GEISINGER GRAY'S WOODS AMBULATORY CARE CAMPUS PHASE 1

PATTON TOWNSHIP, CENTRE COUNTY, PENNSYLVANIA

TECHNICAL REPORT 2
SENIOR THESIS
November 2nd, 2007

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CONSTRUCTION MANAGEMENT
DR. RILEY

Erica L. Craig
Construction Management
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Technical Report 2
Dr. Riley

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EXECUTIVE SUMMARY

SECTION I

This report is intended to provide information on how the project was executed and estimated. Included are details of the project schedule and site layout planning. Additionally, an evaluation of the project estimates such as assemblies, detailed structural and general conditions are also included. Readers will also find a site plan of the steel erection phase of the project, as well as all detailed calculations for estimates.

For the 64,000 SF, two-story facility, schematic design started in January 2006 and substantial completion is set for February 2008 to allow the owner move-in to start in July 2008. Key issues relating to the project schedule are further discussed. Additionally, when planning the structural steel erection phase of construction, Alexander Building Construction, LLC took all aspects of the site into consideration and optimized their time by utilizing the facilities new parking areas.

Consisting of brick masonry, EIFS, and a curtain wall system, the exterior facade assemblies estimate totaled just under $1 million. After completing a thorough structural systems estimate, both foundations and structural steel, the estimate came in just under $2 million (including overhead and profit) with the materials being upwards of 62% of these costs. Overall, for Geisinger Gray's Woods Ambulatory Care Campus, the structural component of the building was estimated to cost $30.20/SF.

DETAILED PROJECT SCHEDULE

SECTION II

The schedule for Geisinger Gray's Woods has been broken down into eight sections: Approval/Permits, Design Development, Construction Documents/GMP/Procurement, Sitework, Shell & Enclosure, Level 2 Interiors, Level 1 Interiors, and Completion & Closeout. Key issues for the project lie in the mechanical coordination with the other trades as well as enclosing the building before the winter season. An attached detailed schedule is provided in Appendix A.

Currently, the project is on schedule. All components of the structural system have been completed including the foundation, steel erection, and slabs. The majority of the roofing system is finished although the metal roof portion will not be done for another month. Both the EIFS and bricks facades are completed and the curtain wall system is on schedule to be completed by November 15th. Inside the building, metal studs have been completed on the second floor with progress started on the first floor. Additionally, overhead mechanical, electrical, and fire protection has begun. Drywall installation is following close behind the overhead work, with completion on schedule for November 15th as well. Below is a current photo (Figure 1) of the Geisinger Gray's Woods construction.

Figure 1: Geisinger Gray's Woods Ambulatory Care Campus Phase 1, taken 10/30/2007 by Alexander Building Construction, LLC.

Foundation

The foundation system for the Gray's Woods project consists of cast-in-place concrete pier footings and grade beams. There are no below-grade stories. The West side of the building will require a cast-in-place concrete foundation/retaining wall.

Activity	Duration	Early Start	Early Finish
Foundation Concrete	41	5/29/07	7/24/07

Structure

Structural steel erection is planned to be done in three phases. The building will be broken into three sections, from North to South, with erection of the steel starting on the North side of the building. After metal decking for the second floor is in place, the concrete floor can be placed for the first two sections. Following, the last section of the second floor concrete will be place with the first section of the slab-on-grade floor. Similarly, the roof concrete slab will first have two sections poured, and to finish, the last section of the roof and the last two sections of the slab-on-grade will be placed.

Activity	Duration	Early Start	Early Finish
Steel Erection Seq. 1	10	7/9/07	7/20/07
Steel Erection Seq. 2	10	7/23/07	8/3/07
Steel Erection Seq. 3	8	8/6/07	8/15/07
2nd Floor Concrete, Seq. 1 & 2	3	8/6/07	8/8/07
Roof Concrete, Seq. 1 & 2	5	8/9/07	8/15/07
2nd Floor Concrete, Seq. 3/SOG Seq. 1	3	8/16/07	8/20/07
Roof Concrete Seq. 3/SOG Seq. 2 & 3	3	9/3/07	9/5/07

Finishes

After the building is enclosed, interior finishes may begin. Interior finishes will be completed in the same sequence as steel erection. Subcontractors will progress through the building in the following order:

- Hang Ductwork
- Metal Studs
- MEP Wall Installation
- Drywall/Painting
- Epoxy Terrazzo
- Ceramic Tile
- Ceiling Grid
- Millwork
- Plumbing Fixtures
- Light Fixtures
- Doors

SITE LAYOUT PLANNING

SECTION III

For Geisinger's 2-story ambulatory care center, the large 52 acre lot needed to be organized and preplanned to have a smooth construction process. Because the building and parking only takes up a little over 80,000 SF, most of the site could be left alone for later expansion. During the structural steel erection phase of construction, Alexander Building Construction, LLC utilized the site and the surroundings to the best of their ability. At this point in construction, both the South and West parking areas were completed as well as the new roadways. Additionally, concrete foundations and the retaining wall were in place. Please reference Appendix B for a detailed drawing of this site layout phase for Geisinger Gray's Woods Ambulatory Care Campus.

Steel erection took place in three sequences starting on the North end and finishing on the South end of the building. Since parking areas were complete, Alexander used this space for crane positioning and first and second sequence laydown areas. For the third steel sequence, steel lay down was in the East side, entrance, of the building. Having the steel lay down in these areas allowed for easy delivery and easy picks from the crane.

Other than lay down areas and crane location, the South parking lot served many other functions as well. All six dumpsters (general, wood, metal, cardboard, masonry, and steel) were placed on the parking lot for easy access by all subcontractors. Subcontractor's trailers are located on the far side of the South parking lot. Close the site's main entrance and the South parking lot entrance, Alexander has placed their trailer to have delivery monitoring capabilities.

The West parking lot was also used during this phase of construction. All of employee parking is located on the West parking lot and this area was also used for interior material deliveries. For the slab pours, the concrete pump truck was also brought around to the back of the building, West parking lot, to access the second floor deck and roof deck. However, for the slab on grade pour, the concrete pump truck was required to pour from the front entrance of the building.

Lastly, other construction equipment was also placed in strategic places. Hoists and lifts are able to run across the front and back of the building for first and second floor, respectively, deliveries. To stay close to the electrical and other utility service yard, the temporary transformer was placed on the North end of the building.

Traffic flow from the nearby US Route 220/322 highway provided for straightforward deliveries. With only one entrance/exit for the construction site, having the new roadways and parking areas completed before this phases was vital to keep the site clean, easy to get to and safe.

After analyzing Alexander's site layout plan for the structural steel erection phase, it is evident that the finished roadways and parking areas were very beneficial. However, to keep the South parking lot clear for more lay down areas and less congestion, remediation could have came in using the West parking area more, perhaps for some subcontractor's trailers or dumpsters.

ASSEMBLIES ESTIMATE

SECTION IV

The building façade assemblies' estimate was completed using RS Means Assemblies 2007. All areas were calculated off of building elevations. The table below shows the unit price for each building façade material based off of the building elevation areas. Please reference Appendix C for the detailed assemblies estimate calculations.

Building Façade Assemblies' Estimate				
	Quantity	Unit	Unit Price	Total
EIFS	5,001	SF	$15.89	$79,445.89
Brick w/Studs	10,297	SF	$19.04	$196,003.40
Brick w/CMU	392	SF	$23.88	$9,359.39
Glazing	6,772	SF	$32.71	$221,525.66
Spandrels	2,772	SF	$27.54	$76,346.42
Tubular Alum. No horizontals	4,574	SF OPNG.	$33.35	$152,542.90
Tubular Alum. One horizontal	4,970	SF OPNG.	$41.75	$207,409.50
			TOTAL	$979,913.55

Location Multiplier (State College, PA = .94) considered in Unit Price Cost.
All estimates are based off of RS Means Assemblies 2007.

EIFS

The South and roof elevations have an EIFS façade.

Assumptions:

Plywood Sheathing, 6" metal stud backup, 2" EPS.

Unit price includes framing, plywood sheathing, building paper, stucco, fiberglass insulation batts, paint exterior stucco.

Brick Veneer with Metal Stud Backup

Brick veneer façade was used for the West, East, and North elevations.

Assumptions:

Standard face brick, 25 ga. X 6" stud backup, 24" stud spacing, running bond.

Brick Face Composite Wall

Brick Face Composite Walls were used only on the Chiller/Boiler Room South elevation.

Assumptions:

Engineer face brick, Concrete block, 8" backup, Styrofoam core fill, double wythe.

Glazing

All elevations on the Gray's Woods main building have a portion of glazing as part of the aluminum curtain wall system.

Assumptions:

Glazing panel, insulating, 1" thick, light and heat reflective glass.

Unit Costs to do include structural framing used to hang the panels from.

Spandrel Glass

The East and South, as well as the North elevation, have a portion of glazing as part of the aluminum curtain wall system.

Assumptions:

Spandrel glass panels, 3/8" plate glass, 1" thick.

Unit Costs to do include structural framing used to hang the panels from.

Tubular Aluminum Framing

As part of the curtain wall system, tubular framing is present on all building elevations.

Assumptions:

Aluminum flush tube frame, for insulating glass, 2" x 4 ½"; no horizontals and one horizontal.

Clear anodized tubular aluminum framing.

For stainless steel, add 75% to material costs.

Unit Costs do not include the glass.

DETAILED STRUCTURAL SYSTEMS ESTIMATE

SECTION V

Concrete – Slab, Strip Footings, Pier Footings

Cubic Yards of Concrete:	1,552.85 CY
Division 3 – Budgeted Cost	$1,201,464.00
Division 3 – Concrete Estimate:	**$928,674.08**
Division 3 also includes concrete stairs, concrete retaining walls, and Chiller/Boiler Room	
Difference:	(22.7%) $272,789.92

Structural Steel – Beams, Columns, Bracing, Connections, Decking, Accessories

Number of Members (W-Shape):	643
Tons (W-Shapes):	235
Division 5 – Budgeted Cost:	$1,297,243.00
Division 5 – Structural Steel, Decking, Accessories Estimate:	**$1,014,992.77**
Division 5 also includes metal stairs, metal shapes, metal studs	
Difference:	(21.7%) $282,250.23

Entire Structural System

Material Costs:	$1,203,013.80
Labor Costs:	$341,261.04
Equipment Costs:	$57,635.25
Total:	$1,601,909.62
TOTAL INCLUDING OVERHEAD & PROFIT:	**$1,943,666.85**
COST/SF OF BUILDING:	**$30.20/SF**

Location Multiplier (State College, PA = .94) considered in final estimates.

Structural System Descriptions

Foundations – Piers, Strip Footings, All Slabs

A detailed estimate provided in Appendix D.

Assumptions:

- Unit costs based off of RS Means 2008 Building Costs.
- All budgeted project costs referenced from Technical Report 1.
- All other assumptions made on detailed estimate.

Superstructure – Structural Steel, Decking, Accessories

A detailed estimate provided in Appendix D.

Assumptions:

- Unit costs based off of RS Means 2008 Building Costs.
- All budgeted project costs referenced from Technical Report 1.
- The cost of crane rental and operator included in detailed estimates.
- All other assumptions made on detailed estimate.

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GENERAL CONDITIONS ESTIMATE

SECTION VI

Project Schedule: 14 Months of Construction, 28 Months total
Project Costs: $15M, $35M total
Project Size: 64,350 SF

012000	Local Business Tax	6%	$	65,000.00
013000	Project Staff Base	See charts on following pages	$	418,545.00
013001	Insurance WC Liability	18.3% Base	$	77,692.00
013002	Payment/Performance Bond	1.2%	$	180,000.00
013003	Schedule Control	$300/mo.	$	4,200.00
013004	Quality Control	-	$	8,250.00
013005	Photos – Time Lapse	$3775/set	$	3,775.00
015000	Field Office	$1,280/mo.	$	16,640.00
015001	Office Supplies	$95/mo.	$	1,330.00
015002	Office Equipment	$150/mo.	$	2,100.00
015003	Office Telephone	$210/mo.	$	2,940.00
015004	Office Lights & HVAC	$110/mo.	$	1,540.00
017000	Final Cleaning	0.15%	$	22,500.00
015005	Safety/Protection	$1,200/mo.	$	16,800.00
015006	Temporary Lighting/Power	$14.08/mo.	$	200.00
015008	Dumpsters/Trash Removal*	$1425/mo.	$	19,950.00
015009	Portable Toilets*	$250/mo.	$	3,500.00
015010	Temporary Fencing - Rented	$3.58/LF (3500LF)	$	12,530.00
		SUBTOTAL	$	857,492.00
	ES Ratio = 1.00	**FEE 2.8%**	$	420,000.00
		TOTAL	**$**	**1,277,492.00**

SV Ratio = 3.3%
EV Ratio = 3.3%
Estimates based off RS Means Building Construction Cost Data 2008
*Estimates based off Alexander Building Construction

	Preconstruction															
	1/06	2/06	3/06	4/06	5/06	6/06	7/06	8/06	9/06	10/06	11/06	12/06	1/07	2/07	3/07	4/07
Project Executive	-	15%	10%	10%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Manager of Operations	-	-	-	5%	5%	5%	5%	-	-	-	-	-	-	-	5%	5%
Senior PM	-	-	-	5%	5%	5%	-	-	-	-	-	-	-	5%	5%	5%
PM	-	-	-	-	10%	10%	10%	5%	5%	5%	5%	5%	10%	10%	15%	25%
Project Engineer	-	-	-	-	-	-	5%	5%	-	-	-	-	-	-	-	25%
Project Assistant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25%
Superintendent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25%
Assistant Superintendent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sitework															
	Shell & Enclosures															
				Level 2 Interiors												
					Level 1 Interiors											
								Completion & Closeout								
	5/07	6/07	7/07	8/07	9/07	10/07	11/07	12/07	1/08	2/08	3/08	4/08	5/08	6/08	7/08	8/08
Project Executive	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	10%	-
Manager of Operations	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	10%	-
Senior PM	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	10%	10%	-
PM	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	-
Project Engineer	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	50%	-
Project Assistant	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	-
Superintendent	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	-
Assistant Superintendent	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	75%	-

Figure 2: Project Staff Monitor Chart

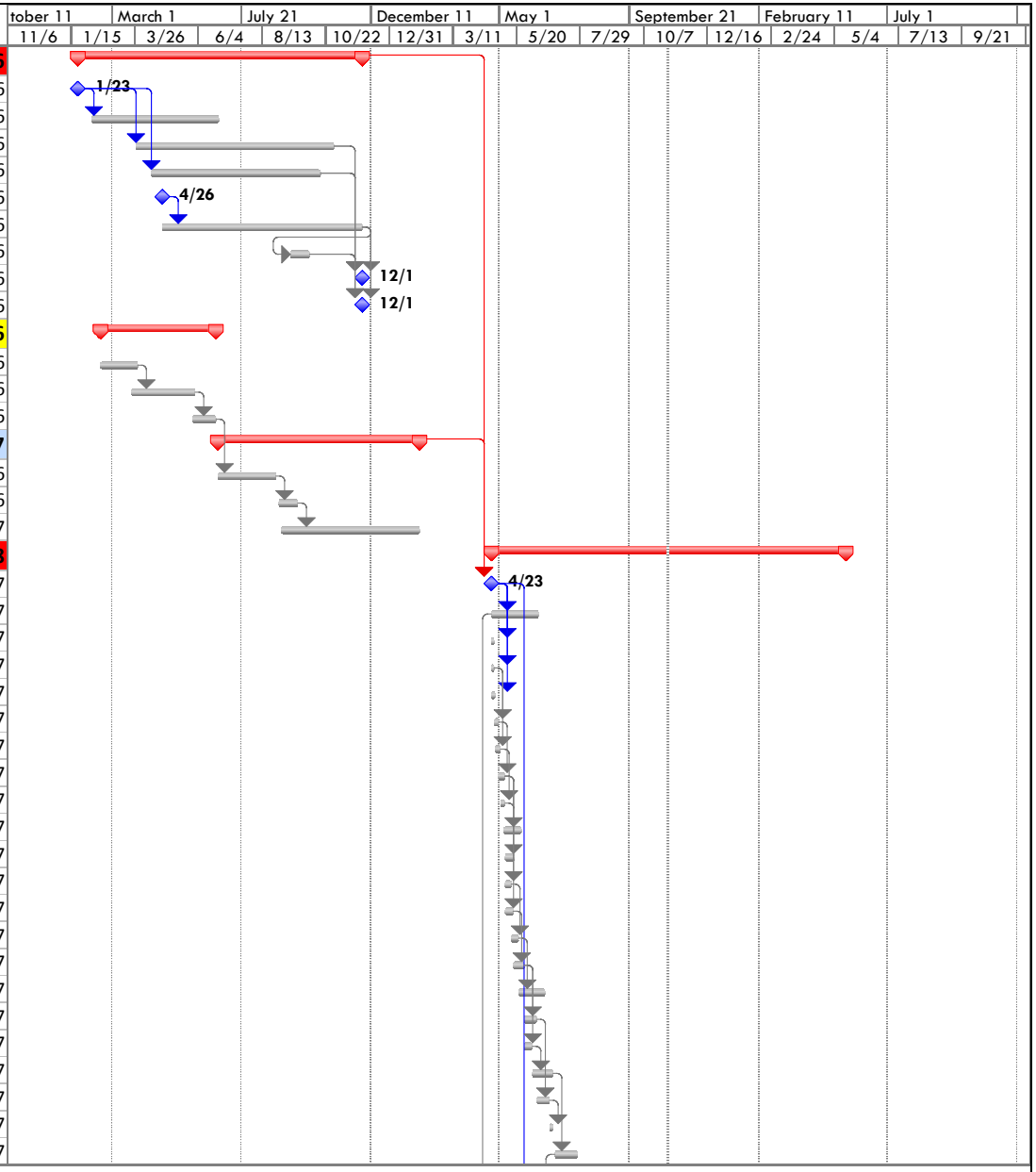
	Total Project Contribution in Weeks	Weekly Salary, $	Total, $
Project Executive	7	3,000.00	21,000.00
Manager of Operations	4.4	3,000.00	13,200.00
Senior PM	4.6	2,100.00	9,660.00
PM	22.6	1,850.00	41,810.00
Project Engineer	57.4	1,125.00	64,575.00
Project Assistant	60	850.00	51,000.00
Superintendent	60	1,950.00	117,000.00
Assistant Superintendent	59	1,700.00	100,300.00
		TOTAL	**$ 418,545.00**

Figure 3: Project Staff Costs Chart

APPENDIX A

DETAILED PROJECT SCHEDULE

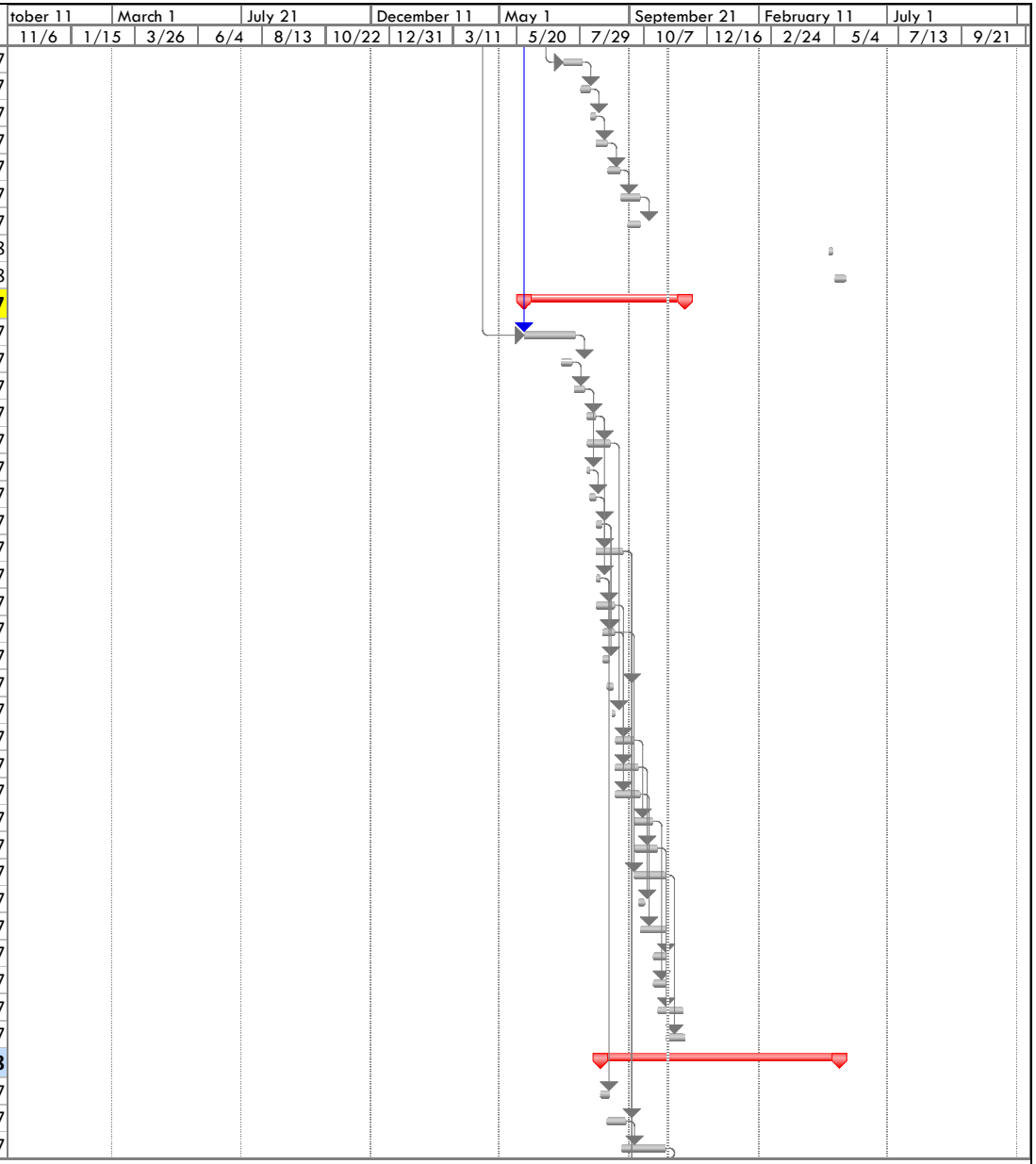
ID	Task Name	Duration	Start	Finish
1	**APPROVALS/PERMITS**	**225 days**	**Mon 1/23/06**	**Fri 12/1/06**
2	Site Master Plan Approved	0 days	Mon 1/23/06	Mon 1/23/06
3	Site Drawings & Easement Approvals	100 days	Tue 2/7/06	Mon 6/26/06
4	NPDES Plan Revision/Resubmission/Approval	156 days	Tue 3/28/06	Tue 10/31/06
5	Submit Plans to PennDOT/Approval	132 days	Fri 4/14/06	Mon 10/16/06
6	Centre Region Council of Gov't Meeting	0 days	Wed 4/26/06	Wed 4/26/06
7	537 DEP Planning/Approval	158 days	Wed 4/26/06	Fri 12/1/06
8	Sewer Authority Sewer Main Approval	15 days	Thu 9/14/06	Wed 10/4/06
9	Obtain Building Permit	0 days	Fri 12/1/06	Fri 12/1/06
10	Receive Final LDP Approval	0 days	Fri 12/1/06	Fri 12/1/06
11	**DESIGN DEVELOPMENT**	**91 days**	**Fri 2/17/06**	**Fri 6/23/06**
12	Select CM/Schematic Design Estimate	29 days	Fri 2/17/06	Wed 3/29/06
13	Design Development	50 days	Thu 3/23/06	Wed 5/31/06
14	D.D. Estimate	20 days	Mon 5/29/06	Fri 6/23/06
15	**CONSTRUCTION DOCUMENTS/GMP/PROCUREMEI**	**160 days**	**Mon 6/26/06**	**Fri 2/2/07**
16	Construction Documents	46 days	Mon 6/26/06	Mon 8/28/06
17	GMP	15 days	Fri 9/1/06	Thu 9/21/06
18	Fab. & Deliv. Structural Steel	110 days	Mon 9/4/06	Fri 2/2/07
19	**SITEWORK**	**280 days**	**Mon 4/23/07**	**Fri 5/16/08**
20	Mobilize on Site	0 days	Mon 4/23/07	Mon 4/23/07
21	Building Pad	38 days	Mon 4/23/07	Wed 6/13/07
22	Layout	3 days	Mon 4/23/07	Wed 4/25/07
23	E&S (Incl. Pipe)	3 days	Mon 4/23/07	Wed 4/25/07
24	Tree Protection Fence	4 days	Mon 4/23/07	Thu 4/26/07
25	Construction Entrance	3 days	Thu 4/26/07	Mon 4/30/07
26	Haul Road	4 days	Fri 4/27/07	Wed 5/2/07
27	Impact Basin	5 days	Tue 5/1/07	Mon 5/7/07
28	Waste Area E&S	3 days	Thu 5/3/07	Mon 5/7/07
29	Clear & Grubb	15 days	Mon 5/7/07	Fri 5/25/07
30	Impact Basin Walls	8 days	Tue 5/8/07	Thu 5/17/07
31	Waste Area Pond	5 days	Tue 5/8/07	Mon 5/14/07
32	Strip	7 days	Tue 5/8/07	Wed 5/16/07
33	Waste Area Prep	6 days	Tue 5/15/07	Tue 5/22/07
34	Cut to Fill	8 days	Thu 5/17/07	Mon 5/28/07
35	Retaining Wall	21 days	Wed 5/23/07	Wed 6/20/07
36	Cut to Waste	10 days	Tue 5/29/07	Mon 6/11/07
37	Sanitary	7 days	Tue 5/29/07	Wed 6/6/07
38	Waterline	17 days	Thu 6/7/07	Fri 6/29/07
39	Paving Subgrade - South Parking Lot	10 days	Tue 6/12/07	Mon 6/25/07
40	Base Paving - South Parking Lot	4 days	Tue 6/26/07	Fri 6/29/07
41	Storm	19 days	Mon 7/2/07	Thu 7/26/07



Project: Geisinger Gray's Woods Ambulatory Care Campus Phase 1
Summary Schedule

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

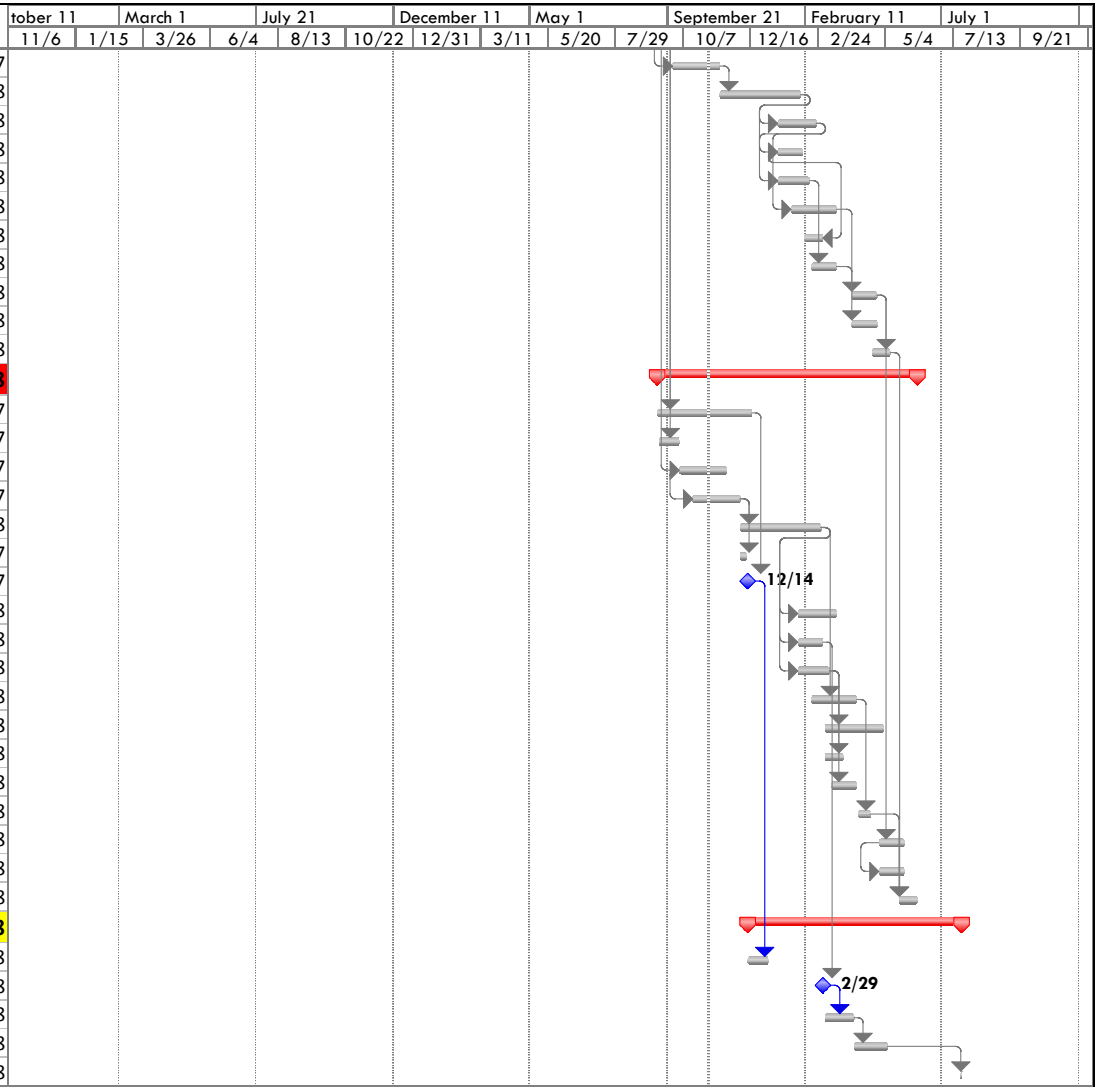
ID	Task Name	Duration	Start	Finish
42	Underground Detention Facility and Storm	15 days	Wed 7/11/07	Tue 7/31/07
43	Paving Subgrade - West Parking Lot	9 days	Mon 7/30/07	Thu 8/9/07
44	Base Paving - West Parking Lot	4 days	Fri 8/10/07	Wed 8/15/07
45	Concrete Slabs	9 days	Thu 8/16/07	Tue 8/28/07
46	Curb	10 days	Wed 8/29/07	Tue 9/11/07
47	Topsoil (Islands & Slopes	16 days	Wed 9/12/07	Wed 10/3/07
48	Landscaping & Seeding (Fall)	10 days	Thu 9/20/07	Wed 10/3/07
49	Wearing Paving	5 days	Mon 4/28/08	Fri 5/2/08
50	Landscaping & Seeding (Spring)	10 days	Mon 5/5/08	Fri 5/16/08
51	**SHELL & ENCLOSURE**	**127 days**	**Tue 5/29/07**	**Ved 11/21/07**
52	Foundation Concrete	41 days	Tue 5/29/07	Tue 7/24/07
53	Steel Erection Sequence 1	10 days	Mon 7/9/07	Fri 7/20/07
54	Steel Erection Sequence 2	10 days	Mon 7/23/07	Fri 8/3/07
55	Steel Erection Sequence 3	8 days	Mon 8/6/07	Wed 8/15/07
57	Underground Plumbing	20 days	Mon 8/6/07	Fri 8/31/07
58	Concrete 2nd Floor Seq. 1 & 2	3 days	Mon 8/6/07	Wed 8/8/07
59	Concrete Roof Seq. 1 & 2	5 days	Thu 8/9/07	Wed 8/15/07
56	Boiler Room Steel Erection	5 days	Thu 8/16/07	Wed 8/22/07
60	TPO Roof	22 days	Thu 8/16/07	Fri 9/14/07
61	Concrete 2nd Floor Seq. 3/SOG Seq. 1	3 days	Thu 8/16/07	Mon 8/20/07
66	Exterior Stud Framing/Sheathing North Elevation	15 days	Thu 8/16/07	Wed 9/5/07
63	Concrete Boiler Room Roof/SOG	10 days	Thu 8/23/07	Wed 9/5/07
64	East and West Stair Installation	6 days	Thu 8/23/07	Thu 8/30/07
65	Spray Fireproofing Shaft Bays	5 days	Tue 8/28/07	Mon 9/3/07
62	Concrete Roof Seq. 3/SOG Seq. 2 & 3	3 days	Mon 9/3/07	Wed 9/5/07
67	Exterior Stud Framing/Sheathing West Elevation	15 days	Thu 9/6/07	Wed 9/26/07
69	Brick Masonry North Elevation	18 days	Thu 9/6/07	Mon 10/1/07
72	Metal Roof	20 days	Thu 9/6/07	Wed 10/3/07
68	Exterior Stud Framing/Sheathing South Elevation	15 days	Thu 9/27/07	Wed 10/17/07
70	Brick Masonry West Elevation	18 days	Thu 9/27/07	Mon 10/22/07
73	Aluminum Curtain Wall East Elevation	25 days	Thu 9/27/07	Wed 10/31/07
76	Aluminum Windows North Elevation	5 days	Tue 10/2/07	Mon 10/8/07
75	Aluminum Composite Panels	20 days	Thu 10/4/07	Wed 10/31/07
71	EIFS	10 days	Thu 10/18/07	Wed 10/31/07
77	Monumnetal Stair Installation	10 days	Thu 10/18/07	Wed 10/31/07
78	Aluminum Windows West Elevation	20 days	Tue 10/23/07	Mon 11/19/07
74	Aluminum Curtain Wall South and West Elevation	15 days	Thu 11/1/07	Wed 11/21/07
79	**LEVEL 2 INTERIORS**	**189 days**	**Tue 8/21/07**	**Fri 5/9/08**
80	East & West Stairs	8 days	Tue 8/21/07	Thu 8/30/07
81	Hang Ductwork Mains	15 days	Tue 8/28/07	Mon 9/17/07
82	Interior Metal Studs	35 days	Thu 9/13/07	Wed 10/31/07



Project: Geisinger Gray's Woods Ambulatory Care Campus Phase 1
Summary Schedule

Task	Rolled Up Task	External Tasks	
Progress	Rolled Up Milestone	Project Summary	
Milestone	Rolled Up Progress	Group By Summary	
Summary	Split	Deadline	

ID	Task Name	Duration	Start	Finish
83	MEP in Wall	35 days	Thu 9/27/07	Wed 11/14/07
84	Drywall	60 days	Thu 11/15/07	Wed 2/6/08
85	Painting	30 days	Mon 1/14/08	Fri 2/22/08
86	Epoxy Terrazzo	20 days	Mon 1/14/08	Fri 2/8/08
88	Ceramic Tile	25 days	Mon 1/14/08	Fri 2/15/08
87	Ceiling Grid	35 days	Mon 1/28/08	Fri 3/14/08
89	Milcare Installation	15 days	Mon 2/11/08	Fri 2/29/08
90	Plumbing Fixtures	20 days	Mon 2/18/08	Fri 3/14/08
91	Light Fixtures/GRDs	20 days	Mon 3/31/08	Fri 4/25/08
92	Hang Doors	20 days	Mon 3/31/08	Fri 4/25/08
93	Floor Finishes	15 days	Mon 4/21/08	Fri 5/9/08
94	**LEVEL 1 INTERIORS**	**194 days**	**Tue 9/11/07**	**Fri 6/6/08**
95	Boiler Room Mechanical	70 days	Tue 9/11/07	Mon 12/17/07
96	Hang Ductwork Mains	15 days	Thu 9/13/07	Wed 10/3/07
97	Interior Metal Studs	35 days	Thu 10/4/07	Wed 11/21/07
98	MEP in Wall	35 days	Thu 10/18/07	Wed 12/5/07
99	Drywall	60 days	Thu 12/6/07	Wed 2/27/08
100	MRI RF Enclosure	5 days	Thu 12/6/07	Wed 12/12/07
102	Permanent System for Temporary Heat	0 days	Fri 12/14/07	Fri 12/14/07
101	Painting	30 days	Mon 2/4/08	Fri 3/14/08
103	Epoxy Terrazzo	20 days	Mon 2/4/08	Fri 2/29/08
104	Ceramic Tile	25 days	Mon 2/4/08	Fri 3/7/08
105	Ceiling Grid	35 days	Mon 2/18/08	Fri 4/4/08
106	Install Elevators	45 days	Mon 3/3/08	Fri 5/2/08
107	Milcare Installation	15 days	Mon 3/3/08	Fri 3/21/08
108	Plumbing Fixtures	20 days	Mon 3/10/08	Fri 4/4/08
109	Install Water Feature	10 days	Mon 4/7/08	Fri 4/18/08
110	Light Fixtures/GRDs	20 days	Mon 4/28/08	Fri 5/23/08
111	Hang Doors	20 days	Mon 4/28/08	Fri 5/23/08
112	Floor Finishes	15 days	Mon 5/19/08	Fri 6/6/08
113	**COMPLETION & CLOSEOUT**	**158 days**	**Fri 12/14/07**	**Tue 7/22/08**
114	Testing & Air Balancing	15 days	Fri 12/14/07	Thu 1/3/08
115	Substantial Completion	0 days	Fri 2/29/08	Fri 2/29/08
116	Punchlist	22 days	Mon 3/3/08	Tue 4/1/08
117	Functional Testing - Commissioning	25 days	Wed 4/2/08	Tue 5/6/08
118	Owner Move-In	1 day	Tue 7/22/08	Tue 7/22/08

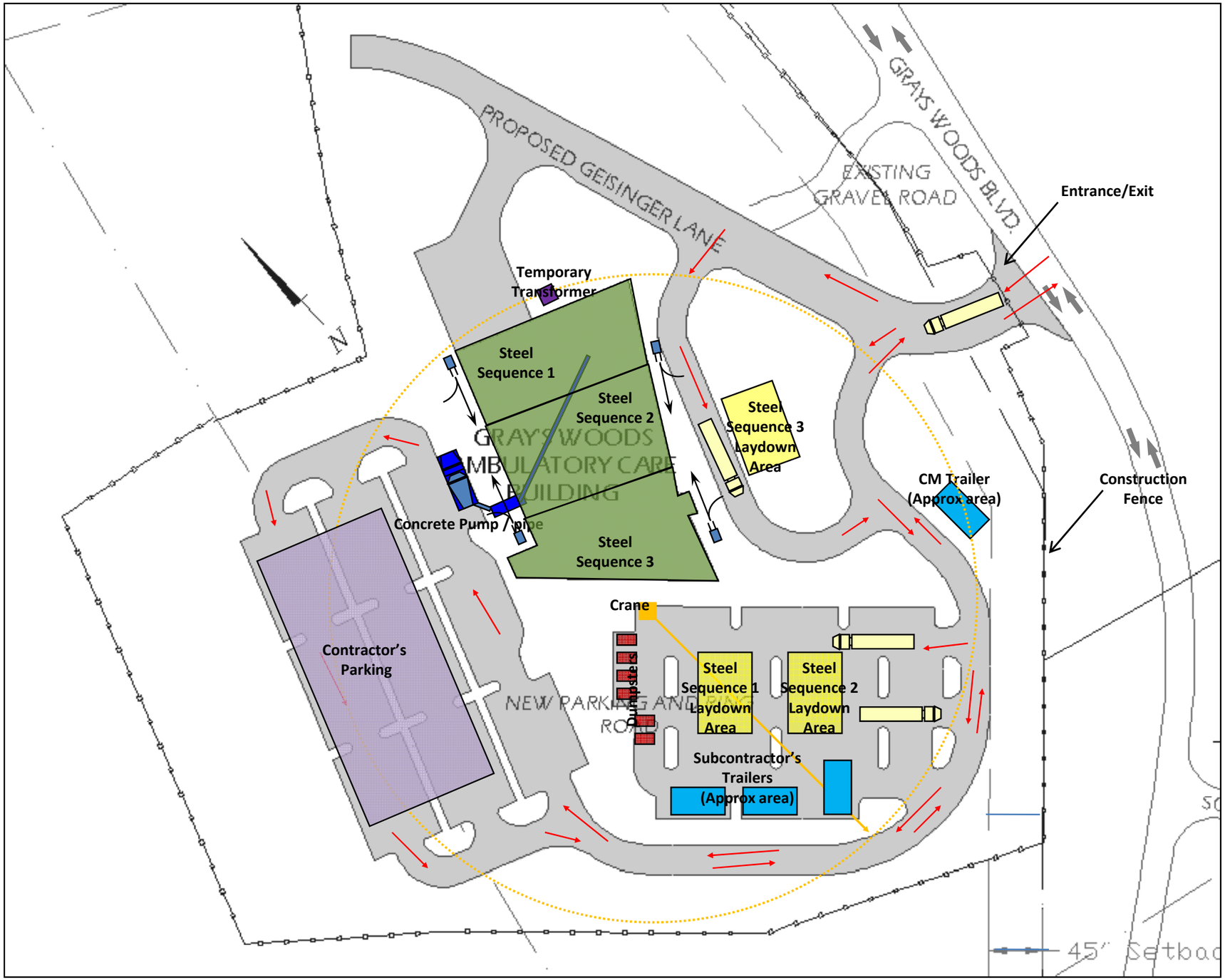


Project: Geisinger Gray's Woods Ambulatory Care Campus Phase 1
Summary Schedule

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

APPENDIX B

SITE PLAN LAYOUT



Geisinger Gray's Woods Ambulatory Care Campus Phase 1

Alexander Building Construction, LLC

Site Layout Planning

Structural Steel Erection Construction Phase

Scale: 1" = 90'

APPENDIX C

ASSEMBLIES CALCULATIONS

Assembly Calculations

Elevation	Material	Unit	Quantity	Material	Installation	Price	Total
East	Glazing panels, light and heat reflective glass, 1" thick	SF	4106	24.5	10.3	34.8	142,888.80
	Spandrel glass, 1" thick, insul with fiberglass	SF	2212	22	7.3	29.3	64,811.60
	Tubular Aluminum Framing, for insulating glass, 5' x 6' opening, no intermediate horizontals	SF OPNG	1348	22.05	11.3	33.35	44,955.80
	Tubular Aluminum Framing, for insulating glass, 5' x 6' opening, one intermediate horizontal	SF OPNG	4970	28.5	13.25	41.75	207,497.50
	Brick Veneer, with metal stud backup, standard, 6" studs, 24" stud spacing, running bond	SF	344	6.6	13.65	20.25	6,966.00
South	EIFS, plywood sheating, stud wall 16" o.c., 2" EPS	SF	2284	5.9	11	16.9	38,599.60
	Glazing panels, light and heat reflective glass, 1" thick	SF	1416	24.5	10.3	34.8	49,276.80
	Spandrel glass, 1" thick, insul with fiberglass	SF	264	22	7.3	29.3	7,735.20
	Tubular Aluminum Framing, for insulating glass, 5' x 6' opening, no intermediate horizontals	SF OPNG	1680	22.05	11.3	33.35	56,028.00
West	Glazing panels, light and heat reflective glass, 1" thick	SF	450	24.5	10.3	34.8	15,660.00
	Tubular Aluminum Framing, for insulating glass, 5' x 6' opening, no intermediate horizontals	SF OPNG	450	22.05	11.3	33.35	15,007.50
	Brick Veneer, with metal stud backup, standard, 6" studs, 24" stud spacing, running bond	SF	4867	6.6	13.65	20.25	98,556.75
North	Glazing panels, light and heat reflective glass, 1" thick	SF	488	24.5	10.3	34.8	16,982.40
	Spandrel glass, 1" thick, insul with fiberglass	SF	296	22	7.3	29.3	8,672.80
	Tubular Aluminum Framing, for insulating glass, 5' x 6' opening, no intermediate horizontals	SF OPNG	784	22.05	11.3	33.35	26,146.40
	Brick Veneer, with metal stud backup, standard, 6" studs, 24" stud spacing, running bond	SF	3446	6.6	13.65	20.25	69,781.50
Roof	EIFS, plywood sheathing, stud wall 16" o.c., 2" EPS	SF	2717	5.9	11	16.9	45,917.30
Entry	Glazing panels, light and heat reflective glass, 1" thick	SF	312	24.5	10.3	34.8	10,857.60
	Tubular Aluminum Framing, for insulating glass, 5' x 6' opening, no intermediate horizontals	SF OPNG	312	22.05	11.3	33.35	10,405.20
Chiller/Boiler Room							
East	Brick Veneer, with metal stud backup, standard, 6" studs, 24" stud spacing, running bond	SF	1156	6.6	13.65	20.25	23,409.00
North	Brick Veneer, with metal stud backup, standard, 6" studs, 24" stud spacing, running bond	SF	484	6.6	13.65	20.25	9,801.00
South	Brick Face Composite Wall, 8" CMU block, styrofoam fill	SF	392	8.75	16.65	25.4	9,956.80
						TOTAL	$979,913.55

APPENDIX D

DETAILED STRUCTURAL CALCULATIONS

First Floor Structural Steel

Size		Length	Unit	Quantity	Lbs.	Material	Labor	Equipment	Price	Inc. 15% O&P	Total
W 8 X 10											
		6	LF	4	240	12.1	3.91	2.61	18.62	23	552.00
W 10 X 12											
		1.5	LF	1	18	14.5	3.91	2.61	21.02	25.5	38.25
		3	LF	5	180	14.5	3.91	2.61	21.02	25.5	382.50
		6	LF	1	72	14.5	3.91	2.61	21.02	25.5	153.00
		6.5	LF	2	156	14.5	3.91	2.61	21.02	25.5	331.50
		7	LF	1	84	14.5	3.91	2.61	21.02	25.5	178.50
		10	LF	3	360	14.5	3.91	2.61	21.02	25.5	765.00
W 10 x 9											
		10.75	LF	1	96.75	14.5	3.91	2.61	21.02	25.5	274.13
W 12 x 16											
		2.75	LF	2	88	19.34	2.66	1.78	23.78	27.34	150.37
		4	LF	2	128	19.34	2.66	1.78	23.78	27.34	218.72
	S	6	LF	5	480	19.34	2.66	1.78	23.78	27.34	820.20
	S	6.5	LF	1	104	19.34	2.66	1.78	23.78	27.34	177.71
	S	7	LF	1	112	19.34	2.66	1.78	23.78	27.34	191.38
	S	7.5	LF	2	240	19.34	2.66	1.78	23.78	27.34	410.10
W 12 x 19											
		2	LF	1	38	22.92	2.66	1.78	27.36	31.46	62.92
		4	LF	1	76	22.92	2.66	1.78	27.36	31.46	125.84
		5	LF	2	190	22.92	2.66	1.78	27.36	31.46	314.60
		6	LF	2	228	22.92	2.66	1.78	27.36	31.46	377.52
		6.25	LF	1	118.75	22.92	2.66	1.78	27.36	31.46	196.63
		7	LF	3	399	22.92	2.66	1.78	27.36	31.46	660.66
		7.5	LF	1	142.5	22.92	2.66	1.78	27.36	31.46	235.95
		9	LF	1	171	22.92	2.66	1.78	27.36	31.46	283.14
		9.25	LF	1	175.75	22.92	2.66	1.78	27.36	31.46	291.01
		10	LF	12	2280	22.92	2.66	1.78	27.36	31.46	3,775.20
		10.75	LF	2	408.5	22.92	2.66	1.78	27.36	31.46	676.39
		11	LF	1	209	22.92	2.66	1.78	27.36	31.46	346.06
		12	LF	1	228	22.92	2.66	1.78	27.36	31.46	377.52
		14	LF	1	266	22.92	2.66	1.78	27.36	31.46	440.44
		15	LF	2	570	22.92	2.66	1.78	27.36	31.46	943.80
		15.5	LF	1	294.5	22.92	2.66	1.78	27.36	31.46	487.63
		20.5	LF	4	1558	22.92	2.66	1.78	27.36	31.46	2,579.72
W 12 x 22											
		8.5	LF	1	187	26.5	2.66	1.78	30.94	36	306.00
W 12 x 26											
	S	6	LF	4	624	31.5	2.66	1.78	35.94	41	984.00
W 14 x 22											
		9	LF	1	198	26.5	2.37	1.58	30.45	35.02	315.18
		17.25	LF	3	1138.5	26.5	2.37	1.58	30.45	35.02	1,812.29
W 14 x 26											
		30	LF	1	780	31.5	2.37	1.58	35.45	40.5	1,215.00
W 14 x 30											
		30	LF	1	900	36.5	2.6	1.74	40.84	46.5	1,395.00
W 16 x 26											
		9	LF	1	234	31.5	2.34	1.57	35.41	40.5	364.50
		10.25	LF	2	533	31.5	2.34	1.57	35.41	40.5	830.25
		15.75	LF	1	409.5	31.5	2.34	1.57	35.41	40.5	637.88
		20	LF	1	520	31.5	2.34	1.57	35.41	40.5	810.00
		20.5	LF	1	533	31.5	2.34	1.57	35.41	40.5	830.25
		21.5	LF	1	559	31.5	2.34	1.57	35.41	40.5	870.75
		22.5	LF	1	585	31.5	2.34	1.57	35.41	40.5	911.25
		23	LF	1	598	31.5	2.34	1.57	35.41	40.5	931.50
		23.5	LF	1	611	31.5	2.34	1.57	35.41	40.5	951.75
		24	LF	1	624	31.5	2.34	1.57	35.41	40.5	972.00
		24.5	LF	1	637	31.5	2.34	1.57	35.41	40.5	992.25
		25	LF	1	650	31.5	2.34	1.57	35.41	40.5	1,012.50
		26	LF	1	676	31.5	2.34	1.57	35.41	40.5	1,053.00
		26.25	LF	2	1365	31.5	2.34	1.57	35.41	40.5	2,126.25
		26.5	LF	1	689	31.5	2.34	1.57	35.41	40.5	1,073.25
		27	LF	1	702	31.5	2.34	1.57	35.41	40.5	1,093.50
		27.25	LF	18	12753	31.5	2.34	1.57	35.41	40.5	19,865.25
		30	LF	1	780	31.5	2.34	1.57	35.41	40.5	1,215.00

W	16 x	26	3/4"									
			29.5	LF	1	767	31.5	2.34	1.57	35.41	40.5	1,194.75
			30	LF	39	30420	31.5	2.34	1.57	35.41	40.5	47,385.00
W	16 x	26	3/8" Web									
			16	LF	1	416	31.5	2.34	1.57	35.41	40.5	648.00
W	16 x	31										
			17	LF	1	527	37.5	2.6	1.74	41.84	48	816.00
			26	LF	1	806	37.5	2.6	1.74	41.84	48	1,248.00
			27	LF	1	837	37.5	2.6	1.74	41.84	48	1,296.00
			27.5	LF	1	852.5	37.5	2.6	1.74	41.84	48	1,320.00
			28.5	LF	1	883.5	37.5	2.6	1.74	41.84	48	1,368.00
			29.5	LF	1	914.5	37.5	2.6	1.74	41.84	48	1,416.00
			30	LF	7	6510	37.5	2.6	1.74	41.84	48	10,080.00
			31	LF	2	1922	37.5	2.6	1.74	41.84	48	2,976.00
			32	LF	1	992	37.5	2.6	1.74	41.84	48	1,536.00
W	16 x	45										
			30	LF	1	1350	54.5	2.93	1.96	59.39	68.3	2,049.00
W	16 x	50	5/8" Web									
			30	LF	1	1500	60.5	2.93	1.96	65.39	73.5	2,205.00
W	16 x	77										
			30	LF	2	4620	93.06	3.08	2.06	98.2	112.93	6,775.80
W	18 x	35										
			17.25	LF	1	603.75	42.5	3.53	1.77	47.8	54.5	940.13
			20.5	LF	1	717.5	42.5	3.53	1.77	47.8	54.5	1,117.25
			21.5	LF	1	752.5	42.5	3.53	1.77	47.8	54.5	1,171.75
			23.75	LF	2	1662.5	42.5	3.53	1.77	47.8	54.5	2,588.75
			24	LF	1	840	42.5	3.53	1.77	47.8	54.5	1,308.00
			26.25	LF	1	918.75	42.5	3.53	1.77	47.8	54.5	1,430.63
			28.5	LF	1	997.5	42.5	3.53	1.77	47.8	54.5	1,553.25
			29.5	LF	1	1032.5	42.5	3.53	1.77	47.8	54.5	1,607.75
			32	LF	1	1120	42.5	3.53	1.77	47.8	54.5	1,744.00
			34	LF	1	1190	42.5	3.53	1.77	47.8	54.5	1,853.00
			36	LF	1	1260	42.5	3.53	1.77	47.8	54.5	1,962.00
W	21 x	44										
			6	LF	1	264	53	3.19	1.6	57.79	66	396.00
			12.5	LF	6	3300	53	3.19	1.6	57.79	66	4,950.00
			26	LF	2	2288	53	3.19	1.6	57.79	66	3,432.00
			30	LF	3	3960	53	3.19	1.6	57.79	66	5,940.00
W	21 x	50										
			30	LF	5	7500	60.5	3.19	1.6	65.29	74	11,100.00
			32	LF	1	1600	60.5	3.19	1.6	65.29	74	2,368.00
			33.5	LF	1	1675	60.5	3.19	1.6	65.29	74	2,479.00
W	24 x	55										
			29.5	LF	1	1622.5	66.5	3.06	1.53	71.09	80	2,360.00
			30	LF	15	24750	66.5	3.06	1.53	71.09	80	36,000.00
			31	LF	1	1705	66.5	3.06	1.53	71.09	80	2,480.00
W	24 x	62										
			30	LF	3	5580	75	3.06	1.53	79.59	89	8,010.00
W	24 x	68										
			30	LF	1	2040	82.5	3.06	1.53	87.09	97	2,910.00
			32.5	LF	1	2210	82.5	3.06	1.53	87.09	97	3,152.50
W	24 x	76										
			36	LF	1	2736	92	3.06	1.53	96.59	108	3,888.00
W	27 x	84										
			30	LF	5	12600	102	2.85	1.43	106.28	119	17,850.00
W	30 x	116										
			34.5	LF	1	4002	140	2.93	1.46	144.39	161	5,554.50
HSS	10 x	6 x	5/16	(LSH)	(per 14')							
			41	Ea.	3		645	47	31.5	723.5	825	2,475.00
HSS	8 x	8 x	3/8		(per 14')							
			3	Ea.	1		645	47	31.5	723.5	825	825.00
			8.5	Ea.	1		645	47	31.5	723.5	825	825.00
			15.5	Ea.	1		645	47	31.5	723.5	825	825.00
HSS	8 x	4 x	5/16	(LSV)	(per 12')							
			15	Ea.	2		400	43.5	29	472.5	545	16,350.00
Shear Studs												
3/4" ∅				EA	4660		0.48	0.74	0.37	1.59	2.27	10,578.20
					237	179242.8					TOTAL	$303,725.22

Second Floor Structural Steel

Size		Length	Unit	Quantity	Lbs.	Material	Labor	Equipment	Price	Inc. 15% O&P	Total
W 8 X 10											
		4	LF	2	80	12.1	3.91	2.61	18.62	23	184.00
		5	LF	1	50	12.1	3.91	2.61	18.62	23	115.00
		6	LF	1	60	12.1	3.91	2.61	18.62	23	138.00
		7	LF	2	140	12.1	3.91	2.61	18.62	23	322.00
W 8 x 12											
		4		1	48	14.52	3.91	2.61	21.04	24	96.00
		5		1	60	14.52	3.91	2.61	21.04	24	120.00
		6		5	360	14.52	3.91	2.61	21.04	24	720.00
W 8 x 18											
		3		2	108	21.83	3.91	2.61	28.34	32.6	195.60
		4.5		8	648	21.83	3.91	2.61	28.34	32.6	1,173.60
		6.5		26	3042	21.83	3.91	2.61	28.34	32.6	5,509.40
		11		1	196.5	21.83	3.91	2.61	28.34	32.6	358.60
		12		23	4968	21.83	3.91	2.61	28.34	32.6	8,997.60
		13		1	234	21.83	3.91	2.61	28.34	32.6	423.80
	S	17.5		29	9135	21.83	3.91	2.61	28.34	32.6	16,544.50
	S	19		1	342	21.83	3.91	2.61	28.34	32.6	619.40
	S	20		1	360	21.83	3.91	2.61	28.34	32.6	652.00
	S	21		1	378	21.83	3.91	2.61	28.34	32.6	684.60
	S	21.5		1	387	21.83	3.91	2.61	28.34	32.6	700.90
	S	22		2	792	21.83	3.91	2.61	28.34	32.6	1,434.40
	S	25		1	450	21.83	3.91	2.61	28.34	32.6	815.00
	S	26		1	468	21.83	3.91	2.61	28.34	32.6	847.60
	S	26.5		1	477	21.83	3.91	2.61	28.34	32.6	863.90
	S	27		1	486	21.83	3.91	2.61	28.34	32.6	880.20
	S	29		1	522	21.83	3.91	2.61	28.34	32.6	945.40
	S	31.5		2	1134	21.83	3.91	2.61	28.34	32.6	2,053.80
W 10 X 12											
		3	LF	4	18	14.5	3.91	2.61	21.02	25.5	306.00
		6	LF	3	180	14.5	3.91	2.61	21.02	25.5	459.00
		7	LF	3	72	14.5	3.91	2.61	21.02	25.5	535.50
		10	LF	6	156	14.5	3.91	2.61	21.02	25.5	1,530.00
W 10 x 15											
		9	LF	1	135	18.15	3.91	2.61	24.67	29.5	265.50
W 12 x 16											
		15	LF	1	240	19.34	2.66	1.78	23.78	27.34	410.10
		16	LF	1	256	19.34	2.66	1.78	23.78	27.34	437.44
W 12 x 19											
		4	LF	4	304	22.92	2.66	1.78	27.36	31.46	503.36
		6	LF	2	228	22.92	2.66	1.78	27.36	31.46	377.52
		7	LF	1	133	22.92	2.66	1.78	27.36	31.46	220.22
		8	LF	5	760	22.92	2.66	1.78	27.36	31.46	1,258.40
		9	LF	1	171	22.92	2.66	1.78	27.36	31.46	283.14
		9.5	LF	1	180.5	22.92	2.66	1.78	27.36	31.46	298.87
		10	LF	10	1900	22.92	2.66	1.78	27.36	31.46	3,146.00
		10.75	LF	2	408.5	22.92	2.66	1.78	27.36	31.46	676.39
		11	LF	1	209	22.92	2.66	1.78	27.36	31.46	346.06
		12	LF	1	228	22.92	2.66	1.78	27.36	31.46	377.52
		12.5	LF	1	237.5	22.92	2.66	1.78	27.36	31.46	393.25
		14	LF	11	2926	22.92	2.66	1.78	27.36	31.46	4,844.84
		14.5	LF	1	275.5	22.92	2.66	1.78	27.36	31.46	456.17
		15	LF	2	570	22.92	2.66	1.78	27.36	31.46	943.80
		16.5	LF	1	313.5	22.92	2.66	1.78	27.36	31.46	519.09
		20	LF	2	760	22.92	2.66	1.78	27.36	31.46	1,258.40
		22	LF	5	2090	22.92	2.66	1.78	27.36	31.46	3,460.60
W 12 x 22											
		6.5	LF	1	143	26.5	2.66	1.78	30.94	36	234.00
W 14 x 22											
		9	LF	1	198	26.5	2.37	1.58	30.45	35.02	315.18
		16	LF	1	352	26.5	2.37	1.58	30.45	35.02	560.32
		17	LF	3	0	26.5	2.37	1.58	30.45	35.02	1,786.02
		18	LF	1	0	26.5	2.37	1.58	30.45	35.02	630.36
		20	LF	4	0	26.5	2.37	1.58	30.45	35.02	2,801.60
W 14 x 26											
		16.5	LF	1	429	31.5	2.37	1.58	35.45	40.5	668.25

W	14 x	43									
			20	LF	1	860	52	2.89	1.93	56.82	64	1,280.00
W	16 x	26									
			23.5	LF	1	611	31.5	2.34	1.57	35.41	40.5	951.75
			24.5	LF	1	637	31.5	2.34	1.57	35.41	40.5	992.25
			28	LF	1	728	31.5	2.34	1.57	35.41	40.5	1,134.00
			29	LF	1	754	31.5	2.34	1.57	35.41	40.5	1,174.50
W	16 x	26	3/4"									
			16	LF	1	416	31.5	2.34	1.57	35.41	40.5	648.00
			23	LF	1	598	31.5	2.34	1.57	35.41	40.5	931.50
			24	LF	1	0	31.5	2.34	1.57	35.41	40.5	972.00
			30	LF	32	0	31.5	2.34	1.57	35.41	40.5	38,880.00
W	16 x	31										
			22	LF	1	682	37.5	2.6	1.74	41.84	48	1,056.00
			25	LF	1	775	37.5	2.6	1.74	41.84	48	1,200.00
			26	LF	1	806	37.5	2.6	1.74	41.84	48	1,248.00
			29	LF	1	899	37.5	2.6	1.74	41.84	48	1,392.00
			31	LF	2	1922	37.5	2.6	1.74	41.84	48	2,976.00
W	16 x	36										
			18	LF	1	648	43.6	2.93	1.96	48.5	56	1,008.00
			32	LF	3	3456	43.6	2.93	1.96	48.5	56	5,376.00
W	18 x	35										
			17	LF	2	1190	42.5	3.53	1.77	47.8	54.5	1,853.00
			20	LF	1	700	42.5	3.53	1.77	47.8	54.5	1,090.00
			23	LF	2	1610	42.5	3.53	1.77	47.8	54.5	2,507.00
			25	LF	2	1750	42.5	3.53	1.77	47.8	54.5	2,725.00
			28	LF	1	980	42.5	3.53	1.77	47.8	54.5	1,526.00
			29	LF	1	1015	42.5	3.53	1.77	47.8	54.5	1,580.50
			30	LF	5	5250	42.5	3.53	1.77	47.8	54.5	8,175.00
			30.5	LF	1	1067.5	42.5	3.53	1.77	47.8	54.5	1,662.25
			31	LF	2	2170	42.5	3.53	1.77	47.8	54.5	3,379.00
			32	LF	1	1120	42.5	3.53	1.77	47.8	54.5	1,744.00
			34	LF	1	1190	42.5	3.53	1.77	47.8	54.5	1,853.00
			35	LF	1	1225	42.5	3.53	1.77	47.8	54.5	1,907.50
			36	LF	1	1260	42.5	3.53	1.77	47.8	54.5	1,962.00
W	18 x	40										
			6	LF	1	240	48.5	3.53	1.77	53.8	61	366.00
			12.5	LF	1	500	48.5	3.53	1.77	53.8	61	762.50
			29	LF	1	1160	48.5	3.53	1.77	53.8	61	1,769.00
			30	LF	5	6000	48.5	3.53	1.77	53.8	61	9,150.00
W	18 x	76	3/4" Web									
			30.5	LF	1	2318	92	3.77	1.89	97.66	110	3,355.00
W	21 x	44										
			20	LF	1	880	53	3.19	1.6	57.79	66	1,320.00
			29	LF	1	1276	53	3.19	1.6	57.79	66	1,914.00
			30	LF	20	26400	53	3.19	1.6	57.79	66	39,600.00
			32	LF	2	2816	53	3.19	1.6	57.79	66	4,224.00
W	21 x	50										
			29	LF	1	1450	60.5	3.19	1.6	65.29	74	2,146.00
			30	LF	5	7500	60.5	3.19	1.6	65.29	74	11,100.00
W	21 x	57										
			30	LF	1	1710	68.96	3.27	1.64	73.87	85	2,550.00
W	24 x	55										
			26	LF	2	2860	66.5	3.06	1.53	71.09	80	4,160.00
			33	LF	5	9075	66.5	3.06	1.53	71.09	80	13,200.00
			34	LF	3	5610	66.5	3.06	1.53	71.09	80	8,160.00
W	24 x	62										
			30	LF	3	5580	75	3.06	1.53	79.59	89	8,010.00
			34	LF	1	2108	75	3.06	1.53	79.59	89	3,026.00
W	24 x	68										
			30	LF	2	4080	82.5	3.06	1.53	87.09	97	5,820.00
			33	LF	7	15708	82.5	3.06	1.53	87.09	97	22,407.00
			34	LF	2	4624	82.5	3.06	1.53	87.09	97	6,596.00
W	27 x	84										
			30	LF	5	4050	102	2.85	1.43	106.28	119	17,850.00
			31	LF	1	837	102	2.85	1.43	106.28	119	3,689.00
			31.5	LF	6	5103	102	2.85	1.43	106.28	119	22,491.00
			CF 37.5	LF	1	1012.5	102	2.85	1.43	106.28	119	4,462.50

W	27 x	102											
			CF	40	LF	1	4080	123.6	2.95	1.48	128.03	147.23	5,889.20
W	30 x	90											
				30	LF	1	2700	109	2.83	1.42	113.25	130	3,900.00
W	30 x	118											
				30	LF	1	3540	131	2.83	1.42	135.25	151	4,530.00
W	33 x	130											
				35	LF	1	4550	157	2.99	1.5	161.49	180	6,300.00
HSS	12 x	4	x	1/4	(LSH)	(per 16')							
				16	LF	1		1200	49	32.5	1281.5	1425	1,425.00
HSS	8 x	8	x	3/8		(per 14')							
				2	EA	1		645	47	31.5	723.5	825	825.00
				7	EA	1		645	47	31.5	723.5	825	825.00
				16	EA	1		645	47	31.5	723.5	825	825.00
HSS	8 x	4	x	5/16		(per 12')							
				15	EA	2		400	43.5	29	472.5	545	1,090.00
HSS	8 x	4	x	3/8		(per 12')							
				20	EA	2		400	43.5	29	472.5	545	
C	8 x	11.5											
				9	LF	1		7.6	29	3.67	40.27	65	585.00
				12	LF	1		7.6	29	3.67	40.27	65	780.00
			S	17	LF	1		7.6	29	3.67	40.27	65	1,105.00
			S	20	LF	2		7.6	29	3.67	40.27	65	2,600.00
				27	LF	1		7.6	29	3.67	40.27	65	1,755.00
				29	LF	1		7.6	29	3.67	40.27	65	1,885.00
				30	LF	10		7.6	29	3.67	40.27	65	19,500.00
C	8 x	13.75											
			S	16	LF	1		7.6	29	3.67	40.27	65	1,040.00
Shear Studs													
					EA	3795		0.48	0.74	0.37	1.59	2.27	8,614.65
						351	200886					TOTAL	$430,484.30

Structural Steel Columns

Size	Length	Unit	Quantity	Lbs.	Material	Labor	Equipment	Price	Inc. 15% O&P	Total
W 10 x 39										
	15	LF	3	1755	47.31	4.26	2.85	54.42	62.6	2,817.00
	30	LF	10	11700	47.31	4.26	2.85	54.42	62.6	18,780.00
	42	LF	3	4914	47.31	4.26	2.85	54.42	62.6	7,887.60
W 10 x 45										
	30	LF	1	1350	54.63	4.26	2.85	61.74	71	2,130.00
W 10 x 49										
	30	LF	7	10290	59.5	4.26	2.85	66.1	75.5	15,855.00
W 10 x 54										
	30	LF	7	11340	65.6	4.26	2.85	72.7	83.6	17,556.00
	40	LF	1	2160	65.6	4.26	2.85	72.7	83.6	3,344.00
W 10 x 60										
	30	LF	5	9000	72.9	4.26	2.85	80	92	13,800.00
	42	LF	1	2520	72.9	4.26	2.85	80	92	3,864.00
W 10 x 68										
	20	LF	1	1360	82.65	4.26	2.85	89.77	103.23	2,064.60
	30	LF	14	28560	82.65	4.26	2.85	89.77	103.23	43,356.60
W 10 x 77										
	25	LF	1	1925	93.62	4.26	2.85	100.74	115.85	2,896.25
	30	LF	1	2310	93.62	4.26	2.85	100.74	115.85	3,475.50
HSS 10 x 10 x 3/8			(per 16')							
	42	EA	3		1200	49	32.5	1281.5	1450	4,350.00
			55	89184					TOTAL	$142,176.55

Structural Steel Cross Bracing

Size	Length	Unit	Quantity	Lbs.	Material	Labor	Equipment	Price	Inc. 15% O&P	Total
HSS 6 x 6 x 1/2			(per 12')							
	41	EA	82		297	43.5	29	369.5	430	35,260.00
HSS 7 x 7 x 1/2			(per 14')							
	43	EA	74		471	45.25	30.25	546.5	627.5	46,435.00
									TOTAL	$81,695.00

Metal Composite Decking

Decking/WWF	Unit	Quantity	Material	Labor	Equipment	Price	Inc. 15% O&P	Total
Floor Decking, 2" Composite, Galv., 22 gauge	SF	30871	1.53	0.36	0.03	1.92	2.21	68,224.91
Roof Decking, 1-1/2" Composite, Galv., 22 gauge	SF	29873.5	1.16	0.27	0.03	1.46	1.79	53,473.57
							TOTAL	$121,698.48

Concrete Slabs & Pier Foundations

Concrete	Unit	Quantity	Material	Labor	Equipment	Price	Inc. 15% O&P	Total
Cast-In-Place Concrete, footings includes forms, reinforcing steel, concrete, placement, and finishing								
Under 1 C.Y.	CY	0	173	146	0.88	319.88	420	0.00
1 C.Y. to 5 C.Y.	CY	100.15	192	95.5	0.57	288.07	360	36,054.00
Over 5 C.Y.	CY	345.9	176	54.5	0.33	230.83	280	96,852.00
Cast-In-Place Concrete, strip footings, includes forms, reinforcing steel, concrete, placement, and finishing								
36" x 12", reinforced	CY	2016	128	68.5	0.41	196.91	248	499,968.00
Cast-In-Place Concrete, slab on grade includes trowled finish, not including formwork, reinforcing								
5" Thick	SF	28277	1.645	0.745	0.01	2.4	2.93	82,851.61
6" Thick	SF	2184	1.95	0.75	0.01	2.71	3.28	7,163.52
12" Thick	SF	540	4.01	0.92	0.01	4.94	5.8	3,132.00
Cast-In-Place Concrete, slab on deck includes finish, not including forms or reinforcing steel								
Lightweight	SF	30871	1.19	0.73	0.28	2.2	2.73	84,277.83
Cast-In-Place Concrete, slab on roof includes finish, not including forms or reinforcing steel								
Lightweight	SF	29873	1.19	0.73	0.28	2.2	2.73	81,553.29
Formwork								
Slab on grade, up to 6"	SFCA	210	1.95	0.3		2.25	2.6	$546.00
Slab on grade, 7" - 12"	SFCA	98	2.65	0.7		3.35	3.85	$377.30
Slab on deck, up to 6"	SFCA	265	2.25	0.2		2.45	2.8	$742.00
Placing								
Slab on grade, pumped	CY	496.8		11.25	4.2	15.45	22	10,929.60
Elevated slab, pumped	CY	610		14.9	5.55	20.45	29	17,690.00
WWF, 6x6-W1.4xW1.4								
	CSF	310	13.25	19.65		32.9	47	14,570.00
WWF, 6x6-W2.9xW2.9								
	CSF	760	20	23.5		43.5	61	46,360.00
WWF,6x6-W4xW4								
	CSF	66	29	25.5		54.5	74	4,884.00
							TOTAL	$987,951.15