Project Manual

Document Package 01

Vilas County
Courthouse Expansion
Eagle River, Wisconsin

July 15, 2016

Potter Lawson No. 2016.07.00

Potter Lawson

Success by Design

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PROJECT: VILAS COUNTY
COURTHOUSE EXPANSION
EAGLE RIVER, WISCONSIN

OWNER: VILAS COUNTY GOVERNMENT
330 COURT STREET
EAGLE RIVER, WISCONSIN 54521

ARCHITECT: POTTER LAWSON, INC.
749 UNIVERSITY ROW, SUITE 300
MADISON, WISCONSIN 53705
PHONE (608) 274-2741

CONSTRUCTION MANAGER: THE SAMUELS GROUP
311 FINANCIAL WAY, SUITE 300
WAUSAU, WISCONSIN 54401
PHONE (715) 841-1909
FAX (715) 848-8088

CONSULTANTS:

PROFESSIONAL ENGINEERS:

Civil/Landscaping — POINT OF BEGINNING
5709 WINDY DRIVE, SUITE D
STEVENS POINT, WISCONSIN 54482
PHONE (715) 344-9999

Structural/Mechanical — KJWW ENGINEERING CONSULTANTS
802 WEST BROADWAY, SUITE 312
MADISON, WISCONSIN 53713
PHONE (608) 223-9600
FAX (608) 223-9601

Electrical — POTTER LAWSON, INC.
749 UNIVERSITY ROW, SUITE 300
MADISON, WISCONSIN 53705
PHONE (608) 274-2741

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DIVISION 33 - UTILITIES

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LIST OF DRAWINGS

The following List of Drawings bound separately from the Project Manual comprise the Drawings as referenced in the Procurement Documents and the Contract Documents.

The arrangement, numbering, titling and location of the Drawings within a bound set shall not control the Contractor in dividing the work among Subcontractors or in establishing the extent of Work to be performed by any trade.

DOCUMENT PACKAGE 01

Drawings in **bold** issued for Document Package 01. Other drawings issued for reference only.

DRAWING NO.	DRAWING TITLE
GENERAL	
CD01	Cover Drawing
SITE	
	Site Survey
CIVIL	
C100	**Demolition Plan**
C101	**Layout Plan**
C102	**Grading Plan**
C103	**Erosion Control Plan**
C104	**Utility Plan**
C105	**Details**
LANDSCAPE	
L100	**Landscape Plan**
STRUCTURAL	
S000	**General Notes**
S001	**Load Plans**
S101	**Foundation Level**
S102	Second Floor Level
S103	Roof Level
S104	Connector Plans
S300	**Foundation Details**
S301	**Foundation Details**
S400	Masonry Details
S500	Steel Details

ARCHITECTURAL

A002	Code Plans
A101	First Floor Plan
A102	Second Floor Plan
A103	Roof Plan
A201	Building Elevations
A202	Building Elevations

ELECTRICAL

E002	**Electrical Site Demolition Plan**
E003	**Electrical Site Plan**
E004	**Electrical Site Details**

End of List of Drawings

PROCUREMENT REQUIREMENTS

INVITATION TO BID

BIDS: August 4, 2016

VILAS COUNTY
COURTHOUSE EXPASION
EAGLE RIVER, WISCONSIN

FOR

VILAS COUNTY GOVERNMENT
330 COURT STREET
EAGLE RIVER, WISCONSIN 54521

POTTER LAWSON, INC.
749 UNIVERSITY ROW, SUITE 300
MADISON, WI 53705
PHONE (608) 274-2741

BID OPENING: August 4, 2016 at 2:15 PM LOCAL TIME.

BIDS MUST BE RECEIVED BY: August 4, 2016 at 2:00 PM LOCAL TIME.

Sealed Bids for the Project designated above will be received on behalf of the Owner by the Construction Manager, The Samuels Group, at the Owner's address indicated above.

All bids will be publicly opened and read at the specified time and date indicated above by the Owner or his designee.

Phase 1 Work comprises the construction of an approximately 32,400 gross square feet 2-story addition to the existing courthouse building. Phase 2 Work comprises the construction of an approximately 3,130 gross square feet 2-story connector between the addition and the existing courthouse building; an approximately 1,270 gross square feet detached garage addition; and approximately 2,280 square feet of remodeling within the existing courthouse building including associated fire protection, plumbing, HVAC, and electrical work.

Documents may be seen at The Samuels Group in Wausau, WI, Waterloo and Des Moines, IA and iSqFt website; Bid + Network in Madison, WI; F.W. Dodge Corporation in Milwaukee, Altoona, Fond du Lac, Green Bay, Wausau, La Crosse, and Fox Valley, WI; Cedar Rapids, Iowa; Minneapolis, Minnesota.

Electronic copies of the above documents may be requested on or after July 15, 2016 from Potter Lawson, Inc. by sending an email to maryb@potterlawson.com. The following information must be included in the email; requestor's name, company name, physical address, telephone number, and email address.

Bid Security in the amount of five (5) percent of the Bid must accompany each Bid in accord with the Instructions to Bidders.

The bidding and letting of Contracts herein advertised is subject to compliance with all applicable statutory requirements. The prevailing wage rate requirements of Section 66.0903 and DWD 290 of the Wisconsin Administrative Code are applicable to this Project.

The Owner reserves the right to waive irregularities and to accept any bid, reject any and all bids, and upon acceptance of any bid, to thereafter accept revisions or modifications on such bid.

This Invitation to Bid is issued by authority of Vilas County.

July, 2016

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INSTRUCTIONS TO BIDDERS

GENERAL

To be considered, Bids must be made in accord with these Instructions to Bidders.

DOCUMENTS

In order to maintain a list of "Bidders of Record", all Bidders shall identify themselves and the portion or type of work they are bidding; e.g. Bidder for fire protection, plumbing, HVAC, electrical, masonry, door hardware, etc.

EXAMINATION

Carefully examine the Procurement Documents which include the proposed Contract Documents and the construction site to obtain first-hand knowledge of existing conditions. Each Bidder, by submitting its bid, represents that Bidder has examined the Procurement Documents, inspected the site, understands the provisions of the Procurement Documents, and has become familiar with the local conditions under which the Work is to be performed. Bidders will not be entitled to extra payments or Contract Time extensions for conditions which could have been determined by carefully examining the site, subsurface information, and the Procurement Documents.

ADDENDA

All changes in or interpretations of the Procurement Documents prior to the bid opening will be made by written addenda issued by the Architect to each recipient of the Procurement Documents recorded by the Architect. All addenda will be issued not later than 24 hours prior to bid opening.

PROOF OF COMPETENCY OF BIDDER

Any Bidder may be required to furnish evidence satisfactory to the Construction Manager that the Bidder has sufficient means, expertise, financial ability, and experience in the types of work Bid to assure completion of the Contract in a satisfactory manner.

QUESTIONS

Submit all questions about the Procurement Documents to the Architect, in writing, not later than 10 days prior to Bid Date. Utilize Request for Information (RFI) Form at the end of Section 01 33 00. Replies will be issued to all Bidders of Record as Addenda to the Procurement Documents and will become part of the Contract. The Architect, Construction Manager and Owner will not be responsible for oral clarification. Questions received after this time cannot be answered.

SUBSTITUTIONS

To obtain approval to use unspecified products, submit Substitution Request Form not later than 10 days prior to Bid Date. Requests received after this time will not be considered. Utilize Substitution Request Form at the end of Section 01 60 00. If the Product is acceptable, the Architect will so indicate by Addendum issued to all Bidders of Record. Refer to Section 01 60 00 of the Specifications for additional information.

PREPARATION OF BIDS

Prepare Bids on unaltered Bid Forms bound in the Project Manual. Submit two copies. Bids shall be signed with name typed below signature. Where Bidder is a corporation, Bids must be signed with the legal name of the corporation followed by the name of the State of incorporation and the legal signature of an officer authorized to bind the corporation to Contract. **Do not submit Project Manual with Bid**.

Addenda form 00 91 13-1 located following Section 00 80 09 shall be submitted with the Bid Form.

Submit one Bid Form/Bid Security per combination in separate sealed envelopes.

ALTERNATIVE BIDS

Where Alternative Bids are required in the Bid Form, Bidders shall fill in each alternative bid with a bid price. There will be no division of awards between Base Bid and accepted alternative bids.

UNIT PRICE ITEMS

When unit price items are included in the Procurement Documents, the bidder shall indicate, in figures, a unit price for each separate item. The acceptance of bid unit prices shall be a condition of contract award.

SUBCONTRACTOR LIST

A list of Subcontractors is required with Bid. Failure to list Subcontractors on the Bid Form as requested will be considered by the Construction Manager as an irregularity and may result in rejection of your Bid.

PRE-BID CONFERENCE

The Construction Manager will hold a pre-bid conference on July 28, 2016. The conference is open to all Bidders and Suppliers. Attendance is not mandatory. The conference will be held to determine that the Contract Documents, contract terms, and related matters are understood by the Bidders. Any misunderstanding as to work procedure, scope of the work, project schedules, and similar items are to be discussed and resolved. All pertinent agreements reached will become a part of the project by written addendum.

The pre-bid conference will be held in the existing Vilas County Courthouse at 10:00 A.M. Following the pre-bid conference a site/facility visit or walkthrough will be completed.

BID SECURITY

Make Bid Security payable to Vilas County in the amount of five (5) percent of the Bid Sum. Security shall be either certified check or bid bond issued by surety licensed to conduct business in the State of Wisconsin. The successful Bidder's security will be retained until he has signed a Contract and furnished the required payment and performance bonds. The Owner will retain the security of all Bidders until the successful bidder enters into Contract or until 45 days after bid opening, whichever is the shorter. If any Bidder refuses to enter into a Contract, the Owner will retain his Bid Security as liquidated damages, but not as a penalty. Submit Bid Security with Bid.

Bid bond requirements on all bid categories.

PERFORMANCE BOND AND LABOR AND MATERIALS PAYMENT BOND

Each successful Bidder shall furnish and pay for a Performance Bond and Labor and Materials Payment Bond. See Subparagraph 11.4 of the General Conditions of the Contract for Construction (AIA Doc A232-2009).

SUBMITTAL

Submit Bid and Bid Security in an opaque sealed envelope. Identify the envelope with Project name, and name of Bidder. Submit Bids in accord with the Invitation to Bid. **Do not submit Project Manual with Bid.** Facsimile bids not acceptable.

MODIFICATION AND WITHDRAWAL

Bids may not be modified after submittal. Bidders may withdraw Bids at any time before bid opening, but may not resubmit them. No Bid may be withdrawn or modified after the bid opening except where the award of Contracts has been delayed for more than 45 days from day of Bid opening.

DISQUALIFICATION

The Owner reserves the right to disqualify Bids, before or after opening upon evidence of collusion with intent to defraud or other illegal practices upon the part of the Bidder.

OPENING

Bids will be opened as announced in the Invitation to Bid.

AWARD

The Construction Manager and Owner will review all Bids including Bidders qualifications after the bid opening.

The Owner reserves the right to waive irregularities and accept any Bid, reject any and all Bids, and upon acceptance of any Bid, to thereafter accept revisions or modifications on such Bid.

If two or more Bidders submit identical Bids, the Owner may make award to that Bidder of his choice, and such decision shall be final.

Awards will not be made to any Bidder in default of a Contract with the Owner, or to any Bidder having as his agent or employee any individual previously in default or guilty of misrepresentation.

Bid results may be published in construction periodicals.

NOTICE TO PROCEED

Written notice of award to a Bidder in the form of a letter from the Construction Manager emailed, mailed or delivered to the address shown on the Bid Form will be considered sufficient notice of acceptance of Bid, intent to award the Contract, and "Notice to Proceed" with the Work.

EXECUTION OF AGREEMENT

The Agreement Forms which the accepted Bidder, as Contractor, will be required to execute is indicated in the Project Manual.

The accepted Bidder shall assist and cooperate with the Construction Manager in preparing the formal Agreement, and within ten days following its presentation shall execute same and return it to the Construction Manager. Failure to execute Agreement and return it to Construction Manager within time indicated shall be considered by Construction Manager as refusal by accepted Bidder to enter into the Contract.

At or prior to delivery of the signed Agreement, the Contractor shall deliver to the Construction Manager the Performance Bond and Labor and Material Payment Bond and the policies of insurance or insurance certificates as required by the Contract Documents. All bonds and policies of insurance shall be approved by the Construction Manager before the accepted Bidder may proceed with the Work.

Failure or refusal to furnish bonds or insurance policies or certificates in a timely manner and in a form satisfactory to the Construction Manager shall not serve to waive any requirements of the Contract Documents, including time of completion.

End of Instructions to Bidders

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SECTION 00 24 19
WORK SEQUENCE AND BID CATEGORIES

PART 1 - GENERAL

1.1 DESCRIPTION

a. This Section is intended to clarify the scope of each Bid Category. Each Bid Category includes all provisions of Division 0 and Division 1 Specifications.

b. When "L & M" is referenced, it shall mean "Labor and Material", when "L" is referenced, it shall mean "Labor" and when "M" is referenced, it shall mean "Material".

1.2 BID CATEGORIES

a. Bid Categories referenced in this Section are work to be performed at the:

Vilas County Courthouse Expansion in Eagle River, Wisconsin.

1.3 SCOPE OF WORK

a. The Bid Categories are constructed to follow as closely as possible the CSI format of the Contract Documents. However, some Bid Categories may contain more than one specification section and/or parts thereof.

b. Unless noted otherwise, all labor, material and equipment for each specification section is to be included for each Bid Category.

c. All Contractors are bound to Division 0 and Division 1 requirements.

1.4 BID CATEGORIES LIST

BID CATEGORY NO. 1 GENERAL REQUIREMENTS

Division 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS
00 01 01 – PROJECT TITLE PAGE
00 01 10 - TABLE OF CONTENTS
00 01 15 - LIST OF DRAWINGS
00 11 16 – INVITATION TO BID
00 21 13 - INSTRUCTIONS TO BIDDERS
00 24 19 - WORK SEQUENCE AND BID CATEGORIES
00 31 00 – AVAILABLE PROJECT INFROMATION
00 41 00 - BID FORM
00 52 00 – AGREEMENT FORM
RIDER A – LABOR OR LABOR/MATERIAL SUPPLIERS ONLY
RIDER A – MATERIAL SUPPLIERS ONLY
RIDER C – TRADE CONTRACTORS AND MATERIAL SUPPLIES
00 61 13 – PERFORMANCE AND PAYMENT BOND FORM
00 72 00 - GENERAL CONDITIONS
AIA DOCUMENT A232-2009

INSURANCE REQUIREMENTS
00 73 43 - WAGE RATE REQUIREMENTS
00 80 09 – DEFAULT AND TERMINATION
00 91 13 – ADDENDA

Division 01 – GENERAL REQUIREMENTS
01 11 00 – SUMMARY OF WORK
01 11 23 – TAX EXEMPT PURCHASE PROCEDURES
ACT 126-SALES TAX ON CONSTRUCTION MATERIALS
FOR TAX EXEMPT ENTITIES
01 20 00 – PRICE AND PAYMENT PROCEDURES
01 31 13 – PROJECT COORDINATION
01 31 19 – PROJECT MEETINGS
01 31 26 – MECHANICAL AND ELECTRICAL COORDINATION
01 33 00 – SUBMITTAL PROCEDURES
RFI FORM
SUBMITTAL FORM
PROJECT SCHEDULE
01 35 16 – ALTERATION PROJECT PROCEDURES
01 41 00 - REGULATORY REQUIREMENTS
01 45 29 – TESTING LABORATORY SERVICES
01 50 00 - TEMPORARY FACILITIES AND CONTROLS
01 51 13 – TEMPORARY ELECTRICITY AND LIGHTING
01 51 23 – TEMPORARY HEATING, COOLING, AND VENTILATING
01 51 36 – TEMPORARY WATER AND SANITARY FACILITIES
01 52 13 – FIELD OFFICES AND SHEDS
01 57 13 – TEMPORARY EROSION AND SEDIMENT CONTROL
01 58 00 – PROJECT IDENTIFICATION
01 60 00 - PRODUCTS REQUIREMENTS
01 71 23 – FIELD ENGINEERING
01 73 29 – CUTTING AND PATCHING
01 74 00 – CLEANING AND WASTE MANAGEMENT
01 77 00 – CLOSEOUT PROCEDURES
01 78 23 – OPERATION AND MAINTENANCE DATA
WRAP UP EXTENSION FORM
WRAP UP CLOSURE FORM
ATTIC STOCK SIGN OFF SHEET
01 78 36 – WARRANTIES AND BONDS
01 78 39 – PROJECT RECORD DOCUMENTS

BID CATEGORY NO. 1 <u>DEMOLITION</u>

02 41 23 – SELECTIVE DEMOLITION	L & M
26 05 02 – SELECTIVE ELECTRICAL DEMOLITION	L & M

CLARIFICATIONS:
a. Include all removal of debris and to furnish all necessary dumpsters for this bid category.
b. Includes permitting for DNR demo permit.
c. Demo to be completed in multiple phases please see schedule.
d. Includes traffic control for the bid category.
e. Fencing and barricades for this bid category.

f. Includes any necessary hand demo required for this bid category.
g. Temporary building enclosure to be completed by Construction Manager.
h. It is the responsibility of this bid category to provide electrical disconnect prior to building demolition.
i. All activities must be coordinated with the Construction Manager.

BID CATEGORY NO. 2 EARTHWORK AND SELECTIVE SITE WORK

31 00 00 – SITE CLEARING	L & M
31 20 00 – EARTHMOVING	L & M
31 23 00 – FOUNDATION EXCAVATION AND BACK FILLING	L & M
31 25 00 – EROSION CONTROLS	L & M
32 11 23 – DENSE GRADED BASE	L & M

CLARIFICATIONS:

a. Includes associated layout/surveying for your scope of work
b. Includes permits for your scope of work
c. Includes protection of adjacent work, and salvage of material for reuse as directed by the Owner or Architect
d. Includes temporary shoring systems for excavation as required
e. Includes lawful disposal of debris from site operations
f. Includes phased construction as shown on schedule
g. Includes placement, maintenance, and removal of erosion control measures
h. Includes removal and disposal of asphalt where indicated
i. Includes saw-cutting and repair of streets, pavement, curbs, and walks as required for this scope of work
j. Includes street cleaning during construction activities, traffic control measures, and safety barricades
k. Includes foundation excavation, backfill, stripping of topsoil, earth cuts, and fills
l. Spoil piles are to be removed from site on a weekly basis as there is no room to store onsite. This includes all spoils created by the geo-pier contractor.
m. Includes importing and exporting material as required
n. Includes gravel parking area, crushed aggregate base course for asphalt paving, sidewalks, concrete drive up, curbs, concrete site pads, building foundations, and slab on grade
o. Includes topsoil placement and final grading to landscape requirements.
p. Includes handwork required to for your scope of work
q. Include subgrade preparation and test rolling.
r. All activities must be coordinated with the Construction Manager.

Exclusions:

a. Seeding and landscaping
b. Site Utilities
c. Cast-In-Place Site Concrete and Asphalt Paving
d. Removal or remediation of hazardous materials

BID CATEGORY NO. 3 UTILITIES

33 10 00 – WATER DISTRIBUTION	L & M
33 30 00 – SANITARY SEWER SYSTEMS	L & M
33 40 00 – STORM UTILITY DRAINAGE PIPING	L & M

CLARIFICATIONS:

a. Include all labor and materials for above Sections unless noted otherwise.
b. Coordinate all Earthwork and Selective Site Work with Bid Category 2.
c. Coordinate all work with other Trade Contractors as required.
d. All temporary barricades, enclosures and protection are this Trade Contractors responsibility.
e. Trade Contractor is responsible for their own cleanup.
f. Include all cutting and patching required to complete the work.
g. Include protection of underground utilities; locate public and private underground utilities prior to excavation.
h. Include necessary fine grading to allow for placement of seed.
i. Include all safety material necessary to protect personnel in and from open trenches or excavations. Excavations shall be closed as soon as possible.
j. All activities must be coordinated with the Construction Manager.
k. Include all surveying and/or layout for the above Divisions.
l. Includes permitting and connection fees.
m. Includes saw cutting, removal, and repairs of street, pavements, curbs, and walks as required for your scope of work.
n. Remove excess spoils from the site as a result of this scope of work.

BID CATEGORY NO. 4 <u>SITE STABILIZATIONS (GEO-PIERS)</u>

31 66 13 – SHORT AGGREGATE PIER FOUNDATION SYSTEMS L & M

CLARIFICATIONS:

a. Include all labor and materials for above Sections unless noted otherwise.
b. Coordinate all work with other Trade Contractors as required.
c. All temporary barricades, enclosures and protection are this Trade Contractors responsibility.
d. All activities must be coordinated with the Construction Manager.
e. Trade Contractor is responsible for their cleanup.

BID CATEGORY NO. 5A <u>SITE CONCRETE</u>

32 13 13 – PORTLAND CEMENT CONCRETE PAVING L & M
32 17 26 – TACTILE WARNING SURFACES L & M
07 92 00 - JOINT SEALANTS (as associated with Bid Category) L & M

CLARIFICATIONS:

a. Includes exterior flatwork, curbs, gutters, walks, drive through, and stoop slabs
b. Includes associated layout/surveying
c. Includes fine grading
d. Includes saw-cutting concrete where new concrete abuts existing concrete
e. Includes street cleaning during activities for this contract
f. Includes caulking of construction joints associated with site concrete
g. Includes traffic control measures, safety barricades as it relates to your scope of work
h. Includes multiple mobilizations to accommodate phased construction – see schedule.
i. All activities must be coordinated with the Construction Manager.

Exclusions:

a. Sign Foundation and light pole bases
b. Aggregate Base Course
c. Concrete Stoop Foundations, Retaining Walls, and concrete within the building footprint
d. Asphalt Paving
e. Site Utilities

BID CATEGORY NO. 5B CONCRETE FOUNDATIONS

03 10 00 – CONCRETE FORM WORK	L & M
03 20 00 – CONCRETE REINFORCEMENT	L & M
03 30 00 – CAST – IN – PLACE CONCRETE	L & M
07 92 00 - JOINT SEALANTS (as associated with Bid Category)	L & M

CLARIFICATIONS:

a. Includes associated layout/surveying
b. Includes traffic control measures, safety barricades as it relates to your scope of work
c. Includes multiple mobilizations to accommodate phased construction – see schedule.
d. Includes all foundation insulation as called for on drawings.
e. All activities must be coordinated with the Construction Manager.

BID CATEGORY NO. 5C CONCRETE FLATWORK

03 10 00 – CONCRETE FORM WORK	L & M
03 20 00 – CONCRETE REINFORCEMENT	L & M
03 30 00 – CAST – IN – PLACE CONCRETE	L & M
07 92 00 - JOINT SEALANTS (as associated with Bid Category)	L & M

CLARIFICATIONS:

a. Includes associated layout/surveying
b. Includes traffic control measures, safety barricades as it relates to your scope of work
c. Includes multiple mobilizations to accommodate phased construction – see schedule.
d. Includes all insulation as called for on drawings.
e. All activities must be coordinated with the Construction Manager.

BID CATEGORY NO. 6 Asphalt Paving

32 12 16 – ASPHALT PAVING	L & M
32 17 23 – PAVEMENT MARKINGS	L & M

CLARIFICATIONS:

a. Includes associated layout/surveying relative to your scope
b. Includes fine grading
c. Includes saw-cutting asphalt where new asphalt abuts existing paving
d. Includes street cleaning during activities for this contract

e. Includes traffic control measures, safety barricades relative for this scope of work
f. Includes parking lot striping
g. Includes parking signs/posts
h. Includes phased mobilizations
i. All activities must be coordinated with the Construction Manager.

Exclusions:

a. Crushed Aggregate Base Course
b. Site Concrete
c. Site Utilities

BID CATEGORY NO. 7 LANDSCAPING

32 33 00 – SITE FURNISHINGS	L & M
32 91 19 – LANDSCAPE FINISH GRADING	L & M
32 92 00 – TURF AND GRASSES	L & M
32 93 00 – PLANTS	L & M

CLARIFICATIONS:

a. Includes fine grading
b. All activities must be coordinated with the Construction Manager.

END OF SECTION 00 24 19

AVAILABLE PROJECT INFORMATION

USING THE PROJECT MANUAL

The information contained in this Project Manual has been organized utilizing MASTERFORMAT, 2014 Edition, a publication jointly produced by the Constructions Specifications Institute (CSI) and Construction Specifications Canada (CSC).

The Project Manual consists of three major parts:

Procurement Requirements
Contracting Requirements
Specifications

Specifications have been divided into 33 Divisions. Note that not all Divisions are necessarily used.

The Divisions are further divided into Sections classifying work results.

Work and requirements are specified in particular Divisions and Sections according to the TYPE of Work to be furnished NOT according to trade jurisdiction nor local practices.

NOTICE TO BIDDERS

The following information regarding drawings of existing building, site survey, and subsurface conditions was obtained or otherwise acquired by the Owner for his use. It is presented here to aid the Bidder in the preparation of his bid.

Neither Owner, Construction Manager or Architect warrant the accuracy of this information, which has been furnished or prepared by other parties. Bidders should verify this information prior to submitting their bid.

DRAWINGS OF EXISTING BUILDING

Drawings of the existing building are available for bidders review. They may not be complete or current with any remodelings. Drawings are available for review at the Architect's office from 8:00 A.M. to 5:00 P.M., Monday through Friday.

SITE SURVEY

A survey of the Project Site dated March 25, 2016 has been prepared under the direction and control of Point of Beginning, and is included in the set of Drawings. The A/E makes no warranty or representation with reference to the accuracy and completeness of the existing conditions indicated or not indicated on the survey. Bidders shall submit all questions about the survey to the Owner, in writing.

SUBSURFACE INVESTIGATION

A geotechnical report has been conducted by American Engineering Testing, Inc. for the Owner. The written report and soil boring records consisting of 54 pages is bound immediately following.

End of Available Project Information

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AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

September 14, 2010

Mr. David Alleman, County Clerk
Vilas County Courthouse
330 Court Street
Eagle River, Wisconsin 54521

RE: Report of Geotechnical Exploration
Vilas County Courthouse Expansion
330 Court Street
Eagle River, Wisconsin
AET Project No. 16-03641

Dear Mr. Alleman:

Following your acceptance of our proposals of July 2 and July 22, 2010, we have completed the geotechnical exploration for the above-referenced project. In this report we present the results of our field exploration program and our recommendations for earthwork and foundation design and construction. We are submitting copies of this report to you, The Samuels Group, Arnold & O'Sheridan Inc., and Potter Lawson Inc. This report is the instrument of service defined in our proposal.

We have enjoyed working with you on this phase of the project. If you have questions about this report or if we can be of further assistance, please contact us.

Sincerely,

American Engineering Testing, Inc.

Benjamin B. Mattson, P.E.
Geotechnical Engineer
Registered Professional Engineer, Wisconsin

Gregory C. Owens, P.G.
AET Wausau – Geotechnical Manager
Registered Professional Geologist, Wisconsin

Report of Geotechnical Exploration
Vilas County Courthouse Expansion
330 Court Street
Eagle River, Wisconsin

AET Project No. 16-03641

September 14, 2010

Prepared for:

Mr. David Alleman, County Clerk
Vilas County Courthouse
330 Court Street
Eagle River, Wisconsin 54521

Prepared by:

American Engineering Testing, Inc.
4203 Schofield Avenue
Schofield, Wisconsin 54476
(715) 359-3534/www.amengtest.com

Report Authored By:

Benjamin B. Mattson, P.E.
Geotechnical Engineer
Registered Professional Engineer, Wisconsin
License # 41085

Review Conducted By:

Gregory C. Owens, P.G.
AET Wausau Geotechnical Manager
Registered Professional Geologist, Wisconsin

William C. Kwasny, P.E.
Principal Engineer
Registered Professional Engineer, Wisconsin

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin

Print Name: William C. Kwasny

Signature:

Date: 9-8-10 License #: 13083

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE
THE BEST PEOPLE ON EARTH

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

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REPORT OF GEOTECHNICAL EXPLORATION
VILAS COUNTY COURTHOUSE EXPANSION
330 COURT STREET
EAGLE RIVER, WISCONSIN
AET PROJECT NO. 16-03641

1.0 INTRODUCTION

Vilas County is proposing to construct an addition off the south side of the existing Vilas County Courthouse at 330 Court Street in Eagle River, Wisconsin. The 12,800 square foot addition is currently proposed to consist of three stories with no basement; however, a basement may be added to the project. The addition will have an at-grade first floor level and will abut a portion of the south wall of the existing building. The lower floor of the existing building is several feet lower than the proposed addition at-grade level.

Mr. Steve Roloff, P.E., of Arnold & O'Sheridan, told us that the maximum anticipated interior and exterior column loads are 490 kips and 260 kips, respectively, and the maximum anticipated bearing wall load is 13 kips per linear foot. Mr. Roloff also told us that the addition layout might be reconfigured, resulting in maximum anticipated interior and exterior column loads of 325 kips and 180 kips, with maximum anticipated bearing wall loads of 10 kips per linear foot.

The expansion plans include the construction of an at-grade one-story maintenance building near the center of the complex and the possible construction of stormwater detention basins. Although no details are currently available for the proposed maintenance building, we anticipate wall loads of about 2 kips per linear foot and floor loads of up to about 300 pounds per square foot.

2.0 SCOPE OF SERVICES

Our scope of services for geotechnical exploration was limited to the following elements:

- Drill and sample four addition borings to depths of 66 to 81 feet;
- Drill and sample one maintenance building boring to a depth of 20 feet;
- Drill and sample three stormwater basin borings to depths of 15 feet;

- Submit recovered soil samples to our laboratory for examination and final classification by a geotechnical engineer, and preparation of boring logs; and
- Prepare this geotechnical report.

We prepared this report to describe the soil and groundwater conditions encountered in our subsurface exploration; to review and evaluate these conditions with respect to the proposed project; and to present recommendations for feasible methods of foundation and earthwork design and construction.

3.0 APPROPRIATE USE OF GEOTECHNICAL REPORT

The purpose of this report is to provide geotechnical engineering recommendations. In this report we give a generalized overview of the soil conditions that we used in developing these recommendations. As discussed in the enclosed *ASFE Notes*, which are an integral part of this report, our report and soil boring information are not to be relied on by any parties for purposes other than geotechnical recommendations. This report is not to be used as the sole basis to establish firm bid quantities by excavators or other parties. Variations in subsurface conditions were found to exist between the borings, and the stratification lines noted on the borings are approximate.

Bid quantity estimation by "averaging" depths and strata changes from boring logs is not permitted. Too many variations exist for such "averaging" to be valid, particularly in the depth of existing fill; the type of fill and whether it contains debris; the soil types and condition; the depth and excavatability of cobbles/boulders or buried demolition debris; and groundwater conditions. The subsurface conditions shown on the boring log with this report represent those at the time of drilling; these conditions can change, particularly the groundwater levels and the moisture condition of the soils.

A different scope of professional services would be required to obtain subsurface information

needed for earthwork bid preparation. This scope could include additional borings, and possibly test pits. Even with this additional information, contingencies should always be carried in construction budgets to cover variations in subsurface conditions. Soil borings cannot present the same full-scale view that is obtained during complete site grading, excavation, or other aspects of earthwork construction.

These services are intended for geotechnical purposes. The scope is not intended to explore for the presence or extent of environmental contamination.

4.0 AVAILABLE GEOTECHNICAL INFORMATION

No existing geotechnical reports for the Vilas County Courthouse or adjoining additions have been given to us; it is our understanding that none are available. If any such reports are located, we ask that you please provide us with a copy. These reports may provide information on the history of the site and additional subsurface information.

5.0 SUBSURFACE EXPLORATION AND TESTING

5.1 Field Exploration Program

Before we drilled, we contacted Diggers Hotline to locate public underground utilities on the project site. We drilled eight borings for this project on July 14 and 15, 2010 (B-1 through B-8). The number, locations, and depths of these borings were specified by Arnold & O'Sheridan. We had to offset some of the boring locations due to trees, underground utilities, and other site access constraints. We returned to the site on July 29 and 30, 2010 to drill borings B-1 through B-4 to greater depths.

MSA Professional Services, Inc. surveyed the ground surface elevations (in National Geodetic Vertical Datum, NGVD) and the as-drilled boring locations. The boring locations are shown on Figure 1 in Appendix A of this report.

We drilled the borings with a truck-mounted CME 55 rig, using hollow-stem augers and mud rotary drilling techniques. We sampled the soil using the split-barrel method (ASTM D1586). Our drill crew kept field logs noting the methods of drilling and sampling, along with Standard Penetration values (N-values, "blows per foot"), preliminary soil classifications, and observed groundwater levels. Representative portions of the recovered samples were sealed in jars to reduce moisture loss, and submitted to our laboratory for review and final classification by a geotechnical engineer. Upon completion of the drilling, we backfilled the boreholes with bentonite chips to comply with Wisconsin Administrative Code NR 141.

5.2 Laboratory Classification and Testing

The laboratory classification was initiated by a geotechnical engineer examining each of the recovered soil samples to assess the major and minor soil components, while also noting the color, degree of saturation, and lenses or seams found in the samples. We visually/manually classified the recovered soil samples in accordance with the Unified Soil Classification System (USCS). The capital letters in parentheses following the written soil descriptions on the boring logs are the estimated group symbols based on this system. A chart describing this classification system is included in Appendix A of this report.

We grouped the soils by type into the strata shown on the boring logs. The stratification lines shown on the log are approximate; *in-situ*, the transition between soil types may be gradual or abrupt in the horizontal and vertical directions.

We will retain the soil samples from this program for 30 days after the date of this report. If you wish to have the samples retained beyond this time, we ask that you please advise us.

6.0 SITE CONDITIONS

6.1 Surface Features/Topography

The Vilas County Courthouse complex is located at 330 Court Street in Eagle River, Wisconsin. In addition to the Courthouse, the complex includes the attached Justice Center (i.e. jail) and the attached Social Services Building. Parking and lawn areas surround the buildings.

Based on our observations and discussions with Mr. Gene Levelle, Vilas County Maintenance Supervisor, the existing buildings are showing signs of inadequate foundation support and excessive settlement. Mr. Levelle showed Mr. William Anderson, P.E., of AET, the original (1936) courthouse and other facility buildings; the original courthouse appears to be experiencing the fewest signs of poor structural performance. The Justice Center bears on a mat foundation, but neither Mr. Levelle nor the project team knows the foundation type(s) for the courthouse or other additions. A building condition survey was beyond our scope of services.

The ground surface in the addition area is relatively flat, with elevations ranging from about 1637 feet to 1639 feet. The ground surface elevation at the proposed maintenance building boring location is about 1638 feet, and the ground surface elevation at the stormwater basin borings ranges from about 1635 feet to 1639 feet.

6.2 Subsurface Conditions

The soil conditions we found in the borings are shown on the logs in Appendix A of this report. The conditions that we describe and discuss in this report are pertinent only at the boring locations and under the environment at the time of our field exploration.

We encountered fill or possible fill to depths of 4.5, 2, 9.5, 2, and 4.5 feet in borings B-1, B-4, B-5, B-6, and B-7. The fill in these borings consisted of sand, sand with silt, and silty sand. In our opinion the fill was <u>not</u> placed with the intent of supporting future construction and is not

uniform in density.

The naturally-occurring soils below the fill consisted of fine alluvium, coarse alluvium, mixed alluvium, and glacio-lacustrine deposits. The borings encountered a combination of coarse, fine, and mixed alluvium from the ground surface to a depth of about 12 feet to 17 feet.

Glacio-lacustrine deposits were encountered underlying the alluvium to a depth of about 55.5 to 62 feet. The glacio-lacustrine deposits consisted of silty clay, clayey silt, and lean clay, and were soft to firm, with N-values ranging from 2 to 6. One sample was stiff, with an N-value of 12, at a depth of about 55 feet in boring B-1.

Deeper coarse alluvium was encountered in borings B-1, B-2, B-3, and B-4, underlying the glacio-lacustrine deposits. The deeper coarse alluvium consisted of silty sand to sand with gravel, and was medium dense to very dense, with N-values ranging from 16 to 75.

6.3 Groundwater

We encountered groundwater at depths ranging from 6.9 feet to 9.2 feet while drilling with augers in the borings for this exploration, before bentonite drilling fluid was added. These depths correspond to a groundwater table elevation of about 1630 feet. The groundwater tables, perched and hydrostatic, will vary in elevation seasonally and annually depending on local amounts of precipitation, infiltration, and surface runoff. Groundwater elevations are generally lower in late winter and early spring due to the absence of surface infiltration, and tend to rise in the spring and summer.

It was beyond our scope of services to perform long-term monitoring of the groundwater level, to perform a hydrologic study. However, we recommend using a long-term high groundwater table elevation of 1634 feet.

6.4 Seismic Site Rating

Based on the soil conditions found in our borings, our local experience, and Table 1613.5.2 in the International Building Code (2006), it is our opinion that the project site should be classified as Site Class E.

7.0 REVIEW AND RECOMMENDATIONS

7.1 Discussion

Based on the subsurface conditions found in our borings and on our understanding of the project, it is our opinion that the courthouse addition can be supported on footings bearing on Geopier-improved soils or on augercast pile foundations, after proper site preparation has taken place. We recommend augercast piles rather than driven piles to avoid ground vibrations associated with pile driving.

It is our opinion that the proposed new maintenance building can be supported on conventional footing foundations after proper site preparation has taken place. Alternatively, the maintenance building could be supported on footings bearing on Geopier-improved soils, or on augercast pile foundations.

The primary geotechnical issue at the site is the presence about 50 feet of highly compressible silty clay, clayey silt, and lean clay starting at depths of about 12 to 15 feet. Settlement plates should be installed prior to placement of any new fill (if any new fill is needed), and monitored (by surveying) after the completion of fill placement. No Geopiers, augercast piles, or other foundation or structural elements should be installed until the settlement caused by the grade raise is complete. The settlement should be completed prior to the construction of Geopiers or piles to reduce the potential for downdrag forces on the foundation elements. We estimate that the time required for this settlement to occur may be on the order of several weeks to several

months. To avoid this delay and risk, we recommend the design avoid raising site grades, or using a structural slab with the pile alternative.

Because the long-term high groundwater table is estimated to be 3 to 5 feet below the existing ground surface (elevation 1634 feet), the basement should be designed as a waterproof structure, if you elect to build a basement. The basement walls would have to be designed to resist horizontal hydrostatic pressures in addition to earth pressures, and the foundation and basement floor would have to be designed to resist uplift pressures.

7.2 Site Preparation

Courthouse Addition

With either Geopiers or augercast piles it will not be necessary to carry out complete soil correction under the Courthouse addition, i.e., the removal and replacement of all fill and loose/soft soils found in the borings. All concrete and topsoil should be removed from within the addition footprint, extending to a distance of at least 10 feet beyond the perimeter of the new building walls. Minor underground utilities such as telephone, electrical lines, and fiberoptic cables could be left in place, after being de-energized. Pipes such as sewer and water lines could be shut off, filled with grout, and left in place if they do not interfere with the Geopier or pile installation. If they do interfere, they should be dug up and backfilled.

If no basement will be included, the earthwork contractor should compact the exposed ground surface with a vibratory smooth-drum roller having a static weight of at least 20,000 pounds, following removal all concrete, topsoil, and utilities as described above. The contractor should apply at least eight passes of the roller over the base soils (four forward and four reverse).

If a basement is included in the proposed addition, the earthwork contractor must be careful in excavating because we anticipate that the soils exposed at the bottom of the excavation will be

highly susceptible to disturbance from traffic of construction equipment and workmen, especially when the soils are saturated. We recommend excavating with the final 2 feet to be removed with a backhoe having a smooth-edge bucket (rather than a toothed bucket). The purpose of this is to avoid tearing the base soils and causing disturbance to the native soils. Disturbed base soils will have to be overexcavated and removed, or recompacted in place.

Dewatering will be needed if any part of the excavation extends below the water table; see Section 8.1 for dewatering recommendations. Additionally, dewatering may be needed to control perched water or runoff from precipitation that may be encountered in excavations.

If a basement is included, the contractor should place a "mud mat" of lean concrete 3 inches thick over the base soils after the basement excavation is complete, to protect the subgrade soils from disturbance. The "mud mat" should extend at least 1 foot beyond the edges of the addition. The subgrade soils should be inspected by an experienced geotechnical engineer prior to "mud mat" placement. The contractor is responsible for maintaining an undisturbed, suitable subgrade.

Maintenance Building

In order to use conventional footing foundations to support the maintenance building, all existing fill should be subcut after surface concrete, topsoil, and existing underground utilities have been removed from the building footprint. We recommend that the zone of subcutting be laterally extended at least 10 feet beyond the outside edge of the perimeter footings for the maintenance building. If the subcutting extends below the proposed bottom of new foundation grade, the excavation base and resultant compacted fill system must be oversized laterally beyond the planned outside edges of the foundations to properly support the lateral loads exerted by that foundation. This lateral fill zone should at least be equal to the vertical depth of fill below bottom of perimeter footings needed to attain foundation grade at that location (i.e., 1:1 lateral oversize).

We encountered up to 9.5 feet of fill in boring B-5. This fill consisted of sand with silt and gravel to silty sand, with trace amounts of clay brick, metal, and pieces of bituminous pavement. The boring was located about 20 feet from the nearest corner of the proposed maintenance building, and lesser or greater amounts of fill may exist within the proposed footprint than found at the boring.

Alternatively, the maintenance building could be supported on footings bearing on Geopier-improved soils, or on augercast pile foundations after proper site preparation has taken place. If Geopiers or augercast piles are used, the existing fill could be left in place, following removal of all concrete, topsoil, and underground utilities from within the building footprint.

Excavations

The side wall slopes for all excavations on this project must comply with OSHA regulations. We recommend that the soils on the site be classified as OSHA Type C, but the final decision of the OSHA soil type must be made by the earthworks contractor's "competent person." For design and estimating purposes, we recommend that the side walls of this excavation be planned at no steeper than 1.5:1 (horizontal:vertical).

Care must be taken during the excavation procedures to avoid undermining existing structures. Where it is not possible to maintain an excavation backslope of at least 1.5:1 (horizontal:vertical), a retention or underpinning system will be required. The design of such a system is beyond our scope of services. As previously stated, the existing foundation types are unknown.

Dewatering will be needed if any part of the excavation extends below the water table; see Section 8.1 for dewatering recommendations. Additionally, dewatering may be needed to control perched water or runoff from precipitation.

Structural Fill

If sand or silty sand is made available through site grading, it may be used as structural fill; it is beyond our scope of services to calculate how much sand or silty sand would be made available through site grading, and importing fill may be required. Any imported fill should meet the gradation of WisDOT 209, Grade 1, with no cobbles or boulders. Soils such as uniformly graded very fine to fine sand, crushed sandstone, very silty sand, clayey sand, or any type of cohesive soil should not be used for the building pad fill. If the contractor proposes a material different from WisDOT 209 Grade 1, he should submit a sample to AET for gradation tests at least four weeks before the construction begins, for review and assessment by a geotechnical engineer.

Fill intended to support the new construction should be placed in loose lifts 8 to 10 inches thick, with each lift mechanically compacted to at least 95% of the maximum Modified Proctor dry density (ASTM D1557). We recommend that field density testing be performed as the fill is placed (not after the fill is placed to planned grade).

7.3 Foundation Design

7.3.1 Courthouse Addition

After the site has been prepared as described in Section 7.2, the courthouse addition may be supported on footings bearing on Geopier-improved soils, or on augercast pile foundations. Discussion of Geopiers and augercast piles is provided below.

Geopier Foundation System

The Geopier system is an intermediate design-build soil reinforcement system that may be used to support structures as an alternative to soil over-excavation and deep foundations (piles and caissons). The system allows the use of conventional spread footings and floor slabs cast on-grade, and typically provides settlement control to within ¾ to 1 inch or less.

Geopiers (also known as Rammed Aggregate Piers, RAPs) are installed by ramming 1-foot thick lifts of aggregate into a cavity (shaft) that is created by either drilling or displacement methods. The rammed aggregate lifts form a very stiff, high-density composite aggregate pier. The first lift of aggregate forms a bulb below the bottoms of the piers thereby pre-stressing and pre-straining the soils to a depth equal to at least one pier diameter below the pier.

Ramming takes place with a high-energy beveled tamper or mandrel that both densifies the aggregate and forces the aggregate laterally into the sidewalls of the shaft. This action increases the lateral stress in surrounding soil thereby further stiffening the stabilized composite soil mass. The result of RAP installation is a significant strengthening and stiffening of subsurface soils that can then support floor slabs and spread footings. After reinforcement with the Geopier system, the foundations may be designed as conventional spread footings,

Please contact Mr. Steve Weyda, P.E. of *Geopier* Foundation Company – Midwest at (262) 628-1663 regarding the final system design, including the allowable foundation bearing pressure, *Geopier* shaft lengths and spacing, anticipated floor slab thickness, and a cost to install RAPS for your building. Mr. Weyda had provided a preliminary estimated allowable bearing pressure of 4,000 pounds per square foot after Geopiers are installed for the Courthouse addition. The strip footings should have a minimum width of 30 inches.

If the *Geopier* system is selected, Quality Assurance Testing should be performed during installation, including documentation of the soil conditions encountered, the shaft lengths, the amount of aggregate used, and tests on the compacted aggregate lifts.

Augercast Pile Foundation System

Augercast piles are deep foundation elements that transfer the column and bearing wall loads, and floor loads, through the compressible soils to suitable load-bearing soils. Augercast piles are constructed by drilling a shaft to a predetermined depth, followed by pressurized placement of

grout through the drill stem as the auger is withdrawn. After the shaft is filled with grout and the auger has been withdrawn, a reinforcing steel cage is typically inserted into the grout.

We estimate that 20-inch diameter augercast piles bearing at a depth of about 65 to 70 feet below existing grade would have an allowable capacity of 50 tons per pile, based on a factor of safety of 2 with respect to ultimate capacity. However, the augercast pile contractor should select the final design capacity and be required to perform one vertical load test to verify their selected capacity.

The contractor should maintain a concrete head of at least 10 feet above the bottom of the auger as the auger is being withdrawn to reduce squeezing-in of the shaft sidewalls.

7.3.2 Maintenance Building

Conventional Footing Foundation

If all existing fill is removed and replaced with compacted fill as described in Section 7.2, the new maintenance building may be supported on conventional spread footing foundations. If this building will be heated year-round, we recommend that the bottom of perimeter footings for this building bear at least 5 feet below final outside grade for protection from frost penetration. If the building will not be heated year-round, the perimeter footings should bear at least 6 feet below final outside grade

At these depths of embedment, we anticipate the footings for the new building would bear on compacted granular backfill placed as described above over a suitable subgrade. We recommend using a maximum allowable design bearing pressure of 2,000 pounds per square foot to proportion the footing sizes. The maximum allowable design bearing pressure refers to the pressure that may be transmitted to the bearing stratum in excess of the pressure from the surrounding depth of overburden. The factor of safety with respect to soil bearing capacity for this design will be at least 3.

We recommend that continuous wall footings for this building have a minimum width of 2 feet to avoid excessively narrow footings. With this design we estimate that maximum building settlement would be in the range of ¾ inch to 1 inch, with differential settlement about half this amount, if the bearing soils are not soft, wet, disturbed, or frozen at the time of construction.

Geopier and Augercast Pile Foundation Systems

If the existing fill is left in place, the maintenance building may be supported on footings bearing on Geopier-improved soils, or on augercast pile foundations. The recommendations in Section 7.3.1 also apply to the maintenance building.

7.4 Interior Floor Slab Subgrades

With the Geopier option, the first floor slab may be cast on-grade. We recommend using a modulus of subgrade reaction of 200 pounds per square foot for design of the slab.

With the pile option, we recommend using a structural slab, that is, a slab supported on grade beams and pile caps to avoid the risk of excessive settlement, especially with the building frame supported on piles.

We recommend placement of a vapor retarder under the first floor slab. The purpose of a vapor retarder is to reduce the potential for the upward migration of water vapor from the soil into and through the concrete slabs. Water vapor migrating upward through the slabs can damage floor covering such as tile, carpeting, or wood, and can contribute to excess humidity and possible microbial growth in the building.

For additional recommendations on moisture and vapor protection of floor slabs, please refer to the standard sheet in Appendix A of this report entitled "Floor Slab Moisture/Vapor Protection" and Part 2, Section 302 of the ACI *Manual of Concrete Practice*. There is also a commentary in the April 2001 issue of *Concrete International* on alternative methods of vapor retarder

construction. We also recommend that the specifications require the manufacturer's representative of the specified floor coverings or coatings to test the concrete floor slab before any coatings or coverings are placed and submit his approval in writing.

7.5 Exterior Slabs

Where exterior slabs and sidewalks abut the building, we recommend that silty and clayey soils be subcut to a depth of 4 feet below bottom of slab and replaced with non-frost susceptible (NFS) granular fill. This NFS fill subbase layer should consist of sand or a sand and gravel mix having less than 5% passing the No. 200 sieve. The purpose of this is to reduce the potential for the characteristic heave that can occur when silty or clayey soils freeze each winter. The subbase and base course should be compacted to at least 97% of the maximum Modified Proctor Density.

7.6 Basement Wall Backfilling and Drainage

If a basement is included, it should be designed as a waterproofed structure. We recommend that wall backfill material consist of free-draining sand to facilitate drainage water flow to the drainpipes. Silty sand or clayey sand should not be permitted as exterior wall backfill. Wall backfill should be placed in loose lifts about 6 inches thick and should be compacted to at least 93% of the maximum Modified Proctor dry density using only manually-operated equipment. When supporting sidewalks, slabs, or other such features, the backfill should be compacted to at least 95% of the maximum Modified Proctor dry density.

Heavy towed or self-propelled compaction equipment should not be used for backfill compaction within 6 feet of new walls, in order to avoid imparting permanent lateral stresses on the walls. Rather, manually-operated vibratory or impact compaction equipment should be used. Prior to beginning wall backfilling operations, the contractor should confirm with the project structural engineer that the wall concrete has gained sufficient strength to resist the lateral loading.

We anticipate that the exterior basement walls would be sufficiently rigid that they would not

yield or translate a sufficient amount to develop the full active earth condition. Thus, we recommend designing the below-grade walls for the partly mobilized active earth condition. For wall backfill, we recommend using an equivalent fluid pressure of 100 pounds per cubic foot, which includes soil and hydrostatic pressure.

We recommend placing a perimeter drain around the basement outside the basement walls, with underfloor leads spaced no farther apart than 20 feet. The drainpipes with a minimum diameter of 4 inches and factory-wrapped in a geofabric sock, should lead to a sump pit in the basement. The sump should have two pipes in case one becomes inoperative. The granular cushion under the slab and as backfilled around and above the perimeter drain should be free-draining, having less than 5% passing the No. 200 sieve.

7.7 Earth Pressures and Coefficients of Sliding

As of the date of this report, no information is available regarding below-grade walls or retaining walls for the project, other than the possible basement described previously. Active, passive, and at-rest earth pressures and coefficients of sliding depend on the location, elevation, and type of structure for which these values are needed. Please contact us if any structures are added to the project that will require these values for design so that we can discuss them with the structural engineer.

7.8 Temporary Soil Retention Systems

If a basement will be constructed adjacent to the existing building, a soil retention and underpinning system may be required, depending on the depth and foundation type of the existing building, which is currently unknown. We recommend that a soldier pile system be designed and constructed by a specialty design-build contractor. Soil nail or sheet pile systems would not be suitable for the soil types encountered at this site.

8.0 CONSTRUCTION CONSIDERATIONS

8.1 Groundwater

Dewatering will be needed if any part of the excavation extends below the water table. Additionally, it is possible that perched groundwater could be encountered during construction due to infiltrating precipitation. If water is encountered in the excavations for foundations and/or utilities, it should be promptly pumped out before compacted fill or concrete are placed. The contractor should not be allowed to place fill or concrete into standing water, or over softened soils in an attempt to displace these materials. This technique can result in trapping softened soils under footings, utilities, or pavements, resulting in excessive post-construction settlement, even if the softened zone is only a few inches thick.

If the excavation does not extend below the water table, we anticipate that pit and sump methods will be adequate for control of perched water.

If the excavation extends below the water table, we anticipate that pit and sump methods will not be adequate for groundwater control; well points, along with "mop-up" sump pits, will likely be needed. However, the depth of dewatering should be limited as much as possible, because the increased effective stress caused by dewatering can induce settlement, which would be transferred to the existing buildings. An experienced dewatering engineer should design the dewatering system.

8.2 Equipment Selection/Soil Disturbance

The soil types at this site can be easily disturbed by construction equipment, especially when the soils are saturated or during freeze/thaw conditions. It is the earthwork contractor's responsibility to choose equipment and work procedures that will not disturb the subgrade soils. The contractor should also route construction traffic away from prepared foundation soils and areas of pavements and slabs, to avoid soil disturbance.

If the equipment the contractor selects causes disturbance of the soils, it is the contractor's responsibility to switch to other types of equipment and/or earthwork methods. The responsibility to properly select construction equipment to avoid disturbing the soils on this site lies solely with the contractor. A note to this effect should be included in the project specifications.

8.3 Uncontrolled Fill

As previously discussed, we encountered up to 9.5 feet of fill in our borings. The design team and contractor should expect that other areas of fill may be encountered during construction; any additional areas of encountered fill might affect construction and will need to be reviewed by a geotechnical engineer.

8.4 Winter Construction

Only unfrozen fill and backfill should be used, and contractors may charge extra for importing unfrozen soil or keeping soil from freezing. Placement of fill and/or foundation concrete must **not** be permitted on frozen soil, nor should bearing soils under grade beams or slabs be allowed to freeze after concrete is placed, because excessive post-construction settlement could occur as the frozen soils thaw. We strongly recommend that the issue of winter construction be discussed at a pre-construction meeting, and that the general contractor and subcontractors be required to submit their plans for winter construction in writing, for earthwork, concrete, masonry, and steel.

8.5 Construction Safety

All excavations on this project must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." This document states that excavation safety is solely the responsibility of the contractor; the decisions regarding safe slopes on the project are to be made by the contractor's "competent person." Reference to this OSHA requirement should be included in the job specifications. The responsibility to provide safe working conditions on the site, for earthwork, building construction, or any associated operations, is not borne in any manner by

American Engineering Testing, Inc.

8.6 Construction Testing

The recommendations in this report are based on the subsurface conditions found at our test boring locations. Since soil conditions can vary away from the boring locations, we recommend that the project owner retain the services of a geotechnical/material engineering firm to provide observation and testing during construction, including foundations soils observations and backfill compaction testing.

We welcome the opportunity to provide the observation and testing services for this project.

9.0 GENERAL QUALIFICATIONS

This report has been prepared based on the soil and groundwater conditions found in the eight borings that we drilled, and on the available information regarding the design of the structure. The information that we describe and discuss in this report is intended solely for this project at the specific locations discussed. If there are any changes in size, scope, elevation, structural loads, use or nature of the building from those outlined in the Introduction of this report, or if our understanding of the project is incomplete or incorrect, it is necessary that you contact us so we can review our recommendations to determine they are applicable. If we are not contacted and authorized to review such changes, then the recommendations in this report will not be valid.

We determined the soil and groundwater conditions at eight locations on the site. Variations in the subsurface conditions were encountered; and it is likely that additional variations exist that cannot be determined from our borings or from our site reconnaissance. These variations would not become visible until excavated is started. No warranty, express or implied, is presented in this report with respect to the soil and groundwater conditions found in our five borings. We strongly recommend that additional borings be drilled once the new building footprint and location are finalized.

10.0 ASTM STANDARDS

When we refer to an ASTM Standard in this report, we mean that our services were performed in general accordance with that standard. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

11.0 STANDARD OF CARE

We have endeavored to provide our engineering services for this project in accordance with the local standard of practice for geotechnical and material engineers. Other than this, no warranty, express or implied, is intended.

Appendix A

AET Project No. 16-03641

Geotechnical Field Exploration and Testing
Boring Log Notes
Unified Soil Classification System
Figure 1: Boring Locations
Subsurface Boring Logs
Excavation and Refilling for Structural Support
Floor Slab Moisture/Vapor Protection
Freezing Weather Effects on Building Construction

Appendix A
Geotechnical Field Exploration and Testing
AET Project No. 16-03641

A.1 FIELD EXPLORATION

The subsurface conditions at the site were explored by drilling and sampling eight standard penetration test borings. The locations of the borings appear on Figure 1, preceding the Subsurface Boring Logs in this appendix.

A.2 SAMPLING METHODS

A.2.1 Split-Spoon Samples (SS)

Standard penetration (split-spoon) samples were collected in general accordance with ASTM:D1586. The ASTM test method consists of driving a 2-inch O.D. split-barrel sampler into the in-situ soil with a 140-pound hammer dropped from a height of 30 inches. The sampler is driven a total of 18 inches into the soil. After an initial set of 6 inches, the number of hammer blows to drive the sampler the final 12 inches is known as the standard penetration resistance or N-value.

A.2.2 Disturbed Samples (DS)/Spin-up Samples (SU)

Sample types described as "DS" or "SU" on the boring logs are disturbed samples, which are taken from the flights of the auger. Because the auger disturbs the samples, possible soil layering and contact depths should be considered approximate.

A.2.3 Sampling Limitations

Unless actually observed in a sample, contacts between soil layers are estimated based on the spacing of samples and the action of drilling tools. Cobbles, boulders, and other large objects generally cannot be recovered from test borings, and they may be present in the ground even if they are not noted on the boring logs.

Determining the thickness of "topsoil" layers is usually limited, due to variations in topsoil definition, sample recovery, and other factors. Visual-manual description often relies on color for determination, and transitioning changes can account for significant variation in thickness judgment. Accordingly, the topsoil thickness presented on the logs should not be the sole basis for calculating topsoil stripping depths and volumes. If more accurate information is needed relating to thickness and topsoil quality definition, alternate methods of sample retrieval and testing should be employed.

A.3 CLASSIFICATION METHODS

Soil descriptions shown on the boring logs are based on the Unified Soil Classification System (USCS). The USCS is described in ASTM:D2487 and D2488. Where laboratory classification tests (sieve analysis or Atterberg Limits) have been performed, accurate classifications per ASTM:D2487 are possible. Otherwise, soil descriptions shown on the boring logs are visual-manual judgments. Charts are attached which provide information on the USCS, the descriptive terminology, and the symbols used on the boring logs.

The boring logs include descriptions of apparent geology. The geologic depositional origin of each soil layer is interpreted primarily by observation of the soil samples, which can be limited. Observations of the surrounding topography, vegetation, and development can sometimes aid this judgment.

A.4 WATER LEVEL MEASUREMENTS

The ground water level measurements are shown at the bottom of the boring logs. The following information appears under "Water Level Measurements" on the logs:

- Date and Time of measurement
- Sampled Depth: lowest depth of soil sampling at the time of measurement
- Casing Depth: depth to bottom of casing or hollow-stem auger at time of measurement
- Cave-in Depth: depth at which measuring tape stops in the borehole
- Water Level: depth in the borehole where free water is encountered
- Drilling Fluid Level: same as Water Level, except that the liquid in the borehole is drilling fluid

The true location of the water table at the boring locations may be different than the water levels measured in the boreholes. This is possible because there are several factors that can affect the water level measurements in the borehole. Some of these factors include: permeability of each soil layer in profile, presence of perched water, amount of time between water level readings, presence of drilling fluid, weather conditions, and use of borehole casing.

A.5 LABORATORY TEST METHODS

A.5.1 Water Content Tests
Conducted per AET Procedure 01-LAB-010, which is performed in general accordance with ASTM:D2216 and AASHTO:T265.

A.5.2 Atterberg Limits Tests
Conducted per AET Procedure 01-LAB-030, which is performed in general accordance with ASTM:D4318 and AASHTO:T89, T90.

A.5.3 Sieve Analysis of Soils (thru #200 Sieve)
Conducted per AET Procedure 01-LAB-040, which is performed in general conformance with ASTM:D6913, Method A.

A.5.4 Particle Size Analysis of Soils (with hydrometer)
Conducted per AET Procedure 01-LAB-050, which is performed in general accordance with ASTM:D422 and AASHTO:T88.

A.5.5 Unconfined Compressive Strength of Cohesive Soil
Conducted per AET Procedure 01-LAB-080, which is performed in general accordance with ASTM:D2166 and AASHTO:T208.

A.5.6 Laboratory Soil Resistivity using the Wenner Four-Electrode Method
Conducted per AET Procedure 01-LAB-090, which is performed using Soil Box apparatus in the laboratory in general accordance with ASTM:G57

A.6 TEST STANDARD LIMITATIONS

Field and laboratory testing is done in general conformance with the described procedures. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

A.7 SAMPLE STORAGE

Unless notified to do otherwise, we routinely retain representative samples of the soils recovered from the borings for a period of 30 days.

BORING LOG NOTES

DRILLING AND SAMPLING SYMBOLS

Symbol	Definition
B, H, N:	Size of flush-joint casing
CA:	Crew Assistant (initials)
CAS:	Pipe casing, number indicates nominal diameter in inches
CC:	Crew Chief (initials)
COT:	Clean-out tube
DC:	Drive casing; number indicates diameter in inches
DM:	Drilling mud or bentonite slurry
DR:	Driller (initials)
DS:	Disturbed sample from auger flights
FA:	Flight auger; number indicates outside diameter in inches
HA:	Hand auger; number indicates outside diameter
HSA:	Hollow stem auger; number indicates inside diameter in inches
LG:	Field logger (initials)
MC:	Column used to describe moisture condition of samples and for the ground water level symbols
N (BPF):	Standard penetration resistance (N-value) in blows per foot (see notes)
NQ:	NQ wireline core barrel
PQ:	PQ wireline core barrel
RD:	Rotary drilling with fluid and roller or drag bit
REC:	In split-spoon (see notes) and thin-walled tube sampling, the recovered length (in inches) of sample. In rock coring, the length of core recovered (expressed as percent of the total core run). Zero indicates no sample recovered.
REV:	Revert drilling fluid
SS:	Standard split-spoon sampler (steel; 1d" is inside diameter; 2" outside diameter); unless indicated otherwise
SU	Spin-up sample from hollow stem auger
TW:	Thin-walled tube; number indicates inside diameter in inches
WASH:	Sample of material obtained by screening returning rotary drilling fluid or by which has collected inside the borehole after "falling" through drilling fluid
WH:	Sampler advanced by static weight of drill rod and 140-pound hammer
WR:	Sampler advanced by static weight of drill rod
94mm:	94 millimeter wireline core barrel
▼:	Water level directly measured in boring
▽:	Estimated water level based solely on sample appearance

TEST SYMBOLS

Symbol	Definition
CONS:	One-dimensional consolidation test
DEN:	Dry density, pcf
DST:	Direct shear test
E:	Pressuremeter Modulus, tsf
HYD:	Hydrometer analysis
LL:	Liquid Limit, %
LP:	Pressuremeter Limit Pressure, tsf
OC:	Organic Content, %
PERM:	Coefficient of permeability (K) test; F - Field; L - Laboratory
PL:	Plastic Limit, %
q_p:	Pocket Penetrometer strength, tsf (approximate)
q_c:	Static cone bearing pressure, tsf
q_u:	Unconfined compressive strength, psf
R:	Electrical Resistivity, ohm-cms
RQD:	Rock Quality Designation of Rock Core, in percent (aggregate length of core pieces 4" or more in length as a percent of total core run)
SA:	Sieve analysis
TRX:	Triaxial compression test
VSR:	Vane shear strength, remolded (field), psf
VSU:	Vane shear strength, undisturbed (field), psf
WC:	Water content, as percent of dry weight
%-200:	Percent of material finer than #200 sieve

STANDARD PENETRATION TEST NOTES

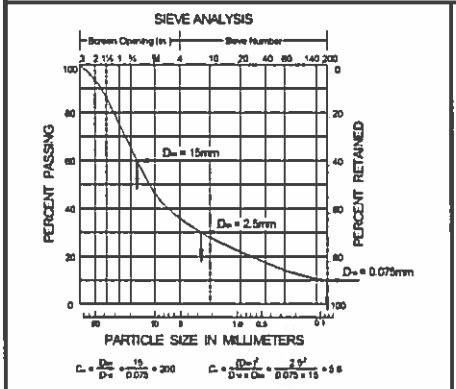
The standard penetration test consists of driving the sampler with a 140 pound hammer and counting the number of blows applied in each of three 6" increments of penetration. If the sampler is driven less than 18" (usually in highly resistant material), permitted in ASTM: D1586, the blows for each complete 6" increment and for each partial increment is on the boring log. For partial increments, the number of blows is shown to the nearest 0.1' below the slash.

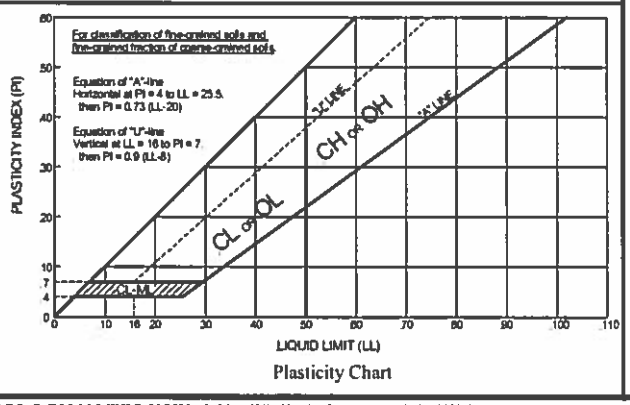
The length of sample recovered, as shown on the "REC" column, may be greater than the distance indicated in the N column. The disparity is because the N-value is recorded below the initial 6" set (unless partial penetration defined in ASTM: D1586 is encountered) whereas the length of sample recovered is for the entire sampler drive (which may even extend more than 18").

UNIFIED SOIL CLASSIFICATION SYSTEM
ASTM Designations: D 2487, D2488

AMERICAN ENGINEERING TESTING, INC.

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[B]
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines[C]	Cu≥4 and 1≤Cc≤3[E]	GW	Well graded gravel[F]
			Cu<4 and/or 1>Cc>3[E]	GP	Poorly graded gravel[F]
		Gravels with Fines more than 12% fines[C]	Fines classify as ML or MH	GM	Silty gravel[F,G,H]
			Fines classify as CL or CH	GC	Clayey gravel[F,G,H]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines[D]	Cu≥6 and 1≤Cc≤3[E]	SW	Well-graded sand[I]
			Cu<6 and 1>Cc>3[E]	SP	Poorly-graded sand[I]
		Sands with Fines more than 12% fines[D]	Fines classify as ML or MH	SM	Silty sand[G,H,I]
			Fines classify as CL or CH	SC	Clayey sand[G,H,I]
Fine-Grained Soils 50% or more passes the No. 200 sieve (see Plasticity Chart below)	Silts and Clays Liquid limit less than 50	inorganic	PI>7 and plots on or above "A" line[J]	CL	Lean clay[K,L,M]
			PI<4 or plots below "A" line[J]	ML	Silt[K,L,M]
		organic	Liquid limit–oven dried / Liquid limit – not dried <0.75	OL	Organic clay[K,L,M,N] / Organic silt[K,L,M,O]
	Silts and Clays Liquid limit 50 or more	inorganic	PI plots on or above "A" line	CH	Fat clay[K,L,M]
			PI plots below "A" line	MH	Elastic silt[K,L,M]
		organic	Liquid limit–oven dried / Liquid limit – not dried <0.75	OH	Organic clay[K,L,M,P] / Organic silt[K,L,M,Q]
Highly organic soil			Primarily organic matter, dark in color, and organic in odor	PT	Peat[R]





Plasticity Chart

Notes

[A]Based on the material passing the 3-in (75-mm) sieve.

[B]If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C]Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

[D]Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

[E]$Cu = D_{60} / D_{10}$, $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F]If soil contains ≥15% sand, add "with sand" to group name.

[G]If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H]If fines are organic, add "with organic fines" to group name.

[I]If soil contains ≥15% gravel, add "with gravel" to group name.

[J]If Atterberg limits plot is hatched area, soils is a CL-ML silty clay.

[K]If soil contains 15 to 29% plus No. 200 add "with sand" or "with gravel", whichever is predominant.

[L]If soil contains ≥30% plus No. 200, predominantly sand, add "sandy" to group name.

[M]If soil contains ≥30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N]PI≥4 and plots on or above "A" line.

[O]PI<4 or plots below "A" line.

[P]PI plots on or above "A" line.

[Q]PI plots below "A" line.

[R]Fiber Content description shown below.

ADDITIONAL TERMINOLOGY NOTES USED BY AET FOR SOIL IDENTIFICATION AND DESCRIPTION

Grain Size

Term	Particle Size
Boulders	Over 12"
Cobbles	3" to 12"
Gravel	#4 sieve to 3"
Sand	#200 to #4 sieve
Fines (silt & clay)	Pass #200 sieve

Gravel Percentages

Term	Percent
A Little Gravel	3% - 14%
With Gravel	15% - 29%
Gravelly	30% - 50%

Consistency of Plastic Soils

Term	N-Value, BPF
Very Soft	less than 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Greater than 30

Relative Density of Non-Plastic Soils

Term	N-Value, BPF
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	Greater than 50

Moisture/Frost Condition (MC Column)

D (Dry): Absense of moisture, dusty, dry to touch.

M (Moist): Damp, although free water not visible. Soil may still have a high water content (over "optimum").

W (Wet/ Waterbearing): Free water visible intended to describe non-plastic soils. Waterbearing usually relates to sands and sand with silt.

F (Frozen): Soil frozen

Layering Notes

Laminations: Layers less than ½" thick of differing material or color.

Lenses: Pockets or layers greater than ½" thick of differing material or color.

Peat Description

Term	Fiber Content (Visual Estimate)
Fibric Peat:	Greater than 67%
Hemic Peat:	33 – 67%
Sapric Peat:	Less than 33%

Organic Description (if no lab tests)

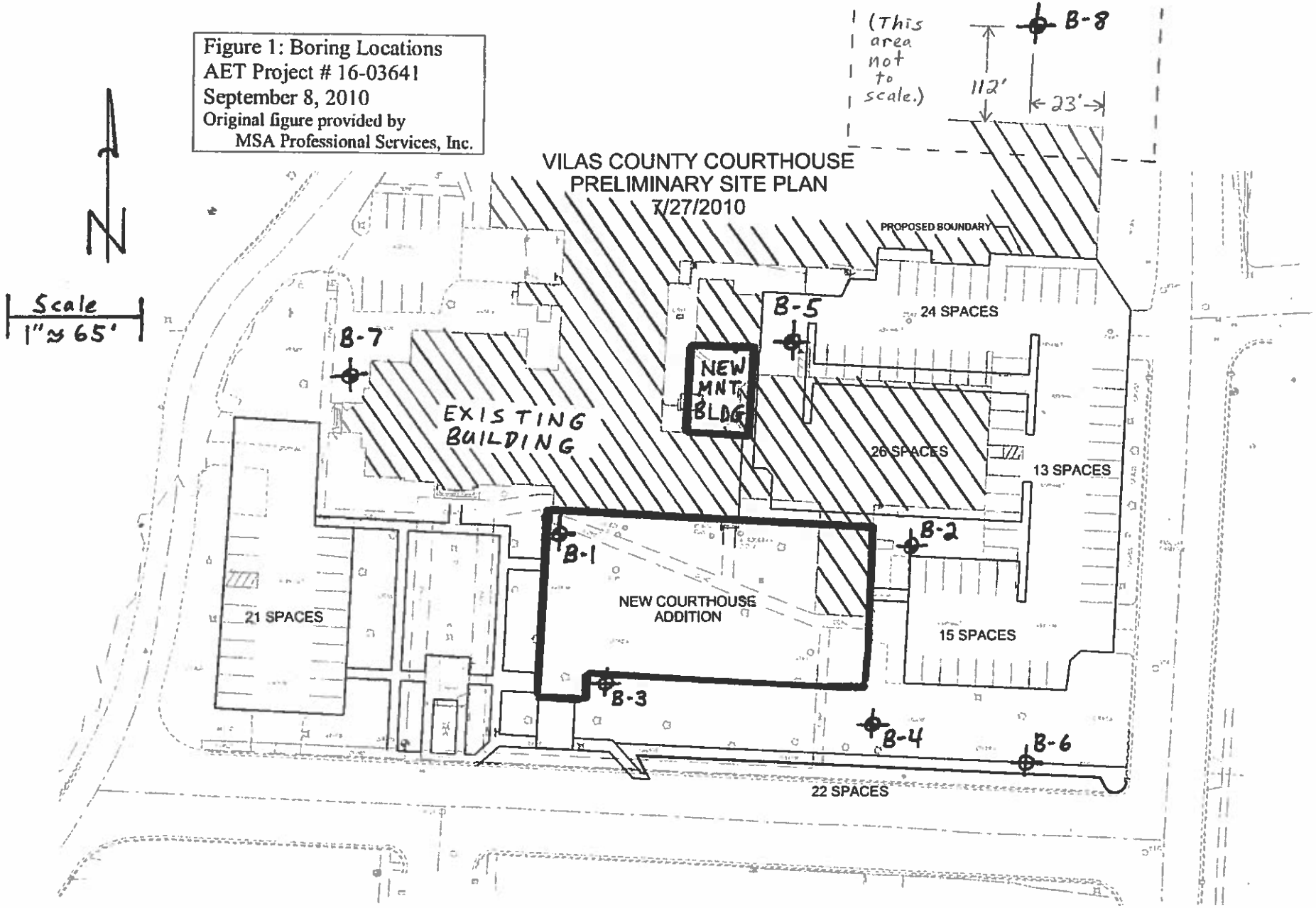
Soils are described as *organic*, if soil is not peat and is judged to have sufficient organic fines content to influence the Liquid Limit properties. *Slightly organic* used for borderline cases.

Root Inclusions

With roots: Judged to have sufficient quantity of roots to influence the soil properties.

Trace roots: Small roots present, but not judged to be in sufficient quantity to significantly affect soil properties.

Figure 1: Boring Locations
AET Project # 16-03641
September 8, 2010
Original figure provided by
MSA Professional Services, Inc.



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SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-1 (p. 1 of 3)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

DEPTH IN FEET	SURFACE ELEVATION: 1638.9' MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
1	SILTY SAND WITH ORGANICS, a little gravel, fine grained, dark brown, moist, loose, possible fill (SM)	TOPSOIL									
2	SILTY SAND to SANDY SILT, fine grained, brown, moist, loose, possible fill (SM to ML)	COARSE ALLUVIUM OR POSSIBLE FILL	8	M	SS	18					
3			8	M	SS	16					
4											
5	LEAN CLAY, brown, soft (CL)	FINE ALLUVIUM	3	M	SS	16	19				
6											
7	SANDY LEAN CLAY, brown, firm (CL)	MIXED ALLUVIUM					18				
8			8	M	SS	16					
9	SAND, fine to medium grained, brown, moist, loose (SP)	COARSE ALLUVIUM									
10	SAND WITH CLAY, brown, loose, laminations of fine sand (SP-SC)	MIXED ALLUVIUM	10	W	SS	16					
11											
12	SILTY CLAY, brown to gray, stiff to firm, laminations of fine sand (CL-ML)										
13			13	W	SS	20					
14											
15			7	W	SS	20	20				
16											
17	CLAYEY SILT, gray, soft (CL-ML)	GLACIO-LACUSTRINE DEPOSITS									
18			2	W	SS	24					
19											
20											
21			2	W	SS	20	30				
22											
23											
24											
25	LEAN CLAY, varved reddish brown and grayish brown, firm (CL)		5	W	SS	22	41				

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-9.5' 3.25" HSA							
9.5'-76' RD w/DM	7/15/10	1345	11.5'	9.5'	9.3'	—	9.2'
BORING COMPLETED: 7/29/10							
DR: MD LG: GD/JRig: 5							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-1 (p. 2 of 3)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DEN	LL	PL	%-#200
27	LEAN CLAY, varved reddish brown and grayish brown, firm (CL) *(continued)*										
28											
29											
30	SILTY CLAY, gray, soft (CL-ML)		3	W	SS	22					
31											
32											
33											
34											
35			3	W	SS	24	31				
36											
37											
38											
39											
40			3	W	SS	24					
41											
42											
43											
44											
45	CLAYEY SILT, gray, soft to firm (CL-ML)		2	W	SS	24	32				
46											
47											
48											
49											
50	Boring stopped at 51.5 feet and backfilled on 7/15/2010. Boring resumed on 7/29/2010 and drilled to final depth of 76 feet.		6	W	SS	24					
51											
52											
53											
54											
55			12	W	SS	13	23				
56											

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: 16-03641 LOG OF BORING NO. B-1 (p. 3 of 3)

PROJECT: Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
57	SILTY SAND, fine grained, brown, wet, medium dense to dense (SM)	COARSE ALLUVIUM									
58											
59											
60			30	W	SS	14					
61											
62											
63											
64											
65			36	W	SS	14					
66											
67											
68											
69											
70			46	W	SS	16					
71											
72											
73	SAND WITH GRAVEL, medium to fine grained, brown, wet, medium dense (SP)										
74											
75			16	W	SS	18					
76											
	End of boring at 76 feet. Boring terminated due to continuing drilling fluid loss into coarse alluvium.										

06/04

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-2 (p. 1 of 3)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

DEPTH IN FEET	SURFACE ELEVATION: 1637.8' MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
1	SILTY SAND WITH ORGANICS, fine grained, dark brown, moist, very loose (SM)	TOPSOIL									
2	SILTY SAND, fine to medium grained, mottled brown to dark brown, moist, moist, very loose (SM)	COARSE ALLUVIUM	2	M	SS	8					
3	SILTY SAND, fine grained, brown, moist, loose (SM)		10	M	SS	13					
5	LEAN CLAY, brown, very stiff (CL)	FINE ALLUVIUM	20	M	SS	20	17				
8	SAND, fine to medium grained, brown, moist, medium dense to loose (SP)	MIXED ALLUVIUM	17	▼	SS	16					
10	lenses of brown lean clay at 9.5 feet		8	W	SS	14					
13	LEAN CLAY, brown, soft, laminations of fine sand (CL)		4	W	SS	16	24				
15	CLAYEY SILT, brown, soft, laminations of fine sand (CL-ML)		4	W	SS	16	30				
18	CLAYEY SILT, brown to gray, soft (CL-ML)	GLACIO-LACUSTRINE DEPOSITS	4	W	SS	22					
20			3	W	SS	24					
25			2	W	SS	24	34				

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-9.5'	3.25" HSA							
9.5-66'	RD w/DM	7/15/10	1025	11.5'	9.5'	8.4'	---	8.4'
BORING COMPLETED: 7/30/10								
DR: MD LG: GD/WRA								

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

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AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-2 (p. 2 of 3)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DEN	LL	PL	%-#200
27	CLAYEY SILT, brown to gray, soft (CL-ML) *(continued)*	GLACIO-LACUSTRINE DEPOSITS *(continued)*									
28											
29											
30											
31			2	W	SS	24					
32	Boring stopped at 31.5 feet and backfilled on 7/15/2010. Boring resumed on 7/30/2010 and drilled to final depth of 66 feet.										
33											
34											
35											
36	No samples taken from 35 to 59.5 feet.										
37											
38											
39											
40											
41											
42											
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: 16-03641 LOG OF BORING NO. B-2 (p. 3 of 3)

PROJECT: Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DEN	LL	PL	%-#200
57											
58											
59											
60	SILTY CLAY, brown, firm (CL-ML)	GLACIO-LACUSTRINE DEPOSITS	6	W	SS	18	26				
61											
62	SILTY SAND, fine grained, brown, wet, very dense (SM)	COARSE ALLUVIUM									
63											
64											
65			75	W	SS	12					
66											
	End of boring at 66 feet.										

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-3 (p. 1 of 3)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

SURFACE ELEVATION: **1637.3'**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
1	SILTY SAND WITH ORGANICS, fine grained, brown, moist, very loose (SM)	TOPSOIL									
2	SILTY SAND, trace organics, fine grained, mottled brown to dark brown, moist, very loose (SM)	COARSE ALLUVIUM	2	M	SS	18					
3	SILTY SAND, fine grained, reddish brown, moist, loose (SM)		8	M	SS	15					
5	LEAN CLAY, brown, firm (CL)	FINE ALLUVIUM	8	M	SS	12	19				
8	SILTY CLAY, brown, stiff, laminations of fine sand (CL-ML)	MIXED ALLUVIUM	12	M	SS	12	22				
9	SAND, fine to medium grained, brown, moist, medium dense to loose (SP)		10	W	SS	12					
12	LEAN CLAY, brown, firm, lenses of fine sand (SP)		5	W	SS	16	21				
15	CLAYEY SILT, brown to gray, soft (CL-ML)	GLACIO-LACUSTRINE DEPOSITS	2	W	SS	16	26				
20			2	W	SS	14	23				
25	LEAN CLAY, varved reddish brown and grayish brown, soft (CL)		4	W	SS	18	29				

DEPTH:	DRILLING METHOD
0-14.5'	3.25" HSA
14.5-66'	RD w/DM

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
7/14/10	1145	11'	9.5'	8.6'	—	8.0'

BORING COMPLETED: **7/30/10**

DR: **MD** LG: **GD/WRA**: **5**

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: 16-03641 LOG OF BORING NO. B-3 (p. 2 of 3)

PROJECT: Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DEN	LL	PL	%-#200
27	LEAN CLAY, varved reddish brown and grayish brown, soft (CL) *(continued)*										
28											
29											
30	CLAYEY SILT, gray, soft (CL-ML)		2	W	SS	22					
31											
32											
33											
34											
35			3	W	SS	22					
36											
37											
38											
39											
40			2	W	SS	22					
41											
42	Boring stopped at 41.5 feet and backfilled on 7/15/2010. Boring resumed on 7/30/2010 and drilled to final depth of 66 feet.										
43											
44											
45											
46	No samples taken from 35 to 64.5 feet.										
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: 16-03641 LOG OF BORING NO. B-3 (p. 3 of 3)

PROJECT: Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DEN	LL	PL	%-#200
57											
58											
59											
60											
61											
62											
63											
64											
65	SILTY SAND, fine grained, brown, wet, medium dense (SM)	COARSE ALLUVIUM	22	W	SS	12					
66											
	End of boring at 66 feet.										

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-4 (p. 1 of 3)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

DEPTH IN FEET	SURFACE ELEVATION: 1637.3' MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
1	FILL, SILTY SAND, a little gravel, fine grained, dark brown, moist, loose (SM)	TOPSOIL / FILL	6	M	SS	14					
2	FILL, SILTY SAND, a little gravel, trace organics, fine to medium grained, mottled brown to dark brown, moist, loose, pieces of clay brick in sample (SM)	COARSE ALLUVIUM									
3			3	M	SS	12					
4	SILTY SAND, fine grained, brown, moist, very loose to medium dense (SM)										
5											
6			15	M	SS	18					
7											
8	SAND, fine to medium grained, brown, moist to wet, medium dense (SP)		30	M	SS	18					
9											
10											
11			26	M	SS	16					
12	SILT, brown, wet, loose (ML)	FINE ALLUVIUM									
13			4	W	SS	20	26				
14											
15	SILTY CLAY, brown to gray, soft (CL-ML)	GLACIO-LACUSTRINE DEPOSITS	4	W	SS	20	26				
16											
17											
18			4	W	SS	20					
19											
20											
21			2	W	SS	20					
22											
23											
24											
25			2	W	SS	20	35				

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-9.5'	3.25" HSA							
9.5-81'	RD w/DM	7/15/10	1145	11.5'	9.5'	6.7'	—	None observed
		7/15/10	1255	31.5'	29.5'	31.5'	0'	Obscured by drilling fluid
BORING COMPLETED: 7/29/10								
DR: MD LG: GD/JR	ig: 5							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: 16-03641 LOG OF BORING NO. B-4 (p. 2 of 3)

PROJECT: Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DEN	LL	PL	%-#200
27	SILTY CLAY, brown to gray, soft (CL-ML) *(continued)*	GLACIO-LACUSTRINE DEPOSITS *(continued)*									
28											
29											
30											
31			2	W	SS	24					
32											
33	Boring stopped at 31.5 feet and backfilled on 7/15/2010. Boring resumed on 7/29/2010 and drilled to final depth of 81 feet.										
34											
35			3	W	SS	24					
36											
37											
38											
39											
40			2	W	SS	24					
41											
42											
43											
44											
45			3	W	SS	24					
46											
47											
48											
49											
50			4	W	SS	24					
51											
52											
53											
54											
55			10	W	SS	16	30				
56	SILTY SAND, fine grained, brown, wet, medium dense (SM)	COARSE ALLUVIUM									

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-4 (p. 3 of 3)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DEN	LL	PL	%-#200
57	SILTY SAND, fine grained, brown, wet, medium dense (SM)*(continued)*	COARSE ALLUVIUM *(continued)*									
58											
59											
60			23	W	SS	16					
61											
62											
63											
64											
65			17	W	SS	18					
66	SILTY CLAY, brown, very stiff (CL-ML)	FINE ALLUVIUM					24				
67											
68											
69											
70	SILTY SAND, fine grained, brown, wet, medium dense to very dense (SM)	COARSE ALLUVIUM	27	W	SS	16					
71											
72											
73											
74											
75			52	W	SS	18					
76											
77											
78											
79											
80			30	W	SS	12					
81	End of boring at 81 feet.										

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-5 (p. 1 of 1)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

DEPTH IN FEET	SURFACE ELEVATION: 1637.8' MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
1	4" BITUMINOUS PAVEMENT	PAVEMENT									
1	FILL, SAND WITH SILT AND GRAVEL, fine to medium grained, brown, moist, dense to medium dense (SP-SM)	FILL	39	M	SS	10					
2											
3			14	M	SS	16					
4											
5	FILL, SILTY SAND, a little gravel, fine to medium grained, brown, moist, loose, pieces of clay brick, metal, and asphalt in samples (SM)		8	M	SS	14					
6											
7											
8			5	M	SS	12					
9				▼							
10	LEAN CLAY, brown, soft, laminations of fine sand (CL)	MIXED ALLUVIUM	3	M	SS	10	17				
11											
12	LEAN CLAY, brown to gray, soft (CL)	FINE ALLUVIUM									
13			2	M	SS	16	21				
14											
15			3	M	SS	18					
16											
17	CLAYEY SILT, gray, soft (CL-ML)	GLACIO-LACUSTRINE DEPOSITS									
18			3	M	SS	20					
19											
20											
21			2	M	SS	24	31				
	End of boring at 21.5 feet.										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14.5' 3.25" HSA							
14.5-19.5' RD w/DM	7/15/10	915	11.5'	9.5'	9.5'	---	9.2'
BORING COMPLETED: 7/15/10							
DR: MD LG: GD Rig: 5							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

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AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-6 (p. 1 of 1)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

DEPTH IN FEET	SURFACE ELEVATION: 1636.4' MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
1	SILTY SAND WITH ORGANICS, fine to medium grained, dark brown, moist, loose (SM)	TOPSOIL									
2	SAND, fine grained, yellowish brown, moist, loose, possible fill (SP)	COARSE ALLUVIUM OR POSSIBLE FILL	4	M	SS	18					
3	SILTY SAND, fine grained, mottled brown to dark brown, moist, loose (SM)		5	M	SS	18					
4	SANDY SILT, brown, moist, loose (ML)	COARSE ALLUVIUM									
5	CLAYEY SILT, brown, stiff (CL-ML)	FINE ALLUVIUM	10	M	SS	14					
6											
7	SAND WITH SILT, fine to medium grained, brown, moist to waterbearing, medium dense to loose, laminations of silt (SP-SM)	MIXED ALLUVIUM	23	MFW	SS	18					
8											
9			5	W	SS	18					
10	CLAYEY SILT, brown, firm, laminations of fine sand (CL-ML)										
11	CLAYEY SILT, brown, firm (CL-ML)	FINE ALLUVIUM	7	W	SS	16					
12											
13			6	W	SS	20					
14	LEAN CLAY, brown, soft (CL)										
15			4	W	SS	20					
16											
	End of boring at 16 feet.										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
0-14' 3.25" HSA	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
	7/14/10	**1050**	**10'**	**8'**	**7.5'**	**---**	**6.9'**	
BORING COMPLETED: **7/14/10**								
DR: **MD** LG: **GD** Rig: **5**								

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AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-7 (p. 1 of 1)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

DEPTH IN FEET	SURFACE ELEVATION: 1638.7' MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
1	FILL, SILTY SAND WITH ORGANICS, fine grained, dark brown, moist, very loose, pieces of clay brick (SM)	TOPSOIL	2	M	SS	16					
2	SAND WITH SILT, fine to medium grained, brown, moist, very loose, possible fill (SP-SM)	COARSE ALLUVIUM OR POSSIBLE FILL									
3	SAND, a little gravel, fine to medium grained, brown, moist, very loose, possible fill (SP)		2	M	SS	6					
4	SILTY SAND, fine grained, mottled brown to dark brown, moist, loose, possible fill (SM)										
5	SILTY SAND, trace organics, fine grained,dark brown, moist, loose (SM)	COARSE ALLUVIUM	5	M	SS	18					
6											
7	SILTY SAND, fine grained, reddish brown to brown, moist, loose (SM)		7	M	SS	15					
8											
9	SAND WITH SILT, fine to medium grained, brown, moist, loose (SP-SM)	FINE ALLUVIUM	15	M	SS	16					
10	CLAYEY SILT, brown, stiff to firm (CL-ML)										
11			5	M	SS	20					
12											
13	LEAN CLAY, brown to varved brown and gray, firm to soft (CL)	GLACIO-LACUSTRINE DEPOSITS	6	M	SS	18					
14											
15			2	M	SS	18					
16											
	End of boring at 16 feet.										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14' 3.25" HSA	7/14/10	755	16'	14'	16'	---	None observed
BORING COMPLETED: 7/14/10							
DR: MD LG: GD Rig: 5							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

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AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **16-03641** LOG OF BORING NO. **B-8 (p. 1 of 1)**

PROJECT: **Vilas County Courthouse Expansion; 330 Court Street, Eagle River, Wisconsin**

DEPTH IN FEET	SURFACE ELEVATION: 1634.7' MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
1	SILTY SAND WITH ORGANICS, a little gravel, fine to medium grained, dark brown, moist, loose (SM)	TOPSOIL / COARSE ALLUVIUM	5	M	SS	18					
2	SILTY SAND, mottled dark brown to light gray, moist, loose (SM)	FINE ALLUVIUM									
3	SANDY SILT, brown, moist, medium dense (ML0		12	M	SS	20					
4	SAND WITH SILT, fine to medium grained, brown, moist, medium dense (SP-SM)	COARSE ALLUVIUM									
5	SILTY CLAY, brown, stiff, laminations of fine sand (CL-ML)	MIXED ALLUVIUM	14	M	SS	14					
6	CLAYEY SILT, brown, stiff to very soft, laminations of fine sand (CL-ML)										
7			13	M	SS	16					
8											
9			1	M	SS	13					
10	CLAYEY SILT, brown to gray, soft to firm (CL-ML)	FINE ALLUVIUM									
11			3	M	SS	18					
12											
13			7	M	SS	19					
14	LEAN CLAY, varved brown and gray, firm (CL)	GLACIO-LACUSTRINE DEPOSITS									
15			5	M	SS	23					
16	End of boring at 16 feet.										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14' 3.25" HSA	7/15/10	700	16'	14'	16'	---	None observed
BORING COMPLETED: 7/15/10							
DR: MD LG: GD Rig: 5							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

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EXCAVATION AND REFILLING FOR STRUCTURAL SUPPORT

EXCAVATION

Excavations for structural support at soil boring locations should be taken to depths recommended in the geotechnical report. Since conditions can vary, recommended excavation depths between and beyond the boring locations should be evaluated by geotechnical field personnel. If ground water is present, the excavation should be dewatered to avoid the risk of unobservable poor soils being left in-place. Excavation base soils may become disturbed due to construction traffic, ground water or other reasons. Such soils should be subcut to underlying undisturbed soils. Where the excavation base slopes steeper than 4:1, the excavation bottom should be benched across the slope parallel to the excavation contour.

Soil stresses under footings spread out with depth. Therefore, the excavation bottom and subsequent fill system should be laterally oversized beyond footing edges to support the footing stresses. A lateral oversize equal to the depth of fill below the footing (i.e., 1:1 oversize) is usually recommended. The lateral oversize is usually increased to 1.5:1 where compressible organic soils are exposed on the excavation sides. Variations in oversize requirements may be recommended in the geotechnical report or can be evaluated by the geotechnical field personnel.

Unless the excavation is retained, the backslopes should be maintained in accordance with OSHA Regulations (Standards - 29 CFR), Part 1926, Subpart P, "Excavations" (found on www.osha.gov). Even with the required OSHA sloping, ground water can induce sideslope raveling or running which could require that flatter slopes or other approaches be used.

FILLING

Filling should proceed only after the excavation bottom has been approved by the geotechnical engineer/technician. Approved fill material should be uniformly compacted in thin lifts to the compaction levels specified in the geotechnical report. The lift thickness should be thin enough to achieve specified compaction through the full lift thickness with the compaction equipment utilized. Typical thicknesses are 6" to 9" for clays and 12" to 18" for sands. Fine grained soils are moisture sensitive and are often wet (water content exceeds the "optimum moisture content" defined by a Proctor test). In this case, the soils should be scarified and dried to achieve a water content suitable for compaction. This drying process can be time consuming, labor intensive, and requires favorable weather.

Select fill material may be needed where the excavation bottom is sensitive to disturbance or where standing water is present. Sands (SP) which are medium to coarse grained are preferred, and can be compacted in thicker lift thicknesses than finer grained soils.

Filling operations for structural support should be closely monitored for fill type and compaction by a geotechnical technician. Monitoring should be on a full-time basis in cases where vertical fill placement is rapid; during freezing weather conditions; where ground water is present; or where sensitive bottom conditions are present.

EXCAVATION/REFILLING DURING FREEZING TEMPERATURES

Soils that freeze will heave and lose density. Upon thawing, these soils will not regain their original strength and density. The extent of heave and density loss depends on the soil type and moisture condition; and is most pronounced in clays and silts. Foundations, slabs, and other improvements should be protected from frost intrusion during freezing weather. For earthwork during freezing weather, the areas to be filled should be stripped of frozen soil, snow and ice prior to new fill placement. In addition, new fill should not be allowed to freeze during or after placement. For this reason, it may be preferable to do earthwork operations in small plan areas so grade can be quickly attained instead of large areas where much frost stripping may be needed.

FLOOR SLAB MOISTURE/VAPOR PROTECTION

Floor slab design relative to moisture/vapor protection should consider the type and location of two elements, a granular layer and a vapor membrane (vapor retarder, water resistant barrier or vapor barrier). In the following sections, the pros and cons of the possible options regarding these elements will be presented, such that you and your specifier can make an engineering decision based on the benefits and costs of the choices.

GRANULAR LAYER

In American Concrete Institute (ACI) 302.1R-04, a "base material" is recommended over the vapor membrane, rather than the conventional clean "sand cushion" material. The base layer should be a minimum of 4 inches (100 mm) thick, trimmable, compactable, granular fill (not sand), a so-called crusher-run material. Usually graded from 1½ inches to 2 inches (38 to 50 mm) down to rock dust is suitable. Following compaction, the surface can be choked off with a fine-grade material. We refer you to ACI 302.1R-04 for additional details regarding the requirements for the base material.

In cases where potential static water levels or significant perched water sources appear near or above the floor slab, an under floor drainage system may be needed wherein a draintile system is placed within a thicker clean sand or gravel layer. Such a system should be properly engineered depending on subgrade soil types and rate/head of water inflow.

VAPOR MEMBRANE

The need for a vapor membrane depends on whether the floor slab will have a vapor sensitive covering, will have vapor sensitive items stored on the slab, or if the space above the slab will be a humidity controlled area. If the project does not have this vapor sensitivity or moisture control need, placement of a vapor membrane may not be necessary. Your decision will then relate to whether to use the ACI base material or a conventional sand cushion layer. However, if any of the above sensitivity issues apply, placement of a vapor membrane is recommended. Some floor covering systems (adhesives and flooring materials) require installation of a vapor membrane to limit the slab moisture content as a condition of their warranty.

VAPOR MEMBRANE/GRANULAR LAYER PLACEMENT

A number of issues should be considered when deciding whether to place the vapor membrane above or below the granular layer. The benefits of placing the slab on a granular layer, with the vapor membrane placed **below** the granular layer, include **reduction** of the following:

- Slab curling during the curing and drying process.
- Time of bleeding, which allows for quicker finishing.
- Vapor membrane puncturing.
- Surface blistering or delamination caused by an extended bleeding period.
- Cracking caused by plastic or drying shrinkage.

The benefits of placing the vapor membrane over the granular layer include the following:

- A lower moisture emission rate is achieved faster.
- Eliminates a potential water reservoir within the granular layer above the membrane.
- Provides a "slip surface", thereby reducing slab restraint and the associated random cracking.

If a membrane is to be used in conjunction with a granular layer, the approach recommended depends on slab usage and the construction schedule. The vapor membrane should be placed above the granular layer when:

- Vapor sensitive floor covering systems are used or vapor sensitive items will be directly placed on the slab.
- The area will be humidity controlled, but the slab will be placed before the building is enclosed and sealed from rain.
- Required by a floor covering manufacturer's system warranty.

The vapor membrane should be placed below the granular layer when:

- Used in humidity controlled areas (without vapor sensitive coverings/stored items), with the roof membrane in place, and the building enclosed to the point where precipitation will not intrude into the slab area. Consideration should be given to slight sloping of the membrane to edges where draintile or other disposal methods can alleviate potential water sources, such as pipe or roof leaks, foundation wall damp proofing failure, fire sprinkler system activation, etc.

There may be cases where membrane placement may have a detrimental effect on the subgrade support system (e.g., expansive soils). In these cases, your decision will need to weigh the cost of subgrade options and the performance risks.

FREEZING WEATHER EFFECTS ON BUILDING CONSTRUCTION

GENERAL

Because water expands upon freezing and soils contain water, soils which are allowed to freeze will heave and lose density. Upon thawing, these soils will not regain their original strength and density. The extent of heave and density/strength loss depends on the soil type and moisture condition. Heave is greater in soils with higher percentages of fines (silts/clays). High silt content soils are most susceptible, due to their high capillary rise potential which can create ice lenses. Fine grained soils generally heave about 1/4" to 3/8" for each foot of frost penetration. This can translate to 1" to 2" of total frost heave. This total amount can be significantly greater if ice lensing occurs.

DESIGN CONSIDERATIONS

Clayey and silty soils can be used as perimeter backfill, although the effect of their poor drainage and frost properties should be considered. Basement areas will have special drainage and lateral load requirements which are not discussed here. Frost heave may be critical in doorway areas. Stoops or sidewalks adjacent to doorways could be designed as structural slabs supported on frost footings with void spaces below. With this design, movements may then occur between the structural slab and the adjacent on-grade slabs. Non-frost susceptible sands (with less than 12% passing a #200 sieve) can be used below such areas. Depending on the function of surrounding areas, the sand layer may need a thickness transition away from the area where movement is critical. With sand placement over slower draining soils, subsurface drainage would be needed for the sand layer. High density extruded insulation could be used within the sand to reduce frost penetration, thereby reducing the sand thickness needed. We caution that insulation placed near the surface can increase the potential for ice glazing of the surface.

The possible effects of adfreezing should be considered if clayey or silty soils are used as backfill. Adfreezing occurs when backfill adheres to rough surfaced foundation walls and lifts the wall as it freezes and heaves. This occurrence is most common with masonry block walls, unheated or poorly heated building situations and clay backfill. The potential is also increased where backfill soils are poorly compacted and become saturated. The risk of adfreezing can be decreased by placing a low friction separating layer between the wall and backfill.

Adfreezing can occur on exterior piers (such as deck, fence or other similar pier footings), even if a smooth surface is provided. This is more likely in poor drainage situations where soils become saturated. Additional footing embedment and/or widened footings below the frost zones (which include tensile reinforcement) can be used to resist uplift forces. Specific designs would require individual analysis.

CONSTRUCTION CONSIDERATIONS

Foundations, slabs and other improvements which may be affected by frost movements should be insulated from frost penetration during freezing weather. If filling takes place during freezing weather, all frozen soils, snow and ice should be stripped from areas to be filled prior to new fill placement. The new fill should not be allowed to freeze during transit, placement or compaction. This should be considered in the project scheduling, budgeting and quantity estimating. It is usually beneficial to perform cold weather earthwork operations in small areas where grade can be attained quickly rather than working larger areas where a greater amount of frost stripping may be needed. If slab subgrade areas freeze, we recommend the subgrade be thawed prior to floor slab placement. The frost action may also require reworking and recompaction of the thawed subgrade.

Appendix B

AET Project No. 16-03641

Geotechnical Report Limitations and Guidelines for Use

Appendix B
Geotechnical Report Limitations and Guidelines for Use
AET Project No. 16-03641

B.1 REFERENCE

This appendix provides information to help you manage your risks relating to subsurface problems which are caused by construction delays, cost overruns, claims, and disputes. This information was developed and provided by ASFE[1], of which, we are a member firm.

B.2 RISK MANAGEMENT INFORMATION

B.2.1 Geotechnical Services are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared solely for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. And no one, not even you, should apply the report for any purpose or project except the one originally contemplated.

B.2.2 Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

B.2.3 A Geotechnical Engineering Report is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typically factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, always inform your geotechnical engineer of project changes, even minor ones, and request an assessment of their impact. Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.

B.2.4 Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. Do not rely on a geotechnical engineering report whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. Always contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

1 ASFE, 8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 : www.asfe.org

B.2.5 Most Geotechnical Findings Are Professional Opinions
Site exploration identified subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ, sometimes significantly, from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

B.2.6 A Report's Recommendations Are Not Final
Do not overrely on the construction recommendations included in your report. Those recommendations are not final, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.

B.2.7 A Geotechnical Engineering Report Is Subject to Misinterpretation
Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

B.2.8 Do Not Redraw the Engineer's Logs
Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should never be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

B.2.9 Give Contractors a Complete Report and Guidance
Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, but preface it with a clearly written letter of transmittal. In the letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need to prefer. A prebid conference can also be valuable. Be sure contractors have sufficient time to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

B.2.10 Read Responsibility Provisions Closely
Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their report. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

B.2.11 Geoenvironmental Concerns Are Not Covered
The equipment, techniques, and personnel used to perform a geoenvironmental study differ significantly from those used to perform a geotechnical study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated environmental problems have led to numerous project failures. If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. Do not rely on an environmental report prepared for someone else.

SECTION 00 41 00 – BID FORM

THE PROJECT AND THE PARTIES

TO:

Owner

Vilas County

The Samuels Group Inc (Owners Representative)

FOR:

Vilas County Courthouse Expansion
330 Court Street
Eagle River, WI 54521

DATE: _____ (BIDDER TO ENTER DATE)

SUBMITTED BY: (BIDDER TO ENTER NAME AND ADDRESS)

Bidder's Full Name _____
Address _____
City, State, Zip_____
Phone Number _____
Fax Number _____
Email:_____

OFFER

Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by Potter Lawson Inc for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for
Bid Category Number _____ for the

Sum of:_____
_____dollars ($_____), in lawful money of the United States of America.

All applicable federal taxes are included and State of Wisconsin taxes are included in the Bid Sum.
A separate Bid Form shall be used for each Bid Category or for each combination of Bid Categories.

ACCEPTANCE

This offer shall be open to acceptance and is irrevocable for forty-five days from the bid closing date.
If this bid is accepted by Owner within the time period stated above, we will:
Execute the Agreement within seven days of receipt of Notice of Award.

UNIT PRICES

The following are Unit Prices for specific portions of the Work as listed. The following is the list of Unit Prices:

ITEM DESCRIPTION - UNIT QUANTITY - UNIT PRICE - ITEM VALUE

1. Replacement of unsuitable soils including removal, hauling, compacting, and replacement - Cubic Yard ____ADD_____---__DEDUCT_____-$.....
2. Rock Excavation - Cubic Yard____ADD_____---__DEDUCT_____-$.....
3. Electrical Outlet - Each ____ADD_____---__DEDUCT_____-$.....
4. Concrete – Cubic Yard ____ADD_____---__DEDUCT_____-$.....

ALTERNATES

1. **Alternate 01**

   (Add / Deduct) $.....

2. **Alternate 02**

   (Add / Deduct) $.....

CHANGES TO THE WORK

When Architect establishes that the method of valuation for Changes in the Work will be net cost plus a percentage fee in accordance with General Conditions, our percentage fee will be:

1. **__10____ percent overhead and profit on the net cost of our own Work;**
2. **___5___ percent on the cost of work done by any Subcontractor.**

ADDENDA

The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.

1. **Addendum # _____ Dated _____.**
2. **Addendum # _____ Dated _____.**

BID FORM SUPPLEMENTS

The following Supplements are attached to this Bid Form and are considered an integral part of this Bid Form:

1. **Document 00 21 13 Exhibit D – Subcontractors List: Include a list of all Subcontractors and their type of work as specifically requested by the Contract Documents.**
2. **Document 00 21 13 – Bid Security: Include the required Bid Security.**
3. **Document 00 21 13 – Performance and labor Bond: Include the required Performance and Payment Bond.**

BID FORM SIGNATURE(S)

The Corporate Seal of

_____
(Bidder - print the full name of your firm)

was hereunto affixed in the presence of:

_____
(Authorized signing officer, Title)
(Seal)

_____
(Authorized signing officer, Title)

IF THE BID IS A JOINT VENTURE OR PARTNERSHIP, ADD ADDITIONAL FORMS OF EXECUTION FOR EACH MEMBER OF THE JOINT VENTURE IN THE APPROPRIATE FORM OR FORMS AS ABOVE.

CONTRACTING REQUIREMENTS

AGREEMENT FORM

REFERENCED STANDARD

The "Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition", AIA Document A132 - 2009, is not bound in this Project Manual, but is included by this reference; is a part of the Procurement Documents; and is incorporated herein as fully as if here set-forth. This Form of Agreement will be used between Owner and each Contractor.

AIA Document A132 as supplemented, may be examined at the office of the Architect or at the Construction Manager's place of business.

Copies of AIA Document A132 may be purchased from:

AIA Wisconsin
321 S. Hamilton Street
Madison, WI 53703
Phone (608) 257-8477
Fax (608) 257-0242

End of Agreement Form

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VILAS COUNTY COURTHOUSE EXPANSION
RIDER A

LABOR OR LABOR/MATERIAL SUPPLIERS ONLY

SAFETY. The prevention of accidents or injuries on, about, or in the vicinity of the project site is the Trade Contractor's responsibility. The Trade Contractor, its Subcontractors, and Suppliers must perform their Work in a safe manner, must fully comply with safety measures initiated by the Owner or imposed by the Contract Documents, must adhere to the applicable laws, ordinances, rules, regulations, codes and orders of public authorities bearing upon the safety of persons or property or their protection from damages, injury or loss, and must abide with all Federal and State OSHA requirements relative to safety and the prevention of accidents or injuries.

The Trade Contractor shall be solely responsible for the protection and safety of its employees, its Subcontractor's employees, and Supplier's employees, for the final selection of all safety methods and means, for required safety reports and records, for daily inspection of its Work area and its employees' safety equipment, and for the continual instruction of its employees on health and safety, including weekly safety meetings. The Trade Contractor must actively promote safe working performances and practices on the part of its employees, its Subcontractor's employees, and Supplier's employees.

The Trade Contractor must establish and maintain a safety program implementing safety measures, policies and standards conforming, on a comprehensive basis, to its obligations under these paragraphs which safety program shall include provisions for selection of safety methods and means, conveyance of information and instruction with regard to those safety methods and means to its employees, Subcontractors, and Suppliers, safety meetings of its employees at least once a week, maintenance of required safety reports and records, periodic inspections of its Work area and equipment to detect and correct hazardous conditions, safety rule violations and unsafe work practices, and enforcement of corrective actions as required.

The Trade Contractor shall stop any part of the Work which the Owner deems unsafe until proper corrective measures have been taken but failure on the part of the Owner to stop unsafe Work shall in no way relieve the Trade Contractor of its responsibility therefor. The Trade Contractor shall indemnify the Owner for fines, penalties, damages or expenses incurred by the Owner because of the Contractor's failure to comply with safety requirements.

HARDHATS, PROTECTIVE CLOTHING AND EQUIPMENT. All personnel are to wear an approved hardhat, safety shoes and glasses and goggles and comply with OSHA clothing standards at all times while on this project. Failure to comply will result in that person being directed to leave the site.

ASBESTOS. The Trade Contractor must notify the Owner if any material containing asbestos is encountered during performance of the Trade Contractor's Work. The Trade Contractor is prohibited from storing or installing any equipment or material containing asbestos on the project site. The Trade Contractor is solely responsible for the prevention of asbestos containing material or equipment to be installed as part of its Work.

HAZARDOUS MATERIAL: The Trade Contractor must notify the Owner if any hazardous material is encountered during performance of the Trade Contractor's Work. The Trade Contractor is prohibited from distributing, removing or storing of any equipment or materials deemed to contain hazardous material. The Trade Contractor is solely responsible for prevention of hazardous materials being installed as part of its work. All Trade Contractors are responsible for all disposal of chemicals and containers used in the construction of their Work on this project. Each Trade Contractor will submit OSHA required material safety data sheets on all chemicals before work is started.

OWNER: VILAS COUNTY	**TRADE CONTRACTOR:**
By_____	**By**_____
Its_____	**Its**_____

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VILAS COUNTY COURTHOUSE EXPANSION

RIDER A
MATERIAL SUPPLIERS ONLY

SAFETY. The prevention of accidents or injuries on, about, or in the vicinity of the project site is the Supplier's responsibility at all times when the Supplier is present on the project site or during delivery or unloading of material or equipment. The supplier must perform its Work at the site in a safe manner, must fully comply with safety measures initiated by the Owner or imposed by the Contract Documents, must adhere to the applicable laws, ordinances, rules, regulations, codes and orders of public authorities bearing upon the safety of persons or property or their protection from damages, injury or loss, and must abide with all federal and state OSHA requirements relative to safety and the prevention of accidents or injuries. The Supplier shall be solely responsible for the protection and safety of its employees, for the final selection of all safety methods and means, for required safety reports and records, for daily inspection of its work area and its employees' safety equipment, and for the continual instruction of its employees on health and safety, including weekly safety meetings. The Supplier must actively promote safe working performances and practices on the part of its employees. The Supplier shall stop any part of the Work which the Owner deems unsafe until proper corrective measures have been taken but failure on the part of the Owner to stop unsafe Work shall in no way relieve the Supplier of its responsibility therefor. The Supplier shall indemnify the Owner for fines, penalties, damages or expenses incurred by the Owner because of the Supplier's failure to comply with safety standards.

HARDHATS, PROTECTIVE CLOTHING AND EQUIPMENT. All personnel are to wear an approved hardhat, safety shoes and glasses and goggles and comply with OSHA clothing standards at all times while on this project. Failure to comply will result in that person being directed to leave the site.

OWNER: VILAS COUNTY **SUPPLIER:**

By_____ **By**_____

Its_____ **Its**_____

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VILAS COUNTY COURTHOUSE EXPANSION
RIDER "C"

TRADE CONTRACTORS AND MATERIAL SUPPLIERS:

Trade Contractors shall list labor percentage of the total Contract, all material suppliers, and all Subcontractors as a condition precedent to receipt of first payment. This form must be filled out and returned with the signed Contract. This list is not to be construed as a complete list.

LIEN WAIVERS from each Subcontractors and supplier will be required for their portion of the previous months payment prior to release of the current payment.

FINANCIAL INFORMATION. A balance sheet is required from Trade Contractors who have not worked for **Vilas County** in the last three (3) years.

Labor percentage of Contract = _____%

Listing of material suppliers and/or Subcontractors:

COMPANY	CONTACT NAME	PHONE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

FIRM:_____

BY:_____

DATE:_____

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PERFORMANCE AND PAYMENT BOND FORM

REFERENCED STANDARD

The "Public Improvement Performance/Labor and Material Payment Bond", Wisconsin AIA Document A312, 1989 Edition, is not bound in the Project Manual, but is included by this reference; and is incorporated herein as fully as if here set-forth.

This document may be examined at the office of the Architect or at the Owner's place of business.

This document may be purchased from:

AIA Wisconsin
321 S. Hamilton Street
Madison, WI 53703
Phone (608) 257-8477
Fax (608) 257-0242

End of Performance/Labor and Material Payment Bond

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GENERAL CONDITIONS

The "General Conditions of the Contract for Construction, Construction Manager as Adviser Edition", AIA Document A232 - 2009, Articles 1 thru 15 inclusive, is bound immediately following this page.

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AIA® Document A232™ – 2009

General Conditions of the Contract for Construction, Construction Manager as Adviser Edition

for the following PROJECT:
(Name, and location or address)

Vilas County Court House Expansion
330 Court Street
Eagle River, WI
54521

THE CONSTRUCTION MANAGER:
(Name, legal status and address)

The Samuels Group
311 Financial Way
Suite 300
Wausau WI 54401

THE OWNER:
(Name, legal status and address)

Vilas County
330 Court Street
Eagle River, WI
54521

THE ARCHITECT:
(Name, legal status and address)

Potter Lawson
749 University Row
Suite 300
Madison, WI
53705

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A132™–2009, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™–2009, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2009, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

TABLE OF ARTICLES

INDEX
(Topics and numbers in bold are section headings.)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents. The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement), and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of addenda relating to bidding requirements).

§ 1.1.2 The Contract. The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

§ 1.1.2.1 Contract, Contract for Construction, and Owner-Contractor Agreement have the same meaning as used throughout the Contract Documents.

§ 1.1.2.2 The Contract does not include any products sold directly to Owner by separate contractors, subcontractors, vendors, and suppliers.

§ 1.1.3 The Work. The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project. The Work does not include furnishing any products purchased directly by Owner.

§ 1.1.4 The Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Multiple Prime Contractors and by the Owner's own forces, including persons or entities under separate contracts not administered by the Construction Manager.

§ 1.1.5 The Drawings. The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 The Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.6.1 Specifications are written in imperative and abbreviated form. This imperative language is directed at the Contractor, unless specifically noted otherwise. Incomplete sentences shall be completed by inserting "shall", "the Contractor shall", and "shall be", and similar mandatory phrases by inference in the same manner as they are applied to notes on the Drawings. The words "shall be" shall be supplied in inference where a colon (:) is used within sentences or phrases. Except as worded to the contrary, fulfill (perform) all indicated requirements whether stated imperatively or otherwise.

§ 1.1.7 Instruments of Service. Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's

consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker. The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.1.9 Procurement Documents The Procurement Documents consists of all contents of the Project Manual, the separately bound Drawings, as listed in the Drawing Index, and Addenda relating to any of these, and the Contractor's Bid.

§ 1.1.10 Minor Change in the Work A minor change in the Work shall be defined as a change not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents, including clarifications, correction of minor dimensional errors, responses to Contractor's requests for information, and similar basic contract administrative procedures necessary for the successful completion of the Project.

§ 1.1.11 Miscellaneous Definitions

§ 1.1.11.1 The term **"product"** or **"Product"** as used in the Project Manual includes materials, systems and equipment.

§ 1.1.11.2 The term **"furnish"** (materials) as used in the Project Manual means to supply and deliver to the project ready for installation and in operable condition.

§ 1.1.11.3 The term **"install"** (services or labor) as used in the Project Manual means to place in final position, complete, anchored, connected, and in operable condition.

§ 1.1.11.4 The term **"provide"** as used in the Project Manual in connection with labor, materials, and equipment means pay for, furnish, and install, complete; including connecting to utilities or service, complete anchorage and suspension, fastening or anchor devices, trim, finish and other related work, unless specifically specified otherwise.

§ 1.1.11.5 The use of the term **"Approved, Satisfactory, Equal to, Proper, as Directed, and Similar Terms"** is reserved solely to the A/E and means that the A/E's decision regarding this term shall be final and binding upon the Contractor.

§ 1.1.11.6 The term **"Notice to Proceed"** is a verbal or written notice by the CM, A/E or Owner to the Contractor to commence work of the Contract, issued either before or after execution of the Contract. If verbally given, and the Contractor requests, the Notice shall be confirmed in writing. In issuing the Notice, stipulations may be included as to time and other requirements that may condition commencement of the Work.

§ 1.1.11.7 The term **"fabricated"** pertains to items specifically assembled or made of selected materials or components to meet individual design requirements.

§ 1.1.11.8 The term **"Manufactured"** means standard units, usually mass produced by an established manufacturer of the respective item.

§ 1.1.11.9 The terms **"Shop fabricated"** or **"shop made"** refer to items made by the Contractor in his own shop.

§ 1.1.11.10 The following terms and their definitions as used in the Project Manual are listed below (see Drawing A001 for Abbreviations and additional definitions):

Term	Definition
Contractor:	Any individual, partnership, or corporation that submits a Bid to the Construction Manager for any portion or portions of the Work.

Subcontractor:	Any individual, partnership, or corporation that submits a Bid to the Contractor for any portion or portions of the Work.
Major Contractor:	Any and each of the following: Fire Protection Contractor, Plumbing Contractor, HVAC Contractor, and Electrical Contractor.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 The organization of the Specifications in the Project Manual into Divisions and Sections; and the arrangement, numbering, titling and location of the Drawings within a separately bound set shall not control the Construction Manager in dividing the Work among Contractors or in establishing the extent of the Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.2.4 Specification Sections of Division 01 - General Requirements govern the execution of all Sections of the Specifications.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect, or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 Transmission of Data in Digital Form

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

§ 1.7 Request for Electronic Data

§ 1.7.1 Prior to the A/E providing any Instruments of Service in electronic form to the Construction Manager, Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor, the A/E shall receive from the Construction Manager, Contractor or Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor a

signed disclaimer letter furnished by the A/E and a base fee of $100.00 to cover services for preparation of the electronic data. In addition to the base fee, Potter Lawson charges a $20.00 fee for each drawing in electronic media format. The fees indicated above are subject to change based upon the fee assessed by the A/E's consultants.

§ 1.7.2 The A/E cannot guarantee the accuracy or completeness of the electronic data provided. If there is a discrepancy between the electronic data and the hard copies, the hard copies govern. Any use of the A/E's electronic data will be at the Construction Manager's, Contractor's or Subcontractor's, Sub-subcontractor's, manufacturer's, supplier's, or distributor's sole risk and without liability or legal exposure to the A/E. The Construction Manager, Contractor or Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor shall also agree to indemnify and hold harmless the A/E from all claims, damages, losses, and expenses, including attorney fees arising out of use of the electronic data.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Article 4, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.1.1 The Owner as referenced in the Contract Documents is Vilas County.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Information and Services Required of the Owner

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. Unless otherwise provided under the Contract Documents, the Owner, through the Construction Manager, shall secure and pay for the building permit.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.2.6 The Owner shall endeavor to forward all communications to the Contractor through the Construction Manager and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents.

§ 2.3 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect, after consultation with the Construction Manager. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

§ 2.4.1 The Owner's actions pursuant to Paragraph 2.4 shall not release any obligations of a Surety upon its Performance/Labor and Material Payment Bond.

§ 2.5 Owner's Right to Order Acceleration

If the Trade Contractor fails to prosecute the work in accordance with the construction schedule, as provided by the Construction Manager pursuant to the terms of Division 01, the Owner may require him to increase the number of shifts or overtime operations, days of work, or number of construction workers, or all of them, without additional compensation.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Trade Contractor is the person or entity identified as such in the Contract with the Owner, acting directly or through his lawful agents or employees, who is primarily liable for the acceptable performance of the work for which he has contracted, and also for the payment of all legal debts pertaining to the work. The Contractor is referred to throughout the Contract Documents as if singular in number, and masculine in gender. The term Contractor means the Contractor or his authorized representative. The Contractor shall be lawfully licensed, if required, in the jurisdiction where the Project is located. Contractor includes each successful trade contractor or other bidder to Owner for any part of the Work on the Project, and may be either singular or plural, as the context requires.

§ 3.1.2 The plural term "Multiple Prime Contractors" refers to persons or entities who perform construction under contracts with the Owner that are administered by the Construction Manager. The term does not include the Owner's own forces, including persons or entities under separate contracts not administered by the Construction Manager.

§ 3.1.3 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.4 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Refer to Specification Section 01 60 00, PRODUCT REQUIREMENTS, for provisions on this subject. References to Paragraph 3.4 elsewhere in the Contract Documents shall read as referring to Specification Section 01 60 00.

(Paragraphs deleted)

§ 3.5 Warranty

The Contractor warrants and represents to the Owner, Construction Manager and Architect that materials and equipment furnished under the Contract will be of good quality free of hazardous substances in any form, and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Construction Manager or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.1.1 Hazardous substances referenced in Subparagraph 3.5.1 above include, but are not limited to: asbestos, asbestos products, polychlorinated biphenyl (PCB) or other substances defined as hazardous by Section 1004 of the Solid Waste Disposal Act or listed as hazardous by the U.S. Environmental Protection Agency.

§ 3.6 Taxes

Refer to Specifications Section 01 41 00, REGULATORY REQUIREMENTS, for provisions on this subject. References to Paragraph 3.6 elsewhere in the Contract Documents shall read as referring to Specification Section 01 41 00.

§ 3.7 Permits, Fees, Notices, and Compliance with Laws

Refer to Specification Section 01 41 00, REGULATORY REQUIREMENTS, for provisions on this subject. References to Paragraph 3.7 elsewhere in the Contract Documents shall read as referring to Specification Section 01 41 00.

(Paragraphs deleted)

§ 3.8 Allowances

Refer to Specification Section 01 21 00, ALLOWANCES, for provisions on this subject. References to Paragraph 3.8 elsewhere in the Contract Documents shall read as referring to Specification Section 01 21 00.

(Paragraphs deleted)

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Construction Manager, the name and qualifications of a proposed superintendent. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner or Construction Manager has reasonable objection to the proposed superintendent or (2) that the Owner or Construction Manager requires additional time to review. Failure of the Construction Manager to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Construction Manager has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.9.4 The Architect shall not be responsible for the acts or omissions of the Contractor's superintendent or assistants.

§ 3.10 Contractor's Construction Schedules

Refer to Specification Section 01 33 00, SUBMITTAL PROCEDURES, for provisions on this subject. Reference to Paragraph 3.10 elsewhere in the Contract Documents shall read as referring to Specification Section 01 33 00.

(Paragraphs deleted)

§ 3.11 Documents and Samples at the Site
Refer to Specification Section 01 78 39, PROJECT RECORD DOCUMENTS, for provisions on this subject. Reference to Paragraph 3.11 elsewhere in the Contract Documents shall read as referring to Specification Section 01 78 39.

§ 3.12 Shop Drawings, Product Data and Samples
Refer to Specification Section 01 33 00, SUBMITTAL PROCEDURES, for provisions on this subject. Reference to Paragraph 3.12 elsewhere in the Contract Documents shall read as referring to Specification Section 01 33 00.

(Paragraphs deleted)
§ 3.13 Use of Site
Refer to Specification Section 01 11 00, SUMMARY OF WORK, for provisions on this subject. References to Paragraph 3.13 elsewhere in the Contract Documents shall read as referring to Specification Section 01 11 00.

(Paragraphs deleted)
§ 3.14 Cutting and Patching
Refer to Specification Section 01 73 29, CUTTING AND PATCHING, for provisions on this subject. References to Paragraph 3.14 elsewhere in the Contract Documents shall read as referring to Specification Section 01 73 29.

(Paragraphs deleted)
§ 3.15 Cleaning Up
Refer to Specification Section 01 74 00, CLEANING AND WASTE MANAGEMENT, for provisions on this subject. References to Paragraph 3.15 elsewhere in the Contract Documents shall read as referring to Specification Section 01 74 00.

(Paragraphs deleted)
§ 3.16 Access to Work
The Contractor shall provide the Owner, Construction Manager and Architect access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights
The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner, Architect, or Construction Manager. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect and Owner through the Construction Manager.

§ 3.17.2 If the Contractor uses any design, device, or material covered by letters, patent or copyright, he shall provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. The contract prices shall include all royalties or costs arising from the use of such design, device or material, in any way involved in the work. The Contractor and his Sureties shall indemnify and save harmless the Owner from any and all claims for infringement by reason of the use of such patent or copyright in connection with Work, and shall indemnify the Owner for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during the prosecution of the Work or after completion of the Work.

§ 3.18 Indemnification
§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Construction Manager, Architect, Construction Manager's and Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall

not be construed to negate, abridge or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER

§ 4.1 General

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.1.1 The Architect as referenced in the Contract Documents is POTTER LAWSON, INC. The Architect is referred to elsewhere in the Contract Documents as Engineer or A/E. Reference elsewhere in the Contract Documents as Engineer or A/E shall mean Architect or his authorized representative.

§ 4.1.2 The Owner shall retain a construction manager lawfully licensed to practice construction management or an entity lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.3 Duties, responsibilities and limitations of authority of the Construction Manager and Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Construction Manager, Architect and Contractor. Consent shall not be unreasonably withheld.

§ 4.1.4 If the employment of the Construction Manager or Architect is terminated, the Owner shall employ a successor construction manager or architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

§ 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.1.1 The Construction Manager as referenced in the Contract Documents is The Samuels Group. The Construction Manager is referred to elsewhere in the Contract Documents as CM. Reference elsewhere in the Contract Documents as CM shall mean Construction Manager or his authorized representative.

§ 4.2.2 The Architect will visit the site as agreed by the Owner and the Architect in the Owner and Architect Agreement, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner and Construction Manager (1) known deviations from the Contract Documents and from the most recent Project schedule prepared by the Construction Manager, and (2) defects and deficiencies observed in the Work.

§ 4.2.3 The Construction Manager shall provide a staffing plan to include one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner reasonably informed of the progress of the Work, and will report to the Owner and Architect (1) known deviations

from the Contract Documents and the most recent Project schedule, and (2) defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Multiple Prime Contractors in accordance with the latest approved Project schedule.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, or charge of, construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of or be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Construction Manager, and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with other Multiple Prime Contractors shall be through the Construction Manager and shall be contemporaneously provided to the Architect if those communications are about matters arising out of or related to the Contract Documents. Communications by and with the Owner's own forces shall be through the Owner.

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to advise the Owner to reject Work that does not conform to the Contract Documents and will notify each other about the rejection. The Construction Manager shall determine in general whether the Work of the Contractor is being performed in accordance with the requirements of the Contract Documents and notify the Owner, Contractor and Architect of defects and deficiencies in the Work. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require additional inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, upon written authorization of the Owner, whether or not such Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and recommendations of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a recommendation made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data and Samples. Where there are Multiple Prime Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from Contractor and other Multiple Prime Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.10 Refer to Specification Section 01 33 00, SUBMITTAL PROCEDURES, for provisions on this subject. References to Subparagraphs 4.2.10 and 4.2.11 elsewhere in the Contract Documents shall read as referring to Specification Section 01 33 00.

§ 4.2.11 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.12 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7. and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.13 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.14 The Construction Manager will assist the Architect to conduct a review to determine the date of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Paragraph 9.8; receive from the Construction Manager and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Paragraph 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents. The Architect's review will be conducted with the Owner's Designated Representative and Construction Manager to check conformance of the visible Work with the requirements of the Contract Documents and to verify the accuracy and completeness of the list submitted by the Contractor of Work to be completed or corrected.

§ 4.2.15 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.16 The Architect will interpret and make recommendations to the Owner concerning the performance of the Owner, Construction Manager, or Contractor under, and requirements of, the Contract Documents on written request of the Construction Manager, Owner, or the Contractor through the Construction Manager. The Architect's response to such requests will be made in writing within a reasonable period of time.

§ 4.2.17 Interpretations and recommendations of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and recommendations, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or recommendations rendered in good faith.

§ 4.2.18 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.19 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing to the Construction Manager to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

(Paragraph deleted)

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in

number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Multiple Prime Contractors or subcontractors of other Multiple Prime Contractors.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Construction Manager for review by the Owner, Construction Manager and Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager or the Architect has reasonable objection to any such proposed person or entity or, (2) that the Construction Manager, Architect or Owner requires additional time for review. Failure of the Construction Manager, Owner, or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY OTHER CONTRACTORS

§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, which include persons or entities under separate contracts not administered by the Construction Manager, and to award other contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces including persons or entities under separate contracts not administered by the Construction Manager, the Owner shall provide for coordination of such forces with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11 and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner's own forces, Construction Manager and other Multiple Prime Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces or other Multiple Prime Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Construction Manager and Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's own forces or other Multiple Prime Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a separate contractor or to other Multiple Prime Contractors because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces or other Multiple Prime Contractors.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner, separate contractors, or other Multiple Prime Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and other Multiple Prime Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, other Multiple Prime Contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Construction Manager, with notice to the Architect, will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor; a Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 Change Orders

A Change Order is a written instrument prepared by the Construction Manager and signed by the Owner, Construction Manager, Architect and Contractor, stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager and Architect of the Contractor's agreement or

disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and

.5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order issued through the Construction Manager and shall be binding on the Owner and Contractor.

§7.4.1 Written orders referenced above are limited to Supplemental Instructions or Construction Bulletins issued on Architect's pre-printed forms.

§7.4.1 Minor changes in the Work is defined in Article 1.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion of the whole Work on or before the date stipulated.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner, Owner's own forces, Construction Manager, Architect, any of the other Multiple Prime Contractors or an employee of any of them, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration, or by other causes that the Architect, based on the recommendation of the Construction Manager, determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 Schedule of Values

Refer to Specification Section 01 33 00, SUBMITTAL PROCEDURES, for provisions on this subject. References to Paragraph 9.2 elsewhere in the Contract Documents shall read as referring to Specification Section 01 33 00.

§ 9.3 Applications for Payment

§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner, Construction Manager or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents. The form of Application for Payment shall be AIA Document G702, APPLICATION and CERTIFICATION FOR PAYMENT, supported by AIA Document G703, Continuation Sheet. Use current editions of these documents. Contractor may utilize a computer generated form subject to A/E approval.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager and Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.
§ 9.3.2.1 If the Contractor elects to request payment for materials or equipment stored off site and if such request is approved by the Owner, the Contractor shall pay all costs incurred by the Owner to protect his interest, including costs to visit the place of storage and inventory the stored materials or equipment.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 Certificates for Payment
§ 9.4.1 Not more frequently than monthly, The Construction Manager shall prepare a Project Application for Payment based on the Contractors' work progress for the duration of time covered by the application. The Construction Manager's certification for payment shall constitute a representation to the Owner, that to the best of the Construction Manager's knowledge, information and belief, the Work has progressed to the point indicated and the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to minor deviations from the Contract Documents correctable prior to completion and to specific qualifications expressed by the Construction Manager. The issuance of a Certificate for Payment shall further constitute a representation that the Contractors are entitled to payment in the amount certified. Payment of amounts certified by Construction Manager shall be made by Owner to Construction Manager as Owner's disbursing agent, and shall be paid to the respective Contractors entitled to payment within 14 days of receipt by Construction Manager.

§ 9.4.2 The certification of an Application for Payment or a Project Application for Payment by the Construction Manager shall not be a representation that the Construction Manager has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences for the Contractor's own Work, or procedures; (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) ascertained how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

(Paragraphs deleted)
§ 9.5 Decisions to Withhold Certification
§ 9.5.1 The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction

Manager's or Architect's opinion the representations to the Owner required by Section 9.4.4 and 9.4.5 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.3. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

.1 defective Work not remedied;

.2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;

.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

.5 damage to the Owner or a separate contractor;

.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or

.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager and both will reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Construction Manager has submitted the Project Application for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Construction Manager.

§ 9.6.1.1 The Owner will retain, until the Work is 50 percent complete, 5 percent of the amount due the Contractor on account of progress payments. At the time the work is 50 percent completed or thereafter, if the manner of completion of the Work and its progress are and remain satisfactory to the Architect and Construction Manager, and in the absence of other good and sufficient reasons, the Architect shall (on presentation by the Contractor of Consent of Surety) recommend any remaining partial payments be paid in full.

§ 9.6.1.2 The full contract retainage may be reinstated if the manner of completion of the Work and its progress do not remain satisfactory to the Architect and Construction Manager or for other good and sufficient reasons (or if the Surety withholds his consent).

§ 9.6.1.3 Contractor shall submit one duly executed copy of Waiver of Lien Rights with each Application for Payment. The Waiver must be in the amount of the Application and may be contingent upon receipt of payment within thirty days of Application date. If a corporation, affix corporate seal.

§ 9.6.1.4 Progress payments by Owner to vendors for Direct-Owner Purchased will be made in the manner stated above in Subparagraph 9.6.1 and Clauses 9.6.1.1 and 9.6.1.2.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate

agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Construction Manager may, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Architect on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner, Construction Manager nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 Failure of Payment

If the Construction Manager and Architect do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Construction Manager and Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner, Construction Manager and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the list, the Architect, assisted by the Construction Manager, will make a review to determine whether the Work or designated portion thereof is substantially complete. If the Architect's review discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the requirements of the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a

request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

§ 9.8.4 When the Architect, assisted by the Construction Manager, determines that the Work or designated portion thereof is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by recommendation of the Architect after consultation with the Construction Manager.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Construction Manager a written notice that the Work is ready for final review and acceptance and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager will evaluate the completion of Work of the Contractor and then forward the notice and Application, with the Construction Manager's recommendations, to the Architect who will promptly make such inspection. When the Architect, finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and reviews, the Work has been completed in general accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's and Architect's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing

that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

.1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents; or
.3 terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors.
The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

.1 employees on the Work and other persons who may be affected thereby;
.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors;
.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
.4 construction or operations by the Owner or other Contractors.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4, except damage or loss attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property
If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials
§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to, asbestos or polychlorinated biphenyl (PCB),encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner, Construction Manager and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify a presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resumed upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Architect, their consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or

resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is not due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Liability Insurance

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

.1 Claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;

.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;

.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;

.4 Claims for damages insured by usual personal injury liability coverage;

.5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;

.6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and

.7 Claims for bodily injury or property damage arising out of completed operations; and

.8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 Contractor shall, at its own expense, maintain the following types of policies with Best's B+ VII (or higher) rated insurer(s) which are licensed or approved by the State of Wisconsin. Coverage shall be maintained without interruption from the date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents. Coverage shall be written for not less than the limits of liability specified below or limits required by law, whichever is greater. Neither the Owner nor Architect warrant the adequacy of the types of insurance or the limits of liability required:

§ 11.1.2.1 WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY

Coverage A: Per State Statute
Coverage B: $ 500,000 Each accident
$ 500,000 Disease - Policy Limit
$ 500,000 Disease - Each Employee

§ 11.1.2.2 COMMERCIAL GENERAL LIABILITY

Minimum Coverages: Operations of the Contractor
Operations of Subcontractor (Contingent Liability)
Products/Completed Operations (To be carried for two years after the Date of Substantial Completion of the Work.)
Personal Injury including employee related claims
Employees as Additional Insureds
Property Damage Hazards of Explosion, Collapse, and Underground
Contractual Liability to insure requirements of Paragraph 3.18

Limits: $ 5,000,000 General Aggregate
$ 5,000,000 Products/Completed Operations
$ 1,000,000 Each Occurrence
$ 1,000,000 Personal Injury

§ 11.1.2.3 COMMERCIAL AUTOMOBILE LIABILITY

Coverages: All owned automobiles
All non-owned automobiles
All hired automobiles

Limits: $ 1,000,000 Combined single limit bodily injury and property damage

§ 11.1.2.4 UMBRELLA LIABILITY

Limits: $ 5,000,000 Each Claim
$ 5,000,000 Annual Aggregate

§ 11.1.2.5 The General Aggregate Limit specified in Clause 11.1.2.2 above shall apply separately to this Work by attachment of "Amendments of Limits of Insurance-Designated Projects" Endorsement (ISO Form No. CG25011185) or "Amendment-Aggregate Limits of Insurance-Per Project" Endorsement (ISO Form CG25031185) or equivalent endorsement coverage.

§ 11.1.2.6 The Umbrella Liability shall provide excess limits over and above the Commercial General Liability, Employers' Liability and Comprehensive Automobile Liability limits as stated in this Article 11.

§ 11.1.2.7 Employers' Liability, Commercial General Liability, and Commercial Automobile Liability policies for the full limits required, or by a combination of underlying liability policies for lesser limits with the remaining limits provided by Umbrella Liability policy.

§ 11.1.2.8 Contractor shall require Subcontractor not protected under Contractor's insurance to take out and maintain Worker's Compensation insurance and insurance of the same kind as specified above, and in amounts that the Contractor considers appropriate for the proposed work. Contractor shall submit evidence of such insurance coverage to Owner.

§ 11.1.2.9 Contractor shall carry sufficient comprehensive insurance on his equipment at site of work and on route to and from site to fully protect him. Contractor shall require same coverage of his Subcontractors. It is expressly understood and agreed that Owner and/or Architect shall have no responsibility therefore.

§ 11.1.2.10 If policy includes a self insured retention or deductible sum, indicate sum on Certificate of Insurance. The sum is subject to approval by Owner.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be submitted to the Construction Manager for transmittal to the Owner with a copy to the Architect prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness.

§ 11.1.3.1 Contractor shall furnish Construction Manager with one copy of the Certificate for each copy of Agreement (usually 3) for transmittal to the Owner; specifically set forth evidence of all coverage required by the Contract Documents. The form of the Certificate shall be similar to ACORD Certificate Form 25-S or AIA Document G715 and shall contain the following special provisions:

.1 Name and location of Project.
.2 Indication that the Commercial General Liability Aggregate Limit will apply on a "Per Project" basis or will apply to this "Designated Project" only.
.3 The policies certified shall not be canceled nor non-renewed without 30 days prior written notice to the Owner.
.4 The following entities are listed as additional insureds as respects to Commercial General Liability and Umbrella Liability coverage:
Vilas County
Potter Lawson, Inc.
The Samuels Group
and their respective officers and employees.
.5 "Any coverage afforded the additional insureds shall be primary and any other coverage additional insureds may have will be excess of the coverage provided by these policies."

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Construction Manager, the Construction Manager's consultants, the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 Owner's Liability Insurance
The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 Property Insurance
§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any

applicable legal requirements, and shall cover reasonable compensation for the Architect's, Contractor's, and Construction Manager's services and expenses required as a result of such insured loss. The form of policy for this coverage shall be completed value.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Contractor shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit. The maximum insured value of portions of the Work stored off the site or in transit shall not exceed $50,000.00.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.1.6 Property to be insured includes materials stored on site to be incorporated in the work.

§ 11.3.2 Boiler and Machinery Insurance. The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Construction Manager, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, adjoining or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 Waivers of Subrogation. The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees each of the other, and (2) the Construction Manager,

Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as the Owner and Contractor may have to the proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, Owner's separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.7.1 Provisions of Subparagraph 11.3.7 shall not apply to insurance policies covering the completed Project unless permitted by insurer by endorsement or otherwise.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or distribution of insurance proceeds in accordance with the direction of the arbitrators.

§ 11.4 Performance Bond and Payment Bond

§ 11.4.1 Contractor shall furnish a Performance Bond and Labor and Materials Payment Bond, each in the amount of 100 percent of the Contract Sum, and each on forms indicated in the Project Manual. All such bonds shall be issued by Surety acceptable to the Owner, and the Contractor shall pay all premiums. Deliver said bonds to the Owner not later than the date of execution of the Contract. Failure or neglecting to deliver said bonds as specified, shall be considered as having abandoned the Contract, and the Bid Security will be retained as liquidated damages. Utilize form indicated in the Project Manual.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their observation and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered which the Construction Manager or Architect has not specifically requested to observe prior to its being covered, the Construction Manager or Architect may request to see such Work

and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or one of the other Contractors in which event the Owner shall be responsible for payment of such costs.

§ 12.2 Correction of Work

§ 12.2.1 Before or After Substantial Completion

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, whichever is the longer period, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors or other Multiple Prime Contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

§ 12.4 Reimbursement and Compensation

Where indicated in Paragraphs 12.1 and 12.2 of this Article 12 that Contractor "shall pay costs", "bear costs", and similar phrases, such costs shall include costs to Owner for Architect's services and expenses made necessary thereby.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.1.1 The provisions of the Contract are divisible and to the extent that any provision is determined to be void by reason of existing Wisconsin law such provision shall be void only to the extent necessary to make the balance of the Contract not void.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 Written Notice

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity or to an officer of the corporation for which it was intended; or if delivered at or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 Rights and Remedies

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Construction Manager, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

§ 13.5 Tests and Inspections

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Construction Manager, Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Construction Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and

inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.

§ 13.5.5 If the Construction Manager or Architect is to observe tests, inspections or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 Time Limits on Claims

The Owner and the Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and the Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

§ 13.8 Use of Asbestos-Containing Materials Prohibited

§ 13.8.1 Terminology used in this Paragraph shall be as defined in Federal Register 40 CFR Part 763, Subpart E-Asbestos-Containing Materials in Schools.

§ 13.8.2 Use of asbestos-containing materials as part of the Work is expressly prohibited. Contractor shall notify Owner, in writing, as to conflicts with this Subparagraph and the Specifications so that substitute materials can be investigated and a directive can be issued per Article 7 of the General Conditions. In case of conflict, this Subparagraph shall govern.

§ 13.8.3 Contractor shall submit Material Safety Data Sheets (MSDS) in accordance with provisions of Specification Section 01 33 00 for all suspect products utilized as part of the Work.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;

.3 Because the Construction Manager has not certified or the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, after consultation with the Construction Manager, and upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.

§ 14.2.5 The Owner's actions pursuant to terminating the Contract shall not release any obligation of the Contractor's Surety upon its Performance/Labor and Material Payment Bonds.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of this Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 Notice of Claims. Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Construction Manager and or Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 Continuing Contract Performance. Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Construction Manager will prepare Change Orders and the Architect will issue a Certificate for Payment or Project Certificate for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 Claims for Additional Cost. If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.3.

§ 15.1.5 Claims for Additional Time

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 Claims for Consequential Damages. The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Owner and Contractor will designate a person, other than the Architect, to serve as an Initial Decision Maker. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect and Construction Manager, if the Architect or Construction Manager is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.1.2 General procedure for Arbitration shall conform to Wisconsin Law, or Construction Industry Arbitration Rules of the American Arbitration Association, as agreed upon by the parties involved.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with the laws of the State of Wisconsin

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

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OP ID: XX

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 01/01/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Agency Name Address City, ST ZIP Phone: xxx-xxx-xxxx Fax: xxx-xxx-xxxx	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS: PRODUCER CUSTOMER ID #: XXXX
INSURED Company Name Address City, ST ZIP	INSURER(S) AFFORDING COVERAGE / NAIC # INSURER A : Insurance Company INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT LOC	X	X	ACTIVE POLICY NUMBER	01/01/2013	01/01/2014	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 5,000,000 $ 5,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS X SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS		X	ACTIVE POLICY NUMBER	01/01/2013	01/01/2014	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DEDUCTIBLE X RETENTION $ XXXX	X	X	ACTIVE POLICY NUMBER	01/01/2013	01/01/2014	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	X	POLICY NUMBER	01/01/2013	01/01/2014	X WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 500,000 $ 500,000 $ 500,000
A	Errors & Omissions(if applicable)							$ 1,000,000

one or the other required

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Project #: Description & Location; Samuels Group Inc is listed as additional insured on General Liability & Umbrella. Waiver of Subrogation is provided to certificate holder for General Liability, Auto Liability, Umbrella, and Workers Comp. General Liability coverage is primary and non-contributory. Form CG-2010 and CG-2037 or its equivalent must be attached.

CERTIFICATE HOLDER

Samuels Group Inc.
311 Financial Way, Ste 300
Wausau, WI 54401

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Producer Signature

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Additional Insured Person(s) Or Organization(s):

Samuels Group Inc

Location(s) of Covered Operations:

Project: PROJECT NAME
Location: Project location address
City, ST ZIP

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

A. **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or

2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above. There is no coverage for the additional insured for "bodily injury", "property damage" or "personal and advertising injury" arising out of the sole negligence of the additional insured or by those acting on behalf of the additional insured.

If the name of the person or organization stated above includes any architect, engineer or surveyor, the following applies:

The insurance with respect to such architects, engineers, or surveyors does not apply to "bodily injury," "property damage," or "personal and advertising injury" arising out of the rendering of or the failure to render any professional services by or for you, including:

a. The preparing, approving, or failing to prepare or approve maps, drawings, opinions, reports, surveys, change orders, designs or specifications; and

b. Supervisory, inspection, or engineering services.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusion applies:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or

2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

If a written contract between you and the additional insured specifically requires that this insurance be primary, then the insurance afforded by this endorsement is primary insurance and we will not seek contribution from any other insurance available to the additional insured named in this schedule unless the other insurance is provided by a contractor other than the named insured. Then we will share with that other insurance by the method described below.

If all of the other insurance permits contribution by equal shares, we will follow this method also. Under this approach each insurer contributes equal amounts until it has paid its applicable limit of insurance or none of the loss remains, whichever comes first.

If any of the other insurance does not permit contribution by equal shares, we will contribute by limits. Under this method, each insurer's share is based on the ratio of its applicable limit of insurance to the total applicable limits of insurance of all insurers.

If no contract between you and the additional insured requires that this insurance be primary, then the coverage granted to the additional insured under this endorsement shall be excess over any other valid and collectible insurance.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):

Samuels Group Inc

Location And Description Of Completed Operations

Project: PROJECT NAME
LOCATION: Project location address
City, ST ZIP

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

The TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US Condition (Section **IV** – COMMERCIAL GENERAL LIABILITY CONDITIONS) is amended by the addition of the following:

We waive any right of recovery we may have against the person or organization shown in the Schedule above because of payments we make for injury or damage arising out of your ongoing operations or "your work" done under a contract with that person or organization and included in the "products-completed operations hazard". This waiver applies only to the person or organization shown in the Schedule above.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

DESIGNATED LOCATION(S) GENERAL AGGREGATE LIMIT

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Designated Location(s):

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

A. For all sums which the insured becomes legally obligated to pay as damages caused by "occurrences" under COVERAGE **A** (SECTION **I**), and for all medical expenses caused by accidents under COVERAGE **C** (SECTION **I**), which can be attributed only to operations at a single designated "location" shown in the Schedule above:

1. A separate Designated Location General Aggregate Limit applies to each designated "location", and that limit is equal to the amount of the General Aggregate Limit shown in the Declarations.

2. The Designated Location General Aggregate Limit is the most we will pay for the sum of all damages under COVERAGE **A,** except damages because of "bodily injury" or "property damage" included in the "products-completed operations hazard", and for medical expenses under COVERAGE **C** regardless of the number of:

a. Insureds;

b. Claims made or "suits" brought; or

c. Persons or organizations making claims or bringing "suits".

3. Any payments made under COVERAGE **A** for damages or under COVERAGE **C** for medical expenses shall reduce the Designated Location General Aggregate Limit for that designated "location". Such payments shall not reduce the General Aggregate Limit shown in the Declarations nor shall they reduce any other Designated Location General Aggregate Limit for any other designated "location" shown in the Schedule above.

4. The limits shown in the Declarations for Each Occurrence, Fire Damage and Medical Expense continue to apply. However, instead of being subject to the General Aggregate Limit shown in the Declarations, such limits will be subject to the applicable Designated Location General Aggregate Limit.

B. For all sums which the insured becomes legally obligated to pay as damages caused by "occurrences" under COVERAGE **A** (SECTION **I**), and for all medical expenses caused by accidents under COVERAGE **C** (SECTION **I**), which cannot be attributed only to operations at a single designated "location" shown in the Schedule above:

1. Any payments made under COVERAGE **A** for damages or under COVERAGE **C** for medical expenses shall reduce the amount available under the General Aggregate Limit or the Products-Completed Operations Aggregate Limit, whichever is applicable; and

2. Such payments shall not reduce any Designated Location General Aggregate Limit.

C. When coverage for liability arising out of the "products-completed operations hazard" is provided, any payments for damages because of "bodily injury" or "property damage" included in the "products-completed operations hazard" will reduce the Products-Completed Operations Aggregate Limit, and not reduce the General Aggregate Limit nor the Designated Location General Aggregate Limit.

D. For the purposes of this endorsement, the **Definitions** Section is amended by the addition of the following definition:

"Location" means premises involving the same or connecting lots, or premises whose connection is interrupted only by a street, roadway, waterway or right-of-way of a railroad.

E. The provisions of Limits Of Insurance (SECTION **III**) not otherwise modified by this endorsement shall continue to apply as stipulated.

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Schedule

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.

(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)

Endorsement Effective Policy No. Endorsement No.
Insured Premium

Insurance Company Countersigned by_____

WAGE RATE REQUIREMENTS

PART ONE - GENERAL

Prevailing wage rates as determined by Department of Workforce Development (DWD), Equal Rights Division, are applicable to this Project.

Comply with rules of DWD, Equal Rights Division.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

Wage Rate Determination and List of Debarred Contractors consisting of 24 pages follows this Section.

End of Section

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PREVAILING WAGE RATE DETERMINATION
Issued by the State of Wisconsin
Department of Workforce Development
Pursuant to s. 66.0903, Wis. Stats.
Issued On: 7/5/2016

DETERMINATION NUMBER:	201601980
EXPIRATION DATE:	Prime Contracts MUST Be Awarded or Negotiated On Or Before 1/1/2017. If NOT, You MUST Reapply.
PROJECT NAME:	VILAS COUNTY COURTHOUSE EXPANSION
PROJECT LOCATION:	EAGLE RIVER CITY, VILAS COUNTY, WI
CONTRACTING AGENCY:	VILAS COUNTY

CLASSIFICATION:	Contractors are responsible for correctly classifying their workers. Either call the Department of Workforce Development (DWD) with trade or classification questions or consult DWD's Dictionary of Occupational Classifications & Work Descriptions on the DWD website at: dwd.wisconsin.gov/er/prevailing_wage_rate/Dictionary/dictionary_main.htm.
OVERTIME:	Time and one-half must be paid for all hours worked: - over 10 hours per day on prevailing wage projects - over 40 hours per calendar week - Saturday and Sunday - on all of the following holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25; - The day before if January 1, July 4 or December 25 falls on a Saturday; - The day following if January 1, July 4 or December 25 falls on a Sunday. Apply the time and one-half overtime calculation to whichever is higher between the Hourly Basic Rate listed on this project determination or the employee's regular hourly rate of pay. Add any applicable Premium or DOT Premium to the Hourly Basic Rate before calculating overtime. A DOT Premium (discussed below) may supersede this time and one-half requirement.
FUTURE INCREASE:	When a specific trade or occupation requires a future increase, you MUST add the full hourly increase to the "TOTAL" on the effective date(s) indicated for the specific trade or occupation.
PREMIUM PAY:	If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whevenever such pay is applicable.
DOT PREMIUM:	This premium only applies to highway and bridge projects owned by the Wisconsin Department of Transportation and to the project type heading "Airport Pavement or State Highway Construction." DO NOT apply the premium calculation under any other project type on this determination.
APPRENTICES:	Pay apprentices a percentage of the applicable journeyperson's hourly basic rate of pay and hourly fringe benefit contributions specified in this determination. Obtain the appropriate percentage from each apprentice's contract or indenture.
SUBJOURNEY:	Subjourney wage rates may be available for some of the trades or occupations indicated below with the exception of laborers, truck drivers and heavy equipment operators. Any employer interested in using a subjourney classification on this project MUST complete Form ERD-10880 and request the applicable wage rate from the Department of Workforce Development PRIOR to using the subjourney worker on this project.

This document **MUST BE POSTED** by the **CONTRACTING AGENCY** in at least one conspicuous and easily accessible place **on the site of the project .** A local governmental unit may post this document at the place normally used to post public notices if there is no common site on the project. This document **MUST** remain posted during the entire time any worker is employed on the project and **MUST** be physically incorporated into the specifications and all contracts and subcontracts. If you have any questions, please write to the Equal Rights Division, Labor Standards Bureau, P.O. Box 8928, Madison, Wisconsin 53708 or call (608) 266-6861.

The following statutory provisions apply to local governmental unit projects of public works and are set forth below pursuant to the requirements of s. 66.0903(8), Stats.

s. 66.0903 (1) (f) & s. 103.49 (1) (c) "PREVAILING HOURS OF LABOR" for any trade or occupation in any area means 10 hours per day and 40 hours per week and may not include any hours worked on a Saturday or Sunday or on any of the following holidays:

1. January 1.
2. The last Monday in May.
3. July 4.
4. The first Monday in September.
5. The 4th Thursday in November.
6. December 25.
7. The day before if January 1, July 4 or December 25 falls on a Saturday.
8. The day following if January 1, July 4 or December 25 falls on a Sunday.

s. 66.0903 (10) RECORDS; INSPECTION; ENFORCEMENT.
(a) Each contractor, subcontractor, or contractor's or subcontractor's agent performing work on a project of public works that is subject to this section shall keep full and accurate records clearly indicating the name and trade or occupation of every person performing the work described in sub. (4) and an accurate record of the number of hours worked by each of those persons and the actual wages paid for the hours worked.

s. 66.0903 (11) LIABILITY AND PENALTIES.
(a) 1. Any contractor, subcontractor, or contractor's or subcontractor's agent who fails to pay the prevailing wage rate determined by the department under sub. (3) or who pays less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor is liable to any affected employee in the amount of his or her unpaid wages or his or her unpaid overtime compensation and in an additional amount as liquidated damages as provided under subd. 2., 3., whichever is applicable.
2. If the department determines upon inspection under sub. (10) (b) or (c) that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the department shall order the contractor to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages within a period specified by the department in the order.
3. In addition to or in lieu of recovering the liability specified in subd. 1. as provided in subd. 2., any employee for and in behalf of that employee and other employees similarly situated may commence an action to recover that liability in any court of competent jurisdiction. If the court finds that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the court shall order the contractor, subcontractor, or agent to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages.
5. No employee may be a party plaintiff to an action under subd. 3. unless the employee consents in writing to become a party and the consent is filed in the court in which the action is brought. Notwithstanding s. 814.04 (1), the court shall, in addition to any judgment awarded to the plaintiff, allow reasonable attorney fees and costs to be paid by the defendant.

BUILDING OR HEAVY CONSTRUCTION

Includes sheltered enclosures with walk-in access for the purpose of housing persons, employees, machinery, equipment or supplies and non-sheltered work such as canals, dams, dikes, reservoirs, storage tanks, etc. A sheltered enclosure need not be "habitable" in order to be considered a building. The installation of machinery and/or equipment, both above and below grade level, does not change a project's character as a building. On-site grading, utility work and landscaping are included within this definition. Residential buildings of four (4) stories or less, agricultural buildings, parking lots and driveways are NOT included within this definition.

SKILLED TRADES

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
101	Acoustic Ceiling Tile Installer Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
102	Boilermaker Future Increase(s): Add $1.50/hr. on 01/01/2016	33.35	28.24	61.59
103	Bricklayer, Blocklayer or Stonemason	19.97	26.84	46.81
104	Cabinet Installer Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
105	Carpenter Future Increase(s): Add $1.42/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.02	17.12	50.14
106	Carpet Layer or Soft Floor Coverer Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
107	Cement Finisher	26.95	6.31	33.26
108	Drywall Taper or Finisher Future Increase(s): Add $1.42/hr on 6/1/2016.	33.02	17.12	50.14
109	Electrician	29.20	17.36	46.56
110	Elevator Constructor	46.05	27.70	73.75
111	Fence Erector	24.73	19.69	44.42
112	Fire Sprinkler Fitter	39.66	19.53	59.19
113	Glazier	27.74	17.25	44.99
114	Heat or Frost Insulator	18.00	11.84	29.84
115	Insulator (Batt or Blown)	23.62	11.55	35.17

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
116	Ironworker	32.50	20.58	53.08
117	Lather	32.72	16.00	48.72
118	Line Constructor (Electrical)	40.81	18.06	58.87
119	Marble Finisher	25.72	18.54	44.26
120	Marble Mason	19.97	26.84	46.81
121	Metal Building Erector	22.25	2.06	24.31
122	Millwright Future Increase(s): Add $1.47/hr on 6/1/2016.	34.79	17.17	51.96
123	Overhead Door Installer	31.93	4.23	36.16
124	Painter	20.13	10.16	30.29
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver Future Increase(s): Add $1.44/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.56	17.12	50.68
127	Pipeline Fuser or Welder (Gas or Utility)	35.55	16.12	51.67
129	Plasterer	31.55	18.87	50.42
130	Plumber	33.50	2.12	35.62
132	Refrigeration Mechanic	36.75	16.32	53.07
133	Roofer or Waterproofer	17.75	6.29	24.04
134	Sheet Metal Worker	28.10	23.50	51.60
135	Steamfitter	36.75	16.32	53.07
137	Teledata Technician or Installer	22.50	12.74	35.24
138	Temperature Control Installer	33.86	15.23	49.09
139	Terrazzo Finisher	25.72	18.54	44.26
140	Terrazzo Mechanic Future Increase(s): Add $1.45 on 06/06/2016	31.59	19.60	51.19
141	Tile Finisher	30.00	0.00	30.00
142	Tile Setter Future Increase(s): Add $1.45/hr on 6/06/2016.	31.59	19.61	51.20

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
143	Tuckpointer, Caulker or Cleaner	34.28	18.60	52.88
144	Underwater Diver (Except on Great Lakes)	36.74	16.00	52.74
146	Well Driller or Pump Installer Future Increase(s): Add $1/hr on 6/1/2016; Add $1/hr on 6/1/2017.	25.32	16.40	41.72
147	Siding Installer	17.00	6.71	23.71
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	20.41	57.14
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	25.00	12.55	37.55

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle Future Increase(s): Add $1.15/hr on 6/1/2015. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	25.68	18.96	44.64
203	Three or More Axle	17.50	0.00	17.50
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07
205	Pavement Marking Vehicle	17.50	0.00	17.50
207	Truck Mechanic	17.50	0.00	17.50

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	24.22	12.36	36.58
302	Asbestos Abatement Worker	25.02	15.63	40.65

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
303	Landscaper	21.90	9.83	31.73
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	24.23	14.14	38.37
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.00	4.31	20.31
314	Railroad Track Laborer	24.22	15.12	39.34
315	Final Construction Clean-Up Worker	29.01	17.39	46.40

HEAVY EQUIPMENT OPERATORS
SITE PREPARATION, UTILITY OR LANDSCAPING WORK ONLY

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
501	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Milling Machine; Boring Machine (Directional, Horizontal or Vertical); Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Backhoe (Track Type) Having a Mfgr's Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Crane, Shovel, Dragline, Clamshells; Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Grader or Motor Patrol; Master Mechanic; Mechanic or Welder; Robotic Tool Carrier (With or Without Attachments); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Tractor (Scraper, Dozer, Pusher, Loader); Trencher (Wheel Type or Chain Type Having Over 8 Inch Bucket).	24.00	0.00	24.00
502	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Environmental Burner; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Jeep Digger; Screed (Milling Machine); Skid Rig; Straddle Carrier or Travel Lift; Stump Chipper; Trencher (Wheel Type or Chain Type Having 8 Inch Bucket & Under).	34.47	18.86	53.33
503	Air Compressor (&/or 400 CFM or Over); Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Forklift; Generator (&/or 150 KW or Over); Greaser; High Pressure Utility Locating Machine (Daylighting Machine); Mulcher; Oiler; Post Hole Digger or Driver; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	14.50	14.44	28.94
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
505	Work Performed on the Great Lakes Including Crane or Backhoe Operator; Assistant Hydraulic Dredge Engineer; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder; 70 Ton & Over Tug Operator. Future Increase(s): Add $1.25/hr on 1/1/2017. Premium Increase(s): Add $.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	44.05	23.24	67.29
506	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery. Future Increase(s): Add $1.25/hr on 1/1/2017.	39.20	23.09	62.29
507	Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	36.72	21.15	57.87

HEAVY EQUIPMENT OPERATORS
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
508	Boring Machine (Directional); Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add $1.60/hr on 6/3/2016. Premium Increase(s): Add $.50/hr for >200 Ton; Add $1/hr at 300 Ton; Add $1.50/hr at 400 Ton; Add $2/hr at 500 Ton & Over.	37.67	20.38	58.05
509	Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Boring Machine (Horizontal or Vertical); Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Pile Driver; Versi Lifts, Tri-Lifts & Gantrys (20,000 Lbs. & Over). Future Increase(s): Add $1.60/hr on 6/3/2016. Premium Increase(s): Add $.25/hr for all >45 Ton lifting capacity cranes.	36.42	20.38	56.80

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
510	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Dredge (NOT Performing Work on the Great Lakes); Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Hydro-Blaster (10,000 PSI or Over); Milling Machine; Skid Rig; Traveling Crane (Bridge Type). Future Increase(s): Add $1.60/hr on 6/3/2016.	35.22	20.38	55.60
511	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Environmental Burner; Gantrys (Under 20,000 Lbs.); Grader or Motor Patrol; High Pressure Utility Locating Machine (Daylighting Machine); Manhoist; Material or Stack Hoist; Mechanic or Welder; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tining or Curing Machine; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07
512	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Grout Pump; Hoist (Tugger, Automatic); Industrial Locomotives; Jeep Digger; Lift Slab Machine; Mulcher; Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames. Future Increase(s): Add $1.60/hr on 6/3/2016.	32.62	20.38	53.00

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
513	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Boatmen (NOT Performing Work on the Great Lakes); Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Elevator; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Forklift; Generator (&/or 150 KW or Over); Greaser; Heaters (Mechanical); Loading Machine (Conveyor); Oiler; Post Hole Digger or Driver; Prestress Machine; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Robotic Tool Carrier (With or Without Attachments); Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1.60/hr on 6/3/2016.	32.62	20.38	53.00
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment). Future Increase(s): Add $1/hr on 5/30/2016.	37.04	22.44	59.48
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment).	34.76	20.30	55.06
516	Fiber Optic Cable Equipment	28.50	0.88	29.38

SEWER, WATER OR TUNNEL CONSTRUCTION

Includes those projects that primarily involve public sewer or water distribution, transmission or collection systems and related tunnel work (excluding buildings).

SKILLED TRADES

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	19.97	26.84	46.81
105	Carpenter	32.72	16.00	48.72
107	Cement Finisher Future Increase(s): Add $1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	35.97	17.85	53.82
109	Electrician Future Increase(s): Add $1.60 on 6/1/16; Add $1.70 on 6/1/17 Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.13	23.19	58.32
111	Fence Erector	24.73	19.69	44.42
116	Ironworker	32.50	20.58	53.08
118	Line Constructor (Electrical)	40.81	18.06	58.87
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver	33.24	16.00	49.24
130	Plumber Future Increase(s): Add $1.50 on 6/1/16	39.95	19.45	59.40
135	Steamfitter	35.55	16.12	51.67
137	Teledata Technician or Installer	22.50	12.74	35.24
143	Tuckpointer, Caulker or Cleaner	34.28	18.60	52.88
144	Underwater Diver (Except on Great Lakes)	31.00	20.43	51.43
146	Well Driller or Pump Installer Future Increase(s): Add $1/hr on 6/1/2016; Add $1/hr on 6/1/2017.	25.32	16.40	41.72

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	15.92	52.65
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	19.00	0.00	19.00
203	Three or More Axle	19.00	0.00	19.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	33.69	19.78	53.47
205	Pavement Marking Vehicle	19.00	0.00	19.00
207	Truck Mechanic	19.00	0.00	19.00

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	29.16	16.88	46.04
303	Landscaper	41.00	0.00	41.00
304	Flagperson or Traffic Control Person	19.31	9.84	29.15
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.00	4.31	20.31
314	Railroad Track Laborer	24.22	15.12	39.34

HEAVY EQUIPMENT OPERATORS
SEWER, WATER OR TUNNEL WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
521	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Master Mechanic; Pile Driver. Premium Increase(s): Add $.25/hr for operating tower crane.	38.09	20.80	58.89
522	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Spreader & Distributor; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Dredge (NOT Performing Work on the Great Lakes); Milling Machine; Skid Rig; Telehandler; Traveling Crane (Bridge Type). Premium Increase(s): Add $.25/hr for operating tower crane.	37.31	20.80	58.11
523	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Boring Machine (Horizontal or Vertical); Bulldozer or Endloader (Over 40 hp); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Manhoist; Material or Stack Hoist; Mechanic or Welder; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Premium Increase(s): Add $.25/hr for operating tower crane.	36.36	20.80	57.16

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
524	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Environmental Burner; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Hoist (Tugger, Automatic); Grout Pump; Jeep Digger; Lift Slab Machine; Mulcher; Power Subgrader; Pump (3 Inch or Over) or Well Points; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Tining or Curing Machine; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames.	33.69	21.75	55.44
525	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Loading Machine (Conveyor); Post Hole Digger or Driver; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	30.19	22.06	52.25
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	31.62	19.78	51.40
527	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
528	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	41.65	21.71	63.36
529	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	36.72	21.15	57.87
530	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under), Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	36.72	21.15	57.87

LOCAL STREET OR MISCELLANEOUS PAVING CONSTRUCTION

Includes roads, streets, alleys, trails, bridges, paths, racetracks, parking lots and driveways (except residential or agricultural), public sidewalks or other similar projects (excluding projects awarded by the Wisconsin Department of Transportation).

SKILLED TRADES

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	19.97	26.84	46.81
105	Carpenter Future Increase(s): Add $1.42/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.02	17.12	50.14
107	Cement Finisher	35.18	17.13	52.31
109	Electrician	32.68	23.21	55.89
111	Fence Erector	24.73	19.69	44.42
116	Ironworker	32.50	20.58	53.08
118	Line Constructor (Electrical)	40.81	18.06	58.87
124	Painter	20.13	10.16	30.29
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver Future Increase(s): Add $1.44/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.56	17.12	50.68
133	Roofer or Waterproofer	17.75	6.29	24.04
137	Teledata Technician or Installer	22.50	12.74	35.24
143	Tuckpointer, Caulker or Cleaner	34.28	18.60	52.88
144	Underwater Diver (Except on Great Lakes)	36.74	16.00	52.74
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	15.92	52.65
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08

154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	20.70	6.01	26.71
203	Three or More Axle	20.70	6.01	26.71
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.60/hr on 6/3/2016.	34.69	20.38	55.07
205	Pavement Marking Vehicle	20.70	6.01	26.71
206	Shadow or Pilot Vehicle	20.70	6.01	26.71
207	Truck Mechanic	20.70	6.01	26.71

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	21.00	1.31	22.31
303	Landscaper Future Increase(s): Add $1.00/hr eff. 06/01/2016; Add $1.00/hr eff. 06/01/2017 Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	30.67	15.65	46.32
304	Flagperson or Traffic Control Person	19.31	9.84	29.15
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	16.00	4.31	20.31
314	Railroad Track Laborer	24.22	15.12	39.34

HEAVY EQUIPMENT OPERATORS
CONCRETE PAVEMENT OR BRIDGE WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
541	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add $1.60/hr on 6/3/2016. Premium Increase(s): Add $.50/hr for >200 Ton; Add $1/hr at 300 Ton; Add $1.50/hr at 400 Ton; Add $2/hr at 500 Ton & Over.	37.67	20.38	58.05
542	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Crane, Tower Crane Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.77	21.85	59.62

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
543	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.27	21.85	59.12
544	Backfiller; Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (WIth or Without Attachments); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler; Tining or Curing Machine. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.27	21.85	59.12

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
545	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack.	31.62	19.78	51.40
546	Fiber Optic Cable Equipment.	28.50	0.88	29.38
547	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
548	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder. Future Increase(s): Add $1.25/hr on 1/1/2017. Premium Increase(s): Add $.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	44.05	23.24	67.29
549	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or more); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	36.72	21.15	57.87
550	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	36.72	21.15	57.87

HEAVY EQUIPMENT OPERATORS
ASPHALT PAVEMENT OR OTHER WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
551	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads and/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic.	36.67	19.78	56.45

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
552	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add $1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.	37.77	21.85	59.62
553	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boring Machine (Directional, Horizontal or Vertical); Bulldozer or Endloader; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Laser/Screed; Concrete Slipform Placer Curb & Gutter Machine; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames.	24.00	4.27	28.27
554	Backfiller; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self-Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler.	21.30	5.62	26.92

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
555	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add $1.60/hr on 6/3/2016.	32.62	20.38	53.00
556	Fiber Optic Cable Equipment.	28.50	0.88	29.38

********** END OF RATES **********

Consolidated List of Debarred Contractors
Prepared and Issued By
State of Wisconsin - Department of Workforce Development

This list has been prepared in accordance with the provisions of §§66.0903(12) and 103.49(7), Wis. Stats., and Chapter DWD 294 of the Wisconsin Administrative Code. All contractors on this list were found to have committed a "debarable offense" related to certain labor standard provisions determined or established for a state or local public works project. No state agency, local governmental unit or owner or developer may knowingly solicit bids from, negotiate with or award any contracts to or approve or allow any subcontracts with a debarred contractor, including all divisions, affiliates or other organizational elements of such contractor that are engaged in construction business activities, until the debarment is terminated. The name of each debarred contractor must remain on this list for a period of three (3) years from the termination date indicated below. The contractor is, however, only "debarred" from the "effective date" through the "termination date" indicated for that contractor. Questions regarding this list should be addressed to Jim Chiolino, Equal Rights Division, P. O. Box 8928, Madison, WI 53708 or call (608) 266-3345. Deaf, hearing or speech-impaired callers may contact the department by calling its TDD number (608) 264-8752.

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/ Deviations
A-1 Duran Roofing & Insulation Services, Inc.	3700 N Fratney St Milwaukee, WI 53212 or 8095 NW 64th St Miami, FL 33166	11/1/14	10/31/17	1, 2 and 4	2011-2012	None
Abel, Mike	*See,* Abel Electric, Inc					
Abel Electric, Inc	3385 Belmar Rd Green Bay, WI 54313	9/1/12	8/31/15	1	2011	None
Alpha Electric, LLC	350 Business Park Dr Sun Prairie, WI 53590	8/1/15	7/31/18	4	2014	None
Arnie Christiansen Mason Contractors, LLC	2304 65th Dr Franksville, WI 53126	9/1/14	8/31/16	1, 2 and 4	2011	None
Atkins, Scott	*See,* Freedom Insulation, Inc					
Bickel, Matthew	*See,* Peshtigo Asphalt, Inc					
Boecker, Roger	*See,* R-Way Pumping, Inc					
Brechtl, Mark G	*See,* Ecodec, Inc					

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/ Deviations
Cargill Heating and Air Conditioning Company, Inc	3049 Edgewater La La Crosse, WI 54603	3/1/14	2/28/17	1 and 2	2011	None
Castlerock Commercial Construction, Inc	PO Box 11699 Milwaukee, WI 53211-0699	2/1/12	1/31/15	1, 2 and 4	2009 & 2010	None
Christiansen, Andy	*See,* Arnie Christiansen Mason Contractors, LLC					
Christiansen, Arnold	*See,* Arnie Christiansen Mason Contractors, LLC					
Darnick, Gregory L	*See,* Darnick Trucking, LLC					
Darnick Trucking, LLC	W914 County Rd V Berlin, WI 54923	11/1/14	10/31/15	1, 2 and 4	2012 & 2013	None
Dem/Ex Group, Inc	805 S Adams St Manito, IL 61546	12/1/11	11/30/14	1 and 2	2010	None
Duran, Bernardo	*See,* A-1 Duran Roofing & Insulation Services and RRS2 Inc					
Ecodec, Inc	5106 Wintergreen Dr Madison, WI 53704	10/1/14	9/30/17	1	2011 & 2012	None
Fisher, Ed &/or Fisher, Rhonda	*See,* Dem/Ex Group, Inc					
Freedom Insulation, Inc	117925 219th Ave Chippewa Falls, WI 54729	9/1/11	8/31/14	1	2008-2010	None
Froode, Kathleen M	*See,* Masonry Specialists II, LLC					
Galstad, Michael E (aka Michael Earl Galstad)	*See,* Cargill Heating and Air Conditioning Company, Inc					

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/ Deviations
Gjolaj, Ded	*See,* Horizon Bros Painting Corp					
Grade A Construction, Inc	157 Enterprise Rd Delafield, WI 53018	1/1/16	12/31/19	1, 2 and 4	2014	None
Hernandez, Jesus	*See,* Quality Essential, Inc.					
Horizon Bros Painting Corp	1053 Kendra La Howell, MI 48843	10/1/14	9/30/16	4	2012	None
JT Roofing, Inc	350 Tower Dr Saukville, WI 53080	6/1/12	5/31/15	1, 2 and 4	2007 & 2008	None
Jinkins, Richard	*See,* Castlerock Commercial Construction, Inc					
John's Concrete	*See,* Wagner Companies, Inc, dba John's Concrete					
Kott, Joseph J	*See,* Alpha Electric, LLC					
Masonry Specialists II, LLC	5109 Briarwood Ct Racine, WI 53402	8/1/15	7/31/18	4	2014	None
Mid-W Enterprises, Inc	1730 22nd Avenue Kenosha, WI 53140	6/1/15	5/31/17	1, 2 and 4	2013	None
Midwest Construction Co, Inc	*See,* Mid-W Enterprises, Inc					
Oden, Cassie	*See,* A-1 Duran Roofing & Insulation Services and RRS2 Inc					
Ofstie, Darin	*See*, Precision Excavating and Grading, LLC					
Peret, Robert	*See,* A-1 Duran Roofing &					

Insulation Services and RRS2 Inc

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/ Deviations
Peshtigo Asphalt, Inc	W3895 Track La Peshtigo, WI 54157	3/1/16	2/28/17	1	2013-2014	None
Precision Excavating and Grading, LLC or Precision Excavating Enterprises, LLC	2104 Pierce Saint Croix Rd Baldwin, WI 54002	5/1/11	4/30/14	1, 2 and 4	2006-2008	None
Quality Essential, Inc.	917 11th Ave S #4 Hopkins, MN 55343	7/1/16	6/3019	4	2015	None
R-Way Pumping, Inc	3023 Lake Maria Rd Freeport, MN 56331	3/1/12	2/28/15	1, 2 and 4	2008	None
RRS2 Inc.	133 N Jackson St, #427 Milwaukee, WI 53202 or 1313 N Franklin Pl, #805 Milwaukee, WI 53202	11/1/14	10/31/17	1, 2 and 4	2011-2012	None
Thull, Gerald T	*See,* JT Roofing, Inc					
Ventura, Robert	*See,* Mid-W Enterprises, Inc					
Wagner, Cory L	*See,* Wagner Companies, Inc					
Wagner Companies, Inc, dba John's Concrete	2063 Georgia Ave Racine, WI 53404	8/1/15	7/31/18	1	2013	None
Yaresh, Kathleen R	*See,* Grade A Construction, Inc					

Cause Code: 1 = Failure to Pay Straight Time 2 = Failure to Pay Overtime 3 = Kickback 4 = Payroll Records.

SECTION 00 80 09

DEFAULT AND TERMINATION OF CONTRACTS

PART 1

1.01 The Contractor shall be considered in default of the Contract and such default will be considered as cause for the Owner to terminate the Contract for any of the following reasons if the Contractor:

A. Fails to begin the Work under the Contract within the time specified in the Construction Schedule.

B. Fails to perform the Work or fails to provide sufficient workers, equipment, or materials to assure completion of Work in accordance with the terms of the Contract.

C. Performs the Work unsuitably or neglects or refuses to remove materials or to perform anew such Work as may be rejected unacceptable and unsuitable.

D. Discontinues the prosecution of the Work.

E. Fails to resume Work which has been discontinued within a reasonable time after notice to do so.

F. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency.

G. Allows any final judgment to stand against them unsatisfied for a period of 48 hours.

H. Makes an assignment for the benefit of creditors.

I. Is determined to be in violation of the provisions of the Contract relative to hours of labor, wages, equal opportunity, character and classification of works employed

J. For any other cause, fails to carry on acceptable Work.

1.02 Should the Owner consider the Contractor in default of the Contract for any reason, written notice will be given immediately to the Contractor and the Contractor's Surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the Contract.

1.03 If the Contractor or Surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Construction Manager will, upon written notification from the Owner of the facts of delay, neglect, or default, and the Contractor's failure to comply with such notice, have full power and authority without violating the Contract, to take the prosecution of the Work out of the hands of the Contractor. The Owner may appropriate or use acceptable materials and equipment that have mobilized for use in the Wok and may enter into an agreement for the completion of the Contract according to the terms, or use other methods as in the opinion of the Owner will be required for the acceptable completion of the Contract.

1.04 All costs and changes insured by the Owner, together with the cost of completing the Work under Contract, will be deducted from any moneys due or which may become due the Contractor. If the expense exceeds the sum which would have been payable under the Contract, then the Contractor and the Surety will be liable and shall pay to the Owner the amount of such excess.

END OF SECTION

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ADDENDA

Addenda may be issued with the Project Manual and bound following this page.

Insert all Addenda subsequently issued by the Architect following this page and list below.

ADDENDUM NO.	ISSUED	RECEIVED
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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SPECIFICATIONS

DIVISION 01

SECTION 01 11 00 - SUMMARY OF WORK

PART ONE - GENERAL

WORK COVERED BY CONTRACT DOCUMENTS/REQUIREMENTS INCLUDED

Phase 1 Work comprises the construction of an approximately 32, 400 gross square feet 2-story addition to the existing courthouse building. Phase 2 Work comprises the construction of an approximately 3,130 gross square feet 2-story connector between the addition and the existing courthouse building; an approximately 1,270 gross square feet detached garage addition; and approximately 2,280 square feet of remodeling within the existing courthouse building including associated fire protection, plumbing, HVAC, and electrical work.

RELATED WORK AND REQUIREMENTS

Conditions of the Contract: Additional responsibilities of all Parties
Section 01 31 13: Project Coordination
Section 01 31 26: Mechanical and Electrical Coordination

CONTRACTS

Perform Work under multiple contracts with the Construction Manager.

The scope of Work for each contract identified by the Construction Manager includes the Contracting Requirements, Schedules, and Work and Requirements specified in:

DIVISION 01 - GENERAL REQUIREMENTS	...All Sections
DIVISION 02 - EXISTING CONDITIONS	...All Sections
DIVISION 03 - CONCRETE	...All Sections
DIVISION 04 - MASONRY	...All Sections
DIVISION 05 - METALS	...All Sections
DIVISION 06 - WOOD, PLASTICS AND COMPOSITES	...All Sections
DIVISION 07 - THERMAL AND MOISTURE PROTECTION	...All Sections
DIVISION 08 - OPENINGS	...All Sections
DIVISION 09 - FINISHES	...All Sections
DIVISION 10 - SPECIALTIES	...All Sections
DIVISION 12 - FURNISHINGS	...All Sections
DIVISION 14 - CONVEYING SYSTEMS	...All Sections
DIVISION 21 - FIRE SUPPRESSION	...All Sections
DIVISION 22 - PLUMBING	...All Sections
DIVISION 23 - HEATING VENTILATING AND AIR CONDITIONING	...All Sections

DIVISION 26 - ELECTRICAL ...All Sections

DIVISION 27 - COMMUNICATIONS ...All Sections

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY ...All Sections

DIVISION 31 - EARTHWORK ...All Sections

DIVISION 32 - EXTERIOR IMPROVEMENTS ...All Sections

DIVISION 33 - UTILITIES ...All Sections

...and all Drawings as listed in the Drawing Index.

CONTRACTS

The Construction Manager may elect to award Contracts for various portions of the Work.

All Contracts consists of Work and Requirements specified in General Conditions, in Section of Work Bid (e.g. Section 04 20 00) and Requirements specified in the following Sections of Division 01:

Sections
- 01 11 00 Summary of Work
- 01 11 23 Tax Exempt Purchase Procedures
- 01 20 00 Price and Payment Procedures
- 01 23 00 Alternates
- 01 31 13 Project Coordination
- 01 31 19 Project Meetings
- 01 31 26 Mechanical and Electrical Coordination
- 01 33 00 Submittal Procedures
- 01 35 16 Alteration Project Procedures
- 01 41 00 Regulatory Requirements
- 01 45 29 Testing Laboratory Services
- 01 50 00 Temporary Facilities and Controls
- 01 51 13 Temporary Electricity and Lighting
- 01 51 23 Temporary Heating, Cooling, and Ventilating
- 01 51 36 Temporary Water and Sanitary Facilities
- 01 52 13 Field Offices and Sheds
- 01 57 13 Temporary Erosion and Sediment Control
- 01 58 00 Project Identification
- 01 60 00 Product Requirements
- 01 71 23 Field Engineering
- 01 73 29 Cutting and Patching
- 01 74 00 Cleaning and Waste Management
- 01 77 00 Closeout Procedures
- 01 78 23 Operation and Maintenance Data
- 01 78 36 Warranties and Bonds
- 01 78 39 Project Record Documents

...and all Drawings as listed in the Drawing Index, all Schedules, and Addenda.

WORK BY OTHERS

Work on the Project, which will be performed **after** the start of the Work, as follows:

Furnishings. The Owner may take delivery and set in-place, furnishings prior to completion of the Work as long as it has been communicated with the Construction Manager's Superintendent, but not until "Substantial Completion" of the Work affected by such placement has been established.

Communications. The Owner may contract for communications equipment and installation during final stages of completion of the Project.

Maintenance. The Owner will continue to perform unscheduled and/or scheduled maintenance of existing buildings adjacent to the Project Site with his personnel or separate contracted parties.

ITEMS FURNISHED BY OWNER FOR INSTALLATION BY CONTRACTOR

Refer to items indicated on the Drawings.

CONTRACTOR'S USE OF PREMISES

General: Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities having jurisdiction and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

Limit as indicated use of the premises for Work and for storage and to allow for Work by other Contractors/Subcontractors.

Limit disturbances to surrounding adjacent areas of the Project site beyond areas of the construction limits.

Limit access to the site as prescribed by Construction Manager.

Coordinate use of premises under direction of Construction Manager and Owner.

Assume full responsibility for the protection and safekeeping of Products under this Contract, stored on the site.

Move any stored products, under Contractor's control, which interfere with operation of the Owner or other Contractors.

Obtain and pay for use of additional storage or work areas needed for operations.

Restore all areas of premises disturbed due to construction activities to original condition upon completion of Project, including lawns, pavements, and other site improvements at no cost to Owner.

Existing toilet facilities may not be used without Owner's permission.

OWNER OCCUPANCY

Owner will occupy the premises during the entire period of construction for the conduct of his normal operations. Cooperate with Owner in all construction operations to minimize conflict, and to facilitate Owner's operations.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

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SECTION 01 11 23
TAX EXEMPT PURCHASE PROCEDURES

See attached based on Wisconsin Act 126

END OF SECTION 01 11 23

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AGC of Wisconsin
SKILL RESPONSIBILITY INTEGRITY
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ACT 126 – Sales Tax on Construction Materials for Tax Exempt Entities

Effective on contracts signed on or after January 1, 2016, contractors are able to directly purchase construction materials on behalf of many of their tax exempt and local government customers without being subject to sales or use tax. Previously, a construction contractor who both furnished and installed the building materials in the performance of a real property construction activity was not permitted to make purchases of building materials exempt from sales and use tax on behalf of an exempt end-customer. The new law provides an exemption from sales and use tax for property sold to a construction contractor who, in fulfillment of a real property activity or performance of an improvement to real property, transfers the property to a ***qualifying exempt entity***.

Does this change apply to all projects for any tax exempt entities?

No. The exemption only applies to certain projects completed for certain tax exempt entities. In order for the exemption to apply, the following criteria must be met:

a. The construction must be for a ***qualifying exempt entity***;
b. The property must become ***part of a facility*** in Wisconsin that is owned by the exempt entity; and
c. The Property must be ***transferred*** to the qualifying exempt entity.

For clarification, not all nonprofit organizations that are exempt from federal income and franchise taxes are qualifying exempt entities for purposes of this exemption. Many fraternal, social and civic organizations (Chambers of Commerce, volunteer fire departments, professional organizations, labor organizations) do not hold a Wisconsin Certificate of Exempt Status (CES) number and do not qualify for this exemption.

Further, certain tax exempt entities do not qualify for the exemption, even if they hold a Wisconsin CES number.

What is a qualifying exempt entity?

For purposes of this exemption, a qualifying exempt entity includes:

- Any county, city, village or town within Wisconsin
- Any public school district within Wisconsin
- A County-city hospital established under Wis. Stat. § 66.0927
- A Sewerage commission organized under Wis. Stat. § 281.43 (4)
- A Metropolitan sewerage district organized under Wis. Stat. §§ 200.01 to 200.15 or 200.21 to 200.65
- Any joint local water authority created under Wis. Stat. § 66.0823
- Any nonprofit organization that holds a Wisconsin Certificate of Exempt Status (CES) number
- Non-Wisconsin nonprofit organization if it is organized and operated exclusively for religious, charitable, scientific or educational purposes, or for the prevention of cruelty to children or animals (except hospital service insurance corporations), and no part of its net income inures to the benefit of any private stockholder, shareholder, member, or corporation. These entities are not required to obtain a Wisconsin CES number to be a qualifying exempt entity.
- Any federally recognized American Indian tribe or band within Wisconsin if the construction activity occurs on the tribal reservation and the construction project will benefit the Tribe.

AGC of Wisconsin would like to thank Shea Reese of Wipfli LLP for his contributions to this summary

Is any entity with a Wisconsin CES number a qualifying exempt entity?

No. Construction projects for the following entities do not qualify for the exemption, ***even if the entity holds a (CES) number.***

- A non-Wisconsin county, city, village or town
- A non-Wisconsin public school district
- A public college, university or technical college (regardless of whether Wisconsin or non-Wisconsin)
- A state governmental unit (regardless of whether Wisconsin or non-Wisconsin)
- A federal governmental unit
- Individual Native American Tribe members
- A Wisconsin nonprofit organization that does not hold a Wisconsin CES number

If the entity doesn't have a CES number, can they still be a qualifying exempt entity?

Maybe. Some qualifying exempt entities (like a Wisconsin municipality) are not required to have a CES number. In that case, the contractor should retain the contracts and invoices that indicate the work was performed for the qualifying exempt entity.

In the rare situations where a ***non-Wisconsin*** nonprofit organization is a qualifying exempt entity and does not have a Wisconsin CES number, it is the responsibility of the contractor to verify that the entity meets the criteria described above. Remember, if the entity is a Wisconsin nonprofit organization that does not have a CES number they do not qualify for the exemption.

What is a "facility" under the new law?

The exemption only applies to the purchase of property that becomes part of a ***"facility"*** located in Wisconsin that is owned by a qualifying exempt entity. "Facility" means any building, shelter, parking lot, parking garage, athletic field and athletic park. "Facility" does not include a highway, street, road or municipal electric utility power substations and distribution wires.

Storm sewer, water supply system, sanitary sewer or sewage and wastewater treatment equipment owned by and located on the property of a qualifying exempt entity are considered a ***"facility"*** for purposes of this tax exemption (including manholes, fire hydrants, all piping/casting, bedding and the needed subgrade and backfill to install pipes). However, none of this personal property is considered a ***"facility"*** if it is located on an individual's property. For example, a property owner's lateral sewer pipe would not be exempt.

Can a subcontractor qualify for the exemption?

Yes. A subcontractor's purchase of construction materials qualifies for exemption if the construction materials become part of a facility located in Wisconsin owned by a qualifying exempt entity (i.e. the same treatment the prime contractor receives).

Who is responsible for determining that the sale tax exempt purchases are for a qualifying exempt entity?

The contractor. That is why it is important to request and retain, in addition to the contract and significant invoices, the organization's ***Wisconsin Certificate of Exempt Status (CES)***. Remember, not every tax exempt entity qualifies for the exemption, even if they have a Wisconsin CES number and some qualifying exempt entities may not be required to have a CES number.

The same obligation exists for the prime contractor and all subcontractors, but a subcontractor may not have a contract indicating the real property construction activity is for the qualifying exempt entity. A subcontractor will need to ensure it can identify on an invoice or bill of sale to the general contractor the 1) Wisconsin location; 2) where it performed the real property construction activity; and 3) verify that the property became part of a facility in Wisconsin owned by a qualifying exempt entity.

How do contractors purchasing material for construction of a facility for a qualifying exempt entity claim the exemption?

A contractor who makes purchases under this exemption must provide a fully completed single purchase Wisconsin Exemption Certificate (Form S-211) to any and all suppliers and vendors who sell such building materials to the contractor. The suppliers, vendors and sellers are required to retain a copy of the contractor's Form S-211 to identify that the sale is exempt. There has been no change to Form S-211 to take account for this tax exemption. To validate the exemption, it is recommended the contractor should check "other purchases exempted by law" on the certificate on the bottom of Page 2 of that form and enter "exempt under sec.77.54 (9m), Wis. Stats." on the description line.

What documents, related to this exemption, are contractors required to maintain?

For qualifying entities that have a Wisconsin CES number: A contractor should request the Wisconsin nonprofit organization's Wisconsin CES number and retain this number in its records. The contractor should reference this CES number on contracts and invoices' showing the work was done for this qualifying exempt entity.

For qualifying entities that do not have a Wisconsin CES number: The contractor working for a qualifying exempt entity who does not have a Wisconsin CES number is required to verify that the entity meets the criteria described above. For example, a non-Wisconsin qualifying organization may provide the contractor with a copy of its IRS 501(c) (3) exempt status determination letter. The contractor will need to ensure it can identify on an invoice or bill of sale the 1) Wisconsin location; 2) where it performed the real property construction activity; and 3) verify that the property became part of a facility in Wisconsin owned by a qualifying exempt entity.

Given that the law just changed, on what projects does the exemption apply?

The date the prime contract was entered into between the prime contractor and a qualifying exempt entity is used in determining whether the exemption applies. Subcontracts entered into on or after January 1, 2016 will not qualify for the exemption if the prime contract was not also entered into on or after January 1, 2016.

The exemption would not apply if the contractor purchased property after January 1, 2016 for a contract that was entered into prior to January 1, 2016. Change orders and separate contracts with suppliers and subcontractors by themselves would not qualify if the prime contact was signed in 2015 or earlier.

A change order to a contract amends the original contract, but does not nullify the original contract or change the date that the contract was entered into. Therefore, if a contract between the contractor and the exempt entity was entered into prior to January 1, 2016, the exemption does not apply to property purchased to fulfill the contract. If the original contract is cancelled and a new contract is entered into on January 1, 2016 or thereafter, the property used to fulfill the new contract may qualify for exemption.

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SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Document 00 52 00 - Agreement Form: Contract Sum, retainages, payment period, monetary values of unit prices.

B. Document 00 72 00 - General Conditions and Document 00 73 00 - Supplementary Conditions: Additional requirements for progress payments, final payment, changes in the Work.

1.03 SCHEDULE OF VALUES

A. Form to be used: AIA G703.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Form to be used: AIA G702.

C. For each item, provide a column for listing each of the following:
   1. Scheduled Values.
   2. Total Completed and Stored to Date of Application.
   3. Percentage of Completion.
   4. Balance to Finish.
   5. Retainage.

D. Execute certification by signature of authorized officer.

E. Submit one copies of each Application for Payment.

F. When Construction Manager requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

A. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
   1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
   2. Promptly execute the change.

B. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within Seven days.

C. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
   1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
   2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.

3. For pre-determined unit prices and quantities, the amount will based on the fixed unit prices.

D. Substantiation of Costs: Provide full information required for evaluation.
   1. On request, provide following data:
      a. Quantities of products, labor, and equipment.
      b. Taxes, insurance, and bonds.
      c. Overhead and profit.
      d. Justification for any change in Contract Time.
      e. Credit for deletions from Contract, similarly documented.
   2. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

E. Execution of Change Orders: The Samuels Group Inc will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

F. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

G. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

1.06 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 01 77 00.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 31 13 - PROJECT COORDINATION

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Requirements of this Section are applicable to all Contractors and all Subcontractors.

The Construction Manager or Contractor designated by the Construction Manager shall assume and take responsible charge of the place of the Project and shall coordinate and expedite the Work of his Subcontractors, to complete the Project in an orderly and timely manner.

Each Contractor shall:

Coordinate work of its own employees and Subcontractors.
Expedite its Work to assure compliance with schedules.
Coordinate its sequence of Work with that of the other Contractors and Subcontractors through coordination meetings specified in Section 01 31 19.

RELATED REQUIREMENTS

Conditions of the Contract
All Sections of Division 01 - General Requirements

COORDINATION PROCEDURES

Comply with provisions of Section 01 31 26 and as further specified herein.

Cooperate with the Owner, Construction Manager, A/E and all other persons of all trades engaged in the Work in such a manner and to such extent as will best facilitate the Work of each and the prompt completion of the Work.

Inform yourself as to progress of the Work, order materials and let subcontracts promptly, and schedule and expedite work so as to avoid delay.

Notify other Contractors, Subcontractors and trades whose Work is in any way connected to, combined with, or influenced by your Work, and allow them reasonable time to complete their Work.

Carefully examine the Drawings and Specifications to ascertain the extent of the Work of all trades.

Cooperate with the Owner's authorized representative.

Coordinate access to and use of the site and storage of materials on the site.

Neither A/E nor Owner will expedite the Work of the Contractors or their Subcontractors.

Coordinate your Work with adjacent work and cooperate with all other trades so as to facilitate the general progress of the Project. Afford all other trades every reasonable opportunity for the installation of their work and for the storage of their material. In no case exclude from the premises or work, any other Contractor, Subcontractor or their employees; or interfere with any other Contractor and Subcontractor in the execution or installation of its Work.

Perform your Work in proper sequence in relation to that of other trades. Pay all costs caused by defective or ill-timed Work.

Arrange your Work and dispose of your materials so as not to interfere with the Work or storage of materials of other Contractors and Subcontractors and join your work to that of others in accordance with the intent of the Drawings and Specifications.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

SECTION 01 31 19 - PROJECT MEETINGS

PART ONE - GENERAL

REQUIREMENTS INCLUDED

- Pre-construction Meeting
- Periodic Progress Meetings
- Special Meetings
- Coordination Meetings

GENERAL PROCEDURES

Construction Manager shall:

1. Distribute written notice of each meeting to all required attendees and parties to the contracts at least seven days in advance of meeting date.
2. Prepare agenda for meetings.
3. Make physical arrangements for meetings.
4. Preside at meetings.
5. Record the minutes of the meeting; include significant proceedings and decisions.
6. Reproduce and distribute copies of minutes within five days after each meeting to:
   - Meeting attendees.
   - All parties to the contracts.
   - Others affected by decisions made at the meetings.

Representatives of Contractors, Subcontractors, and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.

Owner may attend meetings to ascertain that Work is expedited consistent with Contract Documents and construction schedules.

RELATED REQUIREMENTS

Section 01 33 00: Submittal Procedures

PRE-CONSTRUCTION MEETING

The Construction Manager shall schedule and administer pre-construction meeting.

Location: Owner's facilities.

Attendance required by:

1. Owner
2. A/E and his professional consultants.
3. All Contractors and their Superintendents.
4. Major Subcontractors. (eg. Excavator)
5. Major suppliers.
6. Others as appropriate.

PROGRESS MEETINGS

The Construction Manager shall schedule progress meetings at least bi-weekly or more frequently as required.

Location of the Meetings: Project field office of Construction Manager.

Attendance required by:

1. Construction Manager.
2. A/E and his professional consultants as needed.
3. All Contractors and their Superintendents as appropriate to the agenda.
4. Owner.
5. Subcontractors as appropriate to the agenda.
6. Suppliers as appropriate to the agenda.

SPECIAL MEETINGS

The Construction Manager shall schedule special meetings prior to the start of the following activities:

1. Commencement of each Phase.
2. Masonry work.
3. Roofing.
4. Interior finishing.
5. Prior to field installation of door hardware.
6. Other activities as requested by Owner or A/E.

COORDINATION MEETINGS

Construction Manager shall schedule all coordination meetings.

Location of Meetings: Project field office.

Attendance required by:

1. Construction Manager.
2. Authorized representative for the following Contractors:
   - Fire Suppression Contractor
   - Plumbing Contractor
   - HVAC Contractor
   - Electrical Contractor
   - Data and Communications Contractor
   - Security Contractor

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

SECTION 01 31 26 - MECHANICAL AND ELECTRICAL COORDINATION

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Requirements of this Section are applicable to all Contractors and Subcontractors.
Coordination procedures as specified in Section 01 31 19 through coordination meetings.
Examination of Drawings.
Installation and arrangement.
Equipment connections.

RELATED REQUIREMENTS

Conditions of the Contract
Section 01 31 13: Project Coordination

COORDINATION PROCEDURES

Comply with provisions of Section 01 31 13 and as further specified herein.

The Several Contractors shall cooperate with each other in the timely incorporation of their respective Work into the Project. This will be accomplished through coordination meetings scheduled by the Construction Manager.

Each Contractor and Subcontractor shall allow other Contractors and Subcontractors adequate time and area to fit their respective Work together. Be prepared to commence and continue Work in a timely manner so as to cause no unusual or unreasonable delay in the Work of any other Contractor and Subcontractor.

Coordinate with each other in the location of hangers, supports, sleeves, inserts, and other devices necessary for the installation of the Work. Wherever possible use common supports. If to be built-in to the Work of other Contractor and Subcontractor, furnish devices to that Contractor and Subcontractor in a timely manner for installation. Also furnish adequate information and supervision for the proper placement of all such devices. See Section 01 73 29 - Cutting and Patching.

EXAMINATION OF DRAWINGS

Examine all Drawings together with the Specifications applicable to all Contracts.

The Drawings show the general arrangement, quantity, extent, and location of the Work of the Project. This arrangement and location may be modified to make portions of the Work fit together.

After examination of the Contract Documents, bring to the attention of the Construction Manager and A/E any questions with regard to the intent of these Documents, in a timely manner, prior to commencing with the Work.

Also notify the Construction Manager and A/E and Owner of any unforeseen conditions found in the field, including conflict in the arrangement and location of piping, conduits, ductwork, etc.

Sprinkler Head Locations:

Sprinkler heads are not necessarily indicated on the Drawings although some heads may be indicated on reflected ceiling plans. Locate heads in symmetrical patterns. Coordinate with other trades that require ceiling mounted or ceiling penetrated products. Center heads in acoustical ceiling panels and tiles. When heads are located in ceilings other than acoustical panels or tiles the heads shall be located in a straight line.

INSTALLATION AND ARRANGEMENT

General:

Install all Work to permit removal (without damage to other parts) of coils, heat exchanger bundles, boiler tubes, fan shafts and wheels, filters, belt guards, sheaves and drives, and all other parts requiring periodic replacement or maintenance.

Arrange electrical raceways, pipes, ducts, and equipment to permit ready access to valves, cocks, traps, starters, motors, control components and to clear the openings of swinging and overhead doors, and access panels.

Coordinate opening locations with Construction Manager.

Adjustments in Locations:

Adjust locations of pipes, ducts, electrical raceways, switches, panels, equipment, fixtures, etc., as may be required to accommodate work interferences.

Prior to fabrication, determine routes and locations of electrical raceways, pipes, and ducts.

Right-of-Way: Lines which pitch shall have right-of-way over those which do not pitch. For example: Condensate and plumbing drains shall normally have right-of-way. Lines whose elevations cannot be changed shall have right-of-way over lines whose elevations can be changed.

Make offset transition and changes in direction in electrical raceways, pipes, and ducts as required to maintain headroom and pitch of sloping lines.

Provide all traps, air vents, sanitary vents, etc., as required to affect these offsets, transitions and changes in direction.

Access Panels: Where required for access to your Work in otherwise inaccessible space, each Contractor and Subcontractor shall furnish access panel, sized for purpose intended, suitable for location installed, to Contractor designated by the Construction Manager for installation by the trade in whose work panel is required. Verify size, type, and location with A/E prior to furnishing. Provide as specified in Divisions 21, 22, 23 and 26.

Ductwork: Change the cross-sectional dimensions of ductwork when required to meet job conditions, but maintain at least the same velocity and pressure drop for the new cross-sectional area. Secure the approval of Construction Manager and A/E prior to fabrication of ductwork requiring such changes.

EQUIPMENT CONNECTIONS

General: Equipment arrangements and connections shown on the Drawings are based upon the particular manufacturer as noted on the Drawings or in the Specifications. In some cases if so specified, other equivalent equipment may be furnished at the Contractor's option.

Where such equipment requiring different arrangement or connections from those shown is used, install the equipment to operate and function with the intent of the system design. When requested by the Construction Manager and A/E, submit drawings showing the proposed revised installation.

If the proposed installation is approved, make all incidental changes in piping, ductwork, supports, insulation, wiring heaters, panelboards, etc. Provide any additional motors, controllers, valves, fittings, and other additional equipment required for the proper operation of the system resulting from selection of equipment.

Notify all other Contractors and Subcontractors who may be affected in a timely manner, and provide for any additional costs which may be caused by different arrangement or connection.

SELECTED SPECIFIC DUTIES

Note: These duties are indicated here as an aid to the Construction Manager in soliciting Sub-bids and are not mandatory.

Plumbing Contractor (PC):

Make final connections to the Work of fire/water, storm, and sanitary utility contractors.

HVAC Contractor (HC):

Make gas connections to equipment furnished by other Contractors and Subcontractors.

Provide all external control wiring for your equipment unless provided otherwise in the Contract Documents. Coordinate opening locations with Construction Manager.

Electrical Contractor (EC):

Provide all wiring to motor operated equipment and motor control centers furnished by other Subcontractors, and make final connections unless provided otherwise in the Contract Documents.

Provide motor starters and disconnects unless integral with equipment. Size motor starters to equipment provided. Also, provide required accessories.

Provide final line voltage (110V and greater) to motors; provide heaters, check amperage draw, and check motor rotation.

All Contractors and Subcontractors Except EC:

Provide wiring diagrams of all motorized equipment and deliver to EC. Prepare diagrams for the specific equipment installation.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

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SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART ONE - GENERAL

PRELIMINARY CONSTRUCTION SCHEDULE

A preliminary construction schedule has been prepared by the Construction Manager and is bound following this Section.

CONSTRUCTION SCHEDULE

Preparation: The Construction Manager in consultation with the other Contractors shall prepare the construction schedule.

The Construction Manager shall submit to the A/E and Owner copies of a proposed CONSTRUCTION SCHEDULE indicating:

Time frames in chronological order for each phase of the Work and the relationship of the phases.

The complete sequence of construction by activity.

The dates for the beginning, and completion of, each major element of construction. Specifically list:

Site clearing.
Site utilities.
Foundation work.
Exterior wall systems.
Structural framing by floor.
Exterior enclosing wall construction.
Roofing and "enclosure".
Finishing work by each trade specified.
Projected percentage of completion for each item, as of the first day of each month.

The CONSTRUCTION SCHEDULE shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. The CONSTRUCTION SCHEDULE shall be submitted for Owner and Architect's information and is not subject to their respective approvals.

The CONSTRUCTION SCHEDULE shall be reviewed and up-dated monthly (or more frequently if requested by Owner) by the Construction Manager.

SUBMITTALS SCHEDULE (for Shop Drawings, Product Data, Samples, and similar submittals):

All Contractors shall prepare and submit a schedule to the Construction Manager of all contract required submittals within 10 days of receiving contract or letter of intent. Arrange submittals by priority of need, allowing reasonable time for A/E review based upon complexity of submittal and potential additional time for resubmittals. Time for review shall commence on A/E's receipt of submittal. Schedule is subject to approval of the Construction Manager and A/E.

Indicate: Early and late start dates, float time if any, required onsite delivery dates to maintain construction schedule as provided with the Contract Documents.
Dates final approved submittals will be required from the A/E, including additional time for resubmittals.

Provide subschedules to define critical portions of the CONSTRUCTION SCHEDULE.

GENERAL

Perform the Work in general accordance with the most recent schedules submitted to Owner and Architect.

CONTRACTOR LIST

All Contractors shall submit to the Construction Manager a list of their Subcontractors, Suppliers and vendors within 10 days of receiving their contract or letter of intent.

The Construction Manager shall submit list of all Contractors, Subcontractors and Sub-subcontractors and vendors to A/E and Owner within 14 days after contract award.

BUILDING PERMIT

See Section 01 41 00.

SUBSTITUTIONS

See Section 01 60 00.

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

General:

Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by Contractors Subcontractors, Sub-subcontractors, manufacturers, suppliers or distributors to illustrate some portion of the Work.

Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by Contractors to illustrate materials or equipment for some portion of the Work.

Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

Shop Drawings, Product Data, Samples and similar submittals **are not Contract Documents**. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for the portions of the Work for which the Contract Documents require submittals. Review by the Construction Manager and A/E is subject to the limitations of Paragraph 4.2.9 of the General Conditions of the Contract for Construction (AIA Doc A232-2009), and this Section 01 33 00 of the Specifications. Informational submittals upon which the Construction Manager and A/E are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or A/E without action.

> Partial submittals prepared for a portion of the Work are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

Contractor shall review for compliance with the Contract Documents, approve and submit to the Construction Manager Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Construction Manager and A/E or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals that are not marked as reviewed for compliance with the Contract Documents and approved by Contractor **will be returned by Construction Manager and A/E without action**.

By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner, Construction Manager and A/E that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3)

checked and coordinated the information contained within such submittals with the requirements of the Work, the Project, and the Contract Documents.

Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed by the Construction Manager and A/E.

The Work shall be in accordance with approved submittals except that Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by Construction Manager's and A/E's approval of Shop Drawings, Product Data, Samples or similar submittals unless Contractor has specifically informed Construction Manager and A/E in writing of such deviation at the time of submittal and (1) Construction Manager and A/E has given written approval to the specific deviation as a Minor Change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by Construction Manager's and A/E's approval thereof.

Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by Construction Manager and A/E on previous submittals. In the absence of such written notice, Construction Manager's and A/E's approval of a resubmission shall not apply to such revisions.

Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless Contractor needs to provide such services in order to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures.

Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and A/E will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such design professional.

Shop Drawings and other submittals related to the Work designed or certified by such professionals, if prepared by others, shall bear such professional's written approval when submitted to Construction Manager and A/E. The Construction Manager, Owner and A/E shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Construction Manager, Owner and A/E have specified to the Contractor all performance and design criteria that such services must satisfy. In accordance with the above, Construction Manager and A/E will review, approve or take other appropriate action on such submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contact Documents.

The Construction Manager shall review all Shop Drawings, Product Data, Samples and other submittals from the Contractors. The Construction Manager shall coordinate submittals with information contained in related documents and transmit to the A/E those which have been approved by the Construction Manager. The Construction Manager's actions will be taken with such reasonable promptness as to cause no unreasonable delay in the Work or in the activities of the Owner or Contractors.

A/E will review and approve, or take other appropriate action upon, Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The A/E's action will be taken in accordance with the submittal schedule approved by the A/E or, in absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the A/E's professional judgment to permit adequate review by A/E or its consultants as applicable. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for

substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of Contractor as required by the Contract Documents. The Construction Manager's and A/E's review of the Contractor's submittals shall not relieve Contractor of the obligations under Paragraphs 3.3, and 3.5 of the General Conditions of the Contract for Construction (AIA Doc A232-2009), and this Section 01 33 00 of the Specifications. The Construction Manager's and A/E's review shall not constitute approval of safety precautions or, of any construction means, methods, techniques, sequences or procedures. The A/E's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

NOTE: A/E will review a single submittal and one resubmittal. Should additional resubmittals be required due to Contractor's failure to prepare a resubmittal in accordance with previously reviewed submittals or should Contractor fail to perform the obligations of Subparagraphs 3.2.2 and 3.2.3 of the General Conditions of the Contract for Construction (AIA Doc A232-2009) in the preparation of a correct resubmittal, Contractor shall pay such costs and damages to Owner as would have been avoided if Contractor had performed such obligations.

Submittal Requirements:

Contractor must utilize **Uniform Submittal/Response** Form at end of this Section. Follow instructions for using this form and complete all entries.

Submit all Shop Drawings, Product Data, Samples, and similar submittals to Construction Manager.

Submittals Shall Include: Date and subsequent revision dates; names of Contractor, Subcontractor, Supplier, Construction Manager, A/E and manufacturer; project title and number; number and title of specification section for product or material; relations to adjacent structure or materials; field dimensions, clearly indicated as such; identification of deviations from Contract Documents; and the Contractor's stamp, initialed or signed, certifying to approval of the prepared submittal, verification of field conditions and measurements, and compliance with Contract Documents.

A/E will provide return transmittal noting disposition of submittal and will stamp submittal as reviewed: "Positive" or "Negative"

For paper copy of submittals, note the following requirements:

Transmit each submittal using A/E's transmittal form or other transmittal form acceptable to A/E.

Submit two paper copies for A/E use and up to a maximum of three additional copies for contractor use of all Shop Drawings, Product Data, and similar submittals.

For electronic submittals, note the following requirements:

Electronic submittals smaller than 10 MB shall be sent to A/E via email. Electronic submittals larger than 10 MB shall be sent to A/E via A/E's Newforma Info Exchange Server. Electronic submittals shall be returned via email or Newforma Info Exchange. A/E has no responsibility to utilize Contractor's data management software for submittal data transfers.

Electronic submittals requiring selection of material color, pattern, or texture by A/E **not permitted**.

After positive review, one copy will be retained by the A/E and remaining copies will be returned to the Construction Manager for his printing and distribution.

When samples are required, submit at least 2 samples of finishes and materials unless otherwise noted in respective product specification. After positive review, one sample will be retained by the A/E and the remaining sample(s) will be returned to the Construction Manager.

Contractor shall not submit any shop drawing that is simply a tracing or other copy of any of the Contract Documents. Each Shop Drawing must be prepared by the Contractor, or a subcontractor or supplier of the Contractor. Construction Manager and A/E may reject any Shop Drawing that is not in conformance with this provision, and no extension of the Contract Time shall be considered on account of such rejection.

Corrections or changes indicated on Shop Drawings shall not be considered as extra work order. No Shop Drawings shall be used in the Work of the Project unless it bears stamp of the Construction Manager's and A/E's "Positive" review.

Do not revise previously approved submittals. Prominently indicate on all submittals any changes that have been made other than those requested by the Construction Manager, A/E, or its consulting Engineer.

REQUESTS FOR INFORMATION (RFI)

Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form acceptable to A/E.

A/E will return RFIs submitted to A/E by other entities controlled by Contractor with no response.

Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

RFI number, numbered sequentially.
Project name.
Project number.
Date.
Name of Architect.
Name of Contractor.
Drawing number and detail references, as appropriate.
Specification Section number and title and related paragraphs, as appropriate.
RFI subject.
Field dimensions and conditions, as appropriate.
Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
Preferred response date.
Contractor's signature.
Attachments: Include sketches, descriptions, measurements, photos, product data, shop drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

RFI Forms: Use A/E's paper **Request for Information (RFI)** Form at end of this Section or editable electronic software-generated form with substantially the same content as indicated above, acceptable to A/E.

Attachments may be electronic files in Adobe Acrobat PDF format.

A/E's and Construction Manager's Action: A/E and Construction Manager will review each RFI, determine action required, and respond with reasonable promptness while allowing sufficient time in the A/E's professional judgment to permit adequate review by A/E or its consultants as applicable. RFIs received by A/E after 1:00 p.m. will be considered as received the following working day.

The following Contractor generated RFIs will be returned without action:

Requests for approval of submittals.
Requests for approval of substitutions.
Requests for approval of Contractor's means and methods.
Requests for coordination information already indicated in the Contract Documents.
Requests for adjustments in the Contract Time or the Contract Sum.

Requests for interpretation of A/E's actions on submittals.
Incomplete RFIs or inaccurately prepared RFIs.

A/E's action may include a request for additional information, in which case A/E's time for response will date from time of receipt of additional information.

If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Construction Manager and A/E in writing within 10 days of receipt of the RFI response.

SAFETY DATA SHEETS

Where required by Owner or governmental and/or regulatory agencies submit Safety Data Sheets (SDS) with Product Data. Utilize OSHA Form OSHA-20 for any item or items provided during the performance of the Work which may have toxic, hazardous, or infectious substances as defined by the Federal Occupational, Safety and Health Standards entitled "Subpart Z -Toxic and Hazardous Substances, Section 1910.1000-." Submit two copies with each Product Data copy.

PROGRESS REVISIONS TO CONSTRUCTION AND SUBMITTALS SCHEDULE

Indicate progress of each activity to date of submission.

Show changes occurring since previous submission of Schedule:

Major changes in scope.
Activities modified since previous submission.
Revised projections of progress and completion.
Other identifiable changes.

Provide a narrative report as needed to define:

Problem areas, anticipated delays, and the impact on the Schedule.
Corrective action recommended, and its effect.
The effect of changes on schedules of other Contractors and Subcontractors.

Be prepared to present changes and report at Project Meetings. See Section 01 31 19.

Prepare copies and distribute to all Contractors, Subcontractors, Owner, and A/E.

Instruct recipients to report promptly in writing, any problems anticipated by the projections shown in the Schedules.

SCHEDULE OF VALUES

Before the first Application for Payment, the Contractor shall submit to the Construction Manager a schedule of values of the various portions of the Work, including quantities if required by the Construction Manager aggregating the total Contract Sum, divided so as to facilitate payments to Subcontractors.

Prepare a schedule of values in such form and supported by such substantiating data as the Construction Manager and Owner may require. Each item in the schedule of values shall include its proper share of overhead and profit. This schedule, when approved by the Construction Manager, shall be used only as a basis for reviewing the Contractor's Applications for Payment.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

Forms and schedule following this Section:

- Uniform Submittal/Response Form
- Request for Information Form
- Preliminary Construction Schedule

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Potter Lawson

Success by Design

749
Ma
(608) 274-2741

UNIFORM SUBMITTAL/RESPONSE

USR #

PROJECT NO.: 2017.06.00
PROJECT: Vilas County Courthouse Expansion

SPEC SECTION #
FIRST SUBMITTAL:
RESUBMITTAL:
ORIGINAL SUBMITTAL #
(IF A RESUBMITTAL)

CONTRACTOR'S SUBMITTAL:
From: The Samuels Group
311 Financial Way, Suite 300
Wausau, WI 54401

Atttention: Greg Melander

To: Potter Lawson, Inc.
749 University Row, Suite 300
Madison, WI 53705

Attention: Gary McLean

FORM OF SUBMITTAL:

P	PRINTS	L	LETTER	SA	SAMPLE
S	SEPIA OR OTHER TRANSPARENCY	T	TEST REPORT	M	MAINTENANCE MATERIAL
		C	CERTIFICATE		
PD	PRODUCT DATA	W	WARRANTY	O	OTHER
CX	CALCULATIONS				

VIA: ☐ HAND ☐ MAIL ☐ PICK-UP ☐ FAX ☐ EXPRESS

ITEM	# OF COPIES	FORM	SECTION PARAGRAPH # OR DRAWING AND DETAIL REFERENCE	DESCRIPTION OF SUBMITTAL	
A					
B					
C					
D					
E					

THIS SUBMITTAL DEVIATES FROM THE CONTRACT DOCUMENTS IN THE FOLLOWING WAYS:

ARCHITECT WILL DEEM A BLANK SPACE AS NO DEVIATIONS.

ATTACH ANOTHER SHEET OF PAPER AS NEEDED TO LIST ALL DEVIATIONS

I/WE HAVE CHECKED, COORDINATED, AND APPROVE THIS SUBMITTAL, AND EXCEPT FOR THE DEVIATIONS NOTED ABOVE, IT IS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS

FULL SIGNATURE, NOT INITIALS: **DATE:**

ARCHITECTS RESPONSE

ARCHITECT'S REVIEW IS FOR CONFORMANCE WITH THE PROJECT DESIGN CONCEPT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

SUBMITTAL RECEIVED: _____

REVIEW IN HOUSE ☐ ☐ OR

☐ TO CONSULTANT ON: _____
FOR _____

☐ RECEIVED FROM CONSULTANT ON: _____

THIS SUBMITTAL REVIEWED AS NOTED:

CONSULTANT: _____

BY: _____ Date: _____

OR: Potter Lawson

BY: _____

RETURNED TO:

ON _____

VIA: ☐ HAND ☐ MAIL ☐ PICK-UP ☐ FAX ☐ EXPRESS ☐ OVERNITE EXPRESS

ARCHITECT'S ACTION: IN HOUSE CONSULTANT

REVIEWED:				POSITIVE	POSITIVE	NEGATIVE	ACTION REQUIRED OF CONTRACTOR		
ITEM	NO. OF COPIES	FORM	REVIEW ONLY (R)	REVIEWED AS SUBMITTED (RP)	REVIEWED NOTE COMMENTS (C)	REJECTED (X)	DO NOT RESUBMIT (OK)	REVISE RESUBMIT (RR)	MAKE NEW CONFORMING SUBMITTAL (NE)
A									
B									
C									
D									
E									

MARKS AND COMMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS FOR RESPONSIBILITY FOR DEVIATIONS THEREFROM, NOR FROM RESPONSIBILITY FOR ERRORS AND OMMISSIONS IN HIS SUBMITTAL. CONTRACTOR IS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFIRMING QUANTITIES, DIMENSIONS AND FIT, FOR FABRICATION PROCESSES, FOR THE MEANS, METHODS, SEQUENCES AND TECHNIQUES OF ASSEMBLIES AND CONSTRUCTION OF THE WORK OF ALL TRADES. CONTRACTOR SHALL NOT FABRICATE OR INSTALL WHEN RESUBMITTAL IS REQUIRED BY THE ARCHITECT.

DISTRIBUTION

ATTACH ADDITIONAL SHEETS IF NECESSARY

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Potter Lawson
Success by Design
745 [illegible]te 300
Madison, WI 53705
(608) 274-2741

Request for Information

RFI# ☐

Project Name: Vilas County Courthouse Expansion
Project No.: 2016.07.00
Date:

To:
Attn:

From:

Drawing Reference: _____ **Specification Reference:** _____

Contractor's Request:
By submission of this form, the Contractor attests to the fact that having carefully reviewed the Contract Documents and coordinated the Work with the appropriate trades and reviewed field conditions, that the information requested cannot be determined from such efforts as called for in the Supplementary Conditions.

Response Date:
List date by which response by Architect is requested to maintain project schedule. (Allow sufficient time for response.)

Signed By: _____ **Sketches and/or Pages Attached:** **Yes** ☐ **No** ☐

Architect's Response:

Signed By: _____ **Sketches and/or Pages Attached:** **Yes** ☐ **No** ☐

Date:

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Vilas County Courthouse Expansion

ID	Duration	Task Name	Start	Finish
1	10 days	Bid Package 1 Bidding	Mon 7/18/16	Fri 7/29/16
2	10 days	Contract Review / Award	Mon 8/1/16	Fri 8/12/16
3	**275 days**	**Phase 1 New 2 Story Addition**	**Wed 8/10/16**	**Fri 9/1/17**
4	3 days	Relocate Staff From Building to be Demolished	Wed 8/10/16	Fri 8/12/16
5	3 days	Site Mobilization	Mon 8/15/16	Wed 8/17/16
6	2 days	Site Fencing	Thu 8/18/16	Fri 8/19/16
7	1 day	Set Up Grade Bench Marks/Building Layout	Thu 8/18/16	Thu 8/18/16
8	1 day	Erosion Control	Thu 8/18/16	Thu 8/18/16
9	3 days	Install Temp Wall on Existing Building	Mon 8/15/16	Wed 8/17/16
10	5 days	Demolition Existing Building	Fri 8/19/16	Thu 8/25/16
11	4 days	Site Excavation	Fri 8/26/16	Wed 8/31/16
12	15 days	Install Geopiers	Thu 9/1/16	Thu 9/22/16
13	20 days	Settlement Period	Fri 9/23/16	Thu 10/20/16
14	7 days	Site Utilities Tie-In	Fri 10/21/16	Mon 10/31/16
15	3 days	Excavate Foundations	Fri 10/21/16	Tue 10/25/16
16	5 days	Form / Pour Footings	Wed 10/26/16	Tue 11/1/16
17	9 days	Form Pour / Frost Walls	Wed 11/2/16	Mon 11/14/16
18	5 days	Backfill Foundation / Building	Tue 11/15/16	Mon 11/21/16
19	4 days	Form / Pour Column Foundations	Tue 11/22/16	Tue 11/29/16
20	5 days	CMU Elevator Walls	Wed 11/30/16	Tue 12/6/16
21	7 days	Steel Erection Columns and Beams	Wed 12/7/16	Thu 12/15/16
22	5 days	Install Joist and Decking	Fri 12/16/16	Thu 12/22/16
23	5 days	Install Roof Bar Joist and Decking	Fri 12/23/16	Thu 12/29/16
24	2 days	Set Steel Stairs	Fri 12/30/16	Mon 1/2/17
25	9 days	Install Underground MEP's / Site Utilities	Tue 11/1/16	Fri 11/11/16
26	14 days	CMU Exterior Walls	Fri 12/30/16	Wed 1/18/17
27	16 days	Exterior Masonry	Thu 1/19/17	Thu 2/9/17
28	5 days	Roof / Exterior Blocking	Wed 2/1/17	Tue 2/7/17
29	2 days	Set Roof Curbs	Wed 2/8/17	Thu 2/9/17
30	3 days	Pour Second Floor Deck	Mon 11/14/16	Wed 11/16/16
31	3 days	Pour First Floor	Thu 11/17/16	Mon 11/21/16
32	7 days	Roofing / Metal Flashing	Fri 2/10/17	Mon 2/20/17
33	7 days	Set Exterior Door Frames and Windows	Wed 2/8/17	Thu 2/16/17
34	14 days	Interior Framing	Fri 2/17/17	Wed 3/8/17
35	16 days	MEP Rough-In's	Thu 3/9/17	Thu 3/30/17
36	5 days	Interior Blocking	Thu 3/9/17	Wed 3/15/17
37	2 days	Rough Framing Inspection	Fri 3/31/17	Mon 4/3/17
38	12 days	Hang Drywall	Tue 4/4/17	Wed 4/19/17
39	18 days	Drywall Finish	Tue 4/11/17	Thu 5/4/17
40	20 days	Paint	Fri 5/5/17	Thu 6/1/17
41	20 days	Install Elevator	Fri 6/2/17	Thu 6/29/17
42	15 days	Interior Finishes / Doors and Hardware	Fri 6/2/17	Thu 6/22/17
43	20 days	MEP Finishes	Fri 6/2/17	Thu 6/29/17
44	20 days	Install Ceiling Grid and Boarder Tile	Fri 6/2/17	Thu 6/29/17
45	10 days	MEP Ceiling Finish's	Fri 6/16/17	Thu 6/29/17
46	2 days	Above Ceiling Inspection	Fri 6/30/17	Mon 7/3/17
47	10 days	Drop Ceiling Tile	Tue 7/4/17	Mon 7/17/17
48	25 days	Install Flooring Finishes	Tue 7/18/17	Mon 8/21/17
49	8 days	Test and Balance	Tue 8/22/17	Thu 8/31/17
50	3 days	Final Clean	Tue 8/22/17	Thu 8/24/17
51	1 day	Final Inspection / Elevator Inspection	Wed 8/23/17	Wed 8/23/17
52	6 days	FFE Install	Fri 8/25/17	Fri 9/1/17
53	0 days	Owner Occupy	Fri 9/1/17	Fri 9/1/17
54				
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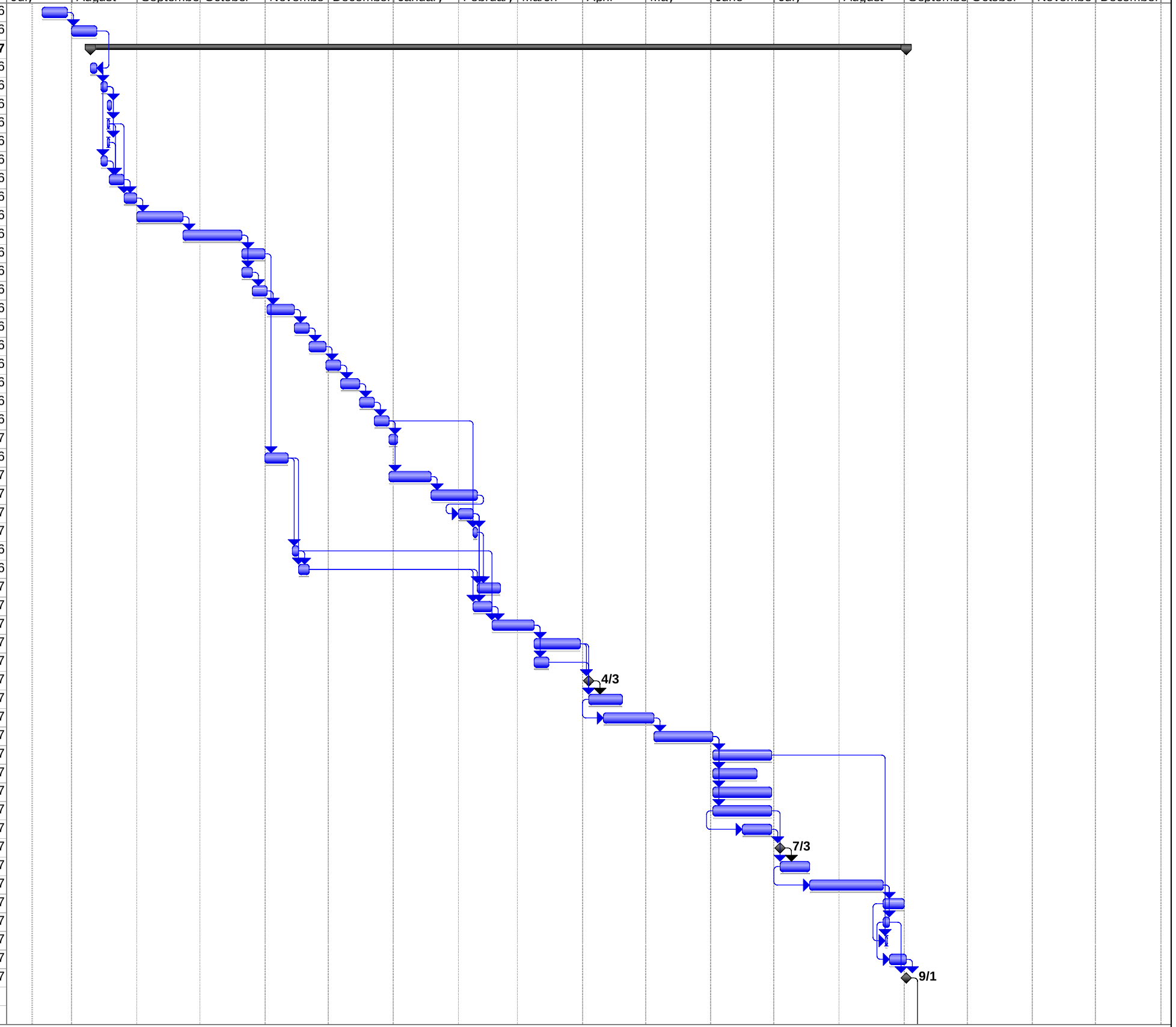

Project: Vilas County Courthouse Expa
Date: Wed 7/13/16

Task — Progress — Summary — External Tasks — Deadline
Split — Milestone — Project Summary — External Milestone

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Vilas County Courthouse Expansion

ID	Duration	Task Name	Start	Finish
56	**79 days**	**Phase 2 - Demo Of Existing Building / Building Tie-In**	**Mon 9/4/17**	**Thu 12/21/17**
57	5 days	Relocate Staff to New Building	Mon 9/4/17	Fri 9/8/17
58	3 days	Build Temp Construction Wall / Dust Containment	Mon 9/11/17	Wed 9/13/17
59	1 day	Site Fencing	Thu 9/14/17	Thu 9/14/17
60	8 days	Demolition Existing "83" Building	Thu 9/14/17	Mon 9/25/17
61	3 days	Site Excavation	Tue 9/26/17	Thu 9/28/17
62	5 days	Demo Interior Walls For New Tie-In	Thu 9/14/17	Wed 9/20/17
63	6 days	Interior Framing Existing Floors	Thu 9/21/17	Thu 9/28/17
64	3 days	Excavate Foundations	Mon 9/11/17	Wed 9/13/17
65	4 days	Form / Pour Footings	Thu 9/14/17	Tue 9/19/17
66	5 days	Form / Pour Foundations	Wed 9/20/17	Tue 9/26/17
67	3 days	Backfill Foundation / Building	Mon 9/25/17	Wed 9/27/17
68	30 days	Parking Lot Construction/Storm Water Management	Thu 9/28/17	Wed 11/8/17
69	2 days	Steel Erection	Thu 9/28/17	Fri 9/29/17
70	2 days	Pour Slab	Mon 10/2/17	Tue 10/3/17
71	6 days	CMU Exterior Walls	Wed 10/4/17	Wed 10/11/17
72	10 days	Exterior Masonry	Thu 10/12/17	Wed 10/25/17
73	3 days	Roof / Exterior Blocking	Thu 10/26/17	Mon 10/30/17
74	3 days	Set Exterior Windows and Flashing	Tue 10/31/17	Thu 11/2/17
75	3 days	Interior Framing in Connector	Fri 11/3/17	Tue 11/7/17
76	3 days	MEP Rough-In's and Tie-In to Chiller	Wed 11/8/17	Fri 11/10/17
77	1 day	Rough Framing Inspection	Mon 11/13/17	Mon 11/13/17
78	4 days	Hang Drywall	Tue 11/14/17	Fri 11/17/17
79	8 days	Paint	Mon 11/20/17	Wed 11/29/17
80	3 days	Interior Finishes / Doors and Hardware	Tue 11/28/17	Thu 11/30/17
81	5 days	MEP Finishes	Tue 11/28/17	Mon 12/4/17
82	2 days	Install Ceiling Grid and Boarder Tile	Thu 11/30/17	Fri 12/1/17
83	1 day	Above Ceiling Inspection	Tue 12/5/17	Tue 12/5/17
84	2 days	Drop Ceiling Tile	Wed 12/6/17	Thu 12/7/17
85	10 days	Install Flooring Finishes	Thu 12/7/17	Wed 12/20/17
86	5 days	Test and Balance	Fri 12/8/17	Thu 12/14/17
87	1 day	Final Clean	Thu 12/21/17	Thu 12/21/17
88	1 day	Final Inspection	Fri 12/15/17	Fri 12/15/17
89	0 days	Owner Occupy	Fri 12/15/17	Fri 12/15/17

Project: Vilas County Courthouse Expa
Date: Wed 7/13/16

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

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SECTION 01 35 16 - ALTERATION PROJECT PROCEDURES

PART ONE - GENERAL

DESCRIPTION

These procedures are applicable to alterations of existing buildings, and apply to all Contractors and Subcontractors. Each Contractor and Subcontractor shall perform alteration work normally associated with his trade or trades, and as specified and listed under Contracts in Section 01 11 00 Summary of Work.

Exceptions to the above are limited to the following conditions:

Existing construction and surfaces not otherwise scheduled for alteration shall be cut, patched, and refinished, or removed and re-installed by that Contractor or Subcontractor requiring such cutting or removal in order to accomplish the Work of its Subcontract, unless such cutting, patching, refinishing, removal, and re-installation is specifically noted to be performed by another Contractor or Subcontractor. Re-painting is not alteration work as it applies to this paragraph.

Examples of the above condition are as follows: Cutting and patching concrete slab on grade to install plumbing work is the responsibility of the Plumbing Contractor. Cutting, "channeling", and patching masonry partitions to install electrical conduits are the responsibility of the Electrical Contractor. Patching holes or openings left in existing construction due to abandonment, removal, or demolition of equipment is the responsibility of that Contractor or Subcontractor who abandoned, removed, or demolished the equipment.

The Contractor designated by the Construction Manager shall cut, provide structural support, patch, and refinish (if exposed) openings required in existing structural work for ductwork penetrations and as designated on Drawings. See Section 01 73 29 for definition of structural work.

Contractors shall coordinate its Work with its Subcontractors and shall schedule elements of alteration and renovation work by procedures and methods to expedite completion of the Project.

In addition to demolition specifically shown, cut, move, or remove items as necessary to provide access or to allow alterations and new work to proceed. Include such items as:

Repair or removal of unsafe or unsanitary conditions if any.

Removal of abandoned items and items serving no useful purpose, such as abandoned piping, conduit, and wiring.

Removal of unsuitable or extraneous materials not marked for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals, and deteriorated concrete. The Work of this Section does not include the removal or abatement of any hazardous substances as defined in the Supplementary Conditions. Refer to Articles 1 and 3 of the Supplementary Conditions.

Cleaning of surfaces, and removal of surface finishes as needed to install new work and finishes.

Patch, repair, and refinish existing items to remain, to the specified condition for each material, with a workmanlike transition to adjacent new items of construction.

RELATED WORK AND REQUIREMENTS

Section 01 11 00: Summary of Work
Section 01 73 29: Cutting and Patching
Section 01 74 00: Cleaning and Waste Management
Section 02 41 23: Selective Demolition, Alteration, and Patching

ALTERATIONS, CUTTING, AND PROTECTION

Assign the work of moving, removal, cutting and patching to trades qualified to perform the work in a manner to cause least damage to each type of work, and provide means of returning surfaces to appearance of new work.

Perform cutting and removal of work to remove minimum necessary, and in a manner to avoid damage to adjacent work.

Cut finish surfaces such as masonry, tile, plaster, or metals, by methods to terminate surfaces in a straight line at a natural point of division.

Perform cutting and patching as specified in Section 01 73 29.

Protect existing finishes, equipment, and adjacent work which are scheduled to remain from damage.

Protect existing and new work from weather and extremes of temperature.

Maintain existing interior work above 60 degrees F.

Provide weather protection, waterproofing, heat and humidity control as needed to prevent damage to remaining existing work and to new work.

Provide temporary enclosures as specified in Section 01 50 00, to separate work areas from areas occupied by Owner, and to provide weather protection.

PART TWO - PRODUCTS

SALVAGED MATERIALS

Salvage sufficient quantities of cut or removed material to replace damaged work of existing construction, when material is not readily obtainable on current market.

Store salvaged items in a dry, secure place on site.

Items not required for use in repair of existing work shall remain the property of the Owner.

Do not incorporate salvaged or used material in new construction except with permission of A/E.

PRODUCTS FOR PATCHING, EXTENDING, AND MATCHING

General Requirements that Work be Complete:

Provide same products or types of construction as that in existing structure, as needed to patch, extend, or match existing work.

Generally, Contract Documents will not define products or standards of workmanship present in existing construction; Subcontractor shall determine products by inspection and any necessary testing, and workmanship by use of the existing as a sample of comparison.

Presence of a product, finish, or type of construction requires that patching, extending, or matching shall be performed as necessary to make Work complete and consistent to identical standards of quality.

PART THREE - EXECUTION

PERFORMANCE

Patch and extend existing work using skilled mechanics that are capable of matching existing quality of workmanship. Quality of patched or extended work shall be not less than that specified for new work.

ADJUSTMENTS

Where partitions are removed, patch floors, walls, and ceilings with finish materials to match existing.

Where removal of partitions results in adjacent spaces becoming one, rework floors and ceilings to provide smooth planes without breaks, steps, or bulkheads. Realign existing ceiling grids to match new ceiling grids.

Where extreme change of plane of two inches or more occurs, request instructions from A/E as to method of making transition.

Trim and refinish existing doors as necessary to clear new floors.

DAMAGED SURFACES

Patch and replace any portion of an existing finished surface that is found to be damaged, lifted, discolored, or shows other imperfections with matching material.

Provide adequate support of substrate prior to patching the finish.

Refinish patched portions of painted or coated surfaces in a manner to produce uniform color and texture over entire surface.

When existing surface finish cannot be matched, refinish entire surface to nearest intersections.

TRANSITION FROM EXISTING TO NEW WORK

When new work abuts or finishes flush with existing work, make a smooth and workmanlike transition. Patched work shall match existing adjacent work in texture and appearance so that the patch or transition is invisible at a distance of five feet.

When finished surfaces are cut in such a way that smooth transition with new work is not possible, terminate existing surfaces in a neat manner along a straight line at a natural line of division, and provide trim appropriate to finish surface.

CLEANING

Perform periodic and final cleaning as specified in Section 01 74 00.

Clean Owner occupied areas daily.
Clean spillage, overspray, and heavy collection of dust in Owner occupied areas immediately.

At completion of work of each trade, clean area and make surfaces ready for work of successive trades.

At completion of alterations work in each area, provide final cleaning and return space to a condition suitable for use by Owner.

End of Section

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SECTION 01 41 00 - REGULATORY REQUIREMENTS

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Unless otherwise specifically directed by Construction Manager, each Contractor, Subcontractor and Sub-subcontractor shall comply with provisions of this Section as required for proper execution and completion of their Work or portions thereof.

PROCEDURES

Comply with and give notices required by applicable laws, statutes, ordinances, codes, rules, and regulations, and lawful orders of public authorities having jurisdiction applicable to performance of the Work. Also comply with and give notices required by Owner's and Contractors' insurance companies, local utilities and labor regulations relating to the performance of the Work, the protection of adjacent property, and the maintenance of passage ways, guard fences or other protective facilities.

Procure all certificates of inspection, use, and occupancy, and all permits and licenses, pay all charges and fees and give all notices necessary and incidental to the due and lawful prosecution of the Work. Certificates of inspection, use and occupancy shall be delivered to the Owner upon completion of the Work in sufficient time for occupation of the Project in accordance with the approved schedule for the Work. The costs of such procurement, payment and delivery shall be included within the Base Bid.

Exercise precaution at all times for the protection of persons (including employees) and property. Observe the safety provisions of applicable laws, building and construction codes and those set forth by the Construction Manager. Refer to the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America.

It is not Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, and rules and regulations. However, if Contractor observes that portions of the Contract Documents are at variance therewith, Contractor shall promptly notify Construction Manager, A/E and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

If Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities having jurisdiction, the Contractor shall assume full responsibility for such Work and shall bear the costs attributable to correction.

Refer to various Sections of the Work for referenced codes, standards, tests, etc., applicable to the Work.

NOTICES

Concealed or Unknown Conditions:

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Construction Manager, Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor’s cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Construction Manager,

Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15 of the General Conditions of the Contract for Construction (AIA Doc A232-2009).

If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Construction Manager, Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15 of the General Conditions of the Contract for Construction (AIA Doc A232-2009).

TAXES

Pay sales, consumer, use and similar taxes required by law, including but not limited to unemployment, FICA; State, Federal, and local municipality sales; excise and manufacturer's taxes for the Work provided by Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

If the tax laws are subsequently amended by legislation during the life of the Contract, necessary changes shall be accomplished by appropriate Modification.

PERMITS

Permits, Fees, Licenses, and Inspections: Unless otherwise provided in the Contract Documents, the Construction Manager or Contractor designated by the Construction Manager shall secure and pay for the building permit as well as for other permits, fees, licenses, inspections and approvals by government and utility agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

Owner will obtain code plan approvals and pay all associated fees required by the Wisconsin Department of Safety and Professional Services – Safety and Buildings Division and by the City of Eagle River, if any.

EC shall obtain all permits and pay all fees required by local utilities for permanent electric service.

HC shall obtain all permits and pay all fees required by local utilities for permanent gas service.

Each Contractor and Subcontractor shall furnish Construction Manager with copies of all required permits and certificates of inspection applicable to its work.

Construction Manager shall furnish A/E with copy of all required permits and certificates.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

SECTION 01 45 29 - TESTING LABORATORY SERVICES

PART ONE - GENERAL

REQUIREMENTS INCLUDED

The Construction Manager or Owner will employ and pay for the services of an independent testing laboratory to perform specified services and testing.

Testing Laboratory inspection, sampling and testing is required for:

- Section 03 30 00: Cast-In-Place Concrete
- Section 31 20 00: Earth Moving
- Section 31 23 00: Foundation Excavation and Backfilling
- Section 31 66 13: Short Aggregate Pier Foundation System
- Section 32 11 23: Dense Graded Base
- Section 32 12 16: Asphalt Paving
- Section 32 13 13: Portland Cement Concrete Paving

RELATED REQUIREMENTS

Conditions of the Contract: Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities.

Related Requirements Specified in Other Sections:

Division 22 and 23: Testing of Mechanical Systems
Division 26: Testing of Electrical Systems

QUALIFICATION OF LABORATORY

Meet "Recommended Requirements of Independent Laboratory Qualification" published by American Council of Independent Laboratories.

Meet basic requirements of ASTM E 329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."

Authorized to operate in State in which the Project is located.

LABORATORY DUTIES

Cooperate with A/E and Construction Manager; provide qualified personnel after due notice.

Perform specified inspections, sampling and testing of materials and methods of construction:

- Comply with specified standards.
- Ascertain compliance of materials with requirements of Contract Documents.

Promptly notify the A/E and Construction Manager of observed irregularities or deficiencies of work or products.

Promptly submit written report of each test and inspection; one copy each to A/E, Consulting Engineer, Owner, and Construction Manager. Each report shall include:

- Date issued.
- Project Title and number.
- Testing laboratory name, address and telephone number.
- Name and signature of laboratory inspector.

Date and time of sampling or inspection.
Record of temperature and weather conditions.
Date of test.
Identification of product and specification section.
Location of sample or test in the Project.
Type of inspection or test.
Results of tests and compliance with Contract Documents.
Interpretation of test results, when requested by Construction Manager, A/E, or Consulting Engineer.

Perform additional tests as required by Construction Manager, A/E, or the Owner.

LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

Laboratory is not authorized to:
Release, revoke, alter, or enlarge on requirements of Contract Documents.
Approve or accept any portions of the Work other than those portions of the Work scheduled for testing.
Perform any duties of the Contractor.

CONTRACTOR'S RESPONSIBILITIES

Cooperate with laboratory personnel; provide access to Work and to manufacturer's operations.

Secure and deliver to the laboratory, adequate quantities of representative samples of materials proposed to be used and which require testing. Submit concrete mix designs to Construction Manager and A/E for approval prior to pouring concrete.

Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes that require control by the testing laboratory.

Furnish copies of Product test reports as required.

Furnish incidental labor and facilities:
To provide access to Work to be tested.
To obtain and handle samples at the Project site or at the source of the product to be tested.
To facilitate inspections and tests.
For storage and curing of test samples.

Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.

Make arrangements with laboratory and pay for additional samples and tests required for Contractor's convenience.

Employ and pay for the services of a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required when initial tests indicate work does not comply with Contract Documents.

Temporarily halt the progress of the Work upon notification by the Owner or his designated representative that tested materials do not comply with Contract Documents.

Remove and replace at no cost to the Owner, all defective materials discovered upon testing not to comply with Contract Documents.

SPECIFIC TEST, INSPECTIONS, AND METHODS REQUIRED

Section 03 30 00: Cast-In-Place Concrete

Refer to Testing and Inspection article in Section 03 30 00 for testing and inspection requirements.

Section 31 20 00: Earth Moving

Refer to Compaction Testing and Field Quality Control articles in Section 31 20 00 for testing and inspection requirements.

Section 31 23 00: Foundation Excavation and Backfilling

Refer to Testing and Inspection article in Section 31 23 00 for testing and inspection requirements.

Section 31 66 13: Short Aggregate Pier Foundation System

Refer to Testing and Inspection article in Section 31 66 13 for testing and inspection requirements.

Section 32 11 23: Dense Graded Base

Refer to Field Quality Control article in Section 32 11 23 for testing and inspecting requirements.

Section 32 12 16: Asphalt Paving

Testing and Inspecting: Refer to Field Quality Control article in Section 32 12 16 for testing and inspection requirements.

Section 32 13 13: Portland Cement Concrete Paving

Refer to Field Quality Control article in Section 32 13 13 for testing and inspection requirements.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

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SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART ONE - GENERAL

GENERAL

Work and requirements of this Section are the responsibility of all Contractors as required for their work, unless specifically assigned to a Contractor designated by the Construction Manager or indicated otherwise in the Contract Documents.

REQUIREMENTS INCLUDED

General protective controls.
Cold weather protection.
Temporary communications systems.
Temporary first aid facilities.
Temporary fire protection.
Fire apparatus access.
Construction aids.
Temporary enclosures.
Protection against exposures.
Removal of aids and enclosures.
Barriers.
Guardrails and Barricades.
Security.
Site access and control.
Advertising.
Field offices.
Construction sanitary facilities.
Environmental controls.
Debris control.
Pollution control.
Temporary utility costs.

RELATED WORK AND REQUIREMENTS

Section 01 51 13: Temporary Electricity and Lighting
Section 01 51 23: Temporary Heating, Cooling, and Ventilating
Section 01 51 36: Temporary Water and Sanitary Facilities
Section 01 74 00: Cleaning and Waste Management
Section 01 78 39: Project Record Documents

DEFINITIONS

Permanent Enclosure: Permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

GENERAL PROTECTIVE CONTROLS

Notify adjacent owners of corporate or private property if their property interferes with your Work so that arrangements for proper protection can be made.

Use all means necessary to protect the following:

Existing site improvements indicated to remain.

Existing buildings indicated to remain.
Equipment, materials, apparatus, fixtures, etc., incorporated in the Work or stored on the site, free from injury or damage.
Temporary or permanent openings in the structure.
Existing trees indicated to remain.

Keep Project site accessible at all times. Remove snow, ice, and water as necessary for safety and execution of the Work.

COLD WEATHER PROTECTION

Progress of the Work shall not be unreasonably delayed due to cold weather. Heating and covering protection required to protect building and materials from damage due to freezing and precipitation during construction period prior to permanent enclosure of building, shall be classified as "cold weather protection".

Construction Manager or Contractor designated by the Construction Manager shall provide and pay for fuel.

Electrical power shall not be used as a source of heat for heating units.

Portable Heating Units: The use of stoves, salamanders, tar pots, etc., is prohibited. Temporary heating devices shall be substantially constructed, in good operating conditions, not readily overturned, and restricted to the use of oil or gas as source to produce heat. Provide means of venting units as required.

Provide proper maintenance and supervision of portable heaters when being used to provide temporary heat. At the end of each working day the heater units and associated hoses and controls shall be checked by supervisory personnel to assure proper operating condition. Do not permit heaters to be left operating unattended.

TEMPORARY COMMUNICATIONS SYSTEMS

Construction Manager or Contractor designated by the Construction Manager shall provide the following:

At least one cellular type telephone or paging device for the job superintendent.
Wi-Fi service.

Pay all costs for installation, usage, and removal.

Use of communication systems is limited to Construction Manager, Owner, and A/E; and any other parties at the discretion of Construction Manager. Emergency use is exempted from any limitation.

Contractors and Subcontractors may provide their own communication systems as required to expedite their work.

TEMPORARY FIRST AID FACILITIES

Construction Manager or Contractor designated by the Construction Manager shall provide and maintain first-aid equipment for construction personnel, readily available for emergency use. Post in a conspicuous place the telephone numbers and addresses of local police and fire departments and nearest hospital.

TEMPORARY FIRE PROTECTION

Provide and maintain in working order during the entire construction period, suitable fire extinguishers and such other fire protective equipment and devices in sufficient quantity for the Project size, necessary for any class or type of fire. Provide non-freeze type such as A-B-C rated dry chemical extinguishers of not less than 10 lb. capacity each. In addition, any Contractor or Subcontractor who maintains an enclosed shed on the premises shall provide and maintain in an accessible location, one or more similar non-freezing type fire extinguishers in each shed.

FIRE APPARATUS ACCESS

In accordance with Wisconsin Commercial Building Code, required fire apparatus access roads shall be provided prior to the placement of combustible materials at the building site, or the construction of any portion of the building above the footing and foundation.

CONSTRUCTION AIDS

Consult with Construction Manager, review site conditions and factors which affect construction procedures and construction aids, including adjacent properties and public facilities which may be affected by execution of the Work.

Provide and maintain construction aids and equipment required by construction personnel, and to facilitate execution of the Work, scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes, and other such facilities and equipment. Refer to respective Sections for particular requirements for each trade.

When permanent stair framing is in place, provide temporary treads, platforms, and railings, for use by all construction personnel.

Relocate construction aids as required by progress of Work, by storage or work requirements, and to accommodate reasonable access to the Work.

TEMPORARY ENCLOSURES

General: Temporary enclosures include the following:

1. Enclosing exterior building envelope openings in existing construction due to demolition and/or alteration.

2. Enclosing exterior building envelope openings in new construction prior to permanent enclosure.

3. Enclosing interior spaces to separate alteration work from occupied areas.

4. Walkways to accommodate use of existing building by the public during various construction phases.

Materials:

Metal stud wall and ceiling framing, minimum 20 gauge for load bearing and 25 gauge for non-load bearing. Frame 24 inches o.c.

Sheathing: Exterior Walls: Ship-lapped 1/2-inch plywood, weather resistant.
Interior Walls: 5/8-inch GWB.
Floor: 1/2-inch plywood, painted with non-slip aggregate.
Ceiling (Roof): 1/2-inch plywood (with weatherproof membrane covering where exposed to elements).

Insulation: Fiberglass batt, full depth of void.

Miscellaneous: Paint, tape, self-closing doors, builders hardware as required, suitable for use intended.

Provide all non-combustible materials or fire-retardant treated wood materials throughout.

Installation:

Provide temporary weather-tight enclosures of openings in building envelope for protection of construction, in progress and completed, as necessary to provide acceptable working conditions, weather protection for materials, effective temporary heating, and to prevent entry of unauthorized persons.

Provide temporary doors with self-closing builders type hardware.

Provide temporary locks where required to prevent unauthorized entry.

Provide covered walkways with interior and exterior sheathing, ceilings, and floors. Tape joints and provide two coats of paint.

PROTECTION AGAINST EXPOSURES

Construction Manager shall supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessively high or low temperatures.
3. Excessively high or low humidity.
4. Water or ice.
5. Chemicals and solvents.
6. Soiling, staining, and corrosion.
7. Mold, mildew, fungus or other harmful microorganisms.
8. Rodent and insect infestation.
9. Unusual wear or other misuse.
10. Contact between incompatible materials.
11. Unprotected storage.

Repair or remove and replace construction damaged by such exposures promptly to prevent further damage.

REMOVAL OF AIDS AND ENCLOSURES

Completely remove temporary materials, equipment and services when construction needs can be met by use of permanent construction and upon completion of Project.

Clean, repair damage caused by installation or by use of temporary facilities. Remove foundations and underground installations for construction aids. Grade areas of site affected by temporary installations to required elevations and slopes, and clean the areas.

BARRIERS

Furnish, install and maintain suitable barriers as required to prevent public entry, and to protect the Project, existing facilities, trees and plants from construction operations. Remove when no longer needed, or at completion of Project.

Materials shall be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

Prior to start of Work at the Project site, provide temporary perimeter enclosure fence with suitably locked access gates to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Provide minimum 8-foot high portable galvanized chain-link fence with concrete or galvanized steel bases for supporting posts. Enclose the area around building or portions of the site determined sufficient to prevent people from easily entering the site except by entrance gates. Lock entrances at end of each workday.

Install facilities of a neat and reasonable uniform appearance, structurally adequate for required purposes.

Maintain barriers during entire construction period.

Relocate barriers as required by progress of construction.

Completely remove barriers, including foundations, when construction has progressed to the point that they are no longer needed, and when approved by the Construction Manager and Owner.

Clean and repair damage caused by installation, fill and grade areas of the site to required elevations and slopes, and clean the area.

GUARDRAILS AND BARRICADES

Provide, erect and maintain planking, barricades, guardrails, temporary walkways, etc., of sufficient size and strength necessary for protection of material storage, sidewalks, curbs, streets, drives, adjoining property and the building as well as to afford protection to the public and construction personnel at the job site.

SECURITY

Watchmen will not be provided by the Owner. Provide such watchmen and take such precautionary measures as necessary to protect your interest.

SITE ACCESS AND CONTROL

Provide and maintain construction access as indicated on Drawings. Provide lockable construction gate across access road.

Keep adjacent streets and parking areas free from all debris originating at the site, and comply with local ordinances relative to construction activity.

ADVERTISING

No individual advertising signs, plaques, or credits, temporary or permanent, will be permitted on the building or premises, except the name of the Contractor on his office or material shed.

FIELD OFFICES

See Section 01 52 13 – Field Offices and Sheds.

Keep a complete set of all Contract Documents, State approved plans, approved shop drawings, change orders, and other modifications in office; see Section 01 78 39.

CONSTRUCTION SANITARY FACILITIES

Construction Manager or Contractor designated by the Construction Manager shall provide and maintain temporary toilets for the use of all construction personnel in sufficient number required for the force employed. The toilets shall comply with the requirements of regulatory agencies having jurisdiction and local regulations.

Maintain the temporary toilets in a sanitary condition at all times, and supply toilet tissue and paper towels.

When construction has progressed sufficiently to utilize proposed toilet rooms within building, provide and maintain temporary toilet compartments for temporary toilet rooms. See Section 01 51 36. Provide with toilet tissue and paper towels as above.

ENVIRONMENTAL CONTROLS

General: Provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site, and related areas under Contractor's control; remove physical evidence of temporary facilities at completion of Work.

Erosion Control: Maintain erosion control measures provided by Section 01 57 13 and 31 25 00 contractors until all base earth areas are fully covered with pavement, lawns and other improvements.

Dust Control: Provide positive methods and apply dust control materials to minimize raising dust from construction operations, and provide positive means to prevent air-borne dust from dispersing into the atmosphere.

Water Control: Provide drawing and obtain permit if required by local municipality.

Provide methods to control surface water to prevent damage to the Project, the site, or adjoining properties.

Control fill, grading, and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas; and to direct drainage to proper runoff.

Provide, operate and maintain hydraulic equipment of adequate capacity to control surface and water.

Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas.

DEBRIS CONTROL

Maintain all areas of construction activity free of extraneous debris. See Section 01 74 00 - Cleaning and Waste Management.

Initiate and maintain a specific program to prevent accumulation of debris at the Project site and along access roads and haul routes. Keep site clear of windblown debris.

Provide containers for deposit of debris.
Prohibit overloading of containers to prevent spillages on access and haul routes.
Provide periodic inspection of traffic areas to enforce requirements.

Schedule periodic collection and disposal of debris as specified in Section 01 74 00. Provide additional collections and disposals of debris whenever the periodic schedule is inadequate to prevent accumulation.

POLLUTION CONTROL

Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by the discharge of noxious substances from construction operations.

Provide equipment and personnel, perform emergency measures required to contain any spillages, and to remove contaminated materials or liquids.

Take special measures to prevent harmful substances from entering public waters.
Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.

Provide systems for control of atmospheric pollutants.
Prevent toxic concentrations of chemicals.
Prevent harmful dispersal of pollutants into the atmosphere.

All PCB materials and hazardous substances as defined in federal and state statutes, regulations, and orders, if any, shall be used, handled, stored, and disposed of in conformity with all state, federal, and local laws, regulations and orders. Submit data sheets on all hazardous substances prior to materials being delivered to Owner's property.

TEMPORARY UTILITY COSTS

Temporary Water: Usage costs paid by Construction Manager.
Temporary Power: Electricity paid by Construction Manager.
Temporary Heating: Fuel paid by Construction Manager.

End of Section

SECTION 01 51 13 - TEMPORARY ELECTRICITY AND LIGHTING

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Electrical Contractor shall install, pay for and maintain temporary electric power service and temporary lighting for construction needs throughout the construction period, remove on completion of the Work.

RELATED WORK AND REQUIREMENTS

Section 01 50 00: Temporary Facilities and Controls
Section 01 51 23: Temporary Heating, Cooling, and Ventilating
Section 01 60 00: Product Requirements
Section 01 77 00: Closeout Procedures
Applicable Sections of Division 26 - Electrical

SERVICE REQUIREMENTS

Power centers for miscellaneous tools and equipment used in the Project:

Weatherproof distribution box with minimum of four 20 amp, 120 volt, GFI grounded outlets.

Locate so that power is available at any point of use with not more than 100 ft. power cords. Minimum: Two on each floor of building. Circuit breaker protection for each outlet.

Capacity of Service:

Provide electrical service for construction needs.

Minimum - 200 amp, 120/208 volts, 3 phase, 4 wire, 60 hertz or equivalent.

Notify power company when unusually heavy loads, such as for welding and other equipment with special power requirements, will be connected.

Any trade requiring service of capacity or characteristics other than that specified shall provide and pay for the additional service.

Power Source:

Wisconsin Public Service Corporation
Location: Verify exact location with Eagle River Light & Water utility department.

LIGHTING REQUIREMENTS

Provide temporary artificial lighting in enclosed areas and for all areas when natural light does not meet minimum requirements for:

Construction work. For work areas: Uniform illumination of 20 foot candles.

Security. Locate as directed by Construction Manager.

Temporary offices, storage, shop and other construction buildings. Limit structures served to one temporary office and two accessory construction buildings for Construction Manager, GC, PC, HC, and EC only.

Illumination shall in all areas, meet or exceed State Code requirements or other more stringent State, local, or Federal requirements.

USE OF PERMANENT SYSTEM

Prior to use of permanent system for construction purposes, obtain written permission of Construction Manager and Owner.

The use of the permanent system shall not serve to waive compliance with any requirements of the Contract Documents specified elsewhere.

Maintain permanent system as specified for temporary facilities.

COST OF INSTALLATION AND OPERATION

Pay fees and charges for permits and applications.

Pay cost of installation, maintenance and removal of temporary services and restoration of any permanent facilities used.

Electrical consumption paid by Construction Manager. (See Section 01 50 00).

PART TWO - PRODUCTS

MATERIALS AND EQUIPMENT

General:

Comply with applicable requirements specified in Section of Division 26 - Electrical Work.
Materials may be new or used, but must be adequate for required usage, and must not violate requirements of applicable codes and standards.

RECEPTACLES, FIXTURES, CONTROLS

Standard products, meeting UL standards.

PART THREE - EXECUTION

GENERAL

Install all service equipment in temporary weatherproof lockable enclosure.

Comply with applicable requirements specified in Section of Division 26 - Electrical Work.

Maintain system to provide continuous service.

Modify and extend service as work progress requires.

COORDINATION

Coordinate location of power centers and lighting fixtures with Construction Manager and Major Contractors.

INSTALLATION

Locate fixtures to provide full illumination of required areas.

Install distribution centers and power centers.

Provide service and lighting to field offices of Construction Manager and Major Contractors.

Make connections for temporary heating, ventilating and cooling equipment.

Wire all safety devices specified for final operation of equipment. Verify proper operation of safety devices.

OPERATION OF PERMANENT SYSTEMS

Place operational areas of permanent electrical system in use sequentially as respective areas of Project are enclosed or as required to substantially complete designated portions of the Project.

Prior to operation, verify that inspection has been made by proper authorities and installation has been approved for operation.

REMOVAL

Completely remove temporary materials and equipment:

- When construction and other needs can be met by use of permanent installation.
- At completion of Project.

Restore permanent facilities used for temporary services to specified condition.

Replace fixtures and other component parts that are damaged during the Work.

End of Section

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SECTION 01 51 23 - TEMPORARY HEATING, COOLING, AND VENTILATING

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Heating Contractor shall furnish, install, and maintain temporary heating, ventilating, and cooling systems as required to maintain specified environmental conditions in enclosed areas throughout the construction period. Remove when no longer required or upon completion of the Project. Provide temporary natural gas service and meter or provide permanent service.
Electric resistance heating not permitted.

RELATED WORK AND REQUIREMENTS

Section 01 50 00: Temporary Facilities and Controls
Section 01 51 13: Temporary Electricity and Lighting
Section 01 60 00: Product Requirements
Section 01 77 00: Closeout Procedures
Applicable Sections of Division 23 - Heating Ventilating and Air Conditioning

Section for each respective Product:
Heating Requirements for Cold-Weather Installation and Protection of Materials.
Ambient Temperatures and Humidities Required for Installation of Products.

CONDITIONS REQUIRED

See requirements of Products Specifications (Divisions 02 thru 33) for minimum temperatures to be maintained for the various trades. Unless otherwise specified, maintain a minimum inside temperature of 50 degrees F. in permanently enclosed portions of building for normal construction activities, and 65 degrees F. for finishing activities and areas where finished Work has been installed.

Provide and operate equipment required to control temperature and humidity, as necessary to facilitate progress of Work.

Provide ventilating and cooling required to maintain adequate conditions:

Ventilation Required:

General: To prevent hazardous accumulations of dust, fumes, mists, vapors, or gasses in areas occupied during construction. Provide local exhaust ventilation to prevent harmful dispersal of hazardous substances into atmosphere of occupied areas. Dispose of exhaust materials in a manner that will not result in harmful exposure to persons. Ventilate storage spaces containing hazardous or volatile materials.

Cooling Required:

To control humidity, and to prevent condensation which would have an adverse affect on the products and finishes or which would affect application of materials. To cure installed materials and to protect installed construction from adverse effects of high humidity.

TEMPORARY NATURAL GAS SERVICE

HC shall arrange for and provide connection to permanent gas service or provide temporary gas service. Take out in the name of the Construction Manager.

USE OF PERMANENT SYSTEM

Prior to use of permanent system, obtain written permission of Construction Manager and Owner, which will define:

Conditions for use.
Provisions relating to warranties on equipment.

Also see Section 01 77 00.

COSTS OF INSTALLATION AND OPERATION

HC shall pay all costs of service, installation, operation, maintenance and removal of equipment. Costs of fuel and power consumed shall be paid by Construction Manager. (See Section 01 50 00).

PART TWO - PRODUCTS

MATERIALS

Comply with Division 23: Sections applicable to HVAC Work.

Materials may be new or used, but must be adequate for the purposes intended, and must not violate requirements of applicable codes and standards.

EQUIPMENT

Provide required facilities, including piping, wiring and controls as appropriate.

Portable Heaters: Standard units, in compliance with applicable codes and regulations.

PART THREE - EXECUTION

GENERAL

Comply with applicable Sections of Division 23 - Heating Ventilating and Air Conditioning.

Modify and extend systems as work progress requires and as directed by Construction Manager.

INSTALLATION

Locate units to provide uniform distribution of heat and air movement.

OPERATION OF PERMANENT EQUIPMENT

Place operational zones of permanent HVAC system in use sequentially as respective areas of the Project become adequately enclosed for efficient operation.

Prior to operation, verify that inspection has been made by proper authorities and installation has been approved for operation.

Provide and maintain temporary filters for air handling units and for permanent ducts.

Protect permanent radiation units, such as convectors for finned pipe.

Provide operation and maintenance of systems.

The use of the permanent system shall not serve to waive compliance with any requirements of the Contract Documents specified elsewhere.

REMOVAL

Completely remove temporary materials and equipment when use is no longer required.

Restore permanent equipment used for temporary services to specified condition.

Remove temporary filters and install new.

End of Section

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SECTION 01 51 36 - TEMPORARY WATER AND SANITARY FACILITIES

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Plumbing Contractor shall provide and maintain temporary water service for construction and for sanitary needs throughout construction period, remove on completion of work.

RELATED WORK AND REQUIREMENTS

Section 01 50 00: Temporary Facilities and Controls
Section 01 60 00: Product Requirements
Section 01 77 00: Closeout Procedures
Applicable Sections of Division 22 - Plumbing

CONSTRUCTION WATER

Provide adequate supply of water suitable for construction usage.

Capacity of Service:

Size water service to provide adequate volume for all anticipated construction uses, and to maintain minimum specified pressure when taps are in use.

Water Source: Arrange with local utility for temporary water service.

Maintain strict supervision of use of temporary water system:
Protect against freezing, repair leaks.

Use all means to conserve water at all times. Immediately report miss-use of water to the Construction Manager.

USE OF PERMANENT WATER SYSTEM

Place operational zones of permanent systems in use sequentially as respective areas of Project are enclosed or as required to substantially complete designated portions of the Project.

Prior to use of permanent system for construction purposes, obtain written permission of Construction Manager and Owner.

Prior to use of system for drinking water:
Disinfect piping.
Obtain inspections and approval of governing authority.

Extend system as necessary to comply with temporary water requirements.

The use of the permanent system shall not serve to waive compliance with any requirements of the Contract Documents specified elsewhere.

CONSTRUCTION SANITARY FACILITIES

Portable Facilities: See Section 01 50 00 for sanitary facilities during initial stages of construction.

Use of Permanent Facilities: Obtain written permission of Construction Manager and Owner prior to usage to establish conditions of use.

COSTS OF INSTALLATION AND OPERATION

The PC shall obtain and pay for permits as required by governing authorities, and pay costs of temporary sanitary facilities, including costs of installation, maintenance and removal.

Water and sewer usage costs paid by Construction Manager. (See Section 01 50 00).

PART TWO - PRODUCTS

GENERAL

Comply with Division 22: Sections applicable to Plumbing Work.

Materials may be new or used, but must be adequate for purpose intended, and must not create unsanitary conditions nor violate code requirements.

PART THREE - EXECUTION

GENERAL

Comply with applicable requirements specified in Division 22 - Plumbing.

Maintain water system to provide continuous service.

Modify and extend service as work progress requires.

WATER SYSTEM INSTALLATION

When necessary to maintain pressure, provide temporary pumps, tanks, and compressors.

REMOVAL

Water System:

Completely remove temporary materials and equipment when construction needs can be met by use of permanent installation and upon completion of Project.

Clean and repair damage caused by installation or use of temporary facilities.

Restore permanent facilities used for temporary services to specified condition.

End of Section

SECTION 01 52 13
FIELD OFFICES AND SHEDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary field offices for use of Architect.

B. Maintenance and removal.

1.02 RELATED REQUIREMENTS

A. Section 01 11 00 – Summary of Work: use of premises and responsibility for providing field offices.

B. Section 01 50 00 - Temporary Facilities and Controls:
   1. Temporary telecommunications services for administrative purposes.
   2. Temporary sanitary facilities required by law.

PART 2 PRODUCTS

2.01 MATERIALS, EQUIPMENT, FURNISHINGS

A. Materials, Equipment, Furnishings: Serviceable, new or used, adequate for required purpose.

2.02 CONSTRUCTION

A. Portable or mobile buildings, or buildings constructed with floors raised above ground, securely fixed to foundations, with steps and landings at entrance doors.

B. Construction: Structurally sound, secure, weather tight enclosures for office. Maintain during progress of Work; remove when no longer needed.

C. Exterior Materials: Weather resistant, finished in one color.

D. Interior Materials in Offices: Sheet type materials for walls and ceilings, prefinished or painted; resilient floors and bases.

E. Fire Extinguishers: Appropriate type fire extinguisher at each office.

2.03 ENVIRONMENTAL CONTROL

A. Heating, Cooling, and Ventilating: Automatic equipment to maintain comfort conditions.

2.04 OWNER AND ARCHITECT/ENGINEER OFFICE

A. Separate space for sole use of Owner and Architect, with separate entrance door with new lock and two keys.

B. Area: At least 150 sq ft (14 sq m), with minimum dimension of 8 ft (2.4 m).

C. Telephone: As specified in Section 01 50 00.

D. Sanitary Facilities: As specified in Section 01 50 00.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install office spaces ready for occupancy 15 days after date fixed in Notice to Proceed.

B. Employee Residential Occupancy: Not allowed on Owner's property.

3.02 MAINTENANCE AND CLEANING

A. Weekly janitorial services for offices; periodic cleaning and maintenance for offices.

B. Maintain approach walks free of mud, water, and snow.

3.03 REMOVAL

A. At completion of Work remove buildings, foundations, utility services, and debris. Restore areas.

END OF SECTION

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SECTION 01 57 13

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Prevention of erosion due to construction activities.

B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.

C. Restoration of areas eroded due to insufficient preventive measures.

D. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.02 REFERENCE STANDARDS

A. EPA (NPDES) - National Pollutant Discharge Elimination System (NPDES), Construction General Permit; current edition.

1.03 PERFORMANCE REQUIREMENTS

A. Comply with all requirements of U.S. Environmental Protection Agency for erosion and sedimentation control, as specified for the National Pollutant Discharge Elimination System (NPDES), Phases I and II, under requirements for the 2003 Construction General Permit (CGP), whether the project is required by law to comply or not.

B. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.

C. Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.

D. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.
   1. Prevent runoff into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.
   2. Anticipate runoff volume due to the most extreme short term and 24-hour rainfall events that might occur in 25 years.

E. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
   1. Control movement of sediment and soil from temporary stockpiles of soil.
   2. Prevent development of ruts due to equipment and vehicular traffic.
   3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

F. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
   1. Prevent windblown soil from leaving the project site.
   2. Prevent tracking of mud onto public roads outside site.
   3. Prevent mud and sediment from flowing onto sidewalks and pavements.
   4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

G. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
   1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.

2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.

H. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
   1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.

I. Open Water: Prevent standing water that could become stagnant.

J. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedure

B. Erosion and Sedimentation Control Plan:
   1. Include:
      a. Site plan identifying soils and vegetation, existing erosion problems, and areas vulnerable to erosion due to topography, soils, vegetation, or drainage.
      b. Site plan showing grading; new improvements; temporary roads, traffic accesses, and other temporary construction; and proposed preventive measures.
      c. Where extensive areas of soil will be disturbed, include storm water flow and volume calculations, soil loss predictions, and proposed preventive measures.
      d. Schedule of temporary preventive measures, in relation to ground disturbing activities.
      e. Other information required by law.
      f. Format required by law is acceptable, provided any additional information specified is also included.
   2. Obtain the approval of the Plan by authorities having jurisdiction.

PART 2 PRODUCTS

2.01 MATERIALS

A. Mulch: Use one of the following:
   1. Straw or hay.
   2. Wood waste, chips, or bark.
   3. Erosion control matting or netting.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.02 PREPARATION

A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.03 MAINTENANCE

A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches (13 mm) or more rainfall at the project site, and daily during prolonged rainfall.

B. Repair deficiencies immediately.

C. Silt Fences:
   1. Promptly replace fabric that deteriorates unless need for fence has passed.
   2. Remove silt deposits that exceed one-third of the height of the fence.
   3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

D. Clean out temporary sediment control structures weekly and relocate soil on site.

E. Place sediment in appropriate locations on site; do not remove from site.

3.04 CLEAN UP

A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Architect.

B. Clean out temporary sediment control structures that are to remain as permanent measures.

C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

END OF SECTION

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SECTION 01 58 00 - PROJECT IDENTIFICATION

PART ONE - GENERAL

DESCRIPTION

Contractor designated by Construction Manager shall provide Project Identification sign.

No other signage permitted except Contractor's identification on storage sheds and trailers.

PART TWO - PRODUCTS

Provide project identification sign on minimum 4'-0" high by 8'-0" wide weather resistant rigid substrate. Sign will include an architectural colored rendering of the building as well as identification information for the Construction Manager, Architect, and Architect consultants.

A/E will furnish an electronic document file to the Construction Manager for use by the sign company in the fabrication of the project identification sign.

PART THREE - EXECUTION

Erect sign on job site where indicated by Architect. Provide adequate bracing to maintain in erected position.

Upon completion, remove from site.

End of Section

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SECTION 01 60 00 – PRODUCT REQUIREMENTS

PART ONE - GENERAL

REQUIREMENTS INCLUDED

All labor and materials.

Material and equipment incorporated into the Work:

- Conform to applicable specifications and standards.
- Comply with size, make, type and quality specified, or as specifically approved in writing by the A/E.
- Manufactured and fabricated Products:
  - Design, fabricate and assemble in accord with the best engineering and shop practices.
  - Manufacture like parts of duplicate units to standard sizes and gages, to be interchangeable.
  - Two or more items of the same kind shall be identical, by the same manufacturer.
  - Products shall be suitable for service conditions.
  - Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.

Do not use material or equipment for any purpose other than that for which it is designed or is specified.

RELATED REQUIREMENTS

Conditions of the Contract.
Section 01 11 00: Summary of Work
Section 01 11 23: Tax Exempt Purchase Procedures
Section 01 33 00: Submittal Procedures
Section 01 51 13: Temporary Electricity and Lighting
Section 01 51 23: Temporary Heating, Cooling, and Ventilating
Section 01 51 36: Temporary Water and Sanitary Facilities
Section 01 74 00: Cleaning and Waste Management
Section 01 78 23: Operating and Maintenance Data

LABOR AND MATERIALS

Unless otherwise provided in the Contract Documents, provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

Enforce strict discipline and good order among your employees and other persons carrying out the Work. Do not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

REUSE OF EXISTING MATERIAL

Except as specifically indicated or specified, materials and equipment removed shall not be used in the completed Work.

For material and equipment specifically indicated or specified to be reused in the Work:

- Use special care in removal, handling, storage and reinstallation. Arrange for transportation, storage and handling of products for such work.

ACCEPTABLE MANUFACTURERS

In the Specifications there are listed acceptable manufacturers. They are listed because to the best of our knowledge and belief, they are capable of manufacturing the Product to the standards and requirements specified. The A/E will be the sole judge that the Product proposed by the contractor or manufacturer conforms to the standards and requirements specified.

MANUFACTURER'S INSTRUCTIONS

When Contract Documents require that installation of Work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to the A/E.

Maintain one set of complete instructions at the job site during installation and until completion.

Handle, install, connect, clean, condition and adjust products in strict accord with such instructions, and in conformity with specified requirements.

Should job conditions or specified requirements conflict with manufacturer's instructions, consult with A/E for further instructions.

Do not proceed with Work without clear instructions.

Perform Work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

TRANSPORTATION AND HANDLING

Arrange deliveries of Products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.

Deliver Products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

Immediately on delivery, inspect shipments to assure compliance with requirements of the Contract Documents and approved submittals, and that Products are properly protected and undamaged.

Provide equipment and personnel to handle Products by methods to prevent soiling or damage to Products or packaging.

STORAGE AND PROTECTION

Store products in accord with manufacturer's instructions, with seals and labels intact and legible.

Store products subject to damage by the elements in weathertight enclosures.

Maintain temperatures and humidity within the ranges required by manufacturer's instructions.

Exterior Storage:

Store fabricated Products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.

Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored Products to assure that Products are maintained under specified conditions, and free from damage or deterioration.

Protection after Installation:

Provide final protection and maintain conditions, including but not limited to environmental conditions, which ensure installed Work is without damage or deterioration at time of Substantial Completion. Remove when no longer needed.

Comply with manufacturers written instructions for temperature and relative humidity.

Repair and restore damaged finished Work to its original condition. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

PRODUCT LABELS

Identifying product labels not permitted on products exposed to view in finished areas.

BIDDERS AND SUB-BIDDERS REQUEST FOR SUBSTITUTE PRODUCT PRIOR TO RECEIPT OF BIDS

For Products specified by naming one or more Products or manufacturer's and "or approved equal" or "approved equivalent", submit to A/E a Substitution Request Form for substitutions **prior to bidding** for any Product or manufacturer not specifically named. Utilize Substitution Request Form at end of this Section.

Request for substitutions from any party other than the Bidder will not be considered.

CONTRACTOR'S AND SUBCONTRACTOR'S PRODUCT SELECTION OPTIONS

For Products specified only by reference standard, select any product meeting that standard.

For Products specified by naming only one Product and manufacturer, no substitute product will be considered.

For Products specified by naming several Products or manufacturers select any one of the products or manufacturers named, which complies with the specifications. No substitute product will be considered.

SUBSTITUTIONS AFTER AWARD OF CONTRACT

The Contractor may make substitutions only with the consent of the Owner, after evaluation by the A/E and in accordance with a Change Order or Construction Change Directive.

The Contractor shall submit a Substitution Request Form for each product, supported with complete data, with drawings and samples as appropriate, including:

- Comparison of qualities of the proposed substitutions with that specified.
- Changes required in other elements of the Work because of the substitution.
- Effect on the construction schedule.
- Cost data comparing the proposed substitution with the Product specified.
- Any required license fees or royalties.
- Availability of maintenance service and source of replacement materials.

Contractor's Representation:

A request for a substitution constitutes a representation that Contractor:

- Has investigated the proposed Product and determined that it is equal to or superior in all respects to that specified.
- Will provide the same warranties or bonds for the substitution as for the Product specified.
- Will coordinate the installation of an accepted substitution into the Work, and make such other changes as may be required to make the work complete in all respects.
- Waive all claims for additional costs, under his responsibility, which may subsequently become apparent.

A/E will evaluate requests for substitutions with reasonable promptness and notify Owner in writing of the A/E's recommendation. The Owner shall be the judge of the acceptability of the proposed substitution.

PRODUCT LISTS

Submit to A/E a complete list of major products proposed to be used, with the name of the manufacturer and the installation subcontractor.

Should the Contractor fail to submit a complete list, the A/E will select from any product, system or material specified or will select a Product to meet a referenced standard.

CONSTRUCTION EQUIPMENT

In addition to the requirements in labor and materials above, comply with the following:

Provide and maintain hoses and connections for water required in construction.

Provide electrical power extension cords and provide temporary lighting if required in addition to that provided in Section 01 51 13.

Provide independent source of power or special circuits for large electrical motors (1/3 HP and up) and welding equipment. Do not use temporary service system.

USE OF MATERIALS AND EQUIPMENT INCORPORATED IN THE WORK

Obtain Owner's written permission to use completed portions of the Work prior to "Substantial Completion" of the whole work.

Limit such use to essential facilities required to expedite completion of the Project.

Restore facilities used for temporary service to specified condition.

Permanent completed sanitary facilities may be used subject to Owner's written approval. Limit use to two rooms (one for each sex).

Permanent electrical service shall not be used for motors larger than fractional HP, or for welding equipment.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

Substitution Request Form follows this Section.

SECTION 01 71 23 - FIELD ENGINEERING

PART ONE - GENERAL

REQUIREMENTS INCLUDED

The Contractor designated by the Construction Manager shall provide and pay for field engineering services required for the Project:

Land surveying services required to execute the Work, to include building location and layout, and location and layout of pavements and all proposed site improvements.

Verification of existing building dimensions, elevations, and relationship to proposed addition.

Professional Engineering services to execute Contractor's construction methods.

RELATED REQUIREMENTS

Conditions of the Contract.

PROCEDURES

A property survey has been prepared for the Owner and has been bound with Contract Drawings. Surveys shall describe physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. If information is incomplete, notify Owner to furnish additional information. Verify easement locations, front, side, and rear yard restrictions, if any; and property line locations. Verify control points, and establish bench marks. Locate and layout roads, walks, parking areas and all civil structures and all proposed site improvements.

Verify locations of underground services, utilities, structures, etc., which may be encountered or affected by the Work.

Protect control points prior to starting site work, and preserve all permanent reference points during construction.

Make no changes or relocations without prior written notice to A/E. Report to A/E when any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations. Require land surveyor to replace Project control points which may be lost or destroyed and establish replacements based on original survey control.

PROJECT SURVEY REQUIREMENTS

If not already established, establish a minimum of two permanent bench marks on site, referenced to date, and established by survey control points. Record locations, with horizontal and vertical data, on Project Record Documents.

Provide data to all Subcontractors for their use as applicable.

From time to time, verify layouts.

RECORDS

Maintain a complete, accurate log of all control and survey work as it progresses.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

SECTION 01 73 29 - CUTTING AND PATCHING

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Unless provided elsewhere in the Contract Documents, all Contractors and Subcontractors shall be responsible for cutting, patching, or fitting of his own Work as required to make its several parts fit together, or to receive the Work of other Contractors and Subcontractors as shown or reasonably implied by the Drawings and Specifications to complete the Work or to:

Uncover portions of the Work to provide for installation of ill-timed work.
Remove and replace defective Work.
Remove and replace work not conforming to requirements of Contract Documents.
Remove samples of installed work as specified for testing.

It is the sole responsibility of the contractor who removes work through cutting and patching to replace the work including firestopping if applicable.

All areas requiring cutting, fitting or patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

Contractors and Subcontractors shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner, Owner's separate contractors or other Contractors by cutting, patching or otherwise altering such construction, or by excavation. Contractors and Subcontractors shall not cut or otherwise alter such construction by the Owner, Owner's separate contractors or other Contractors except with written consent of the Construction Manager, Owner and such other Contractors; such consent shall not be unreasonably withheld. Contractors and Subcontractors shall not unreasonably withhold from the other Contractors, Owner or a separate contractor the Contractor's and Subcontractor's consent to cutting or otherwise altering the Work.

The Contractor designated by the Construction Manager shall provide required openings larger than six (6) inches in diameter in structural work for other Contractors and Subcontractors, including structural support; provided that Contractor and Subcontractor has furnished sizes, locations, sleeves, etc., prior to execution of the Work.

Definition: Structural work includes load bearing walls and partitions, suspended slabs, beams, masonry partitions, floors and roofs.

Contractors and Subcontractors shall provide openings for installation of their work, unless specified or indicated on the Drawings otherwise. Openings in masonry or concrete work less than six (6) inches in diameter shall be cored by Contractor or Subcontractor. Coring not permitted in locations that will endanger the capacity of the structure.

Protection: Do no torch cutting adjacent to or within occupied areas of the Project without prior approval of the Construction Manager, A/E and Owner. Upon approval, use all means necessary to protect the occupants, from hazards.

PART TWO - PRODUCTS

MATERIALS

Comply with specifications and standards for each specific product involved.

PART THREE - EXECUTION

INSPECTION

Inspect existing conditions of Project, including elements subject to damage or to movement during cutting and patching.

After uncovering Work, inspect conditions affecting installation of Products, or performance of Work.

Report unsatisfactory or questionable conditions to the Construction Manager and A/E in writing; do not proceed with Work until Construction Manager and A/E has provided further instructions.

PREPARATION

Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of Work.

Provide devices and methods to protect other portions of Project from damage.

Provide protection from elements for that portion of the Project that may be exposed by cutting and patching work, and maintain excavations free from water.

PERFORMANCE

Execute cutting and demolition by methods that will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.

Execute excavating and backfilling by methods that will prevent settlement or damage to other work, and will provide proper surfaces to receive installation of repairs.

Employ original installer or fabricator to perform cutting and patching for:

Weather-exposed or moisture-resistant elements.
Sight-exposed finished surfaces.

Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.

Restore work that has been cut or removed; install new products to provide completed Work in accord with requirements of Contract Documents.

Fit work tightly to pipes, sleeves, ducts, conduit and other penetrations through surfaces. Firestop wall or floor fire separation penetrations with products specified in Sections 07 84 13 and 07 84 43.

Seal penetration perimeters in "sound insulated" partitions with acoustical sealant specified in Section 09 29 00.

Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:

For continuous surfaces, refinish to nearest intersection.
For an assembly, refinish entire unit.

End of Section

SECTION 01 74 00 – CLEANING AND WASTE MANAGEMENT

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Each Contractor and Subcontractor shall comply with requirements specified in this Section.

Throughout the construction period, maintain the buildings and site in a standard of cleanliness as described in this Section.

If Contractor and Subcontractor fails to clean up as provided in the Contract Documents, the Construction Manager may do so with Owner's approval after two (2) day written notice, and the cost thereof shall be charged to Contractor or Subcontractor.

RELATED WORK AND REQUIREMENTS

In addition to standards described in this Section, comply with all requirements for cleaning-up as described in other Sections of these Specifications.

Section 01 50 00: Temporary Facilities and Controls; debris control

QUALITY ASSURANCE

Inspection: Conduct daily inspection of your Work areas, and more often if necessary, to verify that requirements of cleanliness are being met.

Regulatory Requirements: In addition to requirements specified herein, comply with all pertinent construction waste recycling, reuse, hauling, and disposal requirements of governmental authorities having jurisdiction.

RECYCLING

It is the intent of the Construction Manager to recycle as much of the construction waste as possible. To accomplish this, participation from all Contractors, Subcontractors, and suppliers onsite is required. This includes not only the Construction Manager employees, but all Contractors, Subcontractors and suppliers that are onsite. The following items can be recycled to reduce the waste brought to local landfills.

Concrete, block, and brick can be broken up and used as fill on site, or used for road base or fill on sights nearby. Usually the project excavator can help take care of this with our coordination.

Steel and metals can be recycled. The Construction Manager will provide a steel dumpster.

Paper/cardboard can be recycled. The Construction Manager will provide paper/cardboard dumpster. The cardboard will have to be broken down before pickup.

Plastic can be recycled. The Construction Manager will provide an extra container to house the plastic. This includes bottles, plastic banding, and the clear wrap from packaging.

Wood can be recycled. The Construction Manager will provide a separate dumpster.

Drywall can be recycled.

PART TWO - PRODUCTS

CLEANING MATERIALS AND EQUIPMENT

Provide all required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

COMPATIBILITY

Use only the cleaning materials and equipment that are compatible with the surface being cleaned, as recommended by the manufacturer of the material or as approved by the A/E.

PART THREE - EXECUTION

PROGRESS CLEANING

General:

Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.

Do not allow the accumulation of scrap, debris, waste materials, and other items not required for construction of Work.

At least weekly, and more often if necessary, completely remove all scraps, debris, and waste material from the designated holding area on the job site. Provide adequate storage for all items awaiting removal from the job site, and observe all requirements for fire protection and protection of the ecology.

Project Site:

Daily, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove all such items to the designated holding area.

Each Contractor or Subcontractor shall be responsible for cleanup of their work on a daily basis. Each Contractor and Subcontractor shall be required to adopt the Construction Manager's recycling procedures.

Weekly, and more often if necessary, inspect all arrangements of materials stored on the site; restack, tidy, or otherwise service all arrangements to meet the requirements noted above: (Progress cleaning general).

Maintain the site in a neat and orderly condition at all times.

Building Work Areas:

Weekly, and more often if necessary, inspect work areas and pick up all scrap, debris, and waste material; remove to designated holding area.

Weekly, and more often if necessary, sweep all work areas clean. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and handheld broom.

As required, preparatory to installation of succeeding material, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.

Following the installation of finish floor materials, clean finish floors daily (and more often if necessary) at all times while work is being performed in the space in which finish materials have been installed. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from all foreign material which, in the opinion of the A/E, may be injurious to the finish floor material.

FINAL CLEANING

Construction Manager or Contractor designated by the Construction Manager shall be responsible for final cleaning.

Definition: Except as otherwise specifically provided, "clean" (for the purpose of this Paragraph) shall be interpreted as meaning the level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials.

General:

Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in PROGRESS CLEANING above.

Project Site:

Unless otherwise specifically directed by the Construction Manager broom clean all paved areas on the site and all public paved areas directly adjacent to the site. Completely remove all resultant debris.

Building Work Areas:

Exterior: Visually inspect all exterior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. If necessary to achieve a uniform degree of exterior cleanliness, hose down the exterior of the structure. In the event of stubborn stains not removable with water, the A/E may require light sandblasting or other cleaning at no additional cost to the Owner.

Interior: Visually inspect all interior surfaces and remove all traces of soil, waste, material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. Remove all paint droppings, spots, stains, and dirt from finished surfaces. Use only the specified cleaning materials and equipment.

Glass: Clean all glass, all faces.

Polished Surfaces: To all surfaces requiring the routine application of buffed polish, apply the polish recommended by the manufacturer of the material being polished.

Timing: Schedule final cleaning as approved by the A/E to enable the Owner to accept a completely clean project.

Miscellaneous Cleaning:

Clean all fixtures and equipment of every description, concealed or exposed to view, interior and exterior.

Remove all markings, labels, and stickers not intended or suitable for permanent identification.

Use whatever means necessary to thoroughly clean all piping, ductwork, tanks, pumps, fans, motors, and all equipment of every description provided as part of your Contract.

Clean, drain, and flush all piping systems, connected accessories and equipment.

Clean and polish or otherwise leave visible all identification plates, devices, etc.

End of Section

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SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Substantial completion.
Final completion.
Reinspection fees.
Closeout submittals.
Adjustment of accounts.
Application for final payment.

RELATED WORK AND REQUIREMENTS

Section 01 74 00: Cleaning and Waste Management
Section 01 78 23: Operation and Maintenance Data
Section 01 78 36: Warranties and Bonds
Section 01 78 39: Project Record Documents

Respective Sections of Specifications: Closeout submittals for work of the Section.

SUBSTANTIAL COMPLETION

Contractors shall substantially complete and put into service portions of the Work as contractually required and/or as designated by the Construction Manager or Owner in order to facilitate completion of the Project as a whole. For warranty conditions, refer to Section 01 78 36.

Maintenance of equipment or component parts of equipment so placed into service shall be the responsibility of the Contractor until Substantial Completion of the whole Work of the Contract.

Proceed as follows when Contractor considers the Work (or designated portion thereof) Substantially Complete:

Contractor and Construction Manager shall jointly prepare and submit written notice to the A/E with a comprehensive list of items to be completed or corrected.

Within a reasonable time, the A/E assisted by the Construction Manager will make a review to determine status of completion.

Should Construction Manager or A/E determine that Work is not substantially complete, the Construction Manager will promptly notify Contractor in writing, giving the reasons therefore.

Contractor shall remedy deficiencies, and send a second written notice of substantial completion, and A/E assisted by the Construction Manager will make another review of the Work.

When A/E determines that Work is substantially complete, he will prepare a Certificate of Substantial Completion in accordance with the General Conditions.

FINAL COMPLETION

A/E will consider Closeout Submittals within 10 days after date of Substantial Completion of the whole Work.

When Contractor considers Work is complete, he shall submit written certification that:

1. Contract Documents have been reviewed.

2. Work has been inspected for compliance with Contract Documents.
3. Work has been completed in accordance with Contract Documents, and deficiencies listed with Certificates of Substantial Completion have been corrected.
4. Equipment and systems have been tested in presence of Owner's representative and are operational.
5. Work is complete and ready for final inspection.

A/E will review to verify status of completion with reasonable promptness.

Should A/E determine that Work is incomplete or defective, he will promptly notify Construction Manager in writing, listing incomplete or defective work.

Contractor shall take immediate steps to remedy deficiencies and send a second written certification that Work is complete, and A/E will review the Work.

REINSPECTION FEES

Should A/E perform additional reviews due to failure of Work to comply with claims made by the Contractor, Owner will compensate A/E for such additional services, and deduct the amount of such compensation from final payment to the Contractor.

CLOSEOUT SUBMITTALS

Evidence of compliance with requirements of governing authorities:
1. Certificate of Occupancy.
2. Certificates of Inspection.
3. Affidavit of Compliance with Prevailing Wage Rate Determination (See Section 00 73 43).

Project Record Documents: In accordance with Section 01 78 39.

Operation and Maintenance Data, Instructions to Owner's Personnel: In accordance with Section 01 78 23.

Warranties and Bonds: In accordance with Section 01 78 36.

Keys and Keying Schedule: In accordance with Section 08 71 00.

Evidence of Payment of Debts and Claims and Release of Liens: Utilize AIA Documents G706 and G706A.

Consent of Surety to Final Payment: Utilize AIA Document G707.

Certificates of Insurance for Products and Completed Operations: In accordance with Supplementary Conditions.

APPLICATION FOR FINAL PAYMENT

Submit Application for Final Payment in accordance with procedures and requirements in Conditions of the Contract.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Construction Manager shall compile product data and related information appropriate for Owner's maintenance and operation of Products furnished under Contract. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent Sections of the Specifications.

Construction Manager shall ensure Contractors instruct Owner's personnel in maintenance of Products, and in operation of equipment and systems.

RELATED WORK AND REQUIREMENTS

Section 01 33 00: Submittal Procedures
Section 01 77 00: Closeout Procedures
Section 01 78 36: Warranties and Bonds
Section 01 78 39: Project Record Documents

QUALITY ASSURANCE

Preparation of data shall be done by personnel:

- Trained and experienced in maintenance and operation of described products.
- Familiar with requirements of this Section.
- Skilled as technical writer to the extent required to communicate essential data.
- Skilled as drafters competent to prepare required drawings.

FORM OF SUBMITTALS

Prepare and arrange product data and related information in form of an Instructional Manual for use by Owner's personnel.

Manual Format:

- Size: 8-1/2 inches x 11 inches.
- Paper: 20 pound minimum, white for typed pages.
- Text: Manufacturer's printed data, or neatly typewritten.
- Drawings: Provide reinforced punched binder tab, bind in with text. Fold larger drawings to size of text pages.
- Provide fly-leaf for each separate product, or each piece of operating equipment.
- Provide indexed tabs.

Cover: Identify each volume with typed or printed title "MATERIALS AND FINISHES", or "EQUIPMENT AND SYSTEMS", as applicable. List:

- Title of Project.
- Identity of general subject matter covered in Manual.

Binders:

Commercial quality three-ring binders with durable and cleanable plastic covers.
'D' Ring Size: 1-inch minimum, 2-inch maximum.
When multiple binders are used, correlate the data into related consistent groupings.

Content Format:

Neatly typewritten table of contents for each volume arranged in CSI/CSC MASTERFORMAT 2014 Edition Major Division order.
- Construction Manager, name of responsible principal, address and telephone number.
- List each product required to be included, indexed to content of the volume.
- List, with each product, name, address and telephone number of:
  - Contractor, Subcontractor, installer or maintenance contractor, as appropriate, and identify area of responsibility of each.
  - Local source of supply for parts and replacement.
- Identify each product by product name and other identifying symbols as set forth in Contract Documents.

Product Data:
- Include only those sheets that are pertinent to the specific product.
- Annotate each sheet to:
  - Clearly identify specific product or part installed.
  - Clearly identify data applicable to installation.
  - Delete references to inapplicable information.

Drawings:
- Supplement product data with drawings as necessary to clearly illustrate:
  - Relations of component parts of equipment to systems.
  - Control and flow diagrams.
- Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
- Do not use Project Record Documents as maintenance Drawings.

Written text, as required to supplement product data for the particular installation:
- Organize in consistent format under separate headings for different procedures.
- Provide logical sequence of instructions for each procedure.

Copy of each warranty, bond, and service contract issued.
- Provide information sheet for Owner's personnel give:
  - Proper procedures in event of failure.
  - Instances that might affect validity of warranties or bonds.

MANUAL FOR MATERIALS AND FINISHES

Submit to A/E three copies of completed manual in final form.

Content - for architectural products, applied materials, and finishes:
- Manufacturer's data, giving full information on products.
  - Catalog number, size, and composition.
  - Color and texture designations.
  - Information required for re-ordering special manufactured products.
- Instructions for care and maintenance.
  - Manufacturer's recommendation for types of cleaning agents and methods.
  - Cautions against cleaning agents and methods that are detrimental to product.
  - Recommended schedule for cleaning and maintenance.

Content - For moisture-protection and weather-exposed products:
- Manufacturer's data, giving full information on products.
  - Applicable standards.
  - Chemical composition.
  - Detail of installation.
- Instructions for inspection, maintenance, and repair.

Additional requirements for maintenance data: Respective sections for Specifications.

Provide complete information for products specified in the Specifications listed under your Contract.

MANUAL FOR EQUIPMENT AND SYSTEMS

Submit to A/E three copies of completed manual in final form.

Content - For each unit of equipment and system, as appropriate:

- Description of unit and component parts.
  - Function, normal operating characteristics, and limiting conditions.
  - Performance curves, engineering data and tests.
  - Complete nomenclature and commercial number of replaceable parts.
- Operating Procedures:
  - Start-up, break-in, routine and normal operating instructions.
  - Regulations, control, stopping, shut-down and emergency instructions.
  - Summer and winter operating instructions.
  - Special operation instructions.
- Maintenance Procedures:
  - Routine operations.
  - Guide to "trouble-shooting"
  - Disassembly, repair and reassembly.
  - Alignment, adjusting and checking.
- Servicing and lubrication schedule.
  - List of lubrication required.
- Manufacturer's printed operating and maintenance instructions.
- Description of sequence of operation by control manufacturer.
- Original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
  - Predicted life of parts subject to wear.
  - Items recommended to be stocked as spare parts.
- As-installed control diagrams by controls manufacturer.
- Each contractor's coordination drawings.
  - As-installed color coded piping diagrams.
- Charts of valve tag numbers, with location and function of each valve.
- List of original manufacturer's spare parts, manufacturers current prices, and recommended quantities to be maintained in storage.
- Other data as required under pertinent Sections of the Specifications.

Content - For each electric and electronic system, as appropriate:

- Description of system and component parts.
  - Function, normal operating characteristics, and limiting conditions.
  - Performance curves, engineering data and tests.
  - Complete nomenclature and commercial number of replaceable parts.
- Circuit directories of panelboards.
  - Electrical service.
  - Controls.
  - Communications.
- As-installed color coded wiring diagrams.
- Operating Procedures:
  - Routine and normal operating instructions.
  - Sequences required.
  - Special operating instructions.
- Maintenance Procedures:
  - Routine operations.
  - Guide to "trouble-shooting".
  - Disassembly, repair, and reassembly.
  - Adjustment and checking.

Manufacturer's printed operating and maintenance instructions. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage. Other data as required under pertinent Sections of Specifications.

Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.

Additional requirements for operating and maintenance data: Respective Sections for Specifications.

Provide complete information for products specified in the Specifications listed under your Contract.

SUBMITTAL SCHEDULE

Submit to A/E two copies of preliminary draft of proposed formats and outlines of contents prior to start of Work.

A/E will review draft and return one copy with comments.

Submit to A/E one copy of completed data in final form 15 days prior to final inspection or acceptance.

Copy will be returned after final inspection or acceptance, with comments.

Submit specified number of copies of approved product data in final form 10 days after final inspection or acceptance.

INSTRUCTION OF OWNER'S PERSONNEL

Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.

Operating and maintenance manual shall constitute the basis of instruction.

Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

Refer to respective Sections of Specifications for more specific instruction procedures and requirements.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

Forms following this Section:

Attic Stock and Training Sign Off Sheet
Wrap-Up Project Closure Form
Wrap-Up Extension Form

End of Section

Samuels Group

Attic Stock and Training
Sign Off Sheet

Specification Division_____

Description	Amount Specified	Attic Stock
A.		
B.		
C.		
D.		
E.		
F.		

	Signature	Print	Date
Superintendent			
Sub-Contractor			
Owner/ Architect			

Training Description Date

Attendance

	Print	Sign
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		

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Department of Workforce Development
Worker's Compensation Division
Bureau of Insurance Programs
201 E. Washington Ave., Rm. C100
P.O. Box 7901
Madison, WI 53707-7901
Telephone: (608) 266-3046
Fax: (608) 266-6827
http://www.dwd.state.wi.us/wc/
e-mail: DWDDWC@dwd.state.wi.us

Wrap-Up Project Closure Form

Wrap-Up Project Name	Project Number
Vilas County Courthouse Expansion	6931

The following contractor has completed its work at the above named project site.

Contractor Name		
Completion Date		
Mailing Address		Telephone Number
City	State	Zip Code
Name of Owner, Contractor or Other Party Who Awarded the Contract		Contract or Job Number

Authorized Signature

Date

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Department of Workforce Development
Worker's Compensation Division
Bureau of Insurance Programs
201 E. Washington Ave., Rm. C100
P.O. Box 7901
Madison, WI 53707-7901
Telephone: (608) 266-8327
Fax: (608) 266-6827
http://dwd.wisconsin.gov/wc
e-mail: DWDDWC@dwd.state.wi.us

Contractor/Subcontractor Wrap- Up Extension Form for Divided Insurance Coverage Under the Wisconsin Worker's Compensation Act

Wrap-Up Project Name		
Name Of Owner, Contractor Or Other Party Who Awarded Or Will Award The Contract To The Applicant		Contract or Job Number
Applicant (full legal name of business)		Federal Employer Identification Number (FEIN #) Number
Applicant Street Address (P.O. Box, if any)	City, State, Zip Code	Telephone Number
Are Employees Leased? ☐ Yes ☐ No	Name of Company Employees are Leased From	

Due to changes in construction conditions and the work contracted on this wrap-up project will not be completed in the timeframe provided in the application and department order. I request that the order be extended to _____ so that we can meet our construction obligations under the wrap-up program.

This application is voluntarily signed and submitted on: _____
Date

_____
Type or Print Name of Person Signing this Application

_____
Title of Official

_____
Signature of Official Executing This Application

SPECIAL ORDER

Granting permission by Wisconsin Department of Workforce Development for the extension of divided insurance coverage under the Wisconsin Worker's Compensation Act on wrap-up project.

This extension application has been approved and becomes part of the original order issued by the department. The department is satisfied that permitting divided insurance coverage will not result in confusion between the separately insured portions of the employer's liability.

IT IS NOW ORDERED, pursuant to Section 102.31, Wisconsin Statutes, that the employer's divided insurance coverage for this wrap-up project is extended to _____.

This Extension Order is subject to revocation for cause at any time. It is also subject to observance of all applicable provisions of Wisconsin Laws, Rules and Guidelines of the Wisconsin Department of Workforce Development, and all Agreements included within this and the original application.

Dated (mo/day/yr) _____ Signed by _____

cc: ☐ Applicant ☐ Designated Wrap-Up Carrier ☐ WCRB ☐ Owner

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SECTION 01 78 36 - WARRANTIES AND BONDS

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Construction Manager shall:

Compile specified warranties and bonds.
Compile specified service and maintenance contracts.
Co-execute submittals when so specified.
Review submittals to verify compliance with Contract Documents.
Submit to A/E for review and transmittal to Owner.

RELATED WORK AND REQUIREMENTS

Instructions to Bidders: Bid Bonds, if any.

Conditions of the Contract:
    Performance Bond and Labor and Material Payment Bond, if any.
    General Warranty of Construction
Section 01 77 00: Closeout Procedures
Section 01 78 23: Operation and Maintenance Data

Each respective Section of the Specifications as listed below: Warranties and Bonds required for specific products, and duration.

SUBMITTAL REQUIREMENTS

Assemble warranties, bonds, and service and maintenance contracts, executed jointly or severally as specified by the Contractor, Subcontractor, Manufacturer, and Suppliers.

Number of original signed copies required: Three each.

Table of Contents: Neatly typed, in orderly sequence.

Provide complete information for each item.

1. Product or work items.
2. Firm, with name of principal, address and telephone number.
3. Scope.
4. Date of beginning of warranty, bond, or service and maintenance contract.
5. Duration of warranty, bond, or service maintenance contract.
6. Provide information for Owner's personnel:
    Proper procedure in case of failure.
    Instances that might affect the validity of warranty or bond.
7. Contractor, name of responsible principal, address and telephone number.

FORM OF SUBMITTALS

Prepare in duplicate packets.

Format:
1. Size 8-1/2 inches x 11 inches, punch sheets for standard 3 ring binder.
    Fold larger sheets to fit into binders.

2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS".
List:
Title of Project
Name of Contractor

Binders: Commercial quality, three-ring ('D' type), with durable and cleanable plastic covers.

SUBMITTAL PROCEDURE

For equipment or component parts of equipment, put into service with Owner's permission during progress of Work.

1. Submit documents within 10 days after inspection and the established Substantial Completion date of that portion of the Work.

Otherwise make submittals within 10 days after Date of Substantial Completion of the whole Work, and prior to final request for payment.

For portions of the Work, where final acceptance is unreasonably delayed through no fault of the Owner beyond Date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of final acceptance as start of warranty period.

SUBMITTAL REQUIRED

Submit warranties, bonds, service and maintenance contracts as specified in respective Sections of the Specifications.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART ONE - GENERAL

REQUIREMENTS INCLUDED

Construction Manager shall maintain at the site for the Owner, one record copy of:

1. Drawings, Project Manual, and Addenda.
2. Required State approved Documents.
3. Construction schedule.
4. Change Orders and other modifications to the Contract.
5. A/E field orders or written instructions.
6. Approved Shop Drawings, product data and samples.
7. Field test records.

RELATED WORK AND REQUIREMENTS

Section 01 33 00: Submittal Procedures
Section 01 45 29: Testing Laboratory Services
Division 22 and 23: Testing and Balancing Air and Water Systems

MAINTENANCE OF DOCUMENTS AND SAMPLES

Store documents and samples in Construction Manager's field office apart from documents used for construction.

1. Provide files and racks for storage of documents.
2. Provide locked cabinet or secure storage space for storage of samples.

File documents and samples using CSI/CSC MASTERFORMAT 2014 Edition numbering system.

Maintain documents in a clean, dry, legible condition, and in good order. Do not use record documents for construction purposes.

Make documents and samples available at all times for inspection by Owner, A/E, and A/E's Consultants.

MARKING DEVICES

Provide felt tip marking pens for recording information in the color code designated by A/E.

RECORDING

Label each document "PROJECT RECORD" in neat, large printed letters.
Record information concurrently with construction progress.

1. Do not conceal any work until required information is recorded.

Drawings; Legibly mark to record actual construction:

1. Depths of various elements of foundation in relation to finish first floor datum.
2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
4. Field changes of dimension and detail.
5. Changes made by Field Order or Change Order.
6. Details not on original Contract Drawings.

Specifications and Addenda; Legibly mark each Section to record:

1. Manufacturer, trade name, catalog number, and Supplier of each Product and item of equipment actually installed.
2. Changes made by Field Order or by Change Order.

Post Construction Schedule.

SUBMITTALS

At Contract Closeout, deliver Record Documents to A/E for the Owner.

Accompany submittal with transmittal letter in duplicate, containing:

1. Date.
2. Project title and number.
3. Construction Manager's name and address.
4. Title and number of each Record Document.
5. Signature of Construction Manager or his authorized representative.

PART TWO - PRODUCTS

Not Used.

PART THREE - EXECUTION

Not Used.

End of Section

DIVISION 02

SECTION 02 41 23 - SELECTIVE DEMOLITION, ALTERATION, AND PATCHING

PART ONE - GENERAL

DESCRIPTION

Selective demolition at and within the existing building.

Restoration of surfaces altered by demolition.

RELATED WORK AND REQUIREMENTS

Section 01 35 16: Alterations Project Procedures
Section 01 50 00: Temporary Facilities and Controls
Section 01 77 00: Closeout Procedures

SUBMITTALS

Submit permits and notices authorizing demolition if required.

QUALITY ASSURANCE

Regulatory Requirements: Comply with governing state or local government agency regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

PROJECT CONDITIONS

Do not interfere with use and operation of existing adjacent facilities. Maintain free and safe passage to and from.

Prevent movement or settlement of adjacent structures. Provide and place bracing or shoring and be responsible for safety and support of structures. Assume liability for such movement, settlement, damage, or injury.

Cease operations and notify Owner and A/E immediately if safety of adjacent structures appears to be endangered. Take precautions to properly support structures. Do not resume operations until safety is restored.

Protect existing work not indicated or scheduled to be altered.

Prevent movement, settlement or collapse of adjacent services, sidewalks and driveways. Assume liability for such movement, settlement or collapse. Promptly repair damage at no cost to the Owner.

Provide, erect and maintain safety devices as required to protect general public, workers, and adjoining property.

Coordinate Work on premises with Owner's designated representative.

Do not close or obstruct roadways without approval of Owner's representative.

Maintain utilities to existing building at all times.

PART TWO - PRODUCTS

MATERIALS

Except for items or materials indicated to be reused, salvaged, or otherwise indicated to remain the Owner’s property, demolished materials shall become the Contractor’s property and shall be removed from the site. Store items as directed by Owner.

SALVAGED MATERIALS

Conform to requirements specified in Section 01 35 16.

PRODUCTS FOR PATCHING

Provide as required to match adjacent surfaces or as indicated.

PART THREE - EXECUTION

DEMOLITION

Demolish in an orderly and careful manner as required to salvage products indicated.

Perform demolition in accordance with applicable authorities having jurisdiction.

Repair all demolition performed in excess of that required at no cost to the Owner.

Burning of materials on site not permitted.

Remove demolished materials, tools and equipment from site upon completion of work. Leave site in a condition acceptable to A/E.

SALVAGE

Carefully remove, salvage, and turn over to Owner items designated on the Drawings to be salvaged.

Items shall be neatly stockpiled on-site where directed by Owner.

PATCHING

Comply with installation requirements specified elsewhere for products used.

Patch all damaged surfaces with products to match existing.

Patch sufficiently to achieve weather protection.

End of Section

DIVISION 03

SECTION 03 10 00 - CONCRETE FORMWORK

PART 1 - GENERAL

1.1 DESCRIPTION

A. The General and Supplementary Conditions of the Construction Contract and Division 1 - General Requirements apply to the work specified in this section.

B. This section includes the design, construction and treatment of formwork and related accessories to confine and shape concrete to the required dimensions.

C. This section also includes the installation of embedded items such as waterstops.

D. Structural notes indicated on the drawings regarding concrete formwork shall be considered a part of this specification.

1.2 QUALITY ASSURANCE

A. Codes and Standards: Comply with the provisions of the following codes, specifications, and standards except where more stringent requirements are shown or specified.

1. ACI 117 – Standard Specification for Tolerances for Concrete Construction and Materials.

2. ACI 301 – Standard Specification for Structural Concrete.

3. ACI 318 – Building Code Requirements for Structural Concrete.

4. ASTM C31 – Standard Specification for Making and Curing Concrete Test Specimens in the Field.

5. ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Test Specimens.

B. Where provisions of the pertinent Codes and Standards conflict with this specification, the more stringent provision shall govern.

1.3 SUBMITTALS

A. Formwork Release Agent: Submit data on the formwork release agent proposed for use with each form surface to be used for acceptance unless otherwise specified in the Contract Documents. Include certification that agent is compatible with finish.

B. Product Data: Submit manufacturer’s product data for all waterstop profiles supplied for the concrete construction.

C. Testing for Formwork Removal: When methods other than cylinder tests are proposed for determining time for formwork removal, submit data on methods for approval.

1.4 DESIGN REQUIREMENTS

A. Design and Engineering of formwork is the responsibility of the Contractor. Design and construct formwork, shoring and bracing to conform to Contract Documents and building code requirements. Design for construction loads, lateral pressure, and requirements of the applicable building code.

B. Drawings show the design requirements and dimensions for structural strength, but structural drawings do not show all detail dimensions to fit intricate Architectural and mechanical detail. Contractor shall so construct the concrete work that it will conform to the clearance required by the Architectural, Mechanical and Electrical design.

C. Maximum deflection of facing materials forming concrete surfaces exposed to view shall be 1/240 of the center-to-center span between structural members of the formwork.

PART 2 - PRODUCTS

2.1 MATERIALS AND ACCESSORIES

A. Formwork Accessories: Use commercially manufactured accessories for formwork accessories that are partially or completely embedded in concrete, including ties and hangers.

B. Formwork Release Agent: Use commercially manufactured form release agents that will prevent formwork absorption of moisture, prevent bond with concrete, and will not stain the concrete surface. Formwork release agent shall be compatible with paint or any other finish applied to the concrete; submit data indicating compatibility.

C. Waterstops: Waterstops shall be a flexible butyl rubber and bentonite clay compound that swells upon contact with water. Acceptable manufacturer's and products:

1. CETCO – Waterstop RX
2. Greenstreak – Swellstop
3. J.P. Specialties – Earth Shield (Type 20 & 23) Waterstop

D. Form Material:

1. No aluminum shall be allowed in the concrete work unless coated to prevent aluminum-concrete reaction.

2. Concrete form materials must be used in a manner so as to provide the surface finish specified.

3. Design formwork in accordance with the provisions of the building code or the following standards if not covered in the building code:

   a. Wood - AF & PA "National Design Specification".
   b. Plywood - American Plywood Association "Plywood Design Specification".
   c. Steel - AISC "Manual of Steel Construction - Allowable Stress Design".
   d. Cold-formed Steel - AISI "Cold-Formed Steel Design Manual".
   e. Aluminum - Aluminum Association "Aluminum Construction Manual".
   f. Concrete - ACI 318.
   g. Other materials - as directed by manufacturer.

E. Chamfer Strips:

1. Chamfer strips shall be 3/4 inch by 3/4 inch strips. Verify material finish with Architect.

2.2 FORM FINISHES

A. Rough Form Finish:

1. Concrete surfaces not exposed to view in the finished work shall have a rough-form finish. No form-facing material is specified for rough-form finish.

2. Set and maintain forms so finished concrete dimensions shall conform to the tolerances. Rough form finish is Designated Surface Finish-1.0 from ACI 301, except that surface tolerance Class C is required as specified in ACI 117.

B. Smooth Form Finish:

1. Concrete surfaces exposed to view in the finished work or surfaces to receive finishes of any type (paint, textured paint, etc.) shall have a smooth form finish. Form-facing material shall be plywood, tempered concrete-form-grade hardboard, metal, plastic, paper, or other acceptable material capable of producing the desired finish. Form-facing material shall produce a smooth, uniform texture on the concrete. Do not use form facing material with raised grain, torn surfaces, worn edges, patches, dents, or other defects that might impair the texture of the concrete surfaces.

2. Set and maintain forms so finished concrete dimensions shall conform to the tolerances. Smooth form finish is Designated Surface Finish-3.0 from ACI 301, including surface tolerance Class A as specified in ACI 117.

C. Patching and repairing concrete finishes are specified under Section 03 30 00.

2.3 FABRICATION AND MANUFACTURE

A. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of the exposed concrete surface.

2. Furnish ties that, when removed, will leave holes not larger than 1 inch in diameter in concrete surface.

3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

B. Waterstops: Fabricate pieces of premolded waterstop with a maximum practicable length to hold the number of end joints to a minimum. Fabricate joints in waterstops in accordance with manufacturer's recommendations.

PART 3 - EXECUTION

3.1 CONSTRUCTION OF TEMPORARY FORMWORK

A. Design, erect, shore, brace, and maintain formwork to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.

B. At construction joints, lap contact surface of the form sheathing for flush surfaces exposed to view over the hardened concrete in the previous placement by not more than 1 inch. Ensure formwork is held firmly against hardened concrete to prevent offsets or loss of mortar at construction joints and to maintain a true surface.

C. Unless specified in the Contract Documents, construct formwork so concrete surfaces conform to tolerance limits. The class of surface for offset between adjacent pieces of formwork facing material shall be Class C, unless specified otherwise.

D. Provide positive means of adjustment (wedges or jacks) of shores and struts. Do not make adjustments in the formwork after concrete has taken its initial set. Brace formwork securely against lateral deflection and lateral instability.

E. To maintain specified tolerances, camber formwork to compensate for anticipated deflections in formwork prior to hardening of concrete. Formwork camber calculations are the responsibility of the formwork designer. Set formwork and intermediate screed strips for slabs accurately to produce designated elevations and contours of the finished surface prior to removal of formwork. Ensure that edge forms and screed strips are sufficiently strong to support vibrating screeds or roller pipe screeds when the finish specified requires the use of such equipment.

F. When formwork is cambered, set screeds to a like camber to maintain required concrete thickness.

G. Fasten form wedges in place after final adjustment of forms and prior to concrete placement.

H. Anchor formwork to shores, supporting surfaces, or members to prevent upward or lateral movement of the formwork system during concrete placement.

I. Securely brace and shore forms to prevent displacement and to safely support construction loads.

J. Construct formwork for wall openings to facilitate removal and to counteract swelling of wood formwork. Keep wood forms wet as necessary to prevent shrinkage.

K. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Chamfer wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.

L. Do not use rust-stained steel form-facing material.

M. Provide temporary openings at the base of column and wall formwork and at other points where necessary to facilitate cleaning and inspection.

N. Unless noted otherwise, all footings shall be centered under walls, piers or columns.

O. Provide runways for moving equipment and support runways directly on formwork or structural member without resting on the reinforcing steel.

P. Place sleeves, inserts, anchors, and embedded items required for adjoining work or for support of adjoining work prior to concrete placement.

Q. Position and support expansion joint material and other embedded items to prevent displacement. Fill voids in sleeves, inserts, and anchor slots temporarily with readily removable material to prevent entry of concrete into voids.

R. Projecting corners of beams, walls and columns shall be formed with a 3/4 inch chamfer. Unless noted otherwise on Architectural drawings.

S. Clean surfaces of formwork and embedded materials of mortar, grout, and foreign material before concrete is placed.

T. Cover surfaces of formwork with acceptable formwork release agent. Apply form release agent before placing reinforcing steel and concrete according to manufacturer’s written instructions. Do not allow formwork release agent to puddle in forms. Do not allow formwork release agent to contact reinforcing steel or hardened concrete against which fresh concrete is to be placed

U. Clean and inspect formwork immediately before concrete is placed.

V. Provide forms for concrete work adjacent to earth banks including sides of footings.

W. Construct forms plumb and straight to conform to slopes, lines and dimensions shown.

X. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

3.2 COORDINATION

A. Install all required pipe sleeves, cavities or slots. Notify appropriate trades in due time so that they may furnish information and make necessary installations. Check sizes, location and alignment of all openings, frames and other work, which are to be built-in including electrical boxes and conduit.

B. Layout the run of partitions and establish location of openings so that other trades may properly locate their work.

C. Core drilling concrete is not permitted unless noted otherwise or approved in writing by the Architect. Notify the Architect in advance of conditions not shown on the drawings.

3.3 INSTALLATION OF EMBEDDED ITEMS

A. Built-In Items:

1. Confirm with Architect that all materials to be embedded are suitable for embedment in concrete.

2. Build in anchors, inserts, and other devices indicated or required for various portions of work.

3. Build in sleeves, thimbles, and other items furnished or set in place by other trades.

4. Accurately position and support all embedded items prior to concrete placement. Secure embedded items against displacement during concrete placement operations.

5. Fill voids with readily removable material to prevent entry of concrete into voids.

6. Mechanical and electrical shall provide and set required sleeves.

7. Coordinate setting of all embedded items.

B. Waterstops:

1. Locate waterstops in joints where indicated on the Drawings.

2. Build in waterstops using longest unbroken lengths possible to hold the number of end splices to a minimum.

3. Form splices and intersections strictly according to the manufacturer’s instructions so that waterstops are continuous and develop effective watertight joint.

4. Locate waterstops as shown on the Drawings. In general, waterstops should be located just behind outermost layer of reinforcing. Do not place waterstops closer than 2" from face of concrete.

3.4 REMOVAL OF FORMS

A. When removal of formwork is based on concrete reaching a specified compressive strength, concrete will be presumed to have reached this strength when either of the following requirements has been met:

1. Test cylinders, molded and cured under the same conditions for moisture and temperature as used for the concrete they represent, have reached the specified compressive strength.

2. Concrete has been cured in accordance with the specifications for the same length of time as laboratory-cured cylinders, which have reached the specified strength. Determine the length of time concrete has been cured in the structure by the cumulative number of days or fractions thereof, not necessarily consecutive, during which the temperature of the air in contact with the concrete is above 50 degrees and the concrete has been damp or thoroughly sealed from evaporation and loss of moisture.

B. Forms shall remain in place for the following periods of time. These periods represent cumulative number days or hours, not necessarily consecutive, during which the temperature of the air surrounding the concrete is above 50 F:

1. Walls, piers and footings: 50% specified compressive strength or minimum 24 hours.

C. When finishing is required, remove forms as soon as removal operations will not damage concrete.

D. Loosen wood formwork for wall openings when this can be accomplished without causing damage to concrete.

E. Do not allow removal of formwork to damage the fresh concrete for columns, walls, sides of beams, and other parts supporting the weight of the concrete. Perform needed repair and treatment required on vertical surfaces at once and follow immediately with specified curing.

3.5 FASTENER REMOVAL

A. Remove all protruding fasteners left as a result of securing inserts to forms by Contractor responsible for insert.

B. Cutting flush with surface is not acceptable.

C. Patch exposed concrete surfaces if damaged during fastener removal process.

3.6 REMOVING AND REUSING FORMS

A. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

B. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect

END OF SECTION

SECTION 03 20 00 - CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 DESCRIPTION

A. The General and Supplementary Conditions of the Construction Contract and Division 1 - General Requirements apply to the work specified in this section.

B. This section includes the fabrication and placement of reinforcing steel for concrete, and all related accessories.

C. Reinforcing steel for use in bond beams, masonry columns, and lintels is specified in Division 4 and is not a part of the work in this section.

D. Structural notes indicated on the drawings regarding concrete reinforcement shall be considered a part of this specification.

1.2 QUALITY ASSURANCE

A. Codes and Standards: Comply with the provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified.

1. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials.
2. ACI 301 - Standard Specification for Structural Concrete.
3. ACI 318 - Building Code Requirements for Structural Concrete.
4. ACI 315 - Details and Detailing of Concrete Reinforcement.
5. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
6. ASTM A184 - Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement.
7. ASTM A185 - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
8. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
9. AWS D1.4 - Structural Welding Code - Reinforcing Steel.
10. CRSI - Manual of Standard Practice.

B. Where provisions of other pertinent codes and standards conflict with this specification, the more stringent provision shall govern.

1.3 SUBMITTALS

A. Placing Drawings: Submit placing drawings showing fabrication dimensions and locations for placement of reinforcement and reinforcement accessories. Indicate bar sizes, spacing, locations, and quantities of reinforcing steel, bending and cutting diagrams, and supporting and spacing devices. Dowels shall be shown in placing drawings for the element that is to be placed first. Reinforcing steel descriptions or shop drawings shall be inch-pound sizes.

B. Manufacturer's Certificate: Submit mill certifications at time of delivery.

C. Splices: Submit request for splices not indicated in the Contract Documents. Request shall indicate locations, types, and lengths of splices for approval.

D. Field Bending: Submit requests and procedure for field bending or straightening of reinforcement partially embedded in concrete not described in the Contract Documents.

E. Reinforcement Relocation: Submit requests to adjust reinforcement spacing necessitated by conflicts with other reinforcement, conduits, etc. for approval.

1.4 COORDINATION

A. Coordinate reinforcement installation with the placement of formwork and other embedded items such as inserts, conduit, pipe sleeves, drains, metal supports, anchor rods, etc.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver reinforcement to the jobsite in bundles sorted and labeled with durable tags indicating bar size, length, and shop drawing mark.

B. Store elevated clear of ground and protect at all times from contamination and deterioration.

C. Prevent bending, coating with earth, oil, or other material, or otherwise damaging the reinforcement.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Bar Deformations: Bars used for reinforcement shall be deformed except column spirals and welded wire reinforcement, which may be plain.

B. Reinforcing Steel: Reinforcing steel shall conform to the ASTM standard and grade indicated in the General Notes on the Drawings.

C. Welded Wire Reinforcement: Welded wire reinforcement shall conform to the ASTM standard indicated in the General Notes on the Drawings.

D. Joint Dowel Bars: Plain-steel bars. Cut bars true to length with square ends and free of burrs.

E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.

2. Concrete cast against earth: Bars may be supported by precast concrete bricks or approved prefabricated wire bar supports with footpads large enough to support the weight of the bars and construction traffic without being pushed into underlying grade. Precast concrete blocks shall have a minimum compressive strength of 6,000 psi.

F. Epoxy Anchoring System: Epoxy anchoring shall consist of a reinforcing dowel and the epoxy adhesive cartridge.

1. Reinforcing shall be as specified earlier in this Section.

2. Epoxy injection gel shall consist of a two-component structural epoxy adhesive applied in a dual cartridge dispensing system, which properly mixes the components at the point of application. Refer to General Notes for acceptable epoxy anchoring systems.

2.2 FABRICATION

A. Fabrication Tolerances: Reinforcing steel shall be shop fabricated within tolerances to conform in size, shape, quantity, dimensions, etc. to the Construction Drawings and approved Shop Drawings.

B. Bar Condition: Bars shall be free from mill scale, excessive rust and other coatings, which would reduce or destroy the bond with the concrete.

C. Bars Bending: Bars shall be bent cold, and no method of fabrication shall be used which would be injurious to the material. Heating of bars for bending is not permitted.

D. Identification: After fabrication, bars shall be sorted, bundled and tagged with metal tags bearing the bar mark before delivery to the jobsite.

E. Corner Bars: Provide corner bars to make reinforcing continuous at all times, including intersections at footings, walls, beams or caps. Such bars shall be the same size and spacing as the horizontal reinforcing and each leg shall have a length of at least 30 inches.

F. Reinforcing for continuous footings shall extend into spread footings a minimum of 2'-0".

G. Dowels between footings and walls or piers shall be the same grade, size and spacing or number as the vertical reinforcing respectively, unless noted otherwise.

PART 3 - EXECUTION

3.1 PLACING

A. Reinforcement Relocation: When necessary to move reinforcement beyond the specified spacing to avoid interference with other reinforcement, or embedded items, submit resulting arrangement of reinforcement to Engineer for approval.

B. Reinforcement Cutting: Cutting of reinforcement which conflicts with embedded objects is not acceptable.

C. Welded Wire Reinforcement: Extend welded wire reinforcement to within 1 inch of the concrete edge. Lap edges and ends of fabric sheets a minimum of one full mesh square plus 2". Support welded wire reinforcement during placing of concrete to assure required positioning in the slab. Do not place wire reinforcement on grade or metal deck and raise into position in freshly-placed concrete.

D. Wire Tie Orientation: Set wire ties so that ends are directed away from concrete surface.

E. Slab on Grade Reinforcement Placement: Place shrinkage and temperature reinforcement 2 inches from the top surface of the slabs on grade unless noted otherwise on the Drawings.

F. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

G. Support for Reinforcement: Unless noted otherwise, supports for reinforcement shall have Class 2 protection as defined in the CRSI Manual of Standard Practice. Submit data on supports indicating class of protection at all different locations for approval.

H. Support for Bars in Concrete Cast on Ground: Bar supports for slabs on grade, footings, and all other concrete cast directly onto grade shall be supported at an average spacing of 4 feet or less in each direction.

I. Securing Reinforcing Bars: All bars must be placed, spaced, secured and supported prior to casting concrete. Bars embedded in hardened or partially hardened concrete shall not be bent unless approved in writing prior to placement by the Engineer of Record.

J. Foot Traffic: Restrict foot traffic over the slab on grade reinforcing after it has been properly positioned.

K. Reinforcement at Expansion Joints: Do not continue reinforcement or other embedded metal items bonded to concrete through expansion joints. Dowels bonded on only one side of a joint and waterstops may extend through joint.

L. Pumping Concrete: When using a pump to place concrete, pump hose shall be supported directly on forms. Do not allow hose to rest on reinforcing bars if doing so could cause displacement of bars.

END OF SECTION

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION

A. The General and Supplementary Conditions of the Construction Contract and Division 1 - General Requirements apply to the work specified in this section.

B. The work includes all items required for executing and completing the cast-in-place concrete work and related work shown on the drawings or specified herein. Work shall include installation of items furnished in other sections of these specifications.

C. Concrete paving, walks, and curbs are specified in Division 3 or 32.

D. Structural notes indicated on the drawings regarding Cast-In-Place concrete shall be considered a part of this specification.

1.2 QUALITY ASSURANCE

A. Codes and Standards: Comply with the provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified herein:

1. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials.
2. ACI 301 - Standard Specifications for Structural Concrete
3. ACI 305.1 - Specification for Hot Weather Concreting
4. ACI 306.1 - Standard Specification for Cold-Weather Concrete
5. ACI 318 - Building Code Requirements for Reinforced Concrete.
6. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
7. ASTM C33 - Standard Specification for Concrete Aggregates.
8. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
9. ASTM C42 - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
10. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
11. ASTM C143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
12. ASTM C150 - Standard Specification for Portland Cement.
13. ASTM C157 - Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete
14. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete.
15. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.

16. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.

17. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

18. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.

19. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

20. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.

21. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.

22. ASTM C1017 - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.

23. ASTM C1064 - Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete.

24. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.

25. ASTM D1751 - Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).

26. ASTM E154 - Standard Test Method for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.

27. ASTM E329 –Standard Specification for Agencies Engaged in Testing and/or Inspection of Material Used in Construction

28. Concrete Reinforcing Steel Institute (CRSI) - Manual of Standard Practice.

B. Comply with all local building code requirements which are more stringent than those listed above. All referenced codes or standards shall be the most currently adopted as of the date for Receipt of Proposal.

C. Where any provision of other pertinent codes and standards conflict with this specification, the more stringent provision shall govern.

D. Maintain records verifying materials used are of the specified and accepted types and sizes and are in conformance with the requirements of the Contract Documents.

E. Use of testing services will not relieve the Contractor of the responsibility to furnish materials and construction in full compliance with the Contract Documents.

1.3 TESTING AND INSPECTION

A. Inspection and Testing:

1. The Construction Manager or Owner shall employ an Inspection Agency to perform the duties and responsibilities specified below.

2. Refer to architectural, civil, mechanical, and electrical specifications for testing and inspection requirements of non-structural components.

3. Work performed on the premises of a fabricator approved by the building official need not be tested and inspected per the table below. The fabricator shall submit a certificate of compliance that the work has been performed in accordance with the approved plans and specification to the building official and the Architect and Engineer of Record.

4. Duties of the Inspection Agency:

a. Perform all testing and inspection required per the Testing and Inspection Schedule indicated below.

b. Furnish inspection reports to the building official, the Owner, the Architect, the Engineer of Record, and the General Contractor. The reports shall be completed and furnished within 48 hours of inspected work.

c. Submit a final signed report stating whether the work requiring Inspection was, to the best of the Inspection Agency's knowledge in conformance with the approved plans and specifications.

5. Structural Component Testing and Inspection Schedule for Section 03 30 00 is as follows:

Concrete and Concrete Placement	Continuous	Periodic	Referenced Standard
Review of proposed mix design and supporting test results		X	
Inspect bolts to be installed in concrete prior to and during placement of concrete.	X		ACI 318: 8.1.3, 21.2.8
Inspection of anchors installed in hardened concrete.		X	ACI 318: 3.8.6, 8.1.3, 21.1.8
Verifying use of required design mix		X	ACI 318: Ch. 4, 5.2-5.4
At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X		ASTM C172, ASTM C31, ACI 318: 5.6, 5.8
Inspection of concrete placement for proper application techniques	X		ACI 318: 5.9, 5.10
Inspection for maintenance of specified curing temperature and techniques.		X	ACI 318: 5.11 - 5.13

B. Sampling and testing requirements:

1. Take samples of fresh concrete at the job site for each mix design placed each day. Sampling and testing shall be done after the final addition and proper mixing of any water or admixtures that are added on site.

a. Personnel and testing equipment shall meet the requirements of ASTM E329.

b. Testing Frequency: Obtain at least one composite sample for each 150 cu. yd. or 5,000 sq ft. of surface area, whichever is less or fraction thereof of each concrete mixture placed each day.

1) On a given project, if the total volume of concrete is such that the frequency of testing required above would provide less than five strength tests for a given class of concrete, tests shall be made from at least five randomly selected batches or from each batch if fewer than five batches are used.

c. A strength test shall be the average of the strengths of two cylinders made from the same sample of concrete and tested at 28 days.

2. For each sample of fresh concrete, perform the following duties:

a. Measure and record slump in accordance with ASTM C143.

b. Measure and record temperature in accordance with ASTM C1064.

1) Provide one test hourly when air temperature is 40°F (4.4°C) and below and when 80°F (27°C) and above, and one test for each composite sample.

c. Measure and record air content by volume in accordance with either ASTM C231 or ASTM C173.

d. Mold three cylinders (laboratory cylinders) in accordance with ASTM C31 to be laboratory-cured. Protect from moisture loss and maintain at 60°F to 80°F for 24 to 48 hours before moving. Deliver cylinders to testing laboratory for curing and testing.

e. Mold one cylinder (field cylinder) in accordance with ASTM C31 to be field-cured. Field cylinder shall be placed as near as possible to the in-place concrete from which it was taken, protected, and cured in the same manner. Deliver field-cured cylinder to testing laboratory, and measure and record compressive strength in accordance with ASTM C39. Field cylinder shall be used to determine if concrete footings, walls, or piers have reached the required compressive strength for steel erection to begin.

3. Measure and record compressive strength in accordance with ASTM C39 for laboratory cylinders. Test one laboratory cylinder at 7 days and all other cylinders at 28 days. Acceptance is based on the average of the two laboratory cured 28-day tests. Notify Architect in the event strength levels do not meet the acceptance requirements of ACI 318.

a. Any additional cylinders molded for Contractor to have a compressive strength test done before seven days shall be at the Contractor's expense.

4. Prepare and submit test reports to the Architect, Engineer, Contractor, and Supplier. Reports shall be completed and furnished within 48 hours of testing. Refer to description in Submittals.

5. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.

1.4 SUBMITTALS

A. Concrete Materials: Submit information on concrete materials as listed below.

1. Cementitious materials: Submit type, class, producer name, and certification not more than 90 days old of compliance with applicable ASTM standard.

2. Aggregates: Submit type, pit or quarry location, producer name, gradations, specific gravity, water content, and certification not more than 90 days old.

3. Admixtures: Submit product data sheet. Product data shall include: dosages and performance data, brand names, producers, chloride ion concentrations, and certifications of compliance with applicable ASTM standard. Certifications shall not be more than 90 days old.

4. Water: Submit name of source.

B. Product Data: Prepare and submit product and performance data for materials and accessories, including patching compounds, waterstops, joint systems, curing compounds, finish materials and other concrete related items.

C. Testing Agency Qualifications: When requested, the proposed testing agencies shall submit data on qualifications for acceptance.

D. Concrete Mix Design:

1. Concrete mix design submittals shall be submitted at least 14 days prior to placing concrete.

2. Submit concrete mixture proportions and characteristics for each concrete mix. Include standard deviation analysis or trial batch data with mix design. Submit historical field test data to demonstrate the average compressive strength for approval. Concrete mix proportions, materials, and handling methods for field test data or trial batches shall be the same as used for the work. Include the following information for each mix design:

    a. Water/cementitious materials ratio.
    b. Slump per ASTM C143
    c. Air content per ASTM C231 or ASTM C173
    d. Unit weight of concrete per ASTM C138
    e. Compressive strength at 28 days per ASTM C39

3. If trial batches are used, submit representative samples of each proposed ingredient to independent testing laboratory for use in preparation of mix design.

4. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments. Indicate amounts of mix water to be withheld for later addition at Project site.

5. Provide a record copy of the final mix designs and test results to the testing agency prior to commencement of the concrete work.

E. Test Reports: Submit laboratory test reports for concrete materials, mix design, compressive strength, slump, air content, and temperature. Each report shall indicate date of sampling, date of test, mix design, and location of concrete in structure.

F. Repair Methods: When stains, rust, efflorescence, and surface deposits must be removed, submit the proposed method of removal.

G. Certificates: Submit written certification regarding the design mix from the ready-mix supplier and the admixture manufacturer stating all concrete and admixtures do not contain chloride ions in excess of concentrations specified herein.

H. Placement Notification: Notify the Architect at least 24 hours in advance of concrete placement.

I. Adjustments: Submit any adjustments to mixture proportions or changes in materials, suppliers, or sources along with supporting documentation during the course of the work.

J. Cold Weather Procedure Submittal: Refer to Cold Weather Concreting article in Part 3 for more information.

1.5 MATERIAL DELIVERY, STORAGE, AND HANDLING

A. Cementitious materials: Store cementitious materials in dry weather tight buildings, bins, or silos that exclude contaminants.

B. Aggregates: Store and handle aggregate in a manner that will avoid segregation and prevent contamination with other materials or other sizes of aggregates. Store aggregates so as to drain freely.

C. Admixtures: Protect stored admixtures against contamination, evaporation, or damage. Protect liquid admixtures from freezing and temperature changes, which would adversely affect their performance. Handle chemical admixtures in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

A. Portland Cement: Portland cement shall conform to ASTM C150, Type I Normal, and be a standard brand of Portland cement. Use one brand of cement throughout project, unless approved in writing by the Engineer. Cement, which conforms to ASTM C150 Type II, may be used if it also meets the requirements of ASTM C150 Type I. Cement used in concrete shall be of the same brand and type as the cement used in the concrete represented by the submitted field test data or used in the trial mixtures. Maintain consistent cement color throughout project unless directed otherwise by architectural requirements.

1. Total replacement of Portland cement by supplementary cementitious materials in design mixture shall not exceed 50% (by weight).

B. Supplementary Cementitious Materials

1. Fly Ash: Fly ash shall conform to ASTM C618, Class C or Class F. Replacement of Portland cement by fly ash shall not exceed the following (percentages are by weight):

a. Concrete Flatwork: 15 percent.
b. Mass Concrete (more than two feet thick): 50 percent.
c. All other concrete: 25 percent.
d. Concrete to be placed in cold weather as defined herein: No fly ash allowed unless the cold weather procedure submitted has compensated for the increased setting time and decreased rate of strength gain due to cold weather and fly ash.

2. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

a. Ground Granulated Blast-Furnace Slab Limit: 50% by weight of total cementitious materials.

b. In mass concrete more than 2 feet thick, the usage rate may be 80% by weight of total cementitious materials.

3. Combined Fly Ash and Ground Granulated Blast-Furnace Slag:

a. Supplementary Cementitious Materials Limit: 50% with fly ash not exceeding 25% by weight of total cementitious materials.

b. In mass concrete more than 2 feet thick: 80% with fly ash not exceeding 50% by weight of total cementitious materials.

C. Blended Hydraulic Cements

1. Portland Blast-Furnace Slag Cement: ASTM C 595, Type IS.

a. Blast-Furnace Slag Content: 25% to 50% by weight of total cementitious materials.

2. Portland-Pozzolan Cement: ASTM C 595, Type IP.

a. Pozzolan Content: 15% to 40% by weight of Pozzolan total cementitious materials.

3. Pozzolan-Modified Portland Cement: ASTM C 595, Type I (PM).

a. Pozzolan Content: 0% to 15% by weight of total cementitious materials.

4. Slag-Modified Portland Cement: ASTM C 595, Type I (SM.

a. Blast-Furnace Slag Content: 0% to 25% by weight of total cementitious materials.

D. Coarse Aggregate for Normal Weight Concrete: Comply with ASTM C33. Provide coarse aggregate from a single source for exposed concrete. Gradations shall be similar to that described in the following table:

COARSE AGGREGATE GRADATIONS							
SIEVE SIZE - PERCENT PASSING							
Grade No.	1-1/2"	1"	3/4"	1/2"	3/8"	No. 4	No. 16
4	90-100 Note 1	20-55	0-15	---	0-5		---
57	100	95-100	---	25-60	0-10	0-10	---
67		100	90-100	---	20-55	0-10	---

1. Shall be 100 percent passing the 2" sieve.

E. Fine Aggregate for Normal Weight Concrete: Comply with ASTM C33. Provide fine aggregate from a single source for exposed concrete. Fine aggregate shall consist of washed sand. Gradations shall be similar to that described in the following table:

FINE AGGREGATE GRADATIONS							
SIEVE SIZE - PERCENT PASSING							
Grade No.	3/8	No. 4	No. 8	No. 16	No. 50	No. 80	No. 100
FA	100	95-100	80-100	50-85	5-30	---	0-10

F. Do not use aggregates containing deleterious substances that could cause spalling on any exterior exposed surface. These include, but are not limited to the following:

1. Organic impurities.
2. Ferrous metals.
3. Soluble salts.
4. Coal, lignite, or other lightweight materials.
5. Soft particles.
6. Clay lumps and friable particles.
7. Cherts of less than 2.40 specific gravity.

G. Water: Mixing water for concrete shall meet the requirements of ASTM C94. Water shall be clean and free from injurious amounts of acids, alkalies, organic materials, chloride ions and oils deleterious to concrete or reinforcing steel.

H. Testing agency shall be given access to plants and stockpiles to obtain samples for testing for compliance with the Contract Documents.

2.2 ADMIXTURES

A. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures. Calcium chloride thiocyanates or admixtures containing more than 0.05 percent chloride ions by weight are not permitted.

B. Water Reducing Admixture: Material shall comply with ASTM C494, Type A. Acceptable manufacturers and products include:

1. Euclid Chemical Company - Eucon WR Series.
2. Sika Chemical Corp. - Plastocrete 161.
3. GRT – Polychem 400 NC.
4. Grace Construction Products - WRDA 82.

C. High Range Water Reducing Admixture (superplasticizer): Material shall comply with ASTM C494, Type F or Type G. Acceptable manufacturers and products include:

1. Euclid Chemical Company - Eucon 37 or Plastol Series.
2. Sika – ViscoCrete 2100.
3. GRT – Melchem.
4. Grace Construction Products - Mira 110.

D. High Range Water Reducing, Slump Retaining Admixture: Material shall comply with ASTM C494, Type F or Type G. Acceptable manufacturers and products include:

1. Euclid Chemical Company - Eucon 537, Eucon 1037, or Plastol Series.
2. Sika – Sikament 686.
3. GRT – Melchem – M.
4. Grace Construction Products – ADVA FLEX.

E. Non-Chloride Accelerator: Material shall comply with ASTM C494, Type C or Type E, and not contain a higher chloride ion concentration than municipal drinking water. Acceptable manufacturers and products include:

1. Euclid Chemical Company - Accelguard Series.
2. Sika Chemical Corp. - Sika Rapid-1.
3. GRT – Polychem HE.
4. Grace Construction Products – Lubricon NCA.

F. Air Entraining Admixture: Air entraining admixture shall comply with ASTM C260, and be certified by the manufacturer to be compatible with other admixtures to be used. Acceptable manufacturers and products include:

1. Euclid Chemical Company - Air-Mix or AEA Series.
2. Sika Chemical Corporation - Sika-Aer.
3. GRT – Polychem VR.
4. Grace Construction Products - Darex II or Daravair 1000.

G. Admixtures used in concrete shall be the same brand, type, and dosage used in concrete represented by field test data or used in trial mixes.

2.3 CURING PRODUCTS

A. Liquid Non-film-Forming Curing Compound: Acceptable manufacturers and products include:

1. Master Builders Solutions by BASF “MasterKure HD 110 WB”

2. L&M Construction Chemicals, Inc. “L&M Cure”

3. Equivalent curing compound compatible with concrete hardener.

2.4 MISCELLANEOUS MATERIALS

A. Patching Mortar: Non-shrink, non-slump, non-metallic, quick setting. Acceptable manufacturers and products:

1. Euclid Chemical Company - Eucospeed.
2. BASF - Thorite.
3. Adhesive Technologies. - Hard Rok Vertipatch.
4. W.R. Meadows - Speed Crete (Red Line).
5. Dayton Superior – Re-Crete 20 minute.
6. SpecChem - Precast Patch.

B. Expansion Joint Material: Preformed, resilient, non-extruding asphalt impregnated resilient fiber conforming to ASTM D1751. Thickness of expansion joint material shall be 1/2” unless noted otherwise on the drawings.

C. Magnesium phosphate patching cement specially designed for cold weather grouting and anchoring. Acceptable Manufacturer:

1. BASF - Set-45.
2. Euclid Chemical Company - Eucospeed MP.

D. Vapor Barrier: ASTM E 1745, Class A, not less than 15 mils (0.375 mm) thick. Acceptable manufacturers and products:

1. Stego Industries, LLC - Stego Wrap.
2. W.R. Meadows, Inc. - Perminator.

3. Raven Industries - Vapor Block.
4. Insulation Solutions - Viper VaporCheck II.

E. Control Joint Filler: Flexible, single-component polyurethane sealant with backer rod compliant with ASTM C 920, Type S, Grade P, Class 25. Apply sealant per manufacturers written recommendations. Acceptable manufacturers and products:

1. Dayton Superior – Perma 230 SL.
2. Euclid Chemical Company – Eucolastic I.
3. Sonneborn – Sonolastic SL 1.

F. Concrete Hardener: Apply concrete hardener in accordance with manufacturer's printed instructions for three coat application. Upon Substantial Completion, clean floors and apply third coat of hardener to floors not scheduled to receive floor coverings. Acceptable manufacturers and products include:

1. Master Builders Solutions by BASF "MasterKure HD 310 WB"

2. L&M Construction Chemicals, Inc. "Fluohard"

3. Equivalent concrete hardener compatible with curing compound.

2.5 STRENGTH AND PROPERTIES

A. Concrete Mix Designs: Refer to Drawings for specified compressive strength. Proportion concrete mixes according to the properties in the following tables. The concrete supplier may produce a mix at a lower water-cement ratio to allow for adjustment of slump at the site by adding water. The addition of site water shall be in accordance with ASTM C94, and the total water-cement ratio shall not exceed the value specified below.

Class	Coarse Aggregate Gradation	Fine Aggregate Gradation	Range of Slump	Max. w/c	Air Content	Other Requirements
B	57 or 67	FA	1" to 4"	0.45	5% to 8%	
C	57 or 67	FA	1" to 4"	0.50	—	
D	57 or 67	FA	4" to 6"	0.50	—	Use water reducing admixture to achieve slump specified
E	4 or 57	FA	1" to 4"	0.50	—	

Note: w/c = water-cementitious materials ratio.

B. Schedule of Concrete Classes: Provide concrete of the specified class according to the following schedule.

1. Footings: Class E
2. Exterior foundation walls and piers: Class B
3. Interior piers and walls: Class C
4. Interior slabs on grade: Class D
5. Interior slab on steel decks: Class D
6. Unless noted otherwise: Class B

C. Slump of Superplasticized Concrete: Concrete containing high-range water reducing admixtures (superplasticizer) shall have 8" maximum slump, unless otherwise approved by Structural Engineer. Concrete shall arrive at job site with 2" to 3" slump, be verified, then high range water reducing admixture added to increase slump to approved level.

D. Accelerators: Add non-chloride accelerator to all concrete slabs placed at air temperatures below 50°F.

E. Water Reducer: Add water reducing admixture or high range water reducing admixtures (superplasticizers) as follows:

1. All pumped concrete.
2. As required for placement or workability.
3. As required by high temperatures, low humidity, or other adverse placement conditions.
4. Concrete with water-cementitious materials ratio below 0.50.

F. No other admixtures shall be used unless approved by Structural Engineer of record.

G. Chlorides: Admixtures or other ingredients including aggregates containing calcium chloride or more than 0.05% chloride ions by weight shall not be used.

H. Workability: Concrete shall have a workability such that it will fill the forms without voids, honeycombs, or rock pockets with proper vibration without permitting materials to separate or excess water to collect on the surface.

I. Concrete Temperatures: Minimum concrete temperature of fresh concrete varies in relation to average air temperature over a 24-hour period as follows:

1. Air temperature below 0°F — Concrete temperature 70°F min.
2. Air temperature 0°F to 30°F — Concrete temperature 65°F min.
3. Air temperature 30°F to 50°F — Concrete temperature 50°F min.
4. Air temperature above 50°F — No minimum temperature

The maximum temperature of concrete at the time of delivery shall be 90°F. When concrete temperature exceeds 90°F, concrete supplier shall attempt to reduce temperature by shading aggregates and cement and cooling mix water. When these methods fail to reduce concrete temperature below 90°F, supplier shall use ice in the water to reduce the concrete temperature.

PART 3 - EXECUTION

3.1 PREPARATION

A. Do not place concrete until data on materials and mix designs have been approved, Architect has been notified, and all other affected trades have coordinated their work.

B. Remove snow, ice, frost, water, mud, and other foreign material from surfaces, reinforcing bars and embedded items against which concrete will be placed.

C. Do not allow form release agent to contact reinforcing bars.

3.2 SLABS

A. Slab on Grade:

1. All interior slabs on grades shall have a polyethylene vapor retarder conforming to ASTM E1745. Lap all joints minimum 6” and seal edges with adhesive tape. Fit

vapor retarder around utilities and seal with adhesive tape as required. Place, protect, and repair vapor-retarder sheets according to ASTM E 1643 and manufacturer's written instructions.

2. Refer to Drawings and Section 31 23 00 for required sub-grade preparation beneath slabs on grade.

3. Where vapor retarder is not used below slab on grade, wet sub-grade below slab prior to placing concrete. Subgrade shall be moist with no free water and no muddy or soft spots.

4. Saw cut control joints: Cut with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks. Control joints shall be located along column lines, with intermediate joints spaced at a maximum distance of 36 times the slab thickness, unless noted otherwise. Control Joints shall be continuous, not staggered or offset. Slab panels shall have a maximum length to width ratio of 1.5 to 1. Provide additional control joints at all reentrant or isolated corners formed in the slab on grade. Refer to Drawings for typical control joint detail.

5. Provide isolation joints around each column and along foundation walls. Form isolation joints with 1/2" expansion joint material. Extend isolation joint material full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

6. Depress slabs as required for mats and architectural finishes. Obtain layout and locations from Architect.

7. Verify completion of all under slab work with mechanical and electrical trades before placing slabs.

8. Slope slabs as indicated on Drawings and to provide positive drainage. Slope slab keeping bottom level and varying top. Maintain minimum thickness of concrete as indicated on Drawings. Refer to floor finishes for tolerances.

B. All slabs not on grade (all supported slabs), including slabs-on-steel decking:

1. Supported slabs have deflections that may cause areas of concrete to have thicknesses greater than indicated on the Drawings. Contractor is expected to provide that volume as needed to finish the floor at the specified elevation. If specified floor finish tolerances are not achieved during the concrete floor construction, the Contractor shall install, at no cost to the project, a self-leveling cementitious underlayment (Master Builders Mastertop 110 Underlayment or approved equal) to correct the floor flatness and levelness.

C. Embedded Items:

1. No embedded conduit or pipe is allowed in any concrete slab-on-steel deck.

3.3 CONSTRUCTION JOINTS

A. Vertical: Locate vertical construction joints in walls not farther than a maximum of 100 feet on center. Coordinate joint locations with architectural design.

B. Horizontal: Locate horizontal joints in walls and piers at the top and footings unless otherwise indicated.

C. Reinforcing: Stop all welded wire reinforcement and/or reinforcing at construction joint in slabs on grade and provide dowel bars as detailed. Provide reinforcement at other construction joints as detailed. Roughen and thoroughly clean the surface of the concrete, remove all laitance, and wet the surface before placing new concrete against the joint. Slush vertical joints with a neat cement grout before placing new concrete.

3.4 CONCRETE PLACEMENT

A. Place concrete as continuously as possible until placement is complete. Do not place against concrete that has attained initial set, except at authorized joints. If, for any reason, concrete pour is delayed for more than 45 minutes, bulkhead off pour at last acceptable construction joint. Immediately remove excess concrete and clean forms.

B. Do not begin to place concrete during periods of rain, sleet or snow unless adequate protection is provided.

C. No concrete shall be cast onto or against sub-grades containing free water, frost, ice or snow.

D. Notify the architect in advance if concrete is to be pumped.

E. Do not place concrete until all reinforcement is in place, forms have been thoroughly cleaned and approval has been given.

F. Do not accept concrete delivered to the job site more than 90 minutes after initial mixing.

G. Concrete from its point of release to mixers, hoppers, or conveyances, shall not be permitted to drop more than 5 feet (10 feet for concrete containing high range water reducers). Deposit concrete directly into conveyances and directly from conveyances to final points of deposit. Sufficient transportation equipment in good working order shall be on hand before work begins. All conveying equipment must be clean and kept clean during concreting operations. Take every possible precaution to prevent segregation or loss of ingredients.

H. Deposit concrete in wall forms in layers not greater than 12 inches in depth, each layer being compacted by internal vibration before succeeding layer is placed.

I. Place concrete as near as possible to its final position to prevent segregation. Do not use vibrators to transport concrete within forms. Consolidate concrete in walls, columns, beams and slabs or joist construction thicker than 8" with internal vibrators (8,000 to 12,000 V.P.M.). Slabs less than 8" thick may be consolidated with internal vibrators (9,000 to 13,500 V.P.M.) or vibrating screeds supported on forms, boards or rails, approved by Structural Engineer, supplement vibration by forking or spading by hand along surfaces adjacent to forms and construction joints.

J. Re-tempering of concrete will not be permitted. Concrete that has obtained its initial set shall be discarded.

K. Exercise care in placing concrete over waterproof membranes, rigid insulation and/or protection boards to avoid damaging those materials. Report damage immediately, and do not proceed until damage is repaired.

L. Remove loose debris from surfaces, thoroughly wet and slush with a neat cement grout immediately before placing new concrete, or apply bonding compound to surface and let dry before placing new concrete.

M. Protect existing concrete work to be exposed to view and other finished materials from damage and staining resulting from concreting operations. Handle concrete carefully to avoid dripping and spillage. Remove spilled concrete from existing surfaces immediately. Covering sills, ledges, and other surfaces with protective coverings may be necessary to protect the work.

N. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.

O. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

3.5 CONCRETE FINISHES AND TOLERANCES

A. Exposed Smooth Formed Surfaces: Remove forms and perform necessary repairs and patch to produce surface finish-3.0 as specified in ACI 301. Apply the following to smooth-formed finished concrete exposed to view in the finished work. Confirm finishes with architect prior to concrete placement by submitting shop drawings indicating locations of all types of finishes.

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.6 CONCRETE SLAB FINISHES AND TOLERANCES

A. Trowel Finish:

1. Screed concrete to an even plane, float, then power trowel the surface.

2. Hand trowel the surface smooth and free of trowel marks. Continue hand troweling until a ringing sound is produced as the floor is troweled.

3. Provide trowel finish as indicated on the Drawings and at the following locations:

   a. Concrete floors exposed in finished work unless otherwise indicated.
   b. Slabs to receive curing compounds and sealers.
   c. Slabs to receive resilient flooring or carpet.

B. Fine Broom Finish:

1. Screed concrete to an even plane, float, then power trowel the surface. Provide fine hair broom finish perpendicular to slope, free of loose particles, ridges, projections, voids and concrete droppings.

2. Provide fine broom finish as indicated on the Drawings and at the following locations:

   a. Stoop slabs.
   b.
   c. Slabs to receive thin set ceramic tile.

C. Float Finish:

1. Screed concrete to an even plane then float.

2. Provide as indicated on the Drawings and at the following locations:

a. Slabs to directly receive concrete topping.
b. Roof slabs to receive loose laid roof insulation.

D. Floor Finish Tolerances: Floor finish tolerances shall be measured by placing a freestanding (unleveled) 10 foot straightedge anywhere on the slab and allowing it to rest upon two high spots within 72 hours after placement of slab and removal of shoring (if present). The gap at any point between the straightedge and the floor (and between the high spots) shall not exceed:

1. Slab on Grade : 1/4”
2. Suspended Slabs (Steel frame): 1/4”

E. Slab Drainage: Finish all concrete slabs to proper elevations to insure that all surface moisture will drain freely to floor drains, and that no puddle areas exist. Contractor shall bear the cost of corrections to provide positive drainage.

F. Special Tolerances for Concrete Slabs: No abrupt change in vertical elevation of 1/4" or more is acceptable at the interface between slabs and within areas where pedestrian traffic is expected:

3.7 CONCRETE CURING

A. Freshly placed concrete shall be protected from premature drying and excessively hot temperatures.

B. Concrete other than high-early strength shall be maintained above 50°F and in a moist condition for at least the first 7 days after placement, except when special curing is used. Special curing procedures shall not be used without written permission from the Structural Engineer of Record.

C. Formed surfaces shall be cured by leaving the formwork in place during the curing period.

D. Protect concrete from excessive changes in temperature during the curing period and at the termination of the curing process. Changes in the temperature of the concrete shall be as uniform as possible and shall not exceed 5°F in any one hour or 50°F in any 24 hour period.

E. Protect concrete from injury from the elements until full strength is developed. Protect from mechanical injury.

F. During cold weather construction, all footings shall be protected from frost penetration until the building is enclosed and temporary heat is provided.

3.8 SLAB CURING

A. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface. Use one of the methods described below.

B. Liquid Non-film-Forming Curing Compound: Apply uniformly in continuous operation by low pressure spray equipment or roller as soon as finishing operations are complete, free water on the surface has disappeared and no water sheen can be seen. Follow the manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period. Verify compatibility of the curing compound with concrete hardener, paint, finishes, or toppings that require positive bond to the concrete.

3.9 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

B. Do not fill joints until construction traffic has permanently ceased.

C. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

D. Install semi-rigid joint filler in saw-cut joints and in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.10 APPLICATION OF FLOOR SEALER - FINISH COAT

A. Give concrete floors as indicated in Room Finish Schedule and where exposed in finished Work, second coat of curing and sealing compound immediately prior to Substantial Completion.

B. Clean floors and apply sealer strictly according to manufacturer's instructions. Dilution and coverage shall be as recommended by the manufacturer. Apply sealer evenly.

C. Upon Substantial Completion, clean floors and apply third coat of concrete hardener to floors not scheduled to receive floor coverings.

3.11 COLD WEATHER CONCRETING

A. Definition: Cold weather shall be defined as a period when for more than three successive days the average daily outdoor temperature drops below 40°F. The average daily temperature is the average of the highest and lowest temperature during the period from midnight to midnight. When temperatures above 50°F occur during more than half of any 24 hour duration, the period shall not be regarded as cold weather.

B. All cast-in-place concrete work occurring during cold weather shall conform to all requirements of ACI 306.1, “Standard Specification for Cold Weather Concreting”, published by the American Concrete Institute, Detroit, Michigan, except as modified by the contract documents or this specification.

C. Planning: The Construction Manager, concrete contractor, concrete supplier and the architect shall have a pre-construction conference to outline the cold weather concreting operations concerning the placing, finishing, curing and protection of the concrete during cold weather. Pre-construction conference shall occur before cold weather is expected to occur.

D. Detailed procedure submittal: Concrete contractor shall prepare and submit for review detailed procedures for the production, transportation placement, protection, curing and temperature monitoring of concrete during cold weather. Include procedures to be implemented upon abrupt changes in weather conditions. Do not begin cold weather concreting until these procedures have been reviewed and approved.

E. Mixing: Concrete flatwork poured in cold weather shall be proportioned to obtain a lower slump to minimize the amount of bleed water during finishing. All bleed water should be skimmed off flatwork prior to troweling. Concrete that will be exposed to cycles of freezing and thawing while saturated should be properly air entrained as outlined in this specification.

F. Protection of Concrete: Cure and protect concrete against damage from freezing for a minimum period of 72 hours, unless approved by the structural engineer. The protection period may be reduced according to ACI 306.1 requirements. Concrete contractor shall submit a letter of request to reduce the protection period, by outlining the method used to achieve the reduction per ACI 306.1.

1. When practical for the construction schedule, formwork shall be insulated and remain in place for at least the required protection period.

G. Concrete Temperatures: The minimum temperature of concrete immediately after placement shall be as specified in the following table.

Section Size	Minimum temperature of concrete as placed and maintained during the protection period	Maximum gradual decrease in surface temperature during any 24 hours after the end of the protection.	Mixing Temperatures		
			Above 30°F	0 to 30°F	Below 0°F
< 12 in	55°F	50°F	60°F	65°F	70°F
12-36 in	50°F	40°F	55°F	60°F	65°F
36-72 in	50°F	30°F	50°F	55°F	60°F
> 72 in	50°F	20°F	45°F	50°F	55°F

H. Mixing Temperatures: As the ambient air temperature decreases the concrete mixing temperature shall be increased to compensate for the heat lost in the period between mixing and placement. The concrete supplier shall use one or both of the following methods for increasing the concrete temperature.

1. Heating the mixing water to a temperature necessary to offset the temperature losses during transport. Supplier shall not heat water to temperatures in excess of 140°F, without taking special precautions as outlined in ACI 306.

2. Heating the aggregate with a circulated steam piping system.

I. Temperature measurements: The Contractor shall be responsible for monitoring and recording the concrete temperatures during placement and throughout the protection period.

1. Inspection personnel shall keep a record of the date, time, outside air temperature, temperature of concrete as placed, and weather conditions.

2. Temperature of the concrete and the outside air shall be recorded at regular intervals but not less than twice in a 24 hour period. The record shall include temperatures at several points within the enclosure and on the concrete surface of sufficient frequency to determine a range of temperatures.

3. Inspection agency shall submit the temperature logs to the Architect for permanent job records.

3.12 HOT WEATHER PROTECTION

A. Definition: Hot weather shall be defined as any combination of high ambient temperature, low relative humidity, high winds and intense solar radiation that leads to higher than usual evaporation. The table below defines low relative humidity based on air temperature. For a given air temperature, if the relative humidity is equal to or less than the specified minimum, provisions for hot weather concreting shall be as follows:

Air Temperature	Minimum Relative Humidity
105°F	90%
100°F	80%
95°F	70%

Air Temperature	Minimum Relative Humidity
90°F	60%
85°F	50%
80°F	40%
75°F	30%

B. Scheduling: When hot weather is expected, adjust concrete placement schedules to avoid placing or finishing during the period from noon until 3:00 pm. When possible, slab pours should be delayed until the building is enclosed to protect the concrete from wind and direct sunlight, Construction schedule shall account for 7 day moist curing period.

C. Mixing: Concrete supplier shall adjust mix designs and admixtures to minimize slump loss. Concrete shall be mixed at a water-cement, which is lower than the specified maximum to allow for the adjustment of slump by addition of water in the field. Water reduction shall be accomplished without reducing initial slump by increasing dosage of water reducing admixture.

D. Preparation: Do not order concrete earlier than is required to avoid delays. Cool forms, subgrades and reinforcing bars with water spray from fog nozzle prior to concrete placement.

E. Delivery: Site traffic shall be coordinated and delivery times scheduled to minimize waiting times for concrete trucks.

F. Placement: Preparations shall be made to place and consolidate the concrete at the fastest possible rate. Maintain a continuous flow of concrete to the job site to avoid development of cold joints, during placement of slabs, apply fog spray to prevent moisture loss without causing surplus water to stand on concrete surface.

G. Finishing: Finish concrete as fast as practical. Continue fogging concrete during finishing. Where fogging is not possible, apply sprayable moisture-retaining film between finishing passes.

H. Curing: Formed concrete shall be covered with a waterproof material to retain moisture. Flat work shall be moisture cured as described in this specification. Moist curing shall continue for at least 7 days.

3.13 FIELD QUALITY ASSURANCE

A. Independent Testing Agency and Inspector shall each perform their prescribed inspection, sampling, and testing services as described in Part 1 of this specification section.

B. In cases where samples have not been taken or tests conducted as specified or strength of laboratory test cylinders for a particular portion of the structure fails to meet requirements of ACI 301, for evaluation of concrete strength, Structural Engineer shall have the right to order compressive or flexural test specimens or both be taken from the hardened concrete according to ASTM C42, load tests according to ACI 318, or such other tests as may be necessary to clearly establish the strength of the in situ concrete, and such tests shall be paid for by the Contractor.

3.14 REPAIR OF DEFECTIVE AREAS

A. All repair of defective areas shall be made, with prior approval of Architect, as to method and procedure, in accordance with Section 5 of ACI 301, except specified bonding compound must be used.

B. Patch form tie holes at the following locations:

1. Unfinished exposed concrete (not scheduled for painting, plus at board formed concrete finish).

2. All other areas: Prime voids with bonding compound and fill with patching mortar. Strike flush without overlap, float to uniform texture to match adjacent surfaces.

3. Exposed areas scheduled for spray texture:

   a. Remove projections and protrusions: 1/16" or larger.
   b. Remove continuous ridges 1/32" or larger.
   c. Fill voids and pin holes.

4. Exposed areas scheduled for paint or epoxy:

   a. Remove projections, ridges, and other protrusions 1/32" or larger.
   b. Fill voids and pin holes 1/16" or larger.

5. Exposed areas not scheduled for paint or other finishes:

   a. Remove projections, ridges and other protrusions not conforming to requirements specified under Section 03 10 00.
   b. Fill voids and pin holes not conforming to requirements specified under Section 03 10 00.

C. All structural repairs shall be made, with prior approval of the Architect/Engineer, as to method and procedure, using the specified epoxy adhesive and/or epoxy mortar.

D. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

E. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

2. After concrete has cured at least 14 days, correct high areas by grinding.

3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.

4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.

5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

3.15 CLEANING

A. Clean exposed concrete to remove laitance, efflorescence and stains.

END OF SECTION

DIVISION 07

SECTION 07 92 00 - JOINT SEALANTS

PART ONE - GENERAL

DESCRIPTION

Joint sealants, including joint backing, tape, and primer.

Labor, material, tools, equipment, and services necessary for and reasonably incidental to the execution of caulking and sealant work shown on the Drawings or specified herein.

RELATED WORK AND REQUIREMENTS

Refer to schedule at end of this Section.

SYSTEM PERFORMANCE

Provide joint sealants that have been produced and installed to establish and maintain watertight and airtight continuous seals.

REFERENCES

Sealant and Waterproofers Institute
"Sealants: The Professionals Guide".

PRECONSTRUCTION TESTING

Preconstruction Compatibility and Adhesion Testing: Submit to joint sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

Submit not fewer than eight pieces of each kind of material, including joint substrates, shims, joint sealant backings, secondary seals, and miscellaneous materials.

Schedule sufficient time for testing and analyzing results to prevent delaying the Work.

For materials failing tests, obtain joint sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.

Testing will not be required if joint sealant manufacturers submit joint preparation data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

Preconstruction Field Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:

Locate test joints where directed by A/E.

Conduct field tests for each kind of joint substrate and sealant application.

Notify Owner and A/E seven days in advance of dates and times when test joints will be installed.

Arrange for tests to take place with joint sealant manufacturer's technical representative present.

Test Method: Test joint sealants according to Method A, Field Applied Sealant Joint Hand Pull Tab per ASTM C 1193.

Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.

Evaluation of Preconstruction Field Adhesion Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

SUBMITTALS

Product Data: Submit manufacturer's technical data for each joint sealant product required, including instructions for joint preparation and joint sealant application.

Samples: Submit cured strip samples of actual product of each color selected by A/E.

Preinstallation Conference: Submit two copies of minutes of the conference.

Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

Preconstruction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

Materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants.

Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

Preconstruction Field Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

Warranties: Sample of special warranties.

QUALITY ASSURANCE

Installer Qualifications: Engage an Installer who has successfully completed within the last 3 years at least 3 joint sealant applications similar in type and size to that of this Project and who will assign mechanics from these earlier applications to this Project, of which one will serve as lead mechanic.

Employ only qualified workers thoroughly skilled and specially trained in the techniques of caulking, who can demonstrate to the satisfaction of the A/E their ability to fill joints solidly and neatly.

Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each different product required.

Application and Mixing Requirements: Mix and apply sealants in strict accordance with the manufacturer's printed directions. Initial mixing and application shall be under the direct supervision of the manufacturer's representative.

Field Construction Mock-Up: Prior to preinstallation conference, apply elastomeric sealants in joints of field-constructed mock-ups of assemblies specified in other sections that are indicated to receive elastomeric joint sealant specified in this Section.

Preinstallation Conference: Prior to installation of joint sealants, meet at project site with Prime Contractor, Sealant Subcontractor and Foreman. Inform Architect and Owner of scheduled meeting date. Purpose of the meeting will be to review mock-ups, sealant installation methods and recommendations, workmanship, and address any questions. Prime Contractor shall provide at least 72 hours advance notice to participants prior to convening preinstallation conference and record significant conference discussions, agreements, and disagreements, including required corrective measures and actions. Distribute minutes of the conference to each party present and other parties requiring information.

DELIVERY, STORAGE, AND HANDLING

Deliver materials to project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multicomponent materials.

Store and handle materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

Do not use caulking materials that have been stored for a period of time exceeding the maximum recommended shelf life of the materials.

PROJECT/SITE CONDITIONS

Examination: Examine Drawings and verify that all joints are properly detailed and proportioned for expansion and/or control, as recommended in writing by the sealant manufacturer. Immediately notify A/E of any deviations.

Environmental Requirements: Do not proceed with the installation of sealants under adverse weather conditions when joint to be sealed is damp, wet or frozen, or when ambient and substrate temperatures are below or above the manufacturer's recommended limitations for installation. Consult with manufacturer for specific instructions before proceeding.

WARRANTY

Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within the warranty period of two (2) years from date of Substantial Completion.

Manufacturer's Warranty: Manufacturer's standard form in which joint sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within the following warranty periods from date of Substantial Completion.

Exterior Silicone Sealants: Twenty (20) years.
Other Sealants: Ten (10) years.

Warranties specified in this article exclude deterioration or failure of joint sealants from the following:

Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.

Disintegration of joint substrates from natural causes exceeding design specifications.

Mechanical damage caused by individuals, tools, or other outside agents.

Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART TWO - PRODUCTS

MATERIALS, GENERAL

Compatibility: Provide joint sealants, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

ELASTOMERIC JOINT SEALANTS

Acceptable Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Dow Corning Corporation
GE Advanced Materials
Pecora Corporation
Sika Corporation, Construction Products Division
Tremco Incorporated

Type 1: Single-Component, Nonsag, Non-Staining, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, for Use NT, G, M, A, and O. Equivalent to Tremco Spectrem 2.

Type 1 Sealant Colors: Maximum of 4 colors to be selected by A/E from manufacturer's full range.

Type 2: Single-Component, Nonsag, Moisture-Curing Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 35, for Use NT, M, A, and O. Equivalent to Tremco Dymonic FC.

Type 3: Multi-Component, Pourable, Traffic-Grade, Urethane Joint Sealant: ASTM C920, Type M, Grade P, Class 25, Uses T, M, and O. Equivalent to Tremco THC-900/901.

Type 4: Single-Component, Nonsag, Acrylic-Latex Joint Sealant: ASTM C 834, Type OP, Grade NF, formulated to be paintable. Equivalent to Tremco Tremflex 834.

Type 5: Single-Component, Nonsag, Mildew-Resistant, Acid-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Uses NT, G, A, and O. Equivalent to Tremco Tremsil 200.

JOINT SEALANT BACKING

General: Provide sealant backings of material and type which are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonwaxing, nonextruding strips of flexible, nongassing plastic foam of material indicated below; nonabsorbent to water and gas and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

Provide either open cell polyurethane foam or closed-cell polyethylene foam, subject to approval of sealant manufacturer, for cold-applied sealants only. Open cell joint backing not permitted in exterior wall construction.

Bond Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

MISCELLANEOUS MATERIALS

Primer: Provide type recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated. Verify whether primer is staining or nonstaining prior to application.

Cleaners for Nonporous Surfaces: Provide nonstaining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.

Masking Tape: Provide nonstaining, nonabsorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART THREE - EXECUTION

INSPECTION

Installer shall inspect joints indicated to receive joint sealants for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealant performance. Installer shall notify A/E in writing listing any conditions detrimental to performance of joint sealant work. Do not allow joint sealant work to proceed until unsatisfactory conditions have been corrected.

PREPARATION

Surface Cleaning of Joints:

Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturers and the following requirements:

Remove all foreign material from joint substrates which could interfere with adhesion of joint sealant, including dust, paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; oil, grease, waterproofing, water repellents, water, surface dirt and frost.

Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove laitance and form release agents from concrete.

Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile and other nonporous surfaces by chemical cleaners or other means that are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealants.

Joint Priming: Prime joint substrates where recommended by joint sealant manufacturer. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to areas of joint sealant bond, do not allow spillage or migration onto adjoining surfaces.

Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

INSTALLATION

General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions indicated.

Joint Sealant Backings: Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability. Do not leave gaps between ends of joint fillers. Do not stretch, twist, puncture or tear joint fillers. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.

Bond Breaker Tape: Install bond breaker tape between sealants and joint fillers, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.

Do not install more joint sealant backing or bond breaker tape than can be caulked in one day.

Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.

Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of concave joint configuration, unless otherwise indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

PROTECTION AND CLEANING

Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and reseal joints with new materials to produce joint sealant installations with repaired areas indistinguishable from original work.

Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

SCHEDULE

EXTERIOR	SEALANT TYPE
Perimeters of exterior wall openings:	1
Expansion and control joints in exterior surfaces of poured-in place concrete walls:	1
Control and expansion joints in exterior surfaces of unit masonry work:	1
Metal wall panels and soffits joints:	1
Joints in sheetmetal, flashings, and joints above counterflashing receivers:	1 or as required in Section 07 71 00

Joints between dissimilar materials:	1
Control and isolation joints in horizontal concrete:	3
INTERIOR	
Perimeters of exterior wall openings as detailed on Drawings:	2
Control and expansion joints on the interior of exterior poured-in-place concrete walls:	2
Control and expansion joints on the interior of exterior surfaces of unit masonry walls:	2
Perimeters of interior frames:	4
Interior masonry vertical control joints (block-to-block) block-to-concrete, and intersecting masonry wall:	4
Joints at tops of non-load bearing masonry walls at the underside of structure:	4
Joints between dissimilar materials:	4
Perimeter of toilet room fixtures: (e.g. sinks, urinals, waterclosets)	5

End of Section

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DIVISION 26

SECTION 26 05 02 – SELECTIVE ELECTRICAL DEMOLITION

PART ONE - GENERAL

DESCRIPTION

Electrical demolition requirements.

RELATED WORK AND REQUIREMENTS

Section 01 11 00: Summary of Work
Section 01 74 00: Cleaning and Waste Management
Section 02 41 00: Demolition

PART TWO - PRODUCTS

MATERIALS AND EQUIPMENT

Materials and equipment for patching and extending work: As specified in individual Sections.

PART THREE - EXECUTION

EXAMINATION

Verify item locations and circuiting arrangements as shown on Drawings.

Verify that abandoned wiring and equipment serve only abandoned facilities.

Demolition Drawings are based on field observation and record documents when available. Report discrepancies to Architect/Engineer before disturbing existing installation.

Beginning of demolition means the Contractor accepts existing conditions.

ELECTRICAL DEMOLITION

Disconnect electrical systems in walls, floors, and ceilings scheduled for removal in the south wing of the Social Services Building

Coordinate electrical system outages with the Owner.

Remove three pole lights and associated branch circuits as shown on the Drawings. Remove the branch conductors back to the circuit breaker, and mark the circuit breaker “SPARE”.

Remove from project site all demolished electrical items.

Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits use personnel experienced in such operations.

Existing Electrical System: Disable power to the south wing of the Social Services Building that will be removed to make room for the new construction. Maintain electrical system in the existing to remain portion of the Social Services Building until the old Social Services Building is scheduled to be demolished. Obtain permission from Owner at least 24 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

Existing Fire Alarm System: Disable the fire alarm devices in the south wing of the Social Services Building that will be removed to make room for the new construction. Maintain fire alarm system in existing to remain portion of the Social Services Building until the old Social Services Building is scheduled to be demolished. Obtain permission from Owner at least 24 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

Do not allow construction dust to enter smoke detectors. If smoke detectors are adjacent to construction area, obtain written permission from the local Authority Having Jurisdiction to temporarily install a protective cover over the respective smoke detector(s).

Existing Telephone and Data System: Disable the telephone and data devices in the south wing of the Social Services Building that will be removed to make room for the new construction. Maintain telephone and data system in existing to remain portion of the Social Services Building until the old Social Services Building is scheduled to be demolished. Obtain permission from Owner at least 24 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

PCB BALLAST HANDLING AND DISPOSAL

All PCB ballasts shall be handled and disposed of in accordance with current Federal and State requirements. The requirements listed below are not intended to direct the contractor to any procedures not in compliance with Federal and State requirements.

Generally, all high power factor fluorescent light ballasts manufactured before 1978 contain PCB compounds in their capacitors. The Contractor shall inspect all ballasts in all light fixtures (which will become the property of the Contractor and will be removed from the project site as part of this project) and take the actions described below.

All ballasts labeled as "NON-PCBs" or "NO PCBs" shall be handled as described elsewhere in this section for equipment to be disposed of. If the PCB content is not stated on the ballast label, the ballast shall be handled as a PCB ballast.

All PCB ballasts shall be removed from the light fixtures and shall have the wires clipped off. The ballasts shall then be placed in US DOT approved type 17C or type 17H drums(barrels) furnished by the Contractor. 55 gallon and 30 gallon drums are available from most drum suppliers. The quantity and size of the drums will be determined by the Contractor at the time of construction.

These barrels shall be placed in storage in a location within the building as designated by the Owner. The barrels are not to be placed outside the building where they are exposed to weather.

The Contractor shall label and mark the PCB storage drums with EPA approved PCB labels and the storage area with signs, marks and lines to meet the regulations of Wisconsin Code NR 157.

The Contractor shall also provide approved PCB absorbent materials to be stored immediately adjacent to the drum storage area. Do not place loose absorbent material in the drums.

The Contractor shall provide to the engineer, in written form, a total count of these ballasts(or their total weight by barrel) and where they are stored.

When the ballast demolition is complete, all PCB ballasts are placed in drums, and the contractor has approval from the local authority to remove the ballasts from the site, then the contractor shall dispose of the ballasts at a approved hazardous waste site. Provide a copy of the waste disposal receipt to the Owner for their records.

End of Section

SECTION 26 56 00 – EXTERIOR LIGHTING

PART ONE - GENERAL

DESCRIPTION

Exterior luminaires
Light engines
LED drivers
Poles and bases

RELATED WORK AND REQUIREMENTS

Section 01 11 00: Summary of Work
Section 01 33 00: Submittal Procedures
Division 3: Concrete

SUBMITTALS

Submit product data and shop drawings in accordance with Section 01 33 00 for all products specified.

Provide manufacturers product data sheet including outline drawings with dimensions, fixture construction description, light engine and LED driver data, support points, weights, accessory information and photometric performance data for each luminaire type. Include cut sheets for light engines and LED drivers.

For all custom colors a metal painted sample shall be submitted to architect/engineer along with cut sheets for approval.

SUBSTITUTIONS

Light fixtures by manufacturers other than those listed by name in the fixture schedule will be considered only if all the following criteria are met:

The photometry of the fixture meets or exceeds that of the specified fixture.

Dimensions of the fixture are equal or acceptable to the Engineer.

Any special features of the fixture are equal or acceptable to the Engineer.

Complete submittals as outlined above and a completed Substitution Request Form are received ten (10) calendar days before the bid date.

Provide light fixture sample for review upon request.

The contractor shall include in his bid any costs associated with the use of the proposed fixture. This shall include any costs incurred by other trades due to the use of the approved fixture. The Contractor shall be responsible for these costs even if discovered after bids are awarded.

DELIVERY, STORAGE, AND HANDLING

Deliver products to site and store in a clean and dry space. Protect products from dirt, weather and traffic to prevent denting, breakage, or scratching. Store fixtures in original shipping containers.

Handle metal poles carefully to prevent breakage and damage to finish.

Damaged equipment shall be returned to the manufacturer and exchanged for new. Do not repair damaged equipment.

EXTRA MATERIALS

Provide the following items in their original boxes to the Owner at project completion:

Light engines: 2 of each type of LED light engine
LED drivers: One of each type.
Touch-up paint for exterior poles: 1 bottle

PART TWO - PRODUCTS

LUMINAIRES

Provide luminaires as specified on the Drawings.

EXTERIOR LUMINAIRES

Provide light fixtures as indicated on the Pole Light Luminaire Schedule. Light fixture model number may not contain all required accessories. Provide all necessary components for a complete installation including light engines, LED drivers, wiring, mounting brackets, and any other required equipment.

LED driver housing shall be easily accessible.

LIGHT ENGINES

Provide light engine type specified for luminaire.

All light engines shall be new and by the same manufacturer.

LED DRIVERS

LED drivers shall be high power factor, 90% or better.

Starting current shall be less than operating current.

LED drivers for outdoor use shall be low temperature, reliable to –20 degrees F.

POLES

Pole material shall be aluminum, paint color as noted on Lighting Fixture Schedule. Each pole shall be designed to meet wind loads of installed area including effective projected area of all fixture heads, mounting arms, the pole itself, and pole mounted banners (if applicable).

Anchor Bolts: As recommended by pole manufacturer. Provide template, flat washers, lock washers, and hex nuts for each pole.

POLE FOUNDATIONS

Construct from reinforced concrete in sizes as shown on drawings.

Provide 3/4" X 10'0" ground rods in the pole foundation so that the ground rod projects 3" up into center of pole base.

PART THREE - EXECUTION

EXTERIOR LUMINAIRE AND POLE BASE INSTALLATION

This Section contractor is responsible for the excavation, backfill, and concrete for electrical items such as light pole bases and branch conduit serving the pole lights.

The diameter for pole base standards is shown on the drawings. Pole base standards constructed with a larger diameter than shown on the drawings will be removed and new standards constructed by the contractor in accordance with the drawings at no additional cost to the Owner.

Install in accordance with manufacturers' instructions.

Install all anchor bolts and handhole fasteners with anti-seize compound.

Use bolt templates and pole mounting accessories to install anchor bolts in pole base.

Provide concrete base as detailed on drawings. Install pole base and poles plumb. Provide leveling nuts to plumb pole. Grout around base and leveling nuts with non-shrinking grout after pole is plumb. Round over the edge of the grout for a smooth finish.

The exposed surface area of the foundation shall have the forms removed and the concrete rubbed out to a smooth finish.

Bond pole to ground rod.

Provide sand backfill adjacent to the concrete standard. Compact the soil approximately two feet away from the sand backfill around pole bases to ensure the pole base does not tilt.

Use bolt templates and pole mounting accessories to install anchor bolts in pole base.

Use belt slings or non-chafing ropes to raise and set pre-finished luminaire poles.

Remove all above grade portions of sono-tube or similar product used to construct pole base standard.

Operate each luminaire after installation and connection. Inspect for improper connections and operation.

Measure illumination levels to verify conformance with performance requirements. Take measurements during night sky, without moon or with heavy overcast clouds effectively obscuring moon. Submit results to engineer for review.

Provide new light engines in fixture heads.

FIELD QUALITY CONTROL

Operate each luminaire after installation and connection. Inspect for improper connections and operation.

CLEANING

Clean poles and exterior surfaces of luminaries and touch up damage.

End of Section

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DIVISION 31

SECTION 31 10 00 - SITE CLEARING

PART ONE - GENERAL

WORK INCLUDED

The CONTRACTOR shall provide all materials, labor, equipment and service necessary, for the completion of the work specified in this section.

Removal and or transplanting of trees, shrubs, plant life and grasses as indicated on the construction documents within the project limits.

Grubbing of any stumps or vegetation as indicated on the construction documents within the project limits.

Removal of buildings, concrete, asphalt, and all fixed elements as indicated on the construction drawings.

Coordinate all work within the right of way with the local municipality.

PART TWO - PRODUCTS

Not Used

PART THREE – EXECUTION

EXTENT OF WORK

Site preparation work shall be performed over all of the area lying within the project limit lines.

Prior to the start of demolition, site clearing activities and/or earthwork verify that perimeter erosion control measures are in place.

CLEARING AND GRUBBING

Clear all trees, vegetation, weeds, brush, roots, etc., lying within the project limits as indicated on the construction documents.

Trees that are specified to remain shall be protected from construction activity and are indicated on the construction documents.

It is intended that those areas that are to be undisturbed by construction remain as is, however, if disturbed, they must be returned to their existing condition prior to damage when construction is complete.

OAK WILT

Do not cut, prune or otherwise wound oaks in the spring or early summer, generally from April 15th through July 1st.

Any activity during this period that cuts or tears through the bark and exposes live wood in oak trees shall have applied immediately and thoroughly pruning sealer or tree paint over the wound.

Torn branches or roots should be cut clean and the cut surface painted. For additional treatment of the roots, after treating cover the exposed roots with soil.

Should an oak tree be damaged, immediately notify the A/E so the proper specialists can be consulted as to how to resolve the situation.

Damage to oak trees indicated to remain shall be repaired and the proper preventative measure taken by the CONTRACTOR at no additional costs to the OWNER.

PROTECTION OF TREES

Existing trees which are to remain are to be protected against construction activity. Do not smother trees by storing materials within the canopy line. Wire plank protection shall be place around the trunks.

If a tree scheduled to remain is destroyed by construction activity, the CONTRACTOR shall provide a tree of equivalent size and species or may be assessed a penalty not to exceed $2,000.00. Any such assessment will be deducted from the contract sum by Change Order.

DEMOLITION

Conduct demolition work with minimum interference to roads, streets, driveways, sidewalks, and other facilities including adjacent buildings, structures and their occupants.

Sawcut all hard surfaces to provide a clear break line for new abutting surfaces to join at all locations indicated on the construction documents.

Remove all fixed elements as indicated on the construction drawings.

Take precautions to guard against movement, settlement or collapse of any surrounding structures indicated to remain and be liable for any such movement, settlement or collapse.

DISPOSAL OF WASTE MATERIAL

Burning is not permitted on the OWNER'S property, unless authorization is obtained from the OWNER and the local governing Fire Department.

Remove all organic and cleared vegetative matter from the site and dispose of in a legal manner.

Remove all concrete, bituminous and debris from site and dispose of in a legal manner.

End of Section

SECTION 31 20 00 - EARTH MOVING

PART ONE - GENERAL

WORK INCLUDED

The CONTRACTOR shall provide all materials, labor, equipment and services necessary for the completion of the work specified in this section.

Salvaging Topsoil

Unclassified Excavation

Excavating, Backfilling, and Compacting for Utilities

Excavating, Backfilling, and Compacting for Pavement

Topsoil Placement

Traffic Control Plan and execution

REFERENCES

ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures. Using 5.5 lb Rammer and 12" Drop.

ANSI/ASTM D1556 - Test Method for Density of Soil in Place by Sand-Cone Method.

ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb Rammer and 18" Drop.

Subsurface Soil Investigation Report: American Engineering Testing, Inc. Dated September 14, 2010.

EXISTING CONDITIONS

Known underground, surface, and aerial utility lines and buried objects are indicated on the drawings. Contact Digger's Hotline and the OWNER five (5) working days prior to start of demolition and construction.

Locate all private utilities; coordinate with OWNER five (5) working days prior to the start of work.

Hand expose existing utilities prior to start of work.

SUBMITTALS

Samples: Submit 10 lb. sample of each type of fill to testing laboratory, in air-tight containers.

RECORD DOCUMENTS

Accurately record locations of utilities remaining, by horizontal dimensions, elevations or inverts, and slope gradients.

UNIT PRICES

Provide unit prices for the following items with bid (see bid form).

1. Over excavation (excavated, hauled and deposited).

2. Granular fill (hauled, placed and compacted).

PART TWO - PRODUCTS

MATERIALS

Topsoil: On site excavated material, graded, free of roots, rocks larger than 1", subsoil, debris, and large weeds.

Subgrade: Excavated material, graded, free of clumps larger than 6", rocks larger than 3", and debris.

Granular Fill: Granular Fill material, when required, shall consist of natural sand or a mixture of sand with gravel, crushed gravel, crushed stone or other broken or fragmented material, meeting the gradation requirements of the Standard Specifications for Highway and Structure Construction, Section 209, Grade 2.

Stone Bedding: Stone for Class "B" bedding shall meet requirements of ASTM 33.0 with P200 content not exceeding 5%.

Dense Graded Base Course: Dense graded base course shall meet the requirements of Section 305, Dense Graded Base course of Standard Specifications for Highway and Structure Construction for D.O.T. 1-1/4" Gradation.

Breaker Run: Furnish stone or concrete processed through a primary crusher set to produce a material predominantly 6" or less in at least one dimension. Material may come from any Wisconsin Department of Transportation approved quarry in accordance with section 311.2(2) of the Standard Specifications for Highway and Structure Construction. Deteriorated concrete and non-durable rock such as sandstone, shale, slate, disintegrated granite, or heavily weathered rock of any type is not acceptable to use.

Geosynthetic Separation/Stabilization Fabric: Geosynthetic fabric should conform to the requirements of the Standard Specification for Highway and Structure Construction, Section 645.2.2, Type "SAS".

PART THREE – EXECUTION

SALVAGING AND SPREADING TOPSOIL

Remove materials of horticultural value from topsoil prior to stripping.

Disc existing turf 8" deep two directions prior to stripping topsoil material.

Strip topsoil; do not allow topsoil to be mixed with subgrade.

Topsoil is to be exported and stored offsite at the County Highway Department.

UNCLASSIFIED EXCAVATION

Excavating:

1. Excavate in accordance with design grades and elevations.
2. Do not perform additional excavation without prior written authorization of A/E/OWNER.

3. Machine shape banks.

4. Hand trim excavations to remove loose and/or organic matter.

5. Fill over-excavated areas under structure bearing surfaces with stone bedding.

6. Do not disturb soil within canopy line of existing trees or shrubs that are to remain.

7. If necessary to excavate through canopy line, perform work by hand and cut roots encountered with a sharp ax.

Overhaul:

1. Haul excess material from site and dispose of in a legal manner.

Granular Fill:

1. Place fill materials in lifts not exceeding 9" in depth in accordance with design grades and contours.

Rough Grading:

1. Rough grade site to required contours and elevations as required for finish grading and surface treatment.

2. Prior to placing fill material over undisturbed subgrade surfaces, scarify to a minimum depth of 6".

EXCAVATING, BACKFILLING, AND COMPACTING FOR UTILITIES

Preparation:

1. Establish limits of excavation by area and elevation. Designate and identify datum elevation.

2. Set required lines and levels.

3. Maintain existing and established benchmarks, monuments, and other reference points.

Utilities:

1. Notify utility companies to adjust, relocate, and/or remove lines which are in the way of excavation.

2. CONTRACTOR shall be responsible for maintaining, adjusting, or relocating existing utility lines which are located in the work area. Costs exceeding those covered by utility companies shall be included in CONTRACTOR'S bid.

3. Protect and maintain active utility services exposed by excavation.

4. Remove abandoned utility lines from areas of excavation. Cap, plug, or seal such lines and notify project A/E of such work completed.

5. Locate and record abandoned and/or active utility lines adjusted or relocated during construction with the project A/E.

6. Gas, electric (including main service, site lighting, conduits, and signage) cable, and telephone construction by others. Coordinate all earthwork activities with respective trades responsible for installation of said utilities.

Excavation:

1. Excavate in accordance with lines and grades indicated on the plan set documents.

2. Excavate trenches wide enough to enable proper installation of utilities and to allow for inspection. Trim and shape trench bottoms and leave free of irregular lumps and projections.

3. Do not disturb soil within canopy line of existing trees or shrubs that are indicated to remain. If it is necessary to excavate within the canopy line, perform work by hand and cut exposed roots with a sharp ax.

4. When complete with work, request CONSTURCTION MANAGER to inspect excavations. Correct unauthorized excavation as instructed by A/E at no additional cost to OWNER.

5. Stockpile excavated subsoil material for reuse on site. Remove excess or unsuitable excavated subsoil material from site and dispose of it in a legal manner.

Dewatering Trenches:

1. Provide equipment including pumps, piping, and temporary drains required to keep trenches dry during construction.

2. Do not discharge pumped water directly into municipal sewer systems without receiving prior approval. Ensure discharge water does not contain contamination or silt held in suspension.

3. Direct surface drainage away from excavated areas. Control grading in and adjacent to excavations to prevent water running into excavated areas or onto adjacent properties or public thoroughfares.

4. Furnish and operate pumping equipment on a twenty-four (24) hour basis if needed to keep excavated areas free of water until utilities have been placed and backfilled.

Backfilling:

1. All backfill material shall be on-site material unless granular fill is required by A/E/OWNER.

2. Do not start backfilling until utilities have been inspected by project A/E.

3. Ensure trenches are not in a frozen condition and are free of debris, snow, ice, or water.

4. Backfill as early as possible to provide time for natural settlement and compaction.

5. Place and compact backfill materials in lifts not exceeding 12". Use methods so as not to damage or disturb utilities.

6. Maintain optimum moisture content of backfill materials so as to attain required compaction density.

7. Remove excess backfill materials from site.

EXCAVATING, BACKFILLING, AND COMPACTING FOR PAVEMENT

Excavation:

1. Excavate the subsoil in accordance with grades and elevation required for completion of the work.

Backfilling:

1. Verify areas to be backfilled are not frozen and are free from debris, snow, ice, and water.

2. Do not backfill over existing subgrade materials which are wet or spongy.

3. Compact existing subgrade materials if densities are not equal to that specified for backfill materials

4. Cut out soft, wet, or spongy areas of existing subgrade. Backfill with specified granular fill material and compact to required density.

5. Backfill as early as possible to provide time for natural settlement and compaction to occur.

6. Provide water if needed to maintain optimum moisture content of backfill materials to meet specified compaction density.

Excavation Below Bituminous Paved Areas Subgrade:

1. Deposits of frost-susceptible material, silty soils, water-bearing soil, topsoil containing considerable amounts of vegetable matter, or other unsuitable material shall be removed from the area to receive paved surfaces to such depths below the proposed finish grade shown on the plans or as direction by the A/E. The bottoms of such excavations shall be sloped and graded so that water does not pond in the bottoms of excavated areas.

2. Humus-bearing soils and other excavated materials not suitable for embankment construction shall be disposed of off site in a legal manner.

3. Over excavation of unsuitable material shall be deemed as an extra. See the Bid Form.

4. Backfill required for over-excavation shall be granular fill and deemed as an extra.

TOPSOIL PLACEMENT AS FINISH GRADING

Place topsoil in areas where seeding and/or sodding is required to a thickness of 6” lightly compacted depth.

Place topsoil in relatively dry state, during dry weather.

Finish grade topsoil eliminating rough or low areas while maintaining profiles and contour of subgrade and achieving required 6” compacted depth.

Remove roots, debris, rocks larger than ½” in size, weeds, and foreign material while spreading.

Manually spread topsoil close to trees, fences, buildings, and other objects to prevent damage.

Lightly compact topsoil after placement.

Leave the stockpile area and site clean and ready for seeding, sodding, or other finish treatment.

PROTECTION

Protect existing features remaining as part of final landscaping.

Protect existing and established benchmarks, roads, sidewalks, paving, vegetation, and curbs against damage from equipment and vehicular or foot traffic.

Protect excavation areas by shoring, bracing, sheet piling, underpinning, or other methods as needed to prevent cave-ins or loose dirt from falling into excavations.

Secure adjacent structures prior to the start of excavation which may be damaged by excavation work, including utility lines and pipe chases.

Notify A/E of unforeseen subsurface conditions encountered and discontinue work in the area until A/E provides notification to resume work.

Grade around excavation areas to prevent surface water runoff into excavated areas resulting in pounding.

COMPACTION REQUIREMENTS

Compact all subgrade of proposed bituminous pavement areas to ASTM D1557, 95% Modified Proctor.

Compact all turf areas to ASTM D1557, 85% Modified Proctor.

The CONTRACTOR shall provide equipment capable of adding measured amounts of moisture to the soil material as determined by moisture-density tests. Where the subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply required amount of water to the surface of subgrade, or layer of soil material in such manner as to prevent free water from appearing on the surface during or subsequent to compaction operations. Remove and replace soil material that is too wet to permit compaction to 95% of maximum dry density, as established in accordance with ASTM-D1557.

Place acceptable granular fill material in lifts no greater than 9” loose thickness.

COMPACTION TESTING

Testing of compacted materials will be performed by an independent testing laboratory appointed and paid for by OWNER or CONSTRUCTION MANAGER.

The OWNER will pay for the cost of one series of tests for the area being evaluated. The CONTRACTOR shall pay for any additional testing costs as required due to improper performance of work.

When work for this section or portions of work are completed, notify the testing laboratory to perform density tests. Do not continue with additional portions of work until test results have been verified.

If, during progress of work, tests indicate that compacted backfill materials do not meet specified requirements, remove defective work, replace and retest at no cost to OWNER as directed by the A/E.

Verify that compacted fills have been tested before proceeding with placement of surface materials.

In-field testing shall be in accordance with ASTM D2922-78 “Density of Soil and Soil-Aggregate in Place by Nuclear Method.” This test correlates to D-1556-74 “Density of Soil in Place by the Sand-Cone Method.”

The CONTRACTOR shall notify the testing laboratory and the A/E a minimum of forty-eight (48) hours in advance of the time compaction testing is required.

TOLERANCES

Top Surface of Subgrade: Plus or minus 1/10'.

FIELD QUALITY CONTROL

Testing of granular fill and backfill materials will be performed by an independent testing laboratory appointed and paid for by the OWNER or CONSTRUCTION MANAGER.

The CONTRACTOR will pay for costs of additional testing required due to improperly performed work.

Tests and analysis of fill material shall be performed in accordance with ANSI/ASTM D698 D1557.

Compaction testing shall be performed in accordance with ANSI/ASTM D1556, ANSI/ASTM D1557, ANSI/ASTM D698.

If testing indicates that the work does not meet specified requirements, remove work, replace and retest at no cost to OWNER or CONSTRUCTION MANAGER.

End of Section

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SECTION 31 23 00 - FOUNDATION EXCAVATING AND BACKFILLING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The General and Supplementary Conditions of the Construction Contract and Division 1 - General Requirements apply to the work specified in this section.

B. This section shall include, but is not limited to the following foundation, excavating and backfilling within five feet of the building perimeter.

1. Removal of all unacceptable soil.

2. Furnish and install acceptable fill as specified herein and on the drawings.

3. Prepare subgrade for footings and slab on grade.

C. The following items are not a part of this specification:

1. Utility trenching and related backfilling outside the building footprint.

2. Subgrade for exterior walks and paving.

D. Structural notes indicated on the drawings regarding foundation excavating and backfilling should be considered part of this specification.

1.2 QUALITY ASSURANCE

A. Codes and Standards: Comply with the provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified.

1. AASHTO T99 - Moisture-Density Relations of Soils Using a 5.5 LB Rammer.

2. ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

3. ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbs/ft^3)

4. ASTM D1556 – Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

5. ASTM D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using the Modified Effort. (56,000 ft-lbs/ft^3)

6. ASTM D2167 – Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

7. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

8. ASTM D2940 - Standard Specification for Graded Aggregate Material for Bases and Sub-bases for Highways or Airports.

9. ASTM D4253 - Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

10. ASTM D4254 - Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.

11. ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

12. Geotechnical Engineering Report dated June 15, 2016, by American Engineering Testing, Inc. on file with the Architect.

B. Comply with all applicable local, state and federal codes.

1.3 SUBMITTALS

A. Material Test Reports: Provide the Owner and Architect with the on-site material test reports from the Inspection Agency indicating the interpreting test results for compliance with this specification.

1.4 TESTING AND INSPECTION

A. Inspection and Testing:

1. The Construction Manager or Owner shall employ an Inspection Agency to perform the duties and responsibilities specified below.

2. Refer to architectural, civil, mechanical, and electrical specifications for testing and inspection requirements of non-structural components.

3. Duties of the Inspection Agency:

a. Perform all testing and inspection required per the Testing and Inspection Schedule indicated below.

b. Furnish inspection reports to the building official, the Owner, the Architect, the Engineer of Record, and the General Contractor. The reports shall be completed and furnished within 48 hours of inspected work.

c. Submit a final signed report stating whether the work requiring Inspection was, to the best of the Inspection Agency's knowledge in conformance with the approved plans and specifications.

4. Structural Component Testing and Inspection Schedule for Section 31 23 00 is as follows:

Foundation Preparation	Continuous	Periodic
Verify materials below shallow footings are adequate to achieve the design bearing capacity.		X
Verify excavations are extended to proper depth and have reached proper material.		X
Perform classification and testing of compacted fill materials.		X
Verify use of proper materials, densities, and lift thicknesses during placement and compaction of compacted fill.	X	
Prior to placement of compacted fill, observe subgrade and verify that the site has been properly prepared.		X

B. Minimum testing frequency and locations:

1. Laboratory Testing:

a. Granular fill: One representative gradation test for each type of material.

b. Cohesive soils: One representative moisture density test for each type of material used.

c. Non-cohesive soils: One representative moisture density test for each type of material used.

2. Field Testing:

a. The Inspector shall determine the location of testing.

b. Testing of final utility trench backfill shall begin at a depth of 2 feet above the top of the pipe.

c. In-place field density test and moisture content tests shall be performed as follows:

1) Fills not within the influence of building foundations and slab on grade: Per civil specifications.

2) Fills within the influence of building foundations and slab on grade, the following criteria shall apply: One test for each 8 inch vertical lift of compacted fill placed per 2,500 square feet of fill area (minimum of two tests per lift per structure for areas smaller than 5,000 square feet).

d. Additional testing may be required by the Inspector if noncompliance or a change in conditions occurs.

e. If a test fails, the Contractor shall rework the material, recompact and retest as necessary until specific compaction is achieved in all areas of the trench. All costs associated with this work, including retesting, shall be the responsibility of the Contractor.

1.5 PROTECTION

A. Contractor shall provide for design, permits and installation of all cribbing, bracing, shoring and other methods required to safely retain earth banks and excavations.

B. Notify the Architect immediately and discontinue work in affected area if adjacent existing footings are encountered during excavation. Underpin other adjacent structures that may be damaged by excavation work, including service utilities and pipe chases.

C. Notify the Architect of unexpected subsurface conditions and discontinue work in affected areas until notification to resume.

D. Protect benchmarks, existing structures, fences, sidewalks, paving, curbing, etc., from excavation equipment and vehicular traffic.

E. Maintain and protect above and below grade utilities that are to remain.

F. Provide temporary heating or protective insulating materials to protect subgrades and foundations soils against freezing temperatures or frost during cold weather conditions.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide borrow soil materials when sufficient acceptable soil materials are not available from excavations.

B. Acceptable soils shall comply with the following:

1. Meet ASTM D2487 soil classification groups GW, GP, GM, SW, SP, SM or a combination of these group symbols;

2. Be free of rock or gravel larger than 2 inches in any dimension;

3. Be free of debris, waste, frozen materials, vegetation and other deleterious materials;

4. Have a liquid limit less than 45 and a plasticity index less than 20.

5. Be approved by the Inspection Agency.

C. Unacceptable soils shall be defined as following:

1. ASTM D2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, PT or a combination of these group symbols.

2. Unacceptable soils also to include acceptable soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Free-Draining Granular Fill: Free-draining granular fill shall comply with the following:

1. Be a naturally or artificially graded mixture of natural or crushed gravel, crushed stone.

2. Be clean and free of fines.

3. Comply with ASTM D2940.

4. Be uniformly graded as follows:

COARSE AGGREGATE GRADATIONS						
SIEVE SIZE - PERCENT PASSING						
Grade No.	1-1/2"	1"	3/4"	1/2"	3/8"	No. 4
CA7	100	95 ± 5	-	45 ± 15	-	5 max

5. Be approved by the Inspection Agency.

E. Engineered Fill and Utility Base Course shall comply with the following:

1. Be a naturally or artificially graded mixture of natural or crushed gravel, crushed stone, natural or crushed sand;

2. Comply with ASTM D2940;

3. Be uniformly graded as follows:

COARSE AGGREGATE GRADATIONS						
SIEVE SIZE - PERCENT PASSING						
Grade No.	1-1/2"	1"	1/2”	No. 4	No. 16	No. 200
CA6	100 to 90	95 ± 5	75 ± 15	43 ± 13	25 ± 15	8 ± 4

4. Be approved by the Inspection Agency.

F. Material Applications: Provide and install material meeting with the above requirements as follows:

1. General fill: Acceptable soils.

2. Backfill elevator pit walls: Free-draining granular fill.

3. Backfill at over-excavated areas beneath footings: Engineered fill.

4. Sub-grade layer beneath slabs-on-grade: Refer to Drawings.

PART 3 - EXECUTION

3.1 PREPARATION

A. Identify and verify required lines, levels, contours and benchmark elevations for the work are as indicated.

B. Protect plant life, lawns, other features and vegetation to remain as a portion of the final landscaping.

C. Groundwater is expected during excavation. Contractor shall provide for de-watering of excavations from surface water, ground water or seepage.

D. Identify known underground utility locations with stakes and flags.

3.2 EXCAVATION

A. All excavations shall be safely and properly backfilled.

B. All abandoned footings, utilities and other structures that interfere with new construction shall be removed.

C. All unacceptable material and organic material shall be removed from below all proposed slabs-on-grade and the exposed natural soil shall be proof rolled and the compaction verified by the soils testing firm prior to placing fill. Proof-roll with a loaded tandem dump truck, loaded ready-mix truck, roller, or equivalent weight vehicle. Materials exhibiting weakness, such as those exhibiting rutting or pumping, shall be removed and replaced with acceptable compacted fill material.

D. Do not excavate within the 45-degree bearing splay of any adjacent foundations.

E. Outside 45-degree bearing splay of foundations, correct areas over excavated with aggregate at no additional cost to the Owner.

F. Within the 45-degree bearing splay of foundations, correct areas over excavated with 2000 psi concrete fill at no additional cost to the Owner. Notify the Architect prior to performing such work.

G. Hand trim final excavation to remove all loose material.

H. Contractor shall form all dams and perform other work necessary for keeping the excavation clear of water during the progress of the work and, at his own expense, shall pump or otherwise remove all surface and perched water which accumulates in the excavations. Perched water that cannot be de-watered in 48 hours of continuous pumping at a minimum rate of 60 gpm in dry weather shall be considered ground water.

I. Stockpile excavated material in the area designated and remove excess material not being used, from the site.

3.3 BACKFILLING

A. Verify foundation perimeter drainage system is complete and has been inspected prior to backfilling against foundation walls.

B. Support pipe and conduit during placement and compaction of bedding fill.

C. Systematically backfill to allow necessary time for natural settlement. Do not backfill over porous, wet, spongy or frozen subgrade surfaces.

D. Backfill areas to contours and elevations with unfrozen materials.

E. Unless noted otherwise on the Drawings, make grade changes gradual.

F. Unless noted otherwise on the Drawings, slope grade away from the building a minimum of 2 inches in 10 feet.

G. Contractor shall procure the approval of the subgrade from the Inspection Agency prior to the start of any filling or bedding operations.

H. Place a minimum width of 24 inches of free-draining granular fill (CA-7) against elevator pit walls for the full height of the wall.

I. Do not begin any backfill operations against any concrete walls until the concrete has achieved its specified strength.

J. Place and mechanically compact granular fill in continuous layers not to exceed 8 inches compacted depth when using large equipment based compactors and 4 inches when using hand compactors.

K. Employ a placement method that does not disturb or damage adjacent utilities, vapor barriers, foundation perimeter drainage and foundation waterproofing.

L. All surplus fill materials are to be removed from the site.

M. Fill material stockpiles shall be free of unacceptable soil materials.

N. After work is complete, remove all excess stockpile material and repair stockpile area to its original condition.

3.4 COMPACTION

A. Compact all fill that will support building footings or floor slabs to 95 percent of the maximum dry density in accordance with ASTM D1557. For relative cohesionless fill

materials, where the percent passing the #200 sieve is less than 10 and the moisture density curve indicates only slight sensitivity to changing moisture content, compaction requirements should be changed to 75 percent relative density in accordance with ASTM D4253 and ASTM D4254.

B. Compact all fills that support paving and landscape per civil specifications.

3.5 FOUNDATIONS

A. Each footing excavation should be cleared of all obstructions and other organic or deleterious materials.

B. Localized areas of unstable or unacceptable material may be discovered during the stripping and excavation operation and may require over-excavation and backfilling. The Inspection Agency shall be present during the proof rolling to evaluate any localized areas and make recommendations regarding over-excavation, backfilling and recompaction of these areas. Fill placement and compaction shall be inspected and tested by the Inspection Agency.

C. Footing elevations shown on the Drawings designate a minimum depth of footing where a safe soil bearing pressure is expected. Footings, piers and/or walls shall be lowered or extended as required to reach soil meeting the design bearing pressure. This work shall be performed under direct supervision of the Inspection Agency.

D. All footing excavations shall be recompacted by hand-operated, vibratory compaction equipment.

E. All excavation and recompacted surfaces shall be inspected and tested to a depth of 2.0 feet below the excavated elevation by the Inspection Agency. Additional field density tests should be performed for each one foot of fill material placed. Any areas not in compliance with the compaction requirements should be corrected and re-tested prior to placement of fill material.

3.6 SLAB-ON-GRADE

A. All disturbed areas after the clearing and stripping operation should be proof-rolled and recompacted with a heavy vibratory drum roller (approved by the Inspection Agency) in the static mode. The compactor should make a minimum of 10 passes, with a minimum of one foot overlap of each pass. The compactor speed should be less than 0.2 MPH.

B. The Inspection Agency shall monitor proof-rolling and compaction operations. This area should then be tested for compaction to a depth of 2.0 feet below the compacted surface prior to the placement of any structural fill material.

C. Refer to Drawings for required sub-grade preparation beneath slabs-on-grade.

3.7 UTILITY TRENCH BACKFILL (AT SLAB ON GRADE LOCATIONS)

A. Excavate and backfill utility trenches under wall footings as shown on the Drawings

B. Place utility base course on subgrades free of mud, frost, snow, or ice.

C. Place and compact utility base course on trench bottoms and where indicated.

D. Lay underground utilities on 6” sand bedding, which meets the acceptable criteria of Section 2.1,B.

E. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

F. After connection joints are made, any misalignment can be corrected by tamping the sand around the utilities.

G. Place and compact initial backfill of acceptable sand to a height of 6 inches over the utility pipe or conduit in 6 inches layer meeting specified compaction requirements.

H. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit.

I. Place and compact final backfill using acceptable soil to final subgrade elevation meeting specified compaction requirements.

J. Backfill voids with acceptable soil while installing and removing shoring and bracing.

K. Inspection Agency shall monitor and test compacted backfill to verify final compaction meets the specified requirement.

3.8 TOLERANCES

A. Top surface of backfilling under paved areas: Plus or minus ½ inch from required elevation.

B. Top surface of general backfilling: Plus or minus 1 inch from required elevation.

END OF SECTION

SECTION 31 25 00 - EROSION CONTROL

PART ONE - GENERAL

SECTION INCLUDES

The CONTRACTOR shall provide all materials, labor, equipment and services necessary for the completion of the work specified in this section.

Placement and removal of silt fence.

Installation of sediment tracking construction entrance.

Placement, cleaning, and removal of inlet protection.

Temporary Seeding

RELATED SECTIONS

Section 01 57 13 – Temporary Erosion and Sediment Control
Section 31 10 00 – Site Clearing
Section 31 20 00 – Earthmoving
Section 33 41 00 – Storm Utility Drainage Piping

REFERENCES

State of Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, Current Edition.

Wisconsin Department of Natural Resources Storm Water Construction and Post-Construction Technical Standards.

State of Wisconsin Department of Transportation, Erosion Control Product Acceptability List for Mulit-Modal Applications (PAL), Current Edition

REQUIREMENTS

CONTRACTOR shall provide and secure all erosion control permits from all governing authorities not previously obtained by the OWNER.

The OWNER shall obtain the WDNRWPDES Notice of Intent: The CONTRACTOR shall abide by the requirements set in the Notice of Intent (NOI). A copy may be acquired from the ARCHITECT.

Erosion control measures shall be installed as indicated on the project construction documents and abiding with requirements of the Wisconsin Storm Water Construction and Post-Construction Technical Standards.

Including but not limited to the WDNR/WPDES Notice of Intent (N.O.I.).

PART TWO - PRODUCTS

SILT FENCE

Silt Fence shall meet the requirements in Standard 1056 in the Wisconsin Storm Water Construction and Post-Construction Technical Standards.

Silt Fence shall have Wisconsin Department of Transportation PAL Type FF, geotextile fabric.

SEDIMENT TRACKING CONSTRUCTION ENTRANCE

Sediment tracking construction entrance shall meet the requirements in Standard 1057 in the Wisconsin Storm Water Construction and Post-Construction Technical Standards.

INLET PROTECTION

Inlet Protection shall meet the requirements in Standard 1060 in the Wisconsin Storm Water Construction and Post-Construction Technical Standards.

Inlet Protection shall have Wisconsin Department of Transportation PAL Type FF, geotextile fabric.

TEMPORARY SEEDING

Seeding shall meet the requirements in Section 630.2.1.5.1.2 Temporary, in the State of Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, Latest Edition.

PART THREE - EXECUTION

INSTALLATION OF SILT FENCE

Install silt fence in accordance with Standard 1056 in the Wisconsin Storm Water Construction and Post-Construction Technical Standards.

SEDIMENT TRACKING CONSTRUCTION ENTRANCE

Install sediment tracking construction entrance in accordance with Standard 1057 in the Wisconsin Storm Water Construction and Post-Construction Technical Standards.

INLET PROTECTION

Install inlet protection in accordance with Standard 1060 in the Wisconsin Storm Water Construction and Post-Construction Technical Standards.

TEMPORARY SEEDING

Apply seed at a rate of 3 lbs. per 1,000 sq. ft. evenly in two (2) intersecting directions.

Planting Season: Starting May 1 through October 1.

Do not sow immediately following rain, when ground is too dry, or during windy periods.

Drag seeded area with lightweight drag to cover seed and level soil.

Immediately following seeding, apply mulch to a thickness of 1" to 1-1/2". Maintain clear of shrubs and trees. Crimping of mulch shall be performed in two (2) directions after placement of mulch.

Apply water with a fine spray immediately after each area has been mulched. Saturate to 4" of soil.

NOTICE OF INTENT

The PROJECT CIVIL ENGINEER, on behalf of the OWNER, has submitted to the Wisconsin Department of Natural Resources, the Notice of Intent (NOI). It is the responsibility of the CONTRACTOR to perform all work in accordance with the NOI application. A copy may be obtained from the A/E upon request.

ONGOING INSPECTIONS

Inspect and document all inspections of erosion control elements for the required NOI documentation (see attached)

NOTICE OF TERMINATION

Upon the completion of the project, complete the Notice of Termination (NOT) form 3400-162, and submit as required to the Wisconsin Department of Natural Resources.

End of Section

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SECTION 31 66 13 - SHORT AGGREGATE PIER FOUNDATION SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. The General and Supplementary Conditions of the Construction Contract and Division 1 - General Requirements apply to the Work specified in this section.

B. This Section includes the excavation and construction of short aggregate piers as shown on the Drawings and specified herein.

1. Short aggregate piers shall be defined as columnar-type foundation piers constructed by compacting aggregate with special high-energy impact densification equipment into an excavated shaft to produce an intermediate foundation system for support of foundation loads. The term “pier” shall be used in this section to refer to short aggregate piers.

2. Aggregate piers referenced in this specification refer to both rammed piers and vibro stone columns.

C. Furnish and install all aggregate, reinforcing steel and other accessories as shown on the drawings and herein specified.

D. Structural notes indicated on the drawings regarding short aggregate pier foundation systems shall be considered a part of this specification.

1.2 REFERENCE STANDARDS

A. Design:

1. “Control of Settlement and Uplift of Structures Using Short Aggregate Piers,” by Evert C. Lawton (Assoc. Prof., Dept. of Civil Eng., Univ. of Utah), Nathaniel S. Fox (President, Geopier Foundation Co., Inc.), and Richard L. Handy (Distinguished Prof. Emeritus, Iowa State Univ., Dept. of Civil Eng.), reprinted from IN-SITU DEEP SOIL IMPROVEMENT, Proceedings of sessions sponsored by the Geotechnical Engineering Division/ASCE in conjunction with the ASCE National Convention held October 9-13, 1994, Atlanta, Georgia.

2. “Settlement of Structures Supported on Marginal or Inadequate Soils Stiffened with Short Aggregate Piers,” by Evert C. Lawton and Nathaniel S. Fox. Geotechnical Special Publication No. 40: Vertical and Horizontal Deformations of Foundations and Embankments, ASCE, 2, 962-974.

1.3 DESIGN REQUIREMENTS

A. The design submitted by the Aggregate Pier Installer shall consider the bearing capacity and settlement of all footings supported by the aggregate piers, and shall be in accordance with acceptable Engineering practice and these specifications. Total and differential settlement shall be considered. The design life of the structure shall be 50 years, unless specified by the Owner.

B. Aggregate Pier Design:

1. Aggregate piers shall be designed in accordance with generally accepted Engineering practices and the method described in “Control of Settlement and

Uplift of Structures Using Short Aggregate Piers." The design shall also meet the following criteria:

a. Minimum Allowable Bearing Pressure: 3,000 psf for Aggregate Pier Improved Soil.

b. Minimum Aggregate Pier Area Coverage (Spread Footings): 30%.

c. Maximum Total Long-Term Settlement for Footings: $\leq$ 1 inch.

d. Maximum Long-Term Differential Settlement: $\leq$ 0.5 inches for Adjacent Footing.

C. Capacity and Size of the Aggregate Piers:

1. The size and spacing of the aggregate piers are described on the foundation drawings. The Installer shall be responsible for delivering a system that will support the structure, while controlling settlement in accordance with these specifications. The Engineer shall approve any modifications in size and spacing of the aggregate piers, unless such modifications result in more conservative design, in which case the Installer may approve them.

D. Design Submittal:

1. The Aggregate Pier Installer shall submit 4 sets of detailed design calculations, construction drawings, and shop drawings for approval at least 2 weeks prior to the beginning of construction. A detailed explanation of the design properties for settlement calculations shall be submitted with the design. Additionally, the quality control test program for the aggregate piers, meeting these design requirements, shall be submitted. All computer-generated calculations and drawings shall be prepared and sealed by a Professional Engineer, licensed in the State or Province where the piers are to be built.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Comply with the provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified.

1. Modulus Load Testing:

a. ASTM D1143 – Pile Load Test Procedures
b. ASTM D3689 – Axial Tensile Load Test on Piles

2. Materials and Inspection:

a. ASTM D1241 – Aggregate Quality
b. ASTM STP-399 – Dynamic Penotrometer Testing
c. ASTM D422 – Gradation of Soils

B. Where any other pertinent code or specification conflicts with this specification, the more stringent will govern.

C. All piers shall be installed by a Contractor specializing in the installation of short aggregate piers, and who shall have a minimum 5 years of documented experience in the field of aggregate pier construction.

D. Pier Contractor shall keep a record or log of each pier as installed. Records shall show location, top and bottom elevations, shaft and bulb diameters, date pier is filled, type of strata encountered, and any other pertinent information. A copy of this record shall be submitted to the Architect and Structural Engineer for their record files.

E. Contractor shall schedule and provide time and means for the Inspection Agency to inspect, take samples and make tests.

1.5 TESTING AND INSPECTION

A. Inspection and Testing:

1. The Construction Manager or Owner shall employ an Inspection Agency to perform the duties and responsibilities specified below.

2. Refer to architectural, civil, mechanical, and electrical specifications for testing and inspection requirements of non-structural components.

3. Work performed on the premises of a fabricator approved by the building official need not be tested and inspected per the table below. The fabricator shall submit a certificate of compliance that the work has been performed in accordance with the approved plans and specification to the building official and the Architect and Engineer of Record.

4. Duties of the Inspection Agency:

   a. Perform all testing and inspection required per approved testing and inspection program.

   b. Furnish inspection reports to the building official, the Owner, the Architect, the Engineer of Record, and the General Contractor. The reports shall be completed and furnished within 48 hours of inspected work.

   c. Submit a final signed report stating whether the work requiring Inspection was, to the best of the Inspection Agency's knowledge in conformance with the approved plans and specifications.

5. Structural Component Testing and Inspection Schedule for Section 31 66 13 is as follows:

Short Aggregate Pier Foundation System	Continuous	Periodic
Verify element materials, sizes, and lengths comply with the requirements.	X	
Determine capacities of test elements and conduct additional load tests, as required.	X	
Observe driving operations and maintain complete and accurate records for each element.	X	
Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per lift and document any soil that fell into the aggregate pier.	X	

1.6 UNIT PRICES

A. Unit prices shall be issued to the Architect prior to construction as part of the submittal package.

B. Aggregate Pier Size Length and Quantity: The Aggregate Pier Contractor shall determine the exact size, length and quantity of piers for this project as part of their design services. Piers shown on the drawings are a schematic representation of what is anticipated for the final design and is used for coordination purposes only.

1. Field adjustments to the pier length may be required due to the actual elevation of the bearing stratum verified by the Inspection Agency and Pier Contractor.

C. Adjustments in the Contract Price will be made due to changes in the number and length of piers, based on unit prices established in this Agreement as follows:

1. Payment for piers will be made on final length of piers in place and accepted. Actual length and pier diameter may change due to job conditions. Adjusted payment will be made on the basis of net variations to the total quantities, based on design dimensions.

2. Provide the following unit costs in the event that additions to, or deductions from, work are required and authorized in writing by Architect/Engineer:

a. Additional length of aggregate pier ($/per lineal feet)

b. Subtracted length of aggregate pier ($/per lineal feet)

1.7 SUBMITTALS

A. The Aggregate Pier Installer shall submit detailed design calculations and construction drawings to the Owner or Owner's Engineer for approval at least 1 week prior to the start of construction. A Professional Engineer licensed in the State where the project is located shall seal all plans and calculations prepared under their supervision.

B. The Aggregate Pier Installer shall submit a notarized manufacturer's certification prior to the start of work, stating that the aggregate and other materials used meet the requirements of this specification.

C. Daily Aggregate Pier Progress Reports – The Testing Agency shall furnish a complete and accurate record of aggregate pier installation to the General Contractor. The record shall indicate the pier location, length, average lift thickness, and final elevations of the base and top of pier. The record shall also indicate the type and size of the densification equipment used. The Aggregate Pier Installer shall immediately report any unusual conditions encountered during the installation to the General Contractor, to the aggregate pier designer, and to the Testing Agency.

D. Post Construction:

1. The Inspector shall prepare and submit the daily aggregate pier progress report as described earlier to the Architect and one file copy to the Structural Engineer of Record.

2. The Pier Contractor shall prepare and submit their record or log of the pier installation as described earlier to the Architect and one file copy to the Structural Engineer of Record.

3. Prepare and submit results of all tests and inspections.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Aggregate shall be Type 1 Grade B in accordance with ASTM D1241

1. Aggregate to be compacted to a densification and strength, which provides resistance to the dynamic penetration test (ASTM STP-399) of a minimum average of 15 blows per 1.75-inch vertical movement.

2. The number of tests performed during a workday by the testing agency shall depend on the consistency of achieving the minimum penetration resistance. Penetration test need not be performed on every pier if average penetration resistances measured exceed 15 blows, and less than 10% of tests fall below 15 blows, then testing may be reduced to spot checks.

3. Observation of questionable aggregate moisture content or questionable aggregate gradation appearance may determine the need for additional dynamic penetration testing to verify that proper densification and strength are being achieved.

B. Aggregate for piers below the water table shall be the same as Type 1 Grade B except that particles passing through the No. 40 sieve shall be eliminated. Pier installer may submit for approval an alternate stone gradation for this type of installation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Construction Manager and Pier Contractor shall examine all Drawings pertaining to this work and shall visit the work site before completing their bids. Verify that site conditions will support equipment required to install piers.

3.2 PREPARATION

A. Contractor shall conduct all excavating, filling and grading necessary to leave site ready to receive pier work.

B. Situate equipment as to not cause damage to adjacent structures. Contractor to protect adjacent structures from damage if required.

C. Pier Contractor shall be responsible for all shoring, cribbing and planning necessary or required for supporting and manipulating their equipment.

D. Where unstable or unsuitable soils are located, equipment supports shall be keep at least 10 feet away from the pier location to prevent compression or shearing of soil at the top of the pier wall or provide temporary steel casings of adequate strength to protect the excavation from collapse.

E. Pier Contractor shall examine the soil boring logs of geotechnical report prior to design and bidding.

F. In the event that the Pier Contractor hits obstructions, which cannot be removed with standard soil drilling tools, the Contractor shall seek approval from the Architect to remove the obstruction on a unit price basis. An obstruction shall be defined as any object (boulder, rock, concrete, etc), which prevents the pier construction with standard soil drilling equipment. Inspector shall determine if objects encountered are classified as obstructions.

3.3 FIELD MEASUREMENT

A. Contractor shall field locate each pier relative to the building lines and column centerlines.

3.4 INSTALLATION – STONE COLUMNS

A. Install stone columns with a down-hole vibrator capable of densifying the aggregate by forcing it radially into the surrounding soil. The vibrator shall be of sufficient size and capacity to construct stone columns to the diameters and lengths shown on the installer's approved construction drawings.

B. The probe and follower tubes shall be of sufficient length to reach the elevations shown on the installer's approved construction drawings. The probe, used in combination with the available pressure to the tip jet, shall be capable of penetration to the required tip elevation. Pre-boring shall be permitted if it is specified in the installer's approved construction procedure submittal.

C. The probe and follower shall have visible markings at regular increments to enable measurement of penetration and repenetration depths.

D. Provide methods for supplying to the tip of the probe a sufficient quality of air or water to widen the probe hole to allow adequate space for stone backfill placement around the probe.

E. The probe shall penetrate into the foundation soil layer to the minimum depths required in the installer's construction plans.

F. Lift thickness shall not exceed 4 feet. After penetration to the treatment depth, slowly retrieve the vibrator in 12-inch to 18-inch increments to allow backfill placement.

G. Compact the backfill in each lift by repenetrating it at least twice with the vibrating probe to densify and force the stone into the surrounding soil.

H. Install stone columns so that each completed column is continuous throughout its length.

3.5 INSTALLATION – RAMMED PIERS

A. The piers shall be accurately centered at the proper location and installed plumb.

B. All rammed aggregate pier elements shall be pre-augered using mechanical drilling or excavation equipment. Installation of piers without pre-augering shall not be allowed, because this technique results in significant disturbance and remolding of the matrix soils surrounding the piers.

C. Bottom Stabilization Verification Test – After completion of the bottom pier bulb, or at any time during the process of constructing the pier, the energy source may be turned off, and a bottom stabilization verification test may be performed. These tests shall be performed when a new soil formation is encountered, or at the beginning of a project to provide quantitative information on pier stabilization. A reference bar is placed over the cavity, and a mark is made on the tamper shaft that has been placed on top of the compacted aggregate. The energy to the tamper is restarted. If the measured vertical movement exceeds 150% of the value achieved during the load test, added energy is applied to densify the bulb. The procedure for measuring is then repeated. If there is still movement greater than 150% of that achieved during the load test greater than ½ inch, a lift of loose aggregate may be placed on top of the compacted aggregate, and the verification test may be performed on this next lift after it is densified. Movement must be limited to 150% of the values achieved for the load test before completion of 2/3 of the pier depth unless unusually powerful modified hydraulic hammers are being used with tamper heads smaller than 26 inches in diameter.

D. Debris shall be removed from the bottom the shaft by mechanical methods and not by the trade contractor's personnel. At no time shall any field personnel access the pier excavation.

E. If cave-ins occur during excavation such that the sidewalls of the hole are deemed to be unstable, steel casing or a drilling slurry shall be used to stabilize the excavation.

F. If cave-ins occur on top of a lift of aggregate such that the volume of the caved soils is greater than 10 percent of the volume of the aggregate in the lift, then the aggregate shall be considered contaminated and shall be removed and replaced with uncontaminated aggregate.

G. Special high-energy impact densification apparatus shall be employed to densify the aggregate pier elements during installation. The apparatus shall apply direct downward impact energy to each lift of aggregate.

H. A minimum tamper energy level of 250,000 foot-pounds of force per minute shall be applied by the energy source.

I. Remove and dispose of excavated material as directed in Division 31 of this specification.

J. Excavations shall not be left open overnight.

K. Remove any water from shaft prior to aggregate placement.

L. Place aggregate in 1-foot lifts and compact with 45 degree beveled tampered head.

M. Each lift of aggregate shall be tamped for a minimum of 15 seconds.

3.6 TOLERANCES

A. The maximum variation in top elevation of the center of any pier shall be plus 1 inch and minus 3 inches at the cut off elevation.

B. The center of each pier shall be within six inches of the plan locations indicated.

C. The final measurement for the top of aggregate piers shall be the lowest point on the aggregate in the last compacted fill.

D. Piers installed outside the above tolerances and deemed not acceptable shall be rebuilt at no additional expense to the Owner.

3.7 FOOTING BASE PREPARATION

A. All excavations for footing bottoms supported by aggregate pier foundations shall be prepared in the following manner by the Concrete Foundation Contractor:

1. Over excavation below the bottom footing elevation shall be limited to 3 inches. This includes limiting the teeth from excavators from over excavation beyond 3 inches below the footing elevation.

2. Compaction of surface soil and top of aggregate piers shall be prepared using a standard, hand-operated impact compactor. Compaction shall be performed over the entire footing bottom to compact any loose surface soil and loose surface pier aggregate.

3. Footing excavations shall be inspected by the Inspector before placing concrete. Refer to Section 31 23 00 for compaction requirements.

4. Excavation and surface compaction of all footings shall be the responsibility of the Concrete Foundation Contractor.

END OF SECTION

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DIVISION 32

SECTION 32 11 23 - DENSE GRADED BASE

PART ONE - GENERAL

WORK INCLUDED

The CONTRACTOR shall provide all materials, labor, equipment and services necessary for the completion of the work specified in this section.

Furnish, place and compact dense graded base course for pavement areas as indicated on construction documents.

REFERENCES

State of Wisconsin Department of Transportation, Division of Highways Standard Specifications for Highway and Structure Construction, Current Edition

PART TWO - PRODUCTS

DENSE GRADED BASE COURSE

Dense graded base course shall meet Section 305, D.O.T. 1-1/4" Gradation Dense Graded Base Course of Standard Specifications for Highway and Structure Construction.

PART THREE - EXECUTION

GENERAL

Place material meeting requirements of Section 305 of Standard Specifications for Highway and Structure Construction, Current Edition, State of Wisconsin Department of Transportation, Division of Highways.

Compact base course to at least 95% of the maximum Modified Proctor dry density (ASTM D1557).

Remove surplus material from site and dispose of in a legal manner.

Contractor is responsible for maintaining base course in a suitable condition for paving.

FIELD QUALITY CONTROL

Testing of aggregate base will be performed by an independent testing laboratory appointed and paid for by the Owner. The Contractor will pay for costs of additional testing required due to improperly performed work. All test reports shall be provided to Construction Manager and Owner.

If testing indicates the work does not meet specified requirements, remove work, replace aggregate, and retest at no cost to Owner.

Field Tests and Inspections:

1. Miscellaneous Exterior Concrete Areas:

    A. Testing Agency shall provide testing and inspection for exterior aggregate base.

B. Number of tests may vary at discretion of Architect.

C. Testing Agency shall test compaction of base in place according to ASTM D1556, ASTM D2167, and ASTM D6938, as applicable. Tests shall be performed at following frequency:

a) Sitework Areas: One test for every 10,000 sq. ft. or less of exterior pads area but no fewer than three tests.

2. Asphalt Paving Area:

A. Testing Agency shall provide testing and inspection for exterior aggregate base.

B. Number of tests may vary at discretion of Architect.

C. Testing Agency shall test compaction of base in place according to ASTM D1556, ASTM D2167, and ASTM D6938, as applicable. Tests shall be performed at following frequency:

a) Sitework Areas: One test for every 10,000 sq. ft. or less of exterior pads area but no fewer than three tests.

End of Section

SECTION 32 12 16 - ASPHALT PAVING

PART ONE – GENERAL

WORK INCLUDED

The CONTRACTOR shall provide all materials, labor, equipment and services necessary for the completion of the work specified in this section.

Finish grading of dense graded base.

Proof Rolling of dense graded base.

Asphaltic concrete pavement for all proposed paved areas indicated on drawings.

REFERENCES

State of Wisconsin Department of Transportation, Current Edition, Standard Specifications for Highway and Structure Construction.

QUALITY ASSURANCES

Job Mix:

1. Prior to starting work, the CONTRACTOR shall submit to the ARCHITECT a Job Mix Formula which has been prepared by a credible and independent testing laboratory. The CONTRACTOR, if required, shall submit separate job mixes for the surface and binder courses. The formula shall be based on testing of the material actually intended for use on the project. The report shall be based on the Marshall Stability Method of Mix Design (ASTM D1559) and shall indicate the proposed mix meets the requirements for an E-1 AND E-3 mix as defined in Section 460.2 of the Standard Specifications for Highway and Structure Construction.

2. No work shall start until receipt of project A/E'S approval of the formula.

3. The project CONSTRUCTION MANAGER will inspect the paving operation, monitoring construction methods, gradation, temperature and finished density. Paving mix shall be monitored for proper gradation to ensure stability, flow and air voids is produced, and is maintained. It shall be the responsibility of the CONTRACTOR to insure that the mix meets the specified and submitted formula.

4. All construction procedures and materials noted by CONSTRUCTION MANAGER not in accordance with this specification shall be discontinued or made to conform.

PART TWO - PRODUCTS

ASPHALT PAVEMENT

Asphaltic pavement shall meet the requirements of HMA Pavement Type E-1 AND E-3 in Section 460.2 of the Standard Specifications for Highway and Structure Construction.

Asphaltic pavement base course aggregate gradation shall conform to the 19.0 mm and 12.5 mm aggregate gradation master range in Table 460-1 of the Standard Specifications for Highway and Structure Construction.

Asphaltic pavement wear course aggregate gradation shall conform to the 9.5 mm and 12.5 mm aggregate gradation master range in Table 460-1 of the Standard Specifications for Highway and Structure Construction.

Asphaltic binder grade shall be PG 58-28.

The project ARCHITECT reserves the right to alter the grade of asphalt at the time of construction other than that specified in the contract, based on existing conditions.

PART THREE - EXECUTION

PREPARATION OF DENSE GRADED BASE

Finish grade dense graded base.

Proof roll dense graded base with fully-loaded tandem-axle dump truck in front of geotechnical engineer or experienced soils technician, just prior to paving operations. Areas of poor performance shall have soft soils removed and corrected.

Dense graded base shall be finish graded smooth and trimmed. It shall not vary more than 1/4" in any direction within 10' from required line, grade and level. It is the CONTRACTOR'S responsibility to maintain it in this condition until placement of asphaltic concrete.

Base course shall be watered and rolled immediately prior to placement of asphaltic concrete.

INSTALLATION OF ASPHALTIC CONCRETE PAVEMENT

Asphaltic concrete paving shall conform to Section 460.3 Standard Specifications for Highway and Structure Construction, Current Edition, unless specifically mentioned otherwise.

TOLERANCES

Finish grade shall not vary from required line, grade and level in 10' measured in any direction by the following:

1. Base Course: 1/4"

2. Drives and parking areas: 1/8"

FIELD QUALITY CONTROL

Testing of asphalt paving will be performed by an independent testing laboratory appointed and paid for by the Owner. The Contractor will pay for costs of additional testing required due to improperly performed work. All test reports shall be provided to Architect and Owner.

Independent testing agency shall provide nuclear density testing in accordance with ASTM D2950/D2950M-10 during asphalt paving operations.

Provide written nuclear density testing of asphalt paving at a minimum rate of one test per 10,000 sq. ft. (minimum of 3 tests required). Select test locations by ASTM D3665 and sample per ASTM D979.

If testing indicates the work does not meet specified requirements, remove and replace non-conforming asphalt at no additional cost to Owner.

PROTECTION

Tack Coat:

1. Protect all surfaces exposed to public view from being spattered or marred. Remove any spattering, over-coating, or marring at no additional cost to Owner.

2. Do not permit traffic to travel over tacked surface until tack coat has cured and dried.

Asphalt Paving:

1. Protect hot mixed asphalt (HMA) pavement from traffic until mixture has cooled enough not to become marked.

End of section

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SECTION 32 13 13 - PORTLAND CEMENT CONCRETE PAVING

PART ONE - GENERAL

WORK INCLUDED

Exterior concrete for:

1. Paving/Slabs
2. Concrete sidewalks
3. Driveway Aprons

{ TC \l 6 " Concrete sidewalks " **}**

4. Curbs and gutters

{ TC \l 6 " Curbs and gutters " **}**

5. Ramps

Reinforcement.

Surface finish.

Curing.

RELATED WORK

Section 32 11 23 – Dense Graded Base.

QUALITY ASSURANCE

Perform work in accordance with ACI 301.

Obtain materials from same source throughout.

Regulatory Requirements:

1. Construct ramps and curb ramps in accordance with Americans with Disabilities Act.

SUBMITTALS

Proposed Mix Design for review prior to commencement of work.

Product Data: Manufacturer's specifications and installation instructions for Detectable Warnings for Curb Ramps.

TESTS

Testing shall be in accordance with requirements specified in Division 03. **{** TC \l 6 "Concrete materials specified in Division 03 Sections" **}**

Submit proposed mix design for review prior to commencement of work.**{** TC \l 6 "Concrete materials specified in Section 32 13 13." **}**

Test Reports: Reports in accordance with requirements specified in Article 0, Field Quality Control.

PART TWO - PRODUCTS

CONCRETE MATERIALS

Portland Cement: Type I conforming to ASTM C 150, "Standard Specification for Portland Cement".

Normal Weight Aggregates: Conforming to ASTM C 33 "Standard Specification for Concrete Aggregate." Aggregates not complying with this standard may be used providing it can be shown by special test or a record of past performance that these aggregates produce concrete of adequate strength and durability.

Fine aggregate: clean, natural sand, free from loam, clay lumps or deleterious substances. Fineness modulus of sand shall have a minimum value of 2.3 and a maximum value of 3.0.

Coarse Aggregate:

1. Crushed and graded limestone containing no clay, mud, loam or foreign matter.

2. Limit to 1% of the coarse aggregate by weight the amount of chert with a specific gravity less than 2.40 in exposed concrete.

3. Coarse aggregate shall be nominal maximum sizes of 3/4", conforming to ASTM C33, Table 2.

Water: Shall be clean and free from deleterious materials.

Curing Compounds: Conforming to ASTM C-309, Type 1, Class A, clear or translucent without fugitive dye; Wax or saponifiable resin types are not approved.

1. Curing compounds shall exceed the moisture retention requirements of ASTM C309, when tested in accordance with ASTM C156 at the maximum coverage rate recommended by the manufacturer.

2. Approved Products:

a. "Masterseal" by Master Builders

b. "1100 Clear" by W.R. Meadows

c. "Tri-Kote 26" by T. K. Products

REINFORCEMENT

Welded Steel Wire Fabric: ASTM A185 plain type; in flat sheets; uncoated finish.

CONCRETE MIX DESIGN

Provide concrete mix with the following properties:

1. Compressive Strength: 4,000 psi at 28 days

2. Slump: 2" to 4"

3. Maximum water to cementitious material (cement plus fly ash) ratio: 0.45.

4. Minimum cement plus fly ash content: 520 lbs. per cubic yard

5. Total air content required (air-entrained and entrapped air): 6%.

ACCESSORIES

Preformed Joint Filler: ASTM D1751, asphalt impregnated fiber board. Provide filler throughout the slab depth and of 1/2" thickness.

Detectable Warnings for Curb Ramps: Mat with truncated domes complying with Americans With Disabilities Act; provide fasteners and adhesives as recommended by mat manufacturer.

1. Recycled Tire Core: Nylon and Rayon fibers mixed into rubber composite.

2. Slip resistant surface.

3. Perimeter beveled-edge.

4. Provide fasteners, sealers, and adhesives as recommended by mat manufacturer:

PART THREE - EXECUTION

GENERAL

Place material meeting requirements of Section 305 of Standard Specifications for Highway and Structure Construction, Current Edition, State of Wisconsin Department of Transportation, Division of Highways.

Compact material meeting Special Compaction Requirements of Section 305 of Standard Specifications for Highway and Structure Construction, Current Edition, State of Wisconsin Department of Transportation, Division of Highways.

Remove surplus material from site and dispose of in a legal manner.

INSPECTION

Verify compacted granular base is ready to support paving and imposed loads.

Verify gradients and elevations of base are correct.

Beginning of installation means acceptance of existing conditions.

PREPARATION

Moisten base to minimize absorption of water from fresh concrete.

Notify Construction Manager a minimum 24 hours prior to commencement of concreting operations.

FORMING

Place and secure forms to correct location, dimension, and profile.

Place joint fillers vertical in position, in straight lines. Secure to formwork during concrete placement.

REINFORCEMENT

Place reinforcement at top third height of slabs-on-grade.

Interrupt reinforcement at all joints.

FORMED JOINTS

Place expansion joints in sidewalks every 400 square feet with a maximum 40 ft. o.c. spacing.

Place expansion joints in curb and gutter at 40 ft. o.c.

Place expansion joints between curbs and walks.

Place joint filler in expansion joints and between curbs and walks, between paving components and building, and at catch basins, manholes, and other appurtenances. Recess top of filler 1/2 inches for sealant placement by Section 07 92 00.

Provide scored or sawn control joints. Joints shall be at right angles to the edges of work.

1. Where walks are wider than 8'-0" provide longitudinal joints as directed.

2. Space control joints at 5 foot intervals for sidewalks.

3. Space control joints at 10 feet intervals for curbs.

Align curb, gutter, and sidewalk joints.

Place construction joints at the end of all pours and at locations where placement operations are stopped for more than 1/2 hour. If the construction joint will also be an expansion joint, dowel and sleeve the reinforcement.

PLACING CONCRETE

Place concrete in accordance with ACI 301 and as specified in Division 03.

Place concrete in accordance with ACI 301.

FINISHING

After striking off and consolidating concrete, smooth the surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust the floating to compact the surface and produce a uniform texture.

Provide positive slope on concrete surfaces to provide drainage.

After floating, test surface for trueness with a 10' straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous, smooth finish.

Work edges of walks and joints with a 1/4" radius edging tool. and a 4” wide smooth troweled surface at edges; provide broom finish on remainder of surface.

After completion of floating and when excess moisture or surface sheen has disappeared, complete surface finishing by drawing a fine-hair broom across the concrete surface, perpendicular to the line of traffic. Repeat operation if required to provide a fine line texture acceptable to the A/E.
Install Detectable Warning Mats at Curb Ramps in accordance with manufacturer's instructions.

1. Surface must be completely dry with no precipitation at least 24 hours prior to installation.

2. Surfaces with newly poured concrete must be fully cured.

3. Place the mat in position on the installation surface and adjust fit.

4. Install mat with recommended Adhesive and Anchors.

5. Seal Edges of mat with recommended Sealer.

DRIVEWAY APRONS

For aprons provide 8 inch thick slab with WWF 6 x 6 x W4.0 x W4.0.

Provide doweled joints at right angles to traffic.

Provide sawcut control joints parallel to traffic.

Maximum spacing of joints 20 ft. each way.

For doweled joints, provide 3/4 inch diameter x 1'-4" long plastic coated smooth dowels at 12 inches o.c. in standard highway baskets. Set dowels at right angles to joint at slab mid-depth. Project dowel 1/2 of dowel length from face of joint.

Provide light broom finish.

CURING/PROTECTION

Use curing methods and provide protection as required.

Apply Curing Compound uniformly in continuous operation by power-spray or roller in accordance with manufacturer's instructions.

1. Recoat areas subjected to heavy rainfall occurring within 3 hours after initial application.

2. Maintain continuity of coating and repair damage during curing period.

Immediately after placement, protect concrete from premature drying, excessive hot or cold temperatures, and mechanical injury.

Exclude traffic from concrete for at least 14 days after placement. When construction traffic is permitted, maintain the work as clean as possible and remove surface stains and spillage of materials as stains and spillages occur.

FIELD QUALITY CONTROL

Materials and operations shall be tested and inspected as work progresses. Failure to detect defective work shall not prevent rejection when defect is discovered, nor shall it obligate the owner for final acceptance.

Testing of Portland Cement Concrete shall be performed by an independent testing laboratory appointed and paid for by the Owner. The Contractor will pay for costs of additional testing required due to improperly performed work. All test reports shall be provided to Architect and Owner.

Testing agencies shall meet the requirements of "Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction", ASTM E 329.

The following testing services shall be performed by the testing agency and shall be paid for by the Owner.

1. Secure composite samples in accordance with "Standard Method of Sampling Fresh Concrete," ASTM C 172.

2. Mold and cure four cylinders from each test required in accordance with "Standard Method of Making the Curing Concrete Test Specimens in the Field," ASTM C 31.

3. Test cylinders in accordance with "Cylindrical Standard Test Method for Compressive Strength of Concrete Specimens," ASTM C 39. Two cylinders shall be tested at 28 days for acceptance and one shall be tested at 7 days and one at 14 days for information.

4. Make one strength test for each 50 cubic yard or 5000 square feet of wall or floor surface or fraction thereof, of each mix design of concrete placed in any one day.

5. A record shall be made by a representative of the General Contractor of the delivery ticket number for the particular load of concrete tested and the approximate location in the work at which each load represented by a strength test is deposited.

6. Determine total air content of normal-weight concrete sample for each strength test in accordance with "Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method," ASTM C231 or “Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method”, ASTM C173.

7. Submit one copy of all test data to Construction Manager , Concrete Supplier, and Owner within 3 days of tests.

If testing indicates the work does not meet specified requirements, concrete shall be removed and replaced at no additional cost to the Owner.

End of Section

SECTION 32 17 23 - PAVEMENT MARKINGS

PART ONE – GENERAL

SCOPE OF WORK

The CONTRACTOR shall provide all labor, materials, equipment and service necessary, or incidental, to the completion of the work specified in this section.

Parking lot striping.

Handicap stall striping.

Directional Arrows.

QUALITY ASSURANCE

Work in this section shall be completed by workmen skilled and experienced in the application of pavement markings on bituminous surfaces. Submit to the ARCHITECT evidence of five (5) years of experience. List projects of a similar scope.

JOB CONDITIONS

Verify with the asphaltic paving contractor that the surface on which the markings are to be applied has cured and is ready to be striped.

Observe the environmental precautions regarding temperature and humidity in the application of the line marking paint. Delay applications when drying conditions will not allow the paint materials to dry in a timely manner.

PART TWO - PRODUCTS

MATERIALS

Paint shall be waterborne or solvent borne, colors as shown or specified herein. Pavement marking paints shall comply with applicable state and local laws enacted to ensure compliance with Federal Clean Air Standards. Paint materials shall conform to the restrictions of the Local Air Pollution Control District.

Waterborne Paint: Paints shall conform to FS TT-P-1952

Solvent Borne Paint: Paint shall conform to FS A-A-2886 or AASHTO M248. Paint shall be non-bleeding, quick-drying, and alkyd petroleum base paint suitable for traffic-bearing surface and be mixed in accordance with manufacture's instructions before application for colors White, Yellow, Blue, and Red.

PART THREE - EXECUTION

LAYOUT

Do not apply paint until paving has cured a minimum of 14 days.

Use steel tapes, transits, and other surveying equipment which will allow the precise measurement of distances and angles.

Perform layout with chalk or lumber crayon only.

Remove grease, oil, dirt, or other surface contaminants which would affect the appearance or performance of the painting work.

APPLICATION

Install pavement markings according to the manufacture's recommended procedures for the specified material.

Tolerances:

1. General: Make lines parallel, evenly spaced, and with sharply defined edges.

2. Line Widths:

    a. Plus or minus 1/4 inch variance on straight segments.

    b. Plus or minus 1/2 inch variance on curved alignments.

Protect completed work from damage.

CLEANING

Remove drips, overspray, improper markings, and paint material tracked by traffic by sand blasting, wire brushing, or other methods approved by architect.

End of Section

SECTION 32 17 26 - TACTILE WARNING SURFACES

PART ONE - GENERAL

SECTION INCLUDES

Cast-In-Place detectable/tactile warning surface tiles.

Surface Applied detectable/tactile warning surface tiles

RELATED SECTIONS

Section 03 30 00 - Cast-In-Place Concrete.

REFERENCES

ASTM B 117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.

ASTM C 153 - Specification for Zinc-Coating (Hot-Dip) on Iron and Steel Hardware.

ASTM C 501 - Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abrader.

ASTM C 554 - Standard Test Method for Crazing Resistance of Fired Glazed Whitewares by Autoclave Treatment.

ASTM C 1028 - Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.

ASTM D 543 - Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents.

ASTM D 1037 - Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.

ASTM D 2486 - Standard Test Method for Scrub Resistance of Wall Paints.

ASTM D 5420 - Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen By Means of a Striker Impacted by a Falling Weight (Gardner Impact).

ASTM F 2296 - Standard Practice for Determining the Adhesion of Lamination Films to Prints Utilizing Mechanical Stress: Four Different Test Methods Score/Tape, Cross Hatch, X-Cut, and Crease-Folding.

ASTM G 155 - Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.

FS SS-T-308b - Federal Specification for Ceramic Tile, Floor, Wall, and Trim Units.

AASHTO - Standard Specifications for Highways and Bridges.

Americans with Disabilities Act (ADA) - Title III Regulations, 28 CFR Part 36 ADA STANDARDS FOR ACCESSIBLE DESIGN, Appendix A, Section 4.29.2 DETECTABLE WARNINGS ON WALKING SURFACES.

DESIGN / PERFORMANCE REQUIREMENTS

Americans with Disabilities Act (ADA): Cast In Place Detectable/Tactile Warning Surface Tiles shall comply with the detectable warnings on walking surfaces section of the Americans with Disabilities Act (Title III Regulations, 28 CFR Part 36 ADA STANDARDS FOR ACCESSIBLE DESIGN, Appendix A, Section 4.29.2 DETECTABLE WARNINGS ON WALKING SURFACES).

SUBMITTALS

Submit under provisions of Section 01 33 00.

Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.

3. Installation methods.

Shop Drawings: Show fabrication details, composite structural system, tile surface profile, sound on cane contact amplification feature, plans of tile placement including joints, and material to be used as well as outlining installation materials and procedure.

Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

Verification Samples: For each finish product specified, two samples, minimum size 6 inches square, representing actual product, color, and patterns.

Maintenance Instructions: Submit manufacturer's specified installation and maintenance practices for each type of Detectable Warning Surface Tile and accessory required.

QUALITY ASSURANCE

Manufacturer Qualifications: Manufacturer with a minimum of 3 years of experience in the manufacture of Cast In Place Detectable/Tactile Warning Surface Tiles.

Installer Qualifications: Installer certified in writing by Cast In Place Detectable/Tactile Warning Surface Tile manufacturer as qualified for performing installation, and who has successfully completed installations similar in material, design, and extent to that indicated for Project.

Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Finish areas designated by Architect.

2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

3. Refinish mock-up area as required to produce acceptable work.

DELIVERY, STORAGE, AND HANDLING

Store products undercover in manufacturer's unopened packaging until ready for installation.

SEQUENCING

Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.

Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PROJECT CONDITIONS

Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

Maintain minimum temperature of 40 degrees F in spaces to receive Surface Applied Detectable/Tactile Warning Surface Tiles for at least 24 hours prior to installation, during installation, and for not less than 24 hours after installation.

WARRANTY

See Section 01 77 00 - Closeout Submittals, for additional warranty requirements.

Detectable/Tactile Warning Surface Tiles shall be guaranteed in writing for a period of 5 years (minimum) from date of substantial completion. The guarantee includes defective work, breakage, deformation, fading and loosening of tiles.

PART TWO - PRODUCTS

MANUFACTURERS

Neenah Foundry.

Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

MATERIALS

Cast Gray Iron conforming to ASTM A-48, Class 30A minimum Detectable/Tactile Warning Plates. The plates shall incorporate an in-line pattern of truncated domes measuring nominal 0.2 inch height, 0.9 inch base diameter, and 0.45 inch top diameter, spaced center-to-center 2.4" as measured on a diagonal and 1.7" as measured side by side.

1. Type: Cast in Place Detectable/Tactile Warning Surface Plates.

2. Dimensions: Length and Width, nominal size as follows:

    a. 24 by 48 inches, using quick connect or bolted plates.

3. Color:

    a. Unfinished.

PART THREE - EXECUTION

EXAMINATION

Do not begin installation until substrates have been properly prepared.

If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

PREPARATION

Clean surfaces thoroughly prior to installation.

Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

INSTALLATION

Install in accordance with manufacturer's instructions.

PROTECTION

Protect installed products until completion of project.

Protect tiles against damage from rolling loads following installation by covering with plywood or hardwood.

Clean Tactile Tiles not more than four days prior to date scheduled for inspection intended to establish date of substantial completion in each area of project. Clean Tactile Tile by method specified by Tactile Tile manufacturer.

Comply with manufacturers maintenance manual for cleaning and maintaining tile surface and it is recommended to perform annual inspections for safety and tile integrity.

Touch-up, repair or replace damaged products before Substantial Completion.

End of Section

SECTION 32 33 00 - SITE FURNISHINGS

PART ONE - GENERAL

WORK INCLUDED

The Contractor shall provide all labor, materials, equipment, and services necessary, or incidental to the completion of the work specified in this section.

Installation of Accessible parking space signs.

Installation of benches.

SUBMITTALS

Manufacturer's product data and installation instructions. Provide shop drawings for Architects approval.

PART TWO - PRODUCTS

MATERIALS

Accessible Parking Space Sign- (11)

1. 18"x12", M.U.T.C.D. R7-8, aluminum rust free sign, with sealed outer surface over a microstructure that reflects light.

2. 6"x12", M.U.T.C.D. R2-8P, aluminum rust free sign, with sealed outer surface over a microstructure that reflects light.

3. 10'x2"'x2" galvanized steel sign post.

4. Commercial grade fast setting concrete bag mix that meets or exceeds the compressive strength requirements of ASTM C387, with 2"-3" slump.

Benches- (3)

1. 6' Long Thomas Steel Gramercy Bench, model# GRB-2-RD-P with bronze powder coat.

PART THREE - EXECUTION

INSTALLATION

Accessible Parking Sign:

1. Mount metal signs to galvanized steel post.

2. Excavate hole for concrete footings in locations shown on construction drawings.

3. Set steel post in 12"x48" concrete footing so steel post is plumb and bottom of 18"x12" sign is 5' above finished grade.

Benches:

1. Install per manufacturer's instructions.

End of Section

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SECTION 32 91 19 - LANDSCAPE FINISH GRADING

PART ONE – GENERAL

WORK INCLUDED

Place topsoil in all general landscape areas.

Finish grade topsoil for finish landscaping.

Provide additional topsoil if required from an off-site source.

PART TWO – PRODUCTS

MATERIAL

Salvaged Topsoil: on site excavated material, graded, free of roots, rocks larger than 1/2", debris and large weeds.

Additional Topsoil: When required, provided, placed and compacted by CONTRACTOR off site material free of debris, roots, and rocks larger than 1/2" in size.

PART THREE – EXECUTION

EXAMINATION

Verify salvaged topsoil is acceptable for use.

Verify trench backfilling and compacting has been completed and inspected.

Verify subsoil base has been contoured, shaped and compacted to design grades.

SUBSOIL PREPARATION

Shape subsoil to remove uneven areas and low spots.

Remove debris, roots, branches, and stones in excess of 1" in size. Remove subsoil contaminated with petroleum products if encountered.

Scarify subgrade material to depth of 3" where topsoil is scheduled to be placed where equipment is used for hauling and spreading topsoil and has compacted subsoil.

PLACING TOPSOIL

Place topsoil in areas where seeding and/or sodding is required to a thickness of 6" lightly compacted depth.

Place topsoil in relatively dry state, during dry weather.

Finish grade topsoil eliminating rough or low areas while maintaining profiles and contour of subgrade and achieving required 6" compacted depth.

Remove roots, debris, rocks larger than 1/2" in size, weeds, and foreign material while spreading.

Manually spread topsoil close to trees, fences, buildings and other objects to prevent damage.

Lightly compact topsoil after placement.

Leave stockpile area and site clean and ready for seeding, sodding or other finish treatment.

TOLERANCES

Top of Topsoil: Plus or minus ½".

PROTECTION

Protect landscaping and other site features remaining as part of completed project.

Protect fences, sidewalks, utilities, structures and pavement from damage.

End of Section

SECTION 32 92 00 - TURF AND GRASSES

PART ONE – GENERAL

WORK INCLUDED

Fertilizing.

Seeding.

Mulching.

Maintenance.

REFERENCES

FS O-F-241 - Fertilizers, Mixed, Commercial.

DEFINITIONS

Weeds: Includes Dandelion, Jimsonweed, Quack grass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

REGULATORY REQUIREMENTS

Comply with local governing regulatory agencies for fertilizer and herbicide composition.

QUALITY ASSURANCE

Provide to project A/E tags from seed mixture containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging prior to the start of seeding.

TESTS

Testing is not required if recent tests are available for imported topsoil. Submit these test results to testing laboratory for approval. Indicate, by test results, information necessary to determine suitability.

MAINTENANCE DATA

Submit maintenance data for the OWNER'S continuation of maintenance.

Include maintenance instructions for the OWNER relating to cutting method and maximum grass height, type, application frequency, and recommended coverage of fertilizer to be utilized.

DELIVERY, STORAGE AND HANDLING

Deliver grass seed mixture in sealed containers. Seed provided in damaged packages will not be accepted.

Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

MAINTENANCE SERVICE

Maintain seeded areas until acceptable growth is established.

Maintenance:

1. Mow grass at regular intervals to maintain a minimum height of 2-1/2". Do not cut more than one-third (1/3) of grass blade at any one mowing.

2. Neatly trim edges and hand clip where necessary.

3. Immediately remove any clippings after mowing and trimming.

4. Water to prevent grass and soil from drying out.

5. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.

6. Immediately re-seed areas which show bare spots.

7. Protect seeded areas with warning signs during maintenance period.

Acceptable Growth:

1. When the majority of the seeding reaches the height of one-third greater than the anticipated cutting height, mowing should then follow standard frequency. (e.g. If a Kentucky Bluegrass turf is to be maintained at a 3 inch cutting height the new seedlings should be mowed when they reach a height of 4 inches.) After the second mowing and after the assessment that no washouts or large bare areas exist, the growth shall be deemed acceptable and from that point on, it is the OWNER'S responsibility.

PART TWO – PRODUCTS

ACCEPTABLE SEED SUPPLIERS

L.L. Olds Seed Company

Reinders

The Scott's Company

Horst Distributing

Wisconsin Turf
1917 W. Court Street
P.O. Box 708
Janesville, WI 53547-0708

SEED MIXTURE

Lawn Seed Mixture

50% Kentucky Bluegrass
15% Creeping Red Fescue
12% Chewing Fescue
23% Improved Turf Type Perennial Ryegrass

Application

1. Seeding Rate of 5-6 lbs. per 1,000 square feet

LOW MOW SEED MIXTURE

Seed Mixture: Low mow seed mixture shall be 'No-Mow' lawn mix as supplied by Prairie Nursery, Inc., P.O. Box 306, Westfield, WI, 53964. 1-800-476-9453

Application

1. Seed rate of 5-6 lbs. per 1,000 square feet.

SOIL MATERIALS

Additional Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay or impurities, plants, weeds and roots; pH value: 5.4 minimum and 7.0 maximum.

Salvaged Topsoil: Excavated from site and in accordance with Section 312000 - Earthmoving.

ACCESSORIES

Mulching Material: Marsh hay or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

Fertilizer: Starter Fertilizer to the following proportions: Nitrogen 10 percent, phosphoric acid 18 percent, soluble potash 22 percent. Apply at rate of .5 LBN per 1000 S.F.

Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

PART THREE – EXECUTION

INSPECTION

Verify that prepared soil base is ready to receive work of this section.

Beginning of installation means acceptance of existing site conditions.

FERTILIZING

Apply fertilizer in accordance with manufacturer's instructions.

Apply after smooth raking of topsoil and prior to roller compaction.

Do not apply fertilizer at same time or with same machine as will be used to apply seed. Apply fertilizer after seed has been dragged and soil leveled.

Mix thoroughly into upper 2" of topsoil.

Lightly water to aid dissipation of fertilizer.

SEEDING

Apply seed at a rate of 5-6 lbs. per 1,000 sq. ft. evenly in two (2) intersecting directions. Rake in lightly. Do not seed area in excess of that which can be mulched on same day.

Planting Season: Starting May 1 through October 1.

Do not sow immediately following rain, when ground is too dry, or during windy periods.

Drag seeded area with lightweight drag to cover seed and level soil.

Immediately following seeding, fertilizing and compacting, apply mulch to a thickness of 1" to 1/2". Maintain clear of shrubs and trees. Crimping of mulch shall be performed in two (2) directions after placement of mulch.

Apply water with a fine spray immediately after each area has been mulched. Saturate to 4" of soil.

MAINTENANCE

During the maintenance period, CONTRACTOR shall sprinkle to supplement rainfall to provide 1" minimum water per week, mow, control weeds (by mowing), repair poorly growing and/or eroded areas, etc.

Mowing shall be done regularly to maintain the lawn at a height of 2-1/2" to 3" at all times. In no case shall more than 25% of the total height of grass be removed in one cutting. Clippings shall be permitted to remain unless they are of such quality so that, in the opinion of the LANDSCAPE ARCHITECT, they might damage the lawn. In such cases, CONTRACTOR shall promptly remove the clippings and dispose of same off the site.

End of Section

SECTION 32 93 00 - PLANTS

PART ONE – GENERAL

SCOPE OF WORK

This work shall consist of furnishing and planting plants of the species, varieties and sizes specified, complete in place at the locations designated on the plans or as directed by the CONSTRUCTION MANAGER. It shall include furnishing all necessary materials and performing all necessary work such as excavating plant holes, salvaging topsoil, potting, transplanting, backfilling, pruning, mulching, watering, heeling in, fertilizing, wrapping, guying and bracing, rodent protection and anti-desiccant, disposing of surplus and waste materials, necessary care and replacement.

QUALITY ASSURANCE

Perform work with personnel experienced in the work required in this section under direction of a skilled foreman. The Contractor shall have a minimum of five successful installations of similar projects and materials, or approval by ARCHITECT.

DELIVERY STORAGE AND HANDLING

General:

1. All plant stock shall be dug and handled with care and skill to prevent injuries to the trunk, branches, and roots and shall be packed in an approved manner to insure arrival at the project site in good condition.

2. The plant stock shall be transported in enclosed vehicles or, in lieu of the enclosed vehicles, the plant tops shall be suitably protected from drying.

3. All plants furnished with earth balls or in containers shall be handled by the ball or container.

Bare Root Stock (BR):

1. Plant stock to be furnished BR shall be moved with the roots protected against drying out by the use of moist sphagnum moss, straw or other suitable material, and covered with canvas or other suitable covering in an approved manner.

Bare Root Potted Stock (BRP):

1. Plant stock to be furnished BRP shall be bare root plants potted in accordance with the following requirements and the planting details shown on the plans. The potting shall be the responsibility of the CONTRACTOR and shall be done by placing the plant in a plantable fiber container of the specified size and then placing and compacting the potting mixture backfill so that the elevation of the plant root collar and the backfill material is approximately 1" below the top of the container.

2. The potting shall include pruning of the plants before or at the time of potting and working the plant around as the potting mixture is added to insure that the roots are naturally spread or spaced within the pot. Fertilizer conforming to 2.01 G, H shall be placed on the soil in the pot after potting in accordance with the requirements of such subsection.

3. The plants shall be potted prior to May 1 of the year they are to be planted and shall be stored, watered and otherwise cared for by the CONTRACTOR in a suitable location off the highway right-of-way for at least four (4) weeks. The CONTRACTOR shall inform the CONSTRUCTION MANAGER of the location of the potting and storage area at least ten (10) days before potting begins.

4. Only live, healthy, vigorously growing BRP plants will be acceptable for planting at the designated locations on the project site.

Balled and Burlapped Stock (B&B):

1. Plant stock to be furnished B&B shall be moved with a compact dug ball of earth so firmly wrapped in burlap that upon delivery the soil in the ball is still firm and compact about the small feeding roots. Each ball shall be of sufficient size to encompass all the fibrous feeding roots necessary to insure successful recovery and development of the plant. The minimum sizes of balls, ball depth and diameters, and increased ball sizes for collected stock shall be in accordance with Recommended Balling and Burlapping Specifications, as set forth in the current edition of the American Standard for Nursery Stock sponsored b y the American Association of Nurserymen, Inc.

Balled and Potted Stock (B&P):

1. Plant stock to be furnished B&P shall be plants which have been dug from the growing site with the roots contained in a compact unbroken ball of earth and placed in a plantable fiber container. The size and shape of the earth ball shall conform to the approximate size and shape of the container so that the plant root collar is approximately l" below the top of the container. Any voids shall be filled at potting time with native soil. The minimum ball size shall be equivalent to the ball size for B&B stock shown in the current American Standard for Nursery Stock as required for the plant specified.

Container Grown Stock (CG):

1. Plants furnished CG shall be well rooted and established in the containers in which they are growing. They shall have grown in the containers sufficiently long enough for the new fibrous roots to have developed so that the root soil mass will retain its shape when removed from the container. The plants shall not have grown in the container long enough to become container bound. The container shall be sufficiently rigid to retain its shape and protect the plant root system during shipping and handling. Container size shall be in accordance with specifications for CG stock as stated in the current edition of the American Standard for Nursery Stock. Keep plants moist at all times and in the trays or containers till planting.

Machine Transplanted Stock (MT):

1. Plants to be furnished or transplanted as MT stock shall be plants that are to be moved from the growing site to selected sites within the right-of-way by use of a tree transplanting machine. The machine shall be capable of digging and removing from the ground, an unbroken mass of earth of the specified size and shape. It shall be capable of lifting and transporting the mass of earth supporting the specified size plant and containing its roots in an undisturbed condition. The machine shall be capable of holding the soil mass and roots in the undisturbed condition until the tree is lowered into the growing position and the soil mass supported by the walls of the planting hole.

PLANT ESTABLISHMENT PERIOD

General:

1. A plant establishment period of two (2) years shall follow the completion of planting.

Two-Year Plant Establishment Period:

1. The plant establishment period shall extend until August 1 of the second full growing season.

Care:

1. The CONTRACTOR shall properly care for all plants from the time of planting until the partial or final acceptance of the work under the contract.

2. Proper care of plants shall consist of doing such watering, weeding, cultivating, pruning, spraying, tightening of braces and guys, retying, wrapping, re-mulching and other work as may be necessary to keep the plants in a neat appearance and in a healthy growing condition. In addition to the watering required in 3.01, a, entitled MAINTENANCE, complete watering shall be performed at 12 to 15 day intervals between project start and September 15, if required. Such intervals may be lengthened when weather conditions and soil moisture permit. Additional watering may be ordered by the CONSTRUCTION MANAGER at any time during the plant establishment period should conditions require such watering.

3. A sufficient amount of water shall be placed in each plant hole at the time of each watering to keep the topsoil backfill material in a moist condition, and to keep the plant in a healthy growing condition.

4. All evergreens that die during the course of the plan establishment period shall be removed and disposed of by the CONTRACTOR as their dead conditions become evident.

5. All mulched areas shall be kept free of all vegetation, except the specified plants, by hoeing, hand weeding or by the use of herbicides if approved by the CONSTRUCTION MANAGER.

6. All vines shall be strung to fences and runners shall be directed toward retaining walls or structures, as the case may be, during plant establishment period.

7. Pesticides shall be applied as required to control insects and disease and to keep the plants in a healthy condition.

8. All plants that die or show evidence of dying during the plant establishment period shall be replaced at the CONTRACTOR'S expense at the earliest appropriate planting time after this condition becomes apparent. Replacement will be permitted until June 1 of the year in which the final inspection is made.

9. All bracing and guying materials shall be removed and disposed of by the CONTRACTOR after the final inspection of the plantings.

Acceptance and Replacement of Plant Material:

1. Near the end of the applicable plant establishment period, but no later than September 15, the inspection of the planting will be made and only those plants that are in a healthy growing condition and which meet the following minimum requirements will be

accepted and measured for payment at the contract lump sum price. Plant sizes and standards shall be in accordance with the AMERICAN STANDARDS FOR NURSERY STOCK.

2. Evergreens shall exceed the minimum size of the specified size range and all coniferous types shall have fully developed, mature needles and average sized buds on current season's growth.

3. Deciduous shrubs shall exceed the requirements of the specified size range and have mature, average sized leaves typically distributed throughout the branch system.

4. Deciduous vines shall have the required number of runners, each exceeding the minimum required length.

5. The plants not meeting the foregoing requirements shall either be removed or replaced with satisfactory plants during the current fall planting season, or at the option of the CONSTRUCTION MANAGER, be allowed to remain in place. Materials and method of replacement planting shall be the same as specified for the original planting, except that plants furnished BRP may be replaced with B&P or CG stock. Such plants when satisfactorily replaced or allowed to remain will be measured and paid for at the reduced contract unit price provided in a lump sum Basis of Payment.

WARRANTY

Provide to a period through the second spring of growth, a warranty from date of substantial completion.

Replace plant materials found dead, or not in a healthy growing condition.

Replacements:

1. Plant materials of same size and species, with a new warranty commencing on the date of replacement.

PART TWO – PRODUCTS

MATERIALS

Trees and Plants:

1. Species and size identified in the plant schedule, grown in climatic conditions similar to those in the locality of the work.

Compost:

1. Compost shall be a standard commercial compost of cattle, sheep or poultry manure, or other organic material acceptable to the CONSTRUCTION MANAGER.

Peat Moss:

1. Peat Moss shall consist of at least 75% of partially decomposed stems and leaves of sphagnum, hypnum, polytrichum and other mosses in which the fibrous and cellular structure is still recognizable. It shall be nearly free of decomposed colloidal residue, wood, and other foreign matter, and shall be brown to black in color. Humus peat will not be acceptable. Peat moss shall have the following characteristics:

    a) Moisture content shall not exceed 60% by weight.

b) Ash content shall not exceed 20%, based on the oven dry weight of the material.

c) The pH value shall be not less than 3.2 nor greater than 7.0 at 25 degrees C.

d) Water holding capacity shall be not less than 400% by weight, on an oven dry basis.

e) Upon request, the CONTRACTOR shall furnish the CONSTRUCTION MANAGER with a representative sample of the peat moss for testing in accordance with the Federal Specification for Peat, Moss; Peat, Humus; and Peat, Reed Sedge numbered Q-P-166c.

f) The CONTRACTOR shall furnish the CONSTRUCTION MANAGER with a certificate stating the type of peat moss, the brand name, and the country or place of origin. If packed in bales and if bale size is used in determining quantities for mixing, the certificate shall also contain the cubic feet of compressed bale size, the compression ratio, and the approximate weight of the bales. A certificate will not be required if this information is marked on the bales.

Topsoil:

1. Topsoil shall be salvaged from the plant hole excavation whenever such topsoil conforms to the above requirements. The sod from the plant hole excavation may be used for backfill, together with topsoil, providing it is thoroughly broken into small pieces and used in limited quantities near the bottom of the plant hole and in such manner that it will not be in contact with the small feeder roots.

Potting Mixture:

1. Potting mixture shall consist of a mixture of peat moss, topsoil, and sand in a ration of 1:1:1 by volume. Fertilizer shall be thoroughly incorporated in the mixture at the rate of four (4) pounds of fertilizer to each cubic yard of mixture.

2. The peat moss shall conform to the requirements of Subsection C and topsoil to Subsection D. The sand shall be approved by the CONSTRUCTION MANAGER and 100% shall pass a 3/8" sieve.

Fertilizer:

1. Fertilizer shall conform to the pertinent requirements of the following:

a) Fertilizer for Potting Mixtures

Unless otherwise specified, the fertilizer to be mixed with the potting soil shall be a super phosphate meeting the following minimum requirements:

Nitrogen	0%
Phosphoric Acid	20%
Potash	0%

b) Fertilizer for BRP Stock

Fertilizer to be placed on the soil in containers shall be of the controlled release type and shall have the following minimum requirements:

Nitrogen, not less than	18%
Phosphoric Acid, not less than	9%
Potash, not less than	9%

The fertilizer shall consist of granules of soluble nutrients, each granule of which shall be enclosed in a water permeable resinous film.

The fertilizer shall be spread evenly over the top of the container at the rate of 2 oz. per cubic foot of container volume.

c) Fertilizer for Plant Holes

Fertilizer to be used in plant holes shall be a water soluble fertilizer contained in a micro pore slow release polyethylene packet. The amount of fertilizer in each packet shall be minimum of one ounce.

The fertilizer shall meet the following minimum requirements:

Nitrogen, not less than 16%
Phosphoric Acid, not less than 8%
Potash, not less than 16%

d) Fertilizer for Wood Chip Mulch

Fertilizer to be used on areas to be mulched with wood ships shall be a slow release ureaform fertilizer having at least 38% nitrogen.

Water:

1. Water used shall be free from any impurities or substances which might injure the plant.

Mulch:

1. Mulch, when specified, shall consist of wood chips, peat moss or other suitable material, and shall be substantially free of noxious weed seeds and objectionable foreign material. Wood chips shall be chips such as are obtained from any standard wood or brush chipping machine. The mulch used shall meet the approval of the CONSTRUCTION MANAGER.

Wrapping:

1. Wrapping, when specified shall consist of a two-ply waterproofed crepe tree wrapping paper, laminated with a layer of pliable asphalt material

Wound Dressing:

1. Wound dressing, when required, shall consist of an asphalt base tree paint or other acceptable material suitable for application by brushing or spraying on bruised or cut surfaces of plants.

Rodent Protection:

1. Rodent protection, when specified, shall consist of galvanized hardware cloth, extruded aluminum mesh, or a durable preformed plastic material. The hardware cloth or aluminum mesh, if used, shall have at least three meshes per linear inch and shall be used in conjunction with a steel rod having a minimum size of 3/8" x 48". The plastic material shall be a durable, resilient, preformed plastic spiral acceptable to the CONSTRUCTION MANAGER. Such material shall have a natural, earth-tone color.

Bracing and Guying Materials:

1. When specified, these materials shall consist of such wood or steel stakes, wire, rubber hose, soft rope or straps, turnbuckles, and other material as needed to perform the work. Stakes shall be of solid durable wood, approximately 2 x 2" and of the required length, except that stakes used for bracing may be approved steel posts of the required length.

2. Wire of good quality shall be No. 11 or 12 steel sire and when used for trees of four (4) inches or less in diameter. No. 9 or 10 for trees over four inches in diameter. A suitable turnbuckle for adjusting the wire tension shall be used with the larger wire.

Anti-Desiccant:

1. Anti-desiccant, when specified, shall be an approved emulsion which will provide a film over plant surfaces permeable enough to permit transpiration.

Equipment:

1. The CONTRACTOR shall furnish and have available, sufficient watering equipment, including tanks, pumps, hoses, and incidentals to fully perform all of the watering required in Subsection 301, A. The capacity and adequacy of such equipment shall be determined on the basis of supplying approximately 20 gallons of water per large tree, ten gallons per small tree, five gallons per shrub and two and one-half gallons per vine or sumac plant for each of the required watering. A source of water capable of supplying the above amounts shall be available.

PART THREE – EXECUTION

PREPARATION

Planting:

1. All planting of BR, B&B, BRP, B&P, CG, and MT plants, unless otherwise directed, shall be performed in accordance with the method herein provided. Insofar as practicable, BR plants shall be protected against drying by keeping the roots covered with a canvas or other suitable covering until planted.

2. The soil in the bottom of the hole which has been excavated to the prescribed requirements shall be loosened to a depth of three inches and mixed with an equal amount of topsoil. A mound of soil shall be formed in the center of the hole to support the roots or ball of the plant. The plant shall be placed on the mound of soil and held in a vertical position. The roots of BR plants, pruned as required, shall be spread out to their approximate natural position. B&B plants shall be placed in their wrapped ball, and shall be moved and handled only by the ball. The plant shall be so set, by adjusting the elevation of the mound that after settlement the plant will stand approximately the same depth it stood in the nursery or field.

3. Unless otherwise specified, the plant hole shall be backfilled with topsoil to which compost has been added at the ratio of six (6) parts soil to 1 (1) part compost by volume. The soil compost mixture shall be placed in layers around the roots or ball. Each layer shall be carefully tamped in place in a manner to avoid injury to the roots or ball disturbing the position of the plant. When approximately 2/3rds of the plant hole has been backfilled, the hole shall be filled with water and the soil allowed to settle around the roots. B&B plants shall have the burlap cut away or folded back from the top of the ball before applying the water. After the water has been absorbed, the plant hole shall be filled with topsoil and tamped lightly to grade. Any settlement shall be brought to grade with topsoil. Unless otherwise directed or specified, a shallow rain cup or rain basis shall be formed in the completed backfill by shaping the soil around the plant.

4. The holes made for MT plants shall be filled to about ½ the hole depth with a slurry made from a 1:1 mixture of water and compost by volume. The slurry shall be placed in

the hole just prior to placing the tree in the hole. Any voids remaining when the machine is removed shall be backfilled with topsoil.

5. After the plantings have been in place at least two (2) days, but not more than five (5), an inspection of such plantings shall be made. Plant depths and plumbness shall be adjusted as necessary and any additional required backfill shall be placed. All plants being inspected shall be thoroughly watered during the inspection period.

Fertilizing:

1. Fertilizer for Potting Mixtures

    a) Fertilizers for potting mixtures shall be incorporated in the mixtures at the rate of four (4) pounds of fertilizer per cubic yard of mixture so that the fertilizer is uniformly distributed.

2. Fertilizer for Plant Holes

    a) The number of packets specified on the plans to be placed in each plant hole shall be uniformly spaced around the outside of the plant hole during the backfill operation. The packets shall be placed as shown on the planting detail sheet after the backfilling is partially completed. They shall be at least six (6) inches below the final grade of the backfill material

    b) If specified for MT plants, the packets shall be equally spaced around the hole by placing in niches dug into the plant hole wall from 9" to 18" below the soil surface.

Mulching:

1. Mulch, when specified, shall be placed over the backfilled plant hole or plant bed within the specified area to a depth of approximately three (3) inches after any necessary backfilling, adjustment, and watering has been performed, unless otherwise specified.

Wrapping:

1. When specified to be wrapped, the trunks of trees shall be wrapped with wrapping material overlapping one and one-half (1 ½) inches, wound from the ground line to the lowest main branches. The wrapping shall be securely tied in at least three places, including the top, middle and bottom. The wrapping shall be done as soon as practical after planting.

Rodent Protection:

1. When required, a rodent protective material shall be applied to the plants. This is appropriate on Birch species.

Bracing:

1. When specified, trees shall be braced with a stake driven into the ground near the base of the tree to a depth of two (2) to three (3) feet, or until sufficiently solid to support the tree, and shall extend upward to about six (6) inches below the lowest main branches. The tree shall be fastened to the stake by a means of a soft rope, strap, or a wire enclosed in a hose in such a manner as to avoid injury to the tree.

Guying:

1. When specified, trees shall be guyed with three (3) wires whose upper ends encircle the tree trunk, just above the lowest main branches of deciduous trees and at a point above the ground line of 2/3rds the height of evergreen trees. The lower ends shall be anchored to stakes set in the ground around the tree, equal distance apart and at a distance from the tree of approximately 3/4ths the distance from the ground to the upper point of fastening. The anchor stakes shall be notched to prevent slipping of the wire and shall be driven into the ground at a slight angle away from the tree to a depth of 18" or more until solid, and shall extend for three (3) inches above the ground.

2. Each wire where it encircles the tree shall be enclosed in a hose of sufficient length to clear the trunk six (6) inches at the ends. The wires shall be drawn taut to equal tension by means of twisting or use of turnbuckles, and securely fastened, with the trunk of the tree remaining in a vertical position.

Disposal of Excess and Waste Material:

1. All excess excavation, waste materials, or other debris shall be removed and disposed of by the CONTRACTOR.

INSTALLATION

General:

1. The normal spring planting season for all plants except those handled BRP shall extend to June 1. Unless otherwise approved, BRP plants shall not be planted at the designated locations on the project site after June 1st to August 15th. The normal fall planting season for all plants, except evergreens, shall begin on October 1st. Fall evergreen planting shall be done between September 1 and October 1. Unless otherwise approved, planting shall not be done when the ground is frozen or when the soil is in an unsatisfactory condition for planting. Planting shall not be done when the temperature is below freezing unless plant roots are satisfactorily protected to prevent damage.

Delivery and Temporary Storage:

1. At least three (3) days prior to each delivery of plant material to the potting, storing, or project site, the CONTRACTOR shall notify the CONSTRUCTION MANAGER of such contemplated delivery.

2. In so far as practicable, plant stock shall be planted on the day of delivery at the project site. In the event this is not possible, the plant stock shall be temporarily stored by "heeling-in" or by placing in a well ventilated, cool, moist storage place and shall be adequately protected against drying by the use of moist sphagnum moss, straw, or other suitable covering around the roots of BR stock and the balls of B&B stock.

3. Plants growing in pots or containers shall be spaced to provide for air circulation and reasonably unrestricted top spread. Potted and container grown plants shall be cared for and watered as necessary to keep them in a healthy growing condition while in storage.

4. Bare root plants, when "heeled-in", shall be placed in a spade depth trench, have their roots fully covered with damp topsoil and be protected from the sun and wind. When "heeled-in" all plants shall be properly cared for by the CONTRACTOR. Plants shall not remain "heeled-in" from one planting season until the next.

Excavation of Plant Holes:

1. The plant holes shall be centered at the location stake, unless otherwise permitted by the CONSTRUCTION MANAGER.

2. The plant holes, except for MT stock, shall be excavated to the minimum dimensions shown on the plans or established by the CONSTRUCTION MANAGER, provided, however, that the plant hole shall be large enough to permit placing at least six (6) inches of backfill material around and at least two (2) inches beneath the root system of BR stock and the pots, balls or containers of BRP, B&B, B&P and CG stock. When a minimum size hole is excavated, the hole shall be excavated cylindrical in shape with vertical sides and a flat or saucer-shaped bottom.

3. Unless soil conditions make it impractical, planting holes for MT plants shall be dug by the tree moving machine and shall be approximately the same size and shape as the soil mass containing the root system of the machine moved plant.

4. The sod and topsoil suitable for backfilling shall be kept separate from the excavated subsoil.

5. When planting on a slope, the minimum depth of the plant hole shall be measured from the downward side of the slope at the hole.

6. In the event it is necessary to suspend planting operations until the following planting season, any open plant holes shall be backfilled before suspending the work.

Pruning:

1. The bruised or broken parts of large or fleshy roots shall be cut off smoothly before planting or potting. The tops of deciduous plants shall be pruned either before or at the time of planting or potting. Unless otherwise specified or directed by the CONSTRUCTION MANAGER, for deciduous BR stock this shall consist of removing 1/3 to ½ of the top by thinning out and heading back the stems and top branches; and for deciduous B&B, B&P and CG stock, this shall consist of removing dead and broken branches and thinning and heading back the stems and branches to compensate for root loss and to shape the plant. The pruning shall be done so that the plant retains its natural form. Except when heading back, all cuts shall be made flush with the trunk or branch. Evergreen plants shall not be pruned except to remove dead or broken branches. All cut surfaces of one (1) inch or more in diameter shall be painted with a tree wound dressing.

Anti-Desiccant:

1. Anti-desiccant, when specified, shall be applied to evergreen plants prior to or at the time of planting and to BRP plants prior to shipment from the storage place. It shall be applied to plants to be transplanted prior to transplanting. The rate and method of application of the emulsion shall be according to the manufacturer's recommendations.

End of Section

DIVISION 33

SECTION 33 10 00 - WATER DISTRIBUTION

PART ONE - GENERAL

WORK INCLUDED

Connection to existing water main at location shown on plans.

Trenching and backfilling required for work of this section.

Furnish and install pipe, valves, hydrants, and appurtenances for domestic water supply from public water main to within 5 feet of building.

REFERENCE

Standard Specifications for Sewer and Water Construction in Wisconsin, 6th Edition, Public Works Industry Improvement Program, 2835 North Mayfair Road, Milwaukee, WI 53227.

AWWA - American Water Works Association Standards.

State of Wisconsin Administrative Code, Chapters SPS 382 and SPS 384.

PART TWO – PRODUCTS

WATER MAIN

Ductile Iron meeting the requirements of AWWA C115 and AWWA C151.

Polyvinyl Chloride (PVC) tubing meeting the requirements of ASTM D2241 or AWWA C900.

High Density Polyethylene (HDPE) tubing meeting the requirements of AWWA C901.

WATER MAIN FITTINGS

Ductile Iron pipe fitting shall meet the requirements of AWWA C110, AWWA C153, and ANSI B16.42.

Polyvinyl Chloride (PVC) fittings shall conform to the Wisconsin Department of Safety and Professional Services Administrative Code section 384.30(5)(a).

High Density Polyethylene (HDPE) fitting shall meet the requirements of either ASTM D2609, ASTM D2683, or ASTM D3261.

GATE VALVES

Kennedy Valve, Waterous, Mueller or equal.

Gate valves shall meet the requirements of Chapter 8.27.0 of Standard Specifications for Sewer and Water Construction.

Epoxy lined per AWWA C550.

CAST IRON VALVE BOXES

Valve boxes shall be Mueller H-10357 or equal with a no tilt drop cover marked "Water" and of the length required for the depth of cover shown on the plans. Valve boxes shall be supported on gate valve adaptors as manufactured by Adaptor, Inc. or approved equal.

Cast iron valve boxes shall meet requirements of Chapter 8.29.0 of the Standard Specifications for Sewer and Water Construction. CONTRACTOR will furnish extension if required to meet existing surface or finished grades.

CONCRETE BUTTRESSES

Ready-mixed concrete shall be used.

Concrete shall have following characteristics:

Buttresses	
28 day Compressive Strength	2000
Maximum Slump	5"
Air-Entertainment by Volume	4%-7%
Minimum Cement Content	4 bags
Maximum Aggregate	3/4"

DETECTABLE PIPE WARNING WIRE

18 gauge wire with 0.015" thick vinyl insulation, insulation color blue.

Moisture, oil and gasoline resistant.

Splices either solder or brass clamp wrapped with electrical tape or shrink wrapped.

Exterior access locations shall include a means of protecting the tracer wire.

PART THREE – EXECUTION

EXAMINATION

Before installation, inspect pipe for defects and cracks. Do not use defective, damaged, or unsound pipe.

INSTALLATION

Runs shall be as close as possible to those shown on drawings.

Excavate to required depth.

Bottom of trenches shall be hard. Tamp as required.

Remove debris from trench prior to laying of pipe.

Excavate trenches so the top of pipe will have a minimum cover of 6' from the top of pipe to the proposed finished grades.

Trench shall be backfilled every day. No open trench except at the start of next day's work will be allowed to remain open overnight. Backfill material shall be installed to shed water. Excavations required to be left open overnight shall be enclosed with snow fence. Barricades with flashing lights shall be placed around fence.

CONNECTION TO EXISTING SYSTEM

CONTRACTOR shall coordinate with City of Oconto in filling new water main and connecting to the existing main.

Connection on new water main to existing main shall meet the requirements of Chapter 4.14.0 of the Standard Specifications for Sewer and Water Construction.

GATE VALVE AND VALVE BOX INSTALLATION

Provide sufficient quantities of crushed stone or rock conforming to the requirements of ASTM C33, Gradation No. 2 over and around the valve to prevent sand blockages of valve bonnet and box.

PIPE RESTRAINT

Concrete buttresses shall meet requirements of Article 4.3.13 of Standard Specification for Sewer and Water Construction, except as modified herein. Water main joints shall be kept free of concrete.

SEPARATION FROM WATERMAIN

Lay water mains a minimum of 8' from sewer lines (center to center).

When water mains cross over sewers, provide a minimum of 12 inches from the bottom of the water main to the top of the sewer.

When water mains cross under sewers, provide a minimum of 18 inches from the top of the water main to the bottom of the sewer.

TRACER WIRE

Install warning wire along the length of all non-metallic pipes.

Tracer wire shall be located directly above and within 6 inches of the non-metallic pipe.

FIELD QUALITY CONTROL

Test waterman, including valves, in accordance with Section 4.15.0 of the Standard Specifications.

Flush and disinfect water system in accordance with Section 382.40(8)(i) of the State of Wisconsin Administrative Code.

Tracer Wire Conductivity:

1. After completion of non-metallic sewer construction, the Contractor shall furnish a locator and using a low voltage circuit, test the entire trace wire system in the presence of the Architect or Engineer.

2. The test shall consists of a continuous above ground trace of the non-metallic sewer system, areas failing the location test shall be corrected at no additional cost to the Owner.

End of Section

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SECTION 33 30 00 - SANITARY SEWER SYSTEMS

PART ONE - GENERAL

WORK INCLUDED

Connection to existing Sanitary Sewer.

Trenching and backfilling required for work of this section.

Furnish and install piping for sanitary sewer service, appurtenances and bedding from public main to within 5 feet of building.

REFERENCE

Standard Specifications for Sewer and Water Construction in Wisconsin, 6th Edition, Public Works Industry Improvement Program, 2835 North Mayfair Road, Milwaukee, WI 53227.

AWWA - American Water Works Association Standards.

State of Wisconsin Administrative Code, Chapters SPS 382 and SPS 384.

PART TWO – PRODUCTS

SANITARY SEWER PIPE

Polyvinyl Chloride Pipe (PVC), SDR-35 PVC, meeting the requirements of ASTM D3034, and push-on joints with elastomeric gaskets meeting the requirements of ASTM D3212. Do not mix different manufacturer's products, or fittings.

PVC SEWER PIPE BEDDING

PVC sewer pipe bedding shall meet requirements of Table 34, Article 8.43.2 of Standard Specifications for Sewer and Water Construction.

TRACER WIRE

18 gauge wire with 0.015 inch thick vinyl insulation, insulation color green.

Moisture, oil and gasoline resistant.

Splices either solder or brass clamp wrapped with electrical tape or shrink-wrapped.

Exterior access locations shall include a means of protecting the tracer wire.

PIPE INSULATION

Rigid closed-cell extruded polystyrene insulation suitable for buried insulation.

Insulation shall have a minimum thickness of 2.5 inches.

Insulation shall be installed as detailed in construction documents and in location shown on construction documents.

PART THREE – EXECUTION

EXAMINATION

PVC pipe installation shall meet requirements of Chapter 3.2.0 of Standard Specifications for Sewer and Water Construction.

TRACER WIRE

Install warning wire along the length of all non-metallic pipes.

Tracer wire shall be located directly above and within 6 inches of the non-metallic pipe.

SEPARATION FROM WATER MAIN

Sanitary sewer mains shall be placed at least 8 feet horizontally (center to center) from any existing or proposed water main. If, due to ledge rock conditions or physical barriers, the Project Manager determines that the 8-foot horizontal separation cannot be maintained, the horizontal separation may be reduced to a minimum of 3 feet if the bottom or the water main is at least 18 inches above the top of the sewer.

When sanitary sewer mains cross under water mains, provide a minimum separation of 12 inches from the bottom of the water main to the top of the sewer. When sanitary sewer mains cross over water mains, provide a minimum of 18 inches from the bottom of the sewer to the top of the water main.

AS-BUILT PLAN

Contractor shall provide an "As-Built" plan with all measurements to the nearest 0.01 foot at no cost to the OWNER or ARCHITECT.

FIELD QUALITY CONTROL

Testing and Inspection:

1. Test sanitary sewer in accordance with State of Wisconsin Administrative Codes Section SPS 382.21.

2. Tracer Wire Conductivity:

    a. After completion of non-metallic sewer construction, the Contractor shall furnish a locator and using a low voltage circuit, test the entire trace wire system in the presence of the Architect or Engineer.

    b. The test shall consist of a continuous above ground trace of the non-metallic sewer system, areas failing the location test shall be corrected at no additional cost to the Owner.

End of Section

SECTION 33 40 00 - STORM UTILITY DRAINAGE PIPING

PART ONE - GENERAL

WORK INCLUDED

The CONTRACTOR shall provide all materials, labor, equipment and services necessary for the completion of the work specified in this section.

Installation of storm sewer pipe.

REFERENCES

6th Edition of Standard Specifications for Sewer and Water Construction in Wisconsin, Public Works Industry Improvement Program, 2835 North Mayfair Road, Milwaukee, WI 53223.

Standard Specifications for Highway and Structure Construction, Current Edition, State of Wisconsin, Department of Transportation, Division of Highways.

Wisconsin Department of Safety and Professional Services (SPS), Wisconsin Plumbing Products Register, latest edition.

PART TWO – PRODUCTS

STORM SEWER PIPE AND CULVERT

Storm sewer pipe with diameters greater than 10" may use any of the pipe materials below unless specifically identified on the plan.

1. Polyvinyl Chloride (PVC) pipe conforming to ASTM D3034. Pipes over 15" in diameter shale meet the requirements of ASTM F679. Do not mix different manufacturer's products or fittings.

2. Corrugated Wall High-density Polyethylene (HDPE) pipe with diameters 12"-36", shall meet the requirements of ASTM F2306, AASHTO M-294, Type S. Joints for fittings and pipe shall be soil-tight bell and spigot, provided with rubber gasket. Rubber gasket shall be installed by the pipe manufacturer.

Perforated underdrain storm sewer pipe with diameters less than 10" may High-density Polyethylene (HDPE) pipe conforming to AASHTO M252, type CP. Underdrain shall be wrapped with a geotextile fabric of knitted, woven, or non-woven fibers of polyester, polypropylene, stabilized nylon, polyethylene, or polyvinylidene chloride. Do not use slit film woven fabrics. Fabric shall have a minimum grab tensile strength of 35 lb (ASTM D-46320), an apparent opening size No. 30-200 (ASTM D-4751), and a minimum permttivity of 1.35 s^{-1}.

PIPE BEDDING

Pipe bedding shall conform to Section 312000 Earthmoving, 2.1.D Stone Bedding.

Use bedding material of 3/8" crushed stone chips with the following gradation:

Sieve Size	Percent Passing
1/2-inch	100%
3/8-inch	90-100%
No. 8	0-15%
No. 30	0-3%

CONNECTIONS

Connections between pipes shall be made by using fittings furnished by the manufacturer of the pipe and designed specifically for that purpose.

RIP RAP

Rip Rap shall be sized in accordance with the plan set document and in accordance with Section 606 of the Wisconsin Department of Transportation Standard Specification for Highway and Structure Construction. Rip Rap shall be installed on a geotextile fabric conforming to subsection 645.3.6. Rip Rap Color shall be selected by the Owner.

TRACER WIRE

18 gauge wire with 0.015 inch thick vinyl insulation, insulation color brown. Moisture, oil and gasoline resistant.

Splices either solder or brass clamp wrapped with electrical tape or shrink-wrapped.

Exterior access locations shall include a means of protecting the tracer wire.

PIPE INSULATION

Rigid closed-cell extruded polystyrene insulation suitable for buried insulation.

Insulation shall have a minimum thickness and width as detailed in construction documents.

Insulation shall be installed as detailed in construction documents and in location shown on construction documents.

PART THREE – EXECUTION

INSTALLATION

Install storm sewer pipe in accordance with the Standard Specifications for Highway and Structure Construction, Current Edition subsection 607.3 and supplemented as follows:

Trench width shall be in accordance with ASTM Designation D2321 for the standard practice for Underground Installation of Flexible Thermoplastic Sewer Pipe. Minimum width of trench shall be not less than the greater of either the pipe outside diameter plus 16 inches or the pipe outside diameter times 1.25 plus 12 inches.

Joints for storm sewer pipe shall be sealed to 10 psi.

Install perforated under drain in accordance with Section 612 of the Standard Specifications for Highway and Structure Construction.

CLEANING CULVERTS AND STORM PIPES

CONTRACTOR shall remove all silt and debris accumulated in the culverts and storm sewer pipe, including pipe, inlets and outlets of the system. This work shall be performed after the completion of paving and after all turf areas have an established sufficient growth of grass to prevent sediment runoff.

SEPARATION FROM WATER MAIN

Storm sewer mains shall be placed at least 8 feet horizontally (center to center) from any existing or proposed water main. If, due to ledge rock conditions or physical barriers, the Project Manger determines that the 8-foot horizontal separation cannot be maintained, the horizontal separation may be reduced to a minimum of 3 feet if the bottom of the water main is at least 18 inches above the top of the sewer.

When storm sewer mains cross under water mains, provide a minimum separation of 12 inches from the bottom of the water main to the top of the sewer. When storm sewer mains cross over water mains, provide a minimum of 18 inches from the bottom of the sewer to the top of the water main.

If an existing water main is encountered while laying the storm sewer and it is impossible to obtain the proper vertical separation, immediately inform the ARCHITECT and reconstruct the water main for a minimum distance of 8 feet on either side of the storm sewer to permit centering one full length of water main over the storm sewer.

TRACER WIRE

Install warning wire along the length of all non-metallic pipes.

Tracer wire shall be located directly above and within 6 inches of the non-metallic pipe.

AS BUILT PLAN

Contractor shall provide an “As Built” plan with all measurements to the nearest 0.01 foot at no cost to the OWNER or ARCHITECT.

FIELD QUALITY CONTROL

Testing and Inspection:

1. Tracer Wire Conductivity:

    a. After completion of non-metallic sewer construction, the Contractor shall furnish a locator and using a low voltage circuit, test the entire trace wire system in the presence of the Architect or Engineer.

    b. The test shall consist of a continuous above ground trace of the non-metallic sewer system; areas failing the location test shall be corrected at no additional cost to the Owner.

End of Section

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