Tyler Swartzwelder Construction Management Faculty Advisor: Dr. Messner Canton Crossing Tower 1501 S. Highland Avenue Baltimore, Maryland 21224



Technical Assignment #2

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Executive Summary

The attached Technical Assignment #2 consists of a detailed project schedule, a site logistics plan for the steel erection phase of construction, an assemblies estimate for plumbing fixtures and fire protection system, a detailed structural system estimate, and a general conditions estimate. The attached document will help to analyze the key features of the Canton Crossing Tower that affected the projects execution.

The detailed project schedules gives an in depth look at the schedule broken down by trades. The implementation of the demanding 18-month schedule is shown in a chronological order that helps the reader to understand the procedures used to complete the tower on time to the owner, starting February 7th 2005 and ending July 27th, 2006.

The site logistics plan is shown for the steel erection phase of construction. Gilbane benefited from a large site that provided ample steel staging and laydown areas. The site is located directly adjacent to an exit from Interstate 95 which allowed deliveries to be on time and uncompromised. Once on site, the tractor and trailers had sufficient space to park and wait to be unloaded.

An assemblies estimate was performed for the plumbing fixtures and the fire protection system. The plumbing fixtures designed for the tower are only in the core area. The tenant fit-out areas will be done be each respective tenant contractor. The fire protection system, on the other hand, is designed into the tenant areas.

A detailed structural systems estimate was compiled using RS Means Cost Works 2005. A typical floor, typical machine room floor, foundation system, and roof system were all estimated. The typical floors were then multiplied out to compile a total building cost. The total building estimate value of \$14,016,295 was 3% higher than the original budget of \$13,580,765.

The general conditions estimate was completed using the 18-month duration and unit costs. It is important to note that home office overhead was not included in the estimate. The estimated value for general conditions was \$2,877,534.

Detailed Project Schedule

The Canton Crossing Tower detailed schedule that is shown on the following pages consists of 200 items. The schedule is broken into categories by trade, making it easier to follow through chronological order. The tower had a demanding schedule of 18-months, with on-site construction beginning on February 7th, 2005 and project completion on July 27th, 2006. The schedule is currently showing exactly one day of total float for the project. The steel and concrete contractors each had one week to complete a typical floor. Each trade was followed closely by the next trade in line, leaving no room for delays. All trades had input and agreed upon this schedule at an initial project schedule meeting. The superintendent's two-week look-ahead meetings, held weekly, were important to the success of the on time completion.

Canton Crossing	Tower 2									Classic	c WBS Layo	ut										11	-Dec-06 12:4	49
Activity ID	Activity Name	Original	Remaining Sch	edule %	Start	Finish	Total	F N	March 2005	April 2005	May 2005	June 2005	July 2005	A	S	0	N	D	J	F	March 200	6 April 2006	3 May 2006	, <u>1</u> :006
		Duration	Duration C	omplete			Float	3 0 1 2 2	0 1 2 2	0 1 1 2	0 0 1 2	2 0 1 1	2 0 1 1 2	3 0 1 2 2 0) 1 1 2 (0 0 1 2	3 0 1 2 2	2 0 1 1 2	0 0 1 2	2 0 1 1	2 0 1 1	2 0 0 1 2	2 3 0 1 2	20
Canton	Crossing Tower 2	310	310	0%	07-Feb-05	25-Apr-06	66			1		1							1	1			/ 25-Apr-06, C	Canto
A1001	On Site Construction Be	0	0	0%	07-Feb-05		376	On Site	Construction	Begins														
A1010	Sanitary Sewer	35	35	0%	07-Feb-05	25-Mar-05	311	i		Sanitary Sew	er													
A1020	Backfill SOG	10	10	0%	28-Mar-05	08-Apr-05	311		ļ	Backfill	SOG													
A1030	Piles I (Crane 1)	12	12	0%	07-Feb-05	22-Feb-05	80	Pi	les I (Crane	1)														
A1040	Piles II	12	12	0%	23-Feb-05	10-Mar-05	80		Piles II															
A1050	Piles III (Crane 2)	12	12	0%	11-Mar-05	28-Mar-05	80			Piles III (Cra	ine 2)								 					
A1060	Piles IV	12	. 12	0%	29-Mar-05	13-Apr-05	80		Ļ	Piles	IV													
A1070	Pile Caps	14	14	0%	14-Apr-05	03-May-05	314				Pile Caps	5												
A1080	Elevator Walls	10	10	0%	14-Apr-05	27-Apr-05	318		1		Elevator Wa	alls												
A1090	Pour Quad I Foundation	10	10	0%	23-Feb-05	08-Mar-05	354		📕 Pour Qu	ad I Foundat	tion	, , ,	, , , , , , , , , , , , , , , , , , ,											
A1100	Pour Quad II Foundation	10	10	0%	11-Mar-05	24-Mar-05	342		P P	our Quad II	Foundation													
A1110	Pour Quad III Foundation	10	10	0%	29-Mar-05	11-Apr-05	330		ļ	Pour 🤇	Quad III Four	ndation												
A1120	Stone Fill for Subgrade	5	5 5	0%	21-Apr-05	27-Apr-05	318				Stone Fill fo	r Subgrade												
A1130	Pour Quad IV Foundation	5	5 5	0%	14-Apr-05	20-Apr-05	80		 	🔲 Ρφ	our Quad IV F	Foundation							1 1 1			1	1	
A1132	Deliver & Install Crane 1	5	5	0%	23-Feb-05	01-Mar-05	116	, mi	Deliver & Ir	nstall Crane	1													
A1133	Deliver/Erect 2nd & 3rd	28	28	0%	21-Apr-05	31-May-05	80					Deliver/E	rect 2nd & 3rd	FI Stl Col										
A1134	Deliver & Install Crane 2	5	5	0%	29-Mar-05	04-Apr-05	335			Deliver &	Install Crane	e 2												
A1135	Deliver & Erect Struct St	5	5	0%	01-Jun-05	07-Jun-05	193			1		Delive	& Erect Struct	t Steel 4th Fl										
A1136	Deliver & Erect Struct St	5	5	0%	08-Jun-05	14-Jun-05	194		 			🔲 Del	iver & Erect Str	ruct Steel 5th Fl					 			, , ,	 	
A1137	Deliver & Erect Struct St	5	5	0%	15-Jun-05	21-Jun-05	194			1			Deliver & Erect	Struct Steel 6th	FI									
A1138	Deliver & Erect Struct St	5	5	0%	22-Jun-05	28-Jun-05	194		1	1			Deliver & Ere	ect Struct Steel	7th Fl				1					
A1139	Deliver & Erect Struct St	6	6	0%	29-Jun-05	07-Jul-05	194						Deliver &	& Erect Struct St	eel 8th Fl									
A1140	Deliver & Erect Struct St	5	5	0%	08-Jul-05	14-Jul-05	194			1			Delive	er & Erect Struct	Steel 9th F	-1								
A1141	Deliver & Erect Struct St	5	5	0%	15-Jul-05	21-Jul-05	194		·	, , , ,			🗖 De	eliver & Erect Str	uct Steel 10	Oth Fl								
A1142	Deliver & Erect Struct St	5	5	0%	22-Jul-05	28-Jul-05	194		1	1				Deliver & Erect	Struct Stee	l 11th Fl								
A1143	Deliver & Erect Struct St	5	5	0%	29-Jul-05	04-Aug-05	194			1				Deliver & Ere	ect Struct St	teel 12th Fl								
A1144	Deliver & Erect Struct St	5	5	0%	05-Aug-05	11-Aug-05	194		1					Deliver &	Erect Struc	t Steel 13th	FI							
A1145	Deliver & Erect Struct St	5	5	0%	12-Aug-05	18-Aug-05	194		1	1				Deliver	r & Erect St	ruct Steel 1	4th Fl							
A1146	Deliver & Erect Struct St	5	5	0%	19-Aug-05	25-Aug-05	194								iver & Erect	Struct Stee	el 15th Fl							
A1147	Deliver & Erect Struct St	5	5	0%	26-Aug-05	01-Sep-05	194		1	1					Deliver & Er	ect Struct S	teel 16th Fl	-	1 1 1					
A1148	Deliver & Erect Struct St	5	5	0%	02-Sep-05	09-Sep-05	194			1					Deliver 8									
A1149	Deliver & Erect Struct St	5	5	0%	12-Sep-05	16-Sep-05	194																	
A1150	Deliver & Erect Struct St	4	- 4 	0%	19-Sep-05	22-Sep-05	194			1							t Struct Stee		V RM FI					
A1151	Pour 2nd Elect Struct St	5	5 5	0%	23-3ep-05	29-3ep-05	80						nd Floor Conc	roto										
Δ1150	Pour 3rd Floor Concrete	5	5	0%	08lun-05	14-,lun-05	205						in 3rd Floor Co	ncrete										
A1160	Pour 4th Floor Concrete	5	5	0%	15-Jun-05	21-Jun-05	205						Pour 4th Floor	Concrete										
A1170	Pour 5th Floor Concrete	5	5	0%	22-Jun-05	28-Jun-05	205						Pour 5th Flo	or Concrete										
A1180	Pour 6th Floor Concrete	5	5 5	0%	29-Jun-05	06-Jul-05	205			1		-	Pour 6th	Floor Concrete					- - - - - -					
A1190	Pour 7th Floor Concrete	5	5 5	0%	07-Jul-05	13-Jul-05	205						Pour 7	7th Floor Concre	te									
A1200	Pour 8th Floor Concrete	5	5 5	0%	14-Jul-05	20-Jul-05	205			1				ur 8th Floor Con	crete									
A1210	Pour 9th Floor Concrete	5	5 5	0%	21-Jul-05	27-Jul-05	205							Pour 9th Floor C	Concrete				1					
A1220	Pour 10th Floor Concrete	5	5	0%	28-Jul-05	03-Aug-05	205			1				Pour 10th Flo	or Concret	е								
A1230	Pour 11th Floor Concrete	5	5	0%	04-Aug-05	10-Aug-05	205							Pour 11th	Floor Conc	rete								
A1240	Pour 12th Floor Concrete	5	5	0%	11-Aug-05	17-Aug-05	205					·;	- ;	Pour 12	2th Floor Co	oncrete			-;					
A1250	Pour 13th Floor Concrete	5	5 5	0%	- 18-Aug-05	24-Aug-05	205							🔲 Pou	r 13th Floor	Concrete								
A1260	Pour 14th Floor Concrete	5	5 5	0%	25-Aug-05	31-Aug-05	205							🔲 Р	our 14th Fl	oor Concre	e							
A1270	Pour 15th Floor Concrete	5	5	0%	01-Sep-05	08-Sep-05	205		1	1					Pour 15th	n Floor Con	crete							
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Actua	al Work Crit	ical Rema	ining Work	T S	Summary						P	age 1 of 4		TASK filte	er: All Activi	ities								
Rema	aining Work 🔶 🛛 🔶 Mile	estone																				© Primaver#	a Systems. In	1C.

Canton Crossing	Tower 2										Classic WI	BS Layou	ut						
Activity ID	Activity Name	Original	Remaining	Schedule %	Start	Finish	Total	F	March 2	2005	April 2005 Ma	ay 2005	June 2005	July 2005	5 A	S	0	N	D
		Duration	Duration	Complete			Float	3 0 1 2	2 0 1	2 2	2 0 1 1 2 0	0 1 2 3	2 0 1 1	2 0 1 1	2 3 0 1 2	2 0 1 1	2 0 0 1 2	3 0 1 2	2 0 1 1
A1280	Pour 16th Floor Concrete	5	5	0%	09-Sep-05	15-Sep-05	205									Po	ur 16th Floor	Concrete	
A1290	Pour 17th Floor Concrete	5	5	0%	16-Sep-05	22-Sep-05	205										Pour 17th Flo	or Concrete	
A1300	Pour Elec Rm Floor Con	5	5	0%	23-Sep-05	29-Sep-05	205						1	1 1 1			Pour Elec	Rm Floor Co	oricrete
A1310	Pour Mech Rm Floor Co	5	5	0%	30-Sep-05	06-Oct-05	205										Pour M	ech Rm Floo	r Concrete
A1320	Place SOG	7	7	0%	25-Apr-05	03-May-05	314					Place SO	G						
A1530	Precast 2nd Floor (2nd	7	7	0%	08-Jun-05	16-Jun-05	179						Pre	ecast 2nd Fl	oor (2nd Shift	Mobile)			
A1540	Precast 3rd Floor (2nd S	7	7	0%	17-Jun-05	27-Jun-05	179							Precast 3r	d Floor (2nd S	Shift Tower)			
A1545	Precast 4th Floor (2nd S	7	7	0%	28-Jun-05	07-Jul-05	179						1	Preca	st 4th Floor (2	nd Shift Tow	er)		
A1550	Precast 5th Floor (2nd S	4	4	0%	08-Jul-05	13-Jul-05	180							Pre Pre	cast 5th Floor	(2nd Shift To	ower)		
A1560	Precast 6th Floor (2nd S	4	4	0%	14-Jul-05	19-Jul-05	181						, , ,	F	Precast 6th Flo	odr (2nd Shift	Tower)		
A1570	Precast 7th Floor (2nd S	4	4	0%	20-Jul-05	25-Jul-05	182								Precast 7th	Floor (2nd Sl	hift Tower)		
A1580	Precast 8th Floor (2nd S	4	4	0%	26-Jul-05	29-Jul-05	183							ļ	Precast 8th	n Floor (2nd	Shift Tower)		
A1590	Precast 9th Floor (2nd S	4	4	0%	01-Aug-05	04-Aug-05	184								Precast	9th Floor (2n	nd Shift Tower)	
A1600	Precast 10th Floor (2nd	4	4	0%	05-Aug-05	10-Aug-05	185								Preca	ist 10th Floor	r (2nd Shift To	ower)	
A1610	Precast 11th Floor (1st	2	2	0%	11-Aug-05	12-Aug-05	188						1		Prec	ast 11th Floo	or¦(1st & 2nd \$	Shift)	
A1620	Precast 12th Floor (1st	2	2	0%	15-Aug-05	16-Aug-05	191								l Pre	ecast 12th Flo	oor (1st & 2nd	I Shift)	
A1630	Precast 13th Floor (1st	2	2	0%	17-Aug-05	18-Aug-05	194						1		🛿 Pr	ecast 13th F	loor (1st & 2n	d Shift)	
A1640	Precast 14th Floor (1st	2	2	0%	19-Aug-05	22-Aug-05	197						1 1 1		🗖 F	Precast 14th	Floor (1st & 2	nd Shift)	
A1650	Precast 15th Floor (1st	2	2	0%	26-Aug-05	29-Aug-05	197									Precast 18	5th Floor (1st	& 2nd Shift)	
A1660	Precast 16th Floor (1st	2	2	0%	02-Sep-05	06-Sep-05	209									Precas	t 16th Floor (1st & 2nd Sh	lift)
A1670	Precast 17th Floor (1st	2	2	0%	12-Sep-05	13-Sep-05	206									Pre	cast 17th Floo	or (1st & 2nd	Shift)
A1680	Precast Gables (1st & 2	16	16	0%	30-Sep-05	21-Oct-05	194										F	recast Gable	əş (1st & 2
A1700	Install Windows 2nd Floor	5	5	0%	17-Jun-05	23-Jun-05	183							Install Wind	ows 2nd Floor				
A1710	Install Windows 3rd Floor	5	5	0%	28-Jun-05	05-Jul-05	181							Install	Windows 3rd I	Floor			
A1720	Install Windows 4th Floor	5	5	0%	08-Jul-05	14-Jul-05	179						1	🔲 Ins	tall Windows 4	th Floor			
A1730	Install Windows 5th Floor	5	5	0%	15-Jul-05	21-Jul-05	179								Install Windov	vs 5th Floor			
A1740	Install Windows 6th Floor	5	5	0%	22-Jul-05	28-Jul-05	179								Install Wind	dows 6th Floo	or		
A1750	Install Windows 7th Floor	5	5	0%	29-Jul-05	04-Aug-05	179								install W	/indows 7th F	Floor		
A1760	Install Windows 8th Floor	5	5	0%	05-Aug-05	11-Aug-05	179								🔲 Insta	II Windows 8	th Floor		
A1770	Install Windows 9th Floor	5	5	0%	12-Aug-05	18-Aug-05	179								🔲 In:	stall Window	s 9th Floor		
A1780	Install Windows 10th Floor	5	5	0%	19-Aug-05	25-Aug-05	179									Install Wind	ows 10th Floo	pr <mark>.</mark>	
A1790	Install Windows 11th Floor	5	5	0%	26-Aug-05	01-Sep-05	179		1				1 1 1			📫 Install W	indows 11th F	loor	
A1800	Install Windows 12th Floor	5	5	0%	02-Sep-05	09-Sep-05	179									🔲 Instal	I Windows 12	th Floor	
A1810	Install Windows 13th Floor	5	5	0%	12-Sep-05	16-Sep-05	179									🔲 Ins	stall Windows	13th Floor	
A1820	Install Windows 14th Floor	5	5	0%	19-Sep-05	23-Sep-05	179						1				Install Windo	ws 14th Floo	or
A1830	Install Windows 15th Floor	5	5	0%	26-Sep-05	30-Sep-05	179									1	Install Wir	ndows 15th F	loor
A1840	Install Windows 16th Floor	5	5	0%	03-Oct-05	07-Oct-05	199										🔲 Install \	Nindows 16t	h Floor
A1850	Install Windows 17th Floor	5	5	0%	10-Oct-05	14-Oct-05	199										🔲 Insta	all Windows 1	17th Floor
A1860	Install Storefront Windows	30	30	0%	03-Oct-05	11-Nov-05	179						1					Insta	II Storefror
A1870	Install Curtain Wall	30	30	0%	03-Oct-05	11-Nov-05	179						1					Insta	II Curtain V
A1871	Building Enclosure	0	0	0%	14-Nov-05		179											🔶 Buil	ding Enclo
A1880	Deliver & Install Fireproo	5	5	0%	24-Jun-05	30-Jun-05	273							Deliver 8	Install Firepro	oʻfing Groun	d¦Flr		
A1890	Deliver & Install Fireproo	5	5	0%	01-Jun-05	07-Jun-05	290						Deliver	r & Install Fir	reproofing 2nd	Fir			
A1900	Deliver & Install Fireproo	5	5	0%	01-Jun-05	07-Jun-05	290						Deliver	r & Install Fir	reproofing 3rd	Flr			
A1910	Deliver & Install Fireproo	5	5	0%	08-Jun-05	14-Jun-05	285						🔲 Del	iver & Install	Fireproofing 4	4th Flr	-		
A1920	Deliver & Install Fireproo	5	5	0%	15-Jun-05	21-Jun-05	280						— (Deliver & Ins	tall Fireproofir	ng 5th Flr			
A1930	Deliver & Install Fireproo	5	5	0%	22-Jun-05	28-Jun-05	275	-						Deliver &	Install Firepro	ofing 6th Flr			- <u>-</u>
A1940	Deliver & Install Fireproo	5	5	0%	29-Jun-05	06-Jul-05	270							Delive	r & Install Fire	proofing 7th	Fir		
A1950	Deliver & Install Fireproo	6	6	0%	08-Jul-05	15-Jul-05	263							🔲 De	liver & Install	Fireproofing	8th Flr		
Actu	al Work Crit aining Work ♦ ♦ Mile	ical Remair estone	ning Work	• ••• s	Summary			·				Pa	age 2 of 4		TASK	K filter: All Ad	ctivities		

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Canton Crossing	Tower 2									Classic	WBS Lay	out										11-Dec	-06 12:49	.9
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float	F Mai	rch 2005 /	April 2005	May 2005	j June 2005	July 2005	A	S	0	N	D	J	F Ma	rch 2006 Apr	il 2006 M	ay 2006	2006
A1960	Deliver & Install Eireproo	6	6		4 15- Jul-05	22- 10-05	258				0[0[1[2			$\begin{bmatrix} 3 \\ 0 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \end{bmatrix}$		$\begin{bmatrix} 2 \\ 0 \end{bmatrix} 0 \begin{bmatrix} 1 \\ 2 \end{bmatrix} 2$								2101
A1900	Deliver & Install Fireproo	5	5	0%	6 22-Jul-05	28-Jul-05	254			1				Deliver & In	stall Fireor	nng stirrin oofing 10th Flr								-
A1980	Deliver & Install Fireproo	5	5	0%	6 29-Jul-05	04-Aug-05	249							Deliver &	Install Fire	eproofing 11th	Elr							
A1990	Deliver & Install Fireproo	5	5	0%	6 05-Aug-05	11-Aug-05	244			1					er & Install	Fireproofing 12	th Flr							
A2000	Deliver & Install Fireproo	5	5	0%	6 12-Aug-05	18-Aug-05	239			1				De	eliver & Inst	all Fireproofing	13th Flr					1		-
A2010	Deliver & Install Fireproo	5	5	0%	6 19-Aug-05	25-Aug-05	234			1					Deliver & I	nstall Fireproof	ing 14th Flr				1			-
A2020	Deliver & Install Fireproo	5	5	0%	6 26-Aug-05	01-Sep-05	229			1					Deliver	& Install Firepr	oofing 15th Flr							
A2030	Deliver & Install Fireproo	5	5	0%	6 02-Sep-05	09-Sep-05	224								Deliv	/er & Install Fir	eproofing 16th	Flr			·			
A2040	Deliver & Install Fireproo	5	5	0%	6 12-Sep-05	16-Sep-05	219			1						eliver & Install	Fireproofing 17	'th Flr						-
A2050	Deliver & Install Fireproo	5	5	0%	6 19-Sep-05	23-Sep-05	214			1						Deliver & Inst	all Fireproofing	Elec Rm Fli	r					-
A2060	Deliver & Install Fireproo	5	5	0%	6 23-Sep-05	29-Sep-05	210			1						Deliver & I	nstall Fireproof	ing Mech Rn	n Flr					
A2070	Deliver & Install Fireproo	5	5	0%	6 30-Sep-05	06-Oct-05	205			1						🗖 Deliver	& Install Firepro	oofing Elev F	Flr/Roof			1		-
A2080	SOG Underground Electric	20	20	0%	6 11-Apr-05	06-May-05	311				SOG U	Inderground I	Electric											
A2090	Underground Sanitary Pl	10	10	0%	6 11-Apr-05	22-Apr-05	314			<u></u> υ	nderground	l \$anitary Plu	mbing											Ì
A2100	Underground Storm Plu	10	10	0%	6 11-Apr-05	22-Apr-05	314			🔲 u	nderground	l \$torm Pluml	bing		1							1		
A2110	Underground Domestic	2	2	0%	6 11-Apr-05	12-Apr-05	322			Under	ground Dor	mestic Water	(Plumbing)											-
A2120	Underground Gas Vent (8	8	0%	6 11-Apr-05	20-Apr-05	316			🔲 Ur	derground	Gas Vent (Pl	umbing)											Ì
A2130	MEP Rough In 2nd Floor	5	5	0%	6 01-Jun-05	07-Jun-05	155					MEP R	Rough In 2nd I	loor							 1 1	 i i		
A2140	MEP Rough In 1st Floor	15	15	0%	6 01-Jun-05	21-Jun-05	280		1	1			VEP Rough Ir	1st Floor										-
A2150	MEP Rough In 3rd Floor	5	5	0%	6 08-Jun-05	14-Jun-05	155			1		🔲 ME	P Rough In 3r	d Floor								1		-
A2160	MEP Rough In 4th Floor	5	5	0%	6 15-Jun-05	21-Jun-05	155			1			VEP Rough Ir	4th Floor										-
A2170	MEP Rough In 5th Floor	5	5	0%	6 22-Jun-05	28-Jun-05	155			 			MEP Roug	h In 5th Floor	• ¦						 	1 1 1 1		
A2180	MEP Rough In 6th Floor	5	5	0%	6 29-Jun-05	06-Jul-05	155			1			MEP Ro	ugh In 6th Fl	loor							1		
A2190	MEP Rough In 7th Floor	5	5	0%	6 07-Jul-05	13-Jul-05	155		1	1			MEP	Rough In 7th	Floor									
A2200	MEP Rough In 8th Floor	5	5	0%	6 14-Jul-05	20-Jul-05	155			1			M	EP Rough In	8th Floor							1		
A2210	MEP Rough In 9th Floor	5	5	0%	6 21-Jul-05	27-Jul-05	155			1				MEP Rough	n In 9th Floo	or								
A2220	MEP Rough In 10th Floor	5	5	0%	6 28-Jul-05	03-Aug-05	155			+				MEP Rou	ugh In 10th	Floor	¦				·	+		
A2230	MEP Rough In 11th Floor	5	5	0%	6 04-Aug-05	10-Aug-05	155			1					Rough In 1	1th Floor						1		-
A2240	MEP Rough In 12th Floor	5	5	0%	6 11-Aug-05	17-Aug-05	155		1	1					P Rough Ir	12th Floor		1			1	1		-
A2250	MEP Rough in 13th Floor	5	5	0%	18-Aug-05	24-Aug-05	155			1												1		1
A2260	MEP Rough In 14th Floor	5	5	0%	25-Aug-05	31-Aug-05	100			1						Dugn in 14th Fit	Floor							i.
A2270	MEP Rough In 16th Floor	5	5	0%	00 Sop 05	15 Sop 05	105										Rth Eleer				·			
A2280	MEP Rough In 17th Floor	5	5	0%	16-Sep-05	13-Sep-05	195			1							n 17th Eloor							-
A2290	MEP Rough In Flect Rm	5	5	0%	23-Sep-05	22-Sep-05	195			1							th In Flect Rm I	Floor				1		-
A2300	MEP Rough In Mech R	5	5	0%	30-Sep-05	29-06p-05	195			1					-		hin Lieut Kinn	m Floor						-
A2320	MEP Rough In Flev Floor	5	5	0%	6 07-Oct-05	13-Oct-05	195		1	1							Rough In Flev	Floor						
A2340	Mech T/O. Fixt. Air Dev	5	5	0%	6 08-Jun-05	14-Jun-05	285					Me	ch T/O. Fixt. A	ir Dev. Coil H	-¦ Hook Up 2n	d Floor					·			
A2350	Mech T/O, Fixt. Air Dev	5	5	0%	6 15-Jun-05	21-Jun-05	280						Mech T/O. Fix	t, Air Dev. Co	oil Hook Up	3rd Floor								-
A2360	Mech T/O, Fixt, Air Dev,	5	5	0%	6 22-Jun-05	28-Jun-05	275			1			Mech T/O,	Fixt, Air Dev,	Coil Hook	Up 4th Floor					1	1		-
A2370	Mech T/O, Fixt, Air Dev,	5	5	0%	6 29-Jun-05	06-Jul-05	270			1			Mech T	, Fixt, Air D	ev, Coil Ho	ook Up 5th Floo	or							
A2380	Mech T/O, Fixt, Air Dev,	5	5	0%	6 07-Jul-05	13-Jul-05	265			1			Mech	T/O, Fixt, Ai	ir Dev, Coil	Hook Up 6th F	loor					1		-
A2390	Mech T/O, Fixt, Air Dev,	5	5	0%	6 14-Jul-05	20-Jul-05	260						🗖 M	ech T/O, Fixt,	t,¦Air Dev, C	Coil Hook Up 7t	h Floor							
A2400	Mech T/O, Fixt, Air Dev,	5	5	0%	6 21-Jul-05	27-Jul-05	255		1	1				Mech T/O, F	- ixt, Air Dev	/, Ċoil Hook Up	8th Floor							
A2410	Mech T/O, Fixt, Air Dev,	5	5	0%	6 28-Jul-05	03-Aug-05	250			1				Mech T/C	D, Fixt, Air I	Dev, Coil Hook	Up 9th Floor					1		-
A2420	Mech T/O, Fixt, Air Dev,	5	5	0%	6 04-Aug-05	10-Aug-05	245							Mech	T/O, Fixt, A	Air Dev, Coil Ho	ook Up 10th Flo	or						
A2430	Mech T/O, Fixt, Air Dev,	5	5	0%	6 11-Aug-05	17-Aug-05	240		1	1				🔲 Me	ch T/O, Fix	t, Áir Dev, Coil	Hook Up 11th	Floor						1
A2440	Mech T/O, Fixt, Air Dev,	5	5	0%	6 18-Aug-05	24-Aug-05	235								Mech T/O,	Fixt, Air Dev, C	Coil Hook Up 12	2th Floor	· · · · · · · · · · · · · · · · · · ·		·			
A2450	Mech T/O, Fixt, Air Dev,	5	5	0%	6 25-Aug-05	31-Aug-05	230								Mech T/	O, Fixt, Air Dev	, Coil Hook Up	13th Floor						
Actu	al Work Criti	cal Remai	ning Work		Summary						F	Page 3 of 4		TASK	C filter: All A	ctivities								
Rem	aining Work 🔶 🛛 🔶 Mile	stone																			© Drin	avera Suc	teme In	c
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Canton Crossing	Tower 2										С	lassic	WBS I	ayout											
Activity ID	Activity Name	Original	Remaining	Schedule %	Start	Finish	Total	F	Ma	arch 2005	April 2	005	May 2	005 Ju	ne 2005	j July 2	2005	A		S		0	N	1	D
		Duration	Duration	Complete			Float	0 1	2 2	0 1 2 2	0 1	1 2	0 0 1	2 2 0	0 1 1	2 0 1	1 2	3 0 1	1 2 2	0 1 1	20	0 1 2	30	1 2 2	0 1 1
A2460	Mech T/O, Fixt, Air Dev,	5	5	0%	01-Sep-05	08-Sep-05	225												, r		h T/O	, Fixt, Ai	Dev, Co	oil Hook	Up 14t
A2470	Mech T/O, Fixt, Air Dev,	5	5	0%	09-Sep-05	15-Sep-05	155														vlech T	7/O, Fixt,	Air Dev,	Coil Hc	ook Up
A2480	Mech T/O, Fixt, Air Dev,	5	5	0%	16-Sep-05	22-Sep-05	215					ł				1					I Mec	h T/O, F	ixṫ, Air D	ev, Cdil	Hook l
A2490	Mech T/O, Fixt, Air Dev,	5	5	0%	23-Sep-05	29-Sep-05	210	-													N I	lech T/C	, Fixt, Ai	r Dev, C	Coil Hoo
A2500	Mech T/O, Fixt, Air Dev,	5	5	0%	30-Sep-05	06-Oct-05	205														Ļ	Mech	Г/ <mark>О, Fixt</mark> ,	Air Dev	v, Coil I
A2510	Mech T/O, Fixt, Air Dev,	5	5	0%	07-Oct-05	13-Oct-05	200					į									1	🔲 Me	h T/O, F	ixt, Air I	Dev, Co
A2520	Mech T/O, Fixt, Air Dev,	5	5	0%	14-Oct-05	20-Oct-05	195																∕le¦ch T/C), Fixt, A	Air Dev
A2530	Mech Balancing	65	65	0%	16-Sep-05	19-Dec-05	155					i											i	i	
A2540	Install Elevator Frames	50	50	0%	07-Feb-05	15-Apr-05	226	-				Instal	II Elevat	or Fram	es								!		
A2550	Elevator 1-4 Power Up	75	75	0%	18-Apr-05	02-Aug-05	251				1	1				1		Eleva	ator 1	4 Power	Up			-	
A2560	Elevator 5-8 Power Up	100	100	0%	18-Apr-05	07-Sep-05	226				I									Elev	ator 5	-8 Powe	Úp		
A2570	Install & Finish Drywall 2	10	10	0%	08-Jun-05	21-Jun-05	80							1		nstall &	Finisł	Drywal	l 2nd F	loor					
A2580	Install & Finish Drywall 3	10	10	0%	22-Jun-05	06-Jul-05	130					į				i In:	stall &	Finish [Drywal	3rd Floo	or				
A2590	Install & Finish Drywall 4	10	10	0%	07-Jul-05	20-Jul-05	130										ln	stall & F	inish [Drywall 4	th Floc	or			
A2600	Install & Finish Drywall 5	10	10	0%	21-Jul-05	03-Aug-05	130					i						¦ 📕 Insta	: all & Fi	nish Dry	wall 5t	h Floor			
A2610	Install & Finish Drywall 6	10	10	0%	04-Aug-05	17-Aug-05	130												Insta	ll & Finis	sh Dry	wall 6th I	loor		
A2620	Install & Finish Drywall 7	10	10	0%	18-Aug-05	31-Aug-05	130					i								Install &	& Finis	h Drvwa	ll 7th Flo	or	
A2630	Install & Finish Drywall 8	10	10	0%	01-Sep-05	15-Sep-05	130														nstall {	& Finish	Drvwall 8	Sth Floo	r
A2640	Install & Finish Drywall 0	10	10	0%	16-Sep-05	29-Sep-05	130	-										·			—	nstall & I	inish Dry	wall 09	th Floo
A2650	Install & Finish Drywall 1	10	10	0%	30-Sep-05	13-Oct-05	130															Inst	all & Fini	sh Drvw	vall 10tl
A2660	Install & Finish Drywall 1	10	10	0%	14-Oct-05	27-Oct-05	130											-					Install	& Finish	n Drvwa
A2670	Install & Finish Drywall 1	10	10	0%	28-Oct-05	10-Nov-05	130																	nstall &	Finish
A2680	Install & Finish Drywall 1	10	10	0%	11-Nov-05	28-Nov-05	130																		Install 8
A2690	Install & Finish Drywall 1	10	10	0%	29-Nov-05	12-Dec-05	130	-																	
A2700	Install & Finish Drywall 1	10	10	0%	13-Dec-05	27-Dec-05	130																		
A2710	Install & Finish Drywall 1	10	10	0%	28-Dec-05	11-Jan-06	130																		
A2720	Install & Finish Drywall 1	10	10	0%	12- Jan-06	25- Jan-06	130																		
A2730	Install Door Frames	60	60	0%	21- Jul-05	13-Oct-05	200											i i	i			lnst	all Door I	Frames	
A2740	Install Carpets & Elooring	120	120	0%	08- lun-05	28-Nov-05	170	-						····				· •	}						Install (
A2750	Paint 2nd Floor	120	10	0%	22- lun-05	06-101-05	80								_		aint 2r	; d Eloor						!'	notan c
A2760	Paint 3rd Floor	10	10	0%	07- Jul-05	20- Jul-05	80											int 3rd I	Floor						
A2700	Paint 4th Floor	10	10	0%	21- Jul-05	03-449-05	80												1 1001 1 1001	loor					
A2770	Paint 5th Floor	10	10	0%	21-Jui-05	17-Aug-05	80					i							Doin	t 5th Elor	or				
A2700	Paint 5th Floor	10	10	078	19 Aug 05	21 Aug 05	80	-											rain	Doint 6				·	
A2790	Paint off Floor	10	10	0%	01-Sop-05	15-Sop-05	80					i						ļ			Daint 7	th Floor			
A2000	Paint 8th Floor	10	10	0%	16-Son-05	29-Sop-05	80															Daint 8th	Floor		
A2010	Paint oth Floor	10	10	0%	30-Sop-05	13-Oct-05	80											-							
A2020	Paint 30th Eleer	10	10	078	14 Oct 05	13-001-05	80					į													or
A2030	Paint 10th Floor	10	10	0%	28 Oct 05	10 Nov 05	80																	Doint 11	uth Eloo
A2040	Paint 12th Floor	10	10	0%	20-001-05	10-N0V-05	80																		Doint 1
A2000	Paint 12th Floor	10	10	0%	20 Nov 05	20-IN0V-05	00																	· · · ·	
A2000	Paint 13th Floor	10	10	0%	29-N0V-05	12-Dec-05	00					i												-	
A2070	Paint 14th Floor	10	10	0%	13-Dec-05	27-Dec-05	00									1									
A2880	Paint 15th Floor	10	10	0%	28-Dec-05	11-Jan-06	80	-																·	
A2890	Point 17th Floor	10	10	0%		20-Jan-06	80											-							
A2900	Pupphiat	10	10	0%	20-Jan-00	05 Acr 00	08	1										-							
A2910	Funchiist	40	40	0%	12 Feb 00*	00-Apr-00	80			1															
A2920		52	52	0%	13-F6D-06	25-Apr-06	66	1		1															
A2930	Project Complete	0	0	0%		25-Apr-06	66			1															
Actua	al Work Ended Criti	ical Remai	ning Work	• ••• ••••••••••••••••••••••••••••••••	Summary									Page	4 of 4			Т	ASK f	ilter: All	Activit	ies			

Remaining Work 🔶	 Milestone
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Site Layout Planning

Steel Erection Phase

The following site logistics plan is shown for the steel erection phase of the Canton Crossing Tower. Throughout construction the site logistics were in favor of the construction manager and the rest of the construction team. As you can see on the plan, there is plenty of space for steel lay down and staging. The steel delivery trucks have a simple path from Interstate 95 and are able to be parked right along South Highland Avenue while waiting to be unloaded.

The steel was erected using two tower cranes. The cranes were located on each side of the building. Each of them had a working radius of 180' and a capacity of 14,800 lb. There were also two material hoists used later in construction.

Also shown on this site layout is the concrete pump location because the concrete work followed the steel erection closely. The concrete floor slabs were all placed using the pump method. The concrete trucks also had an easy path from Interstate 95. Once on-site they had an unloading area that was located right on South Highland Avenue, making the traffic patterns uncomplicated.



Assemblies Estimate

Plumbing Fixtures

The costs of the plumbing fixtures in the Canton Crossing Tower were estimated using RS Means Assemblies Cost Data. The calculated values can be found on the table shown on the next page. It is important to note that these fixtures only cover the core of the tower. The tenant fit-out areas are not included in this estimate. The design team used the 2001 National Standard Plumbing Code (NSPC) for their design. All of the requirements for this code were met by the design team for the tower.

Fire Protection System

The fire protection system was also estimate using RS Means Assemblies Cost Data. The tower was designed with a wet sprinkler system and a two standpipes going up through the building. The estimate from RS Means is done using the square footage of each floor. The value had to be interpolated from the given square footage values to get the tower's square footage. The wet sprinkler system was used as a light hazard area. The standpipes were classified as Class I.

Plumbing Fixtu	res Assemb	lies Estimate for Canton Crossir	ng Towe	r from RS	Means 200	6								
	RS Means													
Category	Item #	Description	Qty	Mat \$	Inst \$	Total Cost								
Water Closets - D2010-120	1760	First Closet Installed (2 on each floor)	34	960	640	54,400								
	1800	Each Additional Closet	102	910	605	154,530								
			Total	Cost of Wat	er Closets	\$208,930.00								
Urinals - D2010-210	1620	Wall hung urinal (2 per floor)	34	485	615	37,400								
						•								
			То	tal Cost of	Urinals	\$37,400.00								
Loustarias D0040-240	4500	Versity manufact layerstarian (40 man flags)	470	200	F 4 F	452.050								
Lavatories - D2010-310 1560 Vanity mounted lavatories (10 per floor) 170 360 545 153,85														
Total Cost of Lavatories \$153,850.00														
			1018		avalones	\$155,650.00								
Mon Sinks - D2010-420	2080	24"x20" Plastic sinks (1 per floor)	17	282	575	14 569								
	2000			202	010	11,000								
			Tota	al Cost of M	op Sinks	\$14,569.00								
					•									
Water Fountains - D2010-820	1880	Wall mounted fountains (2 per floor)	34	1025	475	51,000								
			Total C	ost of Wate	r Fountains	\$51,000.00								
Water Heaters - D2010-240	1820	Electric, 50 gal. (1 per floor)	17	3275	895	70,890								
			Total	Cost of Wat	er Heaters	\$70,890.00								
			Cubtot			¢520,020,00								
				a of Plump	ing Fixtures	\$330,039.00								
			Timo	Factor Adiu	stmont (%)	92.9								
			Time	actor Auju	Suilein (70)	1.03								
		Total Cost of Plun	nhing Fiv	rturas		\$513 /03 76								
*Noto All costs come from BS Macro Ac	amblian Conta (Total Cost of Flui	a got 2005	voluce		ф 313,493.70								
NOLE - AII COSIS CAITIE ITOTTI KO MEATIS ASS			0 yei 2003	values)										

Fire Protectio	n Assembli	es Estimate for Canton Crossing	Tower f	from RS N	leans 2006	
	RS Means					
Category	Item #	Description	Qty	Mat \$	Inst \$	Total Cost
Wet Sprinkler System - D4010-410	0620/0640	Light hazard, first floor	28,262	0.78	1.39	61,329
	0740/0760	Light hazard, each additional floor	452,192	0.52	1.19	773,248
			Tota	al Cost of S	orinklers	\$834,576.86
Standpipe - D4020-310	0600	Class I Standpipe First Floor	1	4625	4,475	9,100
	0620	Each additional floor	16	1250	1,250	40,000
			Tota	I Cost of St	andpipes	\$49,100.00
			Subtota	al of Plumbi	ng Fixtures	\$883,676.86
			Location	n Factor Ad	justment (%)	92.9
			Time F	Factor Adju	stment (%)	1.03
		Total Cost of Fire Pr	rotection	System		\$845,563.88
*Note - All costs came from RS Means As	semblies Costs 2	2006 (Therefore a time factor had to be used t	to get 2005	values)		

Detailed Structural Systems Estimate

A detailed structural systems estimate was done using RS Means Cost Works 2005. The structural steel was taken off by typical floors and the roof system. A 10% value was used for the steel connections. The concrete was taken off by the foundation and the typical floors. The typical floor values for each were added to the roof steel and the concrete foundation to get an estimate of the total structural system cost for the Canton Crossing Tower. The steel and concrete budget numbers from Gilbane's Original Budget (January 24th, 2005) are shown below compared to the calculated values.

Structural Steel

Budget Value - \$10,184,745 Calculated Value - \$11,185,855

Concrete

Budget Value - \$3,396,020 Calculated Value - \$2,830,440 <u>Total Structural System</u> Budget Value - \$13,580,765

Calculated Value - \$14,016,295

The calculated values came in high by 9% for the structural steel and low by 17% for the concrete. The takeoffs were done assuming the typical floors were all designed exactly the same. This assumption and the fluctuating costs of construction materials are both factors that can affect the estimate differences. The total structural system estimate value of \$14,016,295 was 3% higher than the original budget of \$13,580,765.

Structural Steel Estimate for Canton Crossing Tower													
ltem	Length (ft)	Total Labor Cost (\$)	Equipment \$/ Unit	Total Equipment Cost (\$)	Total Cost (\$)								
Typical Floor Steel													
Beams													
W12 x 14	9	1	0.063	1,900	119.70	345	21.74	109	6.87	148.30			
W12 x 14	7.5	6	0.315	1,900	598.50	345	108.68	109	34.34	741.51			
W12 x 14	5.5	13	0.501	1,900	951.90	345	172.85	109	54.61	1,179.35			
W12 x 22	8	6	0.528	1,900	1,003.20	345	182.16	109	57.55	1,242.91			
W12 x 22	11	3	0.363	1,900	689.70	345	125.24	109	39.57	854.50			
W14 x 22	31	2	0.682	1,900	1,295.80	345	235.29	109	74.34	1,605.43			
W14 x 22	12.5	2	0.275	1,900	522.50	345	94.88	109	29.98	647.35			
W16 x 26	31	2	0.806	1,900	1,531.40	345	278.07	109	87.85	1,897.32			
W16 x 26	18.5	2	0.481	1,900	913.90	345	165.95	109	52.43	1,132.27			
W16 x 26	18	3	0.702	1,900	1,333.80	345	242.19	109	76.52	1,652.51			
W16 x 26	37	2	0.962	1,900	1,827.80	345	331.89	109	104.86	2,264.55			
W16 x 26	41	2	1.066	1,900	2,025.40	345	367.77	109	116.19	2,509.36			
W16 x 26	15	1	0.195	1,900	370.50	345	67.28	109	21.26	459.03			
W16 x 26	32	1	0.416	1,900	790.40	345	143.52	109	45.34	979.26			
W16 x 31	41	4	2.542	1,900	4,829.80	345	876.99	109	277.08	5,983.87			
W16 x 31	31	4	1.922	1,900	3,651.80	345	663.09	109	209.50	4,524.39			
W16 x 31	25.5	2	0.7905	1,900	1,501.95	345	272.72	109	86.16	1,860.84			
W16 x 31	37	4	2.294	1,900	4,358.60	345	791.43	109	250.05	5,400.08			
W18 x 35	41	6	4.305	1,900	8,179.50	345	1,485.23	109	469.25	10,133.97			
W18 x 35	24	1	0.42	1,900	798.00	345	144.90	109	45.78	988.68			
W18 x 35	25.5	2	0.8925	1,900	1,695.75	345	307.91	109	97.28	2,100.95			
W18 x 35	17.5	2	0.6125	1,900	1,163.75	345	211.31	109	66.76	1,441.83			
W18 x 40	41	16	13.12	1,900	24,928.00	345	4,526.40	109	1,430.08	30,884.48			
W18 x 40	31	2	1.24	1,900	2,356.00	345	427.80	109	135.16	2,918.96			
W18 x 40	35	2	1.4	1,900	2,660.00	345	483.00	109	152.60	3,295.60			
W21 x 44	31	2	1.364	1,900	2,591.60	345	470.58	109	148.68	3,210.86			
W21 x 44	12.5	8	2.2	1,900	4,180.00	345	759.00	109	239.80	5,178.80			
W21 x 50	31	2	1.55	1,900	2,945.00	345	534.75	109	168.95	3,648.70			
W21 x 50	33	4	3.3	1,900	6,270.00	345	1,138.50	109	359.70	7,768.20			
W21 x 57	41	4	4.674	1,900	8,880.60	345	1,612.53	109	509.47	11,002.60			
W24 x 62	31	2	1.922	1,900	3,651.80	345	663.09	109	209.50	4,524.39			

W24 x 62	37	2	2.294	1,900	4,358.60	345	791.43	109	250.05	5,400.08
W27 x 194	37	2	7.178	1,900	13,638.20	345	2,476.41	109	782.40	16,897.01
W27 x 194	18.5	4	7.178	1,900	13,638.20	345	2,476.41	109	782.40	16,897.01
W27 x 194	24	4	9.312	1,900	17,692.80	345	3,212.64	109	1,015.01	21,920.45
W33 x 118	37	4	8.732	1,900	16,590.80	345	3,012.54	109	951.79	20,555.13
W33 x 118	31	8	14.632	1,900	27,800.80	345	5,048.04	109	1,594.89	34,443.73
W40 x 249	37	2	9.213	1,900	17,504.70	345	3,178.49	109	1,004.22	21,687.40
Columns										
W14 x 99	13.33	2	1.32	1,900	2,508.00	345	455.40	109	143.88	3,107.28
W14 x 257	13.33	16	27.41	1,900	52,079.00	345	9,456.45	109	2,987.69	64,523.14
W14 x 283	13.33	4	7.54	1,900	14,326.00	345	2,601.30	109	821.86	17,749.16
W14 x 370	13.33	20	49.32	1,900	93,708.00	345	17,015.40	109	5,375.88	116,099.28
Bracing										
HSS8 x 8 x 1/2	16	11	4.29	1,900	8,151.00	345	1,480.05	109	467.61	10,098.66
Decking										
"x 20 gauge galvanized decking			28,262 sf	6.45	182,289.90	0.9	25,435.80	0.06	1,695.72	209,421.42
Totals for Typ	Dical Floo	or	200.32		562,902.65		94,547.06		23,530.87	680,980.59
Totals for 17 Ty	Totals for 17 Typical Floors				9,569,345.05		1,607,300.06		400,024.83	\$11,576,669.95

Typical Machine Rm										
Floor Steel										
W12x14	7.5	8	0.42	1,900	798.00	345	144.90	109	45.78	988.68
W12x22	8	10	0.88	1,900	1,672.00	345	303.60	109	95.92	2,071.52
W14x22	31	3	1.023	1,900	1,943.70	345	352.94	109	111.51	2,408.14
W16x26	18	6	1.404	1,900	2,667.60	345	484.38	109	153.04	3,305.02
W16x31	8	2	0.248	1,900	471.20	345	85.56	109	27.03	583.79
W18x35	31	3	1.6275	1,900	3,092.25	345	561.49	109	177.40	3,831.14
W18x40	31	5	3.1	1,900	5,890.00	345	1,069.50	109	337.90	7,297.40
W21x50	31	2	1.55	1,900	2,945.00	345	534.75	109	168.95	3,648.70
W24x55	37	2	2.035	1,900	3,866.50	345	702.08	109	221.82	4,790.39
W18x86	41	8	14.104	1,900	26,797.60	345	4,865.88	109	1,537.34	33,200.82
Totals for Machin	e Rm Fl	loors	3,804.93		50,143.85		9,105.07		2,876.67	62,125.59
Totals for 3 Machi	ne Rm F	loors	11,414.80		150,431.55		27,315.20		8,630.02	\$186,376.77
Roof Steel										
W12 x 14	6	8	0.336	1,900	638.40	345	115.92	109	36.62	790.94
W12 x 26	12	8	1.248	1,900	2,371.20	345	430.56	109	136.03	2,937.79
W12 x 26	18	8	1.872	1,900	3,556.80	345	645.84	109	204.05	4,406.69
W12 x 26	24	8	2.496	1,900	4,742.40	345	861.12	109	272.06	5,875.58
W12 x 26	30	8	3.12	1,900	5,928.00	345	1,076.40	109	340.08	7,344.48
W12 x 26	36	8	3.744	1,900	7,113.60	345	1,291.68	109	408.10	8,813.38
W12 x 26	44	12	6.864	1,900	13,041.60	345	2,368.08	109	748.18	16,157.86
W16 x 26	31	56	0.868	1,900	1,649.20	345	299.46	109	94.61	2,043.27
W16 x 26	18.5	72	17.32	1,900	32,908.00	345	5,975.40	109	1,887.88	40,771.28
W16 x 57	31	8	7.068	1,900	13,429.20	345	2,438.46	109	770.41	16,638.07
W21 x 111	18.5	16	16.428	1,900	31,213.20	345	5,667.66	109	1,790.65	38,671.51
W24 x 68	31	10	10.54	1,900	20,026.00	345	3,636.30	109	1,148.86	24,811.16
W24 x 76	31	8	9.424	1,900	17,905.60	345	3,251.28	109	1,027.22	22,184.10
W24 x 76	41	8	12.464	1,900	23,681.60	345	4,300.08	109	1,358.58	29,340.26
W27 x 129	18.5	8	9.546	1,900	18,137.40	345	3,293.37	109	1,040.51	22,471.28
W33 x 118	62	4	14.632	1,900	27,800.80	345	5,048.04	109	1,594.89	34,443.73
Totals for Roof Steel			117.97		224,143.00		40,699.65		12,858.73	\$277,701.38
					Location	Factor Adjus	stment (%)	92.9		
Totals for Building	Structur	al Steel	14,938.25		9,943,919.60		1,675,314.92		421,513.58	\$11,185,854.98
*Note - All costs from RS M	eans Cost	Works 200	5							

Concrete Estimate for Canton Crossing Tower									
Item	Units	Amt in Units	Material \$/Unit	Total Material Cost (\$)	Labor \$/Unit	Total Labor Cost (\$)	Equipment \$/ Unit	Total Equipment Cost (\$)	Total Cost (\$)
Typical Floor Concrete Slab									
10th Floor Slab - 5" thick lightweight	су	436.14	82.00	35,763.48	13.10	5,713.43	5.35	2,333.35	43,810.26
6" x 6" - W2.9 x W2.9 WWF	csf	282.62	33.00	9,326.46	21.00	5,935.02			15,261.48
Totals for Typical Floor		436.14		45,089.94		11,648.45		2,333.35	59,071.74
Totals for 17 Typical Floors		7,414.38		766,528.98		198,023.72		39,666.93	\$1,004,219.63
Foundation									
Precast Concrete Piles (20" x 20")	Piles	418.00	4265*	1,782,723.00					1,782,723.00
*Note - Pricing for driven precast concrete pile	es is given	as total cost p	er pile from t	the McLean Con	tracting C	company's bud	get for the Can	ton Crossing To	ower
Pile Caps - 5000 psi									
PC 3 (Qty - 4)	су	12.41	99.5	1,234.80	69	856.29	0.44	5.46	2,096.55
PC 4 (Qty - 4)	су	28.94	104	3,009.76	67.5	1,953.45	0.43	12.44	4,975.65
PC 5 (Qty - 4)	су	14.81	104	1,540.24	67.5	999.68	0.43	6.37	2,546.28
PC 6 (Qty - 8)	су	30.56	104	3,178.24	67.5	2,062.80	0.43	13.14	5,254.18
PC 7 (Qty - 14)	су	44	104	4,576.00	67.5	2,970.00	0.43	18.92	7,564.92
PC 8 (Qty - 4)	су	51.85	108	5,599.80	49	2,540.65	0.31	16.07	8,156.52
PC 15 (Qty - 2)	су	83.33	108	8,999.64	49	4,083.17	0.31	25.83	13,108.64
PC 28 (Qty - 1)	су	235.67	108	25,452.36	49	11,547.83	0.31	73.06	37,073.25
PC 30 (Qty - 1)	су	266.53	108	28,785.24	49	13,059.97	0.31	82.62	41,927.83
Grade Beams (3' x 3') - 5000 psi	су	86.67	90	7,800.30	9	780.03	0.32	27.73	8,608.06
		400.4							
Slab on Grade - 5" thick - 3500 psi	су	436.14	1.56	680.38	0.67	292.21	0.01	4.36	976.95
6" x 6" - W2.9 x W2.9 WWF	csf	283	33	9,326.46	21	5,935.02			15,261.48

Rebar for Pile Caps & Grade Beams									
# 4 Stirrups	lb	2,084.16	0.42	875.35	0.29	604.41			1,479.75
# 5	lb	1,084.72	0.42	455.58	0.29	314.57			770.15
# 9	lb	14,552.00	0.42	6,111.84	0.17	2,473.84			8,585.68
#11	lb	171,918.00	0.42	72,205.56	0.17	29,226.06			101,431.62
Totals for Foundation System		1290.91		1,962,554.54		79,699.97		286.02	\$2,042,540.53
						Location	Factor Adjus	stment (%)	92.9
						Time Factor Adjustment (%)			1.00
Grand Totals for Building Concrete 8,705.29 2,729,083.52 277,723.69 39,952.95							\$2,830,440.19		
**Note - Unless otherwise noted, all costs from RS Means Cost Works 2005									
Grand Total for Structural System of Building							\$14.01	6,295.00	

General Conditions Estimate

An estimate of the general conditions was done for the Canton Crossing Tower and is shown on the following page. The durations are shown to reflect the impact schedule changes can have on the cost of the project. The project not being completed on time brings a lot of extra cost in the general conditions category. Many of the costs were a one time lump sum cost and are shown in unit cost form. The total calculated estimate of \$2,877,534 is only 6% of the total budget for the project, which is lower than normal. A few factors that could affect this are Gilbane's fee only being 1.5%, their trailer was an existing building owned by Hale Properties which lowered the mobilization costs, as well as the home office overhead not being included.

General Conditions Estimate for Construction Phase of Canton Crossing Tower							
Category	Description	Unit Cost	Duration	Monthly Cost	Total Cost		
Field Labor	Project Manager		18	11,500	207,000		
	General Superintendent		18	10,700	192,600		
	Area Superintendent		14	8,624	120,736		
	MEP Superintendent		16	9,300	148,800		
	Asst Project Manager		18	10,100	181,800		
	Office Engineer		16	6,200	99,200		
	Asst Project Engineer		18	5,500	99,000		
		Tot	al Field Labo	or Costs	\$1,049,136.00		
		**Note - I	Estimate valu	es from RS Means	s Cost Works		
Site Suppport	Trailer Complex		18	3,075	55,350		
	Project Signs	2,200			5,000		
	Stationery & Supplies		18	94	1,683		
	Postage & Shipping		18	510	9,180		
	Office Equipment		18	157	2,826		
	CAD Equipment & Usage		18	84	1,512		
	Telephone		18	225	4,050		
	Computer Equipment	40,000			40,000		
	Drinking Water		18	100	1,800		
	First Aid Supplies		18	85	1,530		
	Blueprinting		18	224	4,032		
	Copier & Supplies		18	895	16,110		
	Janitorial Services		18	266	4,788		
	Progress Photos		18	256	4,608		
	Small Tools	5,300			5,300		
	Water & Sewage Charges		18	192	3,456		
	Temporary Electric		18	1,365	24,570		
	Security Systems	2,000			2,000		
		Tota	ort Costs	\$187,795.00			
Site Services	Layout & Engineering	27,000			27,000		
	Line & Grade Upgrades	50,000			50,000		

	Fire Extinguishers	10,200			10,200		
	Chemical Toilets		18	500	9,000		
	Construction Fencing	28,500	16		28,500		
	Temporary Electric		10	13,500	135,000		
	Temporary Heat		5	18,425	92,125		
	Material Hoist		9	16,667	150,003		
	Temporary Roads/Parking Lots	40,000	40,000				
	Temporary Walk-ways/Guard Rails	20,000			20,000		
		Tota	\$561,828.00				
General & Excess Liability	Liability Insurance		18	15,888	\$285,984.00		
CM Fee	Fee (1.5%)	770,000			\$770,000.00		
		Total Project General Conditions					
*Note - Costs came from Cost Wol	rks (where applicable) and Gilbane's Original Budge	et Report (Dated	: January 24, 2	2005)			