

- NETWORK MODELING
- CRITICAL PATH METHOD

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

323 HIAWATHA DRIVE  
MT. PLEASANT, MICHIGAN 48858  
PHONE (517) 772-2537

December 3, 1989

Subject: Monitoring Report #1  
St. Clair High School - SCHS  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:54

Data disks: d174rjs

Date of Monitoring:

November 20, 1989 (working day 227) - Key dates are referenced by working day designations based on the enclosed working day calendar. Working day designations are used for quick calculations of time spans between calendar dates.

Monitored from:

Sheet #SCHS1 - Issue #1, dated November 20, 1989 (wd 227) - issued undated and informally

Target dates:

Contract completion date - 270 calendar days from date of contract.  
Desired completion date pm August 20, 1990 (wd 418)

Actions taken:

- Reviewed and discussed items to be included in plans of action
- Prepared summary network model of administrative area structure
- Reviewed school calendar of events for impacts on construction
- Reviewed daily school activity schedule relative to construction
- Discussed project meeting dates
- Began preparation of laundry list of construction activities

December 3, 1989

- Discussed work area availability and construction access
- Reviewed contractor payment process
- Identified salvage and existing equipment inventory considerations

Those attending meetings:

Thomas Shorkey - Acting Superintendent of School District  
Nancy Bradley - St. Clair High School staff  
Bob Rood - St. Clair High School staff  
Barbara Saph - St. Clair High School staff  
James R. Hiller - Supervisor of Operations  
Gerald Harburn - Principal - THA  
Park Smith - Project manager - THA  
Greg Zarnick - Staff - THA  
Pat McNulty - President - McNulty Construction  
William Wertz - McNulty Construction  
Ralph J. Stephenson - Consultant

General Notes:

For planning purposes the East China Community Schools Bond Issue Program was divided into three principal projects. Divisions agreed upon were as follows:

- Marine City Middle and High School Complex - MCX
- St. Clair High School - SCHS
- St. Clair Middle School - SCMS

These will form the sections upon which this and subsequent planning and monitoring reports will be based.

Major planning components of the St. Clair High School (SCHS) include:

- Administrative area addition and remodeling (AAR)
- New classroom addition (CLAD)
- Boiler room remodeling (BRE)

December 3, 1989

### **Administrative Area**

Construction work at the administrative area is quite complex and should be started as soon as possible. There was some thought, during the discussions, about releasing the area by April 2, 1990 (wd 319). However this release may not provide adequate time to complete the work within the present time frame. Therefore Mr. Rood and Mr. Hiller will initiate immediate planning for an interim administrative location that will allow earlier access to the space for the contractor.

In addition Mr. Hiller and Park Smith of THA will review interim fire exit plans with the fire marshal so as to be able to vacate the administrative areas quickly when temporary relocation plans have been made.

Mr. Hiller has asked that all contractor and construction related space and time clearances be made through him. This will provide a central information and approval source that will help channel information to the proper parties. All agreed to this procedure.

Items to be considered prior to starting work at the administrative area, and that were discussed briefly at our meeting included:

- Disposition of existing sewer line across entrance
- Relocation of existing phone lines
- Relocation of existing computer lines

During our session we prepared a non quantified summary network model of the work to be done at the administrative area up through erection of structural steel. This plan of work was distributed to the school district staff, the contractor and the design team for their study and comment. One of the early items at our next planning meeting will be to complete this diagram and to quantify the logic plan with durations and dates.

December 3, 1989

### **Classroom Addition**

The new classroom addition area is available as soon as temporary exiting requirements have been checked by Mr. Hiller, Mr. McNulty, and Mr. Park. The addition appears to be a relatively straightforward structure and at the next planning meeting we will prepare a detailed network model for its construction. By that time a firm starting date should be available from which to work.

### **Boiler Room**

The boiler room area will be available after the boilers are shut down about May 1, 1990. If the spring weather is mild it may be possible to shut down earlier. Meanwhile procurement of major equipment including new boilers, new hot water heaters, new pumps, an energy management system and a new domestic hot water tank will proceed so as to have the equipment on hand as early building work proceeds.

### **General**

Project notes taken during the session were distributed unedited at the meeting for reference. These notes have been edited and rearranged to reflect information of importance for the project being monitored. The edited notes are attached to this report.

The school calendar and the daily schedule of school use is of importance in planning construction activities. A calendar of events is shown in the attached notes along with the approximate daily school time schedule.

Detailed job meeting formats are yet to be set. The general pattern desired is to have biweekly meetings with monitoring of the project to be sometime in the first week of the month where possible. The payment process is closely tied to the meeting schedule. A general payment procedure was outlined by the school staff and the THA staff and is summarized in the meeting notes.

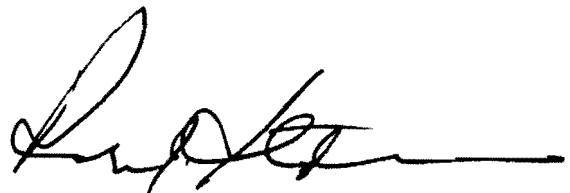
December 3, 1989

Several considerations were reviewed in relation to existing equipment and materials. The school staff should outline how they wish to handle salvage items. This would include the existing kiln. Mr. Rood will check on this matter. It is also desirable to make an inventory of existing furnishings, fixtures and equipment (FFE) in the school. This inventory will then provided a base from which the FFE can be properly retained or disposed of as needed.

Detailed network modeling of the project will continue at the next planning and monitoring meeting. As agreed at our first review, I shall schedule these planning and monitoring dates through Mr. Harburn and Mr. Smith of THA and shall be in touch with them soon to select a date and a location for the next meeting.

No further distribution of material prepared at the session on November 20, 1989 (wd 227) will be made at this time unless desired by the project team.

This report is being sent to Mr. James Hill<sup>or</sup> of the East China Township School District, Mr. Pat McNulty of McNulty Associates and to Mr. Park Smith of THA. It is assumed that further internal distribution will be made as desired by each of these parties.

A handwritten signature in black ink, appearing to read 'Ralph J. Stephenson', with a long horizontal line extending to the right.

Ralph J. Stephenson PE

**St. Clair High School Notes (SCHS) - edited**

- 1. Disk 174**
- 2. By Ralph J. Stephenson PE**
- 3. 1:02:58 PM - Monday, November 20, 1989**
  - 3.1. St. Clair High School meeting notes**
  - 3.2. By Ralph J. Stephenson PE**
  - 3.3. Date of meeting - Monday, November 20, 1989 (wd 227)**
  - 3.4. Meeting location - East China Administrative Center**
  - 3.5. Those present**
    - 3.5.1. Thomas Shorkey - Acting Superintendent of School District
    - 3.5.2. Nancy Badley - St. Clair high school staff
    - 3.5.3. Bob Rood - St. Clair high school staff
    - 3.5.4. Barbara Saph - St. Clair high school staff
    - 3.5.5. James R. Hiller - Director of facilities & service
    - 3.5.6. Gerald Harburn - Principal - THA
    - 3.5.7. Park Smith - Project manager - THA
    - 3.5.8. Greg Zarnick - THA staff
    - 3.5.9. Pat McNulty - President McNulty Construction
    - 3.5.10. Bill Wertz - McNulty Construction
    - 3.5.11. Ralph J. Stephenson - Consultant
  - 3.6. Agenda**
    - 3.6.1. 1:00 PM - 5:00 PM - McNulty, tha, school staff & rjs
      - 3.6.1.1. Review & discuss St. Clair high school items for planning & scheduling
      - 3.6.1.2. Diagram as much of project as possible
        - Administrative area
        - Front end work
        - Procurement
        - Substructure
        - Superstructure
        - Classroom addition
  - 3.7. Meeting notes - Proposal #2 - St. Clair High School**
    - 3.7.1. General contractor - McNulty Associates
    - 3.7.2. Key dates
      - 3.7.2.1. Date of contract - November 13, 1989 (wd 222)
      - 3.7.2.2. Date of letter of intent - November 16, 1989 (wd 225)
      - 3.7.2.3. Completion date - 270 calendar days from date of contract

**St. Clair High School Notes (SCHS) - edited**

**Current desired target completion date - am August 20, 1990  
(wd 418)**

**Contract end date basis should be set as soon as possible**

**3.7.3. Key school event dates affecting construction**

**Mr. James Hiller will be the main coordinator for contractor  
work time. All space and time clearances by contractors to be  
through Mr. Hiller.**

**3.7.3.1. November 23 & 24, 1989 - Thanksgiving recess**

**Students gone**

**Faculty gone**

**Custodial gone**

**3.7.3.2. Christmas recess period - December 21, 1989 thru January 2, 1989**

**December 20, 1989 - Last day for students before Christmas  
recess**

**December 21, 1989 to January 2, 1990 - Christmas recess**

**Wednesday, January 3, 1989 - Classes resume**

**School without students & faculty Dec 21, 26, 27, 28, 1989 &  
Jan 2, 1990**

**School without custodial December 22, 25, 29 1989 & January  
1, 1990**

**3.7.3.3. January 26, 1990 - First semester records day**

**Students gone**

**Faculty present**

**Custodial present**

**3.7.3.4. January 29, 1990 - First day of second semester**

**All present**

**3.7.3.5. February 23 and 26, 1990 - Mid winter break**

**Students gone**

**Faculty gone**

**Custodial present**

**3.7.3.6. April 6, 1990 - Last day before spring break**

**Students present**

**Faculty present**

**Custodial present**

**3.7.3.7. April 9 thru 13 & 16, 1990 - Spring break**

**Students gone**

**St. Clair High School Notes (SCHS) - edited**

**Faculty gone**

**Custodial gone on 13th only - present on all other dates**

**3.7.3.8. April 17, 1990 - Classes resume**

**3.7.3.9. May 28, 1990 - Memorial Day**

**Students gone**

**Faculty gone**

**Custodial gone**

**3.7.3.10. June 14, 1990 - Last day for students**

**Students present**

**Faculty present**

**Custodial present**

**3.7.3.11. June 15, 1990 - Records day**

**Students gone**

**Faculty in for 1/2 day**

**Custodial present**

**3.7.3.12. July 4, 1990 - Independence Day**

**Students gone**

**Faculty gone**

**Custodial gone**

**3.7.3.13. August 27, 1990 - Teacher orientation day**

**Students gone**

**Faculty present**

**Custodial present**

**3.7.3.14. August 28, 1990 - Classes resume**

**Students present**

**Faculty present**

**Custodial present**

**3.7.4. Daily school time schedule**

**3.7.4.1. Staff arrives about 7 to 7:30 am**

**3.7.4.2. School starts at 7:45 am**

**3.7.4.3. Morning busses at school between 7:30 & 7:50 am**

**3.7.4.4. Lunch hour starts at 10:45 - 11:30 am & 11:45 to 12:30 am/pm**

**3.7.4.5. Afternoon busses arrive at school at 2:20 pm**

**3.7.4.6. Afternoon busses leave by 2:30 pm**

**3.7.4.7. Students leave at 2:25 pm - some as late as 4:00 pm**

**3.7.4.8. Staff leaves between 2:50 & 3:30 pm**



**St. Clair High School Notes (SCHS) - edited**

**3.7.5. Progress meeting dates**

**3.7.5.1. Details to be set**

**3.7.5.2. Biweekly - job meetings**

**3.7.5.3. Monthly - monitorings**

**Preferred monitoring date to be in first week of month**

**3.7.6. Laundry lists**

**3.7.6.1. Front end work**

**All complete except for bonds & insurance**

**Should be complete by Wednesday, November 22, 1989 (wd 230)**

**3.7.6.2. Procurement required**

**Shop drawing turnaround - normal**

**• log in check & send to tha - 2 wd**

**• tha can log in, check & return to contractor - 4 wd**

**• log in check and send to sub - 2**

**• Total time = 8 wd**

**Boilers - to be checked**

**EMS system - energy management system**

**New hot water heaters**

**Domestic hot water storage tank**

**Brick is selected - available**

**Block back up to be erected separately from brick**

**Will take two months (44 wd) for erection of masonry to bearing**

**Structural steel - possibly on job by 40 wd from submittal approvals**

**Steel joists - possibly on job by 40 wd from submittal approvals**

**Roof top units - 2 over administrative area**

**Color and finish approvals - to be complete by mid January, 1990**

**Toilet partitions**

**Computer tables - nic**

**FFE - nic**

**Stack shelving - nic**

**Desks - nic**

**St. Clair High School Notes (SCHS) - edited**

**To be continued**

**3.7.7. Work considerations - St Clair High School**

**3.7.7.1. Daily school time schedule**

**Staff arrives about 7 to 7:30 am**

**School starts at 7:45 am**

**AM busses at school between 7:30 & 7:50 am**

**Lunch hour starts at 10:45 - 11:30 & 11:45 to 12:30 am/pm**

**PM busses arrive at school at 2:20 pm**

**PM busses leave by 2:30 pm**

**Students leave at 2:25 pm - some as late as 4:00 pm**

**Staff leaves between 2:50 & 3:30 pm**

**3.7.7.2. Fire exit**

**Classroom egress (door #104) must be maintained**

**Office**

**3.7.7.3. Area availability**

**Administrative area available**

**Possibly by April 1, 1990**

**will be tempered by fire marshall's decision**

**Could get in as soon as the existing functions are moved**

**Four entrances to be closed during construction**

**May have problem turning over to owner by August 20, 1989**

**Must start just as quickly as possible**

**Sewer runs under**

**Questions and comments**

**Can we work in limited areas only? - no**

**McNulty would like to start as soon as possible**

**Existing sewer runs across entrance**

**Must be rerouted or abandoned**

**Must be kept in operation**

**Location can be seen on old drawings**

**tha will check location**

**Must consult with the fire marshall**

**Sgt Paris - new fire marshall - takes over**

**Jerry Howe - retiring December 21, 1989**

**Jim Hiller & Pat McNulty will consult with Jerry**

**Howe**

## **St. Clair High School Notes (SCHS) - edited**

**Steps to be taken to turn space over to contractor**

**Relocate phone lines**

**Relocate computer lines**

**Select temporary area to be used**

**Have 7 people to be relocated**

**Could use portable for the counselors**

**School staff will work on move immediately**

**Classroom addition available now**

**Side exit to be activated**

**How about wood deck as part of exterior exit**

**To be checked if appropriate**

**Boiler room area available - May 1, 1990**

**Shut down boilers by May 1, 1990**

**Might be earlier if appropriate**

### **3.7.7.4. Construction access, parking, staging, office & storage**

**Watch restricted load laws on access roads**

**McNulty & subs will have 4 shanties on site**

**McNulty will provide job site area layout**

**School may be able to provide an area southwest of admin area**

**Need space for storing heavy equipment**

**School will provide area north of building**

**tha will give 8 1/2 x 11 plan layout of area**

### **3.7.8. General**

#### **3.7.8.1. Payment process**

**Should set up payment schedule**

**Normal board meeting - 2nd Monday of month**

**Need approved pay request by am Wednesday prior to the board meeting to get on agenda**

**Should have rough draft of request at construction meeting prior to the board meeting**

**Check will be turned around the morning after the board meeting**

**Payment request should be in to tha by the 25th of the month**

**Work covered should be through the 20th of the month**

**THA must inspect project to confirm payment request**

**St. Clair High School Notes (SCHS) - edited**

**3.7.8.2. Existing fixtures, furnishings and equipment**

School should make inventory of all furnishings, fixtures & equipment

School should decide on disposition of ffe

Should specify how salvage items are to be handled

Existing kiln - Bob Rood will check

**3.8. Next planning and monitoring meeting**

3.8.1. To be set by Ralph J. Stephenson through THA office

**3.9. Edited notes sent to**

3.9.1. Mr. James R. Hiller, Supervisor of operations - East China School District

3.9.2. Mr. Park Smith, Project manager - THA

3.9.3. Mr. Pat McNulty, President - McNulty Associates

- NETWORK MODELING
- CRITICAL PATH METHOD

RALPH J. STEPHENSON, P.E., P.C.  
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December 31, 1989

Subject: Monitoring Report #2  
St. Clair High School - SCHS  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:54

Data disks: d174rjs

Date of Monitoring:

December 15, 1989 (working day 245)

Monitored from:

- Sheet #SCHS1 - Issue #1, dated November 20, 1989 (wd 227) - issued undated and informally

Target dates:

- Contract completion date - 270 calendar days from date of contract.

- Desired completion date pm August 27, 1990 (wd 423)

Actions taken:

- Reviewed current status of project
- Prepared preliminary network model for administrative area addition and remodeling (AAAR)
- Discussed work area availability and construction access

Those attending meetings:

Gerald Harburn - Principal - THA

December 31, 1989

Park Smith - Project manager - THA  
Les Hartzman - Construction administrator - THA  
Pat McNulty - President - McNulty Associates  
Ralph J. Stephenson - Consultant

General Notes:

Major planning components of the St. Clair High School (SCHS) include:

- Administrative area addition and remodeling (AAAR)
- New classroom addition (CLAD)
- Boiler room remodeling (BRRE)

**Administrative Area Addition and Remodeling (AAAR) - network model sheet \*SCHS1**

Major activities at present are concentrated on early submittals and approvals of key materials and equipment. Rooftop unit shop drawings are to be submitted in late December, 1989 and fabrication of the units should be in work by early January, 1990. Structural steel and joists are expected to be delivered in late February, 1990. Aluminum window shop drawings are being prepared and should be submitted by early January, 1990.

Currently it is expected that the school will vacate and relocated the administrative operations starting in late January, 1990. This should allow demolition of the existing canopy and sidewalks at the administrative area to proceed.

The temporary exiting configuration has been discussed and cleared with the regulatory agencies involved. This should allow construction to proceed as dictated by weather, deliveries and space availability.

During our session we prepared a preliminary network model for the administration area addition and remodeling - sheet \*SCHS1 - Issue 2, dated December 15, 1989 (wd 245). The model shows a target completion date for the work on the pm of August 27, 1990 (wd 423). In my opinion,

December 31, 1989

the plan of work is tight but achievable. Because of the close interfacing of new and remodeled work the project will require close cooperation between the contractor, owner, occupants and the architect/engineer. However performances to date indicate this is being achieved at present.

With the present plan it is anticipated that structural steel, joists and metal deck should be in place by late April, 1990, the area closed to weather by mid to late May, 1990 and full interior finish work requiring protection from weather should be able to start by late June, 1990.

These dates are reflected in the network model, sheet \*SCHS1 - issue 2, dated December, 1989 (wd 245), enclosed with this report.

#### **Classroom Addition (CLAD)**

Time restrictions and information available at this meeting made it desirable to defer diagraming the classroom addition to the next session. Meanwhile Mr. McNulty will provide a rough schedule of his planned activities from which a preliminary network model will be built for discussion at our next meeting.

#### **Boiler Room Remodeling (BRRE)**

No major planning was done on the boiler room work. Active planning of the work will begin at our next session.

The boiler room area will be available after the boilers are shut down about May 1, 1990. If the spring weather is mild it may be possible to shut down earlier.

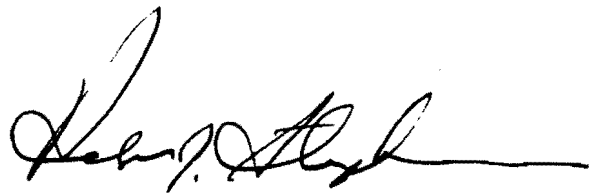
#### **General**

It would be well to consider the disposition of existing equipment and materials early. The school staff should, in the very near future, outline how they wish to handle salvage items. Mr. Rood, at our initial meeting said that he would check on this matter. As part of this work an inventory

December 31, 1989

of existing furnishings, fixtures and equipment (FFE) in the school might be considered. This inventory will then provided a base from which the FFE can be properly retained or disposed of as needed.

Accompanying this report is the network model, sheet \*SCHS1, issue 2, dated December 15, 1989 (wd 245). The report is being sent to Mr. James Hiller, Mr. Pat McNulty and to Mr. Park Smith of THA. It is assumed that further internal distribution will be made as desired by each of these parties.

A handwritten signature in dark ink, appearing to read 'Ralph J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE



- NETWORK MODELING
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**RALPH J. STEPHENSON, P.E., P.C.**  
CONSULTING ENGINEER

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PHONE (517) 772-2537

February 4, 1990

Mr. Pat McNulty, President  
McNulty & Associates  
5902 Greenwood Road  
Gladwin, Michigan 48624

Re: Network models for St. Clair High School, St. Clair, Michigan

Dear Pat:

Last Monday, January 29, 1990 I visited the St. Clair High School job and met with Bob Bulgrien, your superintendent. Prior to traveling to St. Clair I prepared a preliminary, rough, unquantified network model of the classroom addition from the working documents. You and I had previously prepared a preliminary network model of the administration area remodeling, and I followed somewhat the same logic format.

I reviewed both networks, in detail, with Mr. Bulgrien and discussed both the logic and durations with him. We made some modifications at his suggestion, but generally he agreed that they appeared to be reasonable models of the work to be done.

Mr. Bulgrien requested a copy of each of the two diagrams. That afternoon I made the corrections we had decided on, and on Tuesday ran the networks for the administrative remodeling and the classroom addition and sent them to the job site with Greg Zarnick of THA.

You have probably seen or received the diagrams by now, and I would appreciate it very much if you would review the work plans and the durations, make corrections or revisions and return your comments on them to me as soon as convenient. Until then I shall monitor the project from the networks issued to Mr. Bulgrien.

Mr. Harburn of THA has been sent a copy of all completed networks for the

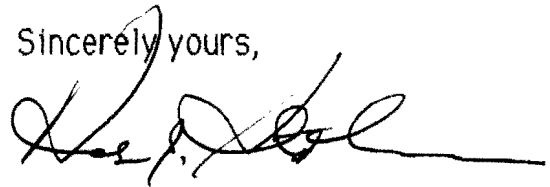
**RALPH J. STEPHENSON, P.E., P.C.**  
CONSULTING ENGINEER

February 4, 1990

St. Clair High School to use in his review of job progress with the school board. Presently, I pointed out to him, it appears that the job and the projected plans of work are in good alignment.

Thank you for your assistance.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Ralph J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

Copies to: Mr. James A. Hiller  
Mr. Park Smith

- NETWORK MODELING
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February 4, 1990

Subject: Monitoring Report #3  
St. Clair High School - SCHS  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:54

Data disks: d174rjs

Date of Monitoring:

January 29, 1990 (wd 274)

Monitored from:

- Sheet #SCHS1 - Issue #2, dated December 15, 1989 (wd 245)
- Sheet #SCHS2 - Issue #3, dated January, 1990 (wd 274)

Target dates:

- Contract completion date - 270 calendar days from date of contract.
- Desired completion date pm August 27, 1990 (wd 423)

Actions taken:

- Inspected project with Mr. Bob Bulgrien, superintendent
- Reviewed current status of project with Mr. Bulgrien
- Reviewed and updated network model for administrative area addition and remodeling - sheet SCHS1 - to issue #3, dated January 3, 1990
- Reviewed and corrected network model for classroom addition - sheet SCHS2, issue #3, dated January 29, 1990

February 4, 1990

Major planning components of the St. Clair High School (SCHS) include:

- Administrative area addition and remodeling (AAAR)
- New classroom addition (CLAD)
- Boiler room remodeling (BRRE)

**Classroom Addition (CLAD) - network model sheet \*SCHS2**

Currently all major foundation work is complete except at the north stair. Structural steel, deck and most mesh is set at the 1st floor supported deck. The concrete pour at the 1st floor has been delayed by a January thaw which caused imposition of load limits on access roads to the site. This reduced loading allowance prevents effective delivery of the concrete needed. However the weather should soon turn colder, and when restrictions are lifted concrete deliveries to the site can be resumed and the deck poured. This pour is expected to be made by Friday, February 2, 1990 (wd 278).

To date the project has moved reasonably well and is currently in good condition meeting dates between early and late starts and finishes.

Prior to this monitoring, I prepared a network model for the addition and reviewed it with Mr. Bob Bulgrien, McNulty's superintendent. Mr. Bulgrien has been given a copy of the classroom addition plan of work, issue #1 network dated January 29, 1990 and will review it for official distribution.

**Administrative Area Addition and Remodeling (AAAR) - network model sheet \*SCHS1**

As of January 29, 1990 (wd 274) much of the bulk demolition at the canopy and other outside areas is complete. Most major building interior areas have been vacated and are being cleaned by the owner. It is anticipated

February 4, 1990

that the contractor can begin interior demolition and other interior work early in February, 1990. This is in substantial agreement with the sheet \*SCHS 1, issue \*2, dated December 15, 1989 (wd 245). This model was prepared with Mr. McNulty at our meeting of December 15, 1989 (wd 245) and was updated at today's monitoring with Mr. Bulgrien. The issue \*3 network, dated January 29, 1990 (wd 274) was printed and given to Mr. Bulgrien for his further review and comment.

### **Boiler Room Remodeling**

The boiler room area was not fully monitored at this session since major field work has not yet begun there. I recommend that active planning begin just as soon as possible, particularly for procurement of long lead time items. I shall contract Mr. Pat McNulty directly in the near future, to discuss the boiler room work, and to set a date when we can prepare a full network model of work to be done.

Since the time window during which the boiler room will be available is rather narrow it is critical that the project be carefully planned. The area is available for limited work now, and will be fully available after the boilers are shut down about May 1, 1990. If the spring weather is mild it may be possible to shut down early.

### **General**

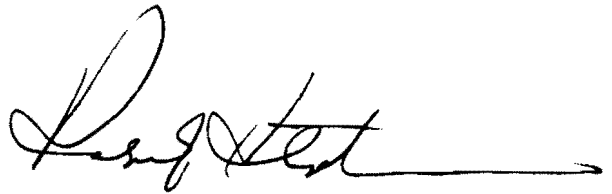
I have outlined the network issue status on the St. Clair High School for Mr. McNulty by letter and will await his comments before fully issuing the current plans of work. Meanwhile, I have provided Mr. Harburn of THA a copy of the network models for both the classroom addition and the administrative area remodeling for his information in reviewing job status with the board of education.

Disposition of existing equipment and materials should be set early. This matter was discussed in our meetings late in November, 1989 and I recommend that the school staff outline how they wish to handle salvage

February 4, 1990

items.

As mentioned in the previous monitoring report, an inventory of existing furnishings, fixtures and equipment (FFE) in the school should be considered. This inventory could provide a base from which the fixtures, furnishings and equipment can be properly retained or disposed of as needed.

A handwritten signature in black ink, appearing to read 'Ralph J. Stephenson', with a long horizontal flourish extending to the right.

Copies sent to: James A. Hiller  
Park Smith

Ralph J. Stephenson PE

MANAGEMENT CONSULTING

- NETWORK MODELING
- CRITICAL PATH METHOD

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

323 HIAWATHA DRIVE  
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February 10, 1990

Mr. Pat McNulty  
McNulty Associates, Inc.  
5902 Greenwood Road  
Gladwin, Michigan 48624

*E. Ch. 1*  
*SCHS*  
*89:54*

Re: Network models for St. Clair High School

Dear Pat:

Enclosed are copies of the networks from my meetings of January 29, 1990 at the site. I gave Bob Bulgrien a paste up draft of these diagrams but I thought it might be easier for you to indicate your comments on a print.

I shall defer issuing the work plans formally until I hear from you as to revisions or additions you wish to make. Meanwhile I have sent Jerry Harburn and Jim Hiller copies of these models for their use and reference.

Until I hear from you I shall continue to monitor the project against the enclosed diagrams.

Sincerely yours,

Ralph J. Stephenson PE

Copies to: Mr. James A. Hiller  
Mr. Park Smith

March 8, 1990

Subject: Monitoring Report #4  
St. Clair High School - SCHS  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:54

Data disks: d174rjs

Date of Monitoring: March 2, 1990 (wd 298)

Monitored from:

- Sheet #SCHS1 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS2 - Issue #3, dated January 29, 1990 (wd 274)

Target dates:

- Contract completion date - 270 calendar days from date of contract.
- Desired completion date pm August 27, 1990 (wd 423)

Actions taken:

- Inspected project with Mr. Bulgrien, superintendent
- Reviewed current status of project with Mr. Bulgrien
- Prepared network model for boiler room addition with Mr. Bob Bulgrien and Mr. Larry Ulfig, mechanical contractor superintendent

Major planning components of the St. Clair High School (SCHS) include:

- Administrative area addition and remodeling (AAAR)



March 8, 1990

- New classroom addition (CLAD)
- Boiler room remodeling (BRRE)

**Classroom Addition (CLAD) - network model sheet \*SCHS2 -**  
target completion date - pm August 27, 1990 (wd 423)

As of March 2, 1990 (wd 298) the first floor supported deck is poured out and exterior and interior bearing masonry has been started. Masonry was due to have begun February 2, 1990 (wd 278). It was actually started March 1, 1990 (297).

Structural steel is on the job and according to the network model sheet \*SCHS1 issue 3 dated January 29, 1990 (wd 274), erection is to begin March 16, 1990 (wd 308). Mr. Bulgrien feels he can still hold this as his target start.

**Administrative Area Addition and Remodeling (AAAR) - network model sheet \*SCHS1** - target completion date - pm August 27, 1990 (wd 423)

As of March 2, 1990 (wd 298) masonry foundation walls at the addition are complete and being backfilled. There is some question as to whether the slab on grade can be put in early and it is possible that the slab will follow exterior walls and erection of structural steel.

Interior demolition at the existing administrative area is substantially complete.

**Boiler Room Remodeling** - target completion date - late July to early August, 1990 (to be confirmed)

Mr. Bulgrien, Mr. Ulfig and I prepared a preliminary network model for the boiler room remodeling. This network is being put into final form and will

March 8, 1990

be issued as sheet SCHS4, issue #4 dated March 2, 1990 (298). Copies will be sent to Mr Bulgrien, Mr. Pat McNulty, Mr. James Hiller and Mr. Park Smith for their review and comments.

In this plan of work boiler delivery is expected by June 4, 1990 (wd 363). To receive the boiler equipment, the existing boilers must be shut down and removed, the area demolished and new equipment bases constructed. Present plans are to shut down the existing boiler operation for removal on May 1, 1990 (wd 340) and to be ready to receive the new equipment by the am of May 22, 1990 (wd 355).

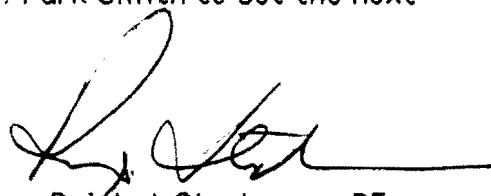
Meanwhile during the spring break from April 9, 1990 (wd 324) to April 17, 1990 (wd 352) the boilers will be shut down to allow removal of fin tube piping in the switch gear room. The system is expected to be refilled and back on line by the am of April 13, 1990 (wd 328).

These dates were discussed briefly by me with Mr. Hiller and he said they appear to be acceptable. However I recommend that McNulty & Associates discuss these shutdown dates with Mr. Hiller in detail to determine all impacts of the boiler system down time.

Another item of potential importance is removal of the incinerator to allow relocation of the existing stairs. The incinerator is a large bulky piece of equipment and may prove difficult to demolish.

### **General**

This monitoring report is being sent to Mr. Pat McNulty, Mr. Park Smith and to Mr. James Hiller. Further internal distribution will be by them. I shall be in touch shortly with Mr. McNulty and Mr. Park Smith to set the next planning and monitoring session.



Ralph J. Stephenson PE

- NETWORK MODELING
- CRITICAL PATH METHOD

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March 8, 1990

*April 13, 1990*

Subject: Monitoring Report #5  
St. Clair High School - SCHS  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:54

Data disks: d174 & 212 rjs

Date of Monitoring: April 9, 1990 (wd 324)

Major planning components of the St. Clair High School (SCHS) include:

- Administrative area addition and remodeling (AAAR)
- New classroom addition (CLAD)
- Boiler room remodeling (BRRE)

Monitored from:

- Sheet #SCHS1 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS2 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS3 - Issue #3, dated March 25, 1990 (wd 314)

Target dates:

- Contract completion date - 270 calendar days from date of contract.
- Desired completion date pm August 27, 1990 (wd 423)

Actions taken:

- Inspected project with Mr. Bulgrien, superintendent
- Reviewed current status of project with Mr. Bulgrien

**Classroom Addition (CLAD) - network model sheet #SCHS2**

target completion date - pm August 27, 1990 (wd 423)

March 8, 1990

Apr 13, 1990

As of April 9, 1990 (wd 324) exterior and interior masonry block bearing walls are erected to a point where according to Mr. Bulgrien, structural steel erection could start. However the damp weather and difficult site access problems have prevented bringing an erection crane on the job. The site is very muddy and major access routes to the building are deeply rutted. Other access routes are blocked by topography and landscaping. Mr. Bulgrien has examined alternate methods of getting hoisting equipment to the project but has not yet devised a suitable alternate plan of operation. Load limits on surrounding roads were lifted Saturday, April 7, 1990.

Structural steel was due to begin at a late start of March 16, 1990 (wd 308) according to the network model sheet #SCHS1 Issue 3 dated January 29, 1990 (wd 274). Present projected start of erection is possibly by April 12, 1990 (wd 327). Thus the projected lag over late starts and late finishes is 19 working days.

Meanwhile interior masonry and in wall work is in progress at the classroom addition and is about 60% complete. This work is meeting targets between early and late starts and finishes.

Reviewing the network model for areas where the project may be able to be brought back into the current desired time frame, Mr. Bulgrien mentioned that some shortening of the present roofing duration of 10 working days might be possible.

Also it might be possible to reduce the length of time required to field measure, fabricate and deliver aluminum windows and entries. At present this duration is 41 working days and the activity restrains installation of windows, and the hanging taping and sanding of interior dry wall surfaces. Interior dry wall is shown as starting no later than July 3, 1990 (wd 384) in the current plan of work. This date is a pivotal date on the project since it unlocks much of the following interior work to be done at the addition.

**Administrative Area Addition and Remodeling (AAAR) – network**

March 8, 1990

~~April 13, 1990~~

**model - sheet \*SCHS1**

target completion date - pm August 27, 1990 (wd 423)

As of April 9, 1990 (wd 324) interior demolition at the existing building is substantially complete and new work installation is underway. Interior above floor rough mechanical and electrical work is moving well and is from 70% to 90% complete at the demolished areas according to Mr. Bulgrien.

The new administrative area floor slab on grade is complete and masonry bearing walls will be started in the middle of the week, perhaps as early as April 11, 1990 (wd 326). They were due to begin March 20, 1990 (wd 310) and so are projected to lag as much as 16 working days.

Structural steel erection at the administrative area was expected to start by April 17, 1990 (wd 330). The lag in the structure can be best measured by this date being compared to the actual start.

Some time will be gained back from the early start on interior rough work and, as at the classroom addition some reduction in roofing duration is possible. The pivotal date for the unit is the start of interior work on dry wall hanging, taping and sanding, which is a weather sensitive operation and requires the building to be closed to weather to begin. The current date set for start of dry wall is June 27, 1990 (wd 380).

**Boiler Room Remodeling** - target completion date - late July to early August, 1990

As of April 9, 1990 (wd 324) the boilers have been shut down temporarily and installation of miscellaneous new piping and removal of some fin tube piping is in work. This operation is moving in accordance to the projected plan of work. The boilers will be restarted for the return of students and faculty from the spring break.

March 8, 1990

~~April 13, 1990~~

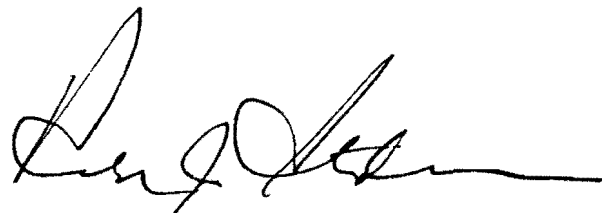
Present plans are still to shut down the existing boiler operation for removal on May 1, 1990 (wd 340) and to be ready to receive the new equipment by the am of May 22, 1990 (wd 355).

It has been decided by the contractor to remove the incinerator at the same time as the existing boilers are removed in May, 1990. The plan is currently to take them out through the window opening.

### **General**

The project is currently lagging in both the classroom addition and the administrative area work. There is some possibility of recapturing part of the time, and I recommend we use the next monitoring results to evaluate the advisability of revising the plan of work. It is usually best, when the project can be brought back into alignment with the original plan of work, to defer updating so as to maintain the integrity of the original plan of work.

This monitoring report is being sent to Mr. Pat McNulty, Mr. Park Smith and to Mr. James Hiller. Further internal distribution will be by them. I shall be in touch shortly with Mr. Harburn and Mr. Park Smith to set the next planning and monitoring session.

A handwritten signature in black ink, appearing to read 'Ralph J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

May 19, 1990

Subject: Monitoring Report #6  
St. Clair High School - SCHS  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:54

Data disks: d174 & 212 rjs

Date of Monitoring: May 10, 1990 (wd 347)

Note: The date on monitoring report #5 from the job inspection of April 9, 1990 was incorrectly shown as March 8, 1990. This report date should be April 13, 1990. It would be appreciated if you would note the changed date on your copy.

Major planning components of the St. Clair High School (SCHS) include:

- Administrative area addition and remodeling (AAAR)
- New classroom addition (CLAD)
- Boiler room remodeling (BRRE)

Monitored from:

- Sheet #SCHS1 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS2 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS3 - Issue #3, dated March 25, 1990 (wd 314)

Target dates:

- Contract completion date - 270 calendar days from date of contract.
- Desired completion date pm August 27, 1990 (wd 423)

Actions taken:

- Inspected project with Mr. Bulgrien, superintendent

May 19, 1990

- Reviewed current status of project with Mr. Bulgrien
- Reviewed current status of project with Mr. Hiller and with the project staff of THA.

**Classroom Addition (CLAD) - network model sheet \*SCHS2**

target completion date - pm August 27, 1990 (wd 423)

As of May 10, 1990 (wd 347) structural steel and metal deck erection is complete and the roof is installed to substantial horizontal dry in. Roofing trim will be completed when exterior face brick has been erected. There is some water infiltration at the perimeter of the building but it is not materially affecting current interior work.

Rough interior mechanical and electrical work is moving well and meeting network model dates between early and late starts and finishes. Sheet metal ductwork installation has not started.

Exterior face brick is about 65% complete and although it lags the network model dates is not delaying the project since sash fabrication has proceed and sash is available as needed. Originally it was the intent to complete exterior face brick before field measuring and fabricating sash. This sequence has been compressed. Glazed masonry infill panels must yet be erected before exterior sash will start. The glazed units are on the job and their installation will start shortly according to Mr. Bulgrien.

Stair construction at the north end of the building has not yet started since some very wet subsoil conditions have been encountered. Also face brick erection at present is at the stair location and must be completed beyond the stair to avoid work interferences between the trades.

The project is currently in fair to good condition and Mr. Bulgrien still expects to meet or better the current target of July 3, 1990 (wd 384) for starting finish interior work on hanging, taping and sanding gyp board. This is a major measurement milestone.



May 19, 1990

**Administrative Area Addition and Remodeling (AAAR) – network model – sheet \*SCHS1**

target completion date – pm August 27, 1990 (wd 423)

As of May 10, 1990 structural steel, metal deck, and roofing to horizontal dry in is complete, and interior sheet metal ductwork, mechanical piping and electrical rough conduit and feeder work is well along and meeting dates between early and late starts and finishes.

Mr. Bulgrien intends to start interior metal studs, in wall work and hard ceiling framing about May 16, 1990. The early target date in the current network model is May 17, 1990 (wd 352). The starting date to hang, tape and sand gyp board is being held at June 27, 1990 (wd 380).

It may be possible to better some of these dates since exterior windows are available and probably will be installed earlier than anticipated in the network model currently being used as the measurement standard.

**Boiler Room Remodeling** – target completion date – late July to early August, 1990

As of May 10, 1990 (wd 347) incinerator demolition and removal is about 50% complete and boiler demolition is moving well. The boilers were shut down May 1, 1990 (wd 340).

No authentic current information was available on delivery of boilers and related tanks and other equipment. We are still assuming these items will be on the job by the network model date of June 4, 1990 (wd 363). Deliverers should be tracked closely by the project team.

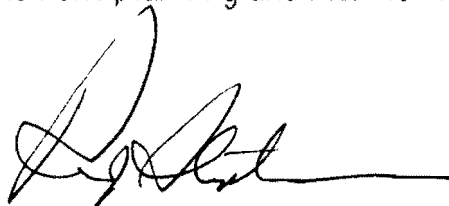
**General**

As of May 10, 1990 the project is meeting most major targets between early and late starts and finishes. In discussions with Mr. Bulgrien, Mr.

May 19, 1990

Hiller and the THA project staff it was decided that the current minor deviations from the network models on sheets SCHS 1, 2 & 3 issue #3 dated March 25, 1990 (wd 314) do not warrant an updating of the networks at this time.

This monitoring report is being sent to Mr. Pat McNulty, Mr. Park Smith and to Mr. James Hiller. Further internal distribution will be by them. I shall be in touch shortly with Mr. Harburn to set the next planning and monitoring session.

A handwritten signature in black ink, appearing to read 'R. Stephenson', with a long horizontal line extending to the right.

Ralph J. Stephenson PE

- NETWORK MODELING
- CRITICAL PATH METHOD

RALPH J. STEPHENSON, P.E., P.C.  
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June 24, 1990

Subject: Monitoring Report #7  
St. Clair High School - SCHS  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:54

Data disks: d174, 212 & 222 rjs

Date of Monitoring: June 12, 1990 (wd 369)

Major planning components of the St. Clair High School (SCHS) include:

- Administrative area addition and remodeling (AAAR)
- New classroom addition (CLAD)
- Boiler room remodeling (BRRE)

Monitored from:

- Sheet #SCHS1 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS2 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS3 - Issue #3, dated March 25, 1990 (wd 314)

Target dates:

- Contract completion date - 270 calendar days from date of contract.
- Desired completion date pm August 27, 1990 (wd 423)

Actions taken:

- Inspected project with Mr. Bulgrien, superintendent
- Reviewed current status of project with Mr. Bulgrien
- Reviewed current status of project with Mr. Hiller and with the project staff of THA.

June 24, 1990

**Classroom Addition (CLAD) - network model sheet \*SCHS2**

target completion date - pm August 27, 1990 (wd 423)

As of June 12, 1990 (wd 369) work at the classroom addition is somewhat out of sequence due to difficulties in closing in the facility. However interior finish work has been started and is moving well within the limitations of uncompleted exterior masonry and sash installation.

Exterior face brick is about 70% complete with about 5 to 7 working days remaining to finish up. Once exterior brick is complete, exterior sash, glass and entries can be installed and roofing trim completed.

Considerable interior painting has been done and this has allowed acoustic ceiling to be installed in three rooms. Setting light fixtures at acoustic ceiling areas is also in work.

Presently all major activities are meeting targets between early and late starts and finishes and if the present pace of work is continued the current completion target should be able to be met.

**Administrative Area Addition and Remodeling (AAAR) - network model sheet \*SCHS1**

target completion date - pm August 27, 1990 (wd 423)

As of June 12, 1990 (wd 369) most interior above floor rough mechanical and electrical work has been completed, dry wall surfaces have been hung and painting is in work. Some ceiling suspension has been installed.

Exterior sash has not yet been erected. Mr. Bulgrien said that installation will probably be started about June 20, 1990. In the original plan of work sash installation restrained start of interior finish work. However most major interior work was able to be started when the horizontal dry in was

June 24, 1990

complete and thus is now about 20 to 25 working days ahead of the current plan of work.

There is still considerable construction to do at the exterior of the area and this will probably proceed in full production when school recesses for the summer on June 15, 1990 (wd 372).

**Boiler Room Remodeling (BRRE) - network model - sheet #SCHS3**  
target completion date - late July to early August, 1990

As of June 12, 1990 (wd 369) demolition of the boiler room equipment is still in work. The boilers have been delivered but cannot be set until the existing hot water tank at the boiler room is deactivated and the new tank set. Probably the existing tank will be kept in service until school recesses for the summer on June 15, 1990 (wd 372).

At present it appears that the existing boiler equipment bases can be reused and these are not being removed.

Work at the boiler room currently lags the network model by about 6 working days. However the end date shown in the network model is the pm of July 20, 1990 (wd 397) and therefore this lag is not excessively serious provided installation of boilers and related piping and equipment is started within the next 5 to 10 working days.

The existing incinerator has been demolished and removed. However the steel stair is yet to be relocated.

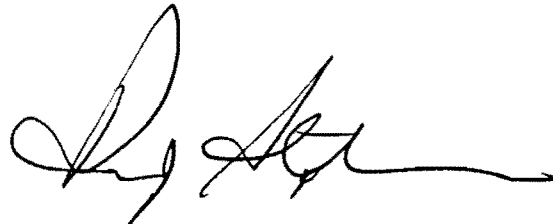
### **General**

Overall the project is in fair to good condition and should be able to meet current desired and contract completion dates. Sequences have been somewhat disrupted, primarily by difficulties with exterior masonry and

June 24, 1990

sash. However Mr. Bulgrien has worked around the problem areas and has been able to maintain adherence to main activity target dates in the project.

There will be a need for a brief electrical shut down soon in a power transfer. This date should be set in advance with the power company and cleared with all affected users in the school to avoid electronic data and program damage to software and equipment.

A handwritten signature in black ink, appearing to read 'R. J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

# COPY

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August 8, 1990

Subject: Monitoring Report #8  
St. Clair High School - SCHS  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:54

Data disks: d174, 212 & 222 rjs

Date of Monitoring: July 27, 1990 (wd 401)

Major planning components of the St. Clair High School (SCHS) include:

- Administrative area addition and remodeling (AAAR)
- New classroom addition (CLAD)
- Boiler room remodeling (BRRE)

Monitored from:

- Sheet #SCHS1 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS2 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS3 - Issue #3, dated March 25, 1990 (wd 314)

Target dates:

- Contract completion date - 270 calendar days from date of contract.
- Desired completion date pm August 27, 1990 (wd 423)

Actions taken:

- Inspected project
- Reviewed current project status with Mr. Bulgrien, superintendent
- Discussed job status with Mr. Harburn of THA
- Reviewed current status of project with Mr. Hiller of E. China

August 8, 1990

**Classroom Addition (CLAD)** - network model sheet #SCHS2 - target completion date - pm August 27, 1990 (wd 423)

As of July 27, 1990 (wd 401) major field work is meeting targets between early and late starts and finishes. The building is substantially closed to weather and interior rough work is almost complete. Interior finish work is moving well with acoustic ceiling suspension and grid installed and most light fixtures in place. Painting is well along and chalk and tack boards are being installed.

Ceramic tile was due to begin no later than July 19, 1990 (395). It has not yet been started. However slab preparation is in work and it appears that ceramic should be able to be started soon. The current lag of ceramic is about six working days. This time could be picked up quickly once installation of toilet room finishes begins.

With the present pace of work it appears that the finish target of the pm of August 27, 1990 (wd 423) will be met.

**Administrative Area Addition and Remodeling (AAAR)** - network model sheet #SCHS1 - target completion date - pm August 27, 1990 (wd 423)

As of July 27, 1990 (wd 401) all major interior work is meeting targets between early and late starts and finishes. Acoustic ceiling work is nearly complete except for acoustic panels which will be installed after most other work is complete.

Floor covering, including resilient tile and carpet, is in work and moving well. Painting is nearly complete and trim items are being installed. Wire glass procurement was a problem for a short time but was resolved. Some difficulty is being experienced in wood door delivery but this matter is being addressed at present by Mr. Pat McNulty.



August 8, 1990

**Boiler Room Remodeling (BRRE)** - network model, sheet #SCHS3 -  
target completion date - late July to early August, 1990

Work here has moved very well and the boilers are set, the hot water tank is installed and final piping connections are being made. According to the project field staff the system will be completed well before school reopens.

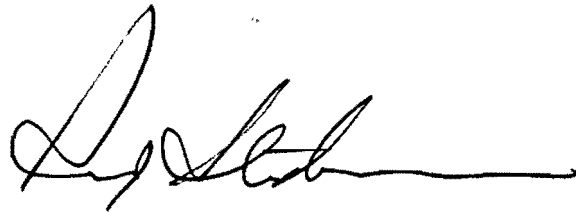
**General**

Overall the project continues at a fair to good pace and should, at its present rate, meet or better contract completion dates.

It should be kept in mind that from the date of the monitoring on July 27, 1990 (wd 401) to the start of school in the fall on August 28, 1990 (wd 423) is only 22 working days.

Planning for how the project is to be closed out should be initiated immediately. Important items to consider and decide upon include punch list preparation, setting of correction procedures to be followed, and preparation and submittal of operation and maintenance manuals.

This report is being sent to Mr. James Hiller, Mr. Pat McNulty and Mr. Jerry Harburn. Further distribution will be made as desired by each of these men. I shall be in touch with Mr. Harburn of THA shortly to discuss further planning and monitoring requirements as they may be needed.

A handwritten signature in black ink, appearing to read 'R. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

# COPY

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

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September 3, 1990

Subject: Monitoring Report #9  
St. Clair High School - SCHS  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:54

Data disks: d174, 212 & 222 rjs

Date of Monitoring: August 30, 1990 (wd 425)

Major planning components of the St. Clair High School (SCHS) include:

- Administrative area addition and remodeling (AAAR)
- New classroom addition (CLAD)
- Boiler room remodeling (BRRE)

Monitored from:

- Sheet #SCHS1 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS2 - Issue #3, dated January 29, 1990 (wd 274)
- Sheet #SCHS3 - Issue #3, dated March 25, 1990 (wd 314)

Target dates:

- Contract completion date - 270 calendar days from date of contract.
- Desired completion date pm August 27, 1990 (wd 423)

Actions taken:

- Inspected project
- Reviewed current project status with Mr. Bulgrien, superintendent
- Discussed job status with Mr. Harburn & Mr. Hartzman of THA
- Discussed current job status with Mr. Hiller & Mr. Stannard of E. China

**Classroom Addition (CLAD)** - network model sheet #SCHS2 - target completion date - pm August 27, 1990 (wd 423)

September 3, 1990

The facility was occupied on the am of August 28, 1990 (wd 423) and is in operation. There are still some minor accessories to be completed at the toilet rooms. These are on the job and being installed.

**Administrative Area Addition and Remodeling (AAAR)** - network model sheet #SCHS1 - target completion date - pm August 27, 1990 (wd 423)

The administrative area is occupied and most work there is complete.

**Boiler Room Remodeling (BRRE)** - network model, sheet #SCHS3 - target completion date - late July to early August, 1990

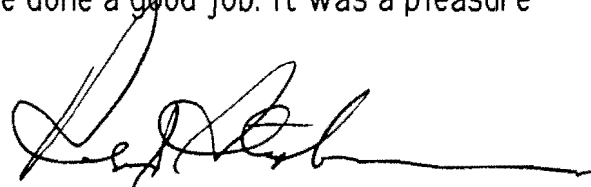
Boiler room work is complete. There was no authentic information available on final inspections. The owner and the general contractor will follow this matter.

### **General**

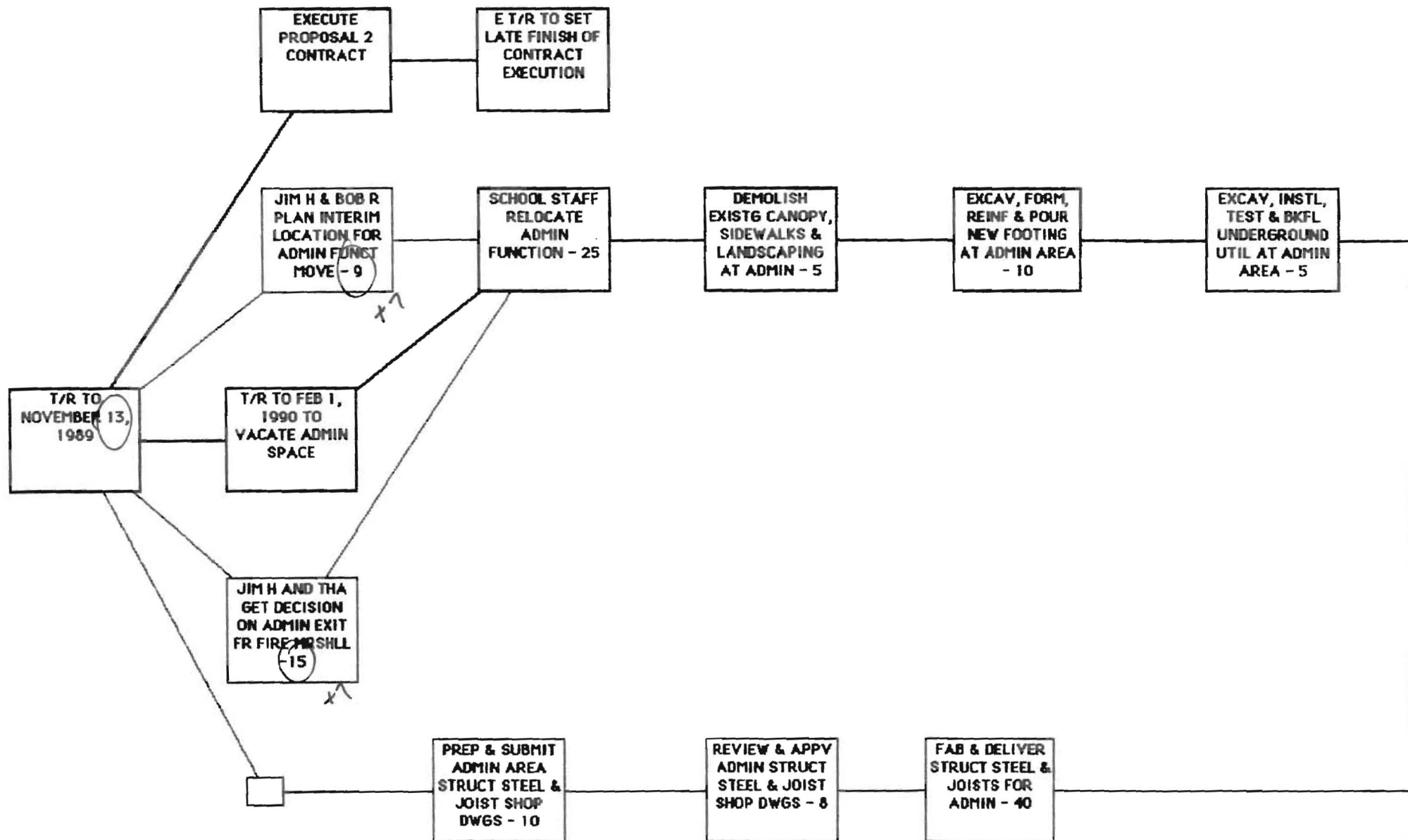
The project areas are all occupied and in use. Therefore this inspection concludes my work on the project unless additional needs arise.

This monitoring report is being sent to Mr. James Hiller, Mr. Pat McNulty and Mr. Jerry Harburn. Further distribution will be made as desired by each of these men.

I want to thank the general contractor, the architect/engineer and the owner for their help and cooperation in monitoring this project. The work has proceeded well and all involved have done a good job. It was a pleasure working on the program.



Ralph J. Stephenson PE



NOTE: CUTTING, PATCHING, REPAIR &  
TOOTHING OF EXISTING STRUCTURE IS  
TO BE DONE AS NEEDED AND CONCURRENT  
WITH NEW MASONRY & STRUCT STEEL,  
JOIST & DECK ERECTION

Float time      Duration  
Early start (am)      Early finish (pm)

000-INSTALL  
MASTER LOCK  
SYSTEM (4, 5, 6)  
- 9

- Activity number
- Activity description
- Resource codes
- Estimated duration in  
elapsed working days

Late start (am)      Late finish (pm)  
Resource      Resource

### Activity Key

### Reserved Activity Numbers

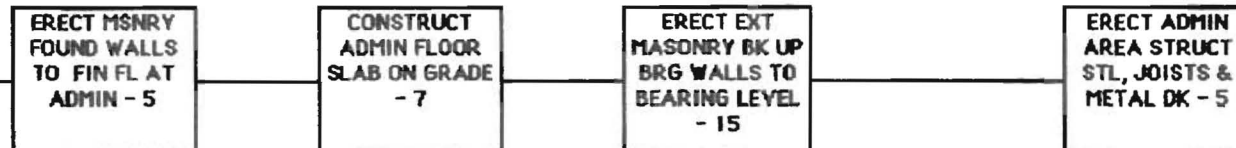
041    046  
042    047  
043    048  
044    049  
045    050

Issue #1 - November 20, 1989  
list#SCHS1  
disk 174

## NETWORK MODEL FOR EAST CHINA COMMUNITY SCHOOLS BOND ISSUE PROJECT - East China Township

Ralph J. Stephenson PE PC  
Consulting Engineer  
323 Hiawatha Drive  
Mt. Pleasant, Michigan  
ph 517 772 2537

SHEET #  
SCHS1



- NETWORK MODELING
- CRITICAL PATH METHOD

December 4, 1989

Subject: Monitoring Report #1  
St. Clair Middle School  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:53

Data disks: d174rjs

Dates of Monitoring:

November 20 and 21, 1989 (working days 227 and 228) - Key dates are referenced by working day designations based on the enclosed working day calendar. Working day designations are used for quick calculations of time spans between calendar dates.

Monitored from:

Sheet \*sm1 - Issue #1, dated November 21, 1989 (wd 228) - Issued undated and informally

Target dates:

Contract completion date - 230 calendar days from date of contract.  
Desired completion date pm August 1, 1990 (wd 405)

Actions taken:

- Reviewed and discussed items to be included in plans of action
- Prepared summary network model of block activities
- Reviewed school calendar of events for impacts on construction
- Reviewed daily school activity schedule relative to construction
- Discussed project meeting dates
- Began preparation of laundry list of construction activities

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- Discussed work area availability and construction access
- Reviewed contractor payment process

Those attending meetings:

Thomas Shorkey - Acting Superintendent of School District  
Ronald Stannard - Director of Business Services  
James R. Hiller - Supervisor of Operations  
Joseph Pius - Principal - St. Clair Middle School  
Christine Skvarce - St. Clair Middle School staff  
Gerald Harburn - Principal - THA  
Park Smith - Project manager - THA  
Greg Zarnick - Staff - THA  
Richard A. Card - President - Card Construction Company  
Ed Beebe - Superintendent - Card Construction Company  
Ralph J. Stephenson - Consultant

General Notes:

Mr. Hiller has asked that all contractor and construction related space and time clearances be made through him. This will provide a central information and approval source that will help channel information to the proper parties. All agreed to this procedure.

For planning purposes the East China Community Schools Bond Issue Program was divided into three principal projects. Divisions agreed upon were as follows:

- Marine City Middle and High School Complex - MCX
- St. Clair High School - SCHS
- St. Clair Middle School - SCMS

These will form the sections upon which this and subsequent planning and monitoring reports will be based.

Major planning components of the St. Clair Middle School (SCMS) include:

December 4, 1989

- Media center addition
- Locker and toilet room remodeling

### Media Center Addition (SCHSMED)

Construction work at the media center addition can start as soon as the project team has notified the media center staff of the start of work and completed checking exit requirements.

Items to be considered early in the construction phase, and that were discussed briefly at our meeting included:

- Color and material sample selection
- Exit maintenance
- Alarm system maintenance
- Job site layout

*not a problem*

During our session we prepared a non quantified broad scale summary network model of the work sequence, sheet \*sm1, issue #1 dated November 21, 1989 (wd 228). This plan of work was distributed to the school district staff, the contractor and the design team for their study and comment.

Most of the meeting discussion centered on subcontractor approvals, key school dates, daily school operational schedules, progress meeting considerations, procurement of key items for construction, and work conditions needed to begin and maintain field construction work. Much of the discussion can be found in the set of edited meeting notes accompanying this report.

Front end work (non construction activities) on any project is of great importance, particularly on projects as time sensitive as is the St. Clair Middle School job. Most items seem to be in order here except for final approval of the sub contractor list. This needs to be done before contract



December 4, 1989

letting can be completed. Mr. Card said however that the list of contractors is expected to be approved and most contracts let by the end of November, 1989.

Procurement of materials and equipment is also a critical element of projects of this type. Of great importance is the exterior masonry skin and all in wall items such as frames, conduit, piping and miscellaneous iron. It is desirable that shop drawings for these be submitted promptly, and that once available they be processed through the general contractor and architect/engineer offices as rapidly as good practice allows. A review of some of the more important procurement work is shown in the meeting notes.

Another action of importance is selection, submittal, review and approval of interior colors and materials. It is presently Mr. Card's intent to provide samples by mid December, 1989. The color and material presentation will be available for the school board by early January, 1990 and is expected to be approved by the board in mid January, 1990.

The owner should carefully identify and review procurement of all items of fixtures, furnishings and equipment that are to be provided by them. These items are critical to completing the job for full occupancy.

### **Locker and Toilet Room**

This work is closely related to the media center addition but probably will not be started until the 1990 summer recess. The toilet room area will be completely closed for the full period of construction.

Procurement for remodeling is important since most items used in toilet rooms have long lead times. These include toilet partitions, toilet fixtures, hard tile and millwork.

### **General**

Project notes taken during the session were distributed unedited at the

December 4, 1989

meeting for reference. These notes have been edited and rearranged to reflect information of importance for the project being monitored. The edited notes are attached to this report.

The school calendar and the daily schedule of school use is of importance in planning construction activities. A calendar of events is shown in the attached notes along with an approximate daily school time schedule.

Detailed job meeting formats are yet to be set. The general pattern desired is to have biweekly meetings with monitoring of the project to be sometime in the first week of the month where possible. The payment process is closely tied to the meeting schedule. A general payment procedure was outlined by the school staff and the THA staff and is summarized in the meeting notes.

Detailed network modeling of the project will continue at the next planning and monitoring meeting. As agreed at our first review, I shall schedule these planning and monitoring dates through Mr. Harburn and Mr. Smith of THA and shall be in touch with them soon to select a date and location of the next major meeting.

No further distribution of material prepared at the session on November 20 and 21, 1989 (wd 227 and 228) will be made at this time unless desired by the project team.

This report is being sent to Mr. James Hill<sup>er</sup> of the East China Township School District, Mr. Richard A. Card of Card Construction and to Mr. Park Smith of THA. It is assumed that further internal distribution will be made as desired by each of these parties.

A handwritten signature in black ink, appearing to read 'R. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

**St. Clair Middle School Notes (SCMS) - edited**

- 1. Disk 174**
- 2. By Ralph J. Stephenson PE**
- 3. 9:29:21 AM - Monday, November 20, 1989**
  - 1. St. Clair Middle School meeting notes**
  - 2. By Ralph J. Stephenson PE**
  - 3. Date of meeting - Monday November 20, 1989 (227)**
  - 4. Meeting location - East China Administrative Center**
  - 5. Those present**
    1. Thomas Shorkey - Acting Superintendent of School District
    2. Ronald Stannard - Director of Business Services
    3. James R. Hiller - Director of facilities & service
    4. Joseph Plus - Principal - St Clair Middle School
    5. Christine Skvarce - St Clair Middle School staff
    6. Richard A. Card - President Card Construction
    7. Ed Beebe - Card Construction - Superintendent
    8. Gerry Harburn - Principal - THA
    9. Park Smith - Project manager - THA
    10. Greg Zarnick - THA staff
    11. Ralph J. Stephenson - Consultant
  - 6. Agenda**
    1. Monday, November 20, 1989 (wd 227) - Card, tha, school staff, rjs
      1. 9:15 AM to 12:00 noon  
Review & discuss media center items for planning & scheduling
    2. Tuesday, November 21, 1989 (wd 228)
      1. 9:00 AM to 12:00 noon - Card, tha, school staff & rjs  
Complete review & discussion of St Clair middle school media center (proposal 4)
  - 7. Meeting notes - Proposal #4 - St. Clair Middle School**
    1. General contractor - R. A. Card Construction Company
    2. Key dates
      1. Date of contract - November 13, 1989 (wd 222)
      2. Date of letter of intent - November 16, 1989 (wd 225)
      3. Completion date - 230 calendar days from date of contract  
Current target - August 1, 1990
      4. Current desired end date - pm August 1, 1990 (wd 405)
      5. Contract end date basis should be set as soon as possible

**St. Clair Middle School Notes (SCMS) - edited**

**6. Key school event dates affecting construction**

Mr. James Hiller will be the main coordinator for contractor work time. All space and time clearances by contractors to be through Mr. Hiller.

**November 23 & 24, 1989 - Thanksgiving recess**

Students gone

Faculty gone

Custodial gone

**Christmas recess period - December 21, 1989 thru January 2, 1989**

December 20, 1989 - Last day for students before Christmas recess

December 21, 1989 to January 2, 1990 - Christmas recess

Wednesday, January 3, 1989 - Classes resume

School without students & faculty Dec 21, 26, 27, 28, 1989 & Jan 2, 1990

School without custodial December 22, 25, 29 1989 & January 1, 1990

**January 26, 1990 - First semester records day**

Students gone

Faculty present

Custodial present

**January 29, 1990 - First day of second semester**

All present

**February 23 and 26, 1990 - Mid winter break**

Students gone

Faculty gone

Custodial present

**April 6, 1990 - Last day before spring break**

Students present

Faculty present

Custodial present

**April 9 thru 13 & 16, 1990 - Spring break**

Students gone

Faculty gone

Custodial gone on 13th only - present on all other dates

**St. Clair Middle School Notes (SCMS) - edited**

**April 17, 1990 - Classes resume**

**May 28, 1990 - Memorial Day**

**Students gone**

**Faculty gone**

**Custodial gone**

**June 14, 1990 - Last day for students**

**Students present**

**Faculty present**

**Custodial present**

**June 15, 1990 - Records day**

**Students gone**

**Faculty in for 1/2 day**

**Custodial present**

**July 4, 1990 - Independence Day**

**Students gone**

**Faculty gone**

**Custodial gone**

**August 27, 1990 - Teacher orientation day**

**Students gone**

**Faculty present**

**Custodial present**

**August 28, 1990 - Classes resume**

**Students present**

**Faculty present**

**Custodial present**

**7. Daily school time schedule**

**Staff arrives about 7 to 7:30 am**

**School starts at 7:45 am**

**AM busses at school between 7:30 & 7:50 am**

**Lunch hour starts at 10:45 - 11:30 & 11:45 to 12:30 am/pm**

**PM busses arrive at school at 2:20 pm**

**PM busses leave by 2:30 pm**

**Students leave at 2:25 pm - some as late as 4:00 pm**

**Staff leaves between 2:50 & 3:30 pm**

**8. Progress meeting dates**

**Details to be set**

**St. Clair Middle School Notes (SCMS) - edited**

**Biweekly - job meetings**

**Monthly - monitorings**

**Preferred monitoring date to be in first week of month**

**3. Laundry lists - preliminary**

**1. Front end work**

**Provide the following items**

**Insurance**

**Drawings & specs - to be issued November 20, 1989**

**Bonds**

**Contract**

**Letter of intent - already sent**

**List of contractors - approved with exception of mechanical**

**Mechanical contract to be awarded by Wednesday, November 22, 1989**

**2. Procurement required**

**Shop drawing turnaround - normal**

**● log in check & send to tha - 2 wd**

**● tha can log in, check & return to contractor - 4 wd**

**● log in check and send to sub - 2**

**● Total time = 8 wd**

**Restl**

**Concrete mix - not submitted**

**Struct steel - shop drawings available in 15 wd**

**Steel joists - shop drawings available in 15 wd**

**Metal deck - shop drawings available in 15 wd**

**Misc iron - in struct steel contract**

**Hollow metal - Detroit Door & Hardware**

**Shop drawings available in ± 15 wd**

**Hardware - Hardware Concepts (good)**

**Hardware schedule available in ± 15 wd**

**Glass & glazing**

**Specified unit**

**Glass selected**

**Shop drawings available in ±22 wd**

**Roof top unit - standard unit - Lennox**

**St. Clair Middle School Notes (SCMS) - edited**

**Roof curbs**

**Wood doors - only 1 wood doors**

**Ceramic tile - color not selected**

**Limestone sills - available locally**

**Color selections**

**Samples to be provided by Card within the next month**

**Available to school board - early January, 1990**

**School board approval - about mid January, 1990**

**Included**

**Toilet partitions**

**Terrazzo**

**Ceramic**

**Paint**

**Carpet**

**Laminated counter tops**

**Stains**

**Ceiling tile**

**Resilient flooring**

**Perimeter millwork**

**Counters**

**Bookshelves**

**Computer tables - nic**

**Stack shelving - nic**

**FFE - nic**

**Walker duct**

**Masonry - allowance on already selected**

**Can be ordered now**

**Belden - Steater**

**Block - may run up to bearing ahead of brick**

**Toilet partitions**

**3. Substructure**

**4. Demolition work**

**4. Work considerations - media center**

**1. Toilet room & locker room work windows**

**To be closed completely during construction**

**Demolition work preferably done when students are gone**

St. Clair Middle School Notes (SCMS) - edited

Temporary partitions

At entrance to corridor 104

At archway between boy's toilet room and existing boy's locker room

2. Back entrance work window

Temporary partition to be located as conditions demand

3. West window area of existing building

Must be blocked in when students are absent

Windows to be stored by Jim Hiller

4. Fire exit maintenance

North (back entrance) exit work must be done when students & faculty are absent

Check and revise fire exit signs as required

5. Alarm system maintenance

6. Construction access, parking, staging, office & storage

Watch restricted load laws on access routes

Card & subs will have 2 shanties on site

Card will provide job site area layout

Tennis courts should not be used for construction purposes

5. General items

1. Payment process

Should set up payment schedule

Normal board meeting - 2nd Monday of month

Need approved pay request by am Wednesday prior to the board meeting to get on agenda

Should have rough draft of request at construction meeting prior to the board meeting

Check will be turned around the morning after the board meeting

Payment request should be in to tha by the 25th of the month

Work covered should be through the 20th of the month

tha must inspect project to confirm payment request

**8. Next planning and monitoring meeting**

1. To be set by Ralph J. Stephenson through THA office

**9. Edited notes sent to**



St. Clair Middle School Notes (SCMS) - edited

1. Mr. James R. Hiller, Supervisor of operations - East China School District
2. Mr. Park Smith, Project manager - THA
3. Mr. Richard A. Card, President - Card Construction

- NETWORK MODELING
- CRITICAL PATH METHOD

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

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December 4, 1989

Subject: Monitoring Report #2  
St. Clair Middle School (SCMS)  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:53

Data disks: d174rjs

Date of Monitoring: January 16, 1990 (wd 265)

Monitored from:

Sheet #sm1 - Issue #1, dated November 21, 1989 (wd 228)

Target dates:

Contract completion date - 230 calendar days from date of contract.  
Desired completion date pm August 1, 1990 (wd 405)

Actions taken:

- Inspected project with Marty Grace and Michael Card of Card Construction
- Reviewed current status of project with Mary Grace and Michael Card
- Reviewed project status with owner, architect/engineer and contractor

Those attending meetings:

AM

Michael Card - Project manager - Card Construction  
Marty Grace - Superintendent - Card Construction

December 4, 1989

Ralph J. Stephenson - Consultant

PM

James R. Hiller - Supervisor of operations

Gerald Harburn - Principal - THA

Les Hartzman - Construction administrator - THA

Greg Zarnick - Staff - THA

Michael Card - Project manager - Card Construction

Ralph J. Stephenson - Consultant

**Media Center Addition (SCHSMED)**

All footings are complete and erection of masonry foundation walls is in progress with completion expected by the pm of January 17, 1990 (wd 267), weather permitting. Backfill placement should be substantially complete by the pm of January 18, 1990 (wd 268).

Procurement for the media center is a critical function and we made a brief review of submittal, approval and fabrication status. A summary follows:

- Brick masonry - Available as needed from the supplier's yard.
- Structural steel, joists, miscellaneous and metal deck - Shop drawings to be submitted January 19, 1990 (wd 269). No current word on delivery.
- Hollow metal & entries - Shop drawings were submitted January 3, 1990 (wd 257), were approved January 10, 1990 (wd 262), and are currently in fabrication. Delivery is expected in eight to ten weeks. Must watch relation of hardware templates to completion of fabrication.
- Hardware - Schedules were submitted January 4, 1990 (wd 258), and are currently being reviewed by the architect/engineer.
- Color and materials - Submittals are to be made January 22, 1990 (wd 270) by Card.

December 4, 1989

- Millwork and trim - Shop drawings being prepared.

### **Locker and Toilet Room**

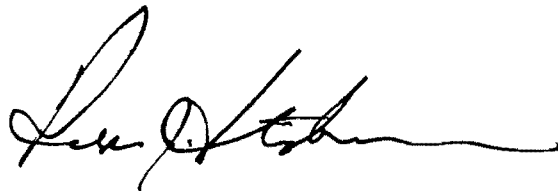
Presently it is expected that the toilet room area will be available for remodeling in the near future. A temporary partition will be erected between the toilet room area and the locker room to separate the construction area from the area in school use.

As with the media addition the critical need presently is to make certain all procurement is given careful attention. We shall make a full review of procurement status during our next monitoring and planning session.

### **General**

As part of our afternoon session, I prepared meeting notes and distributed them unedited to those attending. The next planning and monitoring meeting on the St. Clair Middle School is to be held on Tuesday, January 30, 1990 (wd 275) at the job site and at the school district office. I shall be in touch with Mr. Mike Card and Mr. Jerry Harburn shortly to set a detailed agenda for the day.

This report is being sent to Mr. James Hiller, Mr. Richard Card of Card Construction and to Mr. Park Smith of THA. It is assumed that further internal distribution will be made as desired by each of these parties.

A handwritten signature in black ink, appearing to read 'Ralph J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

February 6, 1990

Subject: Monitoring Report #3  
St. Clair Middle School (SCMS)  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:53

Data disks: d174rjs

Date of Monitoring: January 30, 1990 (wd 275)

Monitored from:

- Sheet #sm1 - Issue #1, dated November 21, 1989 (wd 228)

Target dates:

- Contract completion date - 230 calendar days from date of contract.
- Desired completion date pm August 1, 1990 (wd 405)
- Note: Official dates should be set as soon as possible

Actions taken:

- Prepared network model sheet #SCM1, issue #3, dated January 30, 1990 (wd 275)

Those attending meetings:

- James R. Hiller - Supervisor of Operations - E. China School District; in meeting part time

February 6, 1990

- Gerald Harburn - Principal - THA; in meeting part time
- Les Hartzman - Construction administrator - THA; in meeting part time
- Greg Zarnick - THA; in meeting part time
- Michael Card - Project manager - Card Construction
- Ralph J. Stephenson - Consultant

### **Media Center Addition (SCHSMED) - sheet #SCM1**

Exterior masonry bearing walls are being constructed so as to be ready for erection of roof structural steel by March 21, 1990 (wd 311). The latter part of wall erection will be restrained by delivery of hollow metal frames. Early frames are due on the job March 7, 1990 (wd 301).

Presently the warming weather has caused imposition of restricted load limits on access roads to the site. This has slowed some of the heavier deliveries to the job site. However as the weather gets colder these restrictions should be removed.

Close in is an important intermediate target with the present plan being to substantially close the media center to weather by late April or early May, 1990. Finish trades are expected to begin at this point.

Due to the short project time span, procurement for the media center is a critical function. The preliminary approval and delivery listing in monitoring report #2 on pages 2 and 3 should be reviewed and expanded so that the wide variety of items needed can be tracked accurately. At our next planning and monitoring session we shall make a further evaluation of procurement as is appropriate and needed.

### **Locker and Toilet Room**

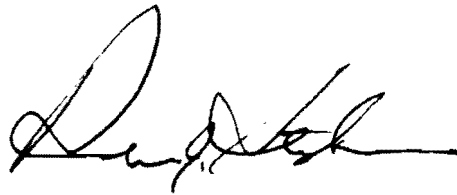
Not monitored at this meeting.

February 6, 1990

**General**

At this session we prepared a detailed network model of the media center work. This is shown on sheet \*SCM1, issue \*1 dated January 30, 1990 (wd 275). A copy of the network was given to Mr. Mike Card for his review and comment. He will return this to me for incorporation into the final issue network.

I shall be in touch with Mr. Card and Mr. Harburn shortly to set the next planning and monitoring review. Meanwhile this report is being sent to Mr. James Hiller, Mr. Richard Card of Card Construction and Mr. Park Smith of THA. It is assumed that further internal distribution will be made as desired by each of these parties.

A handwritten signature in black ink, appearing to read 'Ralph J. Stephenson', with a long horizontal stroke extending to the right.

Ralph J. Stephenson PE

- NETWORK MODELING
- CRITICAL PATH METHOD

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CONSULTING ENGINEER

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March 8, 1990

Subject: Monitoring Report #4  
St. Clair Middle School (SCMS)  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89.53

Data disks: d174rjs

Date of Monitoring: March 2, 1990 (wd 298)

Monitored from:

- Sheet #sm1 - Issue #1 dated November 21, 1989 (wd 228)
- Sheet #SCM1 - Issue #3 dated January 30, 1990 (wd 275)

Target dates:

- Contract completion date - 230 calendar days from date of contract.
- Desired completion date pm August 1, 1990 (wd 405)
- Note: Official dates should be set as soon as possible

Actions taken:

- Inspected project
- Reviewed project status with Mr. Richard Card
- Discussed job with Mr. Richard Card and THA staff



March 8, 1990

Those attending meetings:

- Park Smith - Project manager - THA
- Les Hartzman - Construction administrator - THA - in meeting part time
- Greg Zarnick - THA
- Richard Card - President - Card Construction
- Ralph J. Stephenson - Consultant

**Media Center Addition (SCHSMED) - sheet \*SCM1** - target completion date - pm July 6, 1990 (wd 387)

Exterior masonry bearing walls are nearly complete and it is the intent of Card to begin structural steel erection as shown in the current network model on March 21, 1990 (wd 311).

There is some concern by Card that the installation of second floor windows in the existing building could impact installation of the insulation and roofing at the media addition. This is not certain at this time.

There also might be some delay to completion of final roofing trim since the masonry veneer is to be erected at a later date. This may affect installation of final flashings. For the present we are assuming a close in date of late April to early May, 1990 as shown on the current network model.

**Locker and Toilet Room** - target completion date - pm July 6, 1990 (wd 387)

Work at this area is presently being held pending resolution of a possible hazardous material abatement need. Mr. Richard Card said that he feels they must begin demolition work at the locker and toilet room area no

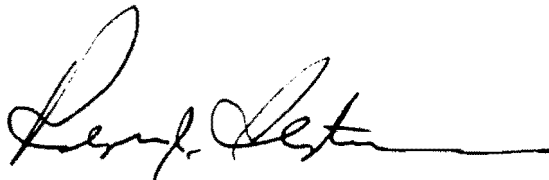
March 8, 1990

later than April 23, 1990 (wd 334) to meet the current target completion date.

We shall complete the toilet and locker room plan of work once the needed hazardous material abatement work is identified and a duration and scope established.

**General**

I shall be in touch with Mr. Card and Mr. Harburn shortly to set the next planning and monitoring review. This report is being sent to Mr. James Hiller, Mr. Richard Card of Card Construction and Mr. Park Smith of THA. Further internal distribution of the report will be made as desired by each of these parties.

A handwritten signature in black ink, appearing to read 'Ralph J. Stephenson', with a long horizontal line extending to the right.

Ralph J. Stephenson PE

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April 13, 1990

Subject: Monitoring Report #5  
St. Clair Middle School (SCMS)  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:53

Data disks: d174 & 212rjs

Date of Monitoring: April 9, 1990 (wd 324)

Monitored from:

- Sheet #SCM1 - Issue #3 dated January 30, 1990 (wd 275)

Target dates:

- Contract completion date - 230 calendar days from date of contract.
- Desired completion date pm August 1, 1990 (wd 405)
- Note: Official dates should be set as soon as possible

Actions taken:

- Inspected project
- Reviewed project status with Mr. Richard Card
- Discussed job with Mr. Richard Card and THA staff

Those attending meetings:

- Ronald Stannard - Director of Business Services - E. China - part time in attendance
- Jerry Harburn - Principal - THA
- Park Smith - Project manager - THA
- Les Hartzman - Construction administrator - THA - part time in attendance
- Richard Card - President - Card Construction

April 13, 1990

- Ralph J. Stephenson - Consultant

**Media Center Addition (SCHSMED) - sheet \*SCM1**

target completion date - pm July 6, 1990 (wd 387)

Exterior masonry bearing walls are complete and structural steel and metal deck is erected. New second floor windows have been installed in the existing building.

Installation of roofing at the new building is dependent on issuing a change order for revisions to the roof sumps. Also the fresh air intakes at the first floor locker rooms are being designed, and the final location of the intake roof openings is being set. This information will be available shortly.

Roofing was due to begin on March 26, 1990 (wd 314). Thus as of April 9, 1990 (wd 324) the current lag was ten working days. There is some possibility of regaining some of this lost time since the slab on grade sub base is thawed and the half load road requirements were removed Saturday, April 7, 1990 (wd 324). This may allow slab on grade construction to proceed in the very near future. In the current network the slab on grade was to have been complete by the evening of May 3, 1990 (wd 343).

Face brick at the media center is nearly complete. This work is slightly ahead of the planned completion of the pm of April 20, 1990 (wd 334).

As part of this meeting we discussed all outstanding submittal, approval and procurement items in depth. The THA staff and Mr. Richard Card reviewed each item and resolution of the items was accomplished as the discussion proceeded. However another thorough review should be made within the next two weeks to insure there are no unsettled matters of procurement. Time remaining on the project is extremely short and all pending revisions, bulletins, change orders or clarifications must be

April 13, 1990

cleared now to allow the target finish dates to be met.

**Locker and Toilet Room**

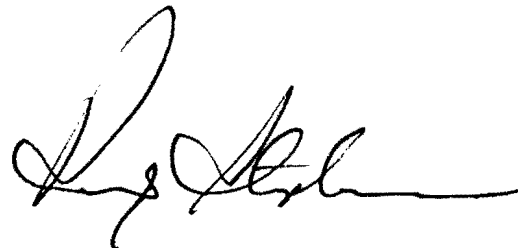
target completion date - pm July 6, 1990 (wd 387)

Work at this area is still being held pending hazardous material abatement. The matter has been addressed and a plan is in effect. Once abatement has been completed locker room work can proceed. We shall make a thorough review of the toilet and locker room network at our next monitoring and planning meeting.

**General**

The project currently lags key dates by about ten working days. However there appear to be several areas in which some or all of this time may be regained, depending on resolution of submittal, approval, delivery and abatement problems. Therefore updating of the network plan was deferred until our next monitoring analysis.

This report is being sent to Mr. James Hiller, Mr. Richard Card of Card Construction and Mr. Park Smith of THA. Further internal distribution of the report will be made as desired by each of these parties. I shall be in touch with Mr. Michael Card and Mr. Jerry Harburn shortly to set the next planning and monitoring meeting.

A handwritten signature in black ink, appearing to read 'R. J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

# COPY

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

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May 19, 1990

Subject: Monitoring Report #6  
St. Clair Middle School (SCMS)  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:53

Data disks: d174 & 212rjs

Date of Monitoring: May 10, 1990 (wd 347)

Monitored from:

- Sheet #SCM1 - Issue #3 dated January 30, 1990 (wd 275)

Target dates:

- Contract completion date - 230 calendar days from date of contract.
- Desired completion date pm August 1, 1990 (wd 405)
- Note: Official dates should be set as soon as possible

Actions taken:

- Inspected project with Mr. Marty Grace of Card Construction
- Discussed current status of project with Mr. Marty Grace
- Discussed job with Mr. Richard Card and THA staff
- Updated sheet #SCM1 to Issue #4 dated May 10, 1990 (wd 347)

Those attending meetings (some part time):

- James R. Hiller - Supervisor of Operations - East China
- Jerry Harburn - Principal - THA
- Les Hartzman - Construction administrator - THA
- Richard Card - President - Card Construction
- Marty Grace - Superintendent - Card Construction
- Ralph J. Stephenson - Consultant

May 19, 1990

**Media Center Addition (SCHSMED) - sheet #SCM1**

target completion date - pm July 6, 1990 (wd 387)

The roof has been installed but downspouts have not as yet been hooked up and there is some water in the building. This, in conjunction with underground work yet to be completed has apparently delayed installation of the slab on grade. Some in floor work, mainly underfloor electrical duct, has been set at the addition. However no slab pours had been made as of May 10, 1990 (wd 347). There is some indication that slab on grade work could begin in mid or late May, 1990.

According to Mr. Card it is important that the roof drain piping revisions be resolved and an official authorization for the work to begin be issued. This matter is under discussion and should be cleared shortly.

Some above floor sheet metal ductwork has been installed but other rough overhead work including piping and electrical work has not yet been started in a production mode.

Face brick is not yet totally installed. Present plans are to complete this masonry erection along with the exterior sash and glazing by early June, 1990. This along with the slab on grade should allow interior finish work to be initiated in early or mid June, 1990.

Because of the current lag on the project, it was decided to update the network model. Mr. Card and I reviewed the changes to be made from the issue #3 network, sheet SCM1, and incorporated these into an updated plan of work. This updated network, entitled sheet SCM1, issue #4, dated May 10, 1990 (wd 347), was printed and given Mr. Richard Card at the meeting for his final check and concurrence. If there are any revisions Mr. Card wishes to make to the updated network model he will call me and I will make them prior to general issue of the model.

May 19, 1990

In the revised network model the project completion date is shown as the pm of August 3, 1990 (wd 407). This seems to be satisfactory to those involved and concerned.

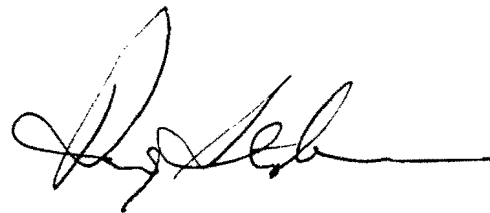
**Locker and Toilet Room**

target completion date - pm July 6, 1990 (wd 387)

Work at this area has been started and apparently hazardous material abatement is now complete. Some demolition has been completed and underground work is being installed. Remaining toilet room remodeling work is shown on the updated network model, issue #4 dated May 10, 1990 (wd 347).

**General**

This report is being sent to Mr. James Hiller, Mr. Richard Card of Card Construction and Mr. Park Smith of THA. Further internal distribution of the report will be made as desired by each of these parties. I shall be in touch with Mr. Richard Card and Mr. Jerry Harburn shortly to set the next planning and monitoring meeting.

A handwritten signature in black ink, appearing to read 'R. J. Stephenson', with a long horizontal line extending to the right.

Ralph J. Stephenson PE



- NETWORK MODELING
- CRITICAL PATH METHOD

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

323 HIAWATHA DRIVE  
MT. PLEASANT, MICHIGAN 48858  
PHONE (517) 772-2537

June 24, 1990

Subject: Monitoring Report #7  
St. Clair Middle School (SCMS)  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:53

Data disks: d174, 212 & 222 rjs

Date of Monitoring: June 12, 1990 (wd 369)

Monitored from:

- Sheet #SCM1 - Issue #4 dated May 10, 1990 (wd 347)

Note: This network resulted from an updating of the issue #3 plan of work in conjunction with Mr. Richard Card at our monitoring on May 10, 1990 (wd 347)

Target dates:

- Contract completion date - pm August 24, 1990 (wd 422)

Actions taken:

- Inspected project
- Discussed job with Mr. Richard Card and THA staff

Those attending meetings (some part time):

- James R. Hiller - Supervisor of Operations - East China
- Jerry Harburn - Principal - THA
- Les Hartzman - Construction administrator - THA
- Richard Card - President - Card Construction
- Ralph J. Stephenson - Consultant

June 24, 1990

**Media Center Addition (SCHSMED) - sheet #SCM1**

target completion date - pm August 3, 1990 (wd 407)

Mr. Card's secretary called Monday June 11, 1990 (wd 368) and said that there would be no Card representative at the site for the monitoring on Tuesday, June 12, 1990 (wd 369). Therefore the observations below are from a visual inspection by me of the site and buildings, and from comments of other members of the project team later in the day at the project review meeting.

Exterior face brick is not yet complete at the north elevation. However scaffold is erected and some brick has been stocked on the scaffold.

Exterior sash is installed and glazed and the interior slab on grade is poured out. It does not appear that the roof drain is yet permanently connected. Roof openings for equipment are not closed and some water was standing on the floor.

No major work has been done on installation of above floor mechanical and electrical work since the previous monitoring on May 10, 1990 (wd 347).

Measuring the job status against the issue #4 network plan dated May 10, 1990 (wd 347) indicates that the project is currently about 11 working days behind early and late starts and finishes. The lag is in erection of exterior face brick and installation of exterior hollow metal entries and doors.

There is also a current lag of four or five working days in installation of above floor mechanical, electrical and architectural rough work at the interior. This work was due to be complete ready for hanging gypsum board on the pm of June 18, 1990 (wd 374).

The major activities from which the lags can be measured in the near future are start of gyp board and start of painting. Gyp board is due to

June 24, 1990

begin on June 19, 1990 (wd 374) and painting is due to begin on July 2, 1990 (wd 383).

It should be noted that a change order #4, dated June 4, 1990 (wd 363) has been issued which revises the contract date to August 24, 1990 (wd 422). The issue #4 network model shows an end date of the pm of August 3, 1990 (wd 407). This is the date against which the lags noted above are measured.

Thus, even with the current lag on the project, it is possible to meet the new contract end date, but with past lost time trends on the project the work must be managed carefully.

#### **Locker and Toilet Room**

target completion date - August 24, 1990 as revised by change order #4

No major progress is evident at this area compared to that observed in the previous monitoring on May 10, 1990 (wd 347).

Floor slab on grade demolition is well along, but nearly all work beyond demolition is yet to be done. According to the issue #4 network model demolition and patching work at the remodeled toilet rooms is due to be complete at a late finish of the pm of June 29, 1990 (wd 383). There is adequate time to do the work, but a start must be made soon if this target date is to be met.

#### **General**

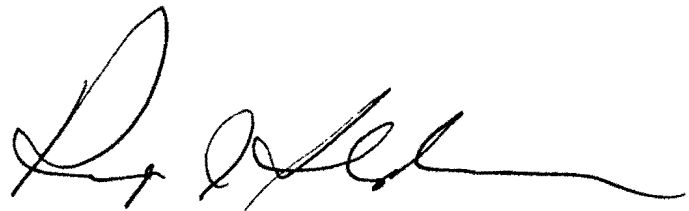
Over the past month there has been some progress in rough interior work but the project has slipped considerably over early and late starts and finishes. However the contract date has been extended to August 24,

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

June 24, 1990

1990 (wd 421) and thus for the time being I recommend the project continue to be measured against the current network model, issue #4 dated May 10, 1990 (wd 347). Lags over this plan of work are the lags discussed in the above report.

This report is being sent to Mr. James Hiller, Mr. Richard Card of Card Construction and Mr. Jerry Harburn of THA. Further internal distribution of the report will be made as desired by each of these parties. I shall be in touch with Mr. Richard Card and Mr. Jerry Harburn shortly to set the next planning and monitoring meeting.

A handwritten signature in black ink, appearing to read 'R. J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

- NETWORK MODELING
- CRITICAL PATH METHOD

# COPY

RALPH J. STEPHENSON, P.E., P.C.  
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August 8, 1990

Subject: Monitoring Report #8  
St. Clair Middle School (SCMS)  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:53

Data disks: d174, 212 & 222 rjs

Date of Monitoring: July 27, 1990 (wd 401)

Monitored from:

- Sheet #SCM1 - Issue #4 dated May 10, 1990 (wd 347)

Note: This network resulted from an updating of the issue #3 plan of work in conjunction with Mr. Richard Card at our monitoring on May 10, 1990 (wd 347)

Target dates:

- Contract completion date - pm August 24, 1990 (wd 422)

Actions taken:

- Inspected project
- Reviewed current status with Mr. Grace, superintendent
- Discussed job status with Mr. Harburn of THA
- Reviewed job status with Mr. James Hiller of E. China

General Summary:

As of July 27, 1990 (wd 401) the building is substantially closed to weather and most interior gyp board has been hung, taped and sanded. According to Mr. Grace interior painting is expected to begin on August 1,

August 8, 1990

1990 (wd 404). Painting was due to begin no later than July 2, 1990 (wd 383), and thus lags the current plan of work by a projected amount of about 18 working days. This network shows a finish date for the project of the pm of August 3, 1990 (wd 407).

Projecting directly from the lag and assuming the current plan of work will be adhered to from now to the end of the project, places the completion date at the pm of August 30, 1990 (426).

At the toilet room area work is just beginning on ceramic tile and the lag over late starts and late finishes is about 11 working days. This puts the projected completion of this area within the projected date for the main area of the Media Center.

One of the major present concerns relates to shelving to be installed by the general contractor. This shelving is scheduled to be delivered in mid August, 1990 and the shelving appears to sit on the carpet. There has been some concern expressed by by Card about the early installation of carpet needed to set shelving. This matter is being resolved by the general contractor, the architect and the owner.

Another item mentioned during the inspection was how to locate electrical outlets to be installed now or later in the underfloor duct. This matter is also being addressed by the members of the project team.

Overall, current projections put completion of the facility at the end of August, 1990. This will be a tight date to meet but is certainly feasible on a job of this size if normally expected job progress can be maintained.

### **General**

Overall the project continues at a slow to moderate pace and could, at its present rate, meet a slightly later than contract date.

August 8, 1990

It should be kept in mind that from the date of the monitoring on July 27, 1990 (wd 401) to the start of school in the fall on August 28, 1990 (wd 423) is only 22 working days.

Close out planning should be initiated immediately. Items to consider and decide upon include how to prepare the punch list, who is to prepare the punch list, setting of correction procedures to be followed, and preparation and submittal of operation and maintenance manuals.

This report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Jerry Harburn. Further distribution will be made as desired by each of these men. I shall be in touch with Mr. Harburn of THA shortly to discuss further planning and monitoring requirements as may be needed on the project.

A handwritten signature in black ink, appearing to read 'R. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

# COPY

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September 3, 1990

Subject: Monitoring Report #9  
St. Clair Middle School (SCMS)  
East China Community Schools Bond Issue  
St. Clair, Michigan

From: Ralph J. Stephenson PE

Project: 89:53

Data disks: d174, 212 & 222 rjs

Date of Monitoring: August 30, 1990 (wd 425)

Monitored from:

- Sheet #SCM1 - Issue #4 dated May 10, 1990 (wd 347)

Note: This network resulted from an updating of the issue #3 plan of work in conjunction with Mr. Richard Card at our monitoring on May 10, 1990 (wd 347)

Target dates:

- Contract completion date - pm August 24, 1990 (wd 422)

Actions taken:

- Inspected project
- Reviewed current status with Mr. Grace, superintendent
- Discussed job status with Mr. Harburn & Mr. Hartzman of THA
- Reviewed job status with Mr. James Hiller & Mr. Stannard of E. China

General Summary:

As of August 30, 1990 (wd 425), the facility is not yet totally occupied. The toilet room and locker room are operational but there remain several items to be completed at the media center before occupancy of the area can be accomplished.



September 3, 1990

Mr. Grace expects to start floor covering at the media center on Wednesday, September 5, 1990 (wd 428). Shelving, which is closely related to installation of floor covering, will be delivered on September 4, 1990 (wd 427). The relation of shelving to floor covering is to be decided as work on each proceeds. As shelving is installed the wood window sills must be revised. This too will proceed as shelving and carpet is installed.

At the office area some installed ceiling may have to be removed, according to Mr. Grace, to allow installation of additional above ceiling hvac work. Full information was not currently available from the project team members with whom I met. The item should be followed carefully.

Terrazzo has been installed at the vestibule leading to the toilet rooms. However there is some question of the acceptability of the work and further inspections and decisions are expected soon.

Another matter to be resolved concerns installation of clock and other electronic devices. This matter also is under consideration by the project team and should be resolved soon.

Completion date estimates by the project staff for the media center now range from 10 to 25 working days. Projecting from information available at this monitoring it appears the general contractor could be done in about 15 working days if the problems reviewed above are addressed and settled promptly.

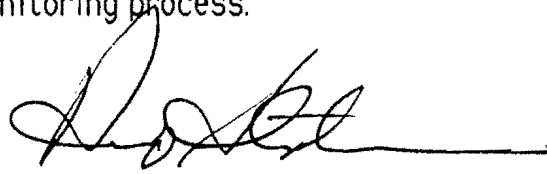
### **General**

At present there are several project problems being resolved as the job moves toward completion. These deal with media center floor covering installation, shelving installation, correction of terrazzo work, installation of hvac elements above the office ceiling, correction of wood window sill elevations, installation of electronic systems and devices, and completion of miscellaneous ceramic tile work at the toilet rooms.

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

September 3, 1990

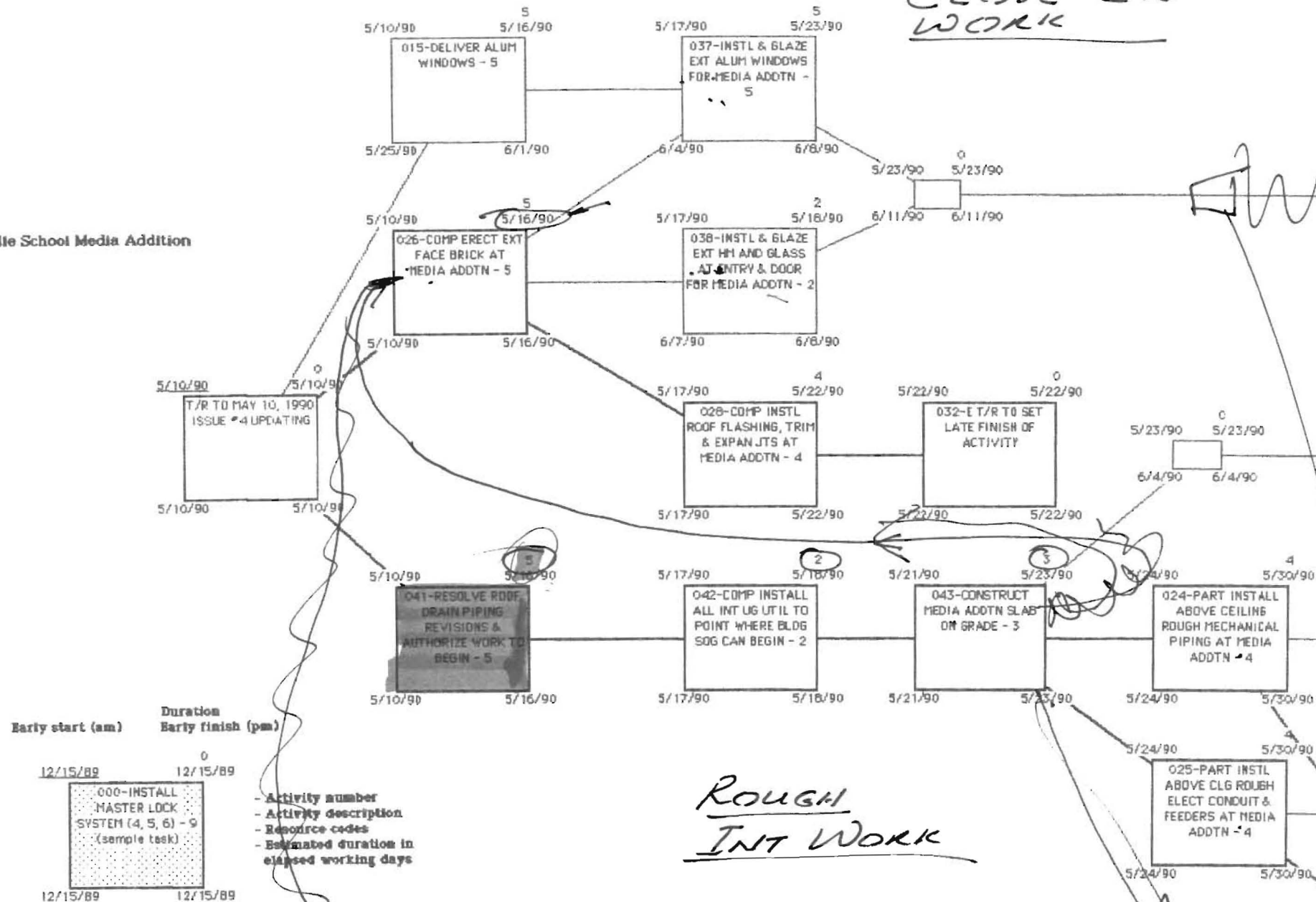
This report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Jerry Harburn. Further distribution will be made as desired by each of these men. The August 30, 1990 monitoring concludes my inspections of the project unless special needs arise. I wish to thank all concerned with the project for their help and assistance in the monitoring process.

A handwritten signature in black ink, appearing to read 'R. Stephenson', with a long horizontal line extending to the right.

Ralph J. Stephenson PE

CLOSE IN WORK

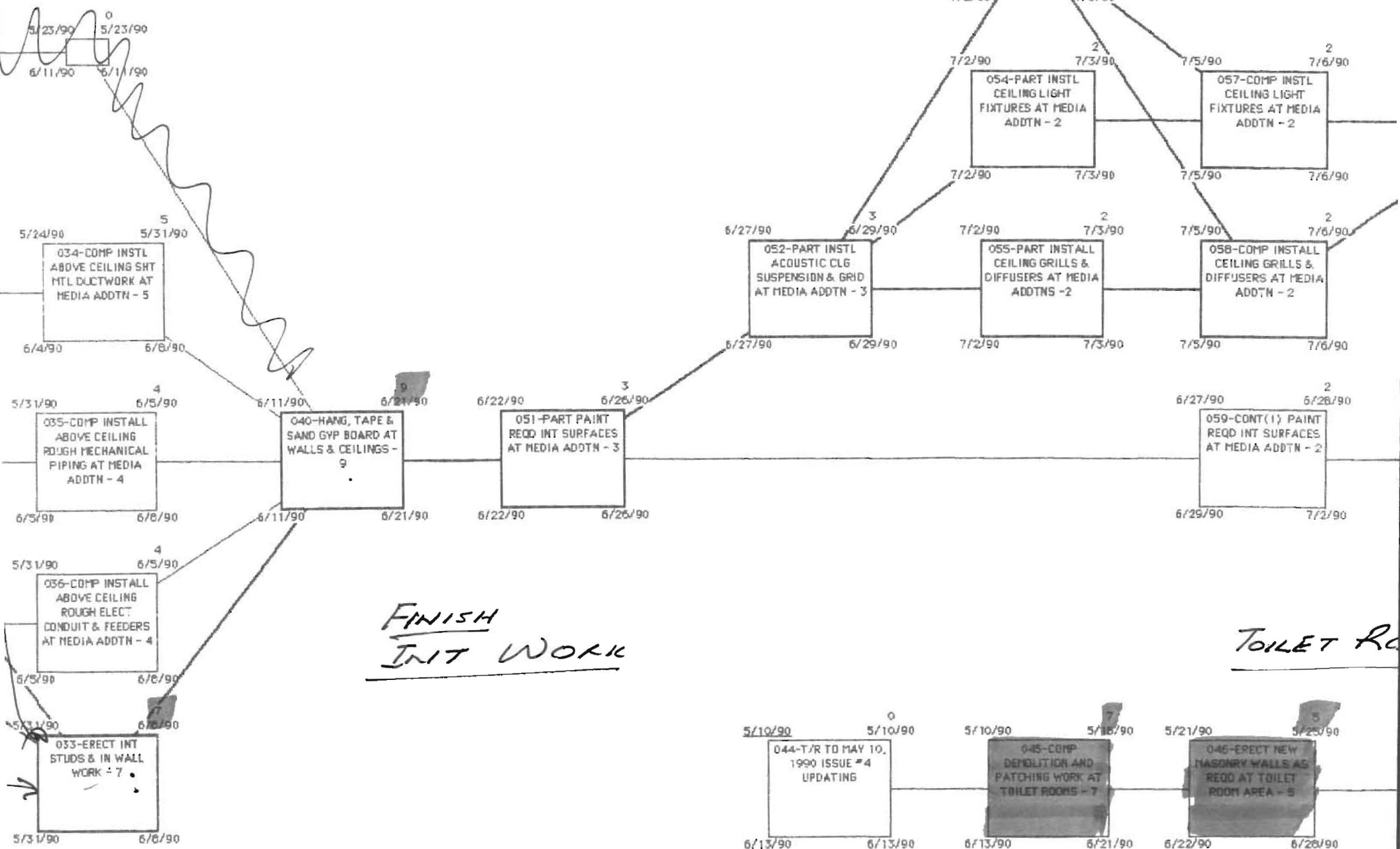
**St. Clair Middle School Media Addition**

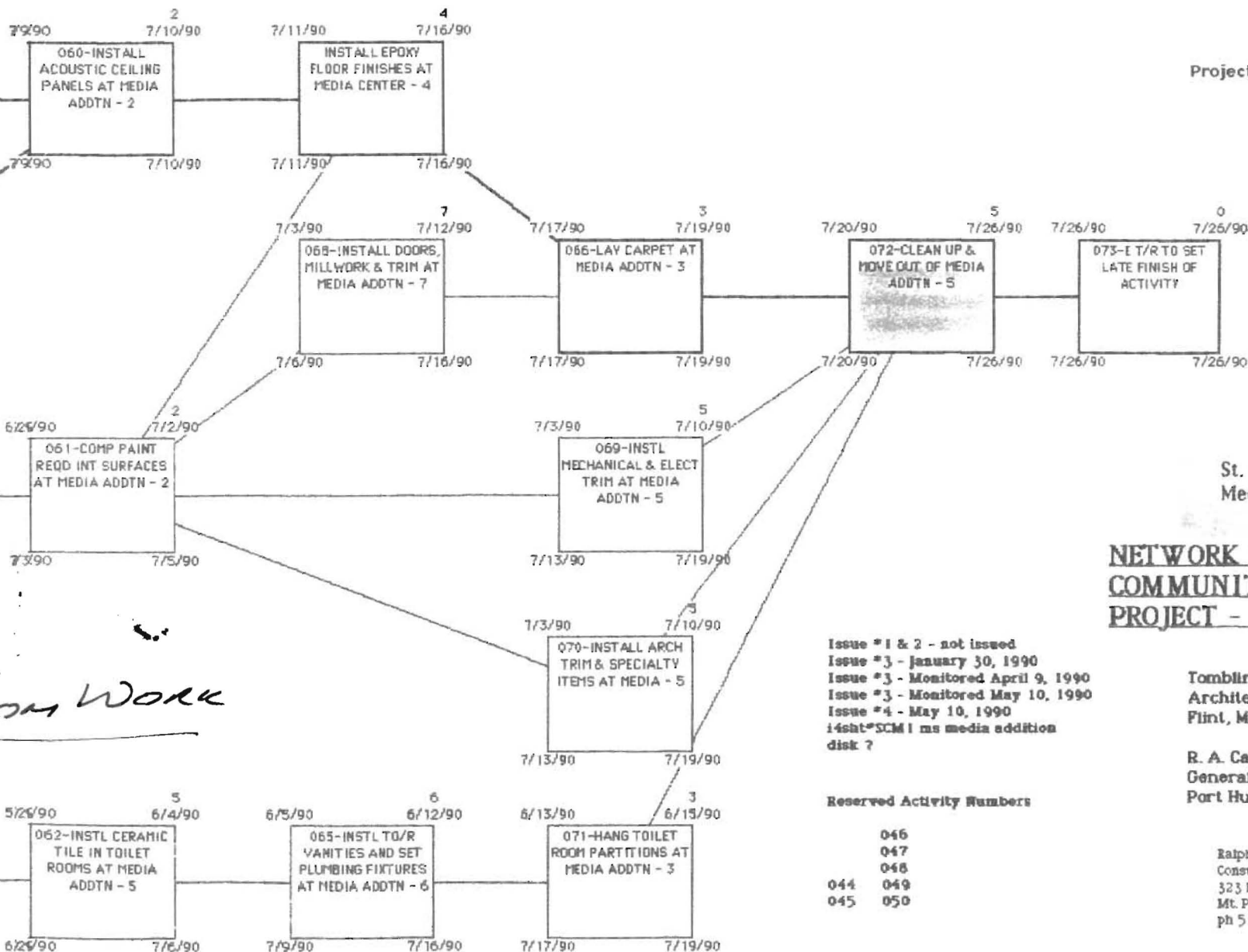


ROUGH INT WORK

**Activity Key**

Erect int masonry  
5





St. Clair Middle School  
Media Addition

# **NETWORK MODEL FOR EAST CHINA COMMUNITY SCHOOLS BOND ISSUE PROJECT - East China Township**

Issue #1 & 2 - not issued  
Issue #3 - January 30, 1990  
Issue #3 - Monitored April 9, 1990  
Issue #3 - Monitored May 10, 1990  
Issue #4 - May 10, 1990  
14shst\*SCM1 ms media addition  
disk ?

## **Reserved Activity Numbers**

046  
047  
048  
044 049  
045 050

Tomblinson Harburn Associates  
Architects & Engineers  
Flint, Michigan

R. A. Card Construction, Inc.  
General Contractors  
Port Huron, Michigan

Ralph J. Stephenson PE PC  
Consulting Engineer  
323 Hiawatha Drive  
Mt. Pleasant, Michigan  
ph 517 772 2537

**SHEET  
SCM1**

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

323 HIAWATHA DRIVE  
MT PLEASANT, MICHIGAN 48858  
PHONE (517) 772-2537

December 8, 1989

Subject: Monitoring Report #1  
Marine City Complex (MCCX)  
• Marine City Middle School  
• Marine City High School  
East China Community Schools Bond Issue  
Marine City, Michigan

From: Ralph J. Stephenson PE

Project: 89:49

Data disks: d174rjs

Date of Monitoring:

November 20 and 21, 1989 (working days 227 and 228) - Key dates are referenced by working day designations based on the enclosed working day calendar. Working day designations are used for quick calculations of time spans between calendar dates.

Monitored from:

- Sheet #sm1 (summary network plan) - Issue #1, dated November 21, 1989 (wd 228) - issued undated and informally
- Sheet #mccx1 (cafeteria summary network plan) - Issue #1 dated November 21, 1989 (wd 228) - issued undated and informally

Target dates:

- Middle School cafeteria and front entrance addition - want to have cafeteria on line by August 28, 1990 am (wd 423)
- Other dates to be set as planning proceeds

Actions taken:

- Reviewed and discussed items to be included in plans of action
- Prepared summary network model of block activities

December 8, 1989

- Reviewed school calendar of events for impacts on construction
- Reviewed daily school activity schedule relative to construction
- Discussed project meeting dates
- Discussed work area availability and construction access
- Reviewed contractor payment process
- Prepared unquantified summary network model of cafeteria addition and kitchen remodeling

Those attending meetings: (note: Various of the people listed below attended different planning sessions. For attendance details see notes for each meeting)

Thomas Shorkey - Acting Superintendent of School District  
Ronald Stannard - Director of Business Services  
James R. Hiller - Supervisor of Operations  
Walter Parsons - Principal, Marine City Middle School  
Donald Chamberlin - Teacher, Marine City Middle School  
Ken Wingate - Principal, Marine City High School  
Dianne Maki - Teacher, Marine City High School  
Gerald Harburn - Principal - THA  
Park Smith - Project manager - THA  
Greg Zarnick - Staff - THA  
Richard A. Card - President - Card Construction Company  
Tom Stauder - Director of Food Services - Canteen  
Ralph J. Stephenson - Consultant

General Notes:

Mr. Hiller has asked that all contractor and construction related space and time clearances be made through him. This will provide a central information and approval source that will help channel information to the proper parties. All agreed to this procedure.

For planning purposes the East China Community Schools Bond Issue Program was divided into three principal projects. Divisions agreed upon were as follows:

December 8, 1989

- Marine City Middle and High School Complex - MCCX
- St. Clair High School - SCHS
- St. Clair Middle School - SCMS

These will form the sections upon which this and subsequent planning and monitoring reports will be based.

Major planning components of the Marine City Complex (MCCX) include:

- Marine City High School (MCHS)
  - Classroom addition (HCAD)
  - Administrative courtyard & classroom remodeling (ACYC)
  - New south entry & classrooms addition & remodeling (SECA)
  - Special ed shop area remodeling (SESR)
- Marine City Middle School (MCMS)
  - Cafeteria & front entrance addition (CFFE)
  - Service addition (SVAD)
  - Classroom addition (MCAD)

### **High School Classroom Addition (HCAD)**

Mr. Card desires to start construction of the high school classroom addition in mid December, 1989. To begin work the trees on the site must be removed and the existing parking facilities relocated. During the meeting the group discussed moving faculty parking to the northeast side of the addition and moving student parking to the football field area. There were some questions about general maintenance, snow plowing and permit policing of the relocated student lot. However notification of the move was to be done the week of November 29, 1989 and the school staff and administration will work out details of the interim parking arrangements.

Mr. Card is to provide a site plan of the construction areas involved to show contractor space needs for each of the Marine City Complex projects. At the high school classroom addition some working space at the relocated faculty parking will be required for construction access. The location of construction fencing was discussed briefly. Mr. Card and Mr. Hiller will work with the high school staff and administration to set space



December 8, 1989

allocations and fencing requirements.

Mr. Hiller, Mr. Card and Mr. Park Smith are to clear the temporary exiting requirements with the fire marshal. This is an action that must be done for most phases of the work. All construction work temporary exiting requirements for the entire program will be resolved as quickly as possible.

The existing classroom #66 adjoining the new addition is to be abandoned to allow remodeling work to convert the area to a toilet room to proceed. There was no firm date set for this although it presently appears that a good time to shuffle classrooms would be on January 26, 1990, First Semester Records Day, when the students will be out of school. There seemed to be general agreement that this date was satisfactory for vacating the space.

**High school administrative courtyard and classroom remodeling (ACYC)**

Mr. Card of Card Construction would like to get into the courtyard area between early January, 1990 and March, 1990 to install early work required for the full remodeling. This work might be able to carry up through close in of the existing open courtyard. When the courtyard is closed in remodeling of the adjoining administration area can begin.

At present it does not appear that vacation of the existing administrative area and the required classrooms for this remodeling can be deferred till the summer vacation period which starts June 15, 1990 (wd 372). It seems now that vacation of the existing area should be by early May, 1990 or sooner. We shall focus on setting the pattern of these dates at an early point in our construction planning.

When work on the courtyard fill in begins it will be necessary to set an interior construction access path through the building from the north. Planning of this access pattern must be done early and well to allow effective and continuous construction progress.

December 8, 1989

**High school new south entry and classrooms addition and remodeling (SECA)**

Remodeling of the area could start as soon as the temporary exiting requirements have been resolved and the school has vacated the area. It is presently the intent of the school to early vacate the south entry area minus room 402. This will allow remodeling to proceed on the entry and non 402 classrooms.

When the school is able to vacate room 402 (counseling) the remainder of the remodeling can proceed. As with all the area vacations it is critical that room 402 movement be planned well in advance of the construction start so as to allow adequate functional space to be available for the relocated operation.

There was some mention of a need to consider counseling parking space in planning the construction operational layout at the area. For this reason the construction site plan should be prepared and reviewed with the school before start of construction.

**High school special education shop area remodeling (SESR)**

The school staff said this area will be clean by November 28, 1989 (wd 232). Remodeling work can begin as soon as cleaning is complete.

**Middle school cafeteria and front entrance addition (CFEE)**

Construction of the new addition to the cafeteria can begin as soon as the temporary exiting requirements are resolved and the school has vacated the existing cafeteria chair storage area. The new addition can then be built through close in.

The entire existing cafeteria area will be turned over for construction on June 15, 1990 (wd 372). At this point the new addition and the existing area interior work can proceed concurrently with installation of food service equipment and interior finishing.

December 8, 1989

Mr. Thomas Stauder, Director of Food Services for Canteen attended the discussion of the cafeteria addition and food service remodeling. He said that with the plan of construction as proposed his firm would have no major problem with the sequencing. It was stressed that the cafeteria must be back on line and operating by August 28, 1990 (wd 423).

### **Middle school service area addition (SVAD)**

Start of construction at the service area addition is restrained only by the notice of start of work to the school employees, and relocation of the service area employee parking. Canteen, which services its food operation through the service entrance, did not feel there would be any problem scheduling their food deliveries on a flexible basis. They too would like to have reasonable pre notice of when the work was to begin and what the restrictions might be on their operation.

It was mentioned that the school must obtain the cost of a possible contaminated soil removal activity. Mr. Card and Mr. Hiller are going to work together on this matter.

### **Middle school classroom addition (MCAD)**

There is no major restriction on starting work at the new addition except to clear the temporary exiting requirements and to check on parking during construction. Also of importance is to make provision to keep the main access drive relatively free of construction traffic.

### **General**

Project notes taken during the session were distributed unedited at the meeting for reference. These notes have been edited and rearranged to reflect information of importance for the project being monitored. The edited notes are attached to this report.

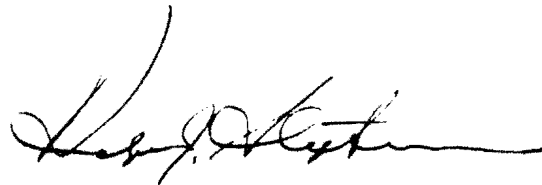
The school calendar and the daily schedule of school use is of importance in planning construction activities. A calendar of events is shown in the attached notes along with an approximate daily school time schedule.

December 8, 1989

Detailed job meeting formats are yet to be set. The general pattern desired is to have biweekly meetings with monitoring of the project to be sometime in the first week of the month where possible. The payment process is closely tied to the meeting schedule. As such a general payment procedure was outlined by the school staff and the THA staff and is summarized in the meeting notes.

Detailed network modeling of the project will continue at the next planning and monitoring meeting. As agreed at our first review, I shall schedule these planning and monitoring dates through Mr. Harburn and Mr. Smith of THA and shall be in touch with them soon to decide on the date and the location of the next major meeting.

No further distribution of material prepared at the session on November 21, 1989 (wd 228) will be made at this time unless desired by the project team. This report is being sent to Mr. James Hiller of the East China Township School District, Mr. Richard A. Card of Card Construction and to Mr. Park Smith of THA. It is assumed that further internal distribution will be made as desired by each of these parties.

A handwritten signature in black ink, appearing to read "Ralph J. Stephenson", with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

29-7

Marine City Complex Notes (MCCX) - edited

1. Disk 174
2. By Ralph J. Stephenson PE
3. Tuesday, November 21, 1989
  1. Marine City Complex (MCCX) meeting notes
  2. By Ralph J. Stephenson PE
  3. Date of meeting - Tuesday, November 21, 1989 (wd 228)
  4. Overall project information
    1. General contractor - R. A. Card Construction Company
    2. Key dates
      1. Date of contract - November 13, 1989 (wd 222) ?
      2. Date of letter of intent - November 16, 1989 (wd 225)
      3. Completion dates - ?
      4. Current desired end dates - ?
    3. Key school event dates affecting construction

Mr. James Hiller will be the main coordinator for contractor work time. All space and time clearances by contractors to be through Mr. Hiller.

      1. November 23 & 24, 1989 - Thanksgiving recess

Students gone  
Faculty gone  
Custodial gone
      2. Christmas recess period - December 21, 1989 thru January 2, 1989

December 20, 1989 - Last day for students before Christmas recess  
December 21, 1989 to January 2, 1990 - Christmas recess  
Wednesday, January 3, 1989 - Classes resume  
School without students & faculty Dec 21, 26, 27, 28, 1989 & Jan 2, 1990  
School without custodial December 22, 25, 29 1989 & January 1, 1990
      3. January 26, 1990 - First semester records day

Students gone  
Faculty present  
Custodial present
      4. January 29, 1990 - First day of second semester  
All present

Marine City Complex Notes (MCCX) - edited

5. February 23 and 26, 1990 - Mid winter break  
Students gone  
Faculty gone  
Custodial present
6. April 6, 1990 - Last day before spring break  
Students present  
Faculty present  
Custodial present
7. April 9 thru 13 & 16, 1990 - Spring break  
Students gone  
Faculty gone  
Custodial gone on 13th only - present on all other dates
8. April 17, 1990 - Classes resume
9. May 28, 1990 - Memorial Day  
Students gone  
Faculty gone  
Custodial gone
10. June 14, 1990 - Last day for students  
Students present  
Faculty present  
Custodial present
11. June 15, 1990 - Records day  
Students gone  
Faculty in for 1/2 day  
Custodial present
12. July 4, 1990 - Independence Day  
Students gone  
Faculty gone  
Custodial gone
13. August 27, 1990 - Teacher orientation day  
Students gone  
Faculty present  
Custodial present
14. August 28, 1990 - Classes resume  
Students present  
Faculty present

## Marine City Complex Notes (MCCX) - edited

Custodial present

### 4. Daily school time schedule

1. Staff arrives about 7 to 7:30 am
2. School starts at 7:45 am
3. AM busses at school between 7:30 & 7:50 am
4. Lunch hour starts at 10:45 - 11:30 & 11:45 to 12:30 am/pm
5. PM busses arrive at school at 2:20 pm
6. PM busses leave by 2:30 pm
7. Students leave at 2:25 pm - some as late as 4:00 pm
8. Staff leaves between 2:50 & 3:30 pm

### 5. Progress meeting dates

1. Details to be set
2. Biweekly - job meetings
3. Monthly - monitorings

Preferred monitoring date to be in first week of month

### 6. Payment process

1. Should set up payment schedule
2. Normal board meeting - 2nd Monday of month
3. Need approved pay request by am Wednesday prior to the board meeting to get on agenda
4. Should have rough draft of request at construction meeting prior to the board meeting
5. Check will be turned around the morning after the board meeting
6. Payment request should be in to tha by the 25th of the month
7. Work covered should be through the 20th of the month
8. tha must inspect project to confirm payment request

## 5. Meeting notes

### 1. 7:20:05 AM - Tuesday, November 21, 1989 (wd 228)

1. Meeting held at East China Administrative Center
2. By Ralph J. Stephenson PE
3. Those present

James R. Hiller - Supervisor of operations

Richard A Card - President, Card Construction Company

Ralph J. Stephenson - Consultant

### 4. Agenda

Agree on set of reference names for projects

Marine City Complex Notes (MCCX) - edited

Review availability of drawing sets

Review work considerations for project

5. Meeting notes

Agreed upon designation for program component

**Marine City complex** - Proposals #1, 3 (#5) & alternate #1

Work considerations - Marine City High School

Classroom addition (HCLA)

Check on what the exterior classroom wing fascia panels are made of - sht A18

Jim Hiller will furnish section of fascia

School will move trees from site - no major restraint on removal

School will move faculty parking to northeast side of building - no major restraint on move

Maintain about 20' feet of free space on east side of new addition

For contractor use

New parking area

Weather considerations will govern

New toilet room area (304 & 306) in existing bldg - Sheet M4

Would like to have access as soon as possible

Card probably could start work in early January, 1990

Would help expedite installation of underground work

Check exiting requirements out of existing north wing Administrative court yard & classrooms remodeling (ACYC)

Check exiting requirements

New south entry and classrooms addition and remodeling (SECA)

Access to areas

Check exiting requirements

Work considerations - Marine City Middle School

Classroom addition (MCLA)



Marine City Complex Notes (MCCX) - edited

All work could start as soon as desired by Card

Lead time for new boiler is  $\pm$  30 wd from appvd shop dwgs

Check for temporary exiting

Service addition (SVAD)

Area currently used for Canteen deliveries

Access to service area

Full service area could be turned over to Card now if access maintained for food vans

Get schedule of delivery carts leaving kitchen area

Remove underground fuel oil storage tank - at any time

Area is available now

Watch primary power entrance to transformer room

Check with Miss Dig

Cafeteria & front entrance addition (CFFE)

Serves 5 schools - very critical area

Canteen's serving calendar same as school's calendar

Start at 7:00 AM & finish at 2:00 PM

Kitchen equipment - see sheets K1 & K2

About 50% of new equipment is in the existing and about 50% is in the new addition. Must

Identify those items requiring field measuring.

Field measuring may be needed in new area at cold food well & mild dispenser

Serving equipment

Fryers

Can Card have about  $\pm$  4' into existing cafeteria - Sheet \*A7 & A8

Will allow early demolition of wall & installation of new steel truss

Would like to have in early March, 1990

Access to areas

Foundations - as soon as possible

## Marine City Complex Notes (MCCX) - edited

Some minor demolition required  
Superstructure - as soon as foundations are installed

Includes new bearing walls only  
Demolition of existing west wall - when a portion of existing area is available

Probably latter part of Feb or early Mar, 90

Due to procurement

Installation of new equipment at existing kitchen - starting June 15, 1990

Records day - students out for summer  
Front entrance - available at summer break - starting June 15, 1990

### 2. 9:25:31 AM - Tuesday, November 21, 1989 (wd 228)

1. Meeting held at East China Administrative Center
2. By Ralph J. Stephenson PE
3. Those present

Thomas Shorkey - Acting Superintendent of School District  
Ron Stannard - Director of Business Services  
James R. Hiller - Director of facilities & service  
Walter Parsons - Principal Marine City Middle School  
Donald Chamberlin - Teacher Marine City High School  
Ken Wingate - Principal Marine City High School  
Dianne Maki - Teacher Marine City Middle School  
Richard A. Card - President Card Construction  
Tom Stauder - Director of Food Services for Canteen  
Gerry Harburn - Principal - THA  
Park Smith - Project manager - THA  
Greg Zarnick - THA staff  
Ralph J. Stephenson - Consultant

### 4. Agenda

Discuss Marine City projects with school staff and contractor  
Prepare summary move network models

### 5. Meeting notes

Marine City High School (MCHS)  
Classroom addition (HCLA)

Marine City Complex Notes (MCCX) - edited

Moving trees from site - no comments

Moving faculty parking - no objection to moving to northeast side

Mr. Card will determine what he would like

Would like to move in by mid December, 1989

School will set the pattern of replacement parking for students

Could move to football field

Questions re student parking requirements

Plowing snow

General maintenance

Permit policing

Notification of move to faculty and students will be done this week

20' of free space on relocated faculty parking - no objections

Question of fencing area was brought up by Mr. Shorkey

Card will erect const fence on east side

New toilet room area (304 & 306) in existing building

Existing room (room 66) is to be abandoned for remodeling

Being used at present - room is needed for as long as possible

Good time to shuffle classrooms would be January 26, 1990

Seem to be general agreement this date is ok

\*Check exiting requirements

Administrative courtyard & classroom remodeling (ACYC)

Must get into the area prior to summer vacation

Not enough time if we wait to summer vacation

Card may want to get into area sometime between early January and March, 1990

New footings

Temporary closures

Marine City Complex Notes (MCCX) - edited

Access from north through corridor and multi  
purpose room

Need to prepare for tie in of new structural steel

Existing admin & classroom (2 rooms) area to be  
vacated when court yard is closed in

Turn over date = ?

Need about 40 to 50 wd for finishing after close  
in

Probably vacate admin area by early May, 1990

Check exiting requirements

New south entry & classrooms addition and remodeling  
(SECA)

Might want to move in by mid June, 1990

With permission by fire marshall could start now

Have existing exit that could be used

Check exiting requirements

Special ed shop area remodeling - sheet A22 (SEDR)

Work could start as soon as the area is cleaned

Will be clean by November 28, 1989 (wd 232)

Marine City middle school (MCMS)

Cafeteria & front entrance addition (CFFE)

No field measurement problems apparent now

Could give Card space for footing construction and truss  
erection as needed

Sequence for addition work discussed by those  
attending

Canteen has no problem with logic

Can have entire cafeteria area on June 15, 1990 (wd  
372)

Must have cafeteria on line by August 28, 1990 (wd  
423)

Service addition (SVAD)

Canteen can be flexible relative to deliveries

Need reasonable notice of start of work

Need cost of possible contaminated soil removal

Will have to relocate adjoining parking

Marine City Complex Notes (MCCX) - edited

School needs adequate notification of move

Classroom addition (MCLA)

No major restriction on start of work

Check for temporary exiting

Must watch the entrance security touch pad access

How does the construction affect faculty & high school student parking

Card will erect a construction fence

Must keep main access drive relatively free of construction traffic

Access to parking lot must be addressed

How many spaces will the school lose during construction?

May want to look at space available across Ward (?) Road

3. 11:36:15 AM & into PM - Tuesday, November 21, 1989 (wd 228)

1. Meeting held at East China Administrative Center

2. By Ralph J. Stephenson PE

3. Those present

James R. Hiller - Director of facilities & service

Richard A. Card - President Card Construction

Gerry Harburn - Principal - THA

Park Smith - Project manager - THA

Ralph J. Stephenson - Consultant

4. Agenda

Prepare summary move network models

5. Meeting notes

Prepared summary move network model for MCCX

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December 29, 1989

Subject: Monitoring Report #2  
Marine City Complex (MCCX)  
• Marine City Middle School  
• Marine City High School

From: Ralph J. Stephenson PE

Project: 89:49

Data disks: d174rjs

Date of Monitoring: December 15, 1989 (working day 245)

Monitored from:

- Sheet #sm1 (summary network plan) - Issue #1, dated November 21, 1989 (wd 228) - copy enclosed with this report
- Sheet #mccx1 (cafeteria summary network plan) - Issue #1 dated - issued undated and informally

Target dates:

- Middle School Cafeteria and Front Entrance Addition - cafeteria to be operative by August 28, 1990 am (wd 423)

- Other desired dates to be set as planning proceeds

Actions taken:

- Reviewed current status of projects
- Updated sheet #mccx1 issue #1 to sheet #MCC1, issue #2, dated December 15, 1989 (wd 245) - cafeteria addition and existing facility

December 29, 1989

remodeling

- Prepared network model for high school administrative courtyard and classroom remodeling - sheet \*MCC2, issue #2, dated December 15, 1989 (wd 245)
- Prepared network model for high school new south entry and classrooms addition and remodeling - sheet \*MCC2, issue #2, dated December 15, 1989 (wd 245)
- Prepared network model for middle school classroom addition - sheet \*MCC3, issue #2, dated December 15, 1989 (wd 245)

Those attending meetings:

Gerald Harburn - Principal - THA  
Park Smith - Project manager - THA  
Les Hartzman - Construction administrator - THA  
Richard A. Card - President - Card Construction  
Ralph J. Stephenson - Consultant

**Middle School Cafeteria Addition and Existing Facility Remodeling (CFFE) - sheet \*MCC1**

As of December 15, 1989 (wd 245) the major work in progress is in processing early submittals to set deliveries of material and equipment. Field work on cafeteria addition footings is expected to begin early in January, 1990 if weather permits. Weather for the month of December, 1989 has been very cold and has hampered outside construction work in general.

We have assumed in our planning that the school will release areas adjoining the new addition in early January, 1990 so work can proceed on footings near the existing building.

December 29, 1989

Critical delivery items shown on the network model include structural steel, steel joists, metal deck, hollow metal and hardware templates for fabricating hollow metal. A heavy concentration of effort on the part of THA and Card is being focussed at present on obtaining and processing these submittals.

At this session we revised and slightly expanded the summary model through close in. It is presently expected that the cafeteria addition can be closed to the weather by mid June, 1990 after which interior work at the existing building and the new addition can be completed. The majority of interior work is presently planned to be done during the summer break starting on June 15, 1990 (wd 372).

It should be kept in mind that there will probably a county health department inspection required prior to training and running in food equipment. At present we are maintaining a target date for the new and remodeled facility to be brought to full operation by the morning of August 28, 1990 (wd 423).

**High School Administration Courtyard and Classroom Remodeling**  
**(ACYC) - sheet \*MCC2**

Current work at the courtyard area is on marking and fencing an interior work corridor to the courtyard from the exterior. Work will proceed on courtyard demolition and footings as weather permits.

Meanwhile procurement of structural steel, joists and metal deck is in progress. Joists are expected on the job by mid March, 1990. At that time the courtyard steel and deck will be erected and the area closed to weather. The slab subbase will next be thawed, and the slab on grade built. It appears that the slab on grade will be in place by about mid April, 1990. This is the date by which it will be necessary for adjoining spaces to be vacated so interior work remodeling and new construction can proceed concurrently on the administration and classroom areas.



December 29, 1989

**High School New South Entry and Classrooms Addition & Remodeling  
(SECA) - sheet \*MCC2**

Major work in progress at present is on procuring structural steel, joists, metal deck, hollow metal, hardware templates, and entry framing and glass. Submittals are in work and being processed as quickly as possible.

Field work will begin as soon as approvals have been obtained on the temporary exiting plan. A temporary partition will first be erected at the existing lobby and demolition of existing walks will begin. After demolition, the new vestibule and classroom footings will be installed.

When steel and deck is on the job, the vestibule will be erected and temporarily closed to allow construction of the new slab on grade. Once hollow metal is on the job erection of the new masonry walls can begin, probably sometime in mid April, 1990. The present goal is to close the area to weather with permanent materials by late April, 1990.

**Middle School Classroom Addition (MCAD) - sheet \*MCC3**

Foundation construction at the addition is anticipated to begin about January 8, 1990. Some miscellaneous catch basin work must be done before start of footings. This work is being defined now.

Procurement of structural steel, steel joists, metal deck, hollow metal, and hardware templates is also currently in progress.

Erection of interior masonry is expected to begin when hollow metal is on the job sometime in early April, 1990. Erection of structural steel is set currently for early May, 1990.

Adequate information was not available at this meeting to prepare a complete plan of work up through close in of the building. This will be done at subsequent sessions.

December 29, 1989

## **General**

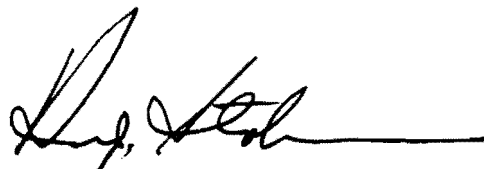
The project team has met with the regulatory agencies and cleared the exiting configurations that can be used during construction. This was a very important activity and should help in releasing work promptly as areas are freed up by the school staffs.

Planning work through close in is complete or in progress for many of the Marine City School Complex areas. Those sections that have not yet been addressed in detail include:

- High school classroom addition (HCAD)
- High school special ed shop area remodeling (SESR)
- Middle school service addition (SVAD)

Network models for these areas will be prepared at planning meetings scheduled in January, 1990. Field monitoring of the total project will also be initiated at that time.

Accompanying this report are four network models, sheets \*sm1, MCC1, MCC2 and MCC3. The report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Park Smith. It is assumed that further internal distribution will be made as desired by each of these parties.



Ralph J. Stephenson PE

ENT CONSULTING  
WORK MODELING  
CRITICAL PATH METHOD

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January 22, 1990

Subject: Monitoring Report #3  
Marine City Complex (MCCX)  
• Marine City Middle School  
• Marine City High School

From: Ralph J. Stephenson PE

Project: 89:49

Data disks: d174rjs

Date of Monitoring: January 16, 1990 (working day 265)

Monitored from:

- Sheet #sm1 (summary network plan) - Issue #1, dated November 21, 1989 (wd 228)
- Sheet #MCC1 (Middle School Cafeteria Addition & Existing Facility Remodeling - Issue #2, dated December 15, 1989 (wd 245)
- Sheet #MCC2 (High School Administrative Courtyard & Classroom Addition & Remodeling - Issue #2, dated December 15, 1989 (wd 245)
- Sheet #MCC3 (Middle School Classroom Addition - Issue #2, dated December 15, 1989 (wd 245)

Target dates:

- Contract date - to be checked along with contract completion dates for each unit
- Middle School Cafeteria and Front Entrance Addition - cafeteria to be operative by August 28, 1990 am (wd 423)

January 22, 1990

- Other desired dates to be set as planning proceeds

Actions taken:

- Inspected projects with Ed Beebe and Mike Card
- Reviewed current status of projects with Ed Beebe and Mike Card
- Reviewed project status with owner, architect/engineer and contractor

Those attending meetings:

AM

Ed Beebe - Superintendent - Card Construction  
Michael Card - Project manager - Card Construction  
Ralph J. Stephenson - Consultant

PM

James R. Hiller - Supervisor of Operations - E. China School District  
Gerald Harburn - Principal - THA  
Les Hartzman - Construction administrator - THA  
Greg Zarnick - THA  
Michael Card - Project manager - Card Construction  
Ralph J. Stephenson - Consultant

**Middle School Cafeteria Addition and Existing Facility  
Remodeling (CFFE) - sheet \*MCC1**

As of January 16, 1990 (wd 265) footings for the new addition are in work and erection of the temporary partition at the existing cafeteria is being completed. Shoring of the existing roof structure is in place in preparation for demolishing the exterior wall. Demolition of the exterior wall is currently set for early March, but Card Construction may try to do this

January 22, 1990

work earlier if weather permits.

The major current effort is to expedite submittals, reviews and approvals and delivery of early items. These include hardware templates, hollow metal frames and structural steel, joists and metal deck. It appears that the supplier's hardware schedule was submitted about January 4, 1990 and the review and approval is in work. These are needed to prepare templates from which to complete fabrication of hollow metal frames.

Structural steel, joist and metal deck shop drawings have been submitted and approved. Fabrication is in process with delivery of steel and deck currently being held at the target of late February and early March, 1990.

It is still the intent to close the addition to weather by June 15, 1990 (wd 372), after which remodeling of the existing and interior work in the new addition will proceed during the summer break.

**High School Administration Courtyard and Classroom Remodeling (ACYC) - sheet \*MCC2**

Currently work at the courtyard area is concentrated on installing all footings and other preparatory work to make the area ready for erection of the structure and roof for close in. Start of structural steel is being held for March 9, 1990 (wd 303), with close in and slab on grade to be complete by April 16, 1990 (wd 330). Adjoining areas are to be vacated prior to this date so interior work remodeling and new construction at the area can proceed.

**High School New South Entry and Classrooms Addition & Remodeling (SECA) - sheet \*MCC2**

Sidewalk demolition and new footing construction for the new vestibule and classroom is complete and temporary protection is in place. Structural steel and metal deck is expected on the job shortly with the objective

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being to install new entry sash and glass starting in mid April, 1990. An early start has been made on new masonry erection at the vestibule and classroom. This should help expedite sash and glass work.

Delivery dates for sash and glass is to be confirmed at our next planning session in late January, 1990.

#### **Middle School Classroom Addition (MCAD) - sheet \*MCC3**

Footings and masonry foundation wall construction for the addition are moving well. Exterior bearing wall erection is expected to start on January 19, 1990 (wd 268).

Structural steel, joists and metal deck are due on the job in late February and early March, 1990. These dates are being held. Structural steel erection is presently to begin in early May, 1990 with the major restraint being hollow metal for the masonry bearing walls. At our next planning session we will reexamine the logic plan for the project, in particular, procurement of hollow metal and how it impacts on field work.

#### **Middle School Service Area Addition (SVAD)**

Exterior masonry at the service addition is about 20% complete, with further progress being dependent on delivery of hollow metal frames.

#### **High School Classroom Addition (HCAD)**

Work is almost complete on footings and masonry foundation walls. A detailed network model for following work will be prepared in our meeting of January 30, 1990 (wd 275).

#### **Procurement**

At the afternoon session the importance of proper submittal procedures

January 22, 1990

was emphasized. Submittals should be reviewed, checked, annotated and stamped by contractors prior to submittal to the architect/engineer. This will help considerably to expedite processing.

The general status of procurement for the Marine City Complex was reviewed. A brief summary follows:

- Masonry - Face brick is in stock at the supplier's yard and is available as needed. Ground face block is in fabrication and should be available by April 2, 1990 (wd 319)
- Finish hardware - Hardware schedules are currently being reviewed by all to determine how best to expedite approvals so templates can be prepared for hollow metal fabrication. The supplier schedules were submitted January 3, 1990 (wd 257).
- Hollow metal frames - These are critical to erection of most masonry walls. Frame shop drawing were submitted January 3, 1990 (wd 257) and returned January 10, 1990 (wd 262). Frames are in fabrication but need hardware templates to complete.
- Structural steel, joists, miscellaneous iron and metal deck - All shop drawings have been submitted, approved and returned except for the courtyard area. These are being worked on currently.
- Toilet partitions - Shop drawings have been submitted and approved. Color selection needed. To be made soon.
- Millwork - Card waiting for supplier submittals.
- Aluminum frames and windows - In fabrication.
- Glass - No special procurement problems.

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- Roofing - No special procurement problems.
- Color and material selection - Samples, colors and materials to submitted by Card on Monday, January 22, 1990 (wd 270). Includes:
  - Paint chips
  - Carpet
  - Hard tile
  - Acoustic materials
  - Resilient tile
  - Formica colors
  - Poured epoxy

Those items for which samples, colors and materials have been submitted include:

- Locker colors
  - Laboratory partition colors
  - Unit ventilator colors
  - Shelving
  - Toilet partitions
  - Chalk and tack boards
- Roofing - Information being resubmitted for manufacturer approval.
  - Wood doors - Shop drawings to be submitted.
  - Kitchen equipment - Shop drawings have been sent to the food service consultant for review and approval. Card has rough in drawing. Card will check on equipment deliveries. Some revisions in kitchen equipment being considered.
  - Mechanical items - Submittals needed for
    - Roof top units
    - Boilers
    - Unit ventilators



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Hot water heaters  
Pumps  
Motors  
Valves  
Controls  
Plumbing fixtures

- Electrical items - Submittals needed for
  - Switchgear
  - Light fixtures
  - Cable
  - Disconnects

### **General**

Processing of revisions was discussed in detail at the afternoon session. It was decided to keep bulletin and change order numbers consecutive within the Marine City Complex with change order numbers not necessarily corresponding to bulletin numbers.

Presently two bulletins have been issued and pricing is being submitted to the architect/engineer. No change orders have been issued as yet.

There are several revisions being considered. I recommend that all changes to the project be identified just as early as possible and that subsequent modifications be kept to a minimum. The project is a very short duration job and revisions are disruptive to project progress. It should be noted that the length of time from the current date January 16, 1990 (wd 265) to the the desired operative date of the cafeteria, August 28, 1990 (wd 423) is only 158 working days.

Revisions are being considered at the kitchen and the science room. Changes have been made to footing depths at the classroom additions and the parking lot exit at the Middle School Classroom has been revised. Costs

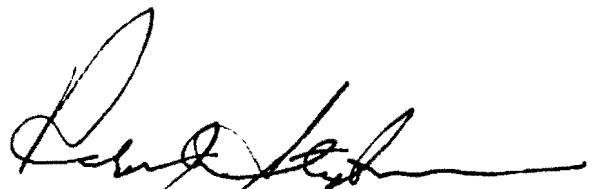
January 22, 1990

for these revisions are being submitted by Card. Other revisions in work include accommodation of the existing gas line at the special education shop area, the hose bib on the exterior wall at the shop, the ceiling configuration at the ship ladder in the special education shop, and resolution of the exterior bearing wall detail at the courtyard fill in.

In respect to removal and disposition of existing equipment, Mr. Hiller requested that Card tell him what and when is desired and he will see that the matter is resolved.

As part of our conference today, I prepared meeting notes and distributed them unedited to those attending. The next monitoring and planning session on the Marine City Complex is to be held Tuesday, January 30, 1990 (wd 275) at the job site and at the school district office. I shall be in touch shortly with Mr. Mike Card and Mr. Harburn to set a detailed agenda for the day.

This report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Park Smith. Further distribution will be made as desired by each of these parties.



Ralph J. Stephenson PE

- NETWORK MODELING
- CRITICAL PATH METHOD

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February 6, 1990

Subject: Monitoring Report #4  
Marine City Complex (MCCX)

- Marine City Middle School
- Marine City High School

From: Ralph J. Stephenson PE

Project: 89:49

Data disks: d174rjs

Date of Monitoring: January 30, 1990 (wd 275)

Monitored from:

- Sheet #sm1 - Summary Network Plan - Issue #1, dated November 21, 1989 (wd 228)
- Sheet #MCC1 - Middle School Cafeteria Addition & Existing Facility Remodeling - Issue #2, dated December 15, 1989 (wd 245)
- Sheet #MCC2 - High School Administrative Courtyard & Classroom Addition & Remodeling - Issue #2, dated December 15, 1989 (wd 245)
- Sheet #MCC3 - Middle School Classroom Addition - Issue #2, dated December 15, 1989 (wd 245)

Target dates:

- Contract date - to be checked along with contract completion dates for each unit.
- Middle School Cafeteria and Front Entrance Addition - cafeteria to be operative by August 28, 1990 am (wd 423)

February 6, 1990

- Note: Official project dates should be set just as soon as possible.

Actions taken:

- Reviewed current status of projects with Mike Card
- Reviewed project project status with owner, architect/engineer and contractor
- Prepared network models for
  - Marine City High School Classroom Addition - sheet \*MCC4
  - Marine City Middle School Classroom Addition - sheet \*MCC5
  - Marine City High School Courtyard & South Entry Remodeling - sheet \*MCC6

The new networks are all issue #3, dated January 30, 1990 (wd 275).

Please note that \*MCC4 replaces the earlier network sheet \*MCC3, that \*MCC5 replaces the earlier network sheet \*MCC2 and that \*MCC6 replaces the earlier network sheet \*MCC2. These replacements were made since the later diagrams were expanded versions of the earlier models.

- Updated network model for Middle School Cafeteria Addition & Existing Facility Remodeling - sheet \*MCC1 - to issue #3, dated January 30, 1990 (wd 275).
- Provided copies of all new and updated networks to Mr. Mike Card for his further review and comments.

Those attending meeting:

- James R. Hiller - Supervisor of Operations - E. China School District; in meeting part time

February 6, 1990

- Gerald Harburn - Principal - THA; in meeting part time
- Les Hartzman - Construction administrator - THA; in meeting part time
- Greg Zarnick - THA; in meeting part time
- Michael Card - Project manager - Card Construction
- Ralph J. Stephenson - Consultant

**Middle School Cafeteria Addition and Existing Facility  
Remodeling (CFFE) - sheet \*MCC1**

As of January 30, 1990 (wd 275) footings for the new addition are complete except at the new wall location, and erection of the temporary partition at the existing cafeteria is complete. Demolition of the existing exterior wall will be started soon so as to mesh with delivery and erection of structural steel, joists and metal deck.

A major current effort continues on expediting procurement of structural steel, joists, metal deck and hollow metal frames. Steel and deck are due on the job by February 26, 1990 (wd 295).

The issue \*3 network model shows an early close in date of May 8, 1990 (wd 345). Close in will allow interior finish work to begin at the addition. Complete remodeling of the existing and interior work in the new addition will proceed during the summer break beginning June 15, 1990 (wd 372).

Delivery of food service equipment is presently scheduled for an early date of August 7, 1990 (wd 408). Completion of the facility and full operations are scheduled for no later than the August 28, 1990 (wd 423), or earlier if possible.

**High School Administration Courtyard and Classroom Remodeling  
(ACYC) - sheet \*MCC6**

As of January 30, 1990 (wd 275) work at the courtyard area is being

February 6, 1990

concentrated upon so as to make the area ready for the structure and roof. Structural steel erection is set to begin March 7, 1990 (wd 301) with close in and slab on grade to be complete by April 3, 1990 (wd 321). The school staff is planning to vacate adjoining areas by the evening of April 3, 1990 (wd 321) so interior remodeling and new construction at the area can proceed concurrently.

**High School New South Entry and Classrooms Addition & Remodeling (SECA) - sheet \*MCC2**

This project was not monitored at our planning session. The current network model, sheet \*MCC2, issue #2, dated December 15, 1989 (wd 245) indicates that structural steel could be erected in February or early March, 1990 as set by the needs of the project. Detailed planning for this segment of the work will be done at our next monitoring session.

**Middle School Classroom Addition (MCAD) - sheet \*MCC5**

Footings and masonry foundation wall construction for the addition are substantially complete and exterior bearing wall erection is expected to start February 12, 1990 (wd 284). Completion of bearing masonry is dependent on delivery of hollow metal frames. Early frames needed are due on the job March 7, 1990 (wd 307). This should allow completion of block masonry by mid March, 1990.

Structural steel, joists and metal deck are due on the job March 21, 1990 (wd 311). Erection of the structure will be followed by roofing and other exterior skin items. The addition is to be closed to weather by mid or late May, 1990 sufficient to allow interior finish work to proceed.

**Middle School Service Area Addition (SVAD)**

This project was not reviewed at our session. It will be addressed at our next planning and monitoring meeting.

February 6, 1990

**High School Classroom Addition (HCAD) - sheet \*MCC4**

Footings and masonry foundation wall construction for the addition are substantially complete. Above grade exterior bearing wall erection appears to be lagging at the present time and will have to be concentrated upon to be ready for structural steel by March 14, 1990 (wd 306). Early hollow metal frames are due on the job by February 28, 1990 (wd 226). The contractor plans to begin erecting portions of the bearing walls earlier at areas not requiring frames. Masonry and steel erection are critical and must be given careful office expediting and field installation attention.

The addition is presently planned to be closed to weather by early May, 1990 to allow interior finish work to proceed.

**Procurement**

A review of procurement status for structural and close in items has been given with the individual areas described in the monitoring report above. A detailed evaluation of procurement against the listing in monitoring report \*3 on pages 4, 5, 6 and 7 should be made on a continuing basis by the contractors. We shall review procurement at our next planning and monitoring session.

**General**

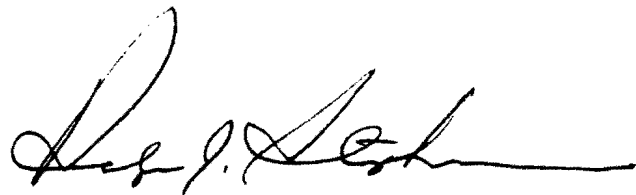
There are several project revisions still being considered and I strongly suggest that all changes be identified and processed as early as possible. It should be noted that the length of time from the current date of January 30, 1990 (wd 275) to the the desired operative date of the cafeteria, August 28, 1990 (wd 423) is only 148 working days.

At the close of this meeting a full set of the networks prepared during the discussion was given to Mr. Mike Card for his review and comments. He

February 6, 1990

will return them to me for incorporation into the final issue networks. When these are received I shall make the appropriate changes and complete the diagrams for use at our next meeting. I shall set the next monitoring and planning session with Mr. Mike Card and Mr. Harburn shortly.

This report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Park Smith. Further distribution will be made as desired by each of these parties.

A handwritten signature in cursive script, appearing to read 'Ralph J. Stephenson', written in black ink.

Ralph J. Stephenson PE



March 8, 1990

Subject: Monitoring Report #5  
Marine City Complex (MCCX)  
• Marine City Middle School  
• Marine City High School

From: Ralph J. Stephenson PE

Project: 89:49

Data disks: d174rjs

Date of Monitoring: March 2, 1990 (wd 298)

Monitored from:

- Sheet \*sm1 - Summary Network Plan - Issue #1, dated November 21, 1989 (wd 228)
- Sheet \*MCC1 - Middle School Cafeteria Addition & Existing Facility Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet \*MCC4 - High School Classroom Addition & Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet \*MCC5 - Middle School Classroom Addition - Issue #3, dated January 30, 1990 (wd 275)
- Sheet \*MCC6 - High School South Entry & Courtyard Remodeling - Issue #3, dated January 30, 1990 (wd 275)

Target dates:

- Contract dates - to be checked for each unit.
- Middle School cafeteria and front entrance addition - cafeteria to

March 8, 1990

be operative by August 28, 1990 am (wd 423)

• Note: Official project contract dates should be set as soon as possible.

Actions taken:

- Inspected project
- Reviewed current status of projects with Mr. Ed Beebe at site and Mr. Richard Card at E. China School District office.
- Reviewed project project status with architect/engineer and contractor
- Prepared network models for
  - Marine City service addition
  - Marine City High School south entry area remodelingThese were prepared with Mr. Ed Beebe and reviewed and revised as required by Mr. Richard Card.

Those attending meetings:

- Park Smith - Project manager - THA - in meetings part time
- Les Hartzman - Construction administrator - THA - in meetings part time
- Greg Zarnick - THA - in meetings part time
- Richard Card - Project manager - Card Construction - in meetings at E. China School District office
- Ed Beebe - Card Construction - superintendent - in meetings at job site
- Ralph J. Stephenson - Consultant

**Middle School Cafeteria Addition and Existing Facility  
Remodeling (CFFE) - sheet \*MCC1**

March 8, 1990

As of March 2, 1990 (wd 298) footings for the addition are complete except the new column footings at the existing exterior wall. This work is currently stopped pending resolution of the hazardous material abatement that apparently must be done on the existing floor covering in the cafeteria.

Demolition of the existing west wall and erection of the cafeteria structural steel was to have begun at a late start of March 6, 1990 (wd 300). Resolution of the abatement problem, removal of hazardous material as required, and installation of remaining footings under the new steel must be done before the demolition and wall and structural steel erection can begin.

The lag has the potential for being as much as several weeks. This delay will be reflected directly in a later completion date for the total facility since the abatement issue could affect full close in work and construction now planned for the summer recess.

**High School Administration Courtyard and Classroom Remodeling (ACYC) - sheet \*MCC6** - current target completion date to be set

As of March 2, 1990 (wd 298) further work on the courtyard close in is awaiting delivery of structural steel. Steel will probably be on the job sometime about March 16, 1990. This could affect the date of vacation by the staff occupying the adjoining building spaces. I suggested to Mr. Card and the architect/engineer that they determine the revised date needed for vacation and notify the school staff immediately.

Presently the area vacation date shown in the issue 3 network plan is April 4, 1990 (wd 321). When the updated vacation date is established we can then revise the network model to reflect the new plan of operation. I shall discuss this matter with Card, THA and the owner at our next monitoring session.

March 8, 1990

**High School New South Entry and Classrooms Addition & Remodeling (SECA)** - current target completion date - to be set

A network model was prepared for the vestibule and classroom addition at the south entry during the job inspection and reviewed with Mr. Richard Card during our later meeting. This network is being incorporated into an Issue #4, dated March 2, 1990 (298) and will be shown on Sheet MCC7. The diagram will be provided to Mr. Richard Card, Mr. Park Smith and Mr. James Hiller in the very near future for their review and comments prior to formal issue.

Future work at the vestibule is dependent upon erection of structural steel, now set for delivery about March 16, 1990. After steel and roof deck is erected the slab on grade will be constructed and the remainder of the close in and finish work will be completed.

At the new classroom delivery and installation of exterior windows will allow additional work to proceed. According to Card Construction the material is available.

At the remodeled classroom area there is demolition to be done that might possibly involve hazardous material abatement. This matter should be resolved as quickly as possible since it may affect the proposed plan of finish work. A network model has not yet been prepared for this facility but will be made as information becomes available.

**Middle School Classroom Addition (MCAD) - sheet #MCC5 - Issue #3 dated January 30, 1990 (wd 275)** - current target completion date pm August 17, 1990 (wd 417)

Structural steel, joists and metal deck are due on the job March 6, 1990 (wd 300). Masonry bearing walls are being erected to allow a start of structural steel erection by March 21, 1990 (wd 311) as is shown in the current network model, issue #3, dated January 30, 1990 (wd 275).

March 8, 1990

An element of the work to watch carefully is the meshing of boiler delivery and the slab on grade at the new boiler room. The boiler is due on the job in about 25 working days. The slab on grade at the classroom addition is due to start on May 1, 1990 (wd 340), which was the date assumed for removal of frost laws. It is possible, depending on the weather that the slab could be installed earlier if needed.

The current completion date shown on the plan of work, sheet MCC5, Issue #3 dated January 30, 1990 (wd 275) is the pm of August 17, 1990 (wd 417). This date presently appears feasible to achieve.

**Middle School Service Area Addition (SVAD) - current target completion date - pm May 25, 1990 (wd 359)**

Mr. Beebe and I prepared a network model for this area during the job inspection and it was reviewed with Mr. Richard Card during our later meeting.

The network is being incorporated into Issue #4, dated March 2, 1990 (298) and will be shown on sheet MCC7. The diagram will be provided to Mr. Richard Card, Park Smith and Mr. Hiller in the very near future for their review and comments prior to formal issue.

**High School Classroom Addition (HCAD) - sheet #MCC4 - Issue #3 dated January 30, 1990 - current target completion date - pm August 17, 1990 (wd 417)**

Work here is presently being concentrated on completion of bearing masonry to be able to start erection of structural steel by the Issue #3 target dated of March 14, 1990 (wd 306). If the weather holds moderately good this date should be able to be met.

Hollow metal frames are on the job except for the entry frames. Aluminum windows are apparently available as needed.

March 8, 1990

The addition is currently planned to be closed to weather by early May, 1990.

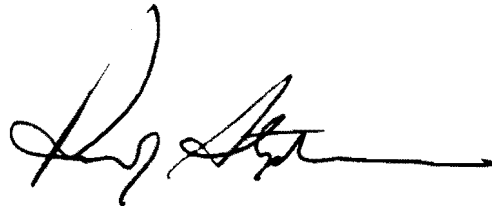
**General**

The major element to be addressed in the immediate future is resolution of how and who in respect to hazardous material abatement. This matter is currently affecting the cafeteria addition and remodeling, and has the potential to affect several other areas soon, including the courtyard area remodeling, the south entry area classroom remodeling, and possibly the shop area remodeling.

The project team is working on this item and we shall incorporate the impacts in future issues of the project work plans.

I shall be in touch with Mr. Michael Card and Mr. Smith and Mr. Harburn of THA shortly to set the next planning and monitoring session. Meanwhile I network models of the south entry vestibule and classroom remodeling and of the service addition for issue to the project team for their review and comments.

This report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Park Smith. Further distribution will be made as desired by each of these parties.

A handwritten signature in black ink, appearing to read 'Ralph J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

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

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April 13, 1990

Subject: Monitoring Report #6  
Marine City Complex (MCCX)

- Marine City Middle School
- Marine City High School

From: Ralph J. Stephenson PE

Project: 89:49

Data disks: d174 & 212rjs

Date of Monitoring: April 9, 1990 (wd 324)

Monitored from:

- Sheet #MCC1 - Middle School Cafeteria Addition & Existing Facility Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC4 - High School Classroom Addition & Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC5 - Middle School Classroom Addition - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC6 - High School South Entry & Courtyard Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC7 - High School South Entry Remodeling and Service Addition

Target dates:

- Contract dates - to be checked for each unit.
- Middle School cafeteria and front entrance addition - cafeteria to be operative by August 28, 1990 am (wd 423)
- Note: Official project contract dates should be set as soon as possible.

Actions taken:

- Inspected project
- Reviewed current status of projects with Mr. Richard Card and Mr.

April 13, 1990

Ed Beebe at site, and Mr. Richard Card at E. China School District office.

- Reviewed project project status with owner, architect/engineer and contractor staff

Those attending meetings:

- Ronald Stannard - Director of Business Services - E. China - in meeting part time
- Jerry Harburn - Principal - THA
- Park Smith - Project manager - THA
- Les Hartzman - Construction administrator - THA - in meeting part time
- Richard Card - Project manager - Card Construction
- Ed Beebe - Card Construction - superintendent
- Ralph J. Stephenson - Consultant

**Middle School Cafeteria Addition and Existing Facility  
Remodeling (CFFE) - sheet #MCC1**

As of April 9, 1990 (wd 324) footings for the addition are complete except for the new column footings at the existing exterior wall. This work is currently held pending hazardous material abatement that is to be done on existing floor covering in the cafeteria. The abatement work was to have been started April 9, 1990 (wd 324). From subsequent inquiry, the work was apparently started later in the week.

Some structural steel has been erected at the addition and it is presumed that when interior footings are constructed, erection of the addition structure and close in can be completed. The current lag in this work is between 21 to 24 working days over the issue #3 network model.

Generally interior work at the cafeteria and food service area will be keyed on when the full interior installation of the new serving line starts. Present plans are for it to begin immediately after school has recessed for the summer on the am of June 15, 1990 (372). This is the crucial date for



April 13, 1990

the work at this area. We shall further evaluate the relation of current work to achieving this critical starting point as needed, in our next planning and monitoring session. I suggest that at our next meeting we update the current network model to accurately reflect the future intended work sequence.

**High School Administration Courtyard and Classroom Remodeling (ACYC) - sheet #MCC6**

current target completion date to be set

As of April 9, 1990 (wd 324) structural steel and metal deck has been erected at the courtyard. Modifications to the existing heating, ventilating and air conditioning work at the courtyard is in progress and the slab on grade will be poured out soon. Roofing will probably start sometime the week of April 16, 1990.

The school staff vacated the areas adjoining the courtyard on April 6, 1990 (wd 324). Demolition is in progress at the area. Discussions about how to accommodate required hazardous material abatement are presently being conducted and should result in an early decision on how to proceed with the abatement. This is important and should be given heavy attention.

The pivotal project point relative to meeting target end dates is the start of hanging, taping and sanding dry wall. This work at the courtyard depends on close in and the slab on grade. It was expected to begin sometime in late April, 1990. There is some float time in the following work, but it would be desirable to expedite close in of the addition as much as its priority position justifies.

**High School New South Entry and Classrooms Addition & Remodeling (SECA) - Sheet #MCC7**

target completion date to be set

Work at the new south entry is proceeding but apparently close in has been delayed by difficulties in getting hollow metal. The problems are being

April 13, 1990

cleared away however and work there should be able to proceed without serious delays soon.

As at other areas all hazardous material abatement should be addressed and resolved immediately. The current lag in the work is not overly serious and there is a potential for finishing and closing out this area at an early date. Each early area turned over means one less to cope with as the full job is brought to a conclusion.

**Middle School Classroom Addition (MCAD) - sheet \*MCC5 - Issue \*3 dated January 30, 1990 (wd 275) - current target completion date pm August 17, 1990 (wd 417)**

Masonry bearing walls are about 50% erected with no projection of completion available at this meeting. Card indicated that work on masonry would probably resume in a production mode sometime about April 20, 1990. This would give the project a lag of about 35 working days. This is a very serious lag and the delay could extend the project well past the current desired target of being ready to receive students for classes in September, 1990.

Some time might be regained in roofing and slab on grade work. However the project is in need of an immediate and considerable pick up in tempo. I suggest all concerned remove all obstacles, if any to moving quickly on masonry, structural steel and metal deck erection.

At our next planning and monitoring meeting I recommend the plan of work be thoroughly reviewed and updated to reflect current job status at that time and to outline the plan to be followed to complete within the contract limits.

There still remains the need expressed at our previous monitoring session by Card to closely mesh boiler delivery and the slab on grade at the new boiler room. We did not discuss this at our review today.

April 13, 1990

**Middle School Service Area Addition (SVAD) - Sheet \*MCC7,  
issue 3 dated 3/25/90 (wd 314)**

current target completion date - pm May 25, 1990 (wd 359)

Exterior bearing masonry, structural steel and metal deck are complete and insulation and roofing along with slab on grade should begin shortly.

The project is currently in fairly good condition and could meet the target date provided close in and slab on grade work are complete by early or mid May, 1990.

**High School Classroom Addition (HCAD) - sheet \*MCC4 - Issue  
\*3 dated January 30, 1990**

current target completion date - pm August 17, 1990 (wd 417)

Bearing masonry, structural steel and metal deck are complete and insulation and roofing could begin soon. Insulation and roofing was due to begin at an early start of March 19, 1990 (wd 309). This indicates a current lag of about 15 working days. However some slab on grade work is complete and the network model indicates some other possibilities by which time may be recaptured. At our next monitoring and planning session I suggest we update the model.

**General**

There are some serious lags showing up in the project and these should be addressed now to prevent them from extending end dates.

From this monitoring, April 9, 1990 (wd 324) to the resumption of school on the am of August 28, 1990 (wd 423) there remain only 99 working days. With apparent lags on the project ranging from 0 to perhaps as much as 35 working days, the optimum use of these remaining 99 working days is very important to the project and to all involved in it.

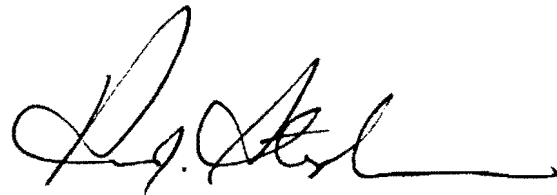
This report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Park

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

April 13, 1990

Smith. Further distribution should be made as desired by each of these parties.

I shall be in touch with Mr. Michael Card of Card Construction and Mr. Park Smith and Mr. Harburn of THA shortly to set the next planning and monitoring date and agenda.

A handwritten signature in black ink, appearing to read 'R. J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

# COPY

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May 19, 1990

Subject: Monitoring Report #7  
Marine City Complex (MCCX)  
• Marine City Middle School  
• Marine City High School

From: Ralph J. Stephenson PE

Project: 89:49

Data disks: d174 & 212rjs

Date of Monitoring: May 10, 1990 (wd 347)

Monitored from:

- Sheet #MCC1 - Middle School Cafeteria Addition & Existing Facility Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC4 - High School Classroom Addition & Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC5 - Middle School Classroom Addition - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC6 - High School South Entry & Courtyard Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC7 - High School South Entry Remodeling and Service Addition - Issue #3, dated March 25, 1990 (wd 314)

Target dates:

- Middle School cafeteria and front entrance addition - cafeteria to be operative by August 28, 1990 am (wd 423)
- Note: Official project contract dates should be set as soon as possible.

Actions taken:

- Inspected project
- Reviewed current status of projects with Mr. Richard Card and Mr. Ed Beebe at site, and Mr. Richard Card at E. China School District

May 19, 1990

office.

- Reviewed project project status with owner, architect/engineer and contractor staff.
- Updated sheet MCC1, issue #3, dated January 30, 1990 (wd 275) to issue #4, dated May 10, 1990 (wd 347)

Those attending meetings (some part time):

- James A. Hiller - Supervisor of Operations - East China
- Jerry Harburn - Principal - THA
- Les Hartzman - Construction administrator - THA
- Richard Card - Project manager - Card Construction
- Ed Beebe - Card Construction - superintendent
- Ralph J. Stephenson - Consultant

**Middle School Cafeteria Addition and Existing Facility  
Remodeling (CFE) - sheet #MCC1**

Middle School cafeteria to be operative by am August 28, 1990 (wd 423)

Structural steel and metal deck for the cafeteria addition has been erected and trimmed out and slab on grade work for the addition is just getting underway in the field. Abatement work needed to complete footings for the new addition has been completed, but additional abatement work will probably be required for remodeling work to proceed over the summer recess starting June 15, 1990 (wd 372).

A very critical part of the the food service installation is fabrication and delivery of food service equipment. Delivery is currently set for am August 6, 1990 (we 407).

After monitoring the project in the field, and discussing the projected work sequences with Mr. Beebe and Mr. Richard Card it was decided that it would be appropriate to update Sheet #MCC1, issue #3 dated January 30, 1990 (wd 275) to issue #4. This was done in conjunction with Mr. Richard Card and a copy of the updated network was given to him for his review and comments. If any revisions are to be made Mr. Richard Card will call

May 19, 1990

me and I will make the changes before the network is issued for general use. The revised network model shows a completion date of late August, 1990

**High School Administration Courtyard and Classroom Remodeling (ACYC) - sheet \*MCC6**

Target completion date to be set. Shown on current network as am July 2, 1990 (wd 383)

Overhead rough mechanical and electrical work is proceeding in the closed areas being remodeled. At the courtyard area the slab on grade has not as yet been poured and overhead rough work has not started. Mr. Beebe said he probably will pour out the slab on grade within the next week. This will allow overhead work at the new portion to begin.

Since there is presently an opportunity to recapture some of the lag at the area it was not felt appropriate to update the current network plan. We shall evaluate the project again at the next monitoring and if an update seems appropriate it will be discussed with Card personnel.

**High School New South Entry and Classrooms Addition & Remodeling (SECA) - Sheet \*MCC7**

Target completion date to be set. Shown as pm May 8, 1990 (wd 346) on current network model

Work at this area was planned to be accomplished early to assist in some of the interim moves of the school functions. It now appears completion will be somewhat later than planned. There should be no difficulty however in meeting the completion date planned for the total project.

Filling and fine grading for the vestibule slab on grade is in work and the slab should be built soon. The remainder of the project will probably be built concurrently with other elements of the total Marine City Complex work.

May 19, 1990

It was noted by Mr. Beebe that floor finishes at the vestibule may be held until after start of summer recess in June, 1990. This should not cause delays to the total completion of the project. We shall further evaluate project status at our next monitoring and discuss and decide on the need for updating at that time.

**Middle School Classroom Addition (MCAD) - sheet #MCC5 - Issue #3 dated January 30, 1990 (wd 275)** - current target completion date pm August 17, 1990 (wd 417)

Structural steel and joists are being erected at the Middle School classroom addition. Steel work was shown on the current network model as being completed by an early finish of March 23, 1990 (wd 314). Thus the current lag is about 31 working days.

Some of the lag may be picked up in construction of the interior slab on grade which Mr. Beebe intends to begin about May 18, 1990. This work was due to have started at an early start of May 1, 1990 (340). If some gain can be made on the current schedule of activities there could be a considerable reduction in the lag. At our next monitoring we will evaluate the advisability of updating Sheet #MCC5 to reflect a plan of work to bring the addition work back into line with required dates.

**Middle School Service Area Addition (SVAD) - Sheet #MCC7, issue 3 dated 3/25/90 (wd 314)**

Current target completion date - pm May 25, 1990 (wd 359)

The slab on grade has been poured out and if the present work plan is followed it will be possible to meet the desired completion date.

**High School Classroom Addition (HCAD) - sheet #MCC4 - Issue #3 dated January 30, 1990**

current target completion date - pm August 17, 1990 (wd 417)

As of May 10, 1990 (wd 347) the slab on grade was being completed. This



May 19, 1990

work was due to have been complete by the pm of May 7, 1990 (wd 345).

Thus the lag at the classroom addition is from 0 to 2 working days since some above floor work has been started. No network updating was required at this time.

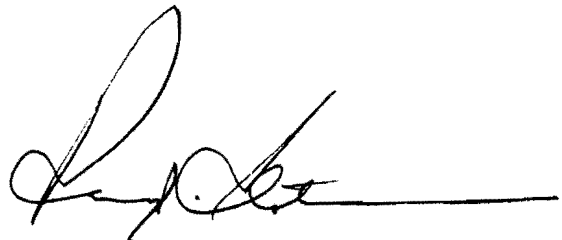
### **General**

From this monitoring, May 10, 1990 (wd 347) to the resumption of school on the am of August 28, 1990 (wd 423) there remain only 76 working days.

Major difficulties currently are at the cafeteria and the Middle School classroom addition. We updated the cafeteria network model and it appears that with the revised plan of action it should be possible to meet required end dates.

Middle School classroom addition progress was evaluated against the current plan of work and it was decided to defer updating until our next monitoring session.

This report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Park Smith. Further distribution will be made as desired by each of these men. I shall be in touch with Mr. Park Smith and Mr. Harburn of THA shortly to set the next planning and monitoring date and agenda.

A handwritten signature in black ink, appearing to read 'Ralph J. Stephenson', with a long horizontal line extending to the right.

Ralph J. Stephenson PE

- NETWORK MODELING
- CRITICAL PATH METHOD

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June 24, 1990

Subject: Monitoring Report #8  
Marine City Complex (MCCX)

- Marine City Middle School
- Marine City High School

From: Ralph J. Stephenson PE

Project: 89:49

Data disks: d174, 212 & 222 rjs

Date of Monitoring: June 12, 1990 (wd 369)

Monitored from:

- Sheet #MCC1 - Middle School Cafeteria Addition & Existing Facility Remodeling - Issue #4, dated May 10, 1990 (wd 347)
- Sheet #MCC4 - High School Classroom Addition & Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC5 - Middle School Classroom Addition - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC6 - High School South Entry & Courtyard Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC7 - High School South Entry Remodeling and Service Addition - Issue #3, dated March 25, 1990 (wd 314)

Target dates:

- See data for individual areas below. The contract end dates for each of the areas should be confirmed by the contractor, the architect/engineer and the owner.

Actions taken:

- Inspected project
- Reviewed current status of projects with Mr. Ed Beebe at site, and Mr. Richard Card at E. China School District office.
- Reviewed project project status with owner, architect/engineer

June 24, 1990

and contractor staff.

Those attending meetings (some part time):

- James A. Hiller - Supervisor of Operations - East China
- Jerry Harburn - Principal - THA
- Les Hartzman - Construction administrator - THA
- Richard Card - Project manager - Card Construction
- Ed Beebe - Card Construction - superintendent
- Ralph J. Stephenson - Consultant

**Middle School Cafeteria Addition and Existing Facility  
Remodeling (CFFE) - sheet \*MCC1**

Middle School cafeteria to be operative by am August 28, 1990 (wd 423)

Currently exterior masonry is being erected at the addition and work is in progress in preparing the subgrade ready to install slab on grade. Major underground utilities have been installed.

A pivotal point is the recess of school for the summer on June 15, 1990 (wd 372). At this time the entire cafeteria area will be free for work.

It was decided at the meetings that the contractor will probably meet the start of new roofing date, presently set for a late start of July 5, 1990 (wd 385) and that the temporary partition will stay in place until the new addition is closed in.

There appears to be an abatement plan schedule in effect but the key dates are being reviewed by the owner and the contractors. I strongly suggest that the abatement work be completed just as quickly as possible so that all following work can be initiated at the long work duration areas. Of great importance is the new serving line work which was due to begin 6/27/90 (wd 380) with work on new and existing masonry at the serving line. This was to be followed by erection of structural steel framing, installation of finishes and installation and hook up of serving line equipment.

June 24, 1990

A key date in this sequence is the delivery of new food service equipment, presently scheduled for an early date of August 6, 1990 (wd 407).

Installation of food service equipment is set to begin no later than August 16, 1990 (wd 415). This will allow setting the equipment, making the hook ups, having the necessary inspections and conducting training sufficient to bring the new serving line into operation by the am of August 28, 1990 (wd 423).

**High School Administration Courtyard and Classroom Remodeling (ACYC) - sheet \*MCC6**

Target completion date to be set. Shown on current network as am July 2, 1990 (wd 383)

The slab on grade at the courtyard area has been poured and interior rough work is in progress at the administration area. It was mentioned by Mr. Beebe that based on the current status of rough work, ceiling installation will probably start about June 26, 1990 (wd 379). This is about 21 days behind the late start of May 25, 1990 (wd 358) shown in the current issue of the network model being used for monitoring.

There have been some difficulties in getting the remaining hollow metal frames at administration area but Mr. Beebe feels he will have them on the job by about June 14, 1990. These are critical items to free up additional work in the new offices.

With the current lag applied to the network model end date it appears presently that the project could be completed by about the first week in August, 1990. This completion is based upon being able to maintain the work plan as outlined in the current network from the start of ceiling work.

**High School New South Entry and Classrooms Addition & Remodeling (SECA) - Sheet \*MCC7**

June 24, 1990

target completion date to be set. Shown on current network as pm May 8, 1990 (wd 346).

The early finish date at this area was originally set to assist in some of the interim moves of the school functions. However these interim moves have been made and the space now will be completed along with the other work at the area.

Presently the slab on grade work is being held until frames for the corridor office wall are delivered. This should be about June 14, 1990. At this time the slab can be completed and vestibule close in work can start.

Installation and glazing of vestibule frames was due to have started on March 30, 1990 (wd 318). Thus the lag over the current network model is about 55 working days. With this lag added to the current end date of the project, completion appears to be now about late July, 1990 or early August, 1990.

**Middle School Classroom Addition (MCAD) - sheet #MCC5 - Issue #3 dated January 30, 1990 (wd 275)** - current target completion date pm August 17, 1990 (wd 417)

As of June 12, 1990 (wd 369) structural steel, joists and metal deck are still being erected at the middle school classroom addition. It was estimated by Mr. Beebe that the remaining masonry and structural work would take from five to ten working days from June 12, 1990 (wd 369).

Considerable interior rough work has proceeded as the building is being closed in, and it is possible that acoustic ceiling work could begin by mid July, 1990. This work was due to begin no later than June 27, 1990 (wd 380). Thus the projected lag is 11 to 14 working days over the current target of August 17, 1990 (wd 417). This would put the projected completion date at about September 10, 1990.

This project has encountered difficulty maintaining momentum during its

June 24, 1990

early construction stage. If the pace can be picked up so full production is maintained between now and mid July, 1990 it is possible that the early September, 1990 completion can be met.

There is considerable optimism among the project team that a late August, 1990 date is a distinct possibility. To achieve completion by this bracket from late August, 1990 to early September, 1990 will require constant and excellent management of all design, approval, procurement and field operations out through the turn over point.

**Middle School Service Area Addition (SVAD) - Sheet \*MCC7,  
Issue 3 dated 3/25/90 (wd 314)**

Current target completion date - pm May 25, 1990 (wd 359)

Most of the work at the service addition is completed and the remainder will be done as the total project is completed.

**High School Classroom Addition (HCAD) - sheet \*MCC4 - Issue  
\*3 dated January 30, 1990**

current target completion date - pm August 17, 1990 (wd 417)

Most exterior skin close in and interior rough work is complete. Installation of the acoustic ceiling suspension will probably begin about June 18, 1990 (wd 373). The early start of ceilings in the current network plan is June 27, 1990 (wd 380). Thus the project appears to be about 5 to 7 working days ahead of current targets.

Work at the addition has proceeded well and there should be no major difficulty meeting the current completion target. The owner mentioned during the project conference that they will take the facility as soon as it is complete.

**General**

Overall the project is moving relatively well except for the cafeteria area

June 24, 1990

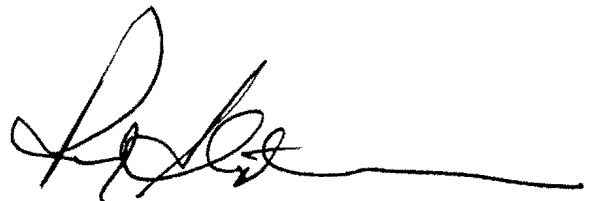
and the middle school classroom area. However these show signs of improvement and could very well be brought into line with desired late August, 1990 completion dates. I again urge that the official contract dates be clarified and resolved as soon as possible.

There was some discussion about updating the network models at this session but a full revision of the models was deferred for consideration at our next monitoring session. At that time school will be out and a better evaluation than is possible now can be made at that time.

To date a network model for the shop area remodeling has not been prepared. It would be well to evaluate the status of this area at our next meeting and diagram it as required.

It is not too early to begin planning how the project is to be closed out. Of importance for early consideration is the punch list sequence and procedures to be followed, and the preparation and submittal of operation and maintenance manuals. We will discuss these at our next project meeting. Plans for the two items should be put into work by the contractors, the architect/engineer and the owner now since there remain only 54 working days from now to the start of school.

This report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Jerry Harburn. Further distribution will be made as desired by each of these men. I shall be in touch with Mr. Harburn of THA shortly to set the next planning and monitoring date and agenda.

A handwritten signature in black ink, appearing to read 'R. Stephenson', with a long horizontal line extending to the right.

Ralph J. Stephenson PE

# COPY

RALPH J. STEPHENSON, P.E., P.C.  
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July 29, 1990

Subject: Monitoring Report #9  
Marine City Complex (MCCX)

- Marine City Middle School
- Marine City High School

From: Ralph J. Stephenson PE

Project: 89:49

Data disks: d174, 212 & 222 rjs

Date of Monitoring: July 27, 1990 (wd 401)

Monitored from:

- Sheet #MCC1 - Middle School Cafeteria Addition & Existing Facility Remodeling - Issue #4, dated May 10, 1990 (wd 347)
- Sheet #MCC4 - High School Classroom Addition & Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC5 - Middle School Classroom Addition - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC6 - High School South Entry & Courtyard Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC7 - High School South Entry Remodeling and Service Addition - Issue #3, dated March 25, 1990 (wd 314)

Target dates:

- See data for individual areas below.

Actions taken:

- Inspected project
- Reviewed current status of projects with Mr. Ed Beebe at site
- Reviewed project project status with owner & architect/engineer

Those attending meetings (some part time):



July 29, 1990

- James A. Hiller - Supervisor of Operations - East China
- Les Hartzman - Construction administrator - THA
- Ed Beebe - Card Construction - superintendent
- Ralph J. Stephenson - Consultant

**Middle School Cafeteria Addition and Existing Facility  
Remodeling (CFE) - sheet \*MCC1**

Middle School cafeteria to be operative by am August 28, 1990 (wd 423)

As of July 27, 1990 (wd 401) the slab on grade in the new addition is being completed and close in of the addition is in work. The existing and new cafeteria have been reroofed to dry in and the new serving line masonry at the existing cafeteria is substantially complete. Structural steel for the new serving line roof is on the job.

Abatement work was completed about July 13, 1990 and work can apparently proceed in all areas of the cafeteria as desired. It is still intended that the temporary partition will stay in place until the new addition is completely closed in.

A key date in the sequence is delivery of the new food service equipment. Field measurements for this equipment have been taken and Mr. Beebe feels that the delivery date of early August, 1990 is being held by the supplier. It should be noted that once the equipment is installed that the county health department must inspect and approve the system and equipment. Once approved there is a two day run in and training period before making the new serving line operative.

The operative date is still being held at the am of August 28, 1990 (wd 423). This is an important date and must be met. There is still considerable work to be done at the cafeteria area and it should be kept in mind there are only 22 working days to the date by which the new line must be operative. Constant and careful attention must be given to procurement and field work to complete within this framework.

July 29, 1990

**High School Administration Courtyard and Classroom Remodeling (ACYC) - sheet \*MCC6**

Target completion date to be set. Shown on current network as am July 2, 1990 (wd 383). Generally now considered to be in late August, 1990 before the opening of school for the fall.

Interior finish work is in progress and acoustic ceiling grid is being installed. Interior painting is partially complete. Trades yet to be initiated include finish ceiling work and general interior finishes and trim. It appears that there will be required about 20 to 25 working days of work to complete. Using the 25 working day estimate would bring completion to the am of August 31, 1990 (wd 426). This is a tight plan of work but is achievable. Mr. Beebe feels he should be able to complete by this the opening of school.

**High School New South Entry and Classrooms Addition & Remodeling (SECA) - Sheet \*MCC7**

target completion date to be set. Shown on current network as pm May 8, 1990 (wd 346). Generally now considered to be in late August, 1990 before the opening of school for the fall.

Currently work is in progress on installing floor finishes and completing work on exterior walls at the area. The original finish date was set very early in an attempt to provide space for some of the needed temporary moves. However these moves were made to other areas and for this reason the completion date has now been moved to the late August, 1990 point. Measuring against the current plan of work there are about 10 to 15 working days of construction remaining to finish work at the area. This should allow completion of the area by the current target completion date of mid to late August, 1990.

**Middle School Classroom Addition (MCAD) - sheet \*MCC5 - Issue \*3 dated January 30, 1990 (wd 275)**

July 29, 1990

current target completion date pm August 17, 1990 (wd 417)

As of July 27, 1990 (wd 401) most major close in and rough work at the middle school classroom addition has been completed and interior finish trade work is now being given a high priority of attention. The project currently lags about 10 to 13 working days over the target completion date of the pm of August 17, 1990 (wd 417). This would put the completion out to early September, 1990.

A serious delay problem has been encountered in the receipt of damaged shelving at the cabinet heaters on the exterior walls. Much of this shelving was damaged in packing, loading and transit and it must be replaced. Current indications are that replacement units will not be on the job until about October 10, 1990. All members of the project team, the architect/engineer, the owner and the general contractor are working to resolve the matter now so an earlier date can be achieved.

There has been some discussion about the feasibility of using the classroom addition without the shelving. However no information was available to me to indicate if a decision has been made in the matter.

**Middle School Service Area Addition (SVAD) - Sheet \*MCC7,  
Issue 3 dated 3/25/90 (wd 314)**

Current target completion date - pm May 25, 1990 (wd 359).

Most work at the service area addition has been completed except for fin tube piping and covers, and some painting. Remaining work will be finished along with other portions of the Marine City project.

**High School Classroom Addition (HCAD) - sheet \*MCC4 - Issue  
\*3 dated January 30, 1990**

current target completion date - pm August 17, 1990 (wd 417)

As of July 27, 1990 (wd 401) major rough and finish work at this area is

July 29, 1990

meeting targets between early and late starts and finishes except for some ceiling trim and finish work. However it appears that with the current status of the project it will be able to meet a completion date prior to the opening of school on the am of August 28, 1990 (wd 401).

As at the middle school classroom addition the shelving related to the cabinet heaters was damaged in packing, loading and shipping and much of it has to be replaced. The current commitment for replacement seems to be about October 10, 1990. All project team members are working on this matter to improve the delivery of replacement units.

### **General**

The project status varies widely from area to area. In general the areas needing high levels of attention include the cafeteria and the middle school classroom addition. At the cafeteria, food service equipment delivery and installation, along with health department inspections are critical.

At the classroom additions replacement of damaged shelving will probably be the biggest factor in any delayed occupancy. Overall work at the middle school classroom addition has generally lagged for some time and making up the behind position at this time may be difficult.

It should be kept in mind that from the date of the monitoring on July 27, 1990 (wd 401) to the start of school in the fall on August 28, 1990 (wd 423) is only 22 working days.

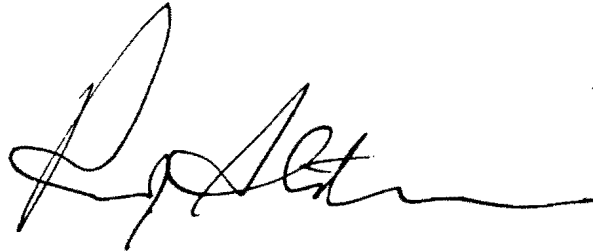
It is important to begin planning immediately for how the project is to be closed out. Critical is punch list preparation, setting of correction procedures to be followed, and early attention to preparation and submittal of operation and maintenance manuals.

This report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Jerry

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

July 29, 1990

Harburn. Further distribution will be made as desired by each of these men.  
I shall be in touch with Mr. Harburn of THA shortly to to discuss further  
planning and monitoring requirements as they may be needed.

A handwritten signature in black ink, appearing to read 'R. J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

# COPY

• NETWORK MODELING

• CRITICAL PATH METHOD

RALPH J. STEPHENSON, P.E., P.C.  
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PHONE (517) 772-2537

September 3, 1990

Subject: Monitoring Report #10  
Marine City Complex (MCCX)  
• Marine City Middle School  
• Marine City High School

From: Ralph J. Stephenson PE

Project: 89:49

Data disks: d174, 212 & 222 rjs

Date of Monitoring: August 30, 1990 (wd 425)

Monitored from:

- Sheet #MCC1 - Middle School Cafeteria Addition & Existing Facility Remodeling - Issue #4, dated May 10, 1990 (wd 347)
- Sheet #MCC4 - High School Classroom Addition & Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC5 - Middle School Classroom Addition - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC6 - High School South Entry & Courtyard Remodeling - Issue #3, dated January 30, 1990 (wd 275)
- Sheet #MCC7 - High School South Entry Remodeling and Service Addition - Issue #3, dated March 25, 1990 (wd 314)

Target dates:

- See data for individual areas below.

Actions taken:

- Inspected project
- Reviewed current status of projects with Mr. Ed Beebe at site
- Reviewed project status with owner, architect/engineer and contractor staff.

Those attending meetings (some part time):

September 3, 1990

- Ronald Stannard - Director of Business Services - East China
- James A. Hiller - Supervisor of Operations - East China
- Jerry Harburn - Principal - THA
- Les Hartzman - Construction administrator - THA
- Ed Beebe - Card Construction - superintendent - at on site meeting
- Ralph J. Stephenson - Consultant

**Middle School Cafeteria Addition and Existing Facility  
Remodeling (CFEE) - sheet #MCC1**

Middle school cafeteria was to have been operative on am August, 28, 1990 (wd 423)

As of August 30, 1990 cafeteria addition work is at a standstill pending resolution of conditions surrounding installation of resilient floor tile. The flooring contractor will not lay and guarantee resilient flooring over what appears to be the sealer applied by the abatement contractor after the abatement contractor had removed the old tile.

At the owner and architect/engineer project meeting on August 30, 1990 (wd 425) pm, a decision was made that the floor was to be ground so as to properly receive floor tile. Grinding was to be done on Tuesday or Wednesday, September 4 or 5, 1990 (wd 427 or 428). This information was to be conveyed to the general contractor for field action.

Meanwhile cafeteria tables have been set temporarily in the gym and the existing serving line is being used to provide food for those who eat there.

Another difficulty has arisen in delivery of food service equipment. At a recent job meeting in August, 1990 the food service contractor informed the project team that new food service equipment would not be delivered until sometime in October, 1990. According to the project staff this delay was totally unexpected by the general contractor, the architect/engineer and the owner. Efforts are being made to obtain an earlier delivery, but no authentic word was available on this matter at our monitoring session today.

September 3, 1990

Another item yet to be completed is the exterior metal panel fascia on the addition. Material is being delivered in mid September, 1990. It appears that the building can be occupied without this paneling being in place. However the matter should be checked and followed carefully so as to be able to punch & close out the job as soon as possible.

No accurate projection of probable target dates for total cafeteria completion are available at present. However if floor tile installation is able to proceed immediately it should be able to be completed in 3 to 5 working days after release. This would make the cafeteria usable by the students by early or mid September 1990.

With a food service equipment delivery of early or mid October, 1990, the installation and run in would take from 5 to 10 working days bringing completion of the new serving line to late October, 1990.

**High School Administration Courtyard and Classroom Remodeling (ACYC) - sheet \*MCC6**

As of August 28, 1990 (wd 423) this area was occupied. There remains some miscellaneous finish work and punch list items to complete. If the remaining work to be done involves bulletins to be issued these should be prepared and processed now.

**High School New South Entry and Classrooms Addition & Remodeling (SECA) - Sheet \*MCC7**

As of August 28, 1990 (wd 423) this area was occupied by the school staff. Current work efforts are being concentrated on cleaning up minor revisions, and on completing punch list items.

**Middle School Classroom Addition (MCAD) - sheet \*MCC5 - Issue #3 dated January 30, 1990 (wd 275)**



September 3, 1990

The middle school classroom area was occupied August 28, 1990 (wd 423). There remains some miscellaneous work including installation of folding partitions, setting additional shelving, finishing doors and making final punch out and punch list corrections.

Folding partitions are to be installed and the doors are to be varnished on August 30, 1990 (wd 425) according to Mr. Ed Beebe, superintendent. Shelving is apparently to be on the job about September 10, 1990 and will be installed immediately.

**Middle School Service Area Addition (SVAD) - Sheet \*MCC7,  
issue 3 dated 3/25/90 (wd 314)**

Work on the service area addition is substantially complete.

**High School Classroom Addition (HCAD) - sheet \*MCC4 - Issue  
\*3 dated January 30, 1990**

This addition was occupied on August 28, 1990 (wd 423) and is complete except for punch list items, signage and installation of remaining shelving adjoining the cabinet unit heaters. Shelving is to be delivered about September 10, 1990 and as at the middle school classroom addition will be installed upon arrival at the job site.

**Special Education Area**

This area was occupied August 28, 1990 (wd 423).

**General**

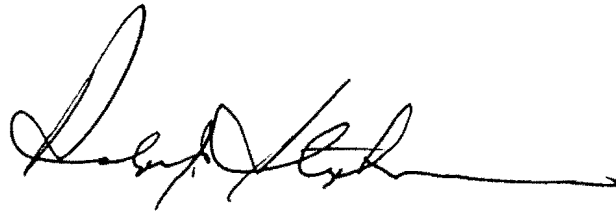
An overview of the project indicates that the courtyard infill area, the entry area classroom remodeling, the middle school classroom addition, the high school classroom addition, the special education area & the middle school service addition were occupied as of August 28, 1990 (wd 423), the opening of school.

September 3, 1990

The cafeteria addition completion has been delayed for reasons outlined above. Heavy attention is being given this matter by the contractor, the owner and the architect/engineer.

This report is being sent to Mr. James Hiller, Mr. Richard Card and Mr. Jerry Harburn. Further distribution should be made as desired by each of these parties. This inspection will conclude monitoring of the project unless special conditions make additional visits necessary.

Building the Marine City complex has been a challenge to all members of the project team and I wish to thank the owner/contractor/architect, engineer staff for their assistance in inspecting, evaluating and reporting on project progress.

A handwritten signature in black ink, appearing to read 'Ralph J. Stephenson', with a long horizontal flourish extending to the right.

Ralph J. Stephenson PE

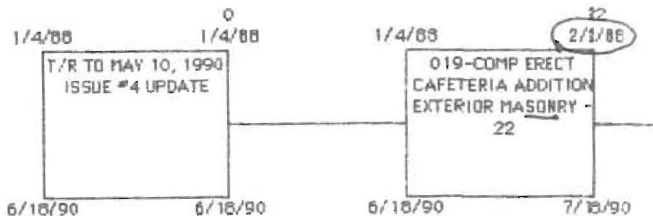
Marine City Middle School  
Cafeteria Addition & Existing  
Facility Remodeling (CFRE)

**Note:**

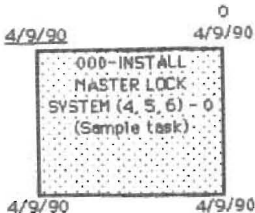
- Includes installation of
- Roof conductors
- Roof sumps
- Nailers & blocking
- Insulation & roofing
- Hollow metal doors
- Metal siding

ROUGH IN.  
WORK AT  
NEW ADDI

As Sump  
Garage —  
Court —  
M&B W  
MS E



Early start (am)      Duration  
Early finish (pm)

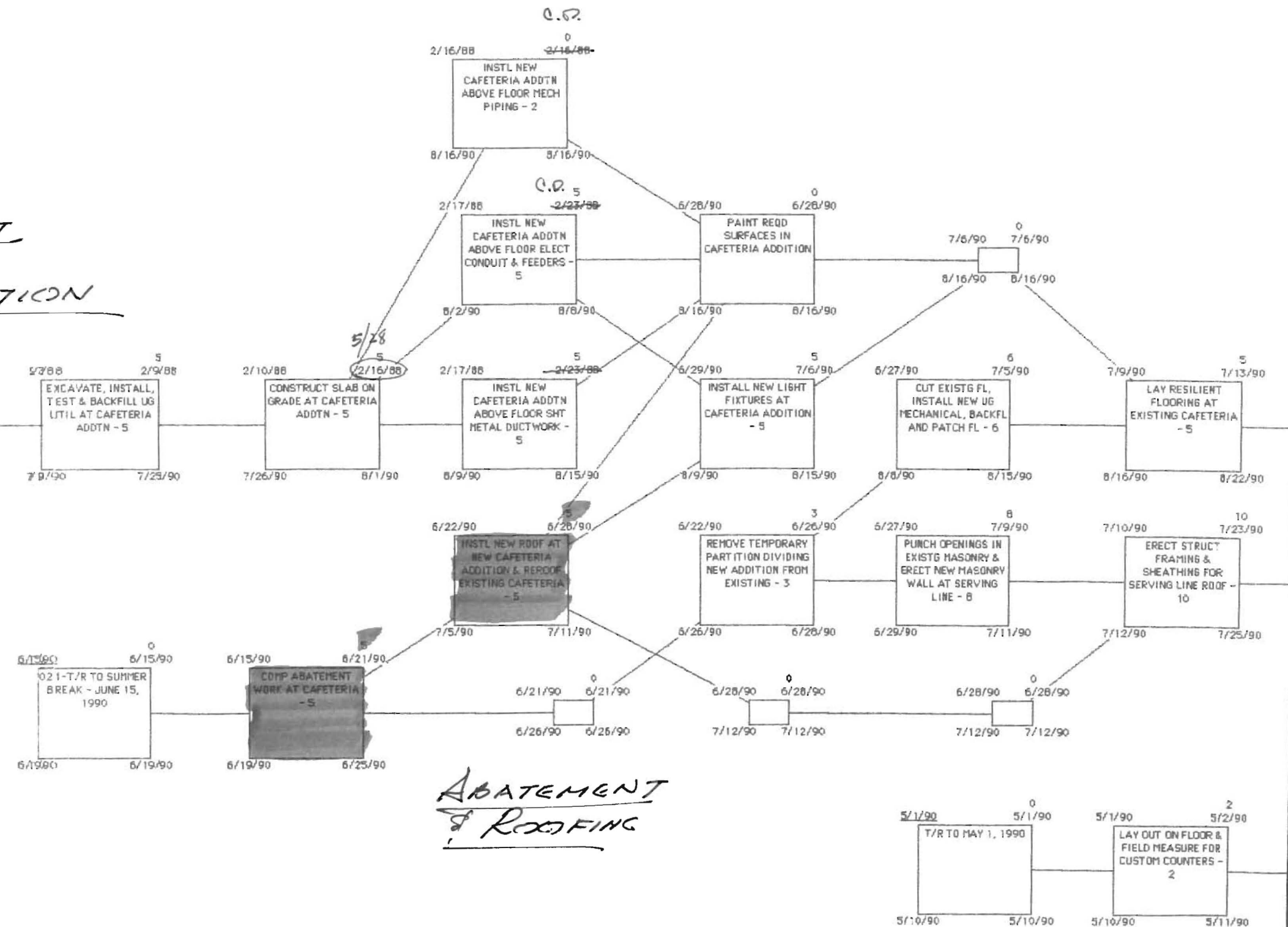


- Activity number
- Activity description
- Resource codes
- Estimated duration in elapsed working days

Late start (am)      Late finish (pm)

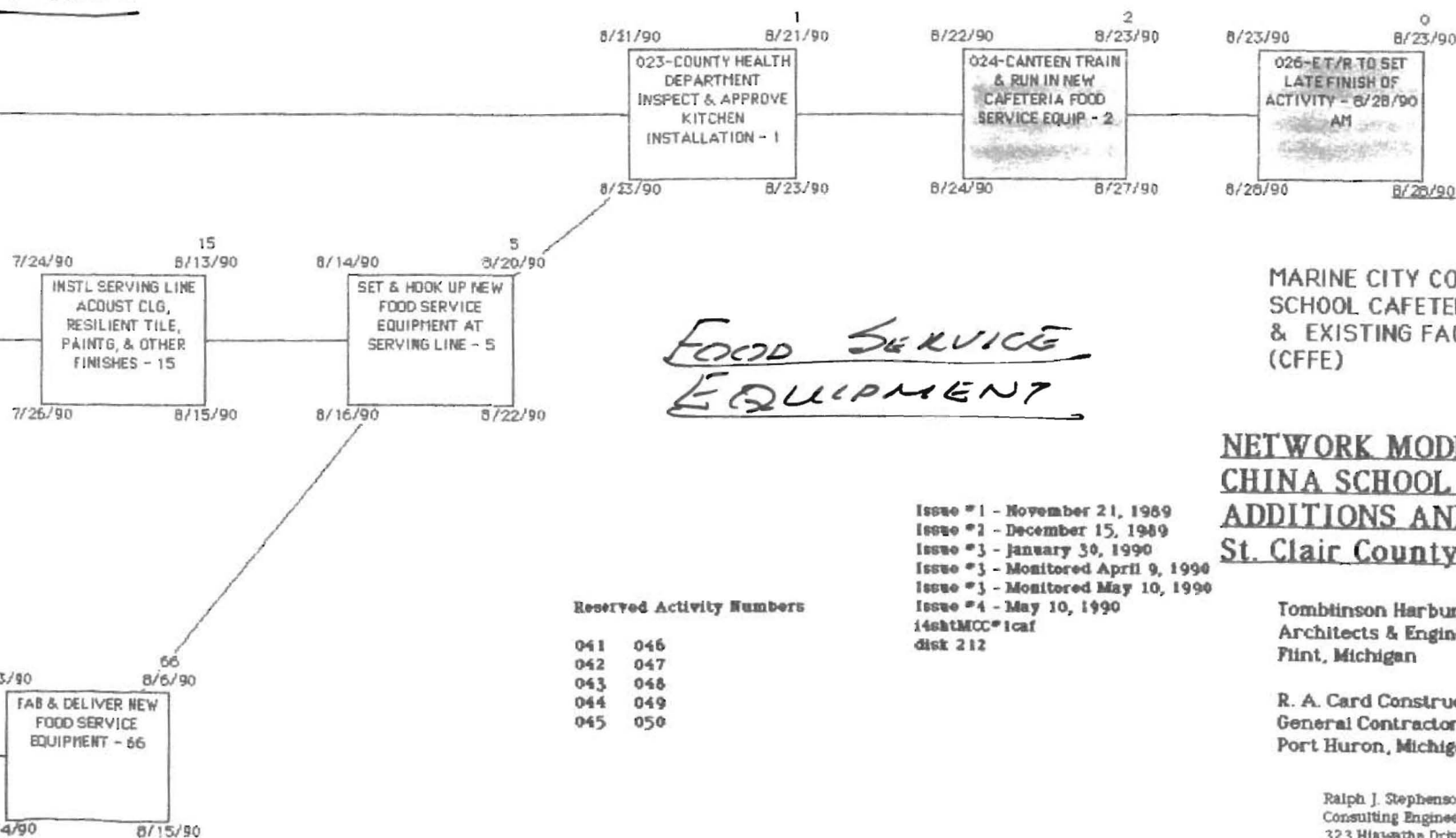
Activity Key

SECTION



FINISH INT  
WORK

Project network update as of May 10, 1990



FOOD SERVICE  
EQUIPMENT

MARINE CITY COMPLEX MIDDLE  
SCHOOL CAFETERIA ADDITION  
& EXISTING FACILITY REMODELING  
(CFFE)

NETWORK MODEL FOR EAST  
CHINA SCHOOL DISTRICT  
ADDITIONS AND RENOVATION  
St. Clair County, Michigan

Issue #1 - November 21, 1989  
Issue #2 - December 15, 1989  
Issue #3 - January 30, 1990  
Issue #3 - Monitored April 9, 1990  
Issue #3 - Monitored May 10, 1990  
Issue #4 - May 10, 1990  
1488tMCC#1caf  
disk 212

Reserved Activity Numbers

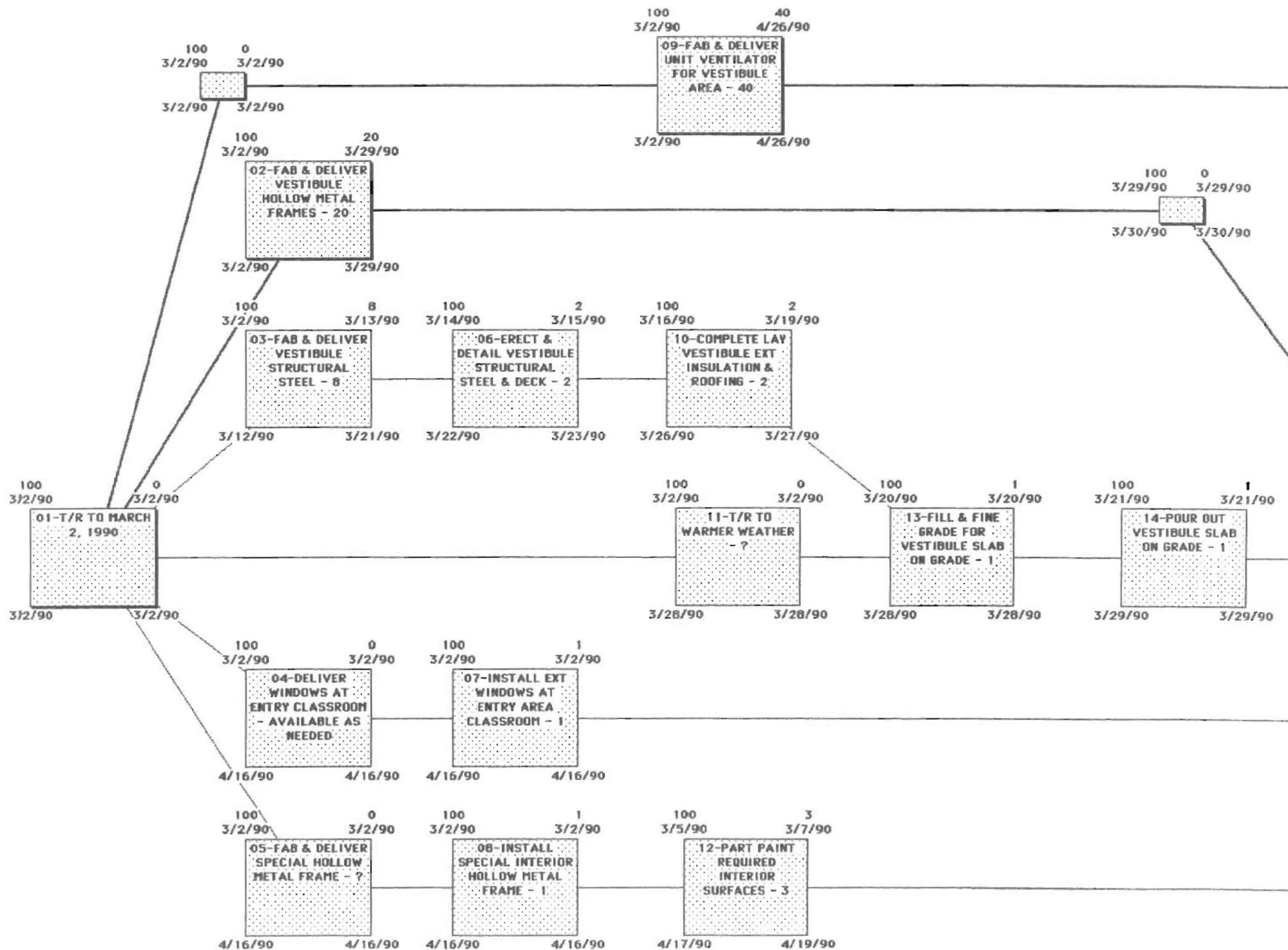
041	046
042	047
043	048
044	049
045	050

Tombinson Harburn Associates  
Architects & Engineers  
Flint, Michigan

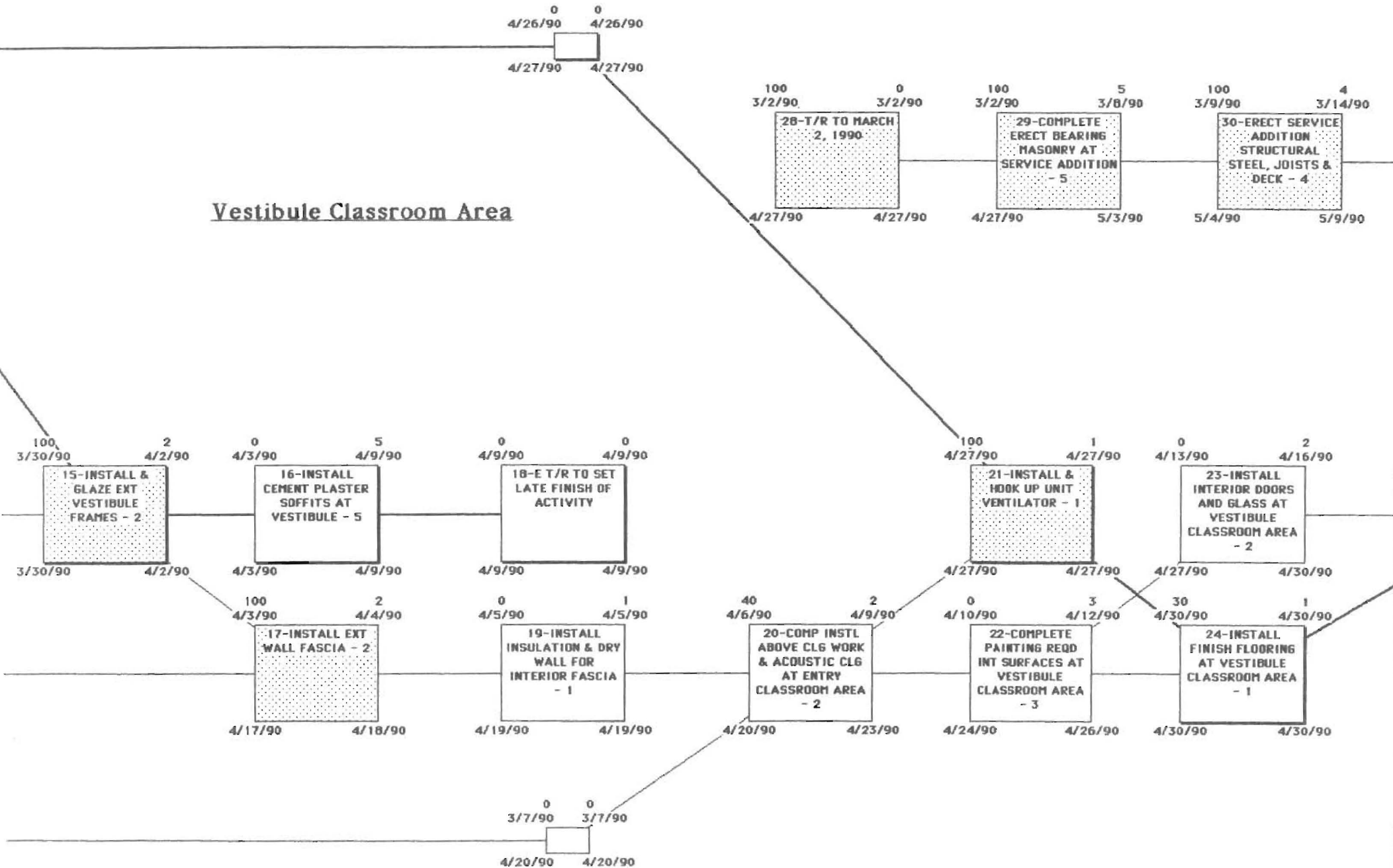
R. A. Card Construction  
General Contractors  
Port Huron, Michigan

Ralph J. Stephenson PE PC  
Consulting Engineer  
323 Hiawatha Drive  
Mt. Pleasant, Michigan 48858  
ph 517 772 2537

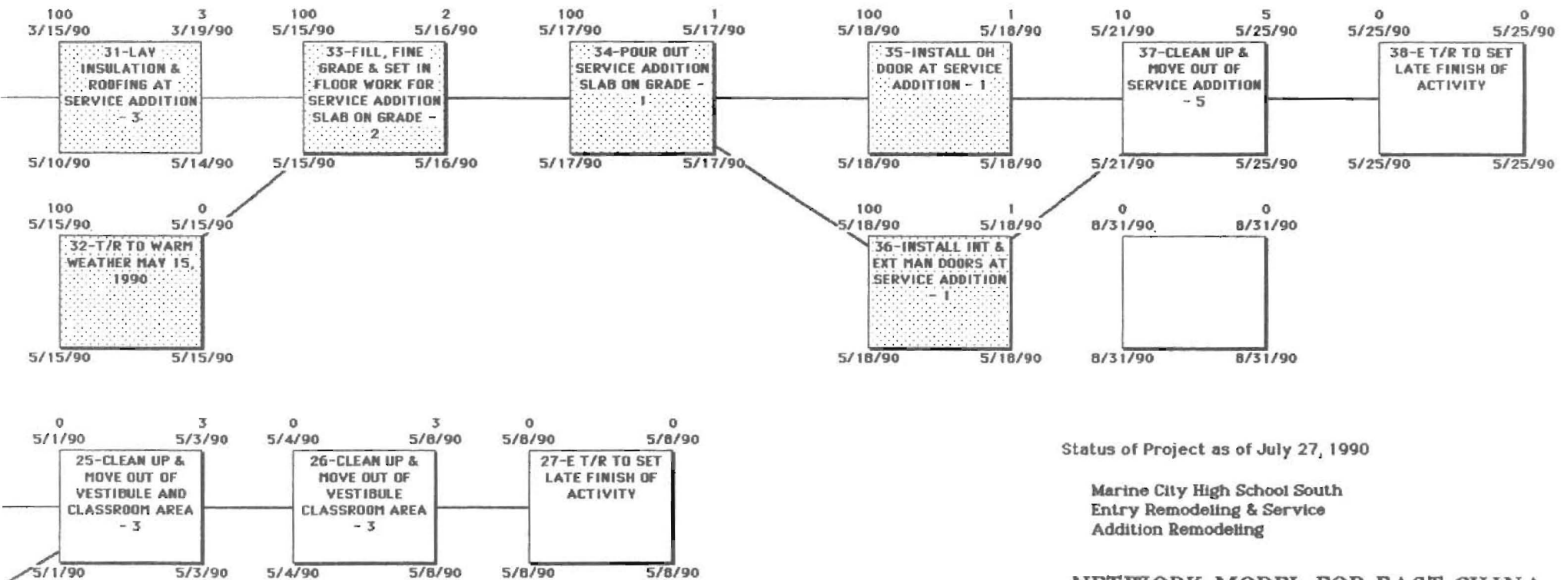
SHEET  
MCCI



# Vestibule Classroom Area



## Service Addition



Status of Project as of July 27, 1990

Marine City High School South  
Entry Remodeling & Service  
Addition Remodeling

## NETWORK MODEL FOR EAST CHINA COMMUNITY SCHOOLS BOND ISSUE PROJECT - East China Township

Float time  
Early start (am)

Duration

Early finish (pm)

100 0  
3/2/90 3/2/90

000-INSTALL  
MASTER LOCK  
SYSTEM (4, 5, 6) -  
9

3/2/90 3/2/90

- Activity number
- Activity description
- Resource codes
- Estimated duration in elapsed working days

### Reserved Activity Numbers

041 046  
042 047  
043 048  
044 049  
045 050

LAW 01  
HAN

Issue #1 & 2 - not issued  
Issue #3 - March 25, 1990  
Issue #3 - Monitored April 9, 1990  
Issue #3 - Monitored July 27, 1990  
13sht\*MCC7mtrg07/27/90  
Disk #222

Tomblinson Harburn Associates  
Architects & Engineers  
Flint, Michigan

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General Contractor  
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SHEET #  
MCC7

### Activity Key

Late start (am) Late finish (pm)  
Resource Resource