



PROJECT OVERVIEW

Located in Patton Township, Centre County, Pennsylvania, the Geisinger Gray's Woods Ambulatory Care Campus Building Phase 1 demonstrates Geisinger Health System's growth and expansion to provide better health care to rural areas. The building will offer multi-specialty outpatient services as well as an OB/GYN practice, pediatrics, and family medicine. For the 64,000 SF, two-story facility, Geisinger has hired Alexander Building Construction, LLC to provide construction management services. Also teamed with EwingCole Architects, and Engineers and Sweetland Engineering Associates, Inc., this \$17 million project is aiming for LEED certification. Construction started on April 23rd, 2007 and substantial completion is planned for June 8th, 2008.

Client Information

As the owner of the project, Geisinger is a physician-led health care system that spans over 40 counties in Central Pennsylvania to serve 2.5 million people. Their vision and values are based on four themes: quality, value, partnerships, and advocacy. With their main focus and drive now on growth, the Gray's Woods Ambulatory Care Campus facility is a step towards expanding the best care to rural areas.

Overall, cost, quality and schedule are all equally important to Geisinger for this project. Set and approved by Geisinger's Health Care Board, the cost of the project cannot exceed the budget due to the fact that the Board will not re-negotiate a new cost. Quality for any health care project is high and is held at the optimum level. Scheduling of the project, more specifically completion, is vital to Geisinger to gain revenue off the project. If owner occupancy is delayed, money will be lost.

Gray's Woods Ambulatory Care Campus is the first of four phases planned by Geisinger and EwingCole Architects/Engineers on the 52 Acre site. Phase 2 of the facility, scheduled to begin 5-10 years after Phase 1, includes an addition on the South side of the building and a parking garage. Phase 3 and 4 will entail a traffic light, a 3rd floor expansion, and other additions.

The key to completing the project to the owner's satisfaction is not only completing the project on time, under budget, and with high quality, but also to maintain a flow of communication through all parties involved. As stated as a theme, Geisinger Health System values partnering between Architects, Construction Managers, Engineers, and Subcontractors.



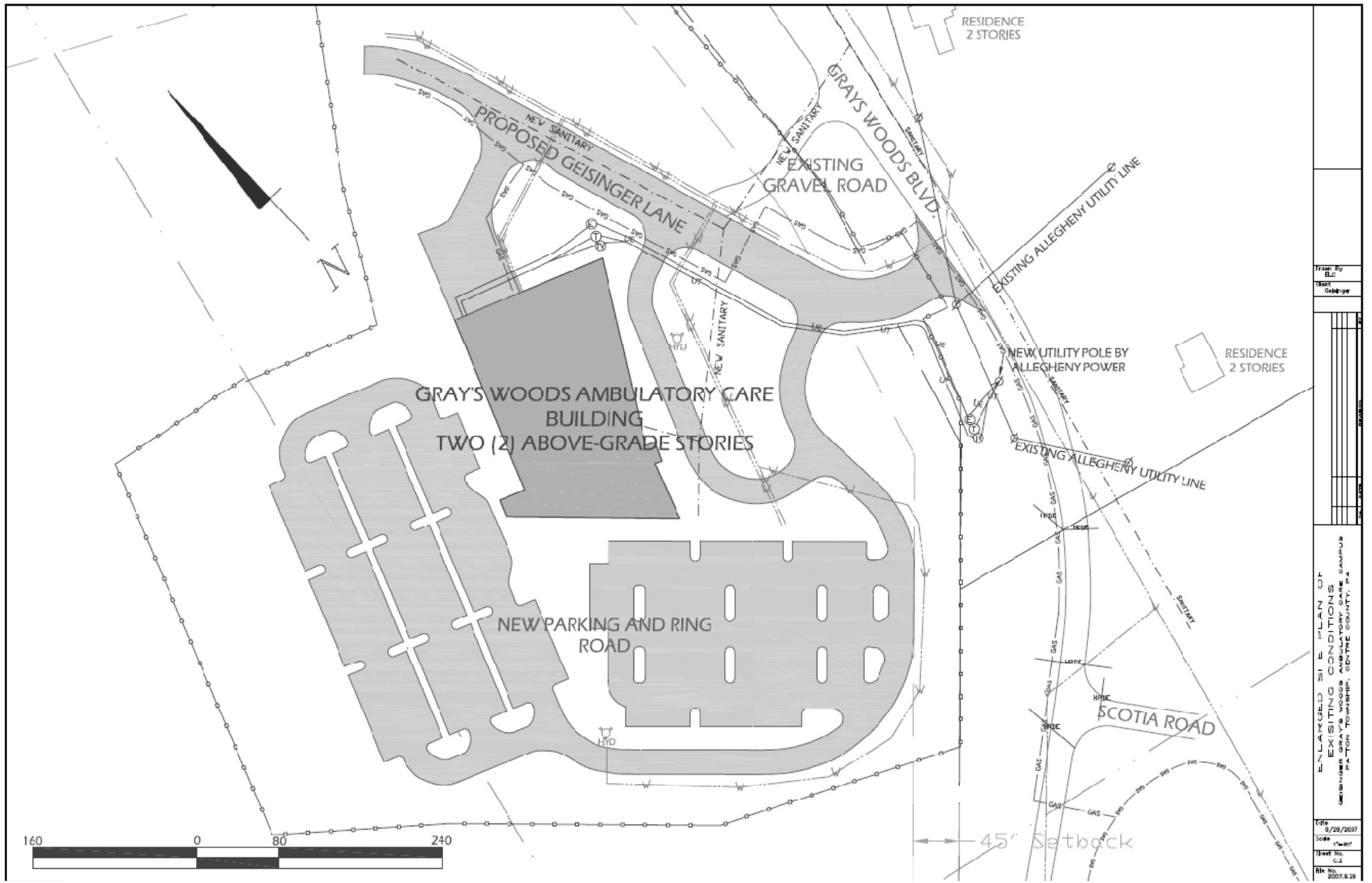
Site Plan and Existing Conditions

Geisinger Gray's Woods Ambulatory Care Campus is located on a 52 acre lot in Patton Township, PA. With US Route 220/322 directly connected to Gray's Woods Boulevard, the project allows for easy access by construction equipment and employees. The site only has one entrance on the east side of the lot. Truck deliveries are not hindered by only having one entrance due to having a front entrance drive loop and two large parking lots completed first for easy truck turn-around.



Aerial View of Gray's Woods Site off of US Route 220/322

The site plan on the following page shows the layout of the existing conditions for the project. This includes parking, access roads, hydrants, utility locations, neighboring buildings, and traffic patterns. The plan also shows the Gray's Woods building's footprint. The predominant soil on site is sandy loam and the groundwater level is well over 100 feet below land level which allows for easy shallow excavation on the project.



Title: 9/29/2007
 Scale: 1"=40'
 Sheet No.: C-2
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ENLARGED SITE PLAN OF
 EXISTING CONDITIONS
 GRAY'S WOODS AMBULATORY CARE
 BUILDING, 1400 GRAY'S WOODS BLVD.,
 SCOTIA, COBBLE COUNTY, PA



Project Team

Owner – Geisinger Health System
Architect – EwingCole
Mechanical Engineer – EwingCole
Structural Engineer – EwingCole
Construction Manager – Alexander Building Construction, LLC / Butz Enterprises, Inc.
Civil Engineer – Sweetland Engineering & Associates, Inc.

Project Delivery Method

The Gray's Woods project is being delivered with a construction manager. This approach was chosen because Geisinger Health System values relations and communication. In addition, using a construction manager allows for constructability and design to collaborate early in the design process. For this delivery type on this specific project, the Construction Manager will hire subcontractors to perform the work, hold Owner's and Subcontractor's meetings to manage the cost and schedule of the project and to keep communication flowing between all parties involved, and is not liable for any risk with the project. The subsequent page organizational chart demonstrates the key project parties and the types of contracts held between these parties.

Geisinger holds a standard agreement with a fee contract with both the Architect/Engineer and the Civil Engineer. An Architect/Engineer standard agreement ensures a common vision for the project is present and requirements and expectations of the project are understood.

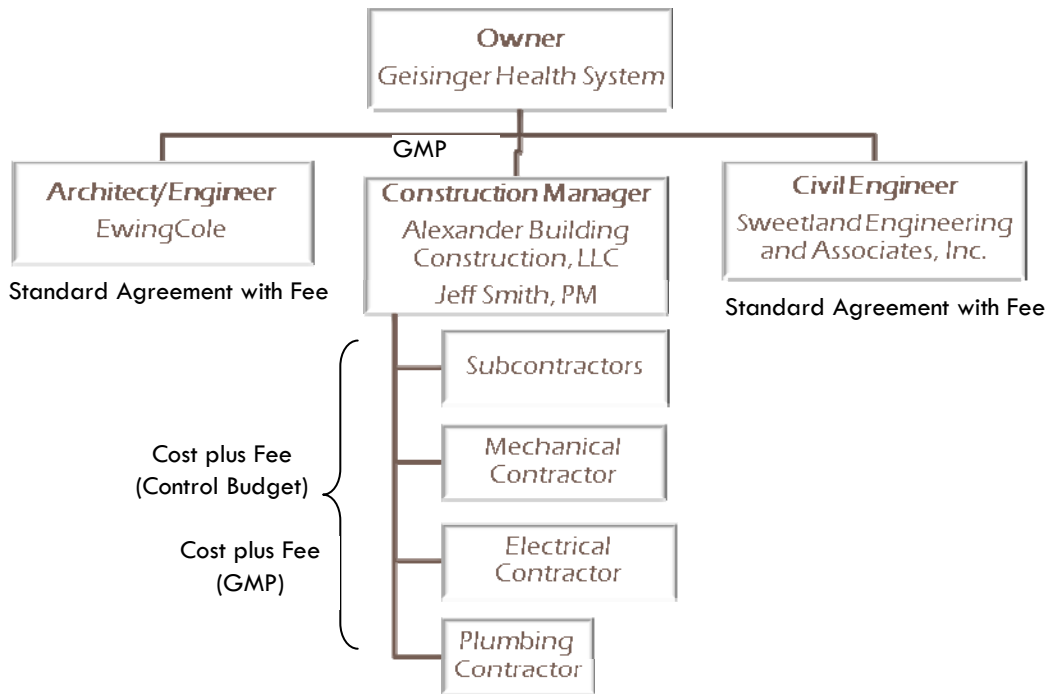
The type of contract held between the construction manager and Geisinger is a GMP (guaranteed maximum price) with no risk to the construction manager. A GMP contract allows for any savings on the building to revert back to the owner. Typically the contractor would pay the difference if the project went over budget, but for this specific project with Geisinger, the Construction Manager does not hold any risk. Having a construction manager allows critical parties to become involved early in the construction process after agreeing to set fees. Using GMP contracts allow the Owner to see a cost for the building that creates some sense of assurance.

The cost plus fee (control budget) contracts (held by the construction manager) with the Mechanical, Electrical and other subcontractors sets a fixed profit amount. If project costs exceed the budget, the Owner will reimburse the contractor's actual costs, regardless of the amount, and if the project costs are lower than the budget, the Owner will gain these savings. Furthermore, the Owner will pay a negotiated fee not based on project costs. Similarly, Alexander holds a cost plus fee (GMP) with the Piping Contractor for the project. For this contract, the Piping Contractor will be



Geisinger Gray's Woods Ambulatory Care Campus Phase I
 Patton Township, Centre County, PA

compensated for a fixed amount if the project is under budget and they have set a maximum cost that the project cannot exceed.



Gray's Woods Project Organizational Chart

Building Systems Summary

Architectural Design/Function

The Ambulatory Care Campus features an expansive 'glazed' glass front elevation with a sloped roof to bring the building to scale with the surroundings. With the building being adjacent to a two-lane interstate highway, design professionals developed an eye-catching unique shape and vision. Multiple skylights can be found on the sloped roof and canopy entrance. A new entrance and two parking lots allow easy access for patients and medical staff. The mostly brick and aluminum window façade is supported by a metal stud system. Interior Architecture creates a space that is welcoming and calming for patients and their families. Interior space features a prominent stairway with a running water feature below, comfortable and spacious waiting areas and a coffee bar area.

Geisinger Health System along with EwingCole is pursuing LEED certification for the Ambulatory Care Campus. Focus and attention has been made to the glazed glass to maximize energy saving and reduce interior lighting, the use of recycled and locally obtained building materials, and



incorporating especially efficient heating and cooling systems and advanced lighting control system. A third story future expansion was also considered in the design.

Building Envelope

Each elevation has a portion of the aluminum curtain wall system with vertical mullion caps which is supported by metal studs. Other façades include brick masonry on the West, East and North elevation and an EIFS wall system on the South elevation. Brick masonry and the EIFS wall system are supported by either grouted CMU or a cast-in-place concrete retaining wall. The roof is comprised of rigid insulation on a lightweight concrete slab on galvanized composite metal decking with welded wire fabric. The sloped roof portion is covered by a metal roofing system and skylight windows

Electrical

A 1000A, 480/277V underground service in a concrete reinforced ductbank through Allegheny Power will be provided for Geisinger Gray's Woods to a 1000A, 480/277V Service Switchboard to serve all Main Building loads as well as space and spares for future 3rd floor loads. Electrical rooms are provided on each floor to house electrical distribution equipment. A 208/120V distribution will be used for appliance loads while a 480-208/120V transformer will be provided on each floor to serve the appliance panels. The 250 kW emergency generator will be outdoor packaged. This generator will serve a 400A, 480/277V Emergency Main Switchboard located in the Main Emergency Electrical Room. The main emergency electrical room on the first floor will also house a 150kVA modular UPS Emergency Power and equipment. Electrical distribution will use copper conductors, wiring devices will be hospital grade and receptacles will be tamper-proof. Additionally, transformers will be type TP-1 energy saving while emergency wiring will be installed in metallic conduit.

Mechanical

On the North-West corner of the building, a boiler/chiller building will house a boiler, chiller, pumps, and space for future equipment. The design of the boiler/chiller building is to support the first 3 phases of the project. Additionally, there are 3 rooftop units that include an economizer cycle. Distribution for the VAV (variable air volume) system is through ductwork that includes single duct VAV boxes and hydronic reheat coils. Return air is through the plenum ceiling. For LEED certification, the system is designed for demand control ventilation and heavily commissioned. LEED credits for "Optimize Energy Performance" and "Carbon Dioxide Monitoring" have been included. The system also incorporates a stand alone DDC control system with a workstation in the boiler/chiller building.



Structural

A shallow foundation system of pier footers, grade beams and a slab-on-grade was designed to support the 2-story, 64,350 SF Geisinger Gray's Woods building. Pier footings are spaced on an approximately 30' by 30' grid. The footers range from 6' by 6' to 17' by 17' in size and the deepest footing is 3' thick. All of these elements are to be cast-in-place concrete and require a minimum design strength of 3,000 psi (slabs) to 4,000 psi (foundation).

Grade 50 ASTM A992 structural steel creates the skeletal system for the building. Column sizes range from W10x39 to W10x77 while the typical steel beam size is W16x26. Bracing along four grid lines, running East-West and North-South, occurs both on the exterior of the building and through interior column lines. HSS steel tubing provides inverted 'V' bracing with gusset plate welded connections to beams and columns. Exterior facades are supported by 6" structural metal studs.

The second floor is comprised of a 3 ¼" lightweight cast-in-place concrete slab on 2" composite metal decking and is reinforced with welded wire fabric. Similarly, the majority of the roof is comprised of a 3 ¼" lightweight cast-in-place concrete slab on 2" composite metal decking and is reinforced with welded wire fabric. The rest of the roof consists of a metal roofing system and skylights which are supported by structural steel W8x18 and 6" metal studs.

Telecommunication

In accordance with Geisinger's Information Technology department's standards, a main telecommunication room and satellite telecommunication rooms will be strategically designed for each floor to limit the amount of wiring required for each workstation. Also in the building, nurse call stations in accordance with Geisinger requirements and AIA Guidelines for Hospitals and Health Care Facilities will be provided. The low voltage communication systems in the building include a public address (PA) and Program (Music) Distribution System, a CATV system, and a Security system.

Project Cost Summary

The 64,350 SF Gray's Woods medical office building has a budgeted building cost of \$15 million dollars, \$233/SF. Geisinger Health System has set the total project cost, including land and permits, to a budget of \$35 million, \$543/SF. Bid packages were made for subcontractors by Alexander Building Construction, LLC, the construction manager. Below is Alexander's most current schedule of values for the project. An approximate value was given to additional building costs to adjust to the total building cost of \$15 million dollars.



BUILDING SYSTEM COSTS			
Division		SF Cost	Budgeted Cost
1	General Requirements	-	1,212,760
2	Sitework	42.4	2,727,500
3	Concrete	18.7	1,201,464
4	Masonry	4.7	302,000
5	Metals	20.2	1,297,243
6	Wood & Plastics	10.5	673,640
7	Thermal & Moisture Protection	12.3	793,594
8	Doors & Windows	15.4	992,673
9	Finishes	30.9	1,986,755
10	Specialties		-
11	Equipment		-
12	Furnishings		-
13	Special Construction	1.7	109,454
14	Conveying Systems		-
15	Mechanical	61.7	3,973,512
16	Electrical	37.5	2,414,054
	BUILDING COST	\$218/SF	\$14,108,649
	Additional Building Costs	15.5	1,000,000
	TOTAL BUILDING COSTS	\$233/SF	\$15,108,649

Gray's Woods Building Systems Costs

From the above schedule of values, and additional \$1 million was added to adjust for general liability insurance, contingency, construction management fee and elevator costs. The entire project costs (\$35 million) include land, permits, FF & E and other soft costs on the project.

Project Schedule Summary

After Geisinger and EwingCole progressed through the design phase of the project, on-site construction began on April 23rd, 2007. Substantial completion of the project is set for June 6th, 2008 and the Owner anticipates moving in on July 22nd, 2008. Please refer to Summary Schedule on the subsequent pages for further explanation of the project schedule. The attached summary schedule has been broken down



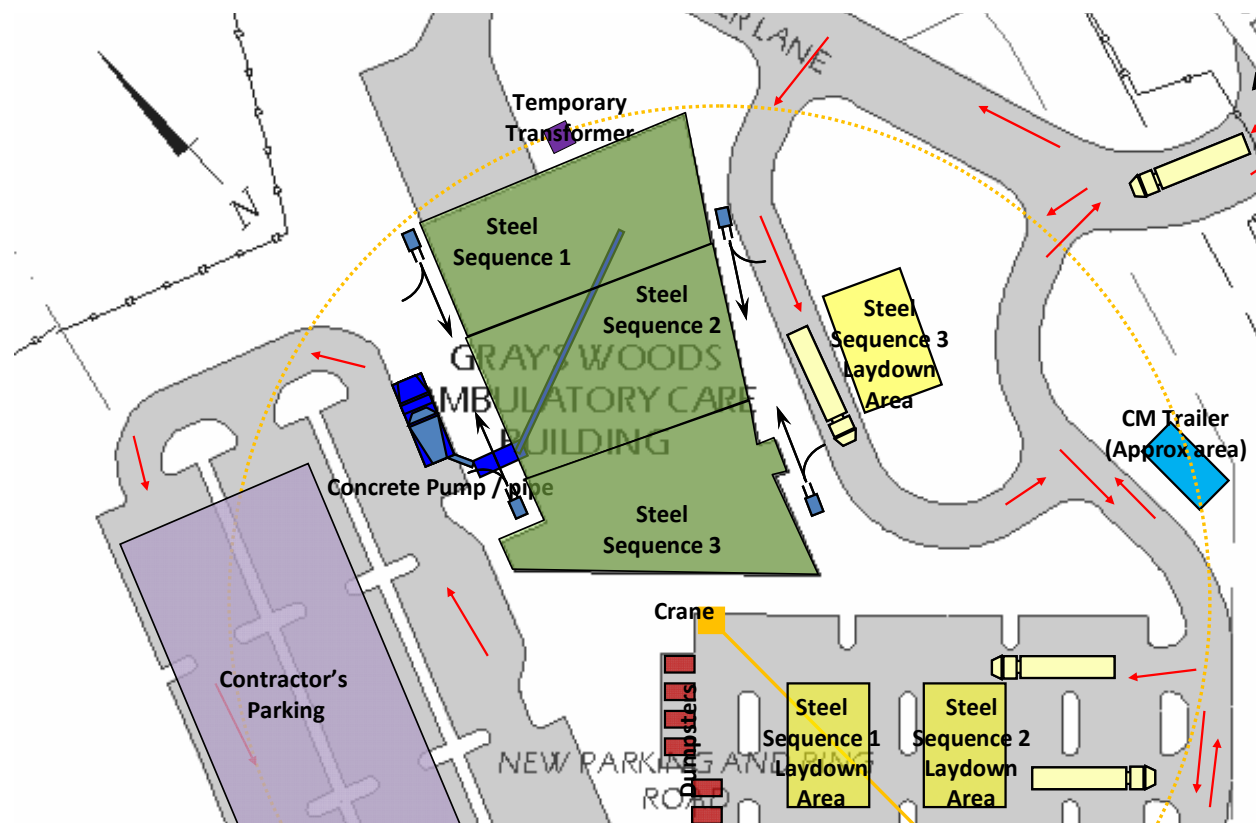
into 5 portions: Design, Sitework, Shell & Enclosure, Interiors, and Completion & Closeout. Below are details of the foundation, structure and finishes sequencing for the project.

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.

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. To recap, concrete for slabs will be placed for two sections at a time.



Site Layout Planning – Structural Steel Erection Construction Phase

Erica L. Craig
Construction Management
April 9th, 2008
Final Report
Dr. Riley



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

