- CRITICAL PATH PLANNING
- LAND PLANNING
- MANAGEMENT CONSULTING
- PLANT LOCATION

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

15064 WARWICK ROAD
DETROIT, MICHIGAN 48223
PHONE 273-5026

December 23, 1979

Mr. Lee G. Shea, FAIA
Louis G. Redstone Associates, Inc.
28425 E. 8 Mile Road
Livonia, Michigan 48152

Re: Provision of professional network modelling, planning and monitoring services on Riverside Osteopathic Hospital, Trenton, Michigan

Dear Mr. Shea:

In accordance with our recent discussions, outlined below is a proposed plan as to how I suggest my professional services be provided in the construction planning and monitoring for the new Riverside Osteopathic Hospital. As I understand it, the project consists of a new building to be constructed, existing facilities to be remodelled, and new site-work to be constructed surrounding the existing and new facilities. It is anticipated presently that the project will require from 22 to 27 months to build from the time contracts are let. Working drawings and specifications are to be issued in January or February, 1980, and field work will probably begin in early April, 1980.

While working with you on the network model for production of contract documents, I couldn't help but note that this project is one whose field work should be planned very carefully. It is a job that will require careful attention to construction and occupancy sequencing of the new facilities, the new elevator tower, and the successive remodelling of space in existing buildings. Also of great importance on hospital projects is the careful planning of material and equipment procurement, including submittals, approvals, fabrication and delivery.

Therefore, it is my recommendation that you and your client consider the use of network planning and modelling for the program in its entirety.

As you are well aware, the technique has proven its worth in assisting good managers to use exception techniques for maintaining desired work progress. It also allows those involved to predict with a relatively high degree of accuracy, difficult project areas that may require over and above attention. My approach to this type of work is to consider that good network modelling is to be used to increase the probability of being right and decrease the probability of being wrong.

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The content of the network model varies from project to project, but generally we accomplish the planning and monitoring in four phases:

Phase one - Preliminary planning

Phase two - Preparation of final network models for monitoring

Phase three - Monitoring

Phase four - Updating (where necessary)

A brief description of each phase is given below:

Phase one - Preliminary planning

In phase one work, the rough network model is prepared with key contractor personnel. Usually the owner and the architect/engineer also participate in this early session to assist in the proper start of the job and to help in committing activities necessary for prompt processing of submittals, approval turnarounds and early expediting required for field progress to be maintained effectively.

During the preliminary planning process, network models for site clearance, site preparation, foundations, super structure, and close in are given top priority attention. As plans for closing in the building proceed, we also prepare procurement networks (usually called the E series) which identify dates for projected submittals for each major material, equipment, and assembly item. Also included in this work is identification of turnaround times to be expected for approvals. Fabrication times are established for preliminary analysis coupled with delivery times required to the job site.

These front end activities are then interfaced with the network model activities to be carried out in the field. Today I find that there is an increasing need for good front end management, and in this early diagramming session we try to be as comprehensive and explicit in defining procurement as is possible.

During the preliminary phase we also assign major responsibilities for each of the activities on the job and plan the field sequences in a manner that will give all concerned a full opportunity to define how he feels the project should move on to completion.

Rough network models are prepared ultimately for the entire project and manually computed as they are prepared. Thus, it is possible to monitor the job against these preliminary network models from the very beginning. This is a distinct advantage since it allows a standard of performance to be set for the project very early by giving everyone the major targets toward which they must move to insure adherence to the plan of the work.

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The diagrams prepared in phase one are next drafted into final form in phase two and translated into the various documents to be used in monitoring and evaluating.

Phase two - Preparation of final network models for monitoring

Phase two normally overlaps phase one and includes preparation of final drafted networks along with their conversion to computer runs to aid in the management by exception process on the project. Drafting the network provides a well-arranged plan model in which tasks are clearly defined, along with responsibilities for their implementation, the geographic area in which they are to be accomplished, the expected durations, and early and late starts and finishes shown in calendar dates.

Preparation of monitoring documents also includes issuance of a project status report which is an extremely effective method of analyzing the status of tasks in work or to be started or completed, or both, over a given future period. Usually I use project status reports to identify the work to be accomplished over the coming month to month and one half on the project. The period will vary depending upon the desires and needs of the project team.

Phase three - Monitoring

One of the most critical elements of the entire planning and implementation program is monitoring the project against the network model standard of performance. It is essential to periodically compare actual project position with the accepted and approved standard of performance - the network model. I do this by regularly inspecting the project in the field and conferring with responsible members of the project team from the contractors, owner and architect/engineer staff as available.

In my opinion, monitoring is one of the most important elements of the entire program since it provides an ongoing evaluation of both current status and future trending. Trending analysis is an integral part of the monitoring process, since by observing the movement and direction of performance, quality and quantity change over a given period of time, it is often possible to project where corrective action must be taken now to avoid future problems.

Monitoring frequency varies, and on this project I suggest it be done once every three to five weeks depending upon the position of work in the field. Monitoring a project of this nature will require from 4-6 hours of work in the field with initial monitoring being accomplished at the early planning sessions. At each monitoring a report will be prepared that in narrative form describes the current status of the project, the health of the job, and a projection of what should be happening on the project over the period of time between the present and next monitoring session.

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The monitoring techniques I use have proven very successful and effective over the years, and these, coupled with the project status report, provide an excellent management by exception device for the owner, the contractor, and the architect/engineer.

Phase four - Updating (where necessary)

Occasionally major planning dislocations will occur that force a re-evaluation of the plan of work. Updating can be caused by major project changes, unexpected regulatory agency requirements, excessively bad weather, strikes, or other such relatively unpredictable impacts. In such cases and when the dislocation becomes serious enough to warrant such attention the network usually is updated.

I would like to stress that I do not believe in regular or periodic updatings. The original standard of performance should be maintained so long as it can be used as a valid measure of job performance. When updating is necessary however, a complete re-evaluation of the logic and time frame is made that usually results in a re-issued network plan. I find that on most programs of this size updatings are needed from one to three times during the course of the project.

** ** ** ** ** ** **

My professional fee for work as described above is $40.00 per hour. In addition, technician time for drafting, preparation of computer input, and technical material and report preparation are charged at from $10.00 to $16.00 per hour depending upon the skill levels required. Computer and out-of-pocket expenses incurred in the interest of the project are billed at cost. Billings for project work will be submitted monthly.

Because of the nature of the services, it is difficult to set a firm estimate on the cost. However, I project that my total fee for this work will probably run between $10,500 and $11,500. I have assumed monitorings on an average of one per month and two updatings, as described above, in this estimate of the fee. Naturally billings will be only for work and expenses actually incurred.

Also included is the time required to rework the preliminary summary network model already prepared, into a form in which it can be used during the contractor proposal period.

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For your and your client's files, enclosed is a full resume of my background and experience. Network modelling projects are shown through 1976, pending a full update. I hope you find it of interest.

Thank you very much for your interest and confidence in my ability to assist you in this very important and exciting program. I am looking forward to working on it with you and the hospital.

Sincerely yours,

Ralph J. Stephenson, P. E.

RJS:jc

Enclosure

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

March 12, 1981

Subject: Monitoring Report #1 (for building construction)

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Target completion dates: For new building - March 17, 1982 (working day 308)

For existing building remodeling - yet to be set

Monitored from Issue #1 dated January 5, 1981 (working day 2) sheets #1 and #2

Note: A working calendar base of 1981 is being now used for the project. Former work was on a base of 1980.

Actions taken:

- Monitored current status of project with Bill Asbury, Darin & Armstrong
- Reviewed current status of project with owner, architect/ engineer and contractor staff
- Identified conditions necessary to start work at existing building remodeling
- Prepared network model for remodeling of existing elevator and stair tower
- Tabulated information on mechanical and electrical trades for existing building remodeling

General Summary

Those attending the session were:

Mr. Steve Greene - Riverside Osteopathic Hospital
Mr. Vitas Bagdonas - L.G. Redstone & Associates
Mr. Bill Asbury - Darin & Armstrong
Mr. Norm Zabik - L.G. Redstone & Associates
Ms. Yvonne Sims - Darin & Armstrong
Mr. Roy Agrusa - Gray Electric (part time)
Mr. Pat Cousino - Page Mechanical (part time)

Foundation work for the new building is continuing although it has slowed slightly at the main building primarily because of

wet weather, difficulty in dumping spoil material, and problems of access and job circulation. The weather has been exceptionally warm and moist during February and early March and has thawed the ground much sooner than had been expected.

Although at present this is a problem, it may ultimately allow us to install the floor slab on grade prior to start of construction of the 2nd floor supported deck. We are still holding a target start date on second floor framing of May 8, 1981 (working day 91) or earlier. If we can construct the floor slab on grade prior to start of supported deck work it will be a distinct advantage in both expediting construction and allowing a quicker work start on rough above floor mechanical and electrical work at the 1st level. However, for the time being we will maintain the targets shown on sheets #1 and #2, Issue #1, dated January 5, 1981 (working day 2).

Work at the elevator tower is currently moving well with the elevator #1 shaft construction completed and stripped out to level #4. Work is to begin on the walls to the 2nd level along column line B/6.1 - 6.8 within the next 10 working days. Mr. Asbury said that he has been forced to hold work there pending completion of interior column footings at the building. This restraint is caused by a need for full access to the various areas.

So far as deliveries to the project are concerned a brief review of these is given below:

- Primary switchgear - Shop drawings were approved March 3, 1981 (working day 43) and delivery is anticipated about September 8, 1981 (working day 175).

- The secondary switchboard delivery is set for October, 1981. To all appearances it will be shipped in sections small enough to be brought in through doors at the equipment areas.

- Primary switches will be delivered about 80 working days after approval. This approval is expected on March 9, 1981 (working day 47) bringing delivery to early July, 1981.

- Transformer delivery is presently scheduled for May 26, 1981 (working day 102).

- Delivery of mechanical equipment is still not firmed up since there are several changes pending.

  Shop drawings for air handling equipment have not yet been approved and presently have to be resubmitted. There will be required about 70 working days fabrication and delivery time after approval. These deliveries could become critical depending upon the construction of the

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penthouse and need for setting the equipment prior to complete close in.

Under our present plan the objective is to complete closing in the building by about October 16, 1981 (working day 203). The penthouse should be available for setting major mechanical equipment by August 13, 1981 (working day 170). Close in is very important and, of course, of equal importance is to make certain that the building is provided heat over the winter period as finish trades are installed. Heat will undoubtedly be needed shortly after November 2, 1981 (working day 214).

At our session today we initiated and carried out detailed discussions of the method of proceeding with remodeling the existing building. There are five basic areas with which we are concerned:

- The existing elevator and stair tower (30 for existing otis)
- First floor west wing
- Second floor west wing
- Third floor west wing
- Fourth floor north wing, north of the elevators

In addition, we briefly discussed planning of the site work but action on this will be deferred to a later date. It was decided that construction of the remodeled elevator tower is one of the more difficult projects and therefore we first identified the conditions under which we can begin remodeling work at the tower. The conditions are:

1. That the existing emergency area at level #2 is vacated.
2. That the new elevator is in operation.
3. That lot C construction not be in progress during the tower work.
4. That exits be designated and identified from the existing building at the 1st and 2nd floors.
5. That access to the new elevator from the existing building 1st and 2nd floors be available(from the 3rd floor access is not feasible at this time) 4/7/81 not reqd.
6. That area 3W (third floor) be vacated (those occupying this area now will move to the old nuclear medicine area)

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7. That site work west and north of the central exit from the church buildings in the area between the buildings be available to permit egress from the Church building, formerly maintained through the existing elevator and stair tower area.

8. That construction access be maintained to the remodeled area through the passageway between the Church building and the new building.

After a thorough evaluation of these conditions, it was decided that within 5 working days from completion and acceptance of the new building on March 17, 1982 (working day 308) that work could begin at the existing stair and elevator tower. This brings that starting point to a pivot date of March 24, 1982 (working day 313). Using this date we diagrammed construction work for the stair tower on through close in and to completion of work adequate to allow passage through the area from the existing building to the new building. This work is shown on sheets #7 and #8, Issue #3, dated March 4, 1981 (working day 144). It appears that the work will take about 97 working days from the start which brings it to completion by August 10, 1982 (working day 410). The network model will be re-evaluated periodically to insure the time required has been compressed to the greatest extent possible.

As we prepared this network model we concurrently began an evaluation of the adjoining areas, and it appears that on the pivot date of March 24, 1981 (working day 313) it would be possible to also make available portions of the 3rd, 2nd, and 1st floors of the existing building, near or adjoining the elevator stair tower area.

We first evaluated conditions under which we could start remodeling at the 3rd floor of the west wing. It was determined that the conditions to be met for starting were:

1. That the 3rd floor west be cleared of all occupants.

2. That the 2nd floor west existing emergency area and existing OB delivery be clear and available.

3. That the physical therapy and pulmonary function area at the 1st floor west be cleared.

With these three conditions met it gives as clear a horizontal and vertical work area as probably will be had at any time in the job for the remodeling work. As is well known, the need in complex remodeling programs of this type is to have not only the space above the floor in which the remodeling is to be done available but also the space below to install plumbing and electrical lines which run through the floor.

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There are some difficulties which must be considered and resolved in starting of remodeling work at the 3rd floor west. These are to be discussed in detail at the site sometime within the next two or three weeks by the general, mechanical, and electrical contractors along with the owner and the architect/engineer. One of the more critical of these is movement of the existing OB/delivery and care areas into the existing nursery area. This is a very critical move and when it is made there must be the greatest assurance possible given that no outages, interruptions, or interferences will occur to these facilities. It will be necessary at some point to remodel the mechanical system at the nursery area, and it was decided on a preliminary basis today that this would be done subsequent to the OB delivery move back to its permanent space from the nursery. This matter is to be investigated in more detail for sequencing.

Using this logic it now seems that we will have the above areas discussed clear and available by the same time as we are able to begin work at the existing elevator and stair tower on March 24, 1982 (working day 313). It was agreed that the sequence of work at the areas will be from the 3rd floor west, to the 2nd floor west, to the 1st floor west. Thus, construction, dirt, and noise will be moved down and out of the building.

Once the basic remodeling is done at the existing west building there still remains miscellaneous remodeling at various isolated rooms and sections along with completion of the 4th floor north, north of the existing elevators. We made a very rough approximation of what presently appears to be reasonable construction times for the full program. These are to be considered at present preliminary, subject to a more detailed check as we complete our diagramming.

If we assume that we will be able to begin existing building remodeling on March 24, 1982 (working day 313) it was thought that the initial phase of the remodeling could be completed by about October 25, 1982 (working day 463) and the total area complete at the 1st floor of the west wing by mid-January, 1983. Work at the 4th floor north of the elevators in the north wing probably will be completed about early October, 1982. It should be emphasized that these are preliminary projections and are now being studied by all contractors involved. They are important dates to review and evaluate since it will give us the basic framework upon which the entire project can be built.

Due to the large amount of material that had to be covered today, we were only able to complete the network modeling for the elevator tower and the stair. At our next session we will concentrate on the remaining items to be diagrammed as noted above.

Prior to our next meeting I shall inspect the job personally and review the job with Mr. Asbury on the site. Therefore, monitorings from now on will be based upon actual job inspection.

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At this point, I have enough information in hand to complete drafting the network models for the new building, process them by computer, and date and issue these runs for use of all concerned. This work is in progress, and I shall complete it as early as possible. Meanwhile, I shall be in touch with Mr. Bagdonas and Mr. Asbury to set the next monitoring dates.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Vitas Bagdonas

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

April 11, 1981

Subject: Monitoring Report #2 (for building construction)

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Target completion date: For new building - March 17, 1982 (working day 308)

For existing building remodeling - yet to be set

Monitored from Issue #1, dated January 5, 1981 (working day 2) sheets #1 and #2

Note: A working calendar base of 1981 is now being used for this project.

Actions taken:

- Inspected project and toured existing facilities with Bill Asbury, Darin & Armstrong
- Met briefly with Mr. Steve Greene and Mr. James MacCullum
- Evaluated current job status

General Summary

As of April 6, 1981 key tasks on the project are currently meeting targets between early and late starts and finishes. Tunnel floor slabs, walls, and roof slab are complete from the southwest corner to the boiler house: the walls of the tunnel are waterproofed, with drain tile installed and generally backfilled inside the new building.

A small piece of slab on grade is constructed at the southwest corner and the remaining spread footings at the first level are nearly complete for interior columns. Work has not yet begun on foundation and wall construction east of the column line F/3.8 footing. This work will be deferred until the access ramp from grade down to the first level is removed. The time of removal of this ramp is not set as yet.

Mr. Asbury intends to construct the floor slab on grade ahead of forming for the 2nd deck. He has, as noted above, completed a small section of this slab on grade at the southwest corner

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and supported deck beam framing is being erected there starting today. Framing for the 2nd floor deck was due to begin by May 8, 1981 (working day 91), so forming is at this time considerably ahead of the anticipated plan of work. However, floor slab on grade work will probably proceed at a slower pace than supported decks as it moves out of the building since there still is some underground work to be done. Of course, at the north end of the building completion of slab work will have to be held until removal of the construction ramp and construction of foundations at stair #2.

The elevator shaft at stair tower #1 is completed along with the wall at column line B from column line 6.1 to the west. Additional work at this area will probably be deferred until the floor slabs are in construction at the adjoining main new building.

Thus, overall work at the site is maintaining reasonable conformance to our key target dates, and in the case of the supported deck at the 2nd floor, is presently quite a few days ahead.

As part of our monitoring today, I toured the existing facility with Mr. Asbury. We did this to gain a better feeling for the facility relative to our network modeling session tomorrow, April 7, 1981 (working day 68) at which we intend to continue diagramming the remodeling moves. This is a very complex part of the construction program and must be given careful attention. In addition, we will recheck the work done at the previous session on construction of the remodeled elevator tower.

I shall plan to monitor this project in the field on a regular basis and will be in touch with Mr. Greene, Mr. Bagdonas, and Mr. Asbury regarding future dates for the monitorings.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Vitas Bagdonas

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

April 17, 1981

Subject: Monitoring Report #3 (for building construction)

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Target completion date: For new building March 17, 1982 (working day 308)

For existing building remodeling - yet to be set

Monitored from Issue #1 dated January 5, 1981 (working day 2) and Issue #2, dated February 11, 1981 (working day 29)

Note: A working day calendar base of 1981 is now being used for this project.

Actions taken:

- Reviewed current job status with those attending the session
- Reviewed summary move diagram to confirm ongoing conformance to current plans
- Diagrammed interior remodeling work for area 2W
- Began diagramming site work to be done this summer and fall

General Summary

Those attending the session were:

Mr. Steve Greene, Riverside Osteopathic Hospital
Mr. Vitas Bagdonas, L.G. Redstone & Associates
Mr. Bill Asbury, Darin & Armstrong
Mr. Norm Zabik, L.G. Redstone & Associates (part time)
Ms. Evon Sims, Darin & Armstrong
Mr. Roy Agrusa, Gray Electric (part time)
Mr. Art Robillard, Page Mechanical

This session was primarily to initiate diagramming and planning for interior work remodeling to be done once the new building is complete and occupied. We used a basic starting date for work at the existing building of March 24, 1982 (working day 313) which allows a five working day move out from existing areas into the new building upon its completion on March 17, 1982 (working day 308).

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We had planned to diagram several areas and selected the most complex to begin with. This is area 2W at the existing OB portion of the west wing. This network, being a very interdependent plan of work required most of the diagramming time available.

We presumed work could begin at the existing OB area on 2W by March 24, 1982 (working day 313). First, patients will be moved from 2W to 2E, and then core drilling and capping for fin tube work at the east half of 2W will be done. Prior to this a portion of the ceilings below on 1W will have to be removed so drilling can be watched from below as it is done.

Once core drilling has been completed and capped at the east half of 2W, the nursery will be moved from the west half to the east half of 2W and core drilling then be done at the west half of 2W for new work. Concurrently the existing nursery will be prepared to accommodate a new temporary delivery section. This will involve some minor plumbing and architectural remodeling probably taking about 4 to 6 working days. We have allocated four working days in our network. Once drilling and remodeling is completed at temporary delivery, the existing delivery area will be moved to the former nursery and at that point, which should be about April 12, 1982 (working day 326), demolition at area 2W-C and area 2W-B will begin.

We completed the logic for the entire floor remodeling and assigned durations that seemed appropriate for the work. However, all involved wish to make a review of these durations along with the logic. Therefore, I have issued sheets #9, #10, and #11 containing the remodeling diagram to Mr. William Asbury (through Evon Sims), Mr. Greene, and Mr. Bagdonas. Miss Sims will see that the D & A sub-contractors, primarily Gray Electric and Page Mechanical, get their copies of the work done at this session.

At our next monitoring it is expected we will carefully inspect most areas to be remodeled and discuss with the hospital staff the work sequences that will be most appropriate.

The objective, of course, is to maintain job schedules while keeping disruption of patient needs and staff duties at a minimum. In any remodeling this is a difficult problem and the desire in carefully planning the work is to provide as predictable as possible a time frame for the hospital staff to work around. This meeting is presently set up for early July and will probably require a full day's activities at the job site.

Ralph J. Stephenson, P.E.

RJS:sps
To: Mr. Steve Greene
cc: Mr. William Asbury
Mr. Tom Luchi, Mr. Vitas Bagdonas

RJS.

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

May 10, 1981

Subject: Monitoring Report #4 (for building construction)

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: May 4, 1981 (working day 87)

Target completion date: For new building - March 17, 1982 (working day 308)

For existing building remodeling - yet to be set

Monitored from Issue #1, dated January 5, 1981 (working day 2) and Issue #2 dated February 11, 1981 (working day 29)

Note: A working day calendar base of 1981 is now being used for this project.

Actions taken:

- Inspected project
- Reviewed monitoring system with representatives of the owner, the architect/engineer, the general contractor, and the electrical contractor
- Prepared project status report worksheet
- Met with members of the hospital staff for review of remodeling at level #1 in the existing building
- Prepared network model for site work at the new emergency area for upper and lower level work
- Evaluated current job status

General Summary

The project continues to move quite well with forming for a major share of the second level deck completed from the south to column line L. Mr. Asbury expects to pour out the first section of the deck the week of May 18, 1981. Meanwhile work will continue on walls, the stair tower, elevator shaft, and other concrete elements at the north end of the building. The target date for pouring out the

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2nd level of the building was set in our Issue #1 network model dated January 5, 1981 (working day 2) at June 17, 1981 (working day 119). This date should be bettered according to current progress.

In our network model we had shown elevator tower #1 and #2 work as being critical. However, this work has now dropped behind those critical dates, but it does not appear at present that it will seriously affect the overall progress of the job. Therefore, when these items appear as being late in the project status report analysis they are late only in respect to tentatively selected end dates. At present there does not appear to be any major difficulty in completing elevator tower work within the necessary constraints.

The roof of the elevator #1 will probably start shortly since it is the desire of the elevator contractor to get into the shaft and erect rails from which he will operate his casing drilling rig. Elevator tower work at the north will proceed just as soon as the area is available for completion of north end closing in work for construction. This should be within the next few working days.

At our meeting today with the hospital staff the method expected to be followed in remodeling level #1 areas in the existing building were discussed in detail by Mr. Bagdonas. Apparently the staff is able to accommodate to the sequence presented and thus we shall use it as our guide in diagramming the level #1 remodeling work at a near future session. We should try at each of the regular monitoring meetings to continue the planning work as needed.

After our meeting and monitoring today, we prepared a network model for site work to be done this year to allow the new hospital addition to be opened in the spring. The work needed to be done is that at the new emergency room entrance both at the lower level and at the roadway on the upper level. This work is shown on sheet S-1, Issue #1, dated May 4, 1981 (working day 87). It is presently expected to begin major work at the area once the north walls are up to level #2 in the building and the grey building has been demolished. This start date is expected to be about July 1, 1981 (working day 128). Although the work involved is critical it appears it can be done in a relatively short period of time provided careful attention is given the installation and sequencing. Present plans are to use a late finish of October 1, 1981 (working day 192) for the work; however, early finishes are possible slightly earlier particularly at the lower level. This work is very important since it must be completed in

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order to open the new hospital addition next spring. Since plans are to move into the new hospital March 17, 1982 (working day 308) the site work must be done this year before the onset of cold weather. The plan formulated appears feasible, and I shall check the calculations and issue the network to those interested.

At this session I also prepared a project status worksheet which will be used to produce a computer run of the current status of the job. This computer analysis is similar to the manual analysis made at our meeting today but it puts the results in more orderly form and identifies quickly and easily the current situation relative to the project. These worksheets and status reports will be extended for one month into the future from each monitoring session. Thus, today's project status report will cover the period from May 4, 1981 (working day 87) to June 5, 1981 (working day 110). I shall distribute this report to those currently receiving the monitoring report plus one copy to D & A's office staff.

At our next session we should plan to monitor the project and then, in addition, complete any further analysis of site work to be done in the near future. It is important as site work moves along to maintain access to all existing parking for as long a period as possible. Parking presently is tight on the hospital premises, and there is a need for every space that can be made available.

I shall be in touch with Mr. Bagdonas shortly to set the next planning and monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Vitas Bagdonas
Miss Linda Thomas

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

July 11, 1981

Subject: Monitoring Report #5 (for building construction)

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: June 30, 1981 (working day 127)

Target completion date: For new building - March 17, 1982 (working day 308)

For existing building remodeling - yet to be set

Monitored from Issue #2, dated February 11, 1981 (working day 29)

Note: A working day calendar base of 1981 is now being used for this project.

Actions taken:

- Inspected project
- Reviewed project progress with Mr. William Asbury, superintendent for Darin & Armstrong and Mr. Steve Greene of Riverside
- Evaluated current job status
- Color coded networks
- Prepared project status report for period from June 30, 1981 (working day 127) to August 3, 1981 (working day 150)

General Summary

The second floor concrete deck has been completed with the south half being poured out on June 5, 1981 (working day 110) and the north half being poured on June 19, 1981 (working day 120). Form work is well along for the entire third level, and Mr. Asbury expects to pour out the third level in one pour excepting the north canopy. This pour is tentatively set for mid-July, probably July 13, 1981 (working day 135). The late finish for the third level deck in the network model was July 22, 1981 (working day 142). Thus, if we can make the currently projected field target floor pours we will be about six working days ahead of the plan of work.

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At the grade level a decision has been made to leave the full form work in place until the third level has been poured. Once stripping is well along at the grade level work on rough overhead installation of sheet metal, mechanical piping, sprinkler piping, and above ceiling electrical work can begin. However, sheet metal workers are still on strike having gone out on June 1, 1981 (working day 106). There is no current projection as to when this strike might end, and therefore it is difficult to anticipate what delays might be encountered in 1st floor rough work.

The late start of sheet metal duct work at the 1st floor has been set at August 31, 1981 (working day 170). However, after the strike is over there undoubtedly will be a slow start up period, and therefore it is possible that the durations of the work may be longer than where continuous operations had been maintained. It is essential that sheet metal start by late August, 1981 to maintain our current schedule of operations.

Present plans are to start stud word in the new building sometime in mid-August, 1981. This is an important date because the owner must provide direction relative to in wall blocking for the various facilities to be installed in and on stud walls. We discussed this briefly at our monitoring session.

Work at the elevator towers is now moving up with the floor pours. Again, as with the previous monitoring it should be cautioned that in the project status report elevator work shows up as being late. However, we had originally planned this work setting the pours and close in of the shaft at an artificially critical late finish point. Actually, work there is not presently holding up any major project activity.

At elevator tower #1, metal deck for the roof pour has been set and the roof should be poured out sometime in July, 1981 after the cylinder has been drilled and installed by the elevator contractor. Elevator rails are installed in shaft #1; however, there may have to be some locational adjustments to these before actual elevator work can begin. In the project status report, elevator #2 will also show up as being somewhat later than had been established. Again, the same comments apply; these dates were set artificially tight and that elevator #2 work is not seriously delaying other operations.

There is a desire on the part of the general contractor to complete his work in the building and begin work in the existing building at an earlier date than presently shown on the network models. It should be cautioned that on the network plan presently being used to monitor, that completion of the general contract work with clean up, punch out, and acceptance is actually set at March 1, 1982 (working day 296); testing and

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CONSULTING ENGINEER

balancing of the systems is set for February 15, 1982 (working day 286). After clean up, punch out, and acceptance the owner still has to install carpet, draperies, and blinds. Following testing and balancing and the owner's work the owner will be able to obtain a certificate of occupancy followed by health department approval. The health department inspection and approval is the date that sets March 17, 1982 (working day 308). Thus, a completion target of March 17, 1982 (working day 308) means the building complete, ready to move into and use.

On site work operations are now being concentrated at the north end of the site. The Gray building has been demolished, retaining wall work has started, and mass excavation is in progress at the lower level. A portion of the lower level sanitary sewer and storm sewer is installed. Work on the north site is currently meeting targets between early and late starts and finishes.

General

At our next session we will meet for a full day of monitoring and planning remaining work on the project. This date has been set for Thursday, July 23, 1981 (working day 143). It is important that at this session we review the first and third floor remodeling at the existing building. In addition, we should plan to again review the current network model for the 2nd floor to confirm that the logic and durations are appropriate.

Meanwhile, Mr. Asbury, Mr. Greene, and Mrs. Sims of D & A will meet earlier to discuss and do some preliminary planning for the move in relation to the desires of the owner and the general contractor. At our session on the 23rd we will tie in the owner's work to the contractual work and attempt to generate a plan to the mutual satisfaction of the contractors and the owner.

At this session we should make a full analysis of any remaining procurement problems that might be current. One that constantly reappears is the approval, fabrication, and delivery of the air handling equipment. Apparently all units except #7 had been approved. However, there still is some holdup in the release of unit #7 which goes in the existing building.

It should be kept in mind that our tentative target for completion of new building insulation and roofing is October 16, 1981 (working day 203). Shortly after that we will need heat in the building if finishes are expected to be able to proceed without delay. Therefore, air handling equipment necessary to provide heat would be very desirable to have on line and available as needed for air circulation.

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Another activity that should be considered now is the procedure for sand blasting the exterior of the building. This matter should also be reviewed at our July, 1981 meeting.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Vitas Bagdonas
Miss Linda Thomas

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

September 12, 1981

Project: Monitoring Report #6 (for building construction)

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: August 31, 1981 (working day 170)

Target completion date - For new building: March 17, 1982
(working day 308)

For existing building remodeling - latest move in date at 4 W November 3, 1982
(working day 470)

(Note: Network models for all existing building areas to be remodeled have been completed and distributed to all concerned. The networks should be analysed thoroughly and if any suggestions or recommendations for improvements can be made they should be brought to the attention of the owner and the architect/engineer for consideration in future monitoring and planning sessions. Presently the network being used for monitoring is one prepared in cooperation with all parties to the program and will be used for current monitoring).

Monitoring from Issue #2, dated February 11, 1981 (working day 29)

Actions taken:

- Inspected project
- Reviewed project progress with Mr. William Asbury, superintendent for Darin & Armstrong
- Met with Mr. Steve Greene, Mr. Vitas Bagdonas, and the hospital board of trustees to review anticipated work sequencing
- Prepared project status report for period from August 31, 1981 (working day 170) through October 30, 1981 (working day 213)

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CONSULTING ENGINEER

General Summary

Field progress is being severely affected by the sheet metal strike which began on June 1, 1981 (working day 106) and is still in progress. Indications are that some agreement can be expected after Labor Day in settling the strike, but it would be wise to consider that probably 5 to 10 working days will be needed to affect a final agreement.

There may be some difficulty in starting up sheet metal operations at the site once the strike has been settled due to the fact that there is a considerable backlog of sheet metal work to be done in the Detroit area following settlement. However, every effort is going to be made to get tradesmen on the job as quickly as possible once the settlement has been implemented.

In addition to affecting the overhead sheet metal duct work at the interior of the building, difficulty is being encountered with lack of sheet metal for flashing in exterior masonry walls. Efforts are being made to work around this problem but it is difficult to maintain continuity as the need for masonry flashings are experienced. It is possible that most of the masonry can proceed without flashings, but the isolated sheet metal needs does tend to disrupt continuity.

On the building, all concrete supported decks are now poured out and to a great extent stripped with the exception of the north half of the third floor. The target for completing all floor pours and clearing the area below was late August 1981 and for the penthouse mid-September, 1981. So, although there were some local dislocations of the floor pours, generally the structure has met needed late finish targets.

Equipment bases at the penthouse are being formed and probably will be poured out by the end of next week. This should allow setting of major mechanical equipment at the penthouse which is important to obtaining temporary heat in the building over the coming winter.

Masonry is just starting at the east elevation but as noted is being held up for sheet metal flashing. The crews are expected to move to other areas of the exterior walls to maintain work progress. Sand blasting has been approved for start of work and will probably begin within the next 10 working days. Mr. Asbury does not anticipate that sandblasting will materially interfere or delay any of the other close in work.

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At the interior of the building, mechanical piping, sprinkler work, and rough electrical work is under way. On the 1st floor, considerable amount of mechanical piping has been completed, sprinkler piping is just comfortably started, and most of the electrical rough work to be installed on the structure is in place.

Sheet metal duct work has not yet begun there; it was due for a late start of August 31, 1981 (working day 170) but will not be able to be started until the sheet metal workers are back on the job. In addition, some time will have to be taken for field measuring and fabrication of duct work prior to start of installation. There is no way of currently projecting when a full sheet metal operation will be available on the job site.

The intent is to begin installing interior studs at the 1st floor about September 8, 1981 (working day 175). This is slightly ahead of the target late start date of September 25, 1981 (working day 188) but is going to be done to get as much interior work installed so installation of drywall and taping can start as quickly as possible. The target date for drywall work, which is a key date in the job is October 16, 1981 (working day 203). This is planned for immediately after close in of the building is completed.

To be watched in respect to this date and close in is progress on exterior masonry. Presently erection of exterior masonry lags by about 18 working days and it is now a critical item particularly in respect to the laying of insulation and roofing. Therefore, remaining close in work, at the present time, is going to have to be compressed to a considerable extent to meet our present desired close in point.

Overall, it appears that the current lag on the job ranges between 10 and 18 working days, and I would tend to say that it tends toward the lesser amount depending upon how much the lag in masonry can be picked up and how quickly sheet metal operations can resume at the site. We are still maintaining completion of the facility for acceptance by March 1, 1982 (working day 296), after which owner's work, and fire marshal and health department inspections can be initiated. This, then, allows start of occupancy of the new facility by March 17, 1982 (working day 308). As noted above any methods by which this schedule of work can be compressed and an earlier occupancy date obtained will be carefully evaluated and considered.

Site work for this year is maintaining fairly close adherence to the target late start/late finish dates, lagging them

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presently by 3 or 4 working days. However, we set a desired end date of that north site work of October 1, 1981 (working day 192); thus, the lag is over that target. Presently the retaining wall is complete, backfilling is partially done, and some time has been picked up on installation of the storm and sanitary tie ins at the upper level. At the lower level, there still remains the power duct to be installed after which a full scale construction operation on curbs, concrete drives, sidewalks and paving and finishing work can be initiated. Although it will be tight it is still feasible to meet the early or mid-October, 1981 target for this work.

The contractors intend to soon vacate the present office and marshalling areas where they are located, moving across the street to a site recently acquired by the owner. This site, however, has to be cleared prior to the move. This shift will, in turn, free up a large part of the north parking areas for use in the late fall and winter, 1981.

As part of our session we prepared a project status report for the period from August 31, 1981 (working day 170) to October 30, 1981 (working day 213). This will be issued concurrently with the monitoring report.

Again, it is to be urged that careful study be made by all parties concerned, of the remodeling networks sheets #7 through #18, to determine the appropriateness of the sequences. Where suggestions might be made to provide earlier move in to the various spaces, they will be welcomed and reviewed carefully. It must be kept in mind that hospital operations will have to be maintained throughout the remodeling period particularly to a high degree in some critical areas which have already been identified.

I shall plan to monitor the project again in early October 1981 and shall discuss at that time any additional planning work that must be accomplished. We still must complete a network model for the south parking area. However, this field work will be done next year and can be planned at any time convenient for those involved. I shall be in touch with Mr. Bagdonas to set the next date.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene
cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Vitas Bagdonas
Miss Linda Thomas

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

October 9, 1981

Subject: Monitoring Report #7 (for building construction)

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: October 2, 1981 (working day 193)

Target completion dates - For new building: March 17, 1982 (working day 308)

For existing building remodeling - latest move in date at 4N - November 3, 1982 (working day 470)

(Note: The owner continues to urge all involved on the project to carefully review the plan of action to see where time frames might be shortened. Any suggestion that is feasible and has merit will be considered.)

Monitored from Issue #2, dated February 11, 1981 (working day 29)

Actions taken:

- Inspected project with Mr. Asbury and Mr. Steve Greene
- Reviewed project progress with Mr. Asbury
- Prepared project progress report for period from October 2, 1981 (working day 193) to December 1, 1981 (working day 234)

General Summary

The sheet metal workers strike was settled in early September, 1981, and Mr. Asbury reports that tradesmen were on his job September 14, 1981 (working day 179). Present progress in the field is slowing slightly and the current lag, which is in exterior close in and interior rough work, primarily sheet metal, are the major behind items.

Masonry is substantially erected on the south, east, and west elevations and is presently starting up at the north elevation. It is expected that this work could be completed within the next 10 working days, giving it a lag of about 15 working days.

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However, Mr. Asbury says that roof insulation is due in next week, probably toward the end of the week, and that he might be able to start roofing by the week of October 12, 1981. Roofing was due to begin no later than September 25, 1981 (working day 188) and so the close lag will probably be 12 to 15 working days.

At the first level, overhead work is at a point where studs could probably begin by about October 5, 1981 (working day 194). They were due to have begun no later than September 25, 1981 (working day 188); thus, the projected lag there is about six working days. An effort is to be made to continue work on studs while sheet metal duct work is being installed at the first floor. This will allow interior rough and finish work lag to be picked up to some degree. Interior rough work will move from the first floor to the second floor.

Exterior sash and entry aluminum is ready to ship to the job site as soon as sand blasting is complete on the building. Entry doors probably will not be available at the same time as sash, but any openings that need to be protected can be done with temporary protection.

Louvers on the equipment room will be on the job sometime the third or fourth week in February, 1981 and will be installed immediately upon arrival. Again, if temporary protection is needed it will be installed. The need to field measure the opening coupled to the late erection of masonry caused a delay in louvers.

At the elevator shafts it is expected that the concrete roof decks will be poured out next week sometime and roofing can start soon after. This will close the shafts to weather and allow the elevator contractor to move in and begin his interior shaft work.

Overall, it appears that the present lag in interior work at the building is from 6 to 10 working days while the lag on close in ranges from 5 to 15 working days depending upon how trade work can move over the next few weeks.

Weather, of course, will play an important part in completing exterior close in work. The weather recently has been very rainy and cold, and has contributed to several days of difficult working conditions.

At the north site, sidewalk areas are ready to pour out, and it is expected that the paver will be able to move in to the lower areas sometime within the next 10 to 15 working days. Probably the lower area will be finished out and paved by late

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CONSULTING ENGINEER

in October, 1981. Upper area completion will probably extend on into November, 1981 since work there is not quite so far along as at the lower level. The goal, of course, is to complete both upper and lower areas to a point where they are usable for parking this winter. Mr. Asbury will probably move his trailer and equipment areas across the street to their relocated position within the next 10 working days.

So far as temporary heat in the building is concerned it is still planned to use the permanent equipment for temporary heat. Coils have been placed in the penthouse and much major electrical equipment is set and being hooked up. Fans are on the site but not yet set. It is anticipated that by mid-November, 1981 heat should be available from the penthouse equipment.

I shall be in touch with Mr. Vitas Bagdonas soon to set the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Vitas Bagdonas
Miss Linda Thomas

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

November 14, 1981

Subject: Monitoring Report #8 (for building construction)

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: November 6, 1981 (working day 218)

Target completion dates: For new building - March 17, 1982 (working day 308)

For existing building remodeling - latest move in date at 4N - November 3, 1982 (working day 470)

(Note: The owner continues to urge all involved on the project to carefully review the plan of action to see where time frames might be shortened. Any suggestion that is feasible and has merit will be considered.)

Monitored from Issue #2, dated February 11, 1981 (working day 29)

Actions taken:

- Inspected project
- Reviewed project progress with Mr. Asbury
- Prepared project progress report for period from November 6, 1981 (working day 218) to January 4, 1982 (working day 256)

General Summary

Project site work is running late and although much of the lower level hard surfaces are installed, upper level base and paving is yet to be completed. This activity is very critical since the weather has suddenly turned cold and, of course, we must pave these areas before the asphalt plants close down.

At the building the major problem at present is completion of close in particularly roofing. Overall the lag in roofing, due to begin next week, is now about 33 working days projected to the anticipated start of work. This late closing is imposing delays upon completion of electrical equipment at the second floor equipment room. Interior work is also lagging, primarily gyp board, at the first floor and studs and over head rough work at the second floor.

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A brief review of each major area is given below:

Site work

At the lower level, base course paving has been laid and wearing course is due to be installed sometime next week if weather permits. Light poles are installed and once the wearing course is placed work at the lower level will be substantially complete. Whatever remains to be done there for putting the building into operation can be accomplished next spring.

At the upper level sub-base for sidewalks and paving is being installed, most of the curbs have been completed, and some sidewalks have been poured. Filling and fine grading for paving is expected to be completed by the middle of next week and paving should be able to start in 5 to 10 working days. The major constraint will be weather although traditionally it is found that paving can continue on through mid or even late November depending upon how rapidly the weather forces the asphalt plants to shut down operations for the winter.

Close in

Exterior masonry is nearly complete with sash and glass due to begin within next week. Sash and glass was due to have begun no later than September 3, 1981 (working day 173); thus, the lag there is as much as 40 to 50 working days. However, the critical delay to close in is in laying the Carlisle roofing. This work was to have begun no later than September 25, 1981 (working day 188). It is expected now to begin November 10, 1981 (working day 220). This is a lag of about 30 working days and is at this time directly affecting interior work both installation of equipment and applying skim coat to board surfaces.

Sand blasting of the exterior has been completed for this year, and the remaining areas to be blasted (essentially the east elevation and stair tower #1) will be done early next year. Louvers at the mechanical equipment room are due on the job about November 23, 1981 (working day 229) or earlier. They will be installed immediately. Present field projections anticipate that by the early part of December, 1981 the building should be fully closed to weather with temporary heat available.

First floor

Most rough above floor mechanical and electrical work is installed and studs are well along, in fact, currently meeting targets between early and late starts and finishes. However,

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hanging and taping board is only 20% complete and lags by about 13 working days. It is expected that skim coat plaster might be able to be started as early as November 23, 1981 (working day 229) if local temporary heat can be utilized, or if the permanent temporary system is available. This would give a projected lag on skim coat plaster of about 11 working days.

Second floor

Above floor mechanical and electrical work is moving fairly well but studs which were due to start no later than October 16, 1981 (working day 203) will probably now begin November 11, 1981 (working day 221). This is a projected lag of about 18 working days.

Equipment room

Most mechanical and electrical equipment is now in the room and installation is just getting under way. The equipment room is a very critical area. Of prime importance to its completion is to get roofing down so the electrical equipment can be dried and the moisture which is now seeping in at the base of the masonry wall from the outside roof can be stopped. As noted above, plans are to provide temporary heat from this equipment room just as quickly as possible, hopefully late in November or very early in December.

General

Overall, the current lags on the project that will impact on the end date range from 11 working days at the 1st floor on through to as much as 18 to 20 working days at the 2nd floor. Since these delays are in critical tasks the present projection of completion brings clean up and turnover to about March 25, 1982 (working day 313) with occupancy by about April 9, 1982 (working day 325). It is hoped, of course, that some or all of the lag can be recaptured since completion and occupancy of the new building is absolutely essential for freeing up space in the existing building that must be remodeled in later phases of the job.

Again, it should be emphasized that all involved should constantly review the proposed plans of action for remodeling of interior space in the existing facilities to see if methods of improving delivery dates for these can be found.

RALPH J. STEPHENSON, P.E.
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As part of our monitoring today I prepared a project status report for the period from November 6, 1981 (working day 218) to January 4, 1981 (working day 256). This will be issued concurrently with the monitoring report. I shall be in touch with Mr. Asbury shortly to set the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Dave Power
Miss Linda Thomas

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

December 8, 1981

Subject: Monitoring Report #9 (for building construction)

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: December 4, 1981 (working day 237)

Target completion date: For new building - March 17, 1982 (working day 308)

For existing building remodeling - latest move in date at 4N - November 3, 1982 (working day 470)

(Note: The owner continues to urge all those involved on the project to carefully review plans of action to see where time frames might be shortened.)

Monitored from Issue #2, dated February 11, 1982 (working day 29)

Working days to target completion of new building: 71

Actions taken:

- Inspected project
- Reviewed progress with Mr. William Asbury and Mr. Steve Greene
- Prepared project status report for period from December 4, 1981 (working day 237) to January 11, 1982 (working day 261)

General Summary

Project site work at the north is nearly complete and parking areas will be put into use shortly. The wearing course is yet to be laid over the existing lot A and striping remains to be done at both upper and lower areas. However, this work will be done along with remaining finish work next spring.

At the building the major problem still is closing in the entire structure and getting heat to maintain ongoing interior progress. Mechanical equipment installation is moving fairly

well, but there has been difficulty getting the permanent power turned on. There still must be a connection made at Edison power poles south and north of the facility and an inspection made by Westinghouse of the equipment. Mr. Asbury expects that the permanent power for the building will probably be on by December 21, 1981 (working day 248) providing Detroit Edison completes their work.

It is further expected by Mr. Asbury that full close in of the building should be complete by December 21, 1981 (working day 248). Present needs are for completion of roofing, doors, glass, and the penthouse louver. Most close in material still needed is arriving in the very near future.

A brief review of each major area is given below:

Site work

As noted above, work at the north site is substantially complete for the season and will be made available to traffic and parking shortly. There will be some minor finishes to be done next spring but most bulk work is complete.

The south parking area will be renovated and remodeled next year.

Close in

As noted above, the building is expected to be fully closed in by December 21, 1981 (working day 248). Roofing is on at all areas except the low area at the northeast corner and at elevator tower #2. Mr. Asbury expects this roofing to be laid next week. Ballast is being placed on all roofs that have been rubber sheeted. Probably roofing can be completed, if the weather holds, within the next five to eight working days.

Most sash for the job is installed and presently waiting for glass which will be delivered early next week. Louvers at the mechanical equipment room will also be delivered next week and installed as soon as they arrive on the job. No further sand blasting of the exterior will be done this year.

1st floor

Skim coat is about 60% complete at the 1st floor, and painting has just started. Temporary heat is being used in local areas where skim coating has been applied and is providing adequate heat so fair progress can be made on interior finish trades.

Tile at toilet rooms and janitor closets will be starting next week. There is a possibility that some floor tile may require longer delivery time than desirable but presently plans are to install tile surfaces just as quickly as possible. Quarry tile will be started when the permanent heating system is available due to the need to maintain constant temperatures to properly set tile.

Overall, the current lag at the 1st floor is ten to fifteen working days. Accoustic ceiling grid will probably start the week of December 14, 1981 (working day 243). It was due to begin no later than November 30, 1981 (working day 233). If ceiling work starts the latter part of the week of December 14, 1981 (working day 243) say on December 18, 1981 (working day 247) the projected lag is eleven working days.

2nd floor

Most above floor rough work is completed. Studs and in wall work are 60% to 70% complete and board is presently being hung. Board was due to begin no later than November 6, 1981 (working day 218). Thus, it is about eighteen working days behind present targets. The overall lag at the floor appears to be from 14 to 18 working days.

The major need, of course, in the interior of the building is full close in, and Mr. Asbury feels that once these are accomplished that there is a good chance of recapturing some of the current overall 10 to 20 working day lag presently measured at the interior of the facility. This recapturing is going to be essential in the very near future since there remains only about 59 working days to the general contractor clean up, punch out, and accept date of March 1, 1982 (working day 296).

It should be remembered that once the contract work is complete there still remains owner work to install, followed by obtaining a certificate of occupancy and then health department inspection and approval of the facility. These latter items could require anywhere between 10 to 15 working days. To get fully started on remodeling at the existing facility we must complete all of these items so move in can begin from the old building.

General

Overall, the project is about at the same or slightly greater lag position as at the previous monitoring on November 6, 1981 (working day 218). Mr. Asbury feels that once the building is closed in and heated there is a

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

distinct possibility of recapturing some of the time. This would be very desirable since, of course, it has always been a goal to shorten up the construction period for the new building so as to be able to start on existing work remodeling at as early a date as possible.

I shall process the project status report concurrently with the monitoring report. Meanwhile, I shall also be in touch with Mr. Asbury shortly to set the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Dave Power
Mr. Jim McFerran

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

January 15, 1982

Subject: Monitoring Report #10 (for building construction)

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: January 8, 1982 (working day 260)

Target completion date: For new building - March 17, 1982 (working day 308)

For existing building remodeling - latest move in date at 4N - November 3, 1982 (working day 470)

(Note: The owner continues to urge all those involved on the project to carefully review plans of action to see where time frames might be shortened.)

Monitored from Issue #2, dated February 11, 1981 (working day 29)

Working days to target completion of new building : 48

Note: The completion date shown above is the point in time at which the move in to the new building can be started. It should be noted that the late finish for both floors #1 and #2 construction work clean up, punch out, and accept is March 1, 1982 (working day 296). Following clean up, punch out, and accept the owner must lay carpet and a certificate of occupancy must be obtained along with health department approval.

Actions taken:

- Inspected project with Mr. William Asbury
- Reviewed job progress
- Prepared project status report for period from January 8, 1982 (working day 260) to February 15, 1982 (working day 286)

General Summary

Difficulty is still being experienced with activation of permanent heat due to missing electrical components and to Detroit Edison not having meters installed on the system. Both problems are expected to be resolved next week, and

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

temporary permanent heat should be available soon thereafter. In the interim, the job is being heated with portable units and temperatures are being maintained at levels adequate to continue interior finish work.

Louvers are not yet installed at the penthouse, but are on the job and will start Monday, January 11, 1982 (working day 261). The roof has not been applied at elevator stair tower #1; however, the area is currently protected with tarpaulins and elevator work has proceeded in the shaft.

Overall, project progress is fairly good at the second floor although at the first floor additional time has been lost on installation of interior finish trades. The critical element to watch as the job nears completion of contract work (set presently for March 1, 1982 (working day 296) is that the trades are not bunched up at the end.

A brief review of each major area is given below:

Site work

The north site is to a point where no more work will be done on it until next spring. The upper level is being used for parking; the lower level is available for building use once the new facility is occupied.

Close in

Exterior sash has been installed and glazed and exterior entries and glass will be on the site next week. They will be installed immediately. Louvers for the penthouse are on the job and will be installed next week. This should close the total building to weather and permit temporary protection to be removed at most areas.

1st floor

Skim coating and painting are relatively far along and acoustic ceiling grid is about 95% complete. Ceramic tile has been applied to the walls; however, hard floor probably will not be on the job until February 15, 1982 (working day 286). Quarry tile is available and will be installed once traffic at the corridor where it is to be laid diminishes.

Overall, the 1st floor is ready for start of lay in ceiling light fixtures. These were due to have begun December 10, 1981 (working day 241) but will start early next week

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probably Monday, January 11, 1982 (working day 261). Thus, this activity which is reasonably critical lags by about 20 working days, a loss over the previous monitoring lag. Care must be taken to insure that as much finish work as is possible is completed on a 1st floor/2nd floor sequence so as to avoid build up of trades near the end of the project.

2nd floor

Work has moved well at the 2nd floor with skim coat about 70% complete and painting directly in back of the plastering operation. Acoustic ceiling grid has started and the total current lag at the 2nd floor is about 10 working days. This is a slight improvement over the previous monitoring and if continuing efforts are made to recapture time it is possible the project may be brought back into line with the desired target end date of March 10, 1982 (working day 296).

It should be noted that 15 working days have been allowed at the end of the project to clean up, punch out, and accept.

Mechanical equipment room

The holdup to activation of the mechanical equipment room presently is delivery of miscellaneous electrical equipment from Westinghouse, and hookup of the meters along with final connections by Edison. Presently plans are to complete all work by next week and have heat from the permanent system by about January 20, 1982 (working day 268). Again, this is based upon Westinghouse delivering the required parts and Edison completing hookup and metering.

General

Overall, the project has gained slightly at the 2nd floor but has lost some additional time at the 1st floor. Since there is only 36 working days remaining to the start of owner work and final inspections and acceptance, very careful attention is going to have to be paid to expediting all tasks from here on out. It is desirable to avoid excessive manpower demands near the end of the job so continued sequencing is of utmost importance at the present time.

Now that the job is drawing to a close it should be remembered that any changes to the project at this point are extremely disruptive and tend to incur excessive delays. Thus, all outstanding revisions should be resolved immediately and changes from here on to completion, particularly of the new facility, should be kept to an absolute minimum.

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Following completion of the new building and move in, work is expected to begin on the remodeling phase. Network models have been prepared of this work, and have been issued on sheets #7 through #18. Networks have been distributed to all concerned, and I strongly recommend that shortly before work is due to begin (about March 24, 1982 (working day 313) that a complete review of the logic and durations be made. On these network models, calculations have been completed for early starts and finishes. Once approval is obtained of the sequence and the durations remaining calculations can be prepared of late starts and late finishes. I shall be in touch with Mr. Asbury as well as Mr. Dave Power to discuss this with them, probably after our next monitoring. Meanwhile, I shall be in touch with Mr. Asbury and Mr. Power to set the next session.

At our meeting a project status report was prepared for the period from January 8, 1982 (working day 260) to February 15, 1982 (working day 286). This will be processed and issued concurrently with the monitoring report.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Dave Power
Mr. Jim McFarran

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

February 13, 1982

Subject: Monitoring Report #11

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: February 5, 1982 (working day 280)

Target completion date: For new building - March 17, 1982 (working day 308)

For existing building remodeling: latest move in date at 4N - November 3, 1982 (working day 470)

(Note: The owner continues to urge all those involved on the project to carefully review plans of action to see where time frames might be shortened.)

Monitored from Issue #2, dated February 11, 1981 (working day 29)

Working days to target completion of new building: 28

Note: The completion date shown above is the point in time at which the move in to the new building can be started. It should be noted that the late finish for both floors #1 and #2 construction work clean up, punch out, and accept is March 1, 1982 (working day 296). Following clean up, punch out, and accept the owner must lay carpet and a certificate of occupancy must be obtained along with health department approval.

Actions taken:

- Inspected project
- Reviewed job progress
- Prepared project status report for period from February 5, 1982 (working day 280) to March 22, 1982 (working day 311)

As of this monitoring it appears that the lag over the current network is about the same at both the first and second levels. The original intent of the job plan, however, was to work the floors on a staggered basis. Thus, now it may be essential to work both floors concurrently in order to meet the target

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completion or a completion adjusted for the current lag. I have made this monitoring evaluation for the job based on both the current lag basis and upon what it appears would be required to complete each floor if the logic and work activities were compressed.

In either event it appears that the current projected full completion date for receiving full approvals lags from 19 to 24 working days over the March 17, 1982 (working day 308) goal. The full approval date of March 17, 1982 (working day 308) was the point where it was expected the move in to the new facility could begin. Thus, if the lag is 19 working days the projected move in would be April 13, 1982 (working day 327).

It would be well, however, before accepting any conclusions from this analysis for the entire project team including the general contractor, the owner, and the architect/engineer to discuss the matter in detail so as to identify where the actual target date of move in could be set with confidence.

A brief review of each major area is given below:

Site work

Not monitored at this session. It should be noted from the previous monitoring report that any remaining work there will be completed next spring.

Close in

Most close in is now complete and adequate to protect the interior of the building from weather. There still remains some minor work to be done but to all intents and purposes the building can be considered closed.

1st floor

Most ceiling grid is installed, except for the spline acoustic. Quarry tile is being laid at entry areas and most efforts are now being concentrated upon installing mechanical and electrical trim work.

The amount of time estimated to remain for completion of general contract work at the 1st floor including 15 working days for cleanup, punching out, and accepting, ranges from 25 to 35 working days. Again, it should be noted that 15 working days is allowed for clean up, punch out, and acceptance. This would be a major area to concentrate upon to provide earlier delivery of the floor. It would be well to set punching out procedures and how corrective actions

are to be taken and reviewed and approved now, so the amount of time required for this very important phase of the work is kept to an absolute minimum.

2nd floor

At the 2nd floor there is a possibility that trades needed will soon be the same as those needed at the 1st floor which means a bunching up of finish operations required for the total building. If both floors could be finished concurrently the total lag on the project might be reduced to from 10 to 20 working days. This course of action, however, will require immediate discussion and review by all parties concerned. For this reason, I again emphasize that a meeting of the project team to discuss this and start of phase #2 should be held in the near future.

I was not able to review the target deliveries of items that may not yet be on the project site. One that could be critical is ceramic tile for the few remaining floors. It would be well to get all tile on the job just as quickly as possible.

Mechanical equipment room

The equipment is operating but on an uncontrolled basis and is being used to provide warm air throughout the building. Temperatures within the building are workable, and there does not appear to be any major problem with bringing the full mechanical and electrical system on line as needed. However, it should be kept in mind that balancing and testing of the system will be required at some point. This along with other turnover elements should be planned carefully now.

General

Overall, the project is currently at a point where its lag could be considered anywhere between 10 and 25 working days. I tend to believe the actual lag with the current network plan ranges somewhere between 12 and 20 working days. It is, at this time, important that all concerned with the turnover of the building begin planning how the move in should occur. I recommend that any problems with present installations on the job be ironed out immediately and that the careful review of the next two months operations on the site be made immediately. Even with lags there only remains from 28 to 50 working days until full occupancy of the facility will begin. Thus, decisions on move in timing and procedures are critical.

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From my monitoring I prepared a project status report for the period from February 5, 1982 (working day 280) through March 22, 1982 (working day 311). This will be issued concurrently with the monitoring report.

I shall be in touch with Mr. Dave Power regarding the next monitoring session. It would be well to soon make a detailed review of the network model for remodeling the existing building. I shall also talk to Mr. Power about this since we should evaluate the validity of the current plan of action shown in the issued network models sheets #7 through #18 Issue #3, dated March 4, 1981 (working day 44).

Presently we are assuming that these diagrams are valid for the remodeling work and that the intent is to use the sequence as shown as a guide in the existing structure work. Some demolition has begun at the 1st floor in this second phase but the full activity will, of course, be restrained by move in to the new building. Therefore, a review, confirmation, and revision meeting about the plan of action as depicted by this network is very important to being able to move ahead expeditiously once the new facility has been occupied.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Dave Power
Mr. Jim McFarran

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

April 12, 1982

Subject: Monitoring Report #13

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: April 2, 1982 (working day 320)

Target completion date: For new building start of move in - April 13, 1982 (working day 327)

For existing building remodeling - latest move in date at 4N - late November or early December, 1982 - This date is to be checked.

Monitored from Issue #2, dated February 11, 1981 (working day 29)

Working days to target completion of April 13, 1982 (working day 327) - 7

Actions taken:

- Inspected project
- Completed updating network model for remodeling work to Issue #6, dated April 2, 1982 (working day 320)

General Summary

We continued updating the network model for remodeling work to be accomplished once new building construction is complete and the move in under way. There are various early starting points for remodeling, and a tabulation of those selected at this session is given below:

- Demolition at existing elevator and stair tower (SO) - April 26, 1982 (working day 336)

  (Prior to this date, some work will be done at the elevator and stair tower on barricades, temporary passages, and other construction that must be done prior to the start of actual demolition)

- 1st floor west (1W) remodeling -

  Area 1B+ demolition - April 21, 1982 (working day 333)

  Area 1B demolition - April 14, 1982 (working day 328)

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- 2nd floor west (2W) remodeling -

  Area B demolition - April 14, 1982 (working day 328)

  Area C demolition - April 20, 1982 (working day 332)

  Core drilling as needed at area 2X for fan coil units -

  April 20, 1982 (working day 332)

  Area D demolition - April 20, 1982 (working day 332)

- 3rd floor west (3W) remodeling -

  Demolition and installation of temporary protection -

  April 19, 1982 (working day 331)

- 4th floor north (4N) remodeling -

  Start of remodeling at rooms 419 and 420 - April 6, 1982 (working day 322)

  Demolition work at remaining 4N areas - September 7, 1982 (working day 429)

The above dates are utilized in the updated network models for remodeling shown on sheets #7 through #18. These sheets are in rough at present with calculations shown manually. We will check these calculations and issue the rough drawings for early reference only. Meanwhile, the network will be put into final form for issuance and use in the field work and monitoring.

A brief review of each of the major areas is given below:

<u>New building</u>

The owner will begin move in the night of April 13, 1982 (working day 328), and will require until the evening of April 16, 1982 (working day 331) to accomplish. All at the session agreed these are reasonable time frames and will do everything possible to insure that they are met. Once major moves into the new building are completed work will begin in various areas of the existing building. A brief review of the work is given below.

<u>Existing elevator and stair tower remodeling (EO)</u>

Beginning on April 21, 1982 (working day 333) barricades and temporary passages will be installed after which demolition of the elevator and shaft will get under way. Demolition

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CONSULTING ENGINEER

is presently planned to be completed by June 9, 1982 (working day 367). At this time new construction work will begin, leading to ultimate installation of mechanical and electrical rough work along with masonry and closing out with finishes at each level.

It is presently estimated that the stair tower remodeling will be complete by about September 9, 1982 (working day 431). However, it is the intent of Mr. Asbury to complete this work just as rapidly as possible and if a potential for compressing the schedule shows at any points he will take full advantage of this to shorten up the total construction period required.

<u>1st floor west unit remodeling (1W)</u>

Presently the ceiling in the corridor is removed and rough electrical work has been installed at the corridor. Sheet metal duct work for the corridor is due on the job May 3, 1982 (working day 341). Rough plumbing work at the corridor is expected to start April 20, 1982 (working day 332).

Meanwhile, work at areas 1B and 1B+ will get under way between April 14, 1982 (working day 328) and April 21, 1982 (working day 333). Presently it is the intent to remodel 1B+ in stages - first, the three rooms at the east of 1B+ and then the next two rooms to the east. Rough work will be done in these rooms after which they will be reoccupied even though only a partial ceiling will be in the 1B+ area until work on fan coil units at the 2nd floor is done and the ceiling can be reinstalled without danger of damage.

Area 1B work will, meanwhile, proceed in two stages, the north and south sectors. At the south the work will proceed just as rapidly as possible to allow early move in at key areas. The sequence has been set to reduce to a minimum the number of times that moves must be made. (An area designation plan for all floors in the remodeled building is being prepared by Mr. Dave Power of Redstone's office and will be issued to all concerned shortly).

Once work at 1B has been completed and a certificate of occupancy obtained the area can be occupied after which areas 1C2, 1C3, and 1D2 can be remodeled in sequence. The 1C1 area meanwhile will have moved to its new location. The former area occupied by 1C1 will be remodeled to receive area 1D1 after which the old 1D1 can also be remodeled.

These sequences were reviewed in detail with all parties concerned and as with other areas of the building agreement was given to the procedures to be followed.

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2nd floor west remodeling (2W)

Considerable time was spent in a detailed review of the sequencing of work at the 2nd floor west. Some changes were made and consolidations agreed upon that tended to compress the work over the previous models. The area now designated as 2X will first be cleared completely for core drilling and installation of fan coil units along the exterior walls. The nursery will move from its present location to 2E prior to the start of work on 2X. Once 2X work is complete and once the isolation room at 2W-3 is remodeled the nursery can move to its new position in the remodeled facility.

Meanwhile, work will continue in areas 2W3 and 2W0. These are major sections of the 2nd floor, and it is hoped to gain some efficiencies of work by having the entire area freed up and available. The major revision made in the 2W work was to allow remodeling to be done in larger blocks and on a concurrent basis in order to compress the total time required.

3rd floor west remodeling (3W)

Demolition work at the existing 3W is expected to begin on April 19, 1982 (working day 331). This work is reasonably straightforward and should be able to be completed with health department inspection and approval gained by about September 1, 1982 (working day 426). The calculations are yet to be checked for all areas and will be confirmed in the near future.

4th floor north remodeling (4N)

Here the owner will release rooms 419 and 420 early so as to allow a reduction in the total amount of work that is to be done once 3W has been occupied. It is anticipated presently that work on 419 and 420 will begin April 6, 1982 (working day 322), with work at the remaining part of the floor to begin starting on September 8, 1982 (working day 430). Completion subject to computation check is expected by November 23, 1982 (working day 484). Here again every effort is going to be made to compress the amount of time required and to close out the job at an earlier date if at all possible.

General

Overall, those at the session agreed to the revised logic and the durations and we now have a tentatively approved network; however, to insure that it is consistent with the needs and desires of all involved we shall issue the rough

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diagram for early use in the near future. I shall forward copies of this to all concerned. Meanwhile, I shall be in touch shortly with Mr. Dave Power and Mr. Bill Asbury to set the next monitoring.

Ralph J. Stephenson, P.E.

RJS:eps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Dave Power
Mr. Jim McFarran

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

March 12, 1982

Subject: Monitoring Report #12

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: March 2, 1982 (working day 297)

Target completion date: For new building start of move in -
Between April 13, 1982 (working day 327)
and April 20, 1982 (working day 332)

(Note: This new date is a revised completion range from the previous target of March 17, 1982 (working day 308). It was agreed upon after a detailed analysis of the current status of the project with the project team.

For existing building remodeling - latest move in date at 4N - probably early December, 1982 - This date to be checked.

Monitored from Issue #2, dated February 11, 1981 (working day 29)

Working days to target completion (April 13, 1982 (working day 327)) of new building - 30

Actions taken:

- Reviewed job progress with project team
- Made complete review and analysis of remodeling diagram with project team

General Summary

At this session we concentrated upon establishing a tentative starting point for remodeling work in the existing building and to set completion of the work in the new building. Work at the new building continues to lag by 15 to 25 working days, and we have now reset target completion at a new date of approximately April 13, 1982 (working day 327). The project team feels this is realistic and will now be working to this finish point over the next few weeks.

There are some problem areas that should be watched carefully. One of the more important of these is installation of communications conduit from the new building to the existing

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switchgear room. Mr. Asbury will give this his personal and immediate attention to insure the conduit is installed just as quickly as possible.

At the 1st floor work continues on finishing trades and there probably are about 25 more working days to the point where the floor will be complete. At the 2nd floor, as noted above, there are about 30 more working days of work from our monitoring date of March 2, 1982 (working day 297). The evaluation of progress from here on out will have to be done on a day to day basis since the work remaining will require close interaction between the project staff on the contractor's forces and the owner's and architect's staff relative to installation of owner's equipment, punching out and acceptance. In addition, inspections and other sign offs will have to be acquired from the regulatory agencies and a certificate of occupancy obtained.

The main thrust of our work today was to make a detailed review of the logic plan that has been prepared for the remodeling of the existing building. This was done will all those present, and there were a few minor changes to durations. The work mainly remains as had been planned earlier and shown in the Issue #3 network model, dated March 4, 1981 (working day 44) sheets #7 through #16.

One of the key programs is the start of work at the existing elevator and stair tower. This work is planned to begin in production four working days after the start of occupancy of the new building, and it appears at present that it will require about 100 working days to complete the work. This is a preliminary evaluation and will be checked in more detail from information provided at the meeting.

At the 2nd floor west, work can be carried out somewhat concurrently with remodeling work at the stair tower and probably will require about 150 working days to complete on through to the final move in.

At the 1st floor west, work will also begin somewhat concurrently with the stair tower work. The calculations for this diagram were not redone at this session but will be completed and issued in the near future.

Third floor west work could also begin concurrently with elevator and stair tower work and will probably require about 94 working days to complete and be approved for occupancy.

Thus, it appears that the present plan of operations make it essential that consideration be given to carrying out concurrent activities at many different areas of the existing

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building. Once we have completed the final calculations on the network model we can identify those activities of the project that will have float time available and which may allow allocation of resources to be made that will spread the work load over a greater period than shown by the early starts and early finishes.

The need for constant attention of all management personnel during the transition into the new building out of the existing building is great and must be constant and thorough to accomplish a suitable move in. All those at the session were satisfied that the current plan of action is workable and are now reviewing that material to see if full agreement is to be given.

Again, it should be pointed out that there were few major revisions to the original network model, Issue #3, dated March 4, 1981 (working day 44) network showing all of the remodeled areas. Everyone at the session has copies of this network, and it would be greatly appreciated if they would review these in detail.

I shall be in touch with Mr. Asbury shortly to set the next monitoring session. Meanwhile, we shall update the remodeling networks as decided upon at the session and issue them for field use.

Monitoring comments were provided at this session by Mr. Asbury in the job shanty since time did not permit a personal inspection evaluation. However, future monitorings as in the past will be by inspection.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Dave Power
Mr. Jim McFarran

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

May 24, 1982

Subject: Monitoring Report #14

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: May 14, 1982 (working day 350)

Target completion date: New building was occupied on April 13, 1982 (working day 327)

For existing building remodeling - latest move in date at 4N - late November or early December 1982 - This date still to be confirmed as work proceeds on remodeling.

Monitored from Issue #6, dated April 2, 1982 (working day 320)

Actions taken:

- Inspected project
- Reviewed current status with Bill Asbury and Doug Kosniak
- Evaluated current job status

General Summary

The new building was occupied April 13, 1982 (working day 327) and aside from some minor finish work to be done at non-critical areas is complete and operating.

At the existing hospital remodeling work is in progress at all levels and at the existing elevator and stair tower. There have been some difficulties in maintaining anticipated job progress at the existing elevator shaft, but it is anticipated that over the next several weeks most of the current lag of 14 working days will be regained.

At the other levels efforts are still being made by the owner to turn over larger spaces for ease of remodeling. Overall, the project lags slightly but it is possible, in most cases, that these lags may be recaptured totally or in part.

A brief review of each major area is given below:

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Existing elevator and stair tower

The elevator was cut loose May 14, 1982 (working day 350), and work will continue on removal of remaining shaft work through to about May 21, 1982 (working day 355). At this point demolition at the upper levels will begin in the shaft area. This work currently lags by about 14 working days; however, it is presently planned to complete demolition at the 2nd floor corridor slabs by June 4, 1982 (working day 364) which would reduce the lag to about 7 working days.

1W Remodeling

The 1st floor has been divided into several sub-lettered sections. These are shown on area plans prepared and issued by the architect/engineer and on display in the contractor's office. Sheet metal work in the corridor ceiling is continuing along with other overhead work at various areas of the 1W section. The ceiling at the north side of 1W will probably have to be dropped, and this may impose some delays on moving the blood bank across the corridor. It was originally hoped to move the blood bank by May 19, 1982 (working day 354); however, it appears now that this blood bank cannot be moved until June 8, 1982 (working day 366). This will give a lag of about 12 working days. Meanwhile above ceiling rough work has proceeded in adjoining areas and masonry has been started at the new office area directly adjoining the blood bank. This masonry is due to begin no later than June 10, 1982 (working day 368), and so is presently ahead of its target starting date. Probably finish work at 1BN will continue as far as possible without having the blood bank area available and then be completed in both rough and finish operations when that blood bank move has been made.

At 1BS demolition is complete and erection of masonry walls is well along. Presently work there is meeting or ahead of target early starts and finishes. Overall, work at 1W is presently lagging slightly but these lags are counterbalanced by some dovetailing of work which should bring the floor remodeling in line with the network model within the next month.

Level 2W

Work in 2WB and 2WC is proceeding concurrently with demolition now in work. Interior demolition lags projected dates by from 13 to 24 working days. Demolition at the west exterior wall of area 2WC is proceeding, and currently meeting targets between early and late starts and finishes. At area 2X holes have been provided for the fan coil units and piping

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CONSULTING ENGINEER

is presently being installed. Work at this area is meeting targets between early and late starts and finishes. Bulletin #12 added a janitor closet and a part of this Bulletin is being released in field order #32.

The current lag at level 2N appears considerably more than is desirable at this time. However, the target finish of 2N is set at June 1, 1982 (working day 361) so the lag is over that date and may not be as serious as it presently appears.

Since the entire remodeling program is moving concurrently it would be desirable to maintain some sequences so excessive buildup of manpower will not be required near the end of the project. A more accurate assessment of actual progress at the 2nd floor will be possible at our next monitoring when more of the work will be in progress and measurable.

Level 3N

Demolition is nearly complete and overhead work will probably start shortly. At our monitoring session it was brought out that there will be needed a second fireproof ceiling which will have to be installed before most above floor mechanical piping and electrical work is put in place. Mr. Asbury is intending to start this plaster ceiling immediately and will try to complete as much of it as possible so he can start above floor mechanical piping and rough electrical work no later than June 1, 1982 (working day 361). This work was due to have begun no later than May 5, 1982 (working day 343) and so is presently lagging by a projected 18 working days.

The lag is measured against a completion target of August 31, 1982 (working day 425). However, it is important to finish the 3N area and move in to free the remainder of the fourth floor north which is the last series of remodeling to be made. Again, it will be possible to more exactly measure 3N work progress at our next session since presently work is just getting under way.

4th floor north

Remodeling in rooms 419 and 420 is presently stopped due to the need for three doors to be obtained out of storage. The present intent is to finish this small group of rooms by next week. Work at the remainder of the 4N area will wait upon completion of 3N before the areas can be vacated and remodeling start.

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General

For various reasons the general trend of work presently is to lag desired target starting and finishing dates. At our next monitoring a better evaluation can be established as to the actual condition of the project. Meanwhile, contract document revisions and architectural engineering inspection is only by request of the owner or the contractor according to Mr. Asbury. This will require ongoing attention to prompt identification of technical problems that may occur. Thus, it would be well to thoroughly review at each meeting any unresolved difficulties that may be slowing job progress.

I shall be in touch with Mr. Asbury shortly to set the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Dave Power
Mr. Doug R. Wozniak

RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

June 30, 1982

Subject: Monitoring Report #15

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: June 28, 1982 (working day 380)

Target Completion Date for existing building remodeling - move date at 4N - November 22, 1982 (working day 483).

Note: This completion does not take into account current project lags but it represents the date shown on the network model Issue #6, dated April 2, 1982 (working day 320).

Monitored from Issue #6, dated April 2, 1982 (working day 320).

Note: This network model was originally computed manually and issued. Recently the computer run was issued and the drawings showing early and late starts and finishes and working days and calendar dates were reissued.

Actions taken:

- Inspected project with Mr. Bill Asbury
- Reviewed current status with Mr. Asbury
- Evaluated current job status

General Summary

Work has proceeded very slowly over the past four weeks due to a series of strikes which started June 1, 1982 (working day 361). A brief review of these strikes is given below.

Iron Workers - went on strike June 1, 1982 (working day 361). Turned down offer, there is no current word on a settlement.

Laborers - On strike June 1, 1982 (working day 361). Back to work about June 21, 1982 (working day 375).

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Carpenters - On strike June 1, 1982 (working day 361). Back to work about June 22, 1982 (working day 376).

Plasters - On strike since June 1, 1982 (working day 361). Are due to meet June 28, 1982 (working day 380) at 1 P.M. No word on whether strike will continue. This is a very critical trade and has been one of the major holdups to work on the project.

Masons - On strike June 1, 1982 (working day 361). Some are working on interim agreements.

Tilesetters - Went on strike June 1, 1982 (working day 361), settled and are back to work.

Operators - Went on strike June 1, 1982 (working day 361). Back to work about June 16, 1982 (working day 372).

Teamsters - On strike June 1, 1982 (working day 361). Have returned to work.

This series of strikes has affected critical trades involved in the remodeling work and made planning and implementation of activity on the job difficult, particularly since the project is at a stage where practically every portion requires trades that have been struck. There is further concern about trades that are working now but may strike soon. Pipefitters have settled. Plumbers, however, have not yet reached an agreement and electrians are working but could possibly go on strike at a later date. Mr. Asbury mentioned that the electricians will not be able to strike for wages but could strike for improved benefits. They are required to provide a 10 day notice of any strike they may initiate.

As of our previous monitoring on May 14, 1982 (working day 350), the project lagged totally by about 14 working days. The lags were of a differing amount at each area, but in some cases it was fully expected to recapture a portion of the behind time. Due to the strike situation and difficulty in maintaining work continuity, the project is now 25 to 30 working days behind.

Overall this lag now is going to be very difficult to recapture since our anticipated completion was November 22, 1982 (working day 483), only 203 working days from today. Thus, it appears that at present that completion of the entire project will be delayed to near the end of the year, 1982.

A brief review of each major area is given below:

Existing elevator and stair tower

Demolition work has proven very difficult particularly at the lower floor of the stair tower. This problem coupled with the operator's strike of about 10 working days, has increased the projected lag at the stair tower to about 27 working days. Mr. Asbury noted that the first floor slab on grade at this existing elevator tower is unusually thick, about 12 inches of very well cured concrete and its removal has slowed demolition work considerably in the area. It is anticipated that demolition will be totally complete by about mid July, 1982.

1 W Remodeling

The strike of plasterers has severely hampered work at the first floor area and has delayed moving blood bank equipment to adjoining areas across the corridor from the existing location.

At area 1B plus and the adjoining 5 rooms to the east, the move in has been delayed until additional finishing work has been completed. Probably this area will be turned over to the hospital shortly. The current lag there is 20 working days.

At area 1B-N, plasterers again have caused a severe delay and presently it is expected that work may resume within 3 working days after the settlement. If there is a settlement of the plasterers strike today, June 28, 1982 (working day 380), work on plastering could begin July 1, 1982 (working day 383). It was originally expected that work there would begin June 17, 1982 (working day 373) so the projected lag at 1B-N is now 10 working days.

At 1B-S the same problems exist and if we assume plastering will start there a day after it begins at 1B-N or on July 2, 1982 (working day 384). The lag will be over a planned late start at 1B-S of May 26, 1982 (working day 358). This projected lag would be about 26 working days.

2 W Remodeling

Remodeling work at level 2W has encountered the same delays due to strikes as experienced in other portions of the building. At area 2W-B, the lag is over start of masonry at interior areas and has been caused by the masons' strike. Masons are presently expected to be on the job June 29, 1982 (working day 381) and will probably start at 2W-B in 2 weeks. Thus,

the projected lag will be approximately 35 working days over the expected beginning of masonry of May 21, 1982 (working day 355). At area 2W-C the lag is also in masonry and amount to about 27 working days.

At 2W-X most work is complete, although, there still remains about 5 working days after the return of plasterers to bring the area to the point where move in can begin. There have been some changes to this area that have also tended to slow work at the entire 2W area.

Presently, it appears that the lag in 2W-D and 2W-X over the anticipated occupancy of May 27, 1982 (working day 359) is about 31 working days.

It was noted in the previous monitoring report that bulletin #12 caused some revisions to the work and Mr. Asbury today mentioned that field order #40 required some patching of ceiling and walls at the nursery.

3 W Remodeling

At 3 W the work has been stopped by strikes, with the need now for completion of the upper fireproofing plaster ceiling to be plastered. It is expected that lathers should require about 5 working days to finish once they return. Presuming there is a settlement soon, it is possible that plastering could be done, enough to free up masonry work about July 9, 1982 (working day 388). Masonry was originally due to begin at 3W on May 26, 1982 (working day 358). Thus, the projected lag at this area is about 30 working days.

Field order #37 did require revisions to work at the area and is presently being priced for review by the owner.

Work at air conditioning unit #7 (AC7) has been held due to the strike of the iron workers. This work currently lags by about 24 working days over target late starts and late finishes. As noted above, there is no current word on when the iron workers strike will be resolved.

4th Floor North

Remodeling is complete at rooms 418, 419, and 420 and the owner had the area turned over to him about June 14, 1982 (working day 370). Other work at the 4th floor will begin once the 3rd floor west remodeling is complete and the move in has been made.

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General

The overall trend of work during the last few weeks has been very slow due primarily to extensive strike interuption of the job and confusion as to what the actual condition of the settlements are. Thus, in some cases, work in certain trades can proceed under special agreements, while in other cases, no work at all is being done. This tends to make it very difficult to plan around the disruptions. Once the trades are fully back to work we should update the current model and re-establish the target dates critical to occupancy of the building. This should not be done, however, until more of the settlements have been firmly negotiated.

I shall be in close touch with Mr. Asbury regarding the status of strikes. Meanwhile, I shall also be in touch with Mr. Asbury and Mr. Power shortly to set the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:gmy

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

August 3, 1982

Subject: Monitoring Report #16

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: July 30, 1982 (working day 403)

Target completion date - For existing building remodeling - Move in date at 4N - November 22, 1982 (working day 483)

(Note: This completion target does not take into account current project lags. It represents the target end date against which current lags are measured and to which current lags must be added to obtain new projected end dates.)

Monitored from Issue #6, dated April 2, 1982 (working day 320)

Actions taken:

- Inspected project with Mr. Bill Asbury
- Reviewed current job status
- Evaluated current job status

General Summary

Work continues to move slowly, primarily due to strikes, and over the past month the lags have increased slightly at most major areas. Some of the major trades have either settled or come back to work; however, the cement finishers who went on strike June 1, 1982 (working day 361) are still out and glaziers are still on strike having gone out June 30, 1982 (working day 382). The entire series of staggered strikes and on again, off again settlements this year have posed problems considerably different than in past years.

In the case of plasterers who just returned to work in mid-July, 1982 there has been some delay in getting the job fully manned due to the heavy workload the plaster

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contractor had, coupled with the reduced work force that seems to be characteristic of difficult economic periods. Mr. Asbury is making every effort to increase the number of plasterers on the job and if this can be done soon perhaps some of the current lag can be recaptured.

It will not be possible to determine if this is the case until the plasterers are fully back to work with an adequate crew size to man most areas now awaiting plastering.

Because of the differing amounts of lags it is no longer possible to generalize about the overall project lag. However, in each area discussion below I have evaluated the current lag over the date given for the originally planned completion of that area.

A brief review of each of these areas is given below:

Existing elevator and stair tower (Target completion date from Issue #6 network model, dated September 9, 1982 (working day 431)

Demolition work at the slab on grade, pit, and walls is complete and the new foundation walls and piers are in and backfilled. However, the cement finishers' strike is presently restraining installation of the slab on grade at the old elevator. It is best to pour this slab first and since additional slabs above also depend upon cement finisher operations it has been decided to hold off start of forming supported decks until the first floor slab is complete. This is a serious delay since most activities in the elevator shaft are sequential in nature and very little concurrent work can be done.

The current lag at the elevator shaft is about 19 working days. This, however, will increase for each day that the cement finishers remain on strike. Mr. Asbury has picked up a slight amount of time by continuing to construct the north bearing wall, and this wall is now being poured out from the 3rd to 4th levels. Once it is complete Mr. Asbury intends to bring the other bearing walls in the shaft area on up to the top which should allow us to pick up a small additional amount of time. However, once these walls are complete work at the shaft will be stopped until the cement finishers' strike has been resolved.

1s Remodeling (Latest date for 1s remodeling is moving back into remodeled 1-C2. That target was October 21, 1982 (working day 461) in the Issue #6 network model).

Difficulty has been experienced in getting the blood bank moved, and this matter will be handled internally by the

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hospital staff. At the 1B North area (1BN) plastering is in work on masonry, and ceramic tile has been completed. The lag at 1BN over the network model projected end date of the evening of July 29, 1982 (working day 403) is currently about 27 working days. The lag can be traced to the late settlement of the plasterers strike and the difficulty in getting the tradesmen back to work.

At the 1B South area (1BS) it was expected to complete work by June 28, 1982 (working day 380). With a current lag of 41 working days at this area it is projected that completion will be about August 25, 1982 (working day 421).

2B Remodeling (In Issue #6 network model the target date for full completion of area 2B was the evening of September 15, 1982 (working day 436).

Area 2BS currently lags by about 38 working days. This is a slight increase over the lag noted at the previous monitoring. At area 2BS exterior and interior masonry is well along, and plastering should start as soon as the plastering manpower is increased on the project. It should be noted that installation of exterior sash as well as interior glazing on the project will have to wait the end of the glaziers' strike. Glaziers went on strike June 30, 1982 (working day 382), and there is no current word on when they will be back to work.

At area 2C the current lag is about 33 working days primarily in plastering. This also is a slight increase over the previous monitoring lag.

At area 2BA and 2BC, work is at a point where it is expected to move the nursery back into the area on Monday, August 2, 1982 (working day 404). Any work remaining there will have to be done as the hospital affords an opportunity to get back into the area.

3B Remodeling (Completion of 3B in Issue #6 was set at the evening of August 23, 1982 (working day 420)

At the 3rd floor most overhead rough work is completed, and the area is ready to begin production plastering work. This work was originally due to start no later than June 9, 1982 (working day 366). It probably will begin August 2, 1982 (working day 404). This gives a current lag of 38 working days at 3rd floor major areas.

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The third floor, of course, is very important since it is only upon the inspection and approval of the area and moving in that work at existing 4N can start. Remodeling at 4N is the latest of the activities in the entire network and was due to be completed no later than the evening of November 12, 1982 (working day 478).

Thus, 3rd floor work is high priority work, and Mr. Asbury intends to concentrate plastering trades there as soon as he can free them up from highly critical current work at the 1st floor.

General

Overall, work has continued to slow slightly, but it is hoped that some pickup can be experienced as a full construction crew is built up after the trade work disruptions. Unless special needs exist I probably will monitor in the future only on request of the hospital. I shall be in touch with Mr. Steve Greene and Mr. Asbury to determine their desires in this matter.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Dave Power
Mr. Doug Wozniak

RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

October 27, 1982

Subject: Monitoring Report #17

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: October 18, 1982 (working day 458)

Target completion dates: For existing building remodeling - move in date at 4N - was November 22, 1982 (working day 483) - Is now February 9, 1983 (working day 537)
(Note: This new completion target has been projected from the current status of the job using the logic patterns shown in the Issue #6 network model).

Monitored from Issue #6, dated April 2, 1982 (working day 320)

Actions taken:

- Reviewed project status with owner, general contractor, and major sub-contractors
- Inspected project
- Evaluated current job status with Mr. Bill Asbury, Mr. Steve Greene, and Mr. Larry Walden, construction manager for Darin & Armstrong (Mr. Walden has taken Mr. John Rhen's place on the project).

General Summary

Work has been severely hampered over the past two months by a series of strikes and work stoppages. Very disruptive has been the electrician's work stoppage which began with a strike on August 25, 1982 (working day 421) and continued on through to a settlement and return to work about September 22, 1982 (working day 440). The strike occurred at a particularly critical point in the job since interior finish work was in full swing at that time.

There also has been severe difficulties in the physical compatibility of plastering and painting. The problem was encountered first in the new building, and the effect of that problem has tended to cause work slowdowns in

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plastering progress in the existing facility. Apparently the problem now has been solved, and it is anticipated that within the next two working days a sizable crew of plasterers will be available for ongoing and continuous work in remodeling areas.

A brief review of each of the major portions of the building is given below:

Existing elevator and stair tower

This area is now complete except for finishes at each floor. The tower is closed in and rough work is substantially complete.

1N Remodeling

Area 1N has been substantially completed and is presently being occupied. Temporary carpet has been laid with the intent being to install the permanent carpet as all carpet is being placed in the remodeled areas. Installation and hookup of case work will also be deferred until later.

At 1NN work is complete except for the blood bank. This remodeling is expected to take another 10 to 15 working days to complete. Lockers, carpet, and case work have not yet been installed at 1NN. They will be put in at a later date.

The overall remodeling sequence at 1N is somewhat the same as shown on sheet #14 Issue #6, dated April 2, 1982 (working day 320), although there have been some minor revisions.

Target completion dates for the various 1N areas are now as follows:

Area 1C1 - Complete to start move in November 9, 1982 (working day 474)

Area 1N1 - Complete to start move in December 2, 1982 (working day 490)

Area 1N2 - To be reoccupied December 27, 1982 (working day 506)

Area 1N3 - Complete to start move in November 9, 1982 (working day 474)

Area 1N2 - Move in complete November 23, 1982 (working day 470)

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Reconstruction of original waiting area - Complete to start move in November 19, 1982 (working day 482)

There may be some local delivery difficulties particularly with resilient floor tile, but Mr. Asbury is going to work closely with his office to insure that this does not delay the move in and space availability on the dates above.

2N Remodeling

Work is in progress at 2N areas B and C on a concurrent basis. Presently the lag over the Issue #6 network model dated April 6, 1982 (working day 320) is about 81 working days for area B and 70 working days for area C. Projecting these to the end of clean up and move out of 2NB and C gives a completion of December 30, 1982 (working day 509). This is followed by approximately 7 working days of inspections and approvals following which the areas can be reoccupied by January 12, 1983 (working day 517).

3N Remodeling

Area 3N is currently about 59 working days behind the Issue #6 network model dated April 6, 1982 (working day 320). Projecting this out to the target completion of clean up and move out gives a new construction completion date of November 16, 1982 (working day 479). Move in is expected to start November 23, 1982 (working day 484).

4N Remodeling

This work cannot begin until the area is vacated by moving present 4N departments to 3N. 3N will be available for move in on November 23, 1982 (working day 484), and it should take about 53 working days, including the move, to complete remodeling 4N through clean up and move out. This brings completion of that operation to February 9, 1983 (working day 537). Allowing another 5 working days for approvals and inspections brings completion of 4N ready for occupancy to February 16, 1983 (working day 542).

General

Overall, the above dates seem to be reasonable. Again, it should be understood that presumptions are made here that all deliveries are to be made when the materials

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are needed, and most particularly, that the technical problem with plastering and painting has been truly resolved.

Most mechanical and electrical work is in fairly good shape and it does not appear that the work sequence will be endangered by major difficulties other than those identified above.

Present plans are to monitor the project again in about three weeks since that will be a critical point in time on the project and an evaluation then should give a fairly good indication as to whether progress maintained to that date can be continued on through to completion.

Ralph J. Stephenson, P.E.

RJS:sps

to: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Dave Power
Mr. Larry Walden

RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

November 13, 1982

Subject: Monitoring Report #18

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of Monitoring: November 8, 1982 (working day 473)

Target completion dates: For existing building remodeling - move in date at 4N - was November 22, 1982 (working day 483) - Date currently being used is the morning of February 9, 1983 (working day 537) for start of inspections. Owner's occupancy is to begin the morning of February 16, 1983 (working day 542).

Monitored from Issue #6, dated April 2, 1982 (working day 320)

Actions taken:

- Reviewed current job status with Mr. Bill Asbury, Mr. Steve Greene and Mr. Larry Walden
- Reprojected target completion dates
- Inspected project
- Evaluated current job status

General Summary

Work over the past three weeks has moved slowly, primarily because of a lack of wall and ceiling finish tradesmen on the job. This difficulty is one that must be addressed immediately and resolved within a matter of one or two days if the date structure presently set for the job and projected from today's meeting is to be maintained. It is somewhat obscure as to why difficulties have been encountered in the manning problems, but Mr. Walden and Mr. Asbury are analysing the slow progress presently.

The matter of physical compatibility between plastering and painting has been addressed and a full technical report was recently submitted to Darin & Armstrong by their consultant. This report will be made available to the owner and the architect/engineer shortly.

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A brief review of each of the major portions of the building is given below:

Existing elevator and stair tower

Interior finish work is in progress at the elevator and stair tower, and it is planned to complete finishes by the morning of November 23, 1982 (working day 484).

1A Remodeling

At the 1st floor there has been some dislocation of planned work progress caused by various problems including difficulties in fully drying plaster. This restrains start of painting. Mr. Greene, Mr. Walden, and Mr. Asbury reviewed the situation carefully at our session and target completion and move in dates were reprojected. These revised dates are summarized in the table below:

Area	Complete Construction (Evening of Day	Complete Move In (Evening of Day
Blood Bank	Nov.10, 1982 (working day 476)	Nov. 11, 1982 (working day 477)
1C1 & 1B+	Nov. 9, 1982 (working day 475)	Nov.10, 1982 (working day 476)
1B1	Dec. 9, 1982 (working day 496)	Dec. 10, 1982 (working day 497)
1C2	Jan. 10, 1983 (working day 516)	Jan. 11, 1983 (working day 517)
1C3	Nov. 17, 1982 (working day 481)	Nov. 18, 1982 (working day 482)
1B2	Nov. 17, 1982 (working day 481)	Nov. 18, 1982 (working day 482)
Original waiting room	Nov. 23, 1982 (working day 485)	Nov. 24, 1982 (working day 486)
1A	Nov. 9, 1982 (working day 475)	Nov. 10, 1982 (working day 476)

The major problem facing this area of the job is completion of finish trades that relate to drying of plaster and installing the trim work. There are a variety of minor difficulties that have been encountered, but it appears that the work can move on to completion if the job can be manned according to the above date structure.

Once the majority of the work is completed it is planned to install the corridor ceiling. This, too, will be done as the area is occupied and so will be installed as the opportunity presents itself on a day to day basis.

2N Remodeling

Major problems have been encountered at 2N, areas B and C which have restrained desired progress over the past three weeks. The major difficulty appears to be in manning of wall and ceiling trades. This, in turn, has caused further lags of about 7 working days over the targets projected at our previous monitoring on October 18, 1982 (working day 458).

Reprojecting completion dates gives a target completion of construction of January 10, 1983 (working day 516). Occupancy is expected 7 days later on the morning of January 21, 1983 (working day 524).

The 2nd floor area is extremely critical and is one that the hospital is vitally interested in occupying. Efforts are under way by Mr. Walden and Mr. Asbury to see what can be done to compress the schedule. The analysis is reported against current status and projected completion compared to the original plan.

3N Remodeling

Present plans are to complete construction at 3N the evening of November 15, 1982, and to complete inspections and approvals ready for occupancy the morning of November 23, 1982. It was cautioned by Mr. Asbury that there may be some difficulty in meeting the November 15, 1982 (working day 479) clean up and move out and that it might be necessary for work to continue slightly past that while inspections were being carried out over the succeeding five day period. It is still planned to allow the owner to move into the space, however, the morning of November 23, 1982 (working day 484).

4N Remodeling

This work will begin when the present 4N departments have moved to 3N. The move is expected to start on November 23, 1982 (working day 484) and the area presently is planned

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to be completed and ready for inspection the evening of February 8, 1983 (working day 537). Inspections and approvals will take about 5 working days bringing occupancy to the morning of February 16, 1983 (working day 542).

General

The present targets in light of the work over the past three weeks seem to be tighter than desired; however, the project is now at a point where it is essential they be achieved since serious problems will arise if the dates are not met. It will be essential for all parties involved to keep a day to day check on progress toward the target dates shown above. Any slight slippage of even one or two days becomes very difficult to recapture and potentially disruptive to the move in operation.

I shall wait to hear from Mr. Steve Greene in respect to additional monitoring in the near future. Meanwhile, this report is being sent to the distribution list as shown at the close of the report.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Tom Luchi
Mr. Dave Power
Mr. Larry Walden

RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

December 14, 1982

Subject: Monitoring Report #19

Riverside Osteopathic Hospital

Trenton, Michigan

Project: 81:4

Date of monitoring: December 10, 1982 (working day 496)

Target completion date: For existing building remodeling - Move in date at 4N (the final area to be remodeled) was November 22, 1982 (working day 483). Date currently being used for start of inspections is morning of February 23, 1983 (working day 547). Owner's occupancy is to begin the morning of March 2, 1983 (working day 552).

Monitored from Issue #6, dated April 2, 1982 (working day 320)

Actions taken:

- Reviewed current job status with Mr. Bill Asbury, Mr. Steve Greene, and Mr. Larry Walden
- Reprojected target completion dates
- Inspected project
- Evaluated current job status

General Summary

Work over the past month has moved at a moderate pace with increasing lags being experienced at most areas. There still has been considerable difficulty in fully manning the job, particularly so that floors can be worked concurrently with similar trades. The shortness of time (51 working days) remaining between now and the occupancy of the 4th floor north (4N) makes it imperative that overlapping of trades be done to the greatest extent possible.

In the matter of physical compatibility between plastering and painting, the consultant's report has been submitted to the owner and to the architect/engineer. However, there still is no clear cut resolution of the difficulty, although the problem seems to be affecting the job only minimally at this point.

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A critical move in area is the 2nd floor where it will be extremely important to fully agree on the time and plan for getting the area surgically clean for health department inspection. Considerable time was spent discussing this matter at our session, and it will be reviewed again in individual meetings between now and the time the floor is to be completed.

Apparently there are no material shortages or missing items although I recommend that a careful check be made of every outstanding installation element to insure that all material equipment, supplies, and everything needed to finish the job is either at the project site or available. Delays occasionally do appear at the last minute in respect to such problems of procurement. They should be identified now if such problems do exist here.

A brief review of each of the major portions of the building is given below:

Existing elevator and stair tower

This work is now being done with the finish work at each floor. The fact that the stair tower is a very critical link between the new building and the existing building causes traffic problems that must be tightly controlled. This will be particularly so when the barricade at the 2nd floor is removed, since the floor cleaning will be a serious control element which must be carefully done to satisfy regulatory requirements.

The stair well is complete aside from some minor touch up and cleaning.

1A Remodeling

At the first floor the areas that have been occupied include:

- Blood bank
- 1C1
- 1C3
- 1D2
- The original waiting room
- 1B+
- 1A
- 1B north and 1B south

At 1D1 demolition began on December 6, 1982 (working day 492). We had projected in our previous monitoring that this demolition work would begin November 18, 1982 (working day 481). Thus, the lag there over previous projections is about 11 working days. It is estimated that about 12 days remain from Monday morning, December 13, 1982 (working day 497). This brings completion of 1D1 to the evening of December 29, 1982 (working day 509). It is not expected that 1D1 will be occupied until both it and 1C2 are complete. Therefore, since 1C2 will take slightly longer there is a small amount of float time available in 1D1.

At 1C2 demolition began December 6, 1982 (working day 492). In a detailed discussion with Mr. Asbury and Mr. Walden along with Mr. Greene it was decided that from December 13, 1982 (working day 497) it would require about 25 working days to complete area 1C2. This brings completion to the evening of January 18, 1983 (working day 522).

At area 1D2 remodeling has been completed but the owner has not yet moved a permanent occupancy into the space. Presently he is using it for storage.

At the building area to the east of 1B+ there still are some miscellaneous finish items to complete. The largest of these is painting of two ceilings in the space.

At 1BN lockers remain yet to be installed, and these will be set when those on 2N are installed. The owner is completing the carpet in 1BN currently.

At the corridor the ceiling suspension is substantially complete, and acoustic tile will be installed as late as possible to permit full access to the ceiling without excessive damage to acoustic materials. Mr. Asbury plans to complete this work along with 1C2 and 1D1. Mr. Asbury also points out that there will be repairs necessary to existing plaster surfaces in the corridor. This plaster is old and under scraping tends to lose the painting bond needed. Therefore, repairs must be made before finish painting can be completed. The owner is aware of this and will resolve it with Mr. Asbury. It is possible that this problem could delay final painting in the corridor.

2N Remodeling

It is estimated that from Monday morning, December 13, 1982 (working day 497) it will take about 23 working days to complete interior finish work through clean up and move out at areas 2N, B, and C. This brings completion of those

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CONSULTING ENGINEER

areas ready for inspection to the morning of January 17, 1983 (working day 530). There will be a considerable number of concurrent activities in the last 10 to 15 working days of this finish work, and since the area is small it will require careful planning by the owner and the contractor. There also will be an effort to expedite the electrical inspection so that when the job is finished by the contractor the owner will have 5 full working days to surgically clean the space.

Since it is imperative that this area be completed on time, extremely careful attention must be paid to the work yet to be done. Present plans are to start the week long housekeeping effort the morning of January 15, 1983 which is a Saturday morning and continue it on through to the point where the floor is acceptable. By that time, not only must all inspections but the health department have been made but carpet must have been laid and the area completed so contractors do not have to come back into the space for additional work. It would be wise to set policies for moving out of this area now so that there is no misunderstanding about the sequence of finishing and moving out.

3W Remodeling

The move into this area began today, December 10, 1982 (working day 496) and is expected to be complete by Monday morning, December 13, 1982 (working day 497). This move in will trigger the start of remodeling at 4W. The move in to 3W as planned in our previous monitoring was to have been November 23, 1982 (working day 484). Thus, the lag there over the previous projection was about 12 working days.

4W Remodeling

Work at 4W is expected to begin Tuesday morning, December 14, 1982 (working day 498). This work will be completed through clean up and move out by the evening of February 22, 1983 (working day 547). Allowing one week (5 working days) for inspections and approvals will permit move in to 4W to start by the owner the morning of March 2, 1983 (working day 552). This represents the latest milestone date on the project as of this monitoring.

General

Overall, the project is now moving into the last few weeks of remodeling activity, and it will be imperative that careful day to day attention be paid to every detailed element in order to pick up as much of the lost time as possible. This matter was reviewed in depth at our session, and everyone is now reasonably comfortable with the date objectives that

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have been set. I shall wait to hear from Mr. Greene as to whether another monitoring would be desirable. It is possible that one additional review of the project would be useful although this will depend totally upon progress made over the next 4 week period.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Steve Greene

cc: Mr. William Asbury
Mr. Jon Luchi
Mr. Dave Power
Mr. Larry Walden