CITY OF DE PERE

PROJECT
18-11

ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

BID DATE:
MARCH 1, 2018
@ 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.de-pere.org. On the homepage, click on the City Departments tab at the top, then click on Public Works, then Engineering, then Construction Projects, then 2018 Construction Projects. Download cost is $10 for each contract. Bidding documents may be viewed on the QuestCDN website or at the Municipal Service Center.

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.

City of De Pere

925 South Sixth Street
De Pere, Wisconsin 54115-1199
Phone: 920-339-8304
Fax: 920-339-4071
Cell: 920-639-1000

Eric P. Rakers, PE
City Engineer
erakers@mail.de-pere.org
www.de-pere.org

February 19, 2018

ADDENDUM NO. 1
PROJECT 18-11
ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

TO: Prospective Bidders

FROM: City of De Pere

Notice is hereby given that the contract documents for the Project 18-11 are amended as hereinafter set forth. If you will be submitting a bid for Project 18-11, you must sign this addendum and include it with your submittal.

This addendum consists of 1 page.

The Bid Opening for the project has been moved to Monday, March 5, 2018 at 1:00 P.M.

CHANGES TO INTRODUCTORY INFORMATION IN ADDENDUM NO. 1:

1. Project Manual Cover Section 00 00 01 – Delete "March 1, 2018" and insert "March 5, 2018" under the bid date.

CHANGES TO PROJECT BID DOCUMENTS IN ADDENDUM NO. 1:

1. Advertisement to Bid Section 00 11 13 – Delete "Thursday, March 1, 2018" and insert "Monday, March 5, 2018" in the first paragraph.
2. Bid Form Section 00 41 13 – Delete "Thursday, March 1, 2018" and insert "Monday, March 5, 2018" in the first paragraph.

Sincerely,

DEPARTMENT OF PUBLIC WORKS

E. P. Rakers

Eric P. Rakers, P.E.
City Engineer

Acknowledged by: _____ Date: _____

City of De Pere

925 South Sixth Street
De Pere, Wisconsin 54115-1199
Phone: 920-339-8304
Fax: 920-339-4071
Cell: 920-639-1000

Eric P. Rakers, PE
City Engineer
erakers@mail.de-pere.org
www.de-pere.org

February 26, 2018

ADDENDUM NO. 2
PROJECT 18-11
ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

TO: Prospective Bidders

FROM: City of De Pere

Notice is hereby given that the contract documents for the Project 18-11 are amended as hereinafter set forth. If you will be submitting a bid for Project 18-11, you must sign this addendum and include it with your submittal.

This addendum consists of 6 pages.

CHANGES TO PROJECT BID DOCUMENTS:

1. Delete "Section 00 41 43, Bid Schedule", and replace with Section 00 41 43R, Bid Schedule".
   a. Bid Items that have been changed from the Bid Schedule:
      1) SD-09, Provide 9-Inch Doweled Concrete Pavement with Integral Curb and Gutter has been reduced from 6,200 to 5,750 SY.
      2) SD-10, Provide 9-Inch Doweled Concrete Pavement with Integral Curb and Gutter (HES-3Day) has been reduced from 400 to 330SY.

Sincerely,

DEPARTMENT OF PUBLIC WORKS

E. P. Rakers

Eric P. Rakers, P.E.
City Engineer

Acknowledged by: _____ Date: _____

SECTION 00 41 43

CITY OF DE PERE

PROJECT 18-11

BID SCHEDULE – UNIT PRICE

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
SANITARY SEWER					
SS-01	Remove and Replace 6" PVC Sanitary Sewer Lateral	LF	260	$_____	$_____
SS-02	Remove and Replace 6" Sanitary Sewer Lateral Riser	LF	20	$_____	$_____
SS-03	Provide 6" Sanitary Connection to Sewer Main	EA	4	$_____	$_____
SS-04	Dig Down to Verify Lateral Material	EA	4	$_____	$_____
STORM SEWER					
ST-01	Remove and Relay 21" RCP (Class III) Storm Sewer	LF	100	$_____	$_____
ST-02	Remove and Relay 15" PVC or RCP (Class III) Storm Sewer (Natural Backfill)	LF	110	$_____	$_____
ST-03	Remove and Relay 15" PVC or RCP (Class III) Storm Sewer (Granular Backfill)	LF	40	$_____	$_____
ST-04	Remove and Relay 12" PVC or RCP (Class III) Storm Sewer	LF	130	$_____	$_____
ST-05	Provide 12" PVC or RCP (Class III) Storm Sewer (Natural Backfill)	LF	65	$_____	$_____

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
STORM SEWER (CONTINUED)					
ST-06	Provide 12" PVC or RCP (Class III) Storm Sewer (Granular Backfill)	LF	35	$_____	$_____
ST-07	Provide 6" PVC Storm Sewer Lateral	LF	20	$_____	$_____
ST-08	Provide 12"x6" Storm Branch or Inserta Tee	EA	2	$_____	$_____
ST-09	Remove and Replace 4' Diameter Storm Manhole	VF	5	$_____	$_____
ST-10	Provide 4' Diameter Storm Manhole	VF	12	$_____	$_____
ST-11	Remove and Replace Type B Inlet	EA	10	$_____	$_____
ST-12	Provide 12" Nyloplast Yard Drain	EA	1	$_____	$_____
ST-13	Connect to Structure and/or Existing Pipe	EA	6	$_____	$_____
ST-14	Core Drill Manhole and/or Existing Pipe	EA	1	$_____	$_____
ST-15	Connect to Existing Pipe with Concrete Collar	EA	5	$_____	$_____
WATER MAIN					
W-01	Provide 16" PVC Water Main (Granular Backfill)	LF	675	$_____	$_____
W-02	Provide 16" PVC Water Main (Natural Backfill)	LF	4,500	$_____	$_____
W-03	Provide 16" PVC Water Main (Directional Drill)	LF	120	$_____	$_____

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
WATER MAIN (CONTINUED)					
W-04	Provide 12" PVC Water Main	LF	25	$_____	$_____
W-05	Provide 10" PVC Water Main	LF	10	$_____	$_____
W-06	Provide 8" PVC Water Main	LF	230	$_____	$_____
W-07	Provide 6" PVC Water Main or Hydrant Lead	LF	120	$_____	$_____
W-08	Provide 1" HDPE Water Service	LF	120	$_____	$_____
W-09	Provide 1" Corporation and Curb Stop	EA	2	$_____	$_____
W-10	Provide 2" Corporation with Plug/Saddle with 2" HDPE	EA	8	$_____	$_____
W-11	Provide 16" Butterfly Valve	EA	10	$_____	$_____
W-12	Provide 12" Gate Valve	EA	2	$_____	$_____
W-13	Provide 10" Gate Valve	EA	1	$_____	$_____
W-14	Provide 8" Gate Valve	EA	4	$_____	$_____
W-15	Provide 6" Gate Valve	EA	10	$_____	$_____
W-16	Provide Connection to Existing Water main	EA	13	$_____	$_____

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
WATER MAIN (CONTINUED)					
W-17	Provide Hydrant (7.0' Bury)	EA	9	$_____	$_____
W-18	Provide Water Main Offset	EA	1	$_____	$_____
W-19	Temporary Water Bypass	LS	1	$_____	$_____
W-20	Abandon / Remove Water Main and Appurtenances	LS	1	$_____	$_____
W-21	Dig Down and Verify Water Lateral Size and Material	EA	7	$_____	$_____
STREET AND DRAINAGE					
SD-01	Unclassified Excavation	CY	4,560	$_____	$_____
SD-02	Provide 1 ¼" Inch Crushed Aggregate Base Course	TON	5,500	$_____	$_____
SD-03	Provide Large Asphalt Patch (4-inch)	SY	200	$_____	$_____
SD-04	Provide Small Asphalt Patch (4-inch)	SY	120	$_____	$_____
SD-05	Provide 24" Concrete Curb and Gutter	LF	60	$_____	$_____
SD-06	Provide 24" Integral Curb	LF	3,550	$_____	$_____
SD-07	Provide Concrete Curb and Gutter	LF	20	$_____	$_____

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
STREET AND DRAINAGE (CONTINUED)					
SD-08	Remove 8" Concrete Pavement with Integral Curb	SY	8,910	$_____	$_____
SD-09	Provide 9-Inch Doweled Concrete Pavement with Integral Curb and Gutter	SY	5,750	$_____	$_____
SD-10	Provide 9-inch Doweled Concrete Pavement with Integral Curb and Gutter (HES – 3 Day)	SY	330	$_____	$_____
SD-11	Remove 8" Concrete Driveway	SY	90	$_____	$_____
SD-12	Remove Asphalt Driveway	SY	450	$_____	$_____
SD-13	Provide 8" Concrete Driveway or Sidewalk	SY	800	$_____	$_____
SD-14	Landscaping – Topsoil, Seed, Fertilizer and Mulch	SY	5,600	$_____	$_____
SPECIAL CONSTRUCTION					
SC-01	Provide Silt Fence	LF	300	$_____	$_____
SC-02	Install, Maintain, and Remove Rock Filled, Erosion Control Bags	EA	105	$_____	$_____
SC-03	Inlet Protection Type B	EA	25	$_____	$_____
SC-04	Pavement Marking Epoxy 4-inch Yellow	LF	1,000	$_____	$_____
SC-05	Traffic Control Detour Route (Enterprise Drive)	LS	1	$_____	$_____
SC-06	Traffic Control Road Closure (Rockland Road)	LS	1	$_____	$_____
SC-07	Tracking Pad	EA	2	$_____	$_____
				TOTAL	$_____

SECTION 00 01 10

TABLE OF CONTENTS

INTRODUCTORY INFORMATION

PROJECT BID DOCUMENTS

CONTRACTING REQUIREMENTS

SECTION 00 11 13

FEBRUARY 8 - FEBRUARY 15, 2018

CITY OF DE PERE

ADVERTISEMENT TO BID

PROJECT 18-11

ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

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, March 1, 2018, at which time they will be publicly opened and read aloud.

Project 18-11 for which proposals are being sought includes the following approximate quantities:

- 420 LF New and Relay Storm Sewer (8-inch to 21-inch) and Associated Appurtenances
- 5,300 LF Relay Water Main (8-inch to 16-inch) and Associated Appurtenances
- 120 LF Directional Drill or Open Cut Water Main (8-inch) and Associated Appurtenances
- Relay Storm Laterals, Relay Sanitary Sewer Laterals, and Relay Water Services
- 7,000 SY New (9-Inch or 8-Inch) Concrete Pavement with Integral Curb, Driveway and Sidewalks
- 8,850 SY Concrete Pavement Removals
- 250 SY Asphaltic Concrete Patching of Driveways
- 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 $10 by inputting Quest Project #5549607 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 City Departments tab at the top, then click on Public Works, then Engineering, then Construction Projects, then 2018 Construction Projects.

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.

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 P.M., Monday, February 26, 2018. Prospective bidders who have previously submitted such forms subsequent to January 1, 2018 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 8th day of February, 2018.

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

Project 18-11

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

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 or Invitation 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 know 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:
      1. Subsurface Exploration and Subgrade Analysis, Proposed Roadway Reconstruction and Utility Relay Charles Street and Enterprise Drive, De Pere, Wisconsin, by Intertek PSI.

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 submitted 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 drawing 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 5 percent 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 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 the Bid Form and Summary of Work.

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 office 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 S. 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 or Invitation 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 not be 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 identify 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 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of Drawings with appropriate identification.

END OF SECTION

SECTION 00 41 13

CITY OF DE PERE

BID FORM

PROJECT 18-11

This bid, submitted by the undersigned Bidder to the City of De Pere, in accordance with the Advertisement or Invitation to Bid, which will be received until 1:00 PM. Thursday March 1, 2018 is to furnish and deliver all materials, and to perform and do all work on the project designated, by October 31, 2018

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:

Addendum No.	Addendum Date
_____	_____
_____	_____

BASIS OF BID:

Bidder will complete the Work in accordance with the Contract documents for the following prices (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 venture 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).

SECTION 00 41 43

CITY OF DE PERE

PROJECT 18-11

BID SCHEDULE – UNIT PRICE

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
SANITARY SEWER					
SS-01	Remove and Replace 6" PVC Sanitary Sewer Lateral	LF	260	$_____	$_____
SS-02	Remove and Replace 6" Sanitary Sewer Lateral Riser	LF	20	$_____	$_____
SS-03	Provide 6" Sanitary Connection to Sewer Main	EA	4	$_____	$_____
SS-04	Dig Down to Verify Lateral Material	EA	4	$_____	$_____
STORM SEWER					
ST-01	Remove and Relay 21" RCP (Class III) Storm Sewer	LF	100	$_____	$_____
ST-02	Remove and Relay 15" PVC or RCP (Class III) Storm Sewer (Natural Backfill)	LF	110	$_____	$_____
ST-03	Remove and Relay 15" PVC or RCP (Class III) Storm Sewer (Granular Backfill)	LF	40	$_____	$_____
ST-04	Remove and Relay 12" PVC or RCP (Class III) Storm Sewer	LF	130	$_____	$_____
ST-05	Provide 12" PVC or RCP (Class III) Storm Sewer (Natural Backfill)	LF	65	$_____	$_____

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
STORM SEWER (CONTINUED)					
ST-06	Provide 12" PVC or RCP (Class III) Storm Sewer (Granular Backfill)	LF	35	$_____	$_____
ST-07	Provide 6" PVC Storm Sewer Lateral	LF	20	$_____	$_____
ST-08	Provide 12"x6" Storm Branch or Inserta Tee	EA	2	$_____	$_____
ST-09	Remove and Replace 4' Diameter Storm Manhole	VF	5	$_____	$_____
ST-10	Provide 4' Diameter Storm Manhole	VF	12	$_____	$_____
ST-11	Remove and Replace Type B Inlet	EA	10	$_____	$_____
ST-12	Provide 12" Nyloplast Yard Drain	EA	1	$_____	$_____
ST-13	Connect to Structure and/or Existing Pipe	EA	6	$_____	$_____
ST-14	Core Drill Manhole and/or Existing Pipe	EA	1	$_____	$_____
ST-15	Connect to Existing Pipe with Concrete Collar	EA	5	$_____	$_____
WATER MAIN					
W-01	Provide 16" PVC Water Main (Granular Backfill)	LF	675	$_____	$_____
W-02	Provide 16" PVC Water Main (Natural Backfill)	LF	4,500	$_____	$_____
W-03	Provide 16" PVC Water Main (Directional Drill)	LF	120	$_____	$_____

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
WATER MAIN (CONTINUED)					
W-04	Provide 12" PVC Water Main	LF	25	$_____	$_____
W-05	Provide 10" PVC Water Main	LF	10	$_____	$_____
W-06	Provide 8" PVC Water Main	LF	230	$_____	$_____
W-07	Provide 6" PVC Water Main or Hydrant Lead	LF	120	$_____	$_____
W-08	Provide 1" HDPE Water Service	LF	120	$_____	$_____
W-09	Provide 1" Corporation and Curb Stop	EA	2	$_____	$_____
W-10	Provide 2" Corporation with Plug/Saddle with 2" HDPE	EA	8	$_____	$_____
W-11	Provide 16" Butterfly Valve	EA	10	$_____	$_____
W-12	Provide 12" Gate Valve	EA	2	$_____	$_____
W-13	Provide 10" Gate Valve	EA	1	$_____	$_____
W-14	Provide 8" Gate Valve	EA	4	$_____	$_____
W-15	Provide 6" Gate Valve	EA	10	$_____	$_____
W-16	Provide Connection to Existing Water main	EA	13	$_____	$_____

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
WATER MAIN (CONTINUED)					
W-17	Provide Hydrant (7.0' Bury)	EA	9	$_____	$_____
W-18	Provide Water Main Offset	EA	1	$_____	$_____
W-19	Temporary Water Bypass	LS	1	$_____	$_____
W-20	Abandon / Remove Water Main and Appurtenances	LS	1	$_____	$_____
W-21	Dig Down and Verify Water Lateral Size and Material	EA	7	$_____	$_____
STREET AND DRAINAGE					
SD-01	Unclassified Excavation	CY	4,560	$_____	$_____
SD-02	Provide 1 ¼" Inch Crushed Aggregate Base Course	TON	5,500	$_____	$_____
SD-03	Provide Large Asphalt Patch (4-inch)	SY	200	$_____	$_____
SD-04	Provide Small Asphalt Patch (4-inch)	SY	120	$_____	$_____
SD-05	Provide 24" Concrete Curb and Gutter	LF	60	$_____	$_____
SD-06	Provide 24" Integral Curb	LF	3,550	$_____	$_____
SD-07	Provide Concrete Curb and Gutter	LF	20	$_____	$_____

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
STREET AND DRAINAGE (CONTINUED)					
SD-08	Remove 8" Concrete Pavement with Integral Curb	SY	8,910	$_____	$_____
SD-09	Provide 9-Inch Doweled Concrete Pavement with Integral Curb and Gutter	SY	6,200	$_____	$_____
SD-10	Provide 9-inch Doweled Concrete Pavement with Integral Curb and Gutter (HES – 3 Day)	SY	400	$_____	$_____
SD-11	Remove 8" Concrete Driveway	SY	90	$_____	$_____
SD-12	Remove Asphalt Driveway	SY	450	$_____	$_____
SD-13	Provide 8" Concrete Driveway or Sidewalk	SY	800	$_____	$_____
SD-14	Landscaping – Topsoil, Seed, Fertilizer and Mulch	SY	5,600	$_____	$_____
SPECIAL CONSTRUCTION					
SC-01	Provide Silt Fence	LF	300	$_____	$_____
SC-02	Install, Maintain, and Remove Rock Filled, Erosion Control Bags	EA	105	$_____	$_____
SC-03	Inlet Protection Type B	EA	25	$_____	$_____
SC-04	Pavement Marking Epoxy 4-inch Yellow	LF	1,000	$_____	$_____
SC-05	Traffic Control Detour Route (Enterprise Drive)	LS	1	$_____	$_____
SC-06	Traffic Control Road Closure (Rockland Road)	LS	1	$_____	$_____
SC-07	Tracking Pad	EA	2	$_____	$_____
				TOTAL	$_____

SECTION 00 43 13

CITY OF DE PERE

BID BOND

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 18-11 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)

SECTION 00 43 33

PROPOSED PRODUCTS FORM

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

ITEM	MATERIAL	SUPPLIER
Water Main (PVC)		
Valves		
Hydrants		
Storm Sewer (PVC / RCP)		
Manholes		
Inlets / Catch Basins		

SECTION 00 43 36

TABULATION OF SUBCONTRACTORS

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.

NAME	BUSINESS ADDRESS	PORTION OF WORK

SECTION 00 51 00
NOTICE OF AWARD

(Contractor)
(Contractor Name)
(Address)
(Address)

Project Description: 18-11 ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

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 February 8, 2018 and February 15, 2018.

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 _____2018.

_____
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:_____

SECTION 00 52 13
CONTRACT

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 Number and Name, all in accordance with the requirements and provisions of the following documents, which are hereby made a part of this Contract:

(a) Advertisement for Bids, dated (1st Advertising Date) and (2nd Advertising Date).

(b) Drawings designated for Project Number and Name dated (1st Advertising Date).

(c) City of De Pere 2018 Construction Specifications.

(d) Special Provisions dated (1st Advertising Date)

(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 third Friday day 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 third 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 second 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 0052-13-2, inclusive).
   b. Payment bond (pages 00 61 13-1 to 00 61 13-2, inclusive).
   c. Performance bond (page 00 61 16-1).
   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).
      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)

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) (CLERK-TREASURER)

SECTION 00 55 00
NOTICE TO PROCEED

Date: _____

(CONTRACTOR NAME)
(ADDRESS)
(ADDRESS)

PROJECT: (PROJECT NUMBER AND NAME)

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: _____

SECTION 00 61 13

CITY OF DE PERE

PAYMENT BOND

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 owner, 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 (PROJECT NUMBER), 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 sub-contractor 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 said 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 (#), 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.

SIGNED AND SEALED THIS _____ DAY OF _____, 20___.

In the Presence of:

_____ _____
(WITNESS) (CONTRACTOR) (SEAL)

_____ _____
(WITNESS) (SURETY) (SEAL)

Project #
Project Name:

City of De Pere

Contractor's Application for Payment No.

Application Period:	Application Date:
Owner: City of De Pere	Contractor:
	Contractor's Project No.:

APPLICATION FOR PAYMENT

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
Total	$0.00	$0.00
NET CHANGE BY CHANGE ORDERS:		$0.00

1.	ORIGINAL CONTRACT PRICE:	
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):	
	a. Work Completed - Column H (95% up to 50% of Contract or 2.5% of 100% of Contract)	$0.00
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

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 Applicaions 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 covere d by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by the Applicaton for Payment is in accordance with the Contract Documents and is not defective.

By:	Date:

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
   8. Miscellaneous Provisions

1.2 REFERENCES

A. General Specifications The work under this contract shall be in accordance with the City of De Pere, 2018 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 it 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. Enterprise Drive – Heritage Road to Prosper Street
      2. Rockland Road – Destiny Drive to Enterprise Drive
   2. Work will be performed under the following prime contract:
      a. Project 18-11 Enterprise Drive Reconstruction and Utility Relay

B. The Work includes:
   1. Water main and associated appurtenances relay.
   2. Concrete curb and gutter slip form and hand poured gaps.
   3. Concrete pavement, driveway aprons, and sidewalk removal and repairs.
   4. Remove asphaltic concrete and concrete pavement.
   5. Unclassified excavation.
   6. Asphaltic concrete paving.
   7. Terrace restoration.
   8. Erosion control.
   9. Sanitary Sewer and Storm Sewer lateral replacement.
   10. Storm Sewer inlet and inlet lead removal and replacement.
   11. Water main diversion.
   12. Temporary water main connection.
   13. Pavement marking.
   14. Traffic control and detour installation.

1.4 WORK SEQUENCE

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

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

C. The award of this contract is anticipated to occur at the March 20, 2018 Common Council Meeting for the City of De Pere.

D. All work under this project shall be completed by Wednesday, October 31, 2018.

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

F. The calendars days listed below are the allowed time for each location from the beginning of construction of a street to substantial completion of that area. Substantial completion is defined as having the street paved with surface course of asphaltic concrete pavement.

Location	Calendar Days
Enterprise Drive	126
Rockland Road	28

G. The water main installation on Rockland Road from Destiny Drive to Enterprise Drive shall occur prior to any other work on this project. The work sequence for the Rockland Road water main installation is as follows:
   1. Prior to work start, make sure all erosion control is in place and in good working condition per the plans.
   2. Install 16-inch by 12-inch Tee at Destiny Drive and install the 16-inch water main to the east towards Enterprise Drive. The 16-inch main will be loaded from the intersection of Destiny Drive and Rockland Road.
   3. At Enterprise Drive install the 16-inch by 6-inch tee, 6-inch valve and hydrant at station 65+17. This hydrant will be used to complete all testing requirements and safe sampling for the 16-inch water main.
   4. Install the 16-inch, butterfly valve at station 65+27.
   5. Restrain both the hydrant at station 65+17 and the 16-inch valve at station 65+27 for 50 feet of 16-inch water main.
   6. Provide signage and barricading for the full closure of Rockland Road.
   7. Install a temporary water bypass from the new hydrant at station 65+17 to the first hydrant south of Rockland Road at the intersection of Ryan Road and N. Melcorn Circle.
      a. Service connection will be made to each 4 ½" NST nozzle with an 8-inch or larger water supply line.
      b. Load the water bypass from the newly installed hydrant and provide a safe sample of the temporary connection pipe prior to the final connection and shut down.
   8. Once the water main has passed all testing and has safe sample, the following steps must be performed on a Saturday. Notify De Pere Fire Department of the water bypass and shut-off date and plan prior to work start:
      a. Install the 16-inch cross, reducers, valves, and reconnections at the intersection of Rockland Road and Enterprise Drive. This work shall be completed within one calendar day.
      b. Once all the final connections are made and while all connections are still visible, conduct a pressure test at main pressure of all the connections that were just installed.
      c. After the low pressure test has passed, take down the temporary water bypass and all traffic control for the full closure of Rockland Road.

H. Prior to work start on Enterprise Drive, verify the following water and sanitary sewer laterals to verify the existing pipe size material and depth:

	Water Laterals	Sanitary Sewer Laterals
1860 Enterprise Dr.	2	1
1850 Enterprise Dr.	2	1
1820 Enterprise Dr.	1	1
700 Heritage Rd.	2	1

I. Once the new water main has been installed on Rockland Road, the water main installation can start on Enterprise Drive. One lane of southbound traffic and the proposed detour plan shall be maintained on Enterprise Drive at all times. The work must start at the intersection of Prosper Street working towards the north. Install the water main to the north up until station 32+90 where a 16-inch plug and flush pipe will be installed. All water services up to this point will need to be run across the road to their shut-off valve to be included in the testing and safe sampling of this section of main. Use a flagger as needed to run these services across Enterprise Drive without impeding the single lane of southbound traffic. The water main installed up to this point will need to pass all testing and safe sampling prior to the connection to the De Pere Pump Station and installation of a new 16-inch valve to the north of the tee servicing the station. The De Pere Pump Station can only be down for one calendar day to allow for reconnection to the new water main. Once the De Pere Pump Station is back online and the new 16-inch valve is installed to the north of the connection tee to the station, the water main installed to this point can be turned live and final service connections can be made to the corresponding properties. After this is all completed, the water main relay can continue to the north towards Heritage Road.

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 PROJECT UTILITY SOURCES

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

B. AT&T, Joe Kassab, (jk572k@att.com) (920-735-3206)

C. Wisconsin Public Service,
   1. Gas & Electric – Bob Laskowski (rtlaskowski@wisconsinpublicservice.com) (920-617-5237)

D. Time Warner Cable, Vince Albin, (vince.albin@twcable.com) (920-378-0444)

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

1.9 MISCELLANEOUS PROVISIONS

A. Notification to Residents – The Contractor shall individually notify all 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 times when utility work is occurring in front of the drive. When crossing Enterprise Drive to reconnect services, a flagger must be used when closing the southbound travel lane. Any material placed to maintain access will not be paid.

C. Recycled crushed concrete will be allowed for the base course on the project. The City of De Pere Compost Site (655 Rockland Road) may be used for the stockpiling and crushing of removed concrete pavement from Enterprise Drive to be recycled on this project. After stockpiling and crushing removed concrete. All excess waste must be removed from the compost site (i.e. metal reinforcement), and the site must be restored with topsoil, seed and mulch to match preexisting conditions.

D. Maintain mail service throughout construction.

E. Provide a traffic plan for the following:
   a. The restriction of Enterprise Drive to southbound traffic only for the duration of the project. The traffic control plan should account for multiple phases of paving to allow access to the businesses along Enterprise Drive.

F. 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:
   a. Enterprise Drive shall be accessed from Heritage Road

   b. Rockland Road shall be accessed from Destiny Drive via STH 32/57 or Enterprise Drive. Please note that Rockland Road between STH 32/57 and Destiny Drive is not a truck route.

G. 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. Weekends or nighttime work may be needed to facilitate final water connections.

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:

	Bid Item No.
1. Sanitary Sewer Laterals	SS-01
2. Sanitary Sewer Risers	SS-02
3. Sanitary Sewer Service Branches	SS-03
4. Dig Down to Verify Lateral Material	SS-04

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.
12. Landscaping – turf establishment surface restoration and trees and bushes damaged during construction.
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, replace, and/or relocate existing mailboxes and traffic signs.
19. Restroom facilities.
20. Easement and right-of-way requirements.
21. Construction staking and other survey work not provide 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 LATERALS

A. The unit price for Sanitary Sewer Laterals work includes:
   1. General Work Items of Article 1.2.
   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 of 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.

1.4 SANITARY SEWER RISERS

A. The unit price for Sanitary Sewer Risers work includes:
   1. General Work Items of Article 1.2.
   2. Sanitary sewer riser pipe and fittings of material stated in the Unit Price Bid Schedule and installed using the open trench method.
   3. Risers to be installed at the main.
   4. Tracer wire.

B. Measurement for payment will be the actual length of pipe along the centerline of the installed sewer service riser pipe from centerline of fitting to centerline of fitting having a vertical rise of 45 degrees or greater with no deductions for fittings.

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

1.5 SANITARY SEWER SERVICE BRANCHES

A. The unit price for Sanitary Sewer Service Branches work includes:
   1. General Work Items of Article 1.2.
   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.

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

C. The unit of measurement for payment is each.

1.6 VERIFY LATERAL MATERIAL

A. The unit price for Verify Lateral Material work includes:
   1. General Work Items of Article 1.2.
   2. Televise or excavate down to existing sanitary sewer lateral to expose the existing lateral to verify the lateral's material, size, and depth.
   3. Backfill and compact.

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:

	Bid Item No.
1. Storm Sewer Mains (Granular Backfill)	ST-01, ST-03, ST-04, ST-06
2. Storm Sewer Mains (Natural Backfill)	ST-02, ST-05
3. Storm Sewer Laterals	ST-07
4. Storm Sewer Service Branches	ST-08
5. Storm Sewer Manholes	ST-09, ST-10
6. Catch Basin/Inlets	ST-11, ST-12
7. Reconnect to Existing Storm Pipe or Manhole	ST-13
8. Core Drilling to Existing Pipe or Manhole	ST-14
9. Concrete Collar	ST-15

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.
11. Landscaping – turf establishment surface restoration and trees and bushes damaged during construction.
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 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, replace, and/or relocate existing mailboxes and traffic signs.
18. Restroom facilities
19. Easement and right-of-way requirements.
20. Construction staking and other survey work not provide 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 work includes:
    1. General Work Items of Article 1.2.
    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 Mains work includes:
   1. General Work Items of Article 1.2.
   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:
   5. General Work Items of Article 1.2.
   6. Storm sewer lateral pipe and fittings of the material stated in the Unit Price Bid Schedule and installed using the open trench method.
   7. Watertight plug in the end of the sewer service lateral or connection including transition coupling to the existing building sewer lateral.
   8. Tracer wire.
   9. Installed 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

A. The unit price for Storm Sewer Service Branches work includes:
   1. General Work Items of Article 1.2.
   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:
   1. General Work Items of Article 1.2.
   2. Precast reinforced concrete components.
   3. Joint flexible gasket material or mortar.
   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:
   1. General Work Items of Article 1.2.
   2. Precast reinforced concrete components.
   3. Joint flexible gasket material or mortar.
   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. Sand fill and Class "B" concrete floor and flow line.
10. Temporary cover over catch basin/inlet to prevent eroded materials from entering.
11. Final casting adjustment.

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

C. The unit of measurement for payment is each.

1.9 CONNECT TO STRUCTURE AND/OR EXISTING PIPE

A. The unit price for connecting to structure and/or existing pipe includes:
   1. General Work Items of Article 1.2.
   2. Sawing existing storm sewer
   3. Connection to existing storm pipe or manhole.

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

C. The unit of measurement for payment is each.

1.10 CORE DRILLING EXISTING STORM MANHOLE AND/OR EXISTING PIPE

A. The unit price for core drilling existing storm manhole and/or existing pipe includes:
   1. General Work Items of Article 1.2.
   2. Core drilling into existing storm sewer manhole or pipe (where required).
   3. Connection with mortar or the installation of boot.
   4. Reform flow line (manhole) or concrete collar (pipe).

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

C. The unit of measurement for payment is each.

1.11 Concrete Collar

A. The unit price for Concrete Collar work includes:
   1. General Work Items of Article 1.2.
   2. Providing and installing concrete and wire or mesh components.
   3. Connection to storm sewer pipe or manhole.

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

C. The unit of measurement for payment is each.

END OF SECTION

SECTION 01 22 03

MEASUREMENT AND PAYMENT WATER SYSTEM

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

	Bid Item No.
1. Water Mains (Granular Backfill)	W-01, W-04, W-05 W-06
2. Water Mains (Natural Backfill)	W-02
3. Water Main (Directional Drill)	W-03
4. Hydrant Leads or Water Mains	W-07
5. Water Services	W-08
6. Corporation and Curb Stop	W-09
7. 2-Inch Corporation with Plug and HDPE Pipe	W-10
8. Valves	W-11 thru W-15
9. Connection to Existing Water Mains	W-16
10. Fire Hydrants	W-17
11. Water Main Offset	W-18
12. Temporary Water Bypass	W-19
13. Abandon/Remove Water Main and Appurtenances	W-20
14. Dig Down and Verify Water Lateral	W-21

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.
11. Landscaping – turf establishment surface restoration and trees and bushes damaged during construction.
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, replace, and/or relocate existing mailboxes and traffic signs.
18. Restroom facilities
19. Easement and right-of-way requirements.
20. Construction staking and other survey work not provide 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 (GRANULAR BACKFILL)

A. The unit price for Water Main (Granular Backfill) work includes:
   1. General Work Items of Article 1.2.
   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.
6. Blocking and joint restraints.
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 (NATURAL BACKFILL)

A. The unit price for Water Main (Natural Backfill) work includes:
1. General Work Items of Article 1.2.
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.
6. Blocking and joint restraint.
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 MAIN (DIRECTIONAL DRILLING)

A. The unit price for Water Main (Directional Drilling) work includes:
1. General Work Items of Article 1.2.
2. Field verifies location and elevation of existing utilities before or during directional drilling.
3. Boring pit and receiving pit
4. PVC pipe and materials (fusible PVC or PVC and Certa Lock Restraint)
5. Installation of the PVC by directional Drilling
6. Backfilling and compacting the boring and receiving pits.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed water pipe.

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

1.6 HYDRANT LEADS OR WATER MAINS

A. The unit price for Hydrants Leads work includes:
   1. General Work Items of Article 1.2.
   2. Blocking and joint restraints.
   3. Tracer wire
   4. Disinfection of pipeline.
   5. Water pipe and fittings of material stated in the Unit Price Bid Schedule and installed using the open trench method.
   6. Ductile or cast iron fittings.
   7. Polyethylene encasement of ductile iron or cast iron pipe and fittings.

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

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

1.7 WATER SERVICES

A. The unit price for Water Services work includes:
   1. General Work Items of Article 1.2.
   2. Pipe and fittings of material stated in the Unit Price Bid Schedule.
   3. Tracer wire.
   4. Disinfection of pipelines.
   5. Installed 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.

1.8 CORPORATION AND CURB STOPS

A. The unit price for Corporation and Curb Stops work includes:
   1. General Work Items of Article 1.2.
   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.

1.9 2-INCH CORPORATION WITH PLUG AND HDPE PIPE

A. The unit price for 2-Inch Corporation with Plug and HDPE Pipe work includes:
   1. General Work Items of Article 1.2.
   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.

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

C. The unit of measurement for payment is each.

1.10 VALVES

A. The unit price for Valves work includes:
   1. General Work Items of Article 1.2.
   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.

1.11 CONNECTIONS TO EXISTING WATER MAINS

A. The unit price for Connection to Existing Water Mains work includes:
   1. General Work Items of Article 1.2.
   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.

1.12 FIRE HYDRANTS

A. The unit price for Fire Hydrants work includes:
   1. General Work Items of Article 1.2.
   2. Fire hydrant complete of the specified bury depth.
   3. Blocking and joint restraints.
   4. Hydrant wrenches.
   5. Hydrant markers.
   6. Polyethylene encasement.
   7. Drainage pit.
   8. Disinfection of hydrant.
   9. Tracer wire.
   10. Tracer wire access box.

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

C. The unit of measurement for payment is each.

1.13 WATER MAIN OFFSET

A. The unit price for Water Main Offset work includes:
   1. General Work Items of Article 1.2.
   2. Ductile iron fittings and PVC pipe.
   3. Tracer Wire.
   4. Polyethylene encasement if 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 and includes the pipe and fittings from vertical bend to vertical bend at the offset location.

1.14 TEMPORARY WATER BYPASS

A. The unit price for Temporary Water Bypass work includes:
   1. General Work Items of Article 1.2.
   2. Bypass water conveyance pipe classified for potable water.
   3. Testing of water bypass for safe sample prior to final connection.
   4. Blocking and restraint on water bypass to prevent bypass pipe from moving or rupturing.
   5. Set up and take down of 8-inch water bypass pipe.

B. Measurement for payment will not be made.

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

1.15 ABANDON / REMOVE WATER MAIN AND APPPURTENANCES

A. The unit price for Abandon/Remove Water Main and Appurtenances work includes:
   1. General Work Items of Article 1.2.
   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.
   6. Backfilling and compacting.
   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.

1.16 DIG DOWN TO VERIFY LATERAL MATERIAL

A. The unit price for Dig Down to Verify Lateral Material work includes:
   1. General Work Items of Article 1.2.
   2. Excavate down to existing sanitary sewer lateral to expose the existing lateral to verify the lateral's material, size, and depth.
   3. Excavation and compaction.

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 04

MEASUREMENT AND PAYMENT STREET AND DRAINAGE CONSTRUCTION

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

	Bid Item No.
1. Unclassified Excavation	SD-01
2. Crushed Aggregate Base and Surface Course	SD-02
3. Asphaltic Concrete Pavement Patch	SD-03, SD-04
4. Portland Cement Concrete Curb and Gutter	SD-05, SD-06, SD-07
5. Remove Pavement	SD-08, SD-11, SD-12
6. Portland Cement Concrete Pavement	SD-09, SD-10
7. Portland Cement Concrete Driveway and Sidewalk	SD-13
8. Landscaping – Topsoil, Seed, Fertilize, and Mulch	SD-14

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. 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. 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, replace, and/or relocate existing mailboxes and traffic signs.
8. Restroom facilities.
9. Construction staking and other survey work not provide by the Owner.
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 UNCLASSIFIED EXCAVATION

A. The unit price for Unclassified Excavation work includes:
   1. General Work Items of Article 1.2.
   2. Excavation to subgrades shown on the Drawings.
   3. Hauling of unclassified material.
   4. Placing unclassified material in fill areas to subgrades shown on the Drawings and the subgrade required for placement of topsoil.
   5. Compaction of subgrade and fill areas.
   6. Test rolling subgrade.
   7. Excavation of undercut areas for placing topsoil.
   8. Respreading topsoil to final grades shown on the Drawings.
   9. Disposal of surplus topsoil, unclassified material and unsuitable material.
   10. Preparation of disposal site and transportation of material over an Engineer approved haul route from the site including all loading and dumping of material
   11. 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 based off the City survey and will be the basis for payment.

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

1.4 CRUSHED AGGREGATE BASE AND SURFACE COURSE

A. The unit price for Crushed Aggregate Base and Surface Course work includes:
   1. General Work Items of Article 1.2.
   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 provide 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 (7) percent total moisture determined based on the dry mass of the aggregates will have moisture content in excess of seven (7) percent deducted from the measured weight.

C. The unit of measurement for payment is tons.

1.5 ASPHALTIC CONCRETE PAVEMENT PATCH

A. The unit price for Asphaltic Concrete Pavement work includes:
   1. General Work Items of Article 1.2.
   2. Asphaltic concrete mixture, tack coat and other required materials
   3. Surface preparation.
   4. Grading subgrade (where required).
   5. Asphaltic concrete placement and compaction to a thickness of 4-inches and width shown on the drawings or specified elsewhere.
   6. Tack coat between asphaltic concrete courses and abutting pavements.

B. Measurement for payment will be the area of roadway patched.
   1. The large asphalt patch bid item applies to patches greater than 25 SY.
   2. The small asphalt patch bid item applies to patches less than 25 SY.

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

1.6 PORTLAND CEMENT CONCRETE CURB AND GUTTER

A. The unit price for Portland Cement Concrete Curb and Gutter work includes:
   1. General Work Items of Article 1.2.
   2. Providing Portland cement concrete mixture of size shown in the drawings or specified elsewhere.
   3. Providing reinforcement including tie bars to existing concrete pavement.
   4. Providing expansion joints.
   5. Providing curing.
   6. Existing curb and gutter removal (where required).

7. Subgrade preparation.
8. Provide crushed aggregate base.
9. Fine grading of subgrade.
10. Providing contraction joints.
11. Driveway entrances and handicap ramp entrances.
12. Adjustment of catch basin/inlets.
13. Finishing.
14. Protection.
15. 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.

1.7 REMOVE PAVEMENT

A. The unit price for Remove Pavement work includes:
   1. General Work Items of Article 1.2.
   2. Sawcutting, breaking, and removal of existing asphaltic concrete pavement or concrete pavement over the project limits.
   3. Sawcutting to protect adjacent roadway surfaces.

B. Measurement of payment will not be made unless there is a change in project scope. The estimated quantity represents the computed area based off the City survey and will be the basis for payment.

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

1.8 PORTLAND CEMENT CONCRETE PAVEMENT

A. The unit price for Portland Cement Concrete Pavement work includes:
   1. General Work Items of Article 1.2.
   2. Furnish all labor, tools, equipment and services.
   3. Providing Portland cement concrete mixture of thickness shown in the drawings or specified elsewhere.
   4. Surface preparation.
   5. Providing reinforcement including tie bars and dowel bars and associated drilling.
   6. Joint sealing.
   7. Providing curing.

8. Concrete sealing with linseed oil.
9. Fine grading of subgrade.
10. Providing expansion joints and contraction joints.
11. Adjustment of manholes, water valves, inlets/catch basin and other structures to finish grade.
12. Finishing.
13. 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 24" 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.

1.9 PORTLAND CEMENT CONCRETE DRIVEWAY AND SIDEWALK

A. The unit price for Portland Cement Concrete Sidewalk and Driveway work includes:
   1. General Work Items of Article 1.2.
   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. Subgrade preparation.
   7. Providing contraction joints.
   8. Handicap ramps.
   9. Sidewalk steps.
   10. Saw cutting adjacent surfaces.
   11. Finishing.
   12. Protection.
   13. Restoration.

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.

1.10 LANDSCAPING- TOPSOIL, SEED, FERTILIZE AND MULCH

A. The unit price for Landscaping- Topsoil, Seed, Fertilize, and Mulch work includes:
   1. General Work Items of Article 1.2.
   2. Provide 4" topsoil or salvaged topsoil.
   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 road right of way, not greater than the easement and not greater than 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.

END OF SECTION

SECTION 01 22 05

MEASUREMENT AND PAYMENT SPECIAL CONSTRUCTION

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

	Bid Item No.
1. Silt Fence Erosion Control	SC-01
2. Erosion Control Bags	SC-02
3. Inlet Protection Erosion Control	SC-03
4. Pavement Marking Epoxy Lines	SC-04
5. Traffic Control	SC-05, SC-06
6. Tracking Pad	SC-07

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 provide by the Engineer.
   7. Regulatory requirements.
   8. Quality assurance and quality control testing and inspections.

9. Shop drawings and other submittals.

1.3 SILT FENCE EROSION CONTROL

A. The unit price for Silt Fence Erosion Control work includes:
   1. General Work Items of Article 1.2.
   2. Provide fabric and post.
   3. Excavate to anchor fabric and compact soil or provide soil class C-3 to anchor the fabric.
   4. Inspection and maintenance of the installed silt fence.
   5. Removal of the silt fence.
   6. Finish grading.
   7. Topsoil, seeding, fertilizing, and mulching area in the vicinity of the removed silt fence 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.

1.4 EROSION CONTROL BAGS

A. The unit price for Erosion Control Bags work includes:
   4. General Work Items of Article 1.2.
   1. Provide rock filled erosion control bags.
   2. Excavate and embed the erosion control bags.
   3. Inspection and maintenance of the installed bags.
   4. Removal of the erosion control bags.
   5. Finish grading.
   6. 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 erosion control bags installed.

C. The unit of measurement for payment is each.

1.5 INLET PROTECTION EROSION CONTROL

A. The unit price for Inlet Protection Erosion Control work includes:
   1. General Work Items of Article 1.2.
   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.

1.6 PAVEMENT MARKING EPOXY LINES

A. The unit price for Pavement Marking Epoxy Lines work includes:
   1. General Work Items of Article 1.2.
   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 for payment will be by the linear foot, calculated 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 marking in the intermittent line end to end.

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

1.7 TRAFFIC CONTROL

A. The unit price for Traffic Control work includes:
   1. General Work Items of Article 1.2.
   2. Providing, installing, maintain, and removing the Traffic Control signing and barricades as shown on the plans and per the MUTCD.
   3. Traffic detour, including covering signs when not in use.
   4. Flaggers per the MUTCD.

B. Measurement for payment will not be made.
   1. This bid item applies to those traffic control items specifically listed on the bid schedule.
   2. All other traffic control is incidental to other items bid.

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

1.8 TRACKING PAD

A. The unit price for Tracking Pad work includes:
   1. General Work Items of Article 1.2.
   2. Install to the dimensions as shown on the drawing or specified elsewhere.
   3. Providing filter fabric.
   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.

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 Tuesday 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 preceded 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

SECTION 01 32 33
CONSTRUCTION PHOTOGRAPHS

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.
   3. Utility structures.
   4. Landscaping including signs, plantings, walls, fences, trees, shrubbery, etc.
   5. Mail boxes.
   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 4 by 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 days after the Effective Date of the Agreement, four copies of a preliminary progress schedule of the work activities form 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 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 preliminary submittal schedule, print and distribute copies of the revised submittal schedule to the Engineer, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the field office.
1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in 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 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/Architect 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. WDNR – Water Main Extension

2. Brown County Highway Department
3. WDNR - WRAPP

B. To date, not all permits have been obtained. Construction shall not commence until all permit approvals have been obtained.

PART 2 – PRODUCTS (Not used)

PART 3 – EXECUTION (Not used)

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, verity 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 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 72 hours before the related work begins.
   2. Provide construction reference stakes for subgrade at a minimum of 50 foot intervals and maximum of 100 foot intervals on tangents. Provide construction reference stakes for subgrade at 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 50 foot intervals and maximum of 100 foot intervals on tangents. Provide construction reference stakes for top of crushed aggregate at 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 33 11 00.2 SP
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):

1.	D1784	Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride)(CPVC) Compounds
2.	D1785	Specifications for Poly (Vinyl Chloride) (PVC) Plastic Pipe Schedules 40, 80, and 120
3.	D2152	Test Method for Degree of Fusion of Extruded Poly(Vinyl Chloride)(PVC) Pipe and Molded Fittings by Acetone Immersion.
4.	D2241	Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)

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
3.	M23	Manual of Supply Practices PVC Pipe-Design and Installation, Second Edition

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

1.3 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.
   3. Product data sheet.
   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's 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

SECTION 33 11 00.1 SP

WATER DISTRUBTION SYSTEMS – SPECIAL

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Modification to the City of De Pere 2018 Standard Specifications to update thrust restraints to include minimum length requiring restraints for 16" diameter pipe.

PART 2 – PRODUCTS
Not Used

PART 3 – EXECUTION

3.1 THRUST RESTRAINTS

A. Provide thrust restraint with mechanical restraints and concrete thrust blocks which physically prevent joint separation. Thrust blocks are to be constructed to transfer the thrust load from the pipe to the undisturbed soil of the trench wall.
   1. When using mechanical restraints, restrain the fitting joints within the following minimum pipe length on each side of the fitting unless manufacturer's submitted calculations and recommendations indicate otherwise:

	Restrained/Tied Pipe Length Chart Minimum Length Requiring Restraints
Fitting Type	16 inch
11.25° Bend	10
22.5° Bend	10
30° Bend	10
45° Bend	10
60° Bend	20
90° Bend	40
	Restrained/Tied Pipe Length Chart Minimum Length Requiring Restraints
Tee (Side Tied)	40
Stubs or Dead Ends	50
Cross with Plugged End	40
Valve at End of Line	40
*Use of 90° Bends requires Engineer Approval	

END OF SECTION

APPENDIX

A. Subsurface Exploration and Subgrade Analysis, Proposed Roadway Reconstruction and Utility Relay Charles Street and Enterprise Drive, De Pere, Wisconsin by Intertek PSI.

Subsurface Exploration and Subgrade Analysis

Proposed Roadway Reconstruction and Utility Relay
Charles Street and Enterprise Drive
De Pere, Wisconsin

Prepared for

City of De Pere
925 South Sixth Street
De Pere, Wisconsin

Prepared by

Professional Service Industries, Inc.
2740 Packerland Drive
Suite F
Green Bay, Wisconsin

January 17, 2018

PSI Project 0093510

Cody M. Williquette
Branch Manager

James M. Becco, P.E.
Vice President
Principal Consultant

Green Bay Office
2740-F Packerland Drive
Green Bay, Wisconsin 54313

January 17, 2018

Mr. Eric Rakers
City of De Pere
925 South Sixth Street
De Pere, Wisconsin 54115

SUBJECT: **Subsurface Exploration and Subgrade Analysis**
Proposed Roadway Reconstruction and Utility Relay
Charles Street and Enterprise Drive
De Pere, Wisconsin
PSI Project No. 0093510

Dear Mr. Rakers,

The subsurface exploration and analysis for the referenced project has been completed, the results of which are included herein. A copy has been provided electronically. After you have had the opportunity of reading the report, please call at any time with any questions or comments you may have. Professional Service Industries, Inc., an Intertek company, appreciates the opportunity to be of service on this project, and looks forward to continuing as your geotechnical consultant during the design and construction phases, as well as your upcoming projects.

Sincerely yours,

PROFESSIONAL SERVICE INDUSTRIES, INC.

Cody M. Williquette
Branch Manager

James M. Becco, P.E.
Vice President

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

INTRODUCTION

General

This report presents the results of the subsurface exploration and subgrade evaluation for the proposed Charles Street and Enterprise Drive road reconstruction and utility relay projects in the City of De Pere, Wisconsin. The work was performed for the City of De Pere, at the request of Mr. Eric Rakers.

Purpose

The purpose of this study was to evaluate the subsurface conditions at specific boring locations along the roadways, and to establish parameters for use by the design engineers in preparing the road/utility subgrades and pavement section designs for the proposed project.

Scope

The scope of services included a site reconnaissance, the subsurface exploration, a determination of soil characteristics by field and laboratory testing, and an evaluation and analysis of the data obtained. The scope of the field work, including the number, depth, and locations of the borings was determined by the client.

Authorization

The scope of services was performed in accordance with a signed agreement (PSI Proposal No. 0093-201833, dated February 15, 2017), between PSI and the City of De Pere. The general conditions for the performance of the work were referenced in the proposal. This report, summarizing the subsurface exploration and subgrade evaluation, has been prepared on behalf of, and exclusively for the use of the City of De Pere. The information contained in this report may not be relied upon by any other parties without the written consent of PSI, and acceptance by such parties of PSI's General Conditions.

PROJECT AND SITE DESCRIPTION

Project Location

The project sites are located along Charles Street and Enterprise Drive in De Pere, Wisconsin. More specifically, the borings located on Enterprise Drive were between Heritage Road and Millennium Court, and the borings located on Charles Street were located between South Michigan Street and South Webster Avenue. The project length along Charles Street is approximately 2,700-feet and the project length along Enterprise Drive is approximately 2,500-feet in length. The general location of the site is depicted in the enclosed Boring Location

Diagrams (Figure 1 and Figure 2).

Project Description

Based on preliminary information provided by Mr. Eric Rakers of the City of De Pere, it is understood that the project will consist of roadway reconstruction and utility relay. The utility relay will include the installation of 12-inch PVC (or RCP CL III) storm sewer and 16-inch PVC water main along sections of Enterprise Drive; and 24-inch PVC sanitary sewer along Charles Street. Enterprise Drive is planned to be made approximately 10 feet narrower as part of this project and the new utilities will be relayed or installed in the newly enlarged terrace area.

According to the plans provided by the City of De Pere Engineering Department and the information provided by Mr. Joe Holzwart of Donohue and Associates, Inc., the new utility pipes along Enterprise Drive will bear at depths ranging between about 6 to 7 ½ feet. They will be between about 10 to 22 feet deep on Charles Street. Therefore, excavations of up to about 8 feet on Enterprise Drive and up to about 22 feet on Charles Street are anticipated to be necessary to establish the pipe bearing elevations.

It is estimated that the roadway grades and alignments will generally remain unchanged for the project. Specific traffic loading was not known at the time of this analysis. Based on visual observation of traffic conditions during the exploration, it is estimated that existing traffic generally consists of passenger cars and occasional commercial trucks.

Site Description

The existing pavement along Charles Street generally consists of a residential, two-lane asphalt roadway. The existing pavement along Enterprise Drive generally consists of a commercial, two-lane concrete roadway. Curb and gutter was located along the project routes. Plans and associated typical existing sections were not provided. At the time of the site reconnaissance, the asphalt and concrete pavement was generally in fair condition with no major rutting and cracking observed. Some alligator cracking was observed along the curb lines in some areas of the roads. The age of the pavements along the project route was not known at the time of this report.

The topography of Charles Street is generally sloping down to the west, with an elevation difference of approximately 18.5 feet (EL. 630.1 to EL. 611.6) measured between borings C-1 through C-6. The topography of Enterprise Drive is rolling, with an elevation difference of approximately 4.9 feet (EL. 642.3 to EL. 637.4) measured between borings E-1 through E-4, generally sloping to the north and south from boring B-2, which is the boring at the highest elevation.

EXPLORATION AND LABORATORY PROCEDURES

Scope Summary

The field and laboratory data utilized in the evaluation and analysis of the pavement was obtained by performing exploratory test borings; securing material samples by bulk and split-spoon sampling methods; and subjecting the samples to laboratory testing.

Field Exploration

Ten (10) soil test borings were drilled for this project to depths ranging between 7 and 24 feet below existing site grades. More specifically, six (6) borings were performed on Charles Street to depths ranging between 7 and 24 feet (identified as C-1 through C-6), and four (4) borings were performed on Enterprise Drive to a depth of 9 feet (identified as E-1 through E-4). The number, depths, and locations of the borings were provided by the client. The borings for this project were located in the field by the client's representative in the locations indicated on the boring location diagrams (see Figure 1 and Figure 2). The ground surface elevations shown on the boring logs were provided by the client.

The soil test borings were performed with a truck-mounted rotary drilling rig utilizing continuous flight hollow stem augers to advance the holes. Representative samples were obtained by the Standard Penetration Test (SPT) method using split-spoon sampling procedures in general accordance with ASTM D-1586 procedures. Samples were collected at 2.5-foot intervals to 10 feet, and then at 5 foot intervals thereafter to the end of the borings. The standard penetration value (N) is defined as the number of blows of a 140-pound hammer, falling thirty (30) inches, required to advance the split-spoon sampler one (1) foot into the soil. The sampler is lowered to the bottom of the drill hole and the number of blows recorded for each of the three (3) successive increments of six (6) inches penetration. The "N" value is obtained by adding the second and third incremental numbers. The SPT provides a means of estimating the relative density of granular soils and comparative consistency of cohesive soils, thereby providing a method of evaluating the relative strength and compressibility characteristics of the subsoils.

The SPT samples were transferred into clean glass jars immediately after retrieval, and returned to the laboratory upon completion of the field operations. Samples will be stored for a period of 30 days at which time they will be discarded unless other instructions are received. All soil samples were visually classified by a soils engineer in general accordance with the Unified Soil Classification System (ASTM D-2488). After completion of the borings, the auger holes were backfilled to near the ground surface with bentonite chips and the surface was patched with cold asphalt.

A copy of the Soil Boring Logs and Boring Location Plans (Figure 1 and Figure 2) are enclosed in the Appendix. The soil stratification shown on the logs represents the approximate soil

conditions in the actual boring locations at the time of the exploration. The terms and symbols used on the logs are described in the General Notes found in the Appendix.

Laboratory Testing

Soil samples obtained from the exploration were visually classified in the laboratory, and subjected to testing, which included moisture content determinations, Atterberg Limits, and grain-size analysis by the mechanical method.

Selected cohesive soil samples were tested in unconfined compression with a controlled strain loading rate and/or with a calibrated hand penetrometer to aid in evaluating the soil strength characteristics. The values of strength tests performed on soil samples obtained by the Standard Penetration Test Method (SPT) are considered approximate, recognizing that the SPT method provides a representative but somewhat disturbed soil sample.

The laboratory testing was performed in general accordance with the respective ASTM methods, as applicable, and the results are shown on the boring logs and data sheets in the Appendix.

DESCRIPTION OF SUBSURFACE CONDITIONS

General

A description of the subsurface conditions encountered at the test boring locations is shown on the Soil Boring Logs, enclosed in the Appendix. The lines of demarcation shown on the logs represent approximate boundaries between the various soil classifications. It must be recognized that the soil descriptions are considered representative for the specific test boring locations, and that variations may occur between and beyond the sampling intervals and the widely spaced boring locations. Soil depths, topsoil and layer thicknesses, and demarcation lines used for preconstruction planning should not be expected to yield exact and final quantities. A summary of the major pavement and soil profile components encountered at the boring locations, is described in the following paragraphs.

Soil Conditions

At the time of the exploration, the asphalt thicknesses ranged between about 3 to 7 inches on Charles Street, and the concrete thicknesses ranged between about 7 to 8 inches on Enterprise Drive. The underlying base course materials consisted of crushed stone with sand, and ranged between about 3 to 11 inches in thickness. The subgrade underlying the surface pavement and base materials generally consisted of reddish brown to brown clay, and brown sand. As exceptions, possible fill, possible buried topsoil, and buried topsoil were encountered in borings C-1, C-2, C-3, C-4, and C-6 extending to depths of about 1.5 to 2.5 feet (EL. 627.6 to EL. 609.1±) below existing grade.

The possible fill, possible buried topsoil, and buried topsoil materials were classified as such based on their varied visual characteristics and composition. However, it must be recognized that in the absence of foreign substances and/or debris within the soil samples obtained, it is difficult to distinguish between natural soils and clean soil fill.

The most common soil type within the borings was clay. This clay was typically of low to medium plasticity with the typical AASHTO classification being A-6. The moisture contents of the clay found within the upper profile, just below the base course, possible fill, possible buried topsoil, and buried topsoil ranged between 15 and 24 percent.

The natural cohesive soils were generally soft to hard in comparative consistency with Standard Penetration resistances (N-values) typically between about 4 and 43 blows per foot (bpf), and unconfined compressive strength values ranging between about 0.5 tons per square foot (tsf), to values exceeding 4.5 tsf. The natural granular soils encountered along Enterprise Drive were generally medium dense to dense in comparative consistency with Standard Penetration resistances (N-values) typically between about 9 and 21 blows per foot (bpf)

The results of the sieve analyses, Atterberg Limits, and associated USCS and AASHTO classifications for the selected subgrade samples are shown in the following table:

Boring	Sample Depth (ft)	Percent Passing Sieve No.			Atterberg Limits		USCS Classification	AASHTO Classification
		#10	#40	#200	LL	PI		
C1 - C3	0 - 1	55	35	19.2	-	-	SM	A-1-b
C4 - C6	0 - 1	68	47	35.0	-	-	SM	A-2-4
C1 - C6	1 - 4	99	97	88.2	38	20	CL	A-6
E2 - E4	0 - 1	67	48	34.1	-	-	SM	A-2-4
E2 - E4	1 - 4	98	95	82.9	36	19	CL	A-6

Based on the above results, the natural cohesive subgrade soils tested have been generally classified as lean clay (CL) by the USCS classification system, and as A-6 by the AASHTO system. The existing base course materials tested have generally been classified as silty sand (SM) by the USCS classification system, and A-2-4 and A-1-b by the AASHTO system.

The foregoing discussion of soil conditions on this site represents a generalized soil profile as determined at the test boring locations. A more detailed description and supporting data for each test location can be found on the individual Soil Boring Logs.

Groundwater Observations

Groundwater observations were made during the drilling operations and in the open boreholes upon completion of the drilling operations. Groundwater was not encountered in the boreholes at the time of drilling. All of the holes caved to varying depths upon withdrawal of the auger; therefore, observations could not be made below the caved depth.

On the basis of the field observations and the soils relative moisture contents, the groundwater level is estimated to be below the depth of the borings at the time of the exploration. It must be recognized that groundwater levels fluctuate with time due to variations in seasonal precipitation, lateral drainage conditions, and soil permeability characteristics.

EVALUATION AND RECOMMENDATIONS

General Development Considerations

On the basis of the preliminary design information provided by the City of De Pere's Engineering Department and Donohue and Associates, Inc., the new utility pipes will bear at depths ranging between about 6 to 7 ½ feet along Enterprise Drive, and between about 10 to 22 feet on Charles Street. Soils encountered at these depths in most of the borings can generally be used for support of the proposed pipelines. However, lower strength clay soils were encountered in C-1 at about 13.5 feet (EL. 598.1) below existing grade. These soils are subject to a substantial loss in strength when the confining effect of the overburden soil is removed. Some difficulties may be experienced in maintaining excavation sidewall stability and in developing a stable subgrade in some areas of the project, especially when excavations encroach upon or extend below any perched water zones in some areas of the project. All pipelines must bear upon a suitable subgrade or properly placed structural fill.

Utility construction should be performed in accordance with "The Standard Specifications for Sewer and Water Construction in Wisconsin, 5th Edition, with Addendum No. 1 and 2 included." The proposed pavements for this project can be supported by the existing soils following proper preparation, which will include the removal of soft, unstable or unsuitable zones. The following sections give specific recommendations for construction of the proposed utilities and roadway reconstruction.

Site Preparation

The presence of organic topsoil and vegetation in the subgrade can adversely affect the serviceability of structural fills, foundations, floor slabs, pavements, and other structures placed upon them. All topsoil, vegetation, trees, roots and other organic matter must be stripped from the areas of pavements, sidewalks, and other structures.

Since portions of the proposed pipelines will be installed within the planned roadways, any fill used above the pipe bedding and cover material should consist of a relatively clean granular material to provide adequate support for the overlying roadway. Substantial portions of the soils encountered within the borings generally consisted of clay. It is considered extremely difficult to achieve proper compaction of clay and high silt content soils in narrow utility trenches, and they are therefore not recommended for reuse in areas of overlying structures. The use of imported granular fill will be necessary in some areas to avoid delays, especially if construction is performed during cool weather, when drying will be difficult.

After the removal of topsoil and other unsuitable bearing materials, and the installation of the utilities and associated backfill, the pavement subgrade should be thoroughly proofrolled to detect unstable, yielding soils, which must be removed or improved by appropriate preparation and compaction techniques. Scarification and drying of wet soils or removal and replacement with suitable fill, are two methods which can be considered, but this should be determined by the soils engineer at the time of construction.

When a firm and stable subgrade is established, low areas may be raised to planned grades with properly compacted structural fill. Any new fill should consist of a relatively clean granular soil, such as those materials meeting the gradations outlined in Section 209 or 305 of the State of Wisconsin Standard Specification for Highway and Structure Construction. If fine-grained soils, such as those with high silt or clay content are used to adjust pavement subgrades, they should generally be placed over large open areas, where conditions are more favorable for the proper placement and compaction of such materials. It must be recognized that high silt or clay content materials are difficult to compact when placed at moisture contents beyond a few percent of the optimum moisture content. In addition, portions of the near surface soils across the site are considered moisture sensitive; therefore, some difficulty with subgrade preparation should be expected, especially if they become wet during construction. Fill must be placed in layers of not more than nine (9) inches in thickness, at moisture contents at or near optimum, and be compacted to a minimum density of 95 percent of the maximum dry density as determined by ASTM designation D-698. Silt, clay, organic, and wet granular soils are not suitable for reuse as compacted fill in trenches.

Proper moisture control is essential to reduce the amount of compactive effort necessary to achieve the desired densities. This is especially true of silty and clayey soils, where scarification and aeration may be required to achieve near-optimum moisture levels prior to compaction. A sheepsfoot roller is generally required for compaction of clayey soils, whereas a vibratory smooth drum roller is preferred for granular material. Small hand-operated or backhoe-mounted plate compactors should be used in confined areas. Granular fills are generally more readily compacted to the desire densities in such applications.

The selection of fill materials for various applications should be done in consultation with the soils engineer. Similarly, the evaluation of the subgrade and placement and compaction of fill

for structural applications should be monitored and tested by a qualified representative of the soils engineer.

Utility Subgrade Analysis

On the basis of the preliminary design information provided by the City of De Pere's Engineering Department and Donohue and Associates, Inc., the new utility pipes will bear at depths ranging between about 6 to 7 ½ feet along Enterprise Drive, and between about 10 to 22 feet on Charles Street. Soils encountered at these depths in most of the borings can generally be used for support of the proposed pipelines. However, lower strength clay soils were encountered in C-1 at about 13.5 feet (EL. 598.1) below existing grade. These soils are subject to a substantial loss in strength when the confining effect of the overburden soil is removed. Substantial difficulties may be experienced in maintaining excavation sidewall stability and in developing a stable subgrade in some areas of the project, especially when excavations encroach upon or extend below any groundwater or perched zones. Some overexcavation of soft or loosened materials, along with replacement with crushed stone or other clean granular material, may be necessary, and may become extensive in at least isolated areas. All pipelines must bear upon a suitable subgrade or properly placed structural fill.

Because no groundwater was encountered in the upper levels of the boreholes during the exploration, no major difficulties during excavation and construction of the proposed utilities and roadways is anticipated. A gravity drainage system and filtered sump pumps or other conventional dewatering procedures, should be adequate to control perched water if encountered. However, more prolonged dewatering with a series of sumps and pumps may be necessary for excavations extending more than a few inches below the long term groundwater or large volume perched zones.

Utility construction should be performed in accordance with "The Standard Specifications for Sewer and Water Construction in Wisconsin, 5th Edition, with Addendum No. 1 and 2 included." The following sections give specific recommendations for construction of the proposed pipeline.

Excavations

Excavation depths are estimated to range between about 8 to 22 feet below grade for the proposed pipelines. Sloping, shoring or bracing of the excavation sidewalls will be necessary. Trenching in granular or soft/low strength clay soils may be difficult due to the instability of vertical slopes, and will therefore require a flattening of trench sides, or some other means of protection, to facilitate construction and to protect life and property. The degree of excavation instability problems is dependent upon the depth and length of time that excavations remain open, excavation bank slopes, water levels and the effectiveness of any dewatering systems. Substantial instability may be experienced with increasing depth, especially when encroaching upon or extending below any groundwater or perched zones, and/or within zones of softer/low strength soils. All excavation work must be performed in accordance with OSHA and local

building code requirements. Proper care must be taken to protect the integrity of nearby pavements and other structures during construction.

All excavations must be performed with caution and utilize methods which will prevent undermining or destabilization of buildings, utilities, pavements, sidewalks or other structures. The use of a properly designed shoring and bracing, sheet piling, or underpinning system must be utilized as necessary to adequately protect buildings, utilities, pavements, and other structures. This must be performed by an experienced specialty contractor. Additionally, extreme care must be used during the installation of any bracing system, especially those using driven or vibratory methods, in order to avoid damaging existing buildings, utilities, and other structures. Consideration should be given to the performance of video and/or photographic documentation of the condition of nearby buildings, utilities, and other structures prior to installation.

It is mandated that excavations, such as for utility trenches, be constructed in accordance with current Occupational Safety and Health Administration (OSHA) guidelines to protect workers and others during construction. PSI recommends that these regulations be strictly enforced. The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 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.

PSI is providing this information solely as a service to our client. PSI does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations.

To provide adequate subgrade support conditions, all utilities should be backfilled with properly placed and compacted structural fill. This should typically consist of clean granular material, such as the existing sand soils encountered along the project route. However, any material placed as backfill must be at proper moisture contents so that adequate compaction can be achieved. Substantial drying of some portions of the on-site soils may be necessary.

Pipe Material

In order to reduce the amount of pipe deflection, it must be recognized that proper selection and compaction of the pipe bedding and cover materials is essential. This should be done in accordance with the Standard Specification for Sewer and Water Construction. Bedding material exhibiting a well-defined moisture density relationship should be compacted to 95 percent of ASTM D-698 (Standard proctor). Pipelines and associated manholes bearing upon suitable soils or upon properly placed and compacted structural fill can generally be designed to

exert a net allowable bearing pressure of 2,000 pounds per square foot in most areas. However, natural soft/lower strength clay soils were encountered in C-1 at a depth of approximately 13.5 feet (EL. 598.1), and other loose, soft, or otherwise unsuitable zones may occur between or beyond the borings. Manholes bearing within such soils must utilize a net allowable bearing pressure not exceeding 1,000 psf. In addition, such soils can become substantially unstable when the confining effect of the overburden is removed, especially in the presence of water. The use of undercutting, in conjunction with a coarse stone working mat, may be necessary to achieve a suitable bearing subgrade.

Trench Backfilling

Backfilling of the pipes and trenches should be performed in accordance with the applicable chapters of the Standard Specification for Sewer and Water Construction. This will be dependent on the type of pipe selected, embedment depth and other factors. In general, it is recommended that well-graded granular soils such as those specified in Chapter 6.43.0 of the Standard Specification for Sewer and Water Construction be utilized for bedding, cover and backfill in the utility trenches to reduce the potential for settlement of the fill. Clean crushed granular materials may be used for pipe bedding and cover, provided they are properly placed and compacted.

In planned areas of overlying structures (beneath roads, driveways, utilities, and related structures), any fill used above the pipe bedding and cover material must consist of a relatively well-graded granular material. Substantial portions of the on-site soils encountered in the borings generally consist of clay. It is considered extremely difficult to achieve proper compaction of clay and high silt content soils in narrow utility trenches, and they are therefore not recommended for reuse in areas of overlying structures. Such materials can be used in landscape areas, if desired, recognizing that some subsidence may occur following construction. Importing of suitable granular materials will be necessary (and may be substantial) in some areas to avoid delays, especially if construction is performed during cool weather, when drying will be difficult.

Placement of bedding and cover material shall be sufficient to protect the type of pipe selected as specified by the pipe manufacturer. Trench backfill should be placed in layers not more than 12 inches in loose thickness before compaction, except that the first lift of backfill placed over the pipe can be increased to 24 inches if necessary to protect the pipe from compaction equipment. Subsequently thinner lifts may be required depending on the type and size of compaction equipment available.

It is recommended that mechanical compaction be used to achieve uniform consolidation of all fill materials. Proper moisture control is essential to reduce the amount of compactive effort necessary to achieve the specified density. It is recommended that backfill soils be placed at moisture contents within a few percent of their optimum moisture content.

Each lift of backfill must be compacted to a density of at least 95 percent of the maximum dry density as determined by the Standard Proctor method, ASTM D698, as specified in Section 2.6.14b of the Standard Specification for Sewer and Water Construction.

Existing Pavement Section

The existing asphalt and concrete pavement observed along the project route is considered to be in generally fair condition with respect to serviceability and structural integrity.

The existing pavement section at the borings typically consisted of about 3 to 7 inches of hot-mix asphalt (HMA) on Charles Street, and about 7 to 8 inches of concrete on Enterprise Drive, overlying about 3 to 11± inches of base course. The existing aggregate base materials consisted of silty sand with gravel by the USCS Classification system. Results of the grain-size analysis performed on composite samples of the existing base materials does not meet the gradation outlined in Section 305 of the WisDOT Standard Specifications for ¾-inch or 1 ¼-inch dense grade base. It is estimated that a structural layer coefficient (a) of 0.14 can be used for both the existing concrete layer and the existing HMA layer when they are properly pulverized/recycled as an additional base material. The existing base materials are considered suitable to raise grades elsewhere, generally spread over a large area.

The existing aggregate base materials consisted of silty sand with gravel by the USCS Classification system. Results of the grain-size analysis performed on composite samples of the existing base materials does not meet the gradation outlined in Section 305 of the WisDOT Standard Specifications for ¾-inch or 1 ¼-inch dense grade base.

The WisDOT Standard Specifications referenced above, and in the following sections, refers to the State of Wisconsin Standard Specifications for Highway and Structure Construction, latest edition, with current interim specifications.

Pavement Subgrade Analysis

The pavement section must bear upon a suitable, stable inorganic subgrade, prepared as discussed in the Pavement Subgrade Preparation section. Data obtained from the near surface soils encountered at the borings was utilized to evaluate the subsurface condition for pavement support. Recommendations within this report should be considered a general overview of the subsurface conditions for the site, as it relates to pavement analysis, and can be used in preliminary site planning.

The subgrade soils encountered immediately below the pavement section at the borings along the project routes generally consisted of natural clay and sand, as well as clay and sand classified as possible fill, possible buried topsoil, and buried topsoil. The underlying subgrade soils predominantly consisted of natural clay and silty sand. The following recommendations are based upon the poorer clay soils. These cohesive soils have been assigned an estimated

visual classification of A-6 by the AASHTO method. The USDA soil survey generally categorizes the A-6 soils to be poor in applications for pavement subgrade. These cohesive soils are generally rated as poor for pavement subgrade support due to moderate to severe shrink-swell potential and moderate to severe frost susceptibility. These soils are also generally poorly drained and can exhibit low bearing support when wet.

Analysis of the visual soil classifications and laboratory testing information has been made in determining pertinent engineering properties of the subgrade soils. Based on the engineering properties determined from the subgrade soils tested, and with proper subgrade preparation and drainage, the following pavement subgrade design coefficients are recommended for pavement section thickness design along the entire roadway alignment. These values are representative of the support conditions exhibited by the clay subgrade materials. All fill used to raise grades or replace unsuitable materials must have equal or greater support characteristics.

PAVEMENT SUBGRADE DESIGN COEFFICIENTS

SOIL PARAMETER	VALUE
AASHTO Soil Classification	A-6
Drainage	Poor
Shrink/Swell Potential	Moderate to High
Design Frost Index	F-3
Design Group Index	15
Soil Support Value	4.0
Estimated Subgrade Modulus (k)	125

Pavement Reconstruction

The existing clay and sand subgrade soils (and any other high silt or clay content soils) are generally rated as poor to fair for pavement subgrade support due to their high sensitivity to moisture and potential volume changes from freeze-thaw cycles. Typically, it is recommended that deposits of these frost susceptible soils be removed from beneath pavements due to their high fines content, poor drainability, and potential volume changes during freezing. However, the removal and replacement of these soils along the entire project is not likely to be economically feasible. Therefore, reconstruction of the pavement on the existing subgrade soils may require a somewhat thicker pavement section, as well as the installation of proper drainage.

The existing subgrade soils can be used for pavement support; provided the subgrade is properly evaluated and any unsuitable support areas are replaced (such as the buried topsoil that was encountered in C-3 and C-4), prior to construction of the new pavement section. In addition,

due to the frost susceptible subgrade materials encountered along most of the project routes, it will be necessary to control surface runoff and water seepage. It is recommended that underdrains be placed within the subgrade, just below the granular base, to help reduce the potential for trapping water within the aggregate base layer. It is also recommended that proper grading be performed to control surface drainage and prevent water infiltration into the base course. Recommendations for subgrade preparation are provided in the following sections of this report.

Selective Subgrade Removal and Replacement

The subgrade soils must be evaluated and prepared as discussed in this report. Isolated zones of unsuitable fill, possible fill, possible buried topsoil, buried topsoil, and/or natural materials may be encountered, and some removal and replacement may be required. The majority of the soil along the project route is highly moisture sensitive and subject to substantial instability in the presence of water, especially when exposed to construction traffic. During wet and/or cool weather, softened subgrade soils can be expected to develop over large areas. This can result in the need for substantial drying times; significant reworking, drying, discing; and/or the necessity for removal and replacement with crushed stone or compacted structural fill.

Site Drainage

In general, the subgrade soils along the project route are predominantly cohesive and considered to be poorly drained. Drainage action of the subgrade is dependent on the amount of fines (silt and clay) present. High silt and clay content soils have decreased drainability, which increases its sensitivity to moisture and frost, which can result in increased instability. In addition, the proposed project is located in an area that experiences annual freezing cycles and the subgrade soils encountered have been classified as moderately to highly susceptible to frost action when free water is present.

The detrimental effects of frost action within frost susceptible subgrade materials are manifested by non-uniform heave of pavements during winter months and/or the loss of strength of the subgrade during thawing periods. In order to maintain a relatively dry subgrade condition and reduce the potential for frost action, it will be necessary to control surface runoff and water seepage. Adequate longitudinal slope must be provided and/or maintain within roadside ditches, where present, to maintain runoff below the top of the pavement subgrade.

CONSTRUCTION CONSIDERATIONS

Pavement Subgrade Preparation

All surface vegetation, and topsoil must be removed in any widened pavement areas outside of the limits of the existing pavement areas. Additionally, any near surface buried organic topsoil

underlying any new pavement sections, such as encountered at C-3 and C-4, must be removed from beneath new pavements.

Subgrade preparation may require the pulverization of the existing pavement. Pulverization should be performed with suitable equipment and to a depth that extends through the existing HMA and/or concrete surface and into the existing base, but not into the underlying subgrade soils. This will likely require adjustment of the pulverizing depth and should be monitored to prevent intermixing the silty and clayey subgrade soils into the recycled base material. Asphalt millings, crushed concrete, and the existing base course have the potential for reuse as aggregate base, if properly separated from the existing subgrade materials.

After removal of the existing pavement, the exposed subgrade should be prepared as outlined in Section 211 of the WisDOT Standard Specifications. The subgrade should be thoroughly proofrolled to detect unstable, yielding or unsuitable soils, which must be removed or improved by appropriate preparation and compaction techniques. Scarification and drying of unsuitable soils, or removal and replacement with suitable fill, are two methods, which can be considered. This should be determined at the time of construction by a qualified soils engineer. Lime and fly ash modification are two additional remedial measures which can be considered. However, this must only be performed at the direction and under the supervision of the geotechnical engineer. A proper mix design must be performed prior to the performance of any modification. Low areas may then be raised to the planned grades with suitable properly compacted fill where necessary.

In areas where isolated wet, soft or yielding subgrade conditions are encountered during subgrade preparation or a stable subgrade cannot be obtained, selective excavation below subgrade (EBS) and replacement may be required for proper support of new fills, or pavement reconstruction. Excavation below subgrade (EBS) should be performed as outlined in Section 205 of the WisDOT Standard Specifications. The necessity and ultimate extent of undercutting will be dependent upon the moisture condition and stability of the exposed subgrade at the time of construction. In areas of EBS, limited excavation below subgrade to a depth of 1 to 3 feet and replacement with select granular fill can generally be used to improve the stability of the subgrade. It must be recognized that soil stability is dependent on such factors as soil type and moisture content, weather conditions at the time of construction, and also construction disturbance. Thus, the necessity of EBS generally must be determined in the field at the time of construction, based upon observations made during subgrade preparation.

If relatively wet or somewhat unstable inorganic soils are encountered below EBS, it may be necessary to use an SAS (Subgrade Aggregate Separation) geotextile fabric and/or a select crushed material for stabilization (such as that specified in Section 312 of the WisDOT Standard Specifications) before placing backfill soils. The SAS geotextile fabric used in this application should meet the physical requirements identified in Section 645 of the WisDOT Standard Specifications, and shown in the following table.

Test	Units	Values
Grab Tensile Strength	N	750 min.
Puncture Strength	N	300 min.
Apparent Opening Size	um	212 max.
Permittivity	s^{-1}	0.35 min.

The fine-grained soils present within the subgrade are considered sensitive to moisture and construction activity; therefore, every effort should be made to prevent ponding during reconstruction operations and maintain a relatively dry and stable working subgrade. If the soils become disturbed, removal and replacement may be required.

Borrow Material

Only nominal grade changes are anticipated along the project routes. Generally, granular material with limited fines is recommended for use in regrading, or to replace unsuitable soils, such as those specified in Section 305 of the WisDOT Standard Specification for ¾-inch or 1¼-inch materials. The existing base course and/or recycled asphalt/concrete pavement materials may be used to balance grades, and are generally considered suitable for such purposes. However, clay, silt, organic and wet granular soils are not considered suitable for such purposes. All fill used must have subgrade design coefficients equal to or greater than those previously specified.

Fill Placement and Compaction

Fill should be placed in layers of not more than 9 inches in loose thickness before compaction. As an exception, when the fill consists of well-graded granular material and the compaction equipment is adequate for such purpose, the loose layer thickness may be increased to a maximum of 12 inches. Each lift must be compacted to a density of at least 95 percent of the maximum dry density as determined by ASTM designation D-698 (Standard Proctor).

Proper moisture control is essential to reduce the amount of compactive effort necessary to achieve the desired densities. This is especially true of silty and clayey soils, where scarification and aeration may be required to achieve near-optimum moisture levels prior to compaction. It is recommended the fill soils be placed at moisture contents within a few percent of their optimum moisture content. Depending upon seasonal moisture conditions, some drying and/or reworking of these fine-grained soils may be necessary prior to placement.

The selection of fill materials for various applications should be done in consultation with the soils engineer. Similarly, the evaluation of the subgrade preparation, and placement and compaction of fill for structural application should be monitored and tested by a qualified representative of the soils engineer.

Compaction testing is recommended to ensure that the pavement subgrade materials develop the subgrade design coefficients previously specified for adequate pavement section thickness design. Compaction should be performed with equipment suitable for such purpose, such as a sheepsfoot roller for clayey soils, and a vibratory smooth drum roller for granular material.

Groundwater Considerations

Because no groundwater was encountered in the upper levels of the boreholes during the exploration, no major difficulties during excavation and construction of the proposed roadways is anticipated. A gravity drainage system and filtered sump pumps or other conventional dewatering procedures, may be adequate to control perched water if encountered. However, for substantial perched zones, or for excavations extending below the long term groundwater, prolonged dewatering with a series of sumps or well points and high capacity sump pumps, or other more comprehensive means may be necessary to facilitate construction.

Since the subgrade materials are subject to softening when exposed to free moisture, every effort should be made to keep excavations dry. The site grading direct runoff should be directed to catch basins, so that the potential for the softening of the pavement and utility subgrade soils is reduced.

Subgrade Frost Action

The proposed project is located in an area that experiences annual freezing cycles and the subgrade soils encountered have been classified as moderately to highly susceptible to frost action when free water is present. Therefore, some frost movement should be expected. As indicated previously, adequate drainage of the subgrade and base course must be provided.

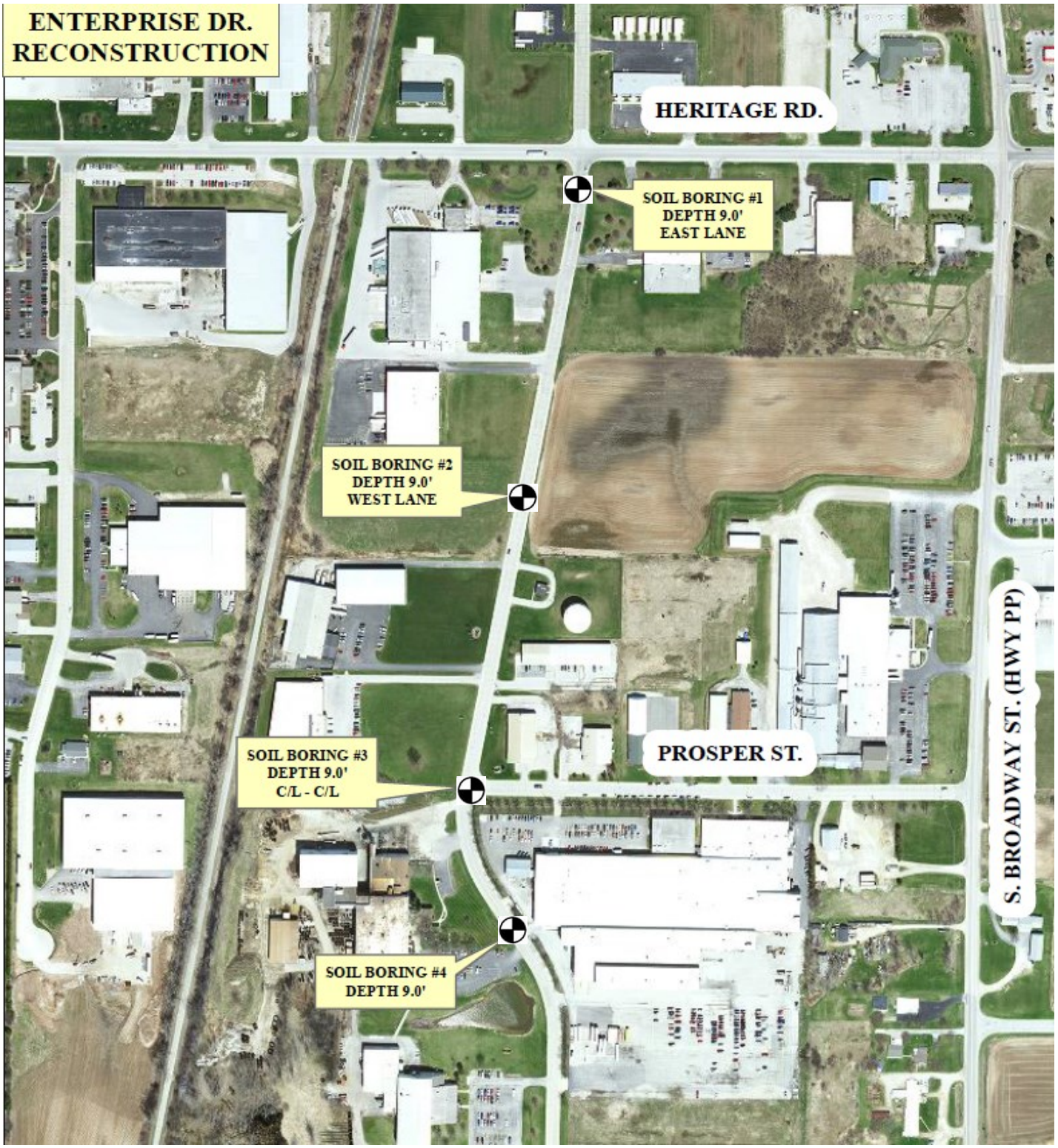
GENERAL COMMENTS

This geotechnical exploration and subgrade analysis has been prepared to aid in the evaluation of the soil conditions on this site. The recommendations presented herein are based on the available soil information and the preliminary design information provided. Any changes in the design information should be brought to the attention of the soils engineer to determine if modifications in the recommendations are required. The final design plans and specifications should also be reviewed by the soils engineer to determine that the recommendations presented herein have been interpreted and implemented as intended.

This geotechnical study has been conducted in a manner consistent with that level of care ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. The findings, recommendations and opinions contained herein have been promulgated in accordance with generally accepted practice in the fields of foundation

engineering, soils mechanics, and engineering geology. No other representations, expressed or implied, and no warranty or guarantee is included or intended in this report.

It is recommended that the earthwork and foundation operations be monitored by the soils engineer, to test and evaluate the subgrade stability, bearing capacities, and the selection, placement and compaction of controlled fills. The Wisconsin DOT Standard Specifications for Highway and Structure Construction can also serve as a guide in implementing the subgrade preparation and other earthwork operations.



N

0 500 1,000

APPROXIMATE SCALE IN FEET

intertek psi

City of De Pere Roads and Utilities
Enterprise Drive
De Pere, Wisconsin

SCALE: SHOWN ABOVE

PROJECT NO: 0093510

FIGURE 1: BORING LOCATION PLAN

N

0 500 1,000

APPROXIMATE SCALE IN FEET

intertek psi	City of De Pere Roads and Utilities Charles Street De Pere, Wisconsin	**SCALE:** SHOWN ABOVE
		PROJECT NO: 0093510
	FIGURE 1: BORING LOCATION PLAN	**PAGE 2 OF 2**

SOIL BORING LOG: E - 1

Project: Proposed Road Reconstruction - City of De Pere

Location: Enterprise Drive
De Pere, Wisconsin

Project No.: 0093510
Drill Date: 12/12/2017
Drilled By: KD
Logged By: KH

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 637.4	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
636.9	0-7": Concrete						
1 636.4	7-18": Brown CRUSHED STONE, with sand, moist (BASE COURSE)	1-SS	15	-	-	8	
635.9							
2 635.4	Brown SAND, with trace clay, moist						
634.9		2-SS	9	-	-	15	
3 634.4							
633.9							
4 633.4	Brown CLAY, with trace gravel, moist						
632.9		3-SS	23	4.5	5.4	18	
5 632.4							
631.9							
6 631.4							
630.9		4-SS	33	4.5	-	18	⊥
7 630.4							
629.9							
8 629.4							
628.9		5-SS	33	-	-	14	
9 628.4	END OF BORING @ 9± FEET						
627.9							
10 627.4							

FIELD OBSERVATIONS

Water Level $_{\text{during drilling}}$: Not Encountered ▽
Water Level $_{\text{upon completion}}$: Not Present ▼
Caved at $_{\text{upon completion}}$: 7± feet below existing grade (EL. 630.4±) ⊥
Delay Time: N/A
Water Level $_{\text{delayed}}$: N/A ¥
Caved at $_{\text{delayed}}$: N/A

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an **approximate** boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.

SOIL BORING LOG: E - 2

Project: Proposed Road Reconstruction - City of De Pere

Location: Enterprise Drive
De Pere, Wisconsin

Project No.: 0093510
Drill Date: 12/12/2017
Drilled By: KD
Logged By: KH

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 642.3	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
641.8	0-7": Concrete						
	7-16": Brown CRUSHED STONE, with sand, moist (BASE COURSE)			-	-	3	
1 641.3		1-SS	22				
640.8				4.0	-	23	
	Reddish brown CLAY, with trace sand and gravel, moist						
2 640.3							
639.8							
3 639.3		2-SS	15	2.3	1.6	15	
638.8							
4 638.3							
637.8							
5 637.3		3-SS	21	4.5+	-	10	
636.8							
6 636.3							
635.8							
7 635.3		4-SS	37	-	-	8	
634.8							⊥
8 634.3							
633.8		5-SS	31	4.5+	-	16	
9 633.3							
	END OF BORING @ 9± FEET						
632.8							
10 632.3							

FIELD OBSERVATIONS

Water Level during drilling: Not Encountered ⊻
Water Level upon completion: Not Present ▼
Caved at upon completion: 7.5± feet below existing grade (EL. 634.8±) ⊥
Delay Time: N/A
Water Level delayed: N/A ¥
Caved at delayed: N/A

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an **approximate** boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.

SOIL BORING LOG: E - 3

Project: Proposed Road Reconstruction - City of De Pere

Location: Enterprise Drive
De Pere, Wisconsin

Project No.: 0093510
Drill Date: 12/12/2017
Drilled By: KD
Logged By: KH

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 639.7	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
639.2	0-8": Concrete						
				-	-	4	
1 638.7	8-15": Brown CRUSHED STONE, with sand, moist (BASE COURSE)	1-SS	11				
638.2	Reddish brown CLAY, with trace sand and gravel, moist			2.5	-	15	
2 637.7							
637.2							
3 636.7		2-SS	19	4.3	-	16	
636.2							
4 635.7							
635.2							
5 634.7		3-SS	34	4.5+	8.9	14	
634.2							
6 633.7							
633.2							
7 632.7		4-SS	32	4.5+	6.6	18	
632.2							
8 631.7							⊥
631.2		5-SS	30	4.5+	-	15	
9 630.7	END OF BORING @ 9± FEET						
630.2							
10 629.7							

FIELD OBSERVATIONS

Water Level during drilling: Not Encountered ▽
Water Level upon completion: Not Present ▼
Caved at upon completion: 8± feet below existing grade (EL. 631.7±) ⊥
Delay Time: N/A
Water Level delayed: N/A ¥
Caved at delayed: N/A

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an **approximate** boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.

SOIL BORING LOG: E - 4

Project: Proposed Road Reconstruction - City of De Pere

Location: Enterprise Drive
De Pere, Wisconsin

Project No.: 0093510
Drill Date: 12/12/2017
Drilled By: KD
Logged By: KH

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 638.3	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
637.8	0-7": Concrete						
1 637.3	7-12": Brown CRUSHED STONE, with sand, moist (BASE COURSE)	1-SS	9	-	-	7 17	
636.8	Brown CLAY, with trace sand and gravel, moist						
2 636.3							
635.8	Brown SAND, with trace clay, moist						
3 635.3		2-SS	21	-	-	14	
634.8							
4 634.3							
633.8	Reddish brown CLAY, moist						
5 633.3		3-SS	43	4.0	4.3	17	
632.8							
6 632.3							
631.8							
7 631.3		4-SS	36	4.5+	7.2	17	
630.8							
8 630.3							⊥
629.8		5-SS	34	3.5	-	18	
9 629.3	END OF BORING @ 9± FEET						
628.8							
10 628.3							

FIELD OBSERVATIONS

Water Level $_{\text{during drilling}}$: Not Encountered ▽
Water Level $_{\text{upon completion}}$: Not Present ▼
Caved at $_{\text{upon completion}}$: 8± feet below existing grade (EL. 630.3±) ⊥
Delay Time: N/A
Water Level $_{\text{delayed}}$: N/A ¥
Caved at $_{\text{delayed}}$: N/A

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an **approximate** boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.

SOIL BORING LOG: C - 1

Project: Proposed Road Reconstruction - City of De Pere

Location: Charles Street
De Pere, Wisconsin

Project No.: 0093510
Drill Date: 12/11/2017
Drilled By: KD
Logged By: KH

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 611.6	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 / 610.6	0-3": Asphalt 3-12": Dark brown CRUSHED STONE, with sand, moist (BASE COURSE) Dark bown to reddish brown CLAY, with gravel, moist (POSSIBLE FILL)	1-SS	12	-	-	5 17	
2 / 609.6							
3 / 608.6	Reddish brown CLAY, with trace sand, moist to very moist	2-SS	9	-	-	24	
4 / 607.6							
5 / 606.6							
6 / 605.6		3-SS	8	-	3.1	23	
7 / 604.6							
8 / 603.6		4-SS	9	2.8	2.5	29	
9 / 602.6							
10 / 601.6							
11 / 600.6		5-SS	6	2.3	1.4	29	
12 / 599.6							
13 / 598.6							
14 / 597.6		6-SS	4	0.5	-	31	⊥
15 / 596.6							
16 / 595.6							
17 / 594.6							
18 / 593.6							
19 / 592.6		7-SS	4	0.5	0.7	26	
20 / 591.6							
	END OF BORING @ 20± FEET						

FIELD OBSERVATIONS:

Water Level $_{during\ drilling}$: Not Encountered ⩒
Water Level $_{upon\ completion}$: Not Present ▼
Caved at $_{upon\ completion}$: 14± feet below ground surface (EL. 597.6±) ⊥
Delay Time: N/A --
Water Level $_{delayed}$: N/A ¥
Caved at $_{delayed}$: N/A ⊥

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an **approximate** boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

SOIL BORING LOG: C - 2

Project: Proposed Road Reconstruction - City of De Pere

Location: Charles Street
De Pere, Wisconsin

Project No.: 0093510
Drill Date: 12/11/2017
Drilled By: KD
Logged By: KH

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION — GROUND SURFACE ELEVATION: 611.9	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
611.4	0-7": Asphalt						
	7-10": Brown CRUSHED STONE, with sand, moist (BASE COURSE)					3	
1 / 610.9	Brown SAND, with trace gravel, moist (POSSIBLE FILL)	1-SS	11	-	-		
610.4						6	
2 / 609.9	Reddish brown CLAY, with trace sand, moist						
609.4							
3 / 608.9		2-SS	11	1.5	-	23	
608.4							
4 / 607.9							⊥
607.4							
5 / 606.9		3-SS	11	3.5	3.6	26	
606.4							
6 / 605.9							
605.4		4-SS	9	-	2.8	19	
7 / 604.9	END OF BORING @ 7± FEET						
604.4							
8 / 603.9							
603.4							
9 / 602.9							
602.4							
10 / 601.9							

FIELD OBSERVATIONS

Water Level during drilling: Not Encountered ▽
Water Level upon completion: Not Present ▼
Caved at upon completion: 4± feet below existing grade (EL. 607.9±) ⊥
Delay Time: N/A
Water Level delayed: N/A ¥
Caved at delayed: N/A

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an **approximate** boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.

SOIL BORING LOG: C - 3

Project: Proposed Road Reconstruction - City of De Pere
Location: Charles Street, De Pere, Wisconsin

Project No.: 0093510
Drill Date: 12/11/2017
Drilled By: KD
Logged By: KH

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION — GROUND SURFACE ELEVATION: 612.8	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
1 / 611.8	0-7": Asphalt 7-11": Brown CRUSHED STONE, with sand, moist (BASE COURSE) Dark brown CLAY, with trace root matter, moist (POSSIBLE BURIED TOPSOIL)	1-SS	9	-	-	8 21	
2 / 610.8							
3 / 609.8	Reddish brown CLAY, with sand, moist	2-SS	15	-	-	14	
4 / 608.8							
5 / 607.8							
6 / 606.8	Brown to yellowish brown CLAY, with sand, moist	3-SS	12	2.8	1.8	13	
7 / 605.8							
8 / 604.8		4-SS	8	1.5	1.7	17	
9 / 603.8							
10 / 602.8							
11 / 601.8	Reddish brown CLAY, moist	5-SS	6	2.3	2.1	24	
12 / 600.8							
13 / 599.8							⊥
14 / 598.8		6-SS	7	1.3	1.3	25	
15 / 597.8							
	END OF BORING @ 15± FEET						

FIELD OBSERVATIONS:

Water Level during drilling: Not Encountered ⊻
Water Level upon completion: Not Present ▼
Caved at upon completion: 13.5± feet below ground surface (EL. 599.3±) ⊥
Delay Time: N/A --
Water Level delayed: N/A ¥
Caved at delayed: N/A ⊥

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an **approximate** boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

SOIL BORING LOG: C - 4

Project: Proposed Road Reconstruction - City of De Pere

Location: Charles Street
De Pere, Wisconsin

Project No.: 0093510
Drill Date: 12/11/2017
Drilled By: KD
Logged By: KH

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION GROUND SURFACE ELEVATION: 612.8	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
612.3	0-6": Asphalt						
	6-12": Brown CRUSHED STONE, with sand, moist (BASE COURSE)					4	
1 611.8	12-16": Dark brown to black CLAY, moist (BURIED TOPSOIL)	1-SS	11	-	-		
611.3	Reddish brown CLAY, moist					9	
2 610.8							
610.3		2-SS	9	3.3	2.8	25	
3 609.8							
609.3							
4 608.8							⊥
608.3		3-SS	14	3.8	-	30	
5 607.8							
607.3							
6 606.8							
606.3		4-SS	11	2.8	3.7	28	
7 605.8							
	END OF BORING @ 7± FEET						
605.3							
8 604.8							
604.3							
9 603.8							
603.3							
10 602.8							

FIELD OBSERVATIONS

Water Level during drilling: Not Encountered ⊻
Water Level upon completion: Not Present ▼
Caved at upon completion: 4± feet below existing grade (EL. 608.8±) ⊥
Delay Time: N/A
Water Level delayed: N/A ¥
Caved at delayed: N/A

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an **approximate** boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual. Dashed lines are indicative of potentially erratic or unknown transitions, such as fill-to-natural soil zone transitions.

SOIL BORING LOG: C - 5

Project: Proposed Road Reconstruction - City of De Pere
Location: Charles Street, De Pere, Wisconsin

Project No.: 0093510
Drill Date: 12/12/2017
Drilled By: KD
Logged By: KH

DEPTH/EL. (feet)	VISUAL SOIL CLASSIFICATION — GROUND SURFACE ELEVATION: 614.3	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
	0-6": Asphalt						
1 / 613.3	6-9": Brown CRUSHED STONE, with trace sand, moist (BASE COURSE)	1-SS	18	-	-	4	
2 / 612.3	Reddish brown CLAY, with trace sand and gravel, moist			2.0	-	22	
3 / 611.3	Reddish brown CLAY, with trace sand, moist	2-SS	11	3.5	3.4	22	
4 / 610.3							
5 / 609.3		3-SS	11	4.5	3.7	21	
6 / 608.3							
7 / 607.3		4-SS	10	3.5	3.5	28	
8 / 606.3							
9 / 605.3		5-SS	7	2.3	1.8	30	
10 / 604.3							
11 / 603.3							
12 / 602.3		6-SS	12	2.5	4.3	26	
13 / 601.3							
14 / 600.3							
15 / 599.3	**END OF BORING @ 15± FEET**						

FIELD OBSERVATIONS:

Water Level $_{\text{during drilling}}$: Not Encountered
Water Level $_{\text{upon completion}}$: Not Present
Caved at $_{\text{upon completion}}$: 13.5± feet below ground surface (EL. 600.8±)
Delay Time: N/A
Water Level $_{\text{delayed}}$: N/A
Caved at $_{\text{delayed}}$: N/A

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an **approximate** boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

SOIL BORING LOG: C - 6

Project: Proposed Road Reconstruction - City of De Pere
Location: Charles Street, De Pere, Wisconsin

Project No.: 0093510
Drill Date: 12/12/2017
Drilled By: KD
Logged By: KH

DEPTH/EL. (feet)		VISUAL SOIL CLASSIFICATION — GROUND SURFACE ELEVATION: 630.1	SAMPLE NO.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	REMARKS
		0-5": Asphalt						
1	629.1	5-15": Brown CRUSHED STONE, with sand, moist (BASE COURSE)	1-SS	19	-	-	3	
2	628.1	Reddish brown to dark brown CLAY, with trace gravel, moist (POSSIBLE FILL)					19	
3	627.1	Reddish brown CLAY, with trace sand, moist	2-SS	11	2.5	-	16	
4	626.1							
5	**625.1**		3-SS	24	4.5+	7.4	15	
6	624.1							
7	623.1		4-SS	28	4.5+	7.4	16	
8	622.1							
9	621.1		5-SS	23	4.5+	7.4	22	
10	**620.1**							
11	619.1							
12	618.1							
13	617.1							
14	616.1	Reddish brown CLAY, with trace silt seams, moist	6-SS	12	3.8	3.7	24	
15	**615.1**							
16	614.1							
17	613.1							
18	612.1							
19	611.1		7-SS	9	2.3	1.7	31	
20	**610.1**							
21	609.1							
22	608.1							
23	607.1							
24	606.1		8-SS	9	1.5	1.4	41	
25	**605.1**							
		END OF BORING @ 25± FEET						

FIELD OBSERVATIONS:

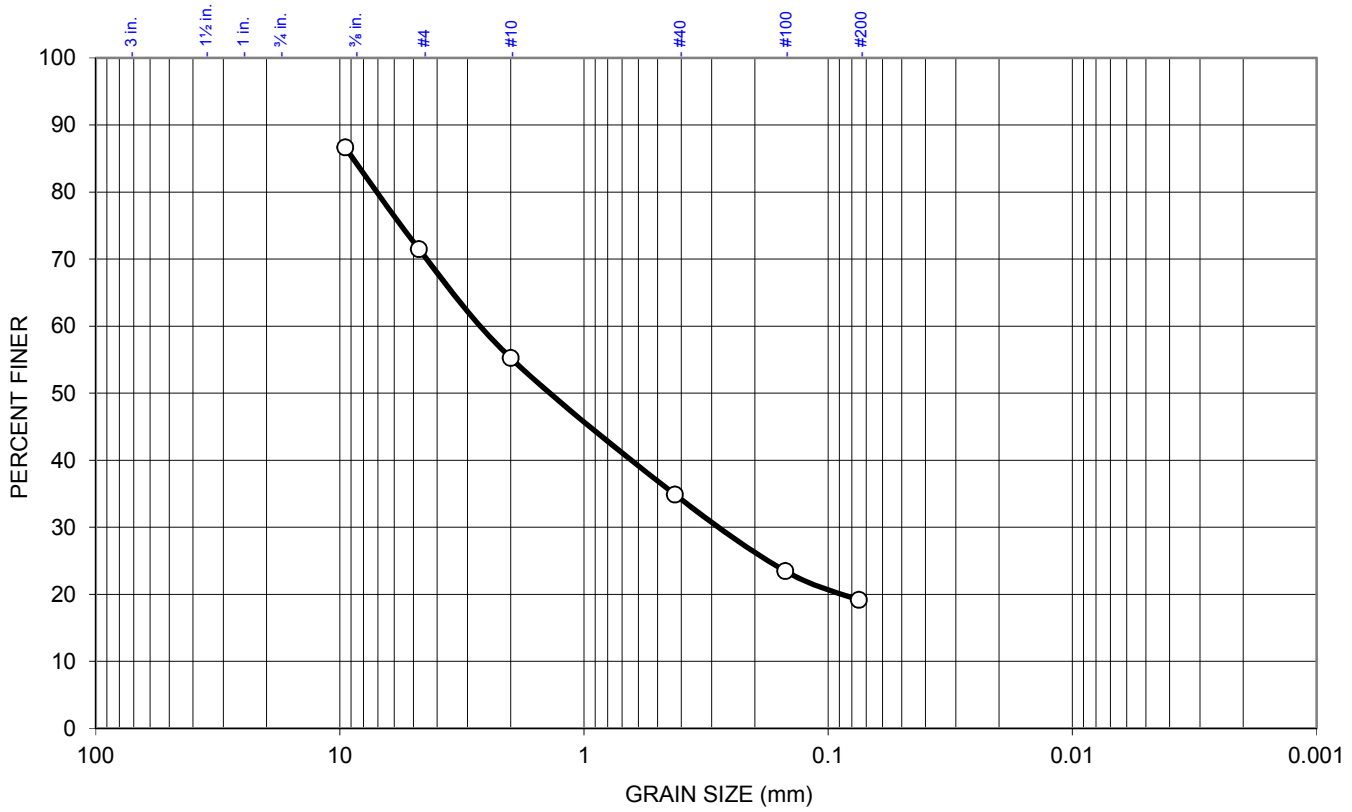
Water Level $_{\text{during drilling}}$: Not Encountered
Water Level $_{\text{upon completion}}$: Not Present
Caved at $_{\text{upon completion}}$: 23.5± feet below ground surface (EL. 606.6±)
Delay Time: N/A
Water Level $_{\text{delayed}}$: N/A
Caved at $_{\text{delayed}}$: N/A

ADDITIONAL COMMENTS:

Note: Lines of stratification represent an **approximate** boundary between soil types. Variations may occur between sampling intervals and/or boring locations. Transitions may also be gradual.

Green Bay Office
2740-F Packerland Drive
Green Bay, Wisconsin 54313

Grain Size Distribution Report



% Cobbles (≥ 3")	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
	0	28	16	20	16	19.2

Sieve Size	Percent Finer	Specified Gradation*	Pass? (X=No)
3/8"	86.7		
#4	71.5		
#10	55.3		
#40	34.9		
#100	23.5		
#200	19.2		

* No specification provided

Soil Description: Grayish brown SILTY SAND, with gravel

Atterberg Limits: PL = LL = PI =

Coefficients: D_{85} = 9.00 D_{60} = 2.80 D_{50} = 1.59
D_{30} = 0.31 D_{15} = D_{10} =
C_u = C_c =

Classifications: USCS = SM AASHTO = A-1-b

Remarks:

CLIENT: City of De Pere **SAMPLE NO:** C-1 through C-3 **DATE:** 12/22/2017

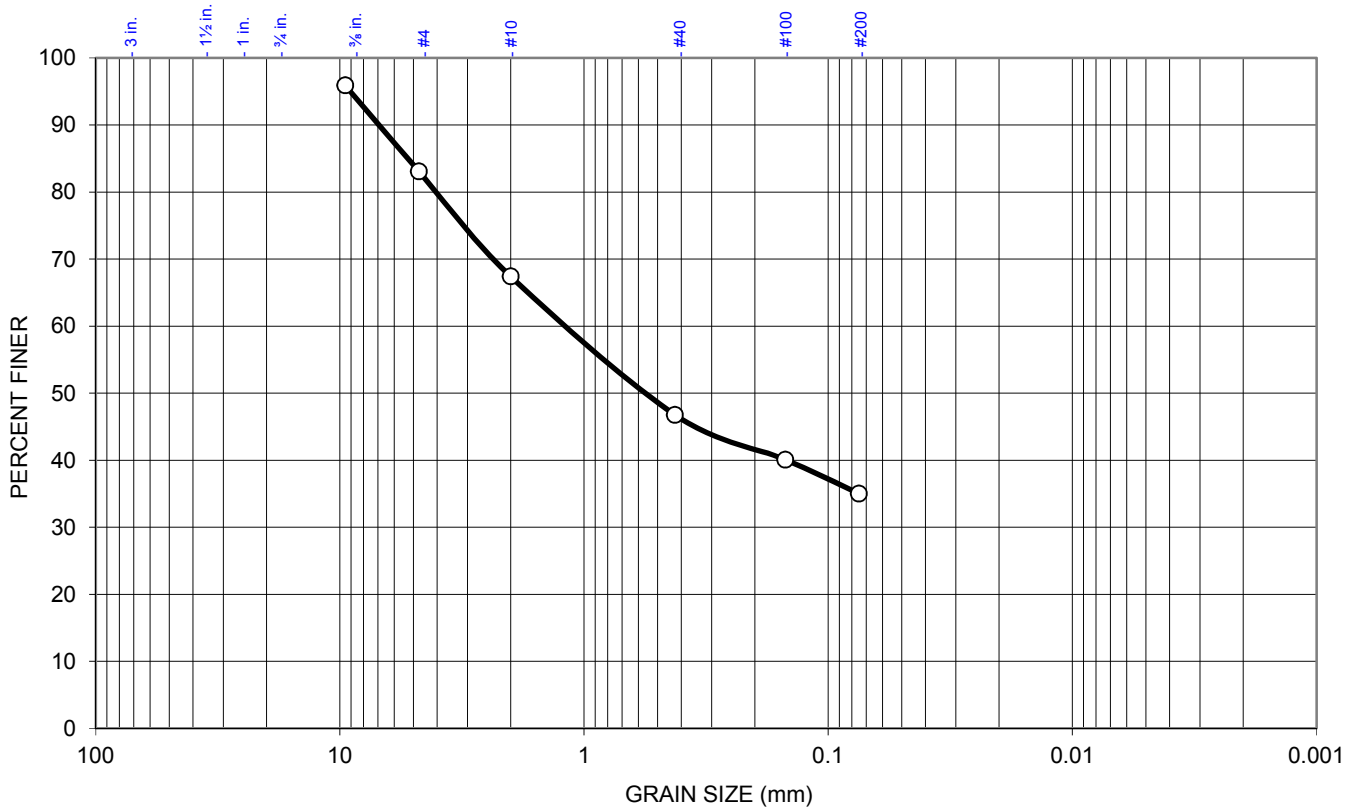
PROJECT: City of De Pere Roads **SAMPLE SOURCE:** Charles Street **EL./DEPTH:** 0-1'

PROJECT NO: 510 **PROPOSED USE:** Base Course **SAMPLED BY:** KD

Tested By: KD **QA/QC By:** CW

Green Bay Office
2740-F Packerland Drive
Green Bay, Wisconsin 54313

Grain Size Distribution Report



% Cobbles (≥ 3")	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
	0	17	16	21	12	35.0

Sieve Size	Percent Finer	Specified Gradation*	Pass? (X=No)
3/8"	95.9		
#4	83.1		
#10	67.4		
#40	46.8		
#100	40.1		
#200	35.0		

* No specification provided

Soil Description: Grayish brown SILTY SAND, with gravel

Atterberg Limits: PL = LL = PI =

Coefficients: D_{85} = 5.46 D_{60} = 1.43 D_{50} = 0.67
D_{30} = D_{15} = D_{10} =
C_u = C_c =

Classifications: USCS = SM AASHTO = A-2-4

Remarks:

CLIENT: City of De Pere **SAMPLE NO:** C-4 through C-6 **DATE:** 12/22/2017

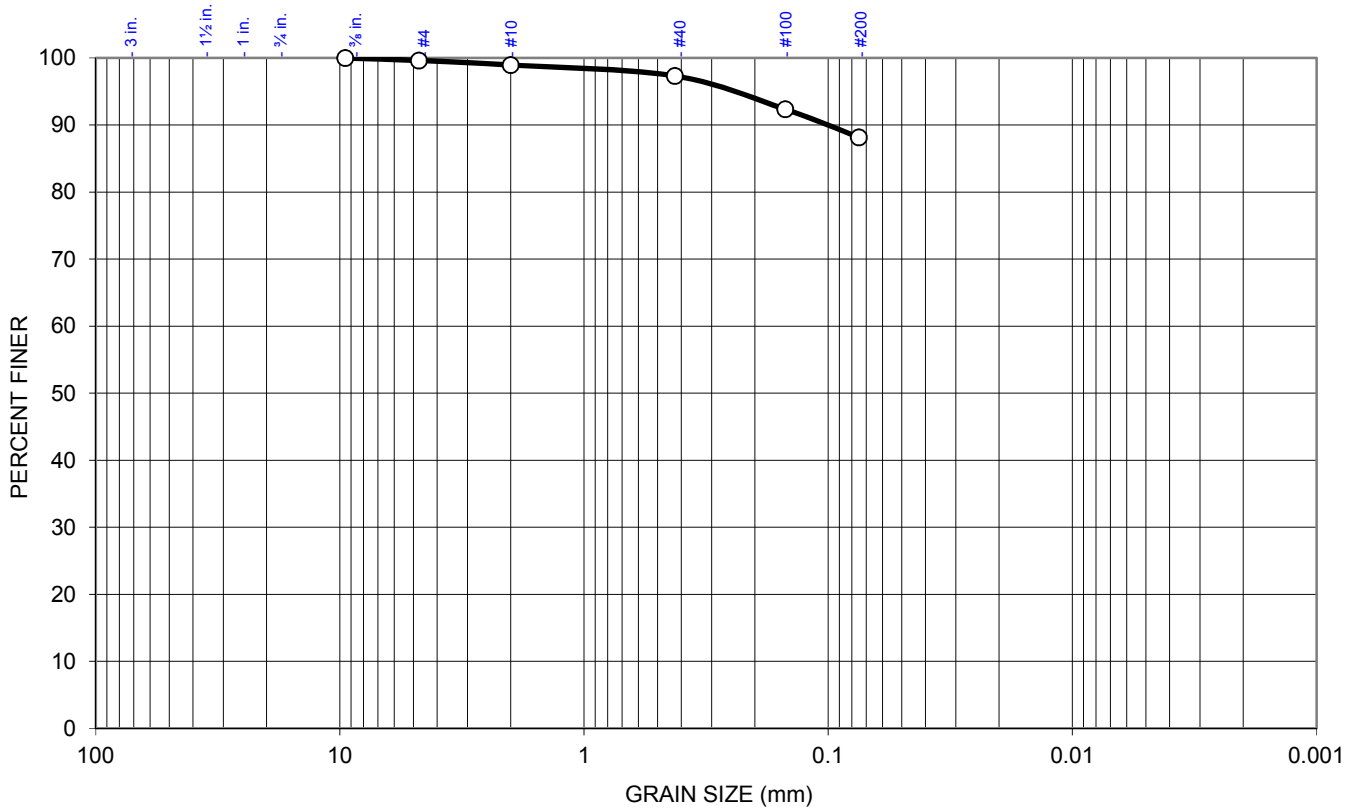
PROJECT: City of De Pere Roads **SAMPLE SOURCE:** Charles Street **EL./DEPTH:** 0-1'

PROJECT NO: 510 **PROPOSED USE:** Base Course **SAMPLED BY:** KD

Tested By: KD **QA/QC By:** CW

Green Bay Office
2740-F Packerland Drive
Green Bay, Wisconsin 54313

Grain Size Distribution Report



% Cobbles (≥ 3")	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
	0	0	1	2	9	88.2

Sieve Size	Percent Finer	Specified Gradation*	Pass? (X=No)
3/8"	100.0		
#4	99.6		
#10	99.0		
#40	97.3		
#100	92.4		
#200	88.2		

* No specification provided

Soil Description: Reddish brown LEAN CLAY, with trace sand

Atterberg Limits: PL = 18 LL = 38 PI = 20

Coefficients: D_{85} = D_{60} = D_{50} =
D_{30} = D_{15} = D_{10} =
C_u = C_c =

Classifications: USCS = CL AASHTO = A-6

Remarks:

CLIENT: City of De Pere **SAMPLE NO:** C-1 through C-6 **DATE:** 12/22/2017

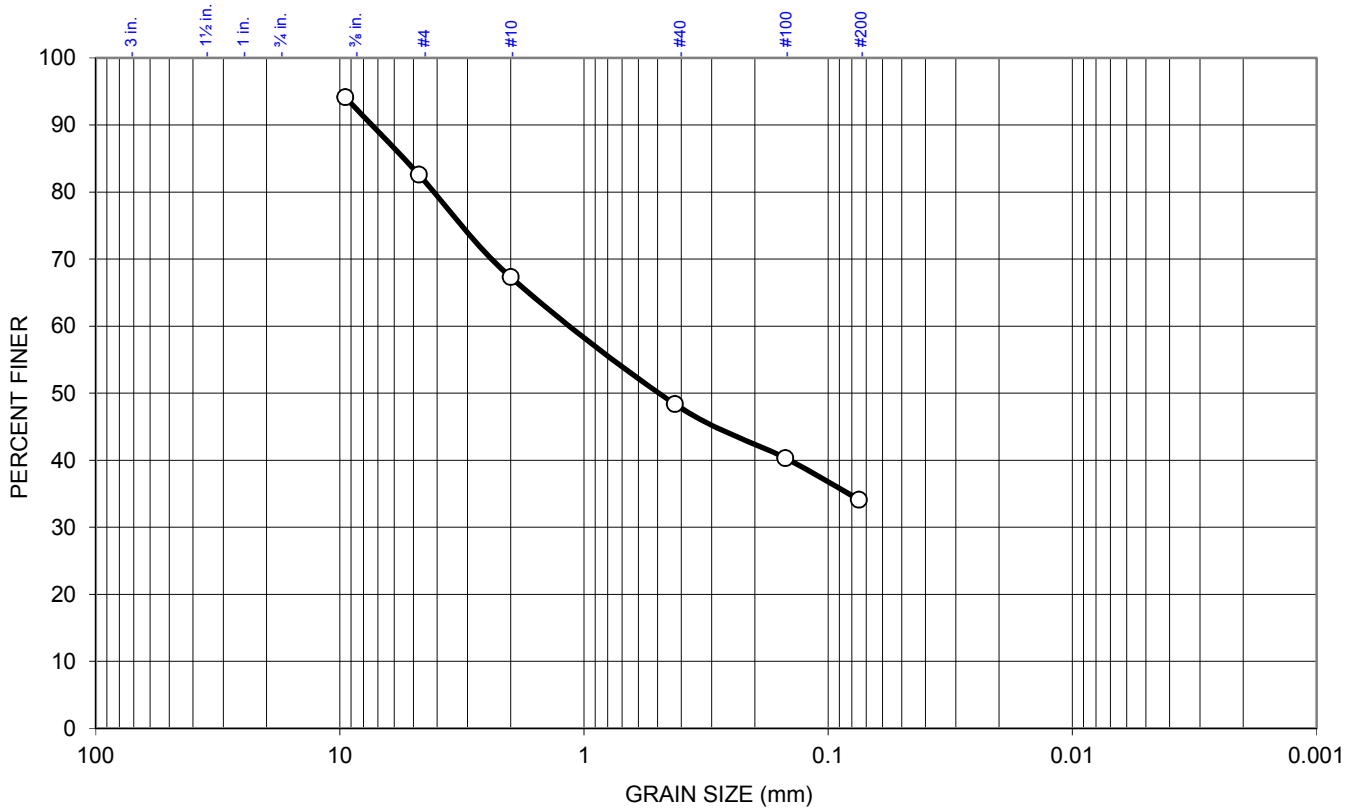
PROJECT: City of De Pere Roads **SAMPLE SOURCE:** Charles Street **EL./DEPTH:** 1-4'

PROJECT NO: 510 **PROPOSED USE:** Subgrade **SAMPLED BY:** KD

Tested By: KD **QA/QC By:** CW

Green Bay Office
2740-F Packerland Drive
Green Bay, Wisconsin 54313

Grain Size Distribution Report



% Cobbles (≥ 3")	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
	0	17	15	19	14	34.1

Sieve Size	Percent Finer	Specified Gradation*	Pass? (X=No)
3/8"	94.2		
#4	82.6		
#10	67.3		
#40	48.4		
#100	40.3		
#200	34.1		

* No specification provided

Soil Description: Grayish brown SILTY SAND, with gravel

Atterberg Limits: PL = LL = PI =

Coefficients: D_{85} = 5.74 D_{60} = 1.39 D_{50} = 0.56
D_{30} = D_{15} = D_{10} =
C_u = C_c =

Classifications: USCS = SM AASHTO = A-2-4

Remarks:

CLIENT: City of De Pere **SAMPLE NO:** E-2 and E-4 **DATE:** 12/22/2017

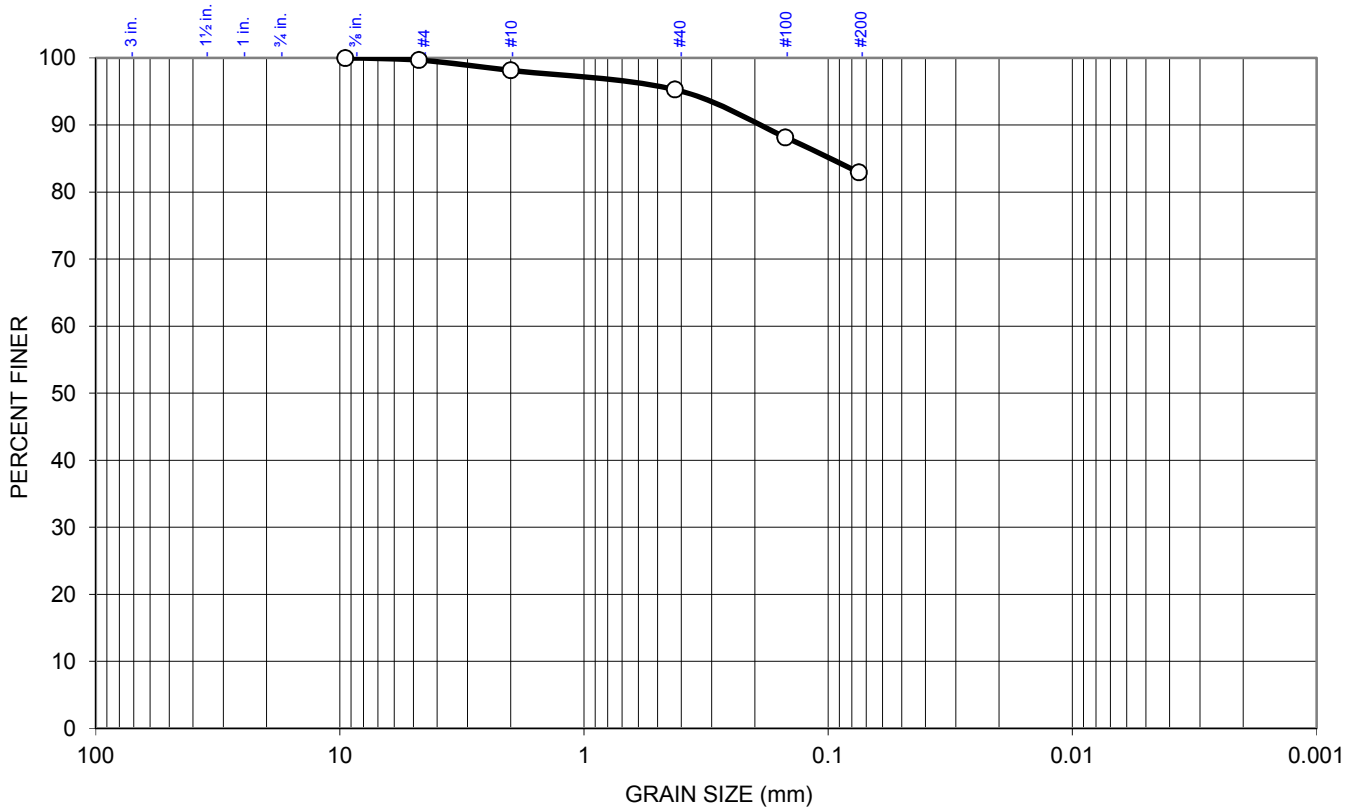
PROJECT: City of De Pere Roads **SAMPLE SOURCE:** Enterprise Drive **EL./DEPTH:** 0-1'

PROJECT NO: 510 **PROPOSED USE:** Base Course **SAMPLED BY:** KD

Tested By: KD **QA/QC By:** CW

Green Bay Office
2740-F Packerland Drive
Green Bay, Wisconsin 54313

Grain Size Distribution Report



% Cobbles (≥ 3")	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
	0	0	2	3	12	82.9

Sieve Size	Percent Finer	Specified Gradation*	Pass? (X=No)
3/8"	100.0		
#4	99.7		
#10	98.2		
#40	95.3		
#100	88.2		
#200	82.9		

* No specification provided

Soil Description: Reddish brown LEAN CLAY, with sand

Atterberg Limits: PL = 17 LL = 36 PI = 19

Coefficients: D_{85} = 0.10 D_{60} = D_{50} =
D_{30} = D_{15} = D_{10} =
C_u = C_c =

Classifications: USCS = CL AASHTO = A-6

Remarks:

CLIENT: City of De Pere **SAMPLE NO:** E-2 through E-4 **DATE:** 12/22/2017

PROJECT: City of De Pere Roads **SAMPLE SOURCE:** Enterprise Drive **EL./DEPTH:** 1-4'

PROJECT NO: 510 **PROPOSED USE:** Subgrade **SAMPLED BY:** KD

Tested By: KD **QA/QC By:** CW

GENERAL NOTES

SAMPLE IDENTIFICATION

1. Information on each log is a compilation of subsurface conditions, based on visual soil classifications of soil samples obtained from the field as assigned by a soils engineer, as well as from laboratory testing of samples, if performed. The strata lines on the logs may be approximate or the transition between the strata may be gradual rather than distinct. Water level measurements refer only to those observed at the times and locations indicated, and may vary with time, geologic condition and construction activity.
2. Unified Soil Classification System (USCS) designations are based on visual soil classification estimates on the basis of textural and particle size categorization and various soil behavior characteristics. If laboratory tests were performed to classify the soil, the USCS designation is shown in parenthesis.

USCS SOIL PARTICLE SIZE CLASSES

U.S. Std. Sieve			#200	#40	#10	#4	¾"	3"	12"	
Soil Type	Clay	Silt	Sand			Gravel		Cobbles	Boulders	
			Fine	Medium	Coarse	Fine	Coarse			
Millimeters	0.002	0.074	0.42	2	4.8	19	76	300		

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2487-00)

Criteria for assigning group symbols and group names using laboratory tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean gravels w/ < 5% fines [E]	Cu ≥ 4 and 1 ≤ Cc ≤ 3 [C]	GW	Well-graded gravel [D]
			Cu < 4 and/or1 > Cc > 3 [C]	GP	Poorly graded gravel [D]
		Gravels w/ > 12% fines [E]	Fines classify as ML or MH	GM	Silty gravel [D,F,G]
			Fines classify as CL or CH	GC	Clayey gravel [D,F,G]
	Sands (More than 50% of coarse fraction passes the No. 4 sieve)	Clean sands w/ < 5% fines [I]	Cu ≥ 6 and 1 ≤ Cc ≤ 3 [C]	SW	Well-graded sand [H]
			Cu < 6 and/or 1 > Cc > 3 [C]	SP	Poorly graded sand [H]
		Sands w/ > 12% fines [I]	Fines classify as ML or MH	SM	Silty sand [F,G,H]
			Fines classify as CL or CH	SC	Clayey sand [F,G,H]
FINE-GRAINED SOILS (More than 50% passes the No. 200 sieve)	Silts and clays w/ liquid limit (LL) < 50	Inorganic	PI > 7 and plots on or above "A" line [J]	CL	Lean clay [K,L,M]
			PI < 4 and plots below "A" line [J]	ML	Silt [K,L,M]
		Organic	LL (Oven dried) / LL (Not dried) < 0.75	OL	Organic clay [K,L,M,N]
				OL	Organic silt [K,L,M,O]
	Silts and clays w/ liquid limit (LL) ≥ 50	Inorganic	PI plots on or above "A" line	CH	Fat clay [K,L,M]
			PI plots below "A" line	MH	Elastic silt [K,L,M]
		Organic	LL (Oven dried) / LL (Not dried) < 0.75	OH	Organic clay [K,L,M,P]
				OH	Organic silt [K,L,M,Q]
HIGHLY ORGANIC SOILS		Primarily organic matter, dark in color, and organic odor		PT	Peat

[A] Based on the material passing the 3-inch (75 mm) sieve
[B] If field sample contained cobbles or boulders, or both, add " with cobbles or boulders, or both" to group name
[C] $Cu = D_{60}/D_{10}$; $Cc = (D_{30})^2 / D_{10} \times D_{60}$
[D] If soil contains ≥ 15% sand, add "with sand" to group name
[E] Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
[F] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM
[G] If fines are organic, add "with organic fines" to group name
[H] If soil contains ≥ 15% gravel, add "with gravel" to group name
[I] Sands with 5 - 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
[J] If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay
[K] If soil contains 15 - 29% plus No. 200, add "with sand" or "with gravel"
[L] If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name
[N] PI ≥ 4 and plots on or above "A" line
[O] PI < 4 or plots below "A" line
[P] PI plots on or above "A" line
[Q] PI below "A" line

RELATIVE SOIL COMPOSITION

Trace - 0 - 15% of sample
With - 15 - 35% of sample
Soil modifier - > 35% of sample (i.e. sandy, silty, clayey, gravelly)

DRILLING & SAMPLING SYMBOLS

AU - Auger sample from cuttings
CS - Continuous ampler
HA - Hand auger sample
SS - Split spoon sample (2" O.D. by 1⅜" I.D.)
ST - Shelby Tube sample (2" or 3" O.D.)
WS - Wash sample from wash water return

SOIL PROPERTY SYMBOLS

N - N-value (blow count) is the standard penetration resistance based on the total number of blows required to advance a split spoon sampler one (1) foot, using a 140 lb. hammer with a 30 inch free fall. To avoid damage to sampling tools, driving is typically limited to 50 blows during any 6 inch interval. Additional description is provided below:

N-value (bpf)	Description
HW	Sampler penetrated soil under weight of hammer and rods; no driving required
25	25 blows to advance sampler 12 inches after initial 6 inches of seating
75/10"	75 blows to advance sampler 10 inches after initial 6 inches of seating
50/S3"	50 blows to advance sampler 3 inches during initial 6 inch seating interval

MC - Moisture content, %
Qu - Unconfined compressive strength, tons per square foot (tsf)
Qp - Calibrated hand penetrometer resistance, tsf
Dd - Dry density, pounds per cubic foot (pcf)
LL - Liquid limit, % (ASTM D4318)
PL - Plastic limit, % (ASTM D4318)
PI - Plasticity index, % (ASTM D4318)
%P200 - Percent of sample passing the No. 200 sieve
RQD - Rock quality designation of NX-size core sample
RMR - Rock mass rating, as developed by Z.T. Bieniawski
PID - Photoionization detector (Hnu meter) volatile vapor level, ppm

SOIL RELATIVE DENSITY & CONSISTENCY CLASSIFICATION

NON-COHESIVE SOILS		COHESIVE SOILS		
Density	N-Value Range	Consistency	Qu Range (tsf)	Approximate N-value Range
Very loose	0 - 3	Very soft	0 - 0.25	0 - 2
Loose	3 - 7	Soft	0.25 - 0.5	2 - 5
Medium dense	7 - 15	Medium stiff	0.5 - 1.0	5 - 10
Dense	15 - 38	Stiff	1.0 - 2.0	10 - 14
Very dense	38+	Very Stiff	2.0 - 4.0	14 - 32
		Hard	4.0+	32+

SOIL STRUCTURE TERMINOLOGY

Interlayered - Alternating layers of different soil types
Layer - Inclusion greater than 3 inches thick
Seam - Inclusion ⅛ to 3 inches thick
Laminated - Alternating seams of different soil type
Intermixed - Pockets of different soil types, no layering
Pocket - Inclusion of material of different texture
Varved - Alternating layers or seams of sand, silt, and/or clay

GROUNDWATER & MOISTURE CONDITIONS

v - Approximate groundwater level as noted during drilling and sampling
▼ - Groundwater level as noted within the open borehole upon removal of the augers
¥ - Delayed groundwater level within open borehole
Dry - Absence of moisture, dry to the touch
Moist - Damp, but no visible water
Wet - Visible free water, saturated, usually below water table

NOTE: General Notes have been adapted from and incorporate portions of ASTM D2487 "Classification of Soils for Engineering Purposes (Unified Soil Classification System)" and ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)."

Professional Service Industries, Inc.

PROJECT# 18-11
ENTERPRISE DRIVE
RECONSTRUCTION AND UTILITY RELAY

CITY OF DE PERE

ENGINEER DIVISION
925 S. SIXTH ST
DE PERE, WI, 54115

SITE LOCATION MAP
N.T.S.

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STANDARD ABBREVIATION & SYMBOLS
3	TYPICAL SECTIONS
4–10	ROCKLAND RD. UTILITY PLAN
11–14	ENTERPRISE DR. UTILITY PLAN AND PROFILE
15	ENTERPRISE DR. CONCRETE CONSTRUCTION STAGING
16	ENTERPRISE DR. DRIVEWAY GRADES
17	ENTERPRISE DR. PAVEMENT MARKING
18–25	ENTERPRISE DR.CROSS SECTIONS
26	ROAD CLOSURE TRAFFIC CONTROL ROCKLAND RD.
27	DETOUR ROUT TRAFFIC CONTROL ENTERPRISE DR.
28–41	CONSTRUCTION DETAILS

CITY OF DE PERE
BOARD OF PUBLIC WORKS

2/13/18 DATE	E. P. Rakers CITY ENGINEER
2/13/18 DATE	CITY ADMINISTRATOR
2/13/18 DATE	Michael J. Walsh MAYOR

STAMPS:

WISCONSIN
ERIC P. RAKERS
E-30929
GREEN BAY, WI
PROFESSIONAL ENGINEER
2/13/18

SHEET NO. 1

LIST OF STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC
AGGR	AGGREGATE
AH	AHEAD
ASPH	ASPHALT
B/B	BACK TO BACK
BARR	BARRICADE
BC	BACK OF CURB
BK	BACK
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BSMT	BASEMENT
C	CUT
C&G	CURB AND GUTTER
C/C	CENTER TO CENTER
CABC	CRUSHED AGGREGATE BASE COURSE
CB	CATCH BASIN
CE	CONSTRUCTION ENTRANCE
CI	CAST IRON PIPE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CNTY	COUNTY
CO	CLEANOUT
CONC	CONCRETE
CONSTR	CONSTRUCTION
CONSTR JT	CONSTRUCTION JOINT
CP	CONTROL POINT
CTH	COUNTY TRUNK HIGHWAY
CTRL JT	CONTROL JOINT
CTV	CABLE TV
CY	CUBIC YARD
D	DEPTH
DIA	DIAMETER
DI	DUCTILE IRON PIPE
DISCH	DISCHARGE
DW	DRIVEWAY
E	EAST (SEE ELEC BELOW)
EA	EACH
EB	EASTBOUND
EBS	EXCAVATION BELOW SUBGRADE
ECS	EXTERNAL CHIMNEY SEAL
EL	ELEVATION
ELEC	ELECTRIC (E WHEN USED IN LINE STYLE)
EMB	EMBANKMENT
ENTR	ENTRANCE
EP	EDGE OF PAVEMENT
EW	ENDWALL
EXC	EXCAVATION
EXIST	EXISTING
F	FILL
F/F	FACE TO FACE
FDN	FOUNDATION
FE	FIELD ENTRANCE
FERT	FERTILIZER
FIN GR	FINISHED GRADE
FL	FLOWLINE
FO	FIBER OPTIC
FT	FOOT
FTG	FOOTING
G	GAS
GV	GAS VALVE
GW	GUY WIRE
HDPE	HIGH DENSITY POLYETHYLENE
HR	HANDICAP RAMP
HSE	HOUSE
HT	HEIGHT
HYD	HYDRANT
I	INTERSECTION ANGLE
ICS	INTERNAL CHINMEY SEAL
ID	INSIDE DIAMETER
IN	INCH
INL	INLET
INTERS	INTERSECTION
INV	INVERT
IP	IRON PIPE OR PIN
JCT	JUNCTION
L	LENGTH (OF CURVE)
LC	LONG CHORD OF CURVE
LP	LIGHTPOLE
LS	LIFT STATION OR LUMP SUM
LT	LEFT
MAINT	MAINTENANCE
MATL	MATERIAL
MB	MAILBOX
MH	MANHOLE
MP	MARKER POST
N	NORTH
NB	NORTHBOUND
NC	NORMAL CROWN
NE	NORTHEAST
NO	NUMBER
NTS	NOT TO SCALE
NW	NORTHWEST
O	OIL
O&C	OIL AND CHIP
OBLIT	OBLITERATE
OD	OUTSIDE DIAMETER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PCC	PORTLAND CEMENT CONCRETE
PED	PEDESTAL
PLE	PERMANENT LIMITED EASEMENT
PVMT	PAVEMENT
PE	PRIVATE ENTRANCE
PI	POINT OF INTERSECTION
PJF	PRE-FORMED JOINT FILLER
PL	PROPERTY LINE
POC	POINT OF CURVE
POT	POINT ON TANGENT
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSI	POUND PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RANGE OR RADIUS
RCP	REINFORCED CONCRETE PIPE
REBAR	REINFORCEMENT BAR
REL	RELOCATE
REM	REMAINING
REQD	REQUIRED
RL	REFERENCE LINE
ROW	RIGHT OF WAY
RP	REFERENCE POINT
RR	RAILROAD
RT	RIGHT
RW	RETAINING WALL
S	SOUTH
SALV	SALVAGE
SAN	SANITARY
SB	SOUTHBOUND
SDWK	SIDEWALK
SE	SOUTHEAST
SF	SQUARE FEET
SHLDR	SHOULDER
SY	SQUARE YARD
SS	STORM SEWER
SSD	STOPPING SIGHT DISTANCE
STA	STATION
STD	STANDARD
STH	STATE HIGHWAY TRUNK
STM	STORM
STP	SEWAGE TREATMENT PLANT
STRUCT	STRUCTURE OR STRUCTURAL
SW	SOUTHWEST
TAN	TANGENT
T	TOWN (T WHEN USED FOR TELEPHONE LINE)
TEL	TELEPHONE
TEMP	TEMPORARY
TLE	TEMPORARY LIMITED EASEMENT
TOC	TOP OF CURB
TOW	TOP OF WATER
TRANS	TRANSITION
TYP	TYPICAL
UG	UNDERGROUND
USH	US HIGHWAY
VC	VERTICAL CURVE
VERT	VERTICAL
VOL	VOLUME
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPRC	VERTICAL POINT OF REVERSE CURVE
VPT	VERTICAL POINT OF TANGENCY
W	WEST
WB	WESTBOUND
WM	WATERMAIN
WSO	WATER SHUTOFF VALVE
WTP	WATER TREATMENT PLANT
WV	WATER VALVE
WWTP	WASTE WATER TREATMENT PLANT
YD	YARD

MAPPING & TOPOGRAPHY SYMBOLOGY

DESCRIPTION	SYMBOL	
	EXISTING	PROPOSED
BENCHMARK		
BUSH		
CATCH BASIN		
CABLE TV BOX	CTV	
ELECTRICAL BOX	E	
FIELD INLET		
GAS VALVE	GV	
HEDGE		
HYDRANT		
IRON PIPE		
LIGHTPOLE		
MAILBOX	MB	
MANHOLE ELECTRIC	E	
MANHOLE SANITARY	S	SS
MANHOLE STORM	D	ST
MONTORING WELL	MW	
POWER POLE		
SIGN BASE		
SIGN		
STUMP		
TELEPHONE MANHOLE		
TELEPHONE PEDESTAL	TEL	
TREE		
WELL	W	
WATER SERVICE VALVE		
WATER VALVE		

MAPPING & TOPOGRAPHY SYMBOLOGY

DESCRIPTION	SYMBOL
PLAN	
EXISTING SANITARY SEWER LINE	(SIZE AND MATERIAL) — San —
PROPOSED SANITARY SEWER LINE	100'-8" PVC SAN — San —
EXISTING STORM SEWER LINE	(SIZE AND MATERIAL) — ST — ST
PROPOSED STORM SEWER LINE	100'-8" PVC STM — ST — ST
EXISTING WATER MAIN LINE	(SIZE AND MATERIAL) — W —
PROPOSED WATER MAIN LINE	100'-8" PVC WM (TEE-BEND) — W —
EXISTING ELECTRICAL LINE	— E — E — E —
EXISTING GAS MAIN LINE	— G — G —
EXISTING TELEPHONE LINE	— T — T — T —
EXISTING CABLE TV LINE	— TV — TV — TV —
EXISTING SANITARY LATERAL	— San —
EXISTING WATER SERVICE	— W —
RIGHT OF WAY	— ROW —
PROPERTY LINE	— PL —
PROFILE	
EXISTING SANITARY SEWER LINE	(SIZE AND MATERIAL)
PROPOSED SANITARY SEWER LINE	100'-8" PVC SAN @ 0.40%
EXISTING STORM SEWER LINE	(SIZE AND MATERIAL)
PROPOSED STORM SEWER LINE	100'-8" PVC STM @ 1.0%
EXISTING WATER MAIN LINE	(SIZE AND MATERIAL)
PROPOSED WATER MAIN LINE	PROPOSE 8" PVC WM

PATCH SYMBOLS

ASPHALT PATCH

CONCRETE PATCH

GENERAL CONSTRUCTION NOTES:

1. ALL ELEVATIONS ARE REFERENCED TO NAVD 88.
2. THE WORK UNDER THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE CITY OF DE PERE, LATEST CONSTRUCTION SPECIFICATIONS AND THESE SPECIAL PROVISIONS AND PLANS, AND THE LATEST ADDITION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION SPECIFICATIONS, LATEST EDITION, WHERE REFERENCED IN THE CITY SPECIFICATIONS.
3. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO CONSTRUCTION AND SHALL CONFIRM TO THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONSTRUCTION SITE EROSION CONTROL AND TECHNICAL STANDARDS.
4. EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES. WHETHER SHOWN OR NOT, FROM THE OWNERS OF THE RESPECTIVE UTILITIES. ALL UTILITIES OWNERS SHALL BE NOTIFIED BY THE CONTRACTOR 72 HOURS PRIOR TO EXCAVATION.

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4060 FAX 920-339-4071

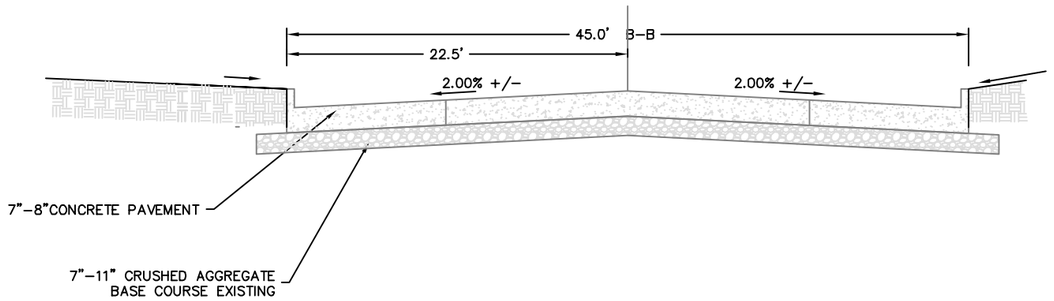
STANDARD ABBREVIATIONS AND SYMBOLS

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

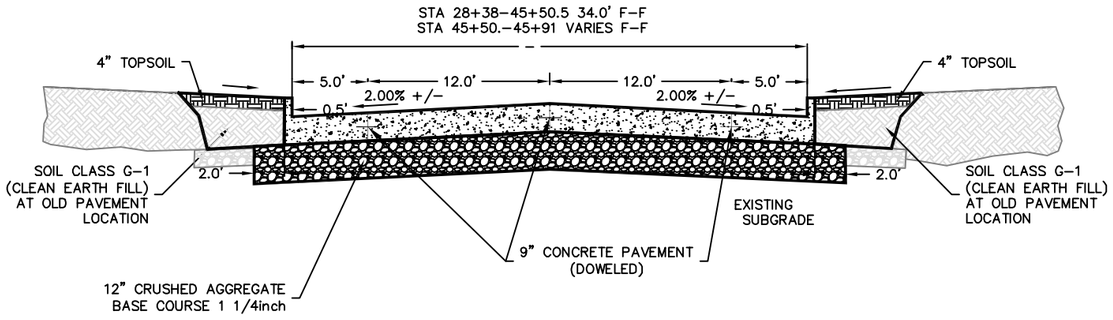
PROJECT # 18-11

	BY	DATE
SURVEYED		
DRAWN	BK	01-2018
DESIGNED		
CHECKED		

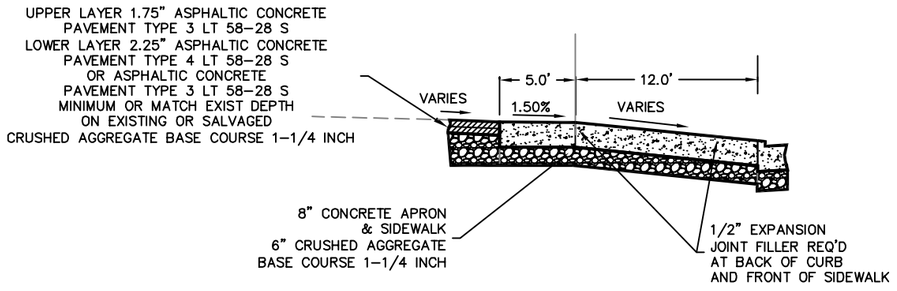
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS



TYPICAL EXISTING STREET SECTION



TYPICAL FINISHED STREET SECTION



TYPICAL FINISHED DRIVE APRON SECTION

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920–339–4061 FAX 920–339–4071

ENTERPRISE DRIVE

TYPICAL SECTIONS DETAILS

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18–11

	BY	DATE
SURVEYED	BJK	11–2017
DRAWN	BJK	11–2017
DESIGNED	BJK	11–2017
CHECKED	CKK	01–2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

BENCH MARK # E-570
SOUTH END CUL DE SAC PROFIT PL.
EXIST HYDRANT TOP NUT 639.94

BENCH MARK # E-571
HYDRANT ON DESTINY DR. BETWEEN ROCKLAND RD. AND PROFIT PLACE
EXIST HYDRANT TOP NUT 641.41

DESTINY DR.

BP: 30+00

30+00

CONCRETE
ASPHALT WITH CURB AND GUTTER

12" PVC WM W

PC: 31+11

31+00

STA 31+11
BEGIN WM DEFLECTION

Mid: 32+35

ED-2386

32+00

33+00

PRC: 33+58

PL

Mid: 34+22

PT: 34+87

STA 34+87
END WM DEFLECTION

503
ED-D43-1

34+00

35+00

575' PVC WM
(TEE-TEE)

PROP 16" PVC WM

ROW

98' 15" PVC ST

SAW CUT EXIST CURB AND GUTTER
SAW CUT EXIST ASPHALT

INSTALL 16"X12" TEE

ABANDON 12" WM.

SILT FENCE REQ'D

REFERENCE LINE

60'

35'

66'

12" CMP ST

GRAVEL

ASPHALT

ROCK BAG DITCH CHECKS REQ'D TYPICAL

STA 30+91
1-16"X12" TEE
1-16" PLUG
1-WATER MAIN CONNECTION

STA 30+96
1-16" BUTTERFLY VALVE

SEE PAGE 5

NATURAL BACKFILL

REFERENCE LINE AT WATER MAIN

18' 12" CMP

23' 12" CMP

EXIST SANMH (19)
STA 31+01 12' R
RIM = 644.60
D = 28.29'
DIA = 48"
FL = 616.31 (15" N)
FL = 616.31 (15" S)

98' 15" PVC ST

31+80
T.O.P. 641.0

34+23
T.O.P. 643.0

PROP 16" PVC WM

650

640

5'

0 20' 40'

0

643.7	644.3	649.1	649.4	648.5	648.2	648.5	649.3	649.7	650.6	650.2

30+00 31+00 32+00 33+00 34+00 35+00

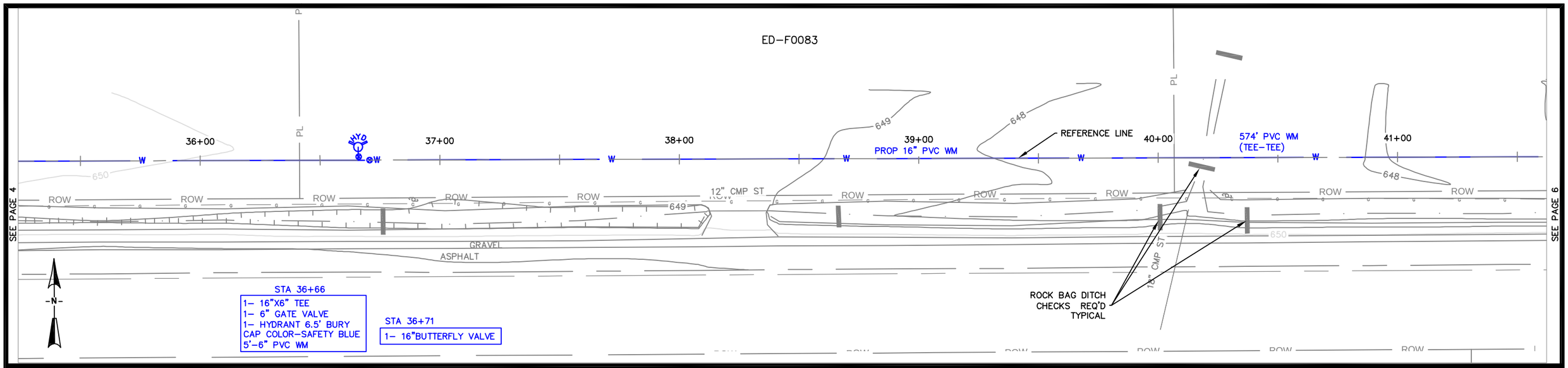
CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

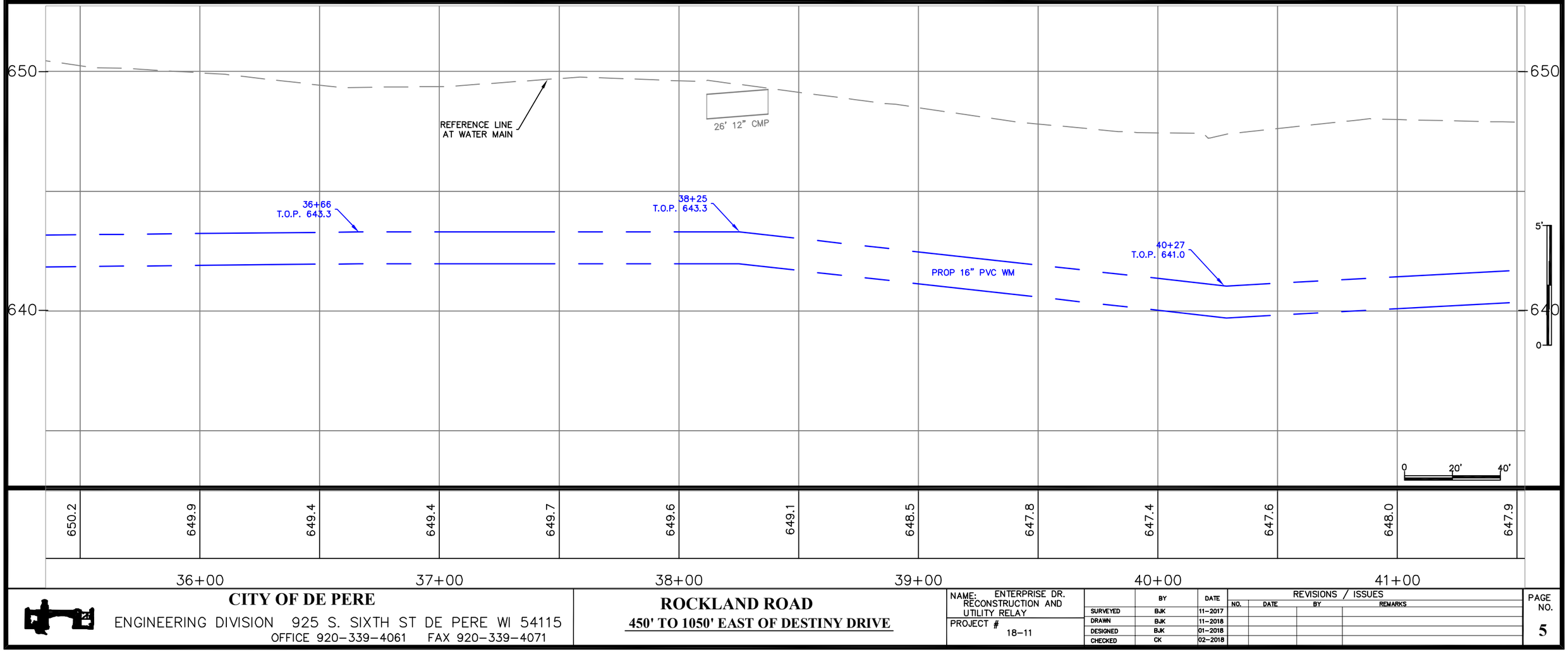
ROCKLAND ROAD
DESTINY DRIVE TO 450' EAST

NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	BJK	11-2017
DRAWN	BJK	11-2018
DESIGNED	BJK	01-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS





CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ROCKLAND ROAD
450' TO 1050' EAST OF DESTINY DRIVE

NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	BJK	11-2017
DRAWN	BJK	11-2018
DESIGNED	BJK	01-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

ED–F00082

STA 44+40
1–16" BUTTERFLY VALVE

CITY OF DE PERE
COMPOST FACILITY
CONTRACTOR TO
MAINTAIN ACCESS TO
SITE AT ALL TIMES

SEE PAGE 5

SEE PAGE 7

42+00 | HYD | 43+00 | REFERENCE LINE | 44+00 | 45+00 | PROP 16" PVC WM | 576' PVC WM (TEE–TEE) | 46+00 | GATE | PL | GRAVEL | 47+00

W

ROW

GRAVEL

ASPHALT

12" CMP ST

ROCK BAG DITCH CHECKS REQ'D TYPICAL

STA 42+40
1– 16"X6" TEE
1– 6" GATE VALVE
1– HYDRANT 6.5' BURY
CAP COLOR–SAFETY BLUE
5'–6" PVC WM

-N-

610

NATURAL BACKFILL | GRANULAR BACKFILL | NATURAL BACKFILL

650

640

REFERENCE LINE AT WATER MAIN

25' 12" CMP

42+40
T.O.P. 642.2

46+80
T.O.P. 642.2

PROP 16" PVC WM

5'

0

0 20' 40'

42+00	43+00	44+00	45+00	46+00	47+00
647.9	647.9	648.5	649.1	649.7	649.8	650.5	650.3	649.9	649.5	649.0	650.0

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920–339–4061 FAX 920–339–4071

ROCKLAND ROAD
1050' TO 1650' EAST OF DESTINY DRIVE

NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18–11

	BY	DATE
SURVEYED	BJK	11–2017
DRAWN	BJK	11–2018
DESIGNED	BJK	01–2018
CHECKED	CK	02–2018

REVISIONS / ISSUES

NO.	DATE	BY	REMARKS

CITY OF DE PERE
COMPOST FACILITY
CONTRACTOR TO
MAINTAIN ACCESS TO
SITE AT ALL TIMES

GATE

ED–F0085

WISCONSIN DEPARTMENT
OF NATURAL
RESOURCES TRAIL

GRAVEL

REFERENCE LINE

48+00

49+00

50+00

574' PVC WM
(TEE–TEE)

PROP 16" PVC WM

51+00

ASPHALT

52+00

53+00

SILT FENCE REQ'D

DIRECTIONAL DRILL LIMITS

18" CMP ST

15" CMP ST

GRAVEL

ASPHALT

SEE PAGE 6

SEE PAGE 8

STA 48+15
1– 16"X6" TEE
1– 6" GATE VALVE
1– HYDRANT 6.5' BURY
CAP COLOR–SAFETY BLUE
11'–6" PVC WM

66'

120'

STA 50+80–52+00
120' DIRECTIONAL DRILL
16" PVC WM

STA 52+10
1– 16" BUTTERFLY VALVE

ROCK BAG DITCH
CHECKS REQ'D
TYPICAL

NATURAL BACKFILL

GRANULAR BACKFILL

NATURAL BACKFILL

REFERENCE LINE
AT WATER MAIN

42' 18" CMP

48+89
T.O.P. 640.5

PROP 16" PVC WM

50+56
T.O.P. 638.3

120' DIRECTIONAL DRILL REQ'D

52+04
T.O.P. 635.5

53+00
T.O.P. 635.9

650

640

0 20' 40'

5'

0

649.5 649.0 648.4 646.7 648.4 647.8 647.3 644.3 647.0 643.1 642.5 641.9 642.2

48+00 49+00 50+00 51+00 52+00 53+00

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920–339–4061 FAX 920–339–4071

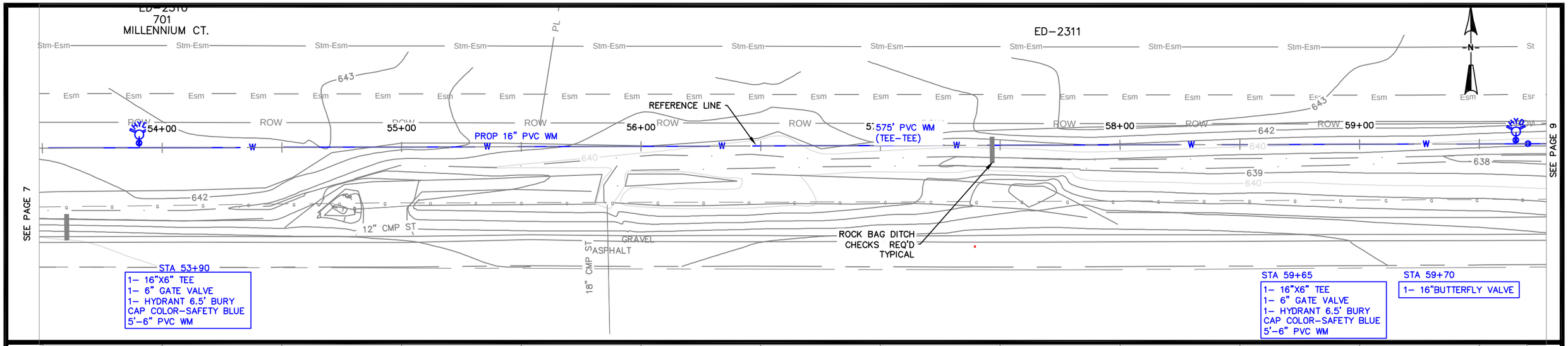
ROCKLAND ROAD
1650' TO 2250' EAST OF DESTINY DRIVE

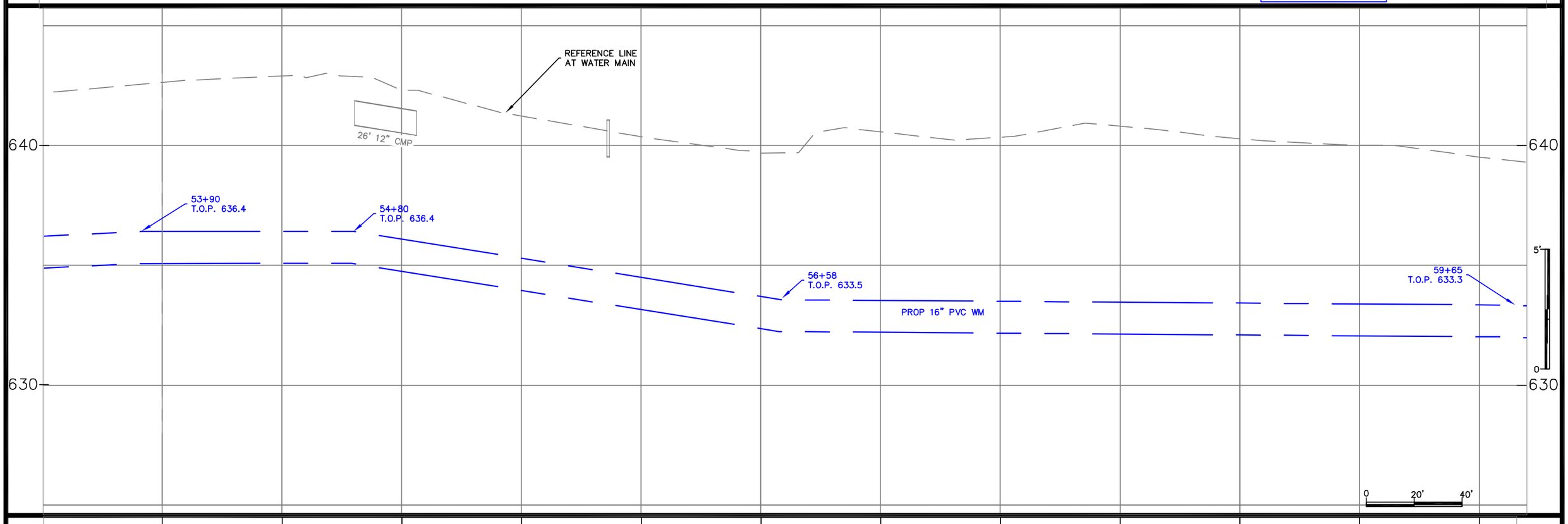
NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18–11

	BY	DATE
SURVEYED	BJK	11–2017
DRAWN	BJK	11–2018
DESIGNED	BJK	01–2018
CHECKED	CK	02–2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 7





CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ROCKLAND ROAD
2250' EAST OF DESTINY DR. TO
WEST OF ENTERPRISE DRIVE

NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	BJK	11-2017
DRAWN	BJK	11-2018
DESIGNED	BJK	01-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 8

ED-2315

STA 61+23
BEGIN WM DEFLECTION

PC: 61+23

Mid: 61+87

PRC: 62+51

Mid: 63+65

BENCH MARK # E-429
EXIST HYDRANT
TOP NUT 639.86

STA 64+78
END WM DEFLECTION

PT: 64+78

RESTRAIN TOP (45°) BEND
BACK THROUGH 50'OF16" WM

5'-12" PVC WM
(REDUCER-RECONNECT)

10'-16" PVC WM
(TEE-CROSS)

5'-16" PVC WM
(CROSS-REDUCER)

5'-10" PVC WM
(REDUCER-
VALVE)

5'-16" PVC WM
(CROSS-REDUCER)

5'-12" PVC WM
(REDUCER-
RECONNECT)

PROP 16" PVC WM

555' PVC WM
(TEE-TEE)

REFERENCE LINE

SILT FENCE REQ'D

EXPOSE 12" WM
MATCH GRADE
WITH 16" PVC WM

ROCK BAG DITCH
CHECKS REQ'D
TYPICAL

GRAVEL
ASPHALT
CONCRETE

21" RCP ST

PROVIDE
TEMPORARY WATER
CONNECTION HYD - HYD
SEE EXHIBIT

RYAN
ROAD

12" PVC WM

120'

SEE PAGE 8

STA 65+08
1- 16"OFFSET

STA 65+17
1- 16"X6" TEE
1- 6" GATE VALVE
1- HYDRANT 6.5' BURY
CAP COLOR-SAFETY BLUE
5'-6" PVC WM

STA 65+27
1-16"X16" CROSS
1-16" BUTTERFLY VALVE
1-12" GATE VALVE
2-16"X12" REDUCERS
2-RECONNECTS
10'-16" PVC WM
10'-12" PVC WM

STA 65+32
1-16'X10" REDUCERS
1-10" GATE VALVE
1-FLUSH PIPE
1-10" PLUG

640

630

REFERENCE LINE
AT WATER MAIN

EXIST STMH (17)
STA 65+08 18' R
RIM = 637.72
D = 6.75'
DIA = 48"
FL = 630.97 (21" W)
FL = 630.97 (21" N)

59+65
T.O.P. 633.3

61.52
T.O.P. 633.0

PROP 16" PVC WM

64+47
T.O.P. 632.0

65+00
T.O.P. 631.2

65+17
T.O.P. 631.3

65+08
T.O.P. 629.5
MAINTAIN 1.5'
CLEARANCE

0 20' 40'

5'
0

639.5 639.2 638.6 638.3 638.1 638.2 638.8 639.5 639.1 638.7 638.3 637.3 637.1

60+00 61+00 62+00 63+00 64+00 65+00

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

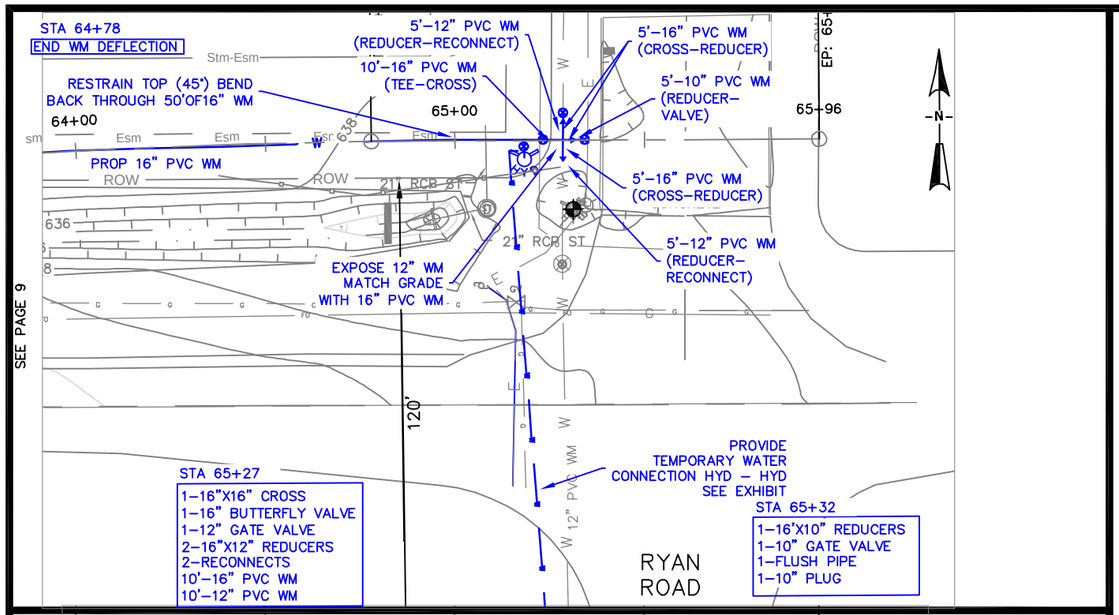
ROCKLAND ROAD
ENTERPRISE DRIVE TO 550' WEST

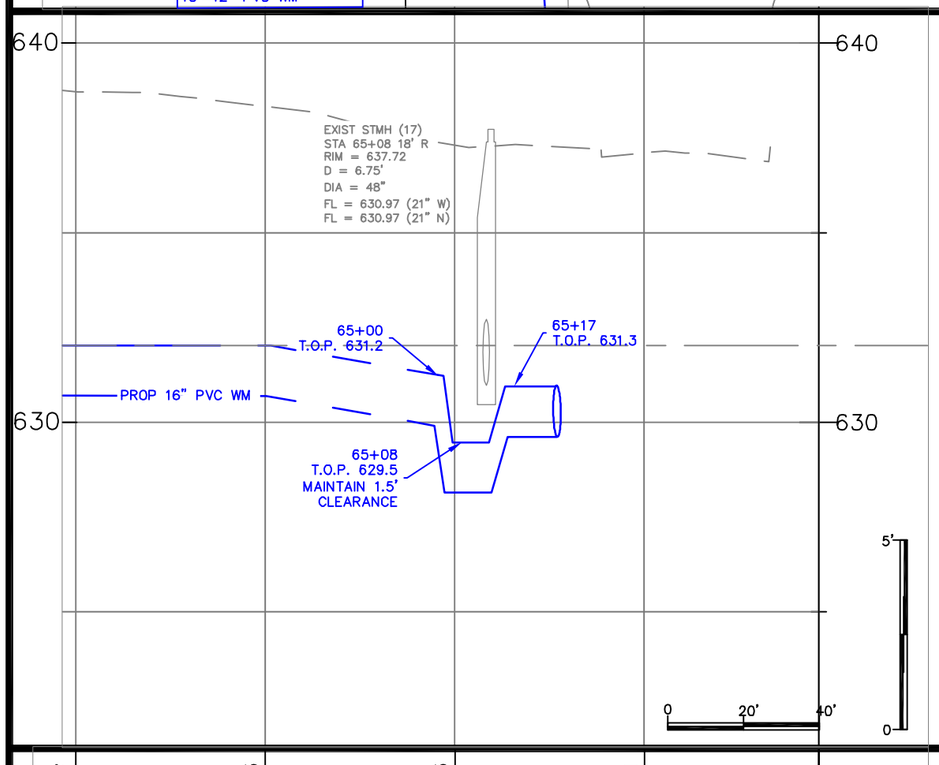
NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

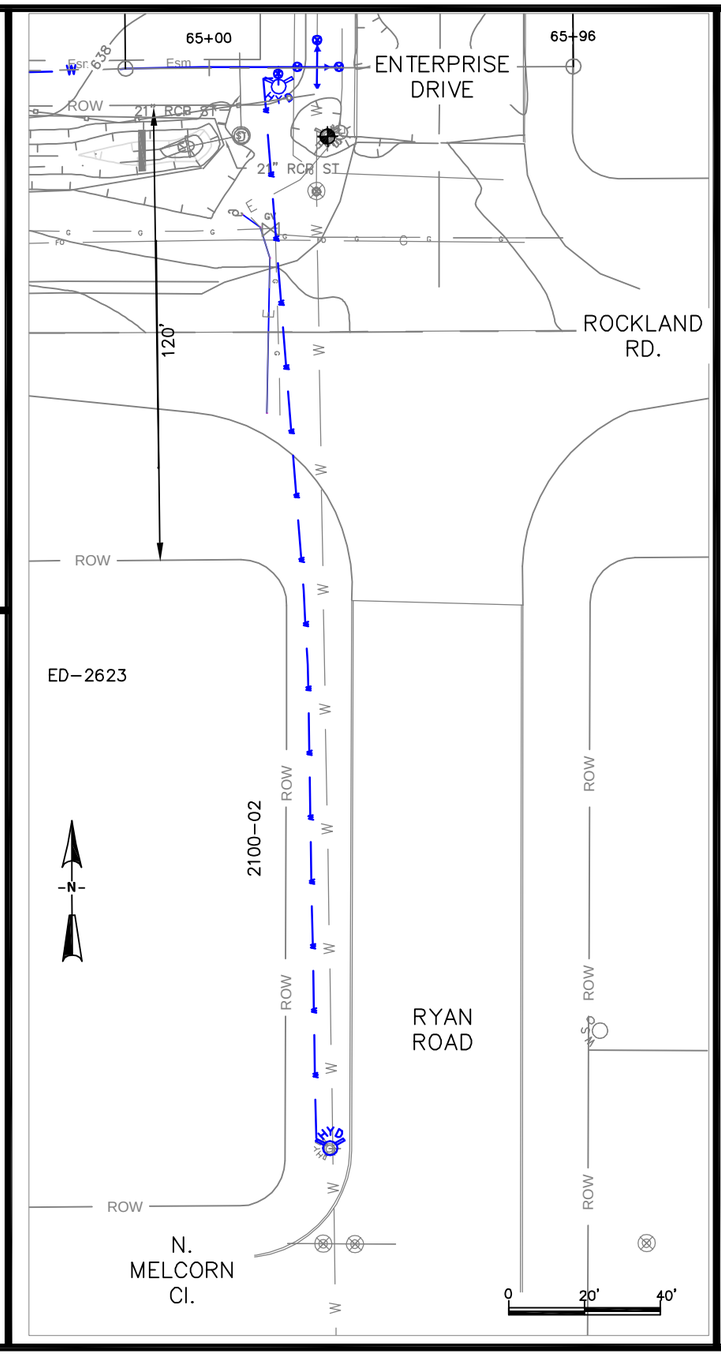
	BY	DATE
SURVEYED	BJK	11-2017
DRAWN	BJK	11-2018
DESIGNED	BJK	01-2018
CHECKED	CK	02-2018

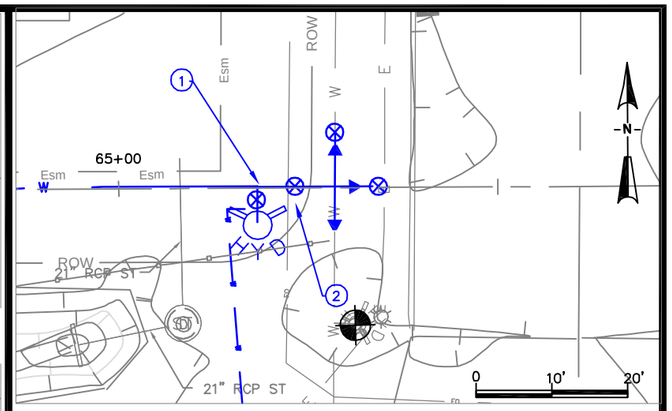
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 9









NOTES:

1. INSTALL 16"X6" TEE, 6" VALVE, AND HYDRANT.
2. INSTALL 16" VALVE.
3. RESTRAIN 16" VALVE AND 16"X6" TEE TO 50' OF 16" PVC WM.
4. COMPLETE ALL TESTING REQUIREMENTS AND SAFE SAMPLE OF 16" WM.
5. PROVIDE ALL SIGNAGE AND BARRICADING FOR CLOSURE OF ROCKLAND ROAD AS NEEDED.
6. INSTALL TEMPORARY WATER BYPASS FROM NEW HYDRANT AT ENTERPRISE DRIVE TO FIRST HYDRANT SOUTH OF ROCKLAND RD. AT INTERSECTION OF RYAN ROAD AND NORTH MELCORN CIRCLE.
   - 6.1. SERVICE CONNECTION WILL BE MADE TO EACH 4 1/2" NST NOZZLE WITH A 8" OR LARGER WATER SUPPLY LINE.
   - 6.2. CONTRACTOR SHALL LOAD FROM THE NEWLY INSTALLED HYDRANT AND PROVIDE A SAFE SAMPLE OF THE TEMPORARY CONNECTION PIPE BEFORE FINAL CONNECTION AND SHUT DOWN.
7. ONCE WATER MAIN HAS PASSED ALL TESTING AND HAS A SAFE SAMPLE, THE FOLLOWING STEPS MUST BE PERFORMED ON A SATURDAY. NOTIFY DE PERE FIRE DEPARTMENT OF THE WATER BYPASS AND SHUT-OFF DATE AND PLAN PRIOR TO WORK START.
   - 7.1. INSTALL THE 16-INCH CROSS, REDUCERS, VALVES, AND RECONNECTIONS AT THE INTERSECTION OF ROCKLAND ROAD AND ENTERPRISE DRIVE.
   - 7.2. ONCE ALL FINAL CONNECTIONS ARE MADE AND WHILE ALL CONNECTIONS ARE STILL VISIBLE, CONDUCT A PRESSURE TEST AT MAIN PRESSURE OF ALL CONNECTIONS THAT WERE JUST INSTALLED.
   - 7.3. AFTER THE LOW PRESSURE TEST HAS PASSED, TAKE DOWN THE TEMPORARY WATER BYPASS AND ALL TRAFFIC CONTROL FOR THE CLOSURE OF ROCKLAND ROAD.

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ROCKLAND ROAD
ENTERPRISE DRIVE TO 550' WEST

NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	BJK	11-2017
DRAWN	BJK	11-2018
DESIGNED	BJK	01-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

STA 27+75, 32' LT
DIG DOWN PLUG AT TEE
INSTALL CONCRETE BLOCKING
ABANDON EXIST 12" WM

STA 27+84, 20.5' RT
1–12"X12" TEE
2–RECONNECTS

STA 27+89, 20.5' RT
1–12"X16" REDUCER

STA 28+00, 20.5' RT
1– 16"BUTTERFLY VALVE

BENCH MARK # E–249
"T" IN TENN 642.80

CITY WIDE INSULATION
ED–F0106–3
1860

INLET (73)
STA 28+37 16' L
FLANGE = 638.88
FL = 634.72 (15" E)
FL = 634.70 (15" W)
D = 4.18'

NEW SCH 40
SANITARY LATERAL (TYP.)

290'

REMOVE AND
SALVAGE HYD.

REMOVE AND
REPLACE
1" H.D.P.E. WM

INSTALL
FLUSH PIPE

T. L. E. REQ'D

45'

REMOVE AND
REPLACE
1" H.D.P.E. WM

INSTALL
FLUSH PIPE

BULKHEAD
AND ABANDON
REMOVE VALVES

ARMS
ED–F0106–1
1850

STA 32+90, 20.5' RT
1–2" FLUSH PIPE AND
PLUG AT 16" PVC WM

T. L. E. REQ'D

STA 32+97, 20.5' RT
1–16"BUTTERFLY VALVE

REMOVE VALVE.

STMH (80)

RECONNECT 21"
STORM SEWER

PT: 27+55.71

EXIST
STMH (42)

12" WM D.I.

21" RCP ST

12'–15" ST PVC 5.93%

33'–15" ST PVC 0.50%

END
CONSTRUCTION

28+00

29+00

30+00

31+00

32+00

33+00

EXIST R/L

259'–16" PVC WM
(TEE–TEE)

136'–16" PVC WM
(TEE–TEE)

56'–8" PVC WM
(TEE–EXIST)

56'–8" PVC WM
(TEE–EXIST)

17'–16" PVC WM
(TEE–TEE)

99'–16" PVC WM (TEE–TEE)

15'–12" PVC WM
(TEE–EXIST)

EXIST B.C.

PROPOSED B.C.

SLOPE INTERCEPT (TYP.)

EXIST
STMH (48)

EXIST
SANMH (19)

EXIST
STMH (47)

ASPHALT

18" RCP SAN

T. L. E. REQ'D

REMOVE AND
REPLACE
1" H.D.P.E. WM

EXPOSE EXIST 12" WM
TO SET 16" WM GRADE

SEE PAGE 12

PROSPER
ST.

BENCH MARK # E–248
TOP NUT 642.95

INLET (74)
STA 28+37 16' R
FLANGE = 638.88
FL = 634.88 (15" W)
D = 4.00'

B & J MACHINE
ED–F0106–4
801 PROSPER ST.

WATER SERVICE
OFF PROSPER ST.

STA 30+43, 20.5' RT
1–16"X8" TEE
1–8"VALVE
1–2" FLUSH PIPE
1–RECONNECT

STA 31+79, 20.5' RT
1–16"X8" TEE
1–8"VALVE
1–2" FLUSH PIPE
1–RECONNECT

I. P. C.
ED–F0106
1855

STA 31+96 20.5' RT
1– 16"X6" TEE
1– 6" VALVE
1– HYDRANT 7' BURY
CAP COLOR–SAFETY BLUE
5'–6" PVC WM

STA 32+95, 20.5' RT
1– 16"12" TEE
1–12" GATE VALVE
1–RECONNECT

DE PERE
PUMP STATION

SEE PAGE 14

PVI STA = 27+60
EL = 639.96

PVI STA = 28+37
EL = 639.21

PVI STA = 30+45
EL = 640.05

EXIST R/L PROFILE

0.97%

0.40%

0.44%

PROPOSED PROFILE

STMH (80)
STA 28+37 28' L
RIM = 640.11
D = 6.16'
DIA = 48"
FL = 634.00 (15" E)
FL = 633.95 (21" N)
FL = 633.95 (21" S)

EXIST SANMH (48)
STA 30+22 28' L
RIM = 640.57
D = 5.85'
DIA = 48"
FL = 634.72 (21" N)
FL = 634.72 (21" S)

21" RCP ST

STA. 32+96T.O.P. 635.4

FUTURE
16" WM PVC

16" WM PVC

GRANULAR
BACKFILL

EXIST SANMH (19)
STA 30+89 31' R
RIM = 640.78
D = 15.26'
DIA = 48"
FL = 625.52 (18" N)
FL = 625.52 (18" S)

SERVICE
CONNECTION
(TBA) 11:00

SERVICE
CONNECTION
(TBA) 12:00

SERVICE
CONNECTION
(TBA) 1:00

18" RCP SAN

640

630

5'

0

0 20' 40'

639.7 639.91 | 639.9 639.57 | 640.0 639.26 | 640.2 639.46 | 640.4 639.66 | 640.6 639.86 | 640.8 640.06 | 641.0 640.28 | 641.2 640.50 | 641.4 640.72 | 641.6 641.22 | 641.8 641.42 | 641.9 641.62

28+00 29+00 30+00 31+00 32+00 33+00

NOTES:
1. SAWCUT ALL MATCH POINTS AT DRIVEWAYS.
2. REMOVE AND RELAY EXIST STORM LEADS.
3. MAINTAIN ACCESS TO MAIL BOXES AND RELOCATE AT COMPLETION OF PROJECT.
4. VERIFY SIZE AND MATERIAL OF SANITARY SEWER LATERALS PRIOR TO START OF WATER MAIN WORK.
5. VERIFY SIZE OF ALL WATER SERVICES BEFORE START OF WATER MAIN WORK.
6. (TBA) = TAP BREAK IN ACTIVE

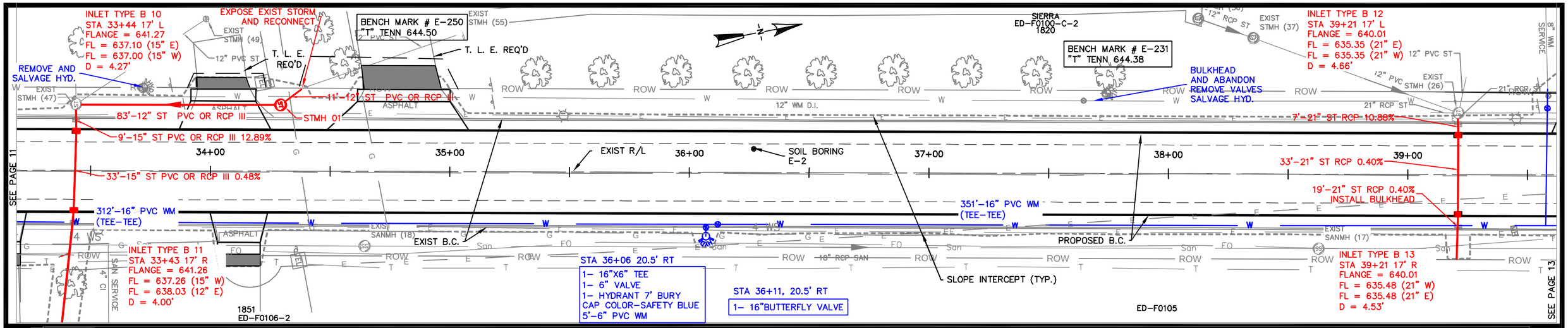
CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920–339–4061 FAX 920–339–4071

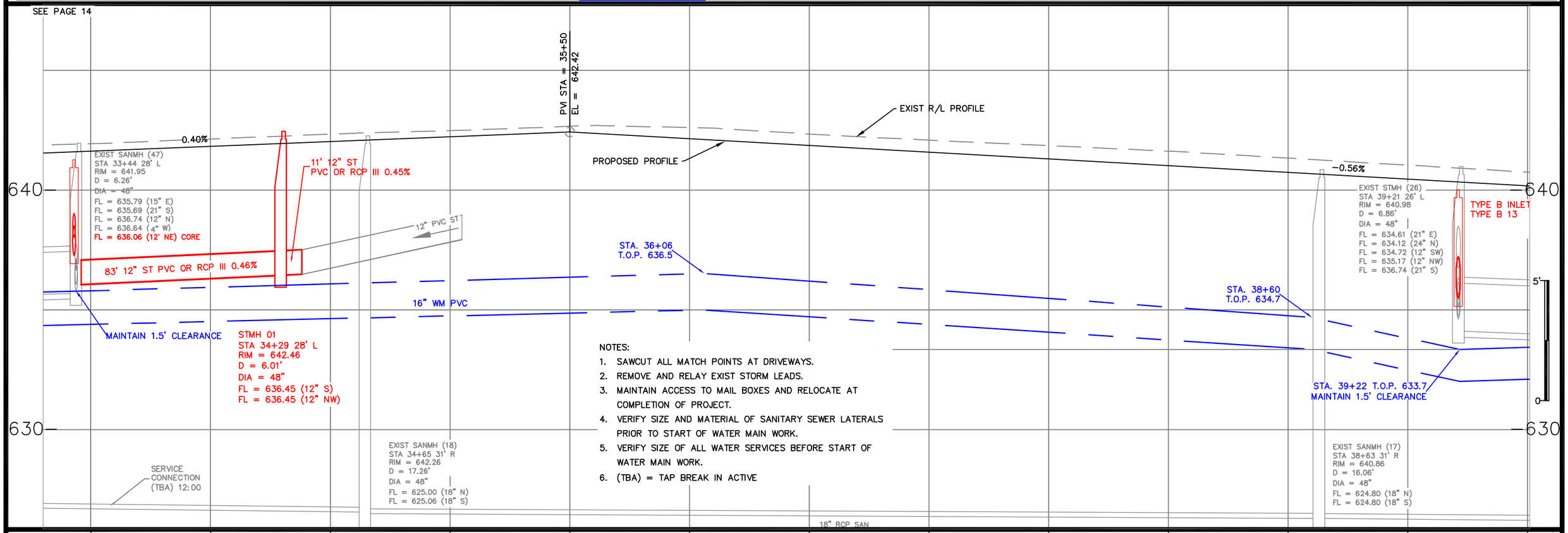
ENTERPRISE DRIVE
FROM PROSPER ST. TO 600' NORTH

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18–11

	BY	DATE
SURVEYED	BJK	11–2017
DRAWN	BJK	01–2018
DESIGNED	BJK	01–2018
CHECKED	CK	01–2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS





CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE

FROM 550' TO 1150' NORTH OF PROSPER ST.

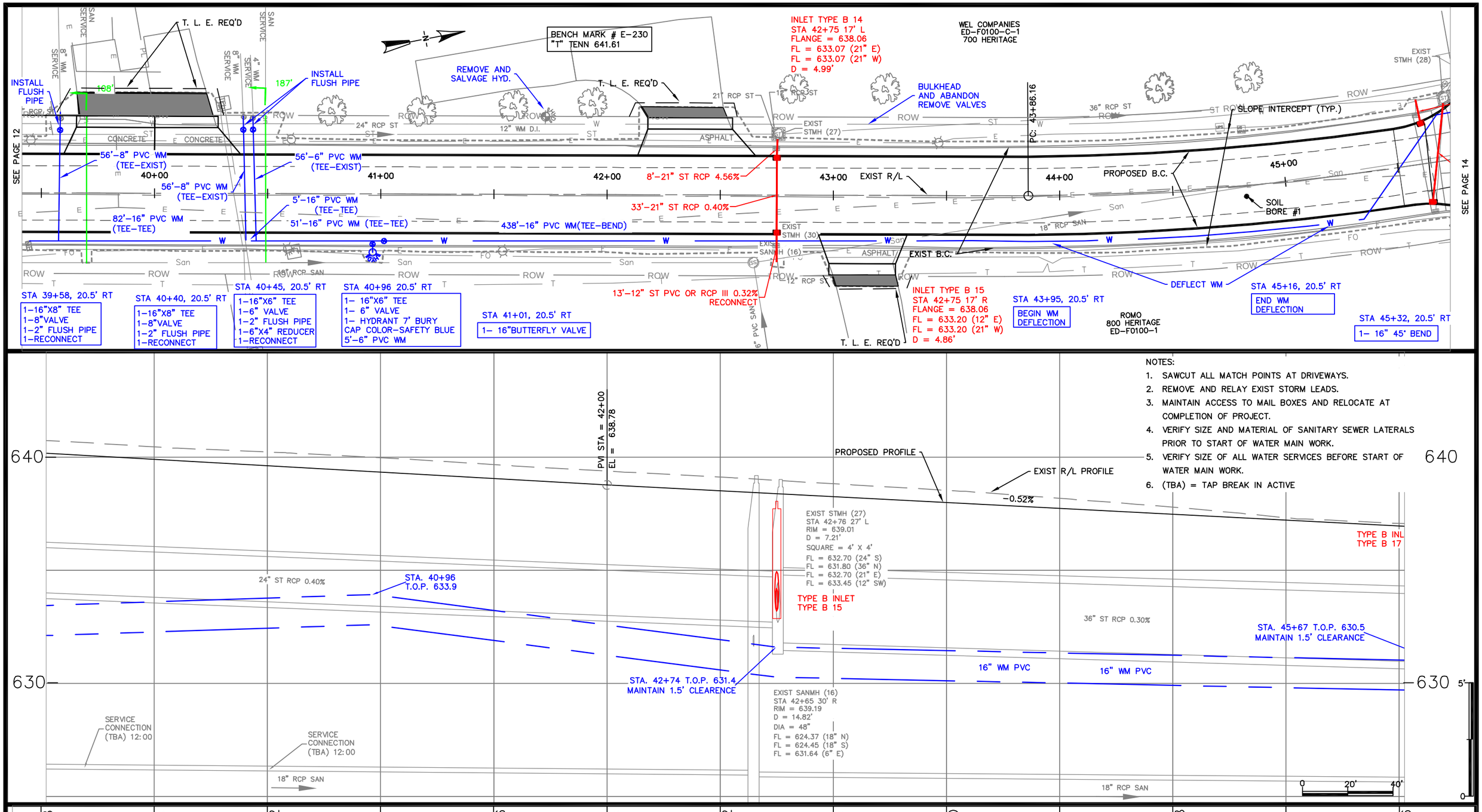
NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BJK	11-2017
DRAWN	BJK	11-2018
DESIGNED	BJK	01-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 12



NOTES:

1. SAWCUT ALL MATCH POINTS AT DRIVEWAYS.
2. REMOVE AND RELAY EXIST STORM LEADS.
3. MAINTAIN ACCESS TO MAIL BOXES AND RELOCATE AT COMPLETION OF PROJECT.
4. VERIFY SIZE AND MATERIAL OF SANITARY SEWER LATERALS PRIOR TO START OF WATER MAIN WORK.
5. VERIFY SIZE OF ALL WATER SERVICES BEFORE START OF WATER MAIN WORK.
6. (TBA) = TAP BREAK IN ACTIVE

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

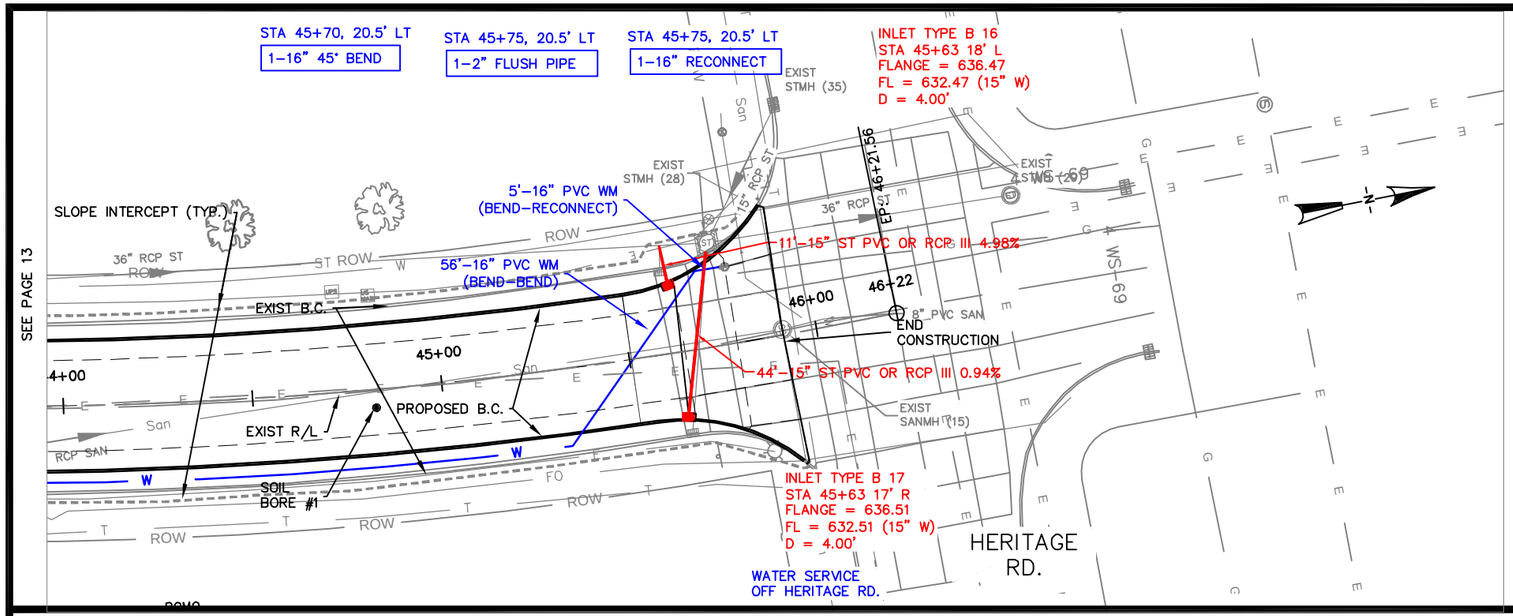
ENTERPRISE DRIVE
FROM 1250' NORTH OF PROSPER ST. TO HERITAGE RD.

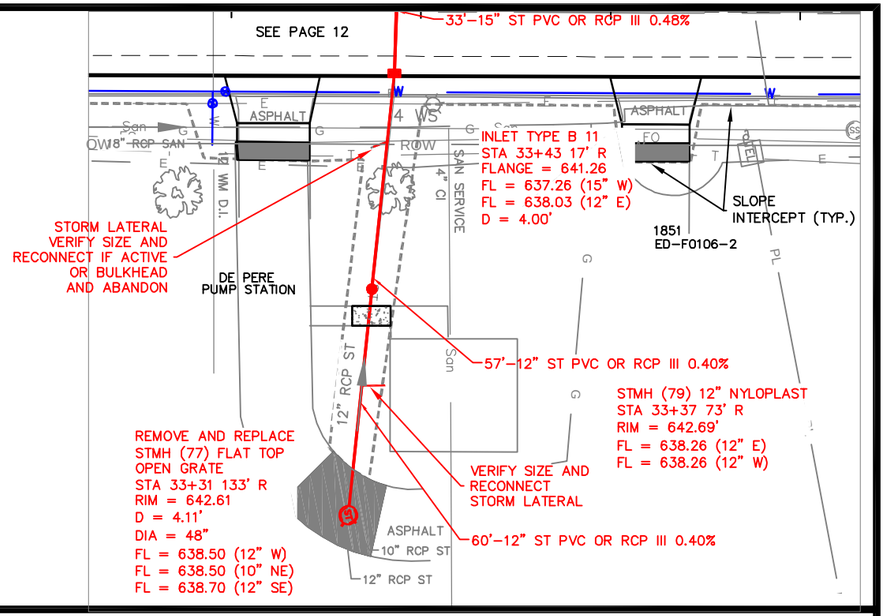
NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

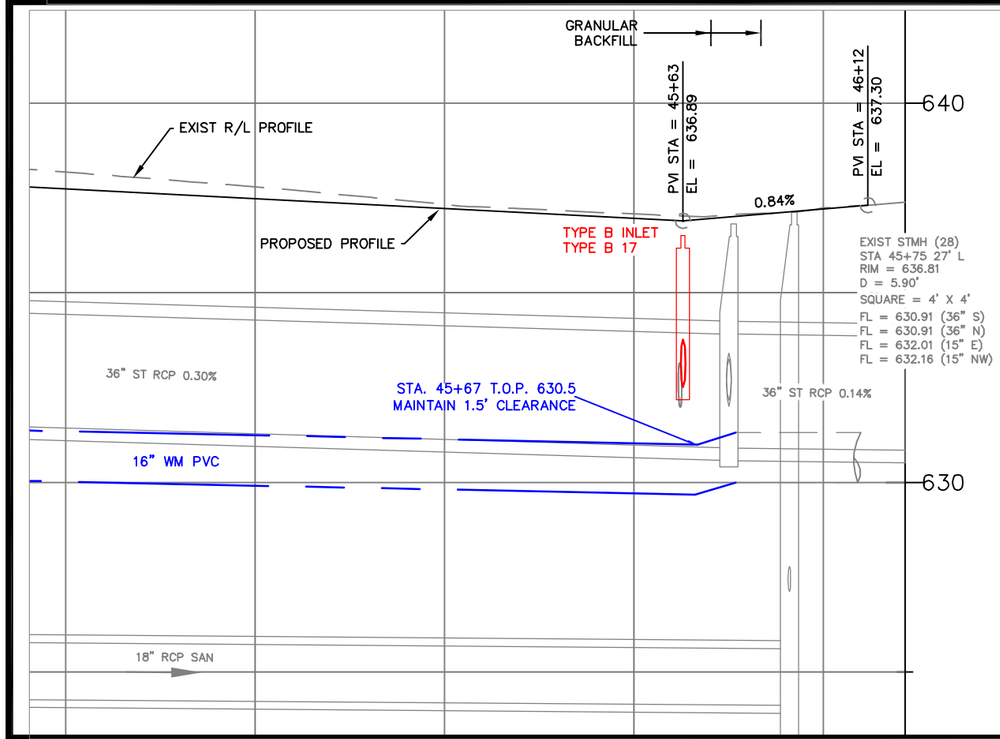
	BY	DATE
SURVEYED	BJK	11-2017
DRAWN	BJK	11-2018
DESIGNED	BJK	01-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES NO.	DATE	BY	REMARKS

PAGE NO. 13







NOTES:

1. SAWCUT ALL MATCH POINTS AT DRIVEWAYS.
2. REMOVE AND RELAY EXIST STORM LEADS.
3. MAINTAIN ACCESS TO MAIL BOXES AND RELOCATE AT COMPLETION OF PROJECT.
4. VERIFY SIZE AND MATERIAL OF SANITARY SEWER LATERALS PRIOR TO START OF WATER MAIN WORK.
5. VERIFY SIZE OF ALL WATER SERVICES BEFORE START OF WATER MAIN WORK.
6. (TBA) = TAP BREAK IN ACTIVE

5'
0

0 20' 40'

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

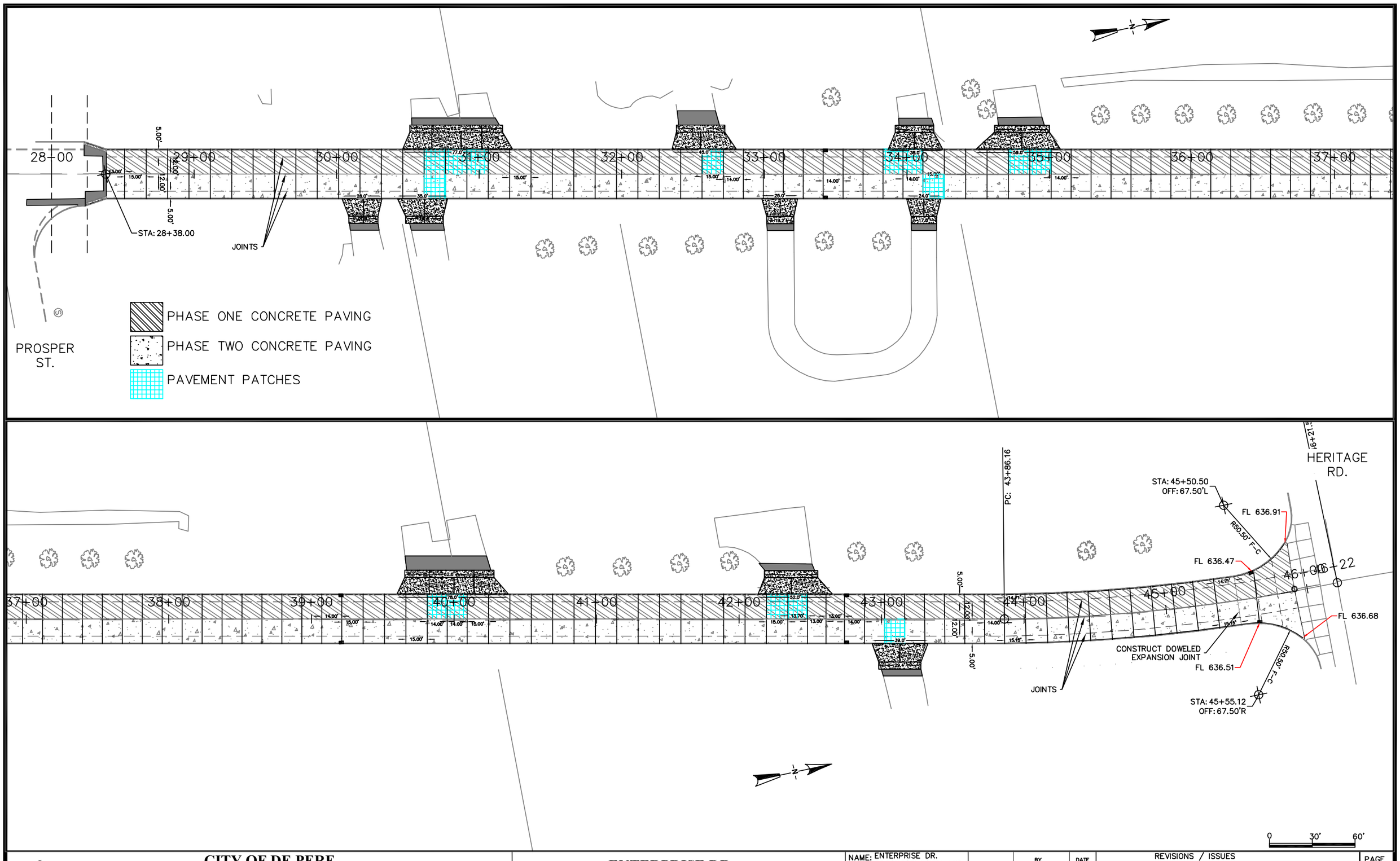
ENTERPRISE DRIVE
AT HERITAGE RD

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	BJK	11-2017
DRAWN	BJK	11-2017
DESIGNED	BJK	01-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

SEE PAGE 14



CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DR
CONCRETE PAVEMENT STAGING

NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

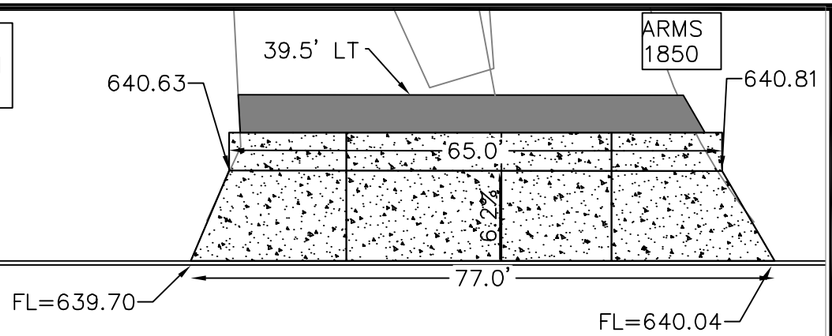
	BY	DATE
SURVEYED	BK	10-2017
DRAWN	BK	01-2018
DESIGNED	BK	01-2018
CHECKED	CK	01-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

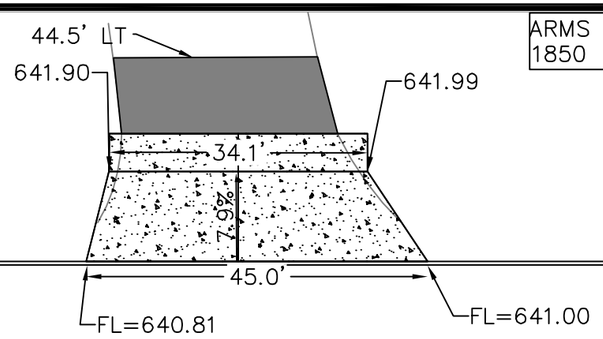
SEE PAGE 14

CITY WIDE INSULATION 1860

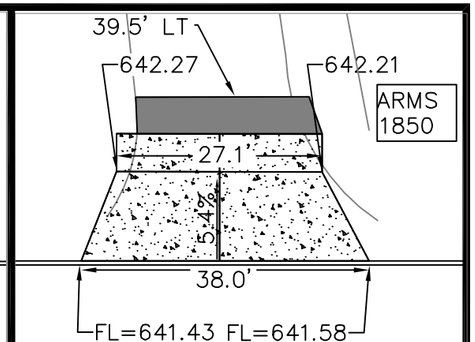
ARMS 1850

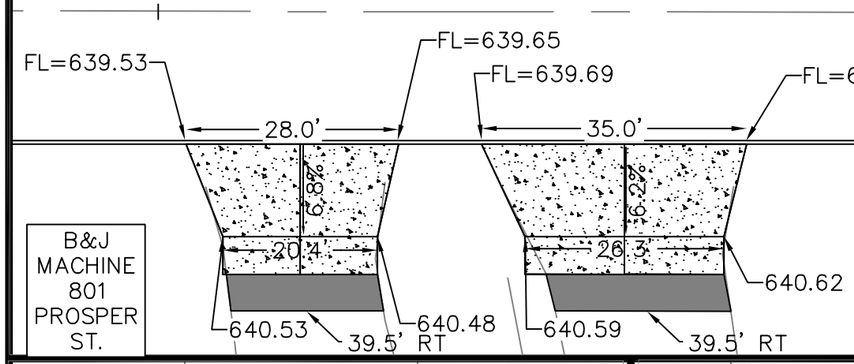


ARMS 1850



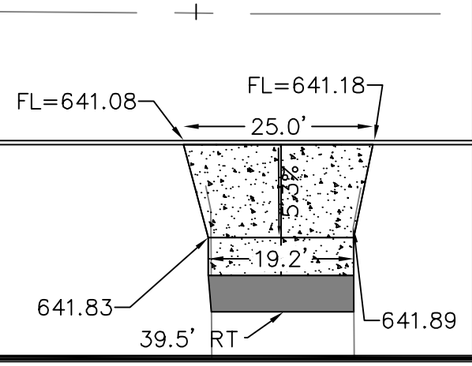
ARMS 1850



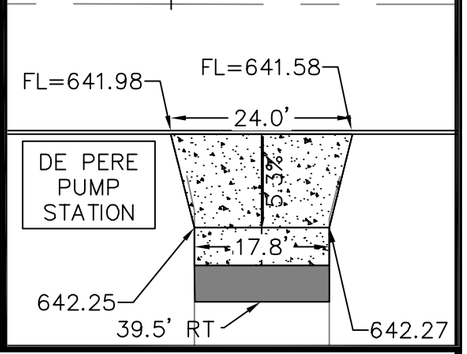


B&J MACHINE 801 PROSPER ST.

I. P. C. 1855

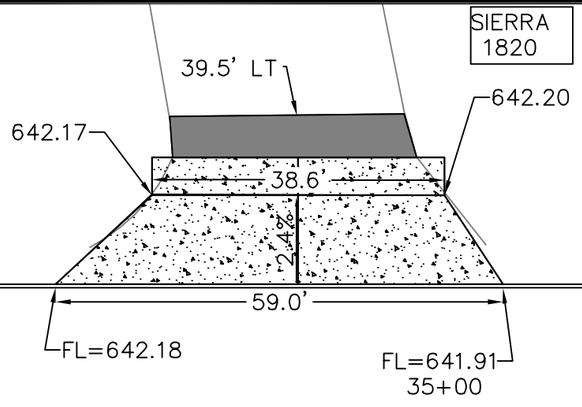


DE PERE PUMP STATION



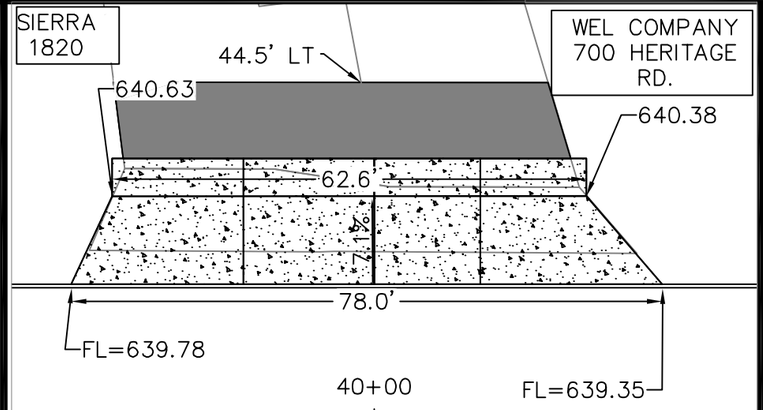
DE PERE PUMP STATION

SIERRA 1820

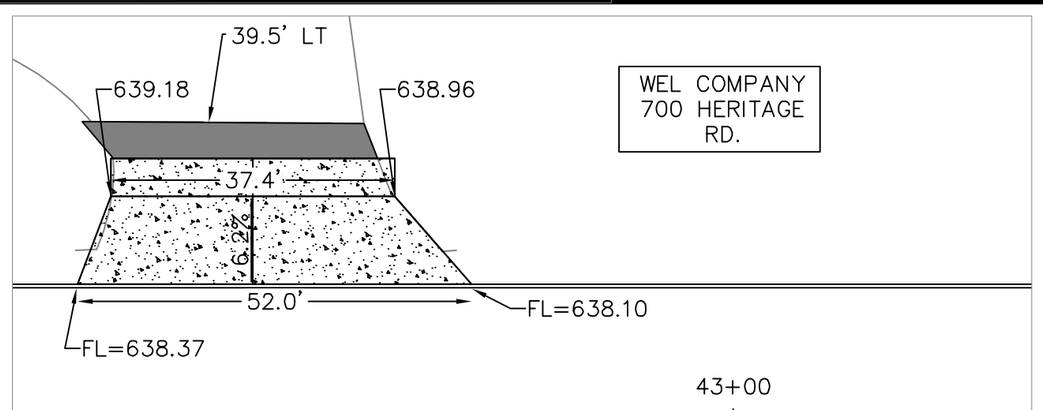


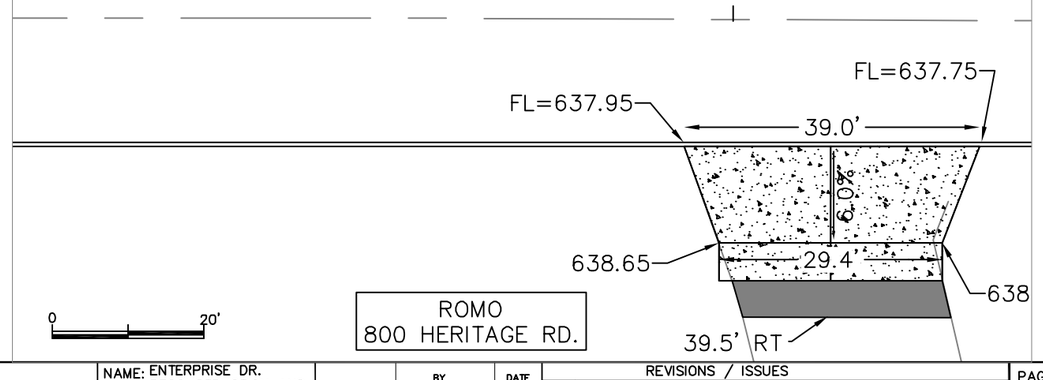
SIERRA 1820

WEL COMPANY 700 HERITAGE RD.



WEL COMPANY 700 HERITAGE RD.





0 20'

ROMO 800 HERITAGE RD.

CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DR
DRIVEWAY GRADES

NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BK	10-2017
DRAWN	BK	01-2018
DESIGNED	BK	01-2018
CHECKED	CK	01-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 16

SEE PAGE 14

CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DR
PAVEMENT MARKING

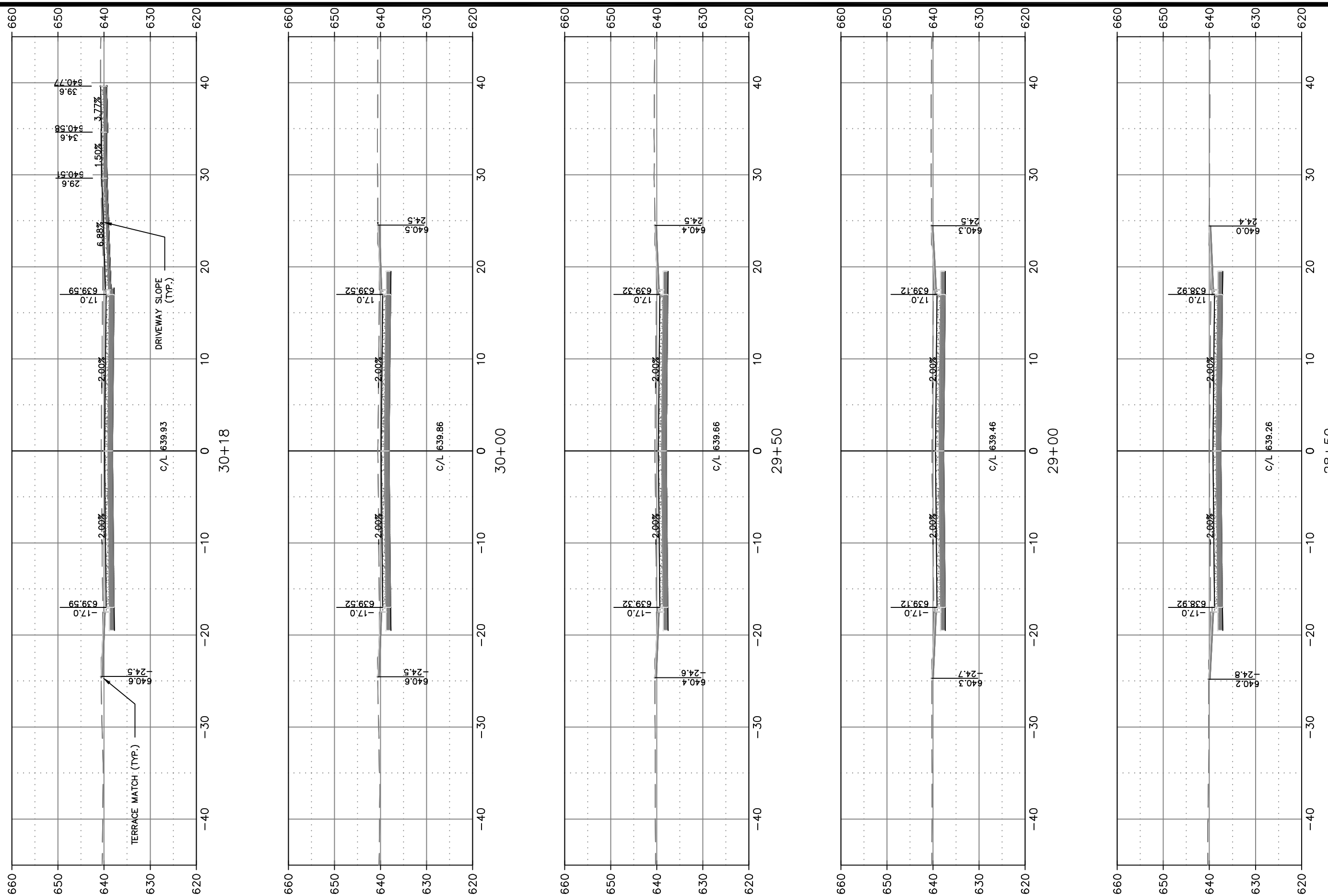
NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BK	10-2017
DRAWN	BK	01-2018
DESIGNED	BK	01-2018
CHECKED	CK	01-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 17



CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE RECONSTRUCTION

CROSS SECTIONS

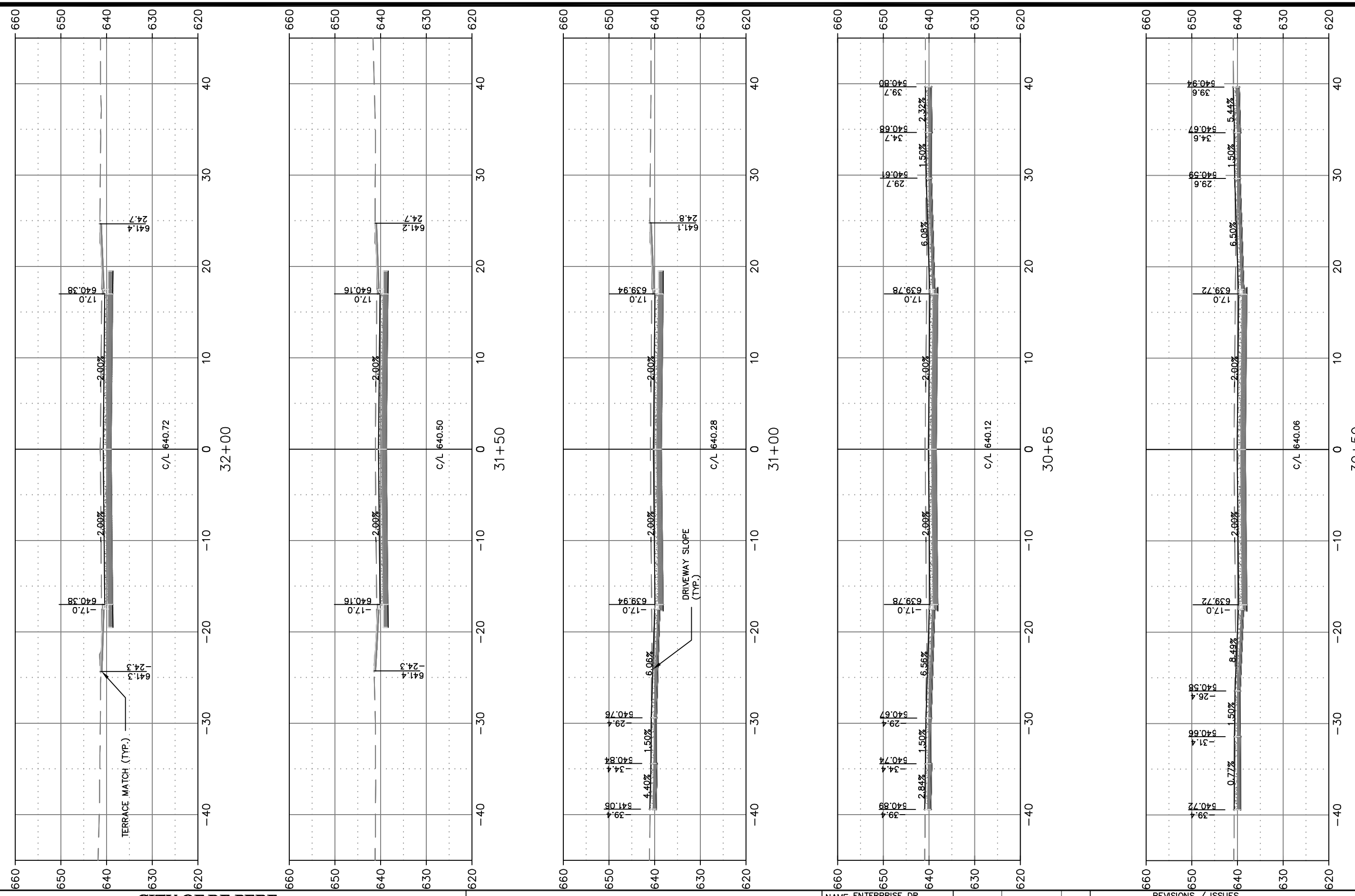
NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BK	12-2017
DRAWN	BK	01-2018
DESIGNED	BK	02-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 18



CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE RECONSTRUCTION

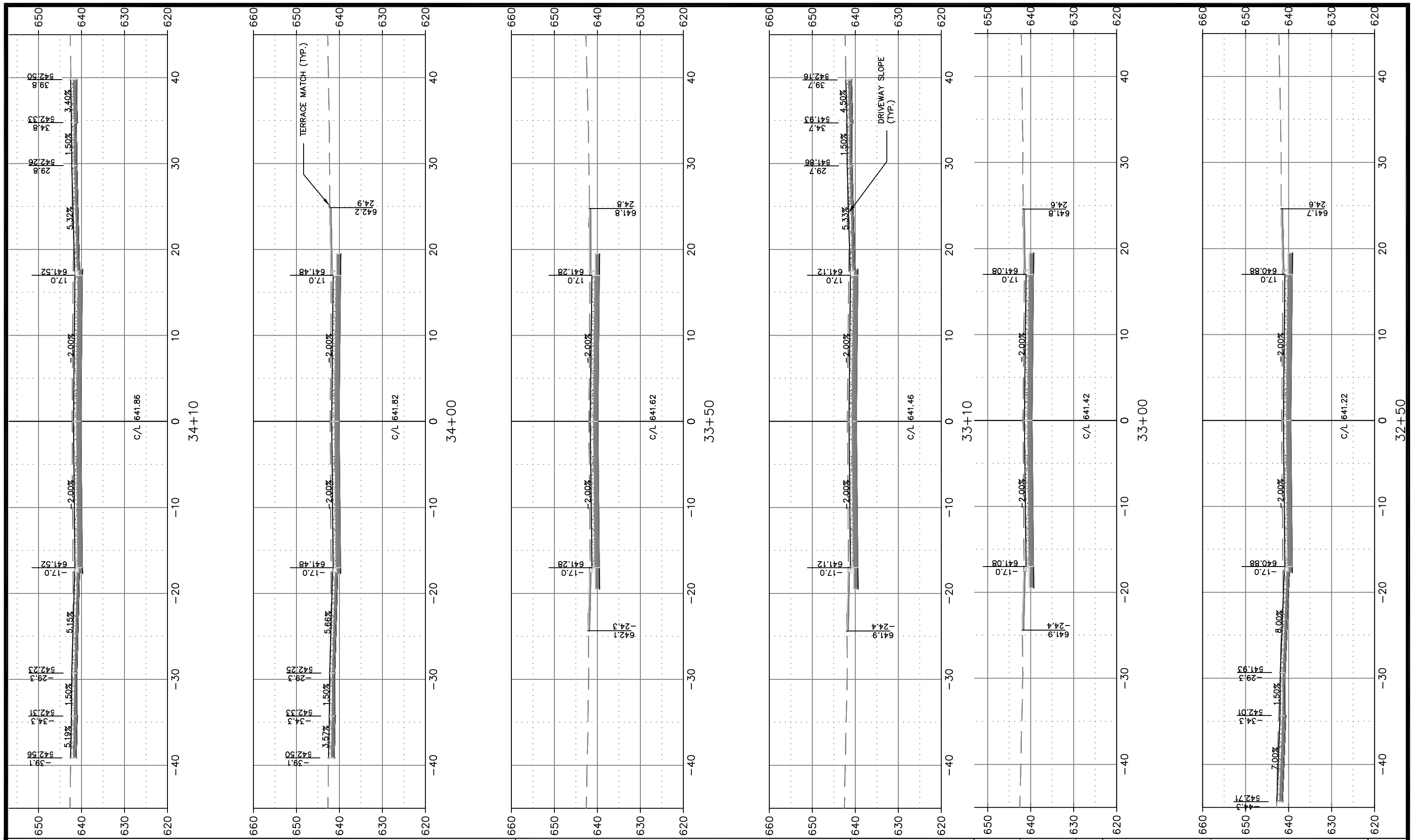
CROSS SECTIONS

NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BK	12-2017
DRAWN	BK	01-2018
DESIGNED	BK	02-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS



CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE RECONSTRUCTION

CROSS SECTIONS

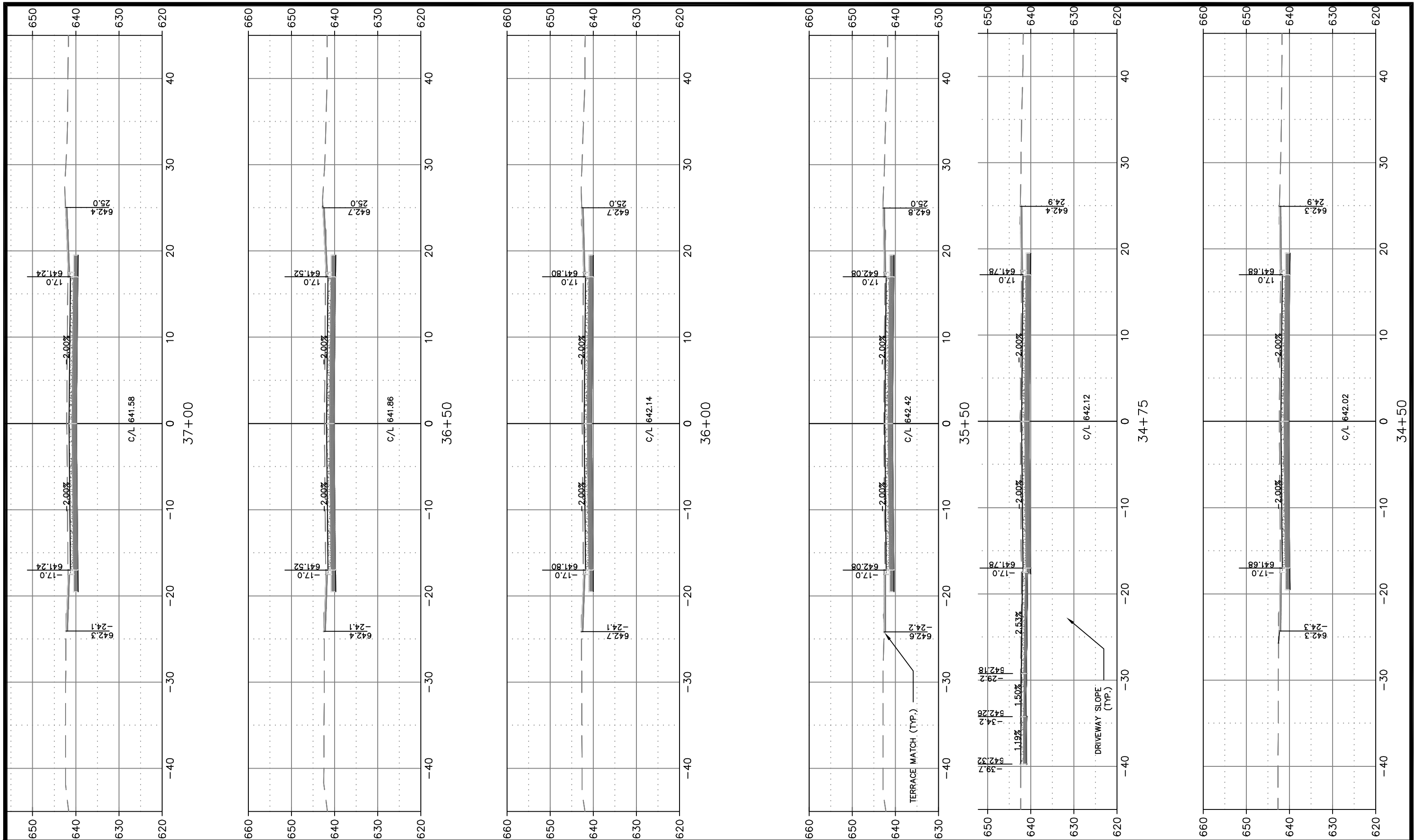
NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BK	12-2017
DRAWN	BK	01-2018
DESIGNED	BK	02-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 20



CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE RECONSTRUCTION

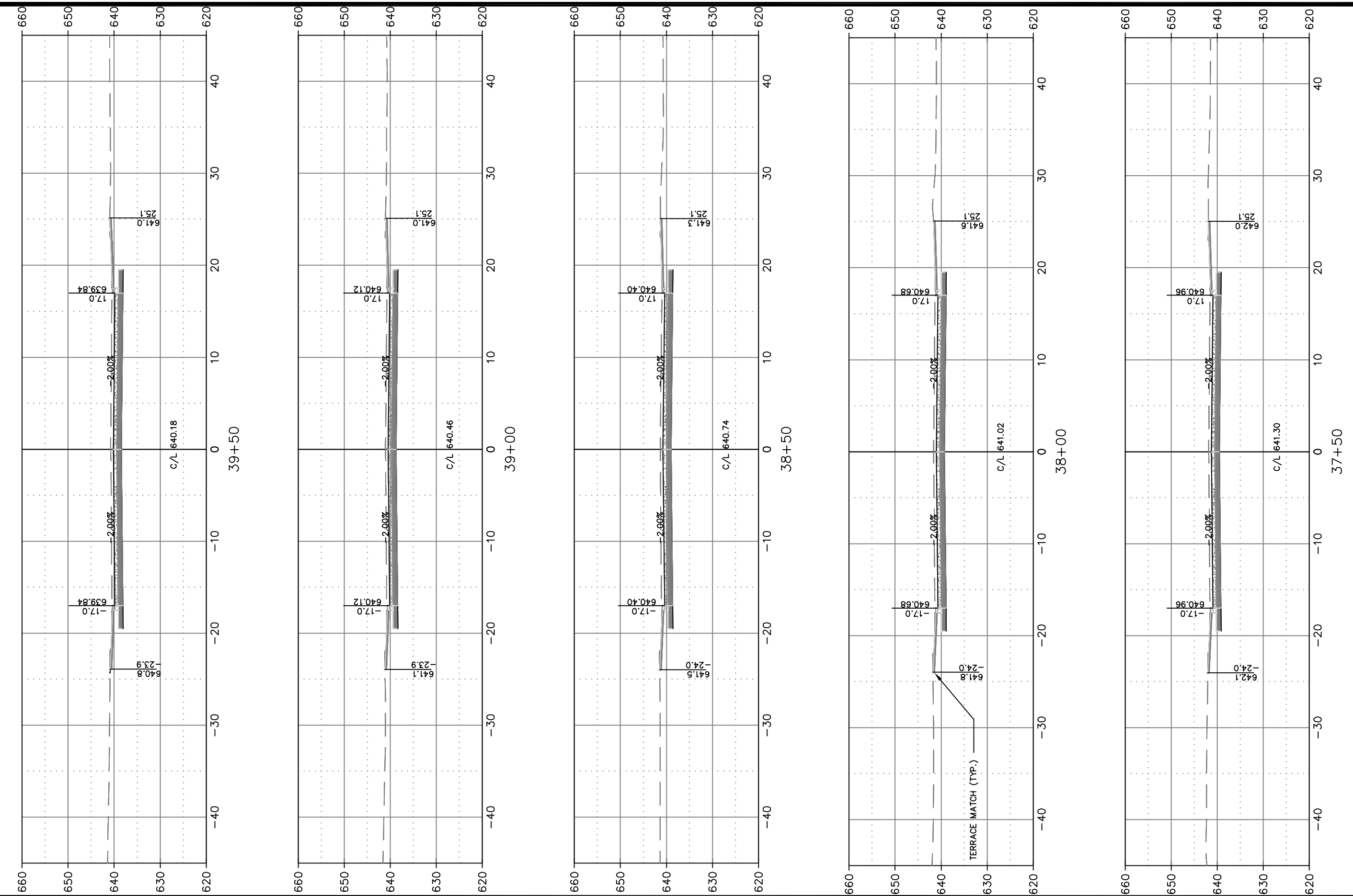
CROSS SECTIONS

NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BK	12-2017
DRAWN	BK	01-2018
DESIGNED	BK	02-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS



CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115

OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE RECONSTRUCTION

CROSS SECTIONS

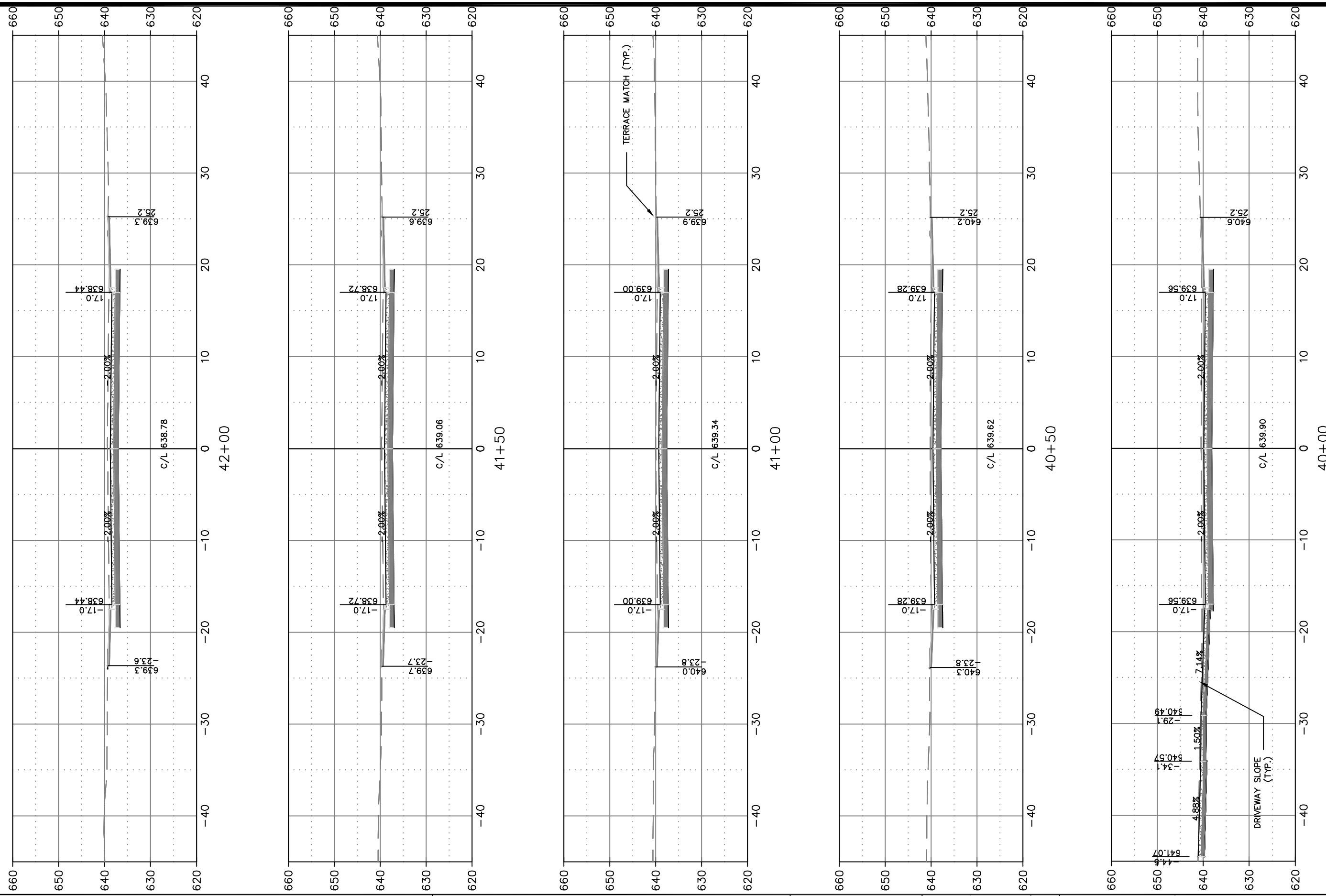
NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BK	12-2017
DRAWN	BK	01-2018
DESIGNED	BK	02-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 22



CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE RECONSTRUCTION

CROSS SECTIONS

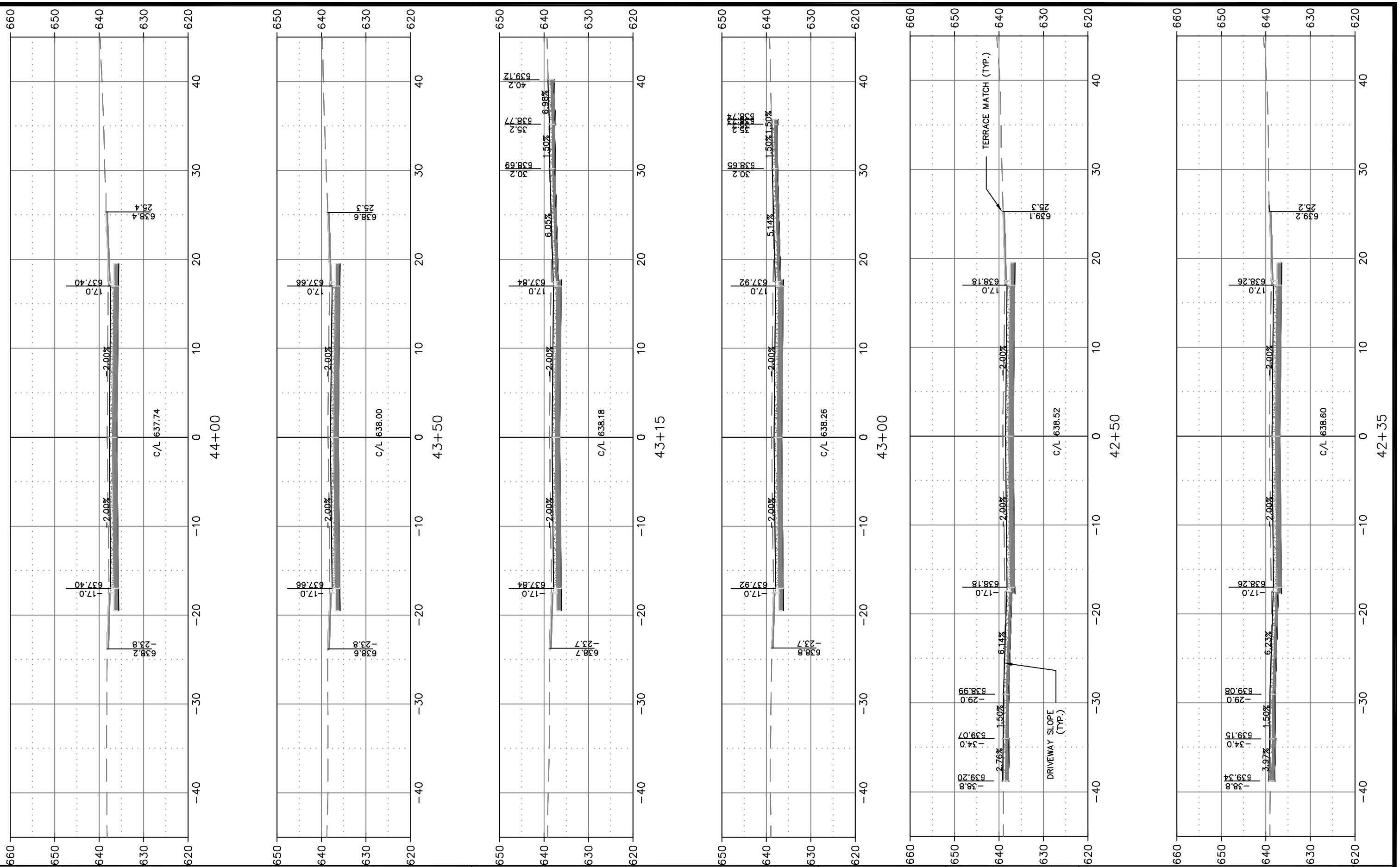
NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BK	12-2017
DRAWN	BK	01-2018
DESIGNED	BK	02-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 23



CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115

OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE RECONSTRUCTION

CROSS SECTIONS

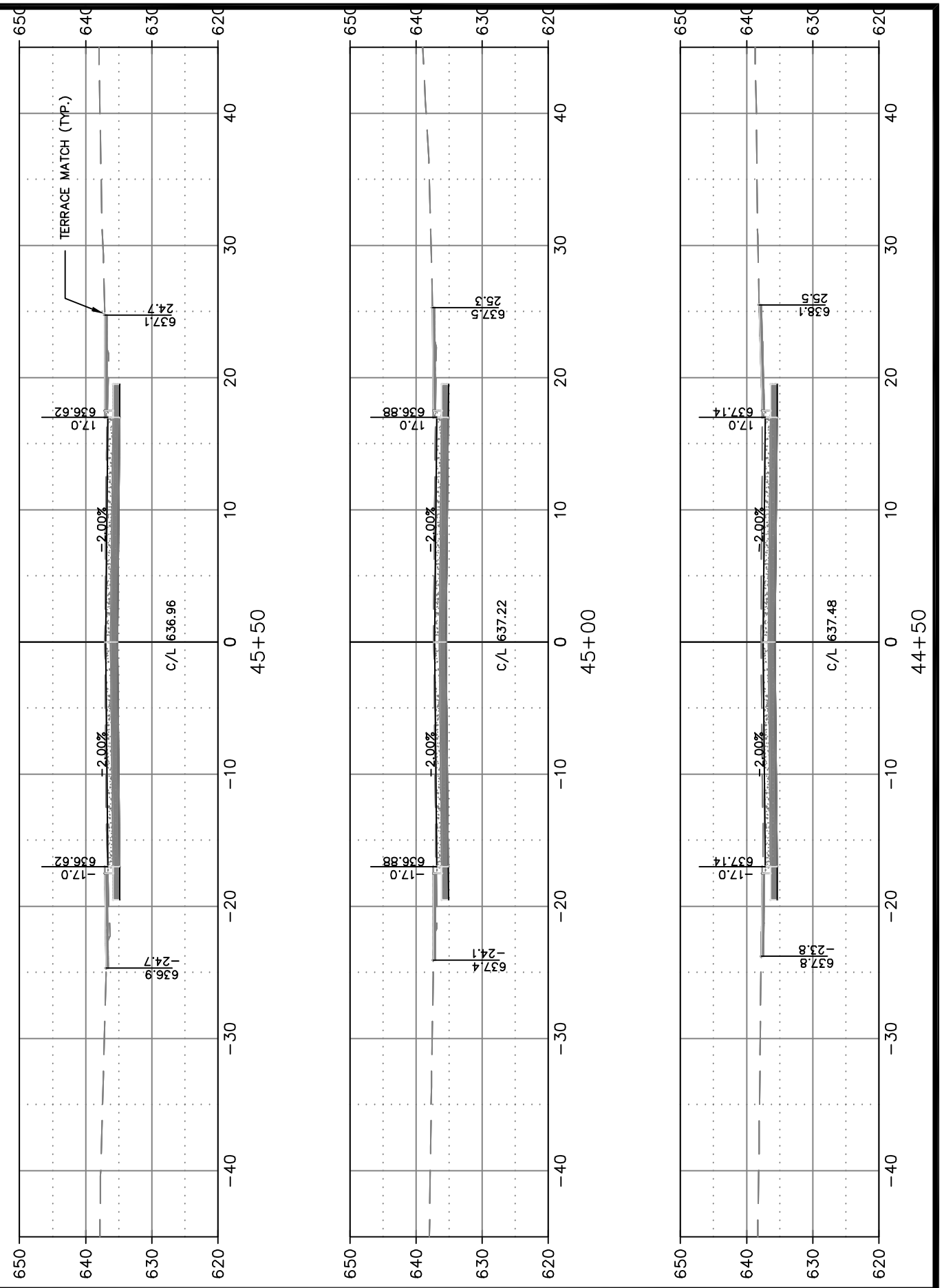
NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BK	12-2017
DRAWN	BK	01-2018
DESIGNED	BK	02-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 24



CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE RECONSTRUCTION

CROSS SECTIONS

NAME: ENTERPRISE DR. RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED	BK	12-2017
DRAWN	BK	01-2018
DESIGNED	BK	02-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 25

CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE

ROAD CLOSURE TRAFFIC CONTROL ROCKLAND RD

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-11

	BY	DATE
SURVEYED		
DRAWN	BJK	01-2018
DESIGNED	BJK	01-2018
CHECKED	CK	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 26

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

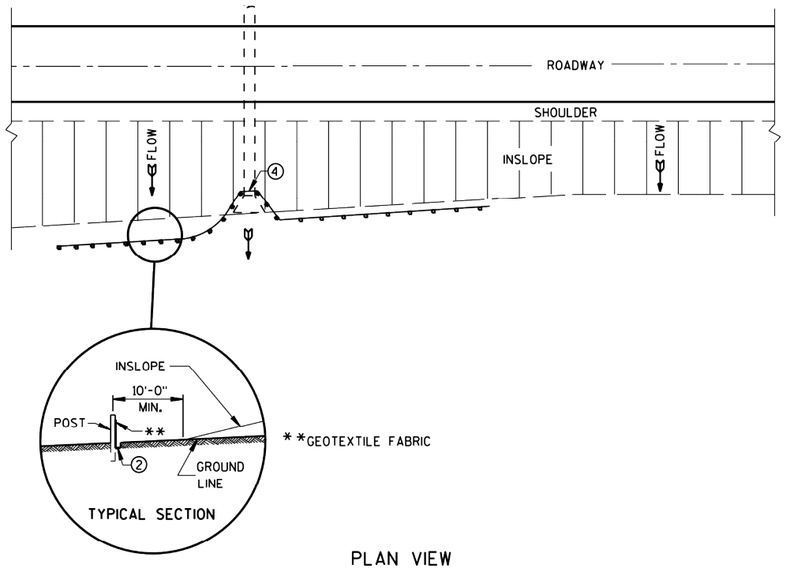
ENTERPRISE DRIVE
DETOUR ROUTE TRAFFIC CONTROL NORTH BOUND TRAFFIC

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	BJK	11-2017
DRAWN	BJK	11-2017
DESIGNED		
CHECKED		

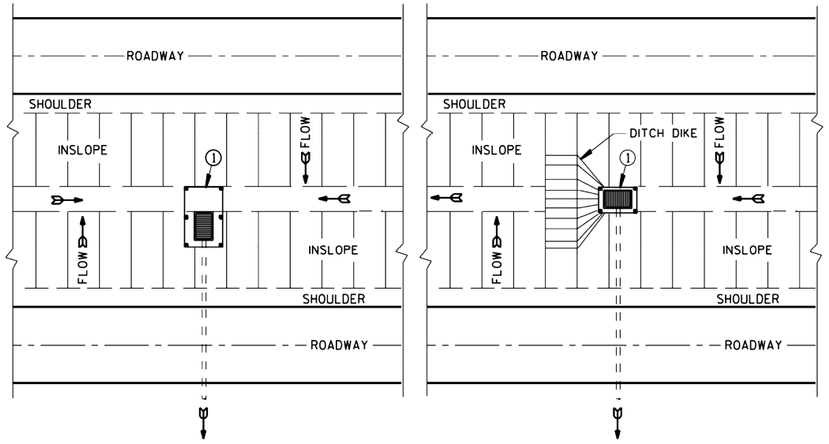
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 27



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



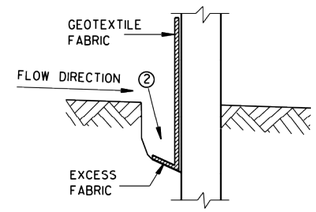
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

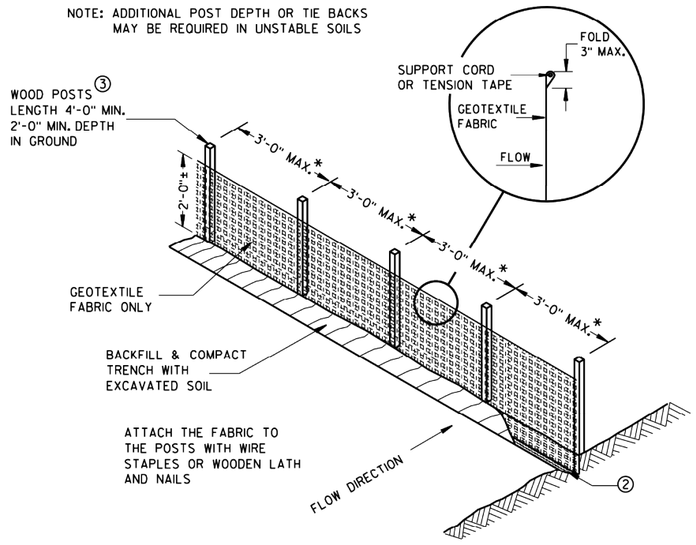
GENERAL NOTES

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

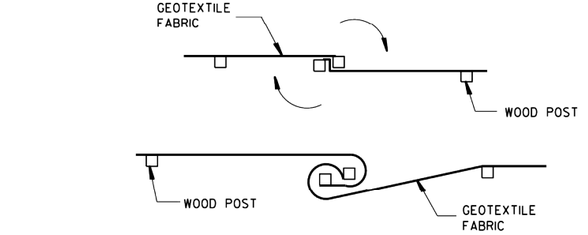
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



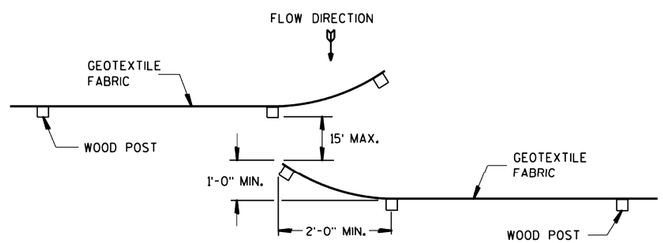
TRENCH DETAIL



SILT FENCE

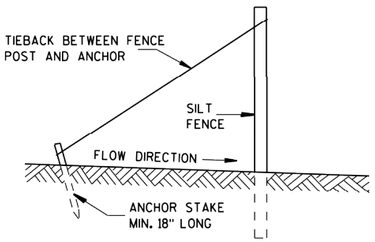


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 DATE
/S/ Beth Connestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

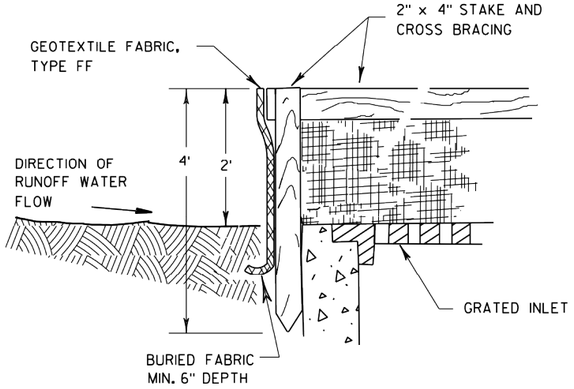
6

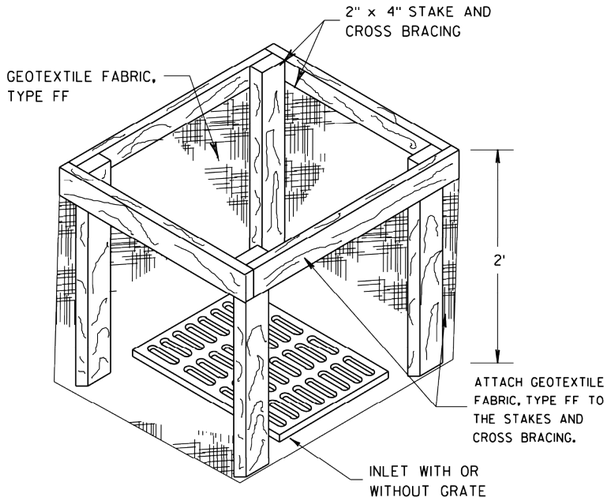
S.D.D. 8 E 9-6

6

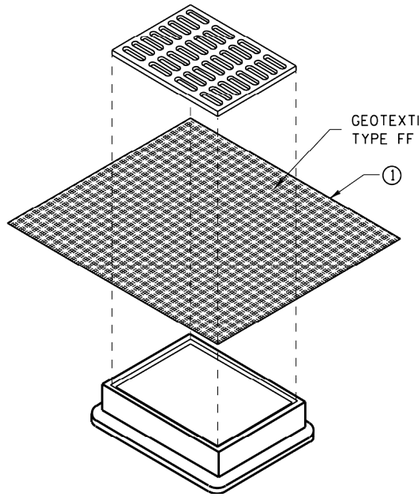
S.D.D. 8 E 9-6

8E10: Inlet Protection Type A, B, C and D



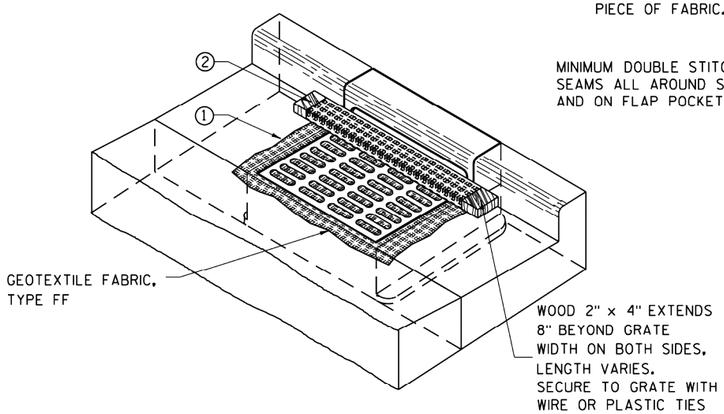


INLET PROTECTION, TYPE A

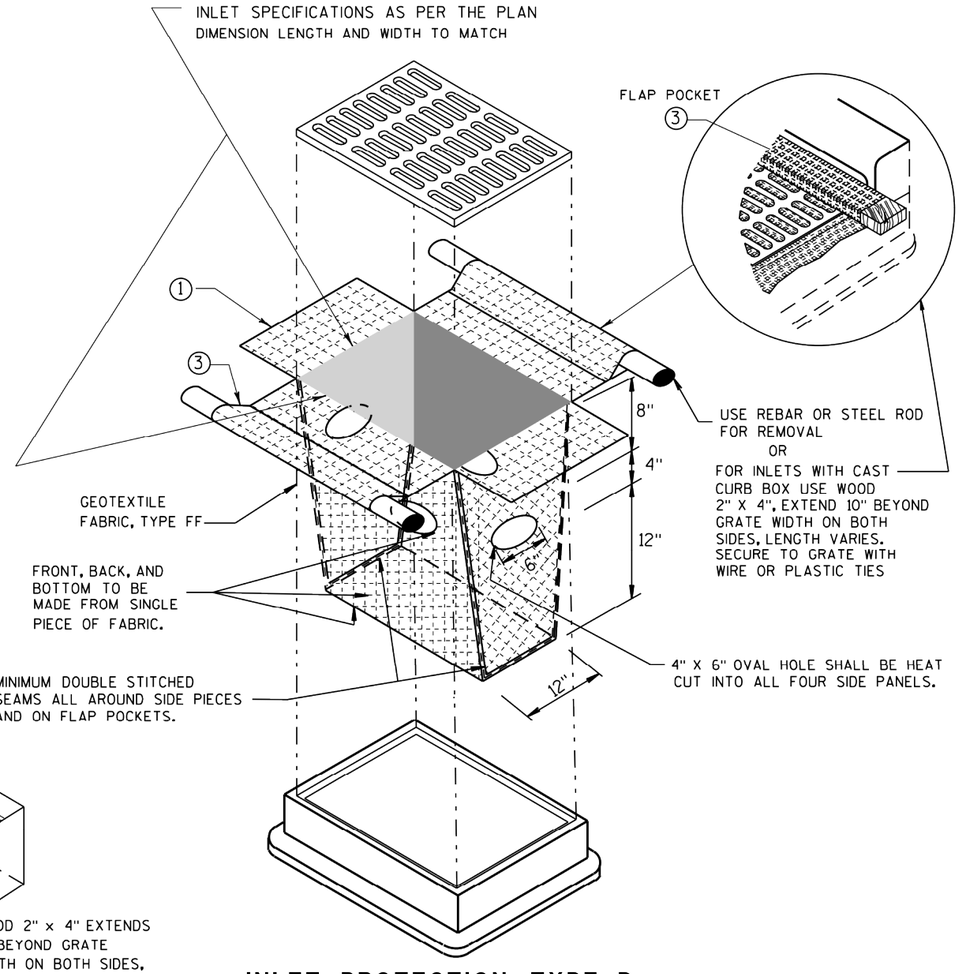


INLET PROTECTION, TYPE B (WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

TYPE C INLET EQUALS CITY OF DE PERE TYPE B INLET

STANDARD DETAIL MODIFIED

INLET PROTECTION TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10-16-02 — DATE
/S/ Beth Connestra — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 10-2

6

S.D.D. 8 E 10-2

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

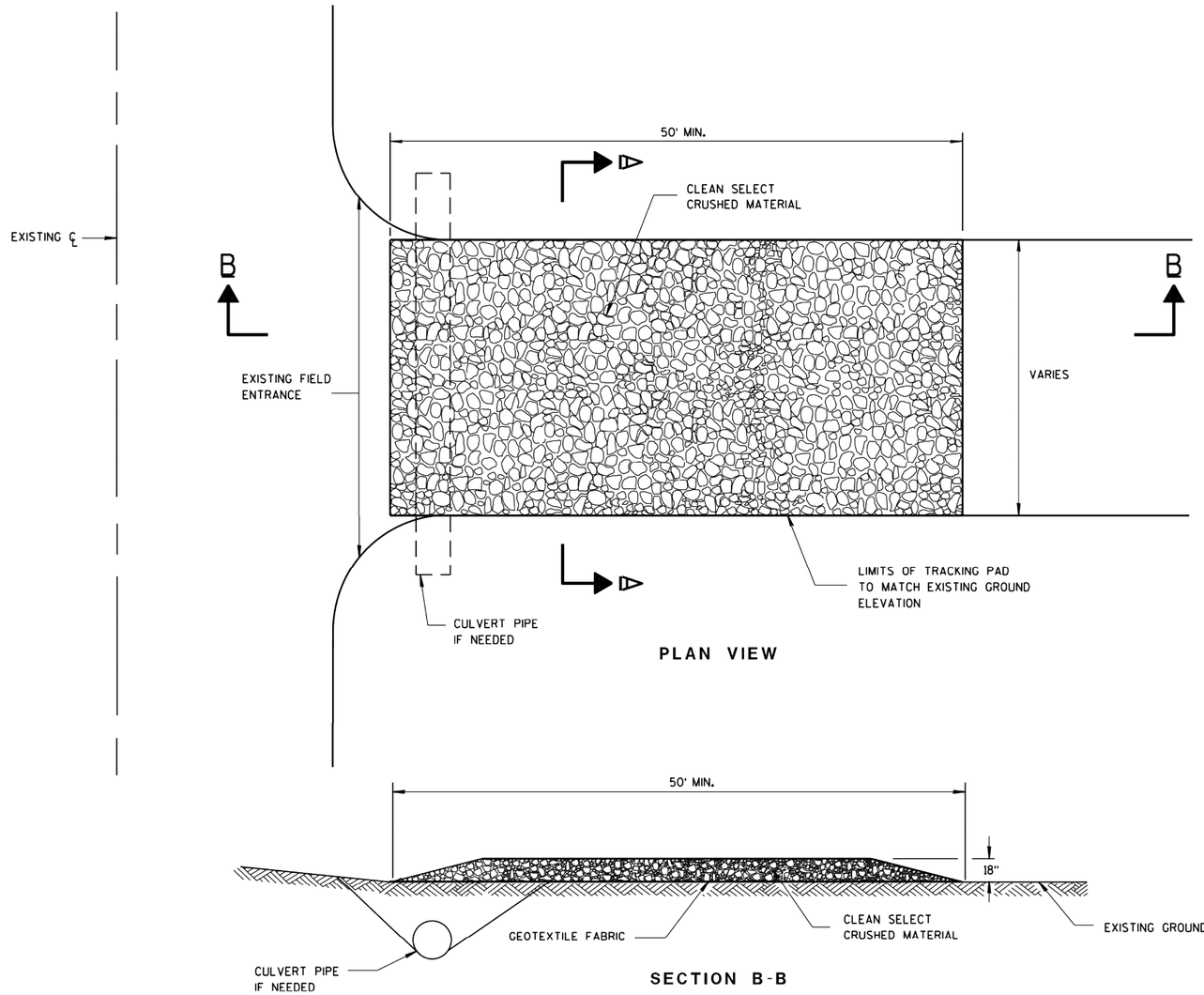
ENTERPRISE DRIVE
CONSTRUCTION DETAILS

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

REVISIONS / ISSUES NO.	DATE	BY	REMARKS

8E14: Tracking Pad



PLAN VIEW

SECTION B-B

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. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

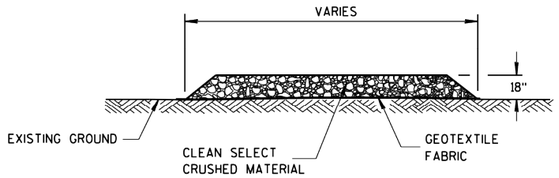
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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.

CULVERT 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 ITEM.



SECTION A-A

TRACKING PAD

TRACKING PAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3-24-2011 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 14-1

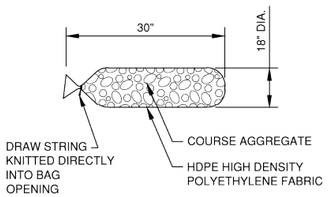
CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE
CONSTRUCTION DETAILS

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS



FILTER BAG DETAIL

COURSE AGGREGATE INFORMATION

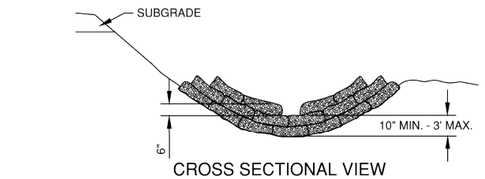
SIEVE SIZE	SIZE NO. AASHTO No. 67 (1)
2 INCH (50 mm)	-
1 1/2 INCH (37.5mm)	-
1 INCH (25.0 mm)	100
3/4 INCH (19.0mm)	90-100
3/8 INCH (9.5mm)	20-55
No. 4 (4.75mm)	0-10
No. 8 (2.36mm)	0-5

(1) SIZE No. ACCORDING TO AASHTO M 43

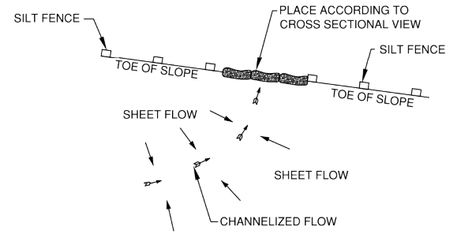
NOTES:

18" X 30" ROCK FILLED FILTER BAG SHALL BE COMPRISED OF THE FOLLOWING:
HDPE HIGH DENSITY POLYETHYLENE
HDPE HIGH DENSITY POLYETHYLENE DRAW STRING KNITTED DIRECTLY INTO BAG OPENING.
80% FABRIC CLOSURE WITH APPARENT OPENING SIZE NO LARGER THAN 1/8 " X 1/8 "
ROLLED SEAM USING A MINIMUM OF 480 DENIER POLYESTER SEWING YARN FOR STRENGTH AND DURABILITY.

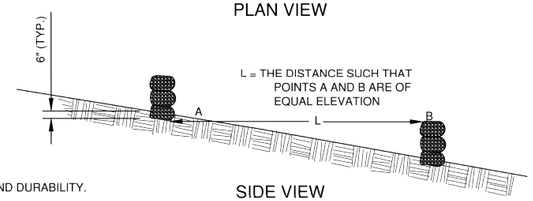
USE WELL GRADED COURSE AGGREGATE CONFORMING TO THE FOLLOWING GRADATION REQUIREMENTS



CROSS SECTIONAL VIEW



PLAN VIEW



SIDE VIEW

DITCH CHECK DETAIL

ROCK FILLED EROSION CONTROL BAGS
TYPE B

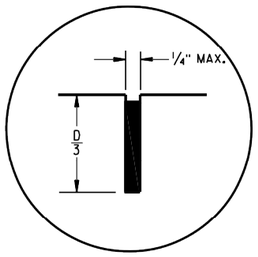
CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE
CONSTRUCTION DETAILS

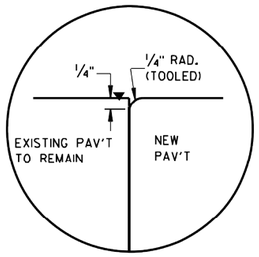
NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

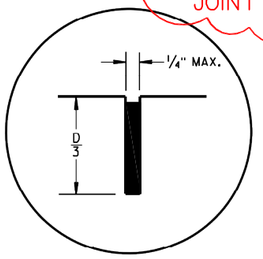


C1

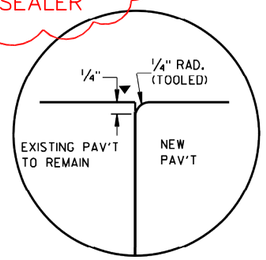


C2

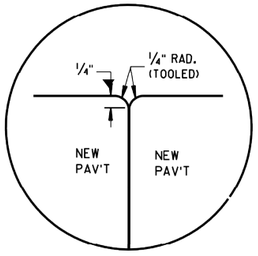
TRANSVERSE JOINTS
HOT POURED ELASTIC JOINT SEALER



L1



L2



L3

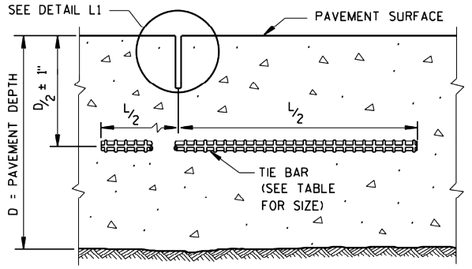
LONGITUDINAL JOINTS
HOT POURED ELASTIC JOINT SEALER

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4 *	30"	24"**

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



SECTION C-C
SAWED LONGITUDINAL JOINT

GENERAL NOTES

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

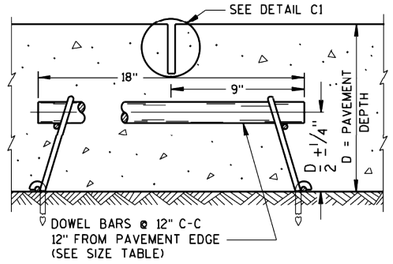
CONCRETE PAVEMENT REPAIRS OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

DO NOT SEAL OR FILL JOINTS.

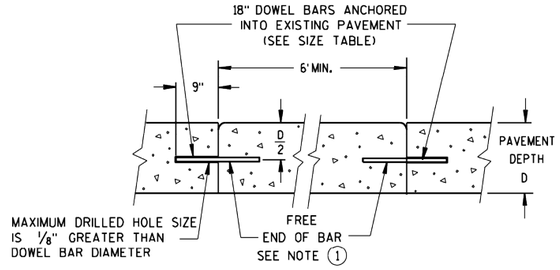
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

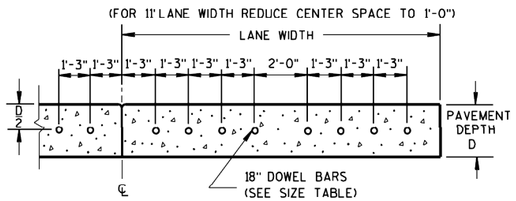
(1) APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



SECTION F-F
CONTRACTION JOINT



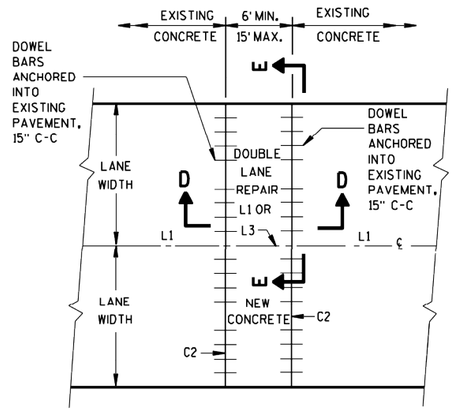
SECTION D-D



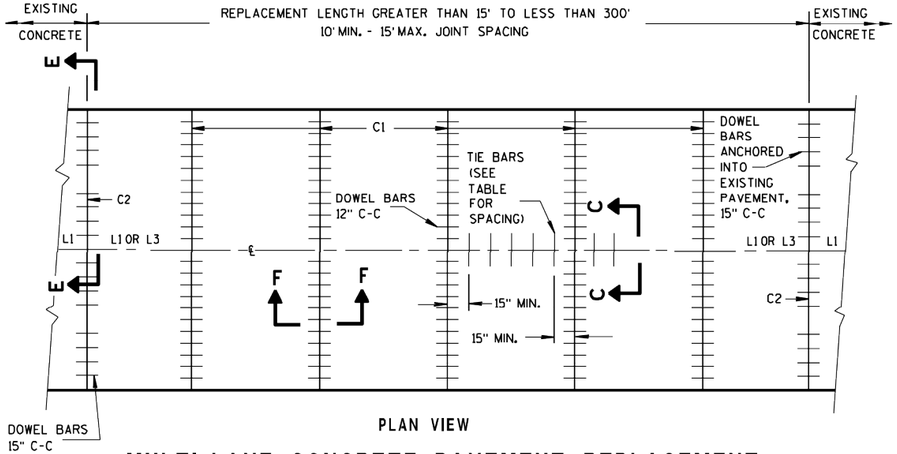
SECTION E-E
DRILLED DOWEL BAR CONSTRUCTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	DRILLED DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6",6 ½"	NONE	NONE	12'
7",7 ½"	1"	1"	14'
8",8 ½"	1 ¼"	1 ¼"	15'
9",9 ½"	1 ¼"	1 ¼"	15'
10" & ABOVE	1 ½"	1 ¼"	15'



PLAN VIEW
MULTI-LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW
MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

STANDARD DETAIL MODIFIED

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 13 C 9-14b

6

S.D.D. 13 C 9-14b

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE
CONSTRUCTION DETAILS

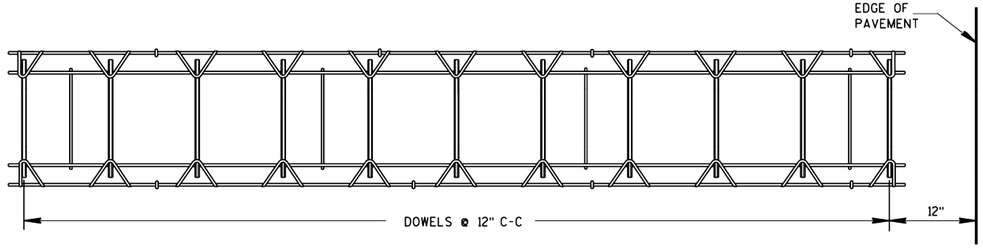
NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

REVISIONS / ISSUES NO.	DATE	BY	REMARKS

PAGE NO. 32

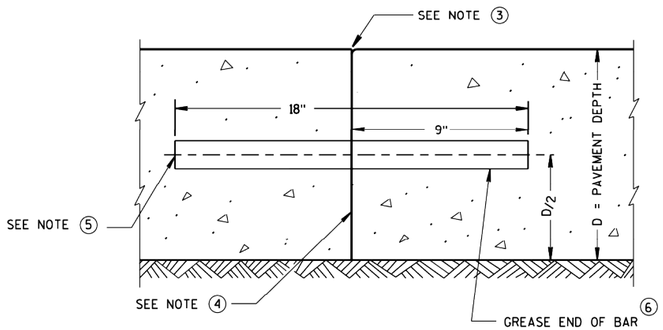
13C13: Urban Doweled Concrete Pavement



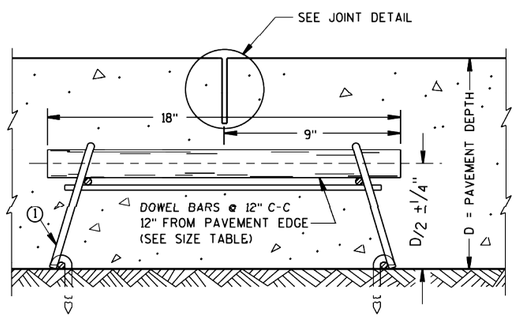
PLAN VIEW

SIDE VIEW

CONTRACTION JOINT DOWEL ASSEMBLY ①



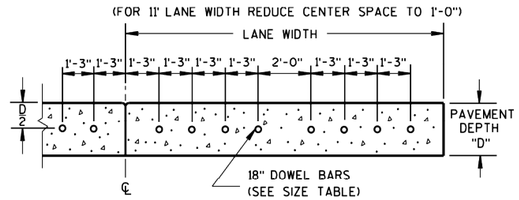
TRANSVERSE CONSTRUCTION JOINT



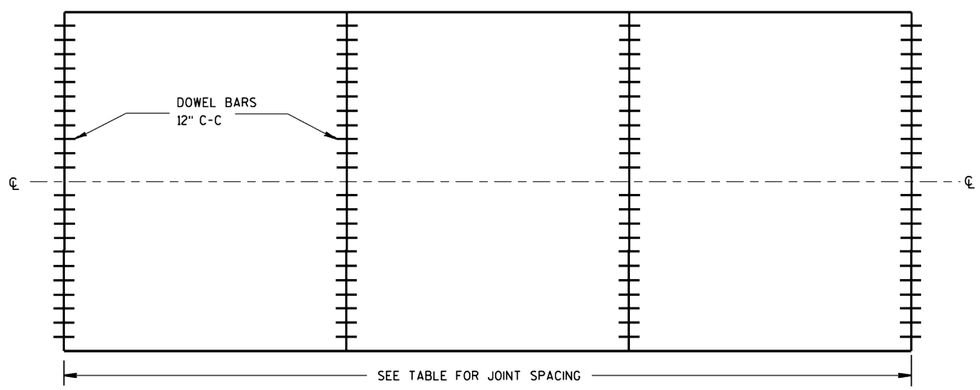
DOWELED CONTRACTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



CONTRACTION JOINT LOCATIONS

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

~~DO NOT SEAL OR FILL CONTRACTION JOINTS.~~

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE LONGITUDINAL JOINT AND THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.

② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

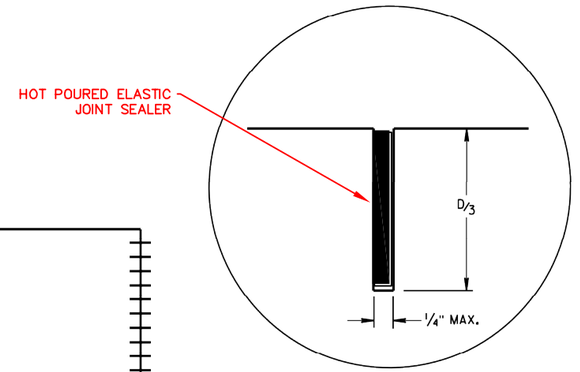
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A ¼-INCH RADIUS AT FORMED JOINTS.

④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.

⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS ⅛-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



JOINT DETAIL

STANDARD DETAIL MODIFIED

URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/3/2013 DATE
/S/ Deb Bischoff
PAVEMENT POLICY & DESIGN ENGINEER
FHWA

6

S.D.D. 13 C 13-8

S.D.D. 13 C 13-8

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

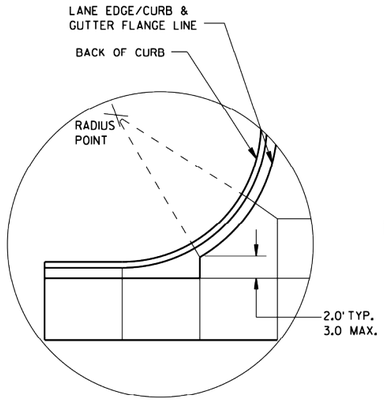
ENTERPRISE DRIVE
CONSTRUCTION DETAILS

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

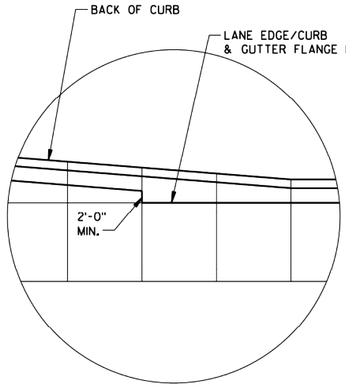
	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

REVISIONS / ISSUES NO.	DATE	BY	REMARKS

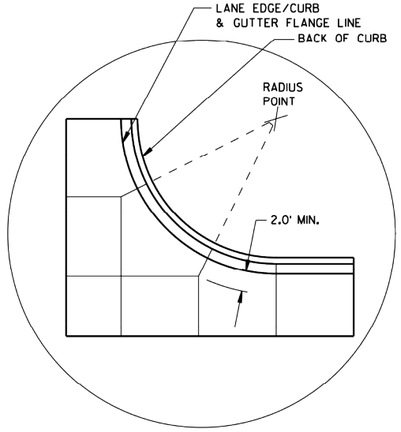
13C18 sheet a: Concrete Pavement Jointing



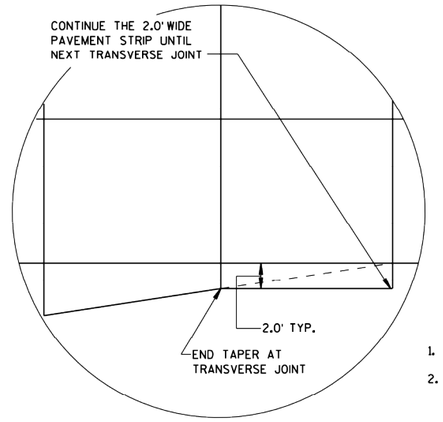
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.

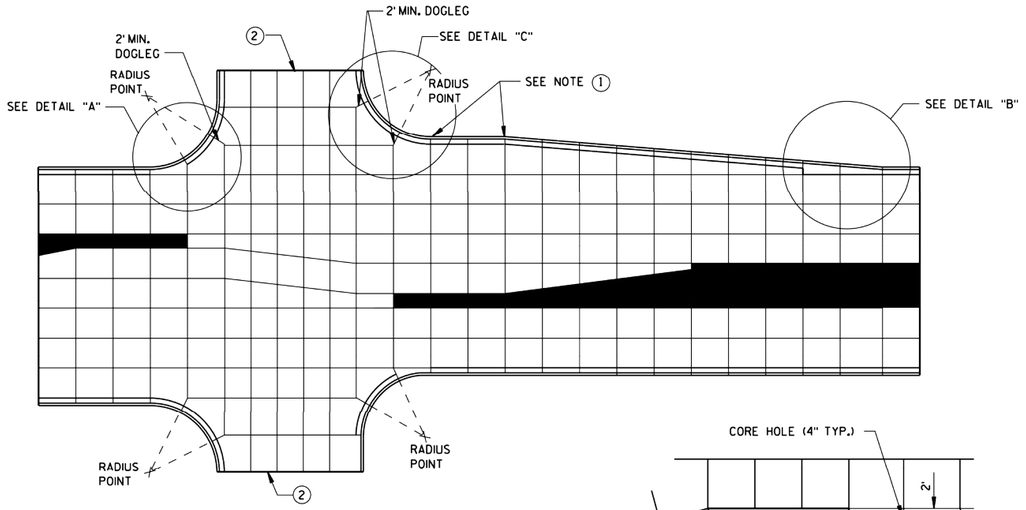
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.

AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

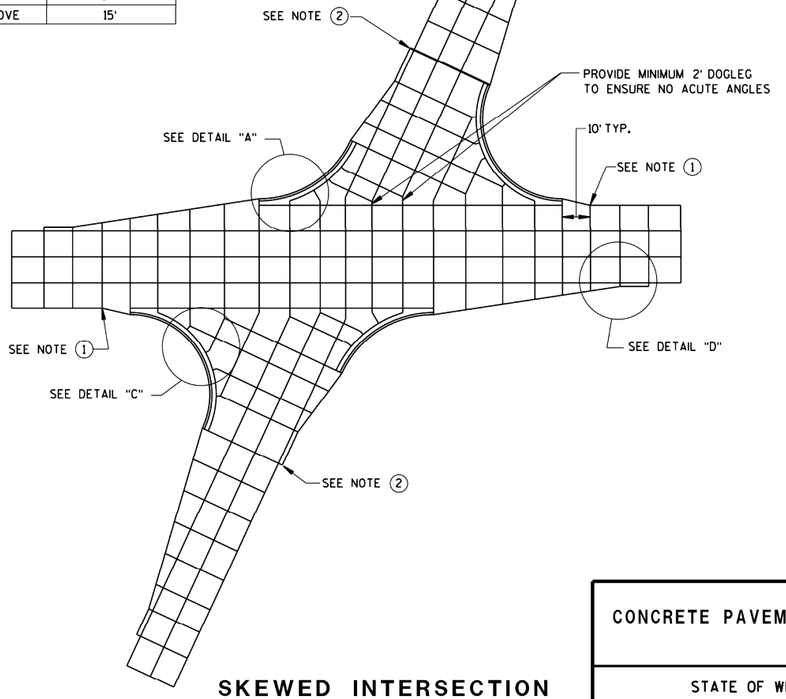
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



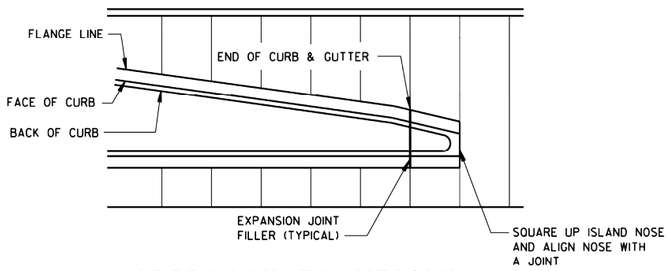
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

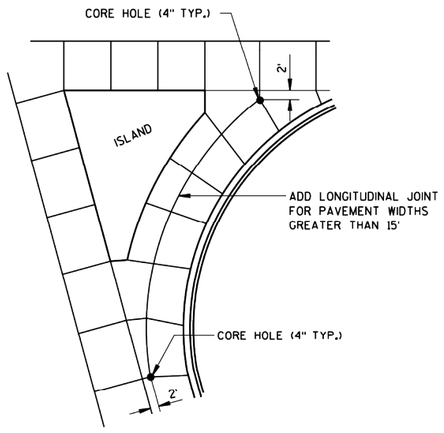
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'



SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 13 C 18-5a

6

S.D.D. 13 C 18-5a

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE
CONSTRUCTION DETAILS

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

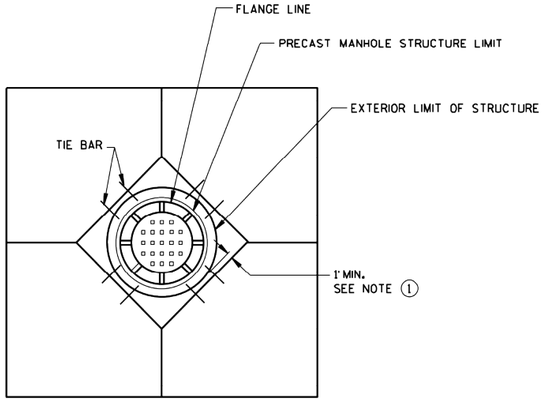
PROJECT # 18-11

	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

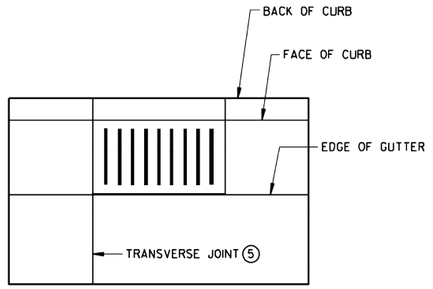
REVISIONS / ISSUES

NO.	DATE	BY	REMARKS

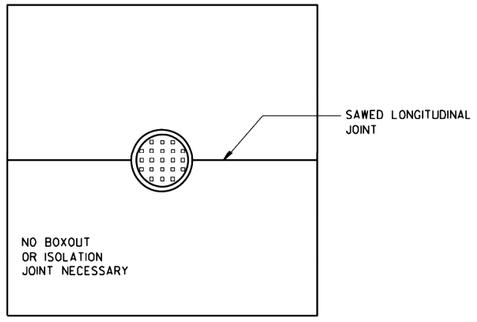
13C18 sheet d: Concrete Pavement Jointing at Utility Fixtures



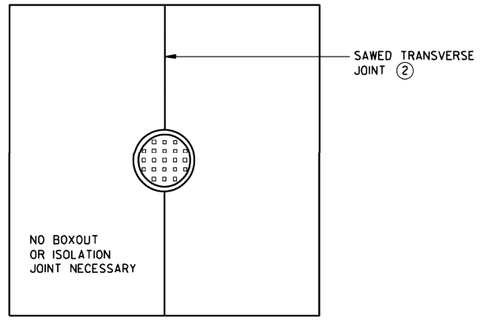
DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



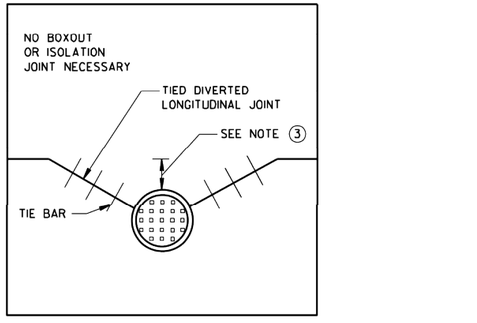
INLET WITH TRANSVERSE JOINT



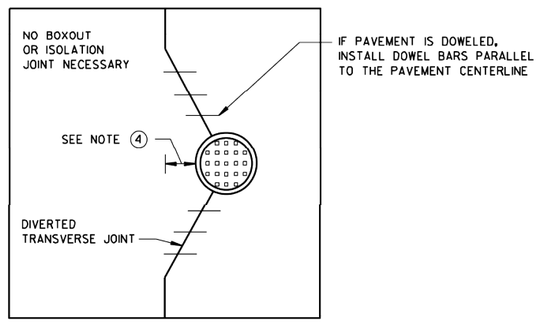
MANHOLE WITH LONGITUDINAL JOINT



MANHOLE WITH TRANSVERSE JOINT



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT

GENERAL NOTES

(1) USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1-FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.

(2) ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.

(3) IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDIAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.

(4) IF DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.

(5) ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.

6

S.D.D. 13 C 18-5d

CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

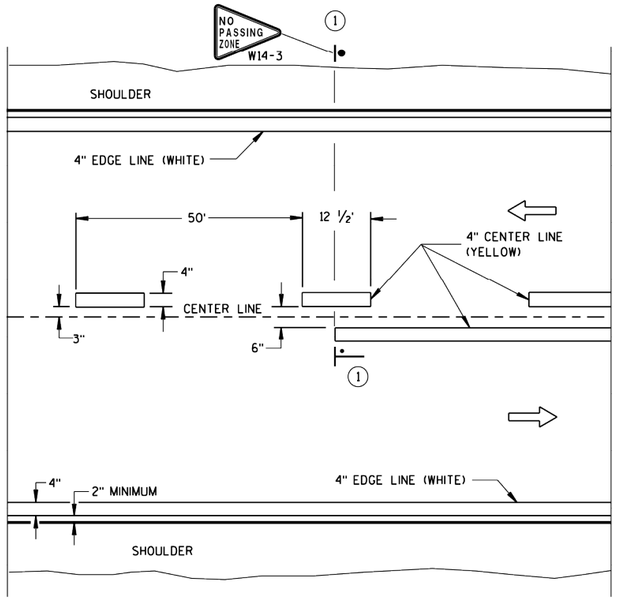
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2016 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPERVISOR
FHWA

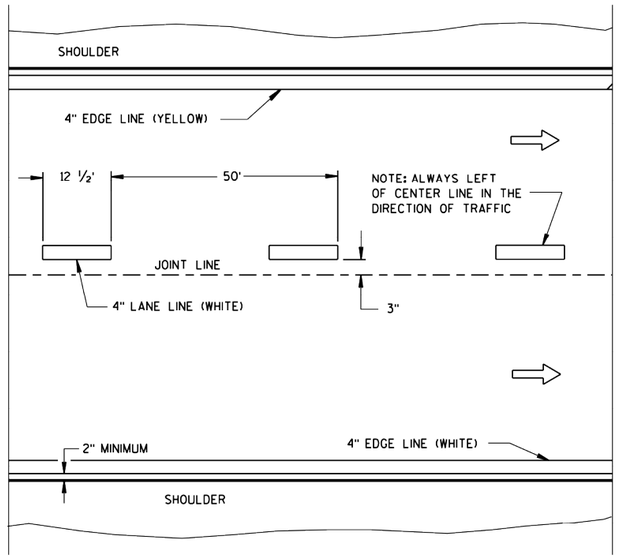
6

S.D.D. 13 C 18-5d

15C8 sheet a: Longitudinal Marking (Mainline)



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

(1) LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

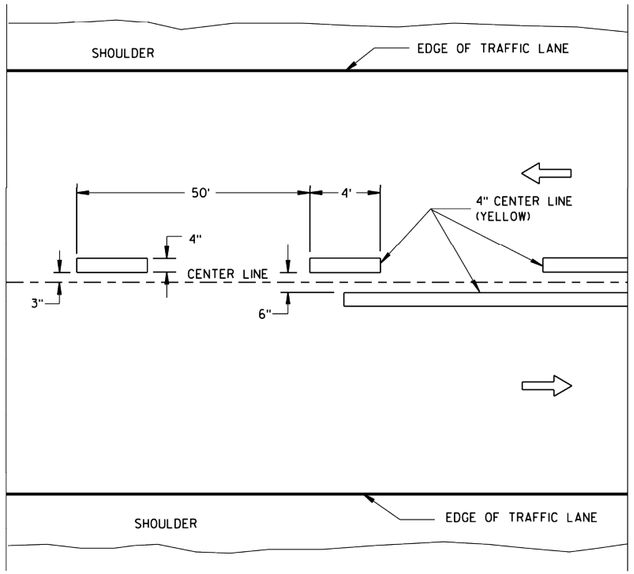
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

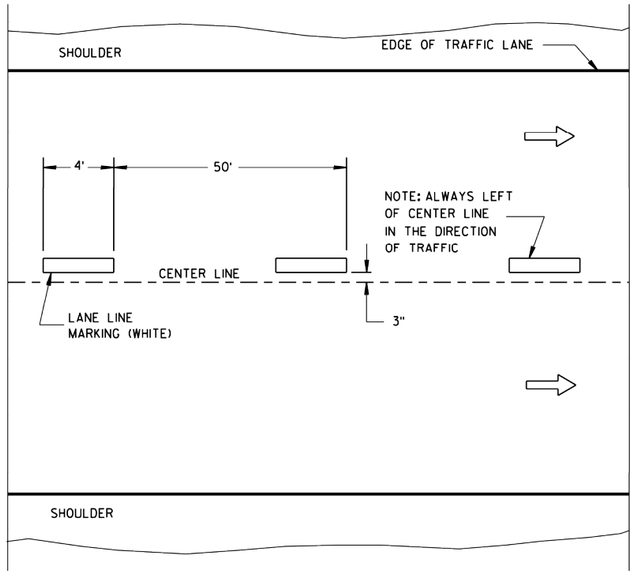
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED June 2017 (DATE) /S/ Matthew R. Rauch STATE SIGNING AND MARKING ENGINEER FHWA

6

S.D.D. 15 C 8-18a

6

S.D.D. 15 C 8-18a

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

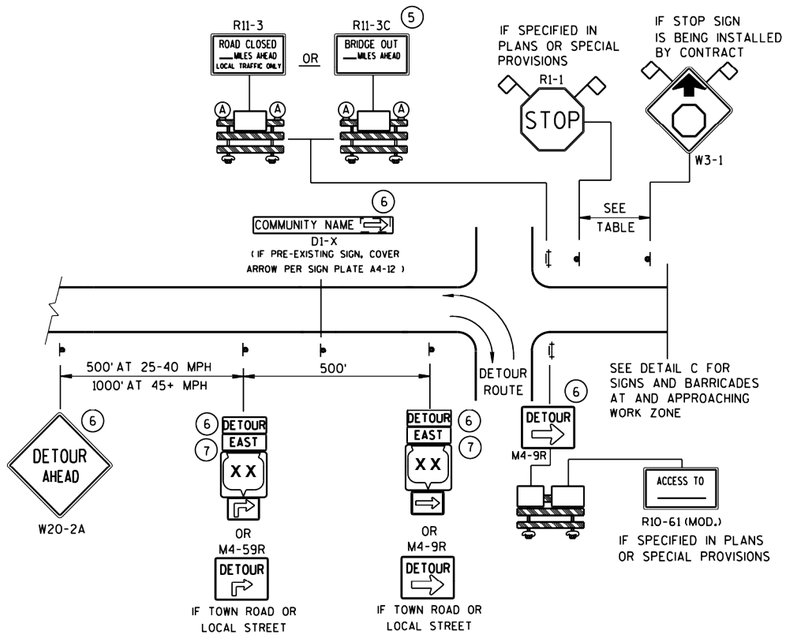
ENTERPRISE DRIVE
CONSTRUCTION DETAILS

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

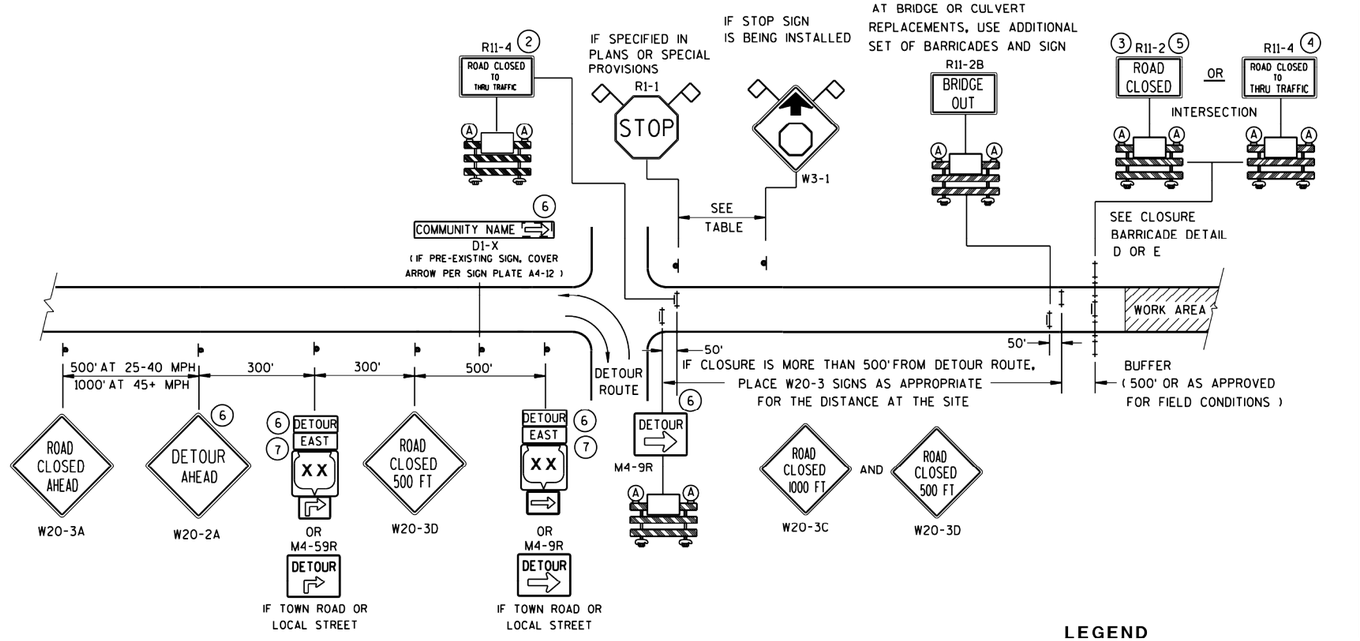
15C2 sheet a: Barricades and Signs for Mainline Closures



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

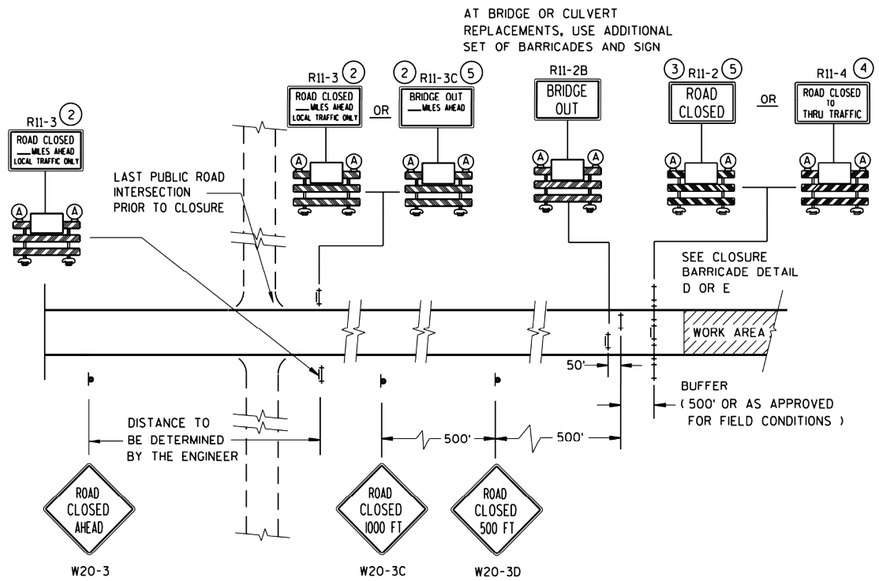
WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C

MAINLINE CLOSURE, NO POSTED DETOUR

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- DETOUR EAST M4-8 / M3-X
- XX M1-4 OR COUNTY XX M1-5A OR XX M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

SEE SDD 15C2-SHEET "**b**" FOR GENERAL NOTES AND FOOTNOTES ① THROUGH ⑦

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE
FHWA

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

S.D.D. 15 C 2-6a

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

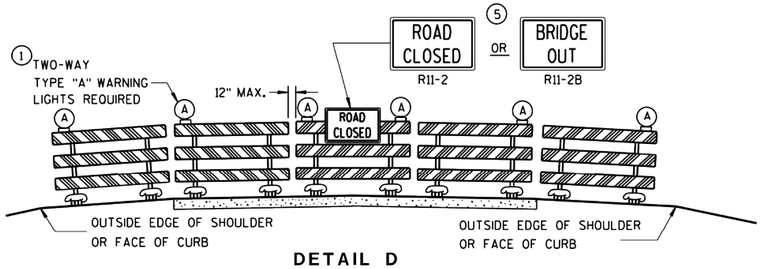
ENTERPRISE DRIVE
CONSTRUCTION DETAILS

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

REVISIONS / ISSUES NO.	DATE	BY	REMARKS

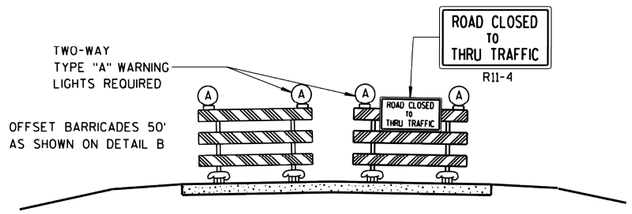
15C2 sheet b: Barricades and Signs for Mainline Closures



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

6

6

S.D.D. 15 C 2-6b

S.D.D. 15 C 2-6b

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE
CONSTRUCTION DETAILS

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY

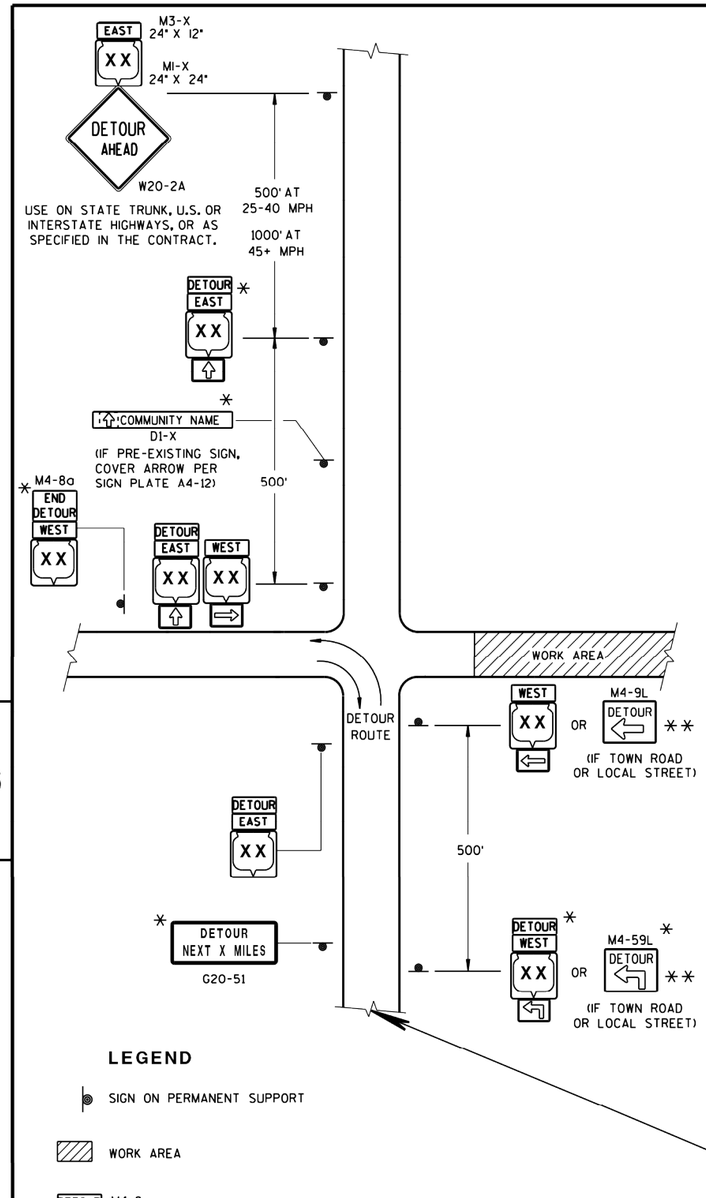
PROJECT # 18-11

	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

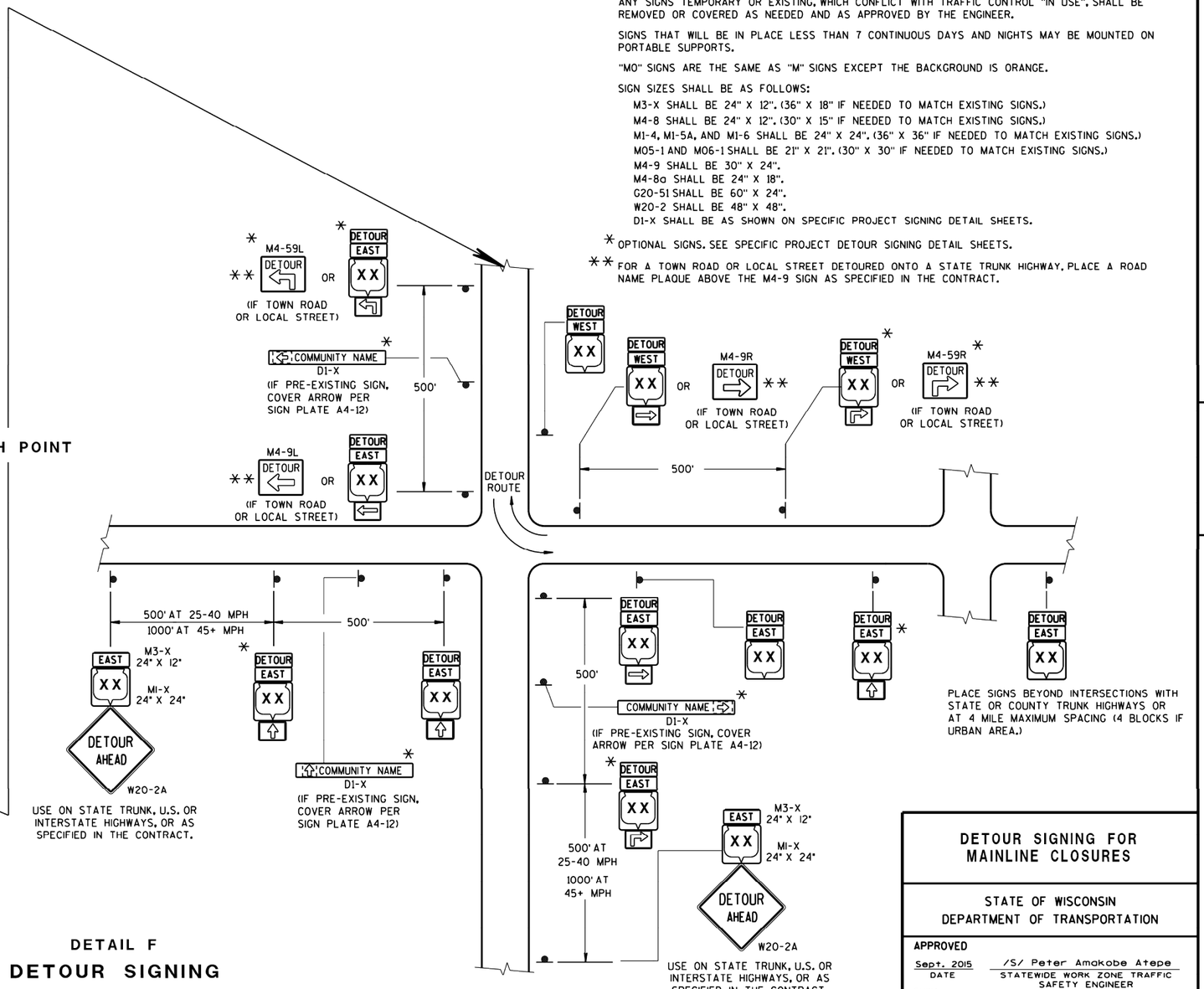
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

15C2 sheet c: Detour Signing for Mainline Closures

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.



MATCH POINT



LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST M4-8 / M3-X
- XX M1-4 OR COUNTY XX M1-5A OR XX M1-6
- M05-1 OR M06-1 OR M06-1

SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD 15C2-SHEET "a"

DETAIL F

DETOUR SIGNING

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

6

S.D.D. 15 C 2-6c

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

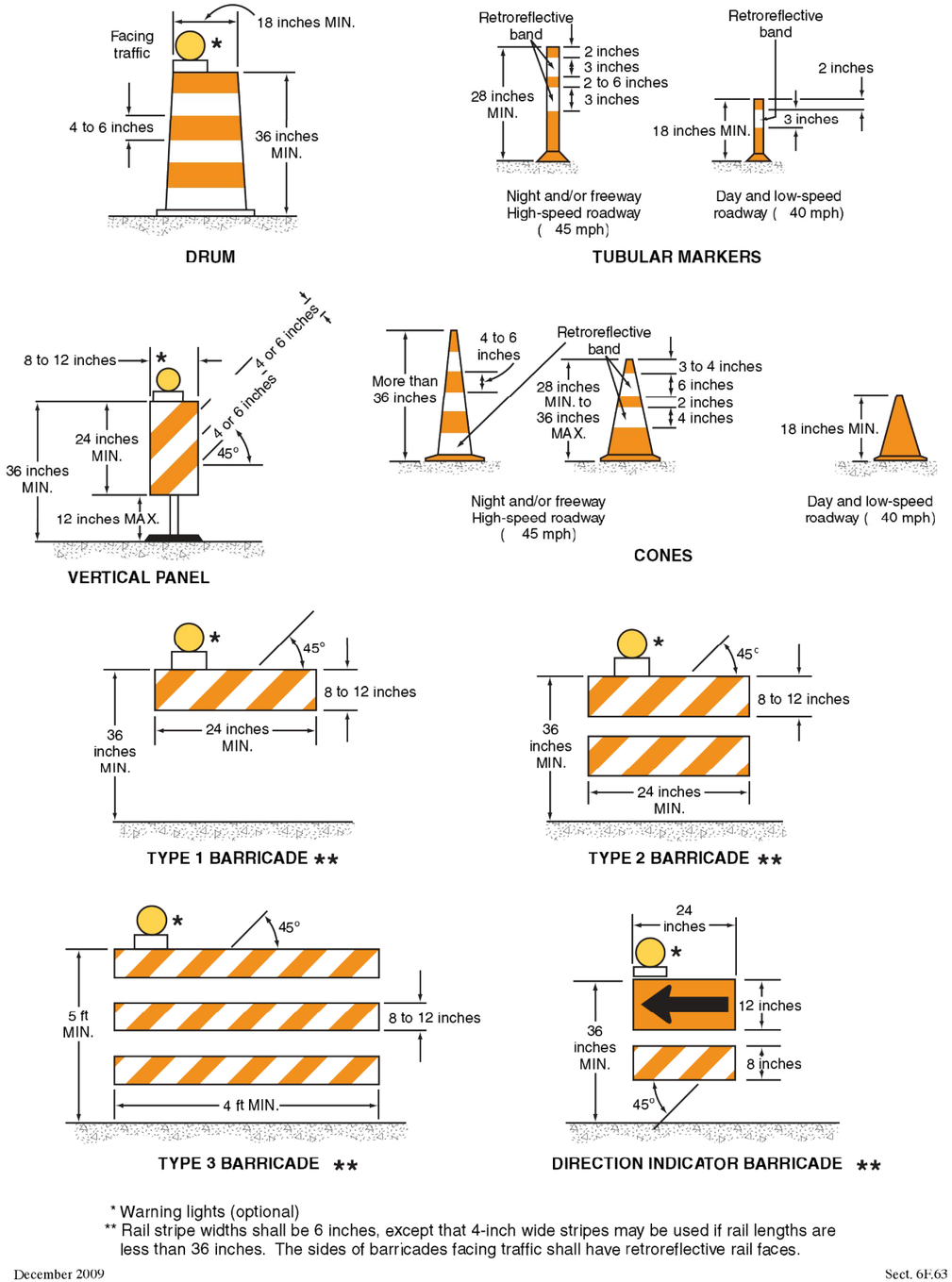
ENTERPRISE DRIVE
CONSTRUCTION DETAILS

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

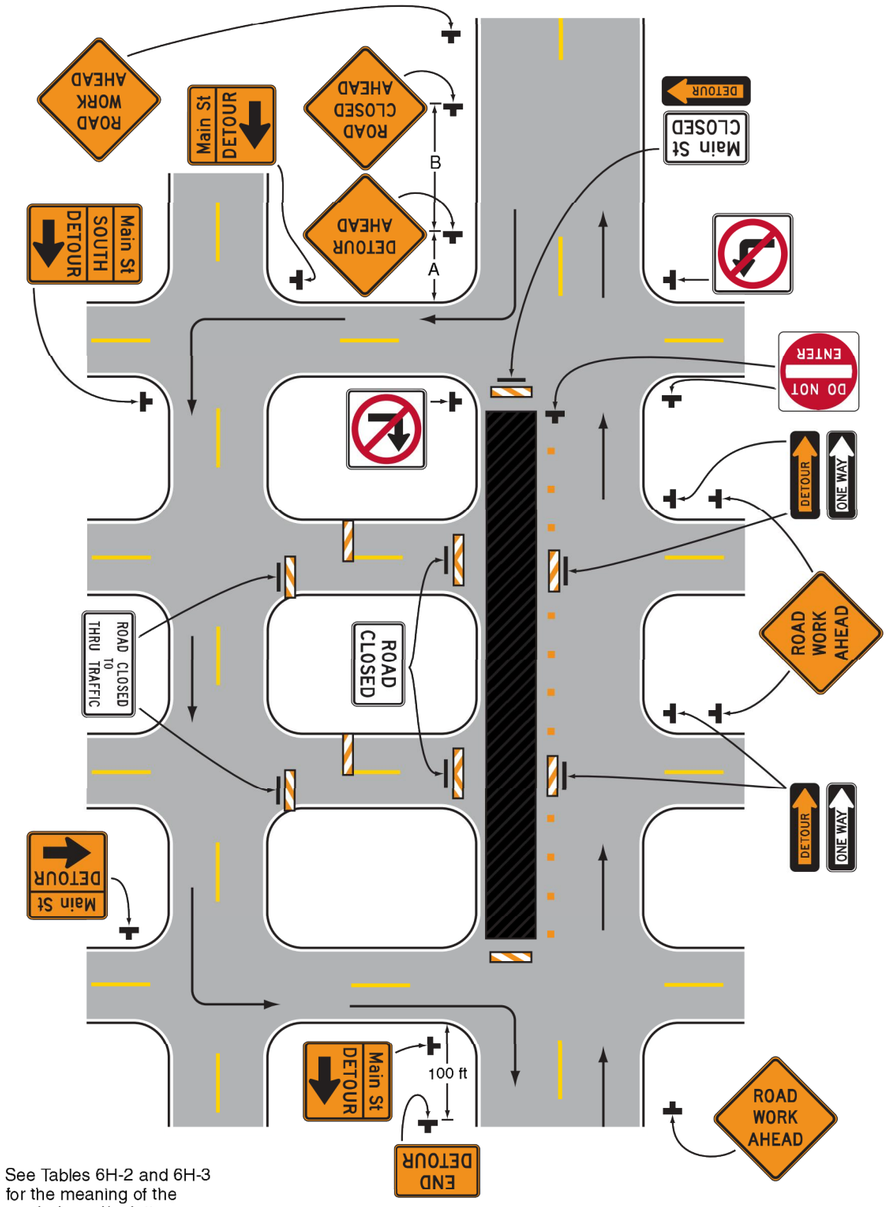
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

Figure 6F-7. Channelizing Devices



* Warning lights (optional)
** Rail stripe widths shall be 6 inches, except that 4-inch wide stripes may be used if rail lengths are less than 36 inches. The sides of barricades facing traffic shall have retroreflective rail faces.

Figure 6H-19. Detour for One Travel Direction (TA-19)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 19

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE
TRAFFIC CONTROL

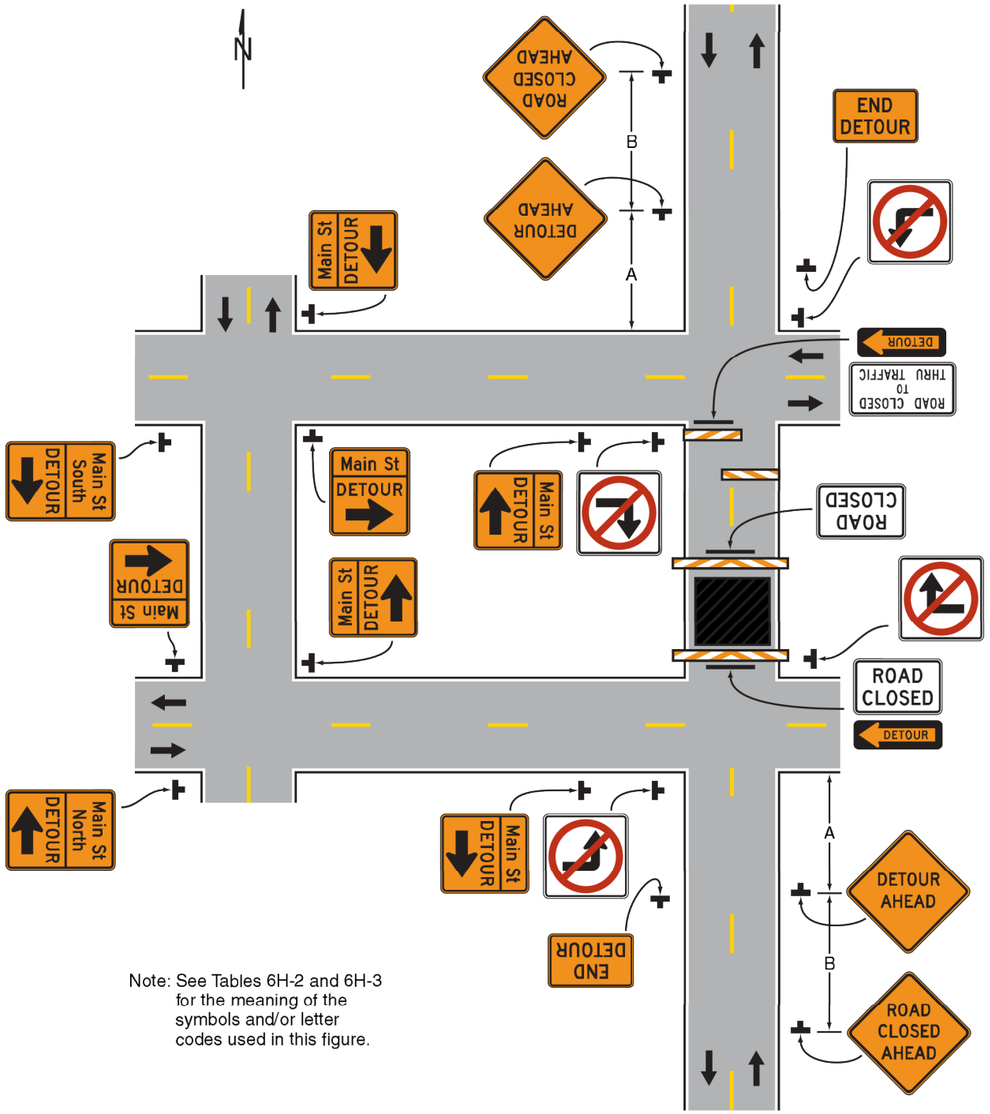
NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-11

	BY	DATE
SURVEYED	NA	
DRAWN	NA	
DESIGNED		
CHECKED		

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 40

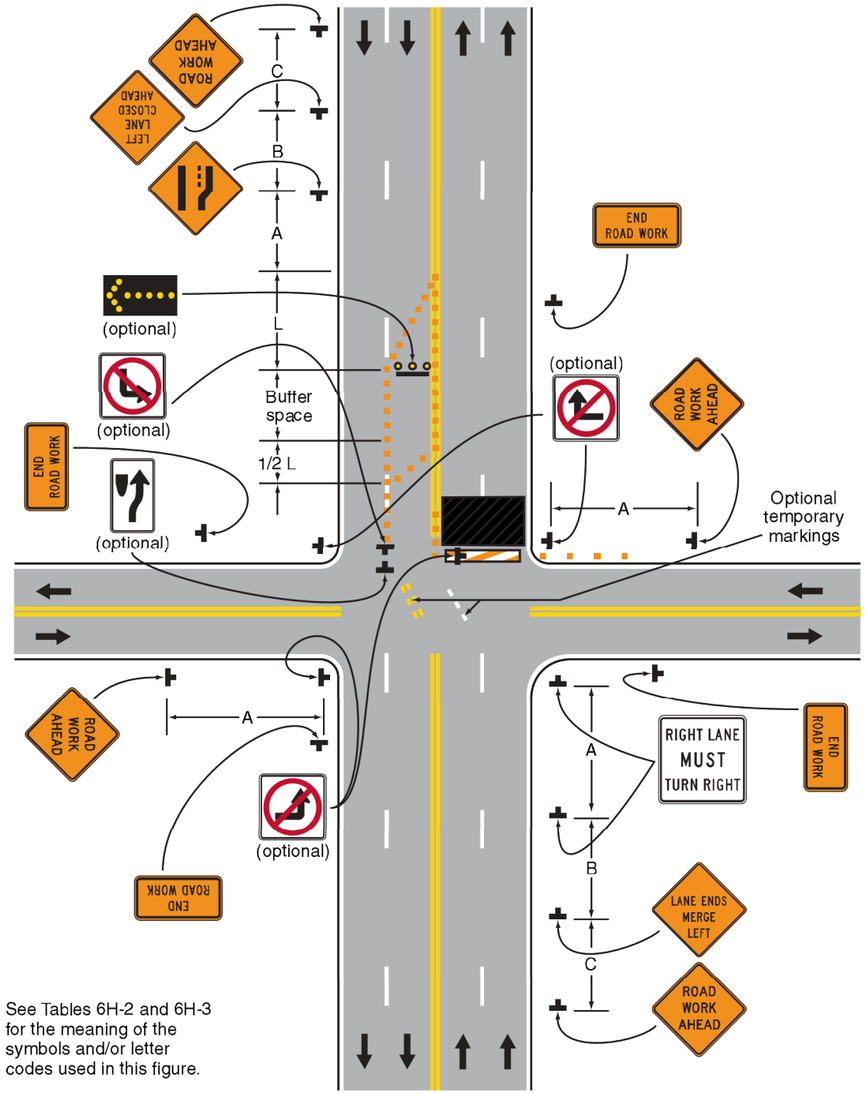
Figure 6H-20. Detour for a Closed Street (TA-20)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 20

Figure 6H-24. Half Road Closure on the Far Side of an Intersection (TA-24)



Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Typical Application 24

CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

ENTERPRISE DRIVE
TRAFFIC CONTROL

NAME: ENTERPRISE DRIVE RECONSTRUCTION AND UTILITY RELAY		BY	DATE
PROJECT # 18-11	SURVEYED	NA	
	DRAWN	NA	
	DESIGNED		
	CHECKED		

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 41