

Every Day Counts - Case Study 5

Project name	Prefabricated Alt. CS 5 Fla.
Labor rate table	Labor 2011
Equipment rate table	Equip 2011
Notes	<ol style="list-style-type: none"> 1. Pricing is 2011 \$. 2. Construction Schedule of 30 mos. 3. Rates reflect majority of work performed on and over water and prefabricated. 4. 2 Bridges. 5. Labor Cost/Unit - This reflects the cost of Labor to put one unit of measure of work in place. This is comprised of a typical crew with associated productivity required to perform the activity. Labor is priced up to include base rate, fringes, taxes, insurance, etc. 6. Material Cost/Unit - This cost represents the final installed cost for all the materials associated with the item of work. 7. Sub Contract Cost/Unit - this represents the Sub Contract all in Cost to put one unit of work in place. This cost includes all costs necessary to reflect a total installed cost (incls. Labor, equipment and material). 8. Equipment Cost/Unit - This represents the cost of Construction Equipment necessary to put one unit of work in place. This cost includes equipment ownership and maintenance and operational costs. 9. Other Cost/Unit - This cost represents all other costs necessary to perform the item of work and not covered by the abovementioned costs. 10. Total cost/unit - This is the summation of all unit costs to arrive at a total cost per unit to put one one item of work in place. 11. Total Amount - Total cost to put the quantity of units specified in place.
Report format	Sorted by 'LOCATION/Pay Item/Group phase/Phase' 'Detail' summary Allocate addons Print sort level notes

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
Additional Cost Additional Cost									
110-3 Structure Removal of Existing									
<i>01-54-26.00 Marine Equipment</i>									
<i>01-54-33.80 Marine equipment</i>									
Marine equipment rental;barge,400 ton,30'wide x 90'long	300.00 day	1,942.26	-	-	870.28	-	2,812.54	843,762	
Marine equipment rental;tugboat,diesel,250 HP	150.00 day	1,294.84	-	-	746.16	-	2,041.00	306,150	
<i>Marine equipment</i>								1,149,912	
<i>Marine Equipment</i>								1,149,912	
<i>02-41-16.00 Structure Demolition</i>									
<i>02-41-16.33 Bridge Demolition</i>									
Bridge demolition	187,950.00 sf	15.31	-	-	9.18	-	24.49	4,603,666	
<i>Bridge Demolition</i>								4,603,666	
<i>Structure Demolition</i>								4,603,666	
110-3 Structure Removal of Existing								5,753,578	
* unassigned *									
<i>35-59-00.00 Marine Specialties</i>									
<i>35-59-33.50 Jetties, Dock Accessories</i>									
Fender System and Navigational Lights	1.00 ls			-	-	1,793,657.25	1,793,657.25	1,793,657	
<i>Jetties, Dock Accessories</i>								1,793,657	
<i>Marine Specialties</i>								1,793,657	
* unassigned *								1,793,657	
Additional Cost								7,547,235	
Additional Cost									
Approach Slab Approach Slab									
400-2-10 Concrete Class II									
<i>03-30-00.00 Cast-In-Place Concrete</i>									
<i>03-30-53.40 Concrete In Place</i>									
Approach Slab	131.30 cy	142.65	173.39	-	20.87	-	336.90	44,234	
Approach Slab	131.30 cy	142.65	173.39	-	20.87	-	336.90	44,234	
<i>Concrete In Place</i>								88,469	
<i>Cast-In-Place Concrete</i>								88,469	
400-2-10 Concrete Class II								88,469	
415-1-9 Reinforcing Steel									
<i>03-21-05.00 Reinforcing Steel Accessories</i>									
<i>03-21-10.60 Reinforcing In Place</i>									
Reinforcing Steel Approach Slabs	26,916.00 lb	0.37	0.06	-	0.08	-	0.51	13,611	
Reinforcing Steel Approach Slabs	26,916.00 lb	0.37	0.06	-	0.08	-	0.51	13,611	
<i>Reinforcing In Place</i>								27,222	
<i>Reinforcing Steel</i>								27,222	
<i>Accessories</i>									
415-1-9 Reinforcing Steel								27,222	

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
								115,691	
Approach Slab									
Approach Slab									
General Conditions General Conditions									
* unassigned *									
01-31-00.00 Project Management And Coordination									
01-31-13.20 Field Personnel									
Field Personnel, clerk, average	107.00 week	717.46	-	-	-	-	717.46	76,769	
Field engineer	520.00 week	2,032.81	-	-	-	-	2,032.81	1,057,062	
Field Personnel, general purpose laborer, average	215.00 week	1,434.93	-	-	-	-	1,434.93	308,509	
Field Personnel, project manager	130.00 week	2,989.43	-	-	-	-	2,989.43	388,626	
Field Personnel, superintendent	256.00 week	2,032.81	-	-	-	-	2,032.81	520,400	
Field Personnel, timekeeper, average	107.00 week	1,201.75	-	-	-	-	1,201.75	128,587	
								<u>2,479,952</u>	
								2,479,952	
01-32-33.00 Photographic Documentation									
01-32-33.50 Photographs									
Construction Photographs	129.00 set	-	567.99	-	-	-	567.99	73,271	
								<u>73,271</u>	
								73,271	
01-45-00.00 Quality Control									
01-45-23.50 Testing									
Field Testing	1.00 prjc	-	-	-	-	298,942.87	298,942.87	298,943	
								<u>298,943</u>	
								298,943	
01-52-13.00 Field Offices And Sheds									
01-52-13.20 Office And Storage Space									
Office Trailer, furnished, rent per month, 32' x 8', excl. hookups	60.00 ea	-	288.18	-	-	-	288.18	17,291	
Storage Boxes, rent per month, 20' x 8'	120.00 ea	-	87.89	-	-	-	87.89	10,547	
								<u>27,838</u>	
01-52-13.40 Field Office Expense									
Field Office Expense, office equipment rental, average	60.00 mo	-	179.37	-	-	-	179.37	10,762	
Field Office Expense, office supplies, average	60.00 mo	-	113.60	-	-	-	113.60	6,816	
Field Office Expense, telephone bill; avg. bill/month, incl. long dist.	60.00 mo	-	251.11	-	-	-	251.11	15,067	
Field Office Expense, field office lights & HVAC	60.00 mo	-	131.54	-	-	-	131.54	7,892	

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
Field Office Expense								40,537	
Field Offices And Sheds								68,374	
01-54-09.00 Protection Equipment									
01-54-09.60 Safety Nets									
Safety Nets	300,000.00 sf	-	1.38	-	-	-	1.38	412,541	
Safety Nets								412,541	
Protection Equipment								412,541	
01-54-26.00 Marine Equipment									
01-54-33.80 Marine equipment									
Marine equipment	320.00 day	1,942.26	-	-	870.28	-	2,812.54	900,013	
rental;barge,400 ton,30'wide x 90'long									
Marine equipment	320.00 day	1,942.26	-	-	870.28	-	2,812.54	900,013	
rental;barge,400 ton,30'wide x 90'long									
Marine equipment	320.00 day		-	-	870.28	-	870.28	278,490	
rental;barge,400 ton,30'wide x 90'long									
Marine equipment	320.00 day		-	-	870.28	-	870.28	278,490	
rental;barge,400 ton,30'wide x 90'long									
Marine equipment	320.00 day	1,294.84	-	-	746.16	-	2,041.00	653,120	
rental;tugboat,diesel,250 HP									
Marine equipment	320.00 day	1,294.84	-	-	746.16	-	2,041.00	653,120	
rental;tugboat,diesel,250 HP									
Marine equipment								3,663,247	
Marine Equipment								3,663,247	
01-56-26.00 Temporary Fencing									
01-56-26.50 Temporary Fencing									
Temporary Fencing, chain link, 6' high, 11 ga	1,000.00 lf	3.17	8.37	-	-	-	11.54	11,539	
Temporary Fencing								11,539	
Temporary Fencing								11,539	
01-58-00.00 Project Identification									
01-58-13.50 Signs									
Project Signs	400.00 sf	-	21.40	-	-	-	21.40	8,562	
Signs								8,562	
Project Identification								8,562	
01-71-23.00 Field Engineering									
01-71-23.13 Construction Layout									
Survey Crew	320.00 day	1,898.45	-	-	90.63	-	1,989.08	636,506	
Construction Layout								636,506	
Field Engineering								636,506	
* unassigned *								7,652,935	
General Conditions								7,652,935	
General Conditions									

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
400-4-5 Concrete Class IV (Substructure)									
<i>03-30-00.00 Cast-In-Place Concrete</i>									
<i>03-30-53.40 Concrete In Place</i>									
Concrete Class IV	133.50 cy	285.29	197.30	-	41.73	-	524.32	69,997	
Concrete Class IV	133.50 cy	285.29	197.30	-	41.73	-	524.32	69,997	
<i>Concrete In Place</i>								139,994	
<i>Cast-In-Place Concrete</i>								139,994	
400-4-5 Concrete Class IV (Substructure)								139,994	
415-1-5 Reinforcing Steel Substructure									
<i>03-21-05.00 Reinforcing Steel Accessories</i>									
<i>03-21-10.60 Reinforcing In Place</i>									
Reinforcing Steel	18,023.00 lb	0.49	0.50	-	0.11	-	1.09	19,659	
Reinforcing Steel	18,023.00 lb	0.49	0.50	-	0.11	-	1.09	19,659	
<i>Reinforcing In Place</i>								39,318	
<i>Reinforcing Steel</i>								39,318	
<i>Accessories</i>									
415-1-5 Reinforcing Steel Substructure								39,318	
455-143-5 Test Piles									
<i>31-62-00.00 Driven Piles</i>									
<i>31-62-13.23 Prestressed Concrete Piles</i>									
Prestressed concrete piles, 24" square, Test Pile	181.00 vlf	29.69	65.77	-	18.54	-	114.00	20,634	
Prestressed concrete piles, 24" square, Test Pile	181.00 vlf	29.69	65.77	-	18.54	-	114.00	20,634	
<i>Prestressed Concrete Piles</i>								41,268	
<i>Driven Piles</i>								41,268	
455-143-5 Test Piles								41,268	
455-34-5 Concrete Piling Prestressed									
<i>31-62-00.00 Driven Piles</i>									
<i>31-62-13.23 Prestressed Concrete Piles</i>									
Prestressed concrete piles, 24" square,	1,034.00 vlf	10.80	65.77	-	6.74	-	83.31	86,138	
Prestressed concrete piles, 24" square,	1,034.00 vlf	10.80	65.77	-	6.74	-	83.31	86,138	
<i>Prestressed Concrete Piles</i>								172,277	
<i>Driven Piles</i>								172,277	
455-34-5 Concrete Piling Prestressed								172,277	
Substructure-End								392,856	
Substructure-End									
Bents									
Substructure-Piers Substructure-Piers									
400-3-20 Concrete Class III (Seal)									
<i>03-30-00.00 Cast-In-Place Concrete</i>									
<i>03-30-53.40 Concrete In Place</i>									
Concrete Class III (Seal)	798.00 cy	309.15	197.30	-	41.73	-	548.18	437,447	
Concrete Class III (Seal)	798.00 cy	309.15	197.30	-	41.73	-	548.18	437,447	

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
Concrete In Place								874,894	
Cast-In-Place Concrete								874,894	
400-3-20 Concrete Class III (Seal)								874,894	
400-4-5 Concrete Class IV (Substructure)									
03-30-00.00 Cast-In-Place Concrete									
03-30-53.40 Concrete In Place									
Mass Concrete Class IV (Substructure)	7,713.10 cy	176.66	179.37	-	23.85	-	379.87	2,929,951	
Mass Concrete Class IV (Substructure)	7,713.10 cy	176.66	179.37	-	23.85	-	379.87	2,929,951	
Concrete Class IV (Substructure) CIP Column Concrete	91.60 cy	412.20	203.28	-	55.64	-	671.12	61,474	
Concrete Class IV (Substructure) CIP Column Concrete	91.60 cy	412.20	203.28	-	55.64	-	671.12	61,474	
CIP Column Cap	0.00 cy	0.00	0.00	-	0.00	-	0.00	0	
CIP Column Cap	0.00 cy	0.00	0.00	-	0.00	-	0.00	0	
CIP Column Cap Girder Seats	68.10 cy	494.64	358.73	-	66.77	-	920.14	62,661	
CIP Column Cap Girder Seats	68.10 cy	494.64	358.73	-	66.77	-	920.14	62,661	
Concrete In Place								6,108,172	
Cast-In-Place Concrete								6,108,172	
03-41-36.00 Precast Structural Post-Tensioned Concrete									
03-41-36.50 Post-Tensioned Jobs									
Precast Column Cap	1,267.00 cy	180.32	938.68	-	61.99	-	1,180.98	1,496,307	Labor, Material and Equipment costs represent the cost of purchasing, delivering to site, loading pieces onto barge and erecting precast pieces utilizing a crane from a marine working environment (working off barges). These costs reflect productivity associated with this type of construction and include increased insurance cost for marine work vs. construction on land. Costs for tug and barges to support these activities are contained in the General Conditions.
Precast Column Concrete	647.80 cy	180.32	938.68	-	61.99	-	1,180.98	765,041	Labor, Material and Equipment costs represent the cost of purchasing, delivering to site, loading pieces onto barge and erecting precast pieces utilizing a crane from a marine working environment (working off barges). These costs reflect productivity associated with this type of construction and include increased insurance cost for marine work vs. construction on land. Costs for tug and barges to support these activities are contained in the General Conditions.
Precast Column Cap	1,267.00 cy	180.32	938.68	-	61.99	-	1,180.98	1,496,307	Labor, Material and Equipment costs represent the cost of purchasing, delivering

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
<i>03-41-36.50 Post-Tensioned Jobs</i>									
Precast Column Cap	1,267.00 cy	180.32	938.68	-	61.99	-	1,180.98	1,496,307	to site, loading pieces onto barge and erecting precast pieces utilizing a crane from a marine working environment (working off barges). These costs reflect productivity associated with this type of construction and include increased insurance cost for marine work vs. construction on land. Costs for tug and barges to support these activities are contained in the General Conditions.
Precast Column Concrete	647.80 cy	180.32	938.68	-	61.99	-	1,180.98	765,041	Labor, Material and Equipment costs represent the cost of purchasing, delivering to site, loading pieces onto barge and erecting precast pieces utilizing a crane from a marine working environment (working off barges). These costs reflect productivity associated with this type of construction and include increased insurance cost for marine work vs. construction on land. Costs for tug and barges to support these activities are contained in the General Conditions.
								4,522,696	
<i>Post-Tensioned Jobs</i>								4,522,696	
<i>Precast Structural</i>								4,522,696	
<i>Post-Tensioned Concrete</i>									
400-4-5 Concrete Class IV (Substructure)								10,630,869	
415-1-5 Reinforcing Steel Substructure									
<i>03-21-05.00 Reinforcing Steel Accessories</i>									
<i>03-21-10.60 Reinforcing In Place</i>									
Reinforcing Steel	1,567,094.00 lb	0.53	0.50	-	0.11	-	1.13	1,773,128	
Reinforcing Steel	1,567,094.00 lb	0.53	0.50	-	0.11	-	1.13	1,773,128	
<i>Reinforcing In Place</i>								3,546,255	
<i>Reinforcing Steel</i>								3,546,255	
<i>Accessories</i>									
415-1-5 Reinforcing Steel Substructure								3,546,255	
455-143-6 Test Piles (30")									
<i>31-62-00.00 Driven Piles</i>									
<i>31-62-13.23 Prestressed Concrete Piles</i>									
Prestressed concrete piles, 30" square, Test Pile	2,915.00 vlf	42.90	102.84	-	24.72	-	170.46	496,878	
Prestressed concrete piles, 30" square, Test Pile	2,915.00 vlf	42.90	102.84	-	24.72	-	170.46	496,878	
<i>Prestressed Concrete Piles</i>								993,755	
<i>Driven Piles</i>								993,755	
455-143-6 Test Piles (30")								993,755	
455-34-6 Concrete Piling Prestressed (30")									
<i>31-62-00.00 Driven Piles</i>									
<i>31-62-13.23 Prestressed Concrete Piles</i>									
Prestressed concrete piles, 30" square,	26,975.00 vlf	18.39	102.84	-	10.59	-	131.82	3,555,735	

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
<i>31-62-13.23 Prestressed Concrete Piles</i>									
Prestressed concrete piles, 30" square, <i>Prestressed Concrete Piles Driven Piles</i>	26,975.00 vlf	18.39	102.84	-	10.59	-	131.82	3,555,735	
								<u>7,111,470</u>	
								7,111,470	
455-34-6 Concrete Piling Prestressed (30")								7,111,470	
* unassigned *									
<i>01-54-23.00 Temporary Scaffolding And Platforms</i>									
<i>01-54-23.70 Scaffolding</i>									
Scaffolding, steel tubular, regular, labor only to erect & dismantle	1,475.00 ccf	16.21	-	-	-	-	16.21	23,916	
Scaffolding, steel tubular, regular, labor only to erect & dismantle	1,475.00 ccf	16.21	-	-	-	-	16.21	23,916	
Scaffolding, steel tubular, regular, rent/month only for complete system for face of walls, 6' -4" x 5' frames, excl. planks	295.00 csf	-	41.25	-	-	-	41.25	12,170	
Scaffolding, steel tubular, regular, rent/month only for complete system for face of walls, 6' -4" x 5' frames, excl. planks	295.00 csf	-	41.25	-	-	-	41.25	12,170	
								<u>72,171</u>	
								72,171	
<i>31-52-00.00 Cofferdams</i>									
<i>31-52-16.10 Cofferdams</i>									
Cofferdams, barge driven	89,560.00 sf	9.36	17.58	-	7.73	-	34.67	3,105,309	
Cofferdams, barge driven	89,560.00 sf	9.36	17.58	-	7.73	-	34.67	<u>3,105,309</u>	
								6,210,618	
								6,210,618	
* unassigned *								6,282,789	
Substructure-Piers								29,440,032	
Substructure-Piers									
Superstructure Superstructure									
400-147 Composite Neoprene Pads									
<i>05-05-23.00 Metal Fastenings</i>									
<i>05-05-23.80 Vibration & Bearing Pads</i>									
Bearing Pads	273.00 cf	78.49	717.46	-	-	-	795.95	217,294	
Bearing Pads	273.00 cf	78.49	717.46	-	-	-	795.95	<u>217,294</u>	
								434,589	
								434,589	
400-147 Composite Neoprene Pads								434,589	

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
<i>03-30-00.00 Cast-In-Place Concrete</i>									
<i>03-30-53.40 Concrete In Place</i>									
Concrete Class IV Superstructure	8,078.00 cy	184.06	239.15	-	26.92	-	450.13	3,636,183	
Concrete Class IV Superstructure	8,078.00 cy	184.06	239.15	-	26.92	-	450.13	3,636,183	
								<u>7,272,367</u>	
<i>Concrete In Place Cast-In-Place Concrete</i>								7,272,367	
400-4-4 Concrete Class IV (Superstructure - Deck & Dia)								7,272,367	
400-9 Bridge Floor Grooving									
<i>32-13-13.00 Concrete Paving</i>									
<i>32-13-13.23 Concrete Paving Surface Treatment</i>									
Concrete grooving	32,405.00 sy	2.31	-	-	5.20	-	7.52	243,594	
Concrete grooving	32,405.00 sy	2.31	-	-	5.20	-	7.52	243,594	
<i>Concrete Paving Surface Treatment</i>								<u>487,189</u>	
<i>Concrete Paving</i>								487,189	
400-9 Bridge Floor Grooving								487,189	
415-1-4 Reinforcing Steel									
<i>03-21-05.00 Reinforcing Steel Accessories</i>									
<i>03-21-10.90 Reinforcing In Place, Aerial Structure</i>									
Reinforcing Steel Superstructure	1,939,408.00 lb	0.65	0.54	-	0.14	-	1.33	2,580,940	
Reinforcing Steel Superstructure	1,939,408.00 lb	0.65	0.54	-	0.14	-	1.33	2,580,940	
<i>Reinforcing In Place, Aerial Structure</i>								<u>5,161,879</u>	
<i>Reinforcing Steel Accessories</i>								5,161,879	
415-1-4 Reinforcing Steel								5,161,879	
450-2-72 Prestressed Beams									
<i>32-34-00.00 Fabricated Bridges</i>									
<i>32-34-10.10 Bridges, Highway</i>									
Fabricated highway bridges, precast, prestressed concrete, I beams	30,672.00 lf	13.75	173.39	-	4.19	0.00	191.32	5,868,273	
Fabricated highway bridges, precast, prestressed concrete, I beams	30,672.00 lf	13.75	173.39	-	4.19	0.00	191.32	5,868,273	
<i>Bridges, Highway Fabricated Bridges</i>								<u>11,736,545</u>	
450-2-72 Prestressed Beams								11,736,545	
458-1-14 Bridge Deck Expansion Joint									
<i>32-34-00.00 Fabricated Bridges</i>									
<i>32-34-10.10 Bridges, Highway</i>									
Bridge Deck Expansion Joint	591.00 lf	105.39	326.45	-	3.69	-	435.53	257,399	

Estimate Totals

Description	Amount	Cuts/Adds	Net Amount	Totals	Hours	Cost Basis	Percent of Total
Labor	24,594,296		24,594,296		116,401.622 ch		34.09%
Material	36,874,831		36,874,831				51.12%
Subcontract							
Equipment	8,576,609		8,576,609		46,369.006 ch		11.89%
Other	2,092,600		2,092,600				2.90%
	72,138,336			72,138,336			100.00
Total				72,138,336			100.00%