How Estimating Can Impact an Audit

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What an Auditor can Potentially Determine

Cost Plus, changes, or bids

• Costs:
  • Contractually allowable
  • Properly supported
  • Mathematically correct
  • Vetted for duplicates, overcharges, mistakes, etc.

• Duration
  • Was time adjusted
What an Estimator can Potentially Determine

For any given cost component, group or system:

• Quantities - Material
• “Character” of the work
• Productivities
  • Determines Labor Hours
  • Labor Hours then determine crew sizes, supervision, etc.
• Equipment and rentals needed
• Other materials, consumables, etc.
Estimated Costs can then be Calculated

- Durations based on available crew sizes, congestion, calendar, etc.
- Material Costs from known material values multiplied by quantities
- Labor Costs from known labor rates multiplied by Labor Hours
  - (Not necessarily true labor costs)
- Rental Costs from known rentals rates multiplied by Rental hours

- Estimator may use factors for:
  - Escalation
  - GCs, Ins, Fee
  - Geography
## Example of Detailed Estimate Sheet

### Install Piping, Conduit, and Valves

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit</th>
<th>Daily Hours</th>
<th>Duration Days</th>
<th>Total Count</th>
<th>Unit Cost</th>
<th>Sub or Incidental Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labor - Pipe Layer</strong></td>
<td>3.00</td>
<td>EACH</td>
<td>8</td>
<td>9</td>
<td>216</td>
<td>$65.00</td>
<td>$14,040.00</td>
</tr>
<tr>
<td><strong>Labor - Laborer</strong></td>
<td>2.00</td>
<td>EACH</td>
<td>8</td>
<td>9</td>
<td>144</td>
<td>$60.00</td>
<td>$8,640.00</td>
</tr>
<tr>
<td><strong>Labor - Operator</strong></td>
<td>2.00</td>
<td>EACH</td>
<td>8</td>
<td>9</td>
<td>144</td>
<td>$67.50</td>
<td>$9,720.00</td>
</tr>
<tr>
<td><strong>Labor - Crew Leader</strong></td>
<td>1.00</td>
<td>EACH</td>
<td>8</td>
<td>9</td>
<td>72</td>
<td>$75.00</td>
<td>$5,400.00</td>
</tr>
<tr>
<td><strong>Track Hoe - CAT 312 size</strong></td>
<td>1.00</td>
<td>EACH</td>
<td>8</td>
<td>9</td>
<td>72</td>
<td>$100.00</td>
<td>$7,200.00</td>
</tr>
<tr>
<td><strong>Skid Steer Loader - CAT 262 Size</strong></td>
<td>2.00</td>
<td>EACH</td>
<td>8</td>
<td>9</td>
<td>144</td>
<td>$50.00</td>
<td>$7,200.00</td>
</tr>
<tr>
<td><strong>On Road Truck, tandem</strong></td>
<td>1.00</td>
<td>EACH</td>
<td>8</td>
<td>9</td>
<td>72</td>
<td>$85.00</td>
<td></td>
</tr>
<tr>
<td><strong>Stake Body (tool) Truck with small tools</strong></td>
<td>1.00</td>
<td>EACH</td>
<td>1</td>
<td>9</td>
<td>9</td>
<td>$25.00</td>
<td>$225.00</td>
</tr>
<tr>
<td><strong>1&quot; PVC Conduit (power)</strong></td>
<td>70.00</td>
<td>LIN FT</td>
<td>1</td>
<td>1</td>
<td>70</td>
<td>$4.00</td>
<td>$280.00</td>
</tr>
<tr>
<td><strong>1.5&quot; Perf PVC Pipe (leach pipe)</strong></td>
<td>660.00</td>
<td>LIN FT</td>
<td>1</td>
<td>1</td>
<td>660</td>
<td>$6.00</td>
<td>$3,960.00</td>
</tr>
<tr>
<td><strong>1.5&quot; Non Perf PVC Pipe (distribution)</strong></td>
<td>300.00</td>
<td>LIN FT</td>
<td>1</td>
<td>1</td>
<td>300</td>
<td>$6.00</td>
<td>$1,800.00</td>
</tr>
<tr>
<td><strong>4&quot; Non Perf PVC Pipe (connection to 4&quot;FM)</strong></td>
<td>40.00</td>
<td>LIN FT</td>
<td>1</td>
<td>1</td>
<td>40</td>
<td>$8.00</td>
<td>$320.00</td>
</tr>
<tr>
<td><strong>Flow Meter</strong></td>
<td>1.00</td>
<td>EACH</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$1,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td><strong>Distribution Valve</strong></td>
<td>1.00</td>
<td>EACH</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$1,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td><strong>Balancing Valve</strong></td>
<td>1.00</td>
<td>EACH</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$1,000.00</td>
<td>$1,000.00</td>
</tr>
<tr>
<td><strong>Monitoring Well materials</strong></td>
<td>1.00</td>
<td>EACH</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>$400.00</td>
<td>$400.00</td>
</tr>
<tr>
<td><strong>Granular Backfill</strong></td>
<td>520.00</td>
<td>TON</td>
<td>1</td>
<td>1</td>
<td>520</td>
<td>$21.00</td>
<td>$10,920.00</td>
</tr>
<tr>
<td><strong>Non Woven Geotextile</strong></td>
<td>200.00</td>
<td>SQ YD</td>
<td>1</td>
<td>1</td>
<td>200</td>
<td>$6.00</td>
<td>$1,200.00</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$80,425.00</td>
<td>$37,800.00 $14,625.00</td>
</tr>
</tbody>
</table>

### Summary

- **Quantity:** 1,004 LIN FT
- **Unit Cost:** $80.10 per LIN FT

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**Note:** Equipment Hourly Rates include FOG.
Is Estimating the Holy Grail of Auditing?
Limitations of an Estimate in an Audit

• Estimate ≠ Actual Cost
  • Estimate can be a road map, but its only one route intended to provide a magnitude of any given cost or group of costs
• An estimate can help validate what something “SHOULD” cost and how long it should take
  • It can not tell you the ACTUAL cost
• Level of accuracy is dependent on the amount of time spent
• There is no such thing as a perfect estimate
An Estimator’s Role in an Audit

• Quantities are often the most important output
• Productivity and Efficiency are next
  • Labor and lead time duration are the basis of days
• Cost per unit is the easiest thing for someone to validate

• Evaluating Changes and Schedule Modifications

• Validity of changes and claims:
  • Contractors say
    • “I didn’t have it in the budget”
    • “Costs have increased”
    • “Costs seem reasonable”
What does an Estimator Need?

DETAILS!

• From drawings and scope - can figure out quantities and duration
• Detailed cost from contractor – can compare if the basis of the change is reasonable
• Schedule can help understand the resource availability or site constraints

MORE DETAIL = HIGHER PROBABILITY OF ACCURACY
Fluctuating Market

Current material cost escalations could not have been anticipated

Lumber – Past Year

Steel (Rebar) – Past Year

From Trading Economics – Data
Date May 27, 2021
Discussion

• As an auditor, what do you think an estimator can do for you?

• Participant examples of using estimating during an audit

• Struggles with estimating during an audit
Other Questions and Comments?

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