

OPEN BOOK COST ESTIMATING REQUIREMENTS

1. INTRODUCTION

Throughout the Pre-Construction Phase, and as changes demand during the Construction Phase and/or Operation/Maintenance/Monitoring Phase, the CM/GC shall provide estimates of Project cost and/or cost of individual Project elements. The estimates shall be prepared in a transparent, detailed, open book format that allows the DEPARTMENT and their representatives to understand the basis of costs and cost development. The estimates shall be prepared in the Contractor's cost estimating system as is customary use by the Contractor for other projects of similar nature. The estimates are to be developed using current pricing for wage and equipment rates (material pricing will depend on how quoted and the amount of time for which the quote is fixed). Since some estimates will not have the pricing for all material suppliers and subcontractors to enable firm fixed pricing for use in the Lump Sum (LS) Price, there may be limited items of *plug pricing*, which should be noted as such. As the estimates are successively refined, the plug pricing will be replaced by firm prices in using competitively selected subcontractors and materials suppliers. All subcontractor estimates are also subject to the Open Book Estimating requirements. Submitted estimates shall clearly itemize the estimated costs of performing the Construction Work of the items in the mutually agreed schedule of values and also include the Contractor's field indirect items. A summary-level cost is requested for each of the items provided, supported by a detailed cost of each item. The detail shall provide crews with rates of production for each activity within the item of Construction Work. Crews shall clearly show the numbers of equipment and personnel within each activity and work hours for overtime calculations. Estimates of cost for items of Construction Work shall be further divided into the Contractor's customary cost categories such as man-hours, labor, permanent materials, expendable materials, equipment ownership and operation, and subcontract cost, as appropriate. The detail of the Construction Work breakdown may include several activities within a schedule of value line item that shall subtotal to a one-line entry for the summary report. The summary shall include the same cost categories along with the unit cost of the total. Further groupings of similar items of Construction Work can be agreed upon to further facilitate reconciliation of the DEPARTMENT and CM/GC estimates. Costs and price for the project shall be subdivided as follows:

- Total Construction Phase Costs composed of direct costs attributed to item quantities appearing in the plans and field indirect costs
- Total Operations/Monitoring/Maintenance Costs composed of all costs necessary for the operation, monitoring, and maintenance of the system
- Mark-up expressed as a percentage of total Construction Phase costs and total Operations/Monitoring/Maintenance costs as per the contract terms

2. TOTAL CONSTRUCTION COST ELEMENTS

A. *Direct Costs.* Enter the direct costs for performing the Construction Work on the forms provided using the estimated quantities. Direct costs of the items of Construction Work shall not include:

- Any contingencies
- The spread of field indirect costs
- The Contractor's profit and home office overhead (The Department has established a fixed-markup percentage of 12.0 percent for this project).

The items of Construction Work shall include the direct cost of performing the Construction Work only. The schedule of values line items list will be developed in conjunction with the designer and required specifications including measurement and payment are as specified by the standard provisions. This may not be an all-inclusive list of the Construction Work to be done for a section but includes the major items of Construction Work for cost development.

B. *Field Indirect Costs.*

The Contractor's field indirect costs shall be included in the Total Construction Phase Cost. The list below shows a sample breakdown of indirect cost categories that is acceptable. However, it is also acceptable to use the Contractor's own customary indirect template with an explanation of the costs included within each item if the level of detail is similar to that shown below. Field indirect shall include cost for the following:

(1) *Job Supervision and Overhead:* Wages, including benefits, payroll insurance and taxes for onsite management, supervision, engineers, safety personnel, quality control staff, and administration staff

(2) *Survey:* Cost of construction survey including both Contractor-hired and outside services

(3) *Site Office Expense:* Ownership or rental of building, maintenance, removal, utilities, office and engineering expendables, furniture, computers and infrastructure, and photographs

(4) *Insurance and Taxes:* Insurance other than that based on payroll, such as railroad protective, equipment insurance, and other specified or Contractor-required insurances; taxes, excluding payroll taxes such as property tax and any special local or State sales tax, should be included with the applicable item taxed.

(5) *Temporary Buildings:* Cost of ownership or rental, set up, maintenance and removal of such as warehouses, first aid building, and other miscellaneous

(6) *Personnel Expense:* Small tools and supplies (unless carried in the direct cost portion of the estimate), safety expendables, drug screen testing, training, physicals, hiring expense; include any per-diem costs for craft or indirect personnel

(7) *Project Utilities:* Site utilities such as temporary electric, water, and sanitation

(8) *Mobile Equipment*: Overhead vehicles, maintenance equipment and personnel (if not in Equipment Operating Expense), and general service equipment (e.g., flatbeds and forklifts) and personnel if not in the direct cost

(9) *Mobilization*: Cost of transportation of equipment and other items for move in, move out, set up, and take down, including cost of personnel moves and related expense

10) *Construction Plant*: Site fences, parking areas, material yards, temporary access, and other such special construction not included in direct costs; haul road construction and maintenance to be included in direct costs

(11) *Quality Control*: Cost of Quality Control labor, equipment, supplies, outside services, and Contractor-hired personnel and on-site quality supervision

(12) *Bonds*: Cost of payment and performance bond or other guarantees as specified or allowed, if any; also includes cost of subcontract or material bond

C. *Allowable Construction Phase Costs for Direct and Field Indirect Costs*. Definitions of some of the items of direct and field indirect costs are set forth below and shall not be included in the mark-up:

(1) *Labor*: Wages and add-ons, including overtime, vacation pay, and all fringe payments such as health and welfare, pensions, and any other that may be included in union agreement or as paid to both craft and staff employees; payroll insurance including Worker's Compensation and General Liability if based on labor amounts; payroll taxes including Federal Insurance Contributions Act (FICA) and State and Federal unemployment

(2) *Permanent Materials*: Cost of materials incorporated into the Construction Work, including estimated loss, waste, and non-pay overruns; sales tax and any shipping for these materials will be a part of this category

(3) *Construction Expendable Materials*: Non-permanent materials, temporary facilities, small tools, formwork, temporary construction, office supplies, services, insurance, and taxes

(4) *Equipment Ownership*: Rental or ownership charge of both company-owned and outside rentals, and tax on any rentals

(5) *Equipment Operating Expense*: Repair parts, tires and tracks, Contractor's repair labor, services and fuel, and oil and grease

(6) *Subcontract*: Cost of items of Construction Work subcontracted, including contracted trucking

D. *Use of Construction Cost Estimate*. The detailed cost estimate will be the basis of developing estimates during the Pre-Construction Phase and for preparing the LS Price. Total the direct and field indirect costs separately. The same cost estimating model, with the same transparency and

level of detail, shall be used and submitted for cost proposals for Early Works, the LS price proposal, and as construction changes, or additional work warrant for change proposals (Supplemental Agreements) during the Construction Phase.

3. TOTAL OPERATION/MONITORING/MAINTENANCE COST ELEMENTS

A. *Direct Costs.* Enter the direct costs for performing the Operation/Monitoring/Maintenance Work on the forms provided using the estimated quantities. Direct costs of the items of Operation/Monitoring/Maintenance Work shall not include:

- Any contingencies
- The spread of field indirect costs
- The Contractor's profit and home office overhead (The Department has established a fixed-markup percentage of 12.0 percent for this project).

The items of Operation/Monitoring/Maintenance Work shall include the direct cost of performing the Operation/Monitoring/Maintenance Work only. The schedule of values line items list will be developed in conjunction with the designer and required specifications including measurement and payment are as specified by the standard provisions. This may not be an all-inclusive list of the Operation/Monitoring/Maintenance Work to be done for a section but includes the major items of Operation/Monitoring/Maintenance Work for cost development.

B. *Field Indirect Costs.*

The Contractor's field indirect costs shall be included in the Total Operation/Monitoring/Maintenance Phase Cost. The list below shows a sample breakdown of indirect cost categories that is acceptable. However, it is also acceptable to use the Contractor's own customary indirect template with an explanation of the costs included within each item if the level of detail is similar to that shown below. Field indirect shall include cost for the following as necessary:

(1) *Job Supervision and Overhead:* Wages, including benefits, payroll insurance and taxes for onsite management, supervision, engineers, safety personnel, quality control staff, and administration staff

(2) *Site Office Expense:* Ownership or rental of building, maintenance, removal, utilities, office and engineering expendables, furniture, computers and infrastructure, and photographs

(3) *Insurance and Taxes:* Insurance other than that based on payroll, such as railroad protective, equipment insurance, and other specified or Contractor-required insurances; taxes, excluding payroll taxes such as property tax and any special local or State sales tax, should be included with the applicable item taxed.

(4) *Personnel Expense*: Small tools and supplies (unless carried in the direct cost portion of the estimate), safety expendables, drug screen testing, training, physicals, hiring expense; include any per-diem and travel costs for craft or indirect personnel

(5) *Project Utilities*: Site utilities such as temporary electric, water, and sanitation

(6) *Mobile Equipment*: Overhead vehicles, maintenance equipment and personnel (if not in Equipment Operating Expense), and general service equipment (e.g., flatbeds and forklifts) and personnel if not in the direct cost

(7) *Quality Control*: Cost of Quality Control labor, equipment, supplies, outside services, and Contractor-hired personnel and on-site quality supervision

(8) *Bonds*: Cost of payment and performance bond or other guarantees as specified or allowed, if any; also includes cost of subcontract or material bond

C. *Allowable Operation/Monitoring/Maintenance Phase Costs for Direct and Field Indirect Costs*. Definitions of some of the items of direct and field indirect costs are set forth below and shall not be included in the mark-up:

(1) *Labor*: Wages and add-ons, including overtime, vacation pay, and all fringe payments such as health and welfare, pensions, and any other that may be included in union agreement or as paid to both craft and staff employees; payroll insurance including Worker's Compensation and General Liability if based on labor amounts; payroll taxes including Federal Insurance Contributions Act (FICA) and State and Federal unemployment

(2) *Permanent Materials*: Cost of materials incorporated into the Operation/Monitoring/Maintenance Work, including estimated loss, waste, and non-pay overruns; sales tax and any shipping for these materials will be a part of this category

(3) *Operation/Monitoring/Maintenance Expendable Materials*: Non-permanent materials, temporary facilities, small tools, formwork, temporary construction, office supplies, services, insurance, and taxes

(4) *Equipment Ownership*: Rental or ownership charge of both company-owned and outside rentals, and tax on any rentals

(5) *Equipment Operating Expense*: Repair parts, tires and tracks, Contractor's repair labor, services and fuel, and oil and grease

(6) *Subcontract*: Cost of items of Operation/Monitoring/Maintenance Work subcontracted.

D. *Use of Operation/Monitoring/Maintenance Cost Estimate*. The detailed cost estimate will be the basis of developing estimates during the Pre-Construction Phase and for preparing the LS Price on

a monthly pay out basis for a 5-year period. Total the direct and field indirect costs separately. The same cost estimating model, with the same transparency and level of detail, shall be used and submitted for this cost proposals.

4. MARK-UP and LS Price

The Contractor shall use the mark-up established in the contract at 12 percent of the Total Construction Phase Cost and Total Operation/Monitoring/Maintenance Phase Cost. The Fixed Mark-up Percentage will include the Contractor's profit and the portion of home office overhead (G&A) allocated to the project. The Fixed Mark-up Percentage defined in the contract will be used in the preliminary and final LS Price Proposal. The profit component of the mark-up excludes any agreed upon bonuses and incentives as part of Phase 2 or Phase 3 work. Home office overhead (G&A) is defined as all auditable costs that are allocated to all of the Contractor's ongoing projects, such as off-site supervision and travel expenses for off-site supervisors, attorney and counsel fees, and insurance that is maintained by the Contractor as a general cost of doing business. The fixed mark-up does not include any field indirect costs or direct costs of the Project. The mark-up percentage shall be applied to the total Construction Phase Cost, the Operation/Monitoring/Maintenance Phase and the result shall be the LS Price Proposal. The mark-up percentage shall also be applied to any change proposals (Supplemental Agreements) during the Construction Phase.

5. NARRATIVE

Along with the estimate reports, provide a summary narrative of the estimate. Include a discussion of how specific items were developed in the estimate, such as, but not limited to, fuel pricing, material sources, labor rates, any craft labor agreements, and availability of skilled craftsman. Discuss approach to equipment availability and rental rates, including any equipment adjustments to hourly equipment rates used in the estimate based on schedule usage of equipment versus length of time equipment will be on the job, or if a buy-sell basis of ownership costs is applicable to the Project. Discuss which material and subcontract pricing is firm, which uses plug prices, and the expected variability of such pricing. Discuss temporary construction required such as haul roads, detours, temporary bridges and access, any retained earth, and borrow or waste pit development, temporary shoring, bridge access and material transport within the bridge. Discuss approach to schedule, including hours of Work, double or triple shifts, weather and season considerations, and the general duration of the estimated Work.