent Pipe/Conduit = 6-0" x 3-6" x 230' = 4830 $^3$ ft$^3$/27 = 180 CY

Effluent Pipe/Conduit = 6-0" x 2-40" x 48.5' = 5820 $^3$ ft$^3$/27 = 215 CY

Monitoring Well Conduits = 6" x 1-0' x 1180' = 22 CY

Total = 420 CY
PROCESS BUILDING

1. STRUCTURAL STEEL.

Roof

- W 8 x 18
  \[ W = 3 \times 5 \times 16.67 \times 18 = 4501 \]

- Beams on line 1 and 4
  \[ W = 2 \times 2 \times 10 \times 18 = 720 \]

- Beams on Line 2 and 3
  \[ W = 2 \times 20 \times 30 = 1200 \]

- Roof bracing
  \[ 3 \times \frac{2}{2} \times \frac{1}{4} \times L = 110.76 \times 19.44 \times 19.5 \]

- Addl framing C 6 x 82
  \[ W = 12 \times 8.2 = 98.4 \]

Columns

- W 8 x 18 Line A
  \[ W = 4 \times 16.5 \times 18 = 1138.0 \]

- W 8 x 18 Line B
  \[ W = 2 \times 16.25 \times 18 = 585.0 \]

- W 8 x 18 Line C
  \[ W = 4 \times 16 \times 18 = 1152.0 \]

Base PL.

- 4 - 8 x 10 x 3/4
  \[ W = 4 \times \frac{9}{12} \times \frac{15}{12} \times 30.6 = 68.0 \]

- 6 - 8 x 10 x 5/8
  \[ W = 6 \times \frac{9}{2} \times \frac{15}{2} \times 25.5 = 85.0 \]

Bracing Vertical on Line A, E, C

- 3 x 2 1/2 x 1/4 7
  \[ \text{Length} = 2 \left( 16.67 \times \frac{642}{12} \right) + 2 \left( 16.74 \times \frac{10}{12} \right) \]
  \[ \text{Weight} = 2 \times 75 \times 4.5 \left( \sum \frac{675}{10974} \right) \]
Vertical bracing on line 1 and 4.

\[ l_1 = \sqrt{10^2 + 10^2} = 14.14 \quad \text{Total length} = 2 \times (28.5 + 24) \]

Total length = 2 \times 52 \times 4.5 = 463.50 lbs

Weight = 103 \times 4.5 = 463.50 lbs

Perimeter beam - W8\times8.

Total length = 2 \times 3 \times 16.67 + 2 \times 2 \times 10 = 140

Weight = 140 \times 8 = 2520 lbs

Girts.

Eave Girts on line A & C

\[ C \times 8 \times 11.5 + C \times 6 \times 8.2 \times 11.7 = 197.17 \text{ ft} \]

\[ 2 \times D \times 49 \times \frac{52}{49} = 2049.0 \text{ lbs} \]

Girts on line C = 2 \times 52 \times 11.5 = 1196 lbs

Perimeter angle 3 \times 3 \times 14 = 1 \times 4.9 \times 52 = 255 lbs

Girts on line A

2 - C \times 11.5

2 Girts post - 12 \times \frac{52}{12} = 287.5 lbs

2 Girts post - 7 \times \frac{52}{12} = 165.9 lbs

1 post - 52 \times 4.9 = 620 lbs

Perimeter angle 3 \times 3 \times 14 = 3 \times 4.9 \times 52 = 179.5 lbs

Total weight = 19347.9 lbs
Br from Page 2

Girl angle: 1/4 x 3/4

C 8 x 11.5
Total length = 3 x 11 + 4 x 11 + 2 x 4 = 85 ft

Length for line 1 x 8 1/4 = 2 x 85 = 170
Weight = 11.5 x 170 = 1951 lbs

Perimeter angle: 2 x 22 x 4.9
3 x 3 x 1/4
Add 10% for conn. etc.

216 lbs
2151
23670 lbs
1 x 12 + on.

Sag rod: 5/8" @
Total length = 6 x 10 = 60'

Wt = 60 x 1.043 = 62 lbs.

Calculation of roof:

Area of top standing seam deck = 54 x 24 = 1296 sq ft
Insulation = 53 x 23 = 1219 sq ft
Vapor barrier = 53 x 23 = 1219 sq ft
Bottom leak 22" = 53 x 23 = 1219 sq ft
Perimeter flashing = 2 x 54 + 2 x 24 = 156'
Gutter horizontal = 540
Vertical Drain 4'0" = 2 x 16 = 32'0
Sanding Panel siding

Line A = 16.42 x 53 - 10 x 7.5 - 6.33 x 5.37 = 762 sq

Line C = 16 x 53

Line 1 and 4 = 2 x 23 x 10.25 - 2 (4 x 4) = 716 sq

Total siding area = 2326 sq

Louver 2 x 2 Electrically Operated 2 Nos.

Double leaf Insulated Metal Door and Frame 1 No.

Garage - Roll up Door Insulated 1 No.
1. Clearing and Grubbing

\[ L = 50 + 7 + 4 + 13 + 10 = 84 \]
\[ B = 20 + 4 + 4 + 23 = 55 \]

Area = \( 84 \times 55 = 4264 \text{ sq ft} \)

2. Excavation Line 1 and 4

\[ b = \frac{5.4 + 3.8}{2} = 5 \]
\[ b_L = 24 + 4 - 2 \times 6.5 = 41 \]

Top width = \( 9 + 6.5 + 6.5 = 22 \)

\[ A_1 = 9 \times 22 = 198 \]
\[ A_2 = 41 \times 22 = 902 \text{ sq ft} \]

\[ \text{Vol} = \frac{b}{3 \times 7} \left( A_1 + A_2 + \sqrt{A_1 A_2} \right) \]
\[ = \frac{9.5}{3 \times 7} \left( 198 + 902 + \sqrt{198 \times 902} \right) = 130.86 \]

For line 1 and 4 = \( 2 \times 131 = 262 \text{ cu ft} \)

Bottom width = 7

\[ L = 50 - \left( \frac{5.4 + 3.8}{2} \right) = 35.16 \]
Top width = \( 13 + 7 = 20 \)

\[ \text{Vol for line 4} = 2 \times \left( \frac{20 + 7}{2} \right) \times 6.5 \times 35.16 \frac{1}{2} \]
\[ = 235.04 \text{ cu ft} \]

for slab 10" deep = \( 84 \times \frac{36.16 \times 3}{27} = 9.0 \)

Total volume of excavation = \( 262 + 235 + 9 \)
\[ = 506 \text{ cu yd} \]
Concrete quantity Foundation:

Foundation = \[ \frac{4 \times 4 \times 1.25 \times 6}{27} \] = 4.45 cu yd.

Type C = \[ \frac{2 \times 1.4 \times 1.25 \times 5}{27} \] = 0.482 cu yd.

Wall on top of \( \frac{1}{2} \) C = \[ 2 \left( \frac{1.23 + 8.67}{7} \right) \times \left( \frac{7}{6} - 1.25 \right) \times \frac{1}{2} \] = 5.002 cu yd.

Pier A 1 and A-4 = \[ \frac{2 \times 6.25 \times 2 \times 1}{27} \] = 1.70 cu yd.

Pier B-1, B-4 = \[ \frac{2 \times 1.33 \times 2 \times 6.25}{27} \] = 1.232 cu yd.

Pier C-1, E-4 = \[ \frac{2 \times 2 \times 1.84 \times 6.25}{27} \] = 1.70 cu yd.

Pier C-2,3, A-2,3 = \[ \frac{4 \times 1 \times 2 \times 6.25}{27} \] = 1.852 cu yd.

Wallomit= \[ \frac{(2 \times 1.5 + 2 \times 1.33) + 4 \left( \frac{4-1^2}{4} \right) \times 1 \times 6.25}{27} \] = 4.083

Wall = \[ \left( \frac{6 \times 12.47 \times 7.5 \times 1}{27} - \frac{3.37 \times 5 - 10 \times 1.5 + 1 \times 5 \times 10}{27} \right) \] = \[ \frac{570.15 - 2.285 - 5.0 + 5}{27} \] = 21.012 cu yd.

Total vol of concrete:

Foundation = 47.609 cu yd, 47.7 cu yd.
Form work for foundation concrete.

**Type C:**

\[ 2 \times (5+5+28) \times 1.25 = 95 \text{ ft}^3 \]

**Type B and A:**

\[ 6 \times 16 \times 1.25 = 120 \text{ ft}^3 \]

**Pier A-1, A-4, C-1, C-4**

\[ 4 \times (2 \times 2 + 2 \times 2.5) \times 6.25 = 192 \text{ ft}^3 \]

**Pier A-2, A-3, B-2, B-3**

\[ 4 \times (2 \times 2 + 2 \times 1.33) \times 6.25 = 150 \text{ ft}^3 \]

**Pier B-1, B-4**

\[ 2 \times (2 \times 2 + 2 \times 1.33) \times 6.25 = 83.25 \text{ ft}^3 \]

Form work for wall:

**Line 1**

\[ 2 \times 8.67 \times 6.25 + 2 \times (1.33 + 1.33) \times 6.25 + 6 \times 7.5 \times 2 \]

\[ = 108.875 + 33.25 + 20 = 232.125 \approx 232 \text{ sf} \]

**Line 4**

\[ = 232 \text{ sf} \]

**Line A**

\[ 2 \times 2 \times 1.17 \times 6.25 + 3 \times 2 \times 2 \times 6.25 - 1.47 \times 2 \times 3 \times 7.5 \]

\[ = 12.67 \times 2 \times 3 \times 7.5 \]

\[ = 29.25 + 75 + 870.15 - 8.37 = 969.03 \]

\[ \text{Say 970 sq ft} \]

**Line C**

\[ = 675 \text{ sq ft} \]

**Total Quantity**

\[ = 2217.25 \text{ sq ft} \]

\[ \text{Say 2218.0 sq ft} \]
Concrete for slab = 50.67 x 20.67 x 1.67/27  
= 2.6 yd^3  

Concrete pad = 7.5 x 11.5 x 5 + 12.75 x 7.5 x 5 + 2 x 4.5 x 5  
+ 1.5 x 4 x 5 + 2 x 1 x 5  
= 43.125 + 47.8125 + 4.5 + 3 + 1 = 99.4375  

Concrete in cubic yds = 99.4375/27 = 3.69 yd^3

Additional form work = (23 + 15) x 5 + (25.5 + 15) x 5 + (4.5) x 5  
+ (3 + 5) x 5 + (4 + 2) x 5  
= 19 + 20.25 + 6.5 + 6.5 + 3 = 54.25 yd^3

Concrete Pad on grade:  
1) 6 x 4 x 1.5/27 = 1.45

2) Driveway slab 12 x 8 x 1.5/27 = 2.382
Total = 2.832 yd^3

Summary:
Concrete in foundation = 48.0 cu yd.
Form work = 221.2 + 55 = 2273 sq ft
Concrete slab = 26 + 817 = 29.7 cubic yds.
Outside cone pad = 2.85 yd^3

Reinforcing = 81.0 x 110 = 8910 lbs. ~ 9000.00
Crushed stone Back fill under Slab (10" Thick)

\[ = 50.67 \times 84 \times 20.67 / 27 = 32.58 \approx 33 \text{ cyd.} \]

Vapor Barrier \[ = 50.67 \times 20.67 = 1047.35 \text{ sf} \approx 1050 \text{ sf} \]

Back fill \[ = 506 - 48 - 33 - 3 = 422 \text{ cu yd} \]

Concrete Pipe Bollard 2 req.

6" φ filled with Conc. - 8' long sch 40

Concrete Pole 1'-0 6'-6" dia.

Perimeter rigid Insulation \[ = 3.5 \times 2(51 + 21) = 504 \text{ sf} \]

14 G. Galvanized Metal strip \[ = 144.65 \]

\[ \frac{1}{4} \] "

Embedded Metal plate with stud anchor - 3/8 " PL with 10' nails \[ = 10 \times 2 \times 15.3 = 306 \text{ lbs} \]

1/2 φ-8" long stud anchor - 16 nos. \[ = 8 \text{ lbs} \cdot = 314 \]

Anchor bolts with heavy hexagonal nuts and cosmetic
5/8" φ, - 20 nos, - Length - 1' - 3/2 \[ W = 1.44 \times 20 = 29 \text{ lbs} \]
3/4" φ, - 16 nos, - Length - 1' - 10/2 \[ W = 2.91 \times 16 = 47 \]

Total = 76 lbs.
CURING AREA = 2273 + 50.67\times 20.67 + 6\times 4
\hspace{1cm} + 12\times 8
\hspace{1cm} = 2273 + 1048 + 24 + 96 = 3441.0 \text{ sq ft}

GRouting Under Base PL.

1" thick 10' col. base.

Total area = 104\times 1 \times 10 = 840 \text{ sq ft}

EXPANSION ANCHOR = NO. = \frac{(2\times 52 + 2\times 22)}{2} = 74

PERIMETER FLASHING = 2 \times 53 + 2 \times 23 = 152 \text{ FT}
UNIT PRICE BACK-UP
4" Flexible Hose

'94 Means 016 420 3270 Discharge hose 4" @ $90/month/150' length

\[ 90 \times 12 \text{mwhs/sq ft} \times 929 = \$20.07/\text{ft} \]

3/8" Check Valve

'94 Means 151 960 5720 3/8" Size @ $80.75/EA

\[ 80.75/\text{EA} \times 929 = \$75.20/\text{EA} \]

3" Ball Valve

'94 Means 151975 1300 3" Ball Valve @ $144.00/EA

\[ 144 = \times 929 = \$133.78/\text{EA} \]

3/8" x 1" Reducer

'94 Means 151 454 6560 Use 1-1/4" Reducer @ same cost @ \$217.50

\[ 217.50 \times 929 = \$202.06 \]
2" x 3" PVC Pipe

'94 Means 026 804 0040 2" Primary @ $4.29/lf
'94 Means 026 804 1120 3" Secondary @ $5.19/lf

Total = 7.43 + 30% Specialized Labor $12.26 x 9.29 = $112.26/lf

2" x 3" Elbow

'94 Means 026 804 0040 2" Primary @ $55.50/EA
'94 Means 026 804 1231 3" Secondary @ $70.00/EA

Total = $124.50 + 30% x 9.29 = $161.85/EA

2" x 3" Tee

'94 Means 026 804 0200 2" Primary @ $64.00/EA
'94 Means 026 804 1270 3" Secondary @ $89.50/EA

Total = 153.50 + 30% x 9.29 = 163.50
In general, means heavy construction cost data is used to develop the cost. The costs are adjusted to suit the local condition and the quantity.

A) Structural Steel—

0.51 - 255 - 0010
Page 161. Unit price including overhead and profit = $1375 per ton.

Quantity is small and the plan is quite north it is increased by 10%

Final cost/ton = $1375 x 1.1 = $1513/ton.

B) Sag Rod — 0.51 - 230 - 1300.

Use the same price as shown for 3/4 rod = 2.82/1bs.

C) Standing Seam Metal roof.

Bottom liner 22g, 1/2" thick
Page 163 — 0.53/100 = 2100

Insulation rigid 1/2" - R6.5:
0.72/100 = 0.540

 Vapor barrier $1470/17058

Roof 26 gage.
93 means - 174 074/107/0300

1.89
4.64
From previous page — $4.64
Painting both side — 1.00

5.64.

Because remotely add 10% = 1.1 x 5.64 = 6.20.

According to M.J. Lundy Associate, from telephone inquiry, cost /sft with unionized labor = 9.10

d) Metal Siding

\[
\begin{align*}
V' \text{ beam} & = 229 \quad 2.44 \\
\text{ Insulation} & = 1'2 \times 26.5 \quad 1.71 \\
\text{ Liner} & = 249 \quad 2.36. \\
\end{align*}
\]

Add for dist. 10% etc = 6.5

According to the telephone conversation with M. Lundy of M.J. Lundy Associates, cost of the metal siding = $8.50 sqft.

2) Louver - 4.0 x 4.0.

DOOR - 2 x 7.0 coincide = 600.

Garage Door
081 114 0930
083 732 0100
Vendor quote $2600.00

1275.

2) Flashing - 051/235/3300 — 4.92

Gutter - enamelled — $4.35 / ft (051-235-4501)
Down spout - 4" dia — $2.91 / ft (076-29-4900)
2 Sitework
a) Clearing & Grubbing — 4300 sq ft \( \approx \) 1 acre
   \[ \frac{021}{104} \frac{1010}{\text{acre}} = 2700 \text{ / acre} \]

b) Excavation —
   \[ \frac{022}{254} \frac{0300}{\text{cubic yard}} = \text{cost per cubic yard} = 6.15 \]
   Foot Till add 20% \[ \frac{1.123}{7.38} \]
   Use 200^2 hand use excavate \( \$8.00 \text{ / cyd.} \)

c) Backfill — Backfill and Compaction:
   hauling 200' and dumping — 6.65
   compaction — 1.56
   9'' lift 3 bunch
   \( \frac{022/226/8250}{3020} \)
   \[ \frac{8.21}{\text{Use \$9.00 /cyd.}} \]

d) Crushed stone backfill
   10' deep \[ \frac{022/300}{200} \]
   \[ \frac{8.50}{\text{ / sq yd.}} \]
   \[ \text{use \$9.00} \]

e) Perimeter insulation —
   Polyisocyanate Molded bead board 1'' thick \[ \frac{\$6.2}{\text{ / sq ft}} \]
   \[ \frac{072/109}{\text{Use \$9.00}} \]

f) Vapor Barrier.
   Polyethylene Vapor Barrier 0.08' thick \[ \frac{11.85}{\text{ / sq yd.}} \]
   \[ \frac{071/922/1000}{\text{Use \$12}} \]
3. Concrete:

Cost of Concrete 4000 psi - 55 /cyd.
Transportation - 10 /yd

Placing, Crane & Truck
033 1 72 1 5000
36.50
101.50

Form Work 2 use.
031 1 82 1 20 50
Curing - 3.28 /sf-
Reinforcing - 4.8 + 2.7 + 2.85 = 80.55 /yd.
Average use #0 60 per lbs.

Slab on grade sheet trowel/finished

- 55 + 10 = 65

Placing
033 1 72 1 4400
27
\[
\frac{65}{92}
\]
Steel trowel finish - $72 /sf-

Concrete finish cost - $2.20 /sf
UNIT: PRICE
FROM MEANS - 033/156/0300.

1" Thick nonshrink grout $ 11.10/5ft.

ANCHOR BOLTS

ANCHOR BOLTS

MEANS 031/110/0250

5/8" Ø - 18" Lg $ 6.15

3/4" Ø - 24" Lg $ 8.20

EXPANSION ANCHOR 3/8"

MEANS 050/520/0400 - 464 EA

GUTTER -
0 51
FAXSIMILE COVER SHEET

TO: Mr. Al
FROM: 
RE: 

DATE: 12/7/94

Here are pictures you requested.

829A installed - face mounted steel 2600 sq. approx.

Thank you,
Bob Marschlein