CITY OF DE PERE

PROJECT
20-01A

WEST SEWER AND WATER RELAY AND STREET RESURFACING

BID DATE:
JANUARY 30, 2020
@ 1:00 PM

Bid documents, including plans and specifications, are available for download at www.QuestCDN.com. The QuestCDN website can also be accessed through the City website at www.depere.wi.gov. On the homepage, click on the Projects Icon in the middle of the page. Download cost is $15 for each contract. Bidding documents may be viewed on the QuestCDN website or at the Municipal Service Center, 925 S. Sixth Street, De Pere, WI 54115.

Bid Tabs must be verified by staff prior to posting and will be available for viewing on the website within 7 days following the bid opening. Award information will be pending until approved by the Common Council.
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32 11 26.16 PULVERIZED ASPHALT AND AGGREGATE BASE COURSE
33 00 02.1  FUSIBLE POLYVINYL CHLORIDE (PVC) PIPE

EXHIBITS

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APPENDIX

A. GEOTECHNICAL ENGINEERING REPORT FOR DE PERE PROJECT 20-01 BY ECS MIDWEST, LLC.

CITY OF DE PERE 2020 STANDARD SPECIFICATIONS

CONTRACTING REQUIREMENTS

Section    Title
00 70 00   GENERAL CONDITIONS
(See City of De Pere 2020 Standard Specifications)

DIVISION 31 – EARTHWORK
(See City of De Pere 2020 Standard Specifications)

DIVISION 32 – EXTERIOR IMPROVEMENTS
(See City of De Pere 2020 Standard Specifications)

DIVISION 33 – UTILITIES
(See City of De Pere 2020 Standard Specifications)
Sealed proposals will be received by the Board of Public Works of the City of De Pere at the Municipal Service Center, 925 South Sixth Street, De Pere, Wisconsin 54115, until 1:00 PM, Thursday, January 30, 2020, at which time they will be publicly opened and read aloud.

Project 20-01A for which proposals are being sought includes the following approximate quantities:

- 1,900 LF New and Relay Storm Sewer (8-inch to 60-inch) and Associated Appurtenances
- 700 LF New and Relay Sanitary Sewer (8-inch) and Associated Appurtenances
- 3,700 LF New and Relay Water Main (8-inch to 12-inch) and Associated Appurtenances
- 350 LF Directional Drill Water Main (2-inch to 12-inch) and Associated Appurtenances
- New Storm Lateral Installation (6-inch), New and Relay Sanitary Sewer Laterals (4-inch and 6-inch) and New and Relay Water Services (1-inch)
- 2,600 Tons Asphaltic Concrete Pavement Placement
- 7,500 SY Asphaltic Concrete Pavement Milling
- 5,000 SY Asphaltic Concrete Pavement Pulverizing
- Concrete Curb and Gutter, Sidewalk, Driveway and Concrete Pavement Replacement
- Restoration

Complete digital project bidding documents are available for viewing and/or downloading at www.QuestCDN.com or may be examined at the office of the Director of Public Works. Digital plan documents may be downloaded for $15 by inputting Quest project #6645903 on Quest’s Project Search page. The QuestCDN website can also be accessed through the City website at www.de-pere.org. On the homepage, click on the Projects icon in the center of the page.

Each proposal shall be accompanied by a certified check or bid bond in an amount equal to five percent (5%) of the bid, payable to the City of De Pere, as a guarantee that if the bid is accepted, the bidder will execute a contract and furnish a contract bond as set forth in the General Conditions of the City of De Pere. In case the bidder fails to file such contract and bond, the amount of the check or bid bond shall be forfeited to the City of De Pere as liquidated damages.
Project 20-01A  
West Sewer and Water Relay and Street Resurfacing  

The letting of the contract is subject to the provisions of the following Wisconsin Statutes:

Section 62.15 regarding Public Works.

Section 66.0901(3) regarding Prequalification of Contractor.

Each bidder shall pre-qualify by submitting proof of responsibility on forms furnished by the Director of Public Works. Such forms shall be filed with the Director of Public Works no later than 4:00 PM, Monday, January 27, 2020. Prospective bidders who have previously submitted such forms subsequent to January 1, 2020 will not be required to separately submit such form for this project.

The City of De Pere reserves the right to reject any or all bids, to waive any informalities in bidding and to accept any proposal which the Common Council deems most favorable to the interest of the City of De Pere.

Dated this 9th day of January, 2020.

Board of Public Works  
City of De Pere  
Eric Rakers, P.E.  
City Engineer  

Project 20-01A
ARTICLE 1 – DEFINED TERMS

1.1 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

None

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.1 Complete sets of the Bidding documents in the number and for the deposit sum, if any, stated in the Advertisement to Bid may be obtained as stated in the Advertisement for bids.

2.2 Complete sets of Bidding Documents shall be used in preparing Bids; Owner does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.3 Owner, in providing the Bidding Documents on the terms stated in the Advertisement for Bids, does so only for the purpose of obtaining Bids for the Work and does not confer a license or grant for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.1 In accordance with Section 66.0901(3), each bidder shall pre-qualify by submitting proof of responsibility on forms furnished by the Director of Public Works. Such forms shall be filed with the Director of Public Works as stated in the Advertisement for Bids. Prospective bidders who have previously submitted such forms after January 1st of this year will not be required to separately submit such form for this project.

ARTICLE 4 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA AND SITE

4.1 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in the General Conditions.

4.2 Underground Facilities

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
4.3 Subsurface and Physical Conditions

A. The technical data includes:
   1. Those reports known to Owner of explorations and tests of subsurface conditions
      at or contiguous to the Site; and
   2. Those drawings known to Owner of physical conditions relating to existing
      surface or subsurface structures at the Site (except underground Facilities).
   3. In preparation of the Plans and Specifications, Engineer relied upon the following
      reports of explorations and tests of subsurface conditions at the Site:
         a. Geotechnical Engineering Report for De Pere Project 20-01 by ECS Midwest,
            LLC.

B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely
   upon the accuracy of the “technical data” contained in such reports and drawings, but
   such reports and drawings are not Contract Documents. Contractor may not rely
   upon or make any claim against Owner, or any of their officers, directors, members,
   partners, employees, agents, consultants, or subcontractors with respect to:
   1. the completeness of such reports and drawings for Contractor’s purposes,
      including but not limited to, any aspects of the means, methods, techniques,
      sequences, and procedures of construction to be employed by Contractor, and
      safety precautions and programs incident thereto; or
   2. Other data, interpretations, opinions, and information contained in such reports or
      shown or indicated in such drawings; or
   3. Any Contractor interpretation of or conclusion drawn from any “technical data”
      or any such other data, interpretations, opinions, or information.

4.4 On request, Owner will provide Bidder access to the Site to conduct such examinations,
   investigations, explorations, tests, and studies as Bidder deems necessary for submission
   of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former
   condition upon completion of such explorations, investigations, tests, and studies. Bidder
   shall comply with all applicable Laws and Regulations relative to excavation and utility
   locates.

4.5 Reference is made to Section 01 10 00: Summary of Work, for work that will be
   completed and for the identification of the general nature of other work that is to be
   performed at the Site by Owner or others (such as utilities and other prime contractors)
   that relates to the Work contemplated by these Bidding Documents. On request, Owner
   will provide to each Bidder for examination access to or copies of Contract Documents
   (other portions thereof related to price) for such other work.

4.6 It is the responsibility of each Bidder before submitting a Bid to:

   A. Examine and carefully study the Bidding Documents, the other related data identified
      in the Bidding Documents, and any Addenda;
B. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;

D. Obtain and carefully study (or accept consequences of not doing so) all examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

E. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

F. Become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

G. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

H. Promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies, that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and

I. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.7 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and, procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.
ARTICLE 5 – SITE AND OTHER AREAS

5.1 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 6 – INTERPRETATIONS AND ADDENDA

6.1 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

6.2 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner and Engineer.

ARTICLE 7 – BID SECURITY

7.1 A Bid shall be accompanied by Bid security made payable to Owner in an amount of five percent (5%) of Bidder’s maximum Bid price and in the form of a certified check or bank money order or Bid bond (on the form attached) issued by a surety meeting the requirements of the General Conditions. Submittal of a Bid Bond on a form other than the Bid Bond form included in the Bidding Documents may be cause for rejection of Bid.

7.2 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within fifteen (15) days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner per the General Conditions.

7.3 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 8 – CONTRACT TIMES

8.1 The number of days within which, or the dates by which, Milestones are to be achieved and the Work is to be substantially completed and ready for final payment are set forth in
ARTICLE 9 – LIQUIDATED DAMAGES

9.1 Provisions for liquidated damages are set forth in the General Conditions.

ARTICLE 10 – SUBSTITUTE AND “OR-EQUAL” ITEMS

10.1 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or “or-equal” items. Whenever it is specified or described in the Bidding Documents that a substitute or “or-equal” item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Bid Form and Summary of Work.

ARTICLE 11 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.1 The Bidder shall submit with the Bid to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity. Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

11.2 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposed to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner subject to revocation of such acceptance after the Effective Date of the Agreement.

11.3 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 12 – PREPARATION OF BID

12.1 The Bid form is included with the Bidding documents.

12.2 All blanks on the Bid Form shall be completed by printing in ink or by typewrite and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing
the Bid Form. A Bid price shall be indicated for each alternative, and unit price item listed therein, or the words “No Bid,” “No Change,” or “Not Applicable” entered.

12.3 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporations shall be shown below the seal.

12.4 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

12.5 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown below the signature.

12.6 A Bid by an individual shall show the Bidder’s name and official address.

12.7 A Bid by a joint venture shall be executed by each joint venture in the manner indicated on the Bid Form. The official address of the joint venture shall be shown below the signature.

12.8 All names shall be typed or printed in ink below the signatures.

12.9 The Bid shall contain an acknowledgement of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

12.10 The address and telephone number for communications regarding the Bid shall be shown.

12.11 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder’s state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 13 – BASIS OF BID; COMPARISON OF BIDS

13.1 Unit Price

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid Schedule.

B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accord with the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be
resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

ARTICLE 14 – SUBMITTAL OF BID

14.1 A Bid shall be submitted no later than date and time prescribed and at place indicated in Advertisement for Bids and shall be enclosed in a plainly marked package with the Project title (and, if applicable, designated portion of the Project for which the Bid is submitted), name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on outside with the notation “BID ENCLOSED.” A mailed Bid shall be addressed to City of De Pere, Municipal Service Center, 925 South Sixth Street, De Pere, WI 54115. Electronically transmitted Bids will not be accepted.

14.2 See Bid Form for a list of documents typically required to be submitted with the Bid.

ARTICLE 15 – MODIFICATION AND WITHDRAWAL OF BID

15.1 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

15.2 If within 24 hours after Bids are opened, any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 16 – OPENING BIDS

16.1 Bids will be opened at the time and place indicated in the Advertisement to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17 – BIDS REMAIN SUBJECT TO ACCEPTANCE

17.1 All bids will remain subject to acceptance for the period of time stated in the General Conditions, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.
ARTICLE 18 – EVALUATION OF BIDS AND AWARD OF CONTRACT

18.1 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be not responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

18.2 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

18.3 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

18.4 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Supplier, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

18.5 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

18.6 Bidder agrees to waive any claim it has or may have against the Owner and the respective employees arising out of or in connection with the administration, evaluation or recommendation of any Bid.

18.7 If the Contract is to be awarded, Owner will award the Contract to the lowest responsible responsive Bidder whose Bid is in the best interests of the Project.

ARTICLE 19 – CONTRACT SECURITY AND INSURANCE

19.1 The General Conditions set forth Owner’s requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds and a certificate of insurance.

ARTICLE 20 – SIGNING OF AGREEMENT

20.1 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied
by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within ten (10) days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten (10) days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of Drawings with appropriate identification.

END OF SECTION
This bid, submitted by the undersigned Bidder to the City of De Pere, in accordance with the Advertisement to Bid, which will be received until 1:00 PM, Thursday, January 30, 2020 is to furnish and deliver all materials, and to perform and do all work on the project designated, by September 25, 2020.

Bidder has examined and carefully prepared the bid from the plans and specifications and has checked the same in detail before submitting said proposal or bid; and that said bidder or bidder’s agents, officer or employees have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this proposal or bid.

Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

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BASIS OF BID:

Bidder will complete the Work in accordance with the Contract documents for the following price(s):

As stated in the attached Unit Price Bid Schedule.

Unit Prices have been computed in accordance with the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

TOTAL BID PRICE: $__________________________
ATTACHMENTS TO THIS BID
The following documents are submitted with and made a condition of this Bid:
A. Required Bid Security
B. Unit Price Bid Schedule (Section 00 41 43)
C. Proposed Products Form (Section 00 43 33)
B. Tabulation of Subcontractors (Section 00 43 36)

BID SUBMITTAL

This Bid is submitted by ___________________________ of ___________________________.

The Bidder, being duly sworn, does dispose that they are an authorized representative of

Bidder, if Bidder is:

An Individual

Name (typed or printed): ___________________________

By: ___________________________

(Individual’s signature)

Doing business as: ___________________________

A Partnership

Partnership Name: ___________________________

By: ___________________________

(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): ___________________________

A Corporation

Corporation Name: ___________________________

State of Incorporation: ___________________________

Type (General Business, Professional, Service, Limited Liability): ___________________________

By: ___________________________

(Signature – attach evidence of authority to sign)
Name (typed or printed): ____________________________________________

Title: ____________________________________________________________

(CORPORATE SEAL)

Attest ___________________________________________________________

Date of Qualification to do business in Wisconsin is ___/___/____.

Joint Venture

Name of Joint Venture: _____________________________________________

First Joint Venturer Name: _________________________________________ (SEAL)

By: _____________________________________________________________

(Signature of first joint venture partner – attach evidence of authority to sign)

Name (typed or printed): ____________________________________________

Title: ____________________________________________________________

Second Joint Venturer Name: _________________________________________ (SEAL)

By: _____________________________________________________________

(Signature of second joint venture partner – attach evidence of authority to sign)

Name (typed or printed): ____________________________________________

Title: ____________________________________________________________

(Each joint venturer must sign. Manner of signing for each individual, partnership, and corporation that is a party to joint venture should be in manner indicated above.)

Bidder’s Business Address _____________________________________________

____________________________________________________________________

Phone No. ___________________________ Fax No. ___________________________

E-mail _________________________________

SUBMITTED on _____________, 20__.

State Contractor License No. __________________________ (if applicable)
### SANITARY SEWER

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<td>SS-01</td>
<td>Provide 8-Inch PVC Sanitary Sewer (Granular Backfill)</td>
<td>LF</td>
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1/9/2020  00 41 43-2  Bid Schedule
# Project 20-01A
## West Sewer and Water Relay and Street Resurfacing

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<td>Reconnect to Existing Storm Sewer Pipe or Structure</td>
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<td>W-01</td>
<td>Provide 12-Inch PVC Water Main Open Cut Natural Backfill</td>
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### Project 20-01A
**West Sewer and Water Relay and Street Resurfacing**

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<td>Provide 2-Inch HDPE Water Service Directional Drill (Lawrence Drive)</td>
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### Project 20-01A
West Sewer and Water Relay and Street Resurfacing

City of De Pere

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<td>Remove and Replace 6-Inch Concrete Sidewalk, Ramp and Driveway</td>
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<td>Drilled Tie Bars (Existing Sidewalk, Driveway, and Curb and Gutter)</td>
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## Project 20-01A
**West Sewer and Water Relay and Street Resurfacing**

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<td>Landscaping Topsoil, Seed, Fertilizer, and Erosion Mat</td>
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<td><strong>SPECIAL CONSTRUCTION</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>SC-01</td>
<td>Pipe Foundation Stabilization</td>
<td>CY</td>
<td>100</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>SC-02</td>
<td>Erosion Bale Ditch Check (Southbridge Condos)</td>
<td>EA</td>
<td>3</td>
<td>$</td>
<td>$</td>
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<tr>
<td>SC-03</td>
<td>Sediment Erosion Control Logs</td>
<td>LF</td>
<td>220</td>
<td>$</td>
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<td>SC-04</td>
<td>Inlet Protection Type D</td>
<td>EA</td>
<td>30</td>
<td>$</td>
<td>$</td>
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<tr>
<td>SC-05</td>
<td>Tracking Pad</td>
<td>EA</td>
<td>7</td>
<td>$</td>
<td>$</td>
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<tr>
<td>SC-06</td>
<td>Adjust Inlet</td>
<td>EA</td>
<td>2</td>
<td>$</td>
<td>$</td>
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<tr>
<td>SC-07</td>
<td>Adjust Manhole</td>
<td>EA</td>
<td>11</td>
<td>$</td>
<td>$</td>
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<tr>
<td>SC-08</td>
<td>Polystyrene Insulation Board 4-Foot Wide</td>
<td>LF</td>
<td>100</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>SC-09</td>
<td>Remove and Reinstall Sign (8th Street)</td>
<td>LS</td>
<td>1</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>SC-10</td>
<td>Tree and Stump Removal</td>
<td>ID</td>
<td>50</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>SC-11</td>
<td>Traffic Control (1417 Lost Dauphin Road)</td>
<td>LS</td>
<td>1</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>SC-12</td>
<td>Traffic Control Lane Closure (8th Street)</td>
<td>LS</td>
<td>1</td>
<td>$</td>
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<tr>
<td>SC-13</td>
<td>Traffic Control Detour Route (Southbridge Condos)</td>
<td>LS</td>
<td>1</td>
<td>$</td>
<td>$</td>
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<tr>
<td></td>
<td><strong>TOTAL</strong></td>
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</tbody>
</table>

1/9/2020 00 41 43-7 Bid Schedule
KNOW ALL MEN BY THESE PRESENTS: That ____________________________,
as Principal, hereinafter called Principal, and ____________________________,
as Surety, hereinafter called Surety, are held and firmly bound unto the City of De Pere, a
municipal corporation of the State of Wisconsin, as Obligee, hereinafter called City, in the
amount of ___________________________________ dollars ($________________)
for the payment whereof Principal and Surety bind themselves, their heirs, executors,
administrators, successors and assigns, jointly and severally, firmly by these presence.

WHEREAS, Principal has made a proposal to the City for furnishing all materials, labor, tools,
equipment and incidentals necessary to complete the work of Project 20-01A in accordance with
drawings and specifications prepared by the Director of Public Works of said City, which
proposal is by reference made a part hereof, and is hereinafter referred to as the BID.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Principal
shall be awarded the contract for said project and Principal shall enter into a contract in
accordance with the BID, then this obligation shall be null and void; otherwise it shall remain in
full force and effect, provided that:

1. The liability of Surety shall in no event exceed the penalty of this bond.

2. Any suits at law or proceedings, in equity brought or to be brought against Surety
to recover any claim hereunder shall be executed within six (6) months from the
date of this instrument.

Signed and sealed this _______ day of ________________, 20____.

In the presence of:

__________________________________  __________________________________
WITNESS                        PRINCIPAL               (SEAL)

__________________________________  __________________________________
WITNESS                        SURETY                  (SEAL)
PROPOSED PRODUCTS FORM

The following is a list of material, type or model numbers and manufacturers used in the preparation of this proposal and to be used on this project:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MATERIAL</th>
<th>SUPPLIER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Main (PVC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valves</td>
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<tr>
<td>Hydrants</td>
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<td>Manholes</td>
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<tr>
<td>Inlets</td>
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<tr>
<td>Storm Sewer (PVC/RCP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanitary Sewer (PVC)</td>
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</tbody>
</table>
The following information is submitted which gives the name, business address, and portion of work for each subcontractor that will be used in the work if the bidder is awarded the contract, and no subcontractor doing work in excess of one-half of one percent of the total amount of the bid and who is not listed will be used without the written approval of the Engineer. Additional numbered pages outlining this portion of the proposal may be attached to this page.

<table>
<thead>
<tr>
<th>PORTION OF WORK</th>
<th>BUSINESS NAME</th>
<th>BUSINESS ADDRESS</th>
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<tbody>
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</tbody>
</table>
Project 20-01A  
City of De Pere  
West Sewer and Water Relay and Street Resurfacing  

SECTION 00 51 00 

NOTICE OF AWARD 

(Contractor)  
(Contractor Name)  
(Address) 

Project Description:  20-01A West Sewer and Water Relay and Street Resurfacing 

The City has considered the proposal submitted by you dated (Bid Date) for the above-described project in response to its Advertisement for Bids dated January 9, 2020 and January 16, 2020. 

You are hereby notified that the Common Council of the City of De Pere has accepted your bid of (Contract Amount $_______.00). 

You are required to execute the Contract and furnish the required Performance Bond, Payment Bond and Certificates of Insurance within ten (10) calendar days from the date of this notice to you. 

If you fail to execute said Agreement and to furnish said bonds within ten (10) days from the date of this notice, said City will be entitled to consider all your rights arising out of the City's acceptance of your bid as abandoned and as a forfeiture of your Bid Bond. The City will be entitled to such other rights as may be granted by law. 

You are required to return an acknowledged copy of this NOTICE OF AWARD to the City. 

Dated this ___th day of _______ 2020. 

____________________________________ 
DEPARTMENT OF PUBLIC WORKS 
BY: Eric P. Rakers, P.E. 
City Engineer 

ACCEPTANCE OF NOTICE 

Receipt of the above NOTICE OF AWARD is hereby acknowledged by: 

_______________________________________________, this the _____ day of __________________, 20____ 

By:__________________________________________ 

Title:_________________________________________
This Contract, made and entered into this day ________________ (date to be affixed by City), by and between (Contractor Name), hereinafter called Contractor, and the City of De Pere, a municipal corporation of the State of Wisconsin, hereinafter called City.

WITNESSETH: That, in consideration of the covenants and agreements herein contained, to be performed by the parties hereto, and of the payments hereinafter agreed to be made, it is mutually agreed as follows:

ARTICLE I - SCOPE OF WORK

The Contractor shall furnish all materials and all equipment and labor necessary, and perform all work shown on the drawings and described in the specifications for the project entitled Project 20-01A West Sewer and Water Relay and Street Resurfacing, all in accordance with the requirements and provisions of the following documents, which are hereby made a part of this Contract:


(b) Drawings designated for Project 20-01A West Sewer and Water Relay and Street Resurfacing dated January 9, 2020.

(c) City of De Pere 2020 Construction Specifications.


(e) Proposal submitted by (Contractor Name) dated Bid Date.

(f) Addenda No. ______ dated

ARTICLE II - TIME OF COMPLETION

(a) The work to be performed under the Contract shall be commenced within (number spelled out) (__) calendar days after receipt of written notice to proceed. The work shall be completed within (Number spelled out) (__) calendar days) or (specific calendar dates) after receipt of Notice to Proceed.

(b) Time is of the essence with respect to the date of completion herein above stated. Failure to complete the work within the number of calendar days stated in this Article, or interim dates included in the work sequence in Section 01 10 00, Summary of Work, including any extensions granted thereto, shall entitle the City to deduct from the monies due the Contractor an amount equal to Update based on 00 70 00 - General Conditions (Page 22)($) per day for each calendar day of delay in the completion of the work. Such amount shall be
considered and treated not as a penalty but as liquidated damages, which the City will sustain, by failure of the Contractor to complete the work within the time stated.

ARTICLE III - PAYMENT

(a) The Contract Sum. The City shall pay to the Contractor for the performance of the Contract the amounts determined for the total number of each of the following units of work completed at the unit price stated thereafter. The number of units contained in this schedule is approximate only, and the final payment shall be made for the actual number of units that are incorporated in or made necessary by the work covered by the Contract.

(b) Progress Payments. The City shall make payments on account of the Contract as follows:

1. On not later than the fourth Friday of every month the Contractor shall present to the City an invoice covering an estimate of the amount and proportionate value of the work done as verified by the City under each item of work that has been completed from the start of the job up to and including the fourth Friday of the preceding month, and the value of the work so completed determined in accordance with the schedule of unit prices for such items, together with such supporting evidence as may be required. This invoice shall also include an allowance for the cost of such materials and equipment required in the permanent work as have been delivered to the site but not as yet incorporated in the work.

2. On not later than the third week of the following month, the City shall, after deducting previous payments made, pay to the Contractor 95% of the amount of the approved invoice, retaining 5% of the estimate of work done until 50% of the work has been completed. At 50% completion of the work, the previous retainage shall not yet be paid, but further partial payments shall be made in full to the contractor without additional retainage being taken unless the engineer certifies that the work is not proceeding satisfactorily. If the work is not proceeding satisfactorily, additional amounts may be retained. After substantial completion, an amount retained may be paid to the contractor, keeping retained only such amount as is needed for the remaining work.

3. The Contractor shall notify the City in writing when all work under this Contract has been completed. Upon receipt of such notice the City shall, within a reasonable time, make the final inspection and issue a final certificate stating that the work provided for in this Contract has been completed and is accepted under the terms and conditions thereof, and that the entire balance due the Contractor as noted in said final certificate is due and payable. Before issuance of the final certificate the Contractor shall submit evidence satisfactory to the City that payrolls, material bills, and other indebtedness connected with the work under this Contract have been paid. The City shall make final payment as soon after issuance of the final certificate as practicable.

ARTICLE IV – CONTRACT DOCUMENTS

(a) Contents

1. The Contract documents consist of the following:
   a. This Contract (pages 00 52 13-1 to 0052-13-4, inclusive).
b. Payment bond (pages 00 61 13-1 to 00 61 13-2, inclusive).
c. Performance bond (page 00 61 16-1 to 00 61 16-2, inclusive).
d. General Conditions (pages 00 70 00-1 to 00 70 00-27, inclusive).
e. Specifications as listed in the table of contents of the Project Manual.
f. Drawings consisting of ___ sheets with each sheet bearing the following general title: ___ [or] the Drawings listed on attached sheet index.
g. Addenda (numbers ___ to ___ inclusive), dated_____.
h. Exhibits to this Agreement (enumerated as follows):
   1) Contractor’s Bid (pages 00 41 13-1 to 00 41 13-3, inclusive).
   2) Bid Schedule – Unit Prices (Pages 00 41 43-1 to 00 41 43- final, inclusive).
   3) Proposed Products Form (Page 00 43 33-1).
   4) Tabulation of Subcontractors (page 00 43 36-1).
   5) Documentation submitted by Contractor prior to Notice of Award (00 51 00-1).
i. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
   1) Notice to Proceed (Page 00 55 00-1).
   2) Change Orders.

2. The documents listed in Paragraph (a) Contents, are attached to this Agreement (except as expressly noted otherwise above).

3. There are no Contract Documents other than those listed above in this Article IV.
IN WITNESS WHEREOF, the parties hereto have executed this Contract, the day and year first written above.

___________________________________    ___________________________________ (WITNESS) (CONTRACTOR) (SEAL)

___________________________________ BY: ___________________________________ (WITNESS) (TITLE)

___________________________________ BY: ___________________________________ (TITLE)

___________________________________ (TITLE)

CITY OF DE PERE (SEAL)

Approved as to Form By: __________________________ (City Attorney)

Sufficient funds are available to provide for the payment of this obligation.

___________________________________ (COMPTROLLER)

BY: ___________________________ BY: ___________________________ (MAYOR) (CITY CLERK)
Project 20-01A
West Sewer and Water Relay and Street Resurfacing

SECTION 00 55 00

NOTICE TO PROCEED

Date: __________________

(CONTRACTOR NAME)

(Address)

(Address)

PROJECT: 20-01A West Sewer and Water Relay and Street Resurfacing

You are hereby notified to commence work in accordance with the CONTRACT dated ________________, within ten (10) days of this Notice. All work under this contract shall be completed within ________(NUMBER IN WORDS) (#) consecutive days from the start of construction or ________________(DATE) whichever comes first.

___________________________________
Department of Public Works

By: Eric P. Rakers, P.E.
Title: City Engineer

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

________________________________________, this _____ day of ________________, 20___.

Company Name

________________________________________
Signature

BY: __________________________________
Printed Name

TITLE: ________________________________
KNOW ALL MEN BY THESE PRESENTS: That [CONTRACTOR NAME] as Principal, hereinafter called Contractor, and _________________________________________________________ as Surety, hereinafter called Surety, are held and firmly bound unto the City of De Pere, a municipal corporation of the State of Wisconsin, as Obligee, hereinafter called the City, for the use and benefit of claimants as herein below defined in the amount _______________ ____________________ (CONTRACT AMT. SPELLED OUT) ($ ______________) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated ________________ (date to be affixed by City) entered into a contract with City for Project 20-01A, in accordance with drawings and specifications prepared by the Director of Public Works of said City, which contract is by reference made a part hereof, and is hereinafter referred to as the CONTRACT.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly make payments to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the CONTRACT, then this obligation shall be null and void; otherwise it shall remain in full force and effect, subject, however, to the following conditions.

1. A claimant is defined as one having a direct contract with Contractor or with a subcontractor of Contractor for labor, material, or both, used or reasonably required for use in the performance of the contract, labor and material being construed to include that part of water, gas, power, lights, heat, oil, gasoline, telephone service, or rental of equipment directly applicable to the contract.

2. The above named Contractor and Surety hereby jointly and severally agree with the City that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant may sue on this bond for the use of such claimant in the name of the City, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon, provided, however, that the City shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

   a. Unless claimant shall have given written notice to any two of the following: The Contractor, the City, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which such claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail, postage prepaid, in an envelope addressed to the Contractor, City, or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State of Wisconsin, save that such service need not be made by a public officer.
b. After the expiration of one (1) year following the date on which Contractor ceased work on said CONTRACT.

c. Other than in a state court of competent jurisdiction in and for the County or other political subdivision of the state in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics’ liens, which may be filed or recorded against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.

SIGNED AND SEALED THIS ____________ DAY OF __________________, 20___.

In Presence of:

_________________________________     __________________
(WITNESS)                       (CONTRACTOR)

_________________________________     _____________________________________
(WITNESS)                       (SURETY)
SECTION 00 61 16  

CITY OF DE PERE 

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That (CONTRACTOR’S NAME), as Principal, hereinafter called Contractor, and __________________________, as Surety, hereinafter called Surety, are held and firmly bound unto the City of De Pere, a municipal corporation of the State of Wisconsin, as Obligee, hereinafter called City, in the amount of ______________________ (AMOUNT WRITTEN OUT) ($_______) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assign, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated _________________ (date to be affixed by City), entered into a contract with the City for Project 20-01A, in accordance with drawings and specifications prepared by the Director of Public Works of said City, which contract is by reference made a part hereof, and is hereinafter referred to as the CONTRACT.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Contractor shall promptly and faithfully perform said CONTRACT, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Whenever Contractor shall be, and declared by the City to be in default under the CONTRACT, the City having performed City's obligations there under, the Surety may promptly remedy the default, or shall promptly

1. Complete the CONTRACT in accordance with its terms and conditions or

2. Obtain a bid or bids for submission to City for completing the CONTRACT in accordance with its terms and conditions, and upon determination by the City and Surety of the lowest responsible bidder, arrange for a contract between such bidder and City make available as work progresses (even though there should be a default or succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term “balance of the contract price” as used in this paragraph shall mean the total amount payable by City to Contractor under the CONTRACT and any amendments thereto, less the amount properly paid by City to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the CONTRACT falls due. No right of action shall accrue on this bond to or for the use of any person or corporation other than the owner named herein or the heirs, executors, administrators or successors of City.
Project 20-01A
West Sewer and Water Relay and Street Resurfacing

City of De Pere

SIGNED AND SEALED THIS _________ DAY OF __________________, 20___.

In the Presence of:

_________________________________     ___________________________________
(WITNESS) (CONTRACTOR) (SEAL)

_________________________________     ___________________________________
(WITNESS) (SURETY) (SEAL)
## APPLICATION FOR PAYMENT

**Contractor's Application for Payment No.**

<table>
<thead>
<tr>
<th>Application Period:</th>
<th>Application Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner: City of De Pere</td>
<td>Contractor:</td>
</tr>
<tr>
<td>Contractor's Project No.:</td>
<td></td>
</tr>
</tbody>
</table>

### APPLICATION FOR PAYMENT

**Change Order Summary**

<table>
<thead>
<tr>
<th>Number</th>
<th>Additions</th>
<th>Deductions</th>
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</thead>
<tbody>
<tr>
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</table>

| 1. ORIGINAL CONTRACT PRICE: | $0.00 |
| 2. Net change by Change Orders and Written Amendments (+ or -): | $0.00 |
| 3. CURRENT CONTRACT PRICE (Line 1 plus Line 2): | $0.00 |
| 4. Total completed and stored to date Column H on Progress Estimate: | $0.00 |
| 5. Retainage (per Agreement): | $0.00 |
| a. Work Completed - Column H (95% up to 50% of Contract or 2.5% of 100% of Contract | |
| 6. AMOUNT ELIGIBLE TO DATE (Line 4 minus 5): | $0.00 |
| 7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application): | $0.00 |
| 8. AMOUNT DUE THIS APPLICATION (Line 6 minus Line 7): | $0.00 |

### NET CHANGE BY CHANGE ORDERS: $0.00

## CONTRACTOR'S CERTIFICATION

The undersigned Contractor certifies that:
1. all previous progress payments received from Owner on account of Work done under Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment;
2. title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and
3. all Work covered by the Application for Payment is in accordance with the Contract Documents and is not defective.

Payment of: $ (Line 8 or other - attach explanation of other amount)

is recommended by: ________________________________ (Contractor) (Date)

Payment of: $ (Line 8 or other - attach explanation of other amount)

is recommended by: ________________________________ (Owner) (Date)
SECTION 00 65 16

CERTIFICATE OF SUBSTANTIAL COMPLETION

Project: ____________________________
Owner: ____________________________ Owner’s Contract No.: ____________________________
Contractor: _________________________

This [tentative] [definitive] Certificate of Substantial Completion applies to:
☐ All Work under the Contract Documents: ☐ The following specified portions of the Work:

____________________________________________________________________________________

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Contractor and Engineer, and found to be substantially complete. The Date of Substantial completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

☐ Amended Responsibilities ☐ Not Amended

Owner’s Amended Responsibilities:

____________________________________________________________________________________

Contractor’s Amended Responsibilities:

____________________________________________________________________________________
The following documents are attached to and made part of this Certificate:

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor’s obligation to complete the Work in accordance with the Contract Documents.

Executed by Engineer

Date

Accepted by Contractor

Date
SECTION 01 10 00
SUMMARY OF WORK

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes
   1. References
   2. Work Covered by the Contract Documents
   3. Work Sequence
   4. Use of Premises
   5. Warranty
   6. Work by Others
   7. Project Utility Sources

1.2 REFERENCES

A. General Specifications. The work under this contract shall be in accordance with the City of De Pere, 2020 Construction Specifications and these Special Provisions and plans, and the latest edition of the Wisconsin Department of Transportation Standards Specifications for Highway and Structure Construction, where referenced in the City Specifications.

B. Definitions. Any reference to the “state” or the “department” in said Standard Specifications shall mean the “City of De Pere” for the purposes of this contract.

C. Industry Standards
   1. Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
   2. Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
   3. 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.
   4. 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.
   5. Each section of the specifications generally includes a list of reference standards normally referred to in that respective section. The purpose of this list is to
furnish the Contractor with a list of standards normally used for outlining the quality control desired on the project. The lists are not intended to be complete or all inclusive, but only a general reference of standards that are regularly referred to.

6. Each entity engaged in construction on the Project shall be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed to perform a required construction activity, obtain copies directly from the publication source and make them available on request.

1.3 WORK COVERED BY THE CONTRACT DOCUMENTS

A. Project Identification
   1. Project Location
      a. Ash Street Easement at 703 N. Ninth Street.
      b. Eighth Street from Reid Street to Main Avenue.
      c. Innovation Court cul-de-sac north of Southbridge Road.
      d. Lawrence Drive at the intersection of Grant Street.
      e. Outward Avenue from Helena Street to Amhart Drive
      f. Park Street from Allard Street to S. Ninth Street.
      g. Reid Street from Eighth Street to Allard Street.
      h. Southbridge Road west of Lawrence Drive at 1881 Southbridge Road.
      i. Sunrise Court from Park Street to the southern cul-de-sac.
      j. West De Pere High School at 665 Grant Street
      k. Pond repairs at 2354 Daytona Speedway
      l. Various spot sewer repairs on the City of De Pere’s west side.

2. Work will be performed under the following prime contract:
   a. Project 20-01A West Sewer and Water Relay and Street Resurfacing

B. The Work includes:
   1. Water main and associated appurtenance relay and new.
   2. Storm sewer and associated appurtenances relay and new, spot storm sewer, inlet lead and inlet repair and replacement.
   5. Spot concrete curb and gutter repair and replacement and new curb and gutter.
   6. Driveway and sidewalk removal and replacement.
   10. Asphaltic concrete paving.
   11. Terrace restoration.
   12. Tree and stump removal.
1.4 WORK SEQUENCE

A. The City anticipates taking this contract to the Board of Public Works on Monday, February 10 and Common Council on Tuesday, February 18 for consideration of award of Contract 20-01A West Sewer and Water Relay and Street Resurfacing.

B. All work under this project shall be completed by September 25, 2020.

C. Conduct construction activities to maintain access to businesses and residences throughout construction.

D. Topsoil, seed, and mulch shall be completed prior to asphaltic concrete pavement placement.

E. All water main tracer wire is to be tested prior to paving.

F. Location Specific Work Sequence Details
   1. Ash Street Easement
      a. The City will need to notify the Green Bay Metropolitan Sewerage District (GBMSD) one week in advance of any construction operations. GBMSD will need to be present to access their manhole for the downstream connection.
      b. For verify Active Sanitary Lateral work, excavate down to sanitary lateral such that the City can dye test or camera the pipe for activity.
   2. Eighth Street and Reid Street:
      a. The replacement of the storm sewer inlet lead on Eighth Street at the intersection with Main Avenue will need to be coordinated with the removal of the traffic signal under City of De Pere Project 20-10 Signal Replacement. Once the storm inlet lead is dug, AT&T will need to be contacted to raise, lower or relocate their facility out of conflict with the City’s sewer.
      b. The City will provide one week notice to repair the offset joint to the east of Allard Street on Reid Street shown on Sheet C104. The repair needs to be done in advance of the City’s Sewer Lining Contract 20-03.
      c. The City will also be verifying two laterals to see if they are still active under the City Sewer Lining Contract 20-03. If the laterals are confirmed to be active, they will be relayed as part of the work under Project 20-01A.
      d. For verify Active Sanitary Lateral work, excavate down to sanitary lateral such that the City can dye test or camera the pipe for activity.
   3. Innovation Court
      a. Work will need to be completed by July 31 to allow concrete paving to occur under Project 20-06.
   4. Lawrence Drive at Grant Street
      a. The Developer has yet to provide a schedule of their construction or the timeframe in which they want work to be completed under this contract. The Developer’s schedule will be shared with the Contractor after the notice to proceed is signed.
b. If needed, the City will need two weeks advance notice to obtain a lane closure permit on Grant Street.

5. Outward Avenue
   a. Work on Outward Avenue cannot start until June 8, 2020 to accommodate the West De Pere School District.

6. Park Street and Sunrise Street
   a. The relay of the water lateral to the north at Station 05+28 will need to be coordinated with the strip mall to the north at 811 and 801 Main Avenue. Each business should be contacted to determine the optimal time to conduct their final water connection to maintain operational hours of the business to the best of the Contractor’s ability. Weekend or nighttime work may be needed to facilitate the final water connections.

7. 1881 Southbridge Road
   a. Work will need to be completed by May 1, 2020.
   b. Construction of the outside drop at the GBMSD manhole will need one week advance notice with GBMSD per the City’s permit. GBMSD personnel will need to be present to access their manhole.

8. West De Pere High School
   a. Work is permitted to start in may in conjunction with the West De Pere High School expansion project. All work is to be completed by July 31, 2020. School is in session until June 5, 2020. Only storm sewer in the natural backfill areas may be constructed while school is in session to prevent loss of parking or access.

9. Pond Repairs at 2354 Daytona Speedway
   a. None.

G. The calendar days listed below are the allowed durations for each location from the beginning of construction of the street or site to the substantial completion of the area. The start and end dates for each location are also listed below to better illustrate the window to complete work.

<table>
<thead>
<tr>
<th>Location</th>
<th>Start Date</th>
<th>End Date</th>
<th>Calendar Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ash Street Easement Sanitary Sewer Relay</td>
<td>N/A</td>
<td>9-25-2020</td>
<td>7</td>
</tr>
<tr>
<td>Eighth Street and Reid Street</td>
<td>N/A</td>
<td>9-25-2020</td>
<td>42</td>
</tr>
<tr>
<td>Innovation Court</td>
<td>N/A</td>
<td>7-31-2020</td>
<td>30</td>
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<tr>
<td>Lawrence Drive</td>
<td>TBD</td>
<td>TBD</td>
<td>21</td>
</tr>
<tr>
<td>Outward Avenue</td>
<td>N/A</td>
<td>9-25-2020</td>
<td>60</td>
</tr>
<tr>
<td>Park Street and Sunrise Court</td>
<td>N/A</td>
<td>9-25-2020</td>
<td>56</td>
</tr>
<tr>
<td>1881 Southbridge Road</td>
<td>At Work Start</td>
<td>5-1-2020</td>
<td>14</td>
</tr>
<tr>
<td>West De Pere High School Storm Sewer Relay</td>
<td>5-1-2020</td>
<td>7-31-2020</td>
<td>35</td>
</tr>
</tbody>
</table>
Please note that the allowed contract calendar days shown in the table above exceed the total project duration between the proposed start date of April 1, 2020 and the completion date of September 25, 2020. It is expected that the contractor work on multiple streets concurrently to ensure the satisfactory completion of the project within the project duration. Failure to meet the interim contract dates listed above warrants the enforcement of liquidated damages outlined in the City of De Pere Standard Specifications.

1.5 USE OF PREMISES

A. Contractor shall have full use of the premises for construction operations, including use of the Project Site, as allowed by law, ordinances, permits, easement agreements and the Contract documents.

B. Contractor’s use of premises is limited only by Owner’s right to perform work or to retain other contractors on portions of the Project.

C. The Project Site is limited to property boundaries, rights-of-way, easements, and other areas designated in the Contract Documents.

D. Provide protection and safekeeping of material and products stored on or off the premises.

E. Move any stored material or products which interfere with operations of Owner or other Contractors.

1.6 WARRANTY

A. The Contractor warrants and guarantees to the City that all work shall be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects will be given to the Contractor. All defective work, whether or not in place, may be rejected, corrected or accepted as provided in this proposal.

B. If within one (1) year after the date of contract work completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents or by a special provision of the Contract Documents, any work is found to be defective, the Contractor shall comply in accordance with the City’s written instructions. These written instructions will include either correcting such defective work or, if it has been rejected by the City, removing it from the site and replacing it with non-defective work. If the Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk or loss or damage, the City may have the defective work corrected or the rejected work removed and replaced. All direct and indirect costs of correction or removal and replacement of defective work, including compensation for additional professional services, shall be paid by the Contractor.
1.7 WORK BY OTHERS

A. The City of De Pere Park Department will trim trees in conflict with construction if the City receives advanced notification. Questions regarding trees or landscaping that is bid as part of this contract can be directed to the Engineer.

B. Owner has awarded a separate contract for performance of certain construction operations which will be conducted at the Project Site simultaneously with work under this Contract. This Contract includes the following:
   1. Project 20-03 Sewer Lining
      a. On Reid Street from Allard Street to the West
      b. On Renkens Court north of Grant Street
   2. Project 20-06 Concrete Street Repairs: at Innovation Court. Construction and concrete paving of the cul-de-sac at Innovation Court are to be completed under this project.
   3. Project 20-10 Signal Replacement: at the intersection of Main Avenue and Eighth Street. The traffic signals are to be replaced at this intersection under this project.
   4. Private Development
      a. 2020 Innovation Court – New office building being constructed.
      b. West De Pere High School – High School Expansion
      c. 1881 Southbridge Road – New Condos being constructed.
      d. 1218 Grant Street – New gas station being constructed.

C. Cooperate fully with separate contractors and/or Owner so work by others may be carried out smoothly, without interfering with or delaying work under this Contract.

1.8 PROJECT UTILITY SOURCES

A. Green Bay Metropolitan Sewer District (NEW Water), Lisa Sarau,
   (lsarau@newwater.us) (920-438-1039)

B. AT&T, Shea Gorzelanczyk, (sg2528@att.com) (920-433-4250)

C. Wisconsin Public Service, Bob Laskowski,
   (rtlaskowski@wisconsinpublicservice.com) (920-617-2775)

D. Charter, Vince Albin, (vince.albin@charter.com) (920-378-0444)

E. Nsight, Rick Vincent, (rick.vincent@nsight.com) (920-617-7316)

F. TDS Metrocom, Steve Jakubiec, (steve.jakubiec@tdstelecom.com) (920-882-4166)

G. Net-Lec (Mi-Tech Services), Dennis Lafave, (dlafave@mi-tech.us) (920-619-9774)

H. Level3 (Mi-Tech Services), Chris Kraus, (ckraus@mi-tech.us) (414-550-6201)
I. Central Brown County Water Authority, Rob Michaelson, (rmichaelson@mpu.org) (920-686-4354)

1.9 MISCELLANEOUS PROVISIONS

A. Notification to Residents – notify individually all residents and businesses 2-weeks prior to the start of operations, giving an estimated time that vehicle movement will be limited or prohibited. Property owners shall be notified 24-hours prior to closing a drive.

B. Maintain access to properties during construction, excluding time when utility work is occurring in front of the driveway or when the driveway, curb and gutter are replaced.

C. Maintain garbage pickup and mail service throughout construction.

D. Saw cut or mill all utility trenches. If utility trenches are milled, salvage millings and place on trenches with a roller.

E. No work is to occur on the following dates in observance of national holidays:
   1. Memorial Day - Monday, May 25, 2020
   2. Independence Day – Friday, July 3, 2020
   3. Labor Day – Monday, September 7, 2020

F. Miscellaneous Provisions by Location
   1. Ash Street Easement
      a. Work is to be coordinated with the Green Bay Metropolitan Sewerage District in coordination with the City’s Plumbing Permit with GBMSD.
   2. Eighth Street and Reid Street
      a. Any excavations in Main Avenue will need to be restored with hard surface (e.g. temporary concrete or hot mix asphalt) at the end of each work day until final restoration is completed.
   3. Innovation Court
      a. At 1881 Southbridge Road the detour and full road closure duration is limited to one day to get the sanitary sewer across Southbridge Road. Once the sewer is across, the excavation will need to be restored with gravel until final asphaltic concrete pavement can be placed. At the time of asphaltic concrete paving, a flagger will be required and only one lane of traffic can be closed at a time.
   4. Lawrence Drive at Grant Street
      a. Provide traffic control plans for any closures of Grant Street needed to facilitate this work. If needed, these lane closures will need to be permitted through Brown County. The City of De Pere will apply for any permits needed.
   5. Outward Avenue
      a. None
6. Park Street and Sunrise Court
   a. None.

7. 1881 Southbridge Road
   a. At 1881 Southbridge Road the detour and full road closure duration is limited to one day to get the sanitary sewer across Southbridge Road. Once the sewer is across, the excavation will need to be restored with gravel until final asphaltic concrete pavement can be placed. At the time of asphaltic concrete paving, a flagger will be required and only one lane of traffic can be closed at a time.

8. West De Pere High School
   a. Storm sewer trenches with granular backfill shall be restored with gravel backfill to match the existing surface grade at the trench. Final restoration will be completed by the developer in these areas.

9. Pond Repairs at Daytona Speedway
   a. None.

10. 1417 Lost Dauphin Road – Spot sanitary lateral repair. Provide a traffic control plan for the lane closure required to dig down and repair the damaged sanitary lateral.

G. Ingress and egress to the site of work for delivery of materials, hauling of excavation, daily construction activities and all vehicular traffic shall be as follows:

<table>
<thead>
<tr>
<th>Location</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ash Street Easement</td>
<td>Ash Street via N. Eighth Street</td>
</tr>
<tr>
<td>Eighth Street and Reid Street</td>
<td>Main Avenue or Allard Street via Main Avenue</td>
</tr>
<tr>
<td>Innovation Court</td>
<td>Southbridge Road</td>
</tr>
<tr>
<td>Lawrence Drive at Grant Street</td>
<td>Lawrence Drive or Grant Street</td>
</tr>
<tr>
<td>Outward Avenue</td>
<td>Helena Street via S. Sixth Street and Grant Street</td>
</tr>
<tr>
<td>Park Street and Sunrise Court</td>
<td>S. Ninth Street via Main Avenue and Allard Street Via Main Avenue</td>
</tr>
<tr>
<td>1881 Southbridge Road</td>
<td>Southbridge Road</td>
</tr>
<tr>
<td>West De Pere High School</td>
<td>Grant Street</td>
</tr>
<tr>
<td>2354 Daytona Speedway</td>
<td>Southwest Park via Lawrence Drive</td>
</tr>
</tbody>
</table>

Please note that Lawrence Drive between Southbridge Road and Fortune Avenue is not designated as a truck route. To view the City of De Pere Designated Heavy Truck Route Map please go to: www.deperewi.gov/egov/documents/1476890395_45864.pdf
PART 2 – PRODUCTS

PART 3 – EXECUTION

END OF SECTION
SECTION 01 22 01

MEASUREMENT AND PAYMENT SANITARY SEWER

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

1. Sanitary Sewer Mains (Granular Backfill) SS-01
2. Sanitary Sewer Mains (Natural Backfill) SS-02 & SS-03
3. Sanitary Sewer Laterals SS-04 & SS-05
4. Sanitary Sewer Service Branches SS-06, SS-07 & SS-08
5. Sanitary Sewer Manholes SS-09
6. Construct Outside Drop SS-10
7. Core Drilling to Existing Sanitary Manhole SS-11
8. Connect to Existing Sanitary Sewer Pipe SS-12
10. Plug Existing Sanitary Lateral SS-15
11. Dig Down and Verify Active Sanitary Lateral SS-16

B. Unit Prices include:

1. Defined work for each Unit Price Item which will provide a functionally complete Project when combined with all unit price items. If there are specific work items which the Contractor believes are not identified in any Unit Price Item, but is required to provide a functionally complete Project, then the identified specific work items shall be included in the appropriate Unit Price Item.
2. The method of measurement for payment.
3. The price per unit for payment.

1.2 GENERAL WORK ITEMS

A. Include with the appropriate Unit Price Item the following work items which are common to the Unit Price Items for sanitary sewer systems.

B. If there is a specific Unit Price Item for any of the following items, then the work item shall be included with that specific unit price item.

1. Traffic Control.
2. Sawcutting asphalt and/or concrete.
3. Removal, hauling and disposal of surface materials including road pavement, curb and gutter, sidewalk, driveways and other pavement surfaces in the trench area and as shown on the drawings.
4. Dewatering.
5. Bypass pumping.
6. Excavation.
7. Open Trench installation method (unless bid item specifies other method).
8. Pipe Bedding.
9. Backfilling and compacting native obtained from the excavation.
10. Supplying, hauling, backfilling and compacting granular material.
11. Loading, hauling and disposing of surplus excavated material.
13. Maintenance, protection, replacement and/or repair of facilities not designated for alteration on the Site beyond the limits identified.
14. Site access requirements including temporary aggregate material as required for local traffic access.
15. Bulkhead and abandoned existing sanitary sewer with flowable fill as shown on Drawings.
16. If crossing or undermining of existing public or private utility, then include:
   a. Maintaining the utility in service.
   b. Replacing of existing utilities, if damaged.
   c. Providing support and bedding material.
17. Dust control.
18. Remove and replace existing mailboxes and traffic signs.
20. Easement and right-of-way requirements.
21. Construction staking and other survey work not provided by the Engineer.
22. Regulatory requirements.
23. Preconstruction videotaping and video equipment.
24. Quality assurance and quality control testing and inspections.
25. Shop drawings and other submittals.

1.3 SANITARY SEWER MAINS (GRANULAR BACKFILL)

A. The unit price for Sanitary Sewer Main (Granular Backfill) work includes:
2. Sanitary sewer pipe and fittings of material stated in the Unit Price Bid Schedule and installed using the open trench method.
3. Excavation, breakdown and removal of abandoned piping inside the trench area, including plugging of existing connections.
4. Excavation, breakdown and removal of abandoned pipeline structures inside the trench area, including plugging of existing connections.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed sewer from centerline of the manhole to centerline of manhole with no deductions for manholes, sewer services branches and other fittings.

C. The unit of measurement for payment is linear feet.
1.4 SANITARY SEWER MAINS (NATURAL BACKFILL)

A. The unit price for Sanitary Sewer Main (Natural Backfill) work includes:
   2. Sanitary sewer pipe and fittings of material stated in the Unit Price Bid Schedule and installed using the open trench method.
   3. Excavation, breakdown and removal of abandoned piping inside the trench area, including plugging of existing connections.
   4. Excavation, breakdown and removal of abandoned pipeline structures inside the trench area, including plugging of existing connections.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed sewer from centerline of the manhole to centerline of manhole with no deductions for manholes, sewer services branches and other fittings.

C. The unit of measurement for payment is linear feet.

1.5 SANITARY SEWER LATERALS

A. The unit price for Sanitary Sewer Laterals work includes:
   2. Sanitary sewer lateral pipe and fittings of the material stated in the Unit Price Bid Schedule and installed using the open trench method.
   3. Watertight plug in the end of the sewer service lateral or connection including transition coupling to the existing building sewer lateral.
   4. Tracer wire.
   5. Install an 8’ – 4” X 4” board at the end of the lateral.

B. Measurement for payment will be the actual horizontal length along the centerline of the installed sewer service lateral pipe (excluding risers) from centerline of the service branch to the end of the pipe at the right of way, easement or existing sewer service lateral with no deductions for fittings.

C. The unit of measurement for payment is linear feet.

1.6 SANITARY SEWER SERVICE BRANCHES

A. The unit price for Sanitary Sewer Service Branches work includes:
   2. Sanitary sewer service branches of same material strength or better than sanitary sewer main pipe.
   3. Installation along with the sanitary sewer main pipe installation.
   4. Plug (where required).

B. Measurement for payment will be the actual number installed.
C. The unit of measurement for payment is each.

1.7 SANITARY SEWER MANHOLES

A. The unit price for Sanitary Sewer Manholes work includes:
   2. Precast reinforced concrete components.
   3. Joint flexible gasket material.
   4. Resilient flexible connector between the manhole structure and the sewer pipe.
   5. Adjusting rings and bituminous plastic cement sealant at chimney.
   6. Manhole steps.
   7. Manhole frame and cover (Neenah Foundry R-1500 Manhole Cover with Non-Rocking Lid or equal). Sanitary Sewer manhole covers shall have gaskets and concealed pick holes.
   8. Bedding material.
   9. Sewer pipe stub with connections and watertight plug (where required).
   10. Final casting adjustment.

B. Measurement for payment will be the distance from the invert of the lowest sewer to the top of the frame and cover as set.

C. The unit of measurement for payment is vertical feet.

1.8 CONSTRUCT OUTSIDE DROP

A. The unit price for Construct Outside Drop work includes:
   2. Install outside drop.
   3. Install A-Lok boot.
   4. Backfilling and compaction.

B. Measurement for payment will not be made.

C. The unit of measurement for payment is lump sum.

1.9 CORE DRILLING TO EXISTING SANITARY MANHOLE

A. The unit price for Core Drilling to Existing Sanitary Manhole work includes:
   2. Core drilling into existing sanitary sewer manhole (where required).
   3. Install A-Lok/Kor-N-Seal boot.
   4. Reform flow line in existing sanitary manhole.

B. Measurement for payment will be the actual number completed.

C. The unit of measurement for payment is each.
1.10 CONNECT TO EXISTING SANITARY SEWER PIPE

A. The unit price for Connect to Existing Sanitary Sewer Pipe work includes:
   2. Sanitary Sewer Pipe same material strength or better than sewer main. Provide Fernco with stainless steel sheer bands and connection water tight seal.
   3. Backfilling and compaction.

B. Measurement for payment will be the actual number completed.

C. The unit of measurement for payment is each.

1.11 SANITARY SEWER DIG DOWN AND REPAIR LATERAL/OFFSET JOINT – 5 FEET

A. The unit price for Sanitary Sewer Dig Down and Repair Lateral/Offset Joint work includes:
   2. Excavation.
   3. Exposing sanitary sewer line for repairs to offset joint or lateral.
   4. Sawing existing sanitary sewer.
   5. Remove and replace pipe (if applicable).
   6. Connection to existing sanitary sewer (if applicable).
   7. Repairing offset joints where present.

B. Measurement for payment will be the actual number completed.

C. The unit of measurement for payment is each.

1.12 PLUG EXISTING SANITARY LATERAL

A. The unit price for Plug Existing Sanitary Lateral work includes:
   2. Excavation.
   3. Installing bulkheads and abandon sewer.
   4. Backfilling and compacting.

B. Measurement for payment will be the actual number complete.

C. The unit of measurement for payment is each.

1.13 DIG DOWN AND VERIFY ACTIVE SANITARY LATERAL

A. The unit price for Dig Down and Verify Active Sanitary Lateral work includes:
2. Televise or excavate down to existing sanitary sewer lateral to expose the existing lateral to verify if the lateral is active.
3. City staff will dye test the lateral if needed.
4. Backfilling and compacting.

B. Measurement for payment will be the actual number completed.

C. The unit of measurement for payment is each.

END OF SECTION
SECTION 01 22 02

MEASUREMENT AND PAYMENT STORM SEWER

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

<table>
<thead>
<tr>
<th>Bid Item No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-01, ST-03, ST-04 &amp; ST-05</td>
<td>Storm Sewer Mains (Granular Backfill)</td>
</tr>
<tr>
<td>ST-02</td>
<td>Storm Sewer Mains (Natural Backfill)</td>
</tr>
<tr>
<td>ST-06</td>
<td>Storm Sewer Laterals</td>
</tr>
<tr>
<td>ST-07</td>
<td>Storm Sewer Service Branches</td>
</tr>
<tr>
<td>ST-08, ST-09, ST-10, ST-11, ST-12 &amp; ST-13</td>
<td>Storm Sewer Manholes</td>
</tr>
<tr>
<td>ST-14</td>
<td>Catch Basin/Inlets</td>
</tr>
<tr>
<td>ST-15</td>
<td>Core Drilling to Existing Storm Manhole</td>
</tr>
<tr>
<td>ST-16</td>
<td>Reconnect to Existing Storm Sewer Pipe or Structure</td>
</tr>
<tr>
<td>ST-17</td>
<td>Storm Sewer Dig Down and Repair Offset Joint – 5 Feet</td>
</tr>
<tr>
<td>ST-18 &amp; ST-19</td>
<td>Abandon/Remove Existing Storm Sewer</td>
</tr>
<tr>
<td>ST-20</td>
<td>Remove Existing Storm Sewer</td>
</tr>
<tr>
<td>ST-21</td>
<td>Remove Existing Storm Sewer Manholes</td>
</tr>
<tr>
<td>ST-22</td>
<td>Bulkhead 72-Inch Storm Sewer</td>
</tr>
<tr>
<td>ST-23</td>
<td>Remove Obstruction</td>
</tr>
</tbody>
</table>

B. Unit Prices include:

1. Defined work for each Unit Price Item which will provide a functionally complete Project when combined with all unit price items. If there are specific work items which the Contractor believes are not identified in any Unit Price Item, but is required to provide a functionally complete Project, then the identified specific work items shall be included in the appropriate Unit Price Item.

2. The method of measurement for payment.

3. The price per unit for payment.

1.2 GENERAL WORK ITEMS

A. Include with the appropriate Unit Price Item the following work items which are common to the Unit Price Items for storm sewer systems.

B. If there is a specific Unit Price Item for any of the following items, then the work item shall be included with that specific unit price item.

1. Traffic Control.
2. Sawcutting asphalt and/or concrete.
3. Removal, hauling and disposal of surface materials including road pavement, curb and gutter, sidewalk, driveways and other pavement surfaces in the trench area and as shown on the drawings.
4. Dewatering.
5. Excavation.
6. Open trench installation method (unless bid item specifies other method).
7. Pipe bedding.
8. Backfilling and compacting native obtained from the excavation.
9. Supplying, hauling, backfilling and compacting granular material.
10. Loading, hauling and disposing of surplus excavated material.
12. Maintenance, protection, replacement and/or repair of facilities not designated for alteration on the Site beyond the limits identified.
13. Site access requirements including temporary aggregate material as required for local traffic access.
14. Bulkhead and abandon existing storm sewer with flowable fill as shown on drawings.
15. If crossing or undermining of existing public or private utility, then include:
   a. Maintaining the utility in service.
   b. Replacing of existing utilities, if damaged.
   c. Providing support and bedding material.
16. Dust control.
17. Remove and replace existing mailboxes and traffic signs.
18. Restroom facilities.
19. Easement and right-of-way requirements.
20. Construction staking and other survey work not provided by the Engineer.
21. Regulatory requirements.
22. Preconstruction videotaping and video equipment.
23. Quality assurance and quality control testing and inspections.
24. Shop drawings and other submittals.

1.3 STORM SEWER MAINS (GRANULAR BACKFILL)

A. The unit price for Storm Sewer Main (Granular Backfill) work includes:
   2. Storm sewer pipe and fittings of material stated in the Unit Price Bid Schedule and installed using the open trench method.
   3. Excavation, breakdown and removal of abandoned piping inside the trench area, including plugging of existing connections.
   4. Excavation, breakdown and removal of abandoned pipeline structures inside the trench area, including plugging of existing connections.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed sewer from centerline of the manhole to centerline of manhole with no deductions for manholes, sewer services branches and other fittings.

C. The unit of measurement for payment is linear feet.
1.4 STORM SEWER MAINS (NATURAL BACKFILL)

A. The unit price for Storm Sewer Main (Natural Backfill) work includes:
   2. Storm sewer pipe and fittings of material stated in the Unit Price Bid Schedule and installed using the open trench method.
   3. Excavation, breakdown and removal of abandoned piping inside the trench area, including plugging of existing connections.
   4. Excavation, breakdown and removal of abandoned pipeline structures inside the trench area, including plugging of existing connections.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed sewer from centerline of the manhole to centerline of manhole with no deductions for manholes, sewer services branches and other fittings.

C. The unit of measurement for payment is linear feet.

1.5 STORM SEWER LATERALS

A. The unit price for Storm Sewer Laterals work includes:
   2. Storm sewer lateral pipe and fittings of the material stated in the Unit Price Bid Schedule and installed using the open trench method.
   3. Watertight plug in the end of the sewer service lateral or connection including transition coupling to the existing building sewer lateral.
   4. Tracer wire.
   5. Install an 8’ – 4” X 4” board at the end of the lateral.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed sewer service lateral pipe from centerline of the service branch to the end of the pipe at the right of way, easement or existing sewer service lateral with no deductions for fittings.

C. The unit of measurement for payment is linear feet.

1.6 STORM SEWER SERVICE BRANCHES/INSERTA TEES

A. The unit price for Storm Sewer Service Branches/Inserta Tees work includes:
   2. Storm sewer service branches of same material strength or better than storm sewer main pipe (where required).
   3. Core drilling into concrete storm sewer main (where required).
   4. Installation along with the storm sewer main pipe installation.
   5. Plug (where required).

B. Measurement for payment will be the actual number installed.
C. The unit of measurement for payment is each.

1.7 STORM SEWER MANHOLES

A. The unit price for Storm Sewer Manholes work includes:
   2. Precast reinforced concrete components.
   3. Joint flexible gasket material.
   4. Grout seal between the manhole and structure and the sewer pipe.
   5. Adjusting rings and bituminous plastic cement sealant at chimney.
   6. Manhole steps.
   7. Manhole frame and cover.
   8. Bedding material.
   9. Sewer pipe stub with connections and watertight plug (where required).
   10. Final casting adjustment.

B. Measurement for payment will be the distance from the invert of the lowest sewer to
   the top of the frame and cover as set.

C. The unit of measurement for payment is vertical feet.

1.8 CATCH BASIN/INLETS

A. The unit price for Catch Basin/Inlets work includes:
   2. Precast reinforced concrete components.
   3. Joint flexible gasket material.
   4. Grout seal between the catch basin/inlet structure and the sewer pipe.
   5. Adjusting rings grouted in place.
   6. Casting frame and grate.
   7. Bedding material.
   8. Supply and install 6 to 10 feet of 4 inch flexible perforated plastic pipe with
      geotextile wrap subgrade drain.
   9. Sewer pipe stub with connections and watertight plug (where required).
   10. Sand fill and Class “B” concrete floor and flow line.
   11. Temporary cover over catch basin/inlet to prevent eroded materials from entering.
   12. Final casting adjustment.

B. Measurement for payment will be the actual number installed.

C. The unit of measurement for payment is each.
1.9 CORE DRILL TO EXISTING STORM SEWER MANHOLE

A. The unit price for Core Drilling to Existing Storm Manhole work includes:
   2. Core drilling into existing storm sewer manhole (where required).
   3. Install A-Lok boot (at manholes) or mortar.
   4. Reform flow line in existing sanitary manhole.

B. Measurement for payment will be the actual number completed.

C. The unit of measurement for payment is each.

1.10 RECONNECT TO EXISTING STORM SEWER PIPE OR STRUCTURE

A. The unit price for Reconnect to Existing Storm Sewer Pipe or Structure work includes:
   2. Sawing into existing storm sewer pipe or structure (where required).
   3. Install block and mortar
   4. Reform flowline in existing storm structure.

B. Measurement for payment will be the actual number completed.

C. The unit of measurement for payment is each.

1.11 STORM SEWER DIG DOWN AND REPAIR OFFSET JOINT – 5 FEET

A. The unit price for Storm Sewer Dig Down and Repair Offset Joint work includes:
   2. Excavation.
   3. Exposing sanitary storm sewer line for repairs to offset joint.
   4. Sawing existing storm sewer.
   5. Remove and replace pipe (if applicable).
   6. Connection to existing storm sewer (if applicable).
   7. Repairing offset joints where present.

B. Measurement for payment will be the actual number completed.

C. The unit of measurement for payment is each.

1.12 ABANDON/REMOVE EXISTING STORM SEWER

A. The unit price for Abandon/Remove Existing Storm Sewer work includes:
   2. Excavation.
   3. Installing bulkheads and abandon sewer.
4. Provide and placing flowable fill.
5. Backfilling and compacting.

B. Measurement for payment will not be made.

C. The unit of measurement for payment is lump sum.

1.13 REMOVE EXISTING STORM SEWER

A. The unit price for Remove Existing Storm Sewer work includes:
   2. Excavation.
   3. Removal of existing storm sewer pipe and associated appurtenances.
   4. Providing granular backfill and compacting to grade.

B. Measurement of payment will be the actual horizontal length along the centerline of the removed sewer from centerline of the manhole to centerline of manhole.

C. The unit of measurement for payment is linear feet.

1.14 REMOVE EXISTING STORM SEWER MANHOLES

A. The unit price for Remove Existing Storm Sewer Manholes work includes:
   2. Excavation.
   3. Removal of existing storm sewer structure and associated appurtenances.
   4. Providing granular backfill and compacting to grade.

B. Measurement for payment will be the actual number of storm sewer manholes removed.

C. The unit of measurement for payment is each.

1.15 BULKHEAD 72-INCH STORM SEWER

A. The unit price for Bulkhead 72-Inch Storm Sewer work includes:
   2. Install bulkhead in storm sewer manhole to remove temporary 72-inch connection at newly installed storm sewer manhole.
   3. Providing block and mortar to seal 72-inch opening in manhole.
   4. Bypass pumping if required.

B. Measurement for payment will not be made

C. The unit of measurement for payment is lump sum.
1.16 REMOVE OBSTRUCTION

A. The unit price for Remove Obstruction work includes:
   2. Entering storm sewer pipe and removing obstruction blocking the flowline.
   3. Excavation down to storm sewer pipe (if needed).
   4. Cutting of storm sewer pipe (if needed).
   5. Repair of storm sewer pipe (if needed).
   6. Granular backfill and compaction around storm sewer pipe (if needed).
   7. Disposal of storm sewer obstruction.

B. Measurement for payment will not be made

C. The unit of measurement for payment is lump sum.

END OF SECTION
SECTION 01 22 03

MEASUREMENT AND PAYMENT WATER SYSTEM

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:
   1. Water Mains (Natural Backfill)  W-01
   2. Water Mains (Granular Backfill) W-02 & W-04
   3. Water Mains (Directional Drill)  W-03
   4. 6-Inch Water Main Service or Hydrant Leads W-05
   5. Water Services (Directional Drill) W-06
   6. Water Services                   W-07 & W-08
   7. 2-Inch Corporation w/ Plug or Saddle and HDPE Pipe W-09
   8. Corporation and Curb Stop       W-10 & W-11
   9. Valves                         W-12, W-13 & W-14
   10. Connection to Existing Water Mains W-15, W-16, W-17 & W-18
   11. Fire Hydrants                 W-19, W-20 & W-21
   12. Water Main Offset             W-22 & W-23
   13. Abandon/Remove Water Main and Appurtenances W-24

B. Unit Prices include:
   1. Defined work for each Unit Price Item which will provide a functionally complete
      Project when combined with all unit price items. If there are specific work items
      which the Contractor believes are not identified in any Unit Price Item, but is
      required to provide a functionally complete Project, then the identified specific
      work items shall be included in the appropriate Unit Price Item.
   2. The method of measurement for payment.
   3. The price per unit for payment.

1.2 GENERAL WORK ITEMS

A. Include with the appropriate Unit Price Item the following work items which are
   common to the Unit Price Items for water systems.

B. If there is a specific Unit Price Item for any of the following items, then the work
   item shall be included with that specific unit price item.
   1. Traffic Control.
   2. Sawcutting asphalt and/or concrete.
   3. Removal, hauling and disposal of surface materials including road pavement, curb
      and gutter, sidewalk, driveways and other pavement surfaces in the trench area
      and as shown on the drawings.
   4. Dewatering.
   5. Excavation.
6. Open Trench installation method (unless bid item specifies other method).
7. Pipe Bedding.
8. Backfilling and compacting native obtained from the excavation.
9. Supplying, hauling, backfilling and compacting granular material.
10. Loading, hauling and disposing of surplus excavated material.
12. Maintenance, protection, replacement and/or repair of facilities not designated for alteration on the Site beyond the limits identified.
13. Site access requirements including temporary aggregate material as required for local traffic access.
14. Bulkhead and abandoned existing water main with flowable fill as shown on Drawings.
15. If crossing or undermining of existing public or private utility, then include:
a. Maintaining the utility in service.
b. Replacing of existing utilities, if damaged.
c. Providing support and bedding material.
16. Dust control.
17. Remove and replace existing mailboxes and traffic signs.
18. Restroom facilities.
19. Easement and right-of-way requirements.
20. Construction staking and other survey work not provided by the Engineer.
21. Regulatory requirements.
22. Preconstruction videotaping and video equipment.
23. Quality assurance and quality control testing and inspections.
24. Shop drawings and other submittals.

1.3 WATER MAINS (NATURAL BACKFILL)

A. The unit price for Water Main (Natural Backfill) work includes:
   2. Water pipe and fittings of material stated in the Unit Price Bid Schedule and installed using the open trench method.
   3. Ductile or cast iron fittings.
   4. Tracer wire.
   5. Polyethylene encasement of ductile iron or cast iron pipe and fittings.
   7. Disinfection of pipelines.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed water main with no deductions for fittings and valves.

C. The unit of measurement for payment is linear feet.
1.4 WATER MAINS (GRANULAR BACKFILL)

A. The unit price for Water Main (Granular Backfill) work includes:
   2. Water pipe and fittings of material stated in the Unit Price Bid Schedule and installed using the open trench method.
   3. Ductile or cast iron fittings.
   4. Tracer wire.
   5. Polyethylene encasement of ductile iron or cast iron pipe and fittings.
   7. Disinfection of pipelines.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed water main with no deductions for fittings and valves.

C. The unit of measurement for payment is linear feet.

1.5 WATER MAINS (DIRECTIONAL DRILL)

A. The unit price for Water Main (Directional Drill) work includes:
   2. Field verifies location and elevation of existing utilities before or during directional drilling.
   3. Boring pit and receiving pit excavation.
   4. PVC pipe and materials (Fusible PVC or PVC and Certa-Lok Restraint).
   5. Tracer wire.
   6. Installation of the PVC pipe by directional drilling.
   7. Backfilling and compacting the boring and receiving pits.
   8. Loading, hauling and disposing of surplus excavated material.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed water main with no deductions for fittings and valves.

C. The unit of measurement for payment is linear feet.

1.6 6-INCH WATER MAIN SERVICE OR HYDRANT LEADS

A. The unit price for 6-Inch Water Main Service or Hydrant Lead work includes:
   2. Water pipe and fitting of material stated in the Unit Price Bid Schedule and installed using the open trench method.
   3. Ductile or cast iron fittings.
   4. Blocking and joint restraints.
   5. Tracer wire.
   6. Disinfection of the pipeline.
   7. Polyethylene encasement of ductile iron or cast iron pipe and fittings.
B. Measurement of payment will be the actual horizontal length along the centerline of the installed water main from the center of the water main to the centerline of the hydrant with no deductions for the fittings and valves.

C. The unit of measurement for payment is linear feet.

1.7 WATER SERVICES (DIRECTIONAL DRILL)

A. The unit price for Water Services (Directional Drill) work includes:
   2. Pipe and fittings of material stated in the Unit Price Bid Schedule.
   3. Field verifies location and elevation of existing utilities before or during directional drilling.
   4. Boring pit and receiving pit excavation.
   5. Tracer wire.
   6. Installation of the pipe by directional drilling.
   7. Backfilling and compacting the boring and receiving pits.
   8. Connection to the existing water service.
   9. Loading, hauling and disposing of surplus excavated material.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed water service with no deductions for fittings and curb stops.

C. The unit of measurement for payment is linear feet.

1.8 WATER SERVICES

A. The unit price for Water Services work includes:
   2. Pipe and fittings of material stated in the Unit Price Bid Schedule.
   3. Tracer wire.
   4. Disinfection of pipelines.
   5. Install an 8’- 4”x4” board at the end of the lateral.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed water service with no deductions for fittings and curb stops.

C. The unit of measurement for payment is linear feet.

1.9 2-INCH CORPORATION WITH PLUG OR SADDLE AND HDPE PIPE

A. The unit price for 2-Inch Corporation with Plug or Saddle and HDPE Pipe work includes:
2. Provide and install 2-inch corporation with plug (where required) with 2-inch HDPE pipe.
3. Provide and install 2-inch corporation with saddle (where required) with 2-inch HDPE pipe.
4. Remove 2-inch corporation with plug/saddle and repair water main.

B. Measurement for payment will be the actual number installed.

C. The unit of measurement for payment is each.

1.0 Corporation and Curb Stops

A. The unit price for Corporation and Curb Stops work includes:
   2. Supply curb stops and curb boxes.
   3. Connection to existing water service (where required).
   4. Installation of curb stops and curb boxes.
   5. Tracer wire.

B. Measurement for payment will be the actual number installed.

C. The unit of measurement for payment is each.

1.11 Valves

A. The unit price for Valves work includes:
   2. Valve.
   3. Valve box.
   4. Polyethylene encasement.
   5. Stem.
   6. Bedding material.

B. Measurement for payment will be the actual number installed.

C. The unit of measurement for payment is each.

1.12 Connections to Existing Water Mains

A. The unit price for Connection to Existing Water Mains work includes:
   2. Locating existing water main.
   3. Connection to the end of existing pipe.
      a. Remove existing plug.
      b. Direct connection to end of existing pipe.
      c. Transition fittings, if required.
B. Measurement for payment will be the actual number installed.

C. The unit of measurement for payment is each.

1.13 FIRE HYDRANTS

A. The unit price for Fire Hydrants work includes:
   2. Fire hydrant complete of the specified bury depth.
   4. Hydrant wrenches.
   5. Hydrant markers.
   6. Polyethylene encasement.
   7. Drainage pit.
   8. Disinfection of hydrant.
   10. Tracer wire access box.

B. Measurement for payment will be the actual number installed.

C. The unit of measurement for payment is each.

1.14 WATER MAIN OFFSET

A. The unit price for Water Main Offset work includes:
   2. Ductile iron fittings and PVC pipe.
   4. Polyethylene encasement of ductile iron pipe and fittings.
   5. Blocking and joint restraints

B. Measurement for payment will be the actual number installed.

C. The unit of measurement for payment is each.

1.15 ABANDON / REMOVE WATER MAIN AND APPPUR TenANCES

A. The unit price for Abandon/Remove Water Main and Appurtenances work includes:
   2. Excavating.
   3. Install bulkheads and abandon water line.
   4. Removing existing water main where in conflict with other utilities.
   5. Providing and placing flowable fill.
   7. Removal and disposal of appurtenances as shown on the Drawings.
B. Measurement for payment will not be made. This includes all of the project area.

C. The unit of measurement for payment is lump sum.

END OF SECTION
PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

<table>
<thead>
<tr>
<th>Bid Item No.</th>
<th>Description</th>
</tr>
</thead>
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<tr>
<td>SD-01</td>
<td>Clearing and Grubbing</td>
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<tr>
<td>SD-02</td>
<td>Unclassified Excavation</td>
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<td>SD-03</td>
<td>Remove Asphaltic Concrete Pavement</td>
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<tr>
<td>SD-04</td>
<td>Remove or Blackout Existing Paint Striping</td>
</tr>
<tr>
<td>SD-05</td>
<td>Mill Asphaltic Concrete Pavement</td>
</tr>
<tr>
<td>SD-06</td>
<td>Pulverize Asphaltic Concrete Pavement</td>
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<tr>
<td>SD-07</td>
<td>Salvage and Reuse Asphaltic Concrete Pavement and Aggregate</td>
</tr>
<tr>
<td>SD-08</td>
<td>Crushed Aggregate Base and Surface Course</td>
</tr>
<tr>
<td>SD-09</td>
<td>Crushed Aggregate Base and Surface Course (Shouldering)</td>
</tr>
<tr>
<td>SD-10</td>
<td>Rip Rap Erosion Control</td>
</tr>
<tr>
<td>SD-11 &amp; SD-12</td>
<td>Asphaltic Concrete Pavement</td>
</tr>
<tr>
<td>SD-13</td>
<td>Asphaltic Concrete Pavement Patch</td>
</tr>
<tr>
<td>SD-14 &amp; SD-15</td>
<td>Portland Cement Concrete Curb and Gutter</td>
</tr>
<tr>
<td>SD-16</td>
<td>Portland Cement Concrete Pavement</td>
</tr>
<tr>
<td>SD-17, SD-18 &amp; SD-19</td>
<td>Portland Cement Concrete Driveway and Sidewalk</td>
</tr>
<tr>
<td>SD-20</td>
<td>Provide Concrete Flume</td>
</tr>
<tr>
<td>SD-21</td>
<td>Deformed Reinforcement Bars</td>
</tr>
<tr>
<td>SD-22</td>
<td>Drilling Tie Bars</td>
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<tr>
<td>SD-23</td>
<td>Detectable Warning Field Natural</td>
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<tr>
<td>SD-24</td>
<td>Pavement Marking Epoxy Lines</td>
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<tr>
<td>SD-25</td>
<td>Pavement Marking Epoxy Symbols</td>
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<tr>
<td>SD-26 &amp; SD-27</td>
<td>Landscaping – Topsoil, Seed, Fertilize, and Mulch/Erosion Mat</td>
</tr>
<tr>
<td>SD-28</td>
<td>Site Access Restoration - Regrade Topsoil, Seed, Fertilizer and Mulch</td>
</tr>
</tbody>
</table>

B. Unit Prices include:

1. Defined work for each Unit Price Item which will provide a functionally complete Project when combined with all unit price items. If there are specific work items which the Contractor believes are not identified in any Unit Price Item, but is required to provide a functionally complete Project, then the identified specific work items shall be included in the appropriate Unit Price Item.

2. The method of measurement for payment.

3. The price per unit for payment.

1.2 GENERAL WORK ITEMS

A. Include with the appropriate Unit Price Item the following work items which are common to the Unit Price Items for street and drainage systems.
B. If there is a specific Unit Price Item for any of the following items, then the work item shall be included with that specific unit price item.
   1. Traffic Control.
   2. Saw cutting asphalt and/or concrete.
   3. Removal, hauling and disposal of surface materials including road pavement, curb and gutter, sidewalk, driveways and other pavement surfaces in the trench area and as shown on the drawings.
   4. Maintenance, protection, replacement and/or repair of facilities not designated for alteration on the Site.
   5. Site access requirements including temporary aggregate material as required for local traffic access.
   6. Dust control.
   7. Remove and replace existing mailboxes and traffic signs.
   8. Restroom facilities.
   9. Construction staking and other survey work not provided by the Engineer.
  10. Regulatory requirements.
  11. Quality assurance and quality control testing and inspections.
  12. Final casting and valve box adjustment.
  13. Shop drawings and other submittals.

1.3 CLEARING AND GRUBBING

A. The unit price for Clearing and Grubbing work includes:
   2. Cutting and disposing of trees, brush, windfalls, logs and other vegetation.
   3. Removing and disposing of roots, stumps, stubs, logs and other timber.
   4. Stripping and stockpiling topsoil.

B. Measurement of payment will not be made.

C. The unit of measurement for payment is lump sum.

1.4 UNCLASSIFIED EXCAVATION

A. The unit price for Unclassified Excavation work includes:
   2. Removal of topsoil to depth available.
   3. Hauling and stockpiling topsoil.
   4. Excavation to subgrades shown on the Drawings.
   5. Hauling of unclassified material.
   6. Placing unclassified material in fill areas to subgrades shown on the Drawings and the subgrade required for placement of topsoil.
   7. Compaction of subgrade and fill areas.
   8. Test rolling subgrade.
   9. Excavation of undercut areas for placing topsoil.
  10. Respreading topsoil to final grades shown on the Drawings.
11. Disposal of surplus topsoil, unclassified material and unsuitable material.
12. Preparation of disposal site and transportation of material over an Engineer approved haul route from the site including all loading and dumping of material.
13. Finish grading.

B. Measurement of payment will not be made unless there is a change in project scope. The estimated quantity represents the computed volume by comparing the triangulated surfaces and will be the basis for payment.

C. The unit of measurement for payment is cubic yards.

1.5 REMOVE ASPHALTIC CONCRETE PAVEMENT

A. The unit price for Remove Asphalitic Concrete Pavement work includes:
   2. Removing existing asphalt surface to length, width and depth as shown on Drawings or specified elsewhere.
   3. Hauling and disposing of removed asphaltic surface.
   4. Cleaning of area removed.
   5. Fine grading existing base to plan elevations.

B. Measurement of payment will be the average horizontal length and width of asphalt surface removed.

C. The unit of measurement for payment is square yards.

1.6 REMOVE OR BLACK OUT EXISTING PAINT STRIPING

A. The unit price for Remove or Black Out Existing Paint Striping Pavement work includes:
   2. Surface grinding or sand blasting of paint striping at locations and lengths shown on plans such that the existing pavement marking are no longer discernable (if applicable).
   3. Blacking out of existing striping with black paint at locations and lengths shown on plans such that the existing pavement marking are no longer discernable (if applicable).
   4. Containment of grindings or sand blasting.
   5. Cleaning of area where striping is removed.

B. Measurement for payment will not be made.

C. The unit of measurement for payment is lump sum.
1.7 MILL ASPHALTIC CONCRETE PAVEMENT

A. The unit price for Mill Asphaltic Concrete Pavement work includes:
   2. Milling to length, width and depth as shown on Drawings or specified elsewhere.
   3. Hauling and disposing of millings.
   4. Cleaning of area milled.

B. Measurement for payment will be the average horizontal length and width of roadway.

C. The unit of measurement for payment is square yards.

1.8 PULVERIZE ASPHALTIC CONCRETE PAVEMENT

A. The unit price for Pulverize Asphaltic Concrete Pavement work includes:
   2. Pulverizing asphaltic concrete pavement with crushed aggregate base course to a depth of 8-inches.
   3. Compacting and fine grading of pulverized material.

B. Measurement for payment will be the average horizontal length and width of roadway.

C. The unit of measurement for payment is square yards.

1.9 SALVAGE AND REUSE ASPHALTIC CONCRETE PAVEMENT AND AGGREGATE

A. The unit price for Salvage and Reuse Asphaltic Concrete Pavement and Aggregate work includes:
   2. Removal of pulverized asphaltic concrete pavement material and stockpiling material at location designated by the engineer.
   3. Placement of asphaltic concrete pavement and aggregate at locations and depths indicated on drawings.
   4. Compacting and fine grading of pulverized material.

B. Measurement of payment will not be made unless there is a change in project scope. The estimated quantity represents the computed volume by comparing the triangulated surfaces and will be the basis for payment.

C. The unit of measurement for payment is cubic yards.
1.10 CRUSHED AGGREGATE BASE AND SURFACE COURSE

A. The unit price for Crushed Aggregate Base and Surface Course work includes:
   2. Aggregate material.
   3. Preparation of foundation.
   4. Placing and compacting to thickness and width shown on the Drawings or specified elsewhere.
   5. Maintenance until surface pavement is constructed.
   6. Preparation of crushed aggregate base for paving.
   7. Adjustment of manholes and valve boxes to proposed finish road grade.

B. Measurement of payment will be the actual amount of material required and incorporated in the work verified by submitting to the Engineer delivery tickets provided with each load showing the weight measured on a certified scale, type of material, the date delivered and the project name. Aggregates in excess of seven percent (7%) total moisture determined based on the dry mass of the aggregates will have moisture content in excess of seven percent (7%) deducted from the measured weight.

C. The unit of measurement for payment is tons.

1.11 CRUSHED AGGREGATE BASE AND SURFACE COURSE (SHOULDERING)

A. The unit price for Crushed Aggregate Base and Surface Course (Shouldering) work includes:
   2. Aggregate material.
   3. Preparation of foundation.
   4. Placing and compacting to thickness and width shown on the Drawings or specified elsewhere.
   5. Maintenance until surface pavement is constructed.
   6. Preparation of crushed aggregate base for paving.
   7. Adjustment of manholes and valve boxes to proposed finish road grade.

B. Measurement of payment will be:
   1. Width:
      a. The width will not be greater than the maximum trench width at the surface which is greater of the pipe outside diameter plus twenty-four (24) inches or the distance from the surface to the top of the pipe embedment; or
      b. If the surface removal and the replacement limits are shown on the drawings outside the maximum trench width, then the actual average width of the area will be measured.
   2. The depth will be the actual measured depth not to exceed the depth shown on the drawings or specified elsewhere.
3. The length will be the actual length measured longitudinally along the installed facility.

C. The unit of measurement for payment is square yards.

1.12 RIP RAP EROSION CONTROL

A. The unit price for Rip Rap Erosion Control work includes:
   2. Provide rip rap material and geotextile fabric.
   3. Excavate and place rip rap material.

B. Measurement for payment will be the actual area installed.

C. The unit of measurement for payment is square yards.

1.13 ASPHALTIC CONCRETE PAVEMENT

A. The unit price for Asphaltic Concrete Pavement work includes:
   2. Asphaltic concrete mixture, tack coat and other required materials
   4. Provide tack coat on base material.
   5. Saw cutting and/or mill adjacent and abutting pavement surfaces.
   6. Asphaltic concrete placement and compaction to thickness and width shown on the drawings or specified elsewhere.
   7. Tack coat between asphaltic concrete courses and abutting pavements.

B. Measurement for payment will be the actual amount of material required and incorporated in the work verified by submitting to the Engineer delivery tickets provided with each load showing the weight measured on a certified scale, type of material, the date delivered and the project name.

C. The Unit Price shall be adjusted for deficiencies for less than minimum density represented by the average lot density of five nuclear density tests of 750 tons of asphaltic concrete placed as shown in the following table:

<table>
<thead>
<tr>
<th>Density Deficiency-Percent of Unit Price for Payment</th>
<th>%Lot Density Below Specified Minimum</th>
<th>WisDOT Mixes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>From 0.5-1.0 inclusive</td>
<td>98%</td>
</tr>
<tr>
<td></td>
<td>From 1.1-1.5 inclusive</td>
<td>95%</td>
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<tr>
<td></td>
<td>From 1.6-2.0 inclusive</td>
<td>91%</td>
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<tr>
<td></td>
<td>From 2.1-2.5 inclusive</td>
<td>85%</td>
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<tr>
<td></td>
<td>From 2.6-3.0 inclusive</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td>More than 3.0</td>
<td>0%</td>
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</tbody>
</table>
D. The unit of measurement for payment is tons.

1.14 ASPHALTIC CONCRETE PAVEMENT PATCH

A. The unit price for Asphaltic Concrete Pavement Patch work includes:
   2. Sawcutting.
   4. Asphaltic concrete mixture, tack coat and other required materials.
   5. Surface preparation.
   6. Grading subgrade (where required).
   7. Asphaltic concrete placement and compaction to thickness matching surrounding
      pavements.
   8. Tack coat between asphaltic courses and abutting pavements.

B. Measurement for payment will be the area of roadway patched.

C. The unit of measurement for payment is square yards.

1.15 PORTLAND CEMENT CONCRETE CURB AND GUTTER

A. The unit price for Portland Cement Concrete Curb and Gutter work includes:
   2. Providing Portland cement concrete mixture of size shown in the drawings or
      specified elsewhere.
   3. Providing expansion joints.
   4. Providing curing.
   5. Existing curb and gutter removal.
   7. Provide crushed aggregate base.
   10. Driveway entrances and handicap ramp entrances.
   11. Adjustment of catch basin/inlets.
   12. Finishing.
   13. Protection.
   14. Restoration behind the curb.

B. Measurement for payment will be along the flow line of the gutter and through
   inlets/catch basins.

C. The unit of measurement for payment is linear feet.
1.16 PORTLAND CEMENT CONCRETE PAVEMENT

A. The unit price for Portland Cement Concrete Pavement work includes:
   2. Furnish all labor, tools, equipment and services.
   3. Providing Portland cement concrete mixture of thickness shown in the drawings or specified elsewhere.
   5. Providing reinforcement including tie bars and dowel bars.
   6. Drilling tie bars and dowel bars into existing pavement.
   7. Joint sealing.
   8. Providing curing.
   9. Concrete sealing with linseed oil.
   10. Fine grading of subgrade.
   11. Providing expansion joints and contraction joints.
   12. Adjustment of manholes, water valves, inlets/catch basin and other structures to finish grade.
   14. Protection.

B. Measurement for payment will be length and width of areas paved. Concrete curb and gutter will be measured separately, regardless if the curb is installed with integral curb. Curb and gutter will be paid per linear foot for twenty-four (24) inch width. The width and length will be subtracted from the concrete pavement area if integral curb is constructed.

C. The unit of measurement for payment is square yard.

1.17 PORTLAND CEMENT CONCRETE DRIVEWAY AND SIDEWALK

A. The unit price for Portland Cement Concrete Sidewalk and Driveway work includes:
   2. Providing Portland cement concrete mixture of thickness shown in the drawings or specified elsewhere.
   3. Providing reinforcement.
   4. Providing expansion joint.
   5. Providing curing.
   6. Existing pavement removal.
   7. Subgrade preparation.
   8. Providing contraction joints.
   10. Sidewalk steps.
   11. Saw cutting adjacent surfaces.
   12. Finishing.
   13. Protection.
B. Measurement for payment will be the average horizontal length and width of the concrete placed.

C. The unit of measurement for payment is square yards.

1.18 PROVIDE CONCRETE FLUME

A. The unit price for Provide Concrete Flume work includes:
   2. Furnish all labor, tools, equipment and services.
   3. Providing Portland cement concrete mixture of thickness shown in the drawings or specified elsewhere.
   5. Providing reinforcement including tie bars and dowel bars.
   7. Providing curing.
   8. Concrete sealing with linseed oil.
   10. Providing expansion joints and contraction joints.
   11. Finishing.
   12. Protection.

B. Measurement for payment will be actual quantity of flumes constructed.

C. The unit of measurement for payment is each.

1.19 DEFORMED REINFORCEMENT BARS

A. The unit price for Deformed Reinforcement Bars work includes:
   2. Supply and install two - #4 deformed reinforcement bars over all trenches that fall under any portion of the concrete curb and gutter, sidewalk, and driveway being constructed.

B. Measurement for payment will be the horizontal length of each bar installed.
   1. This item applies to concrete curb and gutter, sidewalk, and driveway.
   2. This item does not apply to concrete pavement and patches.

C. The unit of measurement for payment is linear feet.

1.20 DRILLING TIE BARS

A. The unit price for Drilling Tie Bars work includes:
   2. Providing and installing tie bars, including coating.
   3. For drilling holes in concrete not placed under the contract.
4. For epoxying or driving.

B. Measurement for payment will be the actual number of bars installed.
   1. This item applies to concrete curb and gutter, sidewalk, and driveway.
   2. This item does not apply to concrete pavement and patches.

C. The unit of measurement for payment is each.

1.21 DETECTABLE WARNING FIELD NATURAL

A. The unit price for Detectable Warning Field Natural work includes:
   2. Providing and installing Detectable Warning Field per ADA requirements.
   3. Each detectable warning field shall be two (2) feet by four (4) feet.

B. Measurement for payment will be the actual number of detectable warning field installed.

C. The unit of measurement for payment is each.

1.22 PAVEMENT MARKING EPOXY LINES

A. The unit price for Pavement Marking Epoxy Lines includes:
   2. Providing and installing the Pavement Marking Epoxy Lines includes preparing the surface, including brush-off blasting of concrete, for providing all marking, including reflectorization with glass beads, for protecting marking until dry or cured, and for replacing marking improperly constructed or that fails during the warranty period.
   3. For remarking if initially applies at less than 90% of the specified rate.

B. Measurement of payment will be by the linear foot, calculates as follows:
   1. For solid lines; by adding the linear feet of solid line measured end to end.
   2. For intermittent lines; by multiplying the specified length of the individual marking of the line by the number of markings in the intermittent line end to end.

C. The unit of measurement for payment is linear feet.

1.23 PAVEMENT MARKING EPOXY SYMBOLS

A. The unit price for Pavement Marking Epoxy Symbols includes:
   2. Providing and installing the Pavement Marking Epoxy Words & Arrows includes preparing the surface, including brush-off blasting of concrete, for providing all marking, including reflectorization with glass beads, for protecting marking until
dry or cured, and for replacing marking improperly constructed or that fails during the warranty period.
3. For remarking if initially applies at less than 90% of the specified rate.

B. Measurement for payment will be by each individual unit.

C. The unit of measurement for payment is each.

1.24 LANDSCAPING- TOPSOIL, SEED, FERTILIZE AND MULCH/EROSION MAT

A. The unit price for Landscaping- Topsoil, Seed, Fertilize, and Mulch/Erosion Mat work includes:
2. Provide 4” topsoil or salvaged topsoil.
3. Provide seed.
4. Provide fertilizer.
5. Provide mulch where required on the plans.
6. Provide and place erosion mat material as stated in the Drawings or specified elsewhere.
7. Provide maintenance

B. Measurement for payment will be the width and length not greater than the road right-of-way, not greater than the easement and not greater than fifteen (15) feet beyond the top of either side of ditches outside the right-of-way.

C. The unit of measurement for payment is square yard.

1.25 SITE ACCESS RESTORATION – REGRADE TOPSOIL, SEED, FERTILIZER AND MULCH

A. The unit price for Site Access Restoration - Regrade topsoil, Seed, Fertilizer and Mulch.
2. Regrade topsoil of all disturbed areas on project from mobilization of equipment.
3. Provide seed.
4. Provide Fertilizer.
5. Provide mulch.
6. Provide maintenance.

B. Measurement for payment will be the width and length not greater than the easement.

C. The unit of measurement for payment is square yard.

END OF SECTION
SECTION 01 22 05

MEASUREMENT AND PAYMENT SPECIAL CONSTRUCTION

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

<table>
<thead>
<tr>
<th>Bid Item No.</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>SC-01</td>
<td>Pipe Foundation Stabilization</td>
</tr>
<tr>
<td>SC-02</td>
<td>Erosion Bales</td>
</tr>
<tr>
<td>SC-03</td>
<td>Erosion Control Logs</td>
</tr>
<tr>
<td>SC-04</td>
<td>Inlet Protection Erosion Control</td>
</tr>
<tr>
<td>SC-05</td>
<td>Tracking Pad</td>
</tr>
<tr>
<td>SC-06 &amp; SC-07</td>
<td>Adjusting Existing Structure Frame and Casting</td>
</tr>
<tr>
<td>SC-08</td>
<td>Polystyrene Insulation Board</td>
</tr>
<tr>
<td>SC-09</td>
<td>Remove and Reinstall Sign</td>
</tr>
<tr>
<td>SC-10</td>
<td>Remove Tree and Grind Stump</td>
</tr>
<tr>
<td>SC-11, SC-12 &amp; SC-13</td>
<td>Traffic Control</td>
</tr>
</tbody>
</table>

B. Unit Prices include:

1. Defined work for each Unit Price Item which will provide a functionally complete Project when combined with all unit price items. If there are specific work items which the Contractor believes are not identified in any Unit Price Item, but is required to provide a functionally complete Project, then the identified specific work items shall be included in the appropriate Unit Price Item.

2. The method of measurement for payment.

3. The price per unit for payment.

1.2 GENERAL WORK ITEMS

A. Include with the appropriate Unit Price Item the following work items which are common to the Unit Price Items for special construction.

B. If there is a specific Unit Price Item for any of the following items, then the work item shall be included with that specific unit price item.

1. Traffic Control.

2. Loading, hauling and disposing of surplus material.

3. Maintenance, protection, replacement and/or repair of facilities not designated for alteration on the Site beyond the limits identified.

4. Dust control.

5. Restroom facilities.

6. Construction staking and other survey work not provided by the Engineer.

7. Regulatory requirements.

8. Quality assurance and quality control testing and inspections.

9. Shop drawings and other submittals.
1.3 PIPE FOUNDATION STABILIZATION

A. The unit price for Pipe Foundation Stabilization work includes:
   2. Excavation below the limits of the pipe bedding with the bottom of the excavation wider than the top with 1:1 side slopes.
   3. Dewatering.
   4. Soil Class A-7 or A-8 aggregate material.
   5. Loading, hauling and disposing of surplus excavated material.

B. Measurement of payment will be the volume calculated based on:
   1. The actual depth from four (4) inches below the bottom of pipe to the bottom of the aggregate material placed.
   2. The bottom width is the actual width not to exceed the pipe outside diameter plus twenty-four (24) inches plus 1:1 side slopes.
   3. The top width is the pipe outside diameter plus twenty-four (24) inches.

C. The unit of measurement for payment is cubic yards.

1.4 EROSION BALES

A. The unit price for Erosion Bales work includes:
   2. Provide straw bales and anchor stakes.
   3. Excavate and embed the straw bales.
   4. Inspection and maintenance of the installed straw bales.
   5. Removal of the straw bales.
   6. Finish grading.
   7. Topsoil, seeding, fertilizing, and mulching area in the vicinity of the removed erosion bales which does not have established turf.

B. Measurement for payment will be the actual number of bales installed.

C. The unit of measurement for payment is each.

1.5 EROSION CONTROL LOGS

A. The unit price for Erosion Control Logs work includes:
   2. Provide erosion control logs.
   3. Placement of logs and anchor stakes at locations indicated on the plans.
   4. Inspection and maintenance of the installed erosion logs.
   5. Removal of the erosion logs.
   6. Finish grading.
   7. Topsoil, seeding, fertilizing, and mulching area in the vicinity of the removed erosion control logs which does not have established turf.
B. Measurement of payment will be the actual horizontal length installed.

C. The unit of measurement for payment is linear feet.

1.6 INLET PROTECTION EROSION CONTROL

A. The unit price for Inlet Protection Erosion Control work includes:
   2. Provide geotextile and wood materials for type shown on the Drawings.
   3. Placing inlet protection system.
   4. Inspection and maintenance of the installed inlet protection.
   5. Removal of the inlet protection.
   6. Cleaning debris buildup around inlet.

B. Measurement for payment will be actual number of inlet protection erosion control installed.

C. The unit of measurement for payment is each.

1.7 TRACKING PAD

A. The unit price for Tracking Pad work includes:
   2. Install to the dimensions as shown on the drawing or specified elsewhere.
   4. Providing crushed aggregate base course (3 inch clear stone).
   5. Daily maintenance of aggregate.
   6. Removal of aggregate and restore with topsoil, seed, fertilizer and mulch.

B. Measurement for payment will be the actual number of tracking pads installed.

C. The unit of measurement for payment is each.

1.8 ADJUST EXISTING STRUCTURE FRAME CASTING

A. The unit price for Adjusting Existing Structure Frame Casting work includes:
   2. City of De Pere will provide structure castings. Contractor will pick up castings at 925 South Sixth Street.
   3. Removal of the casting and existing adjusting rings from the structure as required.
   4. Providing concrete adjusting rings and a 2 inch rubber riser ring from the WisDOT approved product list.
   5. Bituminous plastic cement sealing the exterior of the adjusting rings and casting.
   6. The ring will be secured to the precast section with a 3 ½ inch wide Kent Seal or equal.
7. Above the concrete ring attach \(\frac{1}{4}\) inch thru 3 inch thick ring using two \(\frac{5}{16}\) inch bead above and below the ring of sealant type as recommended by the rubber manufacturer.
8. Initial and final adjustment.

B. Measurement for payment will be the actual number of structure frame casting adjusted.

C. The unit of measurement for payment is each.

1.8 POLYSTYRENE INSULATION BOARDS

A. The unit price for Polystyrene Insulation Boards work includes:
   2. Supply and install a 2-inch thick insulation board per the Standard Specifications along the top of the water main and/or service and 6-inch above the water main and/or service with pipe bedding in between the polystyrene board and pipe.

B. Measurement and payment will be the horizontal length installed.

C. The unit of measurement for payment is linear feet.

1.9 REMOVE AND REINSTALL SIGN

A. The unit price for Remove and Reinstall Sign work includes:
   2. Protection, removal, and storage of existing sign onsite.
   3. Removal and replacement of sign footing once localized work is completed.
   4. Reinstallation of sign to match pre-existing conditions.

B. Measurement for payment will not be made.

C. The unit of measurement for payment is lump sum.

1.10 REMOVE TREE AND GRIND STUMP

A. The unit price for Remove Tree and Grind Stump work includes:
   2. Cutting and disposing of tree.
   3. Grinding down of tree stump to a depth of one (1’) foot.
   4. Removing and disposing of roots and stump grindings.
B. Measurement and payment will be by the tree diameter in inches. The tree diameter will be determined by measuring the tree’s trunk diameter approximately 4-1/2 feet above the existing ground level, but above the ground swell, and dividing by three. Diameters will be rounded to the nearest inch.

C. The unit of measurement for payment is inch diameter.

1.11 TRAFFIC CONTROL

A. The unit price for Traffic Control Work includes:
   2. Providing, installing, maintaining, and removing the traffic control signing and barricades as shown on the plan and per the MUTCD.
   3. Traffic detour including covering signs when not in use.
   4. Flaggers per the MUTCD.
   5. Sidewalk closure.

B. Measurement for payment will not be made. This item applies to the specific bid item lists. All other traffic control is incidental to other items bid.

C. The unit of measurement for payment is for each intersection lump sum.

END OF SECTION
SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 SUMMARY

A. This section includes:
   1. Administrative and procedural requirements necessary to prepare and process
      Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Unit Price work will be the Schedule of Values used as the basis for reviewing
   Applications for Payment.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and
   payments as recommended by the Engineer and approved by Owner.

B. The date for each progress payment should be the 3rd Wednesday of each month.
   The period covered by each Application for Payment starts on the day following the
   end of the preceding period and ends the 4th Friday of the Month.

C. Use forms provided by Engineer for Applications for Payment. Sample copy of the
   Application for Payment and Continuation Sheet is included in Section 00 62 76.

D. Application Preparation Procedures
   1. When requested by the Contractor, the Engineer will determine the actual
      quantities and classifications of Unit Price Work performed.
      a. Preliminary determinations will be reviewed with the Contractor before
         completing Application for Payment.
      b. Engineer will complete the Application for Payment based on Engineer’s
         decision on actual quantities and classifications.
      c. Engineer will submit three original copies of Application for Payment to
         Contractor for certification of all three original copies.
      d. Contractor shall submit signed Application for payment to Owner for approval
         within time frame agreed to at the Preconstruction Conference.

2. If payment is requested for materials and equipment not incorporated in the Work,
then the following shall be submitted with the Application for Payment:
   a. Evidence that materials and equipment are suitably stored at the site or at
      another location agreed to in writing.
   b. A bill of sale, invoice, or other documentation warranting that the materials
      and equipment are free and clear of all liens.
c. Evidence that the materials and equipment are covered by property insurance.
3. Complete every entry on form. Execute by a person authorized to sign legal documents on behalf of Contractor.

E. With each Application for Payment, submit waivers of liens from subcontractors and suppliers for the construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested before deduction for retainage on each item.
2. When an application shows completion for an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work shall submit waivers.
4. Submit final Application for Payment with or proceeded by final waivers from every entity involved with performance of the Work covered by the application.
5. Submit waivers of lien on forms executed in a manner acceptable to Owner.

F. The following administrative actions and submittals shall precede or coincide with submittal of first Application for Payment:
1. List of subcontractors.
2. Schedule of Values (For Lump Sum Work).
3. Contractor’s construction schedule.

G. 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. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. Consent of Surety to Final Payment.
5. Final lien waivers as evidence that claims have been settled.
6. Final liquidated damages settlement statement.

PART 2 – PRODUCTS

PART 3 – EXECUTION

END OF SECTION
PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Photographs for utility construction sites.

1.2 SUBMITTALS

A. Submit electronic files of each photographic view within seven (7) days of taking photographs.

1.3 QUALITY ASSURANCE

A. Photographs are to be submitted to the Engineer for approval prior to the start of construction.

PART 2 – PRODUCTS

PART 3 – EXECUTION

3.1 UTILITY AND STREET CONSTRUCTION SITES

A. Prior to start of construction provide sufficient photographs to adequately show the existing facilities and conditions within and adjacent to the construction Site to serve as a guide for final restoration including:
   1. Roads including shoulders and/or curb and gutter.
   2. Sidewalks, parking areas, and driveways.
   4. Landscaping including signs, plantings, walls, fences, trees, shrubbery, etc.
   5. Mailboxes.
   6. Drainage facilities including culverts, inlets, ditches.
   7. Building structures.

B. During construction provide sufficient photographs (a minimum of one per 100 feet of installed utility) to adequately show construction means, methods, and Site conditions including:
   1. Crossings of other utilities.
   2. Exposure of existing structures.
   3. Soil conditions.

END OF SECTION
SECTION 01 33 00

SUBMITTALS

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for submittals:
   1. Progress Schedule.
   2. Schedule of Shop Drawings and Sample Submittals.
   3. Shop Drawings.

B. Failure to meet Submittal requirements to the satisfaction of the Engineer will constitute unsatisfactory performance of the work in accordance with the Contract Documents, therefore, the Engineer may recommend to the Owner that all or a portion of payments requested during the corresponding pay period be withheld until these requirements are met.

1.2 SUBMITTAL PROCEDURES

A. Coordination: Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related elements of the work so processing will not be delayed by the need to review submittals concurrently for coordination.
      a. The Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
   3. To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for re-submittals.
      a. Allow two weeks for initial submittal.
      b. Allow two weeks for reprocessing each submittal.
      c. No extension of Contract Time will be authorized because of failure to transmit submittals to the Engineer sufficiently in advance of the work to permit processing.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
   1. Assign a reference number to each submittal and re-submittal.
   2. Provide a space approximately four (4) by five (5) inches (100 by 125 mm) on the label or beside the title block on Shop Drawings to record the Contractor’s review and approval markings and the action taken.
3. Include the following information on the label for processing and recording action taken.
   a. Project name.
   b. Date.
   c. Name and address of the Engineer.
   d. Name and address of the Contractor.
   e. Name and address of the subcontractor.
   f. Name and address of the supplier.
   g. Name of the manufacturer.
   h. Number and title of appropriate Specification Section.
   i. Drawing number and detail references, as appropriate.

4. Each submittal shall be stamped by the Contractor indicating that submittal was reviewed for conformance with the Contract Documents. The Engineer will not accept unstamped submittals.

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal to the Engineer. The Engineer will not accept submittals received from sources other than the Contractor.
   1. On the transmittal, record relevant information and requests for Engineer action. On a form, or separate sheet, record deviations from Contract Document requirements, including variations, limitations, and justifications. Include Contractor’s certification that information complies with Contract Document requirements.

1.3 CONTRACTOR’S PROGRESS SCHEDULE

A. Prepare and submit to the Engineer within 10 (ten) days after the Effective Date of the Agreement, four copies of a preliminary progress schedule of the work activities from Notice to Proceed until Substantial Completion.
   1. Provide sufficient detail of the work activities comprising the schedule to assure adequate planning and execution of the work, such that in the judgment of the Engineer, it provides an appropriate basis for monitoring and evaluation of the progress of the work. A work activity is defined as an activity which requires substantial time and resources (manpower, equipment, and/or material) to complete and must be performed before the contract is considered complete.
   2. The schedule shall indicate the sequence of work activities. Identify each activity with a description, start date, completion date and duration. Include, but do not limit to the following items, as appropriate to this contract:
      a. Shop drawing review by the Engineer.
      b. Excavation and grading.
      c. Asphalt and concrete placement sequence.
      d. Restoration.
      e. Construction of various segments of utilities.
      f. Subcontractor’s items of work.
      g. Allowance for inclement weather.
      h. Contract interfaces, date of Substantial Completion.
i. Interfacing and sequencing with existing facilities and utilities.
j. Sequencing of major construction activities.
k. Milestones and completion dates.

B. Distribution: Following response to the initial submittal, print and distribute copies of the revised construction schedule to the Engineer, Subcontractors, and other parties required to comply with scheduled dates. When revisions are made, distribute to the same parties. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in construction activities.

C. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

D. Punch List: Prepare and submit to the Engineer within ten (10) days after substantial completion a detailed progress schedule for outstanding work and punch list items.

1.4 SCHEDULE OF SHOP DRAWINGS AND SAMPLE SUBMITTALS

A. Submit four (4) hard copies or electronic copies of preliminary submittal schedule in accordance with the General Conditions of the Contract and as follows:
   1. Coordinate submittal schedule with the subcontractors, Schedule of Values, and of products as well as the Contractor’s Progress Schedule.
   2. Prepare the schedule in chronological order. Provide the following information:
      a. Scheduled date for the first submittal.
      b. Related Section number.
      c. Submittal category (Shop Drawings, Product Data, or Samples).
      d. Name of the subcontractor.
      e. Description of the part of the work covered.
      f. Scheduled date for the Engineer’s final release or approval.

B. Distribution: Following response to the initial submittal, print and distribute copies of the revised construction schedule to the Engineer, Subcontractors, and other parties required to comply with scheduled dates. Post copies in the field office. When revisions are made, distribute to the same parties. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in construction activities.

C. Schedule Updating: Revise the schedule after each meeting or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

1.5 SHOP DRAWINGS

A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce
Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.

B. Collect product data into a single submittal for each element of construction of system. Product data includes printed information, such as manufacturer’s installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.

1. Mark each copy to show actual product to be provided. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
   a. Manufacturer’s printed recommendations.
   b. Compliance with trade association standards.
   c. Compliance with recognized testing agency standards.
   d. Application of testing agency labels and seals.
   e. Notation of dimensions verified by field measurement.
   f. Notation of coordination requirements.

C. Do not use shop drawings without an appropriate final stamp indicating action taken.

D. Submittals: Submit four (4) copies of each required submittal. The Engineer will retain two (2) copies, and return the others to the Contractor marked with action taken and corrections or modifications required.

E. Distribution: Furnish copies of reviewed submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms. Maintain one copy at the project site for reference.

1. Do not proceed with installation until a copy of the Shop drawing is in the Installer’s possession.
2. Do not permit use of unmarked copies of the Shop Drawing in connection with construction.

1.6 ENGINEER’S ACTION

A. Except for submittals for the record or information, where action and return is required, the Engineer will review each submittal, mark to indicate action taken, and return promptly. The Engineer will stamp each submittal with a uniform action stamp. The Engineer will mark the stamp appropriately to indicate the action taken, as follows:

1. “No Exceptions Taken”: The work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents.
2. “Make Corrections Noted”: The work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents.
3. “Amend and Resubmit”: Do not proceed with work covered by the submittal. Resubmit without delay. Do not use, or allow others to use, submittals marked “Amend and Resubmit” at the Project Site or elsewhere where work is in progress.

4. “Rejected – See Remarks”: Do not proceed with work covered by the submittal. Resubmit without delay. Do not use, or allow others to use, submittals marked “Rejected and Resubmit” at the Project Site or elsewhere where work is in progress.

B. Unsolicited Submittals: The Engineer will return unsolicited submittals to the sender without action.

PART 2 – PRODUCTS

PART 3 – EXECUTION

END OF SECTION
SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Underground Utilities.
   2. Property Monuments.
   3. Traffic Control.
   4. Permits for Project.

1.2 UNDERGROUND UTILITIES

A. Under the provisions of Wisconsin Statutes, Section 182.0175, all contractors, subcontractors, and any firm or individual intending to do work on this Contract shall contact all utility firms in the affected area of construction a minimum of three (3) working days prior to beginning construction so that affected utilities will be located and marked.

1.3 PROPERTY MONUMENTS

A. Protect iron pipe monuments from movement.

B. The cost of replacement of any monuments moved or destroyed during construction shall be the Contractor’s responsibility.

C. Perpetuation of destroyed or moved monuments shall be performed in accordance with state statutes by a registered land surveyor.

1.4 TRAFFIC CONTROL

A. Provide traffic control facilities including barricades, signs, lights, warning devices, pavement markings, flaggers, etc.

B. Construct and use traffic control facilities in accordance with the U.S. D. O. T. Federal Highway Administration’s Manual on Uniform Traffic Control Devices for Streets and Highways.

C. Maintain traffic control devices as required to properly safeguard the public travel through final completion, including during periods of suspension of work.
1.5 PERMITS FOR PROJECT

A. The following permits are being obtained by the Owner:
   1. Wisconsin Department of Natural Resources – Water Main Extension
   2. Wisconsin Department of Natural Resources – Sanitary Sewer Extension
   3. Wisconsin Department of Natural Resources – WRAPP (Storm Water Notice of Intent)
   4. Green Bay Metropolitan Sewerage District Plumbing Permit (1881 Southbridge Road)
   5. Green Bay Metropolitan Sewerage District Plumbing Permit (Ash Street Easement)
   6. Brown County Lane Closure Permit (Grant Street at Lawrence Drive)

B. Any costs associated with violations pertaining to the NOI permit will be the responsibility of the Contractor.

PART 2 – PRODUCTS

PART 3 – EXECUTION

END OF SECTION
SECTION 01 71 23

FIELD ENGINEERING

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Engineering Surveys Provided by the Engineer.
   2. Engineering Surveys Provided by the Contractor.

1.2 SUBMITTALS

A. None

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 PREPARATION

A. Investigate and verify the existence and location of site improvements, utilities, and other existing facilities.

B. Before construction, verify the location of invert elevations at points of connection of sanitary sewer, storm sewer, water piping and underground electrical services.

C. Furnish information to the Engineer and the appropriate utility regarding conflicts that are necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction.

D. Provide the Engineer two (2) working days advance notification when ready for engineering surveys for construction to be provided by the Engineer.

3.2 ENGINEERING SURVEYS TO BE PROVIDE BY THE ENGINEER

A. General
   1. Establish benchmarks for construction as shown on the drawings.
   2. Establish control points as shown on the drawings.

B. Gravity Sewer Systems and Water Distribution Systems
   1. Provide construction reference stakes set for pipe construction location at critical changes in horizontal and vertical alignment.
   2. Provide construction stakes for location of pipe at connections.
C. New Road Construction
   1. Provide construction slope intercept stakes for horizontal and vertical alignment on each side of the road base on each cross section in the cross section sheets for requests received at least seventy-two (72) hours before the related work begins.
   2. Provide construction reference stakes for subgrade at a minimum of fifty (50) foot intervals and maximum of one-hundred (100) foot intervals on tangents. Provide construction reference stakes for subgrade at twenty-five (25) foot intervals within vertical and horizontal curves. Provide a reference line stake at each location.
   3. Provide construction reference stakes for top of crushed aggregate at a minimum of fifty (50) foot intervals and maximum of one-hundred (100) foot intervals on tangents. Provide construction reference stakes for top of crushed aggregate at twenty-five (25) foot intervals within vertical and horizontal curves. Provide a reference or centerline stake.

3.3 ENGINEERING SURVEYS TO BE PROVIDED BY THE CONTRACTOR

A. General
   1. Locate, preserve and protect established construction reference stakes, benchmarks and control points.
   2. Locate, preserve and protect property corners and section corner monuments. If moved or destroyed due to Contractor negligence, then replace in accordance with state requirements; some of which are referenced in the “Regulatory Requirements”.
   3. Provide additional construction staking as necessary to complete construction based on the construction reference stakes provided by the Engineer and the Drawings.
   4. Before beginning with necessary construction staking, verify the information shown on the Drawings, in relation to the established construction reference stakes, bench marks, control points and property corners. Notify the Engineer of any discrepancies.
   5. Remove construction reference stakes when directed by the Engineer.

B. Gravity Sewer Systems and Water Distribution Systems
   1. Provide any intermediate construction reference points as required to verify installation at the line and grade established and locate appurtenant structures.
   2. Check the line and grade with construction reference stakes at each pipe length.

C. New Road Construction
   1. Provide additional construction reference stakes necessary to establish location and grade in accordance with the plans.

END OF SECTION
SECTION 32 11 26.16
PULVERIZED ASPHALT AND AGGREGATE BASE COURSE

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes
   1. Material testing.
   2. Foundation preparation.
   3. Pulverize asphalt and aggregate base course installation.

1.2 REFERENCES

A. Wisconsin Department of Transportation Section 325

1.3 QUALITY ASSURANCE

A. The Engineer will obtain an independent testing laboratory to provide quality control testing.

1.4 DELIVERY, STORAGE AND HANDLING

A. Stockpiling of Aggregates
   1. Store aggregates to prevent contamination by foreign matter or by aggregates of different sizes.

B. Delivery of Aggregates
   1. Vehicles used to transport aggregates shall be of a type to minimize loss of materials and excessive segregation of particles.

PART 2 – PRODUCTS

2.1 MATERIALS

2.2 SOURCE QUALITY CONTROL
3.1 PREPARATION OF FOUNDATION

A. Pulverize the full depth (shown on plans or elsewhere) of the existing asphaltic pavement and aggregate until 97 percent or more will pass the 2-inch sieve. Windrow material as construction operations dictate.

B. Preparation of foundation for pulverized asphalt and aggregate base course shall be in accordance with requirements of Section "Excavation and Fill".

C. Do not place the base course on a foundation that is soft or spongy or one that is covered by ice or snow.

D. Do not place base material on a dry or dusty foundation when existing condition would cause rapid dissipation of moisture from base material and hinder or preclude its proper compaction.
   1. Apply water to such dry foundations and rework or re-compact as necessary.

3.2 PULVERIZE ASPHALT AND AGGREGATE BASE COURSE INSTALLATION

A. Construct surface base course to the width, thickness, section, and location shown on the drawings.
   1. Maximum compacted thickness of any one layer shall not exceed 8 inches.

B. Spreading Base Material
   1. Proceed with the work such that the hauling equipment will travel over previously placed material.
   2. Route hauling equipment as uniformly as possible over all portions of the previously constructed layers of the base course.
   3. Deposit the material on the foundation or previously placed layer in such a manner as to minimize segregation and to facilitate spreading to a uniform layer of the required dimensions.

C. Compaction
   1. After a layer of aggregate has been placed and spread to the required thickness, width, and section, it shall be compacted.
   2. Compact the re-laid material first with either a rubber tired roller or 12.5-ton or heavier vibratory padfoot roller and second with an 8-ton or heavier vibratory steel roller. Add water, as required, both before and during compaction.
3. Each layer or course placed shall be compacted to at least 95 percent of the maximum dry density as determined by the Modified Proctor Test (ASTMD1557).

4. Areas where proper compaction is not obtainable due to segregation of materials, excess fines or other deficiencies shall be reworked or removed and replaced with material that will yield the desired results.

5. Prior to and during compaction operations, shape and maintain the material to the proper dimensions.

D. Maintenance
   1. Provide maintenance of the base course until surface paving is complete or until the base is otherwise accepted.

E. Dust Abatement
   1. Minimize the dispersion of dust from the base course by the application of water or other approved dust control materials.

END OF SECTION
SECTION 33 00 02.1

FUSIBLE POLYVINYL CHLORIDE (PVC) PIPE

1.1 SUMMARY

A. Section Includes:
   1. PVC pipe for water main

B. The products described are not installed under this Section.

C. This specification section is a supplemental to the City of De Pere 2012 Standard Specifications and Section 33 00 02 Polyvinyl Pipe (PVC) Pipe and Fittings.

D. This material specification covers the requirements of fusible polyvinylchloride pipe, including Fusible C-900 and Fusible C-905.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   2. D1785 Specifications for Poly (Vinyl Chloride) (PVC) Plastic Pipe Schedules 40, 80, and 120

B. American Water Works Association (AWWA)
   1. C900 Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4-inch through 12-inch for water
   2. C905 Standard for Polyvinyl Chloride (PVC) Water Transmission Pipe, Nominal Diameters 14-inch through 36-inch

C. National Sanitation Foundation (NSF)
   1. NSF-14 Plastic Piping System Components and Related Materials
   2. NSF-61 Drinking Water Components-Health Effects

D. PPI
   1. TR-2 PVC Range Composition Listing Qualified Ingredients
1.2 SUBMITTALS

A. Submit the following:
   1. Certification of productions date of all materials.
   2. Manufacturer’s certification that the materials delivered were manufactured, sampled, tested, and inspected in accordance with this specifications and appropriate referenced standards.
   4. Manufacturer’s recommendations for assembly.

1.4 QUALITY ASSURANCE

A. Make pipe available to the Engineer’s Representative for inspection.

B. Pipe shall be considered defective and will be rejected when:
   1. Pitted or cratered.
   2. Flaking.
   3. Straightness varies more than ½ inch in 10 feet.
   4. Any defect which prevents assembly according to manufacturer’s recommendations.
   5. Not utilized within six months of date of production.
   6. Pipe is not properly marked.

C. Material brands and/or pipe classes shall not be mixed.

D. Pipe Marking – pipe and fittings shall be marked as follows:
   1. Manufacturer’s name, trademark or logo.
   2. Nominal size.
   3. PVC cell classification.
   4. Pipe stiffness designation, dimension ration, or schedule size and pressure class.
   5. ASTM or AWWA specification designation.
   6. National Sanitation Foundation approval (pipe for potable water).
   7. Production date.

E. MANUFACTURER REQUIREMENTS
   1. All piping shall be made from PVC compound conforming to cell classification 12454 per ASTM D1784.

F. FUSION TECHNICIAN REQUIREMENTS
   1. Fusion Technician shall be qualified by the pipe supplier to install fusible polyvinylchloride pipe. Qualification shall be current as of the actual date of the fusion performance on the project.
G. SPECIFIED PIPE SUPPLIERS
   1. Fusible polyvinylchloride pipe shall be used as manufactured under the trade names Fusible C-900, or Fusible C-905 for Underground Solutions, Inc. or Engineer approved equal.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inspect the pipe shipment to identify shifted loads, broken packaging or rough treatment, which could be an indication of damage.

B. Unload the pipe in a manner which will not put stress on the pipe or strike anything causing damage.

C. Place and store the pipe package units on level ground stacked no more than 8 feet high. Do not store close to heat sources.

D. Store gaskets away from excessive exposure to heat, direct sunlight, ozone, oil or grease.

E. Store Solvent cement in tightly sealed containers away from excessive heat.

F. Handle pipe in a manner to prevent impact blows, abrasion damage, gouging or cutting.

G. When handling pipe in cold weather, provide additional care to prevent damage due to impact. Impact strength is reduced in cold weather.

PART 2 – PRODUCTS

2.1 WATER MAIN

A. Fusible polyvinylchloride pipe for potable water shall conform to AWWA C900, ASSA C905, or ASTM D2241, as applicable. Testing shall be in accordance with the referenced AWWA standards for all pipe types. Pipe shall be marked verifying suitability for potable water service per NSF-61.

B. Fusible polyvinylchloride pipe shall be extruded with plain ends. The ends shall be square to the pipe and free of any bevel or chamfer. There shall be no bell or gasket of any kind incorporated into the pipe.

C. The pipe shall be manufactured in a standard 40 foot nominal length or custom lengths, unless otherwise approved by the Engineer.
D. Pipe shall be blue in color for potable water use.

2.2 FUSION JOINTS

A. Unless otherwise specified, fusible polyvinylchloride pipe lengths shall be assembled in the field with butt-fused joints.

2.3 FUSIBLE POLYVINYLCHLORIDE SWEEPS OR BENDS

A. Sweeps or bends shall conform to the same sizing convention, diameter, dimensional tolerances and pressure class of the pipe being joined by the sweep or bend.

B. Sweeps or bends shall be manufactured from the same fusible polyvinyl chloride pipe being used for the installation, and shall have at least two feet of straight section on either end of the sweep or bend to allow for fusion of the sweep to the pipe installation.

C. Angles shall not be greater than 22.5 degrees, and shall be used in nominal diameters ranging from 4-inch through 16-inch.

PART 3 – EXECUTION

3.1 FUSION PROCESS

A. Pipe shall be handled in a safe and non-destructive manner before, during, and after the fusion process and in accordance with this specification and the pipe supplier guidelines.

B. Pipe shall be fused by a qualified fusion technician.

C. Pipe supplier’s procedures shall be followed at all times during fusion procedures.

D. Each fusion shall be recorded and logged by an approved electronic monitoring device (data logger) connected to the fusion machine, which utilizes a current version of the pipe suppliers recommended and compatible software.

E. Only appropriately sized and outfitted fusion machines that have been approved by the pipe supplier shall be used for the fusion process.

3.3 GENERAL INSTALLATION

A. Installation guidelines from the pipe supplier shall be followed for all installations.
B. The Pipe shall be installed in a manner so as not to exceed the recommended bending radius guidelines.

C. Where pipe is installed by pulling in tension, the recommended maximum safe pulling force, established by the pipe supplier, shall not be exceeded.

END OF SECTION
## EXHIBITS

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509 LEONARD STREET
SANITARY LATERAL REPAIR
169' FROM MH 19-IZSM08
APPROXIMATELY 18' DEEP TO FLOWLINE

Legend:
- Sanitary Manhole
- Sanitary Pump
- Sanitary Gravity Main
- Sanitary Pressurized Main

1 inch = 120 feet
1417 LOST DAUPHIN ROAD
SANITARY LATERAL REPAIR

28' FROM MANHOLE I7-1JYAKS
HOLE LOCATED AT BOTTOM OF LATERAL
CONNECTION OF 8" CLAY SAN. PROVIDE
NEW WYE AND RECONNECT LATERAL

Legend
- Sanitary Manhole
- Sanitary Pump
- Sanitary Gravity Main
- Sanitary Pressurized Main

1 inch = 138 feet

West Sewer & Water Relay
Project: 20-01A
01-2020
By: MAL
1285 NINTH STREET
OFFSET JOINT REPAIR

8' FROM G7-U1AD0G
APPROXIMATELY 12' DEEP
TO FLOWLINE

Legend
- Storm Manhole
- Storm End Wall
- Storm Catch Basin

Collectors
- Culvert
- Open Channel

1 inch = 121 feet

WestSewer & Water Relay
Project: 20-01A
01-2020
By: MAL
West Outfall Repair Location

Access to site from Southwest Park

1 inch = 200 feet
ECS Midwest, LLC
Geotechnical Engineering Report
De Pere Project 20-01

Various Streets
De Pere, Brown County, Wisconsin

ECS Project Number 59:1669-A

November 22, 2019
November 22, 2019

Mr. Eric Rakers
City of De Pere
925 South Sixth Street
De Pere, WI 54115
Email: erakers@mail.de-pere.org

ECS Project No. 59:1669-A

Reference:  Geotechnical Engineering Report
De Pere Project 20-01
Various Streets
De Pere, Brown County, Wisconsin

Mr. Rakers:

ECS Midwest, LLC (ECS) has completed the subsurface exploration, laboratory testing, and geotechnical engineering analyses for the above-referenced project. We performed our services in general accordance with our Proposal No. 59:1290, dated December 20, 2018. This report presents our understanding of the geotechnical aspects of the project, the results of the field exploration and laboratory testing conducted, and our design and construction recommendations.

It has been our pleasure to be of service to the City of De Pere on this project. We would appreciate the opportunity to continue our services during the remainder of design and provide our services during construction to verify the assumptions of subsurface conditions made for this report. Please contact us should you have any questions concerning the information contained in this report, or if we can be of further assistance to you.

Respectfully submitted,

ECS Midwest, LLC

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mking@ecslimited.com

Alex E. Barker, P.E.
Office Manager
abarker@ecslimited.com
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APPENDICES

Appendix A – Drawings & Reports
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Appendix B – Field Operations
• Reference Notes for Boring Logs
• Test Boring Log 1 through 7
• Soil And Site Evaluation - Storm

Appendix C – Supplemental Report Documents
• Important Information about This Geotechnical-Engineering Report
EXECUTIVE SUMMARY

The main findings of the exploration are briefly summarized below. Information gleaned from the executive summary should not be utilized in lieu of reading the entire geotechnical report.

- The geotechnical subsurface exploration performed at the sites included seven (7) standard penetration test borings. ECS drilled the borings to a depth of approximately 5 to 20 feet below the existing grade for a total of 65 feet.

- The borings generally encountered a topsoil or asphalt pavement section at the surface and then existing fill strata overlying a combination of glacial till and lacustrine soils, which extended to the termination depth of the borings. However, Boring 1, 5 and 7 did not contain existing fill strata. The encountered glacial till consisted of medium stiff to stiff lean clay (CL) and sandy lean clay (CL) soils, while the lacustrine soil consisted of medium stiff to very stiff silty clay (CL/ML), fat clay (CH), and lean clay (CL). Further, the existing FILL consisted of medium stiff to stiff organic silt (OL), lean clay (CL), and sandy lean clay (CL) soils.

- The drill crew observed the boreholes for a groundwater level during drilling and at the completion of drilling operations. However, none of the borings contained a groundwater level.

- ECS recommends the removal of all existing fill and organic soils from below utility structures and pipes.

- ECS anticipates Excavation Below Subgrade (EBS) will be performed where the encountered subgrade soils contain more than 5 percent organic content or proof-rolling operations indicate rutting or deflections in excess of 1 inch. Consideration should be given to providing EBS for frost concerns where the exposed subgrade contains highly frost susceptible soil (e.g. silt or silty clay).

- In our opinion, initial attempts to control groundwater seepage into excavations could include a series of sump pits and pumps. However, if the groundwater level cannot be controlled with a series of sump pumps, or where excavations extend below the static groundwater level, then dewatering efforts will require a more substantial system (such as temporary well point system).
1.0 INTRODUCTION

1.1 GENERAL

ECS prepared this report for the purpose of providing the results of our subsurface exploration and laboratory testing, site characterization, engineering analysis, and geotechnical opinions and recommendations concerning the potential suitability of the subject site for the design and construction of utility infrastructure, pavements, and storm water management systems. The report also includes our recommendations concerning geotechnical subgrade preparation, fill placement, dewatering and construction considerations.

1.2 SCOPE OF SERVICES

ECS performed seven (7) standard penetration test borings at the approximate locations shown on the Soil Bore Location maps dated September 2019, which were prepared by the City of De Pere. We also implemented a limited laboratory-testing program to characterize the physical and engineering properties of the subsurface soils.

This report discusses our exploration and testing procedures, presents our findings and evaluations, and includes the following.

- A brief description of our field and laboratory test procedures and results.
- A description of the observed surface topographical features and site conditions.
- A description of area and site geologic conditions.
- A description of the interpreted subsurface soil stratigraphy with pertinent available physical properties.
- Copies of our records of subsurface exploration (test boring logs).
- Recommendations for design of pavements (rigid and flexible) including subgrade preparation, soil parameters for WisDOT pavement design and pavement drainage.
- Recommendations for storm water infiltration.
- Utility construction considerations.
- Recommendations for site preparation and construction of engineered fills, including an evaluation of on-site soils for use as compacted fills, and delineation of potentially unsuitable soils.
- Evaluation and recommendations relative to groundwater control.

1.3 AUTHORIZATION

ECS provided services in accordance with our Proposal No. 59:1290, (dated December 20, 2018) and the "Agreement for Consulting Services – City of De Pere" authorized by Mr. Michael Walsh, Mayor and Ms. Shana Ledvina, Clerk-Treasurer (dated February 18, 2019), and includes the Terms and Conditions of Service outlined in the Proposal and Agreement.
2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION

The project sites are located in the City of De Pere, Brown County, Wisconsin. Specifically, the project sites are located at the following locations:

- East Matthew Drive Storm Ponds (Boring 1 and 2) located at the southeast corner of the intersection of East Matthew Drive and Suburban Drive.
- Cass Street (Boring 3) at the west cul de sac of the street.
- Alley (Boring 4) north of George Street, between Ontario Street and Winnebago Street.
- South 8th Street (Boring 5) between Main Avenue and Reid Street.
- Reid Street (Boring 6) between South 8th Street and Allard Street.
- Patriot Way (Boring 7) at its intersection with Patrick Henry Avenue.

The site location is shown in Figure 2.1.1 and on the Site Location Diagram in Appendix A of this report.

![Site Locations Diagram]

Figure 2.1.1 Site Locations (approximately outlined in red)

2.2 PAST SITE HISTORY/USES

ECS reviewed aerial photographs of the subject site dated 1992, 2005, 2006, 2008, 2010, 2011, 2015, 2017 and 2018. Based on our review of the aerial photographs, the site use at the East Matthew Drive Storm Ponds appeared to consist of vacant land used for storm water management. Further, the site use at Cass Street, Alley, South 8th Street, Reid Street, and Patriot Way appeared to consist of asphalt paved urban street sections. These site uses appeared to have remained relatively unchanged since at least 1992.
2.3 CURRENT SITE CONDITIONS

The site of the proposed construction consisted of groomed lawn and existing storm water pond at the East Matthew Drive Storm Ponds and an asphalt paved urban street section at Cass Street, Alley, South 8th Street, Reid Street, and Patriot Way at the time of drilling. The ground surface generally consisted of nearly level to gently sloping soils across the sites. However, ECS did not determine the surface elevation at the boring locations.

2.4 PROPOSED CONSTRUCTION

ECS understands the proposed project will include reconstruction of existing municipal utilities, roadway pavements, and storm water management devices. Further, we anticipate the proposed pavements will consist of a concrete or bituminous pavement section, and the new vertical and horizontal alignments will approximately match the existing alignments (less than 2 feet of elevation change). The planned traffic volume was not provided to us at the time of this report. **If the design changes, please notify ECS immediately so that we evaluate our recommendations and verify the recommendations are appropriate for the proposed construction.**

Where the borings encounter subsurface conditions that might be detrimental to the support of the proposed construction, ECS has assumed the owner will have an acceptable risk level if the detrimental material remains in place. With this in mind, this report assumes the owner would only be willing to accept a low risk for utility settlement in excess of 1 inch. In addition, we assume the owner would be willing to accept a moderate risk for reduced pavement performance. **If these assumptions concerning the owner’s acceptable risk level are incorrect, we should be immediately contacted so we can review our recommendations in light of the changed acceptable risk level.**
3.0 FIELD EXPLORATION

3.1 FIELD EXPLORATION PROGRAM

ECS used the boring depths and locations provided by Mr. Bob Krzewina of the City of De Pere, to characterize the project site in general geotechnical and geological terms, and to evaluate subsequent field and laboratory data to assist in the determination of geotechnical recommendations.

3.1.1 Test Borings

ECS drilled seven (7) standard penetration test borings within the limits of the proposed construction. The drill crew advanced four (4) of the borings to a depth of approximately 5 feet, one (1) to 10 feet, one (1) to 15 feet, and one (1) to 20 feet below the existing grade. We performed the borings with a truck vehicle mounted rotary drill rig utilizing continuous flight hollow stem augers (HSA).

City of De Pere personnel staked the test boring locations in the field. The approximate as-drilled test boring locations are shown on the Boring Location Diagram in Appendix A of this report. Please note, the drill crew offset Boring 1, 2, 3 and 5 from the marked locations because of conflicts with existing utilities or drill rig access concerns. The distance and direction of the offsets are noted on the boring logs in Appendix B of this report. However, our scope did not include obtaining the surface elevation at the boring locations.

The drill crew conducted standard penetration tests (SPTs) in the boreholes at regular intervals in general accordance with American Society for Testing Materials (ASTM) D1586 and American Association of State Highway and Transportation Officials (AASHTO) T206. The obtained standard penetration resistances provide a general indication of soil relative density and consistency. The drill crew chief visually and manually classified the samples in the field using ASTM D2488 as a guide. Field personnel then collected representative soil samples and returned them to the laboratory for further observation and verification of the field classification.

Some borehole backfill settlement or expansion can and will occur over time. Monitoring the boreholes after the initial drilling activities is not within our scope. Settlement or expansion of the borehole backfill can create a hazard and should be carefully monitored by the client.

3.2 SOIL SURVEY MAPPING

According to the Soil Survey from the USDA - Natural Resources Conservation Service (websoilsurvey.nrcs.usda.gov), which provides soil information to a shallow depth (generally less than 5 feet), the site soils are generally mapped as Fill land (Fd), Manawa silty clay loam (McA), Oshkosh sandy loam (OmB), and Oshkosh silt loam (OnB). These soil types are described with the following properties.

- Fill land (Fd) – Landforms consisting of human transported materials of various soil types. These soils are generally well drained and have a moderate potential for frost action. This soil type is mapped in the area of Boring 3.
• Manawa silty clay loam (McA) – Landforms consisting of drainageways with clayey till, and/or calcareous, dense clayey till. These soils are generally somewhat poorly drained, classified as being in Hydrologic Soil Group D, and have a moderate potential for frost action. This soil type is mapped in the area of Boring 2.

• Oshkosh sandy loam (OmB) – Landforms consisting of glacial lakes with silty loess over clayey lacustrine deposits. These soils are generally well drained, classified as being in Hydrologic Soil Group C, and have a moderate potential for frost action. This soil type is mapped in the area of Boring 5 and 6.

• Oshkosh silt loam (OnB) – Landforms consisting of glacial lakes with silty loess over clayey lacustrine deposits. These soils are generally well drained, classified as being in Hydrologic Soil Group C, and have a moderate potential for frost action. This soil type is mapped in the area of Boring 1, 4 and 7.

Soil mapping of the site vicinity is presented in the following figures.
Figure 3.2.2 Soil Survey Information (Cass Street)

Figure 3.2.3 Soil Survey Information (Alley)

Figure 3.2.4 Soil Survey Information (South 8th Street and Reid Street)
3.3 SUBSURFACE CHARACTERIZATION

The encountered subsurface conditions in the borings appeared to closely match published geological mapping, with the exception of the existing fill in Boring 2, 4 and 6. Table 3.3.1 of this report provides a generalized characterization of the soil strata encountered at the boring locations during our subsurface exploration. For subsurface information at a specific test boring location, refer to the boring logs in Appendix B of this report.

<table>
<thead>
<tr>
<th>Approximate Depth Range (feet)</th>
<th>Strata</th>
<th>Description</th>
<th>SPT(^{(1)}) N-value Range (bpf)</th>
<th>Unconfined Compressive Strength(^{(2)}) (tsf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>--</td>
<td>Approximately 2 to 3 inch thick topsoil layer at Boring 1 through 3, and 12 to 17 inch thick asphalt pavement section at Boring 4 through 7.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>2 - 4</td>
<td>I</td>
<td>FILL: medium stiff to stiff organic silt (OL), lean clay (CL), and sandy lean clay (CL) (Boring 2, 3, 4 and 6)</td>
<td>6 - 13</td>
<td>N/A</td>
</tr>
<tr>
<td>5 – 20 (End of Boring)</td>
<td>II</td>
<td>Glacial Till and/or Lacustrine: medium stiff to very stiff silty clay (CL/ML), sandy lean clay (CL), lean clay (CL) and fat clay (CH)</td>
<td>6 - 23</td>
<td>1.0 - 5.2</td>
</tr>
</tbody>
</table>

Notes: 
(1) Standard Penetration Test. 
(2) Based on calibrated hand penetrometer test

Where the drill crew used discontinuous material sampling intervals at the test borings, ECS inferred conditions between sample intervals. The soil stratification shown on the boring logs represents the interpreted soil conditions at the actual boring locations. Variations in the stratification can occur between sample intervals and boring locations. The subsurface conditions at other times and locations on the site may differ from those found at the boring locations. If different site conditions are encountered during construction, ECS should be contacted to review our recommendations relative to the new information.
The soil classifications noted on the boring logs may not be representative of the entire soil matrix because of the limitations of the split-spoon sampler, which has a 1⅜-inch inside diameter. Materials larger than the 1⅜-inch inside diameter of the split-spoon sampler cannot be collected and observed directly. Where possible, the drill crew noted on the boring logs the estimated depth of larger diameter materials, such as cobbles, based on things such as changes in the observed drilling resistance and auger cuttings.

3.4 GROUNDWATER OBSERVATIONS

The drill crew observed the bore holes for a measureable groundwater level during and at the completion of drilling operations. However, none of the borings contained a groundwater level.

The borings generally encountered soils with poor draining characteristics. With this in mind, in our opinion, the lack of an observed groundwater level in the borings may not necessarily indicate a static groundwater level below the termination depth of the boring at the time of this exploration program. In addition, variations in the long-term water table elevation may occur as a result of seasonal variations in precipitation, evaporation, surface water runoff, lateral drainage conditions, construction activities, and other factors. The time of year and the weather history during the advancement of the borings should be considered when estimating groundwater levels at other points in time.
4.0 LABORATORY TESTING

The following paragraphs briefly describe the results of the completed laboratory testing program. We performed classification and index property tests on representative soil samples obtained from the test borings to aid classification of the soils, and to help estimate engineering properties.

A geotechnical engineer visually classified each collected soil sample from the test borings on the basis of texture and plasticity using the Unified Soil Classification System (USCS) and ASTM D2488 (AASHTO T206), Standard Practice for Description and Identification of Soils (Visual- Manual Procedures) as a general guideline. After classification, the geotechnical engineer grouped the various soil types into the major zones noted on the test boring logs in Appendix B of this report. The group symbols for each soil type are indicated in parentheses before the soil descriptions on the test boring logs. The bracketed text noted on the boring logs after the group symbols indicates the AASHTO Classification. The stratification lines designating the interfaces between earth materials on the test boring logs are approximate; in-situ, the transitions may be gradual.

The soils retained from Boring 1 and 2 were also classified using the U.S. Department of Agriculture (USDA) Soil Classification System. The USDA classifications can be found on the "Soil and Site Evaluation – Storm" form included in Appendix B of this report.

ECS performed calibrated hand penetrometer tests (Qp) on select cohesive soil samples. In the hand penetrometer test, the unconfined compressive strength of a soil sample is estimated, to a maximum of 6.0 tons per square foot (tsf), by measuring the resistance of a soil sample to penetration by a small, calibrated, spring-loaded cylinder. The hand penetrometer test results can be found on the boring logs.

The soil samples will be retained in our laboratory for a period of 60 days, after which, they will be discarded unless other instructions are received as to their disposal.
5.0 DESIGN RECOMMENDATIONS

5.1 PAVEMENT DESIGN CONSIDERATIONS

Subgrade Characteristics: The pavement design recommendations assume the subgrade consists of suitable materials evaluated by ECS, and the subgrade is prepared as recommended in the Subgrade Preparation and Earthwork Operations sections of this report.

Based on the results of our soil borings, ECS recommends the use of the pavement subgrade design parameters noted in Table 5.1.1 of this report, which provides values for the first suitable soil strata encountered in the borings. ECS obtained the values for the Soil Support Value and Design Group Index from the WisDOT Pavement Design Manual and Frost Index values from the frost susceptibility classifications according to the U.S. Army Corps of Engineer’s criteria. We estimated the Subgrade and Resilient Modulus values based on historical testing of similar soil.

For grading work and drainage design, shrinkage should be in the range of 20 to 35 percent for the encountered soils. These values correlate to expansion factors of 25 to 54 percent. For design purposes we recommend using an average shrinkage factor of 25 percent (33 percent expansion factor).

<table>
<thead>
<tr>
<th>Boring Number</th>
<th>Location</th>
<th>Soil Classification</th>
<th>Subgrade Reaction Modulus, K (psi/in)</th>
<th>Resilient Modulus, M_r (psi)</th>
<th>Frost Index</th>
<th>Soil Support Value</th>
<th>Design Group Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>East Matthew Storm Pond</td>
<td>CH A-7-6</td>
<td>100</td>
<td>2,600</td>
<td>F-3</td>
<td>3.8</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>East Matthew Storm Pond</td>
<td>CL [FILL]^4 A-6</td>
<td>125</td>
<td>2,800</td>
<td>F-3</td>
<td>4.2</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>Cass Street</td>
<td>CL A-6</td>
<td>150</td>
<td>3,000</td>
<td>F-3</td>
<td>4.2</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Alley</td>
<td>CL [FILL]^4 A-6</td>
<td>125</td>
<td>2,800</td>
<td>F-3</td>
<td>4.2</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>South 8th Street</td>
<td>CL A-6</td>
<td>150</td>
<td>3,000</td>
<td>F-3</td>
<td>4.2</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>Reid Street</td>
<td>CL A-6</td>
<td>150</td>
<td>3,000</td>
<td>F-3</td>
<td>4.2</td>
<td>12</td>
</tr>
<tr>
<td>7</td>
<td>Patriot Way</td>
<td>CL A-6</td>
<td>150</td>
<td>3,000</td>
<td>F-3</td>
<td>4.2</td>
<td>12</td>
</tr>
</tbody>
</table>

Notes: 1. All design parameters are estimates only, and are based on historical data for similar soil types. If more accurate values are required, additional testing should be performed.
2. Design parameters are for the first suitable soil strata below the proposed pavement elevation encountered in the borings. If more than 2 feet of sub-base fill material is placed, the characteristics of the fill will govern the pavement design.
3. General boring locations determined by City of De Pere personnel.
4. Denotes existing fill which, understanding the risks noted in the Subgrade Preparation section of this report, is suitable to support the proposed pavement section.

Areas of subgrade stabilization and/or undercut may be needed because of the potentially variable support of the existing fill, especially if the subgrade is subjected to construction traffic disturbance or if construction is during adverse weather conditions. A reduced service life, increased pavement maintenance and associated costs should be expected because of the existing fill subgrade. In addition, consideration should be given to providing Excavation Below Subgrade (EBS) for frost.
concerns in areas where the exposed subgrade contains highly frost susceptible soil (e.g. silt or silty clay).

The ends of over-excavated areas should be sloped across a minimum length of 10 feet to reduce the potential abrupt changes in the pavement support characteristics that could lead to future pavement distress. Furthermore, in areas requiring over-excavation for detrimental frost concerns and in trenches for utilities, ECS recommends constructing transition zones, which are wedges of backfilled soil used to mask the distinct difference between the native soils and the backfilled area (such as trenches for utilities). The transition zone should start at the trench walls, and a depth of 3 feet below the finished pavement, and rise at a slope of 1 vertical to 3 horizontal as it extends perpendicular to the trench. However, transition zones would not be necessary where EBS areas are backfilled with soils similar to the native soils, or where the native soils contain less than 30 percent material passing the #200 sieve.

Prior to placing the aggregate base material, the pavement subgrade should be prepared as recommended within this report. Crushed aggregate base course utilized below pavements should meet Section 305 of the WisDOT Standard Specifications for Road and Bridge Construction and the gradation should meet the "1¼ inch" specification. The crushed aggregate base course should be compacted to at least 95 percent of the maximum dry density obtained in accordance with ASTM D1557, Modified Proctor method. As an alternative, a dense graded base meeting the "3 inch" specification can be used for the lower 8 inches of the base course layer to bridge over softer subgrade soils.

The aggregate used in the bituminous mixture should meet the 19.0 mm gradation for the lower pavement layer and the 12.5 mm gradation for the upper pavement layer as specified in Section 460 of the WisDOT Standard Specifications for Road and Bridge Construction. The asphalt pavement should be compacted to a minimum of 93 percent of the theoretical density value.

Adequate construction joints, contraction joints and isolation joints should be provided in the areas of rigid pavement to reduce the impacts of cracking and shrinkage. Please refer to ACI 325.12R-02 Guide for Design of Jointed Concrete Pavements for Streets and Local Roads (Reapproved 2013). The Guide recommends an appropriate spacing strategy for the anticipated loads and pavement thickness. It has been our experience that joint spacing closer to the minimum values results in a pavement with less cracking and better long-term performance.

Weather Restrictions: In this region, asphalt plants may close during the months of December through March, and/or April if particularly cold weather conditions prevail. However, this can change based on year to year temperature fluctuations. Daily temperatures from December to March will often stay below 40°F, limiting the days that asphalt placement can occur.

Pavement Drainage: An important consideration with the design and construction of pavements is surface and subsurface drainage. Where standing water develops, either on the pavement surface or within the base course layer, softening of the subgrade and other problems related to the deterioration of the pavement can be expected. The final pavement surface should be shaped or crowned to properly direct surface water to suitable on or off-site storm water drainage infrastructure. In addition, the clayey pavement subgrade should be properly sloped to avoid dips or pockets where water may become trapped. Dips in the clayey subgrade could result in a
“bathtub” effect, which may trap water and potentially soften the subgrade. Good drainage should help reduce the possibility of the subgrade materials becoming saturated over a long period of time.

Infiltration and subterranean water are generally the main sources of water that should be considered in the design of the pavement. Based on the lack of an observed groundwater level in the borings, we consider surface water infiltration through the pavement joints, pores or cracks in the pavement, and through shoulders and areas adjacent to pavements to be the main source of water to be considered for pavement design on this project. To reduce the potential for shallow perched water to develop in areas of the site, “stub” or “finger” drains should be considered around catch basins and in other low-lying areas to reduce the accumulation of water above and within the subgrade soils and aggregate base. As an alternative to the use of stub or finger drains, existing manholes and storm sewer inlets could be perforated with 1-inch diameter holes at 2-foot centers, and the manhole/inlet wrapped with non-woven geotextile to reduce migration of material into the manhole/inlet. The holes could be placed at 90 degree intervals around the perimeter of the manhole, and the excavation around the manhole backfilled with free draining granular materials.

Sheet drainage across large pavement areas allows more water to enter the pavement through openings, cracks and weak points over time, which can adversely affect the base course and subgrade. This can increase the potential risk of premature pavement deterioration, distress and long-term pavement maintenance issues. Intermediate drains should be installed at adequate intervals to reduce the length of sheet flow across the pavement surface.

**Pavement Maintenance:** A sound maintenance program should be implemented to help maintain and enhance the performance of pavements, and help attain the design service life. A preventative maintenance program should be implemented early in the pavement life to be effective. The “standard in the industry” supported by research indicates that preventative maintenance should typically begin within 2 to 5 years of the placement of pavement. However, maintenance of pavement on undocumented fill sites may require more maintenance and sooner. Failure to perform preventative maintenance will reduce the service life of the pavement, and increase the costs for corrective maintenance and full pavement rehabilitation. To help reduce water infiltration thru the pavement section into the base course layer, which may result in softening of the subgrade and deterioration of the pavement, we recommend timely sealing of pavement joints and cracks with elastomeric caulk. We recommend exterior pavements be observed for distresses, such as cracks, depressions and poor drainage, at least twice a year, typically once in the spring and fall.

5.2 INFILTRATION DESIGN CONSIDERATIONS

The recommendations presented in this section follow the general guidelines of WDNR Conservation Practice Standard 1002, Site Evaluation for Stormwater Infiltration.

ECS understands a storm water management device would likely be constructed in the area of Boring 1 and 2. The “Soil and Site Evaluation – Storm” log included in Appendix B of this report indicates the storm water design parameters for each soil strata encountered in these borings. We determined the design infiltration rate using Table 2 of the Wisconsin Department of Natural Resources Conservation Practice Standards “Site Evaluation for Storm Water Infiltration (1002)”.

**Design Infiltration Rates:** Based on the results of the exploration, the borings encountered soils that have a USDA soil classification of clay (c). Based on the soil textural classification and the
guidelines provided in Table 2 of the WDNR Conservation Practice Standard 1002, the infiltration rate of the clay soils encountered in the borings is 0.07 inches per hour. The soil infiltration rate for each soil strata encountered in the borings can be found on the *Soil and Site Evaluation – Storm* form included in Appendix B of this report. Infiltration rates based on soil textural classification and the guidelines provided in Table 2 of the WDNR Conservation Practice Standard 1002 should be adjusted for the least permeable soil layer within 5-feet of each of the listed intervals.

Estimation of the final design infiltration rate should consider the effects of any engineered fill placed, surface vegetation, erosion control devices, and potential groundwater mounding. Prior to and during construction, the design infiltration rate of the soil at the basin bottom should be verified. Compaction of the basin bottom subgrade during and following construction should be prevented as this may reduce the infiltration rate of the soil. This may require exclusion of construction traffic from the infiltration bottom, or loosening of the subgrade soil, such as by raking or discing. Sediment allowed to accumulate at the basin bottom will reduce infiltration. Measures should be taken to reduce accumulation of sediment. Periodic removal of sediment should be expected.

**Infiltration Feasibility:** Based on the conditions encountered in the test borings, the site is considered to have a low capacity for the infiltration of storm water because of the predominant clayey soils encountered at the test boring locations. In accordance with Section V, Step C5 of the Wisconsin Department of Natural Resources (WDNR) Conservation Practice Standard 1002, the clayey soils have a correlated infiltration rate of 0.07 inches per hour, which is less than 0.6 inches per hour, and as such, these soils are anticipated to be exempt from the infiltration requirements per section NR 151.12(5)(c)6.a of the Wisconsin Administrative Code. Our scope of services is not inclusive of all steps involved in the initial site screening (Part A) of the WDNR Technical Standard 1002. Therefore, other conditions may exist at, or near the site that could exclude or exempt the site, or portions of the site from the infiltration requirements. Additional evaluation must be conducted prior to the design and implementation of an infiltration device at this site so that its construction meets Wisconsin Administrative Code requirements.

Details of the proposed storm water management device were not provided to ECS at the time of this report preparation; it is recommended ECS be provided the storm water management plans, when available, to check that the recommendations provided herein are applicable. ECS should also be called on to provide observation and testing during infiltration basin construction.
6.0 SITE CONSTRUCTION RECOMMENDATIONS

6.1 SUBGRADE PREPARATION

6.1.1 Existing Utilities

ECS recommends utilities not reused should be capped-off and removed or properly abandoned in-place in accordance with local codes and ordinances. The excavations for utilities to be removed in the influence zone of new construction are recommended to be backfilled with engineered fill. Grading operations must be done carefully so that existing utilities are not damaged or disturbed. Utility invert elevations, depths and sizes should be checked relative to the planned utility and pavement elevations to determine what specific concerns are present.

6.1.2 Stripping and Initial Site Preparation

The subgrade preparation should consist of stripping all pavement to be removed, organic soils (topsoil) and any other soft or unsuitable materials from the 5-foot expanded pavement limits and 5 feet beyond the toe of engineered fills, where feasible. ECS should be called on to observe and document that topsoil and other unsuitable surficial materials have been removed prior to the placement of engineered fill or construction of structures. Please note, topsoil removal should not be based on soil coloration alone. After removal of the root mat, it may be possible to leave some darker soils in place provided the soil contains no more than 5 percent organic matter as determined by ASTM D2974, has the recommended strength characteristics and is stable under proofroll. A landscape architect should approve any topsoil or other materials proposed for use in future landscape areas.

6.1.3 Special Subgrade Preparations – Utilities

The existing fill encountered in Boring 2, 3, 4 and 6 present a concern for the support of utility pipes and structures. The existing fill extended to a depth of between 2 and 4 feet below the existing grade. We anticipate the utilities will likely extend below the encountered fill depths. However, deeper existing fill could be encountered during construction, so the owner should be aware of an increased risk of settlement in excess of 1 inch associated with the construction of utilities on these soils. In our opinion, the risk would be high for utilities constructed on undocumented fill. Based on the anticipated acceptable risk level of the owner, ECS recommends the removal of all existing fill from below utility pipes and structures.

Excavations subcut below the proposed pipe or structure elevation should be oversized one foot horizontally in each direction for every foot of sub-base fill placed below the pipe or structure, to a maximum oversize of 3 feet on each side of the pipe. All over-excavated soils should be replaced with properly compacted engineered fill.

6.1.4 Special Subgrade Preparations – Pavements

In general, pavements derive their strength from the characteristics of the subgrade soils, the sub-base fill and the base course, and the concrete or bituminous upper layer and lower layer mixtures. In the design of the pavement, the total pavement thickness typically includes the concrete or bituminous mixtures, base course, and sub-base fill. The site has generally suitable
conditions for the proposed pavement construction. However, the existing fill and frost susceptible soils encountered in the borings present concerns for the pavement performance.

**Existing Fill:** The existing fill encountered in Boring 2, 3, 4 and 6 extended to a depth of between 2 and 4 feet below the existing grade. Existing fill provides a concern for the performance of the pavement system. The owner should be aware of the increased risk for a reduced pavement performance associated with constructing pavements on undocumented fill. The risk exists because undocumented fill has a higher potential for variable density. In addition, this risk tends to increase with the presence of organic soils (more than 5 percent organic content). However, because of natural soil variability, every construction site has at least a very low risk for a reduced pavement performance.

Based primarily on the standard penetration N-values, in ECS's opinion, the risk for reduced pavement performance associated with the existing fill at this site would generally be moderate to high. However, the risk could be reduced to a low risk where the existing fill contains less than 5 percent organic content and proof-rolling observations do not indicate rutting or deflection greater than 1 inch. Based on our assumption of the owner’s acceptable level of risk, we recommend removing all existing fill which contains greater than 5 percent organic content, or does not meet the above proof-rolling requirements, from within 2 feet of the finished pavement grade. The removed material should then be replaced with a compacted engineered fill in accordance with the Earthwork Operations section of this report.

**Frost Susceptible Soils:** The frost susceptible clayey and silty soils encountered in the borings provide another concern for the pavement system. ECS wishes to note, a risk for reduced pavement performance exists with the construction of pavements on frost susceptible soil. The reduced pavement performance may occur because of potential detrimental frost heaving and spring thaw weakening. The risk associated with frost susceptible soils can be reduced by removal of all frost susceptible soils within 3 feet of the finished pavement grade. In our opinion, the risk at this site related to the frost susceptible soils would generally be moderate. However, the risk would be high to very high in areas where highly frost susceptible silt or silty clay soil is present within 3 feet of the finished pavement grade.

**Summary:** Based on our assumption of the owner's acceptable risk level (as outlined in the "Project Information" section of this report), we recommend the following:

1. Remove all existing fill soils from within 2 feet of the finished pavement grade, unless it contains less than 5 percent organic content and proof-rolling observations do not indicate rutting or deflection greater than 1 inch.

2. All over-excavated material should be replaced with compacted engineered fill in accordance with the Earthwork Operations section of this report.

3. If the owner is willing to accept a moderate risk for reduced pavement performance, then we anticipate a majority of the frost susceptible soils that have adequate strength will remain in place below pavements. However, we recommend removing all highly frost susceptible soils (e.g. silt and silty clay) from within 3 feet of the finished pavement grade.
6.1.5 Proofrolling

After the removal of all unsuitable surface materials, cutting to the proposed subgrade, and prior to the placement of any engineered fill or other construction materials, the exposed subgrade should be observed by ECS. The contractor should thoroughly proofroll the exposed subgrade with previously approved construction equipment having a minimum axle load of 9 tons (e.g. fully loaded tandem-axle dump truck in clayey soils or large smooth drum roller in sandy soils). The contractor should traverse the areas subject to proofrolling by the equipment in two perpendicular (orthogonal) directions with overlapping passes of the vehicle under the observation of ECS. This procedure is intended to assist in identifying any localized yielding materials. Unstable or pumping subgrade areas identified during the proofroll should be marked for repair prior to the placement of any subsequent engineered fill or other construction materials. Unstable subgrade repair methods, such as undercutting or moisture conditioning or chemical stabilization, should be discussed with ECS to determine the appropriate procedure(s) with regard to the existing conditions causing the instability. A test pit(s) may be excavated to explore the shallow subsurface materials in the area of the instability to aid in determining the cause of the observed unstable materials and to assist in the evaluation of the appropriate remedial action to stabilize the subgrade.

Near surface subgrade soils having a high moisture content and/or those having N-values less than 10 bpf may not pass a proofroll, and may need to be undercut or repaired. Some undercutting or repair of unstable subgrade soils should be anticipated during pavement subgrade preparation. If construction will occur during wet times of the year (such as during the spring or fall months) or immediately following extended periods of rain, then seasonal reduction of the near surface soil strength will occur. This may cause additional unstable or pumping subgrade areas for constructability concerns.

The actual quantity of the subgrade undercut or stabilization should be determined by ECS at the time of construction.

6.1.6 Site Temporary Dewatering

None of the borings encountered a measureable groundwater level. However, seasonal variations in precipitation and site drainage conditions can cause the accumulation of water in the upper soils, particularly within existing fill and more permeable granular soils underlain by less permeable clayey soils. Where excavations extend less than 2 feet below the groundwater level, initial attempts to control water may be accomplished by pumping from sump pits in the excavation bottom, which are backfilled with AASHTO Size No. 57 Stone or open-graded bedding material. If water control cannot be maintained with sump pumps, or where excavations extend more than 2 feet below the static groundwater level, a more substantial excavation dewatering system, such as a temporary well point system, may be required to control groundwater seepage during construction. Dewatering should continue until all earthwork operations and backfilling have extended above the water table.

Lowering the static groundwater level can adversely affect nearby structures, utilities and other construction. We recommend any dewatering scheme be reviewed by ECS and a contractor who specializes in this type of work prior to its implementation.
6.1.7 Subgrade Stabilization

**Subgrade Benching:** Fill should not be placed on ground with a slope steeper than 5H:1V. The ground should be benched so as to allow for fill placement on a horizontal surface.

**Subgrade Compaction:** Upon completion of subgrade documentation, the exposed subgrade within the 5-foot expanded pavement area limits should be moisture conditioned to within -1 to +3 percent of the soil’s optimum moisture content to a depth of 10 inches, and be compacted with suitable equipment (minimum 10-ton vibratory roller for granular soils or a sheepfoot roller for cohesive soils). The subgrade within the expanded pavement limits should be compacted to a dry density of at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557). Beyond these areas, compaction should be to at least 90 percent. ECS should be called on to document the achievement of proper subgrade compaction.

**Subgrade Compaction Control:** The expanded limits of the proposed construction areas should be well defined, including the limits for structures, pavements, fills, and slopes, etc. We recommend performing field density testing of subgrade soils at the frequencies listed in Table 6.1.1 of this report.

<table>
<thead>
<tr>
<th>Location</th>
<th>Frequency of Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavement Areas</td>
<td>1 test per 10,000 sq. ft.</td>
</tr>
<tr>
<td>Other Non-Critical Areas</td>
<td>1 test per 10,000 sq. ft.</td>
</tr>
</tbody>
</table>

**Subgrade Stabilization:** In some areas, particularly low-lying, wet areas of the site, undercutting of excessively soft materials may be considered inefficient. In such areas the use of a reinforcing geotextile or geogrid might be employed, under the advisement of ECS. Suitable stabilization materials may include medium duty woven geotextile fabrics or geogrids. The suitability and employment of reinforcing or stabilization products should be determined in the field by ECS personnel, in accordance with project specifications.

6.2 EARTHWORK OPERATIONS

6.2.1 Engineered Fill Materials

**Product Submittals:** Prior to placement of engineered fill, representative bulk samples (about 50 pounds) of on-site and off-site borrow should be submitted to ECS for laboratory testing, which will include natural moisture content, grain-size distribution, and moisture-density relationships for compaction. Import materials should be tested prior to being hauled to the site to determine if they meet project specifications.

**Satisfactory Engineered Fill Materials:** Engineered fills should consist of approved materials, free of organic matter and debris, contain no particle sizes greater than 3 inches in the largest dimension, and have a Liquid Limit and Plasticity Index less than 40 and 15, respectively. Open-graded materials, such as coarser sands and gravels (SP and GP), which contain void space in their mass should not be used in engineered fills unless properly encapsulated within a filter geotextile.
If the fill is to provide non-frost susceptible characteristics, it must be classified as a clean GW, GP, SW or SP per Unified Soil Classification System (ASTM D-2487).

**Unsatisfactory Materials:** Unsatisfactory engineered fill materials, which do not satisfy the requirements for suitable materials, include topsoil and organic materials (PT, OH, OL), silt (ML), sandy silt (ML), elastic Silt (MH), silty clay (CL-ML), sandy silty clay (CL-ML) and high plasticity clay (CH). Topsoil is not recommended to be used as engineered fill, but may be suitable for use within future landscape areas. A landscape architect should approve any materials proposed for use in future landscape areas.

Pea gravel is not recommended to be used as engineered fill. Pea gravel has round/smooth characteristics, no fines and does not interlock when compacted, which makes it more susceptible to future movement and instability resulting in excessive and variable settlement.

**On-Site Borrow Suitability:** The on-site soil, with the exception of silty clay (CL-ML) and fat clay (CH), may be feasible to use as engineered fill, but should be further evaluated and approved by ECS prior to its use. On-site soil used as engineered fill must not contain an adverse amount of organic matter, and must be free of frozen matter, deleterious materials, over-sized material (maximum 3-inch particle diameter), or chemicals that may result in the material being classified as “contaminated.” Depending on the conditions at the time of construction, the use of on-site soil for foundation support may not be practical, and use of an imported high quality granular material may be needed for foundation support. The material used as engineered fill must be considered low volume change material with a maximum Liquid Limit of 40 and maximum Plasticity Index of 15, unless specifically tested and found to have low volume change properties and approved by ECS. The soils must be compacted within a narrow range of the materials optimum moisture content. The soil samples had relatively high moisture contents so the contractor should expect some drying of on-site soil prior to reuse as engineered fill. The soil should not be compacted too dry as it may lose its apparent stability if it later becomes wet. The suitability of engineered fill materials should be checked by ECS prior to placement. Sorting to remove over-sized material (i.e. cobbles) should be expected at this site prior to re-use of the on-site soil as engineered fill.

Natural soil deposits considered unsuitable by virtue of their plasticity are present on the site. The moisture contents of many of the samples were observed to generally be more than 5 percent above the optimum moisture contents of the material. The construction team should anticipate moisture conditioning (mostly drying) of subgrade soils and engineered fill lifts at this site. Soil chemical modification may be helpful to reduce moisture contents of subgrade soils and fills.

**6.2.2 Compaction**

**Engineered Fill Compaction:** Engineered fill within the expanded pavement limits should be placed in maximum 8-inch thick loose lifts, moisture conditioned as necessary to within -1 to +3 percent of the soil’s optimum moisture content, and be compacted with suitable equipment to a dry density of at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557). Beyond these areas, the engineered fill should be compacted to at least 90 percent. ECS should be called on to document the achievement of proper fill compaction.

**Fill Compaction Control:** The expanded limits of the proposed construction areas should be well defined, including the limits of the fill zones for pavements and embankment slopes, etc., at the
time of fill placement. Grade controls should be maintained throughout the filling operations. All filling operations should be observed on a full-time basis by a qualified representative of ECS to document the achievement of the minimum compaction requirements. Field density testing of fills should be performed at the frequencies shown in Table 6.2.1, but not less than 2 tests per lift.

Table 6.2.1 Frequency of Compaction Tests in Fill Areas

<table>
<thead>
<tr>
<th>Location</th>
<th>Frequency of Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pavement Areas</td>
<td>1 test per 10,000 sq. ft. per lift</td>
</tr>
<tr>
<td>Utility Trenches</td>
<td>1 test per 200 linear ft. per lift</td>
</tr>
<tr>
<td>All Other Non-Critical Areas</td>
<td>1 test per 10,000 sq. ft. per lift</td>
</tr>
</tbody>
</table>

Compaction Equipment: Compaction equipment suitable to the soil type being compacted should be used to compact the subgrades and fill materials. Sheepfoot compaction equipment should be suitable for the fine-grained soils (Clays). A vibratory steel drum roller or plate compactor should be used for compaction of coarse-grained soils (Sands and Gravels) as well as for sealing compacted surfaces.

Fill Placement Considerations: Fill materials should not be placed on frozen soils, on frost-heaved soils, and/or on excessively wet soils. Borrow fill materials should not contain frozen materials at the time of placement, and all frozen or frost-heaved soils should be removed prior to placement of engineered fill or other fill soils and aggregates. Scarify, aerate and moisture condition excessively wet soils or aggregates.

At the end of each work day, all fill areas should be graded to facilitate drainage of any precipitation and the surface should be sealed by use of a smooth-drum roller to limit infiltration of surface water. During placement and compaction of new fill at the beginning of each workday, the contractor may need to scarify existing subgrades to a depth of 4 inches or more so that a weak plane will not be formed between the new fill and the existing subgrade soils.

Drying and compaction of wet soils is typically difficult during the cold, winter months. Accordingly, earthwork should be performed during the warmer, drier times of the year, if practical. Proper drainage should be maintained during the earthwork phases of construction to reduce ponding of water which has a tendency to degrade subgrade soils. Alternatively, if these soils cannot be stabilized by conventional methods as previously discussed, chemical modifications of the subgrade soils, such as with lime, cement or other materials, may be utilized to adjust the moisture content. If lime or cement is utilized to control moisture contents and/or for stabilization, then ECS recommends the use of Quick Lime, Calciment® or regular Type 1 cement. The soil modification procedure, such as determination of the quantity of additive, and mixing and curing procedures, should be evaluated before implementation. The contractor should be required to minimize dusting or implement dust control measures.

Where fill materials will be placed to widen existing embankment fills, or placed up against sloping ground, the soil subgrade should be scarified, and the new fill benched and keyed into the existing material. Fill material should be placed in horizontal lifts. In confined areas such as utility trenches, portable compaction equipment and thin lifts of 3 inches to 4 inches may be required to achieve specified degrees of compaction.
We recommend the grading contractor have equipment on site during earthwork for both drying and wetting fill soils. We do not anticipate significant problems in controlling moisture during dry weather, but moisture control may be difficult during winter months or extended periods of rain. The control of moisture content of clay soils can be difficult when these soils become wet. Further, construction traffic can easily degrade soils that have an elevated moisture content.

6.3 PAVEMENT SUBGRADE OBSERVATIONS

**Pavement Subgrade Verification:** ECS should be called on to observe and test exposed subgrade within the expanded pavement limits prior to engineered fill placement and pavement construction to check achievement of adequate subgrade preparation. A proofroll using a loaded dump truck should be performed in their presence at that time. Once subgrades have been prepared to the satisfaction of ECS, subgrades should be properly compacted and new engineered fill can be placed. Existing subgrades to a depth of at least 10 inches and all engineered fill should be properly moisture conditioned and compacted to the required in-place density. ECS should check the condition of the prepared subgrade prior to placement of the subbase stone and pavement. If there will be significant time lag between the subgrade check and placement of the subbase stone and pavement, ECS may need to recheck the condition of the subgrade before placement of stone and pavement. Prior to final pavement construction, the subgrade may require scarification, moisture conditioning, and re-compaction to restore stable conditions.

6.4 UTILITY INSTALLATIONS

**Utility Subgrades:** The native soils encountered in our exploration are expected to be generally suitable for support of utility pipes. However, we recommend removing all existing fill and soils that contain more than 5 percent organic content from below utilities. The pipe subgrade should be observed and probed for stability by ECS to evaluate the suitability of the encountered materials. Any loose or unsuitable materials encountered at the utility pipe subgrade elevation should be removed and replaced with suitable compacted engineered fill or pipe bedding material.

**Utility Backfilling:** The granular bedding material should be at least 4 inches thick, but not less than that specified by the project drawings and specifications. Fill placed for support of the utilities, as well as backfill over the utilities, should satisfy the requirements for engineered fill given in this report. Compacted backfill should be free of topsoil, roots, ice, or any other material designated by ECS as unsuitable. The backfill should be moisture conditioned, placed, and compacted in accordance with the recommendations of this report.

6.5 GENERAL CONSTRUCTION CONSIDERATIONS

**Moisture Conditioning:** During the cooler and wetter periods of the year, the construction team should anticipate delays and additional costs. At these times, reduction of soil moisture may need to be accomplished by mechanical manipulation to lower moisture contents to levels appropriate for compaction. Alternatively, during the drier times of the year, such as the summer months, moisture may need to be added to the soil to provide adequate moisture for successful compaction according to the project requirements.

**Subgrade Protection:** Measures should be taken to limit site disturbance, especially from rubber-tired heavy construction equipment, and to control and remove surface water from development
areas, including pavement areas. ECS recommends the design team consider designating a haul road and construction staging area to limit the areas of disturbance and to prevent construction traffic from excessively degrading sensitive subgrade soils and existing pavement areas. Haul roads and construction staging areas could be covered with excess depths of aggregate to protect those subgrades. The aggregate can later be removed and used in pavement areas provided it has not been mixed with silty or clayey soils.

**Surface Drainage:** The contractor should properly maintain surface drainage conditions. Surface water should be directed away from the construction area, and the work area should be sloped away from the construction area at a gradient of 1 percent or steeper to reduce the potential of ponding water and the subsequent saturation of the surface soils. At the end of each work day, the subgrade soils should be sealed by rolling the surface with a smooth drum roller to reduce infiltration of surface water.

**Excavation Safety:** The contractor should make and maintain all excavations and slopes in accordance with OSHA excavation safety standards. The contractor is solely responsible for designing and constructing stable, excavations and slopes and should shore, slope, or bench the sides of the excavations and slopes as required to maintain stability of both the excavation sides and bottom. The contractor’s responsible person, as defined in OSHA 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor’s safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. ECS is providing this information solely as a service to our client. ECS is not assuming responsibility for construction site safety or the contractor’s activities; ECS does not imply such responsibility, and the contractor, design team and owner should not infer it.

**Excavation Instability:** Excavation stability and caving problems may occur in areas containing existing fill soils. The instability problems will generally depend upon the excavation depth, length of time the excavations remain open, inclination of excavation side-walls, magnitude and location of surcharges near the excavations, groundwater levels and the suitability of any dewatering systems if needed.

**Existing Construction Considerations:** Site preparation will require complete removal and proper disposal of the existing pavement to be removed and any remnants of previous construction, including all underground utilities that are not reused, etc. Disposal of debris should be in accordance with local, state and federal regulations for the material type. It should be noted that any construction remnants left in-place may cause excavation difficulties for new utilities and/or landscape plantings. All excavations must be backfilled with compacted engineered fill performed under engineering controlled conditions.

Removal of the existing pavement and placement of engineered backfill is recommended to be observed and tested by ECS. Alteration to the recommendations of this report may be needed, if conditions different than those noted on the boring logs are revealed below the existing construction.

**Existing Fill Considerations:** Existing fill was encountered in Boring 2, 3, 4, and 6. Unsuitable materials may have been buried beneath the site surface during previous site grading or construction not detected by the test borings. Questionable material, if encountered, is
recommended to be evaluated by ECS to determine if the material needs to be removed and replaced with engineered fill. Alteration to the recommendations of this report may be needed, if excavations reveal conditions different than those noted on the test boring logs.

**Erosion Control:** The surface soils may be erodible. Therefore, the Contractor should provide and maintain good site drainage during earthwork operations to maintain the integrity of the surface soils. All erosion and sedimentation controls should be in accordance with sound engineering practices and local requirements.

**Bidding/Estimating Considerations:** Contractors bidding or undertaking any work at the site should examine the results of the subsurface exploration, satisfy themselves as to the adequacy of the information for bidding and construction, make their own interpretation of the data, and consider the effect it may have on their cost proposal, construction techniques, schedule, and equipment capabilities. Furthermore, contractors should complete any additional fieldwork and investigation they deem necessary to properly prepare a cost proposal for the site work. Soil borings do not provide the same wide-scale view of the subsurface conditions that is obtained during site grading, excavation or other aspects of earthwork construction. Additional scope may be required to obtain more detailed subsurface information needed for earthwork bid preparation, which could include test pits to better understand the lateral and vertical extents of the subsurface materials of concern such as existing undocumented fill. Even with this additional information, budget contingencies should be carried in construction to help cover potential variations in subsurface conditions.
7.0 CLOSING

ECS has prepared this report of findings, evaluations, and recommendations to guide preliminary geotechnical-related design and construction aspects of the project. In fulfilling our obligations and responsibilities, as listed in the proposal, we performed these services in accordance with the standard of care expected of professionals in the industry performing similar services on projects of like size and complexity at this time in the region. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this report.

The description of the proposed project is based on information provided to ECS by the City of De Pere. If any of this information is inaccurate, either because of our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted immediately so that we can review the report in light of the changes and provide additional or alternate recommendations as may be required to reflect the proposed construction.

We recommend that ECS be retained to review the project’s plans and specifications pertaining to our services so that we may evaluate consistency of those plans/specifications with the intent of this geotechnical report.

Field observations, and quality assurance testing during earthwork, foundations, floor slabs, utility, pavement, and storm water management device installation are an extension of and integral to the geotechnical design recommendation. We recommend the owner retain these quality assurance services and that ECS be retained to continue our involvement throughout these critical phases of construction to provide general consultation as issues arise. ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.
APPENDIX A - Drawings & Reports

Site Location Diagram
Boring Location Diagram
Reference Notes for Boring Logs
Boring Logs 1 through 7
Soil and Site Evaluation - Storm
**REFERENCE NOTES FOR BORING LOGS**

### MATERIAL

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASH</td>
<td>Asphalt</td>
</tr>
<tr>
<td>CON</td>
<td>Concrete</td>
</tr>
<tr>
<td>GRA</td>
<td>Gravel</td>
</tr>
<tr>
<td>TOP</td>
<td>Topsoil</td>
</tr>
<tr>
<td>SHA</td>
<td>Shale</td>
</tr>
<tr>
<td>BRK</td>
<td>Brick</td>
</tr>
<tr>
<td>FIL</td>
<td>Fill</td>
</tr>
<tr>
<td>GP</td>
<td>Poorly-graded gravel-sand mixtures, little or no fines</td>
</tr>
<tr>
<td>GM</td>
<td>Silty gravel</td>
</tr>
<tr>
<td>GC</td>
<td>Clayey gravel</td>
</tr>
<tr>
<td>GW</td>
<td>Well-graded gravel-sand mixtures, little or no fines</td>
</tr>
<tr>
<td>SP</td>
<td>Poorly-graded sand</td>
</tr>
<tr>
<td>SM</td>
<td>Silty sand</td>
</tr>
<tr>
<td>SC</td>
<td>Clayey sand</td>
</tr>
<tr>
<td>ML</td>
<td>Silt</td>
</tr>
<tr>
<td>MH</td>
<td>Elastic silt</td>
</tr>
<tr>
<td>CL</td>
<td>Lean clay</td>
</tr>
<tr>
<td>CH</td>
<td>Fat clay</td>
</tr>
<tr>
<td>OL</td>
<td>Organic silt or clay</td>
</tr>
<tr>
<td>OH</td>
<td>Organic silt or clay</td>
</tr>
<tr>
<td>PT</td>
<td>Peat</td>
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### DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>Split Spoon Sampler</td>
</tr>
<tr>
<td>ST</td>
<td>Shelby Tube Sampler</td>
</tr>
<tr>
<td>WS</td>
<td>Wash Sample</td>
</tr>
<tr>
<td>BS</td>
<td>Bulk Sample of cuttings</td>
</tr>
<tr>
<td>PA</td>
<td>Power Auger (no sample)</td>
</tr>
<tr>
<td>HSA</td>
<td>Hollow Stem Auger</td>
</tr>
<tr>
<td>PM</td>
<td>Pressuremeter Test</td>
</tr>
<tr>
<td>RD</td>
<td>Rock Bit Drilling</td>
</tr>
<tr>
<td>RC</td>
<td>Rock Core, NX, BX, AX</td>
</tr>
<tr>
<td>REC</td>
<td>Rock Sample Recovery %</td>
</tr>
<tr>
<td>RQD</td>
<td>Rock Quality Designation %</td>
</tr>
<tr>
<td>WC</td>
<td>Wash Sample</td>
</tr>
<tr>
<td>BS</td>
<td>Bulk Sample of cuttings</td>
</tr>
<tr>
<td>PA</td>
<td>Power Auger (no sample)</td>
</tr>
<tr>
<td>HSA</td>
<td>Hollow Stem Auger</td>
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</tbody>
</table>

### PARTICLE SIZE IDENTIFICATION

<table>
<thead>
<tr>
<th>Designation</th>
<th>Particle Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boulders</td>
<td>12 inches (300 mm) or larger</td>
</tr>
<tr>
<td>Cobble</td>
<td>3 inches to 12 inches (75 mm to 300 mm)</td>
</tr>
<tr>
<td>Gravel</td>
<td>¼ inch to 3 inches (19 mm to 75 mm)</td>
</tr>
<tr>
<td>Fine</td>
<td>4.75 mm to 19 mm (No. 4 sieve)</td>
</tr>
<tr>
<td>Sand</td>
<td>2.00 mm to 4.75 mm (No. 10 to 4 sieve)</td>
</tr>
<tr>
<td>Medium</td>
<td>0.425 mm to 2.00 mm (No. 40 to 10 sieve)</td>
</tr>
<tr>
<td>Fine</td>
<td>0.074 mm to 0.425 mm (No. 200 to 40 sieve)</td>
</tr>
</tbody>
</table>

### COHESIVE SILTS & CLAYS

<table>
<thead>
<tr>
<th>Strength</th>
<th>Unconfined Compressive Strength, (q_u)</th>
<th>SPT (BPF)</th>
<th>Consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.25</td>
<td>&lt;3</td>
<td>Very Soft</td>
<td></td>
</tr>
<tr>
<td>0.25 - &lt;0.50</td>
<td>3 - 4</td>
<td>Soft</td>
<td></td>
</tr>
<tr>
<td>0.50 - &lt;1.00</td>
<td>5 - 8</td>
<td>Medium Stiff</td>
<td></td>
</tr>
<tr>
<td>1.00 - &lt;2.00</td>
<td>9 - 15</td>
<td>Stiff</td>
<td></td>
</tr>
<tr>
<td>2.00 - &lt;4.00</td>
<td>16 - 30</td>
<td>Very Stiff</td>
<td></td>
</tr>
<tr>
<td>4.00 - 8.00</td>
<td>31 - 50</td>
<td>Hard</td>
<td></td>
</tr>
<tr>
<td>&gt;8.00</td>
<td>&gt;50</td>
<td>Very Hard</td>
<td></td>
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<table>
<thead>
<tr>
<th>Relative Amount</th>
<th>Coarse Grained (%)</th>
<th>Fine Grained (%)</th>
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<tbody>
<tr>
<td>Trace</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Dual Symbol</td>
<td>10</td>
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</tr>
<tr>
<td>With</td>
<td>15 - 20</td>
<td>15 - 25</td>
</tr>
<tr>
<td>Adjective</td>
<td>&gt;25</td>
<td>&gt;30</td>
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### GRAVELS, SANDS & NON-COHESIVE SILTS

<table>
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<tr>
<th>Density</th>
<th>SPT</th>
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<tr>
<td>&lt;5</td>
<td>Very Loose</td>
</tr>
<tr>
<td>5 - 10</td>
<td>Loose</td>
</tr>
<tr>
<td>11 - 30</td>
<td>Medium Dense</td>
</tr>
<tr>
<td>31 - 50</td>
<td>Dense</td>
</tr>
<tr>
<td>&gt;50</td>
<td>Very Dense</td>
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</table>

### WATER LEVELS

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WL</td>
<td>Water Level (WS)(WD)</td>
</tr>
<tr>
<td>SHW</td>
<td>Seasonal High WT</td>
</tr>
<tr>
<td>SWT</td>
<td>Stabilized Water Table</td>
</tr>
<tr>
<td>DCI</td>
<td>Dry Cave-In</td>
</tr>
<tr>
<td>WCI</td>
<td>Wet Cave-In</td>
</tr>
</tbody>
</table>

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2. To be consistent with general practice, “POORLY GRADED” has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.
3. Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].
4. Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).
5. Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). “N-value” is another term for “blow count” and is expressed in blows per foot (bpf).
6. Water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.
7. Minor deviation from ASTM D 2488-09 Note 16.
8. Percentages are estimated to the nearest 5% per ASTM D 2488-09.

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### De Pere Project 20-01

**SITE LOCATION**
De Pere, Brown County, Wisconsin

**East Matthew Drive Storm Pond**

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>SAMPLE NO.</th>
<th>SAMPLE TYPE</th>
<th>SAMPLE DIST (IN)</th>
<th>SAMPLE RECOVERY (%)</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>S-1</td>
<td>SS</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>S-2</td>
<td>SS</td>
<td>24</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>S-3</td>
<td>SS</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>S-4</td>
<td>SS</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>S-5</td>
<td>SS</td>
<td>18</td>
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</tr>
<tr>
<td></td>
<td>S-6</td>
<td>SS</td>
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<td></td>
<td>S-7</td>
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<tr>
<td></td>
<td>S-9</td>
<td>SS</td>
<td>18</td>
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<table>
<thead>
<tr>
<th>DESCRIPTION OF MATERIAL</th>
<th>ENGLISH UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topsoil Thickness 3&quot;</td>
<td></td>
</tr>
<tr>
<td>(CH) (A-7-6) Lacustrine, FAT CLAY WITH SEAMS OF SILT, reddish brown with gray, moist, medium stiff to stiff</td>
<td></td>
</tr>
<tr>
<td>(CL) (A-6) Glacial till, LEAN CLAY WITH SAND AND GRAVEL, brown, moist, stiff</td>
<td></td>
</tr>
<tr>
<td>(CL/ML, CH) (A-4, A-7-6) Lacustrine, SILTY CLAY WITH VARVES OF FAT CLAY, gray and reddish brown, moist, stiff</td>
<td></td>
</tr>
</tbody>
</table>

**END OF BORING @ 20’**

Note: Boring offset 30 feet west of staked location.

---

**THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU 20% 40% 60% 80% 100%**

<table>
<thead>
<tr>
<th>WL</th>
<th>None</th>
<th>WS</th>
<th>WD</th>
<th>BORING STARTED</th>
<th>11/15/19</th>
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<td>WL (BCR)</td>
<td>WL (ACR)</td>
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<td>BORING COMPLETED</td>
<td>11/15/19</td>
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</table>

**CAVE IN DEPTH**

**RIG** Truck  **FOREMAN** BB/CB  **DRILLING METHOD** 3 1/4" HSA 0' to 20' (AH)
### East Matthew Drive Storm Pond

#### Site Location
- City: De Pere
- County: Brown
- State: Wisconsin

#### Description of Material

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Sample Type</th>
<th>Sample Dist. (in)</th>
<th>Sample Recovery (in)</th>
<th>Description of Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>SS</td>
<td>24</td>
<td>14</td>
<td>Topsoil Thickness [2&quot;] (CL) [A-6] FILL, LEAN CLAY, trace organics, dark brown, moist, medium stiff</td>
</tr>
<tr>
<td>S-2</td>
<td>SS</td>
<td>24</td>
<td>10</td>
<td>(CL) [A-6] Glacial till, LEAN CLAY WITH SAND, brown, moist, medium stiff</td>
</tr>
<tr>
<td>S-3</td>
<td>SS</td>
<td>24</td>
<td>20</td>
<td>(CL) [A-6] Glacial till, SANDY LEAN CLAY, brown, moist, stiff</td>
</tr>
<tr>
<td>S-4</td>
<td>SS</td>
<td>18</td>
<td>0</td>
<td>(CL) [A-6] Glacial till, LEAN CLAY WITH SAND AND GRAVEL, brown, moist, stiff</td>
</tr>
<tr>
<td>S-5</td>
<td>SS</td>
<td>18</td>
<td>16</td>
<td>END OF BORING @ 15&quot;</td>
</tr>
</tbody>
</table>

#### Note:
- Boring offset 30 feet south of staked location.

---

#### Stratification Lines
- The stratification lines represent the approximate boundary lines between soil types.
- In-situ 20% 40% 60% 80% 100%

#### Boring Details
- **Boiling Started:** 11/15/19
- **Boiling Completed:** 11/15/19
- **Location:** Cave in depth
- **Rig:** Truck
- **Boiling Details:** 3 1/4" HSA 0' to 15' (AH)
De Pere, Brown County, Wisconsin

Cass Street

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>SAMPLE NO.</th>
<th>SAMPLE TYPE</th>
<th>SAMPLE DIST. (IN)</th>
<th>RECOVERY (%)</th>
<th>DESCRIPTION OF MATERIAL</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>S-1</td>
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<td>24</td>
<td>16</td>
<td>Topsoil Thickness [3’]</td>
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<tr>
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<td></td>
<td></td>
<td>(CL,OL) (A-6, A-8) FILL, MIXTURE OF LEAN CLAY WITH SAND AND ORGANIC SILT, dark brown and black, moist, stiff to medium stiff</td>
</tr>
<tr>
<td>0</td>
<td>S-2</td>
<td>SS</td>
<td>24</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>S-3</td>
<td>SS</td>
<td>24</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(CL) (A-6) Lacustrine, LEAN CLAY WITH SAND, brown, moist, medium stiff to stiff</td>
</tr>
<tr>
<td>10</td>
<td>S-4</td>
<td>SS</td>
<td>18</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>S-5</td>
<td>SS</td>
<td>18</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

END OF BORING @ 10’

Note: Boring offset 5 feet south of staked location.
De Pere, Brown County, Wisconsin

Alley

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>SAMPLE NO.</th>
<th>SAMPLE TYPE</th>
<th>SAMPLE DIST. (IN)</th>
<th>DESCRIPTION OF MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>S-1</td>
<td>SS</td>
<td>24</td>
<td>Asphalt Thickness [5']</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Base Course Thickness [7’]</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>(CL) [A-6] Fill, SANDY LEAN CLAY, trace gravel and organics, dark brown, moist, medium stiff</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>(CL) [A-6] Lacustrine, LEAN CLAY, brown, moist, stiff</td>
</tr>
<tr>
<td>5</td>
<td>S-2</td>
<td>SS</td>
<td>24</td>
<td>END OF BORING @ 5'</td>
</tr>
</tbody>
</table>

The stratification lines represent the approximate boundary lines between soil types. In situ 20% 40% 60% 80% 100%

WL None
WB None
WD None
BORING STARTED 11/14/19

WL(BCR) None
WB(ACR) None
BORING COMPLETED 11/14/19
CAVE IN DEPTH

WL
RIG Truck
FOREMAN BB/CB
DRILLING METHOD 3 1/4" HSA 0' to 5' (AH)
### South 8th Street

**Description of Material**

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample No.</th>
<th>Sample Type</th>
<th>Sample Dist. (in)</th>
<th>Recovery (%)</th>
<th>Bottom of Casing</th>
<th>Loss of Circulation</th>
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<tbody>
<tr>
<td>0</td>
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<td>18</td>
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<td></td>
<td>S-2</td>
<td>SS</td>
<td>24</td>
<td>11</td>
<td>Not Determined</td>
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</tr>
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</table>

**End of Boring @ 5’**

Note: Boring offset 5 feet south of marked location.

---

### Water Levels

<table>
<thead>
<tr>
<th>Water Levels (ft)</th>
<th>Blows/6&quot;</th>
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<tbody>
<tr>
<td>5</td>
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<td></td>
</tr>
<tr>
<td>50</td>
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</tr>
</tbody>
</table>

### STRATIFICATION LINES

The stratification lines represent the approximate boundary lines between soil types. In situ 20% 40% 60% 80% 100%

**Drilling Method**

- **Rig**: Truck
- **Foreman**: BB/CB
- **Drilling Method**: 3 1/4" HSA 0' to 5' (AH)
De Pere, Brown County, Wisconsin

Reid Street

DEPTH (FT)  SAMPLE NO.  SAMPLE TYPE  SAMPLE DIST. (IN)  BOTTOM OF CASING  LOSS OF CIRCULATION  SURFACE ELEVATION  WATER LEVELS  ELEVATION (FT)  BLOWS/6'  STANDARD PENETRATION BLOWS/FT

0  S-1  SS  18  10  Asphalt Thickness [7']

1  S-2  SS  24  24  (CL, OL) (A-6, A-8) FILL, A MIXTURE OF LEAN CLAY WITH SAND AND ORGANIC SILT, dark brown and black, moist, stiff

END OF BORING @ 5'

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU 20% 40% 60% 80% 100%

WL. None  WS  WD  BORING STARTED  11/14/19

WL(BCR)  WL(ACR) None  BORING COMPLETED  11/14/19  CAVE IN DEPTH

WL  RIG Truck  FOREMAN BB/CB  DRILLING METHOD  3 1/4" HSA 0' to 5' (AH)
De Pere Project 20-01
De Pere, Brown County, Wisconsin
Patriot Way

<table>
<thead>
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<th>DEPTH (FT)</th>
<th>SAMPLE NO.</th>
<th>SAMPLE TYPE</th>
<th>SAMPLE DIST. (IN)</th>
<th>RECOVERY (IN)</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>ENGLISH UNITS</th>
<th>BOTTOM OF CASING</th>
<th>LOSS OF CIRCULATION</th>
<th>SURFACE ELEVATION</th>
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<tbody>
<tr>
<td>0</td>
<td>S-1 SS</td>
<td>24</td>
<td>24</td>
<td></td>
<td>Asphalt Thickness [5']</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>S-2 SS</td>
<td>24</td>
<td>18</td>
<td></td>
<td>Base Course Thickness [7']</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(CL) (A-6) Lacustrine, LEAN CLAY WITH SEAMS OF SILT, brown with gray, moist, stiff to very stiff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>END OF BORING @ 5'</td>
<td></td>
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</tr>
</tbody>
</table>

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU 20% 40% 60% 80% 100%
SOIL AND SITE EVALUATION – STORM
In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Attach a complete site plan on paper not less than 8 ½ x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent of 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)]

<table>
<thead>
<tr>
<th>Property Owner</th>
<th>Property Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of De Pere</td>
<td>Property Owner</td>
</tr>
<tr>
<td>925 S. Sixth Street</td>
<td>Lot #</td>
</tr>
<tr>
<td>De Pere</td>
<td>Wi</td>
</tr>
</tbody>
</table>

City | State | Zip Code | Phone Number |
De Pere | Wi | 54115 | 920.339.4060 |

Drainage area ________ __ sq. ft. __ acres

Test site suitable for (check all that apply): __ Site not suitable:

- Bioretention: ___ Subsurface Dispersal System:
- Reuse: ___ irrigation: ___ Other _______

Hydraulic Application Test Method ________

- Morphological Evaluation
- Double Ring Infiltrometer
- Other: (specify)

[-] Soil Moisture
[-] Date of soil borings: 11/15/19

[-] USDA-NRCS WETS Value:
[-] Dry = 1;
[-] Normal = 2;
[-] Wet = 3.

<table>
<thead>
<tr>
<th>Horizon</th>
<th>Depth in.</th>
<th>Dominant Color Munsell</th>
<th>Redox Description Qu. Sz. Cont. Color</th>
<th>Texture</th>
<th>Structure Gr. Sz. Sh.</th>
<th>Consistence</th>
<th>Boundary</th>
<th>% Rock Frags.</th>
<th>% Fines</th>
<th>Hydraulic App Rate Inches/Hr</th>
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<tr>
<td>A</td>
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<td>7.5 YR 3/3</td>
<td>No Redox Features</td>
<td>c</td>
<td>0, cdy</td>
<td>fr</td>
<td>c</td>
<td>0 – 5</td>
<td>70 – 80</td>
<td>0.07</td>
</tr>
<tr>
<td>C</td>
<td>3 – 48</td>
<td>5 YR 5/4</td>
<td>No Redox Features</td>
<td>c</td>
<td>1, f, abk</td>
<td>fi</td>
<td>c</td>
<td>0 – 5</td>
<td>80 – 90</td>
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</tr>
<tr>
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<td>48 – 180</td>
<td>7.5 YR 5/3</td>
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<td>c</td>
<td>1, f, sbk</td>
<td>fi</td>
<td>c</td>
<td>10 – 15</td>
<td>70 – 80</td>
<td>0.07</td>
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<tr>
<td>C</td>
<td>180 – 240</td>
<td>7.5 YR 5/1</td>
<td>No Redox Features</td>
<td>sic, c</td>
<td>1, f, pl</td>
<td>fi</td>
<td>--</td>
<td>0 – 5</td>
<td>90 – 100</td>
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Comments:

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<th>Redox Description Qu. Sz. Cont. Color</th>
<th>Texture</th>
<th>Structure Gr. Sz. Sh.</th>
<th>Consistence</th>
<th>Boundary</th>
<th>% Rock Frags.</th>
<th>% Fines</th>
<th>Hydraulic App Rate Inches/Hr</th>
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<tbody>
<tr>
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<td>70 – 80</td>
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<td>0 – 5</td>
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<td>0 – 5</td>
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<td>fi</td>
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<td>10 – 15</td>
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Comments:

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<tr>
<th>Name (Please Print)</th>
<th>Signature</th>
<th>Credential Number</th>
<th>Date Evaluation Conducted</th>
<th>Telephone Number</th>
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<tbody>
<tr>
<td>Matthew A. Meyer</td>
<td>--</td>
<td>1053414</td>
<td>920-886-1406</td>
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</table>

County: Brown
Reviewed by: M. King / M. Meyer
Date: 11/18/19

Page 1 of 1

September 2017
Important Information about This Geotechnical-Engineering Report
The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

**Understand the Geotechnical-Engineering Services Provided for This Report**

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

**Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times**

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared solely for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

**Do not rely on this report if your geotechnical engineer prepared it:**

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

**Read this Report in Full**

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do read selective elements only. Read and refer to the report in full.

**You Need to Inform Your Geotechnical Engineer About Change**

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, always inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. The geotechnical engineer who prepared this report cannot accept...
responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations only after observing actual subsurface conditions exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.

This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by retaining your geotechnical engineer to serve as a continuing member of the design team, to:

• confer with other design-team members;
• help develop specifications;
• review pertinent elements of other design professionals’ plans and specifications; and
• be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, but be certain to note conspicuously that you’ve included the material for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, only from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and be sure to allow enough time to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions.

Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated subsurface environmental problems have led to project failures. If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, proper implementation of the geotechnical enginee’s recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. Geotechnical engineers are not building-envelope or mold specialists.

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CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115

SUNRISE COURT
PARK STREET TO TERMINI

SUNRISE COURT WATER RELAY NOTES:
1. COMPLETE WATER RELAY ON PARK STREET
2. RELAY WATER MAIN FROM STA 134+70 TO STA 134+75 AND CAP TO BLOW OFF W/ 3" HOSE LINE
3. ONCE TESTED AND SAMPLED, RELAY TWO WATER SERVICES
4. MAKE DUAL CONNECTION AT EXISTING VALVE AND SHUT OFF PREV. METER. KEEP MAIN EXPOSED TO VISUALLY CHECK FOR LEAKS
NOTES:

1. VERTICAL SCALE ENLARGED TO ACCOMMODATE SEWER DEPTH

2. WATER MAIN, STORM SEWER, STORM SEWER NOTES, PROPOSED BUILDING AND SITE CUT/FILL TO BE CONSTRUCTED BY OTHERS

3. PARKING LOT ASPHALT CONCRETE SIDEWALK, CURB & GUTTER, AND LANDSCAPING RESTORATION TO BE COMPLETED BY OTHERS

4. EXISTING ELEVATION OVER ABANDONED SEWER TO BE VACATED

NEW 6" PVC WATER MAIN TO BE COMPLETE BY OTHERS AFTER STORM SEWER CONSTRUCTION.
NOTE:
1. CLEAN AND GRADE AREA, ONCE CONSTRUCTION IS COMPLETED RESTORE ALL OVERFLOW AREA WITH TOPSOIL, SEED, FERTILIZE AND URBAN CLAY 1 TYPE "B" EROSION WAT.
2. EXISTING SANITARY SEWER ENTERS GRASS WAREHOUSE ON ANGLE, NEW CONNECTION WILL BE MADE TO GRASS WAREHOUSE USING A WATER TANK BURST EXISTING CONNECTION TO BE CAPTED USING A WATER TANK CONNECTION PER GBMSD SPECIFICATIONS.
OUTWARD AVENUE

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CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115

BENCHMARKS & CONTROL POINTS
GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE CORRECTED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 CURB RAMPS SHALL HAVE A NORMAL SLOPE OF 1% AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FILLER SHALL BE MEASURED AND PAINTED BY THE SQUARE FOOT AS "CURB RAMPS DETECTABLE WARNING FIELD," THE CONCRETE PEDESTRIAN Curb, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAR FOOT AS "CONCRETE CURB PEDESTRIAN." CONCRETE PEDESTRIAN IN THE CURB RAMPS AREA SHALL BE MEASURED AND PAINTED BY THE SQUARE FOOT AS "CONCRETE CURB," EXCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

BEACU CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DETAILS FROM THE DEPARTMENT'S APPROVED MATERIAL LIST. THE COLOR OF THE DETECTABLE WARNING FILLER IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BIG ITEM OF "CURB RAMP DETECTABLE WARNING FIELD"

DETECTABLE WARNING FILLER THAT ARE INSTALLED AS A GROUP OR AS BY THE PIECE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOSING TRANSVERSE TO THE SLOPE OF THE RAMP.

PLAN VIEW

CURB RAMP TYPE 1 (CENTER OF CORNER RADIUS)

SECTION B - B FOR TYPE 1

VIEW D - D FOR TYPE 1 - A

SECTION C - C FOR TYPE 1 - A

CONSTRUCTION DETAILS

CURB RAMPS

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION
GENERAL NOTES

DETAILS OF CONSTRUCTION MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRACKING PAD SHALL BE INSPECTED DAILY, DEFECTIVE AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

COLLECTIVE PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID TOTAL.