Horty Elving®

Planning
Architecture
Engineering
Interior Design

Project Manual©

for

St. Croix County Health Center
Additions and Renovation
Bid Package #1
New Richmond, Wisconsin

Horty Elving Commission # 146038

(VOLUME 1 OF 1)

Date: 6/2/15

Horty Elving & Associates, Inc. 505 East Grant Street, Minneapolis, MN 55404-1490 T 612.332.4422 F 612.344.1282 hortyelving.com

SECTION 00 01 05 - CERTIFICATIONS PAGE

1.1 PROJECT INFORMATION

A. Project Identification: St. Croix County Health Center, Additions and Renovation, Bid Package #1.

B. Project Location:

St. Croix County Health Center
1445 N 4th Street
New Richmond WI 54017

1.2 DESIGN PROFESSIONALS OF RECORD

A. Architect:

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 Architect under the laws of the State of Minnesota.

Rick Moore, License No. 14836

Signature

Date Issued: 6/2/15.

B. Structural Engineer:

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 Minnesota.

Craig L. Blahut, License No. 22476

Signature

Date Issued: 6/2/15.

C. Civil Engineer:

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 Minnesota.

William H. Dunlop, P.E., License No. 37807-6

Signature

Date Issued: 6/2/15.

1.3 DISCLAIMER

A. These specifications are the copyrighted work product of Architect and reuse, modification or reproduction of these documents without the express written consent of Architect is prohibited. The architectural or related services performed or furnished by the Architect for this Project are provided subject to the care and skill ordinarily exercised by members of the architectural profession practicing under similar circumstances at the same time and in the same locality. Architect makes no warranties, express or implied, in connection with its services.

END OF SECTION 00 01 05

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Commission # 146038

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1.1 LIST OF DRAWINGS

A. Drawings: Drawings consist of the Contract Drawings and other drawings listed on the Table of Contents page of the separately bound drawing set titled St. Croix County Health Center, Additions and Renovation, Bid Package #1, dated 6/2/15, as modified by subsequent Addenda and Contract modifications.

B. List of Drawings: Drawings consist of the following Contract Drawings and other drawings of type indicated:

Civil	
C100	DEMOLITION PLAN
C200	SITE PLAN
C201	SITE PLAN - COURTYARD DESIGN
C300	GRADING AND EROSION CONTROL PLAN
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END OF SECTION 00 01 15

SECTION 00 11 16
INVITATION TO BID

PROJECT: Bid Package # 1
St. Croix County Health Center Additions and Renovation
New Richmond, WI

BID DEADLINE: Tuesday, June 23, 2015, @ 2:00 p.m. local time

BID TO: St. Croix County Facilities Department
Attn: Monica Lucht
1101 Carmichael Road – Suite G315
Hudson, WI 54016

or

Fax: (715) 377-5818

or

Email: bids@co.saint-croix.wi.us

Sealed bids for the above project will be received, on behalf of the Owner, by the Market & Johnson, Inc., at the above location, until the Bid Deadline. All bids must be submitted on the bid form supplied and in accordance to the Work Categories outlined in the specifications. Facsimile bids will be accepted.

Bids will be opened publicly.

Bids shall be submitted in accordance with the documents prepared by Horty Elving & Associates, Inc. and dated June 2, 2015.

In general, the project consists of new construction of a 50 bed skilled nursing facility and 10 bed Dementia/mental health crisis unit, and renovation of the existing facility into a 40 bed CBRF per the final program approved by the County Board..

A pre-bid meeting will be held at the St. Croix County Health Center, 1445 N. 4th St., New Richmond, WI 54017 on Wednesday, June 10 @ 10:00 AM.

Bid documents may be examined at the following locations: Market & Johnson's Office, Eau Claire, WI or Oakdale, MN; Minnesota Builders Exchange and the Northwest Builders Exchange.

Electronic bid documents can be obtained by contacting Market & Johnson at 715-834-1213, and an email will be sent with a link to access the plans. (If using the electronic website, addenda will be posted to this site and it is the bidder's responsibility to check for addenda issued.)

No bid security will be required unless noted specifically under Work Category.

The Owner or Construction Manager may contract with the successful bidder. The Owner reserves the right to reject any or all bids, to waive informalities in any bid and to accept any bid which the Owner may determine to be in its best interest.

No proposal may be withdrawn for a period of 120 days after opening of the proposals without consent of the Owner.

***

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

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3. Method of Bidding
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16. Request for Substitution, Voluntary Alternates
17. Taxes
18. Laws, Permits, Licenses and Regulations

1. Receipt and Opening of Bid Proposals

Market & Johnson, Inc. requests Bid Proposals for the construction of St. Croix County Health Center – Additions and Renovation.

Bid Proposals will be received as noted in the Invitation to Bid. The Bid Proposals will be opened in public by Market & Johnson.

Bid Proposals can be emailed in .pdf format to bids@co.saint-croix.wi.us, or faxed to (715) 377-5818, or may be submitted in sealed envelope to St. Croix County Facilities Department, Attn: Monica Lucht, 1101 Carmichael Road – Suite G315, Hudson, WI 54016. Bid proposal shall be designated as "Bid Proposal for St. Croix County Health Center – Additions and Renovation"

2. Pre-Bid Conference

A pre-bid conference will be held at the St. Croix County Health Center, 1445 N. 4th St., New Richmond, WI 54017 on Wednesday, June 10 @ 10:00 AM.

3. Method of Bidding

Each Bid shall be based on the provisions in the Instruction to Bidders, General Conditions of the Contract for Construction, Supplementary General Conditions, Special Conditions, Divisions 00 and 01 and Specification Sections and related Drawings.

4. Requirements of Signing

Each Bid must include the full business address of the Bidder as well as the telephone and fax numbers, contact and authorized signature.

When requested by Market & Johnson, satisfactory evidence of agency or authority of any person signing on behalf of another must be furnished.

5. Furnish and Install

"Furnish and Install" means to provide all labor, materials, insurance, taxes, equipment, etc. to complete the described work, per the plans and specifications.

"Install Only" means receive delivery on board, unload, uncrate and install, including all labor, miscellaneous materials, insurance, taxes, and equipment necessary for materials supplied by others. This also includes removal of debris generated by materials supplied by others.

"Furnish Only" means deliver, tax and freight included (FOB job site), materials to the Owner's facility for installation by others. Delivery shall be made during standard working hours and notification of delivery shall be given to Market & Johnson 72 hours in advance.

Specification sections are used to designate areas of work. All Bidders are required to review all specifications and plan documents in order to evaluate the extent of their work.

Specification sections that are included in these specifications but are not itemized within any specific Work Category are the full responsibility of all Subcontractors as they relate to their primary scope of work.

Assignments of specification sections to a given Work Category are for purposes of indicating primary responsibility for such work only. The number designation for a Work Category does not relieve other Subcontractors from providing work for this specification section as it relates to their primary scope of work.

6. Bid Form

Bids must be submitted on the Bid Form provided in this manual. The Bid Form must be complete with all blank spaces filled in. Any incomplete Bids may be disqualified.

Bidder shall submit separate Bid Form for each Work Category being bid upon or for each combination bid being submitted.

Additional copies of the Bid Form are available at the office of Market & Johnson, Inc.

7. Bid Security

Bidders in selected Work Categories shall submit a bid bond or certified check in the amount of ten percent (10%) of the maximum amount of the bid. Bid bond shall be AIA Document A310 or equivalent form. Failure to include this bid security with the Bid Form will result in disqualification.

Certified checks will be returned after the Owner has a contractual agreement for similar work category or for a period of 120 days.

8. Withdrawal or Revision of Bids

Bids may be withdrawn or revised by written request received from Bidder prior to the time for opening bids. Negligence on the part of the Bidder in preparing the Bid infers no right for withdrawal of the Bid after it has been opened.

All Bids shall be effective and open for acceptance for a period of 120 days after the date and time set for receipt of Bids.

9. Acceptance and Rejection of Bids

Market & Johnson reserves the right to reject any or all bids or to waive any informalities in any Bid or to accept any Bid which will be in the best interests of our firm and the Owner. In addition, the Bidder recognizes the right of Market & Johnson to reject a Bid if the Bidder failed to furnish any of the data required by the Bidding Documents, or if the Bid is in any way incomplete or irregular. Market & Johnson also reserves unrestricted privilege to accept or reject any given prices for additions to or deductions from work as given in Bid.

10. Post-Bid/Pre-Award Information and Submittal Requirements

A. Bidders to whom award of a Contract is under consideration shall submit to Market & Johnson, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement.

B. Market & Johnson reserves the right to request copy of the Bidder's audited financial statement, four-year revenue history, overall bonding capacity, and current available bonding capacity. This information will be held confidential, and is a part of Market & Johnson's Subcontractor Evaluation and Selection Process. By virtue of submitting a Bid, this Subcontractor agrees to submit any and all information requested by Market & Johnson as outlined in these Instructions to Bidders, as well as any other information reasonably requested as a part of Market & Johnson's process for evaluating and selecting Subcontractors.

C. Bidders shall submit to Market & Johnson satisfaction supporting data confirming their ability to furnish a Certificate of Insurance in accordance with the project requirements.

D. The apparent successful Bidder, within three (3) days after notification, shall submit to Market & Johnson the names and addresses of all proposed Subcontractors and/or vendors within the Work Category. Subcontractors and/or vendors with contracts of $5,000 or less need not be listed initially.

The Bidder will be required to establish to the satisfaction of Market & Johnson the reliability and responsibility of the proposed Sub-subcontractors and/or Vendors to furnish and perform the work described in the sections of the specifications pertaining to such proposed Subcontractor's respective trades.

If an agreement with Sub-subcontractors and/or Vendor cannot be reached, Market & Johnson reserves the right to delete that particular portion of work from the Subcontract and award separate subcontract for the same.

If construction conditions necessitate, the Subcontractor, at no change in contract price, may make substitution of a Sub-subcontractor and/or Vendor, provided such substitution provided in writing and has been accepted by Market & Johnson and Owner.

E. Bidders shall submit supporting data confirming their ability to adequately staff the project with qualified labor classifications as may be required to support the project schedule and other project requirements. Specific clarifications may include, but are not limited to qualifications and resumes of project management team with organization chart identifying reporting lines and locations of individuals, whether on site or in your corporate office. Includes as a minimum project manager, field supervisors and trade foremen. Demonstrate the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in Bidding Documents. Once Bidder's team has been established, this team cannot be changed without written consent of Market & Johnson.

11. Availability of Contract Documents

Contract Documents are available for review and purchase as noted on the Invitation to Bid.

12. Examine Contract Documents and Site

Each Bidder shall read and familiarize themselves with Division 00, Division 01 and applicable Specification Sections. The Bidder shall also examine all drawings. The successful Bidder will be required to perform all the work belonging to the specific Work Category, which is either shown on the Drawings, mentioned in the Specifications, or reasonably implied as necessary to complete the work in the Work Category, including removal of existing work and preparing old work to receive

new. Each bidder shall also review the Subcontract/Purchase Agreement form included within these specifications.

Each bidder shall visit the site to become acquainted with the following: adjacent areas, means of approach to the site, conditions of actual job site, and facilities for delivering, storing, placing and handling of materials and equipment. Bidders shall compare Specifications and Drawings with existing conditions and inform themselves of all conditions affecting execution of work, including other work, if any, being performed.

No consideration will be granted for any alleged misinterpretation or misunderstanding of the work to be done and/or materials or equipment to be furnished.

13. Interpretations, Discrepancies and Omissions

No oral explanation in regard to the meaning of Drawings and Specifications will be made and no oral instructions will be given before award of a contract. Bidders shall bring discrepancies, omissions, conflicts, or doubt as to true meaning of any part of contract documents to Market & Johnson's attention, in writing, at least five (5) days before the due date for bids. Prompt clarifications will immediately be supplied to bidders by Addendum.

Failure to request clarification or interpretation of Contract Documents will not relieve a Subcontractor and/or Vendor of their responsibilities. Signing of the Proposal/Bid Form will imply that the Subcontractor has thorough comprehension of full intent and scope of the Contract Documents.

Neither the Owner or Architect, nor Market & Johnson will be responsible for oral instructions. Only a written interpretation or correction by Addendum shall be binding. No bidder shall rely upon any interpretation or correction given by any other method.

14. Addenda

All addenda issued during the time of bidding shall become part of the Contract Documents and each Addenda shall be acknowledged on the Bid Form. Failure to acknowledge addenda may disqualify bidder.

15. Alternates

Each Bidder must bid on the Alternate(s) listed in the Bid Form that is applicable to their respective Work Category. Alternates will be considered in awarding of the Contracts and Purchase Orders.

Market & Johnson shall be allowed a period of one hundred twenty (120) days after receipt of a signed Subcontract/Purchase Order to accept or reject any or all alternates submitted on the Bid Form.

16. Request for Substitution, Voluntary Alternates

Whenever a material, article, or piece of equipment is identified in the Contract Documents by reference to manufacturer or vendor's names, trade names, catalog numbers, or the like, it is so identified for the purpose of establishing a standard. Any material, article or piece of equipment of other manufacturers or vendors, which will perform adequately the duties imposed by the general design, will be considered equally acceptable provided the material, article or piece of equipment so proposed is, in the opinion of the Architect, of equal substance, appearance and function. Alternate work shall not be performed and substitute or alternate materials or equipment shall not be purchased or installed by the Subcontractor and/or Vendor without the Architect's prior written approval. Base bids must be based upon the item specified, not upon voluntary alternates. Reference Substitution Request Form.

Subcontractors are encouraged to offer voluntary alternates to items specified. Voluntary alternates should list the add or deduct amounts to the base bid for each item and should provide an adequate description of each item or system suggested. The Owner, Architect and Market & Johnson reserve the right to accept or reject any voluntary alternates. If accepted, voluntary alternates will be subject to the requirements for Substitutions.

In the event that a Subcontractor is awarded a contract and submits for approval a material, article or piece of equipment which is considered as unequal to the specified item by the Owner, Architect, and/or Market & Johnson, the Subcontractor shall be required to provide the specified item at no additional cost.

17. Taxes

Each Bidder shall include all taxes required by law in the Bid Proposal. Where the Owner is exempt from payment of state sales tax, the Owner reserves the right to purchase materials for the project.

18. Laws, Permits, Licenses, and Regulations

Attention is particularly directed to the General Conditions for requirements that deal with laws, permits, licenses and regulations.

Subcontractors and/or Vendors shall conform to all applicable federal and state laws, municipal ordinances, rules and regulations or all authorities having jurisdiction over construction, including all construction codes and safety code which may apply to the following:

Performance of the work.
Protection of adjoining and adjacent property.
Maintenance of passageways, guard fences or other protective facilities.

Market & Johnson shall provide the general building permit. Each Subcontractor and/or Vendor shall obtain and pay for all other permits, licenses and approvals for their work and give all notices as required for each specific Work Category.

Subcontractor and/or Vendor shall arrange for all inspections required by federal, state, municipal or other authorities and pay all fees and costs incurred.

***

SECTION 00 23 00
WORK CATEGORIES

Definitions:

"Furnish and Install" means to provide all labor, materials, insurance, taxes, equipment, etc. to complete the described work, per plans and specifications.

"Install Only" means receive delivery on board, unload, uncrate and install, including all labor, miscellaneous materials, insurance, taxes, and equipment necessary for material supplied by others. This also includes removal of debris generated by materials supplied by others.

"Furnish Only" means deliver, tax and freight includes (FOB job site), materials to the Owner's facility for installation by others. Delivery shall be made during standard working hours and notification of delivery shall be given to Market & Johnson 72 hours in advance.

WORK CATEGORY NUMBER	SPECIFICATION SECTION(S)	PORTION OF WORK
03A	03 30 00 – Cast-In-Place Concrete	Furnish and Install
03B	03 41 00 – Precast Structural Concrete	Furnish and Install
31A	31 05 00 – Common Work Results for Earthwork	Furnish and Install
	31 10 00 – Site Clearing and Grubbing	Furnish and Install
	31 13 16 – Tree Protection	Furnish and Install
	31 20 00 – Earthmoving	Furnish and Install
	31 20 16 – Building Earthwork	Furnish and Install
	31 22 16.15 – Subgrade Preparation	Furnish and Install
	31 22 16.13 – Trenching	Furnish and Install
	31 25 00 – Erosion Control	Furnish and Install
	32 11 23 – Aggregate Base Course	Furnish and Install
32A	32 05 00 – Common Work Results for Exterior Improvements	Furnish and Install
	32 12 16 – Asphalt Paving	Furnish and Install
32B	32 05 00 – Common Work Results for Exterior Improvements	Furnish and Install
	32 16 00 – Curbs and Sidewalks	Furnish and Install
32C	32 05 00 – Common Work Results for Exterior Improvements	Furnish and Install
	32 32 23 – Modular Retaining Wall Systems	Furnish and Install
32D	32 05 00 – Common Work Results for Exterior Improvements	Furnish and Install
	32 91 19 – Topsoil-Select Fill Materials and Application	Furnish and Install
	32 92 00 – Trees, Shrubs, and Other Plantings	Furnish and Install
	32 92 19 – Seeding and Sodding	Furnish and Install
33A	33 10 00 – Water Utilities	Furnish and Install
	33 30 00 – Sanitary Sewerage Utilities	Furnish and Install
	33 40 00 – Storm Sewer Construction	Furnish and Install

DOCUMENT 002600 - PROCUREMENT SUBSTITUTION PROCEDURES

1.1 DEFINITIONS

A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids.

B. Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Contract Documents, submitted following Contract award. See Section 01 25 00 "Substitution Procedures" for conditions under which Substitution requests will be considered following Contract award.

1.2 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.3 PROCUREMENT SUBSTITUTIONS

A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.

B. Procurement Substitution Requests will be received and considered by Owner when the following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action:

1. Extensive revisions to the Contract Documents are not required.
2. Proposed changes are in keeping with the general intent of the Contract Documents, including the level of quality of the Work represented by the requirements therein.
3. The request is fully documented and properly submitted.

1.4 SUBMITTALS

A. Procurement Substitution Request: Submit to Architect. Procurement Substitution Request must be made in writing in compliance with the following requirements:

1. Requests for substitution of materials and equipment will be considered if received no later than 10 days prior to date of bid opening.
2. Submittal Format: Submit each written Procurement Substitution Request, using form bound in Project Manual.
3. Submittal Format: Submit Procurement Substitution Request, using format provided on Project Web site.

    a. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specifications Sections and drawing numbers.

b. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:

1) Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
2) Copies of current, independent third-party test data of salient product or system characteristics.
3) Samples where applicable or when requested by Architect.
4) Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
5) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
6) Research reports, where applicable, evidencing compliance with building code in effect for Project, from ICC-ES.
7) Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate the proposed substitute.

c. Provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.

d. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the Procurement Substitution Request.

B. Architect's Action:

1. Architect may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Architect will notify all bidders of acceptance of the proposed substitute by means of an Addendum to the Procurement and Contracting Documents.

C. Architect's approval of a substitute during bidding does not relieve Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents.

D. PROCUREMENT SUBSTITUTION REQUEST FORM

1. See following page.

© Horty Elving & Associates, Inc.

Date: ___________________________

To: Horty Elving & Associates, Inc.
505 East Grant Street
Minneapolis, Minnesota 55404

Project Identification: St. Croix County Health Center, Additions and Renovation, Bid Package #1.

We hereby submit for your consideration the following product instead of the specified item:

Section:____
Paragraph:____
Specified Item: ____
Proposed Substitution:____

(Attach complete technical data, including laboratory tests, if applicable.)

Include complete information changes to Drawings and/or Specifications which proposed substitution will require for its proper installation. Fill in blanks below:

A. Does the substitution affect dimensions shown on Drawings?
____

B. Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?
____

C. What effect does substitution have on other trades?
____

D. Differences between proposed substitution and specified item?
____

E. Manufacturer's guarantees of the proposed and specified items are:
_______ Same _______ Different (explain on attachment)

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Submitted by: ____(signature)
Firm: ____
Address: ____
____
Telephone: ______________________
Date: ______________________

//
For use by Horty Elving & Associates only:

_____ Accepted; _____ Accepted as noted; _____ Not Accepted; _____ Received too late
Date: ____________________ By: _________ Remarks:_________________________

END OF DOCUMENT 00 26 00

SECTION 00 31 19 - EXISTING CONDITION INFORMATION

1.1 EXISTING CONDITION INFORMATION

A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of the Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.

B. Existing drawings that include information on existing conditions including previous construction at Project site are available for viewing upon request of Architect.

C. Survey information that includes information on existing conditions, prepared by Francis W. Bleskacek, dated <**Insert date of survey**>, is available for viewing as part of Drawings.

D. Related Requirements:

1. Section 00 21 13 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
2. Section 00 31 32 "Geotechnical Data" for reports and soil-boring data from geotechnical investigations that are made available to bidders.

END OF SECTION 00 31 19

SECTION 00 31 32 - GEOTECHNICAL DATA

1.1 GEOTECHNICAL DATA

A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.

B. A geotechnical investigation reports for Project, prepared by American Engineering Testing, Inc., dated 4/10/15, and Addendum No. 1, dated 4/13/15, are available for viewing as appended to this Document.

C. Related Requirements:

1. Section 00 21 13 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
2. Section 00 31 19 "Existing Condition Information" for information about existing conditions that is made available to bidders.

END OF SECTION 00 31 32

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

REPORT OF GEOTECHNICAL EXPLORATION AND REVIEW

Proposed Skilled Nursing Facility

St. Croix Health Center
1445 North 4th Street
New Richmond, Wisconsin

AET Project No. 31-01182

Date:

April 10, 2015

Prepared for:

St. Croix County
1101 Carmichael Road
Hudson, Wisconsin 54016

www.amengtest.com

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
• ENVIRONMENTAL
• GEOTECHNICAL
• MATERIALS
• FORENSICS

April 10, 2015

St. Croix County
1101 Carmichael Road
Hudson, Wisconsin 54016

c/o Ms. Tu-Anh Bui Johnson – Horty Elving and Associates, Inc.

RE: Report of Geotechnical Exploration and Review
Proposed Skilled Nursing Facility
St. Croix Health Center
1445 North 4th Street
New Richmond, Wisconsin
AET Project No. 31-01182

Dear Ms. Johnson:

We are pleased to present the results of our subsurface exploration program and geotechnical review for your project in New Richmond, Wisconsin. These services were performed according to our proposal to St. Croix County dated February 25, 2015.

We are submitting two hard copies of this report to you along with an electronic copy.

We have enjoyed working with you on this phase of the project. Please contact us if you have questions about this report or require further assistance.

Sincerely,

American Engineering Testing, Inc.

Blake E. Snyder, EIT
Geotechnical Engineer

1837 County Highway 00 | Chippewa Falls, WI 54729
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Signature Page

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Unified Soil Classification System
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Gradation Test Results
SBD-10793 – Soil Evaluation-Storm

APPENDIX B Geotechnical Report Limitations and Guidelines for Use

1.0 INTRODUCTION

St. Croix County is planning the construction of an addition of a Skilled Nursing Facility to the existing St. Croix Health Center in New Richmond, Wisconsin. To assist with planning and design, St. Croix County authorized American Engineering Testing, Inc. (AET) to conduct a subsurface exploration program at the site and perform a geotechnical engineering review for the project. This report presents the results of the above services, and provides our engineering recommendations based on this data.

2.0 SCOPE OF SERVICES

AET's services were performed according to our proposal to St. Croix County dated February 25, 2015, which was authorized by Ms. Kristen Ziliak of St. Croix County on March 11, 2015. The authorized scope consists of the following:

- Nineteen standard penetration test (SPT) borings to depths of 10 to 20 feet each.
- Visual/manual classification and limited laboratory testing of the recovered soil samples.
- Geotechnical engineering analysis based on the gained data and preparation of this report.

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

3.0 PROJECT INFORMATION

A large portion of the existing St. Croix Health Center building will be razed prior to construction of the addition of a Skilled Nursing Facility. The proposed addition will cover about 52,800 gross square feet, be a single-story structure with no basement, and have frost-depth footings and a concrete slab-on-grade. The proposed addition finished floor elevation is about 1045.67 feet, but that has not yet been finalized and could be adjusted. The project will also include paved parking/driving areas and several stormwater management areas.

The above stated information represents our understanding of the proposed construction and is an integral part of our engineering review. It is important we be contacted if there are changes from that described so we can evaluate if modifications to our recommendations are appropriate.

4.0 SUBSURFACE EXPLORATION AND TESTING

4.1 Field Exploration Program

Our subsurface exploration program for the project consisted of drilling nineteen borings with standard penetration testing (SPT) and sampling on March 27, 30, and 31, 2015. Horty Elving selected the number and locations of the borings. AET and Horty Elving mutually agreed on the planned boring depths. We located the borings by measuring from existing objects at the site; the approximate boring locations are shown in Figure 1 in Appendix A. We measured the surface elevations at the borings with an engineer's level, using the ground surface next to the fire hydrant located on the west side of the westernmost existing entrance to the existing building as our benchmark; that ground surface has an elevation of 1040.0 feet, as provided by the City of New Richmond.

Prior to drilling, we contacted Wisconsin Diggers Hotline to locate public underground utilities at the site. We drilled the borings using 3¼-inch inside diameter hollow stem augers. Refer to Appendix A for details on the drilling and sampling methods, the classification methods, and the water level measurement details.

The boring logs are found in Appendix A and contain information concerning soil layering, geologic description, moisture condition, and USCS classifications. Relative density or consistency is noted for the natural soils, which are based on the standard penetration resistance (N-value).

Wisconsin Department of Safety and Professional Services (DSPS) form SBD-10793 "Soil Evaluation – Storm" is also included in Appendix A. This form includes USDA soil classifications, infiltration rates established by State of Wisconsin code (based on soil texture), and other soil characteristics from the borings (B-13, B-15, and B-18) we drilled for the stormwater management areas.

4.2 Laboratory Testing

The laboratory testing program included fourteen gradation tests, and thirty-five moisture content tests on selected samples recovered from the borings. The moisture content test results are located on the right side of the boring logs, adjacent to the samples on which the tests were performed. The gradation test results are included in Appendix A. We submitted three of the recovered soil samples to our chemistry laboratory for resistivity, pH, water soluable sulfate, and water soluble chloride testing. We will present those results in a report addendum after we receive the test results.

5.0 SITE CONDITIONS

5.1 Surface Observations

On the days of our drilling, the proposed addition footprint was occupied by existing buildings, recently-razed building spaces, paved parking/driving areas, and some farm field. There was a maximum elevation difference among our borings of about 25.5 feet.

5.2 Subsurface Soils

We measured about 6 to 8 inches of topsoil at the surface of seven borings, 1.5 to 2.5 inches of bituminous pavement at the surface of three borings, and 2 to 4.5 feet of fill at the surface of nine borings. Below the pavement, we encountered about 2 feet of fill overlying about 2 feet of possible fill. Below the topsoil and fill, we encountered coarse and/or mixed alluvium in each

boring with fine alluvium in six borings. We also encountered a layer of weathered sandstone at the bottom of boring B-15.

The fill and possible fill we encountered was mostly silty sand and clayey sand with varying gravel and organic contents, and some with concrete debris. The coarse alluvium was mostly medium dense sand with varying clay, silt, and gravel contents. The mixed alluvium was mostly loose to medium dense clayey sand with varying gravel content. The fine alluvium was mostly soft to firm lean clay or silt. The weathered sandstone we encountered was dense to very dense silty gravel with sand.

5.3 Groundwater

We did not encounter groundwater in any of our soil borings. Because the coarse and mixed alluvial soils we found are relatively fast draining it is our opinion the hydrostatic groundwater table was below the depth of our soil borings on the day we drilled. Groundwater levels will fluctuate due to varying seasonal and annual rainfall and snow melt amounts, as well as other factors. The groundwater levels are usually lower in the winter, and rise into spring and summer as infiltration occurs. The installation of monitoring wells was beyond our scope of services.

6.0 RECOMMENDATIONS

6.1 Approach Discussion

Based on the subsurface conditions found in our borings and on our understanding of the project, it is our opinion the addition can be supported on a conventional footing foundation after proper site preparation has taken place. Details of our recommendations are presented below.

6.2 Building Grading

6.2.1 Excavation

To prepare the addition area for foundation and slab support, we recommend complete removal of all components of previous structures (including footings and floor slabs), organic soils, existing/undocumented fill, soft fine alluvium, and other unsuitable soils that may be found. An experienced soils technician or geotechnical engineer should perform observations during construction to determine actual subcutting requirements. The following table provides our estimated subcut depths at our boring locations; actual subcut depths will vary away from our boring locations and could be more or less than estimated.

Table 1: Estimated Subcut Depths

Boring	Surface Elevation (ft)	Estimated Subcut Depth (ft)	Estimated Subcut Elevation (ft)
B-01	1042.8	1	1041.8
B-02	1043.7	2	1041.7
B-03	1046.8	1	1045.8
B-04	1046.3	2	1044.3
B-05	1047.4	3	1044.4
B-06	1046.3	0.5	1045.8
B-07	1044.6	4.5	1040.1
B-08	1045.9	2	1043.9
B-09	1036.5	4.5	1032.0
B-10	1042.0	4.5	1037.5
B-11	1042.8	4.5	1038.3

After removal of these materials, the exposed naturally-occurring soils should be surface compacted to densify the base soils prior to placement of new fill or concrete. We recommend using a vibratory steel drum roller having a minimum static weight of 20,000 pounds. The roller should make at least 8 passes over each portion of the building area, with 4 passes being perpendicular to the initial 4. An experienced soils technician should evaluate the soils pre- and post-densification using a dynamic cone penetrometer to determine if additional compactive effort is needed.

Where subcutting extends below the proposed foundation grade, the excavation bottom and resultant engineered 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 engineered fill lateral extension should at least be equal to the vertical depth of fill needed to attain foundation grade at that location (i.e., 1:1 lateral oversize).

The contractor must be careful so the excavation does not undercut or disturb the existing building footings or floor slab that will remain in place. Depending on excavation depths, the contractor may have to use underpinning or other suitable techniques to allow correction of the soil.

6.2.2 Fill Placement and Compaction

The existing non-organic granular soils could probably be re-used below the addition foundations or slab-on-grade; some moisture conditioning may be required. The existing fine alluvium at the site should not be re-used as fill below the addition. Imported soil supporting the building foundation or floor slab for this project should be a granular material with less than 12% fines and a maximum aggregate size of 2 inches.

Fill placed to attain grade for foundation and/or slab support should be compacted in thin lifts, such that the entire lift achieves a minimum compaction level of 95% of the maximum Modified Proctor dry density (ASTM D1557). For granular soils, we anticipate a lift thickness on the order of 8 inches may be appropriate, although this should be reviewed in the field at the time of construction.

Note that there was some basement space in the razed buildings. Those basements must be backfilled with compacted granular fill according to our recommendations. If the basements

were already backfilled without controlled compaction, it will be necessary to excavate those areas if located under (or within a 1:1 zone below) new structures or pavement.

6.3 Foundation Design

The addition can be supported on a conventional shallow foundation system founded on competent alluvium or on fill placed and compacted over a suitable subgrade, provided the site has been prepared in accordance with the above recommendations. We recommend that perimeter foundations for heated building spaces bear a minimum of 4 feet below exterior grade for protection from frost penetration. Interior footings in heated areas may bear at a depth to accommodate the structural design. We recommend that footings in unheated areas be extended to a minimum of 6 feet below surrounding grade. We recommend that column footings and bearing wall footings for this project have minimum widths of 3 feet and 18 inches, respectively.

Based on the subsurface conditions we encountered and provided our recommendations are followed, it is our opinion the building foundation can be designed based on a net maximum allowable soil bearing pressure of 3,000 psf. It is our judgment this design pressure will have a factor of safety of at least 3 against localized shear or base failure. With this design we estimate maximum total addition settlements of up to 1 inch, and differential settlements of half this amount over a 30 foot distance, if the bearing soils are not soft, wet, disturbed, or frozen at the time of construction. Note that a higher allowable soil bearing pressure could be achieved if deeper soil improvement is completed.

Settlement for the addition will be differential from the existing building, which has already undergone its complete settlement. The structural engineer should consider this when designing the connections between the addition and existing building.

6.4 Floor Slab Design

Interior backfill in underslab utility trenches and in footing trenches should be held to the same requirements of Section 6.2.2. Following our site preparation recommendations of Section 6.2, the structural engineer can use a modulus of subgrade reaction of 150 pounds per cubic inch to design the floor slab thickness and reinforcement.

We recommend a vapor retarder be placed under the 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 slab. Water vapor migrating upward through the slab can damage floor coverings such as the carpeting, wood, or paint/sealers and contribute to excess humidity and microbial growth in the building. Various methods of vapor retarder construction are described in Part 2, Section 302 of the American Concrete Institute *Manual of Concrete Practice*. The architect or structural engineer should determine the location of the vapor retarder and whether a sand cushion layer is necessary.

The slab-on-grade should be designed and constructed following the recommendations of the Portland Cement Association and the American Concrete Institute. The slab should have construction joints/control joints at spacings recommended by the Portland Cement Association and the American Concrete Institute to mitigate, but not eliminate, slab curling and cracking. The floor slab should be cast independent of the foundation walls of the building to allow relative movement of the slabs and footings to occur without causing excessive distress to the structure.

6.5 Exterior Slabs and Sidewalks

Where exterior slabs and sidewalks abut the building, they should be designed as structural slabs supported on footings bearing at least 5 feet deep. An air gap of at least 4 inches should be left below the slab, and insulation panels should cover the vertical frost walls to act as a bondbreaker

and to prevent adfreezing between the backfilled soils and the frost walls.

As an alternative, silty and clayey soils could be subcut to a depth of 5 feet below bottom of slab/sidewalk 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. This fill should be compacted to at least 95% of the maximum Modified Proctor dry density. The purpose of constructing the NFS subgrade is to reduce the potential for the characteristic heave (including differential heave) that can occur when silty and clayey soils freeze each winter. This heaving can raise the slabs to jam doors or damage the structure. We recommend that 4-inch diameter perforated PVC pipes be placed at the base of the NFS zone to collect and remove precipitation and runoff that infiltrates the NFS backfill. These drain pipes should be wrapped in a geosynthetic filter fabric and lead to a suitable discharge location.

For either option, the civil engineer should include transition zones from the frost-protected slabs/sidewalks to unprotected (or less protected) areas. The purpose of this is to reduce the risk of abrupt transitions in frost heave of slabs and pavements.

6.6 Bituminous Pavement Recommendations

6.6.1 Pavement Subgrade Preparation

We recommend complete removal of all components of previous structures (including footings and floor slabs), organic soils, existing/undocumented fill, and other unsuitable soils that may be found; we also recommend the complete removal of silt and silty clay from the top 2 feet below all pavement areas, since these soils are highly frost susceptible.

After removal of these materials, the exposed soils should be surface compacted to densify the subgrade soils prior to placement of new fill. Some moisture conditioning prior to the

compaction might be required. We recommend using a vibratory steel drum roller having a minimum static weight of 20,000 pounds. The roller should make at least 8 passes over each portion of the pavement subgrade, with 4 passes being perpendicular to the initial 4.

Where fill is needed in pavement areas, it may consist of granular soils excavated from other areas of the site. If new fill will be imported, we recommend that it consist of the same fill discussed in Section 6.2.2. The fill should be placed in loose lifts a maximum of 8 inches thick, with each lift mechanically compacted to at least 95% of the maximum Modified Proctor dry density.

We recommend each pavement area be proof rolled with a fully-loaded tandem-axle dump truck and observed for signs of poor performance by a geotechnical engineer or experienced soils technician, just prior to placing the base course. All soft areas should be dug out and corrected. After the fill and base course have been placed, compacted, and tested with acceptable results, it is the contractor's responsibility to maintain these materials in a suitable condition for paving.

6.6.2 Bituminous Pavement Design Recommendations

The pavement surface should be sloped to drain water into stormwater collection systems to limit infiltration through the pavement. The design of the pavement slope and the stormwater collection systems is beyond our scope of services. The below pavement design is based on passenger vehicles and occasional service vehicles, with a design lifetime of 20 years.

Table 1: Recommended Bituminous Pavement Section

Pavement Component	Pavement Section
WisDOT E-1 (upper layer)	1.75 inches
WisDOT 455.2.5 Tack Coat	Yes
WisDOT E-1 (lower layer)	1.75 inches
WisDOT 305, 1¼-inch gradation (crushed)	10 inches
Geotextile Separation Fabric	Per this report
Subgrade Preparation	Per this report

Where the base course will be placed over a fine-grained soil subgrade, we recommend the placement of a geosynthetic separation fabric between those soils and the overlying base course. The fabric should meet the requirements of WisDOT 645, Type SAS.

The base course should meet the 1-1/4-inch gradation provided in WisDOT 305, and should be compacted to at least 95% of the maximum Modified Proctor dry density.

All bituminous pavement materials and methods should be in accordance with WisDOT Standard Specifications unless otherwise noted in this report.

6.6.3 Pavement Fatigue and Maintenance

Regardless of the subgrade preparation and design, the owner should expect that cracks will appear in the bituminous pavement within 1 to 3 years due to thermal expansion and contraction, and due to the loss of volatiles from the bituminous cement. These cracks cannot be avoided; they should be cleaned annually and filled with a hot bituminous sealant. Within three to five years after construction, cracks and depressions may appear in heavily traveled areas, such as drive aisles. Such areas should be cut out and repaired expeditiously to extend the pavement life. Periodically during the pavement life, the engineer responsible for maintenance of the facility should determine the need to apply a seal coat of hot bituminous and rock chips.

7.0 SEISMIC DESIGN CONSIDERATIONS

According to the International Building Code (2009), the Site Class is determined by the average soil properties in the top 100 feet of soil. The deepest boring for this project extended to 21.5 feet below the ground surface. It is our opinion, based on IBC Table 1613.5.2, that the project site should be classified as Site Class D.

8.0 CONSTRUCTION CONSIDERATIONS

8.1 Groundwater

Based on the conditions found in our borings, it is our opinion the hydrostatic groundwater table would probably not be encountered during building construction, mass grading, or utility installation, but this will depend on groundwater levels at the time of construction. It is possible that zones of perched groundwater would be encountered. If water is encountered in the excavations, 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 or utilities, resulting in excessive post-construction settlement, even if the softened zone is only a few inches thick.

8.2 Disturbance of Soils

The on-site soils can become disturbed under construction traffic, especially if the soils are wet. If soils become disturbed, they should be subcut to the underlying undisturbed soils. The subcut soils can then be dried and recompacted back into place, or they should be removed and replaced with drier imported fill. We recommend that all excavation within 2 feet of final grade in the building area be performed with a backhoe having a smooth-edge bucket (rather than a toothed bucket). The purpose of this is to avoid tearing and disturbing the base soils.

8.3 Excavation Backsloping

If excavation faces are not retained, the excavations should maintain maximum allowable slopes in accordance with *OSHA Regulations (Standards 29 CFR), Part 1926, Subpart P, "Excavations"* (can be found on www.osha.gov). Even with the required OSHA sloping, water seepage or surface runoff can potentially induce sideslope erosion or running which could require slope maintenance.

8.4 Observation and Testing

The recommendations in this report are based on the subsurface conditions found at our test boring locations. Since the soil conditions can be expected to vary away from the soil boring locations, we recommend on-site observation by a geotechnical engineer/technician during construction to evaluate these potential changes. Soil density testing should also be performed on new fill placed in order to document that project specifications for compaction have been met.

9.0 LIMITATIONS

Within the limitations of scope, budget, and schedule, we have endeavored to perform our services according to generally accepted geotechnical engineering practices at this time and location. Other than this, no warranty, either expressed or implied, is intended. Important information regarding risk management and proper use of this report is given in Appendix B entitled "Geotechnical Report Limitations and Guidelines for Use."

Appendix A

AET Project No. 31-01182

Geotechnical Field Exploration and Testing
Boring Log Notes
Unified Soil Classification System
Figure 1 – Boring Locations
Subsurface Boring Logs
Gradation Test Results
SBD-10793 – Soil Evaluation-Storm

Appendix A
Geotechnical Field Exploration and Testing
AET Project No. 31-01182

A.1 FIELD EXPLORATION

The subsurface conditions at the site were explored by drilling and sampling nineteen (19) standard penetration test (SPT) borings. The locations of the borings appear on Figure 1, preceding the Subsurface Boring Logs in Appendix A.

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. After an initial set of 6 inches, the number of hammer blows to drive the sampler the next 12 inches is known as the standard penetration resistance or N-value.

In the past, standard penetration N-value tests were performed using a rope and cathead for the lift and drop system. The energy transferred to the split-spoon sampler was typically limited to about 60% of its potential energy due to the friction inherent in that system. That converted energy provided what is known as an N_{60} blow count.

Most drill rigs today incorporate an automatic hammer lift and drop system, which has higher energy efficiency and subsequently results in lower N-values than the traditional N_{60} values. We use a Pile Driving Analyzer (PDA) and an instrumented rod to measure the actual energy generated by the automatic hammer system. The drill rigs we used for this project (AET drill rig numbers 30 and 67) have measured energy transfer ratios of 99% and 90%, respectively. The N-values reported on the boring logs and the corresponding relative densities and consistencies are from the field blow counts and have not been adjusted to N_{60} values.

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 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.6 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 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; 1-3/8" 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, remoulded (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	Soil Classification: 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]

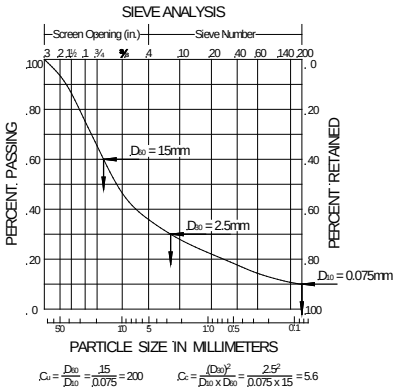
Notes

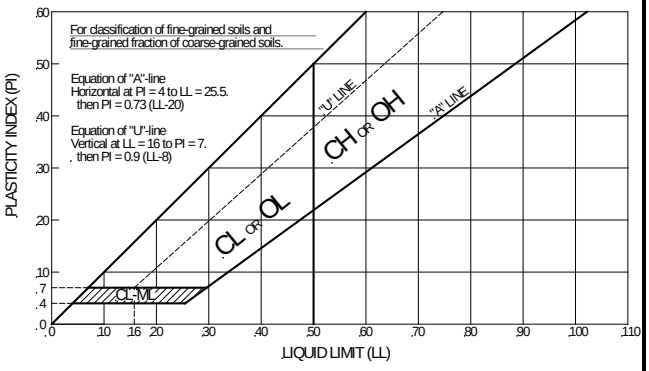
[A]Based on the material passing the 3-in (75-mm) sieve.
[B]If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C]Gravels with 5 to 12% fines require dual symbols:
- GW-GM well-graded gravel with silt
- GW-GC well-graded gravel with clay
- GP-GM 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.





Plasticity Chart

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.

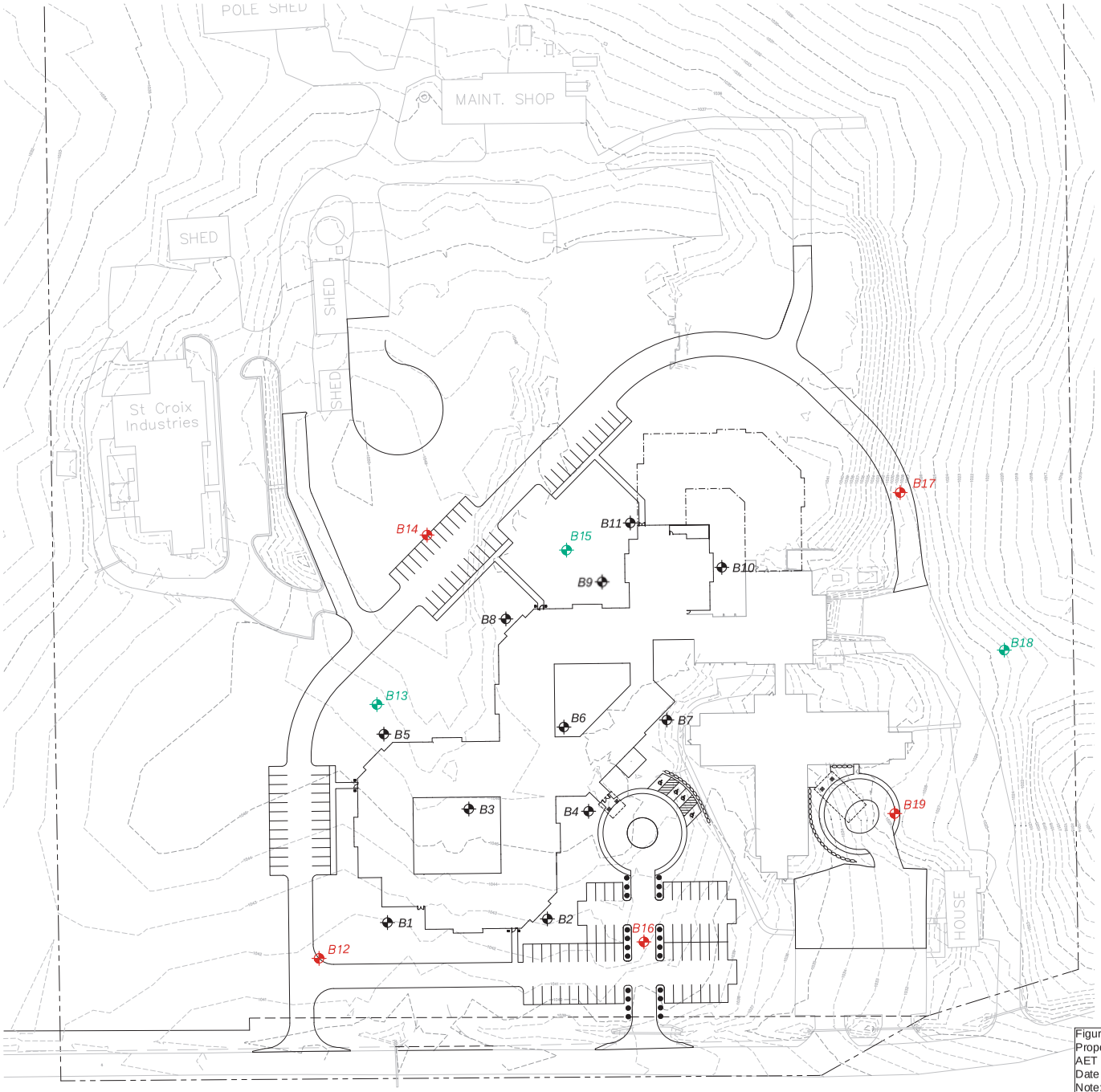
Fiber Content of Peat

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

Organic/Roots 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 soil properties. *Slightly organic* used for borderline cases.

- 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.



LEGEND (PROPOSED)

- PROPERTY LINE
- RIGHT-OF-WAY
- EDGE OF PAVEMENT
- FUTURE BUILDING ADDITION
- RETAINING WALL
- B12 PAVEMENT AREA BORING LOCATION
- B18 STORMWATER MANAGEMENT AREA BORING LOCATION

BORING NOTES

1. SOIL BORINGS SHALL BE COMPLETED TO A DEPTH OF 30 FT±.
2. WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES DOCUMENT SPS-1079S, SOIL EVALUATION – STORM SHALL BE INCLUDED IN GEOTECHNICAL REPORT FOR ALL BORINGS WITHIN POTENTIAL STORMWATER MANAGEMENT AREAS AS SHOWN ON PLAN.

B1 - B11 STRUCTURAL BORING LOCATIONS

STRUCTURAL BORINGS SHALL BE COMPLETED TO A DEPTH OF 15 FT±

Figure 1 - Boring Locations
Proposed Skilled Nursing Facility
AET Project No. 31-01182
Date 4/9/15
Note: Image provided by Horty Elving and edited by AET

north

SCALE IN FEET
40' 0 40'

Horty Elving

Horty Elving & Associates, Inc.
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St. Croix County

Health Center
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description

JSD Professional Services, Inc.
Engineers • Surveyors • Planners

"BUILDING RELATIONSHIPS WITH A COMMITMENT TO CLIENT SATISFACTION THROUGH TRUST, QUALITY AND EXPERIENCE"

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NOT FOR CONSTRUCTION

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SOIL BORING EXHIBIT

Scale	Date	Project Number
	01/27/15	S4401

SB EX.

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-01 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1042.8**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
	CLAYEY SAND, organic, fine to medium grained, dark brown, moist, loose (SC)	TOPSOIL									
1	SILTY CLAY, brown, firm, trace roots (CL)	FINE ALLUVIUM	5	M	SS	20	19				
2											
3	CLAYEY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense, trace roots (SC)	MIXED ALLUVIUM	29	M	SS	20	6				15
4											
5	CLAYEY SAND, fine to medium grained, brown, moist, medium dense (SC)		12	M	SS	20					
6											
7											
8	SAND WITH CLAY, medium grained, a little gravel, brown, moist, medium dense (SP-SC)	COARSE ALLUVIUM	20	M	SS	18	7				
9											
10	CLAYEY SAND, fine to medium grained, brown, moist, medium dense (SC)	MIXED ALLUVIUM	14	M	SS	16					
11											
12											
13	GRAVELLY SAND WITH CLAY, fine to coarse grained, gray and brown, moist, medium dense (SP-SC)	COARSE ALLUVIUM	17	M	SS	10					
14											
15	CLAYEY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SC)	MIXED ALLUVIUM	19	M	SS	18					
16											
	End of boring at 16.5 feet										

DEPTH:	DRILLING METHOD
0-14½'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/30/15	**1515**	**16.5**	**14.5**	**16.2**	**None**	**None**

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-02 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1043.7**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
	1.5 inches of Bituminous	BITUMINOUS									
1	FILL, gravelly silty sand, fine to coarse grained, dark brown to tan, moist, possible base	FILL		M							
2	FILL, silty sand, fine to medium grained, a little gravel, brown, moist										
3	SILTY SAND, fine grained, a little gravel, brown, moist, medium dense, possible fill (SM)	COARSE ALLUVIUM	15	M	SS	18					
4											
5	CLAYEY SAND, fine to medium grained, brown, moist, medium dense (SC)	MIXED ALLUVIUM	19	M	SS	18	11				27
6											
7	CLAYEY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SC)										
8			16	M	SS	18					
9											
10	Rock stuck in tip of sampler.										
11			45	M	SS	1					
12	CLAYEY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SC)										
13			15	M	SS	6	12				
14											
15	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SC)		15	M	SS	18					
16	SAND, fine grained, brown, moist, medium dense (SP)	COARSE ALLUVIUM									
	End of boring at 16.5 feet										

DEPTH:	DRILLING METHOD	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½'	**3.25" HSA**	**3/31/15**	**1125**	**16.5**	**14.5**	**16.2**	**None**	**None**

WATER LEVEL MEASUREMENTS

BORING COMPLETED: **3/31/15**

DR: **GM** LG: **BD** Rig: **30**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-03 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1046.8**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
	SILTY CLAY, organic, dark grayish brown, firm (OL)	TOPSOIL									
1	LEAN CLAY WITH SAND, a little gravel, brown, firm (CL)	FINE ALLUVIUM	5	M	SS	20					
2	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SC)	MIXED ALLUVIUM									
3			24	M	SS	20	13				
4											
5	CLAYEY SAND, fine grained, a little gravel, brown, moist, medium dense (SC)		11	M	SS	18	10				36
6											
7	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, medium dense, lense of lean clay (SC)										
8			15	M	SS	20					
9											
10	SAND, fine grained, a little gravel, brown, moist, medium dense (SP)	COARSE ALLUVIUM	22	M	SS	16					
11	GRAVEL WITH SAND, gray, moist, medium dense (GP)										
12	CLAYEY SAND WITH GRAVEL, fine to coarse grained, brown, moist, medium dense (SC)	MIXED ALLUVIUM									
13			22	M	SS	14					
14											
15	CLAYEY SAND, fine grained, a little gravel, brown, moist, medium dense (SC)										
16			14	M	SS	20					
	End of boring at 16.5 feet										

DEPTH:	DRILLING METHOD
0-14½'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/30/15	**1315**	**16.5**	**14.5**	**16.5**	**None**	**None**

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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

AET_CORP BELOW GROUND SURFACE 31-01182 - SKILLED NURSING FACILITY - ST. CROIX.GPJ AET+CPT+WELL.GDT 4/10/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-04 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1046.3**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
	1.5 inches of Bituminous	BITUMINOUS									
1	FILL, gravelly silty sand, fine to medium grained, brown, moist, possible base, a little recycled bituminous	FILL		M							
2	FILL, silty sand, fine to medium grained, a little gravel, brown, moist, a little clay	MIXED ALLUVIUM									
3	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, loose to medium dense (SC)		8	M	SS	16					
4											
5											
6			17	M	SS	14	7				
7	CLAYEY SAND WITH GRAVEL, fine to coarse grained, brown, moist, medium dense (SC)										
8			17	M	SS	10					
9											
10	SAND WITH SILT, fine to medium grained, brown, moist, medium dense (SP-SM)	COARSE ALLUVIUM									
11			28	M	SS	14	6				11
12	CLAYEY SAND WITH GRAVEL, fine to coarse grained, brown, moist, loose (SC)	MIXED ALLUVIUM									
13			10	M	SS	8					
14											
15	CLAYEY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SC)										
16			12	M	SS	12					
	End of boring at 16.5 feet										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½'	**3.25" HSA**	**3/30/15**	**1155**	**16.5**	**14.5**	**16.1**	**None**	**None**

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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

AET_CORP BELOW GROUND SURFACE 31-01182 - SKILLED NURSING FACILITY - ST. CROIX.GPJ AET+CPT+WELL.GDT 4/10/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-05 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1047.4**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
	SILTY CLAY, organic, dark brown, soft (OL)	TOPSOIL									
1	LEAN CLAY, brown, soft (CL)	FINE ALLUVIUM	3	M	SS	20					
2											
3	CLAYEY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SC)	MIXED ALLUVIUM	17	M	SS	8					
4											
5	CLAYEY SAND, fine to medium grained, brown, moist, loose (SC)		9	M	SS	14	8				16
6											
7	CLAYEY SAND, fine grained, brown, moist, medium dense (SC)										
8			16	M	SS	20	6				
9											
10	CLAYEY SAND, fine to medium grained, brown, moist, medium dense to loose (SC)		14	M	SS	20					
11											
12											
13			8	M	SS	20					
14											
15	SANDY LEAN CLAY, a little gravel, brown, stiff (CL)		14	M	SS	14	9				
16											
	End of boring at 16.5 feet										

DEPTH:	DRILLING METHOD
0-14½'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/30/15	**1435**	**16.5**	**14.5**	**16.2**	**None**	**None**

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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

AET_CORP BELOW GROUND SURFACE 31-01182 - SKILLED NURSING FACILITY - ST. CROIX.GPJ AET+CPT+WELL.GDT 4/10/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-06 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1046.3**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
	LEAN CLAY, organic, dark brown, firm (OL)	TOPSOIL									
1	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, loose, trace roots (SC)	MIXED ALLUVIUM	8	M	SS	18					
2											
3	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SC)		20	M	SS	18	7				21
4											
5	GRAVELLY CLAYEY SAND, fine to coarse grained, brown, moist, medium dense (SC)		21	M	SS	18					
6											
7											
8	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SC)		24	M	SS	2					
9											
10	SILTY SAND, fine to medium grained, brown, moist, medium dense (SM)	COARSE ALLUVIUM	28	M	SS	14	13				
11											
12	SILTY SAND, fine to coarse grained, a little gravel, brown, moist, medium dense, laminations of lean clay near 13 feet (SM)										
13			15	M	SS	20					
14											
15											
16			18	M	SS	16					
	End of boring at 16.5 feet										

DEPTH:	DRILLING METHOD
0-14½'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/30/15	**1320**	**16.5**	**14.5**	**16.2**	**None**	**None**

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-07 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1044.6**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
1	FILL, topsoil, lean clay with sand, organic, dark brown	FILL	6	M	SS	18					
2	FILL, lean clay with sand, brown, trace roots and buried concrete debris										
3	Concrete debris lodged in tip of sampler		17	M	SS	0.5					
4											
5	CLAYEY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SC)	MIXED ALLUVIUM	26	M	SS	16	10				
6											
7	GRAVELLY CLAYEY SAND, fine to coarse grained, brown, moist, dense to medium dense (SC)										
8			41	M	SS	10					
9											
10											
11			19	M	SS	14	10				13
12	SAND WITH CLAY, fine to medium grained, brown, moist, medium dense (SP-SC)	COARSE ALLUVIUM									
13			21	M	SS	16					
14											
15	CLAYEY SAND WITH GRAVEL, fine to coarse grained, moist, loose (SC)	MIXED ALLUVIUM	5	M	SS	12					
16											
	End of boring at 16.5 feet										

DEPTH:	DRILLING METHOD
0-14½'	**3.25" HSA**

WATER LEVEL MEASUREMENTS						
DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/30/15	**1245**	**16.5**	**14.5**	**16.2**	**None**	**None**

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-08 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1045.9**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
1, 2	FILL, mixture of gravel and clayey sand, fine to coarse grained, brown, moist	FILL		M							
3, 4	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, loose (SC)	MIXED ALLUVIUM	9	M	SS	18	9				27
5, 6	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SC)		12	M	SS	18					
7, 8, 9	SAND WITH CLAY AND GRAVEL, fine to medium grained, brown, moist, medium dense (SP-SC)	COARSE ALLUVIUM	12	M	SS	20	8				6
10, 11	SAND, fine to medium grained, light brown, moist, medium dense (SP)		12	M	SS	18					
12, 13, 14	SILTY SAND, fine grained, a little gravel, brown with laminations of gray, moist, medium dense (SM)		22	M	SS	16					
15, 16	SILTY SAND, fine grained, orangish brown, moist, dense (SM)		34	M	SS	24					
	End of boring at 16.5 feet										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½'	**3.25" HSA**	**3/27/15**	**1505**	**16.5**	**14.5**	**16.5**	**None**	**None**

BORING COMPLETED: **3/27/15**

DR: **GM** LG: **MH** Rig: **67**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-09 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1036.5**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
1, 2	FILL, clayey sand, fine to medium grained, a little gravel, dark brown, moist	FILL		M							
3, 4	FILL, mixture of lean clay and gravelly silty sand, fine grained, gray and brown, moist	FILL	20	M	SS	12	12				
5, 6	CLAYEY SAND WITH GRAVEL, fine to coarse grained, brown, moist, medium dense (SC)	MIXED ALLUVIUM	19	M	SS	4					
7, 8, 9	SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SP)	COARSE ALLUVIUM	17	M	SS	20	4				
10, 11	SAND WITH CLAY, fine to medium grained, a little gravel, grayish brown, moist, medium dense, apparent cobble (SP-SC)	COARSE ALLUVIUM	17	M	SS	6					
12, 13, 14	CLAYEY SILTY SAND, fine to medium grained, a little gravel, orangish brown, moist, medium dense (SC-SM)	MIXED ALLUVIUM	27	M	SS	6					
15, 16	SAND WITH SILT, fine grained, orangish brown, moist, medium dense (SP-SM)	COARSE ALLUVIUM	11	M	SS	14					
	End of boring at 16.5 feet										

DEPTH:	DRILLING METHOD
0-14½'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/27/15	**1245**	**16.5**	**14.5**	**16.3**	**None**	**None**

BORING COMPLETED: **3/27/15**

DR: **GM** LG: **MH** Rig: **67**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-10 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1042.0**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
1	FILL, clayey sand, fine to medium grained, a little gravel, brown, moist	FILL		M							
2											
3	FILL, silty sand, fine to medium grained, a little gravel, brown, moist		10	M	SS	18					
4											
5	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, loose (SC)	MIXED ALLUVIUM	10	M	SS	24	11				
6											
7	GRAVELLY CLAYEY SAND, fine to medium grained, brown, moist, medium dense to dense, apparent cobbles (SC)										
8			23	M	SS	12					
9											
10			44	M	SS	12					
11											
12	CLAYEY SAND WITH GRAVEL, fine to coarse grained, brown, moist, loose to medium dense (SC)										
13			6	M	SS	10	7				
14											
15											
16	CLAYEY SAND, fine to medium grained, brown, moist, medium dense (SC)		12	M	SS	22					
	End of boring at 16.5 feet										

DEPTH:	DRILLING METHOD
0-14½'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/27/15	**1115**	**16.5**	**14.5**	**16.2**	**None**	**None**

BORING COMPLETED: **3/27/15**

DR: **GM** LG: **MH** Rig: **67**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-11 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1042.8**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
1	FILL, sand with silt, fine grained, a little gravel, brown, moist	FILL		M							
2											
3	FILL, clayey sand with gravel, fine to medium grained, brown, moist		13	M	SS	12					
4											
5	CLAYEY SAND, medium grained, a little gravel, brown, moist, loose, laminations of lean clay (SC)	MIXED ALLUVIUM	8	M	SS	18	12				19
6											
7											
8			8	M	SS	16	8				
9											
10	GRAVELLY SILTY SAND, fine to coarse grained, tan and brown, moist, medium dense (SM)	COARSE ALLUVIUM	25	M	SS	18					
11											
12											
13			28	M	SS	14					
14											
15	SAND, fine to coarse grained, brown, moist, medium dense, apparent cobbles (SP)		16	M	SS	18					
16											
17											
18											
19											
20	GRAVELLY SILTY SAND, fine to coarse grained, tan and brown, moist, dense (SM)		37	M	SS	16					
21											
	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
0-19½'	**3.25" HSA**	**3/27/15**	**1015**	**21.5**	**19.5**	**21.3**	**None**	**None**

BORING COMPLETED: **3/27/15**

DR: **GM** LG: **MH** Rig: **67**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-12 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1041.8**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
	SILTY CLAY, organic, dark brown, soft (OL)	TOPSOIL									
1	SILT, grayish brown, moist, very loose, trace roots (ML)	FINE ALLUVIUM	3	M	SS	20					
2											
3	CLAYEY SILTY SAND, fine to medium grained, a little gravel, brown, moist, loose (SC-SM)	MIXED ALLUVIUM	9	M	SS	18	10				33
4											
5	CLAYEY SAND, fine grained, brown, moist, loose (SC)		9	M	SS	18					
6											
7	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SC)		18	M	SS	14					
8											
9	CLAYEY SAND, fine to coarse grained, a little gravel, brown, moist, medium dense, laminations of lean clay (SC)		19	M	SS	14					
10											
	End of boring at 10 feet										

DEPTH:	DRILLING METHOD
0-8'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/31/15	**1350**	**10.0**	**8.0**	**9.5**	**None**	**None**

BORING COMPLETED: **3/31/15**

DR: **GM** LG: **BD** Rig: **30**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-13 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1047.7**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
	SILT WITH SAND, organic, very dark brown, moist, loose (OL)	TOPSOIL									
1	SANDY LEAN CLAY, brown, firm, possible fill (CL)	MIXED ALLUVIUM	5	M	SS	20					
2	SILTY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SM)	COARSE ALLUVIUM	18	M	SS	14					
4	CLAYEY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SC)	MIXED ALLUVIUM	12	M	SS	14					
6	SAND WITH CLAY, fine to medium grained, brown, moist, medium dense (SP-SC)	COARSE ALLUVIUM	20	M	SS	20					
8	SAND WITH CLAY AND GRAVEL, fine to coarse grained, brown, moist, medium dense (SW-SC)		18	M	SS	20					
10	SILTY SAND WITH GRAVEL, fine to coarse grained, brown, moist, medium dense (SM)	COARSE ALLUVIUM	13	M	SS	18					
12	SAND, fine to medium grained, brown, moist, medium dense (SP)		12	M	SS	18					
14	SANDY LEAN CLAY, brown, stiff to very stiff (CL)	MIXED ALLUVIUM	13	M	SS	16					
16			16	M	SS	18					
18	SILTY SAND, fine to medium grained, brown, moist, dense (SM)	COARSE ALLUVIUM	39	M	SS	20					
20	End of boring at 20 feet										

DEPTH:	DRILLING METHOD
0-18'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/30/15	**1400**	**20.0**	**18.0**	**19.6**	**None**	**None**

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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

AET_CORP BELOW GROUND SURFACE 31-01182 - SKILLED NURSING FACILITY - ST. CROIX.GPJ AET+CPT+WELL.GDT 4/10/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-14 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1049.9**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
	2.5 inches of Bituminous	BITUMINOUS									
1	FILL, silty sand, fine to coarse grained, a little gravel, very dark brown, moist	FILL		M							
2	FILL, clayey sand, fine to medium grained, a little gravel, brown, moist	MIXED ALLUVIUM									
3	CLAYEY SAND, fine grained, a little gravel, brown, moist, medium dense, possible fill (SC)		13	M	SS	14	7				
4	SANDY LEAN CLAY, a little gravel, brown, hard (CL)										
5			31	M	SS	12	10				
6	CLAYEY SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SC)										
7			23	M	SS	16					
8	LEAN CLAY WITH SAND, brown, stiff (CL)	FINE ALLUVIUM									
9			13	M	SS	20	12	1.25			
10	End of boring at 10 feet										

DEPTH:	DRILLING METHOD
0-8'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/31/15	**1245**	**10.0**	**8.0**	**9.5**	**None**	**None**

BORING COMPLETED: **3/31/15**

DR: **GM** LG: **BD** Rig: **30**

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

AET_CORP BELOW GROUND SURFACE 31-01182 - SKILLED NURSING FACILITY - ST. CROIX.GPJ AET+CPT+WELL.GDT 4/10/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-15 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1043.7**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
1	FILL, clayey sand with gravel, fine to medium grained, dark brown, moist	FILL		M							
2											
3	FILL, sand with silt and gravel, fine to medium grained, brown, moist, medium dense (SP-SM)		11	M	SS	10					
4											
5	CLAYEY SAND WITH GRAVEL, fine to coarse grained, brown moist, medium dense (SC)	MIXED ALLUVIUM	14	M	SS	22					
6											
7	SAND WITH SILT AND GRAVEL, fine to coarse grained, brown, moist, medium dense (SW-SM)	COARSE ALLUVIUM	11	M	SS	12					
8											
9	SAND, fine to medium grained, brown, moist, medium dense (SP)		13	M	SS	16					
10											
11	GRAVELLY SILTY SAND, fine to coarse grained, brown, moist, medium dense to dense (SM)		18	M	SS	18					
12											
13			21	M	SS	20					
14											
15			32	M	SS	10					
16											
17	SILTY SAND, fine grained, a little gravel, brown, moist, dense (SM)		46	M	SS	22					
18	SILTY GRAVEL WITH SAND, yellow, moist, very dense (GM)	WEATHERED SANDSTONE	72//.9								
19				M	SS	14					
	End of boring at 19.4 feet										

DEPTH:	DRILLING METHOD
0-18'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/27/15	**1400**	**19.4**	**18.0**	**19.2**	**None**	**None**

BORING COMPLETED: **3/27/15**

DR: **GM** LG: **MH** Rig: **67**

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

AET_CORP BELOW GROUND SURFACE 31-01182 - SKILLED NURSING FACILITY - ST. CROIX.GPJ AET+CPT+WELL.GDT 4/10/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-16 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1043.0**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	qp	LL	PL	%-#200
	SILT, organic, dark brown, moist, firm (OL)	TOPSOIL									
1	SILT, brown, moist, firm, trace roots (ML)	FINE ALLUVIUM	6	M	SS	18					
2											
3	CLAYEY SILTY SAND, fine to medium grained, a little gravel, brown, moist, medium dense (SC-SM)	MIXED ALLUVIUM	20	M	SS	6					
4											
5	SAND WITH CLAY, fine to medium grained, a little gravel, brown, moist, medium dense (SP-SC)	COARSE ALLUVIUM	17	M	SS	18	3				9
6											
7	GRAVEL WITH CLAYEY SAND, brown and gray, moist, medium dense (GP)		17	M	SS	12					
8											
9	GRAVELLY SILTY SAND, fine to medium grained, tan and brown, moist, very dense (SM)		54	M	SS	12					
10											
	End of boring at 10 feet										

DEPTH:	DRILLING METHOD
0-8'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/30/15	**1045**	**10.0**	**8.0**	**9.8**	**None**	**None**

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-17 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1029.8**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
	FIELD & LABORATORY TESTS										
1	FILL, topsoil, lean clay with sand, organic, brown	FILL	13	M	SS	6					
2	FILL, silt, brown and gray, moist, with some concrete debris										
3	CLAYEY SAND WITH GRAVEL, fine grained, brown, moist, medium dense (SC)	MIXED ALLUVIUM	13	M	SS	14	13				46
4	SANDY LEAN CLAY, a little gravel, brown, stiff (CL)										
5			15	M	SS	12	12				
6	SANDY LEAN CLAY, brown, stiff (CL)										
7			15	M	SS	20	9				
8											
9			14	M	SS	16	9				
10	End of boring at 10 feet										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-8'	**3.25" HSA**	**3/30/15**	**0910**	**10.0**	**8.0**	**9.5**	**None**	**None**

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-18 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1024.5**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
1	FILL, silt with sand, organic, dark brown, moist	FILL	6	M	SS	20					
3	FILL, silty clay with sand, mottled brown and grayish brown		15	M	SS	16					
5	SILTY SAND, fine grained, brown, moist, loose (SM)	COARSE ALLUVIUM	8	M	SS	20					
7	SILTY SAND, fine grained, mottled brown and gray, moist, medium dense (SM)		11	M	SS	20					
9	CLAYEY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SC)	MIXED ALLUVIUM	14	M	SS	16					
11	SANDY LEAN CLAY, a little gravel, brown, stiff (CL)		9	M	SS	16					
13			13	M	SS	18					
15			14	M	SS	20					
17	CLAYEY SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SC)		15	M	SS	20					
19	GRAVEL WITH SILT AND SAND, dark brown, moist, medium dense (GP-GM)	COARSE ALLUVIUM	14	M	SS	20					
20	End of boring at 20 feet										

DEPTH:	DRILLING METHOD
0-18'	**3.25" HSA**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/30/15	**0955**	**20.0**	**18.0**	**19.6**	**None**	**None**

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET JOB NO: **31-01182** LOG OF BORING NO. **B-19 (p. 1 of 1)**

PROJECT: **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

SURFACE ELEVATION: **1029.1**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	WC	qp	LL	PL	%-#200
1	FILL, topsoil, silty clay, organic, dark grayish brown	FILL	14	M	SS	7					
2	FILL, clayey sand with gravel, fine to coarse grained, brown, moist										
3	FILL, gravelly silty sand, fine to medium grained, tan and gray, moist		35	M	SS	18					
4	CLAYEY SAND, fine to medium grained, brown, moist, medium dense, lenses of lean clay (SC)	MIXED ALLUVIUM									
5			17	M	SS	12	15				
6	SANDY LEAN CLAY, a little gravel, brown (CL)										
7			12	M	SS	16	8				
8	CLAYEY SAND, fine grained, light brown, moist, dense (SC)										
9			31	M	SS	16					
10	End of boring at 10 feet										

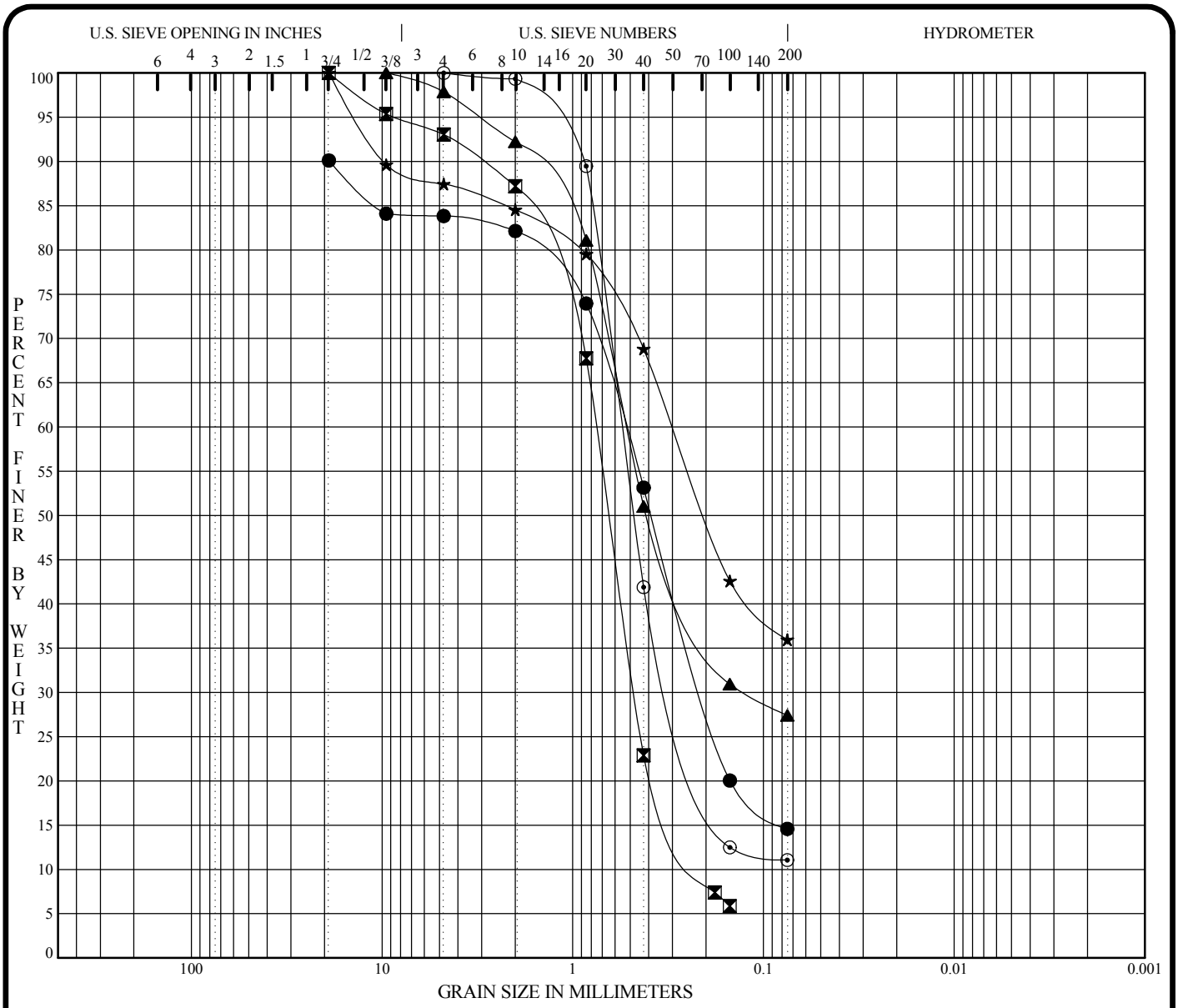
DEPTH:	DRILLING METHOD
0-8'	3.25" HSA

WATER LEVEL MEASUREMENTS						
DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
3/30/15	1020	10.0	8.0	9.8	None	None

BORING COMPLETED: **3/30/15**

DR: **GM** LG: **BD** Rig: **30**

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



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**B-01**	**3.0'**	Clayey sand with gravel, fine to medium grained (SC)	**6**					
⧗	**B-01**	**8.0'**	Sand with clay, medium grained, a little gravel (SP-SC)	**7**				**1.43**	**3.6**
▲	**B-02**	**5.5'**	Clayey sand, fine to medium grained (SC)	**11**					
★	**B-03**	**5.5'**	Clayey sand, fine grained, a little gravel (SC)	**10**					
⊙	**B-04**	**10.5'**	Sand with silt, fine to medium grained (SP-SM)	**6**				**3.12**	**12.3**

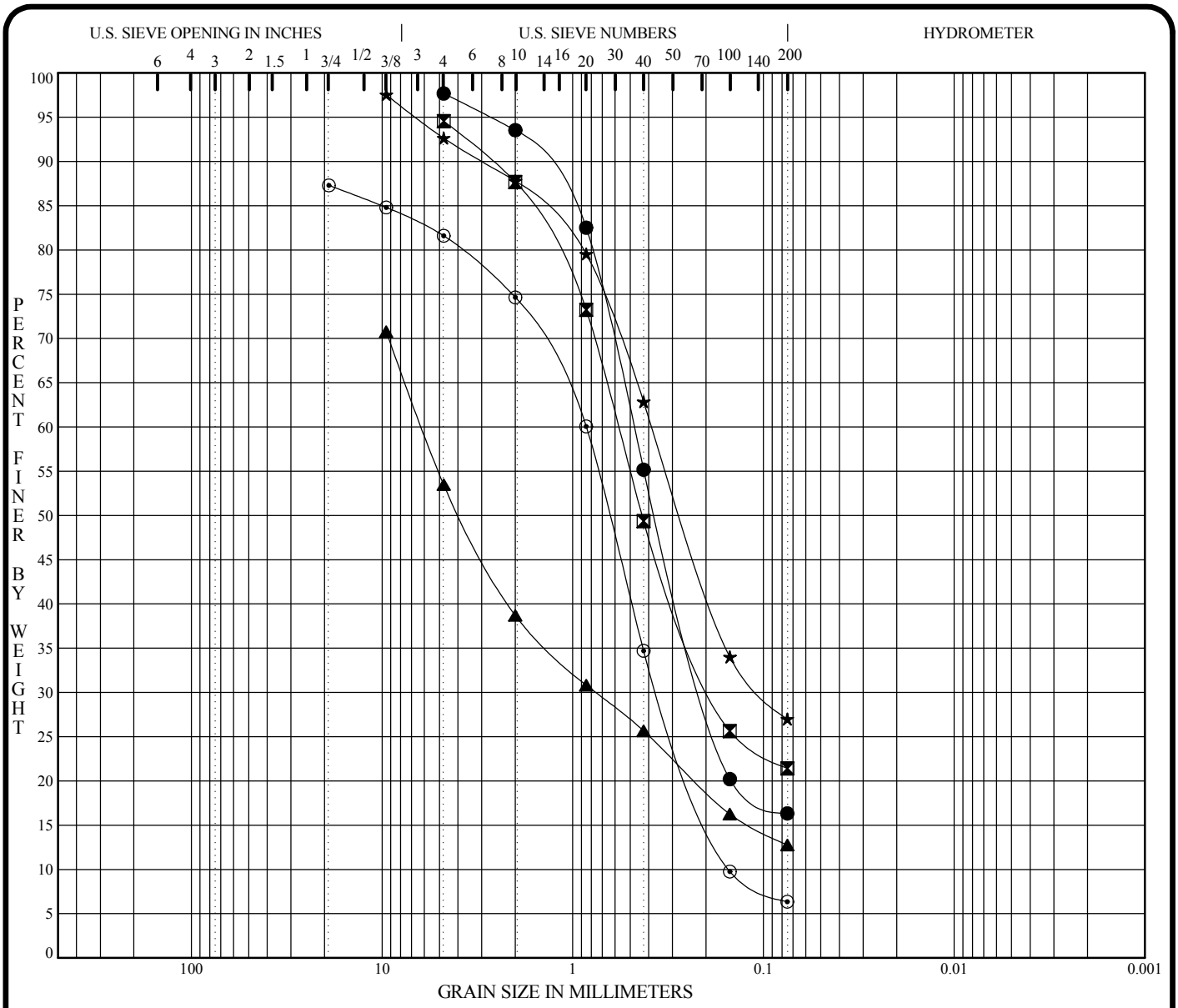
	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-01**	**3.0'**	**19.00**	**0.53**	**0.205**		**6.3**	**69.3**	**14.6**	
⧗	**B-01**	**8.0'**	**19.00**	**0.75**	**0.474**	**0.2081**	**6.9**			
▲	**B-02**	**5.5'**	**9.50**	**0.52**	**0.125**		**2.1**	**70.5**	**27.4**	
★	**B-03**	**5.5'**	**19.00**	**0.30**			**12.6**	**51.5**	**36.0**	
⊙	**B-04**	**10.5'**	**4.75**	**0.55**	**0.279**		**0.0**	**88.9**	**11.1**	

PROJECT **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

AET JOB NO. **31-01182**
DATE **3/30/15**

AMERICAN ENGINEERING TESTING, INC.

GRADATION CURVES



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**B-05**	**5.5'**	Clayey sand, fine to medium grained (SC)	**8**					
⧗	**B-06**	**3.0'**	Clayey sand, f to m grained, a little gravel (SC)	**7**					
▲	**B-07**	**10.5'**	Gravelly clayey sand, fine to coarse grained (SC)	**10**					
★	**B-08**	**3.0'**	Clayey sand, f to m grained, a little gravel (SC)	**9**					
⊙	**B-08**	**8.0'**	Sand with clay and gravel, f to m grained (SP-SC)	**8**				**0.95**	**5.6**

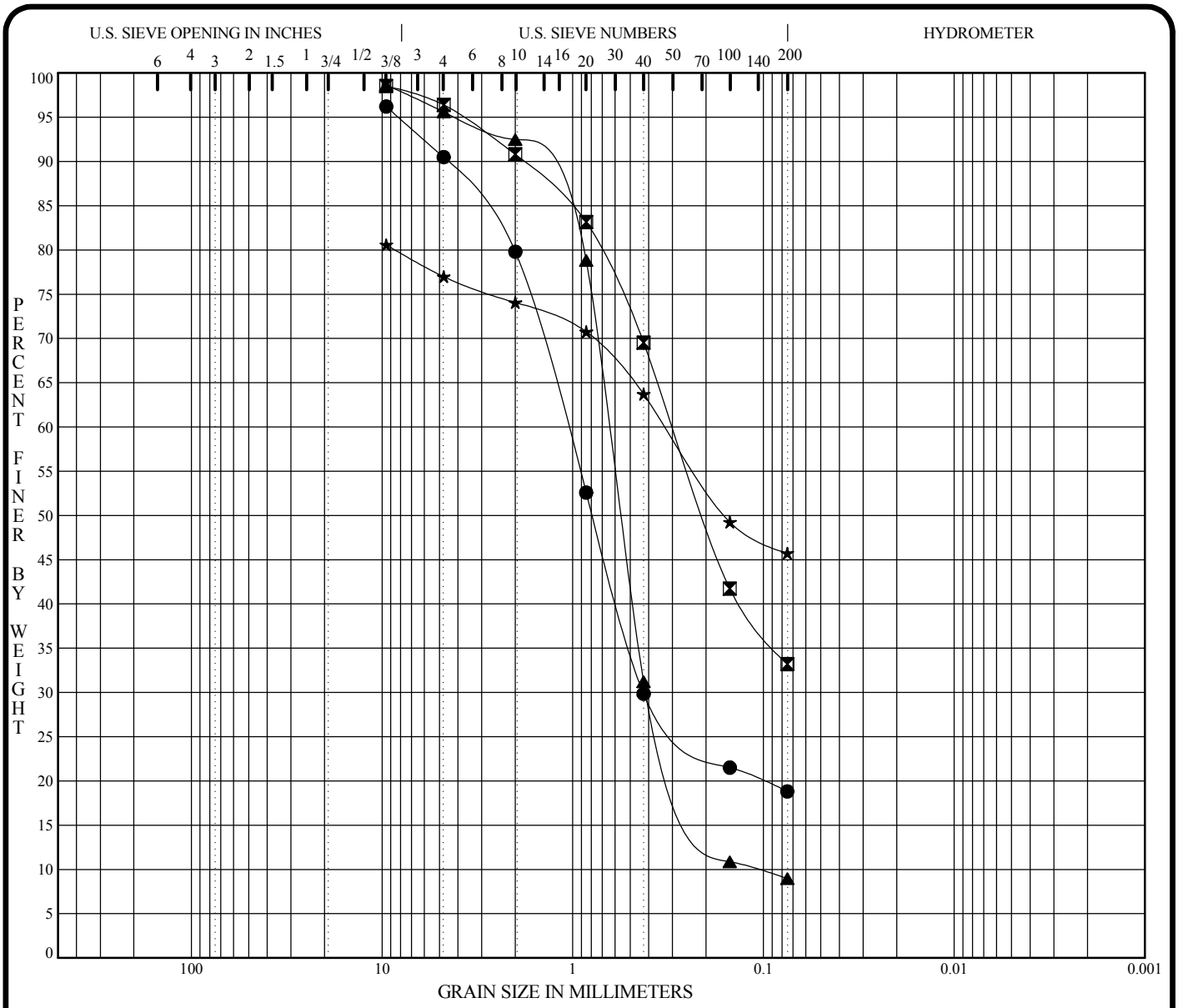
	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-05**	**5.5'**	**4.75**	**0.48**	**0.201**		**0.0**	**81.4**	**16.3**	
⧗	**B-06**	**3.0'**	**4.75**	**0.58**	**0.182**		**0.0**	**73.1**	**21.4**	
▲	**B-07**	**10.5'**	**9.50**	**6.17**	**0.762**		**17.3**	**40.7**	**12.8**	
★	**B-08**	**3.0'**	**9.50**	**0.38**	**0.101**		**4.9**	**65.6**	**27.0**	
⊙	**B-08**	**8.0'**	**19.00**	**0.85**	**0.349**	**0.1515**	**5.7**	**75.3**	**6.4**	

PROJECT **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

AET JOB NO. **31-01182**
DATE **3/27/15**

AMERICAN ENGINEERING TESTING, INC.

GRADATION CURVES



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	**B-11**	**5.5'**	Clayey sand, medium grained, a little gravel (SC)	**12**					
⧗	**B-12**	**3.0'**	Clayey silty sand, f to m grained, a little gravel (SC-SM)	**10**					
▲	**B-16**	**5.0'**	Sand with clay, f to m grained, a little gravel (SP-SC)	**3**				**2.25**	**5.9**
★	**B-17**	**3.0'**	Clayey sand with gravel, fine grained (SC)	**13**					

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-11**	**5.5'**	**9.50**	**1.07**	**0.427**		**5.7**	**71.7**	**18.8**	
⧗	**B-12**	**3.0'**	**9.50**	**0.30**			**2.1**	**63.2**	**33.2**	
▲	**B-16**	**5.0'**	**9.50**	**0.65**	**0.400**	**0.1097**	**3.0**	**86.6**	**9.0**	
★	**B-17**	**3.0'**	**9.50**	**0.33**			**3.6**	**31.3**	**45.7**	

PROJECT **Proposed Skilled Nursing Facility; 1445 North 4th Street; New Richmond, Wisconsin**

AET JOB NO. **31-01182**
DATE **3/30/15**

AMERICAN ENGINEERING TESTING, INC.

GRADATION CURVES

Wis. Dept. of Safety and Professional Services
Division of Safety and Buildings

SOIL EVALUATION - STORM

in accordance with SPS 382.365 and 385, Wis. Adm. Code

Attach complete site plan on paper not less than 8 1/2 x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent slope, scale or dimensions, north arrow, and BM referenced to nearest road.

Please print all information.

Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04 (1) (m)).

County: St. Croix
Parcel I.D.:
Reviewed by: Date:

Property Owner: St. Croix County

Property Location: Govt. Lot SE 1/4 NW 1/4 S 35 T 31 N R 18W E (or) W

Property Owner's Mailing Address: 1101 Carmichael Road

Lot #: Block #: Subd. Name or CSM#:

City: Hudson State: WI Zip Code: 54016 Phone Number: (715) 381-4302

☒ City ☐ Village ☐ Town: New Richmond

Nearest Road: Brigetta Drive

Drainage area _____ ☐ sq. ft. ☐ acres
Optional:
Test Site Suitable for (check all that apply)
☐ Irrigation ☐ Bioretention trench ☐ Trench(es)
☐ Rain garden ☐ Grassed swale ☐ Reuse
☐ Infiltration trench ☐ SDS (> 15' wide) ☐ Other _____

Hydraulic Application Test Method:
☒ Morphological Evaluation
☐ Double-Ring Infiltrometer
☐ Other (specify) _____

B-13 Obs. # ☒ Boring ☐ Pit Ground surface elev. 1047.7 ft. Depth to limiting factor >240 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-8	10YR 2/2	---	sil	0,m	m,fi	a,w	<5	0.13
2	8-24	10YR 3/4	---	sc	0,m	m,fi	a,w	<5	0.04
3	24-72	7.5YR 3/3	---	sl,gr	0,m	m,fi	a,w	~20	0.50
4	72-96	7.5YR 3/3	---	s	0,sg	m,lo	a,w	<5	3.60
5	96-120	7.5YR 3/3	---	ls,gr	0,sg	m,lo	a,w	~27	1.63
6	120-144	10YR 3/4	---	ls,gr	0,sg	m,lo	a,w	~20	1.63
			(continued below)						

Obs. # ☐ Boring ☐ Pit Ground surface elev. _____ ft. Depth to limiting factor _____ in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydrualic App. Rate Inches/Hr
7	144-168	7.5YR 4/6	---	s	0,sg	m,lo	a,w	<5	3.60
8	168-216	10YR 4/6	---	c	0,m	mvfi	a,w	<5	0.07
9	216-240	10YR 4/6	---	sl	0,sg	m,lo	---	<5	0.50
			no groundwater						
			encountered in boring						

CST/PSS Name (Please Print): Benjamin B. Mattson
Signature:
CST/PSS Number: 1131386
Address: 4203 Schofield Avenue Suite 1, Schofield WI 54476
Date Evaluation Conducted: March 27 & 30, 2015
Telephone Number: (715) 359-3534

SBD-10793 (R11/11)

AET Project No. 31-01182

Property Owner St. Croix County Parcel ID # _____ Page 2 of 3

B-15 Obs. # ☒ Boring ☐ Pit Ground surface elev. 1043.7 ft. Depth to limiting factor 204 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-24	10YR 3/3	---	sl,gr	0,sg	m,lo	a,w	~20	0.50
2	24-48	10YR 4/4	---	s,gr	0,sg	m,lo	a,w	~20	3.60
3	48-72	10YR 3/4	---	sl,vgr	0,sg	m,lo	a,w	~36	0.50
4	72-96	10YR 3/3	---	s,gr	0,sg	m,lo	a,w	~35	3.60
5	96-120	10YR 3/6	---	s	0,sg	m,lo	a,w	<5	3.60
6	120-192	10YR 3/3	---	sl,vgr	0,sg	m,lo	a,w	~40	0.50
			(continued below)						

Obs. # ☐ Boring ☐ Pit Ground surface elev. _____ ft. Depth to limiting factor _____ in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
7	192-204	10YR 4/6	---	sl	0,sg	m,lo	a,w	~5	0.50
8	204-233	2.5Y 7/6	(weathered sandstone)	sl,xgr	0,sg	m,lo	---	~60	0.50
			no groundwater						
			encountered in boring						

Obs. # ☐ Boring ☐ Pit Ground surface elev. _____ ft. Depth to limiting factor _____ in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr

Property Owner St. Croix County Parcel ID # _____ Page 3 of 3

B-18 Obs. # ■ Boring ☐ Pit Ground surface elev. 1024.5 ft. Depth to limiting factor 24 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-24	10YR 2/2	---	sil	0,m	m,fi	a,w	<5	0.13
2	24-48	10YR 4/2	m, 2-3, D, 10YR 4/4	sicl	0,m	m,vfi	a,w	<5	0.04
3	48-72	10YR 5/6	---	sl	0,sg	m,lo	a,w	<5	0.50
4	72-96	10YR 7/2	m, 1-2, P, 10YR 4/6	ls*	0,sg	m,lo	a,w	<5	0.50*
5	96-120	10YR 4/6	---	scl,gr	0,m	m,fi	a,w	~20	0.11
6	120-192	10YR 4/6	---	c	0,m	m,vfi	a,w	~10	0.07
			(continued below)						

☐ Obs. # ☐ Boring ☐ Pit Ground surface elev. _____ ft. Depth to limiting factor _____ in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
7	192-216	10YR 4/6	---	scl,gr	0,m	m,vfi	a,w	~20	0.11
8	216-240	10YR 2/2	---	sl,xgr	0,sg	m,lo	---	~75	0.50
			no groundwater						
			encountered in boring						

Test Results and/or Summary Comments

The installation of monitoring wells for obtaining additional groundwater measurements was beyond our scope of services.

* Per Wisconsin DSPS, the sandy loam infiltration rate is used for loamy fine sand soil textures. These layers are marked by an asterisk in the texture and hydraulic app rate columns.

The Dept. of Safety and Professional is an equal opportunity service provider and employer. If you need assistance to access services or need material in an alternate format, contact the department at 608-266-3151 or TTY through Relay.

Appendix B

AET Project No. 31-01182

Geotechnical Report Limitations and Guidelines for Use

Appendix B
Geotechnical Report Limitations and Guidelines for Use
AET Project No. 31-01182

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: 301/565-2952: 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 recognizes 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 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.

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.

AMERICAN ENGINEERING TESTING, INC.

April 13, 2015

St. Croix County
1101 Carmichael Road
Hudson, Wisconsin 54016

c/o Ms. Tu-Anh Bui Johnson – Horty Elving and Associates, Inc.

RE: Addendum No. 1 – Requested Laboratory Testing
Report of Geotechnical Exploration and Review
Proposed Skilled Nursing Facility
St. Croix Health Center
1445 North 4th Street
New Richmond, Wisconsin
AET Project No. 31-01182

Dear Ms. Johnson:

We submitted our geotechnical report to you for the above-referenced project on April 10, 2015. That report was titled *Report of Geotechnical Exploration and Review; Proposed Skilled Nursing Facility; St. Croix Health Center; 1445 North 4th Street; New Richmond, Wisconsin* (AET Project No. 31-01182).

We submitted three recovered soil samples to our chemistry laboratory for resistivity, pH, water soluble sulfate, and water soluble chloride testing per your request. Those results are shown in Table 1 below.

Table 1: Laboratory Testing

Parameter	B-1, 1'-6'	B-8, 1'-6'	B-17, 1'-6'	MDL	Method
Sulfate, ppm	90	180	144	25	AASHTO T 290-91
Chloride, ppm	8.6	20	118	2	AASHTO T 291-91
pH	7.6	8.93	7.94	--	AASHTO T 289-91
Resistivity, ohm-cm	4,480	2,730	1,780	--	AASHTO T 288-91

Please contact us if you have any questions.

Sincerely,

Blake E. Snyder, E.I.T.
Geotechnical Engineer

Benjamin B. Mattson, P.E.
Geotechnical Engineer

This document shall not be reproduced, except in full, without written approval of American Engineering Testing, Inc.
1837 County Highway OO ▪ Chippewa Falls, WI 54729 ▪ 715-861-5045 ▪ Fax 715-861-5048 ▪ www.amengtest.com
AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

SECTION 00 31 43 - PERMIT APPLICATION

1.1 PERMIT APPLICATION INFORMATION

A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of the Bidders' own investigations. This Document and its attachments are not part of the Contract Documents.

B. Permit Application: Complete building permit application and file with authorities having jurisdiction within five days of the date of execution of the Contract.

END OF SECTION 00 31 43

SECTION 00 41 00
BID FORM

PROJECT: Bid Package #1
St. Croix County Health Center - Additions and Renovation
New Richmond, WI

BID DEADLINE: Tuesday, June 23, 2015, @ 2:00 p.m. local time

BID TO: St. Croix County Facilities Department
Attn: Monica Lucht
1101 Carmichael Road – Suite G315
Hudson, WI 54016

or

Fax: (715) 377-5818

or

Email: bids@co.saint-croix.wi.us

Company Name _____

Business Address _____
Street Address City State Zip

Mailing Address _____
P.O. Box City State Zip

Phone Number (_____)_____ Fax: Number (_____)_____

Contact for Project _____ Email Address: _____

Authorized Signature _____ Title _____
(circle applicable items) Union Non-Union MBE WBE SBE

SEAL IF BID BY A CORPORATION

In strict compliance with the Bidding and Contract Documents entitled St. Croix County Health Center - Additions and Renovation and dated June 2, 2015, as prepared by Horty Elving & Associates, Inc, the undersigned have become thoroughly familiar with the terms and conditions of the proposed Contract Documents, local conditions affecting the Work, fully inspected the particulars of the site, and propose the following bid:

A separate Bid Form should be used for each Work Category or for each combination of Work Categories being bid.

For informational use only provide a labor and material breakdown with each respective Work Category Bid. This information is necessary to assess the sales tax portion and to assist in evaluating the bids.

Company Name: _____ Work Category No(s). _____

WORK CATEGORY NUMBER _____

BASE BID: All Work as defined in Work Category Number(s) noted above.

Install Only (see below for inclusions): $_____.

Furnish Only (see below for inclusions): $ _____.

Total Bid: **$_____.**

ALTERNATE #1 – Therapy Pool Addition:

Install Only (see below for inclusions): $_____.

Furnish Only (see below for inclusions): $ _____.

Total Bid: **$_____.**

"Install Only" means receive delivery on board, unload, uncrate and install, including all labor, miscellaneous materials, insurance, taxes, and equipment necessary for material supplied by others. This also includes removal of debris generated by materials supplied by others.

"Furnish Only" means deliver, ~~tax~~ and freight includes (FOB job site), materials to the Owner's facility for installation by others. Delivery shall be made during standard working hours and notification of delivery shall be given to Market & Johnson 72 hours in advance.

We acknowledge receipt of Addenda _____ through _____ inclusive.

Performance Bond and Labor and Material Payment Bond

The Bidder ☐ can / ☐ cannot provide Performance and Payment Bond in favor of St. Croix County and Market & Johnson, **if requested,** in the sum of 100% of the Contract Amount. The premium for any bonds will be paid by the Contractor, separate from the amounts quoted above.

The name of the proposed surety is _____.

To provide Performance and Payment Bonds:

Base Bid	Add	$_____
Alternate #1	Add / Deduct	$_____

SECTION 00 45 36
EQUAL EMPLOYMENT OPPORTUNITY PROGRAM

1. During performance of the Work of the Contract, the Subcontractor will be required to follow an equal employment opportunity program complying with the current rules, regulations, and relevant orders of the Secretary of Labor.

2. The Subcontractor's equal employment opportunity program should be based on the following stipulations, except as otherwise approved in advance by the appropriate governing agency.

   A. There shall be no discrimination against any employee or applicant for employment because of race, creed, color, sex, age, religion, disability, or national origin. Affirmative action will be taken to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, sex, age, religion, disability, or national origin. Such action shall include, but not be limited to, the following:

      1) Employment, upgrading, demotion, or transfer
      2) Recruitment or recruitment advertising
      3) Layoffs or terminations
      4) Rates of pay or other forms of compensation
      5) Selection for training, including apprenticeship

      Notices shall be posted in conspicuous places, available to employees and applicants for employment, setting forth the provisions of this nondiscrimination clause.

   B. All solicitations or advertisement for employees shall state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, age, religion, disability, or national origin.

   C. Subcontractors shall send to each labor union or representative of workers which they have a collective bargaining agreement or other contract of understanding, a notice to be provided advising the labor union or workers' representative of the Subcontractor's commitments under the current regulations of the Equal Employment Opportunity Program. The Subcontractor shall post copies of the appropriate notices in conspicuous places available to employees and applicants for employment.

   D. Subcontractors shall furnish all information and reports required by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto as required by Market & Johnson, for purposes of investigation to ascertain compliance with such rules, regulations, and orders. The Subcontractors shall furnish, as requested, copies of their certified payrolls indicating ethnic group of each employee.

   E. In the event of Subcontractors' noncompliance with the nondiscrimination clauses of their contracts, or with any of such rules, regulations, or orders, their contracts may be cancelled, terminated, or suspended in whole or in part, and they may be declared ineligible for further contracts on governmentally assisted construction work. Other sanctions may be impose and remedies invoked as provided by the rules, regulations, or order of the Secretary of Labor, or as otherwise provided by law.

   F. The Subcontractor shall include the provisions of paragraphs "A" through "E" in every subcontract or purchase order so that such provisions will be binding upon each subcontractor or vendor.

3 Other programs in satisfactory use may be substituted in lieu of the basic program delineated above, subject to the approval of all governmental agencies having jurisdiction.

END OF SECTION

SECTION 00 52 00
SUBCONTRACT AGREEMENT

SUBCONTRACT AGREEMENT

SUBCONTRACT AGREEMENT made as of the of , **2011**, by and between Market & Johnson, Inc. ("Contractor") and ..... ("Subcontractor").

Contract Amount Excluding Sales Tax .....
Wisconsin State Sales Tax @ 5%.....
County Sales Tax @ 0.5% .....
Contract Amount Including All Sales Tax .....

Refer Billing to P.O. #
Retention Amount: **10%**
WI Sellers Permit #:

Subcontractor hereby agrees to furnish all materials, tools, and equipment, and to perform all work and labor necessary, including shop drawings when required, the testing of materials when required, and the securing of all field measurements necessary or required, for the completion of a portion or subdivision of the work to be performed on the following described Project in accordance with the Prime Contract between Contractor and the Owner and all Plans, Drawings and Specifications including General and Special Conditions and Addenda. This Agreement is subject to the "Terms and Conditions of Agreement Between Contractor and Subcontractor " dated 05/01/2011 attached hereto and incorporated herein.

PROJECT:
OWNER:
ARCHITECT:
MECH. ENGINEER:
ELEC. ENGINEER:

SCOPE OF WORK: INCLUDING ADDENDA:

SUBMITTAL REQUIREMENTS: PROVIDE THE FOLLOWING

SECTION #	DESCRIPTION	SHOP DRAWINGS TO M&J BY	SAMPLE SUBMITTAL TO M&J BY	PRODUCT DELIVERY TO JOBSITE BY

___ SUBMITTALS WILL BE HANDLED ELECTRONICALLY

IF CHECKED, SUPPLY THESE ADDITIONAL ITEMS:
- ☐ Certificate of insurance
- ☐ Names of your subcontractors and suppliers (per attachment)
- ☐ Lien waivers from suppliers & sub-suppliers
- ☐ Certified payroll reports

CONTRACTOR:

By:_____

Title: Project Manager

Market & Johnson, Inc.

SUBCONTRACTOR:

By:_____

Title:_____

( )

Sign both copies of subcontract agreement: return one to Market & Johnson, keep one (with attachments and enclosures) for your files.

Rev. 05/01/2011

TERMS AND CONDITIONS OF AGREEMENT BETWEEN CONTRACTOR AND SUBCONTRACTOR

ARTICLE 1
CONTRACT DOCUMENTS

1.1 The Contract Documents shall consist of (a) the Subcontract Agreement; (b) the contract between Contractor and Owner including all other documents referenced therein ("Prime Contract"); (c) the Plans, Specifications, and Drawings; and (d) all Addenda or Modifications issued to the Subcontract Agreement or any of the documents referenced herein all of which form and are a part of the Subcontract Agreement as if fully set forth herein ("Contract Documents"). The Subcontract Agreement represents the entire and integrated agreement between the parties and supersedes all prior negotiations, representations or agreements, either written or oral.

1.2 Subcontractor, upon request, shall be furnished a reasonable number of sets of the Contract Documents at no charge. Contractor may charge Subcontractor for the cost of reproduction of subsequent sets of documents.

ARTICLE 2
PERFORMANCE OF WORK

2.1 Subcontractor shall cooperate with Contractor in scheduling and performing Subcontractor's work to avoid conflict, delay, or interference with the work of Contractor, other subcontractors or other third parties.

2.2 Subcontractor agrees to participate in Weekly Progress Meetings, as necessary, to be held at the job site. Subcontractor is responsible for reviewing all Weekly Progress Meeting Minutes to determine if discussed issues pertain to them and address each issue as needed.

2.3 Subcontractor, when required by Contractor, shall promptly submit shop drawings, product data, samples, and other similar submittals with reasonable promptness and in such sequence as to cause no delay in the work or in the activities of the Contractor or other subcontractors.

2.4 Subcontractor shall provide Contractor with a schedule of values allocated to the various parts of the work to be performed by Subcontractor, aggregating the amount to be paid under this Subcontract, in such detail and supported by such evidence as Contractor may require. All applications for payment shall be based upon this schedule.

2.5 Subcontractor shall furnish, as required by Contractor, periodic progress reports on the work being performed by Subcontractor including information on the status of materials and equipment which may be in the course of preparation or manufacture.

2.6 Subcontractor agrees that the Contractor or Architect shall have the authority to reject all work performed by Subcontractor which does not conform to the Contract Documents. Contractor or Architect's decisions on matters relating to aesthetic effect shall be final if consistent with the intent expressed in the Contract Documents.

2.7 Subcontractor shall pay for all materials, equipment, and labor used in connection with the performance of Subcontractor's work through the period covered by previous payments received from Contractor and shall furnish satisfactory evidence, as requested by Contractor, to verify compliance with these requirements.

2.8 Subcontractor shall take all necessary precautions to properly protect the work of other subcontractors from damage caused by the operations of Subcontractor under this Agreement.

2.9 Subcontractor shall cooperate with Contractor, other subcontractors, Architect, and Owner in coordinating all work to be performed by Subcontractor under this Agreement. Subcontractor shall promptly report to Contractor any discrepancies, or defects in any work performed by any other party that is unsuitable for the proper execution of Subcontractor's work. Subcontractor's failure to so report shall constitute an acceptance of the other party's work as fit and proper except as to defects which may subsequently become apparent in such work.

2.10 General Project Hoisting (crane and forklift hoisting) will be arranged with Market & Johnson with reasonable advance notice. Market & Johnson will keep track of the labor and equipment required on a Work Order to be signed by the Subcontractor's Foreman. Costs will be invoiced periodically directly to the Subcontractor for payment. Minimum time per pick is 1/2 hour. Unpaid invoices will be deducted from progress or final payments as warranted.

ARTICLE 3
PERMITS, FEES AND NOTICES

3.1 Unless otherwise provided in the Contract Documents, Subcontractor shall secure and pay for all permits, governmental fees, licenses and inspections necessary for the proper execution and completion of all work to be performed by Subcontractor.

3.2 Subcontractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of public authorities bearing on the performance of Subcontractor's work. Subcontractor shall comply with all federal, state, and local tax laws, Social Security Acts, Unemployment Compensation Acts and Worker's or Workmen's Compensation Acts insofar as applicable to the performance of Subcontractor's work.

ARTICLE 4
SAFETY

4.1 Subcontractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to all persons, materials, equipment, or other property on or at the Project whether or not under the custody or control of Subcontractor. Subcontractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority including, but not limited to OSHA, EPA, DILHR, and DNR, bearing on the safety of persons or property or their protection from damage, injury or loss. Subcontractor shall follow all Contractor jobsite safety procedures including, but not limited to, the wearing of hard hats by subcontractor's employees performing work on the Project. Subcontractor shall report to Contractor, within 24 hours of occurrence, an injury to an employee or agent of Subcontractor which occurred at the Project.

ARTICLE 5
CLEANING UP

5.1 Subcontractor shall, at all times, keep the Project free from accumulation of waste materials or rubbish caused by Subcontractor's work. At the completion of the work, Subcontractor shall remove all Subcontractor's waste materials and rubbish from and about the Project as well as all of Subcontractor's tools, construction equipment, machinery and surplus materials. If Subcontractor fails to clean up, Contractor may do so and the cost thereof shall be charged to Subcontractor.

5.2 Subcontractor agrees to participate in weekly cleanup of the job site at all times that Subcontractor's personnel are on site. The day of the week and time of weekly cleanup will be determined at the Weekly Progress Meetings and will be conducted as agreed. If Subcontractor does not participate, Market & Johnson will complete clean up and deduct the appropriate amount from Subcontractor's contract.

5.3. Market & Johnson will arrange for trash removal and sanitation services on the job site for the duration of the project. The total cost of these services will be determined prior to release of final payment. Market & Johnson will deduct the value of these services from the Subcontractor's contract via Change Order. The value will be determined on a prorated basis according to the Subcontractor's percentage of the total contract amount.

ARTICLE 6
WARRANTY

6.1 Subcontractor warrants to Owner and Contractor that all materials and equipment furnished by Subcontractor will be new unless otherwise specified, and that all work performed will be of good quality, free from faults and defects and in conformance with the Contract Documents. All work not so conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by Contractor, Subcontractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty shall be in addition to and not in limitation of any other warranty or remedy required by law or by the Contract Documents. The warranty period will begin on the date of substantial completion of the entire project or upon commencement of the warranty period as outlined in the Contract Documents, whichever is later. The warranty period will be 12 months or as specified in the Contract Documents, whichever is longer.

ARTICLE 7
CHANGES

7.1 Owner may make changes to the Prime Contract. Upon notification of such change by Contractor, issued subsequent to the execution of the Subcontract Agreement, Contractor shall promptly notify Subcontractor of said change. Unless otherwise directed by Contractor, Subcontractor shall not thereafter order materials or perform work which would be inconsistent with the change(s) made to the Prime Contract.

7.2 Subcontractor may be ordered in writing by Contractor, without invalidating the Subcontract Agreement, to make changes in the work within the general scope of the Subcontract Agreement consisting of additions, deletions or other revisions, including those required by changes to the Prime Contract issued subsequent to the execution of the Subcontract Agreement and the Contract Documents. Subcontractor, prior to the commencement of such change or revised work, shall submit promptly to Contractor written copies of a claim for adjustment to the amount of payment and time for completion for such revised work in a manner consistent with requirements of the Subcontract Agreement.

7.3 Subcontractor shall make claims promptly to Contractor for additional cost, extensions of time and damages for delays or other causes in accordance with the Subcontract Agreement. A claim which will affect or become part of a claim which Contractor is required to make under the Prime Contract, within a specified time period or in a specified manner, shall be made in sufficient time to permit Contractor to satisfy the requirements of the Prime Contract. Such claims shall be received by Contractor not less than two (2) working days preceding the time by which Contractor's claim must be made. Failure of Subcontractor to make a timely claim shall bind Subcontractor to the same consequences to those to which Contractor is bound.

7.4 The Contractor's Project Superintendent or Foreman shall have the right to authorize modifications to the Subcontract Agreement only in cases when necessary to avoid Project delay. No verbal authorizations are valid. All modifications must be documented in writing. No other field employee of Contractor has or shall have any right or authority to modify, add to or change the Subcontract Agreement or execute any written order or give any written directions on behalf of Contractor.

ARTICLE 8
ARBITRATION

8.1 Any controversy or claim between Contractor and Subcontractor arising out of or related to the Subcontract Agreement, or the breach thereof, shall be settled by arbitration, which shall be conducted in the same manner and under the same procedure as provided in the Prime Contract with respect to claims between Owner and Contractor, except that a decision by Architect shall not be a condition precedent to arbitration. If the Prime Contract does not provide for arbitration, or fails to specify the manner and procedure for arbitration, it shall be conducted in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect unless the parties mutually agree otherwise.

8.2 Except by written consent of the person or entity sought to be joined, no arbitration arising out of or relating to the Subcontract Agreement shall include, by consolidation or joinder or in any other manner, any person or entity not a party to the Subcontract Agreement under which such arbitration arises, unless it is shown at the time the demand for arbitration is filed that (1) such person or entity is substantially involved in a common question of fact or law, (2) the presence of such person or entity is required if complete relief is to be accorded in the arbitration, (3) the interest or responsibility of such person or entity in the matter is not insubstantial, and (4) such person or entity is not Architect, Architect's employee, Architect's consultant, or an employee or agent of any of them. This agreement to arbitrate and any other written agreement to arbitrate with an additional person or persons referred to herein shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

8.3 Contractor shall give Subcontractor prompt written notice of any demand received or made by Contractor for arbitration if the dispute involves or relates to the work, materials, equipment, rights or responsibilities of Subcontractor. Contractor shall consent to inclusion of Subcontractor in the arbitration proceeding whether by joinder, consolidation or otherwise, if Subcontractor requests in writing to be included within ten (10) days after receipt of Contractor's notice.

8.4 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

8.5 This Article shall not be deemed a limitation of rights or remedies which Subcontractor may have under Federal law, under state mechanics' lien laws, or under applicable labor or material payment bonds unless such rights or remedies are expressly waived by Subcontractor.

ARTICLE 9
TERMINATION

9.1 Subcontractor may terminate the Subcontract Agreement for the same reasons and under the same circumstances and procedures with respect to Contractor as Contractor may terminate with respect to Owner under the Prime Contract, or for nonpayment of amounts due under the Subcontract Agreement for sixty (60) days or longer. In the event of such termination by Subcontractor for any reason which is not the fault of Subcontractor, sub-subcontractors or their agents or employees or other persons performing portions of the work under contract with Subcontractor, Subcontractor shall be entitled to recover from Contractor payment for work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead and profit.

9.2 If Subcontractor shall fail to prosecute said work or furnish said material as rapidly as the Contractor shall require or if Subcontractor shall fail to comply with the terms of the Contract Documents as to quality of material or workmanship, or if Subcontractor shall fail to furnish necessary material and complete said work in such manner as to permit completion of the entire contract upon the date specified in the Contract Documents, the Contractor may on (48) hours written notice relet the said work or any part thereof, or may purchase materials as the general contractor may determine or may proceed to perform any or all portions of the subcontract, and all costs of said material and expense for such labor shall be charged to the Subcontractor and may be treated as payments to the Subcontractor. The Subcontractor shall be liable to the Contractor for any excess of expenditure so made over and above the subcontract price fixed hereinafter.

ARTICLE 10
ASSIGNMENT

10.1 In the event of termination of the Prime Contract by Owner, Contractor may assign the Subcontract Agreement to Owner, with Owner's agreement,

subject to the provision of the Prime Contract and to the prior rights of the surety, if any, obligated under bonds relating to the Prime Contract. If the work of the Prime Contract has been suspended for more than 30 days, Subcontractor's compensation shall be equitably adjusted.

10.2 Subcontractor shall not assign the work to be performed under the Subcontract Agreement without the written consent of Contractor, nor subcontract the whole or any part of the Subcontract Agreement without the written consent of Contractor.

ARTICLE 11
TIME

11.1 Subcontractor shall commence work under this contract when notified by the Contractor, and shall complete the work covered by this subcontract in a diligent manner, following the construction schedule provided by the Contractor, so that the progress or completion of the building will not be delayed, and in such a manner that the Contractor or other Subcontractors shall not be unduly delayed or impeded in their work.

11.2 The Subcontractor agrees to be responsible for, assume, carry out and perform all time guarantees upon work or materials referred to in the Contract Documents relating to any materials furnished, or labor performed under this subcontract.

ARTICLE 12
SUBCONTRACT PAYMENTS

12.1 Contractor shall pay Subcontractor, in current funds, for all work to be performed under this Agreement, subject to additions and deductions as provided in the Contract Documents, the sum shown in the Subcontract Agreement. The subcontract sum is understood to include all state sales taxes, excise taxes, transportation tax, unemployment compensation tax, old age benefits and Social Security taxes. Subcontractor agrees to pay all of the above and to conform to all state and federal laws in connection with such taxes. In addition, Subcontractor further agrees to withhold from all employees employed by Subcontractor, withholding taxes and to pay the same to the appropriate state or federal agency in accordance with the federal laws and regulations pertaining thereto.

12.2 Based upon application for payment submitted to Contractor by Subcontractor, corresponding to applications for payment submitted by Contractor to Architect/Owner, and certificates for payment issued by Architect/Owner, Contractor shall make progress payments on account of the sum due Subcontractor to Subcontractor as provided below. The period covered by each application for payment shall be one calendar month ending on the last day of the month unless otherwise agreed between Contractor and Subcontractor.

12.3 Provided an application for payment is received by Contractor not later than the 25th day of a month, Contractor shall include Subcontractor's work covered by that application in the next application for payment which the contractor is entitled to submit to Architect/Owner. In accordance with Section 779.135, Wisconsin Statutes, within seven (7) days after receipt by Contractor from Owner or General Contractor of progress payments from Owner or General Contractor under the Contract for work reflected in Subcontractor's application for payment, Contractor shall make a payment to Subcontractor equal to the value of the approved and paid for portions of Subcontractor's Work, to the extent approved by Contractor and allowed and paid by Owner or General Contractor on account of Subcontractor's Work, less retainage of 10% of the value of each progress payment and less all charges or back charges for services, materials, equipment and other items furnished or otherwise chargeable by Contractor to Subcontractor.

12.4 As a condition precedent for each progress payment, Subcontractor shall provide a release of claims and conditional waiver of lien from Subcontractor, and, if requested by Contractor, from its subcontractors and suppliers.

12.5 Subcontractor specifically agrees that Contractor shall at all times have the right to contact Subcontractor's subcontractors, materialmen, and suppliers to assure Contractor that those individuals and entities are being promptly and properly paid by Subcontractor. In the event Contractor has reason to believe that obligations for labor, services, materials or equipment or other obligations incurred by Subcontractor in the performance of Subcontractor's Work are not being promptly paid, Contractor may take any steps which Contractor deems necessary to assure itself that payments made under this Subcontract are used to satisfy Subcontractor's obligations, including but not limited to, Contractor's right to pay Subcontractor's obligations arising under this Subcontract directly, or to bond off or otherwise discharge claims or liens arising under therefrom, or to retain out of any payments due or to become due to Subcontractor a reasonable amount to protect Contractor and Owner from any loss, damage or expense arising out of, or relating to any such obligations, claims or liens, until the obligation, claim or lien has been satisfied by Subcontractor. Notwithstanding the foregoing, Contractor has no obligation to Subcontractor or to third parties to exercise any of the foregoing rights and none of Subcontractor's laborers, subcontractors, suppliers or materialmen, or any individual or entity not a party to this Subcontract is a third-party beneficiary of the terms and content of this Subcontract.

12.6 Contractor shall have the right and privilege to make any payment due Subcontractor hereunder jointly to Subcontractor and any person, firm or corporation to whom Subcontractor is indebted for labor performed or materials furnished in the performance of the Subcontract Agreement.

12.7 Each application for payment shall be based upon the most recent schedule of values submitted by Subcontractor in accordance with the Subcontract Documents. The schedule of values shall allocate the entire subcontract sum among the various portions of Subcontractor's work and be prepared in such form and supported by such data to substantiate its accuracy as Contractor may require. This schedule, unless objected to by Contractor, shall be used as a basis for reviewing Subcontractor's applications for payment.

12.8 Applications for payment submitted by Subcontractor shall indicate the percentage of completion of each portion of Subcontractor's work as of the end of the period covered by the application for payment. Payments for such applications shall be ninety percent (90%) of the amount of the application.

ARTICLE 13
FINAL PAYMENT

13.1 Final payment, constituting the entire unpaid balance of all sums due Subcontractor, shall be made by Contractor to Subcontractor when Subcontractor's work is fully performed in accordance with the requirements of the Contract Documents including, but not limited to, the submission of all Operations & Maintenance Manual information, the Architect has issued a certificate of payment covering Subcontractor's completed work and Contractor has received payment from Owner. Neither the final payment nor the remaining retainage percentage shall become due until Subcontractor submits to Contractor (a) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Project for which Owner or his property might in any way be responsible, have been paid or otherwise been satisfied, (b) consent of surety, if any, to final payment is obtained and (c) if required by Contractor, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Subcontract Agreement, to the extent and in such form as may be designated by Contractor. If Subcontractor refuses to furnish a release or waiver required by Contractor, Subcontractor may furnish a bond satisfactory to Contractor to indemnify Owner and Contractor against any such lien. If any such lien remains unsatisfied after all payments are made, Subcontractor shall refund to Contractor or Owner all monies that either may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.

ARTICLE 14
LIEN WAIVERS

14.1 Subcontractor agrees to keep the project to which the Subcontract Agreement relates free and clear of mechanic's liens or other encumbrances arising by Subcontractor act or conduct and shall, at Subcontractor's sole cost and expense, defend against any claim, lien, suit or proceeding that may be presented or filed arising out of and in the course of Subcontractor's performance of the Subcontract Agreement. Subcontractor agrees to timely sign and return lien waivers submitted to them by Contractor. Subcontractor also agrees to furnish Contractor with lien waivers from all suppliers and sub-suppliers upon request.

ARTICLE 15
INSURANCE/BONDS

15.1 Subcontractor shall purchase and maintain insurance of the types of coverage and limits of liability as shown in the Subcontract Agreement (see Exhibit "A"). Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruptions from date of commencement of Subcontractor's work until date of final payment and termination of any coverage required to be maintained after final payment by the Contract Documents.

15.2 Certificates of insurance acceptable to Contractor shall be filed with the Contractor prior to commencement of Subcontractor's work (see Exhibit "B"). These certificates and the insurance policies required by this Article 15 shall contain a provision that coverages afforded under the policies will not be cancelled or allowed to expire until at least 30 days prior written notice has been given to Contractor. Certificates of insurance shall name Market & Johnson, Inc. as an Additional Insured on a primary and non-contributory basis. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final application for payment as required in Article 13. If any information concerning reduction of coverage is not furnished by the insurer, it shall be furnished by Subcontractor with reasonable promptness according to Subcontractor's information and belief. Compliance by the Subcontractor with the foregoing requirements, as to carrying insurance and furnishing certificates, shall not relieve the Subcontractor of its liabilities and obligations.

15.3 Upon request, Contractor shall furnish to Subcontractor satisfactory evidence of insurance required of the Contractor under the Prime Contract.

15.4 Contractor and Subcontractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) Owner, Architect, Architect's consultants, separate contractors, and any of their subcontractors, sub-subcontractors, agents and employees for damages caused by fire or other perils to the extent covered by property insurance provided under the Prime Contract or other property insurance applicable to the work, except such rights as they may have to proceeds of such insurance held by Owner as fiduciary. Subcontractor shall require of Subcontractor's sub-subcontractors, agents and employees, by appropriate agreements, written where legally required for validity, similar waivers 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.

15.5 Contractor shall promptly, upon request of Subcontractor, furnish a copy or permit a copy to be made of any bond covering payment of obligations arising under the Subcontract Agreement.

ARTICLE 16
INDEMNIFICATION

16.1 To the fullest extent permitted by law, the Subcontractor shall indemnify and hold harmless the Owner, Contractor, Architect, Architect's consultants, and agents and employees of any of them, from and against claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from performance of the Subcontractor's Work under this Subcontract, 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) including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Subcontractor, the Subcontractor's Sub-contractors, 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 otherwise reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this paragraph. In claims against any person or entity indemnified under this paragraph by an employee of the Subcontractor, the Subcontractor's Sub-contractors, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this paragraph shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or from the Subcontractor of the Subcontractor's Sub-contractors under workers' or workmen's compensation acts, disability benefit acts or other employee benefits acts. The obligations of the Subcontractor under this paragraph shall not extend to the liability of the Architect, the Architect's consultants, and agents and employees of any of them arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications or the giving of or the failure to give directions or instructions by the Architect, the Architect's consultants, and agents and employees of any of them, provided such giving or failure to give is the primary cause of the injury or damage.

ARTICLE 17
MISCELLANEOUS PROVISIONS

17.1 The Subcontract Agreement shall be governed by the law of the State of Wisconsin.

17.2 Contractor and Subcontractor each bind itself, himself, his partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Subcontract Agreement. Notwithstanding the foregoing, Subcontractor shall not assign the Subcontract Agreement or sublet the work to be performed thereunder without the written consent of Contractor.

17.3 Written notice shall be deemed to have been duly served if delivered in person to the individual or member of the firm or entity or to an officer of the corporation for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known to him who give the notice.

17.4 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by Contractor, Architect, or Owner shall constitute a waiver of any right or duty afforded any of them under the Contract Documents, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

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EXHIBIT "A"

A.1 SUBCONTRACTOR'S LIABILITY INSURANCE.

A.1.1 The insurance required shall include: Premises – Operations, Products and Completed Operations, Personal Injury Liability with Employment Exclusions deleted, Blanket Contractual – All written contracts, Owned, Non-owned, and hired motor vehicles, Board Form Property Damage including Completed Operation, and shall be purchased from and maintained in a company or companies properly licensed to do business in the State of Wisconsin or how are otherwise permitted to write insurance in this jurisdiction provided they agree to pay the appropriate surplus lines premium tax, and shall be written for not less than the following limits, or as required by law, whichever is greater:

TYPE OF INSURANCE	MINIMUM LIMITS OF LIABILITY
Workers' Compensation and Employer's Liability	Statutory $100,000 Each Accident $500,000 Disease, Policy Limit $100,000 Disease, Each Employee

Include United State Longshoreman and Harbor Workers' coverage's (if applicable)

Commercial General Liability: Includes at a minimum the following coverage's:

Operations of Subcontractor
Products and Completed Operations
Personal Injury Including Employee related claims
Designated Construction Project(s) Aggregate Endorsement

Limits of Commercial General Liability

General Aggregate (other than Products and Completed Operations) $2,000,000
Products and Completed Operations Aggregate $2,000,000
Personal and Advertising Injury $1,000,000
Each Occurrence $1,000,000

Comprehensive Automotive Liability – Limits

Combined Single Limit Bodily Injury and Property Damage $1,000,000
Non-Owned and Hired Automotive $1,000,000

Professional Liability (for Design/Build Subcontractors)

Per Claim $1,000,000
General Aggregate $1,000,000

Commercial Excess Liability (Umbrella Liability) – Subcontractors shall maintain an umbrella liability policy providing the same coverages and with the same additional insured as the basic policy and in the following amounts:

a. Curtain Wall Subcontractor $5,000,000
b. Steel Subcontractor $5,000,000
c. Elevator Subcontractor $5,000,000
d. HVAC Subcontractor $5,000,000
e. Plumbing Subcontractor $5,000,000
f. Electrical Subcontractor $5,000,000
g. Excavation Subcontractor $1,000,000
h. All Other Subcontractors and Material Suppliers $2,000,000
RETENTION ($10,000 maximum)

Contractor's Pollution Liability: $1,000,000 ($5,000,000 for Asbestos Contractors, if applicable)

A.1.1.1 The insurance required by Subparagraph A.1.1 shall be written for the limits specified or limits required by law, whichever is greater. The coverages whether written on a claims made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination or any coverage required to be maintained after final payment.

A.1.1.2 The Umbrella Liability shall provide excess limits over and above the commercial general liability, employer's liability and comprehensive automobile liability as stated in Article 15.

A.1.1.3 Liability insurance may be arranged by Commercial General Liability and Comprehensive Automobile Liability policies for the full limits required, or by a combination of underlying Comprehensive Liability policies for lesser limits with the remaining limits provided by Umbrella Liability Coverage.

A.1.1.4 The types of insurance and the limits of liability indicated above are the minimum required and the Contractor does not warrant the adequacy for the types of insurance or the limits of liability.

A.1.1.5 Products and Completed Operations to be maintained for a minimum of two years after receipt of final payment.

A.1.1.6 Subcontractor is required if not protected under Contractor's insurance to take out and maintain Workers' Compensation insurance and insurance of the same kind and in the amount that the contractor considers appropriate as specified above.

A.1.1.7 Subcontractor shall carry sufficient comprehensive insurance on his equipment at site of work and on route to and from site to fully protect him. Subcontractor shall require same coverage of his sub-subcontractors. It is expressly understood and agreed that Owner and/or Architect shall have no responsibility therefore.

A.2 Furnish one copy of certificate herein required for each copy of Agreement, specifically set forth evidence of all coverage required by the Contract Documents.

A.3 The General Liability and Umbrella Liability insurance required by Paragraph A.1.1 shall include Owner and Architect and General Contractor as additional insured on a primary and non-contributing basis including Products and Completed Operation endorsement (Forms CG 20 10 07 04 and CG 20 37 07 04) to be maintained for a minimum of two years after receipt of final payment.

***

EXHIBIT "B"

Instructions to Subcontractor's Insurance Agent

Market & Johnson, Inc. requires that all certificates of insurance specify:

1. Contractor as a certificate holder with correct mailing address.
2. Insured's name, which must match that on this Agreement.
3. Insurance companies affording each coverage, policy number of each coverage, policy dates of each coverage, all coverages and limits described herein, and signature of authorized representatives of insurance company.
4. Producer of the certificate with correct address and phone number listed.
5. Additional insured status required in the Subcontract Agreement.
6. Designated Construction Project(s) Aggregate Limits required in the Subcontract Agreement.
7. Amount of any deductibles and/or retentions.
8. Cancellation, non-renewal and material reduction in coverage notification as required by this Agreement. Additionally, the words "endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon Company, its agents or representatives" shall be deleted from the cancellation provision of the ACORD 25 certificate of insurance form.
9. Primary and non-contributory status required in the Subcontract Agreement.
10. Waivers of subrogation required in the Subcontract Agreement.

Market & Johnson, Inc. further requires that copies of each of the following endorsements shall also be provided in addition to the certificate of insurance.

1. General Liability:
   a. Additional Insured through a combination of CG 20 10 07 04 and CG 20 37 07 04 or equivalent form, including Primary and Non-Contributory Liability.
   b. Designated Construction Project(s) Aggregate Limit CG 25 03 05 09.
   c. Notice of Cancellation, Change and Non-renewal.
   d. Personal Injury Contractual Liability.
   e. Waiver of Subrogation CG 24 04 10 93
2. Auto Liability
   a. Cancellation, Change and Non-renewal.
   b. Waiver of Subrogation.
3. Workers' Compensation/Employer's Liability
   a. Cancellation, Change and Non-renewal.
   b. Waiver of Subrogation.
4. Umbrella Liability
   a. Confirmation by endorsement of Primary and Non-Contributory coverage.

See endorsement examples attached.

If you or your insurance agent has questions related to the insurance requirements documented in Exhibits "A" or "B", please contact Kevin Monson, CFO at Market & Johnson, Inc. at 715-834-1213, or Jackie Plaszcz at M3 Insurance Solutions at 715-830-1840.

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURERS AFFORDING COVERAGE	NAIC #
INSURER A:	
INSURER B:	
INSURER C:	
INSURER D:	
INSURER E:	

INSURED

COVERAGES

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. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
		GENERAL LIABILITY				EACH OCCURRENCE	$ 1,000,000
		X COMMERCIAL GENERAL LIABILITY				DAMAGE TO RENTED PREMISES (Ea occurence)	$
		CLAIMS MADE X OCCUR				MED EXP (Any one person)	$
						PERSONAL & ADV INJURY	$ 1,000,000
						GENERAL AGGREGATE	$ 2,000,000
		GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS - COMP/OP AGG	$ 2,000,000
		POLICY X PRO-JECT LOC					
		AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
		X ANY AUTO					
		ALL OWNED AUTOS				BODILY INJURY (Per person)	$
		SCHEDULED AUTOS					
		X HIRED AUTOS				BODILY INJURY (Per accident)	$
		X NON-OWNED AUTOS					
						PROPERTY DAMAGE (Per accident)	$
		GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
		ANY AUTO				OTHER THAN AUTO ONLY: EA ACC	$
						AGG	$
		EXCESS/UMBRELLA LIABILITY				EACH OCCURRENCE	$ enter limit
		X OCCUR CLAIMS MADE				AGGREGATE	$
							$
		DEDUCTIBLE					$
		RETENTION $					$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				X WC STATU-TORY LIMITS / OTH-ER	
		ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED?				E.L. EACH ACCIDENT	$ 100,000
		If yes, describe under SPECIAL PROVISIONS below				E.L. DISEASE - EA EMPLOYEE	$ 500,000
						E.L. DISEASE - POLICY LIMIT	$ 100,000
		OTHER Pollution Liability				enter limit	

Sample

Sample

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

Market & Johnson Inc, Owner and Architect are additional insureds with regard to General Liability per additional insured endorsements CG2010 07/04 and CG2037 07/04. Additional insured status is provided on General Liability and Umbrella Liability on a primary and non-contributory basis. Waiver of subrogation provided in favor of Market & Johnson Inc, Owner and Architect with regard to General Liability and Workers Compensation

CERTIFICATE HOLDER

Market & Johnson Inc
PO Box 630
Eau Claire WI 54702-0630

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

ACORD 25 (2001/08)

© ACORD CORPORATION 1988

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 20 10 07 04

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):	Location(s) Of Covered Operations
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.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

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.

 © ISO Properties, Inc., 2004

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 20 37 07 04

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):	Location And Description Of Completed Operations
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".

AMPLE

 © ISO Properties, Inc., 2004

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 25 03 05 09

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

DESIGNATED CONSTRUCTION PROJECT(S) GENERAL AGGREGATE LIMIT

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Designated Construction Project(s):
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

A. For all sums which the insured becomes legally obligated to pay as damages caused by "occurrences" under Section **I** – Coverage **A,** and for all medical expenses caused by accidents under Section **I** – Coverage **C,** which can be attributed only to ongoing operations at a single designated construction project shown in the Schedule above:

1. A separate Designated Construction Project General Aggregate Limit applies to each designated construction project, and that limit is equal to the amount of the General Aggregate Limit shown in the Declarations.

2. The Designated Construction Project 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 Construction Project General Aggregate Limit for that designated construction project. Such payments shall not reduce the General Aggregate Limit shown in the Declarations nor shall they reduce any other Designated Construction Project General Aggregate Limit for any other designated construction project shown in the Schedule above.

4. The limits shown in the Declarations for Each Occurrence, Damage To Premises Rented To You 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 Construction Project General Aggregate Limit.

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B. For all sums which the insured becomes legally obligated to pay as damages caused by "occurrences" under Section **I** – Coverage **A,** and for all medical expenses caused by accidents under Section **I** – Coverage **C,** which cannot be attributed only to ongoing operations at a single designated construction project 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 Construction Project 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 Construction Project General Aggregate Limit.

D. If the applicable designated construction project has been abandoned, delayed, or abandoned and then restarted, or if the authorized contracting parties deviate from plans, blueprints, designs, specifications or timetables, the project will still be deemed to be the same construction project.

E. The provisions of Section **III** – Limits Of Insurance not otherwise modified by this endorsement shall continue to apply as stipulated.

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MARKET & JOHNSON SUBCONTRACT AGREEMENT ATTACHMENT

Subcontractor agrees to furnish Market & Johnson with a complete list of all sub-subcontractors and material suppliers to be utilized by Subcontractor to perform all work necessary for the completion of a portion or subdivision of the work to be performed on the Project as documented in the Subcontract Agreement. This attachment must be completed and returned with the signed Subcontract Agreement and each individual Application for Payment submitted for the duration of the Project. Changes to suppliers and sub-subcontractors must also be documented as they occur.

** Subcontractor acknowledges that for each payment made to a sub-subcontractor or material supplier, they will be required to provide Market & Johnson with a lien waiver for that sub-subcontractor or material supplier affirming that payments have been made.

Project: _____ Subcontract's P.O. No. for Billing _____

Supplier/Sub-subcontractor	Address	Phone	Contact Name	Estimated Contract Value	Contract Purchases To Date	Estimated Remaining Contract	Percent Complete	Lien Waiver Obtained

SUBCONTRACTOR: _____

By: _____
signature title date

Rev. 05/01/2011

SECTION 00 62 76
APPLICATION FOR PAYMENT

Market & Johnson

Adding Value to Everything We Do

APPLICATION FOR PAYMENT AND LIEN WAIVER

Bill To: Market & Johnson, Inc.
2350 Galloway Street
P.O. Box 630
Eau Claire, WI 54702-0630
Ph: 715-834-1213
Fax: 715-834-2331

From : _____
(Subcontractor's Name)

_____

_____
(Address)

_____
(Phone number)

Project Name: _____
Project Location: _____
Vendor Invoice # _____
Contract/ PO # _____
Application Pymt # _____
Application Date _____
Application Amount $ - (same as line 10)
For Period Ending _____

We apply for payment under the contract as follows:

Original Contract Sum :		$	(1)
Net Approved Change by Change Orders to Date, Numbers _____		$	(2)
Contract Sum To Date :		$ -	(3)
Work Completed to Date :		$	(4)
Material Suitable Stored (if any) :		$	(5)
Gross Amount Due :	(4+5)	$ -	(6)
Less Previous Applications (Line 6 from previous application):		$ -	(7)
Amount Due This Application before Retainage :		$ -	(8)
Less : **10** % Retainage :		$ -	(9)
Net Amount Due This Application :		$ -	(10)

CERTIFICATE OF SUBCONTRACTOR AND CONDITIONAL WAIVER OF LIEN:
The undersigned Subcontractor, through its authorized representative shown below, hereby certifies to Contractor that the work performed and/or materials supplied by Subcontractor to date, as shown in the above statement of Subcontractor, represents the actual value of all work completed under the terms of the Subcontract including all authorized changes to the subcontract relating to the above-referenced project. In addition to any prior waivers and effective upon receipt of the amount due per Item 10 above, Subcontractor waives any and all lien rights or bond claim rights which it may have, if any, with respect to work for which a penalty in this or any prior applications for payment except those as to unpaid retainage.

Subcontractor certifies that through the period covered by the previous payments received from the Contractor all materials and labor used in or in connection with the performance of the Subcontract have been fully paid and all the Subcontractor's sub-subcontractors are fully paid. Lien waivers are attached, through the period covered by the prior payment made to Subcontractor on _____,_____ from all the sub-subcontractors and suppliers to the Subcontractor. Contractor is authorized by Subcontractor to contact such persons to confirm contracts, contract amounts, and prior payment. Subcontractor further certifies that it has complied with federal, state and local tax laws including social security tax laws, unemployment compensation laws, worker's compensation laws, and requirements under any applicable collective bargaining agreements, insofar as applicable to the performance of the Subcontract, including making appropriate withholding payments and deposits. The Subcontractor understands that Market & Johnson, Inc. may require documentation of all the above payments prior to making any further payment to Subcontractor including the amount applied for herewith.

Signature _____ Date _____

1. Attach your invoice and AIA document G703 (or similar form) to this cover sheet as backup.
2. Attach Market & Johnson Subcontract Agreement Attachment, if noted as required on your agreement.
3. Subcontracts for material only must itemize sales tax on your attached invoice.
4. Separate billing for retainage does not need be submitted for this subcontract agreement.

Rev. 05/01/2011

SUBCONTRACTOR'S APPLICATION FOR PAYMENT - INSTRUCTIONS TO COMPLETE

Please Complete the Following Information on Top Portion of Form

Name, Address, & Phone Number of Subcontractor or Supplier billing Market & Johnson.
Project Name
City and State of the Job Location
Subcontractor or Supplier Invoice Number
Subcontract Number
Application Payment Number
Application Date
Period Covered by Current Billing

Please Complete the Following Information on Billing Portion of Form

1. The Original Contract Amount on the Subcontract Agreement signed by General Contractor
2. Net Amount of Approved & Signed Change Orders Issued by Market & Johnson only
3. The Sum of Lines 1 & 2
4. Work Completed to Date - Includes all work completed and previously billed on earlier applications
5. Materials Stored in Compliance with Contract and Previously Approved
6. The Sum of Lines 4 & 5
7. Less: Previous Applications - This would be the amount on Line 6 of the previous month's billing.
8. The Sum of Line 6 minus Line 7
9. Retainage - Sum of Line 8 multiplied by 10% unless otherwise specified in contract.
10. The Sum of Line 8 minus Line 9

* Sign and date application.
* Attach your invoice and AIA document G703 (or equivalent) to this cover sheet as backup.
* Complete and attach, if noted as required on your subcontract agreement, an updated copy of the Market & Johnson Subcontract Agreement Attachment reflecting amounts paid to sub-subcontractors and material suppliers through the application date noted.
* Contracts for material only must itemize out sales tax on backup information.
* Extras may only be billed on a separate invoice to Market & Johnson with a Purchase Order Number from the Project Manager.
* All other changes or extras must be included in the approved change order amount and billed on the Application for Payment

Electronic version of this form and instructions can be emailed to you for your convenience.

SECTION 00 72 00
GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION
AIA DOCUMENT A201, 2007

The "General Conditions of the Contract for Construction", Pages 1-38, inclusive, AIA Document No. A201 - 2007, as published by the American Institute of Architects, Articles 1-15, inclusive, are hereby made a part of the Contract Documents to the same extent as if bound herein and as supplemented hereinafter. A copy of A201 is on file in Market & Johnson's office.

***

SECTION 00 73 00
SUPPLEMENTARY GENERAL CONDITIONS

The following supplements modify, change, delete from or add to the General Conditions of the Contract for Construction (AIA 201 - 2007 Edition).

All articles, paragraphs, subparagraphs or clauses not altered by the Supplementary Conditions shall remain in effect.

ARTICLE 1 GENERAL PROVISIONS

Subarticle 1.2.2, add the following paragraph:

1.2.2.1 It shall, however, assign the divisions and sections of the Work to the various Subcontractor. Work assigned by the Drawings or Specifications to more than one Subcontractor will be deemed to be assigned to each; Market & Johnson, Inc. will determine which Subcontractor shall furnish the Work and will adjust the contract sums accordingly.

Subarticle 1.2.3, add the following paragraphs:

1.2.3.1 Directed, Requested, Etc: Where not otherwise explained, terms as “directed”, “requested”, “authorized”, “selected”, “approved”, “required”, “accepted”, and “permitted” mean “directed, by the Architect/Engineer”, “requested by the Architect/Engineer”, and similar phrases, however, no such implied meaning will be interpreted to extend the Architects/Engineers responsibility into the Contractor’s area of construction supervision.

1.2.3.2 Approve: Where used in conjunction with the Architect’s/Engineer’s response to submittals, requests, applications, inquiries, reports and claims by the contractor, the meaning of the term “approved” will be held to limitations of the Architect’s/Engineer’s responsibilities and duties as specified in General and Supplementary Conditions. In no case will the Architect’s/Engineer’s approval or acceptance be interpreted as a release of the Contractor from responsibilities to contract documents.

1.2.3.3 Furnish and Install: means to provide all labor, materials, insurance, taxes, equipment, etc. to complete the described work, per plans and specifications.

1.2.3.4 Install Only means receive delivery on board, unload, uncrate and install, including all labor, miscellaneous materials, insurance, taxes, and equipment necessary for material supplied by others. This also includes removal of debris generated by materials supplied by others.

1.2.3.5 Furnish Only means deliver, tax and freight includes (FOB job site), materials to the Owner’s facility for installation by others. Delivery shall be made during standard working hours and notification of delivery shall be given to Market & Johnson 72 hours in advance.

1.2.3.6 Provide: Except as otherwise defined in greater detail, the term “provide” means “to furnish and install, complete and ready for intended use”, as applicable in each instance.

1.2.3.7 Maintain: Shall mean to keep in good working order for the duration of the project, or until no longer required, as directed by Market & Johnson.

1.2.3.8 Mechanical: Shall mean plumbing, fire protection, heating, ventilation, air conditioning, electrical, pneumatic tube, sprinkler, elevator, etc. as applicable.

Subarticle 1.2, **Correlation and Intent of the Contract Documents**, add the following paragraphs:

1.2.4 The General Conditions, Supplementary General Conditions, Special Conditions and the General Requirements along with other Division 00 and 01 sections shall apply to all sections of the

Specifications. Sections of Division 01 - General Requirements govern the execution of the work of all sections of the specifications.

1.2.5 The Architect shall furnish additional drawings or explanations as may be required to clarify or illustrate the work to be done, and the Subcontractor shall conform to these additional drawings and explanations as part of the contract so far as consistent with the Drawings and Specifications. The Subcontractor shall be responsible for informing Market & Johnson, in a timely manner, of any additional drawings or explanations required from Market & Johnson for the proper execution of the Work and any associated cost impact within five (5) days of receipt of any project revisions. Requests for additional drawings or explanations shall be submitted in writing.

1.2.6 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

1. The Agreement.
2. Addenda, with those of later date having precedence over those of earlier date.
3. The Supplementary General Conditions.
4. The General Conditions of the Contract for Construction.
5. The General Requirements of Divisions 00 and 01.
6. The Specifications.
7. The Drawings.

1.2.6.1 In the case of an inconsistency between Drawings and Specifications or within either document not clarified by Addenda, the better quality or greater quantity of Work shall be provided by the Subcontractor or vendor in accordance with Market & Johnson's interpretation.

1.2.6.2 In the event that work or materials are specified and/or shown on Drawings to be done or provided by more than one Subcontractor, each such Subcontractor will be deemed to have figured the item an Architect will determine who shall furnish work and who shall submit credit to Owner for work.

1.2.6.3 Subcontractor must provide all work and materials which any Section or part of the Plans, Drawings, Project Manual or conditions require him to provide regardless of whether such requirements are faithfully repeated in other parts or sections thereof to which the provision might be appropriate.

ARTICLE 3 CONTRACTOR

Subarticle 3.4 **Labor and Materials**, add the following paragraph:

3.4.4 Products, Materials and Equipment: Where products are specified by manufacturer and trade name with no qualifying statement, such products shall be furnished without substitution.

Subarticle 3.6 **Taxes**, add the following paragraph:

3.6.1 If you are a vendor residing in a state other than Wisconsin and deliver goods and materials to our project in Wisconsin and include sales tax in your contract, we must receive your Wisconsin tax identification number before we will pay the sales tax amount to your company. Please note that only Wisconsin state sales tax will be paid. All other state sales tax must be deducted from your contract. This is per the Wisconsin Department of Revenue sales tax division. Invoices not billed in this way will be returned for correction.

Subarticle 3.10 **Contractor's Construction Schedules**, add the following paragraph:

3.10.1.1 Various Subcontractors will be required to collaborate with Market & Johnson and shall develop a work schedule which integrates all the activities of the Subcontractors and suppliers, and which meets the requirements of the Owner and Architect. The final scheduled sequence of all such activities shall be determined by Market & Johnson. All scheduling information shall be submitted to Market & Johnson within 5 days after requested. Market & Johnson shall provide periodic schedule

updates throughout the duration of the project. After each schedule update, Subcontractors shall have five (5) working days to respond, in writing, with any proposed corrections/modifications. Failure to do so within the five day period will serve as an implied acceptance of the updated schedule and shall make the Subcontractor and Vendors fully contractually obligated to meet each of the scheduled activity completion dates.

ARTICLE 5 SUBCONTRACTORS

Subarticle 5.3 **Subcontractual Relations**, add the following paragraphs:

5.3.1 Whenever possible, to assure the continued availability of materials, parts and components, the Subcontractor shall obtain products from sources which maintain a regular domestic stock.

5.3.2 Employees of the Subcontractor whose work is unsatisfactory to the Owner, Architect, or Market & Johnson, or who are considered to be careless, disrespectful, incompetent, unskilled or otherwise objectionable, shall be dismissed from work immediately upon notice from Market & Johnson. Superintendents and/or Foremen will not be removed from this project unless approved in writing by Market & Johnson.

5.3.3 It shall be the duty of every Subcontractor to enforce among all workers directly or indirectly employed by him all rules which the Owner, Architect and/or Market & Johnson may lay down for conduct of workers on the premises.

Add the following subarticle
Subarticle 5.5 **Owner Direct Purchases**

5.5.1 The Owner reserves the right to purchase direct any materials and/or equipment valued at $5,000.00 or greater that will benefit the Owner because of their tax-exempt status or the sequencing and flow of the construction process. Market Materials LLC will purchase these items for re-sale to the Owner on a tax exempt basis. The subcontractor responsible for installing Market Materials, LLC purchased materials as part of their work category shall be fully responsible for submittals, expediting, receiving, inspections, unloading, storage, labor portion of warranties, quantities required, temporary protection and installation of material and/or equipment, and all other requirements of the Specifications. In addition, the Subcontractor responsible for installing Market Materials, LLC purchased materials shall be fully responsible for keeping the material or equipment supplier informed, at all times, of any project revisions which could affect the supplier in any way. The Subcontractor installing the Market Materials, LLC purchased materials and equipment is responsible for full coordination of material and equipment deliveries with suppliers.

5.5.2 Procedures for processing Market Materials, LLC Direct Purchases shall be as follows:

5.5.2.1 At the direction of Market & Johnson, the Subcontractor shall prepare a list of materials or equipment or other items to be purchased tax exempt, including all quantities and description required for developing a purchase order. Subcontractor shall turn this list over to Market & Johnson in a timely fashion. No delays in scheduling will be allowed due to untimely delivery of this list.

5.5.2.2 Items purchased by Market Materials, LLC shall be paid for by Market Materials, LLC, and the cost of these purchases, plus tax, shall be deleted from the Subcontractor's contract sum. Any additional costs due to changes in item, quantity required, delivery or storage prices shall be borne by the Subcontractor.

5.5.3 Subcontractors shall make their suppliers aware of all Market Materials, LLC direct purchasing requirements, scheduling requirements and all other applicable provisions of the Contract Documents. Any Subcontractor who includes in their bid proposal a material or equipment supplier who later fails to accept all of Market Materials, LLC direct purchasing requirements of these documents shall be fully responsible for any costs incurred by Market Materials, LLC as a result of tax, project delays, or reduced quality. If requested by Market & Johnson, the

Subcontractor shall provide an alternate supplier who conforms to all requirements of the Contract Documents at no delay or additional expense to Market & Johnson or Market Materials, LLC.

ARTICLE 7 CHANGES IN WORK

Subarticle 7.2 **Change Orders**, add the following paragraph

7.2.2 Subcontractor and Vendor change order amounts shall be limited to the following:

7.2.2.1 Direct cost of materials and trucking directly attributable to the change, plus tax and delivery.

7.2.2.2 Cost of labor directly attributable to the change. Base pay plus employee fringes, payroll taxes and insurance only.

7.2.2.3 Cost of equipment and tools directly attributable to the change.

7.2.2.4 Cost of subcontracts directly attributable to the change.

7.2.3 The change order shall be based on the cost, as stated above, plus a maximum of ten percent (10%) for overhead and profit on self-performed labor, material and equipment and five percent (5%) on sub-subcontracts. Overhead and profit, as stated above, shall include all general administrative expenses, project management, engineering, general supervision, and other labor, materials, and equipment not directly related to the change.

7.2.4 Any change order request from a Market & Johnson Subcontractor or Vendor for a project change, of any kind, initiated by the Owner, Architect, Market & Johnson or another Subcontractor or Vendor must be submitted no later than five (5) working days after notification of such change. A Subcontractor or Vendor failing to meet this time constraint will waive any rights for later claims.

Subarticle 7.3 **Construction Change Directives**, delete Subparagraph 7.3.6 and substitute with the following:

7.3.6 If none of the methods or associated amounts set forth in clauses 7.3.1, 7.3.2 or 7.3.3 are agreed upon by the Owner, the Architect and Market & Johnson prior to the time in which the change must be executed, the Subcontractor shall proceed promptly with the necessary work involved. Any written orders shall only be a directive to proceed with the work and shall not obligate the Owner or Market & Johnson to an associated change order amount until an actual change order for such work has been reviewed and approved by the Owner, Architect and Market & Johnson.

7.3.6.1 The cost of such work shall be determined by the Owner, Architect and Market & Johnson based on the facts and information submitted by the Subcontractor.

7.3.6.2 The method for establishing the change order amount shall not be limited to the methods as outlined in subparagraph 7.3.3.

ARTICLE 9 PAYMENTS AND COMPLETION

Subarticle 9.6.2, add the following paragraph:

9.6.2.1 Payment for invoices relating to Subcontracts and all subsequent Change Orders is contingent upon returning the signed copy of the Subcontract Agreement to Market & Johnson, Inc.

9.6.2.2 Market & Johnson's pay application form must be used to request payment. Payment requests must be received by Market & Johnson by the 25th of each month in order to be billed in that month's payment request to the owner. Requests received after the 25th will be billed for the following month therefore paid a month later.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

Subarticle 10.3 **Hazardous Materials**, add the following paragraphs:

10.3.7 In the event the Subcontractor encounters any material on the site reasonably believed to be hazardous, the Subcontractor shall immediately report the condition to Market & Johnson.

10.3.8 "As stated in the outline of the OSHA Standard, a copy of the Subcontractor's Hazard Communication Program must be located on site prior to starting work. The filing of this program is required whenever laborers/workers are physically working on the project. The Material Safety Data Sheets will be required on any and all materials purchased and used on the project.

ARTICLE 11 – INSURANCE AND BONDS

Subarticle 11.1 **Contractors Liability Insurance**, append and add the following paragraphs:

11.1.2 Contractor's and subcontractor's insurance shall be written for the following minimum limits:

11.1.2.1 Workers' Compensation

State:	Statutory
Employer's Liability	$100,000 (each accident)
	$500,000 (disease, policy limit)
	$100,000 (disease, each employee)
Benefits required by Union labor contracts:	As applicable

11.1.2.2 General Liability (including Premises-Operations; Independent Contractor's Protective; Products and Completed Operations; Broad Form Property Damage):

a) Bodily Injury: $1,000,000 (each occurrence)
$2,000,000 (aggregate)

b) Property Damage: $1,000,000 (each occurrence)
$2,000,000 (aggregate)

c) Products and Completed Operations Insurance shall be maintained for a minimum period of one (1) year after final payment and Contractor shall continue to provide evidence of such coverage to Owner on an annual basis during the aforementioned period.

d) Property Damage Liability Insurance shall include coverage for the following hazards:
X (Explosions)
C (Collapse)
U (Underground)

e) Contractual Liability (Hold Harmless Coverage):
Bodily Injury: $1,000,000 (each occurrence)
Property Damage: $1,000,000 (each occurrence)
$2,000,000 (aggregate)

f) Personal Injury (with employment exclusion deleted, if applicable):
$1,000,000 (aggregate)

g) If the General Liability policy includes a General Aggregate, such General Aggregate shall not be less than $2,000,000. Policy shall be endorsed to have General Aggregate apply to this Project only.

11.1.3 Certificates of Insurance, add the following:

11.1.3.1 Market & Johnson, Inc. requires that all certificates of insurance specify:

a) Contractor as a certificate holder with correct mailing address.

b) Insured's name, which must match that on this Agreement.

c) Insurance companies affording each coverage, policy number of each coverage, policy dates of each coverage, all coverage's and limits described herein, and signature of authorized representatives of insurance company.

d) Producer of the certificate with correct address and phone number listed.

e) Additional insured status required in the Subcontract Agreement.

f) Designated Construction Project(s) Aggregate Limits required in the Subcontract Agreement.

g) Amount of any deductibles and/or retentions.

h) Cancellation, non-renewal and material reduction in coverage notification as required by this Agreement. Additionally, the words "endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon Company, its agents or representatives" shall be deleted from the cancellation provision of the ACORD 25 certificate of insurance form.

i) Primary and non-contributory status required in the Subcontract Agreement.

j) Waivers of subrogation required in the Subcontract Agreement.

11.1.3.2 Market & Johnson, Inc. further requires that copies of each of the following endorsements shall also be provided in addition to the certificate of insurance.

a) General Liability:
   1) Additional Insured through a combination of CG 20 10 07 04 and CG 20 37 07 04 or equivalent form, including Primary and Non-Contributory Liability.
   2) Designated Construction Project(s) Aggregate Limit CG 25 03 05 09.
   3) Notice of Cancellation, Change and Non-renewal.
   4) Personal Injury Contractual Liability.
   5) Waiver of Subrogation CG 24 04 10 93

b) Auto Liability
   1) Cancellation, Change and Non-renewal.
   2) Waiver of Subrogation.

c) Workers' Compensation/Employer's Liability
   1) Cancellation, Change and Non-renewal.
   2) Waiver of Subrogation.

d) Umbrella Liability
   1) Confirmation by endorsement of Primary and Non-Contributory coverage.

Subarticle 11.4 **Performance Bond and Payment Bond**, add the following paragraphs:

11.4.3 If requested by Market & Johnson, Subcontractor shall furnish a 100% Performance and Payment Bond and a 100% Labor and Material Bond made in favor of Market & Johnson and for the awarded work categories at the time the subcontract is executed, excluding responsibility for materials purchased directly by the Owner.

11.4.4 Procedure

11.4.4.1 Subcontractor shall have its surety company execute the performance and payment bonds.

11.4.4.2 The surety on the bonds shall be licensed to do business in the State of Wisconsin. The surety shall be listed by the U.S. Treasury Department as accepted for bonding Federal projects and the bond amount must be within the limit set by the Treasury Department as the maximum amount allowed on any single contract.

11.4.4.3 The surety's attorney-in-fact signing the bonds shall attach a current and valid certified copy of his power of attorney to each of the bonds.

11.4.4.4 Each bond shall be in a sum equal to 100% of the subcontract price.

11.4.4.5 Each bond shall be dated the same date as the subcontract agreement.

11.4.4.6 The Subcontractor shall return the performance and payment bonds to Market & Johnson.

11.4.4.7 Each Subcontractor shall post the Market & Johnson subcontract number on the upper right hand corner of the Performance Bond and the Labor and Material Payment Bond.

***

SECTION 00 73 43
CERTIFICATION OF WAGES

Prevailing wage rate determination has been requested from the State of Wisconsin Department of Commerce and is contained in the following pages.

Other rules and regulations regarding the payment of prevailing wage rates on public and municipal projects apply to work on this project. Contractors shall contact the Wisconsin Department of Commerce (WDC) to determine the full extent of compliance requirements.

All subcontractors performing labor on this project will be required to submit to Market & Johnson's office the fully completed and executed "Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination" (attached) prior to final payment being released.

State of Wisconsin Department of Workforce Development Equal Rights Division	**DEPARTMENTAL ORDER**

ISSUE DATE: 5/21/2015

PROJECT:

ST. CROIX COUNTY HEALTH CENTER ADDITIONS AND RENOVATION
NEW RICHMOND CITY, ST. CROIX COUNTY, WI
Determination No. 201501743 [Owner Project No. 146038]

PROJECT OWNER:	REQUESTER:
JIM ELSBURY, DIRECTOR OF BUILDING SERVICES ST. CROIX COUNTY 1101 CARMICHAEL ROAD HUDSON, WI 54016	NICK THOMPSON, ASSOCIATE HORTY ELVING & ASSOCIATES, INC. 505 EAST GRANT STREET MINNEAPOLIS, MN 55404
ADDITIONAL CONTACT:	**NOTE:** The Requester must provide a copy of this Project Determination and enclosures to the Project Owner and Additional Contact.

The department received an application for prevailing wage rate determination for the above-captioned project. The department conducted a survey to determine the prevailing wage rate for the trade(s) or occupation(s) needed to complete the project. The survey's findings appear in the attached project determination.

If you believe that the wage rate for any trade or occupation does not accurately reflect the prevailing wage rate in the city, village or town where the project is located, you may ask the department to conduct an administrative review of such wage rate. You must submit this request in writing within 30 days from the date indicated above. Additionally, your request must include wage rate information from at least three similar projects in the city, village or town where the proposed project is located and on which some work has been performed by the contested trade(s) during the current survey period and was previously considered by the department in issuing the attached determination. See DWD 290.10 of the Wisconsin Administrative Code and either s. 66.0903(3)(br), Stats., or s. 103.49(3)(c), Stats., for a complete explanation of the administrative review process.

Enclosures

It is hereby ordered that the prevailing wage rates set forth in the attached project determination shall only be applicable to the above referenced project. This order is a **FINAL ORDER** of the department unless a timely request for an administrative review is filed with the department.

ISSUED BY:

Equal Rights Division
Labor Standards Bureau
Construction Wage Standards Section
P.O. Box 8928, Madison, WI 53708-8928
(608)266-6861

Web Site: http://dwd.wisconsin.gov/er/

PREVAILING WAGE RATE DETERMINATION
Issued by the State of Wisconsin
Department of Workforce Development
Pursuant to s. 66.0903, Wis. Stats.
Issued On: 5/21/2015

DETERMINATION NUMBER: 201501743

EXPIRATION DATE: Prime Contracts MUST Be Awarded or Negotiated On Or Before 12/31/2015. If NOT, You MUST Reapply.

PROJECT NAME: ST. CROIX COUNTY HEALTH CENTER ADDITIONS AND RENOVATION

PROJECT NO: 146038

PROJECT LOCATION: NEW RICHMOND CITY, ST. CROIX COUNTY, WI

CONTRACTING AGENCY: ST. CROIX 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 6/1/2015; Add $1.42/hr on 6/1/2016.	32.72	16.00	48.72
102	Boilermaker Future Increase(s): Add $1.50/hr. on 01/01/2016	33.35	28.24	61.59
103	Bricklayer, Blocklayer or Stonemason Future Increase(s): Add $1.40 on 06/01/2015; Add $1.45 on 06/06/2016 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.	31.12	18.69	49.81
104	Cabinet Installer Future Increase(s): Add $1.42/hr on 6/1/2015; Add $1.42/hr on 6/1/2016.	32.72	16.00	48.72
105	Carpenter Future Increase(s): Add $1.42/hr on 6/1/2015; 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.	32.72	16.00	48.72
106	Carpet Layer or Soft Floor Coverer Future Increase(s): Add $1.42/hr on 6/1/2015; Add $1.42/hr on 6/1/2016.	32.72	16.00	48.72
107	Cement Finisher	30.42	15.80	46.22
108	Drywall Taper or Finisher	23.00	7.83	30.83
109	Electrician 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.	30.59	18.37	48.96
110	Elevator Constructor	43.84	27.10	70.94
111	Fence Erector	23.73	19.09	42.82

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
112	Fire Sprinkler Fitter	37.53	19.06	56.59
113	Glazier	36.49	14.96	51.45
114	Heat or Frost Insulator	25.35	8.09	33.44
115	Insulator (Batt or Blown) Future Increase(s): Add $1.42/hr on 6/1/2015; Add $1.42/hr on 6/1/2016.	32.72	16.00	48.72
116	Ironworker Future Increase(s): Add $1.50/hr on 5/1/2015. 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 and Christmas Day.	34.65	22.85	57.50
117	Lather	31.40	15.90	47.30
118	Line Constructor (Electrical)	39.50	21.37	60.87
119	Marble Finisher	19.14	0.00	19.14
120	Marble Mason	30.42	18.04	48.46
121	Metal Building Erector	23.00	3.36	26.36
122	Millwright Future Increase(s): Add $1.47/hr on 6/1/2015; Add $1.47/hr on 6/1/2016.	34.44	16.07	50.51
123	Overhead Door Installer	27.46	1.98	29.44
124	Painter	20.00	9.71	29.71
125	Pavement Marking Operator	30.10	17.27	47.37
126	Piledriver Future Increase(s): Add $1.50/hr on 6/1/2015; Add $1.60/hr on 6/1/2016. Premium Increase(s): Add $.65/hr for Piledriver Loftsman; Add $.75/hr for Sheet Piling Loftsman. 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.	30.11	26.51	56.62
127	Pipeline Fuser or Welder (Gas or Utility)	31.88	20.89	52.77
129	Plasterer Future Increase(s): Add $1.40 on 06/01/2015; Add $1.45 on 06/06/2016	31.55	18.26	49.81
130	Plumber Future Increase(s): Add $1.40 on 6/1/15	35.55	16.12	51.67

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
132	Refrigeration Mechanic	35.71	21.89	57.60
133	Roofer or Waterproofer	23.70	10.28	33.98
134	Sheet Metal Worker	28.05	13.30	41.35
135	Steamfitter Future Increase(s): Add $1.40 on 6/1/15	35.55	16.12	51.67
137	Teledata Technician or Installer	22.25	7.70	29.95
138	Temperature Control Installer	39.76	15.03	54.79
139	Terrazzo Finisher	19.14	0.00	19.14
140	Terrazzo Mechanic	31.18	17.35	48.53
141	Tile Finisher	24.68	17.83	42.51
142	Tile Setter Future Increase(s): Add $1.40/hr on 6/01/2015; Add $1.45/hr on 6/06/2016.	31.12	18.69	49.81
143	Tuckpointer, Caulker or Cleaner Future Increase(s): Add $1.35on 06/01/2015; Add $1.45 on 06/01/2016 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.	34.28	18.48	52.76
144	Underwater Diver (Except on Great Lakes)	35.40	15.90	51.30
146	Well Driller or Pump Installer	25.32	15.65	40.97
147	Siding Installer	36.17	19.44	55.61
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	30.16	15.11	45.27
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	31.60	26.76	58.36
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	27.65	14.49	42.14
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	27.83	15.01	42.84
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.90	9.83	31.73

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	17.00	0.00	17.00

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
203	Three or More Axle	17.00	2.36	19.36
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.60/hr on 6/2/2015; Add $1.60/hr on 6/3/2016.	33.69	19.78	53.47
205	Pavement Marking Vehicle	20.85	11.02	31.87
207	Truck Mechanic	17.00	2.36	19.36

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 Future Increase(s): Add $1.35/hr eff. 06/01/2015; Add $1.25/hr eff. 06/06/2016 Premium Increase(s): Add $1.00/hr for certified welder and pipelayer; Add $.25/hr for mason tender.	24.97	15.12	40.09
302	Asbestos Abatement Worker	24.92	15.12	40.04
303	Landscaper	18.50	4.90	23.40
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	19.78	16.12	35.90
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.00	0.00	17.00
314	Railroad Track Laborer	15.50	4.48	19.98
315	Final Construction Clean-Up Worker	19.50	0.07	19.57

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). Future Increase(s): Add $1.60/hr on 6/2/2015; Add $1.60/hr on 6/3/2016.	33.69	19.78	53.47
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).	32.89	12.82	45.71
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.	17.00	2.36	19.36
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
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. Premium Increase(s): Add $.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	41.65	21.71	63.36
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.	35.72	17.85	53.57

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.	35.46	20.40	55.86

HEAVY EQUIPMENT OPERATORS
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK

Fringe Benefits Must Be Paid On All Hours Worked

CODE	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 6/2/2015; 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.	36.67	19.78	56.45
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 6/2/2015; Add $1.60/hr on 6/3/2016. Premium Increase(s): Add $.25/hr for all >45 Ton lifting capacity cranes.	35.42	19.78	55.20
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).	17.00	2.57	19.57

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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).	32.89	10.77	43.66
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 6/2/2015; Add $1.60/hr on 6/3/2016.	31.62	19.78	51.40
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 6/2/2015; Add $1.60/hr on 6/3/2016.	30.99	19.78	50.77
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment). Future Increase(s): Add $1/hr on 6/1/2015; Add $1/hr on 5/30/2016.	36.34	22.14	58.48
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment). Future Increase(s): Add $1.65/hr on 6/1/2015.	33.12	19.35	52.47
516	Fiber Optic Cable Equipment	28.89	17.95	46.84

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	30.42	18.04	48.46
105	Carpenter Future Increase(s): Add $1.50/hr on 6/1/2015; Add $1.65/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.	34.13	20.61	54.74
107	Cement Finisher Future Increase(s): Add $1.87 on 6/1/15; 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.	35.18	16.78	51.96
109	Electrician	47.76	0.00	47.76
111	Fence Erector	23.73	19.09	42.82
116	Ironworker	31.50	20.01	51.51
118	Line Constructor (Electrical)	39.50	21.37	60.87
125	Pavement Marking Operator	30.10	17.27	47.37
126	Piledriver	29.56	25.71	55.27
130	Plumber	21.50	0.00	21.50
135	Steamfitter	34.45	15.92	50.37
137	Teledata Technician or Installer	22.25	7.70	29.95
143	Tuckpointer, Caulker or Cleaner	33.76	17.82	51.58
144	Underwater Diver (Except on Great Lakes)	35.40	15.90	51.30
146	Well Driller or Pump Installer	25.32	15.65	40.97
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	35.55	15.57	51.12

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	31.60	15.19	46.79
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	27.65	13.44	41.09
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.68	13.28	38.96
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 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.	25.18	18.31	43.49
203	Three or More Axle	19.50	5.17	24.67
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	32.89	18.96	51.85
205	Pavement Marking Vehicle	20.85	11.02	31.87
207	Truck Mechanic	19.50	5.17	24.67

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 Future Increase(s): Add $1.35/hr eff. 06/01/2015; Add $1.25/hr eff. 06/06/2016 Premium Increase(s): Add $.20 for blaster, bracer, manhole builder, caulker, bottomman and power tool; Add $.55 for pipelayer; Add $1.00 for 0-15 lbs. compressed air; Add $2.00 for 15-30 lbs. compressed air; Add $3.00 for over 30 lbs. compressed air.	25.99	15.13	41.12
303	Landscaper	39.43	0.00	39.43
304	Flagperson or Traffic Control Person	31.95	0.00	31.95
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.00	0.00	17.00
314	Railroad Track Laborer	15.50	4.48	19.98

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. Future Increase(s): Add $1.55/hr on 6/1/2015. Premium Increase(s): Add $.25/hr for operating tower crane.	37.24	20.10	57.34
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). Future Increase(s): Add $1.60/hr on 6/2/2015; Add $1.60/hr on 6/3/2016.	34.22	19.78	54.00
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). Future Increase(s): Add $1.60/hr on 6/2/2015; Add $1.60/hr on 6/3/2016.	33.69	19.78	53.47

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.	30.82	18.96	49.78
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.	50.50	0.42	50.92
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	30.19	18.96	49.15
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.	35.72	17.85	53.57
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.	35.46	20.40	55.86

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	30.42	18.04	48.46
105	Carpenter Future Increase(s): Add $1.42/hr on 6/1/2015; 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.	32.72	16.00	48.72
107	Cement Finisher	26.00	18.60	44.60
109	Electrician	32.04	23.38	55.42
111	Fence Erector	23.73	19.09	42.82
116	Ironworker	34.15	22.05	56.20
118	Line Constructor (Electrical)	39.50	21.37	60.87
124	Painter	20.00	9.71	29.71
125	Pavement Marking Operator	30.10	17.27	47.37
126	Piledriver	29.56	25.71	55.27
133	Roofer or Waterproofer	23.70	10.28	33.98
137	Teledata Technician or Installer	22.25	7.70	29.95
143	Tuckpointer, Caulker or Cleaner	33.76	17.82	51.58
144	Underwater Diver (Except on Great Lakes)	35.40	15.90	51.30
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	35.55	15.57	51.12
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	31.60	15.19	46.79
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	27.65	13.44	41.09
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.68	13.28	38.96
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

Fringe Benefits Must Be Paid On All Hours Worked

CODE	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.	25.18	18.31	43.49
203	Three or More Axle	16.35	2.07	18.42
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.60/hr on 6/2/2015; Add $1.60/hr on 6/3/2016.	33.69	19.78	53.47
205	Pavement Marking Vehicle	20.85	11.02	31.87
206	Shadow or Pilot Vehicle	24.37	17.77	42.14
207	Truck Mechanic	16.35	2.07	18.42

LABORERS

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	18.51	10.20	28.71
303	Landscaper Future Increase(s): Add $1.05/hr eff. 06/01/2015; 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).	30.13	15.14	45.27
304	Flagperson or Traffic Control Person	18.51	10.20	28.71
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.00	0.00	17.00
314	Railroad Track Laborer	15.50	4.48	19.98

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 $1.25/hr on 6/1/2015; 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://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm.	37.72	21.15	58.87
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 $1.25/hr on 6/1/2015; 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://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm.	37.22	21.15	58.37

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.	35.72	17.85	53.57
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 $1.25/hr on 6/1/2015; 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://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm.	36.46	21.15	57.61
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.	35.17	20.40	55.57
546	Fiber Optic Cable Equipment.	28.89	17.95	46.84

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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.	41.65	21.71	63.36
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.	35.72	17.85	53.57
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.	35.46	20.40	55.86

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.	36.72	20.40	57.12
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 $1.25/hr on 6/1/2015; 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://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm.	37.22	21.15	58.37

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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. Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017.	29.65	19.95	49.60
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. Future Increase(s): Add $1.25/hr on 6/1/2015; Add $1.30/hr on 6/1/2016; Add $1.25/hr on 6/1/2017.	29.65	19.95	49.60

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 $1.25/hr on 6/1/2015; 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://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm.	36.17	21.15	57.32
556	Fiber Optic Cable Equipment.	27.89	17.20	45.09

********** END OF RATES **********

Department of Workforce Development
Equal Rights Division
P.O. Box 8928
Madison, WI 53708-8928
Telephone: (608) 266-6860
Fax: (608) 267-4592
TTY: (608) 264-8752

STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
Reginald J. Newson, Secretary

The documents following the Prevailing Wage Rate Determination consist of eighteen pages (including this one) of various forms/documents that will be used throughout the completion of the project. The chart below lists the form number, form/document name, the party who uses the document, and the document's number of pages. If you have any questions regarding these forms please call the Prevailing Wage Office at (608)266-6861.

ERD Form Number	Form Name	Party Who Uses the Form	Pages
	Prevailing Wage - Public Entity Project Owners	Explanation of project owner responsibilities	2
16056	Post the White Sheet	Contracting agency	1
10908	Consolidated List of Debarred Contractors	Any party contracting someone to complete work on a prevailing wage project	3
	Prevailing Wage – Contractors	Explanation of contractor responsibilities	2
7777	Disclosure of Ownership	Contractors that meet the criteria set out in (3)(A)&(B) of the form	1
5724	Prime Contractor Affidavit of Compliance	Prime contractor files with contracting agency upon completion of the work before receiving final payment	2
10584	Agent or Subcontractor Affidavit of Compliance	Subcontractors file with their awarding contractor upon completion of their work on the project before receiving final payment	2
10880	Request to Employ Subjourneyperson	Contractors wishing to employ a subjourneyperson(s)	1
	Additional General Prevailing Wage Law Information	General information for public entity or any other interested party	3

10/01/2014

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PREVAILING WAGE – Public Entity Project Owners

Any public works project that has a total estimated project cost that equals or exceeds single-trade or multiple-trade project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for most of these exclusions. The prevailing wage law that applies to local governmental units is §66.0903, Wis. Stats. The prevailing wage law that applies to state agencies is §103.49, Wis. Stats. The applicable administrative rules for all public entities are DWD 290 and DWD 294, Wis. Adm. Code.

Thresholds

A "single-trade project of public works" means a project in which a single trade accounts for 85% or more of the total labor cost of the project. The single trade threshold is $48,000.

A "multiple-trade project of public works" means a project in which no single trade accounts for 85% or more of the total labor cost of the project.

(a) The multiple-trade threshold is $100,000, unless a municipality falls under the description in (b).

(b) The multiple-trade threshold of $234,000 applies to public works projects erected, constructed, repaired, remodeled, or demolished by a private contractor for •a city or village with a population less than 2500 or •a town.

A local governmental unit or state agency that has a public works project that equals or exceeds the prevailing wage thresholds must do all of the following:

- Request a prevailing wage rate determination for the project from DWD at least 30 days before soliciting bids or negotiating contracts. An Application for Prevailing Wage Rate Determination is available on the DWD website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm
  To avoid waiting for a project determination use the on-line application system that permits the user to generate a determination immediately and save all documents in PDF form to the user's computer. Use this project determination on line application at the following address:

http://dwd.wisconson.gov/er/prevailing_wage_rate/pw_online_determinations.htm

- Tell potential contractors the project is subject to state prevailing wage law when soliciting bids.

- Include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each prime contractor.

- Award contracts to contractors who do *not* appear on the "Consolidated List of Debarred Contractors."

- Notify contractors that they are required to have a written substance abuse testing program in place that fulfills the requirements of §103.503, Wis. Stats., before commencing work on the prevailing wage project.

- Post the prevailing wage rate determination on the project site. (This document is often referred to as "the white sheet.")

- Notify project contractors that if DWD finds that a contractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.

- Obtain an Affidavit of Compliance from each prime contractor before making final payment for the project.

If the total estimated cost of the project exceeds the prevailing wage thresholds, a local governmental unit or state agency also must obtain a prevailing wage rate determination under the following circumstances:

- when a completed facility is leased, purchased, lease-purchased or otherwise acquired by or dedicated to a public entity in lieu of the public entity contracting for the project,

- when one public entity does work for another public entity,

- when a *private* entity will construct a road, street, bridge, sanitary sewer or water main project and dedicate it to a local governmental unit or the state for its ownership or maintenance (except for some residential subdivisions).

For more information, visit the prevailing wage website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

State of Wisconsin
Department of Workforce Development
Equal Rights Division
Labor Standards Bureau

POST THE WHITE SHEET

As the public entity receiving this prevailing wage rate determination, YOU ARE REQUIRED by law to post the prevailing wage rate determination (i.e., white sheet) in at least one conspicuous and easily accessible place on the project site that is available to all construction workers. The white sheet must remain posted from the onset of the project until all construction labor on the project has been completed.
[*See,* Wis. Admin. Code §DWD 290.12(1)]

Posting the white sheet inside the general contractor's trailer does not meet this requirement. That placement is not available/accessible to all workers and is not a location over which you have control.

If you have questions about posting, please call (608)266-6861 and ask for prevailing wage intake.

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 Julie Eckenwalder, Equal Rights Division, P. O. Box 8928, Madison, WI 53708 or call (608) 266-3148. 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
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					
Boecker, Roger	*See,* R-Way Pumping, Inc					
Brechtl, Mark G	*See,* Ecodec, Inc					
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

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/ Deviations
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
Galstad, Michael E (aka Michael Earl Galstad)	*See,* Cargill Heating and Air Conditioning Company, Inc					
Gjolaj, Ded	*See,* Horizon Bros Painting Corp					
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

Name of Contractor	Address	Effective Date	Termination Date	Cause Code	Date of Violation(s)	Limitations/ Deviations
Jinkins, Richard	*See,* Castlerock Commercial Construction, 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					
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
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					

Cause Code: 1 = Failure to Pay Straight Time 2 = Failure to Pay Overtime 3 = Kickback 4 = Payroll Records.

Department of Workforce Development
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STATE OF WISCONSIN
DWD
Department of Workforce Development

Scott Walker, Governor
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PREVAILING WAGE – Contractors

Any public works project that has a total estimated project cost that equals or exceeds prevailing wage project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for most of these exclusions. The prevailing wage laws that apply to local governmental units and their contractors are §§66.0903 and 103.503, Wis. Stats. The prevailing wage laws that apply to state agencies and their contractors are §§103.49 and 103.503, Wis. Stats. The applicable administrative rules for all prevailing wage projects are DWD 290 and DWD 294, Wis. Adm. Code. These laws include provisions that apply to all contractors and subcontractors working on prevailing wage projects.

Any contractor or subcontractor working on a local governmental unit or state agency's public works project that equals or exceeds current prevailing wage project thresholds must do all of the following:

- Receive and review the project's prevailing wage rate determination (i.e., white sheet).
- Tell subcontractors the project is subject to state prevailing wage law and include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each subcontractor.
- Hire subcontractors who do *not* appear on the "Consolidated List of Debarred Contractors."
- Have a written substance abuse testing program in place that fulfills the requirements of §103.503, Wis. Stats., before commencing work on the project.

- Notify subcontractors that if DWD finds that a contractor or subcontractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.

- Apply to DWD for subjourney wage rates prior to employing these individuals on the project.

- Receive and retain a completed Affidavit of Compliance from each subcontractor brought on to the project before providing final payment to those subcontractors.

- Submit a completed Affidavit of Compliance to the contractor who brought the subcontractor on to the project before receiving final payment for the project.

- Maintain payroll records for 3 years that comply with §§66.0903(10)(a) or 103.49(5)(a), Stats. and DWD 274.06.

- Respond to requests from DWD or the project owner to provide payroll records and/or respond to prevailing wage complaints filed by employees or third parties.

For more information, visit the prevailing wage website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Disclosure of Ownership

The statutory authority for the use of this form is prescribed in Sections 66.0903(12)(d), 66.0904(10)(d) and 103.49(7)(d), Wisconsin Statutes.
The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1) (m), Wisconsin Statutes].

(1) On the date a contractor submits a bid to or completes negotiations with a state agency, local governmental unit, or developer, investor or owner on a project subject to Section 66.0903, 66.0904 or 103.49, Wisconsin Statutes, the contractor shall disclose to such state agency, local governmental unit, or developer, investor or owner, the name of any "other construction business," which the contractor, or a shareholder, officer or partner of the contractor, owns or has owned within the preceding three (3) years.

(2) The term "other construction business" means any business engaged in the erection, construction, remodeling, repairing, demolition, altering or painting and decorating of buildings, structures or facilities. It also means any business engaged in supplying mineral aggregate, or hauling excavated material or spoil as provided by Sections 66.0903(3), 66.0904(2), 103.49(2) and 103.50(2), Wisconsin Statutes.

(3) This form must ONLY be filed, with the state agency project owner, local governmental unit project owner, or developer, investor or owner of a publicly funded private construction project that will be awarding the contract, if **both (A) and (B) are met**.

(A) The contractor, or a shareholder, officer or partner of the contractor:

(1) Owns at least a 25% interest in the "other construction business," indicated below, on the date the contractor submits a bid or completes negotiations; or

(2) Has owned at least a 25% interest in the "other construction business" at any time within the preceding three (3) years.

(B) The Wisconsin Department of Workforce Development (DWD) has determined that the "other construction business" has failed to pay the prevailing wage rate or time and one-half the required hourly basic rate of pay, for hours worked in excess of the prevailing hours of labor, to any employee at any time within the preceding three (3) years.

Other Construction Business

Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code

I hereby state under penalty of perjury that the information, contained in this document, is true and accurate according to my knowledge and belief.

Print the Name of Authorized Officer			
Authorized Officer Signature	Date Signed		
Corporation, Partnership or Sole Proprietorship Name			
Street Address or P O Box	City	State	Zip Code

If you have any questions call (608) 266-6861

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(c), 66.0904(7)(c) and 103.49(4r)(c) Wisconsin Statutes.
The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Agency** indicated below.

State Of)	Project Name	
	DWD Determination Number	Project Number (if applicable)
)SS	Date Determination Issued	Date of Contract
County Of)	Awarding Agency	
	Date Work Completed	

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below and have recently completed all of the work required under the terms and conditions of a contract with the above-named awarding agency and make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(c), 66.0904(7)(c) or 103.49(4r)(c), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding agency.
- **I have** fully complied with all the wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding agency indicated above.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address	City	State	Zip Code	Telephone Number
Print Name of Authorized Officer			Date Signed	
Signature of Authorized Officer				

List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		

If you have any questions call (608) 266-6861

State of Wisconsin
Department of Workforce Development
Equal Rights Division

Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(b), 66.0904(7)(b) and 103.49(4r)(9b), Wisconsin Statutes. The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, Section 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Contractor** indicated below.

State Of _____)	Project Name	
	DWD Determination Number	Project Number (if applicable)
)SS	Date Determination Issued	Date of Subcontract
County Of _____)	Awarding Contractor	
	Date Work Completed	

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below. We have recently completed all of the work required under the terms and conditions of a subcontract with the above-named awarding contractor. We make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(b), 66.0904(7)(b) or 103.49(4r)(b), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding contractor.
- **I have** fully complied with the entire wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding contractor.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address or PO Box	City	State	Zip Code	Telephone Number ( )
Print Name of Authorized Officer			Date Signed	
Authorized Officer Signature				

List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ( )			Telephone Number ( )		

If you have any questions call (608) 266-6861

State of Wisconsin
Department of Workforce Development
Equal Rights Division
Labor Standards Bureau

Request to Employ Subjourneyperson

The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04(1)(m), Wisconsin Statutes].
The employer indicated below requests that the Department of Workforce Development (DWD) determine the prevailing wage rate(s) and related qualifications to enable such employer to use a subjourneyperson(s) on the following prevailing wage project, in accordance with the provisions of Section DWD 290.025, Wisconsin Administrative Code.

1. Name of Project Appearing on the Project Determination			
County	City, Village or Town		
DWD Project Determination Number	Project Number (if applicable)		
2. Job Classification(s) for which you request a subjourney rate (i.e., carpenter, electrician, plumber, etc.)			
a.	b.		
c.	d.		
3. Employer Name (Print)	Requester Name (Print)		
Address	City	State	Zip Code
Telephone Number ( )	Requester Title		
Email address (if you prefer to receive your response via email)	Fax Number (if you prefer to receive your response via fax) ( )		

READ CAREFULLY: I understand that this request is ONLY applicable to the project and job classification(s) listed above and that subjourney employees primarily work under the direction of and assist a skilled trade employee by frequently using the tools of a skilled trade and will NOT regularly perform the duties of a general laborer, heavy equipment operator or truck driver. If the subjourney employee regularly performs the work of a different trade or occupation, he/she will be compensated for such work at the applicable journeyperson prevailing wage rate. I agree to compensate subjourney employees in strict accordance with the directions received from the DWD.

Requester Signature	Date Signed

MAIL the completed request to:
EQUAL RIGHTS DIVISION, LABOR STANDARDS BUREAU
PO BOX 8928, MADISON WI 53708
OR
FAX the completed request to: (608) 267-4592 / **DO NOT e-mail your request**.
Call (608) 266-6861 for assistance in completing this form.

ADDITIONAL GENERAL PREVAILING WAGE LAW INFORMATION

(This document updated February 2014)

For prevailing wage laws and frequently asked questions, refer to the prevailing wage website at: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm

Topic	Who's affected?	Brief description of requirement under §66.0903 or §103.49
Non-applicability	All public entities	Prevailing wage rates do not apply to minor service or maintenance work, warranty work, or work under a supply and installation contract.
Non-applicability: Minor service or maintenance work	Local governmental units & Contractors	Minor service or maintenance work means a project of public works that is limited to • minor crack filling, chip or slurry sealing, or other minor pavement patching, not including overlays, that has a projected life span of no longer than 5 years or that is performed for a TOWN and is not funded under §86.31, regardless of projected life span; • the depositing of gravel on an existing gravel road applied solely to maintain the road; • road shoulder maintenance; • cleaning of drainage or sewer ditches or structures; or • any other limited, minor work on public facilities or equipment that is routinely performed to prevent breakdown or deterioration.
Non-applicability: Minor service or maintenance work	State agencies	Minor service or maintenance work means a project of public works that is limited to • minor crack filling, chip or slurry sealing, or other minor pavement patching, not including overlays, that has a projected life span of no longer than 5 years; • cleaning of drainage or sewer ditches or structures; or • any other limited, minor work on public facilities or equipment that is routinely performed to prevent breakdown or deterioration.
Non-applicability: Supply & installation contract	All public entities	Supply and installation contract means a contract under which the material is installed by means of simple fasteners or connectors such as screws or nuts and bolts and no other work is performed on the site of the project of public works, and the total labor cost to install the material does not exceed 20 percent of the total cost of the contract.
Non-applicability: Work which a contractor or individual donates to a public entity	All public entities	Prevailing wage laws §§66.0903 & 103.49, Stats., do not apply to work performed on a project of public works for which the local governmental unit or the state or the state agency contracting for the project is not required to compensate any contractor, subcontractor, contractor's or subcontractor's agent, or individual for performing the work.

Topic	Who's affected?	Brief description of requirement under §66.0903 or §103.49
Non-applicability: Residential	All public entities	A prevailing wage rate determination is not required for the erection, construction, repair, remodeling, or demolition of a residential property containing 2 dwelling units or less.
Non-applicability: Residential subdivision infrastructure	All public entities	A prevailing wage rate determination is not required for a road, street, bridge, sanitary sewer, or water main project that is a part of a development in which at least 90 percent of the lots contain or will contain 2 dwelling units or less, as determined by the local governmental unit at the time of approval of the development, and that, on completion, is acquired by, or dedicated to, a local governmental unit (including under §236.13(2), Stats.), or the state, for ownership or maintenance by the local governmental unit or the state.
Electronic certified payroll record	Contractors	The requirement that every contractor on a prevailing wage project submit to DWD monthly a certified record of employees who worked on the project and that DWD post these certified records on its Internet website was discontinued effective July 1, 2011. Contractors are still required to maintain payroll records and provide them upon request from DWD &/or the project owner.
Payroll record inspection request by any person	Contractors & Complainants	Any person may request DWD to inspect the payroll records of any contractor working on a prevailing wage project. On receipt of such a request, the contractor must submit to DWD a certified record of its payroll records, other than personally identifiable information relating to an employee of the contractor, for no longer than a 4-week period. DWD may request records from a contractor under this provision no more than once per calendar quarter for each project of public works on which the contractor is performing work. The department may not charge a requester a fee for obtaining that information. DWD must make these certified records available for public inspection.
Statewide uniformity	Local govern-mental units	A local governmental unit may not enact & administer a prevailing wage ordinance/provision for public works or publicly funded private construction projects. Any extant laws to that effect are void.
Substance Abuse Testing	Contractors & Workers	Before commencing work on a prevailing wage project, a contractor must have a written substance abuse testing program in place that complies with §103.503, Wis. Stats. No employee may use, possess, attempt to possess, distribute, deliver, or be under the influence of a drug or under the influence of alcohol while performing work on a prevailing wage project.

Topic	Who's affected	Brief description of requirement under §66.0903 or §103.49
Covered employees	Truck drivers & Other workers & Contractors	A laborer, worker, mechanic, or truck driver who is employed to process, manufacture, pick up, or deliver materials or products from a commercial establishment that has a fixed place of business from which the establishment supplies processed or manufactured materials or products or from a facility that is not dedicated exclusively, or nearly so, to a project of public works is NOT entitled to receive the prevailing wage rate UNLESS any of the following applies: 1) the laborer, worker, mechanic, or truck driver is employed to go to the source of mineral aggregate such as sand, gravel, or stone and deliver that mineral aggregate to the site of a project of public works by depositing the material directly in final place, from the transporting vehicle or through spreaders from the transporting vehicle. 2) the laborer, worker, mechanic, or truck driver is employed to go to the site of a project of public works, pick up excavated material or spoil from the site of the project, and transport that excavated material or spoil away from the site of the project.

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Coordination with occupants.
5. Work restrictions.
6. Specification and drawing conventions.
7. Miscellaneous provisions.

B. Related Requirements:

1. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: St. Croix County Health Center, Additions and Renovation, Bid Package #1.

B. Project Location:

St. Croix County Health Center
1445 N 4th Street
New Richmond WI 54017

C. Owner:

St. Croix County
1101 Carmichael Road
Hudson, WI 54016

Patrick Thompson (County Administrator)
(715) 381-4303

D. Architect/Engineer:

Horty Elving & Associates, Inc.
505 East Grant Street
Minneapolis, MN 55404

(612) 332-4422
www.hortyelving.com

E. Construction Manager:

Market & Johnson, Inc.
PO Box 630
2350 Galloway Street
Eau Claire, WI 54702-0630
715-832-8723

1. Construction Manager for this Project is Project's constructor. The terms "Construction Manager" and "Contractor" are synonymous.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project (Bid Package #1) is defined by the Contract Documents and consists of the following:

1. Site earthwork, site utilities, building earthwork, cast-in-place concrete (footings, foundation walls, piers, pilasters, and slab-on-grade), structural precast concrete plank, asphalt paving, concrete paving, landscaping, planting, and sodding/seeding for a new skilled nursing facility with 50 residents, a new dementia/crisis stabilization building with 10 residents, and a town center.

B. Type of Contract:

1. Project will be constructed under a single prime contract between Owner and Construction Manager.

1.5 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner

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usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.7 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

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SECTION 01 11 00
SPECIAL CONDITIONS

Index

1. General
2. Protection
3. Roads
4. Use of Site
5. Verification of Anchor Bolt Locations
6. Ventilation
7. Openings, Embedments, Supports, Blocking, Backing and Grounds
8. Access Panels
9. Demolition
10. Hazardous Materials

1. General

A. Include all work described in this specification volume to produce the structure and its site appurtenances graphically illustrated on the Contract Drawings.

B. These Special Conditions are applicable to all Divisions and Sections of the work included herein, and all Subcontractors and Suppliers must abide by the requirements set forth. The Conditions of the Contract, General Conditions, Supplementary General Conditions and these Special Conditions shall apply to all Subcontractors and Suppliers engaged in this work.

C. Each Subcontractor or Material Supplier shall inform himself as to conditions relating to execution of his work. Neglect of this requirement will not be accepted as cause for additional compensation.

D. The sequence of operations or the place of commencement shall be determined by Market & Johnson as deemed to best serve the needs and convenience of the Owner or as necessity of occasion requires.

2. Protection

Each Subcontractor shall:

A. Notify Market & Johnson of corporate or private property if their property interferes with the work so that arrangements for proper protection can be made.

B. Provide temporary protection around openings through structural floors and roofs, including elevator openings, stairwells, and edges of slabs.

C. Repair and replace damaged work. If responsibility cannot be determined, the cost of repair or replacement shall be prorated among Subcontractors on project.

D. Provide care in work around temporary items installed by Market & Johnson. Subcontractor causing damage shall repair all damage.

E. Adequately protect surrounding areas and materials, including glass, when welding, flame or abrasive cutting or other operations requiring the use of flame, arcs, or spraying devices that are necessary in the course of the work. Use only flameproof tarpaulins.

F. WEATHER PROTECTION: Provide protection against rain, snow, wind, ice, storms or heat so as to maintain work, materials, apparatus and fixtures free from injury or damage. At end of day's work, cover new work likely to be damaged. Remove snow and ice as necessary for safety and proper execution of work.

G. WATER PROTECTION: Protect building from damage at all times from rainwater, ground water, backing up drains or sewers or other water. Provide pumps, equipment and enclosures to provide this protection.

H. PROTECTION OF FINISHED FLOORS: Wheeling loads over a finished floor with or without planks for protection will not be permitted in anything except rubber-tired wheelbarrows, buggies, trucks or dollies. This applies to finished floors and to concrete floors, which are not scheduled to be covered with applied surfacing. Repair of any damages that result will be incurred by the responsible party.

I. Assume the responsibility for the protection of all finished construction within the limits of this work as well as along designated haul routes and repair and restore any and all damage to finished work to its original state.

J. PROTECTION OF INSTALLED WORK: Subcontractor shall protect finished floors, stairs, walls, installed products and surfaces from traffic, dust, wear, damage or movement of heavy materials by installing durable sheet materials.

1) Where responsibility can be fixed, the cost for any corrective work shall be charged to the party responsible. If responsibility cannot be fixed, the cost shall be pro-rated among all Subcontractors in proportion to their activities in the building at the time the damage was done.

K. Existing Facilities

1) Each Subcontractor shall provide and maintain proper shoring and bracing for existing underground utilities, sewers and building foundations encountered during his/her excavation work, to protect them from collapse or other type of damage until such time as they are to be removed incorporated in the new work, or can be properly backfilled upon completion of new work.

2). Each Subcontractor shall be responsible to provide and maintain protection during site work for all existing lawns, trees, curbs, gutters, drives, walks and buildings not noted for removal.

3. <u>Roads</u>

A. Each Subcontractor shall be responsible for the necessary cleaning and repairing of adjacent streets resulting from said Subcontractor's operations.

B. Entrance and egress routes to and from site will be coordinated by Market & Johnson.

4. <u>Use of Site</u>

Each Subcontractor shall:

A. Confine his equipment, storage of materials and operations of his workmen to limits indicated and shall not bring materials into the site until reasonably required for progress of work. Storage space will be confined to the area of the site or designated storage areas within the facility and as coordinated with Market & Johnson.

B. Repair damaged areas used for placing of sheds, offices and storage of materials shall be borne by Subcontractor responsible for damage.

C. Assume full responsibility for damage due to the storing of materials. This also includes Owner purchased materials once they are turned over to the respective Subcontractors for installation.

D. Not use the Owner's existing buildings and facilities except as approved by the Owner and Market & Johnson for construction purposes.

E. Be responsible for the dewatering and keeping their work area dry.

5. Verification of Anchor Bolt Locations

Prior to starting steel erection, the Erection Subcontractor shall verify the dimensional accuracy of all anchor bolt placements. This verification shall be accomplished in time to allow the completion of corrective work without delaying the scheduled erection of structural steel. The Subcontractor who installed the anchor bolts shall be responsible for the cost of corrective work.

6. Ventilation

Each Subcontractor shall be responsible for any ventilation required to complete their work.

7. Openings, Embedments, Supports, Blocking, Backing and Grounds

Each Subcontractor shall:

A. Be responsible for providing the blocking, backing and grounds in all walls and above ceilings necessary for the installation of his work.

B. Make suitable preparations for the installation of his work including all piping, conduit, hangers, inserts, anchors, grounds and supports that are to be embedded in concrete, masonry walls, floors, partitions or structural members, or that are to pass through or be attached thereto. Each Subcontractor shall provide and install proper sleeves, boxes, receptacles or chases for all openings or recesses to receive his work occurring in or passing through any such members, all of which shall be located accurately and secured firmly in place before any such masonry has been erected or concrete poured.

C. Furnish and install all anchors, clips, blocking, sleeves, connections, etc., required for attachment of his/her work to the structure.

8. Access Panels

A. Each Subcontractor shall be responsible for furnishing the necessary access panels for items of work installed under his/her Subcontract.

B. Installation of all access panels shall be the responsibility of the Subcontractor erecting the wall or ceiling system.

C. If not specified, these access panels shall be approved by the Architect prior to installation.

9. Demolition

A. Rubbish and recycling dumpsters will be provided by Market & Johnson throughout the duration of the project.

B. The demolition, removal and off-site disposal of all existing buildings (or portions thereof), canopies, retaining walls, pavements, walks and curbs shall be the responsibility of Market & Johnson. The use of a "headache ball" is not permitted. Market & Johnson shall be responsible for providing and maintaining temporary protection of all adjacent property.

C. The removal and off-site disposal of all existing roofing, insulation and sheet metal required to complete the new construction shall be the responsibility of demolition Subcontractor.

D. The disconnecting, capping, removal, and disposal of all plumbing fixtures, equipment, piping, and supports shall be the responsibility of the plumbing Subcontractor.

E. The disconnecting, capping, removal and disposal of all HVAC equipment piping, ductwork, and supports shall be the responsibility of the HVAC Subcontractor.

F. The disconnecting, capping, removal, Fire Protection equipment, piping, and supports shall be the responsibility of the fire protection Subcontractor.

G. The disconnecting, capping, electrical equipment, piping, conduit and supports shall be the responsibility of the electrical Subcontractor

H. All other demolition, removals and disposal, including but not limited to existing doors, windows, borrowed lights, louvers, flooring, ceilings, and partitions, shall be the responsibility of the Subcontractor who is awarded the work. They shall provide and maintain the necessary rubbish removal procedures to facilitate these removals from the existing building. They shall exercise caution to avoid disrupting surrounding surfaces not scheduled for demolition.

I. All materials and equipment obtained from the demolition operations shall belong to the Subcontractor performing the demolition unless Market & Johnson notifies Subcontractor prior to their removing such material. This material shall then be stored by the Subcontractor at an area designated by Market & Johnson.

10. Hazardous Materials

A. If hazardous materials are discovered in the execution of work, the following steps are required:

1) Stop work immediately in the area where hazardous material is found.

2) Notify Market & Johnson immediately.

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SECTION 01 14 00
USE OF THE PREMISES

1. Description

   A. Work Included: This section applies to situations in which the Subcontractor or his/her representatives including, but not limited to Suppliers, Subcontractors, Employees, and Field Engineers, enter the Owner's property.

   B. Related work:

      1) Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 01 of these Specifications.

2. Site

   A. Truck and equipment access:

      1) Must be coordinated with Market & Johnson.

   B. Parking:

      1) Must be coordinated with Market & Johnson and will not necessarily be on site.

   C. Subcontractor's vehicles:

      1) Must be coordinated with Market & Johnson and will not necessarily be on site.

3. Facilities

   A. Construction personnel will not be allowed to use the Owner's lunch area, or toilet facilities.

END OF SECTION

SECTION 01 14 19
TOBACCO, ALCOHOL AND FIREARMS

1. Description

   A. No tobacco of any kind will be permitted on the project site. There are no exceptions to this rule. Any worker found with tobacco on the project site may be permanently removed from the project at the sole discretion of Market & Johnson.

   B. No alcohol of any kind will be permitted to be present on the project site. There are no exceptions to this rule. Any worker found with possession of alcohol or having alcohol present within their vehicle that is parked on the project site may be permanently removed from the project at the sole discretion of Market & Johnson.

   C. No firearms of any kind are allowed to be present on the project site. There are no exceptions to this rule. Any worker found with possession of any type of firearm or having any firearm present within their vehicle that is parked on the project site may be permanently removed from the project at the sole discretion of Market & Johnson.

   D. Non-prescription drugs are not allowed on this project site. There are no exceptions to this rule. Any worker found in violation of this rule may be permanently removed from the project site at the sole discretion of Market & Johnson.

2. Warnings

   A. Any person work for Market & Johnson, or any subcontractor thereof, observed by Market & Johnson as being in violation will receive a verbal warning for the first offense and will be asked to leave the project for the second offense. Market & Johnson's Project Superintendent has the authority to ask the offender to leave the project upon the second offense.

   B. The worker may be able to return only after attending a meeting with his/her direct supervisor; the Owner; and Market & Johnson's Project Manager and Project Superintendent, to state why he/she should be permitted to return to the project.

END OF SECTION

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1 (ADD): Add Therapy Pool Addition.

1. Base Bid: Construct Area A without the therapy pool addition as indicated on Sheet S101, Detail 2/S101, "ALT. #1 FOUNDATION PLAN – AREA A" and as specified in Project Manual.
2. Alternate: Add the therapy pool addition as indicated on Sheet S101, Detail 2/S101, "ALT. #1 FOUNDATION PLAN – AREA A" and as specified in Project Manual.

END OF SECTION 01 23 00

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SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use facsimile of form provided in Project Manual.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Cost information, including a proposal of change, if any, in the Contract Sum.

g. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
h. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

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B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution is consistent with the Contract Documents and will produce indicated results.
c. Substitution request is fully documented and properly submitted.
d. Requested substitution will not adversely affect Contractor's construction schedule.
e. Requested substitution has received necessary approvals of authorities having jurisdiction.
f. Requested substitution is compatible with other portions of the Work.
g. Requested substitution has been coordinated with other portions of the Work.
h. Requested substitution provides specified warranty.
i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 01 25 00 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue through Construction Manager supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue through Construction Manager a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include costs of labor and supervision directly attributable to the change.
d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 01 25 00 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Changes Proposal Request, Construction Manager will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

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SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Section 01 26 00 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with continuation sheets.
b. Submittal schedule.
c. Items required to be indicated as separate activities in Contractor's construction schedule.

2. Submit the schedule of values to Architect through Construction Manager at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
3. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract as described in Section 01 10 00 "Summary."

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

a. Project name and location.
b. Contractor's name and address.
c. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:

a. Related Specification Section or Division.
b. Description of the Work.
c. Change Orders (numbers) that affect value.
d. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

1) Labor.
2) Materials.
3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.

7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
9. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

10. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and Construction Manager and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

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B. Payment Application Times: Submit Application for Payment to Architect by the first day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

A. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

B. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect and/or Construction Manager will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

C. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:

    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

D. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Construction Manager by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

E. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

5. Waiver Forms: Submit executed waivers of lien on forms, acceptable to Owner.

F. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. Schedule of values.
2. Contractor's construction schedule (preliminary if not final).
3. Submittal schedule (preliminary if not final).

G. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

H. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
3. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
4. AIA Document G707, "Consent of Surety to Final Payment."

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

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SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Requests for Information (RFIs).
3. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:

1. Section 01 32 00 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
2. Section 01 33 00 "Submittal Procedures" for submitting RFIs and posting meeting minutes in electronic (PDF) format using Submittal Exchange, a website service designed specifically for transmitting submittals between construction team members.
3. Section 01 73 00 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
4. Section 01 77 00 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Owner, Construction Manager, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations,

included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 REQUESTS FOR INFORMATION (RFIs)

A. General: 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 specified.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect and Construction Manager.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.

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11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: Electronic RFI form to be provided by Architect.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Submittal Procedure: RFI forms shall be transmitted to Architect in electronic (PDF) format using Submittal Exchange, a website service designed specifically for transmitting submittals between construction team members. This service is to be provided by Contractor as indicated in Section 01 33 00 - Submittal Procedures.

E. Architect's and Construction Manager's Action: Architect and Construction Manager's will review each RFI, determine action required, and respond. Allow five working days for Architect's response for each RFI. RFIs received by Architect or Construction Manager after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Architect's actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 26 00 "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Construction Manager in writing within 10 days of receipt of the RFI response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect and Construction Manager.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's and Construction Manager's response was received.

G. On receipt of Architect's and Construction Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect and Construction Manager's within five days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

A. General: Construction Manager will schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Construction Manager, and Architect, within three days of the meeting.

A. Preconstruction Conference: Construction Manager will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner[**, Construction Manager,**] Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.
b. Phasing.
c. Critical work sequencing and long-lead items.
d. Designation of key personnel and their duties.
e. Lines of communications.
f. Procedures for processing field decisions and Change Orders.
g. Procedures for RFIs.
h. Procedures for testing and inspecting.
i. Procedures for processing Applications for Payment.
j. Distribution of the Contract Documents.
k. Submittal procedures.
l. Preparation of record documents.
m. Use of the premises and existing building.
n. Work restrictions.
o. Working hours.
p. Owner's occupancy requirements.
q. Responsibility for temporary facilities and controls.
r. Procedures for moisture and mold control.
s. Procedures for disruptions and shutdowns.
t. Construction waste management and recycling.

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u. Parking availability.
v. Office, work, and storage areas.
w. Equipment deliveries and priorities.
x. First aid.
y. Security.
z. Progress cleaning.

4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

B. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect and Construction Manager of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

a. Contract Documents.
b. Options.
c. Related RFIs.
d. Submittals.
e. Review of mockups.
f. Possible conflicts.
g. Compatibility requirements.
h. Time schedules.
i. Weather limitations.
j. Manufacturer's written instructions.
k. Acceptability of substrates.
l. Regulations of authorities having jurisdiction.
m. Testing and inspecting requirements.
n. Installation procedures.
o. Coordination with other work.
p. Protection of adjacent work.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

A. Progress Meetings: Conduct progress meetings at bi-weekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner, Construction Manager, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

a. Architect will make a monthly field visit coordinated with a bi-weekly progress meeting for construction observation and certification of Contractor’s Applications for Payment.

3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

   a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

      1) Review schedule for next period.

   b. Review present and future needs of each entity present, including the following:

      1) Sequence of operations.
      2) Status of submittals.
      3) Deliveries.
      4) Off-site fabrication.
      5) Access.
      6) Temporary facilities and controls.
      7) Progress cleaning.
      8) Quality and work standards.
      9) Status of correction of deficient items.
      10) Field observations.
      11) Status of RFIs.
      12) Status of proposal requests.
      13) Pending changes.
      14) Status of Change Orders.
      15) Pending claims and disputes.
      16) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

   a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

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SECTION 01 31 13
COORDINATION

1. Site and Construction Conditions

   A. Information pertaining to preliminary investigations appears on Drawings. While such data has been collected with reasonable care, there is no expressed or implied guarantee that conditions so indicated are entirely representative of those actually existing of that unanticipated developments may not occur. Subcontractor must put his own interpretation on results of such investigation and shall satisfy himself as to materials to be excavated and materials upon which fill or other work may be placed. Where underground services, utilities, structure, etc., are located on drawings or given at site, they are based on available records, but not guaranteed to be complete or correct. They are merely given to assist each Subcontractor in determining location.

   B. The Owner and their representatives reserve the right to enter the property or site on which the work herein described is to be constructed or installed to perform work, as the Owner may desire. Such collateral work will be constructed or installed with as little hindrance or interference as possible. The Subcontractors hereby agree not to interfere with, or prevent the performance of such collateral work authorized by the Owner or to claim any extra compensation or damages by delay or hindrance, which may be caused by such construction or installation of such collateral work.

   C. Prior to starting construction, Market & Johnson, Architect, or his representative shall check existing curb, city walk and access site. Except for work shown to be repaired or replaced as part of contract price, any other work such as curbs, drives, sidewalk that has been damaged by Subcontractor during this project will be replaced at the subcontractor's expense.

   D. Starting of work by the Subcontractor implies his acceptance of the work by others. Removal and replacement of work applied to defective surfaces in order to correct defects shall be done at the expense of the Subcontractor who applied work to defective surfaces.

   E. Each Subcontractor shall give due notice and proper information to other Subcontractors of any special provisions necessary for the placing and setting of his work coming in contact with work of other Subcontractors. If the Subcontractor fails to give proper notice, they shall be held responsible and shall pay for any and all alterations and repairs necessitated by such neglect.

   F. Subcontractors shall perform work in proper sequence and in relation to that of other Subcontractors and as coordinated by Market & Johnson. Mechanical and Electrical Subcontractors shall fit their work into structure as job conditions may demand. Market & Johnson shall make final decisions as to right-of-way and run of pipes, ducts, etc., at regularly prearranged meetings with responsible representatives of Architect and Subcontractors. Any costs caused by defective or ill-timed work shall be borne by the party responsible for that work.

   G. Each Subcontractor shall obtain complete data at the site and inspect surfaces and areas that are to receive his work before proceeding with his work; shall be solely responsible for accuracy of measurement taken, information obtained, layout or due to failure report deficiencies.

   H. Each Subcontractor shall be responsible for any required street cleaning made necessary by their respective firms or their suppliers.

2. Jurisdiction Disputes

   A. Market & Johnson will endeavor to specify the work under the proper headings so that it will relate to the separate construction trades in accordance with accepted jurisdictional rulings.

However, Market & Johnson shall not be responsible for any differences that may arise due to disputes between the trades in this respect. It shall be the responsibility of the Subcontractor, working with the trades, to determine which of the trades is to perform any particular part of work, and the inclusion of any branch under any particular heading in this specification is not to be construed as a directive in any way.

3. No Interruption of Occupancy

A. All work requiring interruption of occupancy shall be approved by and coordinated with Market & Johnson and the Owner.

4. Disruption of Existing Services

A. All work relating to the disruption of existing services shall be coordinated with Market & Johnson and the Owner.

B. If the Owner should require that a portion of the Work to be performed outside of normal working hours, reimbursement shall be made for premium time expenses only, without markup.

5. Communications

A. All Subcontractors shall forward all communications to Market & Johnson. Direction given directly to the Subcontractor by the Architect and/or Owner will not be considered binding.

6. Coordination Drawings

A. Subcontractors responsible for the items of work located in or above ceilings shall participate in preparation of Coordination Drawings if required by Market & Johnson.

The following, in descending order, is the precedence assigned the work items for space priority. An exception to the precedence listing would be the gravity flow requirements for plumbing waste and roof drainage.

1) Recessed light fixtures
2) Pneumatic tube and other record or material conveying systems
3) Ductwork and appurtenances
4) Plumbing waste and roof drainage
5) Fire protection (sprinkler system)
6) HVAC piping
7) Plumbing vent, water and medical gas piping
8) Electrical conduit

B. After award of contracts and prior to start of construction, Market & Johnson will schedule a meeting with the Subcontractors responsible for the work items listed above. The purpose of the meeting is to introduce the coordination program and to determine its implementation in relation to the progress schedule.

C. Prior to coordination meeting, the HVAC Subcontractor will provide to Market & Johnson coordination drawings showing column center lines, interior partition locations, and ceiling heights. The HVAC Subcontractor, with reference and consideration to the structural, mechanical, electrical, fire protection, plumbing and reflected ceiling plans, will draw, to scale, his proposed installation showing duct sizes, equipment layouts, and dimensions from column lines and from finished floors to bottom of ducts. Ductwork will be maintained as tight as possible to the underside of floor slabs and/or beams. In congested areas, the HVAC Subcontractor will, in addition, prepare drawings in section view. During this phase of the program, it will be the Electrical Subcontractor's responsibility to furnish the HVAC

Subcontractor with recessed lighting installation and clearance requirements. This information will be outlined on the drawings by the HVAC Subcontractor.

D. The ductwork layouts will be produced in sequence as mandated by the project schedule. The earliest area indicated in the schedule will receive the first effort, etc.

E. When the ductwork drawings for the earliest scheduled area have been completed (time limitation as determined at the initial coordination meeting), the HVAC Subcontractor will provide Market & Johnson with one set of coordination drawings for each participant in the effort. Market & Johnson will distribute the drawing to the participating Subcontractors for their use in drawing thereon the major components for their proposed installations using the general scheme shown on the Contract Drawings as a guide.

The major components to be indicated include (but are not limited to):

1) Roof drain leaders
2) Large (3 inches and over) waste piping
3) Sprinkler Mains
4) Heating mains
5) Cooling mains
6) Conveying systems
7) Significant conduit runs
8) Cable trays
9) Duct mains and branches

Information delineated will be distance from column center lines, pipe/equipment size and distance from finished floor to bottom of pipe equipment.

F. Within a period not to exceed one (1) week after distribution of the drawings, Market & Johnson will schedule a meeting with the participating Subcontractors at which time, the drawings will be overlaid to identify areas of conflict. All parties will then cooperate in resolving the conflicts. Records of the agreements will be entered on the HVAC Subcontractor's drawings, acknowledged by all participants by signature in a space provided for this purpose, and two revised copies distributed to all involved parties. All drawing reproduction costs will be borne by the HVAC Subcontractor. The above drawing, review and coordination process will be repeated until all areas on the Project have been coordinated as determined by Market & Johnson.

G. In the event a Subcontractor fails to cooperate in the Coordination Program, he will be held responsible for all costs incurred for adjustments to the work of others made necessary to accommodate the uncooperative Subcontractor's installations.

H. When a Change Order request is issued, the affected Subcontractors shall review the Coordination Drawings and bring to the attention of Market & Johnson any revisions necessary to the work of others not directly affected by the Change Order.

END OF SECTION

SECTION 01 31 19
MEETINGS

1. Description

   A. Work Included: In order to enable orderly review during progress of the work and to provide for systematic discussion of problems, Market & Johnson will conduct project meetings throughout the construction period.

2. Meeting Schedule

   A. Project meetings will be held at times designated by Market & Johnson. Subcontractors shall attend all project meetings required by Market & Johnson and shall furnish regular progress reports on the work and the status of materials and equipment under their contracts. Subcontractors shall send a representative authorized to make binding decisions on behalf of the Subcontractor's company to all required meetings.

3. Pre-construction Meeting

   A. A pre-construction meeting, if required, will be scheduled to be held after verbal notice to proceed.

      1) Authorized representatives of the Subcontractor shall attend.

      2) Market & Johnson will advise other interested parties, including the Owner and the Architect, and request their attendance.

   B. Agenda:

      1) Introductions
      2) Roles and Responsibilities / Communication Lines
      3) Construction Documents
      4) Schedule
      5) Contract Agreements
      6) Tax Exempt Purchase
      7) Billing Instructions
      8) Changes in the Work / RFI's
      9) Submittals
      10) Color Charges / Samples
      11) Safety
      12) Jobsite
      13) Weekly Cleaning
      14) Code Approvals
      15) Demolition Items
      16) LEED
      17) Items "By Owner"
      18) Site Visits by A/E Team
      19) Record Drawings and Closeout Documents
      20) Meetings
      21) Testing and Inspections

4. Weekly Progress Meetings

   A. Weekly meetings shall be held at the job site. Market & Johnson shall update the CPM schedule to reflect the current status of the project. During the presentation Market & Johnson will specifically address those critical areas of concern as determined by the schedule update where immediate action by the Subcontractors is required.

To the maximum extent practical, assign the same person or persons to represent the Subcontractor at project meetings throughout the progress of the work. Subcontractors, material suppliers, and others may be invited to attend those project meetings in which their aspect of the work is involved.

B. Agenda for progress meetings shall be as follows:

1) Additions/Corrections to Last Meeting Minutes
2) Safety
3) Items Completed in Last 5 Days
4) Items Scheduled for Next 5 Days
5) Schedule
6) Submittals
7) RFI's
8) PR/Change Order Update
9) Owner Issues
10) A/E Issues
11) Contractor Issues
12) Close-out/Quality Control Issues
13) Next Meeting

C. Subcontractors shall fill out the "Contractor Weekly Status Report" and turn in to M&J's project superintendent one day prior to weekly meetings. .

6. Pre-Installation Meetings

A. Pre-Installation meetings shall be held at the job site for all construction activities with on-site labor and for other activities as deemed necessary by Market & Johnson.

B. Pre-Installation meetings shall be attended by Market & Johnson Superintendent, Project Manager, the Subcontractor Superintendent and Project Manager and (when appropriate) the Owner and Architect's representative.

C. Agenda for Pre-Installation meetings shall be as follows:

1) Introduction
2) Review of specifications
3) Shop Drawings/Samples
4) Schedule and job mobilization
5) Coordination
6) Review anticipated punch list items.
7) Recap

Market & Johnson

Adding Value to Everything We Do

CONTRACTOR WEEKLY STATUS REPORT

PROJECT NAME: _____ **PROJECT NUMBER:** _____

SUBCONTRACTOR: _____ **DATE:** _____

Work Completed In Last 5 Days:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Work Planned For Next 5 Days:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Safety/Coordination Issues:

_____

_____

_____

_____

_____

_____
Signature

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's construction schedule.
2. Daily construction reports.
3. Special reports.

B. Related Requirements:

1. Section 01 33 00 "Submittal Procedures" for submitting schedules and reports in electronic (PDF) format using Submittal Exchange, a website service designed specifically for transmitting submittals between construction team members..
2. Section 01 40 00 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in one of the following formats:

1. PDF electronic file.
2. Paper copy.

B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

C. Daily Construction Reports: Submit weekly if requested by Owner.

D. Special Reports: Submit at time of unusual event.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for commencement of the Work to date of final completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Section 01 33 00 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
4. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
6. Punch List and Final Completion: Include not more than 15 days for completion of punch list items and final completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 01 10 00 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.

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2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

F. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

2.3 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. Approximate count of personnel at Project site.
3. Material deliveries.
4. High and low temperatures and general weather conditions, including presence of rain or snow.
5. Accidents.
6. Meetings and significant decisions.
7. Unusual events (see special reports).
8. Stoppages, delays, shortages, and losses.
9. Orders and requests of authorities having jurisdiction.

2.4 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.

1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.

B. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

C. Distribution: Distribute copies of approved schedule to Architect, Construction Manager, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

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SECTION 01 32 16
CONSTRUCTION SCHEDULES

1. Description

   A. Work Included:

      1) To ensure adequate planning and execution of the work so that the work is completed within the number of calendar days allowed in the Contract.

      2) To assist Market & Johnson in appraising the reasonableness of the proposed schedule and in evaluating progress of the work.

      3) To prepare and maintain the schedules and reports described in this section.

   B. Related Work:

      1) Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 01 of these Specifications.

      2) Requirements for progress schedule: General Conditions.

      3) Construction Period: Form of Agreement.

   C. Definitions:

      1) "Day," as used throughout the Contract unless otherwise stated, means "calendar day."

2. Scheduling Requirements

   A. Market & Johnson shall utilize the CPM Schedule to plan, coordinate, and manage all construction activities of the Subcontractors and suppliers. Subcontractors shall complete their work in accordance with the CPM Schedule and/or current job progress. The project CPM schedule supersedes any bid schedule noted in this section at no cost to Market & Johnson.

   B. Market & Johnson reserves the right to assist the various Subcontractors in the expediting of their material and equipment deliveries without assuming the responsibility for said deliveries. Upon request, the Subcontractors shall furnish copies of their equipment and material purchase orders, including scheduled shipping and receiving dates, to Market & Johnson.

   C. Whenever it becomes apparent from the monthly "updated" schedule that any activity completion date may not be met, the responsible Subcontractors shall take some or all of the following actions at no additional cost to the Owner or Market & Johnson.

      1) Increase construction manpower in such quantities that will substantially eliminate the backlog of work and put the project back on schedule and/or keep up with current job progress.

      2) Increase the number of working hours per shift, shifts per working day, working days per week, or the amount of construction equipment, or any combination of the above which will substantially eliminate the backlog of work and put the project back on schedule and/or keep up with current job progress.

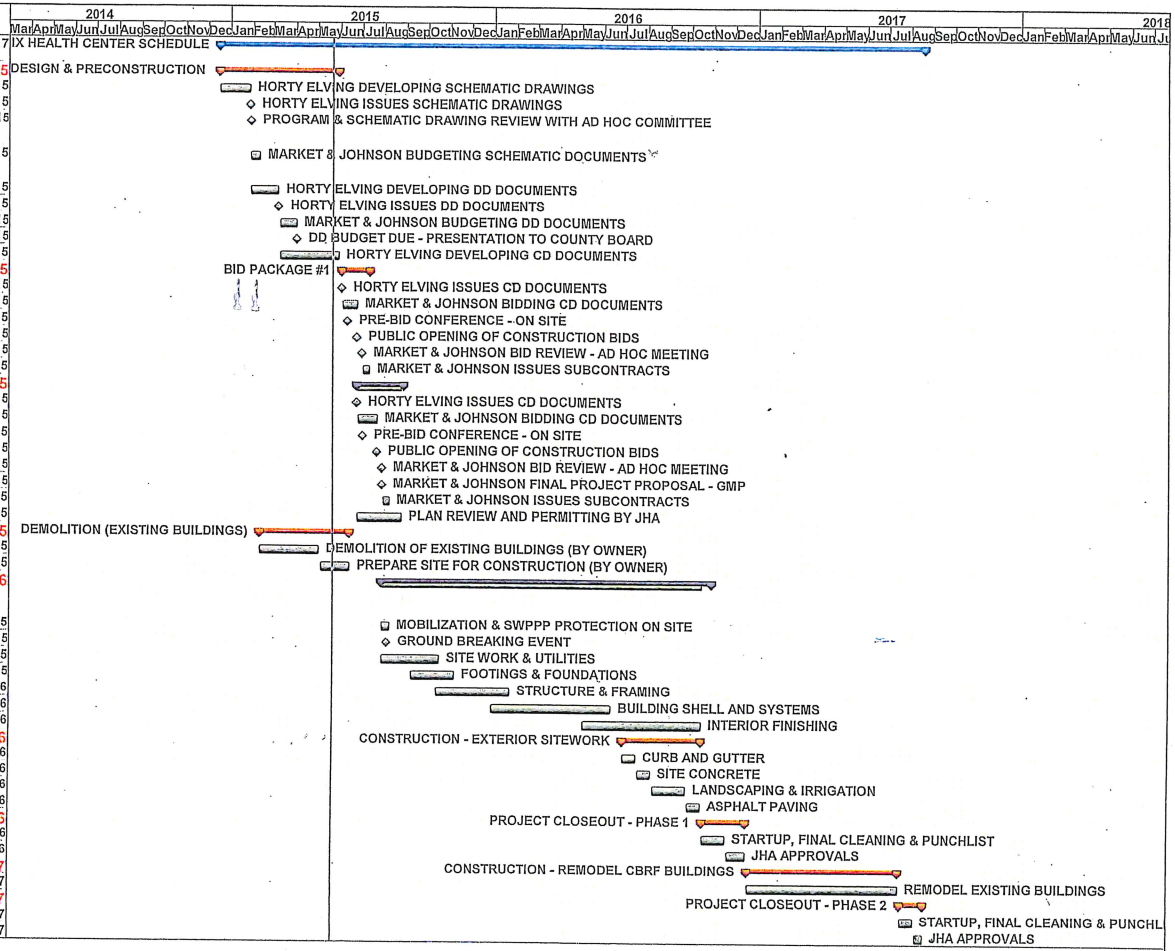
      3) Reschedule activities to achieve maximum practical concurrence of activities to put the project back on schedule and/or deep up with current job progress.

If a Subcontractor fails to take any of the above actions within forty-eight (48) hours after receiving written notice, Market & Johnson shall take action to attempt to put the project back on schedule and/or keep up with current job progress, and deduct the cost of such actions from the compensation which is or will become due the Subcontractor.

D. See the attached schedule for this project.

END OF SECTION

ID	Task Name	Duration	Start	Finish
0	ST CROIX HEALTH CENTER SCHEDULE	699 days	Tue 12/16/14	Fri 8/18/17
1	DESIGN & PRECONSTRUCTION	118 days	Tue 12/16/14	Thu 5/28/15
2	HORTY ELVING DEVELOPING SCHEMATIC DRAWINGS	30 days	Tue 12/16/14	Mon 1/26/15
3	HORTY ELVING ISSUES SCHEMATIC DRAWINGS	0 days	Mon 1/26/15	Mon 1/26/15
4	PROGRAM & SCHEMATIC DRAWING REVIEW WITH AD HOC COMMITTEE	0 days	Tue 1/27/15	Tue 1/27/15
5	MARKET & JOHNSON BUDGETING SCHEMATIC DOCUMENTS	10 days	Tue 1/27/15	Mon 2/9/15
6	HORTY ELVING DEVELOPING DD DOCUMENTS	29 days	Tue 1/27/15	Fri 3/6/15
7	HORTY ELVING ISSUES DD DOCUMENTS	0 days	Fri 3/6/15	Fri 3/6/15
8	MARKET & JOHNSON BUDGETING DD DOCUMENTS	17 days	Mon 3/9/15	Tue 3/31/15
9	DD BUDGET DUE - PRESENTATION TO COUNTY BOARD	0 days	Tue 3/31/15	Tue 3/31/15
10	HORTY ELVING DEVELOPING CD DOCUMENTS	59 days	Mon 3/9/15	Thu 5/28/15
11	BID PACKAGE #1	29 days	Tue 6/2/15	Fri 7/10/15
12	HORTY ELVING ISSUES CD DOCUMENTS	0 days	Tue 6/2/15	Tue 6/2/15
13	MARKET & JOHNSON BIDDING CD DOCUMENTS	15 days	Wed 6/3/15	Tue 6/23/15
14	PRE-BID CONFERENCE - ON SITE	0 days	Wed 6/10/15	Wed 6/10/15
15	PUBLIC OPENING OF CONSTRUCTION BIDS	0 days	Tue 6/23/15	Tue 6/23/15
16	MARKET & JOHNSON BID REVIEW - AD HOC MEETING	0 days	Tue 6/30/15	Tue 6/30/15
17	MARKET & JOHNSON ISSUES SUBCONTRACTS	8 days	Wed 7/1/15	Fri 7/10/15
18	BID PACKAGE #2	48 days	Tue 6/23/15	Thu 8/27/15
19	HORTY ELVING ISSUES CD DOCUMENTS	0 days	Tue 6/23/15	Tue 6/23/15
20	MARKET & JOHNSON BIDDING CD DOCUMENTS	20 days	Wed 6/24/15	Tue 7/21/15
21	PRE-BID CONFERENCE - ON SITE	0 days	Wed 7/1/15	Wed 7/1/15
22	PUBLIC OPENING OF CONSTRUCTION BIDS	0 days	Tue 7/21/15	Tue 7/21/15
23	MARKET & JOHNSON BID REVIEW - AD HOC MEETING	0 days	Tue 7/28/15	Tue 7/28/15
24	MARKET & JOHNSON FINAL PROJECT PROPOSAL - GMP	0 days	Tue 7/28/15	Tue 7/28/15
25	MARKET & JOHNSON ISSUES SUBCONTRACTS	8 days	Wed 7/29/15	Fri 8/7/15
26	PLAN REVIEW AND PERMITTING BY JHA	45 days	Tue 6/23/15	Mon 8/24/15
27	DEMOLITION (EXISTING BUILDINGS)	90 days	Mon 2/9/15	Fri 6/12/15
28	DEMOLITION OF EXISTING BUILDINGS (BY OWNER)	60 days	Mon 2/9/15	Fri 5/1/15
29	PREPARE SITE FOR CONSTRUCTION (BY OWNER)	30 days	Mon 5/4/15	Fri 6/12/15
30	CONSTRUCTION - NEW SKILLED NURSING & DIMENTIA	330 days	Mon 7/27/15	Fri 10/28/16
31	MOBILIZATION & SWPPP PROTECTION ON SITE	10 days	Mon 7/27/15	Fri 8/7/15
32	GROUND BREAKING EVENT	0 days	Tue 8/4/15	Tue 8/4/15
33	SITE WORK & UTILITIES	60 days	Mon 7/27/15	Fri 10/16/15
34	FOOTINGS & FOUNDATIONS	45 days	Mon 9/7/15	Fri 11/6/15
35	STRUCTURE & FRAMING	75 days	Mon 10/12/15	Fri 1/22/16
36	BUILDING SHELL AND SYSTEMS	120 days	Mon 12/28/15	Fri 6/10/16
37	INTERIOR FINISHING	120 days	Mon 5/2/16	Fri 10/14/16
38	CONSTRUCTION - EXTERIOR SITEWORK	80 days	Mon 6/27/16	Fri 10/14/16
39	CURB AND GUTTER	15 days	Mon 6/27/16	Fri 7/15/16
40	SITE CONCRETE	15 days	Mon 7/18/16	Fri 8/5/16
41	LANDSCAPING & IRRIGATION	35 days	Mon 8/8/16	Fri 9/23/16
42	ASPHALT PAVING	15 days	Mon 9/26/16	Fri 10/14/16
43	PROJECT CLOSEOUT - PHASE 1	45 days	Mon 10/17/16	Fri 12/16/16
44	STARTUP, FINAL CLEANING & PUNCHLIST	25 days	Mon 10/17/16	Fri 11/18/16
45	JHA APPROVALS	20 days	Mon 11/21/16	Fri 12/16/16
46	CONSTRUCTION - REMODEL CBRF BUILDINGS	150 days	Mon 12/19/16	Fri 7/14/17
47	REMODEL EXISTING BUILDINGS	150 days	Mon 12/19/16	Fri 7/14/17
48	PROJECT CLOSEOUT - PHASE 2	25 days	Mon 7/17/17	Fri 8/18/17
49	STARTUP, FINAL CLEANING & PUNCHLIST	15 days	Mon 7/17/17	Fri 8/4/17
50	JHA APPROVALS	10 days	Mon 8/7/17	Fri 8/18/17



Start Date: Mon 9/22/14
Finish Date: Fri 8/18/17
Run Date: Thu 5/21/15

Market & Johnson, Inc
ST CROIX HEALTH CENTER SCHEDULE

Market & Johnson
GENERAL BUILDING CONTRACTORS
CONSTRUCTION MANAGERS

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1. Shop drawing and product data submittals shall be transmitted to Architect in electronic (PDF) format using Submittal Exchange, a website service designed specifically for transmitting submittals between construction team members.
2. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
3. The electronic submittal process is not intended for color samples, color charts, or physical material samples.

B. Costs:

1. Contractor shall include the full cost of Submittal Exchange project subscription in their proposal**.** This cost is to be included in the Contract Amount.

a. Contact Submittal Exchange at 1-800-714-0024 to verify cost prior to bid.

C. Training:

1. At Contractor’s option, training is available from Submittal Exchange regarding use of website and PDF submittals. Contact Submittal Exchange at 1-800-714-0024.

D. Internet Service and Computer Software Requirements:

a. Email address and Internet access at Contractor’s main office.
b. Adobe Acrobat (www.adobe.com), Bluebeam PDF Revu (www.bluebeam.com), or other similar PDF review software for applying electronic stamps and comments.

E. Related Requirements:

1. Section 01 29 00 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 01 32 00 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
3. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
4. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

5. Section 01 79 00 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals upon request.

1. Architect will furnish Contractor digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.

a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
b. Digital Drawing Software Program: The Contract Drawings are available in <**Insert name and version of digital drawing software program and operating system**>.
c. Contractor shall execute a data licensing agreement in the form of Agreement form provided by Architect upon request.
d. The following digital data files will by furnished for each appropriate discipline:

1) Floor plans.
2) Reflected ceiling plans.
3) <**Insert name of digital data file**>.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow adequate time for submittal review, including time for resubmittals. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Name file with submittal number or other unique identifier, including revision identifier.

a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

2. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.

E. Options: Identify options requiring selection by Architect.

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F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
2. Contractor shall transmit each submittal to Architect using the Submittal Exchangewebsite, www.submittalexchange.com.
3. Architect / Engineer review comments will be made available on the Submittal Exchange website for downloading. Contractor will receive email notice of completed review.
4. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams showing factory-installed wiring.
b. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:

a. PDF electronic file.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
3. Submit Shop Drawings in the following format:

a. PDF electronic file.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of applicable Specification Section.
e. Specification paragraph number and generic name of each item.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit three full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

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6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned.

        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.
5. Submit product schedule in the following format:

    a. PDF electronic file.

F. Contractor's Construction Schedule: Comply with requirements specified in Section 01 32 00 "Construction Progress Documentation."

G. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 29 00 "Payment Procedures."

H. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 40 00 "Quality Requirements."

I. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 77 00 "Closeout Procedures."

J. Maintenance Data: Comply with requirements specified in Section 01 78 23 "Operation and Maintenance Data."

K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

L. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

N. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

Q. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

R. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

S. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

T. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

U. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

V. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

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2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01 77 00 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 01 33 00

SECTION 01 35 00
SUBCONTRACTOR SAFETY REQUIREMENTS

1. Implementation

   A. Each Subcontractor is responsible for his/her own safety program in accordance with applicable provisions of the Occupational Safety and Health Act.

   B. Each Subcontractor shall be responsible for payment of all fines and/or claims for damages levied against Market & Johnson and/or the Owner for safety deficiencies relating to conduct of Subcontractor's work.

   C. Every Subcontractor shall comply with all applicable local, state and federal safety and health regulations.

   D. Safety Procedures for Contractors and/or Subcontractors

      1) As a Subcontractor and employer, you are required by Federal and State Occupational Safety and Health Regulations, Standards, Codes, Rules and Regulations, to provide protection for customers, employees and the public who may come into contact with your operations.

      2) Employee Safety Orientation and Safety Meetings

         Each Subcontractor or its Subcontractor(s) shall follow OSHA Act 1926.21 (2) requirements that state, "Each employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to its work environment".

      3) Accident Reports

         In the case of an injury to an employee of the Subcontractor or its Subcontractor(s) requiring treatment in addition to first aid, the employer will furnish Market & Johnson the "First Report of Injury" and a Foreman's Accident Report within 24 hours after the occurrence.

         In the case of an accident involving property damage or injury to a person who is not an employee of the Contractor, the Subcontractor or its Subcontractor(s), Market & Johnson will be immediately notified and a Foreman's Accident Report will be submitted within 24 hours after the occurrence.

END OF SECTION

SECTION 01 35 05
FIRE PRECAUTIONS AND PROTECTION

1. Description

   A. Provide adequate fire protection during the construction process.

2. Fire Extinguishers

   A. Market & Johnson will provide and maintain in working order during the entire construction period, fire extinguishers as required and suitable for any possible class or type of fire.

   B. In addition, each Subcontractor who maintains an enclosed shed on the premises for storage of materials or as a workshop, or for the convenience of workmen, shall provide and maintain one fire extinguisher for each shed.

3. Fire Protection of Construction Activities

   Each Subcontractor shall:

   A. Provide adequate protection and shielding of workers and materials during welding, flame cutting, sparking devices, etc.

   B. Provide the necessary personnel and fire fighting equipment to effectively control fires resulting from welding flame cutting or other operations involving the use of flame and sparking devices.

   C. Not permit open fires.

   D. Have their Superintendent in charge of the project meet with Market & Johnson to review the entire project on intervals as requested by Market & Johnson to make certain that they adhere to the conditions and requirements set forth herein.

   E. Take all necessary precautions to guard against and eliminate all possible fire hazards in accordance with all fire protection and prevention laws and codes. Also, all necessary precautions shall be taken to prevent damage to any construction work, building materials equipment, temporary field offices, storage shed and all other property.

   F. Use only Underwriter's Laboratory approved heaters and/or stoves in field offices or storage sheds. They shall have fire resistive materials underneath and at the sides near partitions and walls. Pipe sleeves and a fireproof covering shall be used where a stovepipe runs through wall or roof.

4. Permanent Fire Protection Systems

   A. Permanent fire protection water supply, fire extinguishing equipment, and fire protection systems shall be installed at the earliest possible date.

   B. The Fire Protection Subcontractor shall maintain the existing fire protection system during all remodeling work.

   C. The Fire Protection Subcontractor shall furnish, install, and maintain a temporary standpipe system during new construction. This system shall be in accordance with all local, state and federal requirements.

END OF SECTION

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
4. Specific test and inspection requirements are not specified in this Section.

C. Related Requirements:

1. Section 01 21 00 "Allowances" for testing and inspecting allowances.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.
2. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
3. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.

C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data : For Contractor's quality-control personnel.

C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:

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1. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.

D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.6 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
3. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.7 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. SPECIAL INSPECTION REPORT DISTRIBUTION AND FREQUENCY

1. Special Inspection Reports are to be sent to the Owner, Architect, Structural Engineer of Record, Contractor, and the building official.
2. The Special Inspection Reports shall be sent to the listed parties within one week of the actual inspection.

C. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

D. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

E. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

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1.8 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

D. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

E. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
3. Must be acceptable to Owner, SER, and building official.
4. Meet basic requirements of ASTM E-329 for concrete and steel testing.
5. Testing agent must be authorized to operate in the state of the Project.
6. Testing equipment shall be calibrated at reasonable intervals by device of accuracy traceable to either of the following:

a. National Bureau of Standards.
b. Accepted values of National Physical Constants.

G. Special Inspector Qualifications:

1. The special inspector shall meet at least one of the following:

a. ACI Grade 2 certified inspector, able to demonstrate previous experience with similar types of construction. Inspections shall be performed under the direct supervision of a registered civil/structural engineer regularly engaged in structural engineering, registered in the state of Wisconsin, and acceptable to the Owner, SER, and the building official. The registered engineer shall personally conduct a minimum of 25% of the special inspections on a regular basis.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.9 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

   a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

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F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.10 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency and special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in SPECIAL STRUCTURAL TESTING AND INSPECTION SCHEDULE attached to this Section, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.

a. Special Inspection Reports are to be sent to the Owner, Architect, Structural Engineer of Record, Contractor, and the building official.
b. The Special Inspection Reports shall be sent to the listed parties within one week of the actual inspection.

4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

3.3 SPECIAL STRUCTURAL TESTING AND INSPECTION SCHEDULE

A. See following pages.

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SPECIAL STRUCTURAL TESTING AND INSPECTION SCHEDULE

PROJECT INFORMATION

Project Identification: St. Croix County Health Center, Additions and Renovation, Bid Package #1.

Project Location: St. Croix County Health Center
1445 N 4th Street
New Richmond WI 54017

Project No.: _____

Permit No. (1.): _____

NOTES:
This schedule to be included in the project specification and filled out when applying for a building permit. See individual categories for test methods, and pass/fail criteria. Corrective actions due to non-passing tests shall be approved by testing agency and SER.

(1.) *Permit number to be provided by building official.*
(2.) *Use descriptions per IBC Chapter 17 – Structural Tests and Special Inspections.*
(3.) *Special inspector, testing agent, or fabricator.*
(4.) *Firm contracted to perform services.*

LEVEL 1 (PERIODIC) - SPECIAL INSPECTION SCHEDULE

INTERNATIONAL BUILDING CODE (IBC)					
TABLE	ARTICLE	DESCRIPTION **(2.)**	TYPE OF FIRM **(3.)**	CATEGORY	ASSIGNED FIRM **(4.)**
1704.4	--	Concrete Reinforce-ment	SI	F4	
1704.4	--	Concrete Placement	SI	F5	
1704.7	1704.7	Soils	SI	F2	

TESTING SCHEDULE

		Concrete	TA	F1	
		Soil Testing	TA	F2	
		Bituminous Paving	TA	F3	

ACKNOWLEDGMENTS
(each appropriate representative must sign below)

Owner:	Firm:	**<Insert Owner Name>**	
	Signature	_____	Date _____
Contractor:	Firm:	_____	
	Signature	_____	Date _____
Architect:	Firm:	Horty Elving & Associates, Inc.	
	Signature	_____	Date _____
SER:	Firm:	Innovative Structural Solutions, PA	
	Signature	_____	Date _____
SI:	Firm:	_____	
	Signature	_____	Date _____
SI:	Firm:	_____	
	Signature	_____	Date _____
TA:	Firm:	_____	
	Signature	_____	Date _____
TA:	Firm:	_____	
	Signature	_____	Date _____
F:	Firm:	_____	
	Signature	_____	Date _____
F:	Firm:	_____	
	Signature	_____	Date _____

The individual names of all prospective special inspectors and the work they intend to observe must be identified above on this form.

LEGEND
SER: Structural Engineer of Record
TA: Testing Agent
SI: Special Inspector
F: Fabricator

Accepted by the Building Department:

By _____ Date _____

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Commission # 146038

CATEGORIES

F1 During construction the following tests shall be conducted by an approved testing laboratory. The Contractor shall arrange and coordinate tests. Tests shall be made by a Level 1 technician as certified by ACI. Submit reports on tests in duplicate to the Contractor and single copies to the structural engineer and architect.

Perform lab cured seven-day and 28-day cylinder tests for all concrete.

Test at least one specimen for each day's pouring or for each 75 cubic yards of concrete or fraction thereof poured each day. A specimen shall consist of three (3) cylinders. Cylinders shall test at least as high in strength as the 28-day value specified.

Take sampling of concrete for cylinder as it is poured into the forms. The method of making cylinders, storage, and testing shall be in accordance with ASTM Specification C31, latest edition.

Test cylinders must remain undisturbed for 20 hours after casting and be in lab within 24 hours.

Make standard slump tests in accordance with ASTM Specification C128, latest edition.

F2 Provide testing as required and indicated in Section 31 20 16 – Building Earthwork to ensure corrections to site as required by the geotechnical report, project specifications, and to ensure a minimum bearing pressure as indicated in "Design Loads."

F3 Test in accordance with ASTM D479 for density and ASTM D1559 for design criteria. Further test by core drilling to ensure correct thicknesses have been achieved.

F4 Concrete Reinforcing Placement: Periodic inspection - inspector to review placement of reinforcing on a continuous basis for the first five days of reinforcing construction, and then on a once-a-week basis thereafter.

F5 Concrete Placement: Periodic inspection – inspector to review placement of one-third of the total amount of cast-in-place concrete.

END OF SECTION 01 40 00

SECTION 01 43 00
QUALITY ASSURANCE

1. Mock-ups

   A. Where required by the specifications, the Subcontractor shall provide full scale mock-ups in the sizes required by the section requiring the mock-up.

   B. All materials, fasteners, systems, etc., shall be identical to the products and technique specified for use on the project.

   C. Market & Johnson shall determine when the Subcontractor shall construct each mock-up, but this scheduling shall not delay the project in any way and shall allow adequate time for review by the Architect and the Owner, and adequate time for reconstruction of the mock-up in the event it is found unacceptable.

   D. Market & Johnson shall notify the Architect and the Owner when mock-ups are ready for review. Mock-ups shall be a part of the permanent construction.

2. References

   A. Quality Assurance

      1) For products or workmanship specified by association, trade, or federal standard comply with all provisions of the standard for the date of issue specified. Where no issue date is referenced, comply with the issue current at the date of execution of the Contract Agreement.

      2) Where reference standards conflict with other provisions of the Contract Documents, the Subcontractor shall notify Market & Johnson, who shall request a clarification in writing from the Architect before proceeding with any affected work.

      3) It is the responsibility of the Subcontractor to obtain reference standards. Market & Johnson is not required to keep copies of these documents at the site.

      4) The use of reference standards shall not modify or alter the contractual relationship of the parties by any mention or inference contained with any reference document.

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 01 10 00 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

B. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

C. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.

4. Waste handling procedures.
5. Other dust-control measures.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

B. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.

C. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

D. Metal framing and gypsum board for temporary enclosures and partitions.

2.2 TEMPORARY FACILITIES

A. Field Offices, General: Mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, Construction Manager, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

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B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Section 01 77 00 "Closeout Procedures".

C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 01 10 00 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

D. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

E. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

1. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.

    a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
    b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.

2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.

F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.

G. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Install lighting for Project identification sign.

3.3 SUPPORT FACILITIES INSTALLATION

A. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

B. Parking: Consult with Owner on parking areas for construction personnel.

C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 73 00 "Execution."

D. Project Signs: Provide Project signs as follows. Unauthorized signs are not permitted.

1. Temporary Signs: Provide other signs as indicated and as required informing public and individuals seeking entrance to Project.

    a. Provide temporary, directional signs for construction personnel and visitors.

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2. Maintain and touchup signs so they are legible at all times.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 01 10 00 "Summary."

C. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

D. Egress: Maintain existing egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

F. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner and tenants from fumes and noise.

1. Construct dustproof partitions with gypsum wallboard with joints taped on both sides.
2. Construct dustproof partitions with two layers of 6-mil polyethylene sheet on each side. Cover floor with two layers of 6-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints.
3. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
4. Insulate partitions to control noise transmission to occupied areas.
5. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
6. Protect air-handling equipment.
7. Provide walk-off mats at each entrance through temporary partition.

G. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.

3.5 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.

B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Periodically collect and remove waste containing cellulose or other organic matter.
4. Discard or replace water-damaged material.
5. Do not install material that is wet.
6. Discard, replace, or clean stored or installed material that begins to grow mold.
7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Use permanent HVAC system to control humidity.
3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

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1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 51 00
TEMPORARY UTILITIES

1. Description

   A. Temporary Utilities: electricity, lighting, heat, ventilation, telephone service, sanitary facilities and elevators.

2. Temporary Electricity

   A. If any Subcontractor contemplates the use of the equipment that requires a different voltage or greater capacity than that specified, they shall arrange with the Utility for this additional service and pay for installation of the service and the necessary additional switches and wiring required.

   B. Each Subcontractor shall provide and pay for installation of temporary service for lighting of their temporary trailer.

   C. Temporary Construction Lighting: The electrical subcontractor shall provide construction lighting as directed by M&J to provide and maintain minimum lighting and receptacle outlets throughout the construction area to permit safe pursuit and examination of work.

      1. Lighting: One 200 watt lamp per 625 sq. ft., maximum spacing of 30 feet on center, or as required by OSHA whichever is greater.
      2. Receptacles: One duplex receptacle per 2500 sq. ft., maximum spacing of 60 feet on center.
      3. Stairways: One 200 watt lamp per landing.
      4. Provide supplemental lighting as required using suitable portable units.
      5. Provide and maintain adequate lighting at barricades for safety.
      6. Grounding: Comply with applicable codes relating to permanent work. Permanent grounding system may be utilized for temporary system.
      7. Overload Protection: Comply with applicable codes relating to permanent work.
      8. Task lighting shall be provided by individual subcontractor requiring it.

   D. Market & Johnson will pay for all electrical energy consumed for construction purposes for all trades including that required for operation of ventilating equipment, for heating of buildings, and for testing and operating of all equipment.

   E. All Subcontractors shall furnish their own extension cords and lamps other than those for general lighting.

   F. Subcontractors shall be allowed to use the service provided by the Electrical Subcontractor and coordinated with the Owner and Market & Johnson.

   G. Exterior lighting for security purposes during construction shall be provided by the Electrical Subcontractor and coordinated with the Owner and Market & Johnson.

   H. The Electrical Subcontractor must provide and use G.F.C.I. (ground fault circuit interrupters) as set for the in the latest OSHA regulations 1926 standards.

   I. After substantial completion of the permanent electrical distribution system and building wiring by the Electrical Subcontractor, permanent receptacles may be used during finishing work. Permanent wiring for lighting fixtures, switches, and receptacles will be installed after all masonry and drywall work is completed. This wiring shall not be used for motors larger than 1/2 HP or welding equipment. Circuits for larger motors and welding equipment may be provided with special circuits directly to electrical panels at the expense of the Subcontractors requiring them, provided special permission is obtained from Market & Johnson and installation is made by the Electrical Subcontractor.

J. The Electrical Subcontractor is to provide timely delivery and installation of new electrical service equipment to accommodate equipment power requirements.

K. Electrical Subcontractor is to provide temporary power and service to Market & Johnson's job site trailer.

L. Electrical Subcontractor will provide sufficient security lighting around exterior of project.

M. The electrical Subcontractor shall provide sufficient outlets throughout and temporary lighting using 120-V power. Note: Temporary usage can not disrupt operations.

3. Cold Weather Protection

A. All heating and covering required to protect the work from injury due to freezing or moisture during the construction period prior to enclosure of the building shall be classified as Cold Weather Protection. Such protection shall be provided and paid for by each Subcontractor for the protection of his own work until the building is enclosed.

B. Heating required is to protect materials from injury due to freezing during the construction period prior to enclosure shall be provided by means of portable heating units intended for this purpose.

C. Proper ventilation must be provided. The use of temporary units whose product of combustion will damage fresh concrete, motor or other building materials will not be allowed. Use of coke or oil salamanders is prohibited.

D. If electrical power is required for oil or gas portable heating units, it may be taken from the available temporary power source.

E. Equipment used for heat as well as the entire surrounding area shall be kept clean and in safe condition.

4. Temporary Heat

A. All heating required after enclosure of the building shall be classified as Temporary Heat.

B. All temporary heat shall be provided by Market & Johnson as required.

C. The permanent system will be used as soon as construction allows. Cleaning, maintenance and service of the system during construction is the responsibility of the heating contractor. The warranties for the permanent equipment used during construction will not start until the Owner and Architect approve substantial completion.

5. Temporary Telephones

A. Subcontractors desiring private telephone installation shall pay for all related costs.

B. One telephone will be provided by Market & Johnson for Subcontractor use for local calls only.

6. Temporary Water

A. If water cannot be obtained right away, it will be each Subcontractor's responsibility to provide the necessary water for their operation until water is available.

B. Immediately after award of the contract, the Plumbing Subcontractor shall make arrangements for temporary water and provide hose bibs in locations specified by Market & Johnson for use by all Subcontractors.

C. The Plumbing Subcontractor shall maintain the installation and remove it when directed by Market & Johnson. The Plumbing Contractor shall provide necessary patching of surfaces and of the structure after the temporary service is removed.

D. Subcontractors shall prevent waste and shall maintain valves, connections and hoses in good condition at all times. Each Subcontractor shall provide his own hose or piping from hose bibs.

E. The Owner shall not pay cost of water used.

F. Each Subcontractor shall provide their own drinking water.

7. Temporary Toilets

A. Market & Johnson will provide and maintain exterior sanitary temporary toilets located where required for the force employed.

B. The Plumbing Subcontractor, as soon as possible, will provide temporary toilets for use by construction personnel, including both male and female trades people.

END OF SECTION

SECTION 01 52 13
FIELD OFFICES

1. Field Offices

   A. Market & Johnson shall provide and maintain a temporary watertight office for their operations.

   B. Each Subcontractor shall provide their own temporary field office and equipment as required. The location will be determined by Market & Johnson.

END OF SECTION

SECTION 01 53 00
BARRICADES AND ENCLOSURES

1. Temporary Guardrails and Barricades

   A. Prior to removal of all shoring and forms, Market & Johnson shall be responsible for temporary protection at the building floor perimeters and openings. Immediately after the removal of all shoring and forms, Market & Johnson shall furnish, install, and maintain all necessary temporary guardrails at the building floor perimeters and openings. All other protection and safety barricades, devises, covers, etc., including at all roof areas, shall be provided by each Subcontractor as it relates to the safe conduct of their work in accordance with all local, state and federal regulations.

2. Temporary Partitions

   A. Market & Johnson shall provide the necessary temporary partitions for the control of dust and personnel.

3. Temporary Controls

   A. Barriers, fences and enclosures:

      1) Market & Johnson shall provide barricades and covered walkways required by governing authorities for protection of public rights-of-way for access to the building.

      2) All Subcontractors shall provide whatever items are necessary to protect vehicular traffic, stored materials, existing facilities and adjacent properties from damage due to their demolition or construction operations.

4. Enclosures

   A. Enclosures shall be provided by the Subcontractor whose work requires them.

END OF SECTION

SECTION 01 53 10
CONSTRUCTION AIDS

1. Stairs, Ladders, Ramps, Runways, Scaffolds

   A. The Subcontractor performing the work shall:

      1) Furnish and maintain equipment such as temporary stairs, fixed ladders, ramps, chutes, runways and the like as required for proper execution of work.

      2) Market & Johnson will see that a permanent stair system is installed as soon as possible. Provide stairs with temporary treads, handrails, and shaft protection.

   B. Subcontractors requiring scaffolds shall provide their own and remove them on completion of the work. Underlay interior scaffolds with planking to prevent uprights from resting directly on the slab.

   C. Market & Johnson will provide temporary stairs for overall job access.

END OF SECTION

SECTION 01 56 40
SECURITY

1. Watchmen

   A. Watchmen will not be provided by the Owner or Market & Johnson. Each Subcontractor shall be responsible for loss or injury to persons or property where his work is involved, and shall provide such watchmen and take such precautionary measures, as he may deem necessary.

2. Security

   A. Each Subcontractor shall be responsible for and make good any loss or damage due to vandalism or robbery during construction.

   B. Each Subcontractor shall be responsible for loss or injury to persons or property wherever his work is involved. Each Subcontractor should take precautionary measures to secure materials, equipment and finished or in-progress work.

END OF SECTION

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 01 25 00 "Substitution Procedures" for requests for substitutions.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

    a. Form of Approval: As specified in Section 01 33 00 "Submittal Procedures."
    b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 33 00 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

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7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 77 00 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:

    a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
    b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:

    a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
    b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 25 00 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.

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2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 01 65 00
MATERIAL AND EQUIPMENT

1. Summary

   A. Delivery, storage and handling.

   B. Product options and substitutions.

2. Products

   A. Products means new material, components, equipment, fixtures and systems forming the work. It does not include machinery or equipment used for the fabrication, conveyance, or installation of the work. Products may also include existing materials or components slated for reuse.

   B. Do not reuse materials or equipment removed from the premises unless specifically permitted or required by the Contract Documents.

   C. Standardization and uniformity is desired in all parts of the work. Wherever possible provide products of one manufacturer to simplify maintenance and spare parts inventories.

3. Transportation and Handling

   A. Transport and handle products in accordance with manufacturer's instructions.

   B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

   C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

4. Storage and Protection

   A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.

   B. For exterior storage of fabricated products, place on sloped supports, above ground.

   C. Provide off-site storage and protection when site does not permit on-site storage or protection.

   D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

   E. Store loose granular materials on solid flat surfaces in a well-drained area. Provide no mixing with foreign matter.

   F. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

   G. The Owner assumes no responsibility for materials stored in building or on the site. The Subcontractor assumes full responsibility for damage due to the storing of materials. This also includes Owner purchase materials.

END OF SECTION

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Excavating and backfilling trenches for new underground piping and conduits under existing interior concrete slab-on-grade.
6. Coordination of Owner-installed products.
7. Progress cleaning.
8. Starting and adjusting.
9. Protection of installed construction.

B. Related Requirements:

1. Section 01 10 00 "Summary" for limits on use of Project site.
2. Section 01 33 00 "Submittal Procedures" for submitting surveys.
3. Section 01 77 00 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
4. Section 02 41 19 "Selective Demolition" for demolition and removal of selected portions of the building.
5. Section 07 84 13 "Penetration Firestopping" for patching penetrations in fire-rated construction.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:

   a. Primary operational systems and equipment.
   b. Fire separation assemblies.
   c. Air or smoke barriers.
   d. Fire-suppression systems.
   e. Mechanical systems piping and ducts.
   f. Control systems.
   g. Communication systems.
   h. Fire-detection and -alarm systems.
   i. Conveying systems.
   j. Electrical wiring systems.
   k. Operating systems of special construction.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

   a. Water, moisture, or vapor barriers.
   b. Membranes and flashings.
   c. Exterior curtain-wall construction.
   d. Sprayed fire-resistive material.
   e. Equipment supports.
   f. Piping, ductwork, vessels, and equipment.
   g. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

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PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 31 00 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Construction Manager promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

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3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 10 00 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.

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3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Mechanical/Electrical Trench Excavating and Backfilling: Excavate trenches for new underground piping and conduits under existing interior concrete slab-on-grade as required for new construction and as follows.

1. Preparation:

   a. Protect structures and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

2. Excavation For Utility Trenches:

   a. Excavate trenches to indicated gradients, lines, depths, and elevations.
   b. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

      1) Clearance: 12 inches each side of pipe or conduit.

3. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

   a. For pipes and conduit less than 6 inches in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
   b. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.
   c. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.
   d. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

4. Utility Trench Backfill:

   a. Place backfill on subgrades free of mud, frost, snow, or ice.
   b. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
   c. Backfill voids with satisfactory soil while removing shoring and bracing.
   d. Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.
   e. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
   f. Place and compact final backfill of satisfactory soil to final subgrade elevation.

5. Compaction Of Soil Backfills:

    a. Place backfill materials in layers not more than 8 inchesin loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
    b. Place backfill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
    c. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:

        1) Under building slabs, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.

6. Disposal Of Surplus And Waste Materials:

    a. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

I. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Concrete Slab-On-Grade: Provide #3x24 inch dowels at 24 inches on center at all edges when patching concrete slab-on-grade. Field drill and epoxy dowels 4 inches into existing slabs and cast into new slabs-on-grade patches. Comply with requirements of Section 03 30 00 “Cast-In-Place Concrete” for steel reinforcing bars, vapor retarder, concrete mixture, placement, and finishing.
3. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

4. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

5. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
6. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

J. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

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3.7 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction personnel.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.

3.8 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

   a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 01 91 13 "General Commissioning Requirements."

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 01 40 00 "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

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SECTION 01 74 23
CLEANING

1. Description

   A. Work Included: Throughout the construction period, maintain the buildings and site in a standard of cleanliness as described in this Section.

2. Cleaning Up

   A. It is the responsibility of each Subcontractor to maintain the premises free of accumulations of waste materials, debris and rubbish caused by their operations or the operations of his Sub-subcontractors.

   B. Each subcontractor shall remove their rubbish and debris from the building site promptly upon its accumulation, and in no case later than the regular Friday general cleanup.

   C. Remove all debris from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces prior to enclosing the space.

   D. Each Subcontractor shall remove all waste materials, rubbish, debris, and mud caused by his/her employees from slab forms prior to the placement of concrete.

   E. Each Subcontractor shall be responsible to remove from the site waste materials of suitable size and shape or weight to make use of dumpster type box unreasonable.

   F. Market & Johnson will provide containers for progress cleaning. The total cost of these services will be determined prior to release of final payment. Market & Johnson will deduct the value of these services from the subcontractor's contract via Change Order. The value will be determined on a prorated basis according to the Subcontractor's percentage of the total contract amount. Each Friday afternoon, and as required by Market & Johnson, each Subcontractor shall perform an overall broom cleaning of appropriate areas. Each contractor on site to supply one person at 12:30 for afternoon clean-up. This requirement applies to each week that you have personnel on site. The amount of this labor shall be listed on the schedule of values and will only be paid when participation requirements are satisfied; otherwise the amount will be deducted from the contract.

   G. Market & Johnson will not provide any progress cleaning. All progress cleaning shall be the responsibility of each Subcontractor.

   H. If a Subcontractor fails to comply with the requirements, Market & Johnson shall perform the necessary clean-up and deduct the cost of such work from the compensation due or to become due said Subcontractor.

3. Final Cleaning

   A. Other Subcontractors shall perform a thorough cleaning of work and equipment provided under their contracts.

   B. Each Subcontractor shall perform a thorough cleaning of all interior and exterior surfaces exposed to view. Remove temporary labels, spots, soil, stains, and foreign substances. Polish transparent and glossy surfaces. Wash and polish hard surface floors and bases; vacuum carpeted and soft surfaces. Clean all equipment and fixtures: leave in a sanitary condition. Clean or replace all filters. Clean roofs, gutters, downspouts and drainage systems.

C. If a Subcontractor does not remove rubbish or clean the buildings as specified above, Market & Johnson reserves the right to have work done by others. The cost of work done by others will be deducted from monies due the Subcontractor involved.

D. The Owner reserves the right to hire a professional cleaning service or use their owner employees to perform final cleaning.

END OF SECTION

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Requirements:

1. Section 01 73 00 "Execution" for progress cleaning of Project site.
2. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
3. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
4. Section 01 79 00 "Demonstration and Training" for requirements for instructing Owner's personnel.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
2. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Construction Manager. Label with manufacturer's name and model number where applicable.
3. Submit test/adjust/balance records.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
2. Complete startup and testing of systems and equipment.
3. Perform preventive maintenance on equipment used prior to Substantial Completion.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 79 00 "Demonstration and Training."
5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
6. Complete final cleaning requirements, including touchup painting.
7. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Results of completed inspection will form the basis of requirements for final completion.

1.6 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect and Construction Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

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1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

a. Project name.
b. Date.
c. Name of Architect and Construction Manager.
d. Name of Contractor.

4. Submit list of incomplete items in one of the following formats:

a. MS Excel electronic file.
b. PDF electronic file.

1.8 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Remove tools, construction equipment, machinery, and surplus material from Project site.
b. Clean exposed interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
c. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
d. Sweep concrete floors broom clean in unoccupied spaces.
e. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
f. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
g. Remove labels that are not permanent.
h. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
i. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
j. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
k. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
l. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
m. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

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B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory.
2. Operation manuals for systems, subsystems, and equipment.
3. Product maintenance manuals.
4. Systems and equipment maintenance manuals.

B. Related Requirements:

1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
2. Divisions 02 through 33 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect and Construction Manager will comment on whether content of operations and maintenance submittals are acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.

a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
b. Enable inserted reviewer Comments on draft submittals.

2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect, through Construction Manager, will return two copies.

C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.

1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:

1. List of documents.
2. List of systems.
3. List of equipment.
4. Table of contents.

B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

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B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Date of submittal.
4. Name and contact information for Contractor.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

   a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
   b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

   a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Operating standards.
3. Operating procedures.
4. Wiring diagrams.
5. Control diagrams.
6. Precautions against improper use.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.

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3. Color, pattern, and texture.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. Schedule for routine cleaning and maintenance.
4. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.

2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of operation and maintenance manuals.
2. Comply with requirements of newly prepared record Drawings in Division 01 Section "Project Record Documents."

F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

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SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:

1. Division 01 Section "Execution" for final property survey.
2. Division 01 Section "Closeout Procedures" for general closeout procedures.
3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
4. Divisions 02 through 33 Sections for specific requirements for project record documents of the Work in those Sections.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set(s) of marked-up record prints.

B. Record Specifications: Submit one paper copy of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one paper copy of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit one paper copy of each submittal.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.
d. Record and check the markup before enclosing concealed installations.
e. Cross-reference record prints to corresponding archive photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Revisions to routing of piping and conduits.
d. Revisions to electrical circuitry.
e. Duct size and routing.
f. Changes made by Change Order or Construction Change Directive.
g. Changes made following Architect's written orders.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect and Construction Manager.
e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

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1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders, record Product Data, and record Drawings where applicable.

B. Format: Submit record Specifications as paper copy.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, record Specifications, and record Drawings where applicable.

B. Format: Submit record Product Data as paper copy.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as paper copy.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition,

protected from deterioration and loss. Provide access to project record documents for Architect's and Construction Manager's reference during normal working hours.

END OF SECTION 01 78 39

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SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:

1. Demonstration of operation of systems, subsystems, and equipment.
2. Training in operation and maintenance of systems, subsystems, and equipment.

B. Related Requirements:

1. Divisions 02 through 33 Sections for specific requirements for demonstration and training for products in those Sections.

1.3 QUALITY ASSURANCE

A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section "Quality Requirements," experienced in operation and maintenance procedures and training.

1.4 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

1. Operations: Include the following, as applicable:

a. Startup procedures.
b. Equipment or system break-in procedures.
c. Routine and normal operating instructions.
d. Regulation and control procedures.
e. Control sequences.

f. Safety procedures.
g. Instructions on stopping.
h. Normal shutdown instructions.
i. Operating procedures for emergencies.
j. Operating procedures for system, subsystem, or equipment failure.
k. Seasonal and weekend operating instructions.
l. Required sequences for electric or electronic systems.
m. Special operating instructions and procedures.

2. Adjustments: Include the following:

a. Alignments.
b. Checking adjustments.
c. Noise and vibration adjustments.
d. Economy and efficiency adjustments.

3. Troubleshooting: Include the following:

a. Diagnostic instructions.
b. Test and inspection procedures.

4. Maintenance: Include the following:

a. Inspection procedures.
b. Types of cleaning agents to be used and methods of cleaning.
c. List of cleaning agents and methods of cleaning detrimental to product.
d. Procedures for routine cleaning
e. Procedures for preventive maintenance.
f. Procedures for routine maintenance.
g. Instruction on use of special tools.

PART 3 - EXECUTION

3.1 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Division 01 Section "Operations and Maintenance Data."

B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Owner will furnish Contractor with names and positions of participants.

B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

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1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.

C. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

D. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

END OF SECTION 01 79 00

SECTION 02 20 00 - GENERAL SITEWORK REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide the work on the site as provided for in the technical specifications and on the drawings.
2. All work on public facilities or on public lands and/or public rights of way shall conform to the applicable City of New Richmond Standard Construction Specifications or the Standard Specifications stated below.
3. All work shall be in accordance with applicable manufacturer's instructions.

B. Related Requirements:

1. This section relates to all Division 02 sections as they pertain to SITEWORK to be performed.
2. This specification shall apply to all site work unless otherwise specified.
3. Applicable provisions of Division 01 shall govern all work under Division 02 and all Division 02 specifications.

1.3 REFERENCE STANDARDS

A. Abbreviations of standards or organizations referenced in this specification are as follows:

AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers Association
ACPA	American Concrete Pipe Association
AGA	American Gas Association
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute
ARI	Air Conditioning and Refrigeration Institute
ASME	American Society of Mechanical Engineers
ASPE	American society of Plumbing Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
AWS	American Welding Society
CISPI	Cast Iron Soil Pipe Institute

CS	Commercial Standards, Products Standards Sections, Office of Eng. Standards Service, NBS
EPA	Environmental Protection Agency
FS	Federal Specifications, Superintendent of Documents, U.S. Government Printing Office
IAPMO	International Association of Plumbing & Mechanical Officials
IEEE	Institute of Electrical and Electronics Engineers
ISA	Instrument Society of America
MSS	Manufacturer's Standardization Society of the Valve & Fitting Industry, Inc.
NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
PDI	Plumbing and Drainage Institute
STI	Steel Tank Institute
UL	Underwriters Laboratories Inc.

B. Where reference is made to the "Construction Standards", it shall be construed to mean the pertinent sections of the City of New Richmond Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

1.4 QUALITY ASSURANCE

A. Substitution of Materials: Refer to - General Conditions of the Contract.

B. Where equipment, accessories, or materials are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated in the contract documents, the contractor is responsible for all costs involved in integrating the equipment or accessories into the system and for obtaining the intended performance from the system into which these items are placed.

1.5 CONTINUITY OF EXISTING TRAFFIC, PARKING, AND UTILITIES

A. Refer also to – Contract General Requirements.

B. Do not interrupt or change existing traffic, delivery, parking, or utility services without prior written approval from the Owner’s Construction Representative. When interruption is required, coordinate schedule with the Owner agency to minimize disruptions. Unless specifically stated, all work involved in interrupting or changing existing services is to be done during normal working hours.

C. Verify the locations of any water, drainage, gas, sewer, electric, drainage, gas, sewer, electric, telephone, fuel, steam lines or other utilities and site features which may be encountered in any excavations or other sitework. All lines shall be properly underpinned and supported to avoid disruption of service. Any service connections encountered which are to be removed shall be cut off at the limits of the excavation and capped in accordance with the requirements of permits governing such removals. Any permits required for this work will be obtained by the Owner upon request of the Contractor.

1.6 PROTECTION OF EXISTING WORK AND FACILITIES

A. Verify the locations of, and protect, any signs, paved surfaces, buildings, structures, landscaping, streetlights, utilities, and all other such facilities that may be encountered or interfered with during the

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progress of the work. Take all measures necessary to safeguard all existing work and facilities which are outside the limits of the work or items which are within the construction limits but are intended to remain.

B. Protect all paved, turf, and landscaped surfaces to remain. Protect all areas outside of the construction limits from the effects of erosion in accordance with the Erosion Control specification section.

1.7 CONSTRUCTION LIMITS

A. Construction Limits are indicated on the drawings. In the absence of such a designation on the drawings, confine work to the minimum area reasonably necessary to undertake the work as determined by the Engineer. All area disturbed by excavation and grading, plus such additional areas as are disturbed by construction related activities including construction access and storage and installation of materials shall be considered the "Construction Area."

1.8 EQUIPMENT AND MATERIALS FURNISHED BY OTHERS

A. None.

1.9 SUBMITTALS

A. Refer also to – General Conditions of the Contract

B. Submit manufacturer's preproduction (shop) drawings for any offsite constructed sitework items for approval prior to the start of manufacturing and any electrically powered equipment.

1.10 CERTIFICATIONS AND INSPECTIONS

A. Refer to – Contract General Conditions.

B. Obtain and pay for all required sampling, testing, inspections, and certifications except those provided by the Architect/Engineer. Deliver originals of certificates and documents to the Owner’s Project Representative. Include copies of the certifications and documents in the Operating and Maintenance Instructions.

1.11 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Refer also to – Contract General Requirements

B. Assemble material in an operating and maintenance manual composed of three-ring or post binders, using and index at the front of each volume and tabs for each system or type of equipment installed. In addition to the data indicated in the General Requirements, include the following information:

1. Copies of all approved shop drawings
2. Manufacturer's wiring diagrams for electrically powered equipment
3. Records of tests performed to certify compliance with system requirements
4. Certificates of inspection by regulatory agencies
5. Parts lists for manufactured equipment
6. Lubrication instructions, including lists of frequency of lubrication during construction
7. Warranties and/or guarantees
8. Additional information as indicated in the technical specification sections

1.12 TRAINING OF OWNER PERSONNEL

A. Instruct Owner personnel in the proper operation and maintenance of systems and equipment provided as part of this project.

1.13 RECORD DRAWINGS

A. Refer to – Contract General Requirements.

B. Include copies of record drawings with the Operating and Maintenance instructions.

PART 2 - PRODUCTS

2.1 BARRICADES, SIGNS, AND WARNING DEVICES

A. Provide traffic barricades, traffic signs, and warning devices in accordance with governing codes and regulations and the Manual of Uniform Traffic Control Devices (MUTCD).

B. Provide excavation barrier fencing in plastic, blaze orange color together with all supports and braces necessary to provide an adequate safety barrier to unattended excavations.

2.2 WARNING SIGNS

A. Provide all necessary warning signing as required by OSHA, these specifications, or as shown on the drawings.

PART 3 - EXECUTION

3.1 PROJECT SITE CONDITIONS

A. Maintain a clean, safe and orderly site.

B. Provide adequate barricades, guards, warning lights, other protection required at excavation and hazards created by work.

C. Control access to the site by only authorized personnel and vehicles.

D. Maintain site housekeeping to provide for a safe and orderly project site. Collect and dispose of debris as they accumulate.

E. Provide shoring, bracing, sheet piling, planking and forming required by the work.

F. Locate and protect overhead and underground utilities, sidewalks, drains, curbs, trees (including roots) shrubs, ground cover, bench marks, monuments, other reference points, adjacent building, materials, property owned by others that are to remain.

G. Protect items if disturbed or destroyed, and replace as directed, bearing responsibility for and replacement cost of damage arising from all operations connected with work.

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H. Fence and/or box in all trees and plant material which are to remain at the drip line before work is started. Do not permit heavy equipment or stockpiles within branch spread. Remove interfering branches without injury to trunks, cover scars with tree paint.

I. Control grading around structures, pitch ground to prevent water running into excavated areas.

J. Pits, trenches within building lines and other excavations shall be maintained free of water.

K. Provide trenching, pumping, other facilities required.

L. Notify Owner's Project Representative if springs or running water are encountered in excavation; provide discharge by trenches, drains, pumping to point outside of excavation. Provide information to Owner's Project Representative of points and areas that water will be discharged. At the Engineer's option, the Contractor shall drain the spring to the storm sewer system by the use of field tile.

M. Be responsible for control measures to prevent damage from flooding, erosion, sedimentation to on-site and off-site areas.

N. Install and maintain temporary desilting basins, terraces, contour furrows, channel linings, waterways, and other measures as shown on plan and as described in the WPDES and Municipal permits obtained for the project to prevent damage.

3.2 SITE RESTORATION

A. Unless otherwise specified or noted on the drawings, fully and completely restore the site to a condition present prior to the work. Restore the surface of all disturbed areas to a like condition of the surface prior to the work. Sawcut and remove all damaged pavements to the nearest existing joints, or with prior permission, to straight and neat lines and repair with like materials to the full depth of the pavement as existed prior to the work.

B. See applicable Sections for specific restoration requirements.

3.3 CLEAN UP

A. Level off all waste disposal areas and clean up all areas used for the storage of materials or the temporary deposit of excavated earth. Remove all surplus material, tools and equipment.

B. Burning is not permitted.

C. Thoroughly clean all sewers and structures and remove and dispose of all debris and mud.

END OF SECTION 02 20 00

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes:

1. Base fill (drainage course) for concrete slabs-on-grade.
2. Cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

   a. Footings.
   b. Foundation walls.
   c. Piers and pilasters.
   d. Slabs-on-grade.
   e. Concrete toppings.

3. Cement-based, polymer-modified, self-leveling repair underlayment.

B. Related Sections:

1. Section 32 16 00 “Curbs and Sidewalks" for concrete pavement and walks.

1.3 DEFINITIONS

A. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

B. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar

arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Architect.

1.5 INFORMATIONAL SUBMITTALS

A. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

B. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

F. Preinstallation Conference: Conduct conference at Project site.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.

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d. Concrete subcontractor.

2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, and concrete protection.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Base Fill (Drainage Course): Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

B. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a 3/8-inch sieve, 10 to 30 percent passing a No. 100 sieve, and at least 5 percent passing No. 200 sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.
2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

D. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.

E. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

F. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

G. 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 exposed concrete surface.
2. Furnish ties that, when removed, will leave holes no 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.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60, deformed bars, assembled with clips.

C. Plain-Steel Wire: ASTM A 82/A 82M, as drawn.

2.4 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," 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 steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I/II,. Supplement with the following:

a. Fly Ash: ASTM C 618, Class F or C.
b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.

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1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal for footings and 3/4 inch nominal for all other cast-in-place concrete.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M and potable.

2.6 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

2.7 FIBER REINFORCEMENT

A. Synthetic Micro-Fiber: Fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III, 1/2 to 1-1/2 inches long.

1. Products: Subject to compliance with requirements, provide one of the following:

a. BASF; Master Fiber F70.
b. Fabpro Oriented Polymers LLC; GENESIS Fibrillated Fibers.
c. Propex Concrete Systems Corp.; Fibermesh 300.

2.8 VAPOR RETARDERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Carlisle Coatings & Waterproofing, Inc.; Blackline 400.
b. Fortifiber Building Systems Group; Moistop Ultra 10.
c. Grace Construction Products, W. R. Grace & Co.; Florprufe 120.
d. Insulation Solutions, Inc.; Viper VaporCheck 10.
e. Meadows, W. R., Inc.; Perminator 10 mil.
f. Raven Industries Inc.; Vapor Block 10.
g. Stego Industries, LLC; Stego Wrap 10 mil Class A.

2.9 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

2.10 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.

C. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.11 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.

2.12 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 20 percent.
2. Combined Fly Ash and Pozzolan: 20 percent.
3. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 20 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing admixture in all interior slab-on-grade mixes.
2. Use water-reducing admixture in concrete, as required, for placement and workability.
3. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
4. Note: Design mix slump requirements are considered “pre-admixture” slumps.

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2.13 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Footings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.55.
3. Slump Limit: 5 inches, plus or minus 1 inch.

B. Foundation Walls, Piers, and Pilasters: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.55.
3. Slump Limit: 3 inches, plus or minus 1 inch.
4. Air Content: 6% +/-.

C. Interior Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.55.
3. Minimum Cementitious Materials Content: 540 lb/cu. yd.
4. Slump Limit: 4 inches, plus or minus 1 inch.
5. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.
6. Synthetic Micro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.5 lb/cu. yd.

D. Concrete Toppings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Minimum Cementitious Materials Content: 540 lb/cu. yd..
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: Do not allow air content of trowel-finished toppings to exceed 3 percent.
5. Synthetic Micro-Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.5 lb/cu. yd.

2.14 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.15 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 BASE FILL (DRAINAGE COURSE) UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course 6 inches or less in compacted thickness in a single layer.
2. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
3. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.2 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class C, 1/2 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. 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.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. 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.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

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K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.3 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.4 REMOVING AND REUSING FORMS

A. General: Formwork for sides of walls, piers, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

B. 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.

C. 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.

3.5 VAPOR RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Unroll sheet vapor retarder over the area where the slab is to be poured. Sheet vapor retarder should completely cover the pour area, wrap up all sidewalls, and terminate at the top-of-slab elevation.
2. All joints/seams both lateral and butt should be overlapped six inches and sealed with manufacturer's recommended tape.
3. Seal all penetrations. All pipes, conduit, ducting, rebar and wire penetrations should be sealed using tape and/or Mastic.
4. Repair sheet vapor retarder damaged during or after installation. Cut a piece of sheet vapor retarder large enough to cover any damaged areas by a minimum overlap of six inches in all directions. Clean all adhesion areas of dust, dirt and moisture. Tape down all edges.

3.6 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.7 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
3. Place slab-on-grade construction joints at a maximum of 60 feet on center.
4. Locate horizontal joints in walls at underside of floors and at the top of footings or floor slabs.
5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Control Joints in Slabs-on-Grade: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
3. Place control joints in concrete slab-on-grade at a maximum spacing of 16 feet on center. Locate on grid lines or under partitions wherever feasible.
4. Place control joints in concrete toppings at mid-span of precast concrete plank and to a depth of 1 inch.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.

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2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.8 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.9 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

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.

D. 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.

3.10 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces indicated to receive trowel finish.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and

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uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:

    a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 17; and of levelness, F(L) 15.
    b. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.

3. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 3/16 inch.

D. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

3.11 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases 4 inches high minimum unless otherwise indicated; and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated.
3. Minimum Compressive Strength: 4000 psi at 28 days.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base, and anchor into structural concrete substrate.
6. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
7. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

D. 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.

3.12 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
   b. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to 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.

   a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.

3.13 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

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C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.14 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. 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 to solid concrete. Limit cut depth to 3/4 inch. 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.

D. 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. 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 a 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 mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
6. 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.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Inspections:

1. Steel reinforcement placement.
2. Headed bolts and studs.
3. Verification of use of required design mixture.
4. Concrete placement, including conveying and depositing.
5. Curing procedures and maintenance of curing temperature.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the requirements of Section 014000 - Quality Requirements.

1. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
2. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
3. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
4. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION 03 30 00

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SECTION 03 41 00 - PRECAST STRUCTURAL CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Precast structural concrete.

B. Related Requirements:

1. Section 03 30 00 "Cast-in-Place Concrete" for concrete topping and placing connection anchors in concrete.
2. Bid Package #2 Section 05 12 00 "Structural Steel Framing" for furnishing and installing connections attached to structural-steel framing.
3. Bid Package #2 Section 05 50 00 "Metal Fabrications" for kickers and other miscellaneous steel shapes.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Shop Drawings:

1. Include member locations, plans, elevations, dimensions, shapes and sections, openings, support conditions, and types of reinforcement, including special reinforcement.
2. Detail fabrication and installation of precast structural concrete units, including connections at member ends and to adjoining construction.
3. Indicate joints, reveals, drips, chamfers, and extent and location of each surface finish.
4. Indicate separate face and backup mixture locations and thicknesses.
5. Indicate type, size, and length of welded connections by AWS standard symbols.
6. Detail loose and cast-in hardware, lifting and erection inserts, connections, and joints.
7. Indicate locations, tolerances, and details of anchorage devices to be embedded in or attached to structure or other construction.
8. Include and locate openings larger than 10 inches. Where additional structural support is required, include header design.
9. Indicate location of each precast structural concrete unit by same identification mark placed on panel.
10. Indicate relationship of precast structural concrete units to adjacent materials.
11. Indicate estimated camber for precast floor slabs with concrete toppings.
12. Indicate shim sizes and grouting sequence.

13. If design modifications are proposed to meet performance requirements and field conditions, submit design calculations and Shop Drawings. Do not adversely affect the appearance, durability, or strength of units when modifying details or materials and maintain the general design concept.

B. Delegated-Design Submittal: For precast structural concrete indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Show precast structural concrete unit types, connections, types of reinforcement, including special reinforcement, and concrete cover on reinforcement. Indicate location, type, magnitude, and direction of loads imposed on the building structural frame from precast structural concrete.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control and special inspection reports.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm that assumes responsibility for engineering precast structural concrete units to comply with performance requirements. Responsibility includes preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

1. Designated as a PCI-certified plant as follows:

a. Group C, Category C2 - Prestressed Hollowcore and Repetitively Produced Products.

2. Fabricator is located within 500 miles of Project site.

B. Installer Qualifications: A precast concrete erector qualified and designated by PCI's Certificate of Compliance, to erect Category S1 - Simple Structural Systems.

C. Installer Qualifications: An experienced precast concrete erector who has retained a "PCI-Certified Field Auditor" to conduct a field audit of a project installed by erector in Category S1 - Simple Structural Systems and who can produce an Erectors' Post Audit Declaration, according to PCI MNL 127, "PCI Erector's Manual - Standards and Guidelines for the Erection of Precast Concrete Products."

D. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

E. Quality-Control Standard: For manufacturing procedures, testing requirements, and quality-control recommendations for types of units required, comply with PCI MNL 116, "Manual for Quality Control for Plants and Production of Structural Precast Concrete Products."

F. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.4/D1.4M, "Structural Welding Code - Reinforcing Steel."

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1.7 COORDINATION

A. Furnish loose connection hardware and anchorage items to be embedded in or attached to other construction before starting that Work. Provide locations, setting diagrams, templates, instructions, and directions, as required, for installation.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Support units during shipment on nonstaining shock-absorbing material in same position as during storage.

B. Store units with adequate bracing and protect units to prevent contact with soil, to prevent staining, and to prevent cracking, distortion, warping or other physical damage.

1. Store units with dunnage across full width of each bearing point unless otherwise indicated.
2. Place adequate dunnage of even thickness between each unit.
3. Place stored units so identification marks are clearly visible, and units can be inspected.

C. Handle and transport units in a manner that avoids excessive stresses that cause cracking or damage.

D. Lift and support units only at designated points indicated on Shop Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design precast structural concrete units.

B. Design Standards: Comply with ACI 318 and with design recommendations in PCI MNL 120, "PCI Design Handbook - Precast and Prestressed Concrete," applicable to types of precast structural concrete units indicated.

C. Fire-Resistance Calculations: Where indicated on Drawings, provide precast structural concrete units whose fire resistance meets prescriptive requirements of authorities having jurisdiction or has been calculated according to ACI 216.1 and/or PCI MNL 124, "Design for Fire Resistance of Precast Prestressed Concrete," and is acceptable to authorities having jurisdiction.

D. Structural Performance: Precast structural concrete units and connections shall withstand design loads indicated within limits and under conditions indicated.

2.2 MOLD MATERIALS

A. Molds: Rigid, dimensionally stable, non-absorptive material, warp and buckle free, that provides continuous precast concrete surfaces within fabrication tolerances indicated; nonreactive with concrete and suitable for producing required finishes.

1. Mold-Release Agent: Commercially produced form-release agent that does not bond with, stain, or adversely affect precast concrete surfaces and does not impair subsequent surface or joint treatments of precast concrete.

2.3 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from as-drawn steel wire into flat sheets.

C. Supports: Suspend reinforcement from back of mold or use bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place according to PCI MNL 116.

2.4 PRESTRESSING TENDONS

A. Pretensioning Strand: ASTM A 416/A 416M, Grade 250 or Grade 270, uncoated, seven-wire or ASTM A 886/A 886M, Grade 270, indented, seven-wire, low-relaxation strand.

2.5 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type I or Type III, gray, unless otherwise indicated.

B. Supplementary Cementitious Materials:

1. Fly Ash: ASTM C 618, Class C or F, with maximum loss on ignition of 3 percent.

C. Normal-Weight Aggregates: Except as modified by PCI MNL 116, ASTM C 33/C 33M, with coarse aggregates complying with Class 4M. Stockpile fine and coarse aggregates for each type of exposed finish from a single source (pit or quarry) for Project.

D. Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 116.

E. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

F. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and to not contain calcium chloride, or more than 0.15 percent chloride ions or other salts by weight of admixture.

1. Water-Reducing Admixtures: ASTM C 494/C 494M, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
3. Corrosion-Inhibiting Admixture: ASTM C 1582/C 1582M.

2.6 STEEL CONNECTION MATERIALS

A. Carbon-Steel Shapes and Plates: ASTM A 36/A 36M.

B. Carbon-Steel-Headed Studs: ASTM A 108, Grade 1010 through 1020, cold finished, AWS D1.1/D1.1M, Type A or B, with arc shields and with minimum mechanical properties of PCI MNL 116.

C. Carbon-Steel Plate: ASTM A 283/A 283M, Grade C.

D. Deformed-Steel Wire or Bar Anchors: ASTM A 496/A 496M or ASTM A 706/A 706M.

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E. Carbon-Steel Bolts and Studs: ASTM A 307, Grade A; carbon-steel, hex-head bolts and studs; carbon-steel nuts, ASTM A 563; and flat, unhardened steel washers, ASTM F 844.

F. Welding Electrodes: Comply with AWS standards.

G. Precast Accessories: Provide clips, hangers, plastic or steel shims, and other accessories required to install precast structural concrete units.

2.7 BEARING PADS

A. Provide bearing pads for precast structural concrete units as recommended by precast fabricator for application.

2.8 GROUT MATERIALS

A. Sand-Cement Grout: Portland cement, ASTM C 150/C 150M, Type I, and clean, natural sand, ASTM C 144 or ASTM C 404. Mix at ratio of 1 part cement to 2-1/2 to 3 parts sand, by volume, with minimum water required for placement and hydration. Water-soluble chloride ion content less than 0.06 percent by weight of cement when tested according to ASTM C 1218/C 1218M.

2.9 CONCRETE MIXTURES

A. Prepare design mixtures for each type of precast concrete required.

1. Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
2. Limit use of fly ash to 20 percent replacement of portland cement by weight.

B. Design mixtures may be prepared by a qualified independent testing agency or by qualified precast plant personnel at precast structural concrete fabricator's option.

C. Limit water-soluble chloride ions to maximum percentage by weight of cement permitted by ACI 318 or PCI MNL 116 when tested according to ASTM C 1218/C 1218M.

D. Normal-Weight Concrete Mixtures: Proportion mixture by either laboratory trial batch or field test data methods according to ACI 211.1, with materials to be used on Project, to provide normal-weight concrete with the following properties:

1. Compressive Strength (28 Days): 5000 psi.
2. Maximum Water-Cementitious Materials Ratio: 0.45.

E. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content complying with PCI MNL 116.

F. When included in design mixtures, add other admixtures to concrete mixtures according to manufacturer's written instructions.

G. Concrete Mix Adjustments: Concrete mix design adjustments may be proposed if characteristics of materials, Project conditions, weather, test results, or other circumstances warrant.

2.10 MOLD FABRICATION

A. Molds: Accurately construct molds, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes and for prestressing and detensioning operations. Coat contact surfaces of molds with release agent before reinforcement is placed. Avoid contamination of reinforcement and prestressing tendons by release agent.

B. Maintain molds to provide completed precast structural concrete units of shapes, lines, and dimensions indicated, within fabrication tolerances specified.

2.11 FABRICATION

A. Cast-in Anchors, Inserts, Plates, Angles, and Other Anchorage Hardware: Fabricate anchorage hardware with sufficient anchorage and embedment to comply with design requirements. Accurately position for attachment of loose hardware, and secure in place during precasting operations. Locate anchorage hardware where it does not affect position of main reinforcement or concrete placement.

1. Weld-headed studs and deformed bar anchors used for anchorage according to AWS D1.1/D1.1M and AWS C5.4, "Recommended Practices for Stud Welding."

B. Furnish loose hardware items including steel plates, clip angles, seat angles, anchors, dowels, cramps, hangers, and other hardware shapes for securing precast structural concrete units to supporting and adjacent construction.

C. Cast-in reglets, slots, holes, and other accessories in precast structural concrete units as indicated on the Contract Drawings.

D. Cast-in openings larger than 10 inches in any dimension. Do not drill or cut openings or prestressing strand without Architect's approval.

E. Reinforcement: Comply with recommendations in PCI MNL 116 for fabricating, placing, and supporting reinforcement.

1. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete. When damage to epoxy-coated reinforcement exceeds limits specified in ASTM A 775/A 775M, repair with patching material compatible with coating material and epoxy coat bar ends after cutting.
2. Accurately position, support, and secure reinforcement against displacement during concrete-placement and consolidation operations. Completely conceal support devices to prevent exposure on finished surfaces.
3. Place reinforcing steel and prestressing strand to maintain at least 3/4-inch minimum concrete cover. Increase cover requirements for reinforcing steel to 1-1/2 inches when units are exposed to corrosive environment or severe exposure conditions. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete. Direct wire tie ends away from finished, exposed concrete surfaces.
4. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh spacing and wire tie laps, where required by design. Offset laps of adjoining widths to prevent continuous laps in either direction.

F. Reinforce precast structural concrete units to resist handling, transportation, and erection stresses and specified in-place loads.

G. Prestress tendons for precast structural concrete units by either pretensioning or post-tensioning methods. Comply with PCI MNL 116.

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1. Delay detensioning or post-tensioning of precast, prestressed structural concrete units until concrete has reached its indicated minimum design release compressive strength as established by test cylinders cured under same conditions as concrete unit.
2. Detension pretensioned tendons either by gradually releasing tensioning jacks or by heat cutting tendons, using a sequence and pattern to prevent shock or unbalanced loading.
3. If concrete has been heat cured, detension while concrete is still warm and moist to avoid dimensional changes that may cause cracking or undesirable stresses.
4. Protect strand ends and anchorages with bituminous, zinc-rich, or epoxy paint to avoid corrosion and possible rust spots.

H. Comply with requirements in PCI MNL 116 and in this Section for measuring, mixing, transporting, and placing concrete. After concrete batching, no additional water may be added.

I. Place concrete in a continuous operation to prevent cold joints or planes of weakness from forming in precast concrete units.

J. Thoroughly consolidate placed concrete by vibration without dislocating or damaging reinforcement and built-in items, and minimize pour lines, honeycombing, or entrapped air voids on surfaces. Use equipment and procedures complying with PCI MNL 116.

1. Place self-consolidating concrete without vibration according to PCI TR-6, "Interim Guidelines for the Use of Self-Consolidating Concrete in Precast/Prestressed Concrete Institute Member Plants." Ensure adequate bond between face and backup concrete, if used.

K. Comply with PCI MNL 116 procedures for hot- and cold-weather concrete placement.

L. Identify pickup points of precast structural concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint or permanently mark casting date on each precast structural concrete unit on a surface that does not show in finished structure.

M. Cure concrete, according to requirements in PCI MNL 116, by moisture retention without heat or by accelerated heat curing using live steam or radiant heat and moisture. Cure units until compressive strength is high enough to ensure that stripping does not have an effect on performance or appearance of final product.

N. Discard and replace precast structural concrete units that do not comply with requirements, including structural, manufacturing tolerance, and appearance, unless repairs meet requirements in PCI MNL 116 and meet Architect's approval.

2.12 FABRICATION TOLERANCES

A. Fabricate precast structural concrete units to shapes, lines, and dimensions indicated so each finished unit complies with PCI MNL 116 product dimension tolerances as well as position tolerances for cast-in items.

2.13 COMMERCIAL FINISHES

A. Standard Grade: Normal plant-run finish produced in molds that impart a smooth finish to concrete. Surface holes smaller than 1/2 inch caused by air bubbles, normal color variations, form joint marks, and minor chips and spalls are permitted. Fill air holes greater than 1/4 inch in width that occur more than once per 2 sq. in.. Major or unsightly imperfections, honeycombs, or structural defects are not permitted. Limit joint offsets to 1/8 inch.

B. Screed or float finish unformed surfaces. Strike off and consolidate concrete with vibrating screeds to a uniform finish. Hand screed at projections. Normal color variations, minor indentations, minor chips, and spalls are permitted. Major imperfections, honeycombing, or defects are not permitted.

C. Apply roughened surface finish according to ACI 318 to precast concrete units that receive concrete topping after installation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting structural frame or foundation and conditions for compliance with requirements for installation tolerances, bearing surface tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Do not install precast concrete units until supporting, cast-in-place concrete has attained minimum allowable design compressive strength and until supporting steel or other structure is structurally ready to receive loads from precast concrete units including non-shrink grouting of all structural steel column base plates.

3.2 INSTALLATION

A. Install clips, hangers, bearing pads, and other accessories required for connecting precast structural concrete units to supporting members and backup materials.

B. Erect precast structural concrete level, plumb, and square within specified allowable tolerances. Provide temporary structural framing, shoring, and bracing as required to maintain position, stability, and alignment of units until permanent connections are complete.

1. Install temporary steel or plastic spacing shims or bearing pads as precast structural concrete units are being erected. Tack weld steel shims to each other to prevent shims from separating.
2. Maintain horizontal and vertical joint alignment and uniform joint width as erection progresses.
3. Remove projecting lifting devices and use plastic patch caps or sand-cement grout to fill voids within recessed lifting devices flush with surface of adjacent precast surfaces when recess is exposed.
4. For hollow-core slab voids used as electrical raceways or mechanical ducts, align voids between units and tape butt joint at end of slabs.

C. Connect precast structural concrete units in position by bolting, welding, grouting, or as otherwise indicated on Shop Drawings. Remove temporary shims, wedges, and spacers as soon as practical after connecting and grouting are completed.

1. Do not permit connections to disrupt continuity of roof flashing.

D. Field cutting of precast units is not permitted without approval of Architect.

E. Fasteners: Do not use drilled or powder-actuated fasteners for attaching accessory items to precast, prestressed concrete units.

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F. Welding: Comply with applicable requirements in AWS D1.1/D1.1M and AWS D1.4/D1.4M for welding, welding electrodes, appearance, quality of welds, and methods used in correcting welding work.

1. Protect precast structural concrete units and bearing pads from damage by field welding or cutting operations, and provide noncombustible shields as required.
2. Clean weld-affected steel surfaces with chipping hammer followed by brushing, and apply a minimum 4.0-mil- thick coat of galvanized repair paint to galvanized surfaces according to ASTM A 780/A 780M.
3. Clean weld-affected steel surfaces with chipping hammer followed by brushing, and reprime damaged painted surfaces.
4. Visually inspect welds and remove, reweld, or repair incomplete and defective welds.

G. At bolted connections, use lock washers, tack welding, or other approved means to prevent loosening of nuts after final adjustment.

1. Where slotted connections are used, verify bolt position and tightness. For sliding connections, properly secure bolt but allow bolt to move within connection slot.
2. For slip-critical connections, use one of the following methods to assure proper bolt pretension:

   a. Turn-of-Nut: According to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
   b. Calibrated Wrench: According to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
   c. Twist-off Tension Control Bolt: ASTM F 1852.
   d. Direct-Tension Control Bolt: ASTM F 1852.

3. For slip-critical connections, use method and inspection procedure approved by Architect and coordinated with inspection agency.

H. Grouting or Dry-Packing Connections and Joints: Grout connections and joints and open spaces at keyways, connections, and joints where required or indicated on Shop Drawings. Retain flowable grout in place until hard enough to support itself. Alternatively, pack spaces with stiff dry-pack grout material, tamping until voids are completely filled.

1. Place grout and finish smooth, level, and plumb with adjacent concrete surfaces.
2. Fill joints completely without seepage to other surfaces.
3. Trowel top of grout joints on roofs smooth and uniform. Finish transitions between different surface levels not steeper than 1 to 12.
4. Place grout end cap or dam in voids at ends of hollow-core slabs.
5. Promptly remove grout material from exposed surfaces before it affects finishes or hardens.
6. Keep grouted joints damp for not less than 24 hours after initial set.
7. Provide dapped ends of plank as required for clearance at upset steel beams.
8. Shop or field notch around columns, walls, or base plates as required for erection.

3.3 ERECTION TOLERANCES

A. Erect precast structural concrete units level, plumb, square, and in alignment without exceeding the noncumulative erection tolerances of PCI MNL 135.

B. Minimize variations between adjacent slab members by jacking, loading, or other method recommended by fabricator and approved by Architect.

3.4 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Erection of precast structural concrete members.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Visually inspect field welds and test according to ASTM E 165 or to ASTM E 709 and ASTM E 1444. High-strength bolted connections are subject to inspections.

D. Testing agency will report test results promptly and in writing to Contractor and Architect.

E. Repair or remove and replace work where tests and inspections indicate that it does not comply with specified requirements.

F. Additional testing and inspecting, at Contractor's expense, shall be performed to determine compliance of replaced or additional work with specified requirements.

G. Prepare test and inspection reports.

3.5 REPAIRS

A. Repair precast structural concrete units if permitted by Architect.

1. Repairs may be permitted if structural adequacy, serviceability, durability, and appearance of units have not been impaired.

B. Mix patching materials and repair units so cured patches blend with color, texture, and uniformity of adjacent exposed surfaces and show no apparent line of demarcation between original and repaired work, when viewed in typical daylight illumination from a distance of 20 feet.

C. Prepare and repair damaged galvanized coatings with galvanizing repair paint according to ASTM A 780/A 780M.

D. Wire brush, clean, and paint damaged prime-painted components with same type of shop primer.

E. Remove and replace damaged precast structural concrete units that cannot be repaired or when repairs do not comply with requirements as determined by Architect.

3.6 CLEANING

A. Clean mortar, plaster, fireproofing, weld slag, and other deleterious material from concrete surfaces and adjacent materials immediately.

B. Clean exposed surfaces of precast concrete units after erection and completion of joint treatment to remove weld marks, other markings, dirt, and stains.

1. Perform cleaning procedures, if necessary, according to precast concrete fabricator's written recommendations. Protect other work from staining or damage due to cleaning operations.
2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes or damage adjacent materials.

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END OF SECTION 03 41 00

SECTION 31 05 00 - COMMON WORK RESULTS FOR EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section provides information common to two or more technical site work specification sections or items that are of a general nature, and not included in other sections. This section applies to ALL site work, as applicable. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- Referenced Organizations
- Referenced Documents
- Quality Assurance
- Safety
- Permits
- Construction Limits
- Work by Others
- Submittals
- Off Site Storage
- Codes
- Certificates and Inspections

PART 2 - MATERIALS
- Barricades, Signs, and Warning Devices
- Temporary Plastic Barrier Fencing

PART 3 - EXECUTION
- Maintenance of Site Access/Egress
- Continuity of Existing Traffic/Parking and Traffic Control
- Protection and Continuity of Existing Utilities
- Protection of Existing Work and Facilities
- Stormwater/Excavation Water Management

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 00 31 32 - Geotechnical Data.
2. Section 31 20 00 – Earthmoving.
3. Section 31 22 16.15 - Subgrade Preparation.
4. Section 31 25 00 – Erosion Control.

1.3 REFERENCED ORGANIZATIONS

A. Applicable provisions of Division 1 shall govern all work under this section.

B. Abbreviations of organizations referenced in these specifications are as follows:

AASHTO	American Association of State Highway and Transportation Officials
ACPA	American Concrete Pipe Association
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
AWS	American Welding Society
FHA	Federal Highway Administration
EPA	Environmental Protection Agency
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
STI	Steel Tank Institute
UL	Underwriters Laboratories Inc.
WDNR	State of Wisconsin Department of Natural Resources
WISDOT	State of Wisconsin Department of Transportation

1.4 REFERENCED DOCUMENTS

A. Where reference is made to the “Construction Specifications”, it shall be construed to mean the pertinent section of the City of New Richmond, applicable Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

B. Where reference is made to the “Standard Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

C. Where reference is made to the “State Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

D. Where reference is made to the “Geotechnical Report”, it shall mean the report(s) provided in Section 00 31 32 - Geotechnical Data.

1.5 QUALITY ASSURANCE

A. Provide materials and products as required by individual specification sections. Refer to General Conditions of the Contract regarding substitutions.

B. Provide quality assurance testing and reporting as required by individual specification sections.

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1.6 SAFETY

A. Contractor is solely responsible for worksite safety.

B. Perform all work in accordance with applicable OSHA, state and local safety standards.

C. Contact Diggers Hotline at 1-800-242-8511 in accordance with statutory requirements. Request that non-member utilities and private utilities be located by the appropriate parties.

1.7 PERMITS

A. Unless otherwise noted in the Contract Documents, Developer shall be responsible for obtaining and paying for all permits necessary to complete the work.

1.8 CONSTRUCTION LIMITS

A. Construction Limits are defined by lines denoted as Construction Fencing/Limits of Disturbance as indicated on the drawings. In the absence of such a designation on the drawings, confine work to the minimum area reasonably necessary to undertake the work as determined by the Owner’s Construction Representative. In no case shall construction activities extend beyond property lines or construction easements.

B. The Contractor shall restore all disturbed areas in accordance with the drawings and specifications. If plans and specifications do not address restoration of specific areas, these areas will be restored to pre-construction conditions as approved by the Owner’s Construction Representative.

C. Coordinate work under this project with work by Owner’s Construction Representative and other contractors providing separate work on the site related to other contracts.

1.9 SUBMITTALS

A. Refer also to Section GC - General Conditions of the Contract and Division 1.

B. Submit manufacturer's shop drawings, product data, samples, substitutions and operation and maintenance (O&M) data for approval as required by individual specification sections.

C. Unless otherwise noted, provide 3 copies of each submittal. Submit to project architect/engineer (A/E) unless otherwise directed by Owner’s Construction Representative at the Pre-Construction Meeting.

1.10 OFF-SITE STORAGE

A. Refer to Division 01.

B. In general, the payments for materials stored off site will only be considered in instances where there is limited space available for storage on the site. Prior approval by the Owner’s Construction Representative, together with the execution of a Storage Agreement will be required.

1.11 CODES

A. Comply with the requirements of all applicable, local, state and federal codes.

1.12 CERTIFICATIONS AND INSPECTIONS

A. Refer to Section GC - General Conditions.

B. Obtain and pay for all required sampling, testing, inspections, and certifications except those expressly listed as provided by the A/E or other third party in the Contract Documents. Deliver originals of certificates and documents to the Owner's Construction Representative within 3 days; provide copies to the A/E. Include copies of the certifications and documents in the O&M Manual.

PART 2 - MATERIALS

2.1 BARRICADES, SIGNS, AND WARNING DEVICES

A. Traffic barricades, traffic signs, and warning devices shall meet the requirements of current applicable OSHA standards and MUTCD.

2.2 TEMPORARY PLASTIC BARRIER FENCING

A. UV stabilized high-density polyethylene barrier fence free of holes tears and other defects. Provide 5-foot tall fence in diamond or rectangular pattern. Fencing shall be "safety orange" color, unless otherwise noted.

B. Posts for temporary plastic barrier fencing shall be 5 feet tall, minimum 12 gauge, painted metal posts.

PART 3 - EXECUTION

3.1 MAINTENANCE OF SITE ACCESS/EGRESS

A. Unless otherwise shown or directed, maintain existing access and egress to the facility throughout construction. Contact the City of New Richmond, St. Croix County or WisDOT prior to any construction activities to obtain directives for preferred access to the site. Maintain ANSI A117 compliant access for disabled persons, delivery access, emergency vehicle access, and emergency egress. Do not interrupt access and egress without prior written approval from the Owner's Construction Representative.

3.2 CONTINUITY OF EXISTING TRAFFIC/PARKING AND TRAFFIC CONTROL

A. Refer also to Section GR - General Requirements.

B. Do not interrupt or change existing traffic, delivery, or parking without prior written approval from the Owner's Construction Representative. When interruption is required, coordinate schedule with the Owner agency to minimize disruptions. When working in public right-of-way, obtain all necessary approvals and permits from applicable municipalities, County and WISDOT not provided by the Owner.

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C. When Contractor's activities impede or obstruct traffic flow, Contractor shall provide traffic control devices, signs and flaggers in accordance with other Contract Documents and current applicable OSHA standards and MUTCD.

3.3 PROTECTION AND CONTINUITY OF EXISTING UTILITIES

A. Verify the locations of any water, drainage, gas, sewer, electric, drainage, gas, sewer, electric, telephone/communication, fuel, steam lines or other utilities and site features which may be encountered in any excavations or other sitework. All lines shall be properly underpinned and supported to avoid disruption of service.

B. Do not interrupt or change existing utilities without prior written approval from the Owner's Construction Representative, affected utilities and users. Notify all users impacted by outages a minimum of 48 hours in advance of outage. Notification shall be provided in writing and describe the nature and duration of outages and provide the name and number of Contractor's foreman or other contact.

C. Any service connections encountered which are to be removed shall be cut off at the limits of the excavation and capped in accordance with the requirements of applicable codes and any specifications governing such removals.

3.4 PROTECTION OF EXISTING WORK AND FACILITIES

A. Verify the locations of, and protect, any signs, paved surfaces, buildings, structures, landscaping, streetlights, utilities, and all other such facilities that may be encountered or interfered with during the progress of the work. Take measures necessary to safeguard all existing work and facilities that are outside the limits of the work or items that are within the construction limits but are intended to remain. Report any damage to existing facilities to the Owner's Construction Representative immediately. Correct and pay for all damages.

3.5 STORMWATER/EXCAVATION WATER MANAGEMENT

A. Control grading around structures, pitch ground to prevent water running into excavated areas.

B. Pits, trenches within building lines and other excavations shall be maintained free of water.

C. Provide trenching, pumping, other facilities required.

D. Notify Owner's Construction Representative in the event that springs or running water are encountered in excavation; provide discharge by trenches, drains, pumping to point outside of excavation. Provide information to Owner's Construction Representative of points and areas that water will be discharged. At the Owner's Construction Representative's option, the Contractor shall drain the spring to the storm sewer system by the use of field tile.

E. Be responsible for control measures to prevent damage from flooding, erosion, and sedimentation to on-site and off-site areas.

END OF SECTION 31 05 00

SECTION 31 10 00 - SITE CLEARING AND GRUBBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Removing existing vegetation.
2. Clearing and grubbing.
3. Stripping and stockpiling topsoil.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 00 31 32 - Geotechnical Data
2. Section 02 20 00 – General Sitework Requirements
3. Section 31 25 00 – Erosion Control

1.3 REFERENCES

A. Where reference is made to the “Construction Specifications”, it shall be construed to mean the pertinent section of the City of New Richmond, Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

B. Where reference is made to the “Standard Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

C. Where reference is made to the “State Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

D. Where reference is made to the “Geotechnical Report”, it shall be construed to mean the geotechnical investigation(s) in Section 00 31 32 – Geotechnical Data.

1.4 DEFINITIONS

A. Clearing:

Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including down timber, snags, brush, and rubbish occurring in the areas to be cleared.

B. Grubbing:

Grubbing shall consist of the removal and disposal of stumps, roots larger than 3 inches in diameter, and matted roots from the designated grubbing areas.

1.5 SUBMITTALS

A. The following shall be submitted:

1. Materials Other Than Saleable Timber.
2. Written permission to dispose of such products on private property shall be filed with the Owner.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 CLEARING

A. Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing.

B. Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 1-1/2 inches or more in diameter and shall be trimmed of all branches below the heights indicated or directed.

1. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branches.
2. Cuts more than 1-1/2 inches in diameter shall be painted with an approved tree-wound paint.
3. Trees and vegetation to be left standing shall be protected from damage incidental to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require.

C. Clearing shall also include the removal and disposal of structures that obtrude, encroach upon, or otherwise obstruct the work.

D. Disposal of Elm Trees shall be in accordance with local regulations

3.2 GRUBBING

A. Remove material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, to a depth of not less than 18 inches below the original surface level of the ground or 18 inches below the proposed finished grade, whichever is lower, in areas indicated to be grubbed and in areas indicated as construction areas under this contract.

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B. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform to the original adjacent surface of the ground.

3.3 TREE REMOVAL

A. Where indicated or directed, individual trees and stumps that are designated shall be removed from areas outside those areas designated for clearing and grubbing

B. This work shall include the felling of such trees and the removal of their stumps and roots as specified in paragraph GRUBBING.

C. Dispose of materials as specified in paragraph CLEAN UP.

3.4 TOPSOIL

A. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material.

1. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping.
2. Stockpile topsoil in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water.

3.5 CLEAN UP

A. Logs, stumps, roots, brush, rotten wood, and other refuse from the clearing and grubbing operations, shall be disposed of outside the limits of the Project at the Contractor's responsibility, except when otherwise approved in writing

B. All waste and debris shall be disposed of in compliance with State and Local regulations, within five days of being cut or removed.

C. Disposal of Elm Trees shall be in accordance with local regulations.

D. Submit the location of any disposal facility located outside the limits of the Project to the Engineer prior to removal from the project site.

E. Submit documentation from the disposal facility to verify that it is licensed to accept the material.

F. No material shall be removed from the project site without prior approval from the Owner.

G. Burning as a means of disposal is prohibited.

END OF SECTION 31 10 00

SECTION 31 13 16 - TREE PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Protection and trimming of existing trees that interfere with, or are affected by execution of the Work, whether temporary or permanent construction related sections.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 02 20 00 – General Sitework Requirements.
2. Section 31 10 00 – Site Clearing.
3. Section 31 20 00 – Earthmoving.
4. Section 31 25 00 – Erosion Control.
5. Section 32 91 19 – Topsoil/Select Fill Materials and Application.

1.3 DEFINITIONS

A. Tree Protection Zone: Area surrounding individual trees or groups of trees to remain during construction, and defined by the area encompassing 1.5 times the tree caliper at 4.5 feet above the ground or the perimeter drip line unless otherwise indicated by arborist.

1.4 REFERENCE STANDARDS

A. *American Standards for Nursery Stock, ANSI Z60.1*, current edition. American Association of Nurserymen, Inc.

B. *Standardized Plant Names, Second Edition* (1942). American Joint Committee on Horticulture Nomenclature, Horace McFarland Company, Harrisburg, PA.

C. *American National Standard for Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance-Standard Practices, ANSI A300*, current edition.

1.5 QUALITY ASSURANCE

A. An experienced tree service firm that has successfully completed tree protection similar to that required for this Project.

B. Preinstallation Conference: Conduct conference at Project site to comply with requirements and to identify boundary of tree protection fencing.

1.6 PLANTING SCHEDULE

A. All plants shall be guaranteed to be in healthy and flourishing condition for one full year after installation and acceptance by the Owner.

B. Plants not thriving shall be replaced at no cost to the Owner. The Contractor may suggest substitutions for replacement plants.

C. Replacement plants shall be guaranteed for one year after installation.

D. At any time during the guarantee period, the Contractor shall remove or replace, without cost to the Owner and within a specified planting period, all plants not in a healthy and flourish conditions as determined by the Owner.

1.7 MAINTENANCE

A. The Contractor shall maintain plantings and lawn for at least a period of 30 days, or until final acceptance from the Owner. The Contactor is responsible for adequately watering plants and lawn during this 30 day period.

B. Fertilizing: Any and all chemical applications are to be performed in accordance with current federal, state and local laws, through EPA-registered materials and application techniques, and performed under the supervision of a licensed certified applicator. Apply fertilizer to planted areas at the specified rate, and as per manufacturer's recommendations.

C. Watering: All plant materials installed under the contract shall be watered within the first 24 hours of initial planting and not less than twice weekly until final acceptance by Owner. Water used shall be of sufficient quality for irrigation and free of materials harmful to plant growth.

D. Pesticide: Any use of pesticides during the contracted maintenance period, as determined by the Owner, shall utilize the minimum amount of approved pesticide needed to control pests on plant materials installed under the contract. Pesticide applications are to be performed in accordance with current federal, state and local laws, through EPA-registered materials and application techniques, and performed under the supervision of a licensed certified applicator. Apply at the specified rate, and as per manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Mulch: Shredded hardwood bark mulch, free of material detrimental to healthy plant growth. Mulch shall be finely shredded, weed free, dye-free mulch

B. Topsoil: Refer to Topsoil/Select Fill Materials and Application Section.

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PART 3 - EXECUTION

3.1 PREPARATION

A. Temporary Fencing: Install temporary fencing around tree protection zones to protect trees identified on plan that have been indicated as existing trees to remain. Temporary fencing shall be installed around dripline as much as possible. Maintain temporary fence and remove when construction is complete.

B. Protect the root systems of existing trees to remain from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

C. Mulch areas inside tree protection zones and within drip line of trees to remain and other areas indicated.

D. Apply 2-inch average thickness of mulch. Do not place mulch within 6 inches of tree trunks.

E. Do not store construction materials, debris, or excavated material inside protection zones. Do not permit vehicles or foot traffic within tree protection zones; prevent soil compaction over root systems. Do not allow fill on trees roots inside the tree protection zone. Note: As little as two inches can have deleterious long-term effects on tree health. If fill or grade changes must occur, a serious look at whether or not the tree should be left must occur.

F. Maintain tree protection zones free of weeds and trash.

G. Do not allow fires within tree protection zone.

3.2 EXCAVATION

A. Install shoring or other protective support systems to minimize sloping or benching of excavations.

B. Do not excavate within tree protection zones unless necessary to install stormwater management facilities. If excavation is required, temporary fencing shall be adjusted to the furthest extent of grading away from the trunk.

C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Cut roots in the area to be excavated with a saw to ensure a clean cut. Tom or ripped roots must be trimmed.

D. Redirect roots in backfill areas where possible. Note: if encountering large, main lateral roots an assessment of future tree stability must be made. Expose roots beyond excavation limits as required to bed and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction.

E. Do not allow exposed roots to dry out before placing permanent backfill. Provide a temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

F. Where utility trenches are required within tree protection zones, tunnel under or around roots by drilling auger boring, pipe jacking, or digging by hand.

G. Root Pruning: Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots with sharp pruning instruments, do not break or chop.

3.3 REGRADING

A. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade away beyond tree protection zones. Maintain existing grades within tree protection zones.

B. Root Pruning: Prune tree roots exposed during grade lowering. Do not cut main lateral roots or taproots; cut only smaller roots. Cur roots with sharp pruning instruments; do not break or chop.

C. Minor Fill: Where existing grade is 1 inch or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

3.4 DISPOSAL OF WASTE MATERIALS

A. Burning is not permitted.

B. Disposal: Remove excess excavated material and displaced trees from Owner’s property.

END OF SECTION 31 13 16

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SECTION 31 20 00 - EARTHMOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Stripping of topsoil and stockpiling.
2. Excavation, preparation, backfilling and compaction of subgrades per Geotechnical Report.
3. Cutting, filling, grading and compaction for drives, walks, roads and parking sub-grade.
4. Cutting filling, grading and compaction for landscaping area sub-grade ready for topsoil.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 00 31 32 - Geotechnical Data.
2. Section 02 20 00 - General Sitework Requirements.
3. Section 31 10 00 – Site Clearing.
4. Section 31 20 16 – Building Earthwork.
5. Section 31 25 00 – Erosion Control.

1.3 STANDARD SPECIFICATIONS

A. Where reference is made to the “Construction Specifications”, it shall be construed to mean the pertinent section of the City of New Richmond, Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

B. Where reference is made to the “Standard Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

C. Where reference is made to the “State Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

D. Where reference is made to the “Geotechnical Report”, it shall be construed to mean the geotechnical investigation(s) found in Section 00 31 32 - Geotechnical Data.

E. St. Croix County work in the right way permit requirements.

F. All construction of public facilities and/or work within public lands or rights of way shall conform to the requirements and conditions of the Standard Specifications stated and those stated above with the most stringent applying.

G. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

1. ASTM International (ASTM)
2. ASTM D422 - Particle Size Analysis of Soil
3. ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN.m/m3))
4. ASTM D1557 - Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 Kn.m/m3))
5. ASTM D2487 - Classification of Soils for Engineering Purposes (Unified Soil Classification System)
6. ASTM D2488 - Description and Identification of Soils (Visual-Manual Procedures)
7. ASTM D4318 - Liquid Limit, Plastic Limit, and Plasticity Index of Soils
8. ASTM D6938 - In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
9. American Association of State Highway and Transportation Officials (AASHTO)
10. AASHTO T 88 - Particle Size Analysis of Soils
11. National Fire Protection Association (NFPA)
12. NFPA 70 - National Electrical Code
13. American Water Works Association (AWWA)
14. AWWA C200 - Standard for Steel Water Pipe - 6 In. (150 mm) and Larger
15. AWWA C206 - Field Welding of Steel Water Pipe

1.4 SUBMITTALS

A. Submit documentation of materials meeting the required specifications.

B. The Owner shall provide testing agency do all testing. The Contractor shall coordinate the tests with the Owner's testing agency.

1.5 DEFINITIONS

A. Backfill: Soil materials used to fill an excavation.

B. Base Course: Course place between the sub-grade and the hot-mix asphalt, concrete pavement, walks or curbs.

C. Breaker run stone: Meet the requirements defined in Wisconsin Department of Transportation (WisDOT) Section 311.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Excavation: Removal of material encountered above the subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Owner's Project Representative. Authorized additional excavation and replacement material will be paid for according to Contract provisions.

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2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction of Owner's Project Representative. Unauthorized excavation, as well as remedial work directed by the Owner's site representative, shall be without additional compensation.

F. Fill: Soil materials used to raise existing grades.

G. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

H. Topsoil: Excavated on-site material, free of large tree roots, rocks, subsoil, debris, and weeds.

I. Satisfactory Materials:

1. Satisfactory Materials: ASTM D2487 soil classification groups GW, GP, GM, SW, SP, SM, ML, CL, CH, MH, SC, GC, or a combination of these group symbols.
2. Fill material shall further conform to the plasticity index and liquid limits (PI and LL) specified in Paragraph FILLING hereinafter.
3. Satisfactory materials shall be free of rock or gravel larger than allowed for fill or backfill material as specified hereinafter or as shown on the drawings.
4. Satisfactory materials shall contain no debris, waste, frozen materials, vegetation, and other deleterious matter.
5. Unless specifically stated otherwise in "Foundation Subsurface Preparation" on the Drawings, the following table stipulates maximum allowable values for plasticity index (PI) and liquid limit (LL) of satisfactory materials to be used as fill in specified areas:

Location	PI	LL
Building area (below upper 4 feet)	20	50
Building area (upper 4 feet)	12	40
Areas outside the building pad including outparcels		
(Below upper 2 feet)	20	50
(Upper 2 feet, except for depth to receive topsoil)	15	40

(References to depth are to proposed subgrade elevations)

6. Unsatisfactory Materials: Materials which do not comply with the requirements for satisfactory materials are unsatisfactory.

a. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory materials which contains root and other organic matter or frozen material. The CTL shall be notified of any contaminated materials.
b. Unsatisfactory materials also include satisfactory materials not maintained within 2 percent of optimum moisture content at time of compaction.

1.6 CONTOURS (GRADE ELEVATIONS)

A. Contours indicated on drawings are the finished grade elevations. Contractor shall review all grade elevations before commencing to insure that proper slopes for drainage, slope for drives, walks, paving, etc., are maintained. If Contractor believes a deficiency is apparent, he shall notify the Owner's Project Representative for clarification.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: All materials shall conform to requirements of the Geotechnical Report.

B. Materials:

1. Fill and Backfill. Satisfactory materials excavated from the site.
2. Imported Fill Material: Satisfactory material provided from offsite borrow areas when sufficient satisfactory materials are not available from required excavations.
3. Trench Backfill: ASTM D2321 unless otherwise specified or shown on the drawings.
4. Building Sub-base Material: Sub-base for building and appurtenances slabs on ground is specified in Section 03 30 00 or 32 11 23 as applicable.
5. Bedding: Aggregate Type as indicated on the plans or naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
6. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.
7. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.
8. Topsoil: Topsoil shall consist of stripping material excavated from the site. Topsoil shall consist of organic surficial soil found in depth of not more than 6 inches. Topsoil shall be as further defined in Section 32 91 19 – Topsoil – Select Fill Materials and Application.

C. Where conflicts between this specification and the Geotechnical Report exist, requirements of the Geotechnical Report shall govern.

D. Source Quality Control:

1. Laboratory testing of materials proposed for use in the project shall be by the Contractor's independent testing laboratory .The Contractor shall provide samples of material obtained off-site.
2. Perform California Bearing Ratio (CBR) or Limerock Bearing Ratio (LBR) tests in outparcels and areas to receive pavement for each type of material that is imported from off site. CBR or LBR value shall be equal to or above pavement design subgrade CBR or LBR value indicated on Construction Drawings.
3. Following tests shall be performed on each type of on site or imported soil material used as compacted fill:

   a. Moisture and Density Relationship: ASTM D698 or ASTM D1557.
   b. Mechanical Analysis: AASHTO T88 or ASTM D422.
   c. Plasticity Index: ASTM D4318.

PART 3 - EXECUTION

3.1 GENERAL

A. General: All work shall be executed and conform to requirements of the Geotechnical Report.

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1. Where conflicts between this specification and the Geotechnical Report exist, requirements of the Geotechnical Report shall govern.

3.2 PREPARATION

A. Subgrades, fill material, and grading for pavement, ramps, sidewalks, and structures shall conform to the recommendations in the Geotechnical Report.

B. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

C. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

D. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 CLEARING AND GRUBBING

A. Limits of clearing and grubbing shall be areas which are affected by excavation and grading.

B. Refer to section 31 10 00 – Site Clearing and Grubbing.

C. Remove trees, stumps, roots, brush, other vegetation, debris, existing foundations, pavements, fences and other items which interfere with new construction.

D. Remove stumps, logs, roots, other organic material including existing structure occurring outside the structure excavation to depths below the following:

1. Walks, 24 inches
2. Roads and drives, 36 inches
3. Parking areas, 36 inches
4. Lawn areas, 12 inches
5. Concrete pads, 24 inches

E. Depressions within areas shall be filled and compacted as specified under Controlled Backfill.

F. Removal of existing trees which are to remain will not be permitted. Notify Owner's Project Representative if existing trees create a difficulty when grades are raised or lowered in excess of 12 inches.

3.4 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. All dewatering activities must meet all the requirements set forth in the WDNR Construction Site Erosion & Sediment Control Technical Standard 1061. The Contractor shall obtain any necessary permits for dewatering.

C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

D. Provide dewatering systems as required for excavations.

1. Design and provide dewatering system using accepted and professional methods consistent with current industry practice to eliminate water entering the excavation under hydrostatic head from the bottom or sides. Design system to prevent differential hydrostatic head, which would result in floating out soil particles in a manner, termed as a "quick" or "boiling" condition. System shall not be dependent solely upon sumps or pumping water from within the excavation where differential head would result in a quick condition, which would continue to worsen the integrity of the excavation's stability.
2. Provide dewatering system of sufficient size and capacity to prevent ground and surface water flow into the excavation and to allow Work to be installed in a dry condition.
3. Control, by acceptable means, all water regardless of source. Contractor shall be responsible for disposal of the water.
4. Control groundwater in a manner that preserves strength of foundation soils, does not cause instability or raveling of excavation slopes, and does not result in damage to existing structures. Where necessary, lower water level in advance of excavation utilizing wells, wellpoints, jet educators, or similar positive methods. The water level as measured by piezometers shall be maintained a minimum of 3 feet below prevailing excavation level.
5. Commence dewatering prior to any appearance of water in excavation and continue until Work is complete to the extent that no damage results from hydrostatic pressure, flotation, or other causes.
6. Open pumping with sumps and ditches will be allowed provided it does not result in boils, loss of fines, softening of the ground, or instability of slopes.
7. Install wells or wellpoints, if required, with suitable screens and filters so that continuous pumping of fines does not occur. Arrange discharge to facilitate collection of samples by the Owner. During normal pumping and upon development of wells, levels of fine sand or silt in the discharge water shall meet WDNR discharge standards.
8. Control grading around excavations to prevent surface water from flowing into excavation areas.
9. Designate and obtain the services of a qualified dewatering specialist to provide dewatering plan as may be necessary to complete the Work.
10. Contractor shall be responsible for the accuracy of the drawings, design data, and operational records required.
11. Contractor shall be responsible for the design, installation, operation, maintenance, and any failure of any component of the system

E. Maintaining Excavation in Dewatering Condition:

1. Dewatering shall be a continuous operation. Interruptions due to power outages or any other reason will not be permitted.
2. Continuously maintain excavation in a dry condition with positive dewatering methods during preparation of subgrade, installation of pipe, and construction of structures until the critical period of construction or backfill is completed to prevent damage of subgrade support, piping, structure, side slopes, or adjacent facilities from flotation or other hydrostatic pressure imbalance.
3. Provide standby equipment on site, installed, wired, and available for immediate operation if required to maintain dewatering on a continuous basis in the event any part of the system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, perform such work as may be required to restore damaged structures and foundation soils at no additional cost to Owner.
4. System maintenance shall include but not be limited to 24-hour supervision by personnel skilled in the operation, maintenance, and replacement of system components and any other work required to maintain excavation in dewatered condition.

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3.5 EXPLOSIVES

A. Explosives: Do not use explosives.

3.6 STRIPPING OF SITE

A. Strip the site in conformance with the requirements of the Geotechnical Report.

B. Strip those portions of the site which will occupy walks, roads, drives, parking areas and where grade changes are to be made, by a minimum of depth of topsoil indicated by the soils report plus additional soil as required to reach soil free of roots or organic debris subject to rotting and settling.

C. Stockpile reusable topsoil for use in finish grading and restoration. Reusable topsoil shall be fertile, friable agricultural soil capable of sustaining vigorous plant growth and suitable for growth of grass, neither excessively alkaline or acidic, free from subsoil, clay lumps, gravel, brush, objectionable weeds, litter, stones larger than 1 inch in diameter, and other material. Do not permit surplus topsoil to leave the project site until the finish grading is nearing completion or unless otherwise approved in writing by the Owner's Project Representative.

D. Do not excavate, grade or work topsoil in frozen or muddy conditions.

3.7 ROCK IN EXCAVATIONS

A. When rock as defined above is encountered before the proper subgrade is reached, work shall proceed as follows:

1. The excavation shall stop at this point and it shall be determined if such material is classified as rock.
2. Material classified as rock shall be removed to the lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:

    a. 24 inches outside of concrete forms.
    b. 6 inches outside of minimum required dimensions of concrete cast against grade.
    c. 6 inches beneath the bottom of concrete slabs on grade.

3.8 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavations shall be in conformance with the requirements of the Geotechnical Report.

B. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

3.9 SUBGRADE INSPECTION

A. Notify Owner's Project Representative when excavations have reached subgrade.

B. If Owner's Project Representative determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll shall be completed in accordance with Geotechnical Report as indicated under point 2 under Discussion and Recommendations.

D. Authorized additional excavation and replacement material will be paid for according to the Contract provisions.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Owner's Project Representative, without additional compensation.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust. Provide necessary erosion control devices as shown on the Erosion Control Plan.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 BACKFILL

A. Backfill shall be in conformance with the requirements of the Geotechnical Report.

B. Place and compact backfill in excavations promptly, but not before completing the following:

1. Removing trash and debris.
2. Removing deleterious materials.

3.12 FILL

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

C. Place and compact fill material in layers to required elevations per the Geotechnical Report.

D. Fill areas to contours and elevations shown on the Drawings with materials deemed satisfactory.

E. Place fills in continuous lifts specified herein.

F. Fill within proposed building subgrade, paving subgrade, and outparcel subgrades shall not contain rock or stone greater than 6 inches in any dimension.

G. Unless otherwise specified for rock fill, rock or stone less than 6-inches in largest dimension may be used in fill below structures, paving, outparcels, and graded areas, up to 24 inches below surface of proposed subgrade or finish grade of graded areas when mixed with satisfactory material. Rock or stone less than 2 inches in largest dimension may be used in fill within the upper 24 inches of proposed subgrade or finish grade of graded areas when mixed with satisfactory material.

H. Fill materials used in preparation of subgrade shall be placed in lifts or layers not to exceed 8 inches loose measure and compacted as specified hereinafter.

I. Material imported from off site shall have CBR or LBR value equal to or above pavement design subgrade CBR or LBR value indicated on the Developer's Drawings.

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J. Building area subgrade pad shall be that portion of site directly beneath and 5 feet beyond building and appurtenances, including limits of future building expansion areas as shown on the Developer's Drawings.

K. Prepare building area subgrade pad in strict accordance with "Foundation Subsurface Preparation" as shown on the Developer's Drawings. The Foundation Subsurface Preparation provisions shall take precedence over the provisions of this section whenever duplication or conflict occurs.

3.13 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.14 COMPACTION OF BACKFILLS AND FILLS

A. Place backfill and fill materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact as follows:

	Percent of Maximum Laboratory Density	
Location	ASTM D698	ASTM D1557
Subgrade and fill below foundations, slab-on-grade, and upper 12 inches of area to be paved	98	95
Subgrade and fill in all other areas	95	92

D. Maintain moisture content of not less than 1 percent below and not more than 2 percent above optimum moisture content of fill materials to attain required compaction density.

E. Exercise proper caution when compacting immediately over top of pipes or conduits. Water jetting or flooding is not permitted as method of compaction.

F. Corrective Measures for Non-Complying Compaction: Remove and recompact deficient areas until proper compaction is obtained. Continual failure areas shall be stabilized in accordance as directed by the Owner’s Construction Representative or Geotechnical Engineer at no additional cost to the Developer.

3.15 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.

2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch (25 mm)
2. Walks: Plus or minus 1/2 inch (13 mm)
3. Pavements: Plus or minus 1/2 inch (13 mm)

3.16 FINISH GRADING

A. Check grading of building subgrades by string line from grade stakes (blue tops) set at not more than 50-foot centers. Allowable tolerance shall be plus or minus 0.10 feet from plan grade. Provide engineering and field staking as necessary for verification of lines, grades, and elevations.

B. Grade areas where finish grade elevations or contours are indicated on the Drawings, other than paved areas, outparcels, and buildings, including excavated areas, filled and transition areas, and landscaped areas. Graded areas shall be uniform and smooth, free from rock, debris, or irregular surface changes. Ground surfaces shall vary uniformly between indicated elevations. Grade finished ditches to allow for proper drainage without ponding and in manner that will minimize erosion potential. For topsoil, sodding, and seeding requirements refer to Sections 32 91 19 and 32 92 00.

C. Correct settled and eroded areas within 1 year after date of completion at no additional expense to the Developer. Bring grades to proper elevation.

3.17 MAINTENANCE OF SUBGRADE

A. Verify finished subgrades to ensure proper elevation and conditions for construction above subgrade.

B. Protect subgrade from excessive wheel loading during construction, including concrete trucks, dump trucks, and other construction equipment.

C. Remove areas of finished subgrade found to have insufficient compaction density to depth necessary and replace in manner that will comply with compaction requirements by use of material with CBR or LBR equal to or better than that specified on the Developer's drawings. Surface of subgrade after compaction shall be firm, uniform, smooth, stable, and true to grade and cross section.

D. Construct temporary ditches and perform such grading as necessary to maintain positive drainage away from subgrade at all times.

3.18 BORROW AND SPOIL SITES

A. Comply with WPDES and local erosion control permitting requirements for any and all on-site and off-site, disturbed spoil and borrow areas. Upon completion of spoil or borrow operations, clean up spoil or borrow areas in a neat and reasonable manner to the satisfaction of the Developer or off-site property owner, if applicable.

3.19 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

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B. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Owner’s Project Representative; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.20 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

B. Disposal: Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Owner’s Project Representative.

1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

3.21 FIELD QUALITY CONTROL

A. Field quality control shall be the responsibility of the Contractor. Field quality control testing and inspection shall be as necessary to assure compliance with Contract requirements. Independent testing by the Owner shall not be considered a substitute for the Contractor’s responsibility to perform similar routine, necessary, and customary testing and inspection of the methods and frequency suitable for the type of work involved.

END OF SECTION 31 20 00

SECTION 31 20 16 - BUILDING EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Contractor must obtain, review and comply with requirements of the geotechnical investigation report for Project.

1.2 SUMMARY

A. Section Includes:

1. Preparing subgrades for interior slabs-on-grade.
2. Excavating and backfilling for buildings and structures.

B. Related Sections:

1. Section 01 50 00 "Temporary Facilities and Controls" for temporary controls, utilities, and support facilities; also for temporary site fencing if not in another Section.
2. Section 00 31 32 “Geotechnical Data” for available geotechnical investigation report for Project.
3. Section 03 30 00 "Cast-in-Place Concrete" for base fill (drainage course) beneath the slab-on-grade.
4. Section 31 10 00 "Site Clearing and Grubbing" for site stripping, grubbing, and stripping and stockpiling topsoil.
5. Section 31 20 00 “Earthmoving” for site excavation, preparation, backfilling and compaction of subgrades per Geotechnical Report, cutting, filling, grading and compaction for drives, walks, roads and parking sub-grade, and cutting filling, grading and compaction for landscaping area sub-grade ready for topsoil.
6. Section 32 92 19 "Seeding and Sodding" for finish grading in turf and grass areas, including preparing and placing planting soil for turf areas.
7. Section 32 92 00 "Trees, Shrubs, and Other Plantings" for finish grading in planting areas and tree and shrub pit excavation and planting.

1.3 DEFINITIONS

A. Backfill: Controlled soil material used to fill an excavation.

B. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

C. Base Fill (Drainage Course): Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water. Provided by Section 03 30 00 "Cast-in-Place Concrete".

D. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

E. Fill: Soil materials used to raise existing grades.

F. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

G. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below base fill (drainage course), or topsoil materials.

H. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.

C. Do not commence earth moving operations until temporary erosion- and sedimentation-control measures, specified in Section 01 50 00 "Temporary Facilities and Controls," and Section 31 10 00 "Site Clearing," are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification glacial till, mixed alluvium, course alluvium, according to geotechnical investigation report for Project, or a combination of these groups; free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

1. Granular Backfill/Compacted Fill under building foundations and slabs and inside foundation walls:

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a. Pit-run or processed sand or gravel having a maximum size of 3” with less than 10% by weight passing the #200 sieve.

2. Backfill behind non-basement foundation walls.

a. Pit-run or processed sand or gravel having a maximum size of 3” with less than 10% by weight passing the #200 sieve.
b. Non-organic, reasonably graded, excavated soils from the site.

C. Unsatisfactory Soils: Topsoils and fills according to geotechnical investigation report for Project.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Protect and maintain erosion and sedimentation controls during earth moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:

a. 24 inches outside of concrete forms other than at footings.
b. 12 inches outside of concrete forms at footings.
c. 6 inches outside of minimum required dimensions of concrete cast against grade.
d. 6 inches beneath bottom of concrete slabs-on-grade.
e. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Excavate to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

a. Excavate and remove all topsoil, previous buildings and foundations, and questionable material.
b. Further excavate and remove all fill and buried topsoil down to coarse or mixed alluvium. (See soil borings for estimated depths.) Actual depths will be determined by the on-site geotechnical special inspector.
c. Protect existing building footings and foundations during earthwork operations.
d. Surface compact all naturally occurring soils per geotechnical report prior to constructiong compacted fill or footings.
e. Construct compacted fill to bottom of footing elevations or to rough grade. Test backfill per specifications.
f. Construct remainder of engineered compacted fill up to rough grade elevation after footings and foundations are constructed. Test fill per specifications.

3.4 SUBGRADE INSPECTION

A. Notify Architect when excavations have reached required subgrade.

B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.5 UNAUTHORIZED EXCAVATION

A. Do not trench under cast-in-place concrete footings. Provide a cast-in-place sleeve through or below footings per detail 2/S401.

B. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation and footings to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi , may be used when approved by Architect.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

3.6 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations.

3.7 COMPACTED FILL

A. Place compacted fill over excavations promptly.

B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 (vertical) to 4 (horizontal) slope so compacted fill material will bond with existing material.

C. Place and compact compacted fill material in layers to required elevations as follows:

1. Under footings and foundations.

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2. Under building slabs.

3.8 GRANULAR BACKFILL

A. Place and compact granular backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place granular backfill on subgrades free of mud, frost, snow, or ice.

3.9 BACKFILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact building backfill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under steps and ramps, use granular backfill.
3. Under building slabs, use compacted fill.
4. Under footings and foundations, use compacted fill.

C. Place backfill on subgrades free of mud, frost, snow, or ice.

3.10 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent backfill, granular backfill, or compacted fill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.11 COMPACTION OF GRANULAR BACKFILL, BACKFILL, AND COMPACTED FILL

A. Place soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry density according to ASTM D 698:

1. Under structures, building slabs, and steps compact top 12 inches of existing subgrade and each layer of granular backfill, backfill, and compacted fill soil material at 95 percent.
2. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 90 percent.

3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.13 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
2. Determine that fill material and maximum lift thickness comply with requirements.
3. Determine, at the required frequency, that in-place density of compacted fill complies with requirements.

B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Building Slab Areas: At subgrade and at each compacted fill and granular backfill layer, at least one test for every 2500 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
2. Paved Areas: At subgrade and at each compacted fill and granular backfill layer, at least one test for every 5000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
3. Foundation Wall Granular Backfill: At each granular backfill layer, at least one test for every 75 feet or less of wall length, but no fewer than two tests.

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4. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet or less of trench length, but no fewer than two tests.

F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.14 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 31 20 16

SECTION 31 22 16.15 - SUBGRADE PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. This section provides information common to two or more technical site work specification sections or items that are of a general nature, and not included in other sections. This section applies to ALL site work, as applicable.
2. The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to complete roadway and parking lot grading, as required in these specifications, on the drawings and as otherwise deemed necessary to complete the work.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 00 31 32 - Geotechnical Data.
2. Section 31 25 00 - Erosion Control.
3. Section 31 23 16.13 – Trenching.
4. Section 31 20 00 – Earthmoving.
5. Section 31 20 16 – Building Earthwork.

1.3 QUALITY ASSURANCE

A. The Contractor shall retain the services of a geotechnical consulting engineer to conduct sampling testing and analysis as required by this section and elsewhere in the Contract Documents. The geotechnical consulting engineer shall meet the requirements of ASTM E329-00b.

Material	Test Required	Test/Sample Frequency
Granular Fill	*D422-63(1998) Standard Test Method for Particle Size Analysis of Soils*	*1 test/500 cy placed*
Granular Fill	*ASTM D1557 – Optimum Moisture-Maximum Density Determination (Modified Proctor)*	*1 test per type of material*

Table 31 22 16.15 - 1

1.4 REFERENCES

A. Where reference is made to the “Construction Specifications”, it shall be construed to mean the pertinent section of the City of New Richmond Standard Construction Specifications, current edition, and all

supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

B. Where reference is made to the "Standard Specifications", it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

C. Where reference is made to the "State Specifications", it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

D. Where reference is made to the "Geotechnical Report", it shall be construed to mean the geotechnical investigation(s) in Section 00 31 32 - Geotechnical Data.

E. St. Croix County work in right of way permit.

F. ASTM International (ASTM):

1. ASTM D698 – Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbs/ft^3 (600 kN-m/m^3)).
2. ASTM D1557 – Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbs/ft^3 (2,700 kN-m/m^3)).
3. ASTM D6938 – In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.5 Permits/Fees

A. Contractor shall be solely responsible for obtaining all permits necessary to complete the work that are not provided by the Owner. Contractor shall pay all fees associated with obtaining permits. These include, but are not limited to permits for work within public right-of-way, and building permits.

B. The Owner will obtain and provide the Wisconsin DNR WRAPP and Chapter 30 permit.

1.6 PROVISIONS FOR FUTURE WORK

A. None.

1.7 SURVEY AND STAKING

A. Owner or Engineer will provide benchmarks and control points for the project as defined in Section 01 00 00.

B. Contractor shall be responsible for transferring benchmarks, control points, lines and grades as necessary to complete his work.

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PART 2 - MATERIALS

2.1 AGGREGATE MATERIALS – GENERAL

A. Alternate crushed aggregate material blends that are locally available will be considered on a project by project basis for crushed aggregate base courses, and will be subject to OWNER approval. The Construction Representative may require the contractor to furnish a gradation report on the materials.

2.2 RECYCLED AGGREGATE PRODUCTS AND MATERIALS

A. OWNER strongly encourages the use of recycled aggregate materials and products containing recycled aggregate materials. Bidders may submit specifications for these materials for consideration by the Owner for use on the project at least ten (10) days prior to the bid date.

2.3 SPECIAL FILL

A. In certain cases, special fill materials may be required for specific purposes, such as stabilizing subgrades, backfilling, undercut excavations or filling behind retaining walls. Fill materials shall meet the requirements of the following sections: Section 209 for Granular Backfill, Section 210 for Structure Backfill, Section 305 for Dense Graded Base Course, Section 312 for Select Crushed Material and Section 311 for Breaker Run of the Standard Specifications for Highway Construction.

2.4 GEOTEXTILE FABRIC

A. See Section 31 32 00 - Soil Stabilization.

PART 3 - EXECUTION

3.1 PREPARATION

A. Review plans and prepare workplan and schedule. Coordinate any necessary interruptions in site access with Owner's Construction Representative, in accordance with other specification sections.

B. Contact Diggers Hotline. Locate and protect utilities, structures, pavement, trees, landscaping, benchmarks and other features in the work area.

C. Layout work. Establish and transfer line and grade as necessary to complete the work.

D. Remove topsoil from work area. Sawcut and remove pavement from work area.

E. Grade roadways and parking areas to drain water away.

3.2 EXCAVATION

A. Excavate to elevations and dimensions as shown on the drawings and as necessary to complete construction. Excavations shall be sufficiently deep to provide for all proposed basecourse, and pavement.

B. Notify Owner's Construction Representative if correction of unauthorized excavation or over-excavation is necessary. Said excavations will be corrected based on recommendations of Owner's Construction Representative or Owner's geotechnical consultant. Contractor will be responsible for all costs associated with correcting these excavations, including fees charged by Owner's geotechnical consultant.

C. Segregate the various materials excavated. Reserve material meeting the requirements of backfill for the location. Excavated material that does not meet the requirements of backfill, and excess excavated material, shall be removed from the site and disposed by the contractor, unless directed otherwise by other specification sections or the OWNER's Construction Representative.

D. Locate spoil piles in accordance with OSHA requirements, and so that it does not interfere with public travel, adjacent landowners or other construction activities.

3.3 FILL AND COMPACTION

A. Excavation shall be reasonably free of water prior to beginning filling. Do not place material on frozen surfaces or use frozen material.

B. Fill areas using the material specified on Table 31 22 16.15 - 2, or as shown on the drawings.

C. Place and compact material to minimize settlement and avoid damage to structures, pipes, utility lines and other features. Hand-place and compact material as necessary.

D. Place backfill simultaneously on both sides of structures.

E. Moisture condition backfill material as necessary to achieve density required for given use.

1. Compact fill material as required by Table 31 22 16.15 - 2 for the given use. Compaction requirements based on Modified Proctor Dry Density (ASTM D 1557).

2. It is the responsibility of the Contractor to provide all necessary compaction equipment and other grading equipment that may be required to obtain the specified density. Vibratory plate or tamping type walk behind compactors will be required whenever backfill is placed adjacent to structures, pipes, utility lines confined spaces (i.e. backfilling undercut areas) and other features.

	Percent of Maximum Laboratory Density	
Location	ASTM D698	ASTM D1557
Subgrade and fill below and within 10 feet of foundations and slabs-on-grade, and below the upper 12 inches of areas to be paved	98	95
Subgrade and fill in all other areas	95	92

Table 31 22 16.15 - 2

F. Where additional filling or excavation is necessary, or placement of basecourse will be delayed, roll surface of proposed roadway or parking lot with a smooth drum roller to provide relatively impervious surface and promote drainage. Roll with a smooth single drum vibratory roller having a minimum operating static weight of 12,000 pounds and a minimum centrifugal force of 22,000 pounds to provide relatively impervious surface and promote drainage. In the event the material is deficient in moisture content for readily obtaining the necessary density, it shall be moistened to the degree necessary by means of approved equipment. The compaction operation shall continue until the Engineer observes no visible

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displacement of material laterally or longitudinally under the compaction equipment or hauling equipment.

3.4 SUBGRADE APPROVAL/PROOF -ROLLING

A. Prior to undercutting or excavating below subgrade (EBS) or placing any base course, contact Owner's Construction Representative to schedule inspection of subgrade and proof rolling. Provide minimum of 24 hours confirmed notice. All proof rolling shall be completed in the presence of the Owner's Construction Representative.

B. To complete proof rolling, entire roadway subgrade shall be provided with a relatively smooth surface, suitable for observing soil reaction during proof rolling.

C. Contractor shall schedule and provide a fully loaded tri-axle dump truck for proof – rolling. Loaded truck shall have a minimum gross operating weight of 30 tons. Test shall be conducted with "tag" or "pusher" axles retracted from the ground.

D. Test rolling shall be accomplished in a series of traverses parallel to the centerline of the street or parking area. The truck shall traverse the length of the street or parking area once for each 12 feet of width. Additional passes along the traverse shall be completed as directed by the OWNER'S Construction Representative, to further define unsatisfactory subgrade.

E. Soft areas, yielding areas, cracked areas or areas where rolling or wave action is observed shall be considered indicative of an unsatisfactory subgrade. Such areas shall be undercut as outlined in subsequent subsections of this specification.

F. Once the subgrade has been proof-rolled and approved, protect the soils from becoming saturated, frozen, or adversely altered.

3.5 UNDERCUTTING/EXCAVATION BELOW SUBGRADE (EBS)

A. Undercutting/EBS shall be completed only when directed by the OWNER'S Construction Representative. The Contractor shall not be compensated for any unauthorized undercutting/EBS. Measure and document undercut areas and depths in consultation with OWNER'S Construction Representative.

B. Payment for undercutting/EBS shall be made on a unit price (cubic yard) basis measured in place at the rate provided on the bid form. An estimated quantity had been provided as a bid alternate. Payment will be made only for the measured quantity of undercutting/EBS directed by the Owner's construction representative to be performed. The unit price shall include all costs for labor and materials necessary to remove and replace undercut areas including providing backfill materials and disposal of cut materials offsite.

C. Excavate undercut areas to the depth specified using equipment with smooth cutting edge. Excavated undercut material that does not meet the specifications for fill needed elsewhere on site shall be removed from the site and legally disposed.

D. Undercut areas shall be backfilled with granular backfill or compacted Breaker Run, select crushed material or 3-inch dense graded base course, as directed by the Owner's construction representative, in maximum of 6" thick lifts (compacted). Granular backfill shall be compacted to 95% compaction based on modified Proctor methods. Breaker Run, select crushed material and 3-inch dense graded base course shall be compacted in thin lifts with a vibratory compactor until no further consolidation is evident.

3.6 GEOTEXTILE FABRIC

A. When required by the Owner's Construction Representative, geotextile fabric shall be installed over the subgrade layer and prior to installing base aggregates. The Owner's Construction Representative shall determine if geotextile fabric installation is required at the time of subgrade proof-rolling.

END OF SECTION 31 22 16.15

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SECTION 31 23 16.13 - TRENCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Excavation of trenches, pipe bedding, backfilling and compaction for storm sewer, culverts, and water service.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 02 20 00 - General Sitework Requirements.
2. Section 31 20 00 – Earthmoving.
3. Section 31 20 16 – Building Earthwork.
4. Section 33 10 00 - Water Utilities.
5. Section 33 30 00 - Sanitary Sewerage Utilities.
6. Section 33 40 00 - Storm Sewer Construction.

1.3 REFERENCES

A. ASTM C33-586 - Specification for Concrete Aggregate.

B. ASTM C136-84a - Method for Sieve Analysis of Fine and Coarse Aggregate.

C. ASTM D698-78 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5-lb (2.49-kg) Rammer and 12-in. (304.8 mm) Drop.

D. ASTM D1557-78 - Test Methods for Moisture-Density Relations of Soil-Aggregate Mixtures Using 10-lb. (4.54- kg) Rammer and 18-in. (457-mm) Drop

E. ASTM D2487-85 - Classification of Soils for Engineering Purposes.

F. ASTM D2922-81 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

G. ASTM D3017-78 - Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

H. Where reference is made to the “Construction Specifications”, it shall be construed to mean the pertinent sections of the City of New Richmond, Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

I. Where reference is made to the "Standard Specifications", it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

J. Where reference is made to the "State Specifications", it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

K. Where reference is made to the "Geotechnical Report", it shall be construed to mean the geotechnical investigation(s) in Section 00 31 32 - Geotechnical Data.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 00 00.

B. Field Testing Reports:

1. Density and Moisture Tests: Submit within 14 days of test date.

PART 2 - PRODUCTS

2.1 GENERAL

A. Conform to requirements of Standard Specifications.

1. Where conflicts between this specification, the Standard Specifications and the Construction Specifications exist, the most stringent requirements shall apply.

2.2 BEDDING AND COVER MATERIALS

A. Water Mains:

1. Bedding and cover material shall conform to the Standard Specifications and City of New Richmond Construction Standards.

B. Sanitary Sewers:

1. Bedding and cover material shall conform to the Standard Specifications and City of New Richmond Construction Standards.

C. Storm Sewers:

1. Provide bedding and initial cover in accordance with the applicable requirements of Section 31 23 16.13 – Trenching.
2. Confirm bedding requirements for pipe selected.
3. Storm sewer and sewer services shall be provided with 4" of bedding material and 12" of initial cover material (both measured at the bell of the pipe). Crushed Stone Bedding shall be used for both bedding and initial cover.

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2.3 BASE MATERIAL

A. Crushed Stone: Hard, durable particles of crushed stone or gravel substantially free from shale or lumps of clay or loam. When crushed stone base is required under sewer, water main or structures gradation shall meet the requirements of Type 1. When crushed stone base is required to affect soil stability or drainage it shall meet the gradation requirements of Type 2.

Type 1: 1-1/2-Inch Crushed Stone

Sieve Size	Percent Passing by Weight
2 Inch	100
1 1/2 Inch	90-100
1 Inch	20-55
3/4 Inch	0-15
1/2 Inch	0-5

Type 2: 2-Inch Crushed Stone

Sieve Size	Percent Passing by Weight
2 1/2 Inch	100
2 Inch	90-100
1 1/2 Inch	35-70
1 Inch	0-15
1/2 Inch	0-5

2.4 BACKFILL

A. Granular Backfill: Durable particles ranging from fine to coarse in a substantially uniform combination. Sufficient fine material shall be present to fill all the voids of the coarse material. Some fine clay or loam particles are desirable, but clay or loam lumps shall not be present. Conform to the following gradation.

Granular Backfill

Sieve Size	Percent Passing by Weight
3 Inch	100
2 Inch	95-100
No. 4	35-60
Finer than No. 200	5-15

B. Excavated Material: Natural soils classified in ASTM D2487 as Gravels (GW, GP GM and GC), Sands (SW, SP, SM and SC) and Silts and Clays (ML and CL). Silts and Clays classified as OL, MH, CH, OH, and PT are not acceptable unless specifically allowed by Engineer. Soil material shall be free from vegetable or other organic matter, trash, debris, stones larger than three inches and frozen material. Use of excavated material for backfill of public utilities shall be subject to approval of the Village's Construction Representative/Engineer prior to its use.

PART 3 - EXECUTION

3.1 GENERAL

A. Conform to requirements of Standard Specifications.

1. Where conflicts between this specification, the Standard Specifications and the Construction Specifications exist, the most stringent requirements shall apply.

3.2 EXAMINATION

A. Verify fill materials to be used are acceptable.

3.3 PREPARATION

A. Identify required lines, levels, contours and datum.

B. Maintain and protect existing utilities remaining, which pass through work area.

C. Protect plant life, lawns, and other features remaining as a portion of the final landscaping.

D. Protect bench marks, existing structures, shore protection structures and base materials, sidewalks, paving and curbs from excavation equipment and vehicular traffic.

E. Protect above and below grade utilities which are to remain.

F. Strip topsoil and stockpile on-site for reuse.

G. When excavating across or within existing pavement, saw cut in neat straight lines.

3.4 DEWATERING

A. Do not allow water to accumulate in the trench.

B. Provide all dewatering equipment needed to accomplish the Work. Unless indicated otherwise, no additional compensation will be made for dewatering.

C. No additional compensation will be made for crushed stone used for trench drainage.

D. Dispose of water in a suitable manner without damage to property.

E. Install, operate and abandon dewatering equipment in accordance with applicable state and local codes.

F. Contact the Wisconsin DNR for a permit if the quantity of water to be pumped from dewatering equipment is in excess of 70 GPM.

Wisconsin Department of Natural Resources
Private Water Supply Section
P.O. Box 7921
Madison, WI 53707-7921

3.5 EXCAVATION

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A. Excavate subsoil to required depth and grade.

B. Cut trenches sufficiently wide to enable installation of the utilities and allow inspection. Normal trench width below the top of the pipe shall be the nominal pipe diameter plus 24 inches. Do not undercut trench walls.

C. Trench walls above the top of the pipe shall be as dictated by soil type and safety requirements. Provide shoring and bracing as required to maintain safe working conditions.

D. Stockpile excavated material in area designated on site.

3.6 BEDDING

A. Place bedding in trench before installing pipe.

B. Support pipe during placement and compaction of bedding.

C. Provide a minimum of 4 inches of bedding material under the pipe barrel and under the bell.

D. Lightly consolidate the material so that it fills and supports the haunch area and encases the pipe to the limits shown on the Drawings.

E. If excavation is carried deeper than six inches below the pipe barrel, backfill the excess depth with 1-1/2 inch crushed stone meeting the requirements of paragraph 2.04 of this section.

F. After the pipe has been laid and jointed, place 3/4-inch clear stone bedding materials by hand or equally careful means around the sides of the pipe and up to a level 12 inches above the pipe. Lightly consolidate the material.

3.7 BACKFILLING

A. Backfill trenches to contours and elevations with unfrozen materials.

B. Do not backfill over wet, frozen or spongy subgrade surfaces.

C. Granular Backfill: Place and compact materials in continuous layers not exceeding 12 inches compacted depth.

D. Natural Soil Backfill: Place and compact material in continuous layers not exceeding 8 inches compacted depth.

E. Maintain optimum moisture content of backfill materials to attain required compaction density.

F. Remove surplus backfill material from site.

G. Leave fill material stockpile areas completely free of excess fill materials.

3.8 TOLERANCES

A. Top Surface of Backfilling: Under Paved Areas: Plus or minus .05 feet from required elevations.

B. Top Surface of General Backfilling: Plus or minus 0.2 feet from required elevations.

3.9 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 40 00 - Quality Requirements.

B. Density/moisture relationship will be determined in accordance with ASTM D1557 (Modified Proctor).

C. Compaction testing will be performed by the Contractor's independent testing laboratory and will be in accordance with ASTM D2922 and ASTM D3017.

D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

E. Frequency of Tests:

1. For trenches under paved areas - one test per 50 lineal feet of trench.
2. For trenches under unpaved areas - one test per 100 lineal feet of trench.

3.10 COMPACTION SCHEDULE

A. For paved areas compact to at least 95% of optimum density in accordance with ASTM D 1557.

B. For unpaved areas compact to at least 92 percent of optimum density in accordance with ASTM D 1557.

END OF SECTION 31 23 16.13

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SECTION 31 25 00 - EROSION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Prevention of erosion due to construction activities.
2. Control of sedimentation of waterways, open drainage ways, stormwater management practices, and storm and sanitary sewers due to construction activities.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 31 20 00 – Earthmoving.
2. Section 32 92 19 – Seeding and Sodding.

1.3 REFERENCE STANDARDS

A. Where reference is made to the “Construction Specifications”, it shall be construed to mean the pertinent section of the City of New Richmond, applicable Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

B. Where reference is made to the “Standard Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

C. Where reference is made to the “State Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

D. Wisconsin Department of Transportation’s (WisDOT) Product Acceptability List (PAL)

E. Where reference is made to the “Geotechnical Report”, it shall be construed to mean the geotechnical investigation(s) in Section 00 31 32 - Geotechnical Data.

1.4 SUBMITTALS

A. Provide manufacturer's data and WisDOT Product Acceptability List verification for silt fence, erosion mat, and other erosion control materials specified for review and approval by Engineer prior to procurement.

B. Identify seed supplier and provide seed source, purity and germination specifications, for all seed mixes specified for installation in this section, to Engineer for approval prior to procurement.

1.5 QUALITY ASSURANCE

A. Contractor shall ensure that the General Provisions and Special Conditions of the following permits issued for the project shall be complied with at all times:

1. City of New Richmond Stormwater Management and Erosion Control Permit
2. WDNR General Permit to discharge under the Wisconsin Pollutant Discharge Elimination System, for land disturbing construction activities

B. Inspect erosion control materials and supplies after delivery to verify that no damage has occurred.

C. The status of erosion control measures will be an item of discussion in every weekly construction meeting. All corrective actions required during construction meetings shall be accomplished within 3 working days of the meeting date.

D. Contractor shall provide weekly written reports on the erosion control system for the previous week to Owner and Engineer during the duration of construction in a format approved by the Engineer. These reports shall be provided at each weekly construction meeting and shall be reported to the Owner. The weekly erosion control report shall describe:

1. The extent of erosion control system installed,
2. The condition of erosion control measures for that week, based on field observations,
3. Any accidental release of sediment,
4. A summary of daily rainfall/snowmelt data for the week,
5. Any specific corrective action taken, and
6. Corrective action that needs to be taken. The person that conducted the observations shall sign the report.

1.6 WARRANTY

A. Work conducted under this section shall be subject to the one-year warranty provisions described in the General Conditions of contract.

1.7 SEQUENCING AND SCHEDULING

A. The sequencing of project construction activities will be generally as described in the Instructions to Bidders. The specific sequence for construction within a particular area shall be agreed upon with Owner and Engineer prior to construction within that area.

B. All erosion control measures shall be completely installed for each construction area and approved by Engineer before any other construction activity takes place.

PART 2 - PRODUCTS

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2.1 MATERIALS

A. Silt Fence:

1. Silt fence shall be as specified in the WDNR Construction Site Erosion & Sediment Control Technical Standard 1056.

B. Erosion Control Mat (Channel):

1. Erosion control mat shall be to the requirements of WDNR Construction Site Erosion & Sediment Control Technical Standard 1053.

C. Erosion Control Mat (Non-Channel):

1. Erosion control mat shall be to the requirements of WDNR Construction Site Erosion & Sediment Control Technical Standard 1052.

D. Temporary Seed:

1. Temporary seed shall be 100% Annual Ryegrass, with purity and germination requirements as specified in the WisDOT, Section 630.2.1.5.1.2 or as indicated in the WDNR Construction Site Erosion & Sediment Control Technical Standard 1059.

E. Stone Access Pads:

1. Stone for use in temporary access pads shall range in size from 3-inch to 6-inch diameter.
2. Pad shall be a minimum of 50 feet long.
3. Pad shall meet the requirements of WDNR Construction Site Erosion & Sediment Control Technical Standard 1057.

F. Mulch:

1. Mulch proposed for use shall be clean straw, with no weed material or seeds, and shall be approval Engineer before use.
2. Mulch shall meet the standards set forth within the WDNR Construction Site Erosion & Sediment Control Technical Standard 1058.

G. Fertilizer:

1. Fertilizer shall be as specified in WisDOT, Section 629.3.1.2, Type A.

H. Soil Stabilizer:

1. Provide soil stabilizers that conform to the requirements of WisDOT's Product Acceptability List (PAL) for Soil Stabilizers, Type B or WDNR Construction Site Erosion & Sediment Control Technical Standard 1050. Currently the only known acceptable product is CFM2000 manufactured by CFM, Inc.
2. Soil stabilizer shall be a polyacrylamide (PAM) and calcium solution intended to reduce the erodibility of bare soils during construction activities or to enhance the performance of mulching on permanent slopes. Polyacrylamide Soil Stabilizer shall have proven abilities to bond soil particles effectively increasing the soil particle size to 1.0 millimeter or larger. It shall reduce the movement of soil through chemical bonding, increase the particle size thus making silt fence more effective and increase the water absorption of the soil.

3. Soil stabilizers shall meet the same vegetative density and sediment loss standards as required for erosion control mats.

PART 3 - EXECUTION

3.1 GENERAL

A. Establish all heights and grades to properly execute work from benchmark established by others.

B. Contractor shall provide all surveys to accurately locate the construction on the site.

3.2 EROSION CONTROL STRUCTURES

A. Runoff diversion berms shall be constructed of clean topsoil, 2 feet high, with 3H:1V side slopes, and seeded and mulched immediately after installation.

B. Silt fence shall be placed according to the WDNR Construction Site Erosion & Sediment Control Technical Standard 1056.

3.3 SEEDING AND MULCHING

A. Temporary seeding shall be conducted as described in WisDOT Standard Specifications 630.3.3, with sowing using either Method A or Method B. Temporary seeding areas shall receive fertilizer at the rate of 10 pounds/1,000 square foot.

B. Temporary seed shall receive mulch at the rate of 2,500 pounds/acre, and shall be crimped into the soil using WisDOT procedure 627.3.2.3.

C. Disturbed areas within the construction site shall be graded, prepared for seeding, and seeded to conform to the following requirement for the maximum duration of bare-ground conditions:

1. Areas within 100 ft of and draining directly to wetlands or watercourses, with slopes less than 5%: 7 days
2. Areas within 100 ft of and draining directly to wetlands or watercourses, with slopes between 5% and 25%: 3 days
3. Areas in the interior of the site that do not drain directly to wetlands and water courses: 30 days

3.4 EROSION CONTROL MAT

A. Erosion control mat shall be applied according to WDNR Technical Standards 1052 or 1053 as applicable and manufacturers requirements.

3.5 SOIL STABILIZER

A. Use Soil Stabilizers on slopes 3H:1V or steeper as a short-term duration erosion control device.

B. Apply soil stabilizer to disturbed surfaces that will not be covered with crushed stone base course.

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C. Place with conventional hydraulic seeding equipment or by dry spreading in accordance with manufacturer's instructions.

1. Place material so that direct contact with the soil is ensured.
2. Application rates shall be as recommended by the manufacturer and shall meet the approval of the Engineer and be in accordance with the Landscape Plan. Application rates are generally 20 pounds/acre.

3.6 MAINTENANCE AND CLEANUP

A. The erosion control system shall be maintained throughout the duration of the construction project, in accordance with the procedures the WisDOT Standard Specifications Section 628.3.4.2.

B. The erosion control system shall be inspected immediately after each rainfall of more than 0.5 inch, and daily during prolonged rainfall. All inspections shall be reported to the Owner in the weekly erosion control system report to be submitted to the Owner.

C. Accumulated sediment within the erosion control system shall be removed before one-half of the storage capacity of the erosion control measure is used, or as specified by the Engineer.

END OF SECTION 31 25 00

SECTION 32 05 00 - COMMON WORK RESULTS FOR EXTERIOR IMPROVEMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. This section provides information common to two or more technical site work specification sections or items that are of a general nature, and not included in other sections.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 31 20 00 – Earthmoving.
2. Section 31 22 16.15 - Subgrade Preparation.
3. Section 31 23 16 13 – Trenching.
4. Section 31 25 00 – Erosion Control.
5. Section 32 11 23 – Aggregate Base Course.
6. Section 32 16 00 - Curbs and Sidewalks.
7. Section 32 32 23 - Modular Retaining Wall Systems.
8. Section 32 91 19 - Topsoil-Select Fill Materials and Application.
9. Section 32 92 00 - Trees, Shrubs, and Other Plantings.
10. Section 32 92 19 - Seeding and Sodding.

1.3 REFERENCED ORGANIZATIONS

A. Abbreviations of organizations referenced in these specifications are as follows:

AASHTO	American Association of State Highway and Transportation Officials
ACPA	American Concrete Pipe Association
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
AWS	American Welding Society
FHA	Federal Highway Administration
EPA	Environmental Protection Agency
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Administration
STI	Steel Tank Institute

UL	Underwriters Laboratories Inc.
WDNR	State of Wisconsin Department of Natural Resources
WISDOT	State of Wisconsin Department of Transportation

1.4 REFERENCED DOCUMENTS

A. Where reference is made to the "Construction Specifications", it shall be construed to mean the pertinent section(s) of the City of New Richmond, Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

B. Where reference is made to the "Standard Specifications", it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

C. Where reference is made to the "State Specifications", it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

D. Where reference is made to the "Geotechnical Report", it shall be construed to mean the goetechncial investigation(s) in Section 00 31 32 - Geotechnical Data.

1.5 QUALITY ASSURANCE

A. Provide materials and products as required by individual specification sections. Refer to Section GC - General Conditions of the Contract regarding substitutions.

B. Provide quality assurance testing and reporting as required by individual specification sections.

1.6 SAFETY

A. Contractor is solely responsible for worksite safety.

B. Perform all work in accordance with applicable OSHA, state and local safety standards.

C. Contact Diggers Hotline at 1-800-242-8511 in accordance with statutory requirements. Request that non-member utilities and private utilities be located by the appropriate parties. Contact Owner's Construction Representative for private locates a minimum of seven working days prior to any request or need for access.

1.7 PERMITS

A. Unless otherwise noted in the Contract Documents, Contractor shall be responsible for obtaining and paying for all permits necessary to complete the work.

1.8 CONSTRUCTION LIMITS

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A. Construction Limits are indicated on the drawings. In the absence of such a designation on the drawings, confine work to the minimum area reasonably necessary to undertake the work as determined by the Owner's Construction Representative. In no case shall construction activities extend beyond state property lines or construction easements.

B. The Contractor shall restore all disturbed areas in accordance with the drawings and specifications. If plans and specifications do not address restoration of specific areas, these areas will be restored to pre-construction conditions as approved by the Owner's Construction Representative.

1.9 SUBMITTALS

A. Refer also to Section GC - General Conditions of the Contract and Division 1.

B. Submit manufacturer's shop drawings, product data, samples, substitutions and operation and maintenance (O&M) data for approval as required by individual specification sections.

C. Unless otherwise noted, provide six (6) copies of each submittal. Submit to project Architect/Engineer (A/E) unless otherwise directed by Owner's Construction Representative at the Pre-Construction Meeting.

1.10 OFF-SITE STORAGE

A. Refer to Division 1.

B. In general, the payments for materials stored off site will only be considered in instances where there is limited space available for storage on the site. Prior approval by the Owner's Construction Representative, together with the execution of a Storage Agreement will be required.

1.11 CODES

A. Comply with the requirements of all applicable, local, state and federal codes.

1.12 CERTIFICATIONS AND INSPECTIONS

A. Refer to Section GC - General Conditions.

B. Obtain and pay for all required sampling, testing, inspections, and certifications except those expressly listed as provided by the A/E or other third party in the Contract Documents. Deliver originals of certificates and documents to the Owner's Construction Representative within 3 days; provide copies to the A/E. Include copies of the certifications and documents in the O&M Manual.

PART 2 - MATERIALS

2.1 BARRICADES, SIGNS, AND WARNING DEVICES

A. Traffic barricades, traffic signs, and warning devices shall meet the requirements of applicable OSHA standards and the FHA Manual of Uniform Traffic Control Devices (MUTCD).

2.2 TEMPORARY PLASTIC BARRIER FENCING

A. UV stabilized high-density polyethylene barrier fence free of holes tears and other defects. Provide 4 feet tall fence in diamond or rectangular pattern. Fencing shall be "safety orange" color, unless otherwise noted.

B. Posts for temporary plastic barrier fencing shall be 5 feet tall, minimum 12 gauge, painted metal posts.

PART 3 - EXECUTION

3.1 MAINTENANCE OF SITE AND BUILDING ACCESS/EGRESS

A. Unless otherwise shown or directed, maintain existing access and egress to the facility throughout construction. Maintain ANSI A117 compliant access for disabled persons, delivery access, emergency vehicle access, and emergency egress. Do not interrupt access and egress without prior written approval from the DFS Construction Representative.

3.2 CONTINUITY OF EXISTING TRAFFIC/PARKING AND TRAFFIC CONTROL

A. Refer also to Section GR - General Requirements.

B. Do not interrupt or change existing traffic, delivery, or parking outside the requirements of the staging plan without prior written approval from the Owner's Construction Representative. When interruption is required, coordinate schedule with the Owner agency to minimize disruptions. When working in public right-of-way, obtain all necessary approvals and permits from applicable municipalities and WisDOT.

C. When Contractor's activities impede or obstruct traffic flow, Contractor shall provide traffic control devices, signs and flaggers in accordance with other Contract Documents and the current version of the MUTCD, or as shown on the Drawings.

3.3 PROTECTION AND CONTINUITY OF EXISTING UTILITIES

A. Verify the locations of any water, drainage, gas, sewer, electric, drainage, gas, sewer, electric, telephone/communication, fuel, steam lines or other utilities and site features which may be encountered in any excavations or other sitework. All lines shall be properly underpinned and supported to avoid disruption of service.

B. Do not interrupt or change existing utilities without prior written approval from the Owner's Construction Representative, affected utilities and users. Notify all users impacted by outages a minimum of 48 hours in advance of outage. Notification shall be provided in writing and describe the nature and duration of outages and provide the name and number of Contractor's foreman or other contact.

C. Any service connections encountered which are to be removed shall be cut off at the limits of the excavation and capped in accordance with the requirements of applicable codes and any specifications governing such removals.

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3.4 PROTECTION OF EXISTING WORK AND FACILITIES

A. Verify the locations of, and protect, any signs, paved surfaces, buildings, structures, landscaping, streetlights, utilities, and all other such facilities that may be encountered or interfered with during the progress of the work. Take measures necessary to safeguard all existing work and facilities that are outside the limits of the work or items that are within the construction limits but are intended to remain. Report any damage to existing facilities to the OWNER'S Construction Representative immediately. Correct and pay for all damages.

3.5 STORMWATER/EXCAVATION WATER MANAGEMENT

A. Control grading around structures, pitch ground to prevent water running into excavated areas.

B. Pits and other excavations shall be maintained free of water.

C. Provide trenching, pumping, other facilities required.

D. Notify A/E if springs or running water are encountered in excavation; provide discharge by trenches, drains, pumping to point outside of excavation. Provide information to A/E of points and areas that water will be discharged. At the Engineer's option, the Contractor shall drain the spring to the storm sewer system by the use of field tile.

E. Be responsible for control measures to prevent damage from flooding, erosion, and sedimentation to on-site and off-site areas.

END OF SECTION 32 05 00

SECTION 32 11 23 - AGGREGATE BASE COURSE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. This Section includes provisions for providing aggregate base course as the foundation for hot-mix asphalt paving, concrete curb and gutter and concrete sidewalk.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 02 20 00 – General Sitework Requirements.
2. Section 03 30 00 – Cast-In-Place Concrete.
3. Section 31 20 00 – Earthmoving.
4. Section 32 12 16 – Asphalt Paving.
5. Section 32 16 00 - Curbs and Sidewalks.

1.3 REFERENCES

A. Where reference is made to the “Construction Specifications”, it shall be construed to mean the pertinent section(s) of the City of New Richmond, Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

B. Where reference is made to the “Standard Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

C. Where reference is made to the “State Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

D. St. Croix County work in the right of way permit.

E. Where reference is made to the “Geotechnical Report”, it shall be construed to mean the geotechnical investigation(s) in Section 00 31 32 - Geotechnical Data.

F. ASTM:

1. D1557-78 - Test Methods for Moisture-Density relation of Soil and Soil-Aggregate Mixtures Using 10-lb. (4.54-kg) Rammer and 18-in. (457 mm) Drop.
2. ASTM D 698 – Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbs/ft³ (600 kN-m/m³)).
3. ASTM D 1557 – Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbs/ft³ (2,700 kN-m/m³)).
4. ASTM D 6938 – In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:

1. Submit 50-pound samples of each type of aggregate to testing laboratory for materials not obtained from on-site stockpiles and for blended aggregate as requested by the Owner's Construction Representative.
2. Weight slips of each load showing the net weight of the aggregate.
3. Submit certification of base course materials and placement as specified in Parts 2 and 3 hereinafter.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide materials meeting the requirements of the Geotechnical Report and WisDOT, Sections 301, 305, and 306 and as shown in the Drawings.

B. Hot mix Sand Asphalt Bases: Asphalt Institute Type VI, VII, or VIII Mixes for Hot mix Sand Asphalt Bases. Hot-Mix base shall be used only under asphaltic concrete surfaces.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare the subgrade in accordance with the Geotechnical Report and Section 31 20 00 Earthmoving as necessary for undercut.

3.2 EQUIPMENT

A. Meet requirements of WisDOT, Section 301.3.1.

3.3 SPREADING AND SHAPING

A. Meet requirements of WisDOT, Section 305.3.4.

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B. Construct to thickness indicated on Construction Drawings. The minimum base thickness as shown on drawings shall be achieved throughout all pavement areas.

1. Granular Base: Apply in lifts or layers not exceeding 8 inches, measured loose.
2. Sand/Shell Base: Apply in lifts or layers not exceeding 4 inches, measured loose.
3. Hot mix Sand Asphalt Bases: Apply in lifts or layers not exceeding 3 inches, measured loose.

3.4 COMPACTION

A. Meet requirements of WisDOT, Section 305.3.2.2, except as modified below.

B. Compact base material to not less than 98 percent of optimum density as determined by ASTM D698 or 95 percent of optimum density, as determined by ASTM D1557 unless otherwise indicated on the Drawings.

3.5 TOLERANCES

A. Smoothness: Maximum variation of 3/8 inch when measured with a 10-foot straight edge.

B. Compacted thickness: within 1/4 inch.

3.6 FIELD QUALITY CONTROL

A. Field inspection and testing shall be done by the Contractor in public right of way in the presence of the Engineer/Owner's Construction Representative.

B. Repair or remove and replace unacceptable base course as directed by the Engineer/Owner's Construction Representative.

END OF SECTION 32 11 23

SECTION 32 12 16 - ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Hot-mix asphalt patching.
2. Hot-mix-asphalt paving.
3. Pavement marking.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 31 20 00 – Earth Moving.
2. Section 32 11 23 – Aggregate Base Course.
3. Section 32 16 00 - Curbs And Sidewalks.

1.3 STANDARD SPECIFICATIONS

A. Where reference is made to the “Standard Specifications”, it shall be construed to mean the pertinent section of the Wisconsin Department of Transportation (WisDOT) Standard Specifications for Road and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

B. All construction of public facilities and/or work within public lands or rights of way shall conform to the requirements and conditions of the City of New Richmond Construction Standards.

C. St. Croix County work in the right of way permit.

1.4 DEFINITIONS

A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

1.5 SUBMITTALS

A. Job-Mix Designs for each job mix proposed for the work.

B. Material Certificates, signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

1.6 SYSTEM DESCRIPTION

A. Provide hot-mix asphalt paving according to materials, workmanship, and other applicable requirements of standard specifications of WisDOT.

1.7 QUALITY ASSURANCE

A. Asphalt-Paving Publication: Comply with AI MS-22, "Construction of Hot Mix Asphalt Pavements," unless more stringent requirements are indicated.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing Manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.

B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by Manufacturer. Protect stored materials from direct sunlight.

1.9 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:

1. Prime and Tack Coats: Minimum surface temperature of 60 deg F.
2. Asphalt Base Course: Minimum surface temperature of 36 deg F and rising at time of placement.
3. Asphalt Surface Course: Minimum surface temperature of 36 deg F and rising at time of placement.

B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 50 deg F for water-based materials, and not exceeding 95 deg F. Paint color shall be specified by the owner and located as indicated on the drawings.

PART 2 - PRODUCTS

2.1 GENERAL

A. All materials and methods for on-site pavement shall conform to WisDOT Standard Specifications. Where conflicts between this specification and the WisDOT Standard Specifications exist, requirements of the WisDOT shall govern.

B. All materials and methods for public roadways shall conform to City of New Richmond Construction Standards.

2.2 MATERIALS AND MIXES (ON-SITE PAVING)

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A. Provide asphaltic pavement per WisDOT Standard Specifications Section 460.2 and 460.3 but excluding limitations in Section 460.3.2 restricting layer thickness by aggregate size.

B. Pavement thickness: Per Drawings

C. Compaction requirements:

1. Bituminous concrete: Refer to Section 460-3.
2. Base course: Refer to Section 301.3.4.2, Standard Compaction.

D. Mixture Type: E-0.3, Section 460, Table 460-2 of the WisDOT Standard Specifications.

E. Bituminous Material: Per WisDOT Standard Specifications, of suitable grade and consistency for application.

F. Tack Coat: Per WisDOT Standard Specifications, of suitable grade and consistency for application.

G. Water: Potable.

2.3 AUXILIARY MATERIALS

A. Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952, with drying time of less than 45 minutes.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.

B. Proof-roll sub-base using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.

C. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 PATCHING

A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Re-compact existing unbound-aggregate base course to form new subgrade.

B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

C. Patching: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

3.3 SURFACE PREPARATION

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.

B. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.4 HOT-MIX ASPHALT PLACING

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Place hot-mix asphalt binder course in number of lifts and thicknesses indicated.
2. Spread mix at minimum temperature of 250 deg F.
3. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes, unless otherwise indicated.
4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet wide unless in-fill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt binder course before placing asphalt surface course.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.5 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints as described in AI MS-22, "Construction of Hot Mix Asphalt Pavements."

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5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
6. Compact asphalt at joints to a density within 2 percent of specified course density.

3.6 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F.

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Average Density: 96 percent of reference laboratory density according to AASHTO T 245, but not less than 94 percent nor greater than 100 percent.
2. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.7 INSTALLATION TOLERANCE

A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Binder Course: Plus or minus 1/4 inch.
2. Surface Course: Plus 1/4 inch, no minus.

B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

1. Binder Course: 1/4 inch.
2. Surface Course: 1/8 inch.
3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

3.8 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Owner's Project Representative.

B. Allow paving to age for 30 days before starting pavement marking unless otherwise approved by Owner's Construction Representative.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at Manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.

1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from specified requirements.

B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

C. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.

D. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

E. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.10 DISPOSAL

A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow excavated materials to accumulate on-site.

END OF SECTION 32 12 16

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SECTION 32 16 00 - CURBS AND SIDEWALKS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Portland cement concrete curbs, gutters, and sidewalks except sidewalks adjacent to building.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 31 20 00 – Earthmoving.
2. Section 32 11 33 – Aggregate Base Course.

1.3 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. American Concrete Institute (ACI):

1. ACI 305R - Hot Weather Concreting
2. ACI 306R - Cold Weather Concreting
3. ACI 306.1 - Cold Weather Concreting
4. ACI 308 - Curing Concrete

C. ASTM International (ASTM):

1. ASTM A185 - Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
2. ASTM A615 - Deformed and Plain Billet-Steel for Concrete Reinforcement
3. ASTM C31 - Making and Curing Concrete Test Specimens in the Field
4. ASTM C39 - Comprehensive Strength of Cylindrical Concrete Specimens
5. ASTM C42 - Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
6. ASTM C94 - Ready-Mixed Concrete
7. ASTM C138 - Test Method for Unit Weight, Yield, and Air Content (Gravemetric) of Concrete
8. ASTM C143 - Slump of Hydraulic Cement Concrete
9. ASTM C231 - Air-Content of Freshly Mixed Concrete by the Pressure Method
10. ASTM C172 - Sampling Freshly Mixed Concrete
11. ASTM C173 - Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
12. ASTM C260 - Air-Entraining Admixtures for Concrete
13. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete
14. ASTM C618 - Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete
15. ASTM C989 - Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars

16. ASTM C1064 - Temperature of Freshly Mixed Portland Concrete Cement
17. ASTM C1218 - Water-Soluble Chloride in Mortar and Concrete
18. ASTM D98 Calcium Chloride
19. ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous)
20. ASTM D1190 - Concrete Joint Sealer, Hot Poured, Elastic Type
21. ASTM D1751 - Performed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
22. ASTM D2628 - Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements

D. Federal Specifications (FS):

1. FS HH-F-341 - Fillers, Expansion Joint: Bituminous (Asphalt & Tar)

E. Wisconsin Department of Transportation (WisDOT):

1. State of Wisconsin Standard Specifications for Highway and Structure Construction, latest edition.

1.4 SUBMITTALS

A. Mix Design:

1. Submit three copies of each proposed mix.
2. Submit separate mix design for concrete to be placed by pumping in addition to the mix design for concrete to be placed directly from the truck chute.
3. Include applicable information and the following:

   a. Proportions of cementitious materials, fine and coarse aggregate, and water.
   b. Water-cementitious material ratio, 28-day compressive design strength, slump, and air content.
   c. Type of cement, fly ash, slag and aggregate.
   d. Aggregate gradation.
   e. Type and dosage of admixtures.
   f. Special requirements for pumping.
   g. Range of ambient temperature and humidity for which design is valid.
   h. Special characteristics of mix which require precautions in mixing, placing, or finishing techniques to achieve finished product specified.
   i. Materials and methods for curing concrete.

B. Submit certified laboratory test data or manufacturer's certificates and data for the items listed below certifying that materials are in conformance requirements specified herein. Submit to the Owner's Construction Representative for review and approval and within seven (7) calendar days after receipt of Notice-to-Proceed.

1. Concrete mix design(s)
2. Type and source of Portland cement, fly ash, and slag
3. Aggregate gradations
4. Preformed expansion joint filler
5. Field molded/poured sealant
6. Dowel bars
7. Expansion sleeves
8. Tie bars
9. Reinforcing steel bars
10. Welded wire fabric
11. Air entraining admixtures

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12. Water-reducing, set-retarding and set-accelerating admixtures (if used)

C. Test Reports: Submit field quality control test reports.

1.5 PROJECT CONDITIONS

A. Maintain access for vehicular and pedestrian traffic as required for other construction activities.

B. Utilize temporary striping, flagmen, barricades, warning signs, and warning lights as required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Forms: Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects. Use flexible spring steel forms or laminated boards to form radius bends as required. Forms shall be of depth equal to depth of curbing or sidewalk, and so designed as to permit secure fastening together at tops. Coat forms with nonstaining type of coating that will not discolor or deface surface of concrete.

B. Welded Wire Mesh: Welded plain cold-drawn steel wire fabric, ASTM A185. Furnish in flat sheets.

C. Reinforcing Steel: Deformed steel bars, ASTM A615, Grade 60.

D. Portland Cement: Shall conform to ASTM C150, Type I.

E. Fly Ash: ASTM C618, Class C. Use only one type and source throughout project.

F. Slag: ASTM C989, Grade 100 or 120. Use only one type and source throughout project.

G. Exterior Pavement Joint Materials:

1. Joint Back-up Material: Polyethylene foam, 100% closed cell.
2. Sealant:

a. Dow 888, by Dow Corning
b. 301 NS by Pecora
c. Spectrum 800 or 900 by Tremco

H. Aggregate: ASTM C33.

I. Water: Clean and potable

J. Dowel Bars: ASTM A615, grade 60, and plain steel bars.

K. Air Entrainment: ASTM C260. .

1. Air-Mix or AEA-92, by Euclid Chemical Corp.
2. MB-VR MB-AE 90, or Micro-Air, by BASF
3. Daravair or Darex Series, by W.R. Grace
4. Equivalent approved products

L. Liquid Membrane Curing and Sealing Compound: ASTM C1315, Type I, Class A or B, 25% minimum solids content, clear non-yellowing with no styrene-butadiene.

1. Water Based, VOC less than 350 g/l:

a. Super Aqua Cure, by Euclid Chemical Corp.
b. Kure 1315 by BASF

2. Solvent Based:

a. Super Rez-Seal, by Euclid Chemical Corp.
b. Kure-N-Seal 30 by BASF

2.2 CONCRETE MIXING

A. Mix concrete and deliver in accordance with ASTM C94. Design mix shall produce normal weight concrete consisting of Portland cement, supplementary cementitious materials, aggregates, admixtures and water to produce the following:

1. Compressive Strength: 3,500 psi minimum at 28 days unless otherwise indicated on the Drawings
2. Slump Range: 2 to 4 inches for hand placed concrete, 1-1/4 to 3 inches for machine placed (slipform) concrete
3. Air Entrainment: 5 to 8 percent

B. Supplementary Cementitous Materials (SCM):

1. Concrete mix shall contain SCM at the amounts specified unless other amounts are approved by Owner's Construction Representative. Either fly ash or ground granulated blast furnace slag (GGBFS) may be used for the SCM but shall not be used together to form a ternary mix. Use of fly ash or GGBFS in the concrete mix is mandatory.
2. Fly Ash: Substitute fly ash for Portland cement at 15% of the total cementitious content.

a. If used to mitigate potential aggregate reactivity, only Type F fly ash may be used and shall have the following maximum properties: 1.5% available alkali and 8.0% CaO. When a maximum of 25% replacement is used, up to 10.0% CaO is permitted.

3. Ground Granulated Blast Furnace Slag (GGBFS): Substitute GGBFS for Portland cement at 20% of the total cementitious content.

a. If required to mitigate potential sulfate exposure or aggregate reactivity, up to 50% substitution of Portland cement is allowed.

4. Maintain air-entrainment at specified levels.

C. Calcium chloride:

1. Not allowed.

PART 3 - EXECUTION

3.1 PREPARATION

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A. Begin paving work only after unsuitable areas have been corrected and are ready to receive paving.

B. Remove loose material from compacted base material surface to produce firm, smooth surface immediately before placing concrete.

3.2 INSTALLATION

A. Form Construction

1. Set forms to required grades and lines, rigidly braced and secured.
2. Install sufficient quantity of forms to allow continuance of work and so that forms remain in place minimum of 24 hours after concrete placement.
3. Check completed formwork for grade and alignment to following tolerances:

   a. Top of forms not more than 1/8-inch in 10'-0"
   b. Vertical face on longitudinal axis, not more than 1/4-inch in 10'-0"

4. Clean forms after each use and coat with form release agent as often as required to ensure separation from concrete without damage.

B. Reinforcement: Fasten reinforcing bars or welded wire fabric (if required) accurately and securely in place with suitable supports and ties. Remove from reinforcement all dirt, oil, loose mill scale, rust, and other substances that will prevent proper bonding of the concrete to the reinforcement.

C. Concrete Placement:

1. Concrete shall be mixed and placed when the air temperature in the shade and away from artificial heat is a minimum of 35 degrees F and rising. Hot and cold weather concreting shall be in accordance with ACI 305R (hot weather) and 306.1 and 306R (cold weather).Do not place concrete until base material and forms have been checked for line and grade. Moisten base material if required to provide uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until set at required finish elevation and alignment.
2. Place concrete using methods that prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Consolidate with care to prevent dislocation of reinforcing, dowels, and joint devices.
3. Deposit and spread concrete in continuous operation between transverse joints, as far as possible. If interrupted for more than 1/2 hour, place construction joint. Automatic machine may be used for curb and gutter placement. Machine placement shall be at required cross section, line, grade, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete as specified herein.

D. Joint Construction:

1. Contraction Joints: Construct concrete curb or combination concrete curb and gutter, where specified on Construction Drawings, in uniform sections of length specified on Construction Drawings. Form joints between sections either by steel templates, 1/8 inch in thickness, of length equal to width of curb and gutter, and with depth which will penetrate at least 2 inches below surface of curb and gutter; or with 3/4-inch thick performed expansion joint filler cut to exact cross section of curb and gutter; or by sawing to depth of at least 2 inches while concrete is between 4 and 24 hours old. If steel templates are used, they shall be left in place until concrete has set enough to hold its shape, but shall be removed while forms are still in place.

2. Longitudinal Construction Joints: Tie concrete curb or combination concrete curb and gutter, where specified on Construction Drawings, to concrete pavement with 1/2-inch round deformed reinforcement bars of length and spacing shown on Construction Drawings.
3. Transverse Expansion Joints: Concrete curb, combination concrete curb and gutter, or concrete sidewalk shall have filler cut to exact cross section of curb, gutter, or sidewalk. Joints shall be similar to type of expansion joint used in adjacent pavement. Expansion joints to be located at high points, utility structures, curb returns, cold joints, or 60-foot maximum spacing.

E. Joint Fillers: Extend joint fillers full-width and depth of joint, and not less than 1/2-inch or more than 1-inch below finished surface where joint sealer is indicated. Furnish joint fillers in 1-piece lengths for full width being placed, wherever possible. Where more than 1 length is required, lace or clip joint filler sections together.

F. Joint Sealants: Install in accordance with manufacturer's recommendations.

3.3 CONCRETE FINISHING

A. After striking off and consolidating concrete, smooth surface by screeding and floating. Adjust floating to compact surface and produce uniform texture. After floating, test surface for trueness with 10'-0" straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide continuous smooth finish.

B. Work edges of sidewalks, gutters, back top edge of curb, and formed joints with edging tool, rounding edge to 1/2-inch radius. Eliminate tool marks on concrete surface. After completion of floating and trowelling, when excess moisture or surface sheen has disappeared, complete surface finishing, as follows:

1. Curbs, gutters, and sidewalks: Broom finish by drawing fine-hair broom across surface perpendicular to flow of traffic. Repeat operation as necessary to produce fine line texture.

C. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point up minor honeycombed areas. Remove and replace areas or sections with major defects as directed by the Owner’s Construction Representative.

D. Check surface areas at intervals necessary to eliminate ponding areas. Remove and replace unacceptable work as directed by Owner’s Construction Representative.

3.4 CURING AND PROTECTION

A. Protect and cure finished concrete paving using with curing compound or with acceptable moist-curing methods in accordance with "water-curing" section of ACI 308. Cure for a period not less than 7 days.

B. Use solvent based curing compound when compound is applied below 40 degrees F.

3.5 BACKFILL

A. After concrete has set sufficiently, spaces on either side of concrete curb, combination concrete curb and gutter, or concrete sidewalk shall be refilled to required elevation with suitable material compacted in accordance with Section 31 20 00.

3.6 CLEANING AND PROTECTION

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A. Sweep concrete pavement and wash free of stains, discolorations, dirt, and other foreign material just prior to final inspection.

B. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials.

3.7 FIELD QUALITY CONTROL

A. Field quality control shall be the responsibility of the Contractor in accordance with Division 01. Field quality control testing and inspection shall be at the discretion of the Contractor as necessary to assure compliance with Contract requirements.

END OF SECTIION 32 16 00

SECTION 32 32 23 - MODULAR RETAINING WALL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Work includes furnishing and installing modular concrete block retaining wall units to the lines and grades designated on the construction drawings and as specified herein.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 02 20 00 - General Sitework Requirements.
2. Section 31 20 00 – Earthmoving.

1.3 REFERENCE STANDARDS

A. ASTM C1372 Standard Specification for Segmental Retaining Wall Units.

B. ASTM C1262 Evaluating the Freeze thaw Durability of Manufactured CMUs and Related concrete Units

C. ASTM D698 Moisture Density Relationship for Soils, Standard Method

D. ASTM D422 Gradation of Soils

E. ASTM C140 Sample and Testing concrete Masonry Units

1.4 DELIVERY, STORAGE, AND HANDLING

A. Contractor shall check the materials upon delivery to assure proper material has been received.

B. Contractor shall prevent excessive mud, cementitious material, and like construction debris from coming in contact with the materials.

C. Contractor shall protect the materials from damage. Damaged material shall not be incorporated in the project (ASTM C1372).

1.4 SUBMITTALS

A. Contractor shall submit a modular block retaining wall design signed and sealed by a licensed Structural/Professional Engineer with a current registration in the State of Wisconsin.

PART 2 - MATERIALS

2.1 MODULAR WALL UNITS

A. Wall units shall be modular units as produced by a licensed manufacturer approved by the Owner and the City of New Richmond.

B. Wall units shall have minimum 28 day compressive strength of 3000 psi (20.7 MPa) in accordance with ASTM C1372. The concrete units shall have adequate freeze-thaw protection with an average absorption rate in accordance with ASTM C1372 or an average absorption rate of 7.5 lb/ft^3 (120 kg/m^3) for northern climates and 10 lb/ft^3 (160 kg/m^3) for southern climates.

C. Exterior dimensions shall be uniform and consistent. Maximum dimensional deviations on the height of any two units shall be 0.125 inches (3 mm).

D. Wall units shall provide a minimum of 110 pounds total weight per square foot of wall face area (555 kg/m^2). Fill contained within the units may be considered 80% effective weight.

E. Exterior face shall be textured. Color as specified by Owner.

2.2 WALL ROCK

A. Material must be well-graded compactable aggregate, 0.25 in. to 1.5 inches (6 mm - 38 mm), with no more than 10% passing the #200 sieve (ASTM D422).

B. Material behind and within the blocks may be the same material.

2.3 INFILL SOIL

A. Infill material shall be site excavated soils when approved by the on-site soils engineer unless otherwise specified in the drawings. Unsuitable soils for backfill (heavy clays or organic soils) shall not be used in the reinforced soil mass. Fine grained cohesive soils ($\varphi<31$) may be used in wall construction, but additional backfilling, compaction and water management efforts are required. Poorly graded sands, expansive clays and/or soils with a plasticity index (PI) >20 or a liquid limit (LL) >40 should not be used in wall construction.

B. The infill soil used must meet or exceed the designed friction angle and description noted on the design cross sections, and must be free of debris and consist of one of the following inorganic USCS soil types: GP, GW, SW, SP meeting the following gradation as determined in accordance with ASTM D422.

Sieve Size	Percent Passing
1 inch (25 mm)	100 – 75
No. 4 (4.75 mm)	100 – 20
No. 40 (0.425 mm)	0 - 60
No. 200 (0.075 mm)	0 - 35

C. Where additional fill is required, contractor shall submit sample and specifications to the wall design engineer or the onsite soils engineer for approval and the approving engineer must certify that the soils proposed for use has properties meeting or exceeding original design standards.

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PART 3 - WALL CONSTRUCTION

3.1 EXCAVATION

A. Contractor shall excavate to the lines and grades shown on the approved construction drawings. Contractor shall use caution not to over-excavate beyond the lines shown, or to disturb the base elevations beyond those shown.

B. Contractor shall verify locations of existing structures and utilities prior to excavation. Contractor shall ensure all surrounding structures are protected from the effects of wall excavation.

3.2 FOUNDATION SOIL PREPARATION

A. Foundation soil shall be defined as any soils located beneath a wall.

B. Foundation soil shall be excavated as dimensioned on the plans and compacted to a minimum of 95% of Standard Proctor (ASTM D698) prior to placement of the base material.

C. Foundation soil shall be examined by the on-site soils engineer to ensure that the actual foundation soil strength meets or exceeds assumed design strength. Soil not meeting the required strength shall be removed and replaced with acceptable material.

3.3 BASE

A. The base material shall be the same as the Wall Rock material (Section 2.2) or a low permeable granular material.

B. Base material shall be placed as shown on the construction drawing. Top of base shall be located to allow bottom wall units to be buried to proper depths as per wall heights and specifications.

C. Base material shall be installed on undisturbed native soils or suitable replacement fills compacted to a minimum of 95% Standard Proctor (ASTM D698).

D. Base shall be compacted at 95% Standard Proctor (ASTM D698) to provide a level hard surface on which to place the first course of blocks. The base shall be constructed to ensure proper wall embedment and the final elevation shown on the plans. Well-graded sand can be used to smooth the top 1/2 in. (13 mm) on the base material.

E. Base material shall be a 4-inch (100 mm) minimum depth for walls under 4 feet (1.2 m) and a 6-inch (150 mm) minimum depth for walls over 4 feet (1.2 m).

3.4 UNIT INSTALLATION

A. Install units in accordance with the manufacturer’s instructions and recommendations for the specific concrete retaining wall unit, and as specified herein.

B. Ensure that units are in full contact with base. Proper care shall be taken to develop straight lines and smooth curves on base course as per wall layout.

C. Fill all cores and cavities and a minimum of 12 inches (300 mm) behind the base course with wall rock. Use infill soils behind the wall rock and approved soils in front of the base course to firmly lock in place.

Check again for level and alignment. Use a plate compactor to consolidate the area behind the base course. All excess material shall be swept from top of units.

D. Install next course of wall units on top of base course. Position blocks to be offset from seams of blocks below. Perfect "running bond" is not essential, but a 3-inch (75 mm) minimum offset is recommended. Check each block for proper alignment and level. Fill all cavities in and around wall units and to a minimum of 12-inch (300 mm) depth behind block with wall rock. For taller wall application the depth of wall rock behind the block should be increased; walls from 15 feet (4.57 m) to 25 feet (7.62 m) should have a minimum of 2 feet (0.61 m) and walls above 25 feet (7.62 m) should have a minimum of 3 feet (0.9 m). Spread infill soil in uniform lifts not exceeding 8 inches (200 mm) in uncompacted thickness and compact to 95% of Standard Proctor (ASTM D698) behind the consolidation zone.

E. The consolidation zone shall be defined as 3 feet (0.9 m) behind the wall. Compaction within the consolidation zone shall be accomplished by using a hand operated plate compactor and shall begin by running the plate compactor directly on the block and then compacting in parallel paths from the wall face until the entire consolidation zone has been compacted. A minimum of two passes of the plate compactor are required with maximum lifts of 8 inches (200 mm). Expansive or fine-grained soils may require additional compaction passes and/or specific compaction equipment such as a sheepsfoot roller. Maximum lifts of 4 inches (100 mm) may be required to achieve adequate compaction within the consolidation zone. Employ methods using lightweight compaction equipment that will not disrupt the stability or batter of the wall. Final compaction requirements in the consolidation zone shall be established by the engineer of record.

F. Install each subsequent course in like manner. Repeat procedure to the extent of wall height.

G. As with any construction work, some deviation from construction drawing alignments will occur. Variability in construction of SRWs is approximately equal to that of cast-in-place concrete retaining walls. As opposed to cast-in-place concrete walls, alignment of SRWs can be simply corrected or modified during construction. Based upon examination of numerous completed SRWs, the following recommended minimum tolerances can be achieved with good construction techniques.

1. Vertical Control - ±1.25 in. (32 mm) max. over 10 ft (3 m) distance
2. Horizontal Location Control - straight lines ±1.25 in. (32 mm) over a 10 ft (3 m) distance.
3. Rotation - from established plan wall batter: 2.0°
4. Bulging - 1.0 in. (25 mm) over a 10 ft. (3.0 m) distance

3.5 ADDITIONAL CONSTRUCTION NOTES

A. When one wall branches into two terraced walls, it is important to note that the soil behind the lower wall is also the foundation soil beneath the upper wall. This soil shall be compacted to a minimum of 95% of Standard Proctor (ASTM D698) prior to placement of the base material. Achieving proper compaction in the soil beneath an upper terrace prevents settlement and deformation of the upper wall. One way is to replace the soil with wall rock and compact in 8-inch (200 mm) lifts. When using on-site soils, compact in maximum lifts of 4 inches (100 mm) or as required to achieve specified compaction.

B. Filter fabric use is not suggested for use with cohesive soils. Clogging of such fabric creates unacceptable hydrostatic pressures in soil reinforced structures. When filtration is deemed necessary in cohesive soils, use a three dimensional filtration system of clean sand or filtration aggregate.

C. Embankment protection fabric is used to stabilize riprap and foundation soils in water applications and to separate infill materials from the retained soils. This fabric should permit the passage of fines to preclude clogging of the material. Embankment protection fabric shall be a high strength polypropylene monofilament material designed to meet or exceed typical Corps of Engineers plastic filter fabric

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specifications (CW-02215); stabilized against ultraviolet (UV) degradation and typically exceeding the values in Table 1, page 8 of the AB Spec Book.

D. Water management is of extreme concern during and after construction. Steps must be taken to ensure that drain pipes are properly installed and vented to daylight and a grading plan has been developed that routes water away from the retaining wall location. Site water management is required both during construction of the wall and after completion of construction.

END OF SECTION 32 32 23

SECTION 32 91 19 - TOPSOIL-SELECT FILL MATERIALS AND APPLICATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. The work under this section shall consist of providing all topsoil, labor, material and equipment required to complete the work described herein in strict accordance with the drawings and/or terms of the contract.
2. All work on the public lands and/or public rights of way shall conform to the applicable City of New Richmond Standard Construction Specifications stated below.
3. All work shall be in accordance with applicable manufacturer's instructions and the Standard Specifications.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 02 20 00 – General Sitework Requirements.
2. Section 31 20 00 – Earthmoving.
3. Section 31 25 00 – Erosion Control.
4. Section 31 22 16.15 – Subgrade Preparation.
5. Section 32 92 19 – Seeding and Sodding.

1.3 REFERENCES

A. Where reference is made to the "Construction Specifications", it shall be construed to mean the pertinent section of the City of New Richmond, Construction Standards, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

B. Where reference is made to the "Standard Specifications", it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

C. Where reference is made to the "State Specifications", it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

D. Where reference is made to the "Geotechnical Report", it shall be construed to mean the geotechnical investigations(s) found in Section 00 31 32 – Geotechnical Data.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Select fill shall be a loamy sand, sandy loam, clay loam, loam, silt loam, sandy clay loam or other soil approved by the owner/architect. It shall not have a mixture of subsoil and shall contain no slag, cinders, stones, lumps of soil, sticks, roots, trash or other extraneous materials larger than 1.5 inches in diameter. Select fill must also be free of viable plants or plant parts of common bermudagrass, quackgrass, johnsongrass, nutsedge, poison ivy, Canada thistle, or others as may be specified. All select fill shall be tested by a reputable laboratory for pH and soluble salts. If needed, pH correction material shall be applied at a rate sufficient to correct the pH to a range of 6.0 to 7.0. Soluble salts shall not be higher than 500 parts per million.

B. No turf grass sod shall be placed on soil which has been chemically treated until sufficient time has elapsed to permit dissipation of all toxic materials. The general contractor shall assume full responsibility for any loss or damage to turfgrass sod arising from improper use of chemicals or due to his failure to allow sufficient time to permit dissipation of toxic residues, whether or not such materials are specified herein.

C. Topsoil on the existing site may often be used; however, it should meet the same standards as set forth in these specifications.

PART 3 - EXECUTION

3.1 GRADING

A. The select fill shall be uniformly distributed on the designated area(s) and it shall be a minimum of 3 inches deep after firming.

B. No grading shall be done beyond the limits specified within the Grading and Erosion Control Plan.

C. Spreading shall be performed in such a manner that sod installation can proceed with a minimum of additional soil preparation and tillage.

D. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

E. Select fill shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed for seeding.

3.2 CLEAN UP

A. After the select fill has been spread and the final grade approved, it shall be cleared of all grade stakes, surface trash or other objects that would hinder seeding and other plantings.

B. Paved areas over which hauling operations are conducted shall be kept clean and any soil which may be brought upon the surfacing shall be promptly removed.

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C. The wheels of all vehicles shall be kept clean to avoid tracking soil on the surfacing of roads, walks or other paved areas.

3.3 ACCEPTANCE

A. Acceptance will be given by the Owner, Engineer or their Construction Representative, upon satisfactory completion of each section or area(s), as indicated on the drawings or as otherwise specified.

3.4 PAYMENT

A. Specifications of method of payment, retainer and final payment shall be customary to the industry in this area.

END OF SECTION 32 91 19

SECTION 32 92 00 - TREES, SHRUBS, AND OTHER PLANTINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. These specifications, along with contract drawings and lists of plant materials, apply to those items necessary for and incidental to the preparation, execution, completion and maintenance of the landscape planting activities (excluding lawn areas) specified in the contract. The scope includes the planting of trees, shrubs, perennials, and grasses, and the maintenance activities of fertilizing, pruning and watering.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 02 20 00 – General Sitework Requirements.
2. Section 31 10 00 – Site Clearing.
3. Section 31 13 16 – Tree Protection.
4. Section 31 20 00 – Earthmoving.
5. Section 31 25 00 – Erosion Control.
6. Section 32 91 19 – Topsoil/Select Fill Materials and Application.
7. Section 32 92 19 – Seeding and Sodding.

1.3 REFERENCE STANDARDS

A. *American Standards for Nursery Stock, ANSI Z60.1*, current edition. American Association of Nurserymen, Inc.

B. *Standardized Plant Names, Second Edition* (1942). American Joint Committee on Horticulture Nomenclature, Horace McFarland Company, Harrisburg, PA.

C. *American National Standard for Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance-Standard Practices, ANSI A300*, current edition.

D. Where reference is made to the “Construction Specifications”, it shall be construed to mean the pertinent section of the City of New Richmond, Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

E. Where reference is made to the “Standard Specifications”, it shall be construed to mean the pertinent section(s) of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

F. Where reference is made to the "State Specifications", it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

G. Where reference is made to the "Geotechnical Report", it shall be construed to mean the geotechnical investigation(s) in Section 00 31 32 - Geotechnical Data.

1.4 QUALITY ASSURANCE

A. All plant material shall conform to the *American Standards for Nursery Stock*, unless noted otherwise herein.

B. All plant material shall be true to the species and variety/hybrid/cultivar specified, and nursery-grown in accordance with good horticultural practices, and under climatic conditions similar to those of the site location. Specimens' nursery-dug to be replanted shall have been freshly dug and properly prepared for planting.

C. Trees and shrubs:

1. Shall be trained in development and appearance as to be superior in form, compactness and symmetry. Trees with multiple leaders, unless specified otherwise, and shrubs with damaged or cut mainstem(s), will be rejected.

2. With a damaged, cut or crooked leader, abrasion of bark, sunscald, frost crack, disfiguring knots, insects (including eggs and larvae) or insect damage, cankers/cankerous lesions or fungal mats, mold, prematurely-opened buds, or cuts of limbs over 3/4" (1.9 cm) diameter that are not completely callused will be rejected.

3. Shall have healthy, well-developed root systems, and be free from physical damage or other hindrances to healthy growth.

4. Balled and burlapped plants shall be dug with solid balls of a diameter not less than that recommended by the *American Standards for Nursery Stock*, and of sufficient depth to include both fibrous and feeding roots. Balls shall be securely wrapped with burlap, and tightly bound with rope or twine. No plant shall be bound with rope or wire in such manner as to damage bark or break branches. The root flare should be within the top 2" (5.1 cm) of the soil ball. Balled and burlapped plants will not be accepted if the ball is dry, cracked, or broken before or during planting.

5. Containerized plants are to be well-established within the container, with a root system sufficiently developed to retain its shape and hold together when removed from the container. Soil within the container should be held together by the roots, in form and whole. Plants shall not be pot-bound, nor have kinked, circling, or bent roots.

D. Herbaceous perennials and grasses shall only be supplied from nurseries certified by state plant inspectors.

1.5 MEASUREMENT

A. Plants shall conform to the measurements specified within the contract documents. Specified height and spread dimensions will refer to the main body of the plant, and not from branch tip to branch tip. Plants meeting a specified measurement, but judged to lack the balance between height and spread characteristic of the species will be rejected.

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B. Plants shall be measured when branches are in their normal position.

C. No plant shall be less than the minimum size specified, and no less than fifty (50) percent of the plants shall be as large as the maximum size specified.

D. Caliper measurements shall be taken 54" (1.4 m) above ground level

E. Containerized shrubs shall be measured by height and width for conformity with the plant list

F. Herbaceous perennials and grasses shall be measured by pot size, not by top growth

G. All other measurements, such as number of canes, ball sizes, and quality designations, shall conform to *American Standards for Nursery Stock.*

1.6 INSPECTIONS

A. Plant materials shall be subject to approval by Owner's Construction Representative.

1.7 SUBSTITUTIONS

A. The substitution of plant materials is not permitted unless authorized in writing by the Owner's Construction Representative. If written proof is submitted by the Contractor that a plant of specified species, variety or size is unavailable, consideration will be given towards the nearest available size or variety, or towards an alternate species selection, with a corresponding adjustment of the contract price.

1.8 DELIVERY, STORAGE AND HANDLING

A. The Contractor is to arrange for the acceptance and unloading of plants at the project site.

B. All plants are to be labeled by plant name and size. Labels shall be attached securely to all plants, bundles, and containers of plant materials when delivered. Labels shall be durable and legible, with information given in weather-resistant ink or embossed process lettering. The Owner should verify all plant labels, upon approval the plant labels shall be removed by the Contractor.

C. All plant materials, shipments and deliveries shall comply with current state and federal laws and regulations governing the inspection, shipping, selling and handling of plant stock. If required by law or regulation, a certificate of inspection, or a copy thereof, for injurious insects, plant diseases, and other plant pests shall accompany each shipment or delivery of plant material. The certificate shall bear the name(s) and address(es) of the source of the plant stock.

D. During transport, no plant shall be bound with rope or wire in a manner that damages trunks or breaks branches. Plants shall also not be dragged, lifted or pulled by the trunk, branches or foliage in a damaging way. No plant shall be thrown off of a truck or loader to the ground.

E. Prior to installation, all plants must be protected from sun and drying winds.

F. Containerized or balled and burlapped plants not being installed immediately must be kept in a shaded area, well-covered with wood chips, soil, or other approved material, and kept well-watered. Install all plants within three (3) days of delivery.

G. Fertilizer shall be delivered to the site in original, sealed containers, and stored in a waterproof space. Containers shall bear the manufacturer's name, analysis, trademark and guarantee as per standards of the Wisconsin Department of Agriculture.

H. Contractor shall protect all plants, lawns, and grass from damage at all times. Damaged plants, lawns or grass areas shall be replaced or treated as required to conform to specifications herein for fresh stock. Damage incurred as a result of replacement or installation operations shall be repaired by Contractor at no cost to Owner.

1.9 PLANTING SCHEDULE

A. Plants shall be installed as appropriate for that specific plant species to ensure healthy vigorous growth.

B. All plants shall be guaranteed to be in healthy and flourishing condition for one full year after installation and acceptance by the Owner.

C. Plants not thriving shall be replaced at no cost to the Owner. The contractor may suggest substitutions for replacement plants.

D. Replacement plants shall be guaranteed for one year after installation.

E. At any time during the guarantee period, the Contractor shall remove or replace, without cost to the Owner and within a specified planting period, all plants not in a healthy and flourish conditions as determined by the Owner's Construction Representative.

1.10 MAINTENANCE

A. The Contractor shall maintain plantings and lawn for at least a period of 30 days, or until final acceptance from the Owner. The Contactor is responsible for adequately watering plants and lawn during this 30 day period.

B. Fertilizing: Any and all chemical applications are to be performed in accordance with current federal, state and local laws, through EPA-registered materials and application techniques, and performed under the supervision of a licensed certified applicator. Apply fertilizer to planted areas at the specified rate, and as per manufacturer's recommendations.

C. Watering: All plant materials installed under the contract shall be watered within the first 24 hours of initial planting and not less than twice weekly until final acceptance by the Owner. Water used shall be of sufficient quality for irrigation and free of materials harmful to plant growth.

D. Pesticide: Any use of pesticides during the contracted maintenance period, as determined by the Owner, shall utilize the minimum amount of approved pesticide needed to control pests on plant materials installed under the contract. Pesticide applications are to be performed in accordance with current federal, state and local laws, through EPA-registered materials and application techniques, and performed under the supervision of a licensed certified applicator. Apply at the specified rate, and as per manufacturer's recommendations.

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PART 2 - PRODUCTS

2.1 MATERIALS

A. Plant Materials: A complete list of plant materials, including a schedule of quantities, sizes, and other requirements, shall be included in the contract documents. If discrepancies occur between the printed plant list, and the contract drawings, the printed list will take precedent.

B. Topsoil: Naturally fertile, agricultural soil, capable of sustaining vigorous growth, of uniform composition throughout, without admixtures of subsoil, free of clay, stones larger than 1" (2.5 cm) in diameter, roots, trash and debris of any kind, supplied by Contractor at his/her expense, and subject to approval by the Project Representative or Landscape Architect.

C. Planting Mixture: Material used in tamping around balls and roots during the planting operation shall be prepared on site by mixing four (4) parts native topsoil from project site to one (1) part peat. Conform to alternate mixes as specified for beds of certain ornamental plants. All mixing shall be done by mechanical means subject to the approval of the Project Representative or Landscape Architect.

D. Fertilizer: Granular, non-burning product composed of not less than fifty (50) percent organic slow-acting, guaranteed analysis professional fertilizer. Commercial fertilizer shall conform to Wisconsin State Statutes, Section 94.64, and meet the standards of the Wisconsin Department of Agriculture as to registration and labeling. Fertilizer shall be specified in the contract documents as to composition, but is subject to revision to suit project site conditions.

E. Mulch: Shredded hardwood bark mulch, free of material detrimental to healthy plant growth. Mulch shall be finely shredded, weed free, dye-free mulch

PART 3 - EXECUTION

3.1 INSPECTION

A. Topsoil: Refer to Topsoil-Select Fill Materials and Application Section specifications.

B. Verify that prepared soil base is ready to receive the work of this Section.

C. Beginning of installation means acceptance of existing site conditions.

3.2 PREPARATION OF SUBSOIL

A. Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.

B. Remove foreign materials, weeds, and undesirable plants and their roots. Remove any contaminated subsoil. Plants can be removed through application of glyphosphate. Follow manufacturer's instructions for proper use.

C. Scarify subsoil to a depth of 3 inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.

3.3 PLACING TOPSOIL

A. Refer to Topsoil-Select Fill Materials and Application Section specifications.

B. Spread any needed amendments per soil test and till soil to a depth of 3-4 inches. Ideal seed bed will be a combination o soil particles ranging from approximately a quarter inch to a full inch in size.

C. Topsoil compaction should be below 250 psi, if topsoil compactions are greater soil should be ripped, disced, or otherwise loosened to a depth of at least 12 inches.

3.4 PREPARATION

A. Stake all planting areas and notify Digger's Hotline (1-800-242-8511 statewide) to verify location of all underground utilities prior to excavation.

B. Excavate planting areas as shown in included specifications.

C. Adequately barricade with proper warning devices any planting pit left open when planting work is not in progress, and that poses a hazard to vehicles and/or pedestrians.

D. Maintain site housekeeping to provide for a safe and orderly project site. Collect and dispose of debris as they accumulate.

E. The planting pit for containerized and balled and burlapped plants shall be at least 2.5 to 3 times the diameter of the soil ball, or to a dimension otherwise specified.

F. The planting pit for a single shrub shall be 12" (30.5 cm) wider than the root ball.

G. Loosen the soil beyond the edge of the planting pit. The soil at the base of the planting pit is to remain undisturbed, the depth of which shall correspond to the distance from the bottom of the soil ball to the root flare, or slightly less.

H. Fence and/or box in all trees and plant material which are to remain at the drip line before work is started. Do not permit heavy equipment or stockpiles within branch spread. Remove interfering branches without injury to trunks, cover scars with tree paint.

I. For a shrub mass planting, the entire bed area is to be tilled to a depth of 4-6" (10.2 -15.2 cm). Excavate individual shrub pits to the proper depth.

3.5 PLANTING OF TREES AND SHRUBS

A. Remove plant containers by cutting or carefully inverting the container. For plants grown in plastic containers slash the edges of the root ball from top to bottom with vertical 1" (2.5 cm) cuts using a sharp blade.

B. Root balled plants shall have rope, string, wire baskets, burlap and other wrapping material removed from the top half of the ball after the plant has been set in the hole. Remaining wrappings, other than those made from plastic or synthetic material, may be left around the bottom half of the ball.

C. Shrubs grown using root containment material shall have the containment bag removed prior to setting.

D. Set trees and shrubs straight and upright, and in the center of the planting hole and on the unexcavated base of the planting pit, with the most desirable face towards the most prominent view.

E. Root-balled shrubs are to be carried and set in the hole by the root ball.

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F. Backfilling: Backfill pits with excavated soil. No soil in frozen or muddy condition shall be used for backfilling.

G. When pit is approximately two-thirds backfilled, tamp down and water to eliminate air pockets. After initial watering, add remainder of the soil to the top of pit, water without puddling, and firmly tamp without over-compacting. Form a 2-3” (5.1 - 7.6 cm) high saucer around the outer rim of the pit prior to mulching.

H. All trees shall be installed with 5’ diameter tree ring with 3” mulch layer. Tree rings shall have shovel edging.

I. All parking islands shall receive a minimum of 18” of topsoil.

3.6 PLANTING OF PERENNIALS, FORBS, AND GRASSES

A. Preparation: Loosen soil of the planting bed to a depth of 4-6” (10.2 - 15.2 cm) by mechanical or hand tilling while soil is dry. For bulbs, the depth of loosened soil will be determined by the type of bulb planted, and specified in the contract or landscape plan.

B. After soil is loosened, till organic material into the soil across the planting bed to a uniform depth of 2” (5.1 cm) for peat moss or 1” (2.5 cm) for compost.

C. Fertilizer, at amounts determined by the soil test, shall be topdressed to the soil.

D. Apply approved mulch uniformly across the entire planting bed to a depth of 1-2” (2.5 - 5.1 cm).

E. Planting: Space as described in the landscape plan.

F. Unless otherwise specified, install plants no closer than 12” (30.5 cm) to the trunks of trees or shrubs within planting bed, and to within 6” (15.2 cm) of the edge of the bed.

G. Prior to planting, biodegradable plant containers shall be split and non-biodegradable containers removed. The root systems of all such plants shall be split or crumbled by hand.

H. All parking islands that contain perennials (not including bioinfiltration area) shall have a minimum of 18” of topsoil. These areas shall also have 3” of mushroom compost spread uniformly over the parking island and tilled into the top 6” of the soil.

3.7 FINISHING

A. Finish-grade planting areas to required elevations after plants have fully settled.

B. No soil is to cover the top of the root ball. All plants shall be completely mulched over the root system with a 3” (7.6 cm) layer of specified mulching material immediately after planting. Pull back mulch no less than 3” (7.6 cm) and no more than 6” (15.2 cm) from the trunk.

C. Thoroughly water plants immediately after planting and before mulching, primarily within and filling the saucer.

D. Prune any dead or broken branches. Prune in accordance with NAA Guidelines conforming to the American Standard for Tree Care Operations. Prune shrubs in accordance with standard horticultural practices. On cuts of 3/4"inch in diameter and bruises or scars on bark, trace the inured cambium layer

back to living tissues and remove. Smooth and shape wounds so as not to retain water and coat the treated area within approved antiseptic tree paint.

E. Remove all twine and rope after planting, along with any labels attached around trunks or branches.

3.8 CLEANING

A. Dispose of excess soil. Remove all cuttings and waste materials.

B. Soil, branches, binding and wrapping material, rejected plants, or other debris resulting from plant installation shall be promptly cleaned up and removed. New landscape construction in and around the planting areas are to be especially well-cleaned.

C. Under no condition shall the accumulation of soil, branches or other debris be allowed upon a public property in such a manner as to result in a public hazard. Likewise, under no circumstances shall any debris or incidental materials be allowed upon adjacent private property.

END OF SECTION 32 92 00

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SECTION 32 92 19 - SEEDING AND SODDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Preparation of subsoil.
2. Placing topsoil.
3. Fertilizing.
4. Seeding.
5. Seed Protection.
6. Mulching.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 02 20 00 – General Site Work Requirements.
2. Section 31 10 00 – Site Clearing and Grubbing.
3. Section 31 13 16 – Tree Protection.
4. Section 31 20 00 – Earthmoving.
5. Section 31 22 16.15 - Subgrade Preparation.
6. Section 31 25 00 – Erosion Control.
7. Section 32 91 19 – Topsoil-Select Fill Materials and Application.
8. Section 32 92 00 - Trees, Shrubs, and Other Plantings

1.3 DEFINITIONS

A. Weeds: Include (for reference refer to the WIDNR Field Guide to Terrestrial Invasive Plants):

1. Trees: Black Locust, Common Buckthorn, Tree-of-heaven, Princess Tree, Sawtooth Oak.
2. Shrubs: Eurasian Bush Honeysuckle (L. x bella, maackii, morrowii, tatarica), Tararian Maple, Glossy Buckthorn, Japanese Barberry, Multiflora Rose, Russian and Autumn Olive (Elaegnus spp.), Scotch Broom, Wineberry.
3. Vines: Chinese Yam, Japanese Honeysuckle, Japanese Hops, Kudzu, Oriental Bittersweet, Porcelain Berry, Swallow-worts (Vincetoxicum spp), Mile-a-minute Vine.
4. Grasses and Forbs: Bird’s-foot Trefoil, Canada Thistle, Celandine, Creeping Bellflower, Crown Vetch, Dame’s Rocket, European Marsh Thistle, Garlic Mustard, Giant Hogweed, Hedgeparsely (Torilis spp), Hemp Nettle, Hill Mustard, Hound’s Tongue, Japanese and Gian Knotweed (Fallopia spp.), Poison Hemlock, Purple Loosestrife, Spotted Knapweed, Leafy and Cypress Spurge, White and Yellow Sweet Clover, Tansy, Common and Cut-leaved Teasel, Bull, Musk, and Plumeless Thistle, Wild Chervil, Wild Parsnip, Yellow Star Thistle, Narrow-leaved and Hybrid Cattail, Japanese Stilt Grass, Phragmites, Reed Canary Grass, Tall Manna Grass, Hairy Willow Herb, Helleborine Orchid, Perennial Pepperweed, Sericea Lespedeza, Lyme Grass, Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass,

Mustard,Lambsquarter, Chickweed, Cress, Crabgrass, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Perennial Sorrel, and Brome Grass.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Seed shall be delivered to the site in its original, unopened container, labeled as to weight, analysis, and manufacturer. Seed in damaged packaging is not acceptable. Store any seed delivered prior to use in a manner safe from damage from heat or any other deleterious weather conditions.

B. Planting Season: The regular seeding season is considered April 1-June 15 and September 1-October 15. If planting outside of regular seeding season the contractor is responsible for adequately watering the site to obtain vigorous healthy plant growth.

1.5 REFERENCE SPECIFICATIONS

A. Where reference is made to the “Construction Specifications”, it shall be construed to mean the pertinent section of the City of New Richmond, Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

B. Where reference is made to the “Standard Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

C. Where reference is made to the “State Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

D. Where reference is made to the “Geotechnical Report”, it shall be construed to mean the geotechnical investigation(s) in Section 00 31 32 - Geotechnical Data.

1.6 GUARANTEE

A. Guarantee plant material for a period of 12-19 months following the Substantial Completion Date in accordance with the Extended Maintenance/Warranty Chart included in Part 3 hereinafter.

1. A limit of one replacement of each plant shall be required, except for losses or replacements due to failure to comply with requirements.
2. Remove from site any plant that is dead or unsatisfactory to an approved disposal site. Replace plants during normal planting season.

1.7 SUBMITTALS

A. Submittals shall be available at all times to the Owner and Engineer.

B. Grower/Nursery Information: Submit name, address, phone number and contact person for each Grower/ Nursery 30 days prior to plant material selection meeting.

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C. Materials Test Reports: Submit topsoil borrow area test reports to the Owner/Engineer minimum 6 weeks prior to delivery to site.

1. Provide location of topsoil borrow area.
2. Provide name of independent soil testing laboratory.
3. Provide date of sampling and testing.

D. Product Data:

1. Submit certification tags from sod and seed verifying type and purity to the Owner's Construction Representative.

E. Closeout submittals:

1. Submit Meetings and Inspections Log prior to Final Completion of the Project.
2. Certification of Conformance: Provide certificate of satisfactory performance of planting operations signed by the Contractor and Landscape Architect.

1.8 MAINTENANCE

A. The contractor shall maintain lawn for at least a period of 30 days, or until final acceptance from the owner. The Contractor is responsible for adequately watering lawn during this 30-day period. Contractor is responsible for establishing healthy vigorous lawn growth. Long-term maintenance is the responsibility of the owner.

PART 2 - PRODUCTS

2.1 SEED MIXTURE

A. Grass Seed: All grass seed shall conform to the requirements of Wisconsin State Statutes, Chapter 94 (Seed Law), and the Wisconsin Administrative Code Chapter ATCP 20, regarding noxious weed seed content and labeling. Seed shall not be used later than one (1) year following the test date labeled.

B. Seed Mixture: Use State Specifications Mix 40 in the right of way.

2.2 SOIL MATERIALS

A. Topsoil: Refer to Topsoiling Section for specifications.

2.3 SOD

A. Provide sod species suitable as lawn turf for the region. Sod shall be strongly rooted, weed, disease, pest free and uniform in thickness.

2.4 ACCESSORIES

A. Mulching material:

1. Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable
2. Where necessary to maintain erosion control, seed shall be applied using Method B, Hydroseeding from the State Specifications.

B. Fertilizer: Standard commercial packaged or bulk product in granular form conforming to the requirements of Dane County and the Wisconsin Statutes and of the Wisconsin Administrative Code Chapter Agriculture 17. Provide fertilizer meeting the following requirements: I don't know about the following so I am going to delete it.

C. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify that prepared soil base is ready to receive the work of this Section.

B. Beginning of installation means acceptance of existing site conditions.

3.2 PREPARATION OF SUBSOIL

A. Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.

B. No seeding shall occur on frozen ground or at temperatures lower than 32°F (0°C).

C. Remove foreign materials, weeds, and undesirable plants and their roots. Remove any contaminated subsoil. Plants can be removed through application of glyphosphate. Follow manufacturer's instructions for proper use.

D. Scarify subsoil to a depth of 3 inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.

E. Unsuitable Subsoils: Locations containing unsuitable subsoil shall be treated by one or more of the following:

1. Where unsuitability is deemed by the Owner's Construction Representative to be due to excessive compaction caused by heavy equipment and where natural subsoil is other than AASHTO classification of A6 or A7, loosen such areas with spikes, discing, or other means to loosen soil to condition acceptable to the Owner's Construction Representative. Loosen soil to minimum depth of 12 inches with additional loosening as required to obtain adequate drainage. Contractor may introduce peat moss, sand, or organic matter into the subsoil to obtain adequate drainage. Such remedial measures shall be considered as incidental, without additional cost to the Owner's Construction Representative.
2. Where unsuitability is deemed by the Owner's Construction Representative to be due to presence of boards, mortar, concrete, or other construction materials in sub grade and where natural subsoil

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is other than AASHTO classification of A6 or A7, remove debris and objectionable material. Such remedial measures shall be considered as incidental, without additional cost to the Owner.

3. Where unsuitability is deemed by the Owner's Construction Representative to be because natural subsoil falls into AASHTO classification of A6 or A7 and contains moisture in excess of 30 percent, then installation of sub drainage system or other means described elsewhere in Specifications shall be used. Where such conditions have not been known or revealed prior to planting time and they have not been recognized in preparation of The Drawings and Specifications, then the Owner's Construction Representative shall issue pricing order to install proper remedial measures.

3.3 PLACING TOPSOIL

A. Refer to Topsoiling Section.

B. Spread any needed amendments per soil test and till soil to a depth of 3-4 inches. Ideal seed bed will be a combination o soil particles ranging from approximately a quarter inch to a full inch in size.

3.4 FERTILIZING

A. Apply seed starter fertilizer at the rate specified by the product manufacturer.

B. Fertilizer must be phosphorus free and meet St. Croix County and City of New Richmond requirements.

C. Apply after smooth raking of topsoil.

D. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

E. Mix thoroughly into upper 2 inches of topsoil.

F. Lightly water to aid the dissipation of fertilizer

3.5 SEEDING

A. Firm up soil with light irrigation – Lightly dampen soil before seeding.

B. Sow seed using either Method A or Method B as defined in Section 630.3.3 of Standard Specifications for Highway Construction.

C. Protect seeded slopes of 4:1 or greater against erosion with erosion control materials specified on grading and erosion control plan.

D. Apply seed evenly in two directions at a rate specified by the product manufacturer. Rake in lightly. A cultipacker or similar equipment shall be used to enhance soil/seed contact. Care shall be taken to avoid damage to erosion mat in areas where erosion mat is specified. Do not seed areas in excess of that which can be mulched on the same day.

E. Do not sow immediately following rain, when ground is too dry, or during windy periods.

F. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Do not sow immediately following rain, when ground is too dry, or during windy periods.

G. Do not use seed that is wet, moldy or otherwise damaged in transit or storage.

H. Sow seed at a rate of 1½ pounds per 1,000 square feet. In addition to lawn seed, annual rye shall be applied to all disturbed areas at a rate of 1½ pound per 1,000 square feet.

I. Fertilize per manufacturer's recommendations.

J. Roll seeded area with 24-in. width roller not exceeding 112 lbs.

K. Immediately following seeding and compacting, apply mulch to a thickness of 1/8 inches.

L. Apply water with a fine spray immediately after each area has been mulched keeping the top 1-2 inches of soil moist but not soaking. Water adequately to achieve a healthy stand of weed free lawn. Do not let soil dry out.

M. Apply a second application of seed starter fertilizer at the rate specified by the product manufacturer three (3) weeks after seeding.

N. Begin weekly mowing when first seedlings reach 2 inches. Do not mow right after watering. Raise mowing height to 3 inches after six (6) weeks. Never remove more than 1/3 of the grass blade at a time.

O. Begin standard fertilization and irrigation programs after eight (8) weeks. Do not apply any weed control products until lawn has been mowed at least four times and a minimum of eight (8) weeks have passed. Follow manufacturer's recommendations for new lawns.

3.6 SEED PROTECTION

A. Identify seeded areas with stakes and string around area periphery. Set string height to 24 inches.

3.7 SODDING

A. Cut and lay sod on same day. Only healthy vigorous growing sod shall be laid.

B. Lay sod across slope and tightly together to result in solid coverage free of gaps.

C. Roll or firmly but lightly tamp new sod with suitable wooden or metal tamper sufficiently to set or press sod into underlying soil.

D. All finished sodding shall be smooth and free of lumps and depressions.

E. After sodding has been completed, clean up and thoroughly water newly-sodded areas.

3.8 MAINTENANCE DURING CONSTRUCTION

A. Begin maintenance operations immediately after each plant is planted and continue as required until acceptance. Water, mulch, weed, prune, spray, fertilize, cultivate, and otherwise maintain and protect plants. Reset settled plants to proper grade and position, restore planting saucers, and remove dead, diseased, or unhealthy plant material. Tighten and repair stakes and wires. Correct defective work as soon as possible after it becomes apparent and weather and season permit.

B. Upon completion of the planting operations, clean up landscaped areas to be free of stones, containers, trash, and other waste and debris to leave area in a neat and well groomed appearance.

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C. Supplement rainfall as required to provide an equivalent of 1 inch of water per week until the plants have rooted and are established.

D. Maintain all plant material in a healthy, vigorous growing condition.

E. Make weekly inspections to determine moisture content of soil and adjust watering schedule established by irrigation system installer to fit conditions.

F. After grass growth has started, reseed or sod areas that fail to show uniform stand of grass in accordance with The Drawings and as specified herein. Continue Reseeding and sodding such areas repeatedly until areas are covered with satisfactory growth of grass. Perform removal and replacement or topsoil conditioning if required to facilitate establishment of grass.

G. Water in such manner and as frequently as is deemed necessary by the Owner's Construction Representative to assure continued growth of healthy grass. Water areas of site in such a manner as to prevent erosion due to excessive quantities applied over small areas and to avoid damage to finished surface due to watering equipment.

H. Provide water for execution and maintenance at no expense to the Owner's Construction Representative. Furnish portable tanks, pumps, hose, pipe, connections, nozzles, and any other equipment required to transport water from available outlets and apply it to seeded areas in approved manner.

I. Mowing:

1. Initiate mowing of turf grass areas when grass has attained height of 3 inches and roots are firmly established. Maintain turf grass height at 2 1/2 to 3 inches at subsequent cuttings depending on time of year. Remove no more than 1/3 of grass leaf at any cutting and cutting shall not occur more than 10 days apart.
2. Mow native grass areas no more than 3 times per year to a height of no less than 4 inches.
3. Remove heavy cuttings to prevent destruction of underlying turf. If weeds or other undesirable vegetation threaten to smother planted species, such vegetation shall be mowed or, in case of rank growths, shall be uprooted, raked and removed from area by methods approved by the Owner's Construction Representative.

J. Remove weeds and other undesirable vegetation by applying herbicides as recommended by the manufacturer or by uprooting. Rake and remove uprooted vegetation from area by methods approved by the Owner's Construction Representative.

K. Protect seeded area from pedestrian or vehicular trespassing while grass is germinating. Provide fences, signs, barriers, or other necessary temporary protective devices. Repair damage resulting from trespass, erosion, washout, settlement, or other causes.

L. Remove fences, signs, barriers, or other temporary protective devices after final acceptance.

M. Grassed areas damaged during process of work shall be restored or repaired to condition satisfactory to the Owner's Construction Representative. Fill, grade, re-fertilize, replant, or mulch as required to restore to contract requirements.

3.9 EXTENDED MAINTENANCE

A. Provide landscape maintenance for the site including stormwater conveyance systems as specified below.

B. Comply with Federal, State, Local or other governmental requirements relating to the general upkeep and maintenance of Stormwater Conveyance Systems, Natural Areas, Natural and Created Wetlands. Failure to follow these standards will fall to the liability of the Contractor

C. Commence Extended Maintenance immediately after Substantial Completion Date and continue as indicated on the following chart:

D. Extended Maintenance / Warranty Chart:

EXTENDED MAINTENANCE / WARRANTY CHART		
Substantial Completion Date	Extended Maintenance / Warranty Expiration	Duration
December	July	19 months
January	July	18 months
February	July	17 months
March	July	16 months
April	July	15 months
May	July	14 months
June	July	13 months
July	July	12 months
August	August	12 months
September	September	12 months
October	October	12 months
November	November	12 months

E. General Landscaping: Landscape maintenance shall include necessary watering, cultivation, weeding, pruning, wound dressing, disease and insect pest control, protective spraying, straightening plants which lean or sag, adjustments of plants which settle or are planted too low, mowing, replacement of mulch that has been displaced, repairing and reshaping of saucers, and reseeding or replanting of those areas affected. Remove rubbish, waste, tools, and equipment used at end of each workday.

F. Watering:

1. Utilize the Owner’s Construction Representative’s irrigation system for watering. Failure of system does not relieve Contractor's responsibility of maintaining desired level of moisture necessary to maintain vigorous, healthy growth.
2. Apply water in quantities sufficient to penetrate soil to minimum depth of 8-inches in shrub beds and 6-inches in turf areas at rate that will prevent saturation of soil.
3. Supplemental on site water will be furnished by the Contractor. Contractor shall furnish hose and other watering equipment as required for supplemental watering.

G. Weeding: Maintain all shrub and groundcover areas free from weeds and undesirable grasses.

H. Supplement rainfall and irrigation system as required to provide adequate water for vigorous and healthy growth of trees.

I. Turf Maintenance: Maintain an establish lawn by watering, fertilizing, weeding, mowing, trimming, edging, replanting and operations required to maintain full turf coverage. Roll, re-grade, re-mulch, and replant bare or eroded areas greater 1 square foot to produce a uniformly smooth lawn. Provide materials and installation techniques the same as those used in the original installation.

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J. Mowing:

1. Mow turf grass areas at regular intervals to keep turf height from exceeding 3-inches. Maintain turf grass height at 2-1/2 to 3-1/2 inches at subsequent cuttings depending on time of year. Remove no more than 1/3 of grass leaf at any cutting. Mow turf grass at intervals of not more than 10 days during growing season. Mow in such manner as to prevent clippings from blowing onto paved areas and sidewalks. Cleanup after mowing shall include sweeping or blowing to clear mowing debris.
2. Mow native grass areas no more than 3 times per year to a height of no less than 4 inches.
3. Edging: Mechanically edge turf areas adjacent to sidewalks, curbs and other paved surfaces with a blade type edger. Perform edging with each mowing interval.
4. Trimming: Trim grass around valve boxes, poles and other structures with string type trimmers. Do not trim grass around tree trunks with mechanical trimmer. Remove grass adjacent to tree trunk by methods that will not cause damage to trees.

K. Turf Fertilization: Apply balanced commercial grade fertilizer minimum 4 times annually. Adjust type, frequency, and quantity of fertilizer to provide lush and healthy turf at all times. Spilled or excess fertilizer shall be swept and properly disposed. Flushing into storm sewer is prohibited.

L. Turf Weed Control: Develop and maintain a broadleaf weed and foreign grass control program consisting of both post and pre-emergent chemical control. Maintain turf in a weed-free condition.

M. Clean up: During course of maintenance, excess and waste materials shall be continuously and promptly removed at end of each workday.

END OF SECTION 32 92 19

SECTION 33 10 00 - WATER UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Installation of water service, accessories and fittings to replace existing service removed as part of the construction methods on the site.
2. Excavation, installation, bedding cover, and backfill of water service facilities.
3. Protecting existing utilities in and around the site of the work.
4. Testing and sterilizing the new service.
5. Coordination of the work to allow inspection by City personnel.
6. Adjustment of valve boxes and manholes prior to pavement operations.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 31 20 00 - Earth Moving.
2. Section 31 23 16.13 – Trenching.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM) latest edition:

B 88	Seamless Copper Water Tube
D 1557	Test for Moisture-Density Relations of Soils Using 10-lb (4.5 Kg) Rammer and 18-inch (457 mm) Drop (Modified Proctor)
D 2487	Classification of Soils for Engineering Purposes
D 2922	Tests for Density of Soil and Soil- Aggregate in Place by Nuclear Methods (Shallow Depth)
D 3017	Test for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

B. American Water Works Association (AWWA) latest edition:

C500	Gate Valves, 3 through 48 in NPS, for Water and Sewage Systems
M41	Manual of Water Supply Practices

C. Standard Specifications for Sewer and Water Construction in Wisconsin, hereinafter referred to as the Standard Specifications.

1.4 SUBMITTALS

A. Submit shop drawings for all products specified.

PART 2 - PRODUCTS

2.1 EXTERIOR WATER MAIN

A. Ductile iron pipe, mechanical or push-on joint, thickness Class 52, AWWA C151 with standard thickness cement mortar lining, AWWA C104. Minimum rated working pressure of 350 PSI.

B. Ductile iron or gray iron mechanical joint fittings, Class 250, AWWA C110; ductile iron mechanical joint compact fittings, Class 350, AWWA C153; rubber gasket joints with non-toxic gasket lubricant, AWWA C111.

C. All pipe, valves and fittings shall be furnished with Cable Bond conductor or Electrobrand conductivity strips. Lead tipped gaskets or bronze wedges will not be allowed.

2.2 VALVES FOR EXTERIOR WATER MAIN

A. Valves for water service shall have ends suited or adapters shall be provided for proper installation in the lines. Valves shall meet City of New Richmond standards or in the absence of such standards the following requirements:

1. 12 inches and smaller:

a. Resilient Wedge Gate Valves
b. Meets the requirements of AWWA C509- latest revision
c. Supplied with mechanical joints
d. Supplied with conductive mechanical joint (no lead) gaskets
e. Open to the left
f. Non-rising stem
g. O-ring packing
h. 2-inch square operating nut
i. Acceptable models include:

Brand	**Model**
Kennedy	K4571 or equal
Mueller	A2360 or equal
Clow	F6100 or equal
AFC	Series 500 or equal – *OR* – Series 2500 or equal

B. Valve boxes shall be Bingham and Taylor cast-iron, size “DD”, 50-inches to 70-inches, three piece screw type, No. 6 round base, 4. 5-1/4-inch shaft, and with stay-put covers marked “WATER.”.

2.3 FIRE HYDRANTS

A. Hydrant requirements:

B. Hydrants are required to have “breakaway” capability

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C. Acceptable models include:

1. AFC Waterous Pacer WB-67
2. Mueller Super Centurion A42

D. Nozzle requirements:

1. Side nozzles: Two at 2½-inch diameter.
2. Pumper nozzle: One at 4½-inch diameter.
3. National Standard threads.
4. Chains attaching the caps to the hydrant.
5. Embossed with the word OPEN and an arrow showing that the hydrant opens left.
6. Valve opening: 5¼-inch with National Standard operating nut shape.
7. Painted red with blue nozzle caps – Waterous color M4152 (Houston Blue), or equal.
8. 360-degree top rotation.
9. "Dry top" operating threads to be sealed when open.
10. 6-inch mechanical joint bottom connection with conductive mechanical joint (no lead) gasket and necessary accessories.

E. Upper valve plate requirements:

1. Brass with a brass-to-brass foot valve.

F. Drain valve facing requirements:

1. Furnish hydrant with plastic drain valve facing (otherwise, drain tube/drain valve assembly).

G. Operating Nut requirements:

1. One-Piece operating nut.

H. Reflective locating device:

1. "Hydra-Finder" manufactured by RoDon Corp.

I. Extensions per manufacturer's recommendation.

2.4 COPPER SERVICE LATERALS

A. Type K, soft copper tubing meeting the requirements of ASTM B88. Copper water main 1½ inches in diameter and larger shall be provided in straight lengths, not roll stock.

2.5 BRASS WATER SERVICE FITTINGS

A. Service Saddles:

1. Double strap, bronze service saddles meeting the requirements of AWWA C800. Service saddles shall be provided with nitrile O-ring gasket and AWWA Taper outlet.
2. Service saddles shall be properly sized to accommodate both the main and service lines.
3. Mueller BR 2B Series, or approved equal.

B. Corporation Stops:

1. Corporation stops shall be brass, ball style. Inlets shall be AWWA Taper; outlet connection shall be compression having a positive indicator to avoid over-tightening.
2. Corporation stops shall be Mueller B-25008, or approved equal.

C. Curb Stops:

1. Curb stops shall be brass, with compression connections having a positive indicator to avoid over-tightening. Curb stops shall be provided with a quarter turn check.
2. Corporation stops shall be Mueller B-25209, or approved equal.

D. Unions:

1. Unions shall be 3-piece brass, with compression connections having a positive indicator to avoid over-tightening.
2. Unions shall be Mueller H-15403, or approved equal.

E. U-Branch, Wyes, Etc.:

1. U-branch, wye and other fittings shall be brass, with compression connections having a positive indicator to avoid over-tightening. Fittings shall be produced specifically for water supply applications.
2. Mueller or approved equal.

2.6 BOARD INSULATION

A. Rigid, closed-cell, extruded polystyrene insulation. Insulation shall be suitable for buried installation.

B. Individual boards shall have minimum dimensions of 8’x4’x2”.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Provide new fire/water mains from existing main within the site complete with all necessary valves, valve boxes and hardware. Extend into building and provide tee for domestic water and the fire protection system.

B. No work shall begin before location, size and depth of existing main is verified.

3.2 TRENCHING AND BACKFILLING

A. See Section 31 23 16.13 - Trenching..

B. Contractor shall file written "Notification of Excavation" with all utility companies at least three (3) days prior to excavating.

C. Connection to Main: Make required connections to existing on site water main.

D. Bedding shall be crushed limestone, crushed gravel or sand in accordance with Section 4.3.0 of the Standard Specifications for Sewer & Water Construction in Wisconsin, latest edition. Pea gravel is not acceptable.

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3.3 PIPE LAYING

A. The entire water service shall be installed per recommendations by the manufacturer and as set forth in the Standard Specifications for Sewer & Water Construction in Wisconsin, latest edition. Lay to line and grade so horizontal and vertical deflections are not more than 50 percent of maximum deflection as recommended by manufacturer. Where greater deflections are necessary, use proper fittings.

B. Bedding and cover up to 12 inches above pipe barrel.

C. Inspect all pipe and fittings before lowering into trench. Pipe should be lowered into the trench with ropes or by machinery. Do not drop pipe or fittings into trench.

D. Piping shall have a uniform bearing trench bottom. Pipe shall have laying condition Type 2 per ANSI A21.50.

E. Do not allow trench water or dirt to enter pipe or joint space during laying, insert watertight plug in open end of piping when pipe laying is not in progress.

3.4 FITTINGS AND BRANCH CONNECTIONS

A. Install proper fittings at all changes in direction, dead ends and interconnections of lines.

B. Provide thrust blocks at each change of direction exceeding 15 degrees and each fitting.

C. In lieu of thrust blocks, anchors and tie rods can be provided. Tie rods shall be 3/4-inch diameter steel rod. Clamps shall be 3/8 inch thick by 2 inches wide steel. Each clamp shall be secured with four 5/8 inch diameter bolts. All tie rods, clamps, and bolts shall be asphalt coated.

3.5 PIPE JOINTS

A. Push-on joints and mechanical joints shall be installed as recommended by manufacturer and DIPRA.

3.6 BONDING

A. At non-welded joints in ferrous water lines, except where insulated joints are required, provide a jumper bond copper wire spot welded to each side of the joint. "Cadweld" welding is required. After welding, coat welded areas with a heavy coat of coal-tar enamel and wrap.

3.7 SETTING VALVES

A. Before setting each valve make sure the interior is clean and insure full opening and closing by operating valve. Set valves and stops with stem plug. Provide a cast iron stop cock holder and a brick laid flat or other similar foot piece under each curb box. Valve and service boxes shall be plumb, centered over valves, and tops level with finished grade. Tamp trench backfill thoroughly for a distance of 3 feet on each side of the boxes.

3.8 CUTTING/PATCHING PAVED SURFACES

A. Saw cut all blacktop or concrete paved surfaces.

B. Patch all sidewalks, curbs, grass, concrete, and blacktop areas to original condition. Any costs involved are to be included under this contract.

3.9 FIELD QUALITY CONTROL

A. Combined fire protection/domestic water service shall be tested for a period of two hours at a minimum hydrostatic pressure of 200 PSI according to NFPA 24.

3.10 DISINFECTION

A. Water service shall be disinfected prior to use. The method to be followed shall be as follows:

1. The pipe system shall be flushed with clean potable water until no dirty water appears at the points of outlet.
2. The system or part thereof shall be filled with a water chlorine solution containing at least 50 parts per million of chlorine and the system or part thereof shall be valved off and allowed to stand for 24 hours or the system or part thereof shall be filled with a water chlorine solution containing at least 200 parts per million of chlorine and allowed to stand for three (30 hours.
3. Following the allowed standing time, the system shall be flushed with clean potable water until no chlorine remains in the water coming from the system and the Contractor shall obtain samples and pay for testing by a DNR approved laboratory.
4. The procedures shall be repeated if it is shown by a bacteriological examination that contamination still exists in the system at no cost to the Owner.

END OF SECTION 33 10 00

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SECTION 33 30 00 - SANITARY SEWERAGE UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section provides information common to two or more technical site work specification sections or items that are of a general nature, and not included in other sections. This section applies to ALL site work, as applicable. Included are the following topics:

B. Section Includes:

1. Provide a complete sanitary building sewer including connection to existing sewer lateral at street and all necessary fittings and hardware.

C. Work under this section shall begin 5 feet from the building structure and extend to include all site utility work and connection to the existing lateral.

D. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 31 20 00 - Earth Moving.
2. Section 31 23 16.13 - Trenching.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM), Latest Edition.

D1784-03	Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
D2564-04	Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems
D2680-01	Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) and Poly (Vinyl Chloride) (PVC) Composite Sewer Piping
D3034-04a	Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
D3212-96a (2003) e1	Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
D3350-05	Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
F477-02e1	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

F679-03 Standard Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings

B. Standard Specifications for Sewer & Water Construction in Wisconsin, Latest Edition

C. City of New Richmond Standard Specifications for Public Works Construction, Latest Edition.

1.4 SUBMITTALS

A. Provide manufacturer product information for all products specified.

1. Submit shop drawings for all products specified.
2. Provide copies of record drawings.

PART 2 - PRODUCTS

2.1 SANITARY SEWER

A. Polyvinyl Chloride (PVC) pipe shall be of the bell and spigot type and meet the requirements of ASTM D 3034, Type PSM SDR-35 unless otherwise specified in the Drawings. The pipe manufacturer shall be one who currently has an approval for PVC pipe by the Wisconsin Department of Natural Resources.

B. Tracer wire shall be installed on all non-metallic exterior building sewers.

2.2 YARD CLEANOUT

A. Provide yard cleanouts per SPS 382.35(5) at required intervals and as indicated on drawings. Access cover shall have concrete collar sloping away from the cleanout opening.

2.3 MANHOLES

A. General:

1. Provide precast concrete manholes. Concrete block or cast-in-place manholes may only be used after receiving written approval by the Owner’s Construction Representative and the Engineer for customized manhole sizes and shapes.
2. Submit manufacturer's preproduction (shop) drawings for approval prior to the start of manufacturing.
3. Contractor shall carefully locate all pipe locations, sizes, orientation and elevation prior to ordering new manholes. For sewer relays, verify if each pipe encountered is active. In- active pipe shall not be connected to the new sewer.

B. Precast Manhole Sections:

1. Precast concrete manhole sections, including bottom and top shall meet the requirements of ASTM C478.
2. Unless otherwise noted, provide four 4-foot diameter manholes. If field conditions require a larger structure, contact the Owner’s Construction Representative or Engineer.
3. For 4-foot diameter manholes, provide eccentric cone top sections with a minimum clear opening of 24 inches. Flat top slabs may be used on manholes greater than 4 feet in diameter.

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4. Manhole wall thickness shall be minimum of 5 inches for 4-foot diameter manholes, 6 inches for 5-foot diameter manholes and 7 inches for 6-foot and 7-foot diameter manholes.
5. Manhole bottom section shall be pre-cast with integral base having a minimum thickness of 8 inches unless otherwise noted.

C. Joints:

1. Provide manhole riser and barrel sections, cones, and flat tops, with standard pipe section tongue and groove joints.
2. Seal joints watertight with prefabricated rubber or plastic gaskets or formed in place butyl rubber seal.
3. Joint sealers: Kent Seal, ConSeal, or approved equal.

D. Connections:

1. Openings for connections shall be cast-in-place or cored and appropriately sized for the type and size of pipe being connected.
2. Provide flexible, watertight, pipe-to-manhole connections (or "boots") for sanitary sewers; Kor-N-Seal, Interpace, A-Lok, or an approved equal.

E. Manhole Steps:

1. Provide steps at 16-inch O.C. and project approximately 6 inches from wall.
2. Unless otherwise indicated on the drawings, locate manhole steps over the downstream pipe opening.
3. Manhole steps shall be steel reinforced polypropylene with 1/2-inch diameter deformed reinforcing bar. Steps shall be permanently secured in the manhole wall. Manhole steps shall be American Step Company, M.A. Industries or approved equal.

F. Bench and Flowline:

1. Provide either pre-cast or cast-in-place bench and flowline.
2. Unless otherwise indicated on the drawings, bench height shall be 3/4 the diameter of the downstream pipe. Slope bench towards flowlines at a minimum 1/2 inch per foot. Provide light broom finish on bench.
3. Flowlines shall be formed with gradual, uniform sweeps directed towards the downstream pipe. Provide smooth, troweled finish for flowlines.
4. When cast-in-place benches and flowline are used, lay the sewer pipe through the manhole.

G. Adjusting Rings:

1. All final grade adjustment of manhole covers and frame assemblies shall be completed utilizing injection molded high density polyethylene (HDPE) adjustment rings as manufactured by LADTECH, Inc. or an approved equal.
2. The adjustment rings shall be manufactured from polyethylene plastic as identified in ASTM Specification D-4976 (Standard Specification for Polyethylene Plastic Molding and Extrusion Materials).
3. Material properties shall be tested and qualified for usage per the ASTM Test Methods referenced in the above ASTM standard.
4. Installation shall be per manufacturer's recommendations only.
5. The annular space between the rings and cone basin, the rings, and the rings and cover frame shall be sealed utilizing an approved butyl sealant. Butyl material shall be E-Z Stick, or equal.
6. All adjustment for matching road grade shall be made utilizing a molded and indexed slope ring.

2.4 CASTINGS

A. All manhole castings shall be heavy duty iron conforming to ASTM A48, Class 20 and rated for AASHTO H-20 loading. Provide water-tight, gasketed, self-sealing, non-rocking lids with concealed pickhole.

2.5 MANHOLE CHIMNEY SEAL

A. When indicated on the drawings, provide an internal frame/cone seal meeting requirements of Sections 8.42.3-8.42.5 of the Standard Specifications for Sewer and Water Construction in Wisconsin.

2.6 PIPE INSULATION

A. Rigid, closed-cell extruded polystyrene insulation. Insulation shall be suitable for buried insulation.

B. Individual boards shall have dimensions of 8’x4’x2”. Dow Styrofoam, or approved equal.

2.7 LOCATOR TAPE

A. Detectable metallic locator tape, specifically manufactured for marking utilities. Tape shall be a minimum of 6 inches wide and shall be marked “SEWER”.

PART 3 - EXECUTION

3.1 GENERAL

A. Provide new sanitary sewer from existing sanitary sewer lateral complete with all necessary fittings and hardware.

B. No work shall commence before sewer can be verified including exact location, depth, and inverts of the existing. Coordinate start invert elevation at building foundation wall for the interior work. The work shall include costs for new connections at the existing manhole. Verify the location of all roads, driveways and other service or physical properties that are relevant to new construction.

C. Install exterior piping below predicted frost level and not less than 5 feet bury depth to top of pipe wherever possible. Where piping is located above predicted frost level, provide frost protection in accordance with SPS 382.30(11) (c).

D. Contractor shall file written "Notification of Excavation" with all utility companies at least three days prior to excavating.

3.2 CUTTING/PATCHING PAVED SURFACES

A. Saw cut all blacktop or concrete paved surfaces.

B. Patch all sidewalks, curbs, grass, concrete and blacktop areas to original condition. Any costs involved are to be included under this contract.

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3.3 INSPECTION

A. Inspect site and drawings to determine scope of underground utility work. Notify A/E of any conflict in routing, elevations, etc. prior to commencing work of this section.

3.4 INSTALLATION

A. Trenching and Backfilling: See Section 31 23 16.13 - Trenching.

3.5 BEDDING OF SEWER PIPES

A. The bedding or foundation for sewer pipes shall be constructed to prevent settlement of the pipes and to avert excessive pressure on the pipes in order to avoid rupture, leakage or deformation of the pipes.

B. The width of the bedding shall be equal to the width of the trench. The depth of the bedding shall extend from an elevation at least 6 inches below the bottom of the pipe to an elevation at least 12 inches above the top of the pipe. All bedding shall be mechanically compacted.

C. Bedding material shall be granular fill. See Section 31 20 00.

3.6 LAYING PIPE

A. Pipe, fittings and accessories shall be of the size, class, type and design and shall be laid at the locations and to the required lines and grade as indicated on the drawings. Wherever the work "PIPE" appears it shall be understood to include pipe, fittings and accessories. The proper installations of structures and fittings whose locations are indicated on the drawings shall be accomplished by the use of random lengths of pipe. Field cuts of all types of pipe shall be made with an approved mechanical pipe cutter or with a power saw in order to make a straight true cut without chipping and cracking the pipe.

B. The laying of pipes in finished trenches shall commence at the lowest point and shall proceed towards the upper end and the pipe shall be laid so that the spigot or tongue ends point in the direction of flow.

C. Jointing surfaces shall be carefully cleaned before pipes are lowered into trenches. Pipes shall be lowered so as to avoid unnecessary handling in the trench. Each section shall have a firm bearing throughout its length and shall be true to the line and grade required.

D. The method of shoving or pulling the pipes together shall be such that there will be no injury to the pipes and the joints will be properly adjusted and will not be excessively large. Pipes shall be fitted and matched so that when set firmly to line and grade they will form a sewer with a smooth and uniform invert.

E. Pipe shall not be laid to within 10 feet of the excavation in progress. Pipe shall not be laid in water, in frozen trench conditions or when weather is unsuitable for the proper performance of the work.

F. No length of pipe shall be laid until the previously laid length of pipe has been sufficiently backfilled to hold it securely in place during the jointing operation. If, in making a joint, any previously laid pipe is disturbed such pipe shall be removed and re-laid. Adequate backfill shall be placed on the pipe to prevent floating. Any pipe, which has been floated, shall be removed and re-laid at the expense of the Contractor.

G. Provide suitable lifting and handling devices designed to distribute the weight of the pipe over the length of the pipe and prevent high stresses over small areas.

H. All water must be kept out of the bell hole of the pipe until the joint is completed and water shall not be allowed to rise in or about the pipe until the trench is filled at least 1 foot above the top of the pipe.

I. Before leaving the work for the night, during a storm or for any reason, care must be taken that the unfinished end of the sewer is securely closed with a tightly fitting plug. Any earth or other materials that may find entrance into the sewer shall be removed by this Contractor at no additional cost to the Owner.

3.7 JOINTS

A. Jointing materials shall conform to the requirements specified in "PRODUCTS" of these specifications for the type of pipe being installed.

B. Joints shall not be made until the pipe is in the trench and set to true line and grade. Lengths of pipe that are joined together outside of the trench shall be removed from the project immediately.

C. Prior to making joints, the jointing surfaces shall be inspected for chips, cracks or other defects in the joints and jointing materials. Jointing surfaces shall be carefully cleaned and lubricated with a vegetable lubricant or a lubricating adhesive. Lubricant shall be applied to both the bell and spigot surfaces of the joint. Lubricant shall be that recommended by the gasket manufacturer for the particular type of gasket being installed.

D. Care shall be taken when shoving or pulling the pipes together in order not to damage the pipe or the joints and jointing materials. Pipes shall be in proper alignment and to the proper grade prior to applying the pressure necessary to make the joint.

3.8 MANHOLES

A. Contractor shall determine the proper location, size, elevation, and orientation of all pipes entering new manholes before ordering. Do not connect abandoned pipes to new manholes. Manholes having improper location and/or orientation of the pipe connections will be rejected. Field repairs or adjustments of connection points are not permitted.

B. Limit the excavation for manholes so as to provide only the necessary amount of space to sufficiently prepare the subgrade, set the base, set the manhole or structure, and lay pipe. Provide a minimum of 1 foot of clearance between structure and trench wall for adequate backfilling and compaction.

C. Where excavation occurs below the bottom elevation of the structure's base, bring the excavation to the required elevation by the use of compacted crushed stone bedding. A minimum of 8 inches of compacted Crushed Stone Bedding shall be placed below manhole base.

D. Set manhole base in accordance with elevation and location as indicated on the plans. Install base plumb and level. Install subsequent pre-cast manhole sections in accordance with shop drawing layout. Provide watertight gaskets between each manhole section.

E. Pour inverts with smooth surface draining to downstream pipe. Where two or more lines meet at an angle, provide curved channel. Slope manhole bench at 2 inches/foot towards flow channel.

F. Manholes shall be provided with between 4 and 8 inches of adjusting rings, with the top adjusting ring being 2 inches thick. Provide butyl sealant material between rings. Once rings are in place, tuck point the exterior joint and provide the entire exterior surface of the adjusting ring riser with a coating of mortar.

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G. When indicated on the drawings, the manhole frame shall be set with a Type I frame/chimney joint as specified in the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition. The frame and adjusting rings shall be sealed with an internal rubber sleeve as detailed in File 12A of the Standard Specifications.

H. Drop manholes shall be constructed in accordance with File No. 19 of the Standard Specifications.

3.9 CASTING INSTALLATION

A. Install casting type as indicated on the plans or in the specifications. Provide butyl sealant material between last adjusting ring and casting base. Adjust casting elevation and slope to match adjacent proposed grades.

3.10 PIPE INSULATION

A. Provide insulation when indicated on the drawings, or where depth of cover is less than 6 feet. Unless otherwise noted, install 2-inch thick polystyrene board insulation. Install insulation on compacted initial cover material, 6 inches above the top of the pipe. Stagger joints where more than one layer of insulation is required. Provide insulation with a minimum of 1 foot of initial cover material. Place cover and backfill material in manner that does not damage insulation; replace any damaged insulation.

3.11 LOCATOR TAPE

A. Provide locator tape when indicated on the Drawings. Install locator tape approximately 2 feet above the top of the pipe.

3.12 MISCELLANEOUS CONSTRUCTION

A. Make all necessary openings into existing structures including construction or reconstruction of existing inverts as required to serve new connections. Openings made in structures shall be patched with mortar around the pipe installed so that the connection is watertight and permanent. When a new sanitary sewer is connected to an existing structure, such line shall be plugged and remain plugged until final completion and acceptance of the new sewer line. The plug shall be subject to the approval of the A/E. The cost of making openings and connections as described above shall be included by the Contractor.

3.13 TESTS

A. Deflection Testing:

1. Test all PVC sewer pipe in the presence of the Owner’s Construction Representative by a "go-no-go" deflection test mandrel furnished by the Contractor. Do not perform deflection testing any sooner than 30 days following the installation of the PVC pipe. Pull the mandrel by hand, or hand operated winch so as to avoid any damages to the pipe that may be caused by mechanized pulling equipment.
2. Size the to test the pipeline for a maximum allowable internal deflection of the pipe (in any direction) of not to exceed five (5) percent of the original internal diameter for the pipelines tested, regardless of how long after installation the testing takes place.
3. Deflection testing may be done concurrently with any necessary televising of the sewers. When done concurrently with sewer televising, the mandrel may be pulled by mechanized equipment,

provided the mandrel is visible in the television picture during the testing and the operation of the mandrel can be quickly halted before damage to the pipe occurs.

4. Where poor trench soils conditions require the pipe excavation to be undercut and/or over excavated, the Construction Representative reserves the right to require an additional deflection test prior to the expiration of the Contractor's one year performance guarantee.
5. Remove and replace all pipe that fails to pass the five (5) percent vertical deflection testing until the pipe passes the deflection test.

B. Leakage Testing:

1. All new sanitary sewer lines shall be leakage tested in accordance with Chapter 3.7.0 of Standard Specifications for Sewer and Water Construction.

C. Replace defective work or material or repair as necessary and repeat the inspection and test. Repair shall be done with new materials and at the contractor’s expense.

D. Upon completion of the work, submit all records and certifications approving testing requirements to the Owner’s Construction Representative.

END OF SECTION 33 30 00

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SECTION 33 40 00 - STORM SEWER CONSTRUCTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Storm sewer pipe and accessories.

B. Related Requirements: The following Sections contain requirements that relate to this Section:

1. Section 31 23 16.13 – Trenching.
2. Section 31 25 00 - Erosion Control.

1.3 REFERENCES

A. ASTM A615-89 – Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

B. ASTM C76-90 – Reinforced Concrete Culvert, Storm Drain and Sewer Pipe

C. ASTM D698-91 – Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5-pound (2.5kg) Rammer and 12-inch (304.8-mm) Drop

D. AASHTO M-198 – Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Water tight Gaskets

E. AWWA C905 – PVC Pressure Pipe and Fabricated Fittings, 14 inches through 48 inches for Water Transmission and Distribution

F. AWWA C906 – PE Pressure Pipe and Fittings 4 inches through 63 inches for Water Transmission and Distribution

G. Where reference is made to the “Construction Specifications”, it shall be construed to mean the pertinent section of the City of New Richmond, Standard Construction Specifications, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

H. Where reference is made to the “Standard Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Sewer and Water Construction in Wisconsin, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

I. Where reference is made to the “State Specifications”, it shall be construed to mean the pertinent section of the Standard Specifications for Highway and Structure Construction, current edition, and all

supplemental and interim supplemental specifications, as they may pertain, except the method of measurement and basis of payment shall not apply.

J. Where reference is made to the "Geotechnical Report", it shall be construed to mean the geotechnical reports in Section 00 31 32 - Geotechnical Data.

1.4 REGULATORY AGENCIES

A. The City of New Richmond.

B. The Wisconsin Department of Natural Resources

1.5 SUBMITTALS

A. Submit product data under provisions contained in Division 01.

B. Submit product data for pipe and pipe accessories.

1.6 PROJECT RECORD DOCUMENTS

A. Submit documents under provisions contained in Division 01.

B. Accurately record location of pipe runs, connections, manhole rim elevations and invert elevations.

1.7 MEASUREMENT AND PAYMENT

A. Measurement and payment for storm sewer construction and related work specified herein shall be by unit price as shown on the Bid Form. Work shall include all labor, equipment and materials related to storm sewer construction.

1. Lengths of storm sewer construction are from center of structure to center of structure.

PART 2 - PRODUCTS

2.1 SEWER PIPE MATERIALS

A. Reinforced Concrete.

1. Pipe: Reinforced concrete pipe meeting requirements of ASTM C76 or ASTM C507. Provide Class III unless indicated otherwise in the Specifications or on the Drawings.
2. Joints:

a. Circular Pipe: Tongue and groove meeting requirements of ASTM C443.

3. Joint ties shall be in accordance with Detail Drawings.
4. All Public Storm Sewer shall be concrete pipe.

B. PVC PIPE

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1. Conform to ASTM D-3034 with solvent weld or elastomeric joints.
2. Pipe shall be SDR-35, unless otherwise noted. Pipe over 15 inches in diameter shall meet the requirements of ASTM F679-03. Do not mix different manufacturer's products, or fittings.

C. HDPE SOLID WALL PIPE

1. Conform to ASTM D-3350 for PE material with a cell classification of 335434C or better. Pipe shall be SDR 11, unless otherwise noted.
2. Joints shall be thermal butt fusion in accordance with the manufacturer’s recommendation.

D. HDPE CORRUGATED WALL PIPE

1. Corrugated pipe with an integrally formed smooth liner.
2. Pipes which are between 4 inch diameter and 36-inch diameter shall meet the requirements of AASHTO M252 and M294, Type S.
3. Pipe and fittings shall be manufactured from virgin PE compounds conforming to the requirements of ASTM D3350, cell class 324420C.
4. 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.

2.2 STORM SEWER PRE-CAST MANHOLES AND INLETS

A. Frames, grates, and manhole lids shall be constructed and installed per City of Stoughton Construction Specifications and are considered incidental to the price of the structure.

1. Manhole castings shall be Neenah R-1550 with non-rocking lids and Type D grates
2. Inlet castings shall be R-3067 with Type R grates at low points and where grades are less than 1 percent. Type L grates shall be provided where grades exceed 1 percent.

2.3 PRE-CAST STORM SEWER PIPE END SECTIONS AND WELDED GRATES

A. Pre-cast Apron end Walls Shall be provided and installed with hinged metal grates in accordance with Section 502 of the State Specifications. Apron end wall shall be provided with cut-off walls to prevent undermining.

2.4 BEDDING AND COVER MATERIAL

A. Provide 3/4-inch clear stone bedding and cover material in accordance with the drawings and Section 31 23 16.13 - Trenching.

B. Granular Backfill material shall conform to the requirements of the City of New Richmond Specifications. Granular backfill shall be used under public and private pavement/walks and where shown in the plans unless otherwise directed by the City Construction Representative or Owner’s Construction Representative based on geotechnical evaluation of native materials.

2.5 CRUSHED STONE

A. Provide crushed stone base in accordance with the drawings and Section 31 23 16.13 - Trenching.

2.6 LOCATOR TAPE

A. Detectable metal locator tape shall be specifically manufactured for marking utilities.

B. Tape shall be a minimum of 6 inches wide and shall be marked with “STORM”.

2.7 DRAIN BASINS AND INLINE DRAINS

A. The drain basins and inline drains shall be manufactured from PVC pipe stock, utilizing a thermoforming process to reform the pipe stock to the specified configuration. The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the main body of the drain basin or catch basin. The raw material used to manufacture the pipe stock that is used to manufacture the main body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.

B. The grates and frames furnished for all surface drainage inlets shall be ductile iron for sizes 8”, 10”, 12”, 15”, 18”, 24” and 30” and shall be made specifically for each basin so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet. Grates for drain basins shall be capable of supporting H20 wheel loads for 12” or larger basins. 12” and 15” square grates will be hinged to the frame using pins. Ductile iron used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05. Grates and covers shall be provided painted black.

C. Drain basins and inline drains shall be Nyloplast or an equal approved by the Owner’s Construction Representative prior to procurement.

PART 3 - EXECUTION

3.1 HANDLING OF MATERIALS

A. Handle materials with care to avoid damage. Do not dump or drop materials. Remove all damaged or flawed materials from the site.

B. Arrange for suitable sites for material storage.

3.2 LINES AND GRADE

A. Benchmarks and Construction Layout.

1. Engineer will provide vertical and horizontal control.
2. Contractor shall provide construction layout.

B. Contractor shall provide all materials, equipment and labor to maintain line and grade.

1. The laser beam method is the preferred method for controlling line and grade. Equipment shall be operated in accordance with the manufacturer's instructions. A person who is competent with the operation of the laser equipment shall be present at the jobsite whenever it is being used.
2. Grade boards may be used. Use straight and even-edged 2X6 boards nailed or clamped to substantial stakes on either side of the trench. Use stout twill line fastened at the center of the

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alignment, pulled sufficiently tight to remove any noticeable or measurable sag. Measure down from the line to set the alignment of the pipe. Maintain a minimum of three boards at all times.

3. Banjo strings may be used only when approved by the Owner's Construction Representative.

3.3 JOINTS

A. Construct joints as described herein and in accordance with manufacturer's installation instructions. Provide pipe joint type for soil tight, silt tight, or watertight only silt tight or watertight only watertight joint performance in accordance with the following table. The table applies only to the extent as applicable to the pipe and joint type and the joint performance as shown or specified.

Pipe and Joint Type	**Joint Performance**		
	Watertight	Silt Tight	Soil Tight
RCP			
Rubber O-Ring Gasket	x	x	x
Bitumen or Butyl Rubber Sealant			x
HDPE			
Rubber Gasket			
Hancor BLUE SEAL	x	x	x
ADS N-12 WT	x	x	x
Hancor Sure-Lok		x	x
ADS N-12 ST		x	x
Corrugated Coupling Bands			
Hancor Hi-Q			x
ADS N-12			x
PE Wrap			x
PVC			
Restrained Gasket	x	x	x

3.4 UNSTABLE FOUNDATION

A. Remove undesirable material below the trench bottom, such as organic soils, which cannot support the pipe. Replace the material with crushed stone meeting the requirements of Section 31 23 16.13 for 2-inch crushed stone base material.

B. Crushed stone base material will be paid for at the unit price bid or on the basis of a negotiated price if there is no bid price. Payment for crushed stone base will be made only if the Owner's Construction Representative is notified prior to its placement. Payment will not be made for crushed stone base used for dewatering the trench.

3.5 LAYING OF PIPE

A. Lay pipe uniformly to line and grade so that the finished sewer presents a uniform bore. Noticeable variations from true alignment and grade will be sufficient cause for rejection of the work.

B. Commence at the lowest point and proceed to the upper end. Lay pipe with bell-end pointing up-grade.

C. Provide a minimum of six inches between the pipe or box wall and the trench wall.

D. Rest each pipe on the full length of its barrel. Place box culvert sections on six inches of bedding material.

E. Do not lay the next pipe until the previous pipe is back-filled sufficiently to prevent movement during joining.

F. Keep water out of the pipe. Do not let water rise into or around the pipe until the trench is filled at least one foot above the pipe.

G. When work is stopped for any reason, securely plug the end of the pipe.

H. Pipe Jointing: Assemble joints in accordance with the pipe manufacturer's instructions.

3.6 BEDDING AND COVER

A. Use the bedding sections as indicated on the Drawings.

B. Class C:

1. Provide a minimum of six inches of bedding material under the pipe barrel and four inches under the bell. Provide crushed stone bedding meeting requirements of Section 31 23 16.13. Spade or shovel-slice the material so that it fills and supports the haunch area and encases the pipe to the limits shown on the Drawing detail. If excavation is carried deeper than 6 inches below the pipe barrel, backfill the excess depth with 1½-inch crushed stone base material meeting requirements of Section 31 23 16.13.
2. After the pipe has been laid and jointed, place cover material by hand or equally careful means around the sides of the pipe and up to a level twelve inches above the pipe. Provide cover material meeting the requirements of Section 31 23 16.13.
3. For pipes 36 inches in diameter or larger, backfill material may be substituted for cover material. If backfill material is used, the bedding material shall extend to the spring line of the pipe.

3.7 SEPARATION FROM WATER MAIN

A. Provide a minimum horizontal separation of ten feet when constructing parallel to the water main.

B. Vertical Separation

1. When a sewer crosses under a water main, provide a minimum of 12 inches between the bottom of the water main and the top of the sewer.
2. When a sewer crosses over a water main, provide a minimum of 36 inches between the bottom of the sewer and the top of the water main.

C. Excess excavated trench material shall be transported and disposed on site in a location approved by the Construction Coordinator. Trench excavation material cannot be cast into piles within the roadway.

3.8 MANHOLES, CATCH BASINS, INLETS, AND JUNCTION BOXES

A. Construct drainage structures in accordance with details shown on Drawings and in accordance with Section 33 30 00 as applicable.

B. Precast Sections:

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1. Install precast section with bases in accordance with Section 33 00 00 or as shown on Drawings.
2. Align pipe openings to that of the pipe entering and leaving the manhole, etc., properly align pipe connections to manholes, etc. as shown on the Drawings.

C. Construct Cast-In-Place sections as shown on the drawings and in accordance with Section 03 30 00 as applicable.

1. Form bottom of excavation clean and smooth to correct elevation.
2. Form and place cast-in-place concrete base pad, with provision for storm sewer pipe to be placed at proper elevation.
3. Form and place cast-in-place concrete walls, sleeved at proper elevation to receive storm sewer pipe in accordance with details shown on Drawings.

D. Invert channels shall be smooth and accurately shaped to a semicircular bottom conforming to the inside of the adjacent sewer section. Shape invert channels and structure bottoms with cement mortar. Changes in size and grade of invert shall be made gradually and evenly. Changes in direction of the sewer entering branch or branches shall have a true curve of as large a radius as the manhole will permit.

END OF SECTION 33 40 00

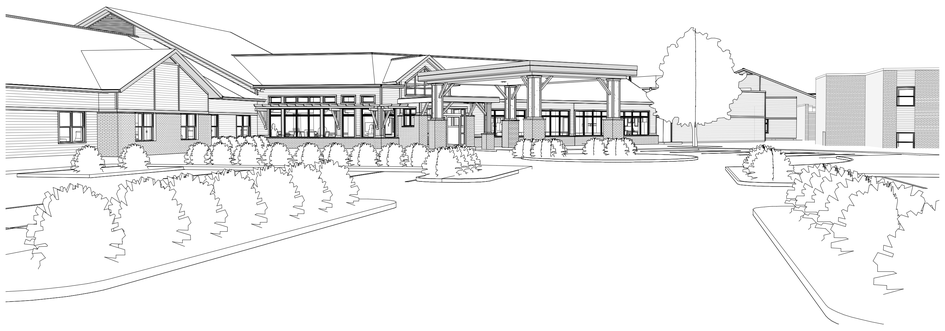
St. Croix County

Health Center Additions & Renovation

New Richmond, WI

Sheet Schedule - Bid Package 1

General	G001	TITLE SHEET
Survey	1 of 1	SITE SURVEY
Civil	C100	DEMOLITION PLAN
	C200	SITE PLAN
	C201	SITE PLAN - COURTYARD DESIGN
	C300	GRADING AND EROSION CONTROL PLAN
	C400	UTILITY PLAN
	C500	DETAILS
	C501	DETAILS
Landscape	L100	LANDSCAPE PLAN OVERVIEW
	L101	LANDSCAPE PLAN
	L102	LANDSCAPE PLAN
	L103	LANDSCAPE PLAN
	L104	LANDSCAPE PLAN
	L200	LANDSCAPE SPECIFICATIONS AND DETAILS
Structural	S001	GENERAL STRUCTURAL NOTES
	S101	FOUNDATION PLAN - AREA A
	S102	FOUNDATION PLAN - AREA B
	S103	FOUNDATION PLAN - AREAS C AND D
	S201	P/C CAP AND PENTHOUSE FLOOR FRAMING PLAN - AREAS A, B AND C
	S401	SECTIONS AND DETAILS
	S402	SECTIONS AND DETAILS



1 G001 EXTERIOR APPROACH AT TOWN CENTER

SITE

Horty Elving

Horty Elving & Associates, Inc.
505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 hortyelving.com

St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description

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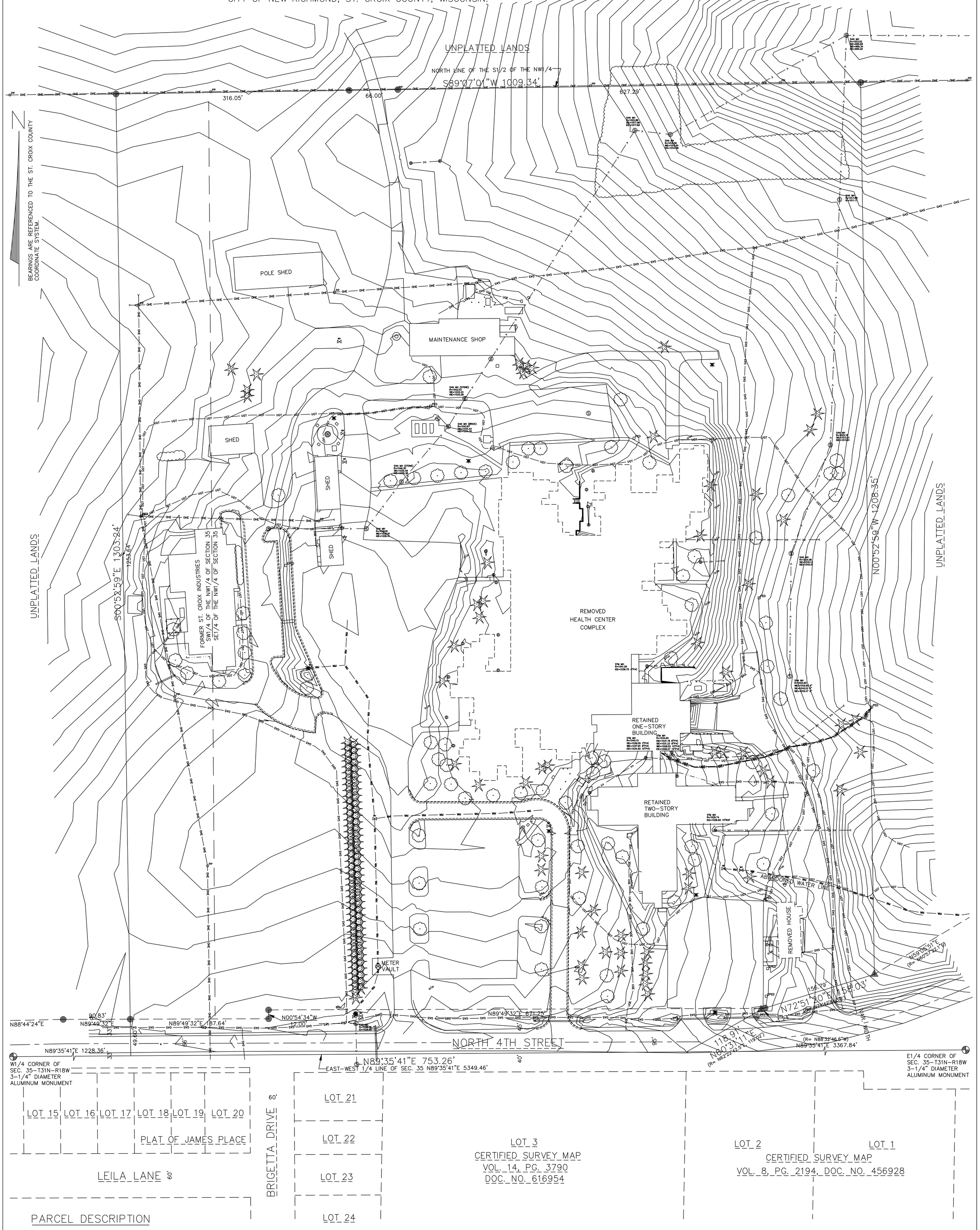
TITLE SHEET

Scale	Date	Project Number
	6/02/15	146038

G001

SITE SURVEY – ST. CROIX COUNTY HEALTH CENTER PROPERTY

LOCATED IN PART OF THE SW1/4 OF THE NW1/4 AND THE SE1/4 OF THE NW1/4 OF SECTION 35, T31N, R18W,
CITY OF NEW RICHMOND, ST. CROIX COUNTY, WISCONSIN.



PARCEL DESCRIPTION

A PARCEL OF LAND LOCATED IN PART OF THE SW1/4 OF THE NW1/4 AND THE SE1/4 OF THE NW1/4 OF SECTION 35, T31N, R18W, CITY OF NEW RICHMOND, ST. CROIX COUNTY, WISCONSIN; FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE W1/4 CORNER OF SAID SECTION 35; THENCE N89°35'41"E, ON THE EAST–WEST 1/4 LINE OF SAID SECTION, 1228.36 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING N89°35'41"E, ON SAID EAST–WEST 1/4 LINE, 753.26 FEET TO THE NORTHWESTERLY LINE OF THE FEE TITLE CONVEYANCE IN THAT AWARD OF DAMAGES BY THE STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION, RECORDED IN VOLUME 2521, PAGES 543–545, DOCUMENT NUMBER 755907 AT THE ST. CROIX COUNTY REGISTER OF DEEDS OFFICE; THENCE N60°31'11"E, ON THE NORTHWESTERLY LINE OF SAID FEE TITLE CONVEYANCE, 118.91 FEET; THENCE N72°51'20"E, ON THE NORTHWESTERLY LINE OF SAID FEE TITLE CONVEYANCE, 158.03 FEET; THENCE N00°52'59"W, 1208.35 FEET TO THE NORTH LINE OF THE S1/2 OF THE NW1/4 OF SAID SECTION; THENCE S89°07'01"W, ON SAID NORTH LINE, 1009.34 FEET; THENCE S00°52'59"E, 1303.24 FEET TO THE POINT OF BEGINNING.

THE ABOVE DESCRIBED PARCEL CONTAINS 29.945 ACRES OR 1,304,420 SQUARE FEET. PARCEL IS SUBJECT TO ALL EASEMENTS, RESTRICTIONS AND COVENANTS OF RECORD.

SURVEYOR'S CERTIFICATE

I, FRANCIS W. BLESKACEK, REGISTERED WISCONSIN LAND SURVEYOR, DO HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF, THAT I SURVEYED THE DESCRIBED AND MAPPED PROPERTY ACCORDING TO THE OFFICIAL RECORDS AND THAT THE ACCOMPANYING MAP IS A CORRECTLY DIMENSIONED REPRESENTATION TO SCALE OF THE BOUNDARIES.

FRANCIS W. BLESKACEK, RLS REG. NO. 2418 — DATE

SCALE IN FEET

0 50 100 200

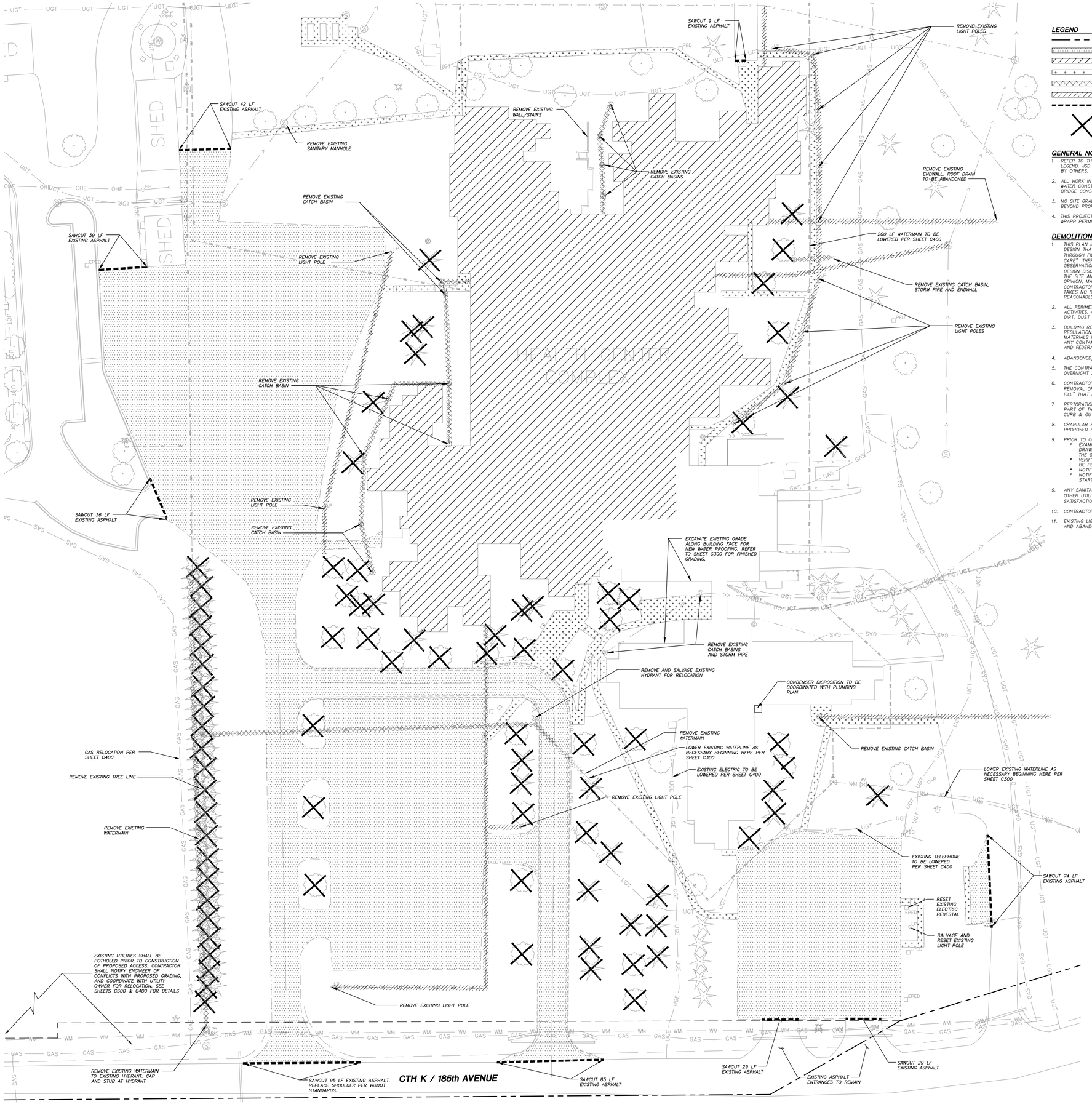
PARCEL AREAS

29.945 ACRES OR 1,304,420 SQ. FT
INCLUDING STREET RIGHT–OF–WAY

28.887 ACRES OR 1,258,337 SQ. FT
EXCLUDING STREET RIGHT–OF–WAY

LEGEND

- FOUND SECTION CORNER MONUMENT OF RECORD
- FOUND 5/8" IRON REBAR WITH PLASTIC WISCONSIN DEPARTMENT OF TRANSPORTATION CAP
- FOUND 1–5/16" DIAMETER IRON PIPE
- (R=) PREVIOUSLY RECORDED DIMENSIONING
- EXISTING WATER MAIN, LOCATED BY THE CITY OF NEW RICHMOND
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- BURIED NATURAL GAS LINE
- BURIED TELEPHONE
- BURIED ELECTRIC
- OVER HEAD ELECTRIC
- OBLITERATED BUILDING LINES
- EXISTING BUILDING



LEGEND

- PROPERTY LINE
- ASPHALT SURFACE, BASECOURSE, AND CURB & GUTTER REMOVAL
- BUILDING, FOOTING AND FOUNDATION REMOVAL
- CONCRETE/BASE REMOVAL
- UTILITY REMOVAL
- ABANDON UTILITY
- SAWCUT PAVEMENT
- REMOVE EXISTING TREE

GENERAL NOTES

1. REFER TO THE EXISTING CONDITIONS SURVEY, PROVIDED BY OTHERS, FOR EXISTING CONDITIONS NOTES AND LEGEND. JSD DOES NOT TAKE RESPONSIBILITY FOR ANY BENCHMARKS LOCATED ON THE SURVEY PROVIDED BY OTHERS.
2. ALL WORK IN THE ROW SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN, STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, AND CITY OF NEW RICHMOND REQUIREMENTS LATEST EDITIONS.
3. NO SITE GRADING OUTSIDE OR DOWNSLOPE OF PROPOSED SILT FENCE LOCATION. NO LAND DISTURBANCE BEYOND PROPERTY LINES UNLESS OTHERWISE SHOWN.
4. THIS PROJECT HAS BEEN DESIGNED AND WILL BE CONSTRUCTED IN COMPLIANCE WITH ALL OF THE WDNR WRAPP PERMIT APPLICATION STANDARDS.

DEMOLITION NOTES

1. THIS PLAN INDICATES ITEMS ON THE PROPERTY INTENDED FOR DEMOLITION BASED ON THE CURRENT SITE DESIGN THAT HAVE BEEN IDENTIFIED BY A REASONABLE OBSERVATION OF THE EXISTING CONDITIONS THROUGH FIELD SURVEY RECONNAISSANCE, "DIGGER'S HOTLINE" LOCATION, AND GENERAL "STANDARD OF CARE". THERE MAY BE ADDITIONAL ITEMS THAT CAN NOT BE IDENTIFIED BY A REASONABLE ABOVE GROUND OBSERVATION, OF WHICH THE ENGINEER WOULD HAVE NO KNOWLEDGE OR MAY BE A PART OF ANOTHER DESIGN DISCIPLINE. IT IS THE CONTRACTOR'S/BIDDER'S RESPONSIBILITY TO REVIEW THE PLANS, INSPECT THE SITE AND PROVIDE HIS OWN DUE DILIGENCE TO INCLUDE IN HIS BID WHAT ADDITIONAL ITEMS, IN HIS OPINION, MAY BE NECESSARY FOR DEMOLITION. ANY ADDITIONAL ITEMS IDENTIFIED BY THE CONTRACTOR/BIDDER SHALL BE IDENTIFIED IN THE BID AND REPORTED TO THE ENGINEER OF RECORD. JSD TAKES NO RESPONSIBILITY FOR ITEMS ON THE PROPERTY THAT COULD NOT BE LOCATED BY A REASONABLE OBSERVATION OF THE PROPERTY OR OF WHICH THEY WOULD HAVE NO KNOWLEDGE.
2. ALL PERIMETER EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF DEMOLITION ACTIVITIES. CONTRACTOR SHALL KEEP ALL STREETS FREE AND CLEAR OF ALL CONSTRUCTION RELATED DIRT, DUST AND DEBRIS.
3. BUILDING REMOVALS SHALL BE BY A QUALIFIED CONTRACTOR. CONTRACTOR TO FOLLOW ALL DEMOLITION REGULATIONS, DISCONNECT ALL UTILITIES, OBTAIN ALL APPLICABLE PERMITS AND DISPOSE OF ALL BUILDING MATERIALS IN APPROPRIATE LANDFILLS. NO PORTIONS OF THE BUILDING SHALL NOT BE BURIED ON SITE. ANY CONTAMINATED SOILS SHALL BE REMOVED TO A LANDFILL IN ACCORDANCE WITH APPROPRIATE STATE AND FEDERAL REGULATIONS. THE OWNER WILL PROVIDE ENVIRONMENTAL DOCUMENTATION AVAILABLE.
4. ABANDONED/REMOVED ITEMS SHALL BE DISPOSED OF OFF SITE UNLESS OTHERWISE NOTED.
5. THE CONTRACTOR SHALL INSTALL A PEDESTRIAN FENCE AROUND ALL EXCAVATIONS TO BE LEFT OPEN OVERNIGHT AS REQUIRED.
6. CONTRACTOR TO REMOVE EXISTING UTILITY PIPE OR ABANDON BY PROVIDING PIPE BACK-FILLING AFTER REMOVAL OF EXISTING UTILITIES WITHIN BUILDING FOOTPRINT USING "LOW DENSITY CONCRETE/FLOWABLE FILL" THAT FULLY FILLS THE PIPE.
7. RESTORATION OF THE EXISTING ROADWAY RIGHT-OF-WAYS ARE CONSIDERED INCIDENTAL AND SHOULD BE PART OF THE COST OF THE UNDERGROUND IMPROVEMENTS, DEMOLITION AND REMOVAL. THIS INCLUDES CURB & GUTTER, SIDEWALK, TOPSOIL, SEEDING AND MULCHING.
8. GRANULAR BACKFILL MATERIALS ARE REQUIRED IN ALL UTILITY TRENCHES UNDER SIDEWALKS AND PROPOSED PAVED AREAS, ALL UTILITY TRENCH BACKFILL SHALL BE COMPACTED PER SPECIFICATIONS.
9. PRIOR TO CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR:
   - EXAMINING ALL SITE CONDITIONS RELATIVE TO THE CONDITIONS INDICATED ON THE ENGINEERING DRAWINGS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER AND RESOLVED PRIOR TO THE START OF CONSTRUCTION.
   - VERIFYING UTILITY ELEVATIONS AND NOTIFYING ENGINEER OF ANY DISCREPANCIES. NO WORK SHALL BE PERFORMED UNTIL THE DISCREPANCIES ARE RESOLVED.
   - NOTIFYING ALL UTILITIES PRIOR TO THE REMOVAL OF ANY UNDERGROUND UTILITIES.
   - NOTIFYING THE DESIGN ENGINEER AND LOCAL CONTROLLING MUNICIPALITY 48 HOURS PRIOR TO THE START OF CONSTRUCTION TO ARRANGE FOR APPROPRIATE CONSTRUCTION INSPECTION.
9. ANY SANITARY SEWER, SANITARY SEWER SERVICES, WATER MAIN, WATER SERVICES, STORM SEWER, OR OTHER UTILITIES, WHICH ARE DAMAGED BY THE CONTRACTORS, SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
10. CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY DURING THE CONSTRUCTION OF THESE IMPROVEMENTS.
11. EXISTING LIGHT POLES AND BASES SHALL BE REMOVED COMPLETELY. LIGHTING CONDUITS SHALL BE SEALED AND ABANDONED. LIGHT POLES AND LUMINARIES SHALL BE DISPOSED OF BY THE CONTRACTOR.

north

SCALE IN FEET
30' 0 30'

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St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
△	03-06-15		DD SUBMITTAL
△	04-06-15		CITY OF NEW RICHMOND SUBMITTAL
△	04-30-15		50% CD REVIEW SET
△	05-21-15		CD REVIEW SET
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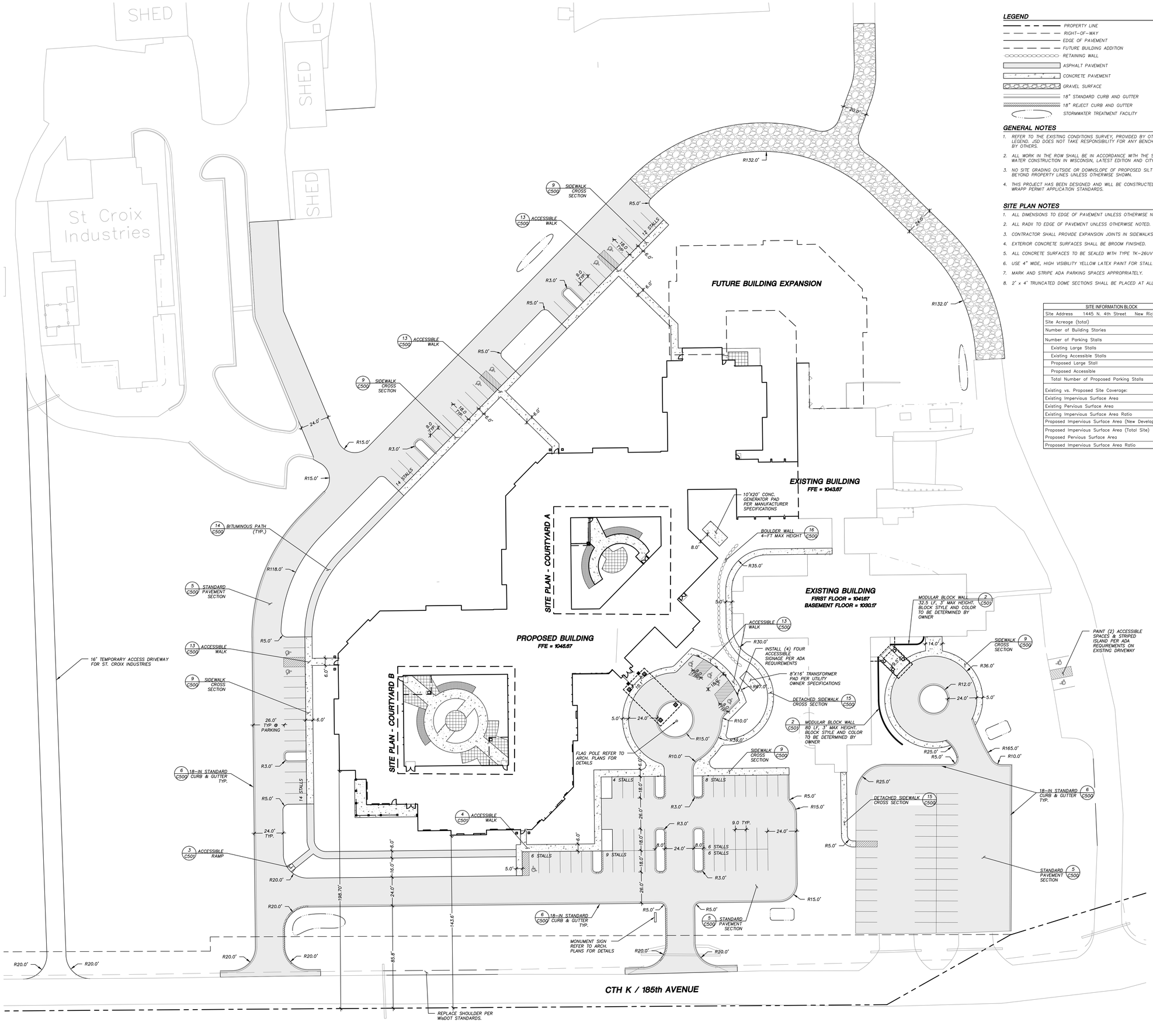
DEMOLITION PLAN

Scale	Date	Project Number
1" = 30'	03/06/15	146038

C100



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- EDGE OF PAVEMENT
- FUTURE BUILDING ADDITION
- RETAINING WALL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- GRAVEL SURFACE
- 18" STANDARD CURB AND GUTTER
- 18" REJECT CURB AND GUTTER
- STORMWATER TREATMENT FACILITY

GENERAL NOTES

1. REFER TO THE EXISTING CONDITIONS SURVEY, PROVIDED BY OTHERS, FOR EXISTING CONDITIONS NOTES AND LEGEND. JSD DOES NOT TAKE RESPONSIBILITY FOR ANY BENCHMARKS LOCATED ON THE SURVEY PROVIDED BY OTHERS.
2. ALL WORK IN THE ROW SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION AND CITY OF NEW RICHMOND REQUIREMENTS.
3. NO SITE GRADING OUTSIDE OR DOWNSLOPE OF PROPOSED SILT FENCE LOCATION. NO LAND DISTURBANCE BEYOND PROPERTY LINES UNLESS OTHERWISE SHOWN.
4. THIS PROJECT HAS BEEN DESIGNED AND WILL BE CONSTRUCTED IN COMPLIANCE WITH ALL OF THE WDNR WRAPP PERMIT APPLICATION STANDARDS.

SITE PLAN NOTES

1. ALL DIMENSIONS TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
2. ALL RADII TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL PROVIDE EXPANSION JOINTS IN SIDEWALKS AT A MAXIMUM 24' ON CENTER
4. EXTERIOR CONCRETE SURFACES SHALL BE BROOM FINISHED.
5. ALL CONCRETE SURFACES TO BE SEALED WITH TYPE TK-26UV CONCRETE SEALANT.
6. USE 4" WIDE, HIGH VISIBILITY YELLOW LATEX PAINT FOR STALL LINES.
7. MARK AND STRIPE ADA PARKING SPACES APPROPRIATELY.
8. 2' x 4' TRUNCATED DOME SECTIONS SHALL BE PLACED AT ALL ADA RAMPS.

SITE INFORMATION BLOCK	
Site Address 1445 N. 4th Street New Richmond, WI	
Site Acreage (total)	–––
Number of Building Stories	1
Number of Parking Stalls	
Existing Large Stalls	Approx. 264
Existing Accessible Stalls	Approx. 8
Proposed Large Stall	157
Proposed Accessible	15
Total Number of Proposed Parking Stalls	173
Existing vs. Proposed Site Coverage:	
Existing Impervious Surface Area	230,710 S.F.
Existing Pervious Surface Area	890,264 S.F.
Existing Impervious Surface Area Ratio	18.3%
Proposed Impervious Surface Area (New Development)	97,152 S.F.
Proposed Impervious Surface Area (Total Site)	204,165 S.F.
Proposed Pervious Surface Area	943,393 S.F.
Proposed Impervious Surface Area Ratio	16.2%

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St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

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	03-06-15		DD SUBMITTAL
	04-06-15		CITY OF NEW RICHMOND SUBMITTAL
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	05-21-15		CD REVIEW SET

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SITE PLAN

Scale	Date	Project Number
1" = 30'	03/06/15	146038

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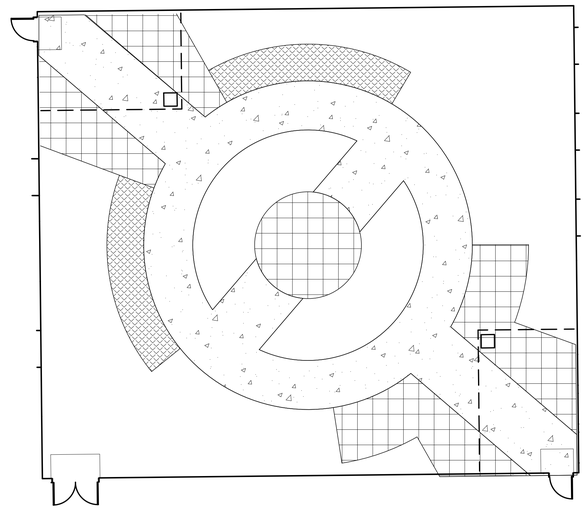
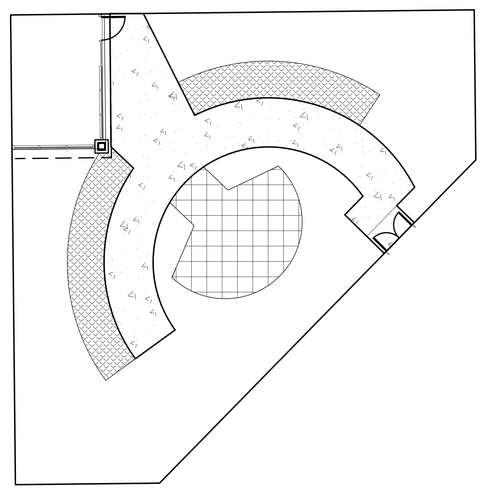


SITE PLAN - COURTYARD A



SITE PLAN - COURTYARD B

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- EDGE OF PAVEMENT
- FUTURE BUILDING ADDITION
- RETAINING WALL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- 18" STANDARD CURB AND GUTTER
- 18" REJECT CURB AND GUTTER

GENERAL NOTES

1. REFER TO THE EXISTING CONDITIONS SURVEY, PROVIDED BY OTHERS, FOR EXISTING CONDITIONS NOTES AND LEGEND. JSD DOES NOT TAKE RESPONSIBILITY FOR ANY BENCHMARKS LOCATED ON THE SURVEY PROVIDED BY OTHERS.
2. ALL WORK IN THE ROW SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION AND CITY OF NEW RICHMOND REQUIREMENTS.
3. NO SITE GRADING OUTSIDE OR DOWNSLOPE OF PROPOSED SILT FENCE LOCATION. NO LAND DISTURBANCE BEYOND PROPERTY LINES UNLESS OTHERWISE SHOWN.
4. THIS PROJECT HAS BEEN DESIGNED AND WILL BE CONSTRUCTED IN COMPLIANCE WITH ALL OF THE WDNR WRAPP PERMIT APPLICATION STANDARDS.

SITE PLAN NOTES

1. ALL DIMENSIONS TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
2. ALL RADII TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL PROVIDE EXPANSION JOINTS IN SIDEWALKS AT A MAXIMUM 24' ON CENTER
4. EXTERIOR CONCRETE SURFACES SHALL BE BROOM FINISHED.
5. ALL CONCRETE SURFACES TO BE SEALED WITH TYPE TK-26UV CONCRETE SEALANT.
6. USE 4" WIDE, HIGH VISIBILITY YELLOW LATEX PAINT FOR STALL LINES.
7. MARK AND STRIPE ADA PARKING SPACES APPROPRIATELY.
8. 2' x 4' TRUNCATED DOME SECTIONS SHALL BE PLACED AT ALL ADA RAMPS.

north

SCALE IN FEET

10' 0 10'

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BID PACKAGE 1
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New Richmond, WI

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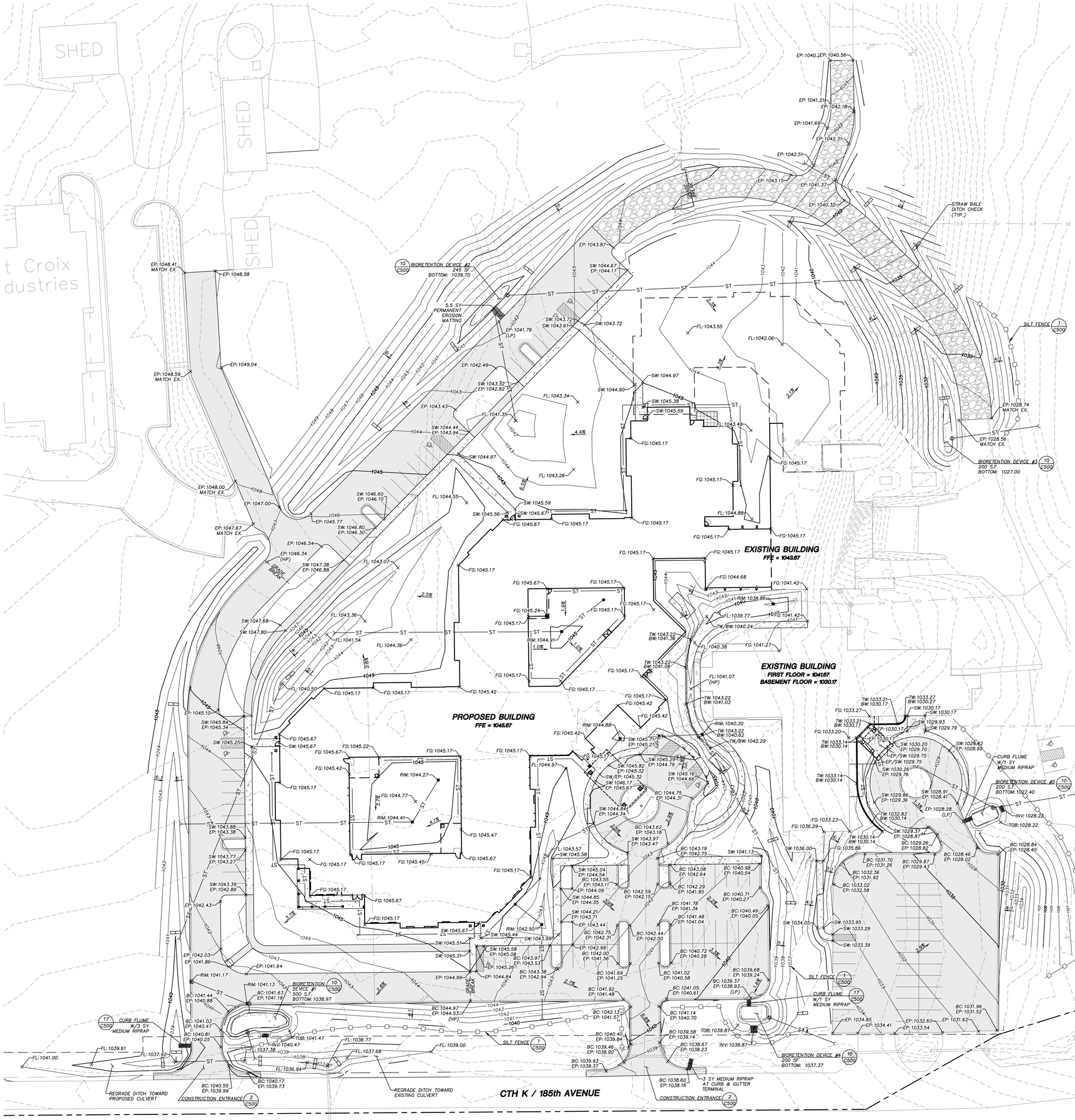
SITE PLAN - COURTYARD DESIGN

Scale	Date	Project Number
1" = 10'	03/06/15	146038

C201



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- EDGE OF PAVEMENT
- FUTURE BUILDING ADDITION
- RETAINING WALL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- 18" STANDARD CURB AND GUTTER
- 18" REJECT CURB AND GUTTER
- SILT FENCE
- STRAW BALE DITCH CHECK
- SPOT ELEVATION
  - BW – BOTTOM OF WALL
  - EP – EDGE OF PAVEMENT
  - FFE – FINISHED FLOOR ELEVATION
  - FG – FINAL GRADE
  - SW – SIDEWALK
  - TW – TOP OF WALL
  - FL – FLOW LINE

EP: 1044.77

CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE DESIGNED AND IMPLEMENTED IN ACCORDANCE WITH THE CURRENT DEPARTMENT OF NATURAL RESOURCES EROSION AND SEDIMENT CONTROL TECHNICAL STANDARDS WHICH ARE AVAILABLE AT: http://www.dnr.state.wi.us/runoff/stormwater/techstds.htm
2. INSTALL EROSION CONTROL MEASURES PRIOR TO ANY SITE WORK, INCLUDING GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIALS AS SHOWN ON PLAN. MODIFICATIONS TO SEDIMENT CONTROL DESIGN MAY BE CONDUCTED TO MEET UNFORESEEN FIELD CONDITIONS IF MODIFICATIONS CONFORM TO WDNR TECHNICAL STANDARDS.
3. INSPECTIONS AND MAINTENANCE OF ALL EROSION CONTROL MEASURES SHALL BE ROUTINE (ONCE PER WEEK MINIMUM) TO ENSURE PROPER FUNCTION OF EROSION CONTROLS AT ALL TIMES. EROSION CONTROL MEASURES ARE TO BE IN WORKING ORDER AT THE END OF EACH WORK DAY. THE CONTRACTOR SHALL KEEP COMPLETED INSPECTION FORMS ON SITE.
4. EROSION CONTROL AND MAINTENANCE OF EROSION CONTROL MEASURES IS THE CONTRACTOR'S RESPONSIBILITY.
5. INSPECT EROSION CONTROL MEASURES AFTER EACH 1/2" OR GREATER RAINFALL. REPAIR ANY DAMAGE OBSERVED DURING THE INSPECTION.
6. EROSION CONTROL MEASURES SHALL BE REMOVED ONLY AFTER SITE CONSTRUCTION IS COMPLETE WITH ALL SOIL SURFACES HAVING AN ESTABLISHED VEGETATIVE COVER.
7. INSTALL A TRACKING PAD, 50' LONG AND NO LESS THAN 12" THICK BY USE OF 3" CLEAR STONE. TRACKING PADS ARE TO BE MAINTAINED BY THE CONTRACTOR IN A CONDITION WHICH WILL PREVENT THE TRACKING OF MUD OR DRY SEDIMENT ONTO THE ADJACENT PUBLIC STREETS AFTER EACH WORKING DAY OR MORE FREQUENTLY AS REQUIRED BY THE CITY OF NEW RICHMOND.
8. INSTALL EROSION CONTROLS ON THE DOWNSTREAM SIDE OF STOCKPILES AND PROVIDE TEMPORARY SEEDING ON STOCKPILES WHICH ARE TO REMAIN IN PLACE FOR MORE THAN 7 DAYS.
9. INSTALL CHECK DAMS WITHIN DRAINAGE DITCHES AND IN FRONT OF SILT FENCING IN ANY LOW AREA ALL IN ACCORDANCE WITH WDNR TECHNICAL STANDARDS.
10. EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, SANITARY SEWER, WATER MAIN, ETC.):
    A. PLACE EXCAVATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.
    B. BACKFILL, COMPACT, AND STABILIZE THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.
    C. DISCHARGE TRENCH WATER INTO A SEDIMENTATION BASIN OR FILTERING TANK IN ACCORDANCE WITH THE DEWATERING TECHNICAL STANDARD NO. 1061 PRIOR TO RELEASE INTO THE STORM SEWER, RECEIVING STREAM, OR DRAINAGE DITCH.
11. INSTALL TYPE D INLET PROTECTION AROUND ALL STORM SEWER INLETS AND CATCH BASINS THAT MAY RECEIVE RUNOFF FROM AREAS UNDER CONSTRUCTION. REFER TO WISDOT FDM FOR RESPECTIVE DETAILS.
12. APPLY ANIONIC POLYMER TO DISTURBED AREAS IF EROSION BECOMES PROBLEMATIC.
13. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED BY STATE INSPECTORS, LOCAL INSPECTORS, AND/OR ENGINEER SHALL BE INSTALLED WITHIN 24 HOURS OF REQUEST.
14. ALL SLOPES EXCEEDING 5:1 (20%) SHALL BE STABILIZED WITH A CLASS I, TYPE B EROSION MATTING AND DRAINAGE SWALES SHALL BE STABILIZED WITH CLASS I, TYPE B EROSION MATTING OR APPLICATION OF A WISDOT APPROVED POLYMER SOIL STABILIZATION TREATMENT OR A COMBINATION THEREOF, AS REQUIRED. CONTRACTOR SHALL PROVIDE PRODUCT SPECIFICATIONS TO PROJECT ENGINEER FOR APPROVAL.
15. CONTRACTOR/OWNER SHALL FILE A NOTICE OF TERMINATION UPON VEGETATIVE STABILIZATION AND/OR PROPERTY SALE IN ACCORDANCE WITH WDNR REQUIREMENTS.
16. CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO CONTROL DUST ARISING FROM CONSTRUCTION OPERATIONS. REFER TO WDNR TECHNICAL STANDARD 1068.
17. CONTRACTOR TO PROVIDE SOLID LID OR METAL PLATE ON ALL OPEN MANHOLES DURING CONSTRUCTION TO MINIMIZE SEDIMENT FROM ENTERING THE STORM SEWER SYSTEM.

GRADING AND SEEDING NOTES

1. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED IMMEDIATELY FOLLOWING GRADING ACTIVITIES. SEED MIX TO BE IN ACCORDANCE WITH LANDSCAPE PLAN.
2. ALL PROPOSED GRADES SHOWN ARE FINISHED GRADES. CONTRACTOR SHALL VERIFY ALL GRADES, MAKE SURE ALL AREAS DRAIN PROPERLY AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL PROTECT ADJACENT PROPERTIES WITH SILT FENCING FOR EROSION CONTROL UNTIL CONSTRUCTION IS COMPLETED AND NOTICE OF TERMINATION FILED.
4. CONTRACTOR SHALL WATER ALL NEWLY SEEDED AREAS DURING THE SUMMER MONTHS WHENEVER THERE IS A 7 DAY LAPSE WITH NO SIGNIFICANT RAINFALL.
5. CONTRACTOR TO DEEP TILL ALL COMPACTED PERVIOUS SURFACES PRIOR TO SEEDING AND MULCHING.
6. THE CONTRACTOR SHALL NOTIFY THE CITY OF NEW RICHMOND TWO (2) WORKING DAYS IN ADVANCE OF ANY SOIL DISTURBING ACTIVITY.
7. IF GRADING ACTIVITIES STOP ON ANY PORTION OF LAND FOR 14 OR MORE CALENDAR DAYS, THE AREA IN QUESTION MUST BE TEMPORARILY STABILIZED.
8. ALL SLOPES 20% OR GREATER SHALL BE TEMPORARY SEEDED, MULCHED, OR OTHER MEANS OF COVER PLACED ON THEM WITHIN 2 WEEKS OF DISTURBANCE.

north

SCALE IN FEET
30' 0 30'

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Health Center Additions & Renovation
New Richmond, WI

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1	03-06-15		DD SUBMITTAL
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3	04-30-15		50% CD REVIEW SET
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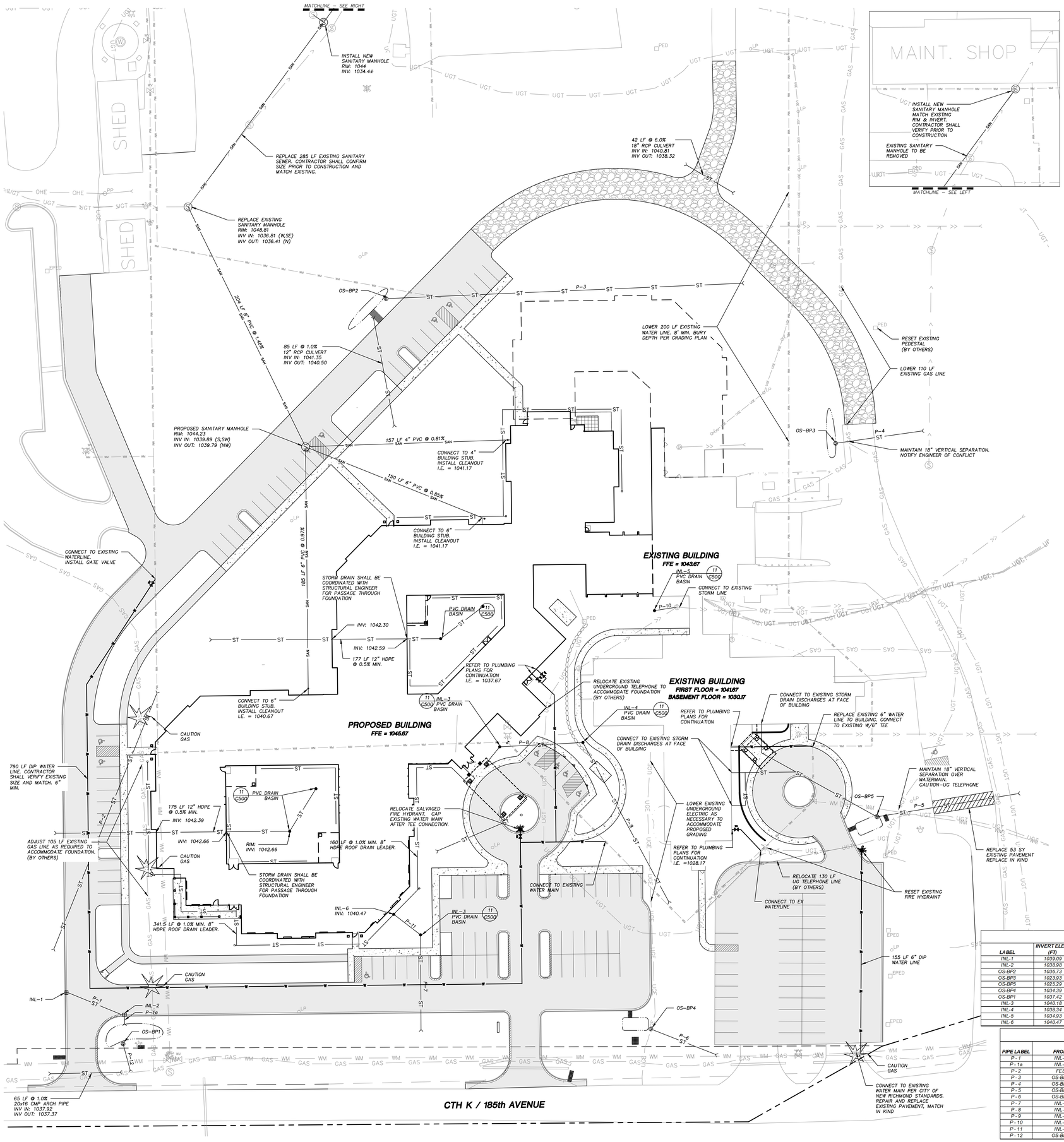
GRADING AND EROSION CONTROL PLAN

Scale	Date	Project Number
1" = 30'	03/06/15	146038

C300



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- EDGE OF PAVEMENT
- FUTURE BUILDING ADDITION
- RETAINING WALL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- 18" STANDARD CURB AND GUTTER
- 18" REJECT CURB AND GUTTER
- ST — STORM SEWER
- SAN — SANITARY SEWER
- W — WATER MAIN
- E — ELECTRIC SERVICE (BY OTHERS)

UTILITY NOTES

1. ELECTRIC, FIBER OPTIC, AND TELEPHONE ARE SHOWN FOR GRAPHIC PURPOSES ONLY. DESIGN FOR THESE SERVICES ARE BY OTHERS. CONTRACTOR TO COORDINATE AND PROVIDE NEW SERVICE INSTALLATION AND ANY SERVICE REPLACEMENTS DUE TO GRADING, UTILITY CROSSINGS OR ANY OTHER WORK WITH APPLICABLE UTILITY COMPANY.
2. ALL WORK WITHIN THE RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH THE LATEST CITY OF NEW RICHMOND REQUIREMENTS FOR PUBLIC WORKS IMPROVEMENTS.
3. DIMENSIONS TAKE PRECEDENCE OVER SCALE. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD.
4. IF ANY ERRORS, DISCREPANCIES, OR OMISSIONS WITHIN THE PLAN BECOME APPARENT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION SO THAT CLARIFICATION OR REDESIGN MAY OCCUR.
5. LENGTHS OF ALL UTILITIES ARE TO CENTER OF STRUCTURES OR FITTINGS AND MAY VARY SLIGHTLY FROM PLAN. LENGTHS SHALL BE VERIFIED IN THE FIELD DURING CONSTRUCTION.
6. ALL CONSTRUCTION SIGNING TO BE IN ACCORDANCE WITH THE CITY OF NEW RICHMOND AND WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAYS AND STRUCTURES, AND THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN WISCONSIN.
7. PROVIDE DE-WATERING ACTIVITIES AND PERMITS AS NECESSARY PER WDNR REQUIREMENTS AND WDNR TECHNICAL STANDARD 1061.
8. ALL PRIVATE WATER MAIN AND WATER SERVICES SHALL BE INSTALLED WITH A 8' MINIMUM BURY.
9. THE CONTRACTOR SHALL INSTALL A PEDESTRIAN FENCE AROUND ALL EXCAVATIONS TO BE LEFT OPEN OVER NIGHT AS REQUIRED.
10. THE PROPOSED IMPROVEMENTS MUST BE CONSTRUCTED IN ACCORDANCE WITH ENGINEERING PLANS DESIGNED TO MEET ORDINANCES AND REQUIREMENTS OF THE MUNICIPALITY AND WISDOT, WSPS, AND WDNR.
11. PRIOR TO CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR:
    - EXAMINING ALL SITE CONDITIONS RELATIVE TO THE CONDITIONS INDICATED ON THE ENGINEERING DRAWINGS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER AND RESOLVED PRIOR TO THE START OF CONSTRUCTION.
    - OBTAINING ALL PERMITS INCLUDING PERMIT COSTS, TAP FEES, METER DEPOSITS, BONDS, AND ALL OTHER FEES REQUIRED FOR PROPOSED WORK TO OBTAIN OCCUPANCY.
    - VERIFYING UTILITY ELEVATIONS AND NOTIFYING ENGINEER OF ANY DISCREPANCY. NO WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS RESOLVED.
    - NOTIFYING ALL UTILITIES PRIOR TO THE INSTALLATION OF ANY UNDERGROUND IMPROVEMENTS.
    - NOTIFYING THE DESIGN ENGINEER AND MUNICIPALITY 48 HOURS PRIOR TO THE START OF CONSTRUCTION TO ARRANGE FOR APPROPRIATE CONSTRUCTION OBSERVATION.
11. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE ENGINEER WITH AS-BUILT CONDITIONS OF THE DESIGNATED IMPROVEMENTS IN ORDER THAT THE APPROPRIATE DRAWINGS CAN BE PREPARED, IF REQUIRED. ANY CHANGES TO THE DRAWINGS OR ADDITIONAL ITEMS MUST BE REPORTED TO THE ENGINEER AS WORK PROGRESSES.
12. THE PRIME CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION WITH OTHER CONTRACTORS INVOLVED WITH CONSTRUCTION OF THE PROPOSED DEVELOPMENT AND FOR REPORTING ANY ERRORS OR DISCREPANCIES BETWEEN THESE PLANS AND PLANS PREPARED BY OTHERS.
13. ANY SANITARY SEWER, SANITARY SEWER SERVICES, WATER MAIN, WATER SERVICES, STORM SEWER, OR OTHER UTILITIES, WHICH ARE DAMAGED BY THE CONTRACTORS, SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
14. CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY DURING THE CONSTRUCTION OF IMPROVEMENTS.
15. CONTRACTOR SHALL NOTIFY THE CITY OF NEW RICHMOND PUBLIC WORKS DEPARTMENT A MINIMUM OF 48 HOURS BEFORE CONNECTING TO PUBLIC UTILITIES. CONTRACTOR SHALL NOTIFY NEW RICHMOND UTILITIES DEPARTMENT 48 HOURS PRIOR TO CONNECTING TO PUBLIC WATER MAINS.
16. ALL PRIVATE STORM BUILDING PIPE AND TUBING SHALL CONFORM TO SPS 384.30-2.
17. ALL PRIVATE SANITARY BUILDING PIPE AND TUBING SHALL CONFROM TO SPS 384.30-3.
18. ALL PRIVATE PIPE AND TUBING FOR WATER SERVICE SHALL CONFORM TO SPS 384.30-4.
19. WATER SERVICE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR TO FIELD VERIFY LOCATION AND SIZE. REPORT DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION. CONSTRUCTION TO BE IN ACCORDANCE WITH THE NEW RICHMOND WATER & LIGHT DEPARTMENT STANDARDS FOR WATER MAIN CONSTRUCTION.
20. NEW RICHMOND UTILITIES WILL REQUIRE INSPECTION OF WATER SERVICE INSTALLATION AND TESTING WITH COSTS TO BE PAID BY NEW RICHMOND COMMUNITY HOSPITAL.
21. ANY PUBLIC WATER VALVES OUTSIDE OF THE PROJECT LIMITS SHALL BE OPERATED BY NEW RICHMOND UTILITIES PERSONNEL ONLY.
22. NEW WATER MAIN INSTALLED AS PART OF THIS PROJECT SHALL PASS A WATER MAIN PRESSURE TEST FOR A MINIMUM OF 2 HOURS AT 150 PSI. NO LEAKAGE WILL BE ALLOWED.
23. TWO SAFE BACTERIA SAMPLES WILL BE REQUIRED TO BE COLLECTED BY THE CONTRACTOR 24 HOURS APART. RESULTS BE SENT TO THE NEW RICHMOND WATER & LIGHT DEPARTMENT PRIOR TO PLACE THE NEW WATER MAIN INTO SERVICE FOR THE HOSPITAL.
24. ALL PRIVATE PIPE SHALL BE INSTALLED PER SPS 382.40-8 INCLUDING AT LEAST 8' OF HORIZONTAL DISTANCE BETWEEN WATER PIPING AND SANITARY SEWER FROM CENTER OF PIPE TO CENTER OF PIPE AND 6" OF SEPARATION BETWEEN STORM SEWER AND WATER PIPING.
25. THE CONTRACTOR SHALL ALLOW 10 WORKING DAYS FOR THE CONSTRUCTION OF GAS MAINS WHEN SCHEDULING THE WORK AND SHALL NOT RESTRICT ACCESS TO THE GAS MAIN CONTRACTOR OR OTHER UTILITY CONTRACTORS.
26. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST AND EROSION DURING CONSTRUCTION AT HIS EXPENSE. STREETS SHALL BE WATERED TO CONTROL DUST WHEN ORDERED BY THE ENGINEER.
27. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO AS TO BE IN CONFORMANCE WITH THE CITY EROSION CONTROL AND STORMWATER ORDINANCE, AND DNR ADMINISTRATIVE RULE NR 216 AT ALL TIMES.
28. CONTRACTOR SHALL COORDINATE UTILITY RELOCATIONS WITH THE RESPECTIVE UTILITIES.
29. PVC DRAIN BASIN SHALL BE NYLOPLAST OF THE SIZE SHOWN AN APPROVED EQUAL. GRATES SHALL BE STANDARD GRATES IN LANDSCAPED AREAS.
30. 2" POLYSTYRENE INSULATION SHALL BE PROVIDED AT ALL STORM SEWER CROSSINGS.
31. ALL WATER LINES SHALL BE BURIED 8 FOOT MINIMUM OR INSULATED WITH 2" POLYSTYRENE.

PROPOSED STORM SEWER STRUCTURES SCHEDULE

LABEL	INVERT ELEV. (FT)	RIM ELEV. (FT)	DEPTH (FT)	STRUCTURE DESCRIPTION	GRATE
INL-1	1039.09	1041.17	2.08	2'x 3' PRECAST BOX	R-3067, COMBINATION INLET FRAME, TYPE C GRATE
INL-2	1038.98	1041.13	2.15	2'x 3' PRECAST BOX	R-3067, COMBINATION INLET FRAME, TYPE C GRATE
OS-BP2	1036.73	1040.73	4.00	36" DIA CONC INLET	36" DIA. INLET, TYPE C GRATE
OS-BP3	1023.93	1028.00	4.07	36" DIA CONC INLET	36" DIA. INLET, TYPE C GRATE
OS-BP5	1025.29	1028.40	3.12	36" DIA CONC INLET	36" DIA. INLET, TYPE C GRATE
OS-BP4	1034.39	1037.50	3.12	36" DIA CONC INLET	36" DIA. INLET, TYPE C GRATE
OS-BP1	1037.42	1039.97	2.56	36" DIA CONC INLET	36" DIA. INLET, TYPE C GRATE
INL-3	1040.18	1042.41	2.23	2824AG NYLOPLAST BASIN	STANDARD GRATE
INL-4	1038.34	1040.30	1.96	2824AG NYLOPLAST BASIN	STANDARD GRATE
INL-5	1034.93	1043.90	8.97	2824AG NYLOPLAST BASIN	STANDARD GRATE
INL-6	1040.47	1045.17	4.70	2812AG NYLOPLAST BASIN	STANDARD GRATE

PROPOSED STORM SEWER PIPE SCHEDULE

PIPE LABEL	FROM	TO	LENGTH (FT)	INVERT ELEVATION (FT)	DISCHARGE ELEVATION (FT)	SLOPE (%)	PIPE SIZE & TYPE
P - 1	INL-1	INL-2	47	1039.09	1038.98	0.22%	12"RCP
P - 1a	INL-2	FES	6	1038.98	1038.97	0.22%	12"RCP
P - 2	FES	FES	213	1040.53	1038.40	1.00%	12"RCP
P - 3	OS-BP2	FES	266	1036.73	1034.07	1.00%	12"RCP
P - 4	OS-BP3	FES	68	1023.93	1023.25	1.00%	12"RCP
P - 5	OS-BP5	FES	110	1025.29	1020.50	4.35%	12"HDPE
P - 6	OS-BP4	FES	21	1034.39	1034.28	0.50%	12"HDPE
P - 7	INL-2	FES	42	1040.18	1039.76	1.00%	12"HDPE
P - 8	INL-3	INL-4	65	1039.58	1037.00	4.00%	12"HDPE
P - 9	INL-4	FES	140	1038.34	1037.64	0.50%	12"HDPE
P - 10	INL-5	EX PIPE	22	1034.93	1034.50	2.00%	12"HDPE
P - 11	INL-6	INL-2	29	1040.47	1040.18	1.00%	10"HDPE
P - 12	OS-BP1	FES	21.00	1037.42	1037.31	0.50%	12"HDPE

Horty Elving

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505 East Grant Street, Minneapolis, MN 55404-1490
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St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	03-06-15		DD SUBMITTAL
2	04-06-15		CITY OF NEW RICHMOND SUBMITTAL
3	04-30-15		50% CD REVIEW SET
4	05-21-15		CD REVIEW SET

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

"BUILDING RELATIONSHIPS WITH A COMMITMENT TO CLIENT SATISFACTION THROUGH TRUST, QUALITY AND EXPERIENCE"

MADISON REGIONAL OFFICE
161 HORIZON DRIVE, SUITE 101
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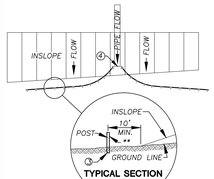
UTILITY PLAN

Scale	Date	Project Number
1" = 30'	03/06/15	146038

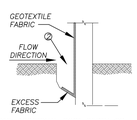
C400



TYPICAL SECTION

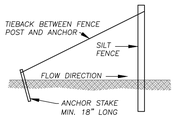
SILT FENCE ALONG SLOPES & OUTFALLS

1. SILT FENCE SHALL BE ANCHORED BY SPREADING AT LEAST 8 INCHES OF FABRIC IN A 4" WIDE AND 6" DEEP TRENCH OR 6 INCH DEEP V-TRENCH ON THE UPSLOPE SIDE OF THE FENCE. TRENCHES SHALL NOT BE EXCAVATED WIDER OR DEEPER THAN NECESSARY FOR PROPER INSTALLATION.
2. FOLD MATERIAL TO FIT TRENCH AND BACKFILL AND COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" x 1 1/8" OF DRIED OAK OR HICKORY.
4. SILT FENCE TO EXTEND ABOVE THE TOP OF PIPE.
5. SILT FENCE CONSTRUCTION AND GEOTEXTILE FABRIC SHALL CONFORM TO WDNR TECHNICAL STANDARD 1056.
6. POST SPACING SHALL BE SELECTED BASED ON GEOTEXTILE FABRIC (8'-0" FOR WOVEN & 3'-0" FOR NON-WOVEN)

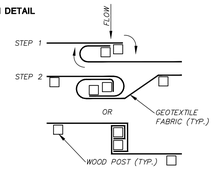


NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

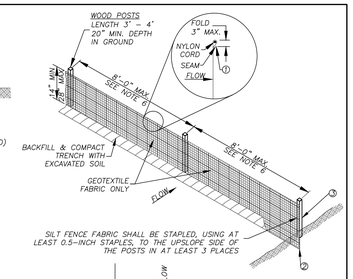
TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN ADDITIONAL SUPPORT REQUIRED)

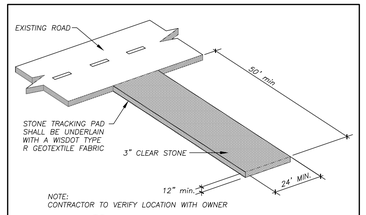


JOINT (TWIST METHOD)



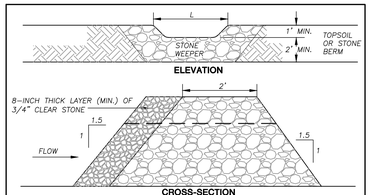
JOINT (HOOK METHOD)

1 / C500 SILT FENCE
N.T.S.



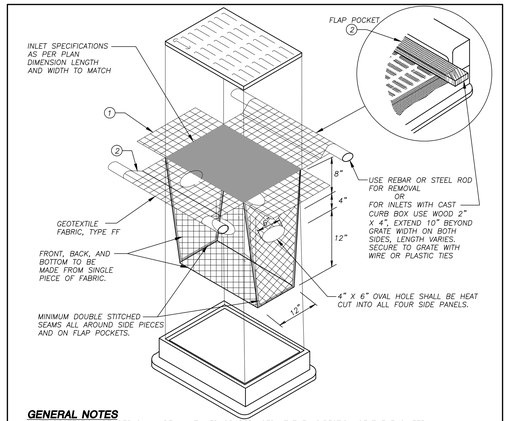
NOTE:
CONTRACTOR TO VERIFY LOCATION WITH OWNER

2 / C500 CONSTRUCTION ENTRANCE
N.T.S.



1. BERM TO BE CONSTRUCTED WITH 3" CLEAR STONE, 1.5' HIGH ABOVE THE SWALE BOTTOM AND LEVEL WITH THE CREST.
2. EXTEND BERM ACROSS SWALE TO MEET SWALE SIDE SLOPES GRADES. WHERE SWALE IS LESS THAN 1.5' DEEP, REDUCE BERM HEIGHT TO 1.0', WITH A 4' LENGTH.

3 / C500 STONE BERM
N.T.S.



GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

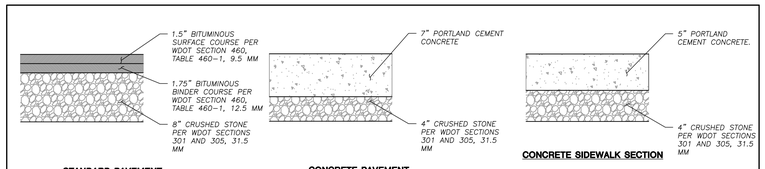
INSTALLATION NOTES

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

4 / C500 INLET PROTECTION, TYPE D
N.T.S.



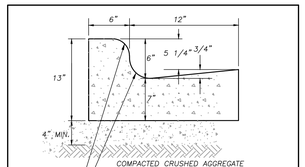
STANDARD PAVEMENT
PARKING AREAS

CONCRETE PAVEMENT

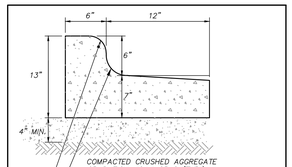
CONCRETE SIDEWALK SECTION

NOTES:
1. REFER TO GEOTECHNICAL REPORT BY CGC, INC. DATED JANUARY 29, 2014 FOR ADDITIONAL INFORMATION. IF THERE ARE ANY DISCREPANCIES BETWEEN THIS DETAIL AND THE GEOTECHNICAL REPORT, THE GEOTECHNICAL REPORT SHALL GOVERN.
2. WSDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, INCLUDING SUPPLEMENTAL SPECIFICATIONS, BUT EXCLUDING LIMITATIONS IN SECTION 460.3.2 RESTRICTING LAYER THICKNESS BY AGGREGATE SIZE.
3. COMPACTION REQUIREMENTS:
   - BITUMINOUS CONCRETE: REFER TO SECTION 460-3.
   - BASE COURSE: REFER TO SECTION 301.3.4.2, STANDARD COMPACTION
4. MIXTURE TYPE E-0.3 BITUMINOUS PAVEMENT IS RECOMMENDED; REFER TO SECTION 460, TABLE 460-2 OF THE STANDARD SPECIFICATIONS.
5. CONCRETE PADS SHALL HAVE A MINIMUM 6" THICK PORTLAND CEMENT CONCRETE OVER 6" THICK DENSE GRADED BASE WITH A WIRE REINFORCEMENT MESH (6X6, W2.9 X W2.9) FOR CRACK CONTROL.

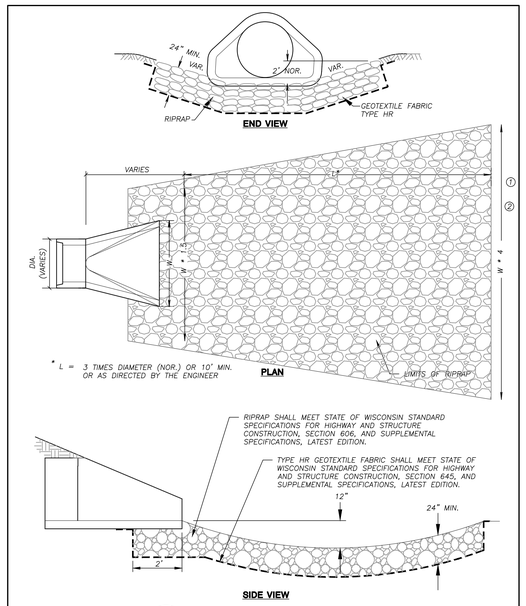
5 / C500 PAVEMENT SECTIONS
N.T.S.



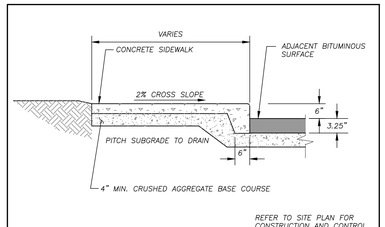
6 / C500 18" STANDARD CURB AND GUTTER
N.T.S.



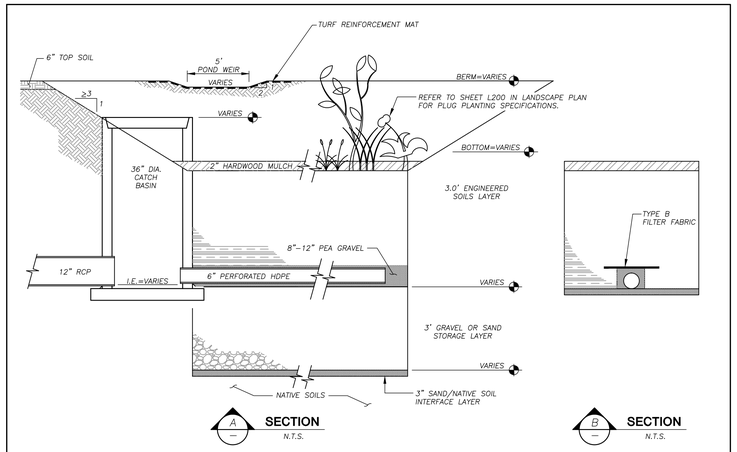
7 / C500 18" REJECT CURB AND GUTTER
N.T.S.



8 / C500 APRON ENDWALL
N.T.S.



9 / C500 SIDEWALK CROSS SECTION
N.T.S.



A / — SECTION
N.T.S.

B / — SECTION
N.T.S.

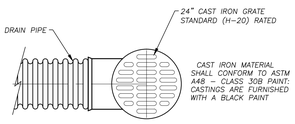
GENERAL NOTES:

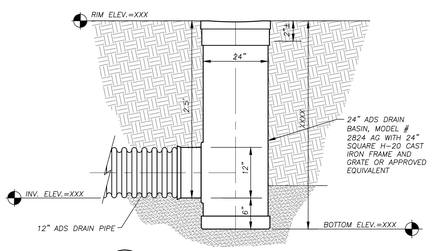
1. ALL CONSTRUCTION PRACTICES SHALL MEET THE SPECIFICATIONS OF THE WDNR TECHNICAL STANDARD 1004 – BIORETENTION FOR INFILTRATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COPY OF THIS STANDARD AND CONSTRUCT THE BIORETENTION DEVICE IN ACCORDANCE WITH THE REQUIREMENTS OUTLINED THEREIN.
2. CONTRACTOR SHALL INSTALL 36" OF ENGINEERED SOIL CONSISTING OF: 85% ASTM C33 SAND AND 15% CERTIFIED COMPOST.
3. CERTIFIED COMPOST SHALL CONSIST OF: >40% ORGANIC MATTER, <60% ASH CONTENT, pH OF 6-8, AND MOISTURE CONTENT OF 35-50% BY WEIGHT.
4. ASTM C33 SAND OR WASHED STONE SHALL BE PLACED IN THE FIRST 36" BELOW THE PERFORATED PIPE. SOILS SHALL BE CONFIRMED BY GEOTECHNICAL ENGINEER PRIOR TO BACKFILLING.
5. ANNUAL RYE GRASS SHALL BE SEEDED AT 40 LB/ACRE WITH THE SEED MIX IN THE AREAS SURROUNDING THE BASIN, ON SIDE SLOPES, AND OVER ANY LAND THAT DISCHARGES INTO THE BASIN FOR EROSION CONTROL WHEN BASIN IS BROUGHT ON-LINE. ROOTSTOP AND PLUGS ARE REQUIRED TO ESTABLISH VEGETATION AT THE INVERT OF THE BASIN. REFER TO AREA DELINEATED ON SHEET L100 FOR PLANTING AREA. IT SHALL BE THE OWNERS/OWNERS CONTRACT REPRESENTATIVE'S RESPONSIBILITY TO DETERMINE TYPE OF VEGETATIVE COVER AT THE INVERT OF THE BIORETENTION BASIN. REFER TO DETAIL 1/401 AND 1(ALT)/401 FOR VEGETATION TYPE OPTIONS FOR BIORETENTION BASIN.
6. RUNOFF MUST INFILTRATE WITHIN 24-HOURS. BASINS UNABLE TO MAINTAIN THESE RATES MUST BE DEEP TILLED, REGRADED, AND IF NECESSARY REPLANTED TO RESTORE ORIGINAL INFILTRATION RATES.
7. ALL WORK TO BE CONDUCTED IN CONFORMANCE WITH APPLICABLE LOCAL, REGIONAL, AND STATE STORMWATER STANDARDS FOR THE PROJECT SITE AS APPROVED BY THE REGULATORY ENGINEER.
8. OWNER OR CONTRACTOR MUST CONSULT LANDSCAPE ARCHITECT OR ECOLOGICAL PLANTING AGENCY FOR APPROPRIATE PLANTS AND PLANTING CONFIGURATIONS – SEE SHEET L200.

INFILTRATION DEVICES ARE DESIGNED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES (WDNR), COUNTY, MUNICIPALITY, AND ENGINEERING STANDARD OF CARE. ALL DESIGNATED INFILTRATION AREAS (e.g. RAIN GARDENS, INFILTRATION BASINS, BIORETENTION DEVICES) SHALL BE FENCED PRIOR TO CONSTRUCTION AND REMAIN UNDISTURBED AND PROTECTED DURING THE CONSTRUCTION OF PROPOSED SITE IMPROVEMENTS. PROPOSED BIORETENTION DEVICES SHALL NOT BE CONSTRUCTED UNTIL THE DEVICE'S CONTRIBUTING WATERSHED AREA MEETS ESTABLISHED VEGETATION REQUIREMENTS SET FORTH WITHIN THE RESPECTIVE WDNR TECHNICAL STANDARDS. IF THE LOCATION OF THE INFILTRATION AREA CONFLICTS WITH CONSTRUCTION STAGING AND/OR CONSTRUCTION TRAFFIC AND IS DISTURBED, COMPACTION MITIGATION WILL BE REQUIRED AT THE CONTRACTOR'S EXPENSE.

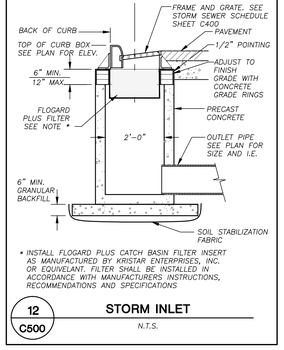
THE CONTRACTOR IS REQUIRED TO PROVIDE QUALIFIED STAFF FOR INSPECTION AND OBSERVATION OF THE CONSTRUCTION ACTIVITIES RELATING TO ALL JOB SITE REGULATORY COMPLIANCE INCLUDING THE PROTECTION AND CONSTRUCTION OF ALL STORMWATER MANAGEMENT FEATURES. ANY OBSERVATION OF PLAN OR SITE DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.

10 / C500 BIORETENTION DEVICE
N.T.S.



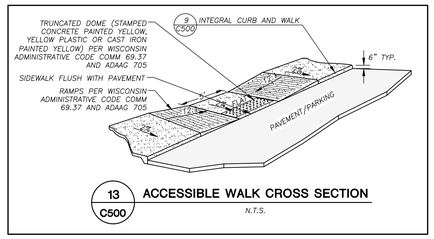


11 / C500 HDPE INLET
N.T.S.

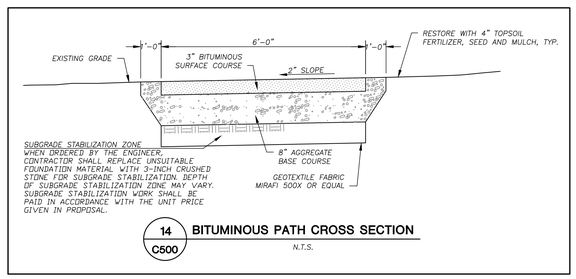


* INSTALL FLOGARD PLUS CATCH BASIN FILTER INSERT AS MANUFACTURED BY KRISTAR ENTERPRISES, INC. OR EQUIVELANT. FILTER SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, RECOMMENDATIONS AND SPECIFICATIONS

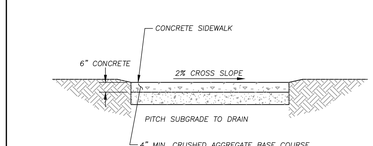
12 / C500 STORM INLET
N.T.S.



13 / C500 ACCESSIBLE WALK CROSS SECTION
N.T.S.

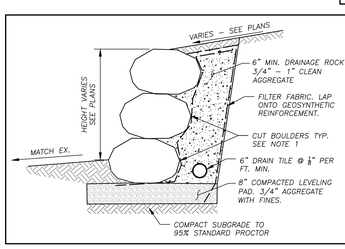


14 / C500 BITUMINOUS PATH CROSS SECTION
N.T.S.



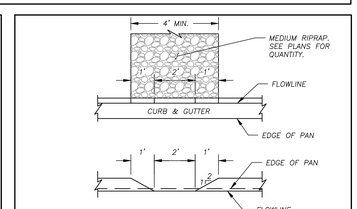
NOTE: CONTRACTOR SHALL PROVIDE CONSTRUCTION AND CONTROL JOINT LOCATION PLAN

15 / C500 DETACHED SIDEWALK CROSS SECTION
N.T.S.



NOTES:
1. SIZE, COLOR AND SPECIFICATION TO BE PROVIDED FOR APPROVAL BY OWNER OR CONTRACTOR'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
2. BOULDER WALLS OVER 5 FEET HEIGHT SHALL BE DESIGNED BY REGISTERED GEOTECHNICAL OR STRUCTURAL ENGINEER AS PROVIDED ON SHOP DRAWINGS AND SUBMITTED PRIOR TO CONSTRUCTION.

16 / C500 BOULDER WALL
N.T.S.



17 / C500 CURB WEIR DETAIL
N.T.S.

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St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
△	03-06-15		DD SUBMITTAL
△	04-06-15		CITY OF NEW RICHMOND SUBMITTAL
△	04-30-15		50% CD REVIEW SET
△	05-21-15		CD REVIEW SET
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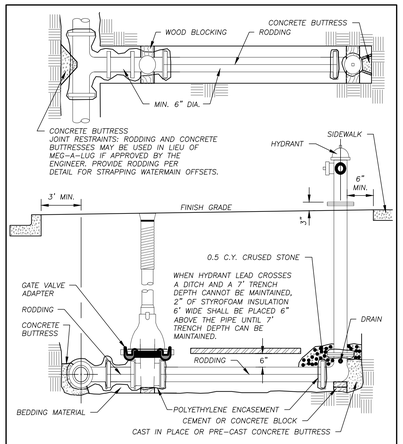
DETAILS

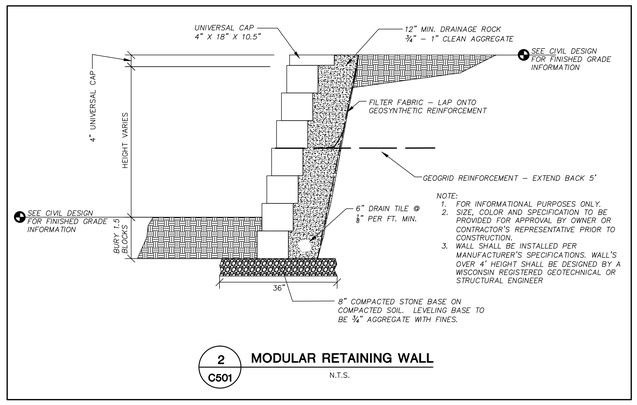
Scale	Date	Project Number
	03/06/15	146038

C500



1 C501 **TYPICAL HYDRANT AND VALVE**

N.T.S.



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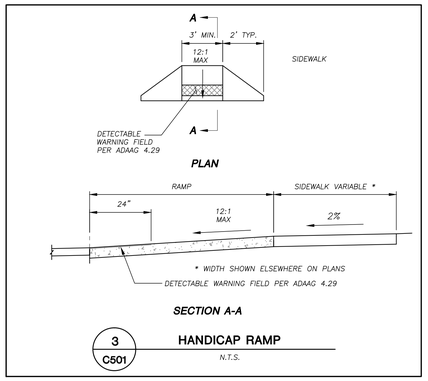
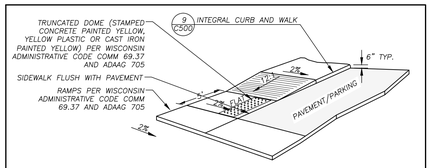
2 C501 **MODULAR RETAINING WALL**

N.T.S.



3 C501 **HANDICAP RAMP**

N.T.S.



4 C501 **ACCESSIBLE WALK CROSS SECTION**

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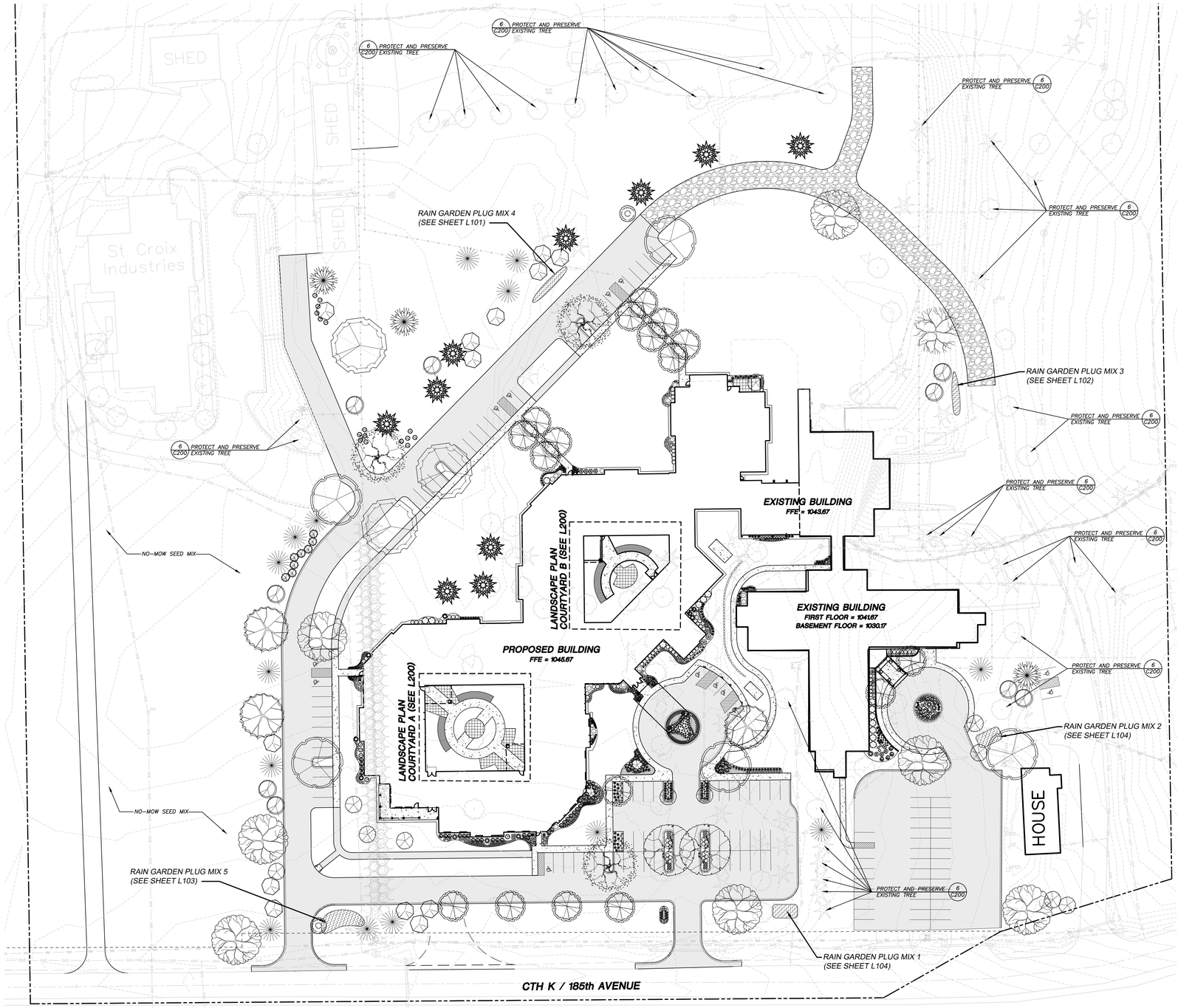

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- EDGE OF PAVEMENT
- RETAINING WALL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- 18" STANDARD CURB & GUTTER
- 18" REJECT CURB & GUTTER
- 44 PROPOSED 1' FOOT CONTOUR
- 45 PROPOSED 5' FOOT CONTOUR
- W WATER UTILITY
- ST ST STORM UTILITY
- SAN SAN SAN SANITARY UTILITY
- ELECTRICAL UTILITY
- COLORED CONCRETE FOR COURTYARD AREA – SEATING/PASSIVE SPACE
- COLORED CONCRETE FOR COURTYARD AREA – RAISED PLANTER AREAS
- POLYETHYLENE EDGING
- RAIN GARDEN PLUG MIX
- LIMESTONE BOULDER

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6. REFER TO SHEET L200 FOR ADDITIONAL DETAILS, NOTES AND SPECIFICATION INFORMATION INCLUDING MATERIALS, GUARANTEE AND EXECUTION RELATED TO LANDSCAPE PLAN

LANDSCAPE PLANT LIST

SYM	QTY.	COMMON NAME	BOTANICAL NAME	SIZE	ROOT
TALL DECIDUOUS TREES					
GB	5	Autumn Gold Ginkgo	GINKGO biloba 'Autumn Gold'	2 1/2" Cal.	B&B
KC*	3	Kentucky Coffeetree	GYMNOCLADIS dioicus	2 1/2" Cal.	B&B
IH*	3	Imperial Honeylocust	GLEDITSIA triacanthos f. inermis 'Impcole' Imperial	2 1/2" Cal.	B&B
AF	1	Morgan Freeman Maple	ACER x freemanii 'Morgan'	2 1/2" Cal.	B&B
SG*	2	Sienna Glen Maple	ACER x freemanii 'Sienna' (PP11322)	2 1/2" Cal.	B&B
PP*	3	Prairie Pride Common Hackberry	CELTIS occidentalis 'Prairie Pride'	2 1/2" Cal.	B&B
OG	7	October Glory Red Maple	ACER rubrum 'October Glory'	2 1/2" Cal.	B&B
TALL EVERGREEN TREES					
WP	3	White Pine	PINUS strobus	3-4' Ht.	B&B
BHS	14	Black Hills Spuce	PICEA glauca var. densata	3-4' Ht.	B&B
NS	10	Norway Spuce	PICEA abies	3-4' Ht.	B&B
MEDIUM DECIDUOUS TREES					
CSP	14	Cleveland Select Pear	PYRUS Calleryana 'Cleveland Select'	1 1/2" Cal.	B&B
TCH	9	Thornless Cockspur Hawthorn	CRATAEGUS crus-galli var. inermis	1 1/2" Cal.	B&B
AMF	13	Amur Maple 'Flame' (Multistem)	ACER ginalla 'Flame'	1 1/2" Cal.	B&B
MEDIUM EVERGREEN TREES					
AJ	6	Ames Juniper	JUNIPERUS chinensis 'Ames'	3' Ht.	B&B
HA	15	Holmstrup Arborvitae	THUJA occidentalis 'Holmstrup'	3' Ht.	B&B
SA	7	Siberian Arborvitae	THUJA occidentalis 'Wareana'	3' Ht.	B&B
ORNAMENTAL TREES					
ABS*	2	Autumn Brilliance Serviceberry	AMELANCHIER x grandiflora 'Autumn Brilliance'	1 1/2" Cal.	B&B
CS*	13	Canada Serviceberry	AMELANCHIER canadensis 'Shadbush'	1 1/2" Cal.	B&B
TALL DECIDUOUS SHRUBS					
AP	3	Pink Delight Butterfly Bush	BUDDELJA davidii 'Pink Delight'	18 - 24" Min. Ht.	# 3 Cont.
RD	8	Redosier Dogwood	CORNUS sericea	18 - 24" Min. Ht.	# 3 Cont.
MEDIUM DECIDUOUS SHRUBS					
SWN	21	Summer Wine Ninebark	PHYSOCARPUS opulifolius 'Seward' Summer Wine	18 - 24" Min. Ht.	# 3 Cont.
BRC	14	Brilliant Red Chokeberry	ARONIA arbutifolia 'Brillantissima'	18 - 24" Min. Ht.	# 3 Cont.
MEDIUM and LOW EVERGREEN SHRUBS					
MA	62	Mini Arcade Juniper	JUNIPERUS sabina 'Mini Arcade'	15-18" Min. Ht.	# 3 Cont.
TY	84	Taunton Yew	TAXUS x media 'Tauntonii'	15-18" Min. Ht.	# 3 Cont.
LOW DECIDUOUS SHRUBS					
HS	13	Snowhill Hydrangea	HYDRANGEA arborescens 'Grand'	12- 24" Min. Ht.	#2 Cont.
PR*	73	Pygmy Ruby Barberry	BERBERIS thunbergii 'Pygruzam'	12- 24" Min. Ht.	#2 Cont.
LPS	132	Japanese White Spirea	SPIREA albiflora 'Japanese White Spirea'	12- 24" Min. Ht.	#2 Cont.
GFS	6	Goldflame Spirea	SPIREA japonica 'Goldflame'	12- 24" Min. Ht.	#2 Cont.
PERENNIALS					
LD*	96	Lemon Drop Sedum	SEDUM spurium 'Lemon Drop'	3" Pot	# 1 Cont.
RS	10	Russian Sage	PEROVSKIA atriplicifolia	10 - 12" Ht.	# 1 Cont.
LGS	263	Little Goldstar Black-Eyed Susan	RUDBECKIA fulgida var. sullivantii 'Little Goldstar'	10 - 12" Ht.	# 1 Cont.
HRD	85	Happy Returns Daylily	HEMEROCALLIS 'Happy Returns'	10 - 12" Ht.	# 1 Cont.
HG	31	Barbara Mitchell Daylily	HEMEROCALLIS 'Barbara Mitchell '	10 - 12" Ht.	# 1 Cont.
HRS	46	Hosta Royal Standard	HOSTA 'Royal Standard'	10 - 12" Ht.	# 1 Cont.
HRS	32	Hosta Regal Splendor	HOSTA 'Regal Splendor'	10 - 12" Ht.	# 1 Cont.
CA*	63	Chinese Astilbe	ASTILBE chinensis 'Pumila'	10 - 12" Ht.	# 1 Cont.
AVR*	71	Visions in Red Astilbe	ASTILBE x chinensis 'Visions in Red'	10 - 12" Ht.	# 1 Cont.
BOC	48	Blackout Coral Bells	HEUCHERA 'Blackout'	10 - 12" Ht.	# 1 Cont.
KG	128	Gayfeather Blazing Star	LIATRIS spicata 'Kobold'	10 - 12" Ht.	# 1 Cont.
ORNAMENTAL GRASSES					
CA	54	Karl Foerester Feather Reed Grass	CALAMAGROSTIS x acutiflora 'Karl Foerester'	8 - 18" Ht.	# 1 Cont.
PA	26	Dwarf Hameln Fountain Grass	PENISETUM alopecuroides 'Hamein'	8 - 18" Ht.	# 1 Cont.
SSG*	13	Northwind Switch Grass	PANICUM vigatum 'Northwind'	8 - 18" Ht.	# 1 Cont.
BOG*	55	Blue Oat Grass	HELICTOTRICHON sempervirens	8 - 18" Ht.	# 1 Cont.
LB*	52	The Blues Little Bluestem	SCHIZACHYRIUM scoparium 'The Blues'	8 - 18" Ht.	# 1 Cont.
PR	167	Prairie Dropseed	SPOROBOLOUS heterolepsis	8 - 18" Ht.	# 1 Cont.

*** Denotes Xeriscape Plants**

Note to Bidders: Norway Spruce trees shown on this plan will be provided and planted by the owner.

LEGEND (PROPOSED)

TALL DECIDUOUS TREES
- Autumn Gold Ginkgo
- Sienna Glen Maple
- Kentucky Coffeetree
- Prairie Pride Common Hackberry
- Imperial Honey Locust
- October Glory Red Maple
- Morgan Freeman Maple

TALL EVERGREEN TREES
- White Pine
- Black Hills Spuce
- Norway Spuce

MEDIUM DECIDUOUS TREES
- Cleveland Select Pear
- Thornless Cockspur Hawthorn
- Amur Maple "Flame" (Multistem)

MEDIUM EVERGREEN TREES
- Ames Juniper
- Holmstrup Arborvitae
- Siberian Arborvitae

ORNAMENTAL TREES
- Autumn Brilliance Serviceberry
- Canada Serviceberry

TALL DECIDUOUS SHRUBS
- Pink Delight Butterfly Bush
- Redosier Dogwood

MEDIUM DECIDUOUS SHRUBS
- Summer Wine Ninebark
- Brilliant Red Chokeberry

MEDIUM and LOW EVERGREEN SHRUBS
- Mini Arcade Juniper
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LOW DECIDUOUS SHRUBS
- Snowhill Hydrangea
- Pygmy Ruby Barberry
- Japanese White Spirea
- Goldflame Spirea

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- Lemon Drop Sedum
- Russian Sage
- Little Goldstar Black-Eyed Susan
- Happy Returns Daylily
- Barbara Mitchell Daylily
- Hosta Royal Standard
- Hosta Regal Splendor
- Chinese Astilbe
- Visions in Red Astilbe
- Blackout Coral Bells
- Gayfeather Blazing Star

ORNAMENTAL GRASSES
- Karl Foerester Feather Reed Grass
- Dwarf Hameln Fountain Grass
- Northwind Switch Grass
- Blue Oat Grass
- The Blues Little Bluestem
- Prairie Dropseed

north

SCALE IN FEET
40' 0 40'

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BID PACKAGE 1
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Sheet Revision Schedule

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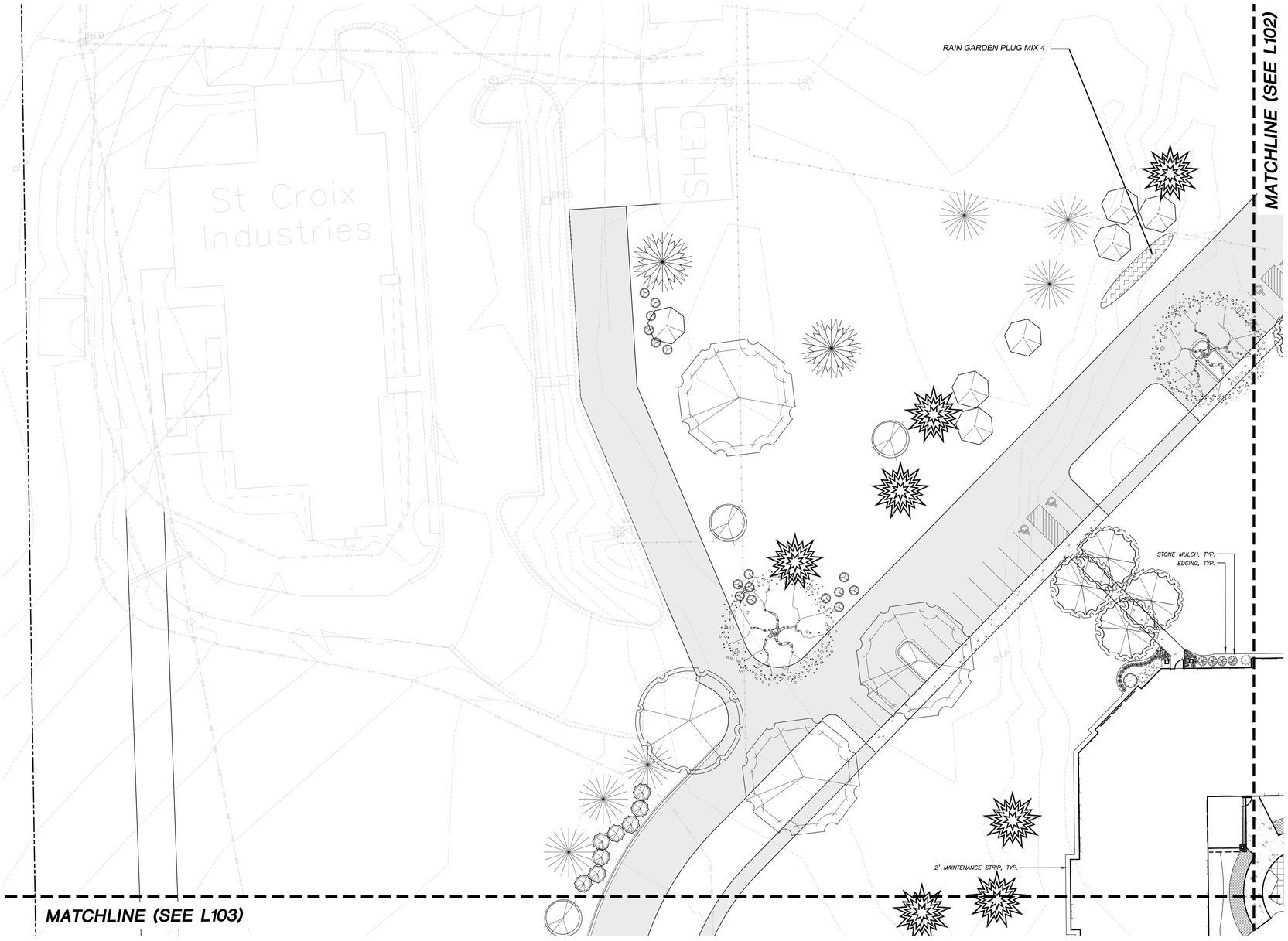
LANDSCAPE PLAN OVERVIEW

Scale	Date	Project Number
1" = 20'	5/21/15	146038

L100



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- EDGE OF PAVEMENT
- RETAINING WALL
- ASPHALT PAVEMENT
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- 18" STANDARD CURB & GUTTER
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- 44 — PROPOSED 1' FOOT CONTOUR
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north
SCALE IN FEET
20' 0 20'

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Rain Garden Plug Mix 4 - 244 sq. ft.

Botanical Name	Common Name	Quantity	Spacing
Permanent Grasses:			
Carex grayii	Common Bur Sedge	14	1'-0" On Center
Carex stipata	Common Fox Sedge	14	1'-0" On Center
Panicum virgatum	Switch Grass	14	1'-0" On Center
Spartina pectinata	Prairie Cord Grass	14	1'-0" On Center
Forbs:			
Aster novae-angiae	New England Aster	14	1'-0" On Center
Asclepias incarnata	Swamp Milkweed	14	1'-0" On Center
Echinacea purpurea	Broad-Leaved Purple Coneflower	14	1'-0" On Center
Eryngium yuccifolium	Rattlesnake Master	14	1'-0" On Center
Eupatorium maculatum	Spotted Joe-Pye Weed	14	1'-0" On Center
Liatris spicata	Marsh Blazing Star	14	1'-0" On Center
Lobelia cardinalis	Cardinal Flower	13	1'-0" On Center
Monarda fistulosa	Wild Bergamot	13	1'-0" On Center
Penstemon digitalis	Foxglove Beardtongue	13	1'-0" On Center
Pycnanthemum virginianum	Common Mountain Mint	13	1'-0" On Center
Ratibida pinnata	Yellow Coneflower	13	1'-0" On Center
Rudbeckia hirta	Black-Eyed Susan	13	1'-0" On Center
Veronicastrum virginianum	Culver's Root	13	1'-0" On Center
Zizia aurea	Golden Alexanders	13	1'-0" On Center
	TOTAL	244	1'-0" On Center

LEGEND (PROPOSED)

TALL DECIDUOUS TREES

- Autumn Gold Ginkgo
- Kentucky Coffeetree
- Imperial Honey Locust

TALL DECIDUOUS TREES (CONT.)

- Morgan Freeman Maple
- Sienna Glen Maple
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TALL DECIDUOUS TREES (CONT.)

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TALL EVERGREEN TREES

- White Pine
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- Cleveland Select Pear
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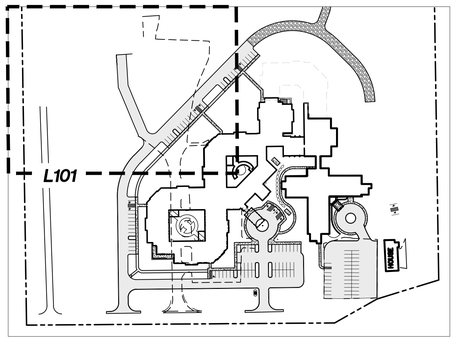

SHEET LOCATION MAP

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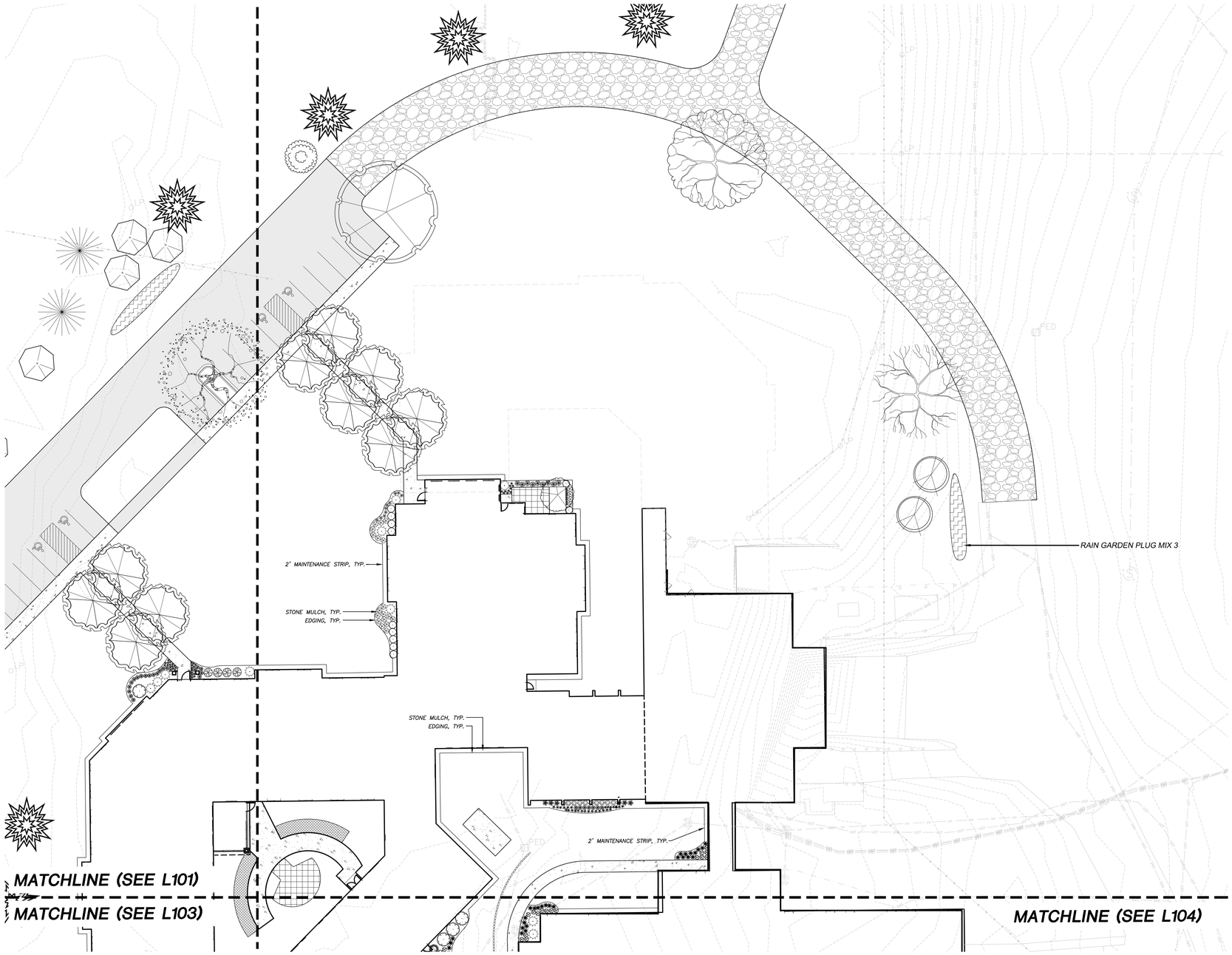
LANDSCAPE PLAN

Scale	Date	Project Number
1" = 20'	5/21/15	146038

L101



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Rain Garden Plug Mix 3 - 207 sq. ft.

Botanical Name	Common Name	Quantity	Spacing
Permanent Grasses:			
Carex grayii	Common Bur Sedge	12	1'-0" On Center
Carex stipata	Common Fox Sedge	12	1'-0" On Center
Panicum virgatum	Switch Grass	12	1'-0" On Center
Spartina pectinata	Prairie Cord Grass	12	1'-0" On Center
Forbs:			
Aster novae-angilae	New England Aster	12	1'-0" On Center
Asclepias incarnata	Swamp Milkweed	12	1'-0" On Center
Echinacea purpurea	Broad-Leaved Purple Coneflower	12	1'-0" On Center
Eryngium yuccifolium	Rattlesnake Master	12	1'-0" On Center
Eupatorium maculatum	Spotted Joe-Pye Weed	12	1'-0" On Center
Liatris spicata	Marsh Blazing Star	11	1'-0" On Center
Lobelia cardinalis	Cardinal Flower	11	1'-0" On Center
Monarda fistulosa	Wild Bergamot	11	1'-0" On Center
Penstemon digitalis	Foxglove Beardtongue	11	1'-0" On Center
Pycnanthemum virginianum	Common Mountain Mint	11	1'-0" On Center
Ratibida pinnata	Yellow Coneflower	11	1'-0" On Center
Rudbeckia hirta	Black-Eyed Susan	11	1'-0" On Center
Veronicastrum virginianum	Culver's Root	11	1'-0" On Center
Zizia aurea	Golden Alexanders	11	1'-0" On Center
	TOTAL	207	1'-0" On Center

LEGEND (PROPOSED)

TALL DECIDUOUS TREES

- Autumn Gold Ginkgo
- Kentucky Coffeetree
- Imperial Honey Locust

TALL DECIDUOUS TREES (CONT.)

- Morgan Freeman Maple
- Sienna Glen Maple
- Prairie Pride Common Hackberry

TALL DECIDUOUS TREES (CONT.)

- October Glory Red Maple

TALL EVERGREEN TREES

- White Pine
- Black Hills Spuce
- Norway Spuce

MEDIUM DECIDUOUS TREES

- Cleveland Select Pear
- Thornless Cockspur Hawthorn
- Amur Maple "Flame" (Multistem)

MEDIUM EVERGREEN TREES

- Ames Juniper
- Holmstrup Arborvitae
- Siberian Arborvitae

ORNAMENTAL TREES

- Autumn Brilliance Serviceberry
- Canada Serviceberry

TALL DECIDUOUS SHRUBS

- Pink Delight Butterfly Bush
- Redosier Dogwood

MEDIUM DECIDUOUS SHRUBS

- Summer Wine Ninebark
- Brilliant Red Chokeberry

MEDIUM and LOW EVERGREEN SHRUBS

- Mini Arcade Juniper
- Taunton Yew

LOW DECIDUOUS SHRUBS

- Snowhill Hydrangea
- Pygmy Ruby Barberry
- Japanese White Spirea
- Goldflame Spirea

PERENNIALS

- Lemon Drop Sedum
- Russian Sage
- Little Goldstar Black-Eyed Susan
- Happy Returns Daylily
- Barbara Mitchell Daylily
- Hosta Royal Standard
- Hosta Regal Splendor
- Chinese Astilbe
- Visions in Red Astilbe
- Blackout Coral Bells
- Gayfeather Blazing Star

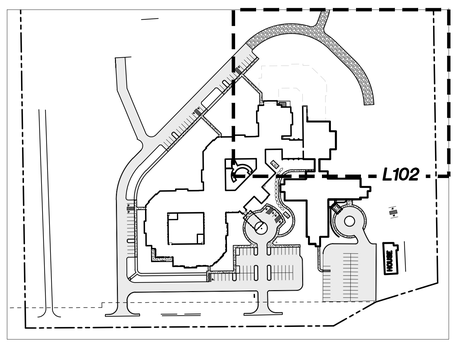
ORNAMENTAL GRASSES

- Karl Foerester Feather Reed Grass
- Dwarf Hameln Fountain Grass
- Northwind Switch Grass
- Blue Oat Grass
- The Blues Little Bluestem
- Prairie Dropseed

north

SCALE IN FEET

20' 0 20'



SHEET LOCATION MAP

Horty Elving

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St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
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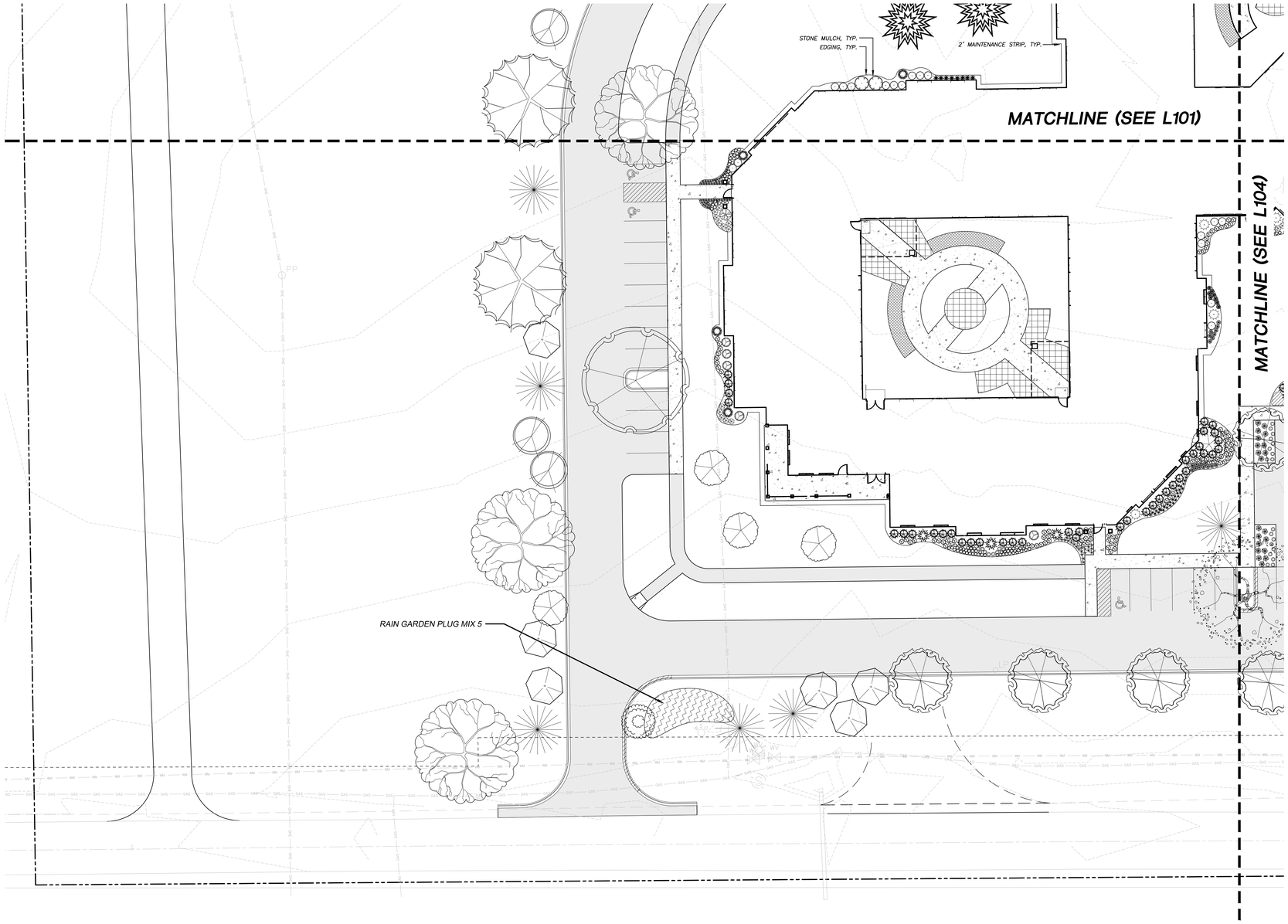
LANDSCAPE PLAN

Scale	Date	Project Number
1" = 20'	5/21/15	146038

L102



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- EDGE OF PAVEMENT
- RETAINING WALL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- 18" STANDARD CURB & GUTTER
- 18" REJECT CURB & GUTTER
- 44 — PROPOSED 1' FOOT CONTOUR
- 45 — PROPOSED 5' FOOT CONTOUR
- W — WATER UTILITY
- ST — STORM UTILITY
- SAN — SANITARY UTILITY
- ELECTRICAL UTILITY
- COLORED CONCRETE FOR COURTYARD AREA – SEATING/PASSIVE SPACE
- COLORED CONCRETE FOR COURTYARD AREA – RAISED PLANTER AREAS
- POLYETHYLENE EDGING
- RAIN GARDEN PLUG MIX
- LIMESTONE BOULDER

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Rain Garden Plug Mix 5 - 509 sq. ft.

Botanical Name	Common Name	Quantity	Spacing
Permanent Grasses:			
Carex grayii	Common Bur Sedge	29	1'-0" On Center
Carex stipata	Common Fox Sedge	29	1'-0" On Center
Panicum virgatum	Switch Grass	29	1'-0" On Center
Spartina pectinata	Prairie Cord Grass	29	1'-0" On Center
Forbs:			
Aster novae-angilae	New England Aster	29	1'-0" On Center
Asclepias incarnata	Swamp Milkweed	28	1'-0" On Center
Echinacea purpurea	Broad-Leaved Purple Coneflower	28	1'-0" On Center
Eryngium yuccifolium	Rattlesnake Master	28	1'-0" On Center
Eupatorium maculatum	Spotted Joe-Pye Weed	28	1'-0" On Center
Liatris spicata	Marsh Blazing Star	28	1'-0" On Center
Lobelia cardinalis	Cardinal Flower	28	1'-0" On Center
Monarda fistulosa	Wild Bergamot	28	1'-0" On Center
Penstemon digitalis	Foxglove Beardtongue	28	1'-0" On Center
Pycnanthemum virginianum	Common Mountain Mint	28	1'-0" On Center
Ratibida pinnata	Yellow Coneflower	28	1'-0" On Center
Rudbeckia hirta	Black-Eyed Susan	28	1'-0" On Center
Veronicastrum virginianum	Culver's Root	28	1'-0" On Center
Zizia aurea	Golden Alexanders	28	1'-0" On Center
	TOTAL	509	1'-0" On Center

LEGEND (PROPOSED)

TALL DECIDUOUS TREES

- Autumn Gold Ginkgo
- Kentucky Coffeetree
- Imperial Honey Locust

TALL DECIDUOUS TREES (CONT.)

- Morgan Freeman Maple
- Sienna Glen Maple
- Prairie Pride Common Hackberry

TALL DECIDUOUS TREES (CONT.)

- October Glory Red Maple

TALL EVERGREEN TREES

- White Pine
- Black Hills Spuce
- Norway Spuce

MEDIUM DECIDUOUS TREES

- Cleveland Select Pear
- Thornless Cockspur Hawthorn
- Amur Maple 'Flame' (Multistem)

MEDIUM EVERGREEN TREES

- Ames Juniper
- Holmstrup Arborvitae
- Siberian Arborvitae

ORNAMENTAL TREES

- Autumn Brilliance Serviceberry
- Canada Serviceberry

TALL DECIDUOUS SHRUBS

- Pink Delight Butterfly Bush
- Redosier Dogwood

MEDIUM DECIDUOUS SHRUBS

- Summer Wine Ninebark
- Brilliant Red Chokeberry

MEDIUM and LOW EVERGREEN SHRUBS

- Mini Arcade Juniper
- Taunton Yew

LOW DECIDUOUS SHRUBS

- Snowhill Hydrangea
- Pygmy Ruby Barberry
- Japanese White Spirea
- Goldflame Spirea

PERENNIALS

- Lemon Drop Sedum
- Russian Sage
- Little Goldstar Black-Eyed Susan
- Happy Returns Daylily
- Barbara Mitchell Daylily
- Hosta Royal Standard
- Hosta Regal Splendor
- Chinese Astilbe
- Visions in Red Astilbe
- Blackout Coral Bells
- Gayfeather Blazing Star

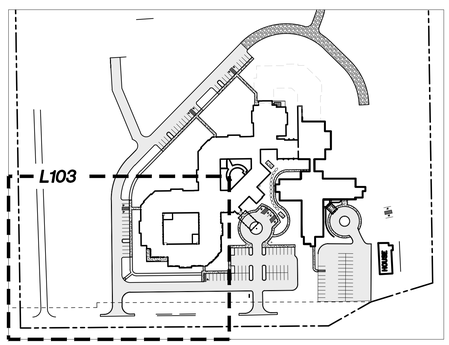
ORNAMENTAL GRASSES

- Karl Foerester Feather Reed Grass
- Dwarf Hamein Fountain Grass
- Northwind Switch Grass
- Blue Oat Grass
- The Blues Little Bluestem
- Prairie Dropseed

north

SCALE IN FEET

20' 0 20'



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LANDSCAPE PLAN

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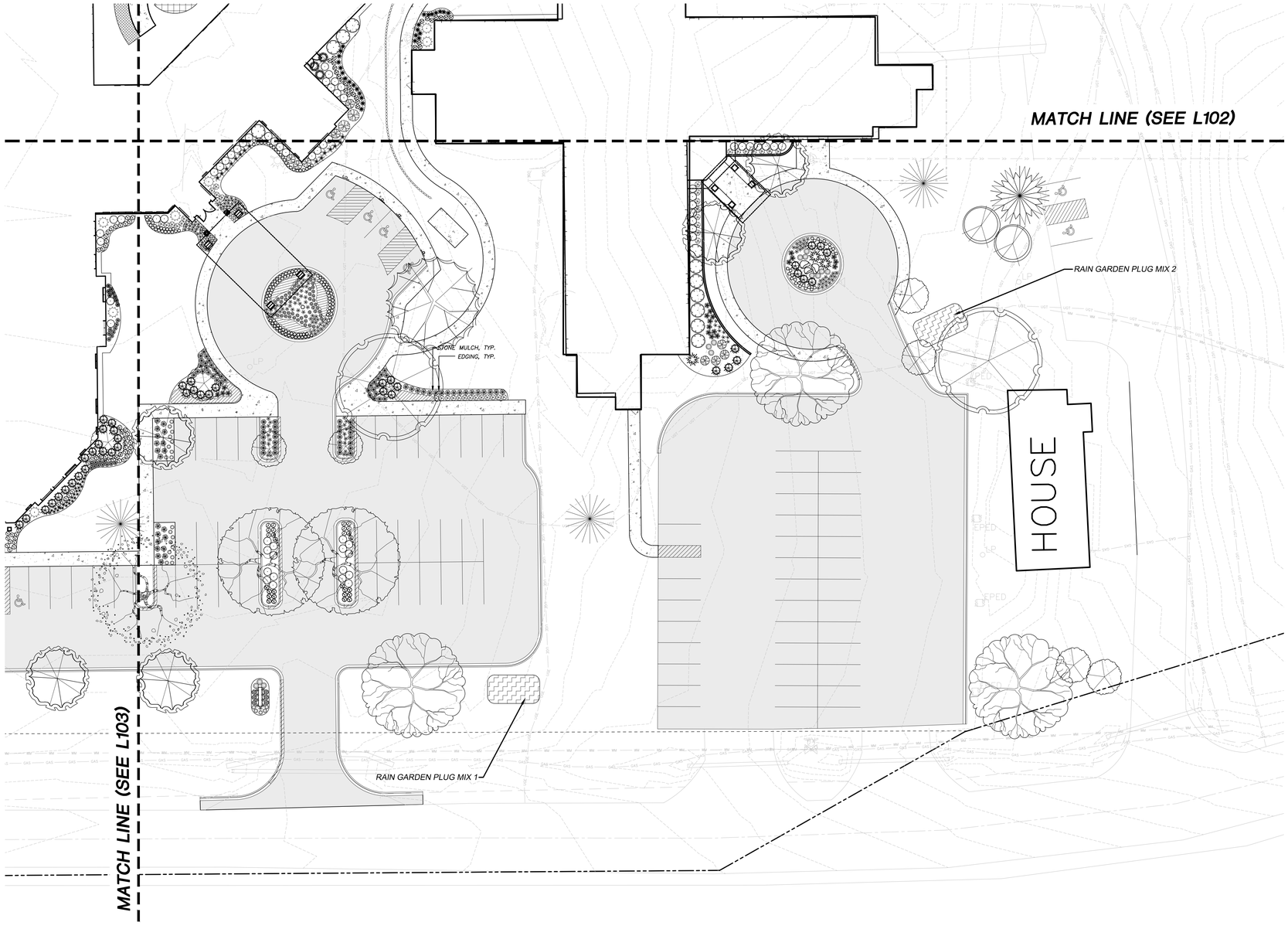
1" = 20'	5/21/15	146038

L103



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- EDGE OF PAVEMENT
- RETAINING WALL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
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- SAN SAN SAN SANITARY UTILITY
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- COLORED CONCRETE FOR COURTYARD AREA – RAISED PLANTER AREAS
- POLYETHYLENE EDGING
- RAIN GARDEN PLUG MIX
- LIMESTONE BOULDER

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Rain Garden Plug Mix 1 - 256 sq. ft.

Botanical Name	Common Name	Quantity	Spacing
Permanent Grasses:			
Carex grayii	Common Bur Sedge	15	1'-0" On Center
Carex stipata	Common Fox Sedge	15	1'-0" On Center
Panicum virgatum	Switch Grass	15	1'-0" On Center
Spartina pectinata	Prairie Cord Grass	15	1'-0" On Center
Forbs:			
Aster novae-angilae	New England Aster	14	1'-0" On Center
Asclepias incarnata	Swamp Milkweed	14	1'-0" On Center
Echinacea purpurea	Broad-Leaved Purple Coneflower	14	1'-0" On Center
Eryngium yuccifolium	Rattlesnake Master	14	1'-0" On Center
Eupatorium maculatum	Spotted Joe-Pye Weed	14	1'-0" On Center
Liatris spicata	Marsh Blazing Star	14	1'-0" On Center
Lobelia cardinalis	Cardinal Flower	14	1'-0" On Center
Monarda fistulosa	Wild Bergamot	14	1'-0" On Center
Penstemon digitalis	Foxglove Beardtongue	14	1'-0" On Center
Pycnanthemum virginianum	Common Mountain Mint	14	1'-0" On Center
Ratibida pinnata	Yellow Coneflower	14	1'-0" On Center
Rudbeckia hirta	Black-Eyed Susan	14	1'-0" On Center
Veronicastrum virginianum	Culver's Root	14	1'-0" On Center
Zizia aurea	Golden Alexanders	14	1'-0" On Center
	TOTAL	256	1'-0" On Center

Rain Garden Plug Mix 2 - 256 sq. ft.

Botanical Name	Common Name	Quantity	Spacing
Permanent Grasses:			
Carex grayii	Common Bur Sedge	15	1'-0" On Center
Carex stipata	Common Fox Sedge	15	1'-0" On Center
Panicum virgatum	Switch Grass	15	1'-0" On Center
Spartina pectinata	Prairie Cord Grass	15	1'-0" On Center
Forbs:			
Aster novae-angilae	New England Aster	14	1'-0" On Center
Asclepias incarnata	Swamp Milkweed	14	1'-0" On Center
Echinacea purpurea	Broad-Leaved Purple Coneflower	14	1'-0" On Center
Eryngium yuccifolium	Rattlesnake Master	14	1'-0" On Center
Eupatorium maculatum	Spotted Joe-Pye Weed	14	1'-0" On Center
Liatris spicata	Marsh Blazing Star	14	1'-0" On Center
Lobelia cardinalis	Cardinal Flower	14	1'-0" On Center
Monarda fistulosa	Wild Bergamot	14	1'-0" On Center
Penstemon digitalis	Foxglove Beardtongue	14	1'-0" On Center
Pycnanthemum virginianum	Common Mountain Mint	14	1'-0" On Center
Ratibida pinnata	Yellow Coneflower	14	1'-0" On Center
Rudbeckia hirta	Black-Eyed Susan	14	1'-0" On Center
Veronicastrum virginianum	Culver's Root	14	1'-0" On Center
Zizia aurea	Golden Alexanders	14	1'-0" On Center
	TOTAL	256	1'-0" On Center

LEGEND (PROPOSED)

TALL DECIDUOUS TREES

- Autumn Gold Ginkgo
- Kentucky Coffeetree
- Imperial Honey Locust

TALL DECIDUOUS TREES (CONT.)

- Morgan Freeman Maple
- Sienna Glen Maple
- Prairie Pride Common Hackberry

TALL DECIDUOUS TREES (CONT.)

- October Glory Red Maple

TALL EVERGREEN TREES

- White Pine
- Black Hills Spuce
- Norway Spuce

MEDIUM DECIDUOUS TREES

- Cleveland Select Pear
- Thornless Cockspur Hawthorn
- Amur Maple 'Flame' (Multistem)

MEDIUM EVERGREEN TREES

- Ames Juniper
- Holmstrup Arborvitae
- Siberian Arborvitae

ORNAMENTAL TREES

- Autumn Brilliance Serviceberry
- Canada Serviceberry

TALL DECIDUOUS SHRUBS

- Pink Delight Butterfly Bush
- Redosier Dogwood

MEDIUM DECIDUOUS SHRUBS

- Summer Wine Ninebark
- Brilliant Red Chokeberry

MEDIUM and LOW EVERGREEN SHRUBS

- Mini Arcade Juniper
- Taunton Yew

LOW DECIDUOUS SHRUBS

- Snowhill Hydrangea
- Pygmy Ruby Barberry
- Japanese White Spirea
- Goldflame Spirea

PERENNIALS

- Lemon Drop Sedum
- Russian Sage
- Little Goldstar Black-Eyed Susan
- Happy Returns Daylily
- Barbara Mitchell Daylily
- Hosta Royal Standard
- Hosta Regal Splendor
- Chinese Astilbe
- Visions in Red Astilbe
- Blackout Coral Bells
- Gayfeather Blazing Star

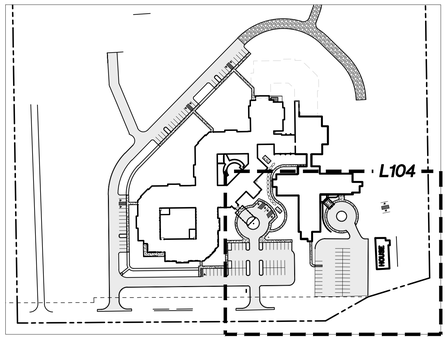
ORNAMENTAL GRASSES

- Karl Foerester Feather Reed Grass
- Dwarf Hameln Fountain Grass
- Northwind Switch Grass
- Blue Oat Grass
- The Blues Little Bluestem
- Prairie Dropseed

north

SCALE IN FEET

20' 0 20'



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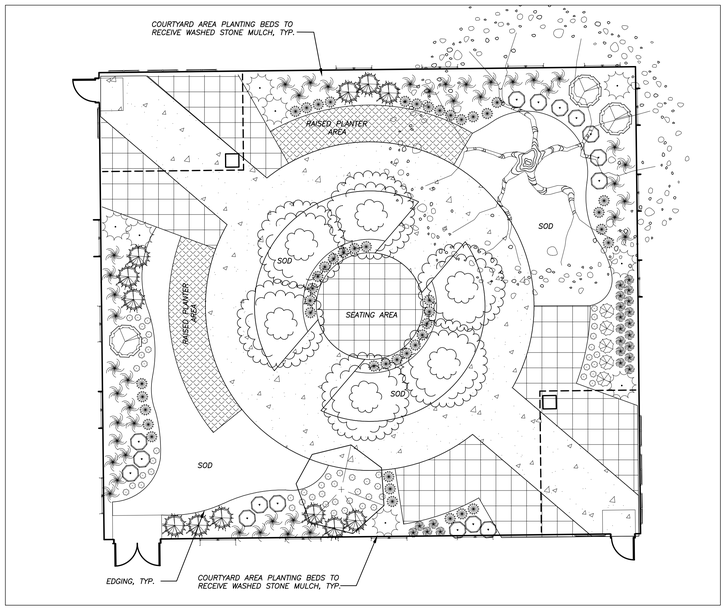
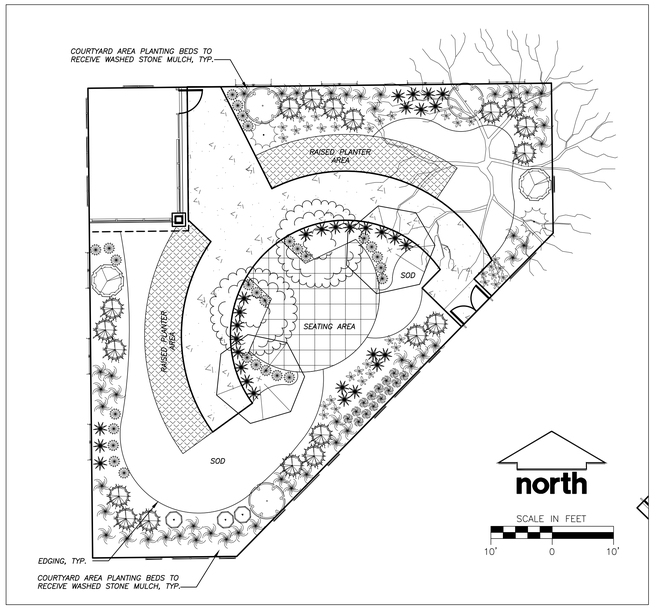
L104



LANDSCAPE PLAN - COURTYARD A



LANDSCAPE PLAN - COURTYARD B

LANDSCAPE PLANT LIST - COURTYARD A

SYM	QTY.	COMMON NAME	BOTANICAL NAME	SIZE	ROOT
TALL DECIDUOUS TREES					
PP*	1	Prairie Pride Common Hackberry	CELTIS occidentalis 'Prairie Pride'	2 1/2" Cal.	B&B
MEDIUM EVERGREEN TREES					
HA	8	Holmstrup Arborvitae	THUJA occidentalis 'Holmstrup'	3-4' Ht.	B&B
ORNAMENTAL TREES					
CS*	1	Canada Serviceberry	AMELANCHIER canadensis 'Shadbush'	1 1/2" Cal.	B&B
ABS*	6	Autumn Brilliance Serviceberry	AMELANCHIER x grandiflora 'Autumn Brilliance'	1 1/2" Cal.	B&B
MEDIUM DECIDUOUS SHRUBS					
SWN	3	Summer Wine Ninebark	PHYSOCARPUS opulifolius 'Seward' Summer Wine	18 - 24" Min. Ht.	# 3 Cont.
MEDIUM and LOW EVERGREEN SHRUBS					
MA	12	Mini Arcade Juniper	JUNIPERUS sabina 'Mini Arcade'	15-18" Min. Ht.	# 3 Cont.
LOW DECIDUOUS SHRUBS					
PR*	5	Pygmy Ruby Barberry	BERBERIS thunbergii 'Pygruzam'	12- 24" Min. Ht.	#2 Cont.
KDD	16	Kelsey's Dwarf Redosier Dogwood	CORNUS sericea 'Kelseyi'	12- 24" Min. Ht.	#2 Cont.
PERENNIALS					
BOC	53	Blackout Coral Bells	HEUCHERA 'Blackout'	10 - 12" Ht.	# 1 Cont.
CA*	46	Chinese Astilbe	ASTILBE chinensis 'Pumila'	10 - 12" Ht.	# 1 Cont.
AVR*	42	Visions in Red Astilbe	ASTILBE x chinensis 'Visions in Red'	10 - 12" Ht.	# 1 Cont.
ORNAMENTAL GRASSES					
CA	22	Karl Foerester Feather Reed Grass	CALAMAGROSTIS x acutiflora 'Karl Foerester'	8 - 18" Ht.	# 1 Cont.

*** Denotes Xeriscape Plant**

LANDSCAPE PLANT LIST - COURTYARD B

SYM	QTY.	COMMON NAME	BOTANICAL NAME	SIZE	ROOT
TALL DECIDUOUS TREES					
AF	1	Morgan Freeman Maple	ACER x freemanii 'Morgan'	2 1/2" Cal.	B&B
MEDIUM EVERGREEN TREES					
HA	2	Holmstrup Arborvitae	THUJA occidentalis 'Holmstrup'	3-4' Ht.	B&B
ORNAMENTAL TREES					
CS*	2	Canada Serviceberry	AMELANCHIER canadensis 'Shadbush'	1 1/2" Cal.	B&B
ABS*	2	Autumn Brilliance Serviceberry	AMELANCHIER x grandiflora 'Autumn Brilliance'	1 1/2" Cal.	B&B
MEDIUM DECIDUOUS SHRUBS					
SWN	2	Summer Wine Ninebark	PHYSOCARPUS opulifolius 'Seward' Summer Wine	18 - 24" Min. Ht.	# 3 Cont.
BRC	3	Brilliant Red Chokeberry	ARONIA arbutifolia 'Brillantissima'	18 - 24" Min. Ht.	# 3 Cont.
MEDIUM and LOW EVERGREEN SHRUBS					
MA	19	Mini Arcade Juniper	JUNIPERUS sabina 'Mini Arcade'	15-18" Min. Ht.	# 3 Cont.
LOW DECIDUOUS SHRUBS					
KDD	3	Kelsey's Dwarf Redosier Dogwood	CORNUS sericea 'Kelseyi'	12- 24" Min. Ht.	#2 Cont.
PERENNIALS					
HRD	34	Happy Returns Daylily	HEMEROCALLIS 'Happy Returns'	10 - 12" Ht.	# 1 Cont.
HRS	32	Hosta Royal Standard	HOSTA 'Royal Standard'	10 - 12" Ht.	# 1 Cont.
CA*	28	Chinese Astilbe	ASTILBE chinensis 'Pumila'	10 - 12" Ht.	# 1 Cont.
AVR*	46	Visions in Red Astilbe	ASTILBE x chinensis 'Visions in Red'	10 - 12" Ht.	# 1 Cont.
ORNAMENTAL GRASSES					
CA	14	Karl Foerester Feather Reed Grass	CALAMAGROSTIS x acutiflora 'Karl Foerester'	8 - 18" Ht.	# 1 Cont.

*** Denotes Xeriscape Plant**

GENERAL NOTES

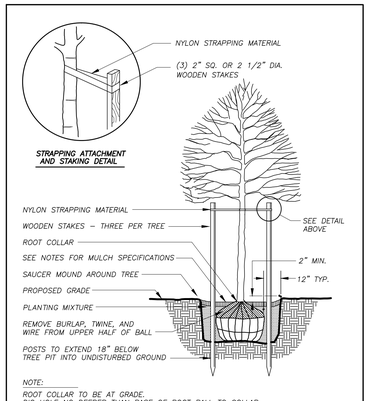
1. REFER TO THE EXISTING CONDITIONS SURVEY, PROVIDED BY OTHERS, FOR EXISTING CONDITIONS NOTES AND LEGEND. JSD DOES NOT TAKE RESPONSIBILITY FOR ANY BENCHMARKS LOCATED ON THE SURVEY PROVIDED BY OTHERS.
2. ALL WORK IN THE ROW AND/OR PUBLIC EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY OF NEW RICHMOND STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AND PERFORMED BY A CITY LICENSED CONTRACTOR.
3. JSD SHALL BE HELD HARMLESS AND DOES NOT WARRANT ANY DEVIATIONS BY THE OWNER/CONTRACTOR FROM THE APPROVED CONSTRUCTION PLANS THAT MAY RESULT IN DISCIPLINARY ACTIONS BY ANY OR ALL REGULATORY AGENCIES.
4. DRAWING FOR REVIEW – NOT FOR CONSTRUCTION UNLESS OTHERWISE NOTED IN THE TITLE BLOCK.
5. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL FINE GRADING AND TOPSOILING WITH GENERAL CONTRACTOR

LEGEND

- EDGE OF PAVEMENT
- CONCRETE PAVEMENT
- STORM UTILITY
- COLORED CONCRETE FOR COURTYARD AREA – SEATING/PASSIVE SPACE
- COLORED CONCRETE FOR COURTYARD AREA – RAISED PLANTER AREAS
- POLYETHYLENE EDGING

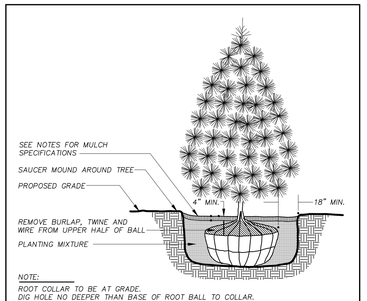
LANDSCAPE NOTES AND SPECIFICATIONS

1. GENERAL: ALL WORK IN THE R–O–W AND PUBLIC EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY OF NEW RICHMOND REQUIREMENTS. JSD SHALL BE HELD HARMLESS AND DOES NOT WARRANT ANY DEVIATIONS BY THE OWNER/CONTRACTOR FROM THE APPROVED CONSTRUCTION PLANS THAT MAY RESULT IN DISCIPLINARY ACTIONS BY ANY OR ALL REGULATORY AGENCIES. LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE DONE TO UTILITIES. CONTRACTOR MUST CALL DIGGERS HOTLINE AT 1–800–382–5544 FOR UTILITY LOCATIONS AT LEAST THREE DAYS PRIOR TO DIGGING. HAND DIG AND INSTALL ALL PLANTS THAT ARE NEAR EXISTING UTILITIES. PROTECT PREVIOUSLY INSTALLED WORK OF OTHER TRADES. CONTRACTOR IS RESPONSIBLE FOR STAKING THE PLANT MATERIALS FOR REVIEW BY OWNER PRIOR TO DIGGING AND PLACEMENT. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL FINE GRADING AND RESTORATION WITH THE GRADING CONTRACTOR.
2. DELIVERY AND HANDLING: DO NOT DELIVER MORE PLANT MATERIALS THAN CAN BE PLANTED IN ONE DAY. DELIVER PLANTS WITH LEGIBLE IDENTIFICATION LABELS. PROTECT PLANTS DURING DELIVERY AND DO NOT PRUNE PRIOR TO DELIVERY. ALL TREES AND SHRUBS SHALL BE PLANTED ON THE DAY OF DELIVERY; IF THIS IS NOT POSSIBLE, PROTECT THAT STOCK NOT PLANTED BY STORING STOCK IN A SHADED AREA PROTECTING THE ROOT MASS WITH WET SOIL, MOSS OR OTHER SUITABLE MEDIA AND KEEPING WELL WATERED. DO NOT REMOVE CONTAINER GROWN STOCK FROM CONTAINERS BEFORE TIME OF PLANTING. DO NOT PICK UP CONTAINER OR BALLED PLANTS BY STEM OR ROOTS. ALL PLANTS SHALL BE LIFTED AND HANDLED FROM THE BOTTOM OF THE BALL. PERFORM ACTUAL PLANTING ONLY WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE IN ACCORDANCE WITH LOCALLY ACCEPTED PRACTICES.
3. GUARANTEE: THE CONTRACTOR SHALL GUARANTEE ALL PLANTS THROUGH ONE (1) YEAR AFTER ACCEPTANCE BY OWNER. PLANTS SHALL BE ALIVE AND IN GOOD HEALTHY AND FLOURISHING CONDITION AT THE END OF THE GUARANTEE PERIOD. THE CONTRACTOR SHALL REPLACE WITHOUT COST TO THE OWNER ANY PLANTS THAT ARE DEAD OR NOT IN A VIGOROUS THRIVING CONDITION. REPLACEMENT PLANTS SHALL BE OF THE SAME KIND AND SIZE AS ORIGINALLY SPECIFIED UNLESS OTHERWISE DIRECTED BY OWNER. RESTORE BEDS AS NECESSARY FOLLOWING PLANT REPLACEMENT, INCLUDING BUT NOT LIMITED TO BEDDING, EDGING, MULCH, ETC. REPAIR DAMAGE TO OTHER PLANTS OR PLANTING AREAS DURING PLANT REPLACEMENT AT NO COST TO OWNER. CONTRACTOR SHALL PROVIDE A TWO (2)–YEAR STRAIGHTENING GUARANTEE FOR ALL TREES.
4. MATERIALS – PLANTS: ALL PLANTS SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK ANSI Z60.1–2004. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY SPECIFIED AND NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT FOR AT LEAST 2 YEARS. PLANTS SHALL BE FRESHLY DUG (DURING THE MOST RECENT FAVORABLE HARVEST SEASON). PLANTS SHALL BE SO TRAINED IN DEVELOPMENT AND APPEARANCE AS TO BE UNQUESTIONABLY SUPERIOR IN FORM, COMPACTNESS, AND SYMMETRY. PLANTS SHALL BE SOUND, HEALTHY, VIGOROUS, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF, AND FREE OF DISEASE AND INSECTS (ADULT EGGS, PUPAE OR LARVAE). THEY SHALL HAVE HEALTHY, WELL–DEVELOPED ROOT SYSTEMS AND SHALL BE FREE FROM PHYSICAL DAMAGE OR OTHER CONDITIONS THAT WOULD PREVENT THRIVING GROWTH. PLANTS SHALL BE OF THE HIGHEST QUALITY, HAVE TYPICAL GROWTH HABITS FOR THEIR SPECIES, BE SOUND, HEALTHY, VIGOROUS AND FREE OF INJURY. PARKWAY TREES AND PARKING LOT TREES SHALL HAVE A MINIMUM BRANCHING HEIGHT OF SIX (6) FEET ABOVE THE GROUND TO ALLOW ADEQUATE VISUAL AND PHYSICAL CLEARANCE.
5. MATERIALS – PLANTING MIXTURE: PLANTING MIXTURE/COMPACTED TOPSOIL SHALL MEET THESE REQUIREMENTS:
   1. PLANTING AREAS = 24"
   2. TREE PITS = SEE DETAILS
6. PLANTING MIXTURE TO BE A MINIMUM 24" DEPTH, UNLESS OTHERWISE SPECIFIED AS ABOVE OR ON DETAILS. TOPSOIL TO BE CLEAN, FRIABLE LOAM FROM LOCAL SOURCE, FREE FROM STONES OR DEBRIS OVER 3/4" IN DIAMETER, AND FREE FROM TOXINS. TOPSOIL SHALL HAVE A pH VALUE BETWEEN 6 AND 7. TOPSOIL AND PLANTING SOIL SHALL BE TESTED TO CONFORM TO THESE SPECIFICATIONS AND SHALL BE AMENDED TO MEET THESE SPECIFICATIONS. DO NOT PLACE FROZEN OR MUDDY TOPSOIL. APPLY SOIL AMENDMENTS TO ALL LANDSCAPE BEDS PER SOIL TEST.
7. MATERIALS – ALL PLANTING AREAS ADJACENT TO BUILDING, PARKING ISLAND AREAS, AND AREAS LABELED ON PLAN SHALL RECEIVE WASHED STONE MULCH AS APPROVED BY OWNER. COLOR AND SIZE OF STONE TO BE APPROVED BY OWNER PRIOR TO INSTALLATION. STONE MULCH SHALL BE SPREAD TO A CONSISTENT DEPTH OF THREE INCHES OVER ENTIRE PLANTING AREA, UNLESS OTHERWISE SPECIFIED ON PLANS. FERTILIZER SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, COUNTY AND STATE OF WISCONSIN REQUIREMENTS.
8. MATERIALS – ALL PLANTING AREAS WITHIN COURTYARD A AND COURTYARD B SHALL RECEIVE WASHED STONE MULCH SPREAD TO A CONSISTENT DEPTH OF THREE INCHES OVER ENTIRE PLANTING AREA, UNLESS OTHERWISE SPECIFIED ON PLANS.
9. MATERIALS – TREE RINGS: ALL TREES PLANTED IN SEEDED LAWN AREAS TO BE INSTALLED WITH A MINIMUM 3' DIAMETER SHREDDED HARDWOOD BARK MULCH TREE RING SPREAD TO A CONSISTENT DEPTH OF 3 INCHES. ALL TREE RINGS SHOULD BE INSTALLED WITH A 5" DEPTH SHOVEL CUT EDGE, ANGLED 45 DEGREES INTO SOIL. A PRE–EMERGENT GRANULAR HERBICIDE SHOULD BE MIXED WITH MULCH USED TO INSTALL TREE RING AS WELL AS TOPICALLY APPLIED TO FINISHED INSTALLATION OF TREE RING.
10. MATERIALS– SEED: DISTURBED LAWN AREAS LABELED ON PLAN SHALL BE HAND SEEDED WITH EARTH CARPET'S 'MADISON PARKS' OR EQUIVALENT AS APPROVED BY THE OWNER'S REPRESENTATIVE, INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. IN ADDITION TO LAWN SEED, ANNUAL RYE SHALL BE APPLIED TO ALL DISTURBED AREAS AT A RATE OF 1 1/2 LBS PER 1000 SQUARE FEET. FERTILIZE AND MULCH PER MANUFACTURER'S RECOMMENDATIONS.
14. MATERIALS – PLUGS: RAIN GARDEN AREAS LABELED ON PLAN TO BE PLANTED WITH PLUG PLANTINGS TO BE INSTALLED 1'–0" ON CENTER MIXING SPECIES INTEGRALLY IN FLATS OF 20 AT A TIME. REFER TO WDNR TECHNICAL STANDARDS FOR ROOTSTOCK AND PLUG PLANTINGS FOR BIORETENTION BASINS.
15. MATERIALS: SOD ALL DISTURBED AREAS AS SPECIFIED IN THESE NOTES: TURFGRASS SOD: CLASS OF TURFGRASS SOD SHALL BE PREMIUM GRADE APPROVED TURFGRASS SOD, ONLY IMPROVED TYPES OF SOD (ELITE) ARE ACCEPTABLE. TURFGRASS SHALL BE MACHINE CUT AT A UNIFORM THICKNESS OF .60 INCH, PLUS OR MINUS .25 INCH, AT TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. LARGE ROLL TURFGRASS SOD SHALL BE CUT TO THE SUPPLIER'S STANDARD WIDTH (36–48 INCHES) AND LENGTH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE. STANDARD SIZE SECTIONS OF TURGRASS SOD SHALL BE STRONG ENOUGH SO THAT IT CAN BE PICKED UP AND HANDLED WITHOUT BREAKAGE. TURFGRASS SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL. POST–PLANT IRRIGATION WILL BE NECESSARY TO ENSURE SOD STAYS ALIVE AND ROOTS INTO SOIL. THE CONTRACTOR IS RESPONSIBLE FOR WATERING SOD UNTIL TIME OF ACCEPTANCE BY THE OWNER. TURFGRASS SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED/TRANSPLANTED WITH A PERIOD OF 24 HOURS. TURGRASS SOD SHALL BE RELATIVELY FREE OF THATCH, UP TO .5 INCH ALLOWABLE (UNCOMPRESSED). TURFGRASS SOD SHALL BE REASONABLY FREE (10 WEEDS/100 SQ. FT.) OF DISEASES, NEMATODES AND SOIL–BORNE INSECTS. ALL TURFGRASS SOD SHALL BE FREE OF GRASSY AND BROAD LEAF WEEDS. THE SOD SUPPLIER SHALL MAKE RECOMMENDATIONS TO THE CONTRACTOR REGARDING WATERING SCHEDULE. THE WATERING SCHEDULE SHOULD BEGIN IMMEDIATELY AFTER SOD IS INSTALLED.
16. MATERIALS – WEED BARRIER FABRIC: ALL PLANTING BEDS SHALL BE INSTALLED WITH WOVEN WEED BARRIER FABRIC. NO PLASTIC/IMPERVIOUS BARRIERS WILL BE PERMITTED. EXAMPLE: BLACK VISQUEEN.
17. MATERIALS – EDGING: EDGING SHALL BE 5" DEEP, POLYETHYLENE EDGING. OWNER SHALL APPROVE SPECIFICATION PROVIDED BY LANDSCAPE CONTRACTOR.
18. PRUNING: THE CONTRACTOR SHALL PRUNE ALL TREES AND REPAIR ANY INJURIES THAT OCCURRED DURING THE PLANTING PROCESS. DOUBLE LEADERS, DEAD BRANCHES, AND LIMBS DAMAGED OR BROKEN DURING THE PLANTING PROCESS SHALL BE PRUNED. THIS SHALL BE THE ONLY PRUNING ALLOWED AT PLANTING. PRUNING SHALL CONFORM TO AMERICAN STANDARD FOR TREE CARE OPERATIONS, ANSI A300. PRUNE TREES IN ACCORDANCE WITH NAA GUIDELINES. DO NOT TOP TREES. PRUNE SHRUBS ACCORDING TO STANDARD HORTICULTURAL PRACTICES. ON CUTS OVER 3/4" IN DIAMETER AND BRUISES OR SCARS ON BARK, TRACE THE INJURED CAMBIUM LAYER BACK TO LIVING TISSUE AND REMOVE. SMOOTH AND SHAPE WOUNDS SO AS NOT TO RETAIN WATER AND COAT THE TREATED AREA WITH AN APPROVED ANTISEPTIC TREE PAINT.
19. CLEANUP: DISPOSED OF EXCESS SOIL. REMOVE ALL CUTTINGS AND WASTE MATERIALS. SOIL, BRANCHES, BINDING AND WRAPPING MATERIALS, REJECTED PLANTS, OR OTHER DEBRIS RESULTING FROM ANY PLANTING SHALL BE PROMPTLY CLEANED UP AND REMOVED. THE WORK AREA SHALL BE KEPT SAFE AND NEAT AT ALL TIMES UNTIL THE CLEANUP OPERATION IS COMPLETED. UNDER NO CONDITION SHALL THE ACCUMULATION OF SOIL, BRANCHES OR OTHER DEBRIS BE ALLOWED UPON A PUBLIC PROPERTY IN SUCH A MANNER AS TO RESULT IN A PUBLIC HAZARD. LIKEWISE, UNDER NO CIRCUMSTANCES SHALL ANY DEBRIS OR INCIDENTAL MATERIALS BE ALLOWED UPON ADJACENT PRIVATE PROPERTY.
20. MAINTENANCE: (CONTRACTOR) FOR ALL PLANTINGS, BUFFER AREAS AND SEEDED LAWN AREAS: THE CONTRACTOR SHALL MAINTAIN ALL PLANTINGS AND LAWN AREAS FOR AT LEAST A PERIOD OF 30 DAYS, OR UNTIL FINAL ACCEPTANCE FROM THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ADEQUATELY WATERING PLANTS AND LAWN/TURFGRASS DURING THIS 30 DAY ESTABLISHMENT PERIOD. CONTRACTOR IS RESPONSIBLE FOR THE ESTABLISHMENT OF HEALTHY VIGOROUS PLANT MATERIALS AND LAWN/TURFGRASS GROWTH. CONTRACTOR IS ALSO RESPONSIBLE FOR ANY PRUNING OF PLANT MATERIALS, AND SHAPING AND/OR REPLACEMENT OF DEFICIENT BARK MULCH DURING THIS PERIOD. LONG TERM PLANT MATERIALS AND LAWN/TURFGRASS MAINTENANCE AND ANY PROGRAM FOR SUCH IS THE RESPONSIBILITY OF THE OWNER. CONTRACTOR TO MOW LAWN AREAS UNTIL THE TIME OF OWNER'S ACCEPTANCE TO PROMOTE TURFGRASS ESTABLISHMENT. ALL PLANTINGS AND LAWN/TURFGRASS AREAS SHALL BE MAINTAINED IN A MANICURED CONDITION.
21. MAINTENANCE: (OWNER) THE OWNER IS RESPONSIBLE FOR THE CONTINUED MAINTENANCE, REPAIR AND REPLACEMENT OF ALL LANDSCAPING MATERIALS AND WEED BARRIER FABRIC AS NECESSARY FOLLOWING THE ONE (1) YEAR CONTRACTOR GUARANTEE PERIOD.



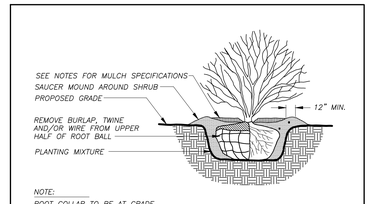
NOTE:
ROOT COLLAR TO BE AT GRADE.
DIG HOLE NO DEEPER THAN BASE OF ROOT BALL TO COLLAR.

1 / L200 DECIDUOUS TREE PLANTING DETAIL
N.T.S.



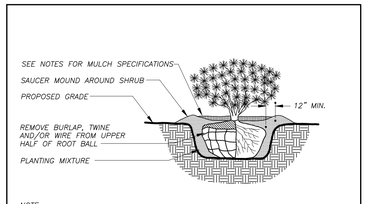
NOTE:
ROOT COLLAR TO BE AT GRADE.
DIG HOLE NO DEEPER THAN BASE OF ROOT BALL TO COLLAR.

2 / L200 EVERGREEN TREE PLANTING DETAIL
N.T.S.



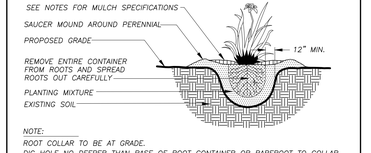
NOTE:
ROOT COLLAR TO BE AT GRADE.
DIG HOLE NO DEEPER THAN BASE OF ROOT BALL TO COLLAR.

3 / L200 DECIDUOUS SHRUB PLANTING DETAIL
N.T.S.



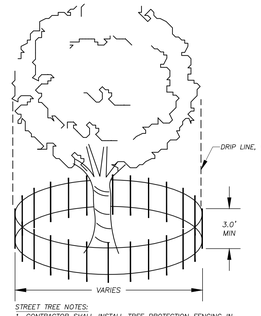
NOTE:
ROOT COLLAR TO BE AT GRADE.
DIG HOLE NO DEEPER THAN BASE OF ROOT BALL TO COLLAR.

4 / L200 EVERGREEN SHRUB PLANTING DETAIL
N.T.S.



NOTE:
ROOT COLLAR TO BE AT GRADE.
DIG HOLE NO DEEPER THAN BASE OF ROOT CONTAINER OR BAREROOT TO COLLAR.
BARK MULCH IS TO BE PULLED AWAY FROM THE TRUNK/BASE OF EACH PERENNIAL

5 / L200 ORNAMENTAL GRASS/ PERENNIAL PLANTING DETAIL
N.T.S.



STREET TREE NOTES:
1. CONTRACTOR SHALL INSTALL TREE PROTECTION FENCING IN THE AREA BETWEEN THE CURB AND SIDEWALK AND EXTEND IT AT LEAST 5 FEET FROM BOTH SIDES OF THE TREE ALONG THE LENGTH OF THE TERRACE.
2. NO EXCAVATION IS PERMITTED WITHIN 5 FEET OF THE OUTSIDE EDGE OF A TREE TRUNK
3. IF EXCAVATION WITHIN 5 FEET OF ANY TREE IS NECESSARY, CONTRACTOR SHALL CONTACT CITY FORESTRY (266–4816) PRIOR TO EXCAVATION TO ASSESS THE IMPACT TO THE TREE AND ROOT SYSTEM.

6 / L200 TREE PROTECTION DETAIL
N.T.S.

Horty Elving℠

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505 East Grant Street, Minneapolis, MN 55404-1490
T 612.332.4422 F 612.344.1282 **hortyelving.com**

St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description
1	03-06-15	DD Submittal	
2	04-06-15	City of New Richmond Submittal	
3	05-21-15	CD Review Set	

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

"BUILDING RELATIONSHIPS WITH A COMMITMENT TO CLIENT SATISFACTION THROUGH TRUST, QUALITY AND EXPERIENCE"

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NOT FOR CONSTRUCTION

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LANDSCAPE SPECIFICATIONS AND DETAILS

Scale	Date	Project Number
1" = 10'	5/21/15	146038

L200

GENERAL STRUCTURAL NOTES

DESIGN CODES:

2011 WISCONSIN BUILDING CODE (2009 IBC AS AMENDED)
ASCE 7-05 - MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.

DESIGN LOADS:

25 PSF	ROOF DEAD LOAD UNO
50 PSF	GROUND SNOW LOAD (p_g) C_e = 1.0 C_t = 1.0 (FLAT ROOFS) C_t = 1.1 (PITCHED ROOFS) C_t = 1.2 (CANOPIES) I = 1.1
38.5 PSF	ROOF SNOW LOAD (PLUS SNOW DRIFTING) AT FLAT ROOFS
42.5 PSF	ROOF SNOW LOAD (PLUS SNOW DRIFTING) AT PITCHED ROOFS
46.5 PSF	ROOF SNOW LOAD (PLUS SNOW DRIFTING) AT CANOPIES
125 PSF	FLOOR LIVE LOAD AT MECHANICAL PENTHOUSES
90 MPH	BASIC WIND SPEED (EXPOSURE C)
1.15	WIND IMPORTANCE FACTOR , I
0.18	INTERNAL PRESSURE COEFFICIENT
3000 PSF	ALLOWABLE SOIL BEARING PRESSURE
65 PSF/FT.	LATERAL (AT REST) SOIL EQUIVALENT FLUID PRESSURE

NOTES:

1. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE TEMPORARY SHORING AND LATERAL BRACING FOR ALL STRUCTURAL ELEMENTS INCLUDING WALLS, COLUMNS, BEAMS, LINTELS, ETC. FOR WIND, SOIL, AND CONSTRUCTION LATERAL AND GRAVITY LOADS. THE BRACING MUST REMAIN IN PLACE UNTIL PERMANENT STRUCTURAL SUPPORTS, INCLUDING ROOF AND FLOOR DIAPHRAGMS, ARE INSTALLED AND HAVE REACHED THEIR ALLOWABLE SERVICE STRESSES.
2. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THAT CONSTRUCTION CONFORMS TO THE LATEST OSHA SAFETY REQUIREMENTS. NOTIFY THE ARCHITECT AND ENGINEER IMMEDIATELY IF ANY REVISIONS ARE REQUIRED TO THE DRAWINGS DUE TO OSHA SAFETY REQUIREMENTS.
3. GEOTECHNICAL ENGINEER SHALL FIELD VERIFY SOIL BEARING CAPACITY. NOTIFY ARCHITECT AND ENGINEER IF ANY DISCREPANCIES ARE FOUND.
4. THIS PROJECT IS NOT DESIGNED FOR FUTURE EXPANSION.

SUBMITTALS:

ALL SUBMITTED STRUCTURAL SHOP DRAWINGS WILL BE REVIEWED FOR GENERAL CONFORMANCE WITH THE INFORMATION GIVEN AND DESIGN CONCEPTS EXPRESSED IN THE CONTRACT DOCUMENTS. REVIEW OF SUCH SUBMITTALS IS NOT CONDUCTED FOR THE PURPOSE OF DETERMINING THE ACCURACY AND COMPLETENESS OF DETAILS SUCH AS DIMENSIONS AND QUANTITIES AS REQUIRED BY THE CONTRACT DOCUMENTS.

NEW CONST. IN CONJUNCTION W/ EXISTING STRUCTURE:

1. THE CONTRACTOR SHALL FIELD VERIFY ALL SIZES, DIMENSIONS, ELEVATIONS, LOCATIONS, ETC. OF ELEMENTS OF THE EXISTING CONSTRUCTION RELEVANT TO NEW CONSTRUCTION.
2. ALL DIMENSIONS INVOLVING NEW CONSTRUCTION ADJACENT TO OR GOVERNED BY EXISTING CONSTRUCTION SHALL BE FIELD CHECKED BY THE CONTRACTOR AND NOTED ON THE FIRST SHOP DRAWING SUBMITTED.
3. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN CONSTRUCTION DOCUMENTS AND ACTUAL FIELD CONDITIONS.
4. ALL HOLES THROUGH EXISTING CONSTRUCTION MUST BE CORE DRILLED OR SAW CUT. DO NOT OVERCUT WHEN SAW CUTTING.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF THE EXISTING BUILDING DURING ALL PHASES OF CONSTRUCTION.

SOILS AND FOUNDATIONS:

1. FOUNDATIONS, SLABS ON GRADE AND OTHER ITEMS RELATED TO THE SOILS ARE DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RECOMMENDATIONS OF AMERICAN ENGINEERING TESTING, INC. - GEOTECHNICAL EVALUATION REPORT NO. 31-01182 DATED APRIL 10, 2015.
2. MINIMUM DEPTH FROM EXTERIOR GRADE TO BOTTOM OF BUILDING PERIMETER FOOTINGS SHALL BE 48".
3. MINIMUM DEPTH FROM EXTERIOR GRADE TO BOTTOM OF FOOTINGS AT UNHEATED STRUCTURES SHALL BE 72".
4. ALL FOOTINGS ARE CENTERED UNDER WALLS, PILASTERS AND COLUMNS ABOVE UNO.
5. ALL FOUNDATION WALLS SHALL BE LATERALLY BRACED BEFORE BACKFILLING AND COMPACTING.
6. DO NOT BACKFILL AROUND STEEL COLUMNS UNTIL CORROSION RESISTANT ASPHALTIC COATING HAS BEEN INSTALLED BY THE STRUCTURAL STEEL ERECTOR.
7. COORDINATE ALL UNDERGROUND PIPING OR DUCTWORK LOCATIONS AND ELEVATIONS WITH THE MECHANICAL CONTRACTOR. ADJUST FOOTING ELEVATIONS AND PROVIDE SLEEVES PER WALL FOOTING AT UNDERGROUND LINES DETAIL. FOR PIPING OR DUCTWORK PARALLEL TO FOOTING, BOTTOM OF FOOTING ELEVATION SHOULD BE NO HIGHER THAN THE PIPE OR DUCTWORK INVERT ELEVATION PLUS THE HORIZONTAL DISTANCE BETWEEN EDGE OF FOOTING AND EDGE OF PIPING OR DUCTWORK. CONTRACTOR SHALL NOTIFY ARCHITECT & ENGINEER FOR APPROVAL OF ANY DEVIATIONS PRIOR TO COMMENCING WORK.

CAST-IN-PLACE CONCRETE:

1. DESIGN CODE: IBC CHAPTER 19 & ACI 318-05, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE & ACI DETAILING MANUALS LATEST EDITION.
2. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:

TYPE	STRENGTH	LOCATION
A	f'c = 3000 PSI	MASONRY CORE FILL AND BOND BEAMS W/ 3/8" MAX. AGGREGATE SIZE AND 8" TO 11" SLUMP.
B	f'c = 3000 PSI	INTERIOR SLABS ON GRADE W/ 3/4" MAX. AGGREGATE SIZE AND 3" TO 5" SLUMP.
C	f'c = 3000 PSI	FOOTINGS
D	f'c = 4000 PSI	PIERS AND FOUNDATION WALLS
E	f'c = 4000 PSI	EXPOSED EXTERIOR CONCRETE AIR ENTRAINED 6% ± 1%
F	f'c = 3500 PSI	CONCRETE TOPPING OVER PRECAST STRUCTURAL SYSTEMS.
G	f'c = 4000 PSI	ALL OTHER CONCRETE W/ 3/4" MAX. AGGREGATE SIZE.

3. REINFORCING STEEL PROPERTIES:
   A. DEFORMED BARS - ASTM A615 GRADE 60 UNO.
   B. WELDED WIRE FABRIC - ASTM A185.
4. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH THE LATEST ACI MANUALS.
5. SHOP DRAWINGS FOR REINFORCING STEEL AND CONCRETE MIX DESIGNS SHALL BE SUBMITTED FOR APPROVAL.
6. PLACE ALL ITEMS PER APPROVED SHOP DRAWINGS AND APPROVED MIX DESIGNS.
7. PROVIDE ALL ACCESSORIES, CHAIRS, SPACER BARS AND SUPPORTS NECESSARY TO SECURE REINFORCING PER "ACI DETAILING MANUAL." NO OTHER METHODS OR MATERIALS WILL BE ACCEPTABLE.
8. PROVIDE PLASTIC CHAIRS AND SUPPORTS IN ALL AREAS OF EXPOSED CONCRETE.
9. PROVIDE MINIMUM CONCRETE COVER FOR ALL REINFORCING AS FOLLOWS UNO:
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH — 3"
   B. CONCRETE EXPOSED TO EARTH OR WEATHER: #6 THROUGH #18 BARS — 2"; #5 BARS AND SMALLER — 1½"
10. PROVIDE CONTINUOUS WALL FOOTING THICKNESS AND BOTTOM REINFORCING AS FOLLOWS: (PLACE LONG. REINF. ABOVE TRANSV. REINF.)

FOOTING WIDTH	THICKNESS	LONG. REINF.	TRANSV. REINF.
1'-8" OR LESS	10"	2-#5	-----
1'-9" TO 2'-8"	12"	2-#5	-----
2'-9" TO 3'-4"	12"	3-#5	#4 @ 12" O.C.
3'-5" TO 4'-0"	12"	4-#5	#6 @ 12" O.C.
4'-1" TO 5'-0"	12"	5-#5	#7 @ 12" O.C.
5'-1" TO 6'-0"	14"	6-#5	#7 @ 12" O.C.

11. PROVIDE 100% VIRGIN POLYPROPYLENE FIBER REINFORCING IN ALL INTERIOR CONCRETE SLABS ON GRADE UNO. (FIBERMESH 300, MASTER FIBER F70, GENESIS FIBER, POLYMESH OR APPROVED EQUAL).
12. PROVIDE 100% VIRGIN POLYPROPYLENE FIBER REINFORCING IN ALL CONCRETE TOPPING OVER PRECAST PLANK UNO (FIBERMESH 300, MASTER FIBER F70, GENESIS FIBER, POLYMESH OR APPROVED EQUAL).
13. PROVIDE FOOTING DOWELS FOR CONCRETE OR MASONRY WALLS AND COLUMNS. DOWELS SHALL BE SAME SIZE AND SPACING AS WALL AND COLUMN VERTICAL REINFORCING AND SHALL PROJECT FROM FOOTINGS TO PROVIDE LAP SPLICES AS INDICATED BELOW OR IN THE MASONRY NOTES. PROVIDE 90 DEGREE STANDARD HOOK IN COLUMN AND FREE STANDING WALL FOOTING DOWELS UNO.
14. LAP SPLICES FOR ALL CONCRETE REINFORCING SHALL BE 36 BAR DIAMETERS OR 24", WHICHEVER IS GREATER, UNO ON PLANS.
15. PROVIDE MINIMUM CONCRETE WALL REINFORCING AS FOLLOWS UNO:

WALL THICKNESS	VERT. REINF.	HORIZ. REINF.
6" - 8"	#4 @ 16" O.C. CTRD	#4 @ 12" O.C. CTRD
10"	#4 @ 16" O.C. EF	#4 @ 16" O.C. EF
11" - 14"	#4 @ 12" O.C. EF	#4 @ 12" O.C. EF

16. PROVIDE EXTRA REINFORCING ON ALL SIDES OF ALL CONCRETE WALL AND SLAB OPENINGS EQUAL TO ONE HALF THE INTERRUPTED REINFORCING IN EACH DIRECTION, UNO ON THE DRAWINGS. A MINIMUM OF 1-#5 SHALL BE PROVIDED FOR EACH LAYER OF REINFORCEMENT. EXTEND BARS PAST EDGE OF OPENING THE LAP SPLICE NOTED ABOVE. PROVIDE AN ADDITIONAL #4x4'-0" DIAGONAL BAR AT EACH CORNER FOR EACH LAYER OF REINFORCING.
17. HOT WEATHER AND COLD WEATHER CONCRETE PROVISIONS OF ACI 305 AND ACI 306 SHALL BE FOLLOWED.

PRECAST, PRESTRESSED CONCRETE:

1. DESIGN CODE: PRECAST PRESTRESSED CONCRETE SHALL BE DESIGNED, FABRICATED AND ERECTED PER ACI 318-05. BUILDING CODE REQUIREMENT FOR STRUCTURAL CONCRETE AND PCI DESIGN HANDBOOK - PRECAST AND PRESTRESSED CONCRETE, LATEST EDITION.
2. PRECAST, PRESTRESSED CONCRETE SHALL BE DESIGNED, FABRICATED AND ERECTED PER ACI 318 AND PCI "DESIGN HANDBOOK - PRECAST AND PRESTRESSED CONCRETE" LATEST EDITIONS.
3. PRECAST MANUFACTURER SHALL PROVIDE AND DESIGN FOR ALL OPENINGS LARGER THAN 8" SQUARE OR 8" IN DIAMETER THRU ALL PRECAST UNITS. THE MANUFACTURER SHALL DESIGN FOR ALL OTHER SMALLER OPENINGS TO BE FIELD CUT BY THE TRADE REQUIRING THEM. THE FIELD CUT OPENING SIZE AND LOCATION MUST BE APPROVED BY THE PRECAST MANUFACTURER PRIOR TO INSTALLATION. THE PRECAST MANUFACTURER SHALL VERIFY ALL OPENING QUANTITIES, SIZES AND LOCATIONS WITH MECH., ELEC. AND ARCH. DRAWINGS AND ALL CONCERNED CONTRACTORS.
4. PRECAST MANUFACTURER SHALL DESIGN AND PROVIDE ALL HEADERS AT OPENINGS THRU PRECAST UNITS. ADJACENT PRECAST UNITS SHALL BE DESIGNED FOR HEADER LOADS.
5. ALL PRECAST UNITS SHALL BE POURED A MINIMUM OF 28 DAYS PRIOR TO ERECTION.
6. LIMIT CAMBER TO ONE HALF THE NORMAL CAMBER AT ALL PRECAST UNITS ADJACENT AND PARALLEL TO EXTERIOR AND INTERIOR WALLS.
7. PRECAST MANUFACTURER SHALL SHOW ALL FIELD CONNECTION REQUIREMENTS, INCLUDING WELDING ON THE SHOP DRAWINGS.
8. SEE ARCH. DRAWINGS AND DETAILS FOR ALL RECESSES OR FLOOR SLOPES OVER PRECAST UNITS.
9. THE DESIGN OF ALL MEMBERS AND ELEMENTS SHOWN ON THE DRAWINGS ARE FOR THE IN-PLACE COMPLETED BUILDING. ALL LOADING CRITERIA AND VERIFICATION OF DESIGN FOR LOADING SUCH AS STRIPPING, HANDLING, TRANSPORTATION AND ERECTION ARE THE SOLE RESPONSIBILITY OF THE PRECAST SUPPLIER.
10. DESIGN DEVIATIONS WILL NOT BE PERMITTED WITHOUT THE ARCHITECT'S APPROVAL. DESIGN DEVIATIONS SHALL BE SUBMITTED WITH COMPLETE CALCULATIONS AND DRAWINGS CERTIFIED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. DESIGN DEVIATIONS SHALL PROVIDE AN INSTALLATION EQUIVALENT TO THE ORIGINAL INTENT WITHOUT INCURRING ADDITIONAL COST TO THE OWNER.
11. CONTRACT DRAWINGS INDICATE NOMINAL STRUCTURAL TOPPING THICKNESS. THE PRECAST MANUFACTURER SHALL DESIGN THE UNITS FOR THE ACTUAL TOPPING THICKNESS WHICH IS DETERMINED BY THE UNITS CAMBER. FLOORS ARE POURED LEVEL UNO.
12. ROUGHEN SURFACES OF PRECAST UNITS TO RECEIVE A CONCRETE TOPPING TO ENSURE A SUFFICIENT BOND FOR COMPOSITE ACTION BETWEEN PRECAST AND TOPPING.
13. THE PRECAST MANUFACTURER SHALL DESIGN ALL PRECAST, PRESTRESSED CONCRETE MEMBERS FOR ALL APPLICABLE GRAVITY, SOIL AND WIND LOADS INDICATED ON THE DRAWINGS. IN ADDITION, THE PRECAST MANUFACTURER SHALL DESIGN THE FOLLOWING:
    A. ALL EMBEDDED ITEMS IN PRECAST UNITS SUCH AS PLATES, ANCHORS, ETC.
    B. LOOSE SHEAR PLATES STRUCTURALLY ATTACHED TO EMBEDDED ITEMS IN PRECAST UNITS.

    PRECAST MANUFACTURER SHALL SUPPLY ALL ABOVE LISTED ITEMS AND COORDINATE LOCATIONS WITH ALL CONCERNED CONTRACTORS.
14. SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS CERTIFIED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.

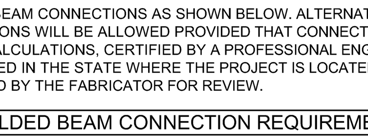
MASONRY:

1. DESIGN CODES: IBC CHAPTER 21 & ACI 530-05, MSJC-BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES.
2. SEE ARCHITECTURAL DRAWINGS FOR MASONRY WALL FIRE RATINGS.
3. HOLLOW CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT UNITS PER ASTM C90 REQUIREMENTS. F'm = 2000 PSI.
4. ALL MORTAR FOR LOAD BEARING WALLS BELOW GRADE SHALL BE TYPE 'M' MORTAR. ALL MORTAR FOR LOAD BEARING WALLS ABOVE GRADE SHALL BE TYPE 'S'.
5. MORTAR PER ASTM C270. MINIMUM 28 DAY COMPRESSIVE STRENGTH: TYPE 'M' = 2500 PSI, TYPE 'S' = 1800PSI..
6. COARSE GROUT PER ASTM C476. MINIMUM 28 DAY COMPRESSIVE STRENGTH = 3000 PSI. NO GROUT IS TO BE HAND MIXED ON SITE.
7. WHEN REQUIRED BY THE ARCHITECT, ENGINEER, OR BUILDING OFFICIAL, MASONRY COMPRESSIVE STRENGTH SHALL BE TESTED PER IBC 2105.3.
8. MASONRY CEMENT SHALL NOT BE USED IN MORTAR OR GROUT.
9. REINFORCING STEEL:
   A. DEFORMED BARS: ASTM GRADE 60.
   B. JOINT REINFORCEMENT: ASTM A82.
10. SUBMIT MORTAR AND GROUT DESIGN MIXES FOR APPROVAL.
11. SUBMIT SHOP DRAWINGS FOR REINFORCING STEEL.
12. PROVIDE MINIMUM 8" FULL DEPTH AND WIDTH BEARING FOR ALL MASONRY LINTELS.
13. WIRE JOINT REINFORCING FOR CONCRETE BLOCK WALLS SHALL BE STANDARD CORROSION RESISTANT 9 GAGE LADDER TYPE (PROVIDE TRI-ROD LADDER FOR MULTI WYTHE WALLS). INSTALL JOINT REINFORCING PER MANUFACTURER'S RECOMMENDATIONS AT A MAXIMUM SPACING OF 16" O.C. UNO ON DRAWINGS OR PROJECT SPECIFICATIONS.
14. INSTALL MASONRY VERTICAL AND HORIZONTAL REINFORCING PER IBC REQUIREMENTS AND AS FOLLOWS:
    A. SEE PLANS, DETAILS, AND SCHEDULES FOR REQUIRED REINFORCING.
    B. PROVIDE FULL MORTAR BEDDED FACE SHELLS AND WEBS AROUND ALL GROUTED CELLS FOR BEARING AND TO PREVENT LEAKAGE INTO ADJACENT CELLS.
    C. PLACE VERTICAL REINFORCING PRIOR TO PLACING GROUT.
    D. PROVIDE REINFORCEMENT POSITIONERS TO HOLD VERTICAL REINFORCEMENT IN PROPER POSITION AT TOP AND BOTTOM OF ALL LIFTS. LENGTH OF REINFORCING BARS TO BE COORDINATED WITH CONCRETE AND MASONRY CONTRACTORS.
    E. GROUT ALL CORES CONTAINING REINFORCING SOLID.
    F. MASONRY WALL CELLS TO BE GROUTED WITH CONCRETE SHALL BE FILLED IN MAXIMUM 4'-0" LIFTS. REMOVE ALL OVERHANGING OBSTRUCTIONS AND DEBRIS FROM THE CELLS PRIOR TO GROUTING.
    G. CONSOLIDATE ALL GROUT BY RODDING OR VIBRATING.
    H. REINFORCEMENT SPLICES AT ALL FOOTING DOWELS, VERTICAL WALL REINFORCING, HORIZONTAL WALL REINFORCING, AND BOND BEAM REINFORCING SHALL BE A MINIMUM OF 48 BAR DIAMETERS FOR TENSION SPLICES AND 48 BAR DIAMETERS FOR COMPRESSION SPLICES.
    J. PROVIDE CORNER BAR WITH 2'-0" + 2'-0" LEGS FOR EACH HORIZONTAL BOND BEAM BAR AT CORNERS AND INTERSECTING WALLS.
15. PROVIDE CONTINUOUS BOND BEAMS WITH 2-#5 CONTINUOUS AT THE TOP OF ALL BEARING AND END WALLS AS FOLLOWS:
    A. WHEN SINGLE HEIGHT BOND BEAMS ARE USED, MAINTAIN MINIMUM 8" HEIGHT.
    B. WHERE JOIST BEARING BOND BEAMS, MASONRY LINTELS, ETC. REQUIREMENTS EXCEED 8" HEIGHT, USE 16" HIGH UNITS ONLY WHERE ACCEPTABLE FOR ARCHITECTURAL AND VISUAL REQUIREMENTS. WHERE ARCHITECTURAL AND VISUAL CONDITIONS REQUIRE USE OF 8" HIGH UNITS, PLACE 8" HIGH POUR THROUGH UNITS ON TOP OF 8" HIGH BOND BEAM UNIT. REINFORCE AND POUR THE BUILT UP BOND BEAM AS ONE UNIT.
    C. WHERE TOP OF BOND BEAM ELEVATIONS ARE NOT AT MASONRY COURSING ELEVATIONS DUE TO JOIST, DECK OR SLAB ELEVATIONS, ROOF SLOPES, ETC., PROVIDE BUILT UP BOND BEAM AS DESCRIBED IN ITEM 'B' ABOVE. STEP BOND BEAMS AS REQUIRED TO MAINTAIN A MINIMUM OF 8" BOND BEAM HEIGHT. CUT OR NOTCH UPPER BOND BEAM UNIT. REINFORCE AND POUR THE BUILT UP BOND BEAM PORTION TO REQUIRED ELEVATIONS.
    D. LENGTH AND HEIGHT OF ALL BOND BEAMS AND BUILT UP BOND BEAM UNITS SHALL CONFORM TO ALL ARCHITECTURAL AND VISUAL REQUIREMENTS.
    E. SEE PLANS, SCHEDULES, AND DETAILS FOR EMBEDDED ANGLES, PLATES, ANCHOR BOLTS, ETC. CAST IN BOND BEAMS, WALLS, PIERS, ETC.
16. GROUT SOLID BELOW ALL STEEL BEARINGS A MINIMUM OF FIVE COURSES DOWN FOR 16" LENGTH OF WALL, UNO ON DRAWINGS. ALL STEEL BEAMS SHALL BEAR A MINIMUM OF 8" ON SOLID GROUTED MASONRY UNITS, UNO.
17. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SHORE AND BRACE, AS NECESSARY, ALL BEAMS SUPPORTING MASONRY ABOVE TO PREVENT MOVEMENT OF BEAMS DURING WALL CONSTRUCTION. SHORING AND BRACING MAY BE REMOVED ONLY AFTER WALLS ARE ATTACHED TO ROOF OR FLOOR STRUCTURE ABOVE.
18. MASONRY VERTICAL CONTROL JOINTS:
    A. COORDINATE JOINTS AND CONSTRUCTION DETAILS WITH ARCHITECT. MAXIMUM SPACING FOR CONCRETE BLOCK IS 24'-0".
    B. LOCATE JOINTS 2'-0" FROM ALL CORNERS AND EDGE OF ALL OPENINGS EXCEPT AS NOTED PER SECTIONS AND DETAILS.
    C. FOR LOAD BEARING MASONRY, CONTINUE BOND BEAM REINFORCING AND GROUT THROUGH CONTROL JOINTS.
    D. FORM CONTROL JOINTS IN BLOCK WITH JAMB BLOCK WITH NEOPRENE INSERTS, OR ROD AND CAULK. CONTRACTOR OPTION: USE STANDARD BLOCK, LINE ONE SIDE WITH BUILDING PAPER, AND GROUT SOLID TO FORM KEYWAY.
    E. PROVIDE CONTROL JOINTS AT INTERSECTIONS OF BEARING AND NON-BEARING WALLS.

STEEL - STRUCTURAL:

1. DESIGN CODES: IBC CHAPTER 22 & AISC 360-05, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.
2. STEEL PROPERTIES:
   A. ASTM A992 (f_y=50 KSI) FOR WIDE FLANGE SHAPES
   B. ASTM A500 GRADE B (f_y=46 KSI) FOR TUBULAR MEMBERS
   C. ASTM A36 STEEL (f_y=36 KSI) FOR ALL OTHER MEMBERS UNO
   D. CONNECTION BOLTS = ASTM A325
   E. ANCHOR BOLTS = ASTM F1554 GRADE 36
   F. WELDS = AMERICAN WELDING SOCIETY (AWS.) A5.1 OR A5.5 & E70XX ELECTRODES
   G. HEADED STUDS = ASTM A108
   H. EXPANSION ANCHORS = HILTI KWIK BOLT 3 OR APPROVED EQUAL
   J. POWDER ACTUATED FASTENERS = HILTI X-U FASTENER OR APPROVED EQUAL.
   K. SCREW ANCHORS = SIMPSON TITEN HD OR APPROVED EQUAL
3. PROVIDE 5000 PSI NON-SHRINK GROUT UNDER ALL STEEL BASE AND BEARING PLATES PER THE SECTIONS AND DETAILS. GROUT PLATES PRIOR TO LOADING ROOF MEMBERS WITH PRECAST PLANK OR DECKING MATERIALS.
4. PROVIDE CORROSION RESISTANT ASPHALTIC COATING OR EQUAL AROUND ALL STRUCTURAL STEEL BELOW GRADE.
5. ALL WELDS SHALL BE MADE BY CERTIFIED WELDERS AND IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS.) - D1.1 LATEST EDITION.
6. STRUCTURAL STEEL FABRICATOR SHALL FURNISH ALL PLATES AND ANGLES CAST IN CONCRETE AND MASONRY FOR CONNECTING STEEL JOISTS, BEAMS, COLUMNS, DECK, ETC. UNO. SEE APPLICABLE NOTES ON THIS SHEET AND COORDINATE WITH MASONRY AND CONCRETE CONTRACTORS.
7. ALL STEEL BEAMS AND LINTELS TO BEAR A MINIMUM OF 8" UNO.
8. ALL COLUMN BASE AND CAP PLATES TO BE WELDED AROUND ALL SIDES.
9. PRIME PAINT PER AISC SECTION 6.5, UNO ON ANY CONSTRUCTION DOCUMENTS. CLEAN STEEL BUT OMIT PRIMER AT STEEL MEMBERS RECEIVING SPRAY FIREPROOFING. COORDINATE W/ ARCH. DRAWINGS.
10. STRUCTURAL STEEL FABRICATOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.
11. PROVIDE BEAM CONNECTIONS AS SHOWN BELOW. ALTERNATE CONNECTIONS WILL BE ALLOWED PROVIDED THAT CONNECTION DESIGN CALCULATIONS, CERTIFIED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED, ARE SUBMITTED BY THE FABRICATOR FOR REVIEW.

BOLTED/WELDED BEAM CONNECTION REQUIREMENTS



BEAM SIZE	NO. OF 3/4"Ø HEADED STUD (A325N) BOLTS EA. SIDE	CONN. ANGLES THICKNESS	CONN. ANGLES LENGTH	WELD SIZE
W36	10	3/8"	2'-5 1/2"	1/4"
W33	9	3/8"	2'-2 1/2"	1/4"
W30	8	3/8"	1'-11 1/2"	1/4"
W27	7	3/8"	1'-8 1/2"	1/4"
W24	6	3/8"	1'-5 1/2"	1/4"
W21	5	3/8"	1'-2 1/2"	1/4"
W18	4	3/8"	0'-11 1/2"	1/4"
W16	4	5/16"	0'-11 1/2"	1/4"
W14	3	5/16"	0'-8 1/2"	1/4"
W12	3	5/16"	0'-8 1/2"	1/4"
W10	2	5/16"	0'-5 1/2"	1/4"
W8	2	5/16"	0'-5 1/2"	1/4"
W6	1	5/16"	0'-4"	3/16"

NOTES:
1. USE E70XX ELECTRODES.
2. OUTSTANDING LEGS OF CONNECTION ANGLES MAY BE REDUCED TO 3" WHEN BEAM FRAMES INTO W8 COLUMN WEB.
3. SEE TABLE FOR CONNECTION ANGLES, NUMBER OF BOLTS AND WELD SIZES.
4. BOLTS SHALL BE TIGHTENED IN PROPERLY ALIGNED HOLES TO A SNUG-TIGHT CONDITION AS DEFINED BY THE LATEST EDITION OF AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" UNO.

STEEL - DECK:

1. DESIGN CODE: STEEL DECK INSTITUTE (SDI.): "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS AND ROOF DECKS" LATEST EDITION.
2. STEEL DECK SHALL CONFORM TO ASTM A-611 OR A-446 AND HAVE A MINIMUM YIELD STRENGTH OF 33,000 PSI. DECK SIZE, TYPE AND GAUGE TO BE AS INDICATED ON PLANS.
3. FIELD WELD STEEL DECK TO ALL INTERIOR STEEL SUPPORTS AS SHOWN ON PLANS. PROVIDE WELDS @ 6" O.C. TO PLATE, ANGLE OR BEAM AT BUILDING PERIMETER UNO. SIDELAP FASTENING SHALL BE AS INDICATED ON PLANS.
4. SPAN DECK SECTION MINIMUM 3 SPANS CONTINUOUS, UNO.
5. THE STEEL DECK FABRICATOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.
6. STEEL DECK TO BE SHOP PRIMED W/ STANDARD GREY PRIMER UNO. ON ARCHITECTURAL DRAWINGS.

COLD FORMED STEEL FRAMING:

1. DESIGN CODES:
   A. IBC CHAPTER 22, SECTION 2209 AND 2210-COLD FORMED STEEL AND LIGHT-FRAMED CONSTRUCTION. SEE PLANS FOR SIZE AND THICKNESS OF STUDS.
   B. 2007 AISI NORTH AMERICAN SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS (AISI S100-2007)
2. SEE PLANS, ELEVATIONS, SECTIONS AND DETAILS FOR SIZE AND THICKNESS OF STUDS. YIELD STRESS SHALL BE 33KSI FOR 33 MIL. AND 43 MIL. MEMBERS AND 50KSI FOR ALL OTHER MEMBERS.

   600S162-43
   - MEMBER DEPTH IN HUNDREDS OF INCHES (EX. - 600=6")
   - MEMBER TYPE: S = STUD, T = TRACK
   - FLANGE WIDTH OF MEMBER IN HUNDREDS OF INCHES (EX. - 162 = 1⅝", 200 = 2")
   - MEMBER THICKNESS IN MILS

   MILS TO GAUGE CONVERSION CHART

MILS	GAUGE
33	20 GA.
43	18 GA.
54	16 GA.
68	14 GA.
97	12 GA.
118	10 GA.

3. ALL STEEL STUD FASTENERS SHALL BE WELDED CONNECTIONS, OR SHALL BE #10-16 "TEK" SCREWS MANUFACTURED BY "ITW BUILDEX" OR APPROVED EQUAL UNO. ALL WELDS SHALL BE MADE BY CERTIFIED WELDERS AND IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS)-D13 LATEST EDITION. THE CENTER-TO-CENTER SPACING AND EDGE DISTANCE FOR ALL SCREW FASTENERS SHALL BE AT LEAST 3x(NOMINAL DIAMETER) UNO.
4. ALL POWDER ACTUATED FASTENERS (PAFS) SHALL BE HILTI "X-U" OR APPROVED EQUAL UNO.
5. SPLICES IN WALL STUDS, JOISTS OR HEADERS SHALL NOT BE PERMITTED UNLESS SPLICE CONNECTIONS ARE PROVIDED IN SECTIONS AND DETAILS.
6. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR MEMBERS, DO NOT TORCH CUT. MEMBERS SHALL BE HELD POSITIVELY IN PLACE UNTIL PROPERLY FASTENED.
7. STUDS SHALL BE PLUMBED, ALIGNED AND SECURELY ATTACHED TO THE FLANGE OR WEB OF BOTH UPPER AND LOWER TRACKS. STUDS SHALL HAVE FULL BEARING AGAINST INSIDE TRACK WEB PRIOR TO STUD AND TRACK ATTACHMENT.
8. GYPSUM WALL SHEATHING SHALL BE ⅝" THICK, SEE SPECIFICATIONS FOR ACCEPTABLE PRODUCTS. PROVIDE ON EXTERIOR FACE OF ALL EXTERIOR WALLS AND OTHER WALL LOCATIONS AS SHOWN ON DOCUMENTS. FASTEN TO STUDS, BLOCKING, AND TRACKS WITH #6 MINIMUM x 1" FLAT HEAD SCREWS SPACED AT 12" O.C. AT PANEL INTERMEDIATE SUPPORTS AND SPACED AT 6" O.C. AT PANEL EDGES.
9. BLOCK ALL WALL PANEL EDGES WITH STUD OR TRACK MATERIAL.
10. WALL STUD BRIDGING SHALL BE ATTACHED IN A MANNER TO PREVENT STUD ROTATION. BRIDGING ROWS SHALL BE SPACED AT 4'-0" O.C. MAXIMUM. INSTALLATION OF ALL REQUIRED WALL STUD BRIDGING SHALL BE COMPLETED BEFORE ANY LOADS ARE APPLIED TO THE SYSTEM.
11. CONTINUOUS TOP AND BOTTOM RUNNER TRACKS FOR ALL WALLS SHALL BE FASTENED TO EACH STUD WITH 2- #10-16 SCREWS MINIMUM UNO.
12. THE CONTRACTOR IS RESPONSIBLE FOR AVOIDING THE OVERLOAD OF COLD FORMED STEEL MEMBERS DURING ERECTION AND FOR PROVIDING ADEQUATE TEMPORARY BRACING UNTIL THE PERMANENT BRIDGING AND SHEATHING ARE IN PLACE.
13. THE COLD FORMED STEEL SUPPLIER SHALL SUBMIT FOR APPROVAL DETAILED SHOP DRAWINGS INDICATING MEMBER SIZES, THICKNESS, SPACING AND ALL CONNECTIONS AS SHOWN ON THE DRAWINGS.
14. TOUCH-UP WELDS SHALL BE WITH ZINC-RICH PAINT PER ASTM A-780.

WOOD TRUSSES:

1. EACH TRUSS SHALL BE FASTENED TO THE TOP ℄ WITH SIMPSON CONNECTORS AS SHOWN ON DETAILS.
2. ALL PREFABRICATED WOOD TRUSSES SHALL BE FURNISHED IN ACCORDANCE WITH DESIGNS PREPARED BY A REGISTERED PROFESSIONAL ENGINEER USING THE DESIGN LOADS AND SPAN CONDITIONS INDICATED ON THE CONTRACT DOCUMENTS. NO DEVIATION OF TRUSS SHAPE, MEMBER SIZE, BEARING POINT LOCATIONS OR SUPERIMPOSED LOADS FROM THE CONTRACT DOCUMENTS SHALL BE PERMITTED WITHOUT APPROVAL OF THE ARCHITECT AND/OR ENGINEER. CERTIFIED SHOP DRAWINGS INCLUDING AN OVERALL ERECTION PLAN INDICATING EACH TYPE OF TRUSS, TRUSS BEARING POINT LOCATIONS, REQUIRED LATERAL BRACING, EACH TRUSS MEMBER SIZE AND STRESS AND CONNECTION DETAILS SHALL BE SUBMITTED FOR PRIOR APPROVAL OF THE ARCHITECT AND/OR ENGINEER.
3. HANDLING OF TRUSSES AND ERECTION BRACING IS THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL PROVIDE TEMPORARY DIAGONAL LATERAL AND CROSS BRACING UNTIL ROOF SHEATHING, CEILINGS AND PERMANENT BRACING CAN BE APPLIED AND SHEAR WALLS COMPLETED. THE CONTRACTOR SHALL ALSO PROVIDE TEMPORARY DIAGONAL BRACING IN THE PLANE OF WEB MEMBERS. THIS BRACING SHALL BE INSTALLED AT LOCATIONS OF REQUIRED LATERAL WEB BRACING, STARTING AT END WALL WITH SUBSEQUENT DIAGONAL BRACING NO MORE THAN 20'-0" APART OR TWICE THE HORIZONTAL RUN OF THE DIAGONAL BRACING. THE TEMPORARY LATERAL BRACING FOR TOP AND BOTTOM CHORDS SHALL BE LOCATED AT OR NEAR THE ENDS OF THE DIAGONAL BRACING. IF NO REQUIRED LATERAL WEB BRACING IS SPECIFIED, THE TEMPORARY DIAGONAL BRACING IS TO BE PLACED AT NO GREATER THAN 16'-0" INTERVALS ALONG THE TRUSS LENGTH. THIS BRACING MAY LATER BECOME PART OF THE PERMANENT BRACING DESIGNED BY THE TRUSS MANUFACTURER.
4. ALL BRACING MEMBERS SHALL BE 2x4'S, 8'-0" LONG OR MORE, APPLIED FLAT-WISE AND NAILED AT EACH INTERSECTION WITH (2) 16D COMMONS.
5. ALL CROSS AND DIAGONAL BRACING SHALL BE APPLIED AT APPROXIMATELY 45° ANGLES.
6. THE TRUSS MANUFACTURER SHALL PROVIDE THE CONTRACTOR WITH THE PUBLICATION "GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING AND BRACING OF METAL PLATE CONNECTED WOOD TRUSSES", LATEST EDITION, BY THE WOOD TRUSS COUNCIL OF AMERICA (WTCA) AND THE TRUSS PLATE INSTITUTE (TPI).
7. ALL TRUSSES ARE TO BE DESIGNED AS SIMPLE SPAN CONDITIONS, USING BEARING WALL CONDITIONS AS SHOWN ON PLANS.
8. TRUSS DIAGRAMS SHOWN ON PLANS ARE FOR CONFIGURATION INTENT ONLY. TRUSS MANUFACTURER TO PROVIDE WEB ORIENTATION PER THEIR DESIGN.
9. TRUSS LAYOUT ON PLAN IS SUGGESTED LAYOUT, ALTERNATE LAYOUT WOULD BE PERMISSIBLE UPON APPROVAL OF THE ARCHITECT AND ENGINEER.
10. NO FIELD MODIFICATIONS OF WOOD TRUSSES IS ALLOWED WITHOUT WRITTEN APPROVAL OF THE TRUSS MANUFACTURER.
11. CONTRACTOR TO PLACE ROOF SHEATHING ON TRUSSES PRIOR TO HAND-FRAMING RIDGE AND FALSE ROOFS AS SHOWN IN DESIGNATED AREAS. NAIL SHEATHING TO LOWER TRUSSES AND HAND FRAMED AREAS AS SHOWN IN SHEATHING NAILING NOTES.
12. CONTRACTOR TO PLACE SHEATHING ON STANDARD TRUSSES BEFORE PLACING VALLEY JACK TRUSSES. VALLEY JACK TRUSSES SHALL BEAR DIRECTLY ON THE ROOF SHEATHING. ANCHOR VALLEY JACK TRUSSES PER MANUFACTURER'S RECOMMENDATIONS, NAIL SHEATHING TO STANDARD AND VALLEY JACK TRUSSES AS SHOWN IN SHEATHING NAILING NOTES.
13. RUN INTERIOR PARTITIONS TO BOTTOM CHORD OF TRUSSES. SEE ARCH. FOR TOP SLIP TRACK AND REQUIRED GAP.
14. TRUSS MANUFACTURER SHALL PROVIDE ALL TRUSS-TO-TRUSS HANGERS AND CONNECTORS, ALL TRUSS-TO-BEAM HANGERS AND CONNECTORS AND ALL TRUSS-TO-WALL PLATE CONNECTORS.

STRUCTURAL WOOD:

1. DESIGN CODES: IBC CHAPTER 23 AND NDS-05, AF&PA-NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.
2. WOOD CONSTRUCTION SHALL CONFORM TO THE "CONVENTIONAL LIGHT-FRAME CONSTRUCTION PROVISIONS," SECTION 2308 OF THE IBC UNO. ALL NAILING SHALL CONFORM TO TABLE 2304.9.1 "FASTENING SCHEDULE" OF THE IBC UNO. HOLES AND NOTCHES IN SAWN LUMBER SHALL BE LIMITED AS SPECIFIED IN THE IBC.
3. STRUCTURAL PLYWOOD FLAT ROOF SHEATHING SHALL BE ¾" TONGUE AND GROOVE 48/24 EXPOSURE 1. EACH PANEL SHALL BE IDENTIFIED WITH THE APA STRUCTURAL I RATED SHEATHING GRADE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION AND SHALL MEET THE REQUIREMENTS OF THE DOC PRODUCT STANDARD (PS-1). APPLICATION AND NAILING OF PLYWOOD SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE AMERICAN PLYWOOD ASSOCIATION UNO ON CONSTRUCTION DOCUMENTS.
4. STRUCTURAL OSB PITCHED ROOF SHEATHING SHALL BE ⅝" 40/20 EXPOSURE 1. EACH PANEL SHALL BE IDENTIFIED WITH THE RATED SHEATHING GRADE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION AND SHALL MEET THE REQUIREMENTS OF THE DOC PRODUCT STANDARD (PS-2). APPLICATION AND NAILING OF OSB SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE AMERICAN PLYWOOD ASSOCIATION UNO ON CONSTRUCTION DOCUMENTS.
5. GYPSUM WALL SHEATHING SHALL BE ⅝" THICK, SEE SPECIFICATIONS FOR ACCEPTABLE PRODUCTS. PROVIDE ON EXTERIOR FACE OF ALL EXTERIOR WALLS AND OTHER WALL LOCATIONS AS SHOWN ON DOCUMENTS. APPLICATION AND NAILING OF PANEL SHALL BE PER SHEATHING FASTENING NOTES. SEE SPECIFICATIONS FOR ACCEPTABLE PRODUCTS.
6. ROOF PANELS SHALL BE ORIENTATED WITH THE FACE GRAIN PERPENDICULAR TO THE SUPPORTS. STAGGER SHEATHING JOINTS EVERY FOUR FEET MAXIMUM AND 32 INCHES MINIMUM PER ROW.
7. WALL PANELS SHALL BE ORIENTATED WITH THE FACE GRAIN PARALLEL TO STUD SUPPORTS.
8. SEE NOTES AND DETAILS FOR NAILING REQUIREMENTS. ALL NAILS FOR SHEAR WALLS AND ROOF SHALL BE COMMON NAILS AND SHALL CONFORM TO TABLE 2304.9.1 OF THE INTERNATIONAL BUILDING CODE.
9. CONNECTORS AND ALL HARDWARE TO BE MANUFACTURED BY SIMPSON STRONG TIE COMPANY OR EQUAL. DESIGNATIONS ON DOCUMENTS ARE SIMPSON STRONG TIE DESIGNATIONS UNO.
10. LEDGERLOK: SELF DRILLING SCREWS FOR ANCHORING WOOD LEDGER PLATES THROUGH GYPSUM SHEATHING. MANUFACTURED BY FASTENMASTER.
11. ALL SAWN STRUCTURAL LUMBER FOR HEADERS, BEAMS AND JOISTS SHALL BE SPRUCE PINE-FIR NO. 2 GRADE OR BETTER. ALL SAWN STRUCTURAL LUMBER USED FOR POSTS OR COLUMNS SHALL BE TREATED SOUTHERN PINE NO. 2 GRADE OR BETTER.
12. ALL BEARING WALL STUDS SHALL BE SPRUCE-PINE-FIR NO. 2 GRADE OR BETTER.
13. FOUNDATION PLATES SHALL BE PRESSURE-TREATED SOUTHERN PINE NO. 2 GRADE OR BETTER AND BOLTED AS INDICATED ON THE CONTRACT DOCUMENTS. THERE SHALL BE A MINIMUM OF THREE (3) BOLTS PER PIECE WITH ONE (1) BOLT LOCATED WITHIN 8" OF EACH END OF PIECE.
14. ALL EXTERIOR EXPOSED WOOD MEMBERS SHALL BE PRESSURE TREATED SOUTHERN PINE NO. 2 GRADE OR BETTER.
15. MANUFACTURED STRUCTURAL LUMBER (MICRO-LAM, PARALLAM, ETC.) SHALL PROVIDE THE DESIGN VALUES EQUAL TO OR EXCEEDING THE FOLLOWING:
    Fb = 2,850 PSI IN BENDING
    Fv = 285 PSI IN HORIZONTAL SHEAR
    Fc ⊥= 750 PSI IN COMPRESSION PERPENDICULAR TO GRAIN
    Fc = 2,700 PSI IN COMPRESSION PARALLEL TO GRAIN
    Ft = 1,850 PSI IN TENSION PARALLEL TO GRAIN
    E = 2,000,000 PSI MODULUS OF ELASTICITY

SHEATHING FASTENING:

1. PROVIDE 2x BLOCKING AT RIDGE OF TRUSSES. BLOCKING IS TO BE SPACED 4" EACH SIDE OF RIDGE VENT, SEE 2/S403. NAIL SHEATHING TO BLOCKING AT 4" O.C.. PROVIDE 'H' CLIPS BETWEEN ROOF TRUSSES AT SHEATHING EDGES.
2. PROVIDE 2x CONT. ACROSS ENDS OF TRUSSES AT OVERHANGS. SPLICE EDGE ℄ WITH A 2"x20 GA. x 24" METAL STRAP WITH (8) 8d COMMON NAILS EACH SIDE OF SPLICE. SEE 3/S403 FOR ALTERNATE CONNECTION.
3. BLOCK ALL WALL PANEL EDGES WITH MINIMUM 2x LUMBER.
4. MINIMUM PITCHED ROOF SHEATHING NAILING SHALL BE AS FOLLOWS:
   A. PANEL EDGES AT ROOF BOUNDARIES (I.E: RIDGE BLOCKING, BLOCKING AT TRUSS ENDS, AND END TRUSSES) WITH 10d COMMONS AT 4" O.C.
   B. ALL PANEL SUPPORTED EDGES TO TRUSSES, BLOCKING IF PRESENT (BLOCKING IS REQUIRED AT AREA D) AND END SUPPORTS WITH 10d COMMONS AT 4" O.C.
   C. PANEL INTERMEDIATE SUPPORTS TO FRAMING WITH 10d COMMONS AT 12" O.C.
   D. PROVIDE ⅛" SPACE AT ALL ENDS AND EDGES OF SHEETS.
5. MINIMUM FLAT ROOF SHEATHING NAILING SHALL BE AS FOLLOWS:
   A. PANEL EDGES AT BOUNDARIES (I.E: BLOCKING AT PERIMITER, AND RIM JOISTS) WITH 10d COMMONS AT 4" O.C.
   B. ALL PANEL SUPPORTED EDGES TO JOISTS, BLOCKING AND END SUPPORTS WITH 10d COMMONS AT 4" O.C.
   C. PANEL INTERMEDIATE SUPPORTS TO FRAMING WITH 10d COMMONS AT 12" O.C.
6. MINIMUM INTERIOR BEARING WALL GYPSUM BOARD FASTENING SHALL BE AS FOLLOWS:
   A. PANEL EDGES TO STUDS, BLOCKING, TOP PLATES AND BOTTOM PLATES W/ #6-1¼" TYPE W SCREWS @ 8" O.C. MAXIMUM.
   B. PANEL INTERMEDIATE SUPPORT FRAMING W/ #6-1¼" TYPE W SCREWS @ 12" O.C. MAXIMUM.
   C. OPTION: PROVIDE 6d DRYWALL NAILS AT SPACINGS ABOVE.
7. MINIMUM INTERIOR SHEAR WALL GYPSUM BOARD FASTENING SHALL BE AS FOLLOWS:
   A. PANEL EDGES TO STUDS, BLOCKING AND TRACKS W/ #6 MIN. x1 " FLAT HEAD SCREWS @ 4" O.C. MAXIMUM.
   B. PANEL INTERMEDIATE SUPPORT FRAMING W/ #6 MIN. x1" FLAT HEAD SCREWS @ 4" O.C. MAXIMUM.
8. MINIMUM EXTERIOR WALL GYPSUM SHEATHING NAILING SHALL BE AS FOLLOWS:
   A. PANEL EDGES TO STUDS, BLOCKING, TOP PLATES AND BOTTOM PLATES W/ 6d x 1¾" GALVANIZED ROOFING NAILS @ 7" O.C. MAXIMUM.
   B. PANEL INTERMEDIATE SUPPORT FRAMING W/ 6d x 1¾" GALVANIZED ROOFING NAILS @ 7" O.C. MAXIMUM.
   C. DO NOT USE SCREWS OR STAPLES FOR EXTERIOR SHEATHING AT WOOD FRAMED WALLS.
   D. SEE COLD FORMED STEEL FRAMING NOTES FOR SHEATHING FASTENING AT EXTERIOR WALLS OF AREA D.

SPECIAL INSPECTION AND TESTING:

1. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH THE LATEST EDITION OF IBC, CHAPTER 17, FOR THE FOLLOWING PORTIONS OF CONSTRUCTION:
   A. CONCRETE
   B. CAST-IN-PLACE ANCHORS IN CONCRETE
   C. REINFORCING STEEL IN CONCRETE
   D. CAST-IN-PLACE ANCHORS IN MASONRY
   E. POST-INSTALLED ANCHORS IN MASONRY (PER PRODUCT ICC-ESR REQUIREMENTS)
   F. REINFORCING STEEL IN MASONRY - LEVEL 1
   G. STRUCTURAL WELDING - VISUAL TESTING (UNO)
   H. HIGH STRENGTH BOLTING
   J. IF THE STRUCTURAL STEEL AND/OR JOIST FABRICATOR IS NOT AISC CERTIFIED, IN-SHOP SPECIAL INSPECTIONS ARE REQUIRED AND SHALL BE PAID FOR BY THE FABRICATOR.
2. THE GENERAL CONTRACTOR SHALL SUBMIT A COMPLETED "SPECIAL STRUCTURAL TESTING AND INSPECTION - PROGRAM SUMMARY SCHEDULE" TO THE BUILDING OFFICIAL, ARCHITECT AND ENGINEER PRIOR TO THE START OF CONSTRUCTION.
3. THE TESTING/INSPECTION AGENCY SHALL SUBMIT A FINAL CERTIFIED REPORT AT SUBSTANTIAL COMPLETION, INDICATING THAT ALL WORK REQUIRING SPECIAL INSPECTIONS AND TESTING HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. A LIST OF ANY UNRESOLVED DEFICIENCIES SHALL BE INCLUDED IN THIS REPORT.

STRUCTURAL ABBREVIATIONS

	Abbreviation	Meaning
	&	AND
	@	AT (CL TO CL SPACING)
	CL	CENTERLINE
	Ø	ROUND OR DIAMETER
	#	POUND OR NUMBER
A	A.B.	ANCHOR BOLT
	A.D.	AREA DRAIN
	ADDM.	ADDENDUM
	ADD'L.	ADDITIONAL
	ADJ.	ADJUST/ADJUSTABLE
	A.F.F.	ABOVE FINISH FLOOR
	ALT.	ALTERNATE
	APPROX.	APPROXIMATE
	ARCH.	ARCHITECT/ARCHITECTURAL
B	BRDG.	BRIDGING
	BFE	BOTTOM FOOTING ELEVATION
	BIT.	BITUMINOUS
	BLDG.	BUILDING
	BLK.	BLOCK
	BLKG.	BLOCKING
	BM.	BEAM
	BT.	BENT
	BOT.	BOTTOM
	BRG.	BEARING
	BSMT.	BASEMENT
	BTWN.	BETWEEN
C	CANT.	CANTILEVER
	CFS	COLD FORMED STEEL
	C.I.P	CAST IN PLACE
	C.J.	CONTROL JOINT
	CLR.	CLEAR
	C.O.	CLEAN OUT
	COL.	COLUMN
	COMP.	COMPOSITE
	CONC.	CONCRETE
	CONN.	CONNECT/-ED/-ION
	CONST.	CONSTRUCT/-ION
	CONT.	CONTINUE/-OUS/-ION
	CONTR.	CONTRACT/-OR
	CMU	CONCRETE MASONRY UNIT
	COORD.	COORDINATE
	CTR.	CENTER
	CU. FT.	CUBIC FEET
	C.Y.	CUBIC YARD
D	TT, DBL TEE	DOUBLE TEE
	DP.	DEPTH OR DEEP
	DEPT.	DEPARTMENT
	DIA./ Ø	DIAMETER
	DIAG.	DIAGONAL
	DIM.	DIMENSION
	DEAD LD., D.L.	DEAD LOAD
	DTL./DET.	DETAIL
	DN.	DOWN
	DO.	DITTO
	DWG.	DRAWING
	DWLS.	DOWELS
	DR.	DOOR
E	EA.	EACH
	E.F.	EACH FACE
	EL.	ELEVATION
	ELEC.	ELECTRICAL
	ELEV.	ELEVATOR
	EQ., =	EQUAL
	EMBED.	EMBEDMENT, EMBEDDED
	EQUIP.	EQUIPMENT
	ERECT.	ERECTION
	E.W.	EACH WAY
	EXIST.	EXISTING
	EXP.	EXPANSION
	E.J., EXP. JT.	EXPANSION JOINT
	EXT.	EXTERIOR
F	FAB.	FABRICATE
	FD	FLOOR DRAIN
	FDN.	FOUNDATION
	FIN.	FINISH
	FLR.	FLOOR
	FLG.	FLANGE
	FP	FIREPROOFING
	FRMG.	FRAMING
	FTG.	FOOTING
	FFE	FINISH FLOOR ELEVATION
	FT., '	FOOT
	FV	FIELD VERIFY
G	GA.	GAUGE
	GALV.	GALVANIZED
	G.C.	GENERAL CONTRACTOR
	GEN'L.	GENERAL
	GLU-LAM, G.L.	GLUE LAMINATED WOOD
	GR. BM.	GRADE BEAM
H	H, H.	HIGH
	HT.	HEIGHT
	HD.	HEADED
	HDR.	HEADER
	HK.	HOOK
	HORIZ.	HORIZONTAL
	H.V.A.C.	HEATING, VENTILATION, & AIR CONDITIONING
I	I.E.	INVERT ELEVATION
	I.F.	INSIDE FACE
	IN., "	INCH/-ES
	INFO.	INFORMATION
	INSUL.	INSULATION
	INT.	INTERIOR
	INV.	INVERT
J	JBE	JOIST BEARING ELEVATION
	JST.	JOIST
	JT., JNT.	JOINT
K	K.	KIPS
	K.O.	KNOCK OUT
	KSI	KIPS PER SQUARE INCH
L	LB. OR #	POUND (WEIGHT)
	L.F.	LINEAL FOOT
	LG., LGT	LENGTH, LONG
	LIN.	LINEAR
	LIVE LD., L.L.	LIVE LOAD
	LLH	LONG LEG HORIZONTAL
	LLV	LONG LEG VERTICAL
	LOC.	LOCATION OR LOCATE
	LONG.	LONGITUDINAL
	LT. WT.	LIGHT WEIGHT
	LD.	LOAD
M	MAN.	MANUAL
	MAS.	MASONRY
	MAX.	MAXIMUM
	MAT'L.	MATERIAL
	MECH.	MECHANICAL
	MEMB.	MEMBRANE
	MTL.	METAL
	MEZZ.	MEZZANINE
	MFR.	MANUFACTURER
	MIN.	MINIMUM
	MISC.	MISCELLANEOUS
	M.O.	MECHANICAL OPENING
N	N.A.	NOT APPLICABLE
	N.I.C.	NOT IN CONTRACT
	NO., #	NUMBER
	NOM.	NOMINAL
	N.T.S.	NOT TO SCALE
O	O.C.	ON CENTER
	O.F.	OUTSIDE FACE
	OD	OVERFLOW DRAIN
	OPNG.	OPENING
	OPP.	OPPOSITE
	O.H. DR.	OVERHEAD DOOR
P	P&J	PAN AND JOIST
	PAF	POWDER ACTUATED FASTENERS
	PART.	PARTITION
	P/C	PRECAST CONCRETE
	PLBG.	PLUMBING
	PL.	PLATE
	PLF	POUNDS PER LINEAR FOOT
	PNL.	PANEL
	PRELIM.	PRELIMINARY
	PREP.	PREPARATION
	PROJ.	PROJECTION
	PSF	POUNDS PER SQUARE FOOT
	PSI	POUNDS PER SQUARE INCH
	P.T.	POST TENSION
Q	QUAN., QTY.	QUANTITY
R	R.	RISER OR RADIUS
	RD	ROOF DRAIN
	REC.	RECESSED
	REF.	REFERENCE
	REINF.	REINFORCE/-ED/-ING
	RET.	RETAINING
	REQ'D.	REQUIRED
	REV.	REVISION
	R.O.	ROUGH OPENING
S	SCHED.	SCHEDULE
	SEC., SECT.	SECTION
	S.F., SQ. FT.	SQUARE FOOT
	SHT.	SHEET
	SIM.	SIMILAR
	SJI	STEEL JOIST INSTITUTE
	S.L.	SNOW LOAD
	SPA.	SPACES
	SPEC.	SPECIFICATIONS
	SQ.	SQUARE
	SQ. YD.	SQUARE YARD
	STD.	STANDARD
	STIFF.	STIFFENERS
	STL.	STEEL
	STIR.	STIRRUPS
	STL. JST.	STEEL JOIST
	STOR.	STORAGE
	STR., STRT.	STRAIGHT
	STRUC(T).	STRUCTURAL
	SYM.	SYMMETRICAL
T	TBE	TOP BEAM ELEVATION
	TGE	TOP GIRDER ELEVATION
	T&B	TOP AND BOTTOM
	TPE	TOP OF PLANK ELEVATION
	TEMP.	TEMPERATURE
	THRU	THROUGH
	T&G	TONGUE AND GROOVE
	TRANS(V).	TRANSVERSE
	TSE	TOP OF SLAB ELEVATION
	TDE	TOP STEEL DECK ELEVATION
	TYP.	TYPICAL
	TFE	TOP FOOTING ELEVATION
	TWE	TOP WALL ELEVATION
U	UNFIN.	UNFINISHED
	UNO	UNLESS NOTED OTHERWISE
V	VERT.	VERTICAL
W	W/	WITH
	W, W.	WIDE/WIDE FLANGE
	WD.	WOOD
	WDW.	WINDOW
	W/O	WITH OUT
	W. PT., WP	WORK POINT
	WT.	WEIGHT
	W.W.F.	WELDED WIRE FABRIC

STRUCTURAL DRAWING SHEET INDEX

S001 GENERAL STRUCTURAL NOTES
S101 FOUNDATION PLAN - AREA A
S102 FOUNDATION PLAN - AREA B
S103 FOUNDATION PLAN - AREAS C AND D
S201 P/C CAP AND PENTHOUSE FLOOR FRAMING PLAN - AREAS A, B AND C
S401 SECTIONS AND DETAILS
S402 SECTIONS AND DETAILS

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St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description

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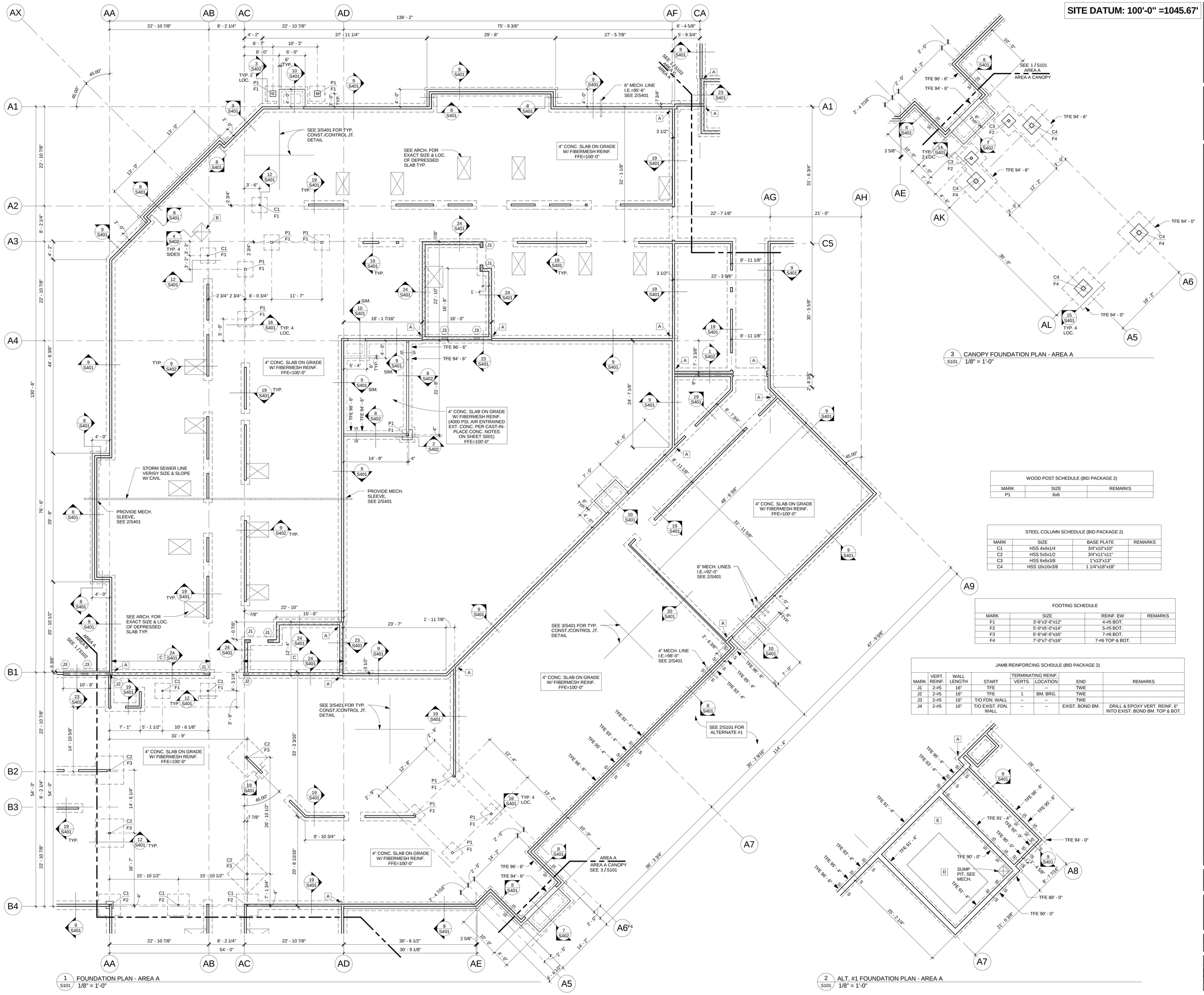
GENERAL STRUCTURAL NOTES

Scale	Date	Project Number
	6/02/15	146038

S001



1 S101 FOUNDATION PLAN - AREA A
1/8" = 1'-0"

3 S101 CANOPY FOUNDATION PLAN - AREA A
1/8" = 1'-0"

2 S101 ALT. #1 FOUNDATION PLAN - AREA A
1/8" = 1'-0"

WOOD POST SCHEDULE (BID PACKAGE 2)		
MARK	SIZE	REMARKS
P1	6x6	

STEEL COLUMN SCHEDULE (BID PACKAGE 2)			
MARK	SIZE	BASE PLATE	REMARKS
C1	HSS 4x4x1/4	3/4"x10"x10"	
C2	HSS 5x5x1/2	3/4"x11"x11"	
C3	HSS 6x6x3/8	1"x13"x13"	
C4	HSS 10x10x3/8	1 1/4"x18"x18"	

FOOTING SCHEDULE			
MARK	SIZE	REINF. EW	REMARKS
F1	3'-6"x3'-6"x12"	4-#5 BOT.	
F2	5'-0"x5'-0"x14"	5-#5 BOT.	
F3	6'-6"x6'-6"x16"	7-#6 BOT.	
F4	7'-0"x7'-0"x16"	7-#6 TOP & BOT.	

JAMB REINFORCING SCHDULE (BID PACKAGE 2)							
				TERMINATING REINF.			
MARK	VERT. REINF.	WALL LENGTH	START	VERTS.	LOCATION	END	REMARKS
J1	2-#5	16"	TFE	--	--	TWE	
J2	2-#5	16"	TFE	1	BM. BRG.	TWE	
J3	2-#5	16"	T/O FDN. WALL	--	--	TWE	
J4	2-#5	16"	T/O EXIST. FDN. WALL	--	--	EXIST. BOND BM.	DRILL & EPOXY VERT. REINF. 6" INTO EXIST. BOND BM. TOP & BOT.

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St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description

FOUNDATION PLAN NOTES:

1. SEE 1/S103 FOR LAYOUT FROM EXISTING BUILDING.
2. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
3. SEE ARCH. DRAWINGS FOR SIZE AND LOCATION OF ALL WALL OPENINGS.
4. FINISHED FLOOR ELEVATION (FFE) = SEE PLAN. VERIFY ALL DEPRESSED SLABS W/ ARCH. DRAWINGS AND MECH./ELEC. CONTRACTORS.
5. ALL INTERIOR AND EXTERIOR CONTINUOUS WALL FOOTINGS SHALL BE 2'-0"W x 1'-0"D W/ 2-#5 CONT. BOT. UNO.
6. TOP OF EXTERIOR FOOTING ELEVATION (TFE) = 96'-6" UNO.
7. S----S ON PLAN DENOTES STEPPED FOOTING. SEE DETAIL 1/S401.
8. SEE SECTION 2/S401 FOR DROPPED FOOTING AT ALL UNDERGROUND MECHANICAL LINES ENTERING BUILDING.
9. SEE DETAILS 4/S401, 5/S401 AND 6/S401 FOR TYPICAL FOUNDATION WALL JOINTS AND CORNER REINFORCING.
10. "PX" ON PLAN DENOTES WOOD POST SIZE. SEE WOOD POST SCHEDULE ON THIS SHEET.
11. "CX" ON PLAN DENOTES STEEL COLUMN SIZE. SEE STEEL COLUMN SCHEDULE ON THIS SHEET.
12. "FX" ON PLAN DENOTES FOOTING SIZE. SEE FOOTING SCHEDULE ON THIS SHEET.
13. (J#) ON PLAN DENOTES MASONRY JAMB. SEE JAMB REINFORCING SCHEDULE ON THIS SHEET.
14. CONCRETE BLOCK WALL VERTICAL REINFORCING SHALL BE #5 @ 32" O.C. UNO ON PLAN OR IN SECTIONS AND DETAILS.
15. EXTERIOR DIMENSIONS ARE TO THE OUTSIDE FACE OF THE FOUNDATION WALL AND THE OUTSIDE FACE OF THE EXTERIOR WALL SHEATHING.
16. EXTEND ALL INTERIOR FOOTINGS MINIMUM 1'-0" BEYOND END OF WALLS UNO.

1'-0" TYP.

FOUNDATION KEYNOTES:

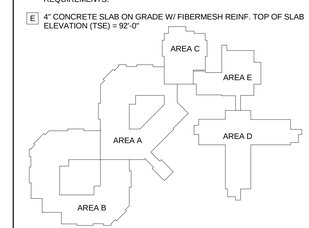
A. PLACE INTERIOR FOOTINGS OVER TESTED/INSPECTED COMPACTED FILL OR STEP INTERIOR FOOTINGS DOWN TO EXTERIOR FOOTING PER 1/S401.

B. RECESS SLAB FOR IN-FLOOR SCALE, SEE ARCH. FOR SIZE AND LOCATION. TOP OF SLAB ELEVATION (TSE) = 99'-8 3/8", VERIFY W/ SCALE SUPPLIER.

C. CONCRETE BLOCK WALL VERTICAL REINFORCING SHALL BE #5 @ 24" O.C.

D. 10'-6"x16'-0"x3'-0" CAST-IN-PLACE CONCRETE PAD FOOTING W/ #4 @ 12" O.C. EW TOP & BOT, TFE=94'-8". VERIFY SIZE AND LOCATION W/ POOL SUPPLIER. FINISH TOP OF FOOTING PER POOL SUPPLIER REQUIREMENTS.

E. 4" CONCRETE SLAB ON GRADE W/ FIBERMESH REINF. TOP OF SLAB ELEVATION (TSE) = 92'-0"



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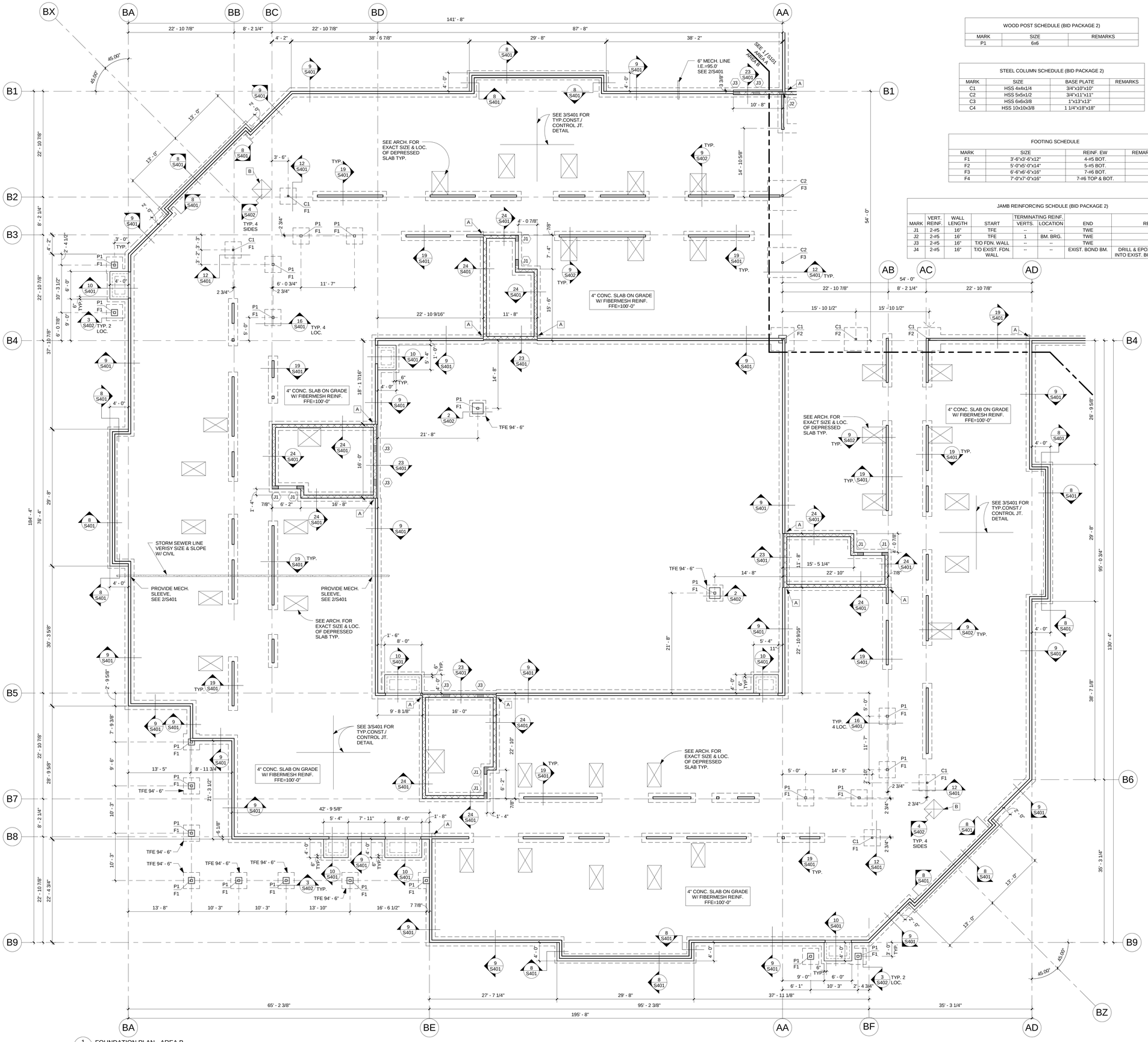
FOUNDATION PLAN - AREA A

Scale	Date	Project Number
As indicated	6/02/15	146038

S101

SITE DATUM: 100'-0" =1045.67'



1 S102 FOUNDATION PLAN - AREA B
1/8" = 1'-0"

WOOD POST SCHEDULE (BID PACKAGE 2)		
MARK	SIZE	REMARKS
P1	6x6	

STEEL COLUMN SCHEDULE (BID PACKAGE 2)			
MARK	SIZE	BASE PLATE	REMARKS
C1	HSS 4x4x1/4	3/4"x10"x10"	
C2	HSS 5x5x1/2	3/4"x11"x11"	
C3	HSS 6x6x3/8	1"x13"x13"	
C4	HSS 10x10x3/8	1 1/4"x18"x18"	

FOOTING SCHEDULE			
MARK	SIZE	REINF. EW	REMARKS
F1	3'-6"x3'-6"x12"	4-#5 BOT.	
F2	5'-0"x5'-0"x14"	5-#5 BOT.	
F3	6'-6"x6'-6"x16"	7-#6 BOT.	
F4	7'-0"x7'-0"x16"	7-#6 TOP & BOT.	

JAMB REINFORCING SCHDULE (BID PACKAGE 2)							
MARK	VERT. REINF.	WALL LENGTH	START	TERMINATING REINF. VERTS.	TERMINATING REINF. LOCATION	END	REMARKS
J1	2-#5	16"	TFE	--	--	TWE	
J2	2-#5	16"	TFE	1	BM. BRG.	TWE	
J3	2-#5	16"	T/O FDN. WALL	--	--	TWE	
J4	2-#5	16"	T/O EXIST. FDN. WALL	--	--	EXIST. BOND BM.	DRILL & EPOXY VERT. REINF. 6" INTO EXIST. BOND BM. TOP & BOT.

Horty Elving

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St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description

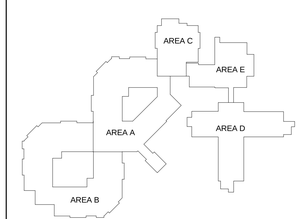
FOUNDATION PLAN NOTES:

1. SEE 1/S103 FOR LAYOUT FROM EXISTING BUILDING.
2. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
3. SEE ARCH. DRAWINGS FOR SIZE AND LOCATION OF ALL WALL OPENINGS.
4. FINISHED FLOOR ELEVATION (FFE) = SEE PLAN. VERIFY ALL DEPRESSED SLABS W/ ARCH. DRAWINGS AND MECH./ELEC. CONTRACTORS.
5. ALL INTERIOR AND EXTERIOR CONTINUOUS WALL FOOTINGS SHALL BE 2'-0"W x 1'-0"D W/ 2-#5 CONT. BOT. UNO.
6. TOP OF EXTERIOR FOOTING ELEVATION (TFE) = 96'-6" UNO.
7. S----S ON PLAN DENOTES STEPPED FOOTING. SEE DETAIL 1/S401.
8. SEE SECTION 2/S401 FOR DROPPED FOOTING AT ALL UNDERGROUND MECHANICAL LINES ENTERING BUILDING.
9. SEE DETAILS 4/S401, 5/S401 AND 6/S401 FOR TYPICAL FOUNDATION WALL JOINTS AND CORNER REINFORCING.
10. "PX" ON PLAN DENOTES WOOD POST SIZE. SEE WOOD POST SCHEDULE ON THIS SHEET.
11. "CX" ON PLAN DENOTES STEEL COLUMN SIZE. SEE STEEL COLUMN SCHEDULE ON THIS SHEET.
12. "FX" ON PLAN DENOTES FOOTING SIZE. SEE FOOTING SCHEDULE ON THIS SHEET.
13. (J_) ON PLAN DENOTES MASONRY JAMB. SEE JAMB REINFORCING SCHEDULE ON THIS SHEET.
14. CONCRETE BLOCK WALL VERTICAL REINFORCING SHALL BE #5 @ 32" O.C. UNO ON PLAN OR IN SECTIONS AND DETAILS.
15. EXTERIOR DIMENSIONS ARE TO THE OUTSIDE FACE OF THE FOUNDATION WALL AND THE OUTSIDE FACE OF THE EXTERIOR WALL SHEATHING.
16. EXTEND ALL INTERIOR FOOTINGS MINIMUM 1'-0" BEYOND END OF WALLS UNO. 1'-0" TYP.

FOUNDATION KEYNOTES:

A. PLACE INTERIOR FOOTINGS OVER TESTED/INSPECTED COMPACTED FILL OR STEP INTERIOR FOOTINGS DOWN TO EXTERIOR FOOTING PER 1/S401.

B. RECESS SLAB FOR IN-FLOOR SCALE. SEE ARCH. FOR SIZE AND LOCATION. TOP OF SLAB ELEVATION (TSE) = 99'-8 3/8", VERIFY W/ SCALE SUPPLIER.



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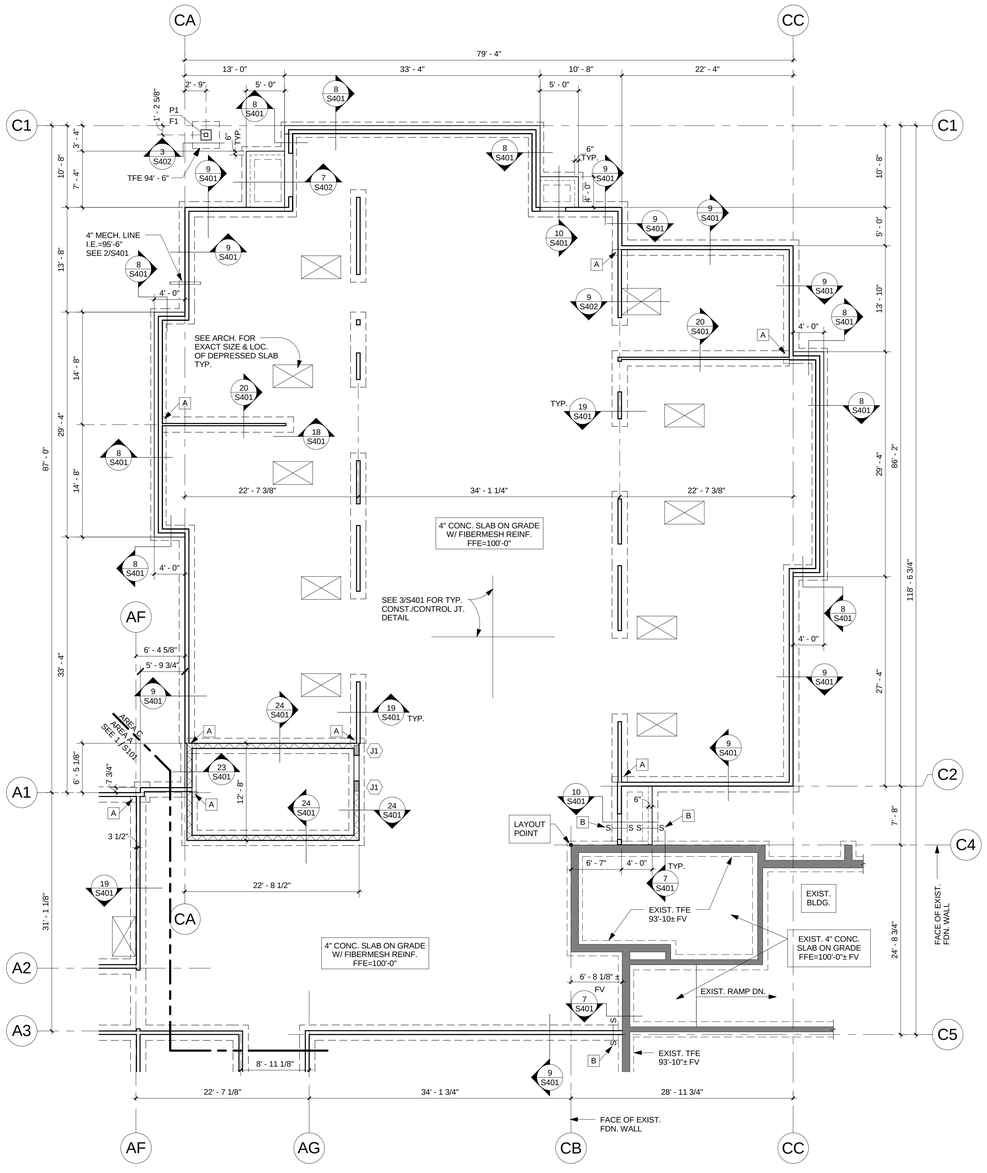
FOUNDATION PLAN - AREA B

Scale	Date	Project Number
As indicated	6/02/15	146038

S102

SITE DATUM: 100'-0" =1045.67'



1 S103 FOUNDATION PLAN - AREA C
1/8" = 1'-0"

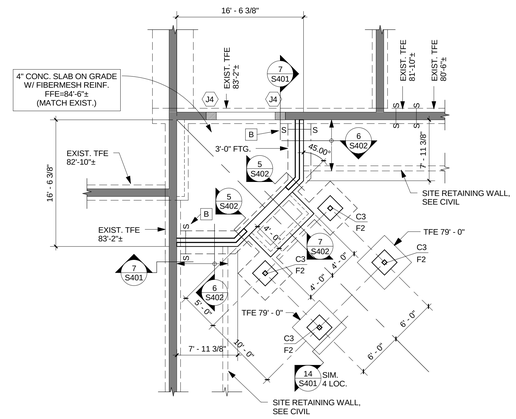
FOUNDATION PLAN NOTES - AREA C:

1. SEE 1/S103 FOR LAYOUT FROM EXISTING BUILDING.
2. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
3. SEE ARCH. DRAWINGS FOR SIZE AND LOCATION OF ALL WALL OPENINGS.
4. FINISHED FLOOR ELEVATION (FFE) = SEE PLAN. VERIFY ALL DEPRESSED SLABS W/ ARCH. DRAWINGS AND MECH./ELEC. CONTRACTORS.
5. ALL INTERIOR AND EXTERIOR CONTINUOUS WALL FOOTINGS SHALL BE 2'-0"W x 1'-0"D W/ 2-#5 CONT. BOT. UNO.
6. TOP OF EXTERIOR FOOTING ELEVATION (TFE) = 96'-6" UNO.
7. S----S ON PLAN DENOTES STEPPED FOOTING. SEE DETAIL 1/S401.
8. SEE SECTION 2/S401 FOR DROPPED FOOTING AT ALL UNDERGROUND MECHANICAL LINES ENTERING BUILDING.
9. SEE DETAILS 4/S401, 5/S401 AND 6/S401 FOR TYPICAL FOUNDATION WALL JOINTS AND CORNER REINFORCING.
10. "PX" ON PLAN DENOTES WOOD POST SIZE. SEE WOOD POST SCHEDULE ON THIS SHEET.
11. "FX" ON PLAN DENOTES FOOTING SIZE. SEE FOOTING SCHEDULE ON THIS SHEET.
12. (J) ON PLAN DENOTES MASONRY JAMB. SEE JAMB REINFORCING SCHEDULE ON THIS SHEET.
13. CONCRETE BLOCK WALL VERTICAL REINFORCING SHALL BE #5@ 32" O.C. UNO IN SECTIONS AND DETAILS.
14. EXTERIOR DIMENSIONS ARE TO THE OUTSIDE FACE OF THE FOUNDATION WALL AND THE OUTSIDE FACE OF THE EXTERIOR WALL SHEATHING.
15. EXTEND ALL INTERIOR FOOTINGS MINIMUM 1'-0" BEYOND END OF WALLS UNO. 1'-0" TYP.

FOUNDATION KEYNOTES - AREA C:

A PLACE INTERIOR FOOTINGS OVER TESTED/INSPECTED COMPACTED FILL OR STEP INTERIOR FOOTINGS DOWN TO EXTERIOR FOOTING PER 1/S401.

B STEP TOP OF FOOTING TO MATCH EXISTING TOP OF FOOTING ELEVATION (TFE) PER 1/S401. MATCH EXISTING BOTTOM OF FOOTING ELEVATION PER 7/S401.



2 S103 VESTIBULE FOUNDATION PLAN - AREA D
1/8" = 1'-0"

FOUNDATION PLAN NOTES - AREA D:

1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
2. SEE ARCH. DRAWINGS FOR SIZE AND LOCATION OF ALL WALL OPENINGS.
3. FINISHED FLOOR ELEVATION (FFE) = SEE PLAN. VERIFY ALL DEPRESSED SLABS W/ ARCH. DRAWINGS AND MECH./ELEC. CONTRACTORS.
4. ALL EXTERIOR CONTINUOUS WALL FOOTINGS SHALL BE 2'-0"W x 1'-0"D W/ 2-#5 CONT. BOT. UNO.
5. TOP OF EXTERIOR FOOTING ELEVATION (TFE) = 81'-0" UNO.
6. EXTERIOR WALL COLD FORMED STEEL (CFS) STUD FRAMING SHALL BE 600S162-43 @ 16" O.C. (ALIGN W/ ROOF JOISTS).
7. S----S ON PLAN DENOTES STEPPED FOOTING. SEE DETAIL 1/S401.
8. SEE SECTION 2/S401 FOR DROPPED FOOTING AT ALL UNDERGROUND MECHANICAL LINES ENTERING BUILDING.
9. SEE DETAILS 4/S401, 5/S401 AND 6/S401 FOR TYPICAL FOUNDATION WALL JOINTS AND CORNER REINFORCING.
10. "CX" ON PLAN DENOTES STEEL COLUMN SIZE. SEE STEEL COLUMN SCHEDULE ON THIS SHEET.
11. "FX" ON PLAN DENOTES FOOTING SIZE. SEE FOOTING SCHEDULE ON THIS SHEET.

FOUNDATION KEYNOTES - AREA D:

B STEP TOP OF FOOTING TO MATCH EXISTING TOP OF FOOTING ELEVATION (TFE) PER 1/S401. MATCH EXISTING BOTTOM OF FOOTING ELEVATION PER 7/S401.

WOOD POST SCHEDULE (BID PACKAGE 2)

MARK	SIZE	REMARKS
P1	6x6	

STEEL COLUMN SCHEDULE (BID PACKAGE 2)

MARK	SIZE	BASE PLATE	REMARKS
C1	HSS 4x4x1/4	3/4"x10"x10"	
C2	HSS 5x5x1/2	3/4"x11"x11"	
C3	HSS 6x6x3/8	1"x13"x13"	
C4	HSS 10x10x3/8	1 1/4"x18"x18"	

FOOTING SCHEDULE

MARK	SIZE	REINF. EW	REMARKS
F1	3'-6"x3'-6"x12"	4-#5 BOT.	
F2	5'-0"x5'-0"x14"	5-#5 BOT.	
F3	6'-6"x6'-6"x16"	7-#6 BOT.	
F4	7'-0"x7'-0"x16"	7-#6 TOP & BOT.	

JAMB REINFORCING SCHDULE (BID PACKAGE 2)

MARK	VERT. REINF.	WALL LENGTH	START	TERMINATING REINF. VERTS.	TERMINATING REINF. LOCATION	END	REMARKS
J1	2-#5	16"	TFE	--	--	TWE	
J2	2-#5	16"	TFE	1	BM. BRG.	TWE	
J3	2-#5	16"	T/O FDN. WALL	--	--	TWE	
J4	2-#5	16"	T/O EXIST. FDN. WALL	--	--	EXIST. BOND BM.	DRILL & EPOXY VERT. REINF. 6" INTO EXIST. BOND BM. TOP & BOT.

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Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

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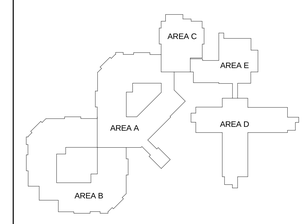

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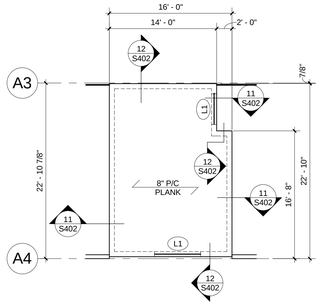
FOUNDATION PLAN - AREAS C AND D

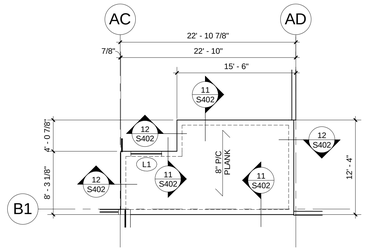
Scale	Date	Project Number
As indicated	6/02/15	146038

S103

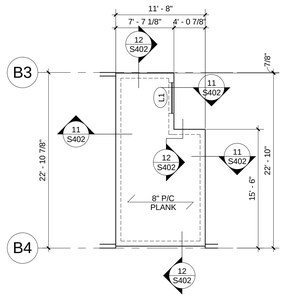
SITE DATUM: 100'-0" =1045.67'



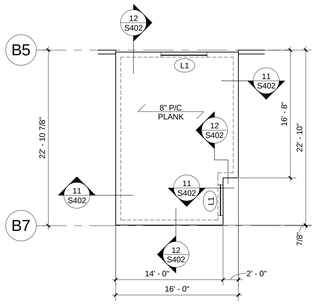
1 S201 AREA A P/C CAP FRAMING PLAN - NORTH
1/8" = 1'-0"



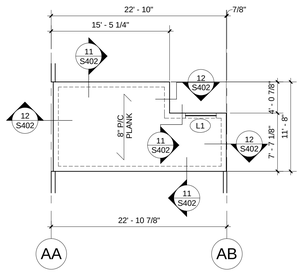
2 S201 AREA A P/C CAP FRAMING PLAN - SOUTH
1/8" = 1'-0"



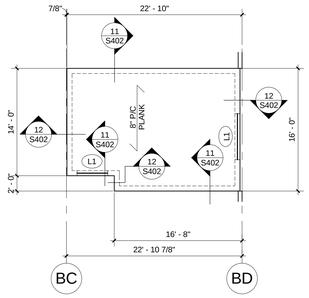
3 S201 AREA B P/C CAP FRAMING PLAN - NORTH
1/8" = 1'-0"



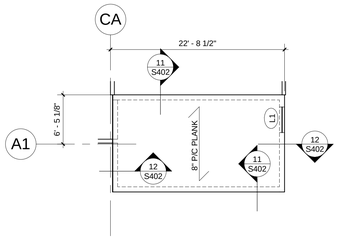
4 S201 AREA B P/C CAP FRAMING PLAN - SOUTH
1/8" = 1'-0"



5 S201 AREA B P/C CAP FRAMING PLAN - EAST
1/8" = 1'-0"



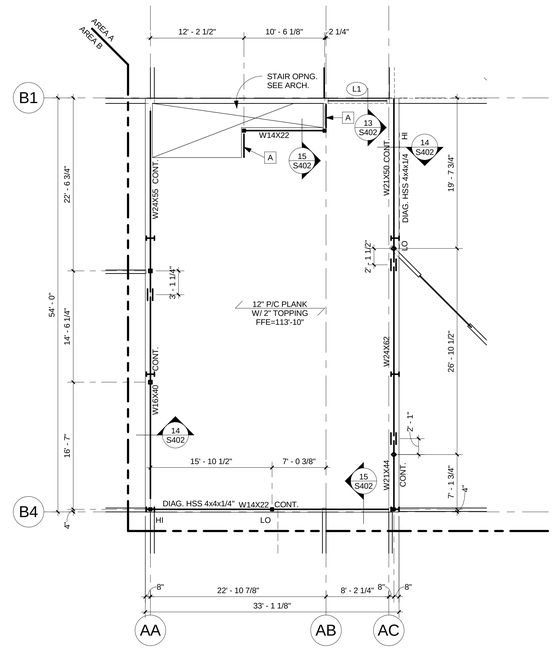
6 S201 AREA B P/C CAP FRAMING PLAN - WEST
1/8" = 1'-0"



7 S201 AREA C P/C CAP FRAMING PLAN
1/8" = 1'-0"

TYPICAL P/C CAP FRAMING PLAN NOTES:

1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
2. SEE ARCH. DRAWINGS FOR SIZE AND LOCATION OF ALL WALL OPENINGS.
3. TOP OF PRECAST PLANK (TPE) = 110'-6 1/2" UNO.
4. PRECAST SUPER-IMPOSED DESIGN LOADS ARE AS FOLLOWS:
   - DEAD LOAD = 10 PSF (+ PLANK)
   - LIVE LOAD = 50 PSF
5. PRECAST PLANK MANUFACTURER SHALL VERIFY SIZE AND LOCATIONS OF ALL OPENINGS THROUGH THE PRECAST PLANK AND PROVIDE STEEL HEADERS AT ALL OPENINGS, UNO.
6. (L) ON PLAN DENOTES LINTEL. SEE LINTEL SCHEDULE ON THIS SHEET.



8 S201 PENTHOUSE FLOOR FRAMING PLAN - AREA A
1/8" = 1'-0"

PENTHOUSE FLOOR FRAMING PLAN NOTES:

1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
2. SEE ARCH. DRAWINGS FOR SIZE AND LOCATION OF ALL WALL OPENINGS.
3. FINISHED FLOOR ELEVATION (FFE) = SEE PLAN. VERIFY ALL DEPRESSED SLABS W/ ARCH. DRAWINGS AND MECH./ELEC. CONTRACTORS.
4. PRECAST SUPER-IMPOSED DESIGN LOADS ARE AS FOLLOWS:
   - DEAD LOAD = 10 PSF (+ PLANK & TOPPING) UNO
   - LIVE LOAD = 125 PSF
5. PRECAST PLANK MANUFACTURER SHALL VERIFY SIZE AND LOCATIONS OF ALL OPENINGS THROUGH THE PRECAST PLANK AND PROVIDE STEEL HEADERS AT ALL OPENINGS, UNO.
6. PROVIDE 100% VIRGIN POLYPROPYLENE FIBER REINFORCING IN ALL TOPPING OVER PRECAST PLANKS (FIBERMESH 300, GENESIS FIBER, MASTER FIBER F70 OR APPROVED EQUAL).
7. NOTCH PRECAST PLANKS AROUND COLUMNS AND BASE PLATE AS REQUIRED.
8. (L) ON PLAN DENOTES LINTEL. SEE LINTEL SCHEDULE ON THIS SHEET.

PENTHOUSE FLOOR FRAMING KEYNOTES:

A HEADER AND CONNECTION EACH END BY PRECAST MANUFACTURER.

LINTEL SCHEDULE (BID PACKAGE 2)

MARK	REFERENCE	MEMBER	REMARKS
L1	10/S402	16"H BOND BM. W/ 2-#5 CONT. BOT.	

LINTEL SCHEDULE NOTES:

1. SEE GENERAL MASONRY NOTES ON SHEET S001 AND FOUNDATION PLAN FOR REINFORCING NOT LISTED IN LINTEL SCHEDULE.
2. VERIFY ALL SPANS OF OPENINGS AND WALL THICKNESSES WITH ARCH. DRAWINGS. NOTIFY ARCHITECT/ENGINEER OF DEVATIONS PRIOR TO FABRICATION AND ERECTION.

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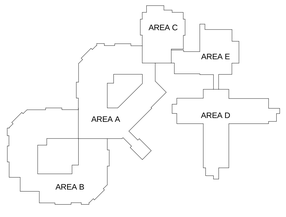

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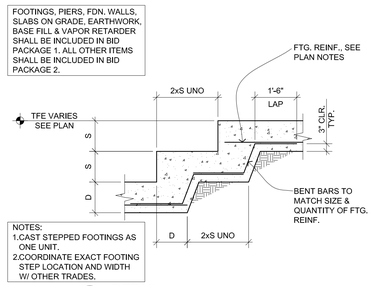
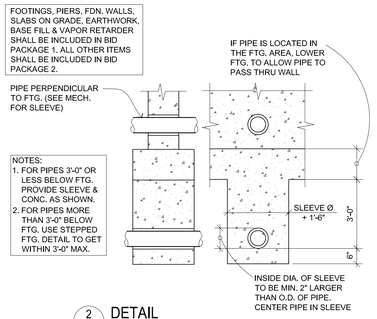
P/C CAP AND PENTHOUSE FLOOR FRAMING PLAN - AREAS A, B AND C

Scale	Date	Project Number
As indicated	6/02/15	146038

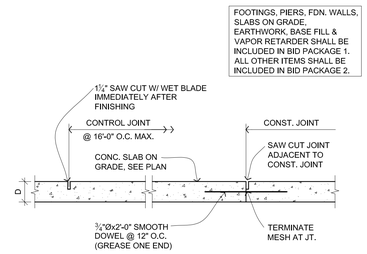
S201



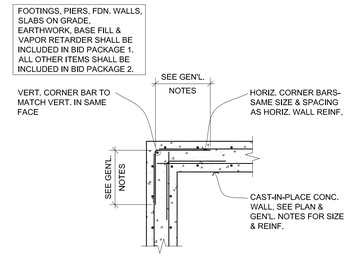
1 S401 DETAIL
STEPPED FOOTING — NO SCALE



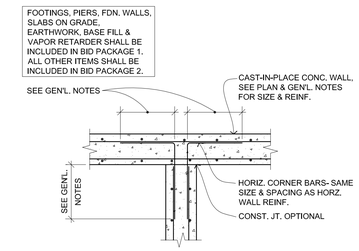
2 S401 DETAIL
WALL FTG. @ UNDERGROUND LINES — NO SCALE



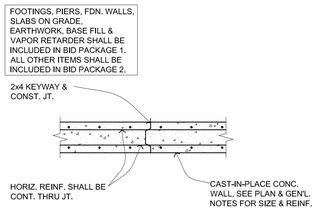
3 S401 DETAIL
TYPICAL CONTROL/CONSTRUCTION JOINT — NO SCALE



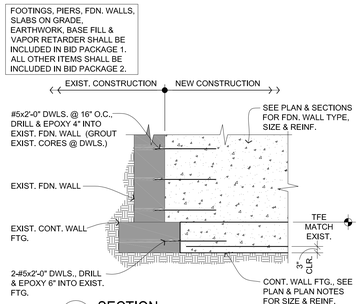
4 S401 PLAN DETAIL
TYP. WALL CORNER — 1/2"=1'-0"



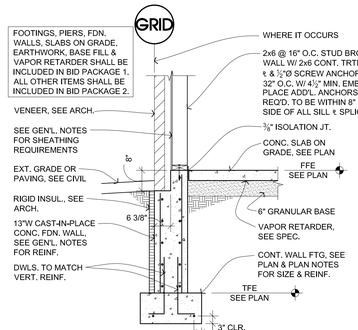
5 S401 PLAN DETAIL
TYP. WALL INTERSECTION — 1/2"=1'-0"



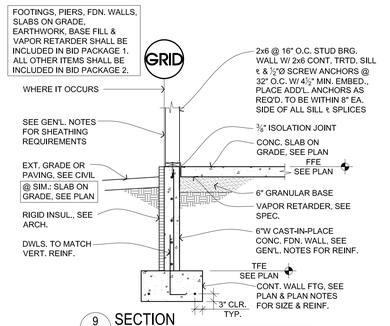
6 S401 PLAN DETAIL
WALL CONSTRUCTION JOINT — 1/2"=1'-0"



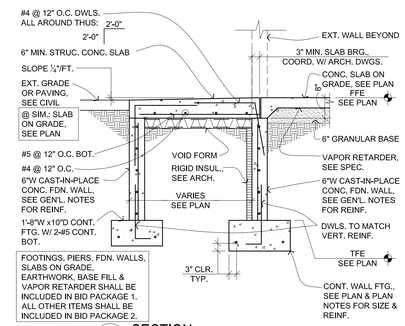
7 S401 SECTION
WALL FTG. @ EXIST. — 1/2"=1'-0"



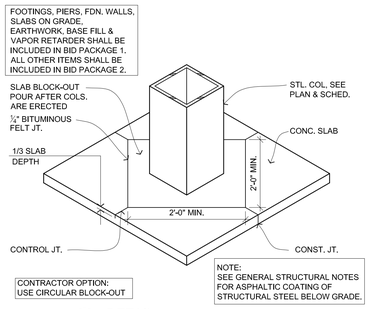
8 S401 SECTION
TYP. EXT. BRG. WALL — 1/2"=1'-0"



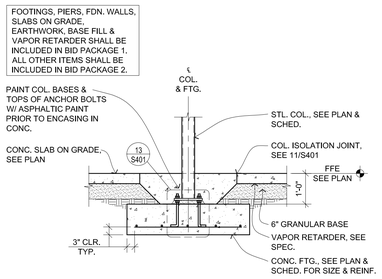
9 S401 SECTION
TYP. EXT. BRG. WALL — 1/2"=1'-0"



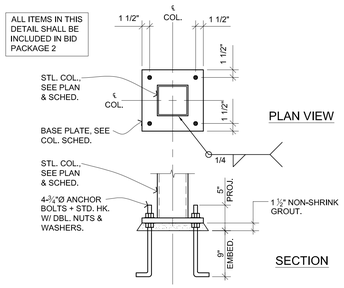
10 S401 SECTION
EXT. STRUC. CONC. SLAB — 1/2"=1'-0"



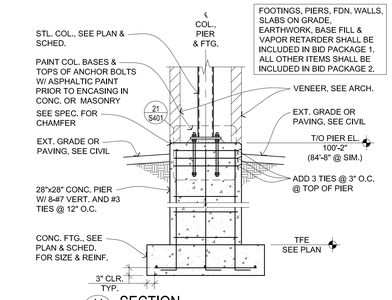
11 S401 DETAIL
TYPICAL COLUMN ISOLATION JOINT — NO SCALE



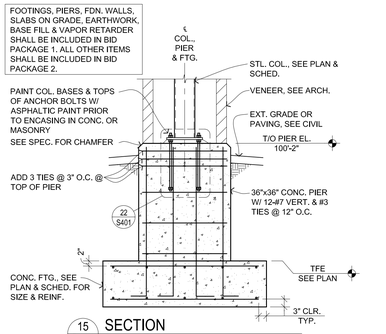
12 S401 SECTION
INT. STL. COL., FTG. & PIER — 1/2"=1'-0"



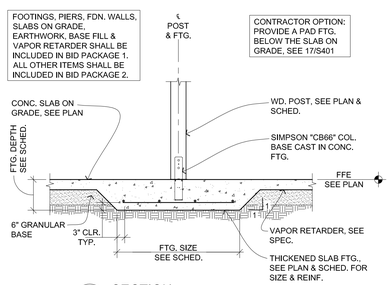
13 S401 DETAIL
ANCHOR BOLT SETTING — NO SCALE



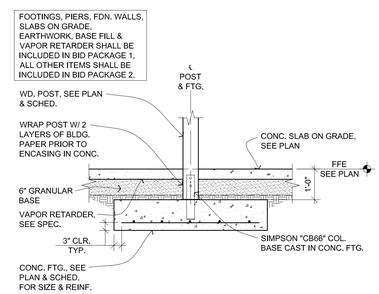
14 S401 SECTION
EXT. COL., FTG. & PIER — 1/2"=1'-0"



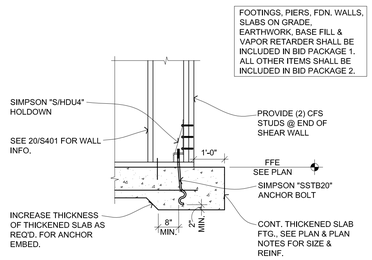
15 S401 SECTION
EXT. STL. COL., FTG. & PIER — 1/2"=1'-0"



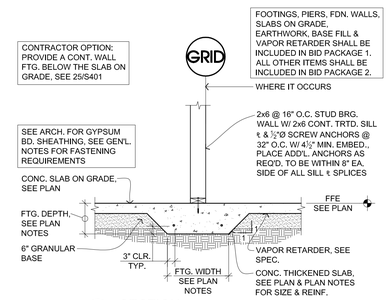
16 S401 SECTION
TYP. INT. WD. POST & FTG. — 1/2"=1'-0"



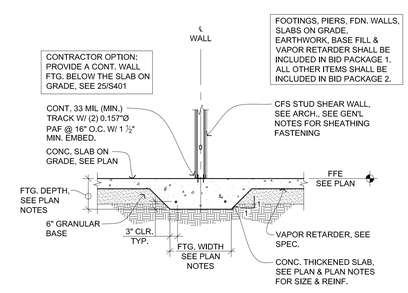
17 S401 SECTION
ALT. INT. WD. POST & FTG. — 1/2"=1'-0"



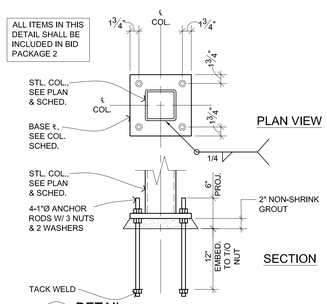
18 S401 SECTION
SHEAR WALL HOLDOWN — 1/2"=1'-0"



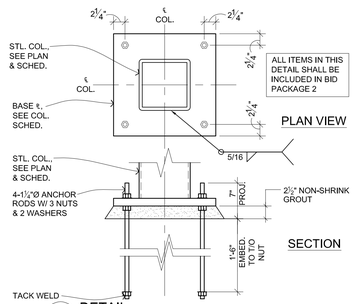
19 S401 SECTION
TYP. INT. BRG. WALL — 1/2"=1'-0"



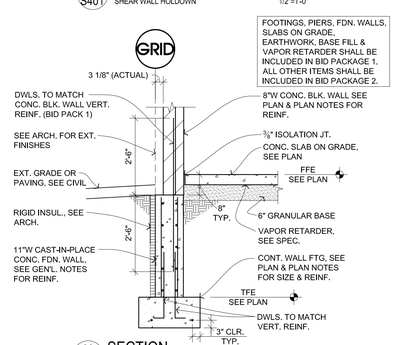
20 S401 SECTION
INT. SHEAR WALL — 1/2"=1'-0"



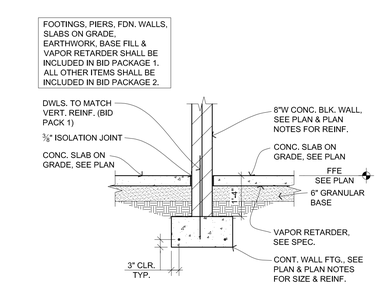
21 S401 DETAIL
ANCHOR ROD SETTING — 1"=1'-0"



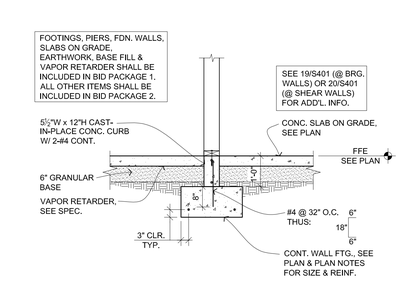
22 S401 DETAIL
ANCHOR ROD SETTING — 1"=1'-0"



23 S401 SECTION
TYP. FDN. @ CONC. BLK. WALL — 1/2"=1'-0"



24 S401 SECTION
TYP. INT. CONC. BLK. WALL — 1/2"=1'-0"



25 S401 SECTION
ALT. INT. STUD WALL — 1/2"=1'-0"

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St. Croix County
BID PACKAGE 1
Health Center Additions & Renovation
New Richmond, WI

Sheet Revision Schedule

Rev. #	Date	Revision	Description

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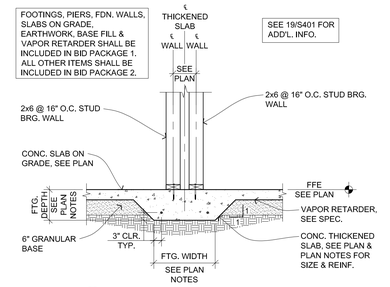
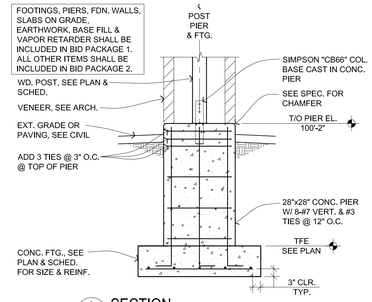
SECTIONS AND DETAILS

Scale	Date	Project Number
	6/02/15	146038

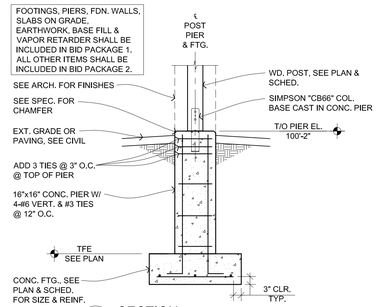
S401



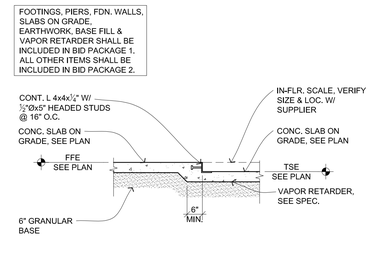
1 SECTION
S402 DBL. INT. WALL 1/2"=1'-0"



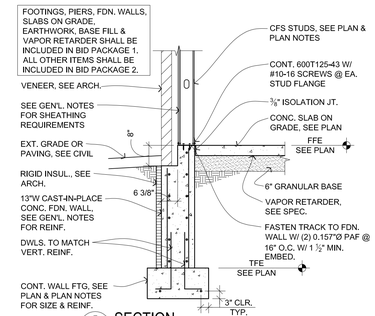
2 SECTION
S402 EXT. WD. POST/FDN. 1/2"=1'-0"



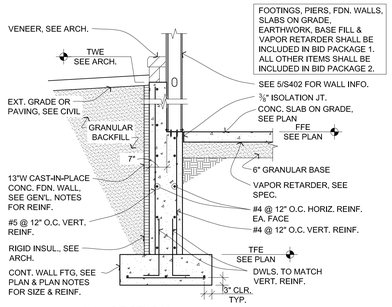
3 SECTION
S402 EXT. WD. POST, PIER & FTG. 1/2"=1'-0"



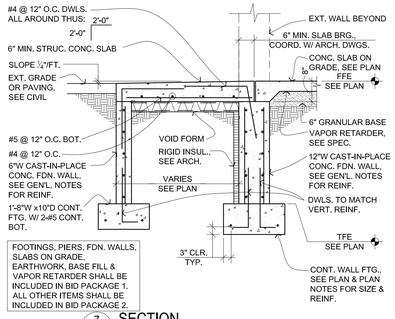
4 SECTION
S402 RECESSED SLAB @ IN-FLR. SCALE 1/2"=1'-0"



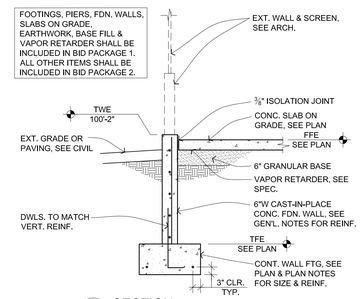
5 SECTION
S402 TYP. EXT. CFS WALL 1/2"=1'-0"



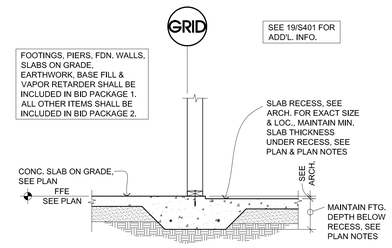
6 SECTION
S402 EXT. CFS STUD WALL @ RAISED GRADE 1/2"=1'-0"



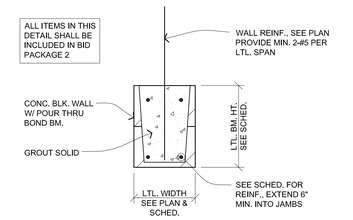
7 SECTION
S402 EXT. STRUC. CONC. SLAB 1/2"=1'-0"



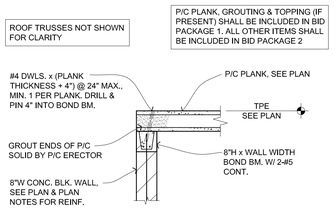
8 SECTION
S402 EXT. FDN. WALL @ SCREEN PORCH 1/2"=1'-0"



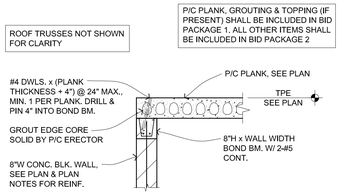
9 SECTION
S402 TYP. RECESS @ INT. BRG. WALL 1/2"=1'-0"



10 DETAIL
S402 CONC. BLK. LTL. 1"=1'-0"



11 SECTION
S402 P/C PLANK BRG. @ CONC. BLK. WALL 1/2"=1'-0"



12 SECTION
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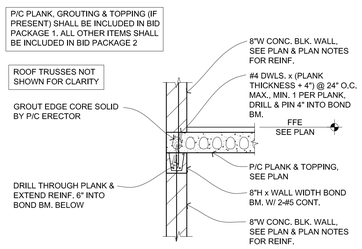
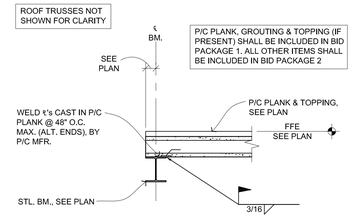
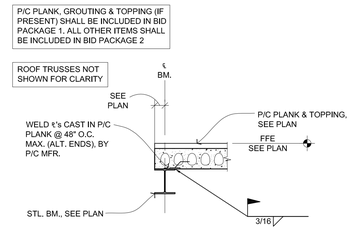


13 SECTION
S402 P/C PLANK LAP @ CONC. BLK. WALL 1/2"=1'-0"



14 SECTION
S402 P/C PLANK BRG. @ STL. BM. 1/2"=1'-0"



15 SECTION
S402 P/C PLANK LAP @ STL. BM. 1/2"=1'-0"

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SECTIONS AND DETAILS

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S402