

## CTC Information:

- ☑ This Construction Task Catalog® was developed and customized by The Gordian Group, Inc. specifically for **New Jersey Department of Transportation**, priced locally using current labor, material and equipment costs, and published in July 2018.
- ☑ The Gordian Group, Inc. licenses the use of this CTC and other proprietary information and software for the sole purpose of providing Job Order Contracting services to **New Jersey Department of Transportation**. Use of The Gordian Group's CTC and other proprietary information and software for any other purpose or any other entity is expressly prohibited without the express written consent of The Gordian Group, Inc.

## MasterFormat™

- ☑ The tasks in this Construction Task Catalog are organized using CSI's *MasterFormat*.



## The Unit Prices Include:

### LABOR COSTS:

- ☑ Labor costs include unloading equipment, materials, and tools, and transporting the same 125' to reach the project site; layout; measuring and cutting to fit; performing the task; disposal of excess material; and time for lunch and breaks.
- ☑ Labor costs include direct labor through the working foreperson level at straight-time prevailing wage rates including fringe benefits and an allowance for Social Security and Medicare taxes, worker's

compensation, unemployment insurance and employee benefits.

- ☑ Labor costs are based on workers familiar with and skilled in the performance of the task following OSHA requirements.

### EQUIPMENT COSTS:

- ☑ Equipment costs include all equipment required to accomplish the task. Mobilization is included for all equipment except large equipment (e.g. cranes, pile drivers, bulldozers, excavators, backhoes, bobcats etc.), which exclude mobilization.
- ☑ Equipment costs include all operating expenses such as fuel, electricity, lubricants, etc.

### MATERIAL COSTS:

- ☑ Material costs include the cost of the material, delivery, and all incidentals and accessories integral to the installation.
- ☑ Material costs include manufacturer's and/or fabricator's shop drawings.
- ☑ Material costs for concrete, sealants, compression seals, steel, etc. include an allowance for waste. This list is not intended to be all inclusive, but descriptive of the types of construction materials that are typically sold in standard lengths, sizes and weights.
- ☑ Material costs exclude on-site visits by a manufacturer's representative.

## Complete and In-Place Construction:

- ☑ Unit prices are for complete and in-place construction and include all labor, equipment and material required to complete the task as described in the CTC.
- ☑ If the Contractor uses a crane or other lifting equipment (except a truck mounted boom lift or other equipment as part of the delivery process) to

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lift material onto a roof, even if that roof is less than 2 ½ stories, the contractor will be paid for such crane or lifting equipment as a separate task.

- ☑ Unit prices for imported materials (e.g. aggregate, sand, soil, etc.) include delivery up to 15 miles from the closest approved source.
- ☑ Unit prices include all fasteners such as anchor bolts, lag bolts, screws, adhesive, wedge anchors, expansion bolts, that are required.
- ☑ Unit prices exclude more substantial mounting material such as threaded rod or angle iron unless the task description states otherwise.
- ☑ Unit prices include testing, calibration, balancing and the like required to ensure proper installation, construction and performance (e.g. compaction test for backfill,

- ☑ The descriptions "remove and relocate" or "remove and reinstall" includes the removal, cleaning of item and installation of the existing item in either the same location or another location.
- ☑ The description "reinstall" includes the cleaning and installation of the existing item.
- ☑ Salvageable materials remain the property of the Owner and shall be turned over as directed when specified in the Job Order.

**Demolition:**

- ☑ Unit prices for demolition include all labor, equipment and material required for the complete removal of the items; clean-up of the area; and transporting the demolished items up or down 2 ½ stories into a truck, dumpster, or to an owner designated area, located within 125' of the project site.
- ☑ Unit prices for demolition exclude costs for hauling (See 01741900), dump fees (See 01741900), dumpsters (See 01741900), and trash chutes (See 01741900).
- ☑ If the item being demolished is attached to another item being removed and can be removed as one item, then that item shall not be priced as a separate demolition task, unless the component alone must be demolished to accomplish the task (e.g. demolition of concrete curb includes embedded steel facing, etc.).
- ☑ The description "replace" includes the demolition of the existing item and the installation of the new item.

**The Adjustment Factors Include:**

**BUSINESS COSTS:**

- ☑ Overhead costs, including, unless specifically excluded in the Contract Documents, but not limited to;
  - home office overhead
  - insurance, bonds, and indemnification
  - project meetings, training, management and supervision
  - mobilization and close-out for the contract and each Job Order and
  - project office staff and equipment.
- ☑ Profit.
- ☑ Subcontractor's overhead and profit.
- ☑ All taxes for which a waiver is not available including material sales tax and equipment rental.
- ☑ Employee or Subcontractor's wage rates that exceed the prevailing wage rates.
- ☑ Fringe benefits, payroll taxes, worker's compensation, insurance costs and any other payment mandated by law in connection with labor that exceeds the labor rate allowances.
- ☑ Cost of financing the work.
- ☑ Business risks such as the risk of a lower than expected volume of work, smaller than anticipated Job Orders, poor Subcontractor performance, and inflation or material cost fluctuations.

## CONSTRUCTION RELATED COSTS:

- Services required to obtain filings and permits.
- Preparation and modification of proposals, sketches, drawings, submittals, as-built drawings, CADD drawings, microfilm, and other project records.
- Office trailer and portable toilets for Contractor's use.
- Construction vehicles such as pick-up trucks, utility trucks, vans, flat bed trucks, tractors, trailers, etc.
- Storage devices or items such as gang boxes and containers for Contractor's tools, equipment and materials.
- Personnel safety equipment (e.g., hard hats, safety harnesses with lifeline or cabling, protective clothing, safety glasses, face shields, etc.).
- Meeting Owner security requirements.
- Excess waste including concrete, sealants, compression seals, steel, etc. This list is not intended to be all inclusive, but descriptive of the types of construction materials that are typically sold in standard lengths, sizes and weights.
- Daily clean-up.
- Final project clean-up.
- Costs resulting from inadequate supply of building materials, fuel, electricity, or skilled labor.
- Costs resulting from productivity loss.
- Working in extreme temperatures (below or above normal) or adverse conditions such as excessive rain, wind, sleet or snow.
- Differences in project size; complexity and location.
- All costs for other than discreet items of work specifically required to complete a particular Job Order.

## PRICE VARIATIONS:

- Contractors may find differences in labor, equipment and material costs due to certain

economic factors. Variations in labor cost can also result from labor efficiency, labor restrictions, working conditions and local work rules. Variations in material costs can also result from the quantity of material purchased, the existing relationship with suppliers, and because the materials have been discontinued or have become obsolete.

- While diligent effort is made to provide accurate and reliable up-to-date pricing, it is the responsibility of the Contractor to review and analyze the unit prices, and to calculate their Adjustment Factors accordingly, prior to bidding.

## GENERAL COSTS:

- This list is not exhaustive and is intended to provide general examples of cost items to be included in the Contractor's Adjustment Factor as defined in the Contract.

- The only compensation to be paid to a Contractor for the unit price tasks will be:

<b>Published Unit Price</b>	<b>X</b>	<b>Installation (or Demolition) Quantity</b>	<b>X</b>	<b>Appropriate Adjustment Factor</b>
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- No additional payments of any kind whatsoever will be made. All costs not included in the unit prices must be part of the Adjustment Factors.

## General Interpretations:

### FIELD ENGINEERING:

- Surveying tasks shall be used only when the Owner requests the Contractor to perform topographic surveys, property line surveys or to establish horizontal and vertical controls. If the Owner provides horizontal and vertical control points within or adjacent to the project site, any other surveying required to complete the work is considered construction staking or layout and the cost thereof is included in the appropriate task.

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### ASSEMBLIES:

- Assembly unit prices take precedence over individual component pricing.

### TESTING:

- Contractor will be paid for testing existing material, as required by the technical specifications and as directed by the Owner (record tests) at the unit price for the appropriate task. The cost of process quality control testing routinely performed by the Contractor is included in the unit prices for the individual tasks.

### MISCELLANEOUS:

- For the purpose of calculating the quantity of a task, quantities are calculated on a per project basis. The quantity so determined shall be used for the task and all appropriate modifiers, unless the task states otherwise.
- Whenever there are alternative tasks that may be selected to complete work the Contractor shall select the most practical and economical tasks available (e.g. rental of equipment by weeks or months rather than days or painting by roller or spray rather than brush).
- Restricted Working Space is defined as any area with less than 3' vertical or horizontal clearance and includes areas such as crawl spaces, ceiling plenums where the grid is not removed, narrow piping tunnels, and equipment rooms where the space to install the new work is congested as a result of equipment and piping placement that meet these dimensional restrictions. A Restricted Working Space modifier is available for certain mechanical piping and piping accessories tasks and for certain electrical conduit and conduit accessories tasks. Only those tasks with a modifier for Restricted Working Space are eligible for a price adjustment, and then only if the modifier applies to the contemplated tasks. A non pre-priced task will not be allowed because of Restricted Working Space for any CTC task.

- Confined Working Space is defined according to the OSHA definition 29 CFR 1926.21(b)(6)(i): "Any space having limited means of egress, which is subject to accumulation of toxic or flammable contaminants or has an oxygen deficient atmosphere, including, but not limited to, storage tanks, process vessels, bins, boilers, ventilation and exhaust duct, sewers, underground vaults, tunnels, pipelines and open top spaces more than 4 feet in depth such as pits and tubs." The Contractor shall conform to all OSHA and Owner requirements for working in Confined Working Spaces. Required ventilation and air monitoring equipment tasks shall be priced from the CTC.

- Whenever a material, article or piece of equipment is identified in the CTC or in the specifications by reference to manufacturers' or vendors' names, trade names, catalogue numbers, or make, the identification is intended to establish a standard. Any material, article or equipment of another manufacturer or vendor which performs satisfactorily the duties imposed by the general design may be considered equally acceptable provided that, in the opinion of the Owner, the material, article or equipment so proposed is of equal quality, substance and function. The Contractor shall not provide, furnish or install any proposed material, article or equipment without the prior written approval of the Owner. The burden of proof and all costs related thereto concerning the "or equal" nature of the substitute item, whether approved or disapproved, shall be borne by the Contractor.

### SPECIFICATIONS:

- Specifications for tasks shall be interpreted as follows: All labor, material, equipment, spare parts, services, and work required by a specification shall be considered part of the unit price, unless the task description or technical specifications state otherwise.

**Useful Information:**

**UNIT OF MEASURE DEFINITIONS:**

**ACR** – Acre, **BAG** – Bag, **BBL** – Barrel, **BCY** - Bank (In-place) Cubic Yards, **BF** - Board Foot, **BOX** - Box (each), **BTU** - British Thermal Unit, **C** - One Hundred, **CCF** - One Hundred Cubic Feet, **CCY** - Compacted Cubic Yards, **CF** - Cubic Foot, **CFM** - Cubic Feet Per Minute, **CI** – Cubic Inch, **CLF** - One Hundred Linear Feet, **CSF** - One Hundred Square Feet, **CSY** - Hundred Square Yards, **CWT** - Hundred Weight, **CY** - Cubic Yard, **CYM** - Cubic Yard Mile, **DAY** – Day, **DRM** - Drum (each), **EA** – Each, **FLR** - Floor (Per Floor), **FT** – Foot, **GAL** – Gallon, **GSF** - Ground Square Foot, **HR** – Hour, **HWT** - Hundred Carton Weight, **HYR** – Half Year, **IN** – Inch, **JOB** – Job, **LAN** – Lane, **LB** – Pound, **LCY** - Loose (Excavated) Cubic Yards, **LF** - Linear Foot, **LFD** - Linear Feet Per Day, **LIT** – Liter, **LOT** – Lot, **MBF** - One Thousand Board Feet, **MBH** - One Thousand British Thermal Units, **MCF** – One Thousand Cubic Feet, **MF3** - One Thousand Cubic Feet Per Minute, **MGL** – One Thousand Gallons, **MI** – Mile, **MLF** - One Thousand Linear Feet, **MO** – Month, **MSF** - One Thousand Square Feet, **MSY** - One Thousand Square Yards, **MT** – Metric Ton, **MTK** – Metric Ton Kilometer, **M2** – Square Meter, **M3K** – Cubic Meter Kilometer, **NTE** – Note, **OPN** – Opening, **OUT** - Outlet or Output (each), **OZ** – Ounce, **PKG** – Package, **PNT** – Point, **PR** – Pair, **QT** – Quart, **ROL** - Roll (each), **ROM** – Room, **ROW** – Row, **RSR** - Riser (Per Rise), **SEA** – Seat, **SET** – Set, **SF** - Square Foot, **SHT** – Sheet, **SI** - Square Inch, **STP** - Stop (each), **SQ** - Square or One Hundred Square Feet, **SY** - Square Yard, **SYI** – Inches per Square Yard, **TNM** - Tons per Mile, **TON** – Ton, **TRK** – Truck Load, **UI** - United Inch, **UNT** – Unit, **VLf** - Vertical Linear Foot, **WK** – Week, **YD** – Yard, **YR** – Year

**MATERIAL WEIGHTS:**

**EARTHEN MATERIAL**

- The following engineering values for establishing shrink/swell factors shall be used unless otherwise directed by the Owner.

Material	Material Weight (Lbs Per CY)		
	In-place (Bank)	Loose (Excavated Materials)	Compacted
Earth, Common (Average)	3170	2536	3520
Sand	2880	2590	3240
Earth, Rock Mix. (75% E/ 25% R)	3380	2370	3720
Earth, Rock Mix. (50% E/50% R)	3750	2710	4000
Earth, Rock Mix. (25% E/ 75% R)	4120	3140	3680
Gravel (Average)	3280	2730	3570
Limestone	4380	2690	3220
Riprap Rock (Average)	4500	2610	3150
Granite	4540	2640	3170
Basalt	4950	3020	3640
Clay	3220	2150	3570
Gneiss	4550	2720	3180

**BULK FACTORS FOR DEMOLITION:**

- The following bulk factors shall be used to calculate the volume of demolished material to be transported from the project site.
  - **Asphalt** = 1.25
  - **Concrete** = 1.40

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CONVERSIONS:

**1 Acre** = 43,560 Square Feet = 4046.8 Square Meters

**1 Board Foot** = 12" x 12" x 1" = 144 Cubic Inches

**1 Centimeter** = 0.3937 Inches = 0.0328 Feet

**1 Cubic Foot** = 0.03704 Cubic Yards = 0.02832 Cubic Meters

**1 Cubic Meter** = 1.3080 Cubic Yards = 35.3147 Cubic Feet

**1 Cubic Yard** = 27 Cubic Feet = 0.7646 Cubic Meters

**1 Foot** = 12 Inches = 0.3048 Meters

**1 Inch** = 2.54 Centimeters = 0.0254 Meters

**1 Kilogram** = 2.2046 Pounds

**1 Kilometer** = 0.6214 Miles = 3280 Feet

**1 Meter** = 100 Centimeters = 3.2808 Feet

**1 Mile** = 5280 Feet = 1.6093 Kilometers

**1 Pound** = 0.4536 Kilograms

**1 Square Foot** = 144 Square Inches = .0929 Square Meters

**1 Square Meter** = 1.1960 Square Yards = 10.7639 Square Feet

**1 Square Yard** = 9 Square Feet = 0.8361 Square Meters

**1 Ton** = 2000 Pounds = 907.185 Kilograms

**1 Yard** = 3 Feet = 0.9144 Meters

Sheet Metal Thickness (inches)				
Gage No.	Steel Sheet	Galvanized Steel Sheet	Stainless Steel Sheet	Aluminum Sheet
10	.135	.138	.141	
11	.120	.123	.125	
12	.105	.108	.109	
13	.090	.093	.094	.072
14	.075	.079	.078	.064
15	.067	.071	.070	.057
16	.060	.064	.063	.051
17	.054	.058	.056	.045
18	.048	.052	.050	.040
19	.042	.046	.044	.036
20	.036	.040	.038	.032
21	.033	.037	.034	.028
22	.030	.034	.031	.025
23	.027	.031	.028	.023
24	.024	.028	.025	.020
25	.021	.025	.022	.018
26	.018	.022	.019	.017

STANDARD GEOMETRY:

**Circle**

- Circumference = 2 π radius = π diameter
- Area = π radius<sup>2</sup> = π (diameter<sup>2</sup> / 4)

**Cylinder**

- Volume = (π radius<sup>2</sup>)height
- Surface Area = 2 π radius<sup>2</sup>+(2 π radius)height

**Sphere**

- Volume = (4 π radius<sup>3</sup>) / 3
- Surface Area = 4 π radius<sup>2</sup>

**π = 3.14159**

## TRADEMARKS

- ☑ Gordian JOC Solution, JOC Complete Solution, JOC Complete Solution Plus, PROGEN, eGordian, ezIQC, Construction Task Catalog, Catalog of Construction Tasks, DMAP, The Standard for Job Order Contracting and 6 Phase Development and Implementation Process are either registered trademarks or trademarks of The Gordian Group, Inc. The names of actual companies and products mentioned herein may be the trademarks of their respective owners