CITY OF DE PERE

AND

GREEN BAY METROPOLITAN SEWERAGE DISTRICT

PROJECT 18-02

CHARLES STREET 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.

SECTION 00 01 10

TABLE OF CONTENTS

INTRODUCTORY INFORMATION

Section	Title
00 00 01	PROJECT MANUAL COVER
00 01 10	TABLE OF CONTENTS

PROJECT BID DOCUMENTS

Section	Title
00 11 13	ADVERTISEMENT TO BID
00 21 13	INSTRUCTIONS TO BIDDERS
00 41 13	BID FORM
00 41 43	BID SCHEDULE
00 43 13	BID BOND
00 43 33	PROPOSED PRODUCTS FORM
00 43 36	TABULATION OF SUBCONTRACTOR

CONTRACTING REQUIREMENTS

Section	Title
00 51 00	NOTICE OF AWARD
00 52 13	CONTRACT – CITY
00 52 13.1	CONTRACT - GBMSD
00 55 00	NOTICE TO PROCEED
00 61 13	PAYMENT BOND – CITY
00 61 13.1	PAYMENT BOND - GBMSD
00 61 16	PERFORMANCE BOND – CITY
00 61 16.1	PERFORMANCE BOND - GBMSD
00 62 76	APPLICATION FOR PAYMENT
00 65 16	CERTIFICATE OF SUBSTANTIAL COMPLETION
00 73 00	SUPPLEMENTARY CONDITIONS

DIVISION 1 **GENERAL REQUIREMENTS**

Section	Title
01 10 00	SUMMARY OF WORK
01 22 01	MEASUREMENT AND PAYMENT SANITARY SEWER
01 22 02	MEASUREMENT AND PAYMENT STORM SEWER
01 22 03	MEASUREMENT AND PAYMENT WATER SYSTEM
01 22 04	MEASUREMENT AND PAYMENT STREET AND DRAINAGE CONSTRUCTION
01 22 05	MEASUREMENT AND PAYMENT SPECIAL CONSTRUCTION
01 22 07	MEASUREMENT AND PAYMENT PROFESSIONAL SERVICES
01 29 00	PAYMENT PROCEDURES
01 32 33	CONSTRUCTION PHOTOGRAPHS
01 33 00	SUBMITTALS
01 41 00	REGULATORY REQUIREMENTS
01 71 23	FIELD ENGINEERING

SUPPLEMENTAL SPECIAL PROVISIONS

01 71 23.16	CONSTRUCTION STAKING
03 35 33	STAMPED COLORED CONCRETE
32 11 26.16	PULVERIZED ASPHALT AND AGGREGATE BASE COURSE
33 00 05	DOUBLE AND TRIPLE WALLED POLYPROPYLENE PIPE
33 31 00.1SP	SANITARY SEWER SYSTEMS – GBMSD - SPECIAL

APPENDIX

A.	SUBSURFACE EXPLORATION AND SUBGRADE ANALYSIS, PROPOSED ROADWAY RECONSTRUCTION AND UTILITY RELAY CHARLES STREET AND ENTERPRISE DRIVE, DE PERE, WISCONSIN, BY INTERTEK PSI

CITY OF DE PERE 2018 STANDARD SPECIFICATIONS

CONTRACTING REQUIREMENTS

Section	Title
00 70 00	GENERAL CONDITIONS (See City of De Pere 2018 Standard Specifications)

DIVISION 31 – **EARTHWORK**
(See City of De Pere 2018 Standard Specifications)

DIVISION 32 – **EXTERIOR IMPROVEMENTS**
(See City of De Pere 2018 Standard Specifications)

DIVISION 33 – **UTILITIES**
(See City of De Pere 2018 Standard Specifications)

SECTION 00 11 13

FEBRUARY 8, 2018 – FEBRUARY 15, 2018

CITY OF DE PERE

AND

GREEN BAY METROPOLITAN SEWERAGE DISTRICT

ADVERTISEMENT TO BID

PROJECT 18-02

CHARLES STREET RECONSTRUCTION & UTILITY RELAY

Sealed proposals will be received by the Board of Public Works of the City of De Pere and Green Bay Metropolitan Sewerage District 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 18-02 for which proposals are being sought includes the following approximate quantities:

- 2900 LF New and Relay Sanitary Sewer (8”-24”) and Associated Appurtenances
- 3200 LF New and Relay Storm Sewer (12”-30”) and Associated Appurtenances
- 2400 LF New and Relay Water Main (8”) and Associated Appurtenances
- Relay Sanitary Laterals (4”-6”)
- New 6” Storm Laterals
- Relay Water Services (1”-4”)
- 2600 TONS Asphaltic Concrete Pavement
- 8900 TONS Crushed Aggregate Base Course
- 6700 CY Unclassified Excavation
- 5700 LF Slip Form Concrete Curb and Gutter
- Concrete Curb and Gutter, Sidewalk Driveway Aprons and Concrete Pavement Replacement
- Pavement Markings
- 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 #5548778 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/City of De Pere and the Green Bay Metropolitan Sewerage District. 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 City of De Pere forms subsequent to January 1, 2018 will not be required to separately submit such form for this project.
The Green Bay Metropolitan Sewerage District pre-qualification form must be submitted 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

Green Bay Metropolitan Sewerage District
Thomas W. Sigmund
Executive Director

Project 18-02

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 and Supplementary 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.

3.2 The separate Green Bay Metropolitan Sewerage District (GBMSD) prequalification form specific to Project 18-02 must be submitted by all prospective bidders, regardless of previous submittal and/or approval of the City of De Pere proof of responsibility form.

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

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

4.2 Underground Facilities

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

4.3 Subsurface and Physical Conditions

A. The technical data includes:
   1. Those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
   2. Those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except underground Facilities).
   3. In preparation of Plans and Specifications, Engineer relied upon the following reports of explorations and tests of subsurface conditions at the Site:
      a. 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.

6.3 Each Bidder shall determine prior to submitting a Bid that Bidder has received all Addenda issued, and each Bidder shall acknowledge receipt on the Bid Form.

ARTICLE 7 – BID SECURITY

7.1 A Bid shall be accompanied by Bid security made payable to City of De Pere 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.

D. A Bid which does not contain a unit price which is both adequate and reasonable for each item named in the Bid may be considered irregular and subject to rejection.

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 10 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.

20.2 This project includes two separate Agreements. One Agreement is with the Green Bay Metropolitan Sewerage District for the portion of the work included in the Bid Items under the Sanitary Sewer – GBMSD heading. The other Agreement is with the City of De Pere for the remainder of the work. Both Agreements must be signed and delivered to the City of De Pere.

END OF SECTION

SECTION 00 41 13

CITY OF DE PERE

BID FORM

PROJECT 18-02

This bid, submitted by the undersigned Bidder to the Owner, 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 by August 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).

CITY OF DE PERE
PROJECT 18-02
BID SCHEDULE – UNIT PRICE

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
SANITARY SEWER- GBMSD					
SS-01	Bypass Pumping	LS	1	$_____	$_____
SS-02	Construction Staking GBMSD Sanitary Sewer & Manhole	LS	1	$_____	$_____
SS-03	Remove Existing Sanitary Manhole	EA	3	$_____	$_____
SS-04	Abandon Existing Sanitary Manhole	EA	1	$_____	$_____
SS-05	Abandon Existing 18" Sanitary Sewer	LF	452	$_____	$_____
SS-06	Abandon Existing 21" Sanitary Sewer	LF	48	$_____	$_____
SS-07	Remove and Relay 24" PVC Sanitary Sewer	LF	2,102	$_____	$_____
SS-08	Provide 24" PVC Sanitary Sewer	LF	566	$_____	$_____
SS-09	Remove and Replace 4' Diameter Sanitary Sewer Manhole	VF	113.36	$_____	$_____
SS-10	Provide 4' Diameter Sanitary Sewer Manhole (CSI-017)	VF	15.80	$_____	$_____
SS-11	Provide 6'x8' Rectangular Sanitary Manhole with 4' Diameter Reduced Riser and Outside Drop (CSI-018)	VF	21.75	$_____	$_____
SS-12	Connect to Existing Sanitary Manhole CSI-019	LS	1	$_____	$_____
SS-13	Sanitary Sewer Detour – Webster Avenue	LS	1	$_____	$_____
SS-14	Sanitary Sewer Temporary Trench Patch – Webster Avenue	LS	1	$_____	$_____
SS-15	Sanitary Sewer Temporary Trench Patch- Erie Street	LS	1	$_____	$_____
SS-16	Sanitary Sewer Temporary Trench Patch – Ontario Street	LS	1	$_____	$_____
SS-17	Sanitary Sewer Trench Stabilization	LF	200	$_____	$_____
SS-18	Builder's Risk Insurance for GBMSD Sanitary Sewer Construction	LS	1	$_____	$_____
SS-19	Adjust Manhole (CSI-004)	LS	1	$_____	$_____
	SUBTOTAL: SANITARY SEWER - GBMSD			$_____	

CHARLES STREET RECONSTRUCTION & UTILITY RELAY

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
SANITARY SEWER					
SAN-01	Provide 8" PVC Sanitary Sewer	LF	200	$_____	$_____
SAN-02	Provide 8" PVC Sanitary Sewer Lateral	LF	35	$_____	$_____
SAN-03	Provide 6" or 4" PVC Sanitary Sewer Lateral	LF	300	$_____	$_____
SAN-04	Provide Lateral Relay (6" or 4") and Connection to 30" Lined Pipe	EA	5	$_____	$_____
SAN-05	Provide 8"x6" or 8"x4" Sanitary Wye		1	$_____	$_____
SAN-06	Provide 8" Inserta Tee	EA	1	$_____	$_____
SAN-07	Provide 6" or 4" Inserta Tee	EA	18	$_____	$_____
SAN-08	Capping Lateral at the Main	EA	1	$_____	$_____
SAN-09	Provide 6" or 4" Riser	LF	50	$_____	$_____
SAN-10	Provide 4' Diameter Sanitary Sewer Manhole	VF	52	$_____	$_____
SAN-11	Dig Down to Locate Sanitary Sewer	EA	4	$_____	$_____
STORM SEWER					
ST-01	Provide 30" PVC, RCP Class III, or PP Storm Sewer	LF	715	$_____	$_____
ST-02	Provide 24" PVC, RCP Class III, or PP Storm Sewer	LF	510	$_____	$_____
ST-03	Provide 21" PVC, RCP Class III, or PP Storm Sewer	LF	245	$_____	$_____
ST-04	Provide 18" PVC, RCP Class III, or PP Storm Sewer	LF	265	$_____	$_____
ST-05	Provide 15" PVC, RCP Class III, or PP Storm Sewer	LF	320	$_____	$_____
ST-06	Provide 12" PVC or RCP Class III	LF	950	$_____	$_____
ST-07	Provide 8" PVC	LF	70	$_____	$_____
ST-08	Provide 8" PVC Storm Sewer Lateral	LF	70	$_____	$_____
ST-09	Provide 6" PVC Storm Sewer Lateral	LF	550	$_____	$_____
ST-10	Provide 30" x 8" Storm Sewer Branch or Inserta Tee	EA	2	$_____	$_____
ST-11	Provide 30" x 6" Storm Sewer Branch or Inserta Tee	EA	4	$_____	$_____
ST-12	Provide 24" x 6" Storm Sewer Branch or Inserta Tee	EA	5	$_____	$_____

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
ST-13	Provide 21" x 6" Storm Sewer Branch or Inserta Tee	EA	2	$_____	$_____
ST-14	Provide 18" x 6" Storm Sewer Branch or Inserta Tee	EA	2	$_____	$_____
ST-15	Provide 15"x 6" Storm Sewer Branch or Inserta Tee	EA	2	$_____	$_____
ST-16	Provide 12"x6" Storm Sewer Branch or Inserta Tee	EA	2	$_____	$_____
ST-17	Provide 5' Diameter Storm Manhole	VF	45	$_____	$_____
ST-18	Provide 4' Diameter Storm Manhole	VF	95	$_____	$_____
ST-19	Provide Type A Inlet	EA	4	$_____	$_____
ST-20	Provide Type B Inlet	EA	27	$_____	$_____
ST-21	Connect to Existing Pipe With Concrete Collar	EA	2	$_____	$_____
ST-22	Remove Blocks for Precast Opening Structure	EA	3	$_____	$_____
ST-23	Expand Existing Opening in Structure	EA	2	$_____	$_____
ST-24	Abandon/Remove Existing Storm Sewer Main and Appurtenances	LS	1	$_____	$_____
WATER MAIN					
W-01	Provide 8" PVC Water Main	LF	2475	$_____	$_____
W-02	Provide 6" PVC Water Main	LF	90	$_____	$_____
W-03	Provide 4" PVC Water Main	LF	20	$_____	$_____
W-04	Provide 1 ½" HDPE Water Service- Open Cut	LF	30	$_____	$_____
W-05	Provide 1" HDPE Water Service – Open Cut	LF	300	$_____	$_____
W-06	Provide 1 ½" Corporation and Curb Stop	EA	1	$_____	$_____
W-07	Provide 1" Corporation and Curb Stop	EA	7	$_____	$_____
W-08	Provide 2" Corporation with Plug/Saddle with 2" HDPE	EA	3	$_____	$_____
W-09	Provide 8" Gate Valve	EA	10	$_____	$_____
W-10	Provide 4" Gate Valve	EA	1	$_____	$_____
W-11	Provide Connection to Existing Water Main	EA	11	$_____	$_____
W-12	Provide Connection to Existing Water Main 10"x8" Tapping Tee and Valve	EA	1	$_____	$_____

CHARLES STREET RECONSTRUCTION & UTILITY RELAY

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
W-13	Provide Connection to Existing Water Main 8"x8" Tapping Tee and Valve	EA	1	$_____	$_____
W-14	Provide Hydrant (6.5' Bury)	EA	4	$_____	$_____
W-15	Provide Water Main Offset	EA	2	$_____	$_____
W-16	Dig Down to Verify Elevation of Water Main	EA	1	$_____	$_____
W-17	Abandon/Remove Water Main and Appurtenances	LS	1	$_____	$_____
STREET AND DRAINAGE					
SD-01	Unclassified Excavation	CY	6208	$_____	$_____
SD-02	Mill Asphaltic Concrete pavement	SY	2290	$_____	$_____
SD-03	Provide 1 ¼" Crushed Aggregate Base Course	CY	8600	$_____	$_____
SD-04	Provide Asphaltic concrete Pavement Type 4 LT 58-28 S, 1 ¾" or 2" Overlay or Upper Layer	TON	1300	$_____	$_____
SD-05	Provide Asphaltic Concrete Pavement Type 3 LT 58-28 S, 2 ¼" Lower Layer	TON	1450	$_____	$_____
SD-06	Water Main Temporary Trench Patch – Webster Avenue	LS	1	$_____	$_____
SD-07	Remove and Replace 24" Concrete Curb and Gutter	LF	200	$_____	$_____
SD-08	Remove and Replace 24" Concrete Curb and Gutter (Slip Form)	LF	5800	$_____	$_____
SD-09	Remove and Replace 24-Inch Integral Curb (HES-3DAY)	SY	25	$_____	$_____
SD-10	Remove and Replace 9-Inch Concrete Pavement	SY	35	$_____	$_____
SD-11	Remove and Replace 8" Concrete Sidewalk and Driveway	SY	320	$_____	$_____
SD-12	Remove and Replace 6" Concrete Sidewalk, Ramp, and Driveway	SY	790	$_____	$_____
SD-13	Remove and Replace 4" Concrete Sidewalk	SY	500	$_____	$_____
SD-14	Remove and Replace 4" Colored Stamped Concrete Sidewalk	SY	10	$_____	$_____

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT BID
SD-15	Deformed #4 Reinforcement Bars	LF	2100	$_____	$_____
SD-16	Drilled Tie Bars (Existing Sidewalk and Curb and Gutter)	EA	330	$_____	$_____
SD-17	Provide Detectable Warning Field (Natural)	EA	50	$_____	$_____
SD-18	Pavement Marking Stop Line Epoxy 18-Inch White	LF	180	$_____	$_____
SD-19	Pavement Marking Epoxy 12-Inch White Cross Walks	LF	1850	$_____	$_____
SD-20	Pavement Marking Epoxy 4-Inch Yellow	LF	375	$_____	$_____
SD-21	Landscaping- Topsoil, Seed, Fertilizer, and Mulch	SY	2600	$_____	$_____
SPECIAL CONSTRUCTION					
SC-01	Pipe Foundation Stabilization	CY	200	$_____	$_____
SC-02	Inlet Protection Type B	EA	55	$_____	$_____
SC-03	Adjust Inlet	EA	2	$_____	$_____
SC-04	Adjust Manhole	EA	3	$_____	$_____
SC-05	Polystyrene Insulation Board	LF	100	$_____	$_____
SC-06	Traffic Control Detour Route (Water Main at Webster)	LS	1	$_____	$_____
TOTAL CONTRACT (INCLUDES GBMSD BID SCHEDULE):				$_____	

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, 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 18-02 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
Sanitary Sewer (PVC)		
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: 18-02 CHARLES STREET RECONSTRUCTION & UTILITY RELAY

The Owner 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 and Green Bay Metropolitan Sewerage District Board of Commissioners have 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 Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your bid as abandoned and as a forfeiture of your Bid Bond. The Owner 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 Owner.

Dated this __th day of _____2018.

_____
Department Of Public Works

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

_____
Green Bay Metropolitan Sewerage District

By: Thomas W. Sigmund, P.E.
Executive Director

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 - CITY

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 52 13.1
CONTRACT- GBMSD

This Contract, made and entered into this day _____ (date to be affixed by GBMSD), by and between (Contractor Name), hereinafter called Contractor, and the Green Bay Metropolitan Sewerage District, a metropolitan sewerage district organized pursuant to Ch. 200, Wisconsin Statutes, hereinafter called GBMSD.

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) Bid Form and required attachments 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 the Bid Schedule are 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. GBMSD 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. GBMSD will make separate payment for the Bid Items under the SANITARY SEWER – GBMSD heading of the Bid Schedule. Thirty days after presentation of the Application for Payment with the Engineer's recommendation, the amount recommended will be paid by GBMSD to the Contractor.
3. A retainage shall be held by the City of De Pere and GBMSD for the duration of the contract. GBMSD and the City of De Pere will retain 5% of the estimated 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.

4. The Contractor shall notify the City and GBMSD in writing when all work under this Contract has been completed. Upon receipt of such notice the City and GBMSD 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 and GBMSD that payrolls, material bills, and other indebtedness connected with the work under this Contract have been paid.

5. GBMSD 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. Supplementary Conditions (pages 00 73 00-1 to 00 73 00-__, inclusive)
   e. Specifications as listed in the table of contents of the Project Manual including:
      1. Division 1 – General Requirements

2. Supplemental Special Provisions
3. City of De Pere 2018 Standard Specifications

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.

OWNER: GREEN BAY METROPOLITAN_____
SEWERAGE DISTRICT_____

BY: _____

TITLE: _____

CONTRACTOR: _____

_____

BY: _____

TITLE: _____

[CORPORATE SEAL]

ATTEST: _____

TITLE: _____

IF CONTRACTOR IS A CORPORATION, A PARTNERSHIP, OR A JOINT VENTURE, ATTACH EVIDENCE OF AUTHORITY TO SIGN

ADDRESS FOR GIVING NOTICES:

_____

_____

LICENSE NO. _____

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 Green Bay Metropolitan Sewerage District

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

By: Thomas W. Sigmund, P.E.
Executive Director

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 - CITY

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) ($_____) (include the amount of the contract minus the SANITARY SEWER-GBMSD subtotal) 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 18-02, in accordance with drawings and specifications prepared by the Director of Public Works of said City and by Donohue & Associates on behalf of GBMSD, 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 13.1

GREEN BAY METROPOLITAN SEWERAGE DISTRICT

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 Green Bay Metropolitan Sewerage District, a metropolitan sewerage district organized pursuant to Ch. 200, Wisconsin Statutes, as Obligee, hereinafter called GBMSD, for the use and benefit of claimants as herein below defined in the amount _____ _____(CONTRACT AMT. SPELLED OUT) ($_____) (include only the amount in the SANITARY SEWER – GBMSD Subtotal) 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 GBMSD for Project 18-02, in accordance with drawings and specifications prepared by the Director of Public Works of the City of De Pere and by Donohue & Associates on behalf of GBMSD, 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 GBMSD 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 GBMSD , prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon, provided, however, that GBMSD 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, GBMSD, 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, GBMSD, 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 - CITY

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) ($_____) (include the amount of the contract minus the SANITARY SEWER-GBMSD subtotal) 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 18-02, in accordance with drawings and specifications prepared by the Director of Public Works of said City and by Donohue & Associates on behalf of GBMSD, 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)

SECTION 00 61 16.1

GREEN BAY METROPOLITAN SEWERAGE DISTRICT

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 Green Bay Metropolitan Sewerage District, a metropolitan sewerage district organized pursuant to Ch. 200, Wisconsin Statutes, as Obligee, hereinafter called GBMSD, in the amount of _____(AMOUNT WRITTEN OUT) ($_____) (include only the amount in the SANITARY SEWER – GBMSD Subtotal) 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 GBMSD), entered into a contract with the GBMSD for Project 18-02, in accordance with drawings and specifications prepared by the Director of Public Works of the City of De Pere and by Donohue & Associates on behalf of GBMSD, 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 GBMSD to be in default under the CONTRACT, GBMSD having performed GBMSD'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 GBMSD for completing the CONTRACT in accordance with its terms and conditions, and upon determination by GBMSD and Surety of the lowest responsible bidder, arrange for a contract between such bidder and GBMSD 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 GBMSD to Contractor under the CONTRACT and any amendments thereto, less the amount properly paid by GBMSD 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 GBMSD.

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

In the Presence of:

_____ _____
(WITNESS) (CONTRACTOR) (SEAL)

_____ _____
(WITNESS) (SURETY) (SEAL)

Project # 18-02 **City of De Pere**
Project Name: Charles Street Reconstruction and Utility Relay

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:	$0.00
2. Net change by Change Orders and Written Amendments (+ or -):	$0.00
3. CURRENT CONTRACT PRICE (Line 1 plus Line 2):	$0.00
4. Total completed and stored to date Column H on Progress Estimate:	$0.00
5. Retainage (per Agreement):	
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
a. Green Bay Metropolitan Sewerage District	$0.00
b. City of De Pere	$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 8a or other - attach explanation of other amount)

is recommended by: _____ _____
Engineer - Green Bay Metropolitan Sewerage District (Date)

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

is recommended by: _____ _____
City of De Pere (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 - City Date

_____ _____
Executed by Engineer - GBMSD Date

_____ _____
Accepted by Contractor Date

SECTION 00 73 00

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the General Conditions of the City of De Pere 2018 Standard Specifications and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof.

S.C. Definitions and Terms – Update Definitions and Terms as follows:

Contract – The written agreement between the City and The Contractor or GBMSD and the Contractor setting the obligations of the parties thereto. The contract includes the advertisement for bids, bid, contract form and contract bond, specifications, special provisions, plans, and notice to proceed. Also any contract change orders and agreements that are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, all of which constitute one instrument.

Engineer – The City Engineer of the City of De Pere or authorized designee or the authorized designee of the GBMSD. The GBMSD portion of the work has been designed by Donohue and Associates who is to act as the Engineer for the GBMSD portion of the work. The GBMSD work is denoted in the Bid Schedule as Sanitary Sewer – GBMSD.

GBMSD – the Green Bay Metropolitan Sewerage District, a metropolitan sewerage district organized pursuant to Ch. 200, Wisconsin Statutes.

GBMSD Board of Commissioners – the governing body of the Green Bay Metropolitan Sewerage District.

Owner – The City of De Pere, Wisconsin and/or the Green Bay Metropolitan Sewerage District

Resident Project Representative – Refer to the definition for Inspector

Add the following paragraph at the end of the Definitions and Terms Section:

Unless otherwise stated in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

Page 00 70 00 5 – Add the following paragraph immediately after the existing paragraph for PREQUALIFICATION OF BIDDERS.

An additional GBMSD prequalification form will be required specifically for this project (Project 18-02). This form shall be filed with the Director of Public Works not later than the date and time indicated in the Advertisement for Bids. All prospective bidders are required to submit the additional GBMSD prequalification form, regardless of previous prequalification for City of De Pere projects.

Add the following paragraph at the end of the Builder's Risk Insurance section, on page 00 70 009:

Contractor shall purchase and maintain Builder's Risk Insurance on the entire value of the work described in the Bid Schedule as Sanitary Sewer – GBMSD which shall remain in effect for the entire time period of the Project. Contractor's deductible or self-insured retention shall not exceed $25,000. The Builder's Risk insurance policy shall include GBMSD and Donohue & Associates as an additional insured and provide for waiver of the insurer's subrogation rights.

Add the following paragraph at the end of the EXECUTION OF CONTRACT section on page 00 70 00 10:

This project includes two separate Contracts. One Contract is with the Green Bay Metropolitan Sewerage District for the portion of the work included in the Bid Items under the Sanitary Sewer – GBMSD heading. The other Contract is with the City of De Pere for the remainder of the work. Both Contracts must be signed and delivered to the City of De Pere. Separate Contract Bonds are required for each Contract.

Change the word "City" or phrase "City of De Pere" to the phrase "Owner and Engineer" throughout the following sections of the General Conditions:

The following Section under AWARD AND EXECUTION OF CONTRACT:
- INSURANCE

The following Sections under LEGAL RELATIONS AND PUBLIC RESPONSIBILITY:
- LAWS TO BE OBSERVED
- PATENTED DEVICES, MATERIALS AND PROCESSES
- RESPONSIBILITY FOR DAMAGE CLAIMS
- PERSONAL LIABILITY OF PUBLIC OFFICIALS

The following Section under PROSECUTON AND PROGRESS:
- METHODS AND EQUIPMENT

Change the word "City" to the phrase "Owner or Engineer" in the PROTECTION AND RESTORATION OF PROPERTY Section under LEGAL RELATIONS AND PUBLIC RESPONSIBILITY.

Change the word "City" or the phrase "City of De Pere" to the word "Owner" throughout the following sections of the General Conditions:

The following Sections under AWARD AND EXECUTION OF CONTRACT:
- EXECUTION OF CONTRACT
- RIGHT OF BIDDER TO NULIFY BID

The following Sections under CONTROL OF WORK
- COOPERATION OF CONTRACTOR
- REMOVAL OF UNAUTHORIZED AND UNACCEPTABLE MATERIALS AND WORKMANSHIP

The following Section under LEGAL RELATIONS AND PUBLIC RESPONSIBILITY
- DESCRIPTION

The following Sections under PROSECUTION AND PROGRESS
- OVERTIME WORK
- LIQUIDATED DAMAGES
- DEFAULT ON CONTRACT
- EMERGENCY DEFERMENT OR CANCELLATION OF CONTRACT

The following Sections under MEASUREMENT AND PAYMENT
- SCOPE OF PAYMENT
- OMITTED ITEMS
- PARTIAL PAYMENTS
- ASSIGNMENT OF PAYMENTS
- CLAIMS FOR ADJUSTMENT IN COMPENSATION

Change the phrase "Director of Public Works" to the word "Owner" throughout the following sections of the General Conditions:

The following Sections under SCOPE OF WORK:
- INCREASED OR DECREASED QUANTITIES
- EXTRA WORK

The following Section under GUARANTEE
- GUARANTEE OF MATERIALS AND WORKMANSHIP

Change the phrase "Board of Public Works or Director of Public Works" to the word "Owner" in the DEFAULT ON CONTRACT Section under PROSECUTION AND PROGRESS.

Change the phrase "Board of Public Works" to the phrase "Board of Public Works and GBMSD Board of Commissioners" in the RESPONSIBILITY FOR DAMAGE CLAIMS Section under LEGAL RELATIONS AND PUBLIC RESPONSIBILITY.

In the TAX EXEMPT STATUS Section on page 00 70 00 24 please note that GBMSD is also tax exempt under Wis. Stats§77.54(9m).

END OF SECTION

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. Charles Street – Wisconsin Street to Webster Avenue

   2. Work will be performed under the following prime contract:
      a. Project 18-02 Charles Street Reconstruction and Utility Relay
B. The Work includes:
   1. Sanitary sewer and associated appurtenances relay and new.
   2. Storm sewer and associated appurtenances relay and new.
   3. Water main and associated appurtenances relay.
   4. Concrete curb and gutter slip form and spot repairs.
   5. Concrete pavement, driveway aprons, and sidewalk removal and repairs.
   6. Remove existing asphaltic concrete and concrete pavement.
   7. Unclassified excavation.
   8. Asphaltic concrete paving.
   9. Terrace restoration.
   10. Erosion control.
   11. Sanitary sewer bypass pumping

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 20th Common Council Meeting for the City and the March 28th Board of Commissioners for the Green Bay Metropolitan Sewerage District.
D. The water service to Notre Dame School is off of Superior Street. The water main connection to the 12" water main at Superior Street shall be done on a weekend or after school is out on June 6th. The schedule shall be approved by the Engineer.
E. Notre Dame Elementary School is located on Charles Street. Scheduling during the school season shall be as follows:
   1. The intersections with Superior Street and Huron Street shall be open to two lanes of traffic each day from 7 AM to 8:30 AM and 2 PM to 3:30 PM on all days when work is not occurring in the intersection. If utility work is occurring, one lane of traffic shall

be maintained until utility construction progresses through the intersection. Flaggers will be required during this time.

2. Bus pickup occurs on the north side of Charles Street, just west of Huron. This area shall be open each school day from 7:30 AM to 8:15 AM and 2:30 PM to 3:15 PM for bus use. This area may be closed only when utility main construction is occurring in the block. This closure shall be approved by the Engineer. A two working day notification is required. A maximum of 5 working days shall be allowed for the Sanitary Sewer construction in this block.
3. Students from Notre Dame Elementary and Middle School use the sidewalk on the north side of Charles from Michigan to Superior to access facilities. This sidewalk, along with the crosswalk on the west side of the Charles and Michigan Street intersection shall remain open at all times as listed below. Any disturbed areas shall be brought to grade with crushed aggregate base course.
    a. Daily between 12 PM and 1 PM
    b. Wednesdays between 8 AM and 10 AM.

F. The Pink Flamingo Softball Tournament will be occurring at Legion Park from July 12th through July 15th. Access will be required to the Legion Park during this event.
1. Vendors will be arriving during the day on July 12th for setup in the park.
2. Participants will be arriving on July 12th late afternoon for activities.
3. Vendors will be preparing food and stocking tents on July 13th.
4. Participants will be arriving on July 13th for activities, which will then continue of the remainder of the weekend.
5. Garbage dumpsters will be placed in the three angle parking stalls at Sta 27+00 RT.
6. A parade will occur on Saturday on Charles Street from Ontario to Washington Street.
7. A run will occur on Saturday on Charles Street from Ontario Street to Washington Street.

G. The Cellcom Marathon occurs on Sunday, May 20th. The route crosses Charles Street at Ontario. Provide a 12' wide paved path across any trenches at this intersection for the marathon.

H. Legion Park will be open to the public throughout construction, including the pool and baseball fields.
1. Maintain access to the parking lot throughout construction. If one entrance is closed due to utility construction or concrete work, the other entrance is to remain open.
2. Maintain pedestrian crossings/sidewalk at side streets throughout construction for park access. Only one side of an intersection can be closed to pedestrians at a given time. If the paved area is removed, provide crushed aggregate base course to the surface.
3. There is a Thursday night softball league that starts at 5:30. Anticipate increased traffic before that weekly event. The season starts on April 26th and goes to August 23rd.
4. The pool opens on June 9th and will be open the remainder of the project.

I. Impacts to Webster Avenue shall be minimized.
   1. Webster Avenue may be closed during sanitary sewer and water main construction. A detour shall be required for each of these closures. Immediately after the utility is installed, the trench shall be paved with temporary hot mix asphalt.
      a. The sanitary sewer installation shall be completed within a maximum of five consecutive working days and opened by the weekend.
      b. The water main installation shall be completed within three consecutive working days and reopened by the weekend.
   2. During the pedestrian refuge island construction and sanitary manhole coating, traffic shall be channeled to the outside lanes, but maintained in each direction.
      a. This work shall be completed between 8:30 AM and 3:00 PM
   3. One lane of traffic shall be maintained during pavement milling and resurfacing.
      a. If traffic is restricted to one lane, flaggers are required.
      b. This work shall be completed between 8:30 AM and 3:00 PM

J. Impacts to Erie Street shall be minimized until June 18th.
   1. Erie Street may be closed during sanitary sewer construction between 8:30am and 2:30pm.
      a. A temporary patch shall be placed on the trenches before the weekend that the utility is installed.
   2. Erie Street will be closed for construction sometime after June 18th for construction under Project 18-01, Sewer and Water Relay and Street Resurfacing.
      a. Storm sewer installation at this intersection shall be completed after Erie Street is closed.
      b.

K. Webster Avenue and Erie Street cannot be closed at the same time. The sanitary sewer and water main work on Webster Street needs to be completed prior to the closure of Erie Street under Project 18-01.

L. Maintain pedestrian access across Charles Street from the parking lot north of the project during construction.

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 Owner 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 Owner's written instructions. These written instructions will include either correcting such defective work or, if it has been rejected by the Owner, 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 Owner may have the defective work corrected or the rejected work removed and replaced. All direct and indirect costs of correction or removal and replacement of defective work, including compensation for additional professional services, shall be paid by the Contractor.

1.7 WORK BY OTHERS

A. The City of De Pere Park Department will trim all trees or remove trees and grind stumps for trees to be removed. Questions regarding trees or landscaping that is bid as part of this contract can be directed to the Engineer.

B. Owner has awarded a separate contract for performance of certain construction operations which will be conducted at the Project site simultaneously with work under this Contract. This contract includes the following:
   a. Project 18-01 – Utility Relay and Street Resurfacing
      i. Water main relay and street resurfacing is being completed on Erie Street between Merrill Street and George Street. This will include the intersection of Charles Street. This work is anticipated to start after June 18th and be completed by August 31st.
   b. Project 18-03 – Sewer Lining – CIPP
      i. Lining 8" sanitary sewer in alley (south) between Michigan and Superior.
      ii. Lining 8" sanitary sewer in alley (south) between Superior and Huron.
      iii. Lining 8" sanitary sewer in alley (south) between Huron and Erie.
      iv. Lining 8" sanitary sewer in alley (south) between Erie and Ontario.
      v. Lining 15" sanitary sewer on Ontario (south).

vi. Lining 15" sanitary sewer on Washington (north).

C. Project 18-07 – Asphalt, Curb, and Sewer Repair
   i. Resurfacing Tennis Courts on Charles Street.

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

1.8 PROJECT UTILITY SOURCES

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

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

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

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

B. Utility installation shall be completed from existing paved or gravel surfaces and/or new gravel surfaces. During street excavation, all exposed subgrade shall be graded and covered with crushed aggregate base course at the end of each day.
   1. Per the soil borings, there is minimal existing base course under the existing asphalt in certain locations. All gravel surfaces will need to be maintained if the existing asphalt is removed at the beginning of the project and rutting, pumping, or failures occur.

C. Salvaged pulverized asphaltic concrete pavement, recycled crushed concrete, and/or virgin asphaltic concrete pavement will be allowed for the base course on the project. Pulverized asphaltic concrete pavement shall be placed on the bottom 8" of the crushed aggregate base course. Pulverizing the asphaltic concrete pavement shall be accomplished by milling or crushing and mixing with crushed concrete or aggregate to conform to the requirements of Section 32 11 26.16.

D. Access to the site shall be as follows:
   1. Loaded trucks shall access the site as follows:
      a. Webster Avenue
      b. George Street to Erie Street. Once Erie Street is paved under Project 18-01, loaded trucks shall not be allowed on Erie Street.
      c. Broadway Street to Lewis Street to Wisconsin Street to the site.
   2. Empty Trucks shall be allowed to use the following:
      a. Streets listed above for loaded trucks.
      b. Michigan Street to George Street
      c. Side streets north of Charles Street to George Street.

PART 2 – PRODUCTS

PART 3 – EXECUTION

END OF SECTION

SECTION 01 22 01

MEASUREMENT AND PAYMENT SANITARY SEWER

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

1.	Sanitary Sewer Mains (Granular Backfill)	SS-07, SS-08, SAN-01
2.	Sanitary Sewer Laterals	SAN-02, SAN-03
3.	Sanitary Sewer Risers	SAN-09
4.	Sanitary Sewer Service Tees or Wyes	SAN-05, SAN-06, SAN-07
5.	Sanitary Sewer Manholes	SS-09, SS-10, SS-11, SAN-10
6.	Connect to Existing Sanitary Manhole CSI-019	SS-12
7.	Sanitary Manhole Removal	SS-03
8.	Sanitary Manhole Abandonment	SS-04
9.	Sanitary Sewer Abandonment	SS-05, SS-06
10.	Bypass Pumping	SS-01
11.	Sanitary Sewer Trench Stabilization	SS-17
12.	Lateral Relay and Connection to Lined Pipe	SAN-04
13.	Capping Lateral at Main	SAN-08
14.	Dig Down to Locate Sanitary Sewer	SAN-11
15.	Adjust Manhole	SAN-19

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 and replace 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 MAINS (GRANULAR BACKFILL)

A. The unit price for Sanitary Sewer Main (Granular Backfill) work includes:
   1. General Work Items of Article 1.2.

2. Sanitary sewer pipe, fittings, and bends 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 abandoned connections.
4. Excavation, breakdown and removal of abandoned pipeline structures inside the trench area, including plugging of abandoned 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, bends, and other fittings.

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

1.4 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 extended up water lateral or attached to 12" #4 bar.
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.

1.5 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 right of way.
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.

1.6 SANITARY SEWER SERVICE SERVICES TEES OR WYES

A. The unit price for Sanitary Sewer Service Services Tees or Wyes 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.
   4. Plug (where required).

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

C. The unit of measurement for payment is each.

1.7 SANITARY SEWER MANHOLES

A. The unit price for Sanitary Sewer Manholes work includes:
   1. General Work Items of Article 1.2.
   2. Precast or cast-in-place reinforced concrete components.
   3. Joint flexible gasket material.
   4. External manhole joint seal (GBMSD manholes).
   5. Resilient flexible connector between the manhole structure and the sewer pipe.
   6. Adjusting rings and bituminous plastic cement sealant at chimney.
   7. Manhole steps (City manholes).
   8. Manhole frame and cover (Neenah Foundry R-1500 Manhole Cover with Non-Rocking Lid or equal). Sanitary Sewer manhole covers shall have gaskets and concealed pick holes.
   9. Bedding material.
   10. Sewer pipe stub with connections and watertight plug (where required).
   11. Outside drop connection (where required).
   12. Reconnection to existing sewer including modifications to existing sewer as necessary for reconnection.
   13. Final casting adjustment.
   14. Interior and exterior linings (GBMSD manholes).

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 CONNECT TO EXISTING SANITARY MANHOLE CSI-019

A. The unit price for Connect to Existing Sanitary Manhole CSI-019 work includes:
   1. General Work Items of Article 1.2.
   2. Enlarging opening into existing sanitary sewer manhole CSI-019 to accept new 24-inch sewer.
   3. Install flexible connector.
   4. Seal opening with non-shrink grout.
   5. Reform flow line and modify benches in existing sanitary manhole.
   6. Install epoxy coating to all bare concrete surfaces to interior of manhole CSI-019.

B. Measurement for payment will not be made.

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

1.9 SANITARY MANHOLE REMOVAL

A. The unit price for Sanitary Manhole Removal includes:
   1. General Work Items of Article 1.2.
   2. Excavation.
   3. Removal and disposal of manhole.
   4. Abandonment of manhole from 12” below existing local sewer invert for existing manhole CSI-018
   5. Backfill and compaction.

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

C. The unit of measurement for payment is each.

1.10 SANITARY MANHOLE ABANDONMENT

A. The unit price for Sanitary Sewer Manhole Abandonment work includes:
   1. General Work Items of Article 1.2.
   2. Excavation.

3. Removal and disposal of top portion of manhole and casting.
4. Breaking the bottom of the manhole.
5. Providing and placing flowable fill.

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

C. The unit of measurement for payment is each.

1.11 SANITARY SEWER ABANDONMENT

A. The unit price for Sanitary Sewer Abandonment work includes:
   1. General Work Items of Article 1.2.
   2. Sanitary sewer pipe abandonment flowable fill materials and installation.
   3. Backfilling and compacting.
B. Measurement of payment will be the actual horizontal length along the centerline of the abandoned sewer.

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

1.12 BYPASS PUMPING

A. The unit price for Bypass Pumping work includes:
   1. General Work Items of Article 1.2.
   2. Bypass pumping plan.
   3. Setup and removal of pumps and hoses.
   4. Spill containment and emergency cleanup if required.
   5. Maintenance of traffic as required in Sections 01 10 00 and 33 31 00.1SP.

B. Measurement for payment will not be made.

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

1.13 SANITARY SEWER TRENCH STABILIZATION

A. The unit price for Sanitary Sewer trench stabilization work includes:
   1. General Work Items of Article 1.2.
   2. Excavation and removal of unsuitable material below sewer invert.
   3. Placement of geotextile fabric and backfill material specified for trench stabilization.

B. Measurement of payment will be the actual horizontal length along the centerline of the installed sanitary sewer trench stabilization

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

D. Contractor shall obtain written approval of Engineer prior to performing Sanitary Sewer Trench Stabilization, including the estimated quantity. Payment for Sanitary Sewer Trench Stabilization will be made only for approved work.

1.14 PROVIDE LATERAL RELAY (6" OR 4") AND CONNECTION TO 30" LINE PIPE

A. The unit price for Sanitary Sewer Lateral Relay (6" or 4") and connection to 30" Lined Pipe work includes:
   1. General Work Items of Article 1.2
   2. PVC Sanitary sewer lateral pipe and fittings.
   3. Watertight plug in the end of the sewer service lateral or connection including transition.
   4. Tracer Wire.
   5. Sanitary sewer service saddle designed for connection to lined pipe.
      OR
   6. Cleaning sewer lateral pre-lining and post lining.
   7. Televising of the sewer lateral pre-lining and post lining.
   8. Installation of liner.
   9. Grouting gaps between lined lateral and lined 30" sewer main.

B. Measurement of payment will be the actual number of laterals relayed.

C. The unit of measurement for payment is each.

1.15 CAPPING LATERAL AT MAIN

A. The unit price for Capping Lateral at Main Work includes:
   1. General Work Items of Article 1.2.
   2. Excavation to Main.
   3. Provide and install PVC or Engineer approved water tight plug.
   4. Backfill and compact
      OR
   5. Provide internal plug approved by Engineer.

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

C. The unit of measurement for payment is each.

1.16 DIG DOWN TO LOCATE SANITARY SEWER

A. The unit price for Dig Down to Locate Sanitary Sewer work includes:
   1. General Work Items of Article 1.2.
   2. Excavating.
   3. Obtaining elevation on pipe.
   4. Backfilling and compacting or protecting excavation until connection is made.
   5. Modifying sanitary manhole height, including barrel sections, based on actual pipe elevation.

B. Measurement for payment will be on the number of excavations to verify elevations of sanitary sewers in alleys as shown on the plans.

C. The unit of measurement for payment is each.

1.17 ADJUST MANHOLE

A. The unit price to Adjust Manhole CSI-004 work includes:
   1. General Work Items of Article 1.2.
   2. Removal and salvage of existing manhole casting.
   3. Removal of existing adjustment rings and top row of bricks.
   4. Installation of new adjustment rings and salvaged manhole casting.
   5. Interior surface liner installation at locations where existing liner has been damaged and/or at locations where concrete surfaces are exposed.

B. Measurement for Payment will not be made.

C. The unit of measurement for payment is Lump Sum.

END OF SECTION

SECTION 01 22 02

MEASUREMENT AND PAYMENT STORM SEWER

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

1. Storm Sewer Mains (Granular Backfill)	ST-01, ST-02, ST-03, ST-04, ST-05, ST-06, ST-07
2. Storm Sewer Laterals	ST-08, ST-09
3. Storm Sewer Service Branches or Tees	ST-10, ST-11, ST-12, ST-13, ST-14, ST-15, ST-16
3. Storm Sewer Manholes	ST-17, ST-18
4. Catch Basin/Inlets	ST-19, ST-20
6. Concrete Collar	ST-21
7. Increase Pipe Opening to Existing Storm	ST-22, ST-23
8. Abandon/Remove Existing Storm Sewer Main and Appurtenances	ST-24

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

1.2 GENERAL WORK ITEMS

A. Include with the appropriate Unit Price Item the following work items which are common to the Unit Price Items for 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 and replace existing mailboxes and traffic signs.
18. Restroom facilities
19. Easement and right-of-way requirements.
20. Construction staking and other survey work not 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 (Granular Backfill) 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 LATERALS

A. The unit price for Storm Sewer Laterals work includes:
   1. General Work Items of Article 1.2.
   2. Storm sewer lateral pipe and fittings of the material stated in the Unit Price Bid Schedule and installed using the open trench method.
   3. Watertight plug in the end of the sewer service lateral or connection including transition coupling to the existing building sewer lateral.
   4. Tracer wire.
   5. 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.

1.5 STORM SEWER SERVICE BRANCHES OR TEES

A. The unit price for Storm Sewer Service Branches or Tees 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.

1.6 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).

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.

1.7 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.

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

C. The unit of measurement for payment is each.

1.8 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.

1.9 INCREASE PIPE OPENING TO EXSITING STORM SEWER MANHOLE

A. The unit price for Increase Pipe Opening to Existing Storm Sewer Manhole work includes:
   1. General Work Items of Article 1.2.
   2. Core drilling or saw cutting into existing storm sewer manhole.
   3. Removing precast or block.

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

C. The unit of measurement for payment is each.

1.10 ABANDON/REMOVE STORM SEWER AND APPURTENANCES

A. The unit price for Abandon/Remove Existing Storm Sewer and Appurtenances work includes:
   1. General Work Items of Article 1.2.
   2. Bulkhead and abandon existing storm sewer with flowable fill for entire project.
   3. Remove and dispose of manholes and inlets.

B. Measurement of payment will not be made. This includes all of the project area.

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

END OF SECTION

SECTION 01 22 03

MEASUREMENT AND PAYMENT WATER SYSTEM

PART 1 – GENERAL

1.0 SUMMARY

A. Section includes:

1.	Water Mains (Granular Backfill)	W-01, W-02, W-03
2.	Water Services	W-04, W-05
3.	Corporation and Curb Stop	W-06, W-07
4.	2” Corporation with Plug/Saddle with 2” HDPE	W-08
5.	Fire Hydrants	W-14
6.	Valves	W-09, W-10
7.	Connection to Existing Water Mains	W-11
8.	Connection to Existing Water main by Cut-In Tee/Tapping Tee	W-12,W-13
9.	Water Main Offset	W-15
10.	Dig Down and Verify Elevation of Water Main	W-16
11.	Abandon/Remove Water Main and Appurtenances	W-17

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.

1.1 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 and replace existing mailboxes and traffic signs.
18. Restroom facilities
19. Easement and right-of-way requirements.
20. Construction staking and other survey work not 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.

1.2 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.

1.3 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.

1.4 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.

1.5 2" CORPORATION WITH PLUG/SADDLE AND HDPE

A. The unit price for 2" Corporation with Plug/Paddle and HDPE work includes:
1. General Work Items of Article 1.2.

2. Provide and install 2" corporation with plug (where required) with 2" HDPE pipe.
3. Provide and install 2" corporation with saddle (where required) with 2" HDPE pipe.
4. Remove 2" corporation with plug/saddle and repair water main.
5. Provide solid sleeve if saddle was removed.

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

C. The unit of measurement for payment is each.

1.6 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.

1.7 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.

1.8 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.

1.9 CONNECTION TO EXISTING WATER MAIN BY CUT-IN TEE/TAPPING TEE

A. The unit price for Connection to Existing Water Main by Cut-In Tee/Tapping Tee Work includes:
   1. General Work Items of Article 1.2.
   2. Locating existing water main.
   3. Supply and install ductile or cast iron pipe fittings.
   4. Supply equipment for tapping tee installation.
   5. Installation of tapping tee.
   6. Valve and valve box.
   7. Polyethylene encasement of ductile or cast iron pipe fittings.
   8. Tracer wire.
   9. Blocking and joint restraints.
   10. Disinfection of pipeline.

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

C. The unit of measurement for payment is each.

1.10 WATER MAIN (OFFSET)

A. The unit price for Water Main (Offset) work includes:
   1. General Work Items of Article 1.2.
   2. Ductile or cast iron fittings and PVC pipe.
   3. Tracer wire.
   4. Polyethylene encasement of ductile iron or cast iron pipe and fittings.
   5. Blocking and joint restraints.

B. Measurement for payment will number actually installed.

C. The unit of measurement for payment is each and includes the pipe fittings from vertical bend to vertical bend at the offset location.

1.11 DIG DOWN AND VERIFY ELEVATION OF WATER MAIN

A. The unit price for Dig down and Verify Elevation of Water Main Sewer work includes:
   1. General Work Items of Article 1.2.
   2. Excavate to top of water main.
   3. Assist Engineer to determine elevation of the top of the water main.
   4. Backfilling and compaction.

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

C. The unit of measurement for payment is each.

1.12 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.

B. The measurement for payment will not be made. This includes all of the project area.

C. The unit of measurement for payment is Lump Sum.

END OF SECTION

SECTION 01 22 04

MEASUREMENT AND PAYMENT STREET AND DRAINAGE CONSTRUCTION

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:

1.	Topsoil and Unclassified Excavation.	SD-01
2.	Mill Asphaltic Concrete Pavement	SD-02
3.	Crushed Aggregate Base and Surface Course	SD-03
4.	Asphaltic Concrete Pavement	SD-04, SD-05
5.	Asphaltic Patch (Hot Mix)	SS-14, SS-15, SS-16, SD-06
6.	Portland Cement Concrete Curb and Gutter	SD-07, SD-08, SD-09
7.	Portland Cement Concrete Pavement	SD-10
8.	Portland Cement Concrete Driveway and Sidewalk	SD-11, SD-12, SD-13, SD-14
9.	Deformed Reinforcement Bars	SD-15
10.	Drilling Tie Bars and Dowel Bars	SD-16
11.	Detectable Warning Field Natural	SD-17
12.	Pavement Marking Epoxy Lines	SD-18, SD-19, SD-20
13.	Landscaping – Topsoil, Seed, Fertilize, and Mulch	SD-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 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 and replace 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 TOPSOIL AND UNCLASSIFIED EXCAVATION

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

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

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

1.4 MILLING ASPHALTIC CONCRETE PAVEMENT

A. The unit price for Milling Asphaltic Concrete Pavement work includes:
   1. General Work Items of Article 1.2.
   2. Milling to length, width, and depth as shown on Drawings or specified elsewhere.
   3. Hauling and disposing of millings.
   4. Cleaning of area milled.

B. Measurement for payment will be the average horizontal length and width of roadway.
   1. This item is to patch areas as noted on the plan.

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

1.5 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. (Consisting of virgin aggregate or pulverized asphaltic concrete pavement from this project).
   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 made based on the following:
   1. Length will be the construction limits.
   2. Width will be 6” behind the back of curb.
   3. Depth is 15”.
   4. Area will be field verified by survey and calculated based on the computer generated area.

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

1.6 ASPHALTIC CONCRETE PAVEMENT

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. Provide tack coat on base material.
   5. Saw cutting and/or mill adjacent and abutting pavement surfaces.
   6. Asphaltic concrete placement and compaction to thickness and width shown on the drawings or specified elsewhere.
   7. Tack coat between asphaltic concrete courses and abutting pavements.

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

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

Density Deficiency-Percent of Unit Price for Payment

%Lot Density Below Specified Minimum	WisDOT Mixes
From 0.5-1.0 inclusive	98%
From 1.1-1.5 inclusive	95%
From 1.6-2.0 inclusive	91%
From 2.1-2.5 inclusive	85%
From 2.6-3.0 inclusive	70%
More than 3.0	0%

D. The unit of measurement for payment is tons.

1.7 ASPHALT PATCH (HOT MIX)

A. The unit price for Asphaltic Patch (Hot Mix) work includes:
   1. General Work Items of Article 1.2.
   2. Provide Asphaltic Concrete Pavement, Type 3 Lt 58-28 S, 2” Layer
   3. Install and maintain patch from time of utility installation through preparation for final paving.
   4. Patch is temporary and may be placed with loader.

B. Measurement for payment will not be made.

C. The unit of measurement for payment is Lump Sum.

1.8 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 expansion joints.
   4. Providing curing.
   5. Existing curb and gutter removal.
   6. Subgrade preparation.
   7. Provide crushed aggregate base.
   8. Fine grading of subgrade.
   9. Providing contraction joints.
   10. Driveway entrances and handicap ramp entrances.
   11. Adjustment of catch basin/inlets.
   12. Finishing.
   13. Protection.
   14. Restoration behind the curb.

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

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

1.9 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.
   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.

1.10 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. Color and stamp (where applicable).
   6. Providing curing.
   7. Existing pavement removal.
   8. Subgrade preparation.
   9. Providing contraction joints.
   10. Handicap ramps.
   11. Sidewalk steps.
   12. Saw cutting adjacent surfaces.
   13. Finishing.
   14. Protection.
   15. 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.

1.11 DEFORMED REINFORCEMENT BARS

A. The unit price for Deformed Reinforcement Bars work includes:
   1. General Work Items of Article 1.2.
   2. Supply and install 2 number 4 deformed reinforcement bars over all trenches that fall under any portion of the concrete curb and gutter, sidewalk, and driveway being constructed.

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

C. The unit of measurement for payment is each.

1.12 DRILLING TIE BARS AND DOWEL BARS

A. The unit price for Drilling Tie Bars and Dowel Bars work includes:
   1. General Work Items of Article 1.2.
   2. Providing and installing tie bars and dowel bars, including coating.
   3. For drilling holes in concrete not placed under the contract.
   4. For epoxying or driving.

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

C. The unit of measurement for payment is each.

1.13 DETECTABLE WARNING FIELD NATURAL

A. The unit price for Detectable Warning Field Natural work includes:
   1. General Work Items of Article 1.2.
   2. Providing and installing Detectable Warning Field per ADA requirements.
   3. Each detectable warning field shall be 2 feet by 4 feet.

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

C. The unit of measurement for payment is each.

1.14 PAVEMENT MARKING EPOXY LINES

A. The unit price for Pavement Marking Epoxy Lines 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 of payment will be by the linear foot, calculates as follows:
   1. For solid lines; by adding the linear feet of solid line measured end to end.
   2. For intermittent lines; by multiplying the specified length of the individual marking of the line by the number of markings in the intermittent line end to end.

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

1.15 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:

1.	Pipe Foundation Stabilization	SC-01
2.	Inlet Protection Erosion Control	SC-02
3.	Adjusting Existing Structure Frame and Casting	SC-03, SC-04
4.	Polystyrene Insulation Board	SC-05
5.	Traffic Control	SS-13,SC-06

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 PIPE FOUNDATION STABILIZATION

A. The unit price for Pipe Foundation Stabilization work includes:
   1. General Work Items of Article 1.2.
   2. Excavation below the limits of the pipe bedding with the bottom of the excavation wider than the top with 1:1 side slopes.
   3. Dewatering.
   4. Soil Class A-7 or A-8 aggregate material.
   5. Loading, hauling and disposing of surplus excavated material.

B. Measurement of payment will be the volume calculated based on:
   1. The actual depth from 4” below the bottom of pipe to the bottom of the aggregate material placed.
   2. The bottom width is the actual width not to exceed the pipe outside diameter plus 24” plus1:1 side slopes.
   3. The top width is the pipe outside diameter plus 24”.

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

1.4 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.

1.5 ADJUST EXISTING STRUCTURE FRAME CASTING

A. The unit price for Adjusting Existing Structure Frame Casting work includes:
   1. General Work Items of Article 1.2.
   2. City of De Pere will provide structure castings. Contractor will pick up castings at 925 South Sixth Street.
   3. Removal of the casting and existing adjusting rings from the structure as required.
   4. Providing concrete adjusting rings and a 2 inch rubber riser ring from the WisDOT approved product list.
   5. Bituminous plastic cement sealing the exterior of the adjusting rings and casting.
   6. The ring will be secured to the precast section with a 3 ½" wide Kent Seal or equal.
   7. Above the concrete ring attach ¼ inch thru 3 inch thick ring using two 5/16 inch bead above and below the ring of sealant type as recommended by the rubber manufacturer.
   8. Initial and final adjustment.
   9. Backfilling and compacting.

B. Measurement for payment will be the actual number of structure frame casting adjusted.
   1. This item applies to City structures.

C. The unit of measurement for payment is each.

1.6 POLYSYRENE INSULATION BOARDS

A. The unit price for Polystyrene Insulation Boards Work includes:
   1. General Work Items of Article 1.2.
   2. Supply and install a 2-inch thick insulation per the Standard Specifications along the top of the water main and/or service and 6-inch above the water main and/or service with pipe bedding imbetween the polystyrene board and pipe.

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

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, install, 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.
5. Temporary traffic control signals (activated) per the MUTCD>
6. Sidewalk closure.

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

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

END OF SECTION

SECTION 01 22 07

MEASUREMENT AND PAYMENT PROFESSIONAL SERVICES

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes:
   1. Construction Staking GBMSD Sanitary Sewer and Manholes SS-02
   2. Builders Risk Insurance. SS-18

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 CONSTRUCTION STAKING

A. The unit price for Construction Staking work includes all equipment, materials & labor to complete construction staking
   1. Maintaining Site Control.
   2. Provide cut-sheets to Owner and Engineer.

B. Measurement of payment will be based on the work completed. This bid item is for construction staking of:
   1. GBMSD 24-inch Sanitary Sewer and Manholes.

C. The unit of measurement for payment is Lump Sum.

1.3 BUILDERS RISK INSURANCE

A. The unit price for Builders Risk Insurance Work includes
   1. Provide a Builders Risk Insurance per Section 00 65 16.
   2. Include GBMSD and Donohue & Associates as Additional Insured.

B. Measurement for payment will not be made.

C. The unit of measurement for payment is Lump Sum.

END OF SECTION

SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 SUMMARY

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

1.2 SCHEDULE OF VALUES

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

1.3 APPLICATIONS FOR PAYMENT

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

B. The date for each progress payment should be the 3rd 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 five original copies of Application for Payment to Contractor for certification of all five 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 Owners:
   1. Wisconsin Department of Natural Resources

i. Sanitary Sewer Extension
ii. Water Main Extension
iii. WRAPP (equivalent to the NOI), General Permit to Discharge Construction Site Storm Water Runoff

2. Brown County Highway Department

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

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.

3. Construction staking for 24-inch GBMSD sanitary sewer and manholes shall be provided by Contractor.

C. 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. Construction staking for 24-inch GBMSD sanitary sewer and manholes.
   2. Locate, preserve and protect established construction reference stakes, benchmarks and control points.
   3. 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".
   4. Provide additional construction staking as necessary to complete construction based on the construction reference stakes provided by the Engineer and the Drawings.
   5. 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.
   6. 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. Road Construction
   1. Provide additional construction reference stakes necessary to establish location and grade in accordance with the plans.

END OF SECTION

SECTION 01 71 23.16
CONSTRUCTION STAKING

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes
   1. Work consist of construction survey work for the Green Bay Metropolitan Sewerage District 24" Sanitary Sewer and Manholes including the furnishing and setting of construction stakes necessary to establish the location, grade, and alignment of the required staking items, in accordance with the plans or as directed by the Engineer.
   2. Construction staking for the storm sewer, City of De Pere sanitary sewer, water main, and road construction will be completed as described in Section 01 71 23 – Field Engineering.
   3. This work shall be completed under the direction of a State of Wisconsin Registered Land Surveyor.

1.2 References

A. State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, current edition, and all supplemental and interim supplemental specifications, as they may pertain, except the items: method of measurement and basis of payment shall not apply.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 CONSTRUCTION METHODS

A. Benchmark data, grades, and alignment shall be obtained or calculated from data in the plan and shall be verified with the Engineer prior to beginning the work.

B. The degree of accuracy used in the survey work shall be consistent with Third Order, Class II.

C. If, in the opinion of the Contractor, the plans are found to lack sufficient information for proper layout or a potential error is found, the Contractor shall immediately notify the Engineer.

3.2 GENERAL REQUIREMENTS

A. Obtain, from the Prime Contractor, the approved plans, special provisions and specifications for the project. Note: plan revisions may occur, check with the Prime Contractor throughout project for changes to the approved plan supplied by the Engineer.

B. Field locate controlling plan survey data for the project.

C. When necessary, establish horizontal and vertical control that complies with Third Order Class II accuracy in relation to the existing project control.

D. Record all information in field books and make them available to the Engineer. This includes a description of control and all related notes for this control. All survey notes and computations used in establishing the lines and grades shall be given to the Engineer within 10 days of completing the work.

E. Immediately bring to the attention of the Engineer any discrepancies or errors.

F. Do not set out anything without first field verifying for accuracy.

G. Check with the Engineer to ensure that alignment, profiles, and grades have not changed from what is shown on the approved plan.

H. Compute grades/alignment from approved plans and/or contact with Engineer on the availability of information.

I. Keep neat and accurate field notes of work being performed.

J. Provide a complete cut-sheet indicating staking information for each item of work to the Owner within 24 hours of staking. All structure elevations shall be on a separate sheet.

K. Lath shall be painted and flagged after marking.

L. Staking shall be completed in accordance with Section 650.3.2 of WisDOT Specifications and as modified as follows:

Set and maintain construction stakes or marks as necessary to achieve the required accuracy and to support the method of operations. Locate all pipe and manhole construction stakes to within 0.02 feet of the true horizontal position, and establish the

elevations to within 0.01 feet of the true vertical position. Determine existing field elevations at all locations requiring connections to an existing sanitary sewer and provide this information to the engineer at a mutually agreed upon date or least 14 calendar days before ordering manholes and sewer pipe.

1. Structures
    a. Stake the manhole structures on line with lath. Mark lath to indicate the centerline of the item.
    b. Place two (2) offset grade stakes and lath on all of the above. Mark grade stakes with cuts or fills to all flowlines and rims. Also, mark grade stakes with station, and offset.
2. Mainline Sewers
    a. Place stakes and offset grade stakes and lath for mainline sewers, out of every structure and every 50 feet until reaching the next structure. Mark grade stakes with station, (station 0+00 begins at all downstream manholes) offset and cut or fill to flowline.

END OF SECTION

SECTION 03 35 33
STAMPED COLORED CONCRETE FINISHING

1.1 SUMMARY

A. Section Includes:
   1. Constructing stamped colored concrete.

1.2 REFERENCES

A. WisDOT Standard Specification for Highway and Structure Construction, Latest Edition.

1.3 SUBMITTALS

A. Design Mixes
   1. Submit copies of the composition and strength testing results for design mix for each type of concrete.

B. Certificates
   1. Manufacturer's certification of the curing compound.
   2. Manufacturer's certification of evaporation retarders.
   3. Manufacturer's certification of sealer with sure grip.

C. Samples
   1. Provide all material samples needed for the required testing.

1.4 QUALITY ASSURANCE

A. Independent testing will be completed by the Owner.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Concrete shall be in accordance with the Standard Specifications.

B. The stamping pattern shall be Belgian Basket Weave used brick.

C. The coloring admixture shall be WisDOT Red, conforming to Section 405 of the WisDOT Standard Specification for Highway and Structure Construction.

D. The maximum amount of chert allowed shall be less than one percent (1.0%) by weight.

E. The City of De Pere will provide three sets of six basic concrete stamping and patterning tools. The contractor shall provide other tools necessary to complete the work.

F. Evaporation retarders: Waterborne monomolecular film forming manufactured for application to fresh concrete, Dayton Superior Day-Chem Sure Film J-74 or equal.

G. Form Release Agent.

H. AK-2 ACHRO KURE 1315 sealer with sharp grip added.

I. Curing and sealing materials shall be compatible with colored concrete as recommended by the manufacturer.

PART 3 – EXECUTION

3.1 PLACING AND FINISHING CONCRETE

A. Construct stamped colored concrete pavement in accordance with the standard specifications and as hereinafter provided. The coloring of the concrete shall be full depth color, not surface application

B. The City of De Pere will provide the decorative stamping and patterning tools for stamping the concrete. The City has 21 rigid stamps and 3 flexible stamps. The stamps owned by the City are Belgian Basket Weave used brick. If the Contractor needs to purchase more stamps to perform the work, the additional stamps purchased shall be considered incidental to the stamped colored concrete. Return the concrete stamping and patterning tools to the City once work is complete. Return concrete stamping and patterning tools in good condition. If the concrete stamping and patterning tools are not returned to the City in good condition the contractor shall replace the stamping and patterning tools.

C. Provide all other standard finishing tools for stamping the colored concrete.

D. Colored concrete shall be produced in one (1) cubic yard increments. No ½ cubic yard loads will be accepted.

E. Water/cement in mix design shall be consistent to maintain consistent color.

F. Colored concrete mixes for the entire project shall be consistent. If the mix is started with High Early Strength then all colored concrete shall be provided as High Early Strength. Switching from regular colored concrete to High Early Strength colored concrete or High Early Strength colored concrete to regular colored concrete will not be allowed.

G. Once pouring of the colored concrete on the project has begun, cement switching in the colored concrete will not be allowed because it will affect the color consistency of the colored concrete.

H. Any additional water added to colored concrete once the truck is on site will be rejected.

I. Blessing of the colored concrete pavement with water once concrete is in place will not be allowed. If water is added to the surface of the colored concrete surface once concrete is in place, the colored concrete will be rejected and will need to be removed.

J. Evaporation reducers will be used throughout the construction of the colored concrete.

K. Cover and protect adjacent construction and concrete from discoloration and spillage during placement of colored concrete, application of release agents, and sealers.

L. Liquid release agent shall be uniformly applied onto the colored still plastic state concrete to provide clean release of imprinting tools from the concrete surface without lifting imprint or tearing concrete.

M. While initially finished concrete is in plastic state, accurately align and place imprinting stamps. Monitor the setting up of the concrete. Once the concrete has set to the point it can be stamped the contractor shall begin stamping. Uniformly pound or press imprint tool into concrete to produce required pattern and depth of imprint on concrete surface. Remove platform tools immediately. Hand texture and stamp edges and surfaces unable to be imprinted by stamp mats. Touch up imperfections such as broken corners, double imprints and surface cracks.

N. Stamp concrete consistently so that stamped concrete does not have a vertical elevation difference of ½ inch or depressions in concrete capable of causing ponding water or ice.

O. For concrete hand stamp edges and surfaces that are unable to be imprinted by platform tools, use texture mats and single blade hand stamps to match platform tool stamping pattern. Finished imprinting shall match pre-construction mock-up.

P. After concrete has been stamped and the sheen has left the surface of the colored concrete, the colored concrete shall be sealed with AK-2 ACHRO KURE 1315 with sharp grip added. Apply per manufacturer's recommendations. Two coats of seal shall be applied. Apply second coat after first coat has dried. Do not seal over blemishes or imperfections caused by rainfall or protection materials.

Q. In general colored concrete must be protected from premature drying and excessive cold or hot temperatures. Apply evaporation retarders to concrete surfaces only if hot, dry, or windy conditions causing a moisture loss approaching 0.20lb./sq.ft. x h before and during initial finishing operations. Apply according to manufacturer's written instructions after placing and screeding and during initial floating operations.

R. Protect the colored concrete from damage.

S. Adjacent concrete that is discolored shall be removed and replaced to the approval of the engineer.

END OF SECTION

SECTION 32 11 26.16

PULVERIZED ASPHALT AND AGGREGATE BASE COURSE

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes
   4. Material testing.
   5. Foundation preparation.
   6. Pulverize asphalt and aggregate base course installation.

1.2 REFERENCES

A. Wisconsin Department of Transportation WisDOT Standard Specification for Highway and Structure Construction, Latest Edition, Section 325

1.3 QUALITY ASSURANCE

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

1.4 DELIVERY, STORAGE AND HANDLING

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

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

PART 2 – PRODUCTS

2.1 MATERIALS

2.2 SOURCE QUALITY CONTROL

PART 3 – EXECUTION

3.1 PREPARATION OF FOUNDATION

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

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

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

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

3.2 PULVERIZE ASPHALT AND AGGREGATE BASE COURSE INSTALLATION

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

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

C. Compaction
   1. After a layer of aggregate has been placed and spread to the required thickness, width, and section, it shall be compacted.
   2. Compact the re-laid material first with either a rubber tired roller or 12.5-ton or heavier vibratory padfoot roller and second with an 8-ton or heavier vibratory steel roller. Add water, as required, both before and during compaction.

3. Each layer or course placed shall be compacted to at least 95 percent of the maximum dry density as determined by the Modified Proctor Test (ASTMD1557).
4. Areas where proper compaction is not obtainable due to segregation of materials, excess fines or other deficiencies shall be reworked or removed and replaced with material that will that will yield the desired results.
5. Prior to and during compaction operations, shape and maintain the material to the proper dimensions.

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

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

END OF SECTION

SECTION 33 00 05

DOUBLE AND TRIPLE WALLED POLYPROPYLENE PIPE

1.1 SUMMARY

A. Section Includes:
1. Double walled polypropylene pipe for mainline gravity storm sewer.
2. Triple walled polypropylene pipe for mainline gravity storm sewer.

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

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

1.	D3212	Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
2.	F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
3.	F2736	Standard Specification for 6 to 27 in. (152 To 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe And Double Wall Pipe
4.	F2764	Standard Specification for 30 to 60 in. [750 to 1500 mm] Polypropylene (PP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications

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.
5.

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 twelve 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. Pipe stiffness designation, dimension ration, or schedule size and pressure class.
   4. ASTM specification designation.
   5. Production date.

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. For onsite gasket installation on pipe, store gaskets away from excessive exposure to heat, direct sunlight, ozone, oil or grease.

E. For gaskets installed on the pipe offsite, keep the protective wrap on gaskets until installation.

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.

PART 2 – PRODUCTS

2.1 NON-PRESSURE RATED PIPE

A. Mainline Gravity Sewer and Sewer Services
   1. Pipe fittings and repair couplings shall be manufactured and tested in accordance with the following standards:
      a. Sizes 8 inch through 27 inch and depths up to 20 feet: ASTM F2736, PSM SDR-35 PVC
      b. Sizes 30 inch through 60 inch and depths up to 20 feet: ASTM F2764, PS46 PVC, T-1 minimum cell classification
   2. Pipe shall have a minimum pipe stiffness of 46 PSI.

3. Minimum height of cover to the top of pipe to the existing elevation or proposed finished elevation (whichever is less) shall be two feet.
4. Elastomeric Gaskets: Conform with ASTM F477
5. Elastomeric Joints: Conform with ASTM D3212
6. Solvent Weld Joints: Not permitted.

B. Sewer Services
1. 4" and 6" pipe shall be Schedule 40 PVC and conform to section 33 00 02, Polyvinyl Chloride (PVC) Pipe and Fittings.
2. Branch laterals shall be designed to accept SDR 35.

2.2 DEFLECTION TEST REQUIREMENTS

A. Deflection testing procedures shall conform to Section 01 45 23 10, Testing and Inspection of Pipeline and Appurtenances.

B. The following table shall be used for the mandrel setting for Polypropylene Pipe:

Table 1
SaniTite HP Recommended Mandrel Settings

Pipe Type	Pipe Diameter (Inches)	Minimum Inside Diameter (Inches)	Inside Diameter With 5% Deflection (Inches)
Dual Wall	12	11.90	11.31
	15	14.85	14.11
	18	17.93	17.03
	21	20.79	19.75
	24	23.90	22.71
	30	29.79	28.30
Triple Wall	30	29.62	28.14
	36	35.40	33.63
	42	41.31	39.24
	48	47.31	44.94
	60	59.30	56.34

END OF SECTION

SECTION 33 31 00.1SP

SANITARY SEWER SYSTEMS – GBMSD – SPECIAL

PART 1 – GENERAL

1.1 SUMMARY

A. Section Includes:
1. Green Bay Metropolitan Sewerage District Special Provisions for the 24" sanitary sewer interceptor and manholes
2. The intent of this Special Provision is to provide additional requirements or modify City of De Pere Department of Public Works 2018 Standard Specifications (City Specification). This section does not replace the City Specifications. In the event of conflicting requirements, this Special Provision shall take precedence over the City Specifications, but is only applicable to the 24" GBMSD sanitary sewer interceptor and manholes.
3. The Special Provisions amend or supplement the City Specifications. All provisions that are not so amended or supplemented remain in full force and effect. The Special Provision is set up to follow the numbering in the City Specification Section 33 31 00. Refer to Section 33 31 00 for sanitary sewer information not covered in this Special Provision.

1.2 REFERENCES

A. Standard Specifications for Sewer & Water Construction in Wisconsin

1.3 SUBMITTALS

B. Quality control test results.

C. Product data for external manhole surface sealant

D. Provide design drawings sealed by a professional engineer in Wisconsin for MH CSI-018, if precast construction preferred.

E. Product Data for interior surface liner
1. Technical data sheet on each product used, including ASTM test results indicating product conforms to and is suitable for its intended use per these Specifications.
2. Safety Data Sheets (SDS) for each product used.
3. Applicator Qualifications:
   a. Manufacturer certification that Applicator has been trained and approved in handling, mixing, and application of products to be used.

b. Contractor's foreman and applicator shall have a minimum of 3 years' experience in the spray application of epoxy lining products.
c. Installer must document, through referenced, installation of minimum of 10,000 sq. ft. of proposed product in wastewater environment.
d. Proof of any necessary federal, state, or local permits or licenses necessary for project.

4. Design Details for any additional ancillary systems and equipment to be used in site and surface preparation, application, and testing.

F. Table of manufacturer's recommended mandrel sizes for 3% or 5% deflection cases based on diameter and wall thickness of pipe provided for this project.

G. Miscellaneous Submittals
1. Proposed plan for bypassing sewage during construction.
2. Emergency plan detailing procedures to be followed in event of pump failures, sewer overflows, service backups, and sewage spillage. Maintain copy on site for duration of project.

PART 2 –PRODUCTS

2.1 PIPE

B. Wyes, Tees, Risers and Fittings
4. Wye branches connecting to the 24-inch sanitary sewer shall be from the list of acceptable manufacturers:
a. Inserta Tee
b. No substitutions

2.3 MANHOLE

B. Precast Reinforced Concrete Manholes
4. Adjusting Rings
a. Precast concrete minimum of 4 inches thick EACH
b. Rubber: Infra-Riser or approved equal
c. Polypropylene: PRO-RING as manufactured by Cretex Companies
d. Sealed to manhole structure, casting, and one another by means of sealant recommended by ring manufacturer
6. Joints between components:
a. Exterior joint collar
1) Products:
a) EZ Wrap as manufactured by Press-Seal Gasket Corporation
b) Or Equal

C. Manhole Steps
   1. Do not provide steps for GBMSD manholes

D. Castings
   7. Indented top design (Type "B")
   8. No vent holes
   9. Cover shall be lettered "GBMSD" in block letters in accordance with GBMSD's standard pattern on file with Neenah Foundry, Inc,
   10. Lettering shall be of recessed design

E. Exterior Surface Sealing:
   1. Moisture-cured urethane
   2. Product:
      a. MC-Tar 100 as manufactured by Wasser Corporation
      b. Or equal

F. Interior Surface Liner:
   1. Sprayable, corrosion-resistant, monolithic ultra high-build epoxy coating
      a. Product:
         1) Raven 405 as manufactured by Raven Lining System, Inc.
         2) COR+GARD as manufactured by AP/M Permaform
         3) No substitutes permitted
      b. Color: Light blue

G. Exterior Manhole Chimney Seal
   1. Coal epoxy coating
      a. Products:
         1) EZ-Stik #3 Butyl Joint Sealant as manufactured by Press-Seal Gasket Corporation
         2) Or equal
   2. Polyethylene wrap
      a. Conforming to Chapter 8.21.0 of the "Standard Specifications for Sewer and Water Construction in Wisconsin"
      b. 8 mil thickness

2.5 TRACER WIRE

A. Color: Green

2.6 TRENCH STABILIZATION MATERIALS

A. Coarse Aggregate
   1. ASTM C33 – Size No.2.
B. Filter Fabric – porous non-woven fabric with multiple layers of randomly arranged fibers, min 4.0 ounce per square yard (typical)
   1. Manufacturers
      a. Mirafi 140N by Mirafi, Inc.
      b. Typar 340I by DuPont
      c. Supac 5P by Phillips Fibers Corp.
      d. Propex 4545 by Amoco Fabric Co.
      e. Or Equal.

PART 3 – EXECUTION

3.1 GRAVITY SEWER INSTALLATION

D. Manholes
   1. General Installation Requirements
      d. The maximum amount of adjusting rings is eight inches
   2. Detailed Installation
      f. Manhole adjusting
         1) No more than ONE concrete ring (minimum 4-inch) on top of the cone section
         2) For manholes in pavement, provide ½-inch through 4-inch rubber or expanded polypropylene tapered rings to match the slope of the pavement
         3) The maximum amount of adjusting rings is eight inches
      n. Provide casting fame and cover as specified in this Special Provision for each manhole
   3. Liner and Coating Installation
      a. Interior Surface Liner
         1) Perform application procedures in accordance with epoxy coating manufacturer's recommendation, including application surface cleaning and preparation, material handling, mixing, environmental controls during application, safety and spray equipment, and the following:
            a) Number of coats: 2
            b) Minimum wet film thickness: 100 mils
         2) Epoxy coating shall be spray applied by applicator certified by coating manufacturer.
      b. Exterior Surface Sealing
         1) Coat exterior surface of manhole in accordance with the manufacturer's written instructions and the following:

a) Number of coats: 2
b) Minimum coat thickness: 5 mil
c) Total minimum thickness: 10 mils

4. Sealants
   a. Joints between components
      1) All manhole riser section joints shall be constructed with an exterior joint collar, installed according to the manufacturer's recommendations.
   b. Exterior manhole chimney seal
      1) Apply the coal epoxy coating a minimum of ¼-inch thick
      2) Apply the polyethylene warp over the entire outside surface of the manhole chimney
      3) The exterior manhole chimney seal shall cover all of the adjusting rings and overlap both the manhole cone and manhole frame a minimum of 6 inches.

E. Sewer Services
   3. Service Branches:
      a. New Sewers: Install Inserta Tee connectors following manufacturer's instructions.
      b. Contractor shall provide PVC core to Field Engineer.

3.5 TRACER WIRE

F. The wire shall be placed along the entire length of the sewer pipe and taped to the top of the pipe at 6 ft intervals.

G. Terminate tracer wire in manholes at joint between manhole cone and first adjustment ring. Cut slot in cone for wire. Provide a minimum of 18 inches of wire inside the manhole.

3.6 FIELD QUALITY CONTROL

A. Sewer testing and televising
   1. Cleaning and televising required after installation. Televising while sewer is in operation is acceptable
   2. Lamping not required
   3. Low Pressure Air Test not required
   4. Deflection test shall utilize mandrels sized for 3% allowable deflection when mandrel test is completed within 30 days of installation. If mandrel test is completed after 30 days from installation date, the deflection test shall utilize mandrel sized for 5% allowable deflection.

B. Manhole Testing
   1. Test manholes for leaking using Vacuum Testing in accordance with ASTM C1244.
   2. Test epoxy coating thickness during application with wet gauge thickness.
      a. Conform to ASTM D4414
   3. Inspect coating with high-voltage holiday system.
      a. Provide induced holiday to calibrate minimum/maximum voltages to be used.
      b. Set spark tester at 100 volts/ 1 mil of film thickness.
      c. Mark detected holidays and repair by abrading coating or barrier surface with grit disk paper or other hand tooling methods.
      d. Clean holiday areas and hand-apply coating or barrier material until minimum thickness requirements met.
      e. Measure bond strength of coating, at locations selected by ENGINEER, and in accordance with ASTM D4541.
         1) Repair areas with bond to concrete strength less than 300 psi.

3.7 TRENCH STABILIZATION

A. Base Bid included removal and disposal of 200 linear feet of unsuitable material excavation and backfill with specified materials. Adjust contact price if actual quantity differs from that specified. Written approval of Engineer required prior to performing unsuitable material excavation.

B. Installation
   1. Remove unsuitable material from within trenches.
   2. Stabilize trench bottom and replace unsuitable materials with Coarse Aggregate.
   3. Place geotextile fabric on top of unstable subgrade materials prior to placing coarse aggregate. Sufficient geotextile fabric shall be used to completely enclose foundation materials and pipe

3.8 BYPASS PUMPING

C. Provide for flow of sewage around sections of sewer being replaced.
   1. Pump of bypass lines shall be of adequate size and capacity to handle all flows, including peak daily flows, wet weather, and high-groundwater flows. Dry weather flows are estimated at 1.44 cfs. Wet weather flows for a 1-inch rainfall on April 20, 2017 yielded a peak flow rate of 4.3 cfs. The maximum peak flow rate is 9.5 cfs.
   2. Contractor must obtain Engineer's approval of bypass pumping plan prior to set up.
   3. Bypass pumps shall be critically silenced or sound attenuated to 80 DB or less.
   4. The Contractor shall provide a method of containing any wastewater spills from the site where the bypass pumping occurs, and immediately remove and clean up

any material spilled during bypass pumping. The Contractor shall also be responsible for paying any fines imposed as a result of spills or overflows that occur during bypass pumping operations.

5. Temporary connections from the new sewer to the existing sewer is allowable at the end of each work day to eliminate the need for bypass pumping at night time hours.
6. Contractor shall maintain local traffic on side streets and all other traffic requirements as described in Section 01 10 00 during bypass operations.

D. Miscellaneous information
   1. Manhole CSI-019 and CSI-020 consist of 6-ft diameter concrete manholes.
   2. Manhole CSI-020 acts as an air release valve manhole for two 12-inch diameter forcemains. The top portion of each pipe has been removed. Refer to picture of CSI-020 below.

MH CSI-020

3.9 ADJUST MANHOLE CSI-004

A. Manhole Adjustment
   1. Remove and salvage existing manhole casting.
   2. Remove existing adjustment rings and top row of existing bricks in the cone section.
   3. Install salvaged manhole casting and new adjustment ring.

B. Install interior surface liner at all locations in which the existing liner has been damaged and at locations where concrete surfaces are exposed.

END SECTION

APPENDIX

A. Subsurface Exploration and Subgrade Analysis 40 pages

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

	PAGE
INTRODUCTION	**1**
General	
Purpose	
Scope	
Authorization	
PROJECT AND SITE DESCRIPTION	**1**
Project Location	
Project Description	
Site Description	
EXPLORATION AND LABORATORY PROCEDURES	**3**
Scope Summary	
Field Exploration	
Laboratory Testing	
DESCRIPTION OF SUBSURFACE CONDITIONS	**4**
General	
Soil Conditions	
Groundwater Observations	
EVALUATION AND RECOMMENDATIONS	**6**
General Development Considerations	
Site Preparation	
Utility Subgrade Analysis	
Excavations	
Pipe Material	
Trench Backfilling	
Existing Pavement Section	
Pavement Subgrade Analysis	
Pavement Reconstruction	
Selective Subgrade Removal and Replacement	
Site Drainage	
CONSTRUCTION CONSIDERATIONS	**13**
Pavement Subgrade Preparation	
Borrow Material	
Fill Placement and Compaction	
Groundwater Considerations	
Subgrade Frost Action	

TABLE OF CONTENTS (CONTINUED)

GENERAL COMMENTS **16**

APPENDIX (in order of appearance)

Figure 1 - Boring Location Diagram (Enterprise Drive)
Figure 2 – Boring Location Diagram (Charles Street)
Soil Boring Logs
Laboratory Data Sheets
General Notes

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.

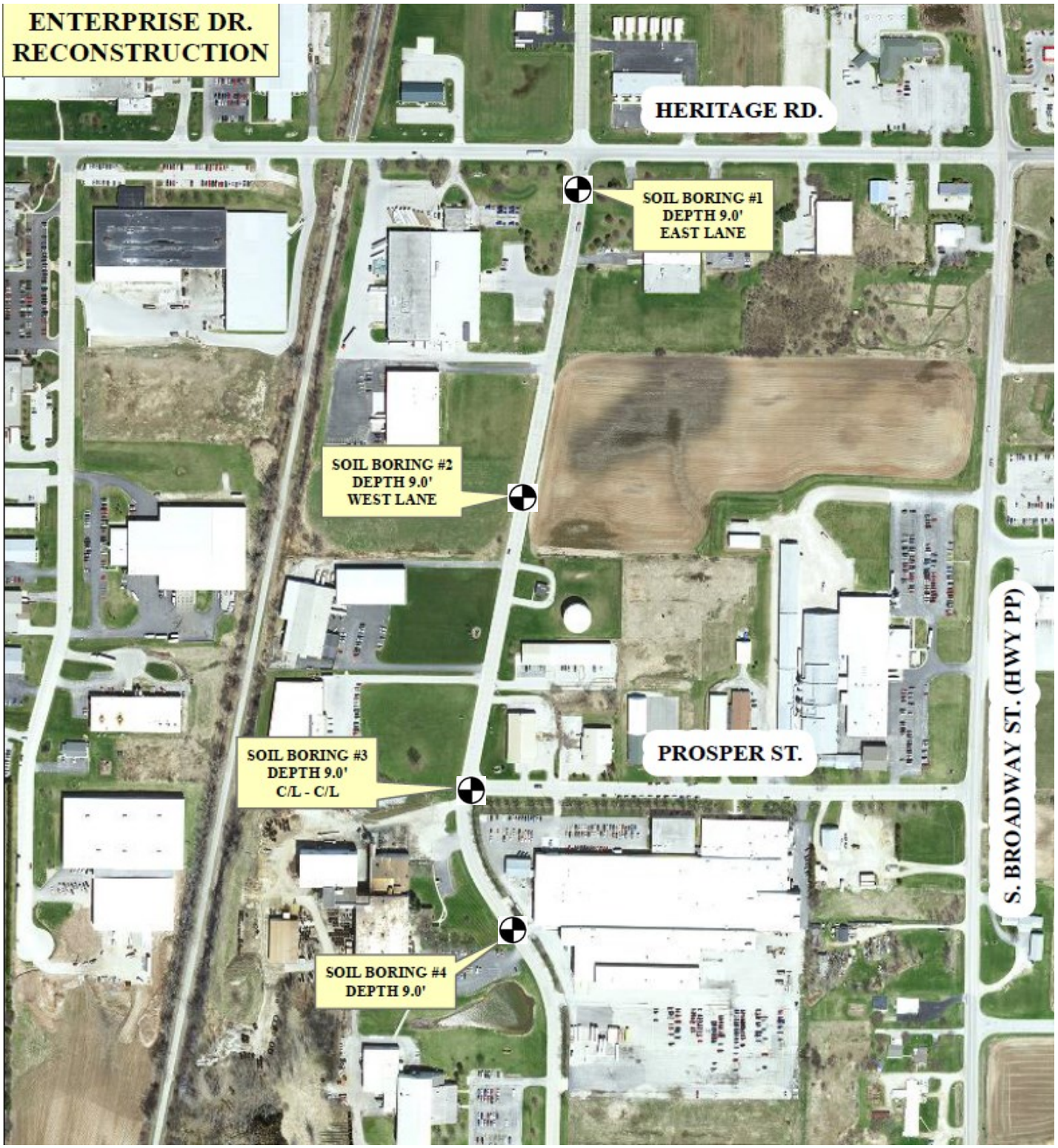
GENERAL COMMENTS

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

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						
1 638.7	8-15": Brown CRUSHED STONE, with sand, moist (BASE COURSE)	1-SS	11	-	-	4	
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		2-SS	11	1.5	-	23	
3 / 608.9							
608.4							
4 / 607.9							⊥
607.4		3-SS	11	3.5	3.6	26	
5 / 606.9							
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
0	0-7": Asphalt						
	7-11": Brown CRUSHED STONE, with sand, moist (BASE COURSE)					8	
1 / 611.8	Dark brown CLAY, with trace root matter, moist (POSSIBLE BURIED TOPSOIL)	1-SS	9	-	-	21	
2 / 610.8							
3 / 609.8	Reddish brown CLAY, with sand, moist	2-SS	15	-	-	14	
4 / 608.8							
5 / 607.8	Brown to yellowish brown CLAY, with sand, moist	3-SS	12	2.8	1.8	13	
6 / 606.8							
7 / 605.8		4-SS	8	1.5	1.7	17	
8 / 604.8							
9 / 603.8							
10 / 602.8	Reddish brown CLAY, moist	5-SS	6	2.3	2.1	24	
11 / 601.8							
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 $_{\text{during drilling}}$: Not Encountered ⩒
Water Level $_{\text{upon completion}}$: Not Present ▼
Caved at $_{\text{upon completion}}$: 13.5± feet below ground surface (EL. 599.3±) ⊥
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.

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						
1 / 611.8	6-12": Brown CRUSHED STONE, with sand, moist (BASE COURSE)	1-SS	11	-	-	4	
	12-16": Dark brown to black CLAY, moist (BURIED TOPSOIL)						
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 during drilling: Not Encountered
Water Level upon completion: Not Present
Caved at upon completion: 13.5± feet below ground surface (EL. 600.8±)
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.

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:

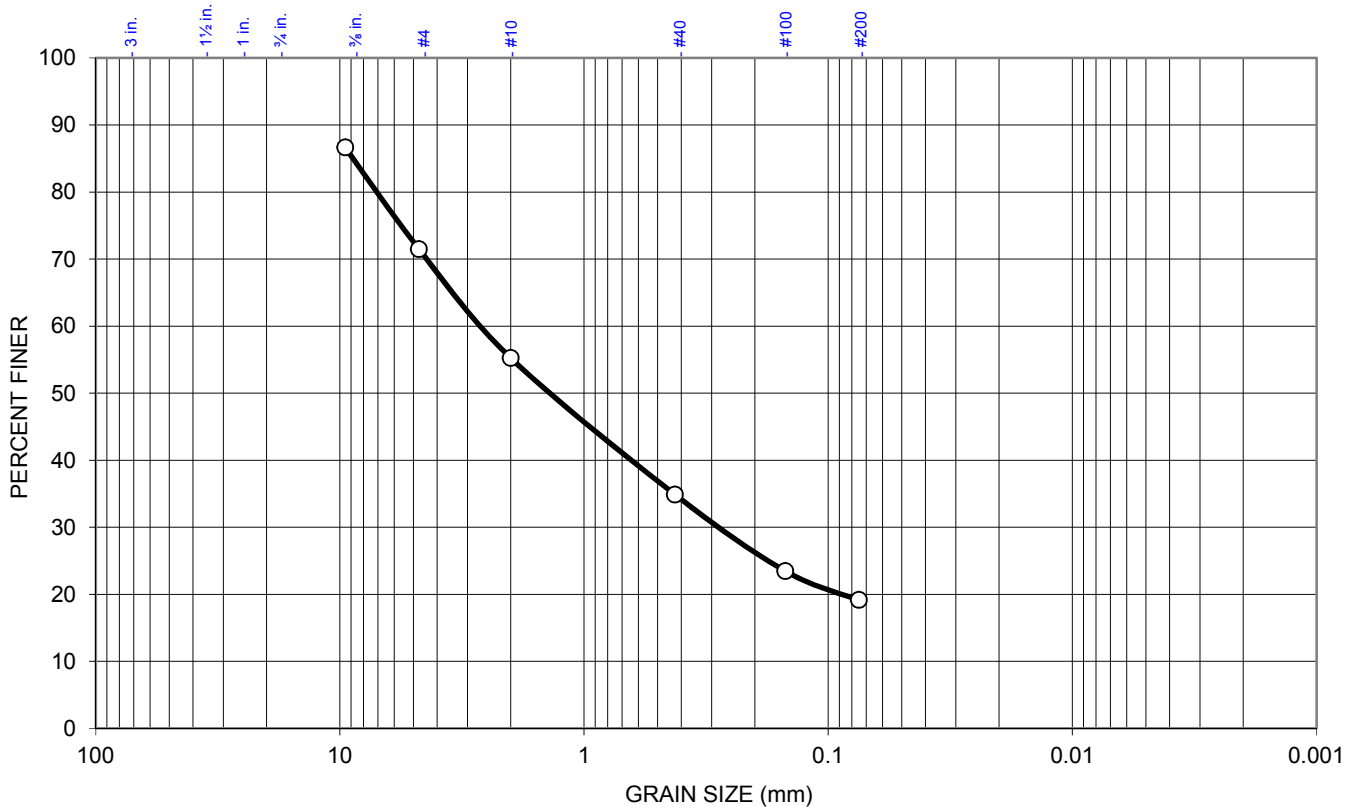
Water Level $_{\text{during drilling}}$: Not Encountered
Water Level $_{\text{upon completion}}$: Not Present
Caved at $_{\text{upon completion}}$: 23.5± feet below ground surface (EL. 606.6±)
Delay Time: N/A
Water Level $_{\text{delayed}}$: N/A
Caved at $_{\text{delayed}}$: N/A

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

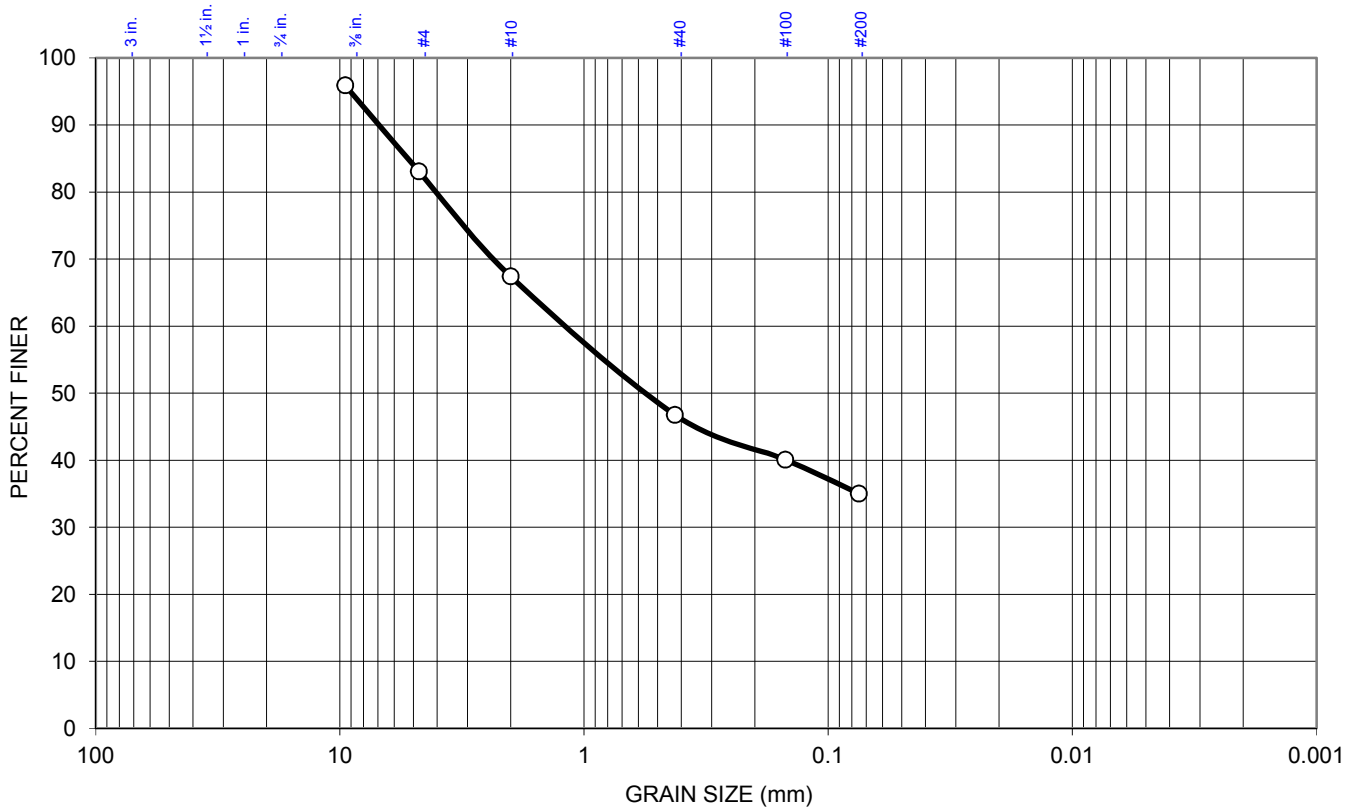
PROJECT: City of De Pere Roads **SAMPLE SOURCE:** Charles Street **EL./DEPTH:** 0-1'

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

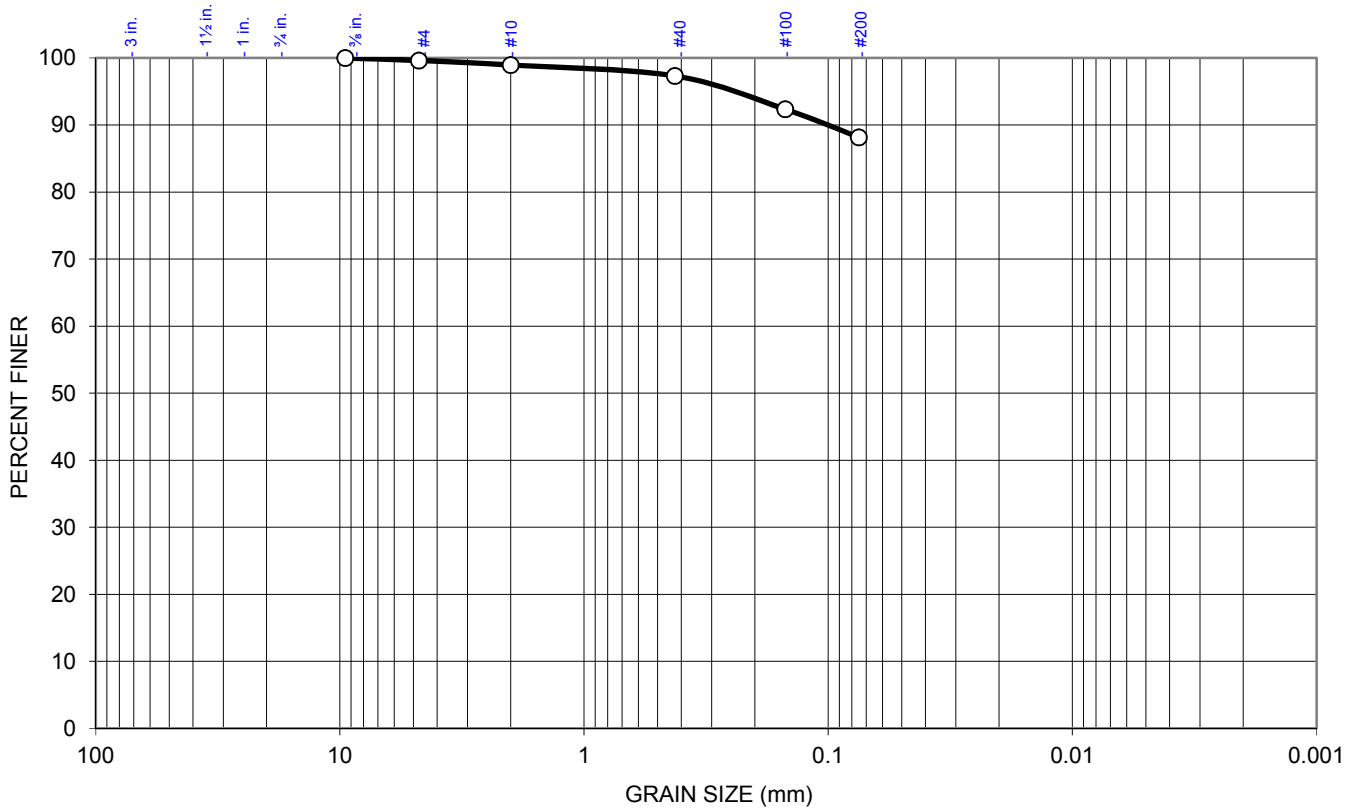
PROJECT: City of De Pere Roads **SAMPLE SOURCE:** Charles Street **EL./DEPTH:** 0-1'

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
PROJECT: City of De Pere Roads
PROJECT NO: 510

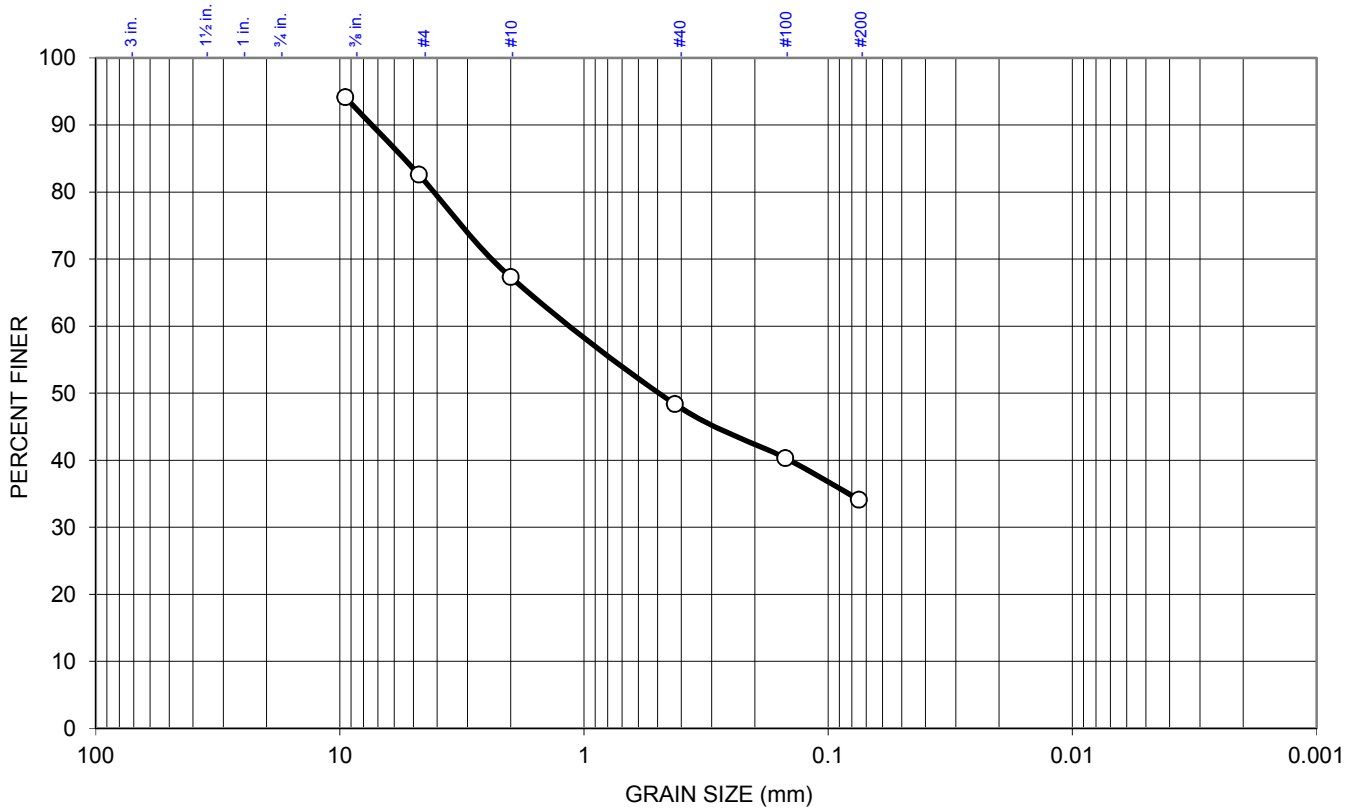
SAMPLE NO: C-1 through C-6
SAMPLE SOURCE: Charles Street
PROPOSED USE: Subgrade

DATE: 12/22/2017
EL./DEPTH: 1-4'
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

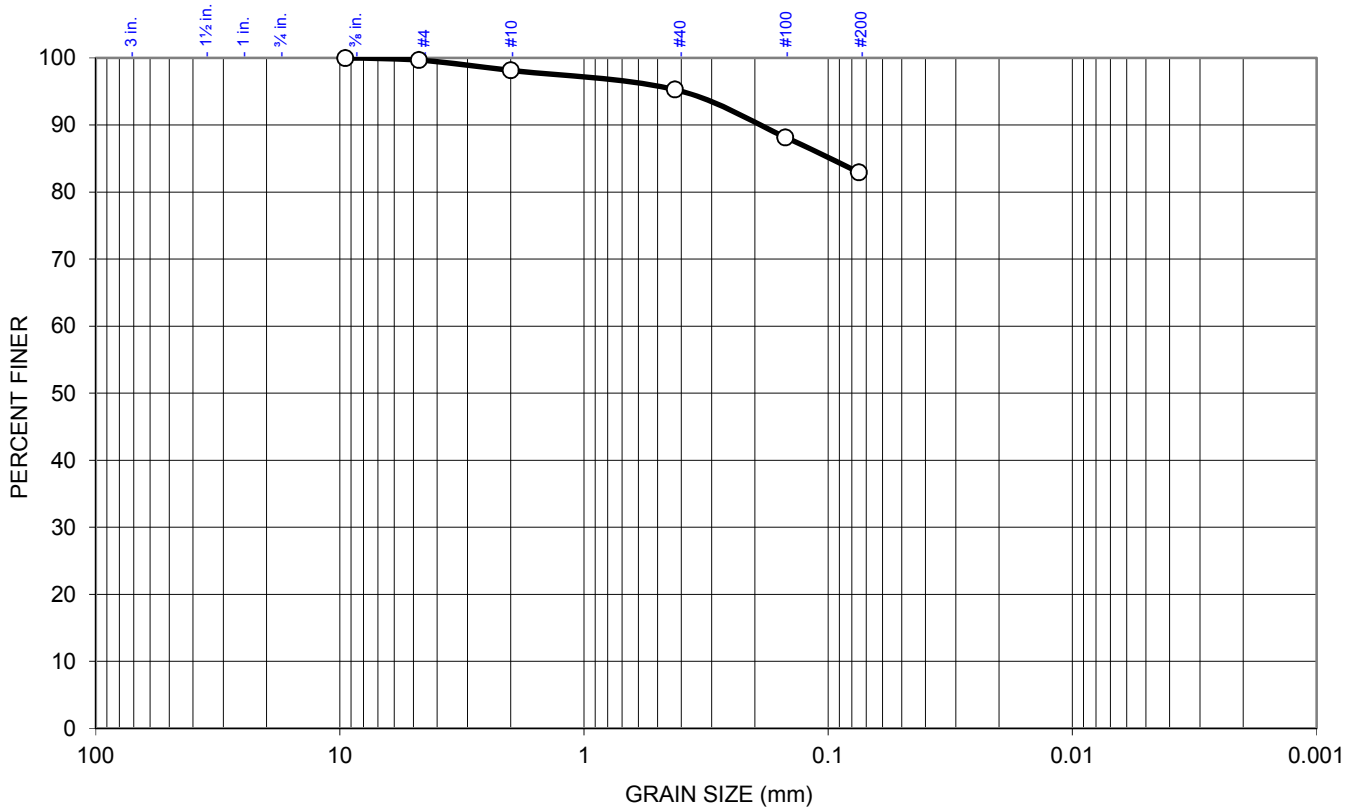
PROJECT: City of De Pere Roads **SAMPLE SOURCE:** Enterprise Drive **EL./DEPTH:** 0-1'

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

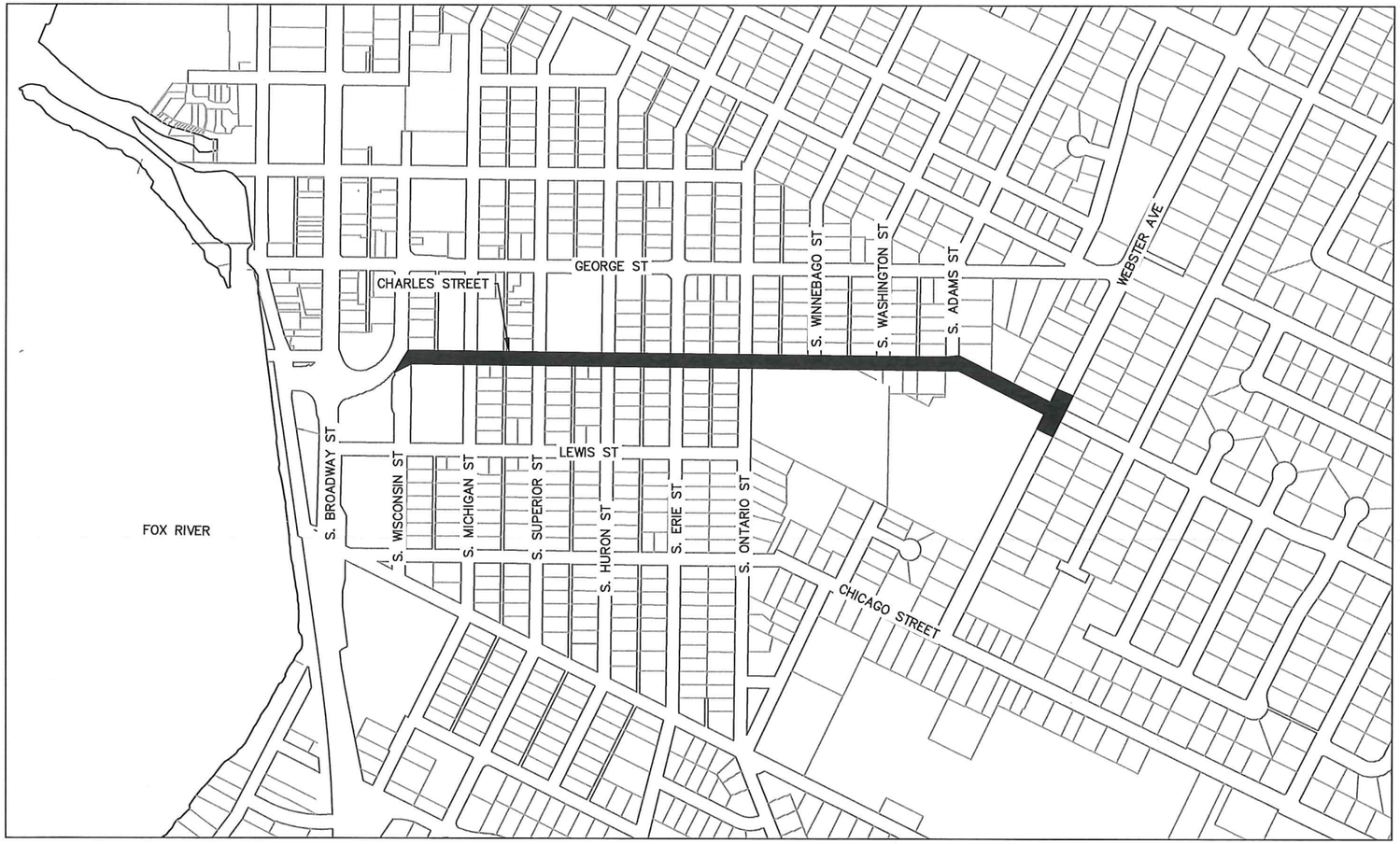
NOTE: General Notes have been adapted from and incorporate portions of ASTM D2487 "Classification of Soils for Engineering Purposes (Unified Soil Classification System)" and ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)."

Professional Service Industries, Inc.

PROJECT# 18-02
CHARLES STREET 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
4–6	CONSTRUCTION DETAILS
7–8	CONTROL POINTS AND BENCHMARKS
9–16	CHARLES ST SANITARY AND WATER PLAN AND PROFILE
17–23	CHARLES ST STORM AND STREET PLAN AND PROFILE
24–25	INTERSECTIONS GRADES
26–47	CHARLES STREET CROSS SECTIONS
48–49	CHARLES STREET PAVEMENT MARKINGS
50–51	EROSION CONTROL PLAN
52–53	DETOUR PLAN AND TRAFFIC CONTROL PLAN

CITY OF DE PERE
BOARD OF PUBLIC WORKS

2/12/18 — DATE — E. P. Rakers — CITY ENGINEER

2/13/18 — DATE — CITY ADMINISTRATOR

2/13/18 — DATE — Michael J. Walsh — MAYOR

GBMSD STAMPS: (24" SANITARY SEWER AND DETAILS PAGES 4–6)

WISCONSIN
JOSEPH C. HOLZWART
E-41064
SHEBOYGAN
WI
PROFESSIONAL ENGINEER

2/8/2018

CITY STAMPS: (WATER MAIN, STORM SEWER, ROAD & SANITARY SEWER)

WISCONSIN
ERIC P. RAKERS
E-30929
GREEN BAY, WI
PROFESSIONAL ENGINEER

2/12/18

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
HR	HANDICAP RAMP
HSE	HOUSE
HT	HEIGHT
HYD	HYDRANT
I	INTERSECTION ANGLE
ICS	INTERNAL CHIMNEY 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	POLYETHYLENE
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	SYMBOL PROPOSED
BENCHMARK		
BUSH		
CATCH BASIN		
CABLE TV BOX	CTV	
CONTROL POINT		
ELECTRICAL BOX	E	
EROSION CONTROL – INELT		
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		
SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE		
SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE		(xx)
TELEPHONE MANHOLE	TEL	
TELEPHONE PEDESTAL	TEL	
TREE		
WELL	W	
WATER SERVICE VALVE		
WATER VALVE		

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, CURRENT 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.

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 —
SILT FENCE EROSION CONTROL	
EXISTING FIBER OPTIC	— FO — FO
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

CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115

OFFICE 920–339–4060 FAX 920–339–4071

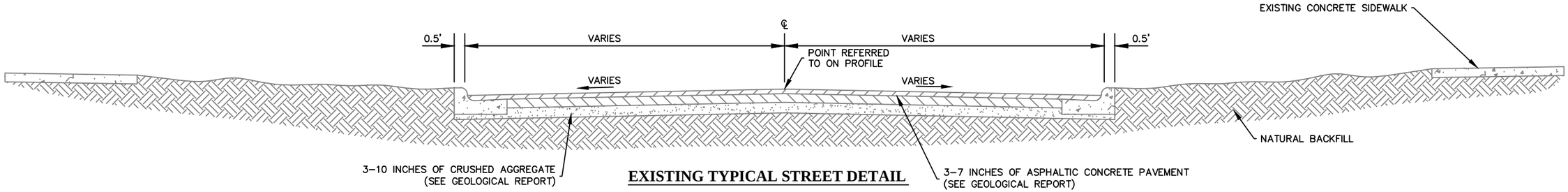
STANDARD ABBREVIATIONS AND SYMBOLS

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY

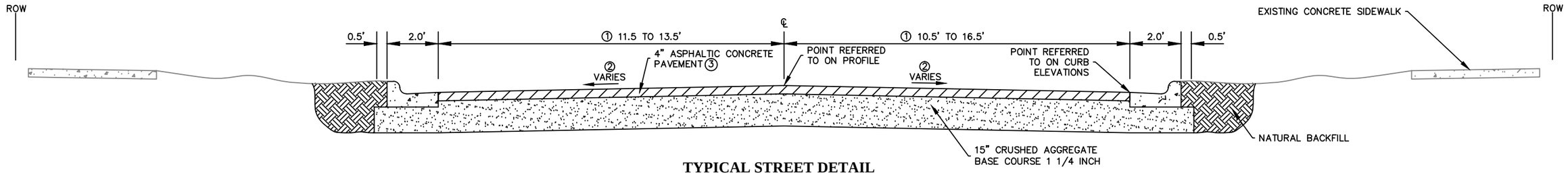
PROJECT # 18–02

	BY	DATE
SURVEYED		
DRAWN	SRL	12–2017
DESIGNED		
CHECKED		

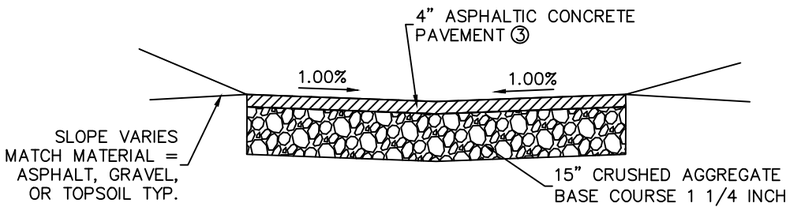
REVISIONS / ISSUES NO.	DATE	BY	REMARKS



EXISTING TYPICAL STREET DETAIL



TYPICAL STREET DETAIL
(STA 1+75 TO STA 31+13)



TYPICAL ALLEY DETAIL

S. MICHIGAN / S. SUPERIOR / CHARLES ST. / LEWIS ST 11' WIDE
S. SUPERIOR / S. HURON / CHARLES ST. / LEWIS ST 10' WIDE
S. HURON / S. ERIE / CHARLES ST. / LEWIS ST. 11' WIDE
S. HURON / S. ERIE / GEORGE ST. / CHARLES ST. 11' WIDE
S. ERIE / S. ONTARIO / CHARLES ST. / LEWIS ST. 11' WIDE

NOTES:

① WIDTH CHANGES AS FOLLOWS:

LEFT SIDE LANE
STATION 1+75 TO 10+22 – 13.5'
STATION 11+00 TO 13+40 – 11.5'
STATION 14+13 TO 31+14 – 13.5'

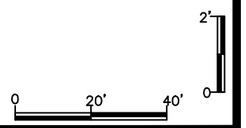
RIGHT SIDE LANE
STATION 1+75 TO 10+22 – 13.5'
STATION 11+00 TO 13+40 – 11.5'
STATION 14+13 TO 16+60 – 13.5'
STATION 16+60 TO 17+22 – 13.5' TO 16.5'
STATION 17+22 TO 19+53 – 16.5'
STATION 19+53 TO 19+75 – 16.5' TO 10.5'
STATION 19+75 TO 20+35 – 10.5'
STATION 20+35 TO 20+56 – 10.5' TO 16.5
STATION 20+56 TO 22+77 – 16.5'
STATION 22+77 TO 22+93 – 16.5' TO 10.5
STATION 22+93 TO 23+02 – 10.5'
STATION 23+02 TO 23+18 – 10.5' TO 16.5'
STATION 23+18 TO 25+88 – 16.5'
STATION 25+88 TO 26+03 – 16.5' TO 10.5'
STATION 26+03 TO 26+37 – 10.5'
STATION 26+37 TO 26+91 – 10.5' TO 16.5'
STATION 26+91 TO 31+14 – 16.5'

② CROSS SLOPE VARIES THROUGH PROJECT AS FOLLOWS:

LEFT SIDE
STATION 1+75 TO 4+00 – 2.00%
STATION 4+00 TO 4+68 – INTERSECTION
STATION 4+68 TO 7+16 – 3.00%
STATION 7+16 TO 7+84 – INTERSECTION
STATION 7+84 TO 10+24 – 2.50%
STATION 10+24 TO 11+00 – INTERSECTION
STATION 11+00 TO 13+42 – 2.00%
STATION 13+42 TO 14+13 – INTERSECTION
STATION 14+13 TO 16+58 – 2.00%
STATION 16+58 TO 17+23 – INTERSECTION
STATION 17+23 TO 19+74 – 2.50%
STATION 19+74 TO 20+00 – INTERSECTION
STATION 20+00 TO 21+61 – 3.00%
STATION 21+61 TO 22+00 – 3.00% TO 2.00%
STATION 22+00 TO 22+50 – 2.00%
STATION 22+50 TO 23+00 – INTERSECTION
STATION 23+00 TO 26+04 – 2.00%
STATION 26+04 TO 26+50 – INTERSECTION
STATION 26+50 TO 29+00 – 1.00%
STATION 29+00 TO 29+27 – 1.00% TO 2.00%
STATION 29+27 TO 31+13 – 2.00%

RIGHT SIDE
STATION 1+75 TO 4+00 – 2.00%
STATION 4+00 TO 4+68 – INTERSECTION
STATION 4+68 TO 7+16 – 2.00%
STATION 7+16 TO 7+84 – INTERSECTION
STATION 7+84 TO 10+24 – 2.00%
STATION 10+24 TO 11+00 – INTERSECTION
STATION 11+00 TO 13+42 – 2.00%
STATION 13+42 TO 14+13 – INTERSECTION
STATION 14+13 TO 16+58 – 2.00%
STATION 16+58 TO 17+23 – INTERSECTION
STATION 17+23 TO 17+50 – 2.00% TO 1.50%
STATION 17+50 TO 19+74 – 1.50%
STATION 19+74 TO 20+56 – BUMPOUT SEE DETAIL
STATION 20+56 TO 22+50 – 1.50%
STATION 22+50 TO 23+00 – INTERSECTION
STATION 23+00 TO 26+04 – 2.00%
STATION 26+04 TO 26+50 – INTERSECTION
STATION 26+50 TO 27+92 – 1.70%
STATION 27+92 TO 28+91 – 1.70% TO 2.50%
STATION 28+91 TO 31+13 – 2.50%

③ 4" ASPHALTIC CONCRETE PAVEMENT CONSISTS OF:
2.25" BINDER COURSE : 3 LT 58-28 S
1.75" SURFACE COURSE : 4 LT 58-28 S



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

CHARLES STREET
TYPICAL SECTIONS DETAILS

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18–02

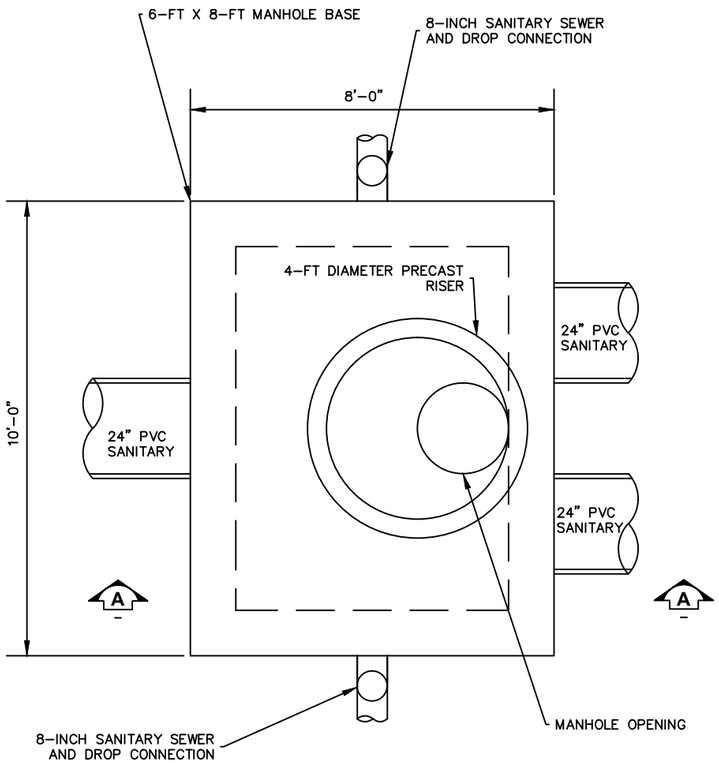
	BY	DATE
SURVEYED	SRL	7–2017
DRAWN	SRL	10–2017
DESIGNED	SRL	12–2017
CHECKED	EPR	1–2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

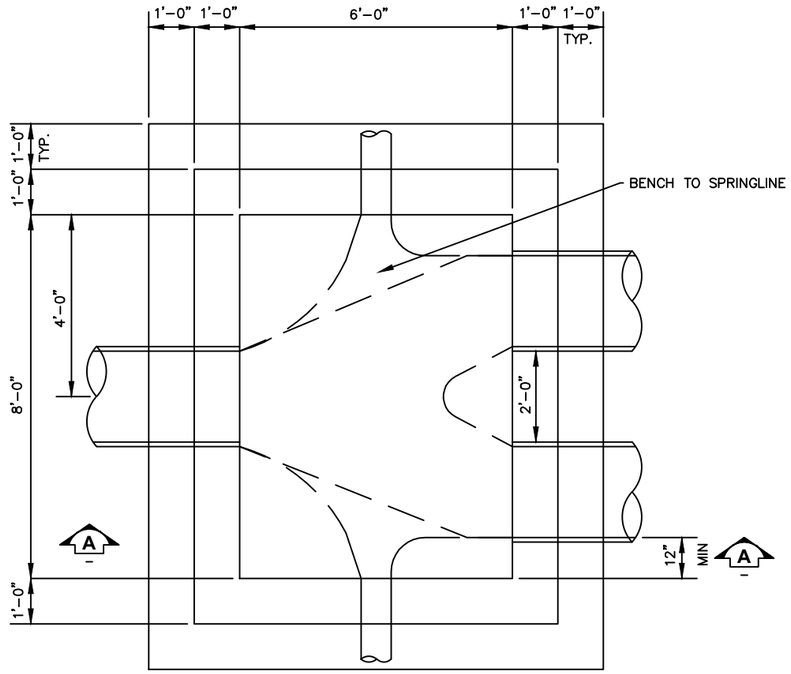
PAGE NO. **3**

GENERAL NOTES:

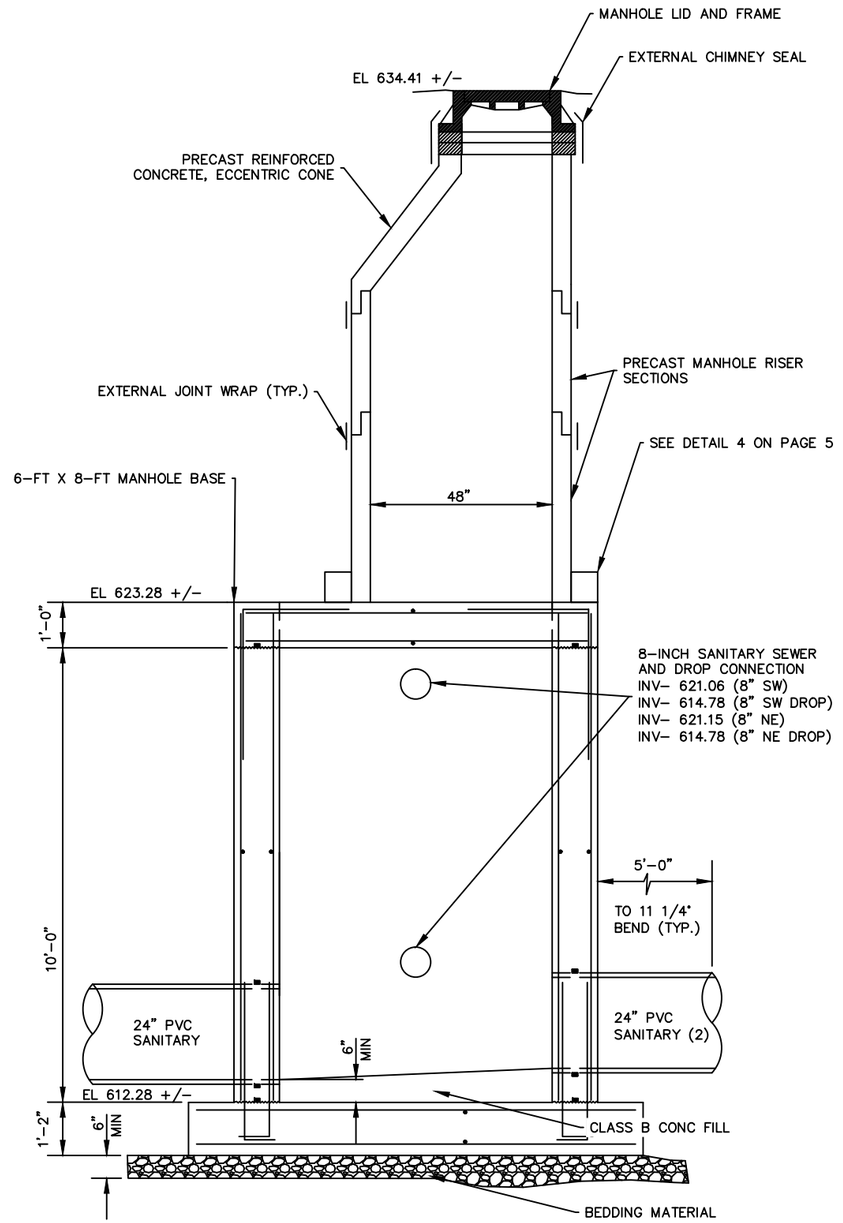
1. ALL REINFORCING SHOWN #6@9" EACH WAY, EACH FACE.
2. SEE PAGE 5 FOR MORE INFORMATION.
3. INTERIOR AND EXTERIOR OF MANHOLE TO BE SURFACE LINED PER SPECIFICATIONS
4. PRECAST CONSTRUCTION ALLOWABLE FOR MANHOLE BASE. PRECAST DESIGN IF ELECTED, MUST BE SEALED BY A PROFESSIONAL ENGINEER FROM THE STATE OF WISCONSIN.



MH CSI-018
UPPER PLAN



MH CSI-018
LOWER PLAN



MH CSI-018
SECTION A

0 20' 40'

CITY OF DE PERE	CHARLES STREET	NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY	BY	DATE	REVISIONS / ISSUES	PAGE NO.
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115	GBSMD MANHOLE CSI-018 DETAIL	PROJECT # 18–02	SURVEYED SRL	7–2017	NO. DATE BY REMARKS	4
OFFICE 920–339–4061 FAX 920–339–4071			DRAWN DONOHOU & ASSOC.	1–2018		
			DESIGNED DONOHOU & ASSOC.	1–2018		
			CHECKED DONOHOU & ASSOC.	1–2018		

GENERAL STRUCTURAL NOTES

DESIGN CRITERIA

DESIGN AND CONSTRUCT IN CONFORMANCE WITH THE WISCONSIN ENROLLED COMMERCIAL BUILDING CODE

FOUNDATIONS

1. NET ALLOWABLE SOIL BEARING CAPACITY 2000 PSF (ASSUMED)
2. PLACE FOOTINGS ON FREE-DRAINING FILL AS NOTED. FREE DRAINING FILL SHALL BE ASTM C33, SIZE NO. 67, WASHED CRUSHED STONE. MAXIMUM FINES: ASTM D422, 1% PASSING NO. 200 SIEVE.
3. EXAMINE SURFACES TO RECEIVE FILL AND SUBGRADES WITHIN INFLUENCE ZONE OF FOUNDATIONS TO DETERMINE EXISTENCE OF SOFT AREAS OR UNSUITABLE MATERIAL. OVEREXCAVATE SUCH AREAS AND REPLACE WITH FREE-DRAINING FILL.
4. DEWATER EXCAVATION AS REQUIRED TO MAINTAIN GROUNDWATER A MINIMUM OF 12 INCHES BELOW BOTTOM OF EXCAVATION.
5. DO NOT UNDERMINE FOUNDATIONS OF ADJACENT STRUCTURES DURING CONSTRUCTION.
6. TO MINIMIZE LATERAL FORCES AGAINST THE STRUCTURE DUE TO WEDGING ACTION OF THE SOIL,BEGIN COMPACTION OF EACH LAYER AT THE STRUCTURE WALL.
7. FILTER FABRIC: POROUS NON-WOVEN FABRIC WITH MULTIPLE LAYERS OF RANDOMLY ARRANGED FIBERS, MIN 4.0 OZ/SQUARE YARD. TENCATE MIRAFI 140N, OR EQUAL.

REINFORCEMENT

1. REINFORCEMENT STEEL
   A. DEFORMED BARS: ASTM A615 - GRADE 40
2. UNLESS NOTED OTHERWISE PROVIDE CLEAR COVER FOR REINFORCEMENT AS FOLLOWS:
   A. CAST AGAINST:
      1. EARTH: 3 INCHES
      2. MUD SLAB: 2 INCHES
   B. EXPOSED TO EARTH, WEATHER, OR WATER
      1. SLABS
         A. #5 BARS OR SMALLER: 1 1/2 INCHES
         B. #6 THROUGH #11 BARS: 2 INCHES
3. PLACE DOWELS BEFORE PLACING CONCRETE.
4. HOOKS TO BE ACI STANDARD.
5. DO NOT FIELD WELD OR FIELD BEND REINFORCING BARS.

CONCRETE MIX

1. CLASS A
   A. MINIMUM 6 BAGS OF CEMENT PER CUBIC YARD OF CONCRETE
   B. MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.
   C. USAGE: ALL LOCATIONS EXCEPT WHERE CLASS B IS SPECIFIED.
   CLASS B
   A. MINIMUM 4.5 BAGS OF CEMENT PER CUBIC YARD OF CONCRETE.
   B. MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000PSI.
   C. USAGE: WHERE SPECIFICALLY NOTED.
2. FURNISH AND DELIVER CONCRETE IN ACCORDANCE WITH ASTM C94.
3. AIR CONTENT: 6 +/- 1% IN ACCORDANCE WITH ASTM C260.
4. SLUMP: 4 +/- 1 IN.
5. WATER/CEMENT RATIO: 0.42 MAXIMUM, MIXING WATER TO BE POTABLE.
6. CEMENT: ASTM C150 TYPE I.
7. AGGREGATES: ASTM C33. FINE TO BE NATURAL SAND. COARSE TO BE CRUSHED GRAVEL SIZE 67(3/4 IN) MAXIMUM.
8. BONDING COMPOUND: CONFORMING TO ASTM C881. SIKADUR 32 HI-MOD BY SIKA CORP. OR EQUAL.
9. PROVIDE WATERSTOP IN CONSTRUCTION JOINTS WHERE NOTED ON DRAWINGS. UNLESS NOTED OTHERWISE, WATERSTOP SHALL BE GASKET TYPE, GLUED AND NAILED TO SUBSTRATE, MC-2010MN WITH P-201 BY ADEKA ULTRASEAL OR EQUAL UNLESS NOTED OTHERWISE, CONSTRUCTION JOINTS SHOWN ARE OPTIONAL. CONSTRUCTION JOINTS NOT SHOWN SHALL BE APPROVED BY ENGINEER.
10. BEFORE CONCRETE IS PLACED, CONSTRUCTION JOINTS SHALL BE CLEANED, LAITANCE REMOVED, AND SURFACE WETTED. REMOVE STANDING WATER. CONSTRUCTION JOINTS SHALL HAVE ROUGHENED SURFACES. SURFACE SHALL HAVE AMPLITUDE OF 1/4 IN. MIN.
11. APPLY ASTM C309 CURING COMPOUND IN ACCORDANCE WITH MANUFACTUER'S RECOMMENDATIONS. DRESS & SEAL 30 BY L&M CONSTRUCTION MATERIALS, INC, OR EQUAL.
12. PROVIDE 3/4 IN. CHAMFER ON EXTERNAL CORNERS AND EXPOSED EDGES OF CONCRETE.
13. EXTERIOR SLABS TO HAVE FLOAT AND BROOM FINISH.
14. EXPOSED CONCRETE SURFACES TO HAVE HONEYCOMBING, TIE HOLES, SPALLS, AND OTHER SURFACE DEFECTS PATCHED WITH PATCHING MORTAR. SIKATOP BY SIKA CORPORATION OR EQUAL.

METALS

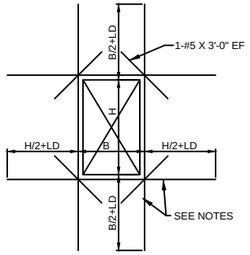
1. STEEL
   A. STRUCTURAL SHAPES AND PLATES: ASTM A36
   B. ROUND STEEL PIPE ASTM A53, GRADE B, 35 KSI
2. WELD STRUCTURAL STEEL WITH E70XX ELECTRODES IN ACCORDANCE WITH AWS REQUIREMENTS.
3. STRUCTURAL STEEL SHALL BE SHOP PAINTED WITH ONE COAT OF PRIMER. SURFACE PREPARATION SHALL BE BY BLAST CLEANING IN ACCORDANCE WITH SSPC SP-6. APPLY TWO FINISH COATS OF ACRYLIC POLYURETHANE, TOTAL DRY FILM THICKNESS 8 MILS. COLOR AS NOTED.

MINIMUM REINFORCEMENT BAR SPLICE AND ANCHORAGE LENGTH (INCHES) 1

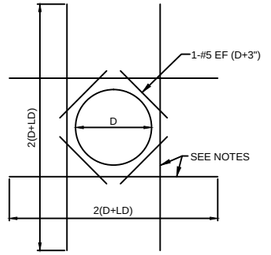
BAR SIZE	LAPPED SPLICE LENGTH		EMBEDMENT LENGTH		COMPRESSION LAP LENGTH
	TOP BARS	OTHERS	TOP BARS	OTHERS	
3	24	19	19	15	12
4	32	25	25	19	15
5	40	31	31	24	19
6	48	37	37	29	23
7	70	54	54	42	26
8	80	62	62	48	30
9	91	70	70	54	34
10	102	78	78	61	38
11	113	87	87	67	42

NOTES:

1. TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
2. FOR BARS SPACED LESS THAN 6 BAR DIAMETER OC INCREASE LENGTH BY 25%.
3. WHEN LAPPING TWO DIFFERENT SIZE BARS USE THE LAP LENGTH OF THE SMALLER BAR UNLESS NOTED OTHERWISE.
4. EMBEDMENT LENGTH IS MINIMUM LENGTH OF EMBEDMENT FOR STRAIGHT DOWELS WHERE END HOOK IS NOT SHOWN, UNLESS OTHERWISE NOTED.
5. COMPRESSION LAP LENGTH FOR VERICAL COLUMN BARS ONLY.
6. HOOKS SHALL BE ACI STANDARD UNLESS OTHERWISE NOTED.
7. FOR EPOXY COATED REINFORCEMENT, INCREASE LENGTH BY 20% FOR TOP BARS AND 50% FOR OTHERS.



RECTANGULAR OPENING



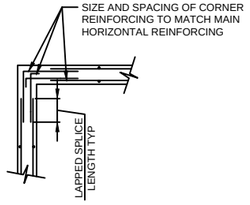
CIRCULAR OPENING

NOTES:

1. THESE DETAILS APPLY TO ALL OPENINGS IN CONCRETE WALLS AND SLABS WHEN THE LARGEST OPENING DIMENSION IS GREATER THAN TWO TIMES SECTION THICKNESS OR GREATER THAN REINFORCING SPACING IN THE SECTION, UNLESS OTHERWISE INDICATED IN THE DRAWINGS.
2. THE AREA OF ADDITIONAL REINFORCING REQUIRED IN EACH FACE ON EACH SIDE OF AN OPENING SHALL EQUAL OR EXCEED ONE-HALF OF THE AREA OF THE INTERCEPTED BARS IN EACH FACE, IN EACH DIRECTION, RESPECTIVELY WITH A MINIMUM OF 1-#5 BAR EACH FACE.
3. PLACE THE ADDED BARS IN THE SAME LAYERS AS THE WALL OR SLAB REINFORCING.
4. LD = EMBEDMENT LENGTH. SEE DETAIL 1

ADDITIONAL REINFORCEMENT AT OPENINGS IN WALLS AND SLABS DETAIL 2

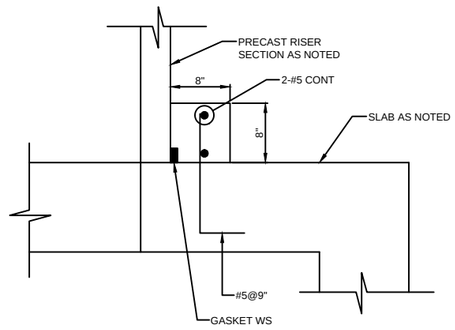
NTS



90° CORNER - 2 LAYERS

HORIZONTAL REINFORCEMENT DETAIL 3

NTS



CURB DETAIL 4

NTS

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

CHARLES STREET
GBSMD MANHOLE CSI-018 DETAIL

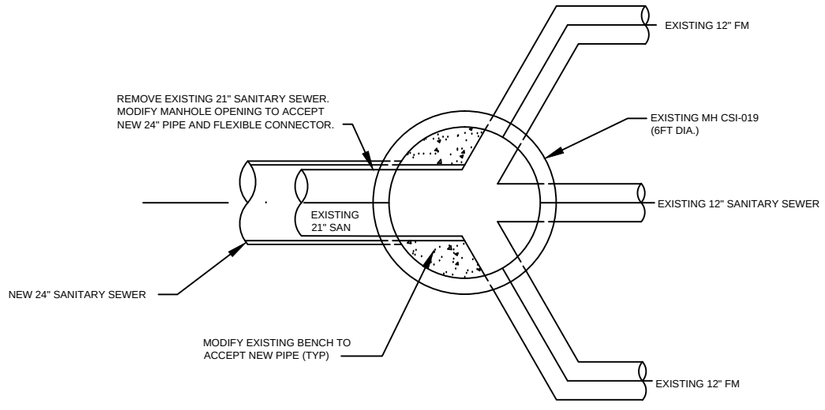
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	7-2017
DRAWN	DONOHOU & ASSOC.	1-2018
DESIGNED	DONOHOU & ASSOC.	1-2018
CHECKED	DONOHOU & ASSOC.	1-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

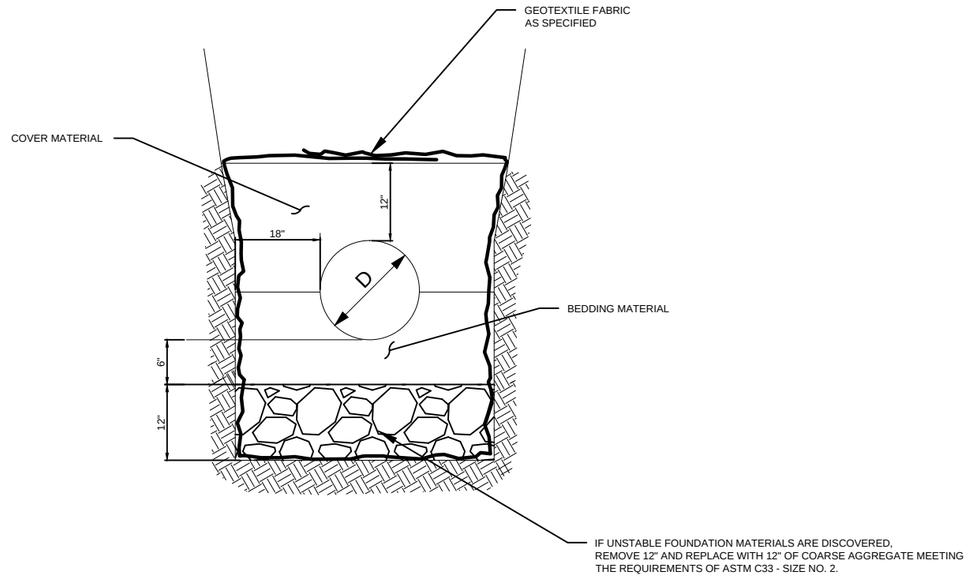
PAGE NO. 5

NOTE: INTERIOR OF MANHOLE IS EPOXY COATED
UPON COMPLETION OF SEWER CONNECTION, ALL
EXPOSED CONCRETE SURFACES SHALL HAVE
EPOXY COATING REAPPLIED, INLCUDING MANHOLE BENCH
AND FLOWLINE.



CSI-019
PIPE TO MANHOLE
CONNECTION DETAIL

NTS



SANITARY SEWER
TRENCH STABILIZATION

NTS

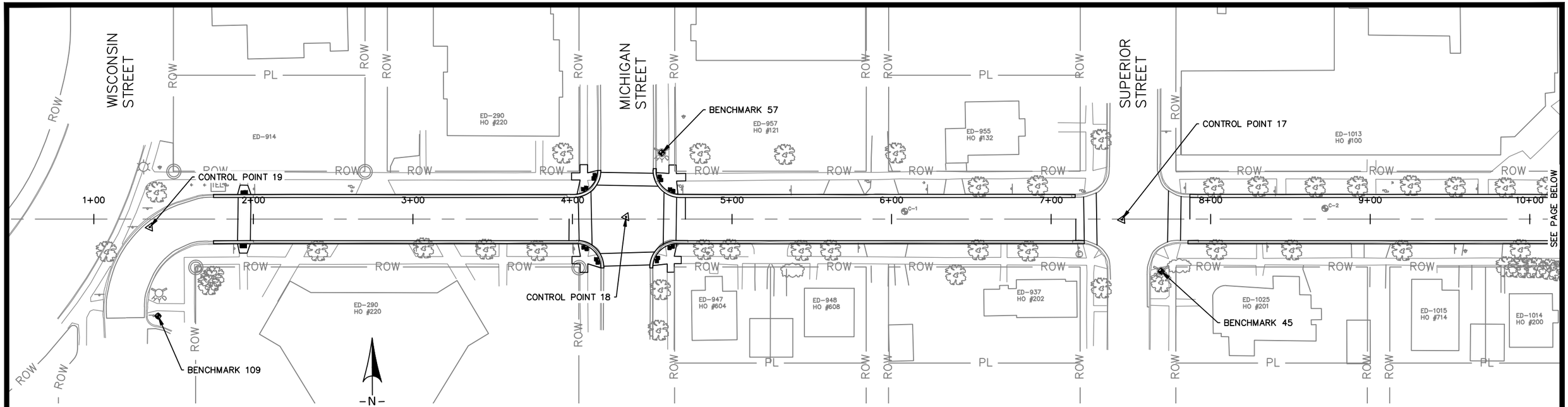
CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

CHARLES STREET
GBSMD MANHOLE CSI-018 DETAIL

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

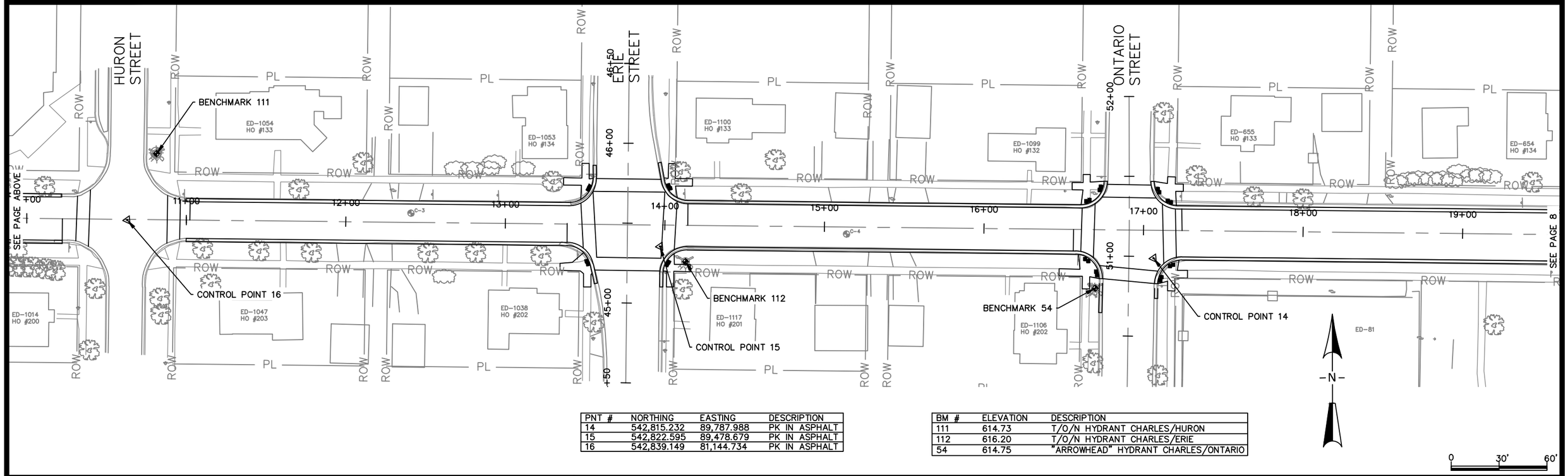
	BY	DATE
SURVEYED	SRL	7-2017
DRAWN	DONOHOU & ASSOC.	1-2018
DESIGNED	DONOHOU & ASSOC.	1-2018
CHECKED	DONOHOU & ASSOC.	1-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS



PNT #	NORTHING	EASTING	DESCRIPTION
17	542,842.632	88,826.221	PK IN ASPHALT
18	542,847.651	88,515.385	PK IN ASPHALT
19	542,844.364	88,216.844	PK IN ASPHALT

BM #	ELEVATION	DESCRIPTION
45	615.24	T/O/N HYDRANT CHARLES/SUPERIOR
57	614.14	T/O/N HYDRANT CHARLES/MIGHIGAN
109	612.99	T/O/N HYDRANT CHARLES/WISCONSIN



PNT #	NORTHING	EASTING	DESCRIPTION
14	542,815.232	89,787.988	PK IN ASPHALT
15	542,822.595	89,478.679	PK IN ASPHALT
16	542,839.149	81,144.734	PK IN ASPHALT

BM #	ELEVATION	DESCRIPTION
111	614.73	T/O/N HYDRANT CHARLES/HURON
112	616.20	T/O/N HYDRANT CHARLES/ERIE
54	614.75	"ARROWHEAD" HYDRANT CHARLES/ONTARIO

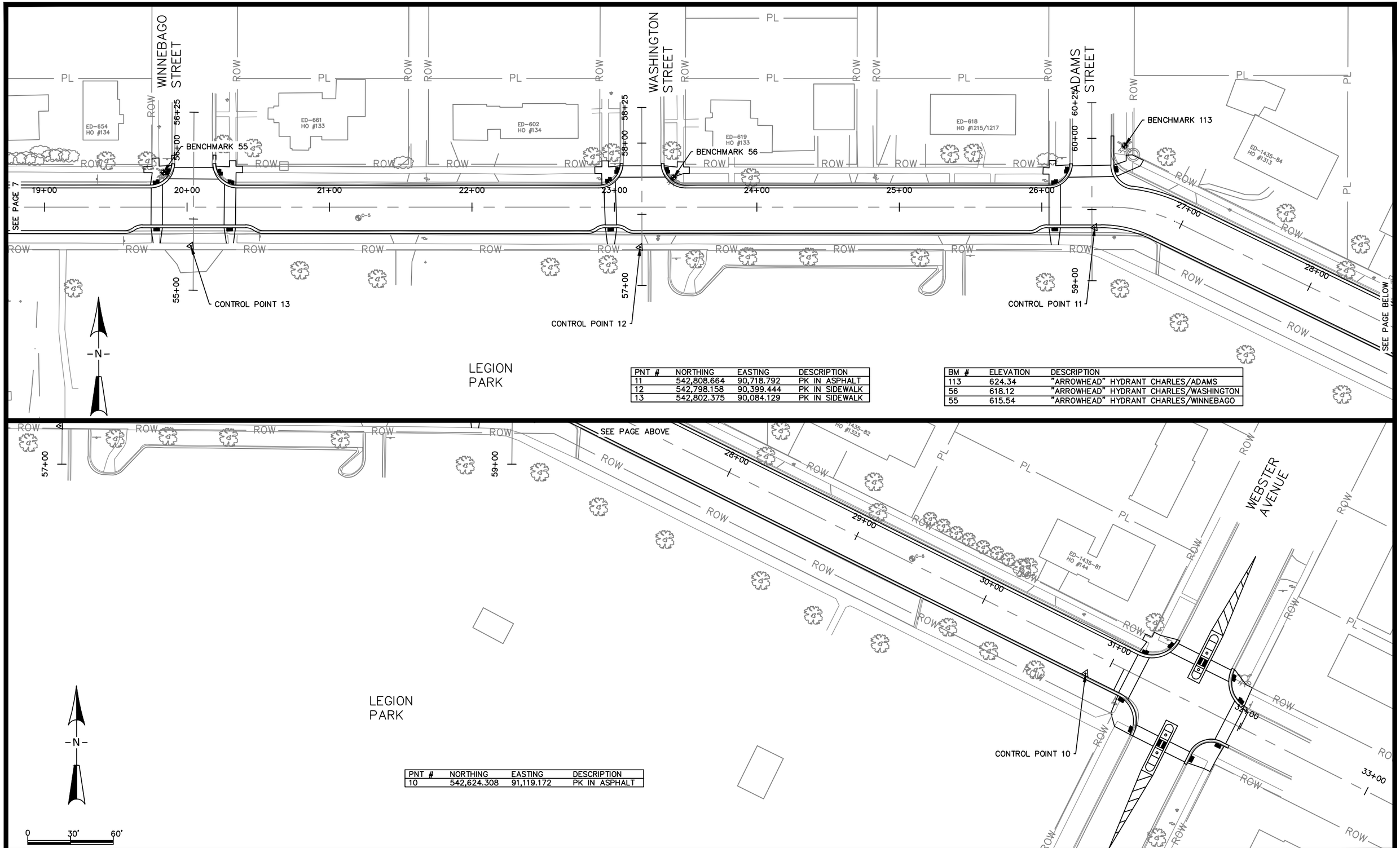
CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

CHARLES STREET
CONTROL POINTS AND BENCHMARKS

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	1-2018
CHECKED	EPR	1-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS



PNT #	NORTHING	EASTING	DESCRIPTION
11	542,808.664	90,718.792	PK IN ASPHALT
12	542,798.158	90,399.444	PK IN SIDEWALK
13	542,802.375	90,084.129	PK IN SIDEWALK

BM #	ELEVATION	DESCRIPTION
113	624.34	"ARROWHEAD" HYDRANT CHARLES/ADAMS
56	618.12	"ARROWHEAD" HYDRANT CHARLES/WASHINGTON
55	615.54	"ARROWHEAD" HYDRANT CHARLES/WINNEBAGO

PNT #	NORTHING	EASTING	DESCRIPTION
10	542,624.308	91,119.172	PK IN ASPHALT

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

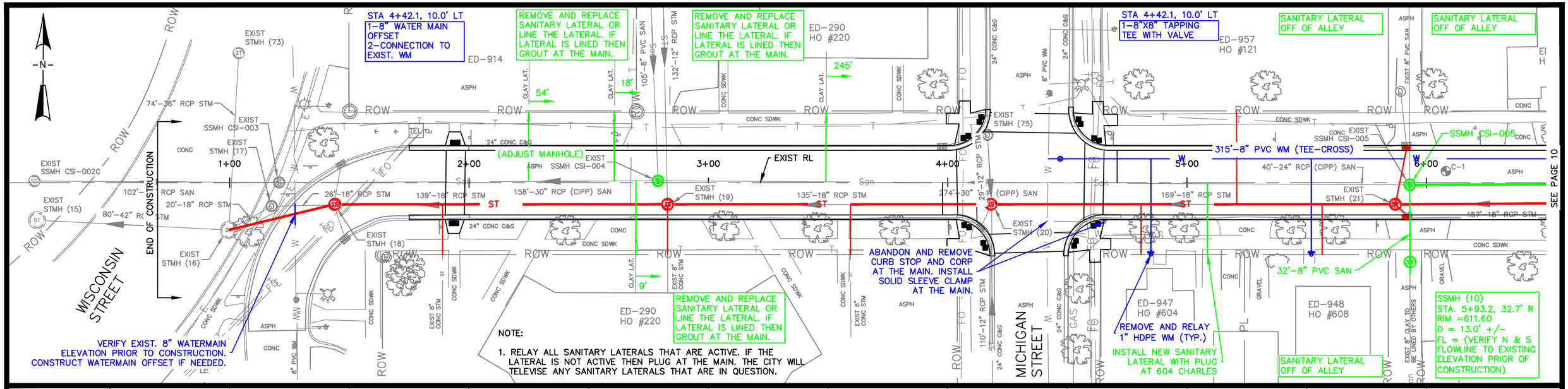
CHARLES STREET
CONTROL POINTS AND BENCHMARKS

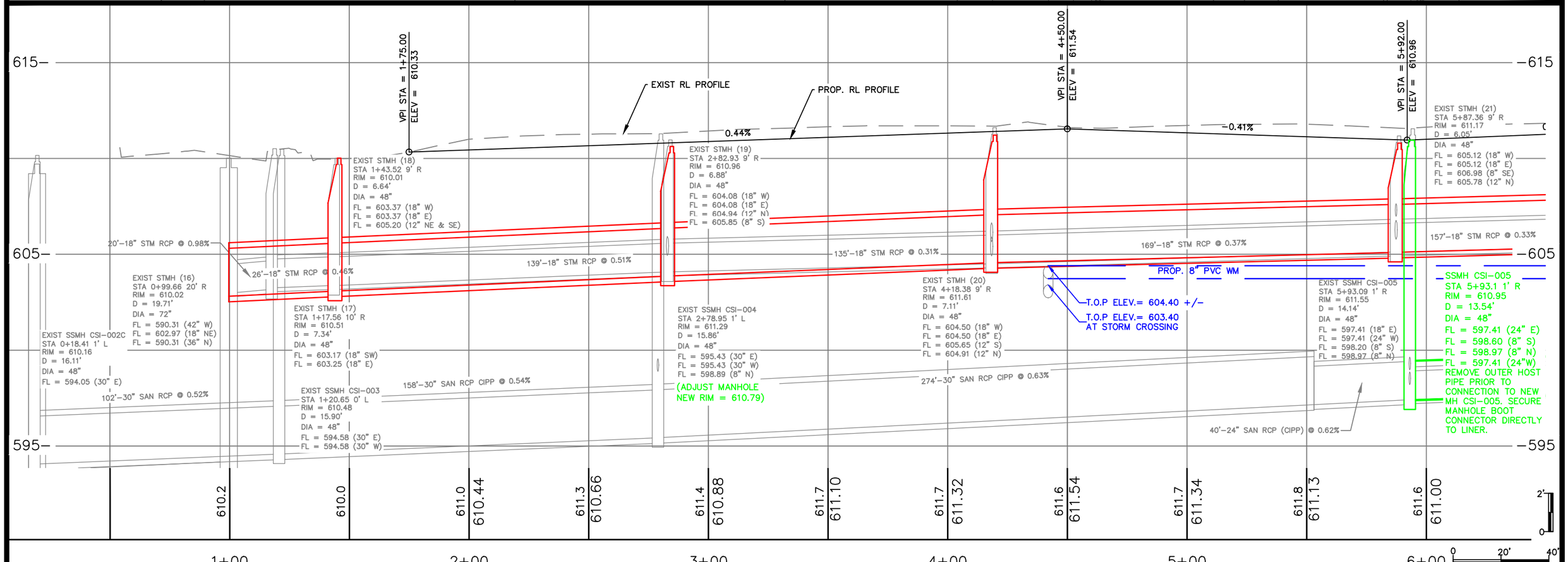
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	1-2018
CHECKED	EPR	1-2018

REVISIONS / ISSUES

NO.	DATE	BY	REMARKS





CITY OF DE PERE	CHARLES STREET	NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115	FROM WISCONSIN ST TO 150' W/O SUPERIOR ST	PROJECT # 18-02
OFFICE 920-339-4061 FAX 920-339-4071	SANITARY SEWER AND WATER MAIN	

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 9

NOTE:

1. RELAY ALL SANITARY LATERALS THAT ARE ACTIVE. IF THE LATERAL IS NOT ACTIVE THEN PLUG AT THE MAIN. THE CITY WILL TELEVISE LATERALS THAT ARE IN QUESTION.

WATER SERVICE OFF OF SUPERIOR ST

STA 7+52.4, 10.0' LT
1–8" VALVE
1–8" PLUG WITH 2" CORP AND HDPE PIPE TO BLOW OFF AIR.

STA 7+57.4, 10.0' LT
1–12"X8" CROSS
2–EXISTING WATER MAIN CONNECTIONS

STA 7+62.4, 10.0' LT
1–8" VALVE
1–8" PLUG WITH 2" CORP AND HDPE PIPE TO BLOW OFF AIR.

STA 10+69.4, 10.0' LT
1–10"X8" TAPPING TEE WITH VALVE

SSMH (12)
STA. 12+23.5, 34.5' L
RIM =612.39
D = 6.63'
FL = 605.76 (8" N & S)

ED–955 HO #132
ED–1054 HO #133
ED–1025 HO #201
ED–1015 HO #714
ED–1014 HO #200
ED–1047 HO #203
ED–937 HO #202

SANITARY LATERAL OFF OF ALLEY
REMOVE AND REPLACE SANITARY LATERALS. (TYP.)
CONNECT TO EXISTING PVC LATERAL
WATER SERVICE OFF OF HURON ST
5'–8" PVC SAN WITH 8"X6" REDUCER
34'–8" PVC SAN @ 11.35%
34'–8" CLAY SAN
REMOVE SANITARY MANHOLE
SSMH CSI–005
SSMH CSI–007
SSMH CSI–009
EXIST SSMH (62)
EXIST SSMH CSI–006
EXIST STMH (44)
EXIST STMH (22)
EXIST STMH (77)
EXIST STMH (24)
EXIST STMH (25)
EXIST STMH (23)
EXIST RL
PROP. 8" PVC WM
310'–24" SAN PVC
157'–18" RCP (CIPP) SAN
39'–24" RCP STM
153'–18" RCP (CIPP) SAN
241'–15" RCP STM
312'–8" PVC WM (CROSS–TEE)
312'–18" RCP (CIPP) SAN
312'–24" SAN PVC
38'–15" PVC STM
39'–21" RCP STM
32'–8" PVC SAN
ABANDONED SSMH CSI–008
REMOVE AND RELAY 1" HDPE WM (TYP.)
ABANDON AND REMOVE CURB STOP AND CORP AT THE MAIN. INSTALL SOLID SLEEVE CLAMP AT THE MAIN.
SSMH (11)
STA. 9+03.5, 38.8' R
RIM =611.62
D = 10.8' +/–
FL = VERIFY N & S
FLOWLINE TO EXISTING ELEVATION PRIOR OF CONSTRCUTION
SSMH (13)
STA. 12+19.9, 38.6' R
RIM =612.35
D = 10.2' +/–
FL = VERIFY N & S
FLOWLINE TO EXISTING ELEVATION PRIOR OF CONSTRUCTION.
SUPERIOR STREET
HURON STREET
SEE PAGE 9
SEE PAGE 11

EXIST STMH (22)
STA 7+44.07 8' R
RIM = 611.28
D = 5.64'
DIA = 48"
FL = 605.64 (18" W)
FL = 605.64 (24" E)
FL = 605.64 (24" S)
FL = 605.75 (15" N)

EXIST STMH (44)
STA 7+83.45 8' R
RIM = 611.15
D = 5.43'
DIA = 48"
FL = 605.72 (24" W)
FL = 605.72 (15" E)

EXIST STMH (23)
STA 10+24.20 15' R
RIM = 611.49
D = 5.12'
DIA = 48"
FL = 606.37 (15" W)
FL = 606.56 (21" E)

EXIST STMH (25)
STA 11+00.79 13' R
RIM = 611.39
D = 4.66'
DIA = 48"
FL = 606.73 (15" W)
FL = 606.73 (12" E)

VPI STA = 7+16.0 ELEV = 611.60
VPI STA = 7+50.00 ELEV = 611.29
VPI STA = 7+84.00 ELEV = 611.06
VPI STA = 10+24.0 ELEV = 611.83
VPI STA = 10+63.0 ELEV = 611.94
VPI STA = 11+48.0 ELEV = 611.60

EXIST RL PROFILE
PROP. RL PROFILE
0.52% −0.90% −0.68% 0.32% 0.27% −0.39% 0.42%

SSMH CSI–005
STA 5+93.1 1' R
RIM = 610.95
D = 13.54'
DIA = 48"
FL = 597.41 (24" E)
FL = 598.60 (8" S)
FL = 598.97 (8" N)
FL = 597.41 (24"W)
REMOVE OUTER HOST PIPE PRIOR TO CONNECTION TO NEW MH CSI–005. SECURE MANHOLE BOOT CONNECTOR DIRECTLY TO LINER.

(REMOVE MANHOLE)
EXIST SSMH CSI–006
STA 7+49.77 0' R
RIM = 611.33
D = 13.10'
DIA = 48"
FL = 598.23 (18" E)
FL = 598.23 (18" W)

EXIST SSMH CSI–007
STA 9+02.99 0' R
RIM = 612.04
D = 12.98'
DIA = 48"
FL = 599.06 (18" E)
FL = 599.06 (18" W)
FL = 600.12 (8" S)

SSMH CSI–007
STA 9+03.0 0'
RIM = 611.44
D = 12.79'
DIA = 48"
FL = 598.65 (24" E)
FL = 598.65 (24" W)
FL = 600.65 (8" S)

EXIST STMH (24)
STA 10+62.97 12' R
RIM = 611.97
D = 5.38'
DIA = 48"
FL = 606.62 (21" W)
FL = 606.62 (15" E)
FL = 606.59 (12" S)
FL = 606.59 (15" N)

SSMH CSI–009
STA 12+15.1 0' R
RIM = 611.88
D = 11.98'
DIA = 48"
FL = 599.90 (24" E)
FL = 599.90 (24" W)
FL = 601.90 (8" N)
FL = 601.60 (8" S)

EXIST SSMH CSI–009
STA 12+15.37 2' L
RIM = 612.42
D = 11.65'
DIA = 48"
FL = 600.77 (18" E)
FL = 600.77 (18" W)
FL = 600.89 (8" S)
FL = 600.89 (8" N)

T.O.P ELEV.= 604.40 =/–
T.O.P ELEV.= 604.90 +/–

EXIST STMH (21)
STA 5+87.36 9' R
RIM = 611.17
D = 6.05'
DIA = 48"
FL = 605.12 (18" W)
FL = 605.12 (18" E)
FL = 606.98 (8" SE)
FL = 605.78 (12" N)

18" STM RCP @ 0.33%
39'–24" STM RCP @ 0.20%
241'–15" STM RCP @ 0.27%
39'–21" STM RCP @ 0.17%
38'–15" STM PVC @ 0.29%
255'–12" STM RCP @ 0.24%
157'–18" SAN RCP (CIPP) @ 0.52%
153'–18" SAN RCP (CIPP) @ 0.54%
312'–18" SAN RCP (CIPP) @ 0.55%
310'–24" SAN PVC @ 0.40%
312'–24" SAN PVC @ 0.40%

611.8 611.26 | 611.9 611.52 | 611.3 611.29 | 611.9 611.11 | 612.0 611.27 | 612.0 611.43 | 612.2 611.59 | 612.2 611.75 | 612.0 611.90 | 612.0 611.79 | 612.4 611.61 | 612.4 611.82

7+00 8+00 9+00 10+00 11+00 12+00

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

CHARLES STREET
FROM 150' W/O SUPERIOR TO 150' W/O ERIE ST
SANITARY SEWER AND WATER MAIN

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18–02

	BY	DATE
SURVEYED	SRL	6–2017
DRAWN	SRL	11–2017
DESIGNED	SRL	11–2017
CHECKED	EPR	1–2018

REVISIONS / ISSUES NO.	DATE	BY	REMARKS

PAGE NO. 10

SANITARY LATERAL OFF OF ALLEY

WATER SERVICE OFF OF ERIE ST

ED-1053 HO #134

FUTURE 16" PVC WM (BY OTHERS)

ERIE STREET

EXIST SSMH (62)

TEMPORARY ASPHALT PATCH SANITARY SEWER TRENCH ACROSS ERIE STREET. 2 INCHES THICK.

SEE PAGE 10

312'-18" PVC SAN

312'-24" SAN PVC

255'-12" RCP STM

237'

EXIST STMH (26)

EXIST STMH (27)

36'-12" RCP STM

ED-1038 HO #202

CONNECT TO EXISTING PVC LATERAL

WATER SERVICE OFF OF ERIE ST

ED-1100 HO #133

WATER SERVICE OFF OF ERIE ST

CONNECT TO EXISTING PVC LATERAL

89'

EXIST RL

SSMH CSI-010

EXIST SSMH CSI-010

C-4

165'-24" SAN PVC

165'-18" PVC SAN

33'-8" PVC SAN

5'-8" PVC SAN

ED-1117 HO #201

WATER SERVICE OFF OF ERIE ST

SANITARY LATERAL OFF OF ALLEY

EX. 8" CLAY SAN (TO BE LINED BY OTHERS)

SSMH (14) STA. 15+32.5, 35.7' R RIM =612.80 D = 10.0' +/- FL = (VERIFY N & S FLOWLINE TO EXISTING ELEVATION PRIOR OF CONSTRUCTION)

WATER SERVICE OFF OF ONTARIO ST

CONNECT TO EXISTING PVC LATERAL

STA 16+81.3, 8.0' RT 1-8"X8" TEE

ED-1099 HO #132

77'

ED-1106 HO #202

WATER SERVICE OFF OF ONTARIO ST

ONTARIO STREET

EXIST STMH (54)

PROP. 8" PVC WM

SSMH CSI-011

EXIST SSMH CSI-011

WATER SERVICE OFF OF ONTARIO ST

ED-655 HO #133

SANITARY LATERAL OFF OF ALLEY

REMOVE EXIST. VALVE BOX

BULKHEAD AND ABANDON

6" C.I. WM

296'-15" RCP STM

153'-18" PVC SAN

153'-24" SAN PVC

250'-8" PVC WM (TEE-TEE)

SEE PAGE 12

TEMPORARY ASPHALT PATCH SANITARY SEWER TRENCH ACROSS ONTARIO STREET. 2 INCHES THICK, 12 FEET IN LENGTH. LOCATION PER CITY OF DEPERE AND CELLCOM MARATHON.

EXISTING TENNIS COURTS

NOTE:

1. RELAY ALL SANITARY LATERALS THAT ARE ACTIVE. IF THE LATERAL IS NOT ACTIVE THEN PLUG AT THE MAIN. THE CITY WILL TELEVISE ANY LATERALS THAT ARE IN QUESTION.

EXIST. 15" CLAY SAN TO BE LINED BY OTHERS

427'-18" RCP STM

6" ABS CONC WM

EXIST RL PROFILE

PROP. RL PROFILE

VPI STA = 13+47.00 ELEV = 612.43

VPI STA = 13+78.00 ELEV = 612.65

VPI STA = 14+25.00 ELEV = 612.09

VPI STA = 15+45.00 ELEV = 612.57

VPI STA = 16+58.00 ELEV = 612.12

VPI STA = 16+91.00 ELEV = 612.58

VPI STA = 17+23.00 ELEV = 612.43

0.42%

0.71%

-1.19%

0.40%

-0.40%

1.40%

-0.47%

0.40%

EXIST STMH (26) STA 13+55.97 14' R RIM = 612.21 D = 4.88' DIA = 48" FL = 607.33 (12" W) FL = 607.33 (12" E)

EXIST STMH (27) STA 13+91.87 15' R RIM = 612.29 D = 4.82' DIA = 48" FL = 607.47 (12" W) FL = 608.07 (12" N)

EXIST STMH (54) STA 16+99.82 10' L RIM = 612.31 D = 5.95' DIA = 48" FL = 607.01 (15" E) FL = 606.36 (24" N) FL = 606.92 (18" S)

615

605

36'-12" STM RCP @ 0.69%

T.O.P ELEV.= 605.47 +/- (BY OTHERS PROP. 16" WM)

312'-18" SAN PVC @ 0.43%

312'-24" SAN PVC @ 0.40%

165'-18" SAN PVC @ 0.53%

165'-24" SAN PVC @ 0.40%

153'-18" SAN PVC @ 0.46%

153'-24" SAN PVC @ 0.40%

296'-15" STM RCP @

T.O.P ELEV.= 605.82

T.O.P ELEV.= 605.82 +/-

MAINTAIN 0.5' CLEARANCE

MAINTAIN 1.5' CLEARANCE

PROP. 8" PVC WM

T.O.P ELEV.= 605.82

T.O.P ELEV.= 604.86 (CENTER OF WM OFFSET)

EXIST SSMH CSI-010 STA 15+27.13 1' L RIM = 612.68 D = 10.58' DIA = 48" FL = 602.10 (18" E) FL = 602.10 (18" W) FL = 602.14 (8" S)

SSMH CSI-010 STA 15+27.2 0' RIM = 612.50 D = 11.35' DIA = 48" FL = 601.15 (24" E) FL = 601.15 (24" W) FL = 602.65 (8" S)

EXIST SSMH CSI-011 STA 16+91.89 0' L RIM = 612.54 D = 9.57' DIA = 48" FL = 602.97 (18" E) FL = 602.97 (18" W) FL = 603.31 (15" S)

SSMH CSI-011 STA 16+91.9 0' RIM = 612.58 D = 10.77' DIA = 48" FL = 601.81 (24" E) FL = 601.81 (24" W) FL = 603.26 (15" S)

SSMH CSI-012 STA 18+44.5 0' R RIM = 612.92 D = 10.50' DIA = 48" FL = 602.42 (24" E) FL = 602.42 (24" W) FL = 603.77 (8" N)

612.6 612.03 | 612.7 612.23 | 612.4 612.45 | 612.4 612.39 | 612.5 612.19 | 612.7 612.39 | 612.7 612.55 | 612.7 612.35 | 612.5 612.15 | 612.6 612.54 | 612.7 612.54 | 612.9 612.74 | 613.1 612.94

13+00 14+00 15+00 16+00 17+00 18+00

0 20' 40'

0 2'

CITY OF DE PERE

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

CHARLES STREET

FROM 150' W/O ERIE TO 200' W/O WINNEBAGO
SANITARY SEWER AND WATER MAIN

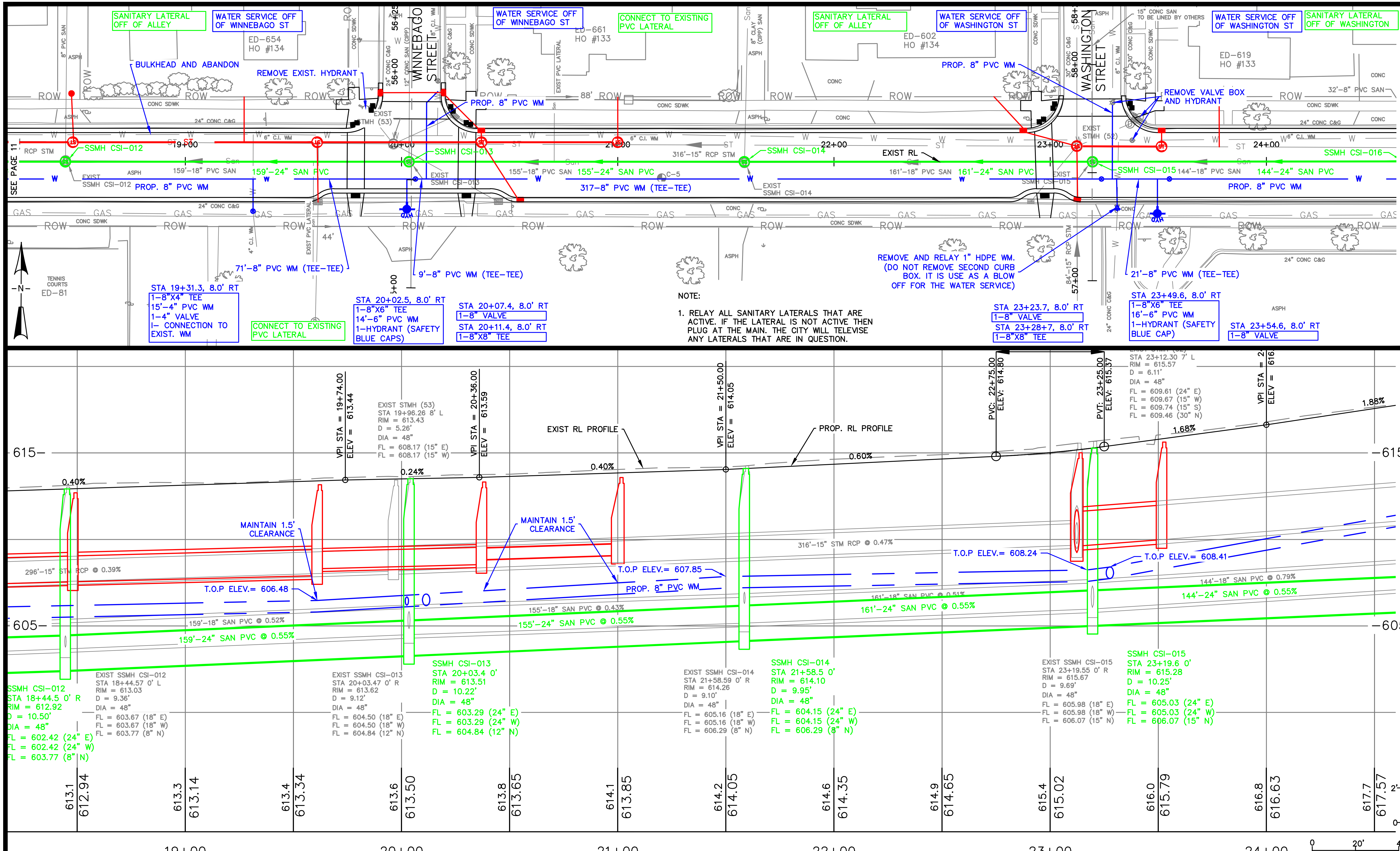
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 11


SANITARY LATERAL OFF OF ALLEY
WATER SERVICE OFF OF WINNEBAGO ST
WATER SERVICE OFF OF WINNEBAGO ST
CONNECT TO EXISTING PVC LATERAL
SANITARY LATERAL OFF OF ALLEY
WATER SERVICE OFF OF WASHINGTON ST
WATER SERVICE OFF OF WASHINGTON ST
SANITARY LATERAL OFF OF WASHINGTON
WINNEBAGO STREET
WASHINGTON STREET
ED-654 HO #134
ED-661 HO #133
ED-602 HO #134
ED-619 HO #133
ED-81
BULKHEAD AND ABANDON
REMOVE EXIST. HYDRANT
PROP. 8" PVC WM
REMOVE VALVE BOX AND HYDRANT
SSMH CSI-012
SSMH CSI-013
SSMH CSI-014
SSMH CSI-015
SSMH CSI-016
EXIST STMH (53)
EXIST STMH (52)
EXIST RL
159'-18" PVC SAN
159'-24" SAN PVC
155'-18" PVC SAN
155'-24" SAN PVC
161'-18" PVC SAN
161'-24" SAN PVC
144'-18" PVC SAN
144'-24" SAN PVC
316'-15" RCP STM
317-8" PVC WM (TEE-TEE)
71'-8" PVC WM (TEE-TEE)
9'-8" PVC WM (TEE-TEE)
21'-8" PVC WM (TEE-TEE)
STA 19+31.3, 8.0' RT
1-8"X4" TEE
15'-4" PVC WM
1-4" VALVE
1- CONNECTION TO EXIST. WM
CONNECT TO EXISTING PVC LATERAL
STA 20+02.5, 8.0' RT
1-8"X6" TEE
14'-6" PVC WM
1-HYDRANT (SAFETY BLUE CAPS)
STA 20+07.4, 8.0' RT
1-8" VALVE
STA 20+11.4, 8.0' RT
1-8"X8" TEE
REMOVE AND RELAY 1" HDPE WM. (DO NOT REMOVE SECOND CURB BOX. IT IS USE AS A BLOW OFF FOR THE WATER SERVICE)
STA 23+23.7, 8.0' RT
1-8" VALVE
STA 23+28+7, 8.0' RT
1-8"X8" TEE
STA 23+49.6, 8.0' RT
1-8"X6" TEE
16'-6" PVC WM
1-HYDRANT (SAFETY BLUE CAP)
STA 23+54.6, 8.0' RT
1-8" VALVE
NOTE:
1. RELAY ALL SANITARY LATERALS THAT ARE ACTIVE. IF THE LATERAL IS NOT ACTIVE THEN PLUG AT THE MAIN. THE CITY WILL TELEVISE ANY LATERALS THAT ARE IN QUESTION.
SEE PAGE 11
SEE PAGE 13
VPI STA = 19+74.00 ELEV = 613.44
VPI STA = 20+36.00 ELEV = 613.59
VPI STA = 21+50.00 ELEV = 614.05
PVC: 22+75.00 ELEV: 614.80
PVT: 23+25.00 ELEV: 615.37
EXIST STMH (53) STA 19+96.26 8' L RIM = 613.43 D = 5.26' DIA = 48" FL = 608.17 (15" E) FL = 608.17 (15" W)
EXIST STMH (52) STA 23+12.30 7' L RIM = 615.57 D = 6.11' DIA = 48" FL = 609.61 (24" E) FL = 609.67 (15" W) FL = 609.74 (15" S) FL = 609.46 (30" N)
EXIST RL PROFILE
PROP. RL PROFILE
0.40%
0.24%
0.40%
0.60%
1.68%
1.88%
MAINTAIN 1.5' CLEARANCE
MAINTAIN 1.5' CLEARANCE
296'-15" STM RCP @ 0.39%
316'-15" STM RCP @ 0.47%
T.O.P ELEV.= 606.48
T.O.P ELEV.= 607.85
T.O.P ELEV.= 608.24
T.O.P ELEV.= 608.41
PROP. 8" PVC WM
159'-18" SAN PVC @ 0.52%
159'-24" SAN PVC @ 0.55%
155'-18" SAN PVC @ 0.43%
155'-24" SAN PVC @ 0.55%
161'-18" SAN PVC @ 0.51%
161'-24" SAN PVC @ 0.55%
144'-18" SAN PVC @ 0.79%
144'-24" SAN PVC @ 0.55%
SSMH CSI-012 STA 18+44.5 0' R RIM = 612.92 D = 10.50' DIA = 48" FL = 602.42 (24" E) FL = 602.42 (24" W) FL = 603.77 (8" N)
EXIST SSMH CSI-012 STA 18+44.57 0' L RIM = 613.03 D = 9.36' DIA = 48" FL = 603.67 (18" E) FL = 603.67 (18" W) FL = 603.77 (8" N)
EXIST SSMH CSI-013 STA 20+03.47 0' R RIM = 613.62 D = 9.12' DIA = 48" FL = 604.50 (18" E) FL = 604.50 (18" W) FL = 604.84 (12" N)
SSMH CSI-013 STA 20+03.4 0' RIM = 613.51 D = 10.22' DIA = 48" FL = 603.29 (24" E) FL = 603.29 (24" W) FL = 604.84 (12" N)
EXIST SSMH CSI-014 STA 21+58.59 0' R RIM = 614.26 D = 9.10' DIA = 48" FL = 605.16 (18" E) FL = 605.16 (18" W) FL = 606.29 (8" N)
SSMH CSI-014 STA 21+58.5 0' RIM = 614.10 D = 9.95' DIA = 48" FL = 604.15 (24" E) FL = 604.15 (24" W) FL = 606.29 (8" N)
EXIST SSMH CSI-015 STA 23+19.55 0' R RIM = 615.67 D = 9.69' DIA = 48" FL = 605.98 (18" E) FL = 605.98 (18" W) FL = 606.07 (15" N)
SSMH CSI-015 STA 23+19.6 0' RIM = 615.28 D = 10.25' DIA = 48" FL = 605.03 (24" E) FL = 605.03 (24" W) FL = 606.07 (15" N)
615
605
613.1 612.94
613.3 613.14
613.4 613.34
613.6 613.50
613.8 613.65
614.1 613.85
614.2 614.05
614.6 614.35
614.9 614.65
615.4 615.02
616.0 615.79
616.8 616.63
617.7 617.57
19+00
20+00
21+00
22+00
23+00
24+00
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

CHARLES STREET

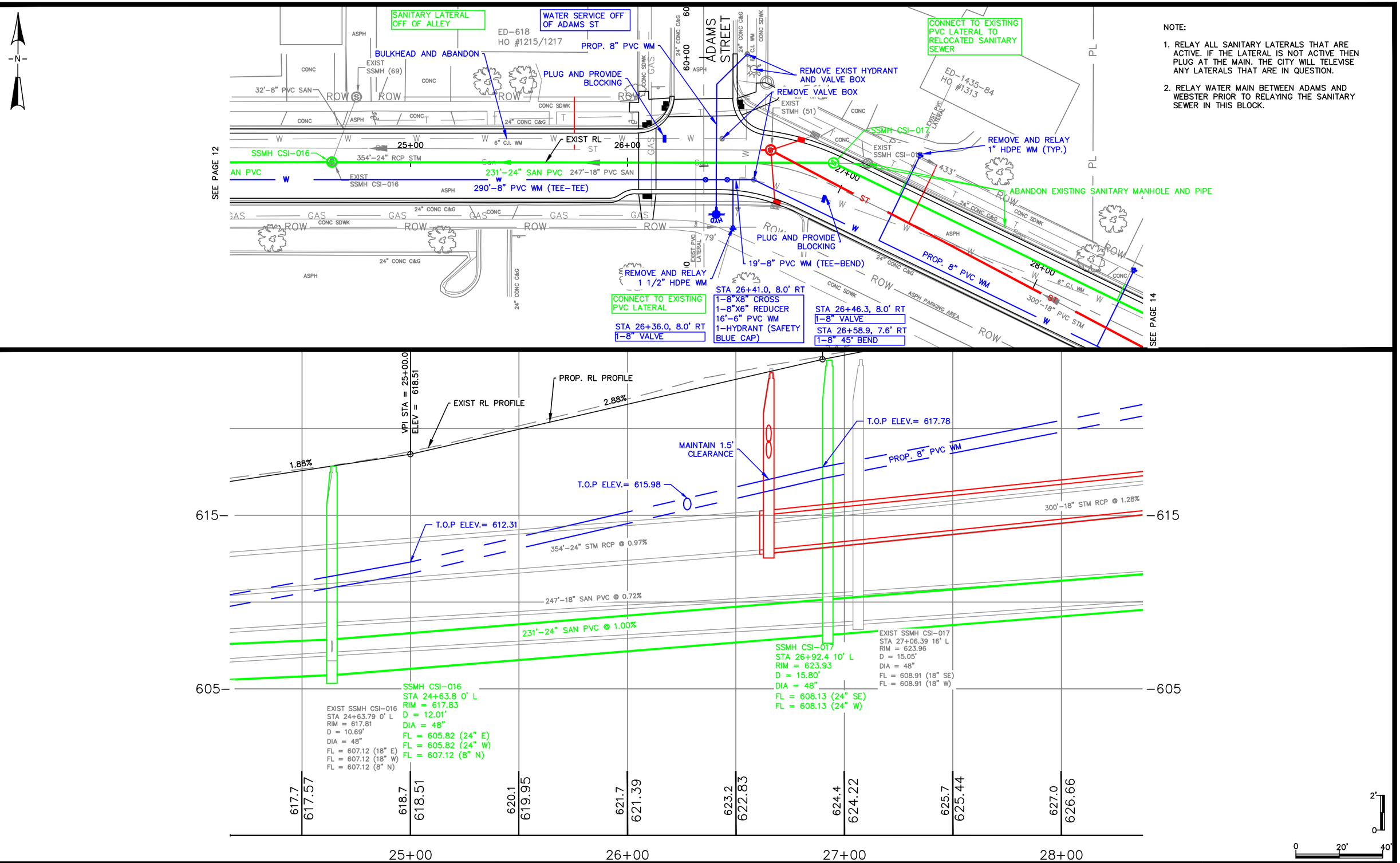
FROM 200' W/O WINNEBAGO TO 250' W/O ADAMS ST
SANITARY SEWER AND WATER MAIN

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

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

CHARLES STREET

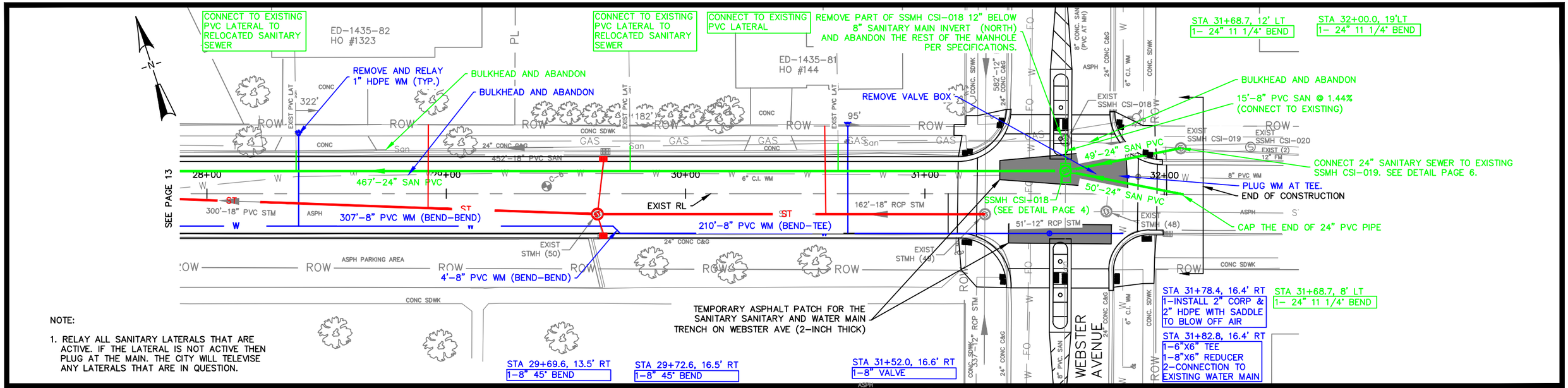
FROM 250' W/O ADAMS TO 350' W/O WEBSTER AVE
SANITARY SEWER AND WATER MAIN

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 13



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

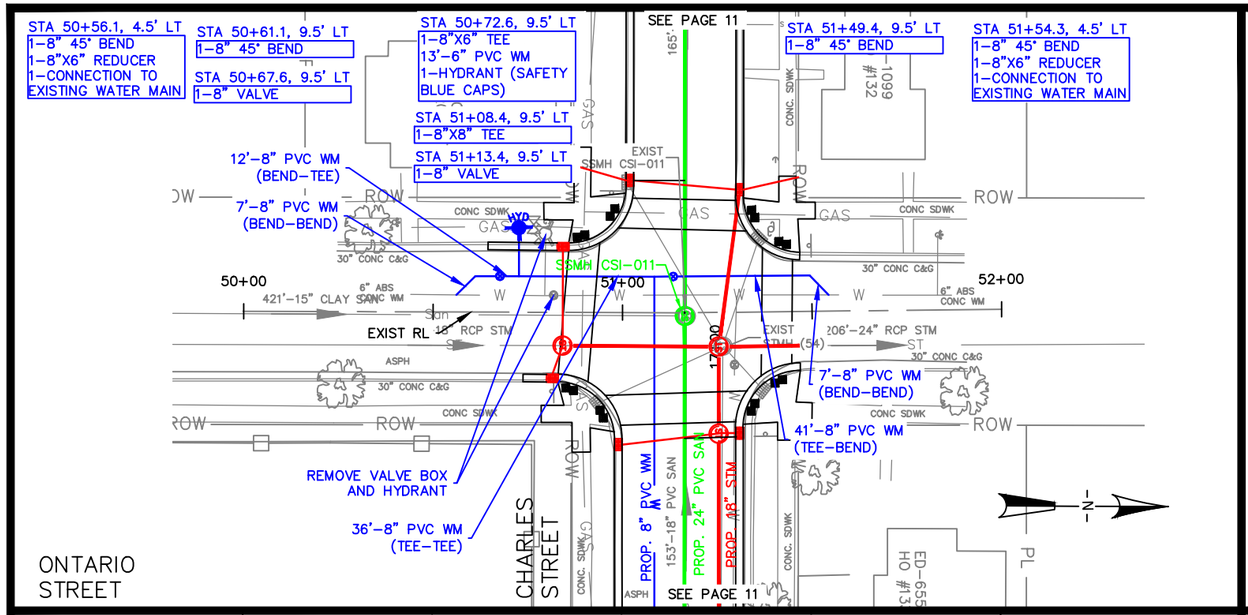
CHARLES STREET
FROM 350' W/O WEBSTER TO WEBSTER AVE
SANITARY SEWER AND WATER MAIN

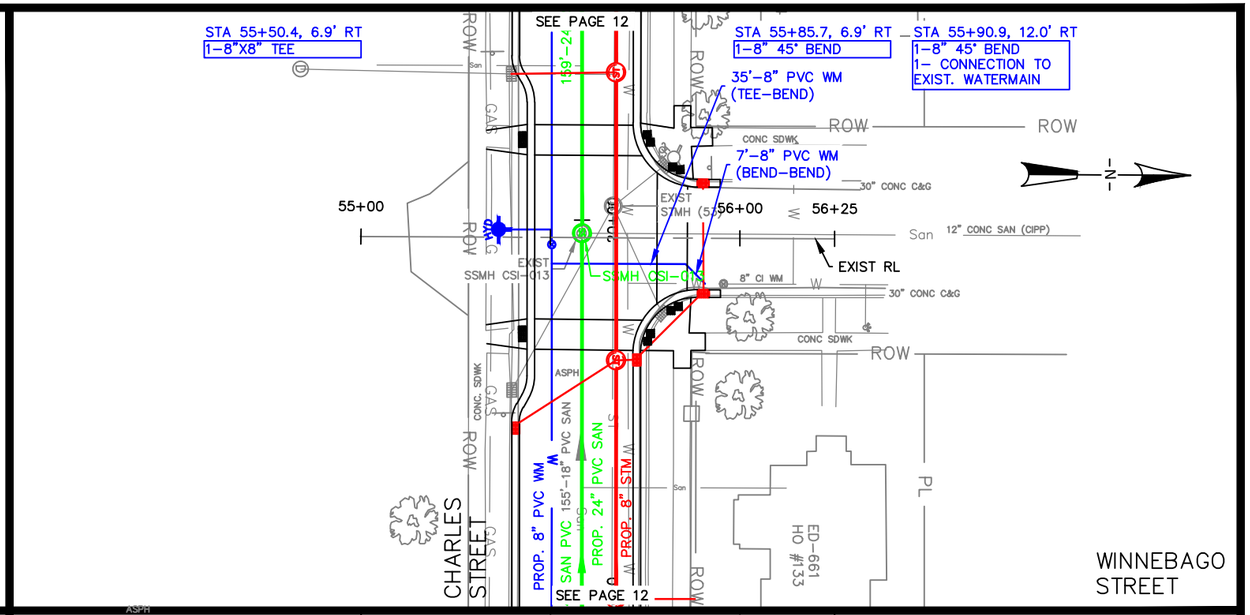
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

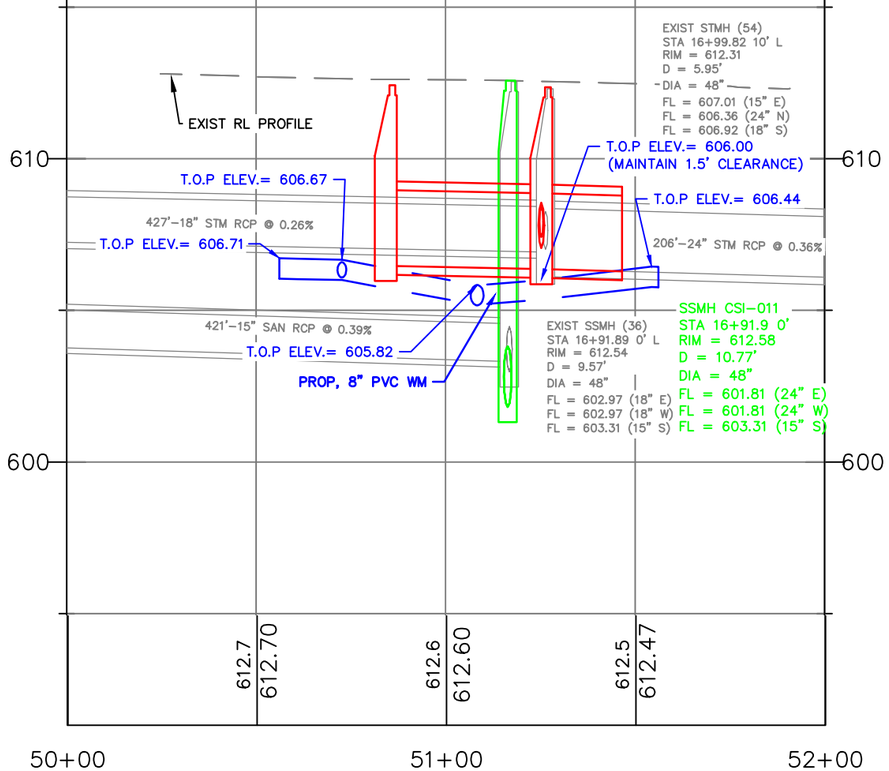
	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

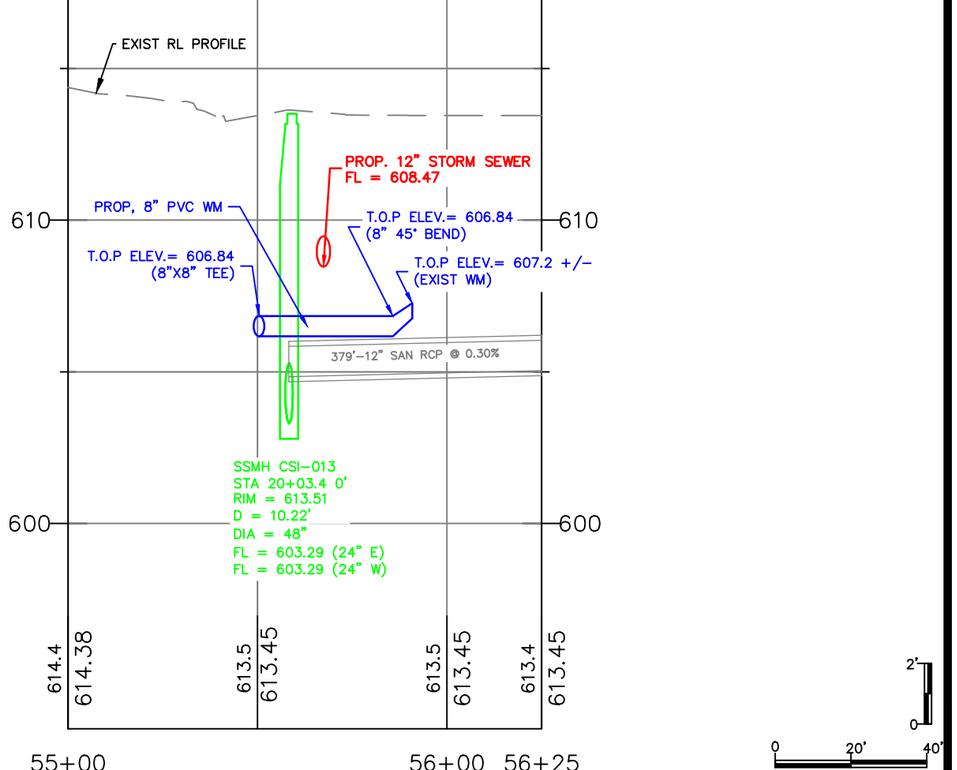
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 14









CITY OF DE PERE

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

CHARLES STREET

ONTARIO STREET AND WINNEBAGO STREET

SANITARY SEWER AND WATER MAIN

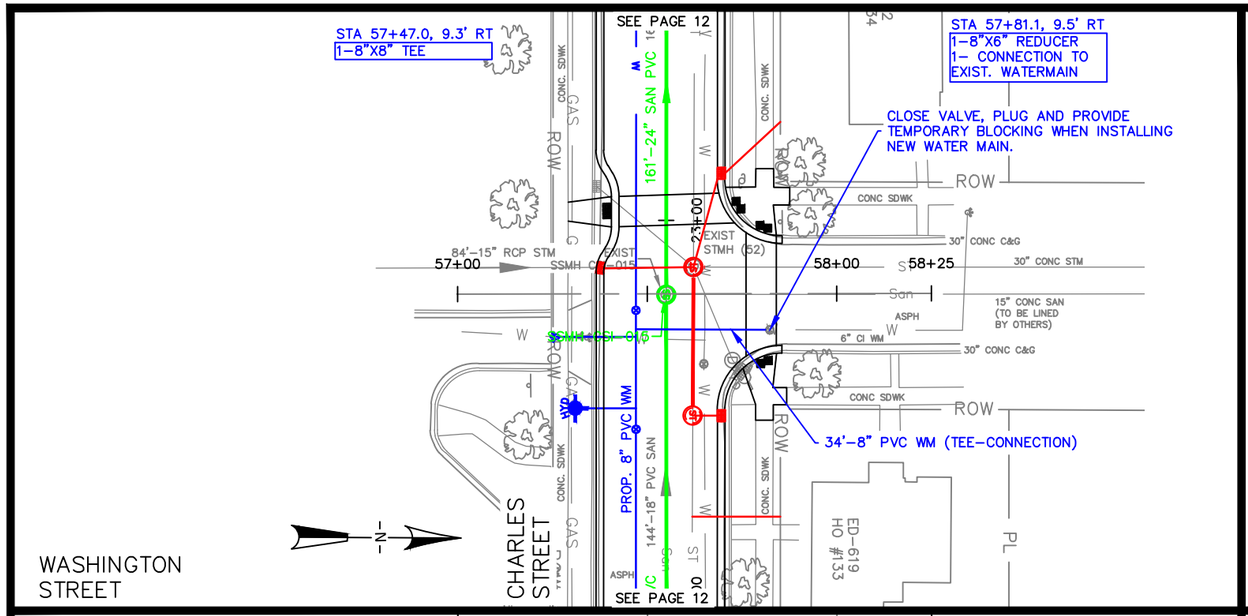
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY

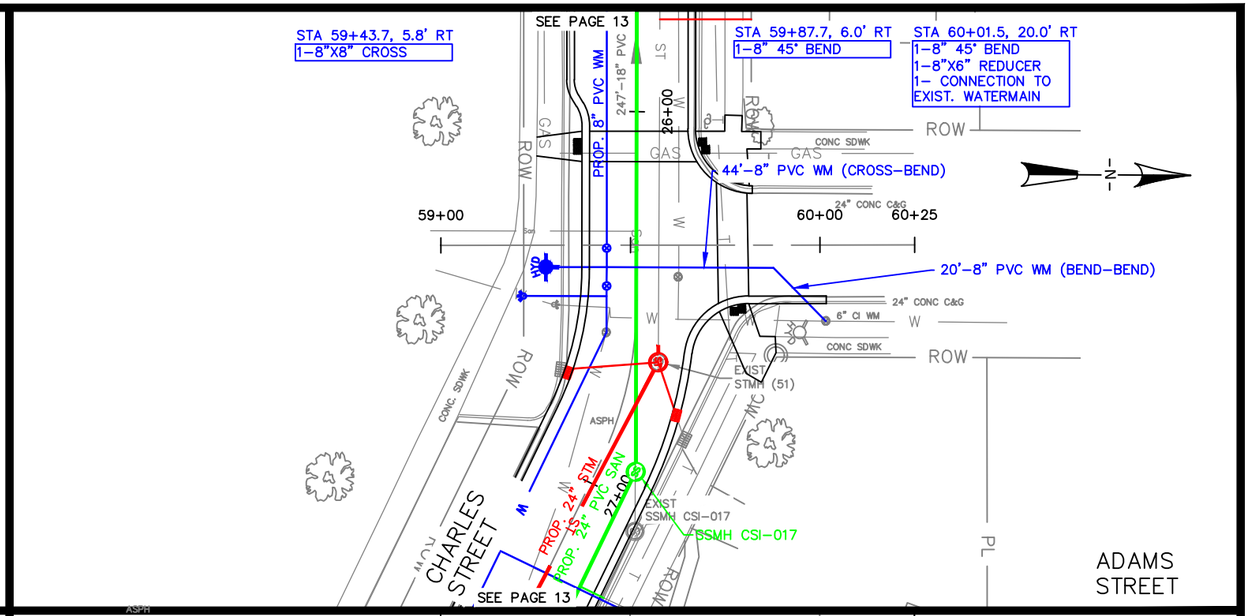
PROJECT # 18–02

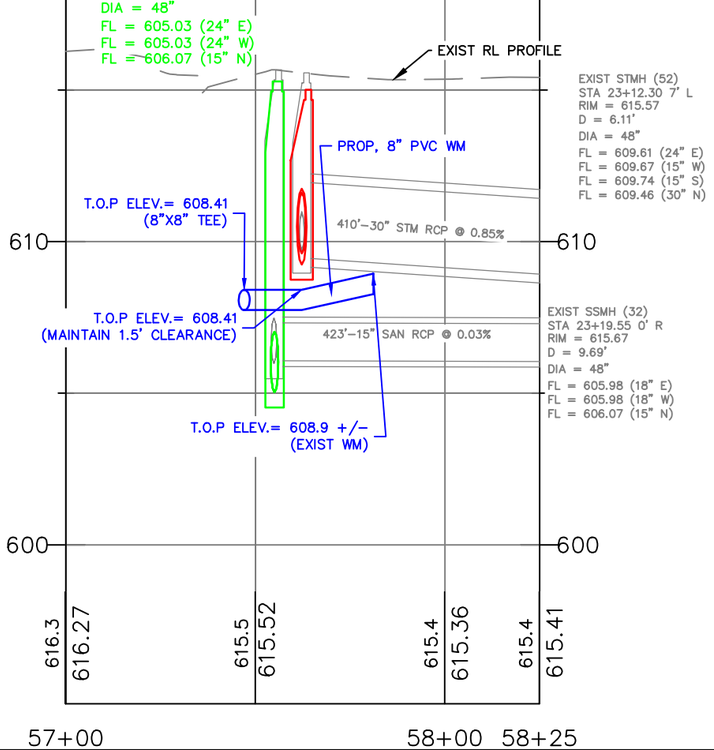
	BY	DATE
SURVEYED	SRL	6–2017
DRAWN	SRL	11–2017
DESIGNED	SRL	11–2017
CHECKED	EPR	1–2018

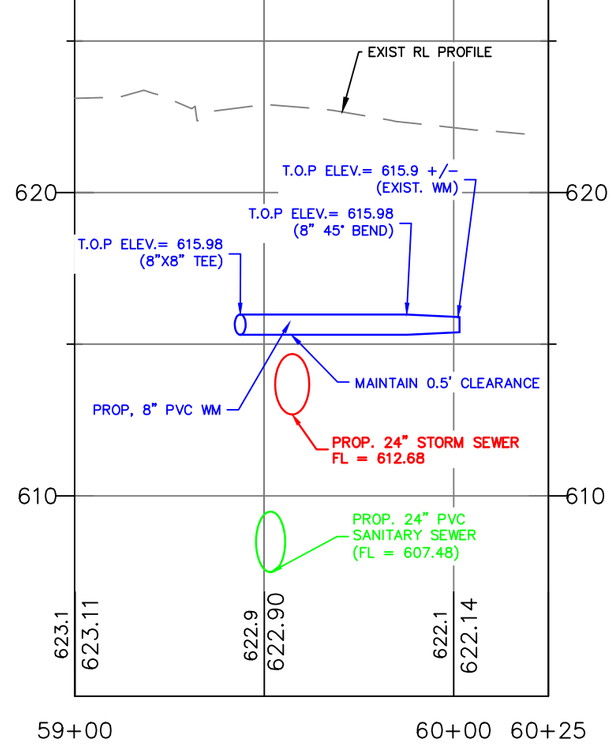
REVISIONS / ISSUES NO.	DATE	BY	REMARKS

PAGE NO. **15**









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

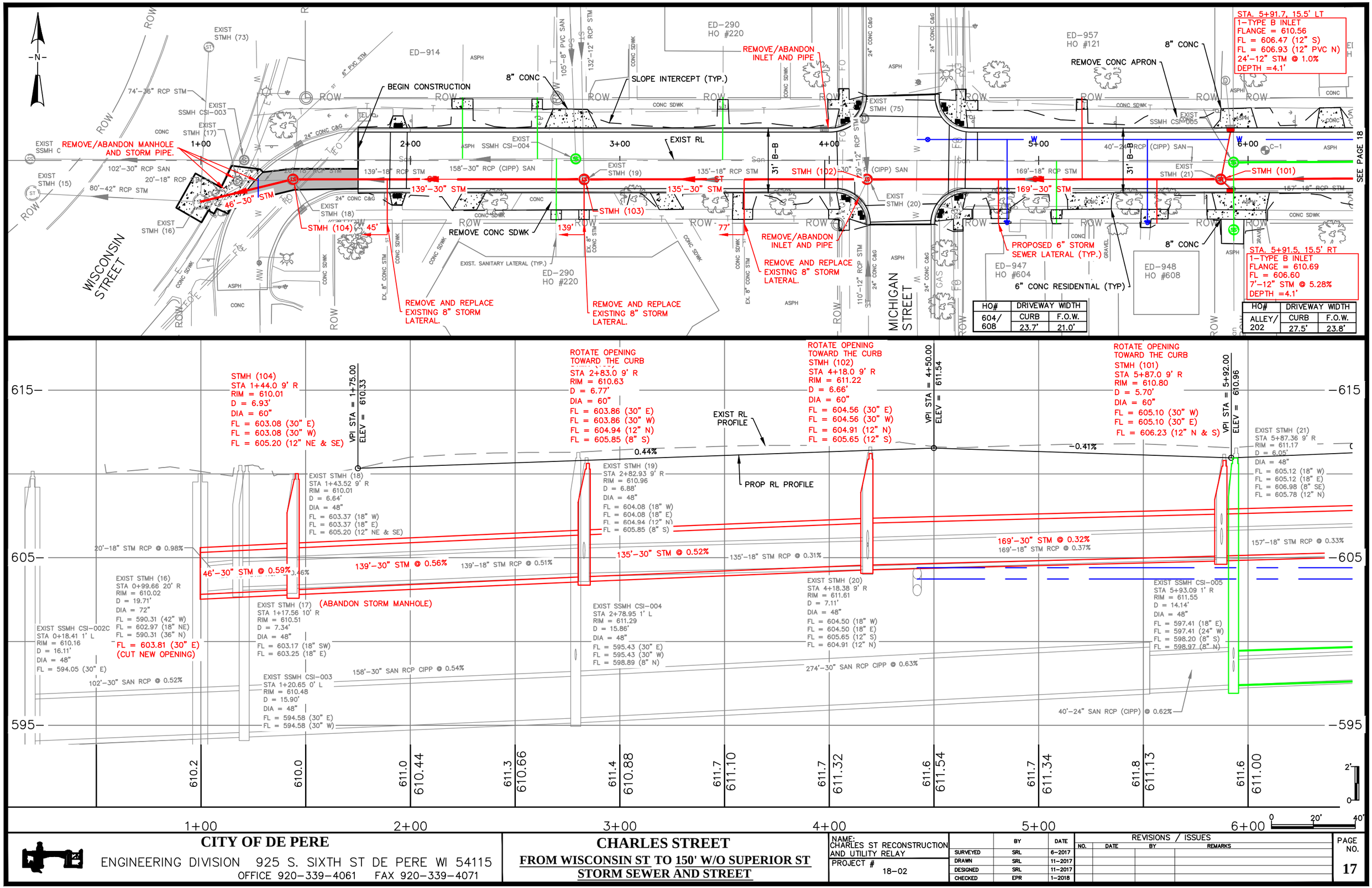
CHARLES STREET
WASHINGTON STREET AND ADAMS STREET
SANITARY SEWER AND WATER MAIN

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18–02

	BY	DATE
SURVEYED	SRL	6–2017
DRAWN	SRL	11–2017
DESIGNED	SRL	11–2017
CHECKED	EPR	1–2018

REVISIONS / ISSUES NO.	DATE	BY	REMARKS

PAGE NO. **16**



CITY OF DE PERE	CHARLES STREET	NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115 OFFICE 920-339-4061 FAX 920-339-4071	FROM WISCONSIN ST TO 150' W/O SUPERIOR ST STORM SEWER AND STREET	PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 17

HO#	DRIVEWAY WIDTH	
132	CURB	F.O.W.
	13.4'	10.0'

STORM LATERAL OFF OF SUPERIOR ST

ED–955 HO #132

6" CONC RESIDENTIAL (TYP.)

SLOPE INTERCEPT (TYP.)

STORM LATERAL OFF OF SUPERIOR ST

MILL AND RELAY 4" OF ASPHALTIC CONCRETE PAVEMENT

ADJUST INLET PROP. FLANGE = 610.72

ED–1013 HO #100

MILL AND RELAY 4" OF ASPHALTIC CONCRETE PAVEMENT

REMOVE AND ABANDON STORM INLET, MANHOLE AND PIPE.

HURON STREET

STORM LATERAL OFF OF HURON ST

ED–1054 HO #133

STA. 11+48.0, 13.5' LT
1–TYPE B INLET
FLANGE = 611.37
FL = 607.28
21'–12" STM @ 0.50%
DEPTH =4.1'

EXIST SSMH (62)

34'–8" CLAY SAN

8" CONC

EXIST SSMH CSI–009

SEE PAGE 17

SEE PAGE 19

EXIST SSMH CSI–006

EXIST STMH (78)

EXIST STMH (44)

EXIST STMH (22)

EXIST STMH (77)

EXIST SSMH CSI–007

EXIST RL

EXIST STMH (24)

EXIST STMH (25)

(101)

157'–18" RCP STM

157'–30" STM

39'–24" RCP STM

157'–18" RCP (CIPP) SAN

153'–18" RCP (CIPP) SAN

124'–21" STM

241'–15" RCP STM

312'–18" RCP (CIPP) SAN

117'–21" STM

39'–21" RCP STM

38'–15" PVC STM

47'–15" STM

77'–15" STM

255'–

STMH (105)

STMH (114)

STMH

ADJUST INLET PROP. FLANGE = 610.72

8" CONC GRAVEL

STA. 9+04.4, 32.7' RT
1–TYPE A FIELD INLET
GRATE = 611.40
FL = 607.40
25'–12"STM @ 1.60%
1 – 12" 45° BEND
DEPTH =4.0'
PROVIDE 8" OF RINGS

PROPOSED 6" STORM SEWER LATERAL (TYP.)

STORM LATERAL OFF OF HURON ST

ED–1014 HO #200

HO#	DRIVEWAY WIDTH	
714/ 200	CURB	F.O.W.
	25.0'	25.0'

ED–1015 HO #714

ED–1025 HO #201

HO#	DRIVEWAY WIDTH	
ALLEY/ 201	CURB	F.O.W.
	24.5'	21.5'

ED–937 HO #202

SUPERIOR STREET

ABANDON STORM PIPE.

STA. 11+48.0, 13.5' RT
1–TYPE B INLET
FLANGE = 611.37
FL = 607.28
5'–12" STM @ 2.00%
DEPTH =4.1'

STA. 12+22.8, 31.8' RT
1–TYPE A FIELD INLET
GRATE = 612.20
FL = 607.34
24'–12" STM @ 0.50%
1– 12" 45° BEND
DEPTH =4.9'
PROVIDE 8" OF RINGS

ED–1047 #203

HO#	DRIVEWAY WIDTH	
	CURB	F.O.W.
202	18.2'	11.8'
203	18.9'	15.7'

615–

605–

595–

(ADJUST MANHOLE)
EXIST STMH (22)
STA 7+44.07 8' R
RIM = 611.28
D = 5.64'
DIA = 48"
FL = 605.64 (18" W)
FL = 605.64 (24" E)
FL = 605.64 (24" S)
FL = 605.75 (15" N)

VPI STA = 7+16.00
ELEV = 611.60

VPI STA = 7+50.00
ELEV = 611.29

VPI STA = 7+84.00
ELEV = 611.06

(ADJUST MANHOLE)
EXIST STMH (44)
STA 7+83.45 8' R
RIM = 611.15
D = 5.43'
DIA = 48"
FL = 605.72 (24" W)
FL = 605.72 (15" E)
FL = 605.72 (21" E)
CONNECT TO EXISTING (MANHOLE IS ALREADY SIZED FOR 21")

ROTATE OPENING TOWARD THE CL
STMH (105)
STA 9+07.4 8' R
RIM = 611.30
D = 5.21'
DIA = 48"
FL = 606.08 (21" E)
FL = 606.08 (21" W)
FL = 607.00 (12" S)

EXIST RL PROFILE

PROP RL PROFILE

(ADJUST MANHOLE)
EXIST STMH (23)
STA 10+24.20 15' R
RIM = 611.49
D = 5.12'
DIA = 48"
FL = 606.37 (15" W)
FL = 606.56 (21" E)
FL = 606.37 (21" W)
CONNECT TO EXISTING (MANHOLE IS ALREADY SIZED FOR 21")

VPI STA = 10+24.00
ELEV = 611.83

VPI STA = 10+63.00
ELEV = 611.94

EXIST STMH (25)
STA 11+00.79 13' R
RIM = 611.39
D = 4.66'
DIA = 48"
FL = 606.73 (15" W)
FL = 606.73 (12" E)
(REMOVE MANHOLE)

VPI STA = 11+48.00
ELEV = 611.60

ROTATE OPENING TOWARD THE CL
STMH (106)
STA 12+25.0 8' R
RIM = 611.76
D = 4.74'
DIA = 48"
FL = 607.02 (15"
FL = 607.02 (15"
FL = 607.22 (12"

0.52%
−0.90%
−0.68%
0.32%
0.27%
−0.39%
0.42%

605.78 (12" N)
605.98 (8" SE)
605.12 (18" E)
605.12 (18" W)
ST STMH (21)
5+87.36 9' R
611.17
6.05'
48"

157'–30" STM @ 0.34%
39'–24" STM RCP @ 0.20%
124'–21" STM @ 0.29%
241'–15" STM RCP @ 0.27%
117'–21" STM @ 0.24%
39'–21" STM RCP @ 0.17%
38'–15" STM PVC @ 0.29%
47'–15" STM @ 0.30%
77'–15" STM @ 0.19%
255'–12" STM RCP @ 0.24%
–18" STM RCP @ 0.33%

CONNECT TO EXISTING 15" PVC STORM SEWER FL = 606.73

STMH (114)
STA 11+48.0 8' R
RIM = 611.44
D = 4.57'
DIA = 48"
FL = 606.87 (15" E)
FL = 606.87 (15" W)
FL = 607.17 (12" N & S)
ROTATE OPENING TOWARD THE CL

EXIST SSMH CSI–009
STA 12+15.37 2' L
RIM = 612.42
D = 11.65'
DIA = 48"
FL = 600.77 (18" E)
FL = 600.77 (18" W)
FL = 600.89 (8" S)
FL = 600.89 (8" N)

157'–18" SAN RCP (CIPP) @ 0.52%
153'–18" SAN RCP (CIPP) @ 0.54%
312'–18" SAN RCP (CIPP) @ 0.55%

EXIST SSMH CSI–006
STA 7+49.77 0' R
RIM = 611.33
D = 13.10'
DIA = 48"
FL = 598.23 (18" E)
FL = 598.23 (18" W)

EXIST SSMH CSI–007
STA 9+02.99 0' R
RIM = 612.04
D = 12.98'
DIA = 48"
FL = 599.06 (18" E)
FL = 599.06 (18" W)

EXIST STMH (24)
STA 10+62.97 12' R
RIM = 611.97
D = 5.38'
DIA = 48"
FL = 606.62 (21" W)
FL = 606.62 (15" E)
FL = 606.59 (12" S)
FL = 606.59 (15" N)

611.8 611.26 | 611.9 611.52 | 611.3 611.29 | 611.9 611.11 | 612.0 611.27 | 612.0 611.43 | 612.2 611.59 | 612.2 611.75 | 612.0 611.90 | 612.0 611.79 | 612.4 611.61 | 612.4 611.82

7+00 8+00 9+00 10+00 11+00 12+00

0 20' 40'

2' 0

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

CHARLES STREET
FROM 150' W/O SUPERIOR TO 150' W/O ERIE ST
STORM SEWER AND STREET

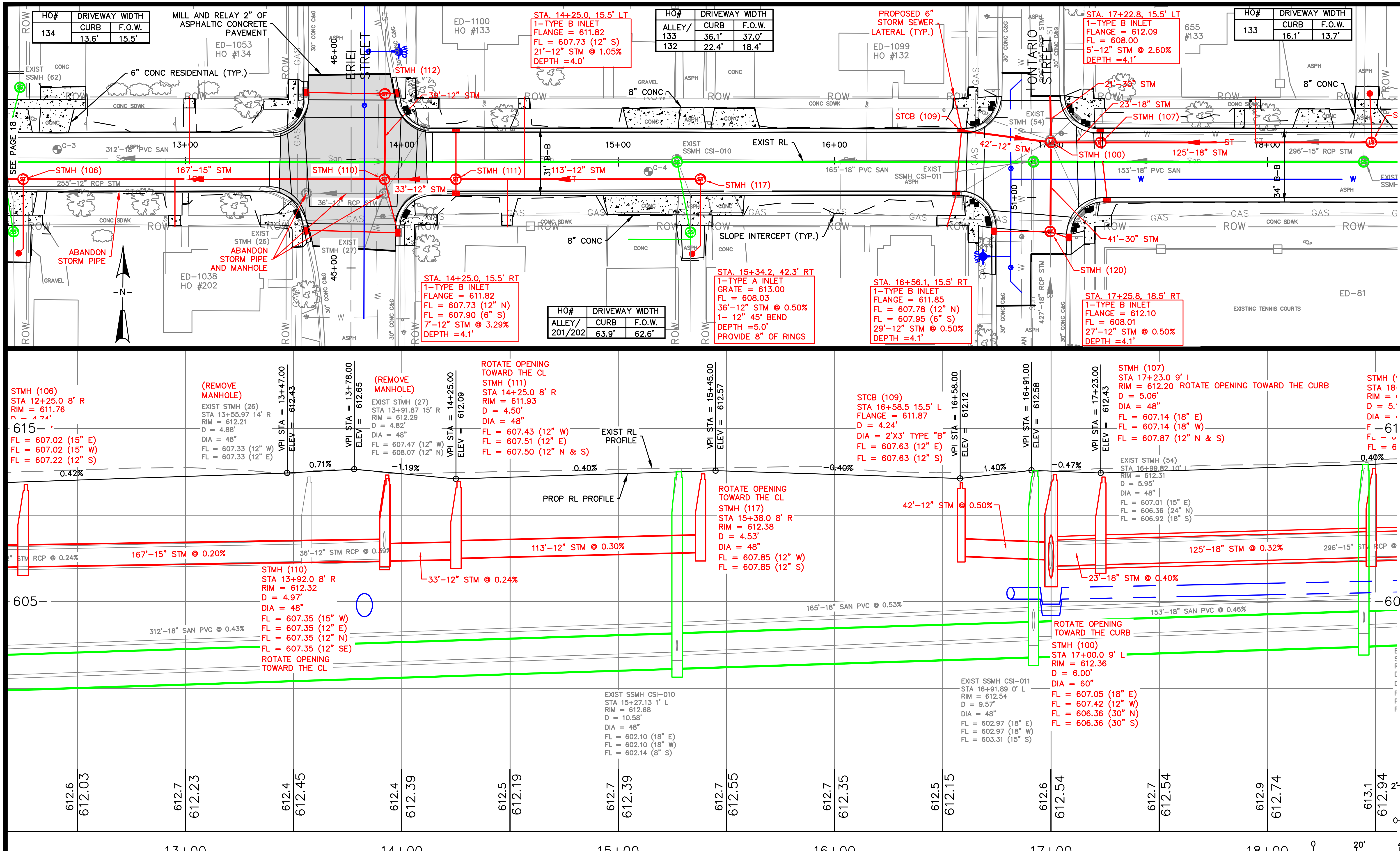
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18–02

	BY	DATE
SURVEYED	SRL	6–2017
DRAWN	SRL	11–2017
DESIGNED	SRL	11–2017
CHECKED	EPR	1–2018

REVISIONS / ISSUES

NO.	DATE	BY	REMARKS

PAGE NO. 18


HO# | DRIVEWAY WIDTH | CURB | F.O.W. | 134 | 13.6' | 15.5'
MILL AND RELAY 2" OF ASPHALTIC CONCRETE PAVEMENT
6" CONC RESIDENTIAL (TYP.)
ED-1053 HO #134
ED-1100 HO #133
ERIE STREET
STMH (112)
39'-12" STM
STA. 14+25.0, 15.5' LT
1-TYPE B INLET
FLANGE = 611.82
FL = 607.73 (12" S)
21'-12" STM @ 1.05%
DEPTH =4.0'
HO# | DRIVEWAY WIDTH | CURB | F.O.W. | ALLEY/133 | 36.1' | 37.0' | 132 | 22.4' | 18.4'
PROPOSED 6" STORM SEWER LATERAL (TYP.)
ED-1099 HO #132
ONTARIO STREET
STA. 17+22.8, 15.5' LT
1-TYPE B INLET
FLANGE = 612.09
FL = 608.00
5'-12" STM @ 2.60%
DEPTH =4.1'
655 #133
HO# | DRIVEWAY WIDTH | CURB | F.O.W. | 133 | 16.1' | 13.7'
8" CONC
21'-30" STM
23'-18" STM
STMH (107)
STCB (109)
EXIST SSMH (62)
SEE PAGE 18
C-3
312'-18" PVC SAN
13+00
14+00
15+00
16+00
17+00
18+00
EXIST SSMH CSI-010
EXIST RL
STMH (106)
167'-15" STM
255'-12" RCP STM
STMH (110)
STMH (111)
113'-12" STM
33'-12" STM
36'-12" RCP STM
C-4
STMH (117)
165'-18" PVC SAN
EXIST SSMH CSI-011
42'-12" STM
STMH (100)
125'-18" STM
153'-18" PVC SAN
296'-15" RCP STM
SEE PAGE 20
ABANDON STORM PIPE
EXIST STMH (26)
ABANDON STORM PIPE AND MANHOLE
EXIST STMH (27)
ED-1038 HO #202
8" CONC
SLOPE INTERCEPT (TYP.)
41'-30" STM
STMH (120)
ED-81
EXISTING TENNIS COURTS
STA. 14+25.0, 15.5' RT
1-TYPE B INLET
FLANGE = 611.82
FL = 607.73 (12" N)
FL = 607.90 (6" S)
7'-12" STM @ 3.29%
DEPTH =4.1'
HO# | DRIVEWAY WIDTH | CURB | F.O.W. | ALLEY/201/202 | 63.9' | 62.6'
STA. 15+34.2, 42.3' RT
1-TYPE A INLET
GRATE = 613.00
FL = 608.03
36'-12" STM @ 0.50%
1- 12" 45° BEND
DEPTH =5.0'
PROVIDE 8" OF RINGS
STA. 16+56.1, 15.5' RT
1-TYPE B INLET
FLANGE = 611.85
FL = 607.78 (12" N)
FL = 607.95 (6" S)
29'-12" STM @ 0.50%
DEPTH =4.1'
STA. 17+25.8, 18.5' RT
1-TYPE B INLET
FLANGE = 612.10
FL = 608.01
27'-12" STM @ 0.50%
DEPTH =4.1'
STMH (106)
STA 12+25.0 8' R
RIM = 611.76
FL = 607.02 (15" E)
FL = 607.02 (15" W)
FL = 607.22 (12" S)
615
(REMOVE MANHOLE)
EXIST STMH (26)
STA 13+55.97 14' R
RIM = 612.21
D = 4.88'
DIA = 48"
FL = 607.33 (12" W)
FL = 607.33 (12" E)
VPI STA = 13+47.00
ELEV = 612.43
VPI STA = 13+78.00
ELEV = 612.65
(REMOVE MANHOLE)
EXIST STMH (27)
STA 13+91.87 15' R
RIM = 612.29
D = 4.82'
DIA = 48"
FL = 607.47 (12" W)
FL = 608.07 (12" N)
VPI STA = 14+25.00
ELEV = 612.09
ROTATE OPENING TOWARD THE CL
STMH (111)
STA 14+25.0 8' R
RIM = 611.93
D = 4.50'
DIA = 48"
FL = 607.43 (12" W)
FL = 607.51 (12" E)
FL = 607.50 (12" N & S)
EXIST RL PROFILE
VPI STA = 15+45.00
ELEV = 612.57
STCB (109)
STA 16+58.5 15.5' L
FLANGE = 611.87
D = 4.24'
DIA = 2'X3' TYPE "B"
FL = 607.63 (12" E)
FL = 607.63 (12" S)
VPI STA = 16+58.00
ELEV = 612.12
VPI STA = 16+91.00
ELEV = 612.58
VPI STA = 17+23.00
ELEV = 612.43
STMH (107)
STA 17+23.0 9' L
RIM = 612.20 ROTATE OPENING TOWARD THE CURB
D = 5.06'
DIA = 48"
FL = 607.14 (18" E)
FL = 607.14 (18" W)
FL = 607.87 (12" N & S)
EXIST STMH (54)
STA 16+99.82 10' L
RIM = 612.31
D = 5.95'
DIA = 48"
FL = 607.01 (15" E)
FL = 606.36 (24" N)
FL = 606.92 (18" S)
0.42%
0.71%
-1.19%
0.40%
-0.40%
1.40%
-0.47%
0.40%
PROP RL PROFILE
ROTATE OPENING TOWARD THE CL
STMH (117)
STA 15+38.0 8' R
RIM = 612.38
D = 4.53'
DIA = 48"
FL = 607.85 (12" W)
FL = 607.85 (12" S)
42'-12" STM @ 0.50%
RCP @ 0.24%
167'-15" STM @ 0.20%
36'-12" STM RCP @ 0.39%
113'-12" STM @ 0.30%
125'-18" STM @ 0.32%
296'-15" STM RCP @
STMH (110)
STA 13+92.0 8' R
RIM = 612.32
D = 4.97'
DIA = 48"
FL = 607.35 (15" W)
FL = 607.35 (12" E)
FL = 607.35 (12" N)
FL = 607.35 (12" SE)
ROTATE OPENING TOWARD THE CL
33'-12" STM @ 0.24%
23'-18" STM @ 0.40%
605
312'-18" SAN PVC @ 0.43%
165'-18" SAN PVC @ 0.53%
153'-18" SAN PVC @ 0.46%
ROTATE OPENING TOWARD THE CURB
STMH (100)
STA 17+00.0 9' L
RIM = 612.36
D = 6.00'
DIA = 60"
FL = 607.05 (18" E)
FL = 607.42 (12" W)
FL = 606.36 (30" N)
FL = 606.36 (30" S)
EXIST SSMH CSI-010
STA 15+27.13 1' L
RIM = 612.68
D = 10.58'
DIA = 48"
FL = 602.10 (18" E)
FL = 602.10 (18" W)
FL = 602.14 (8" S)
EXIST SSMH CSI-011
STA 16+91.89 0' L
RIM = 612.54
D = 9.57'
DIA = 48"
FL = 602.97 (18" E)
FL = 602.97 (18" W)
FL = 603.31 (15" S)
612.6 612.03
612.7 612.23
612.4 612.45
612.4 612.39
612.5 612.19
612.7 612.39
612.7 612.55
612.7 612.35
612.5 612.15
612.6 612.54
612.7 612.54
612.9 612.74
613.1 612.94
13+00
14+00
15+00
16+00
17+00
18+00
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

CHARLES STREET

FROM 150' W/O ERIE TO 200' W/O WINNEBAGO

STORM SEWER AND STREET

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

REVISIONS / ISSUES

NO.	DATE	BY	REMARKS

STA. 18+47.4, 31.6' LT
1-TYPE A INLET
GRATE = 613.10
FL = 608.10
22'-12" STM @ 1.00%
DEPTH =5.0'

STA. 19+89.2, 31.9' LT
1-TYPE B INLET
FLANGE = 612.88
FL = 608.79
29'-12" STM @ 0.40%
DEPTH = 4.1'

STA. 20+20.4, 32.0' LT
1-TYPE B INLET
FLANGE = 613.06
FL = 608.67
25'-12" STM @ 0.40%
DEPTH =4.4'

STA. 20+36.9, 15.5' LT
1-TYPE B INLET
FLANGE = 613.19
FL = 608.57
6'-12" STM @ 0.40%
DEPTH =4.6'

HO#	DRIVEWAY WIDTH	
	CURB	F.O.W.
134	30.0'	23.8'

STA. 22+70.0, 15.5' LT
1-TYPE B INLET
FLANGE = 614.43
FL = 610.34 (12" SE)
FL = 610.50 (6" N)
44'-12" STM @ 0.40%
DEPTH =4.1'

STA. 23+51.5, 15.5' LT
1-TYPE B INLET
FLANGE = 615.54
FL = 611.45
4'-12" STM @ 1.30%
DEPTH =4.1'

HO#	DRIVEWAY WIDTH	
	CURB	F.O.W.
PARK	19.7'	15.2'

STA. 20+57.7, 18.5' LT
1-TYPE B INLET
FLANGE = 613.41
FL = 609.34
34'-12" STM @ 2.32%
DEPTH =4.1'

STA. 23+12.0, 16.7' RT
1-TYPE B INLET
FLANGE = 614.84
FL = 609.84 (15" N & S)
23'-15" STM @ 0.43%
DEPTH =5.3'

SEE PAGE 19

SEE PAGE 21

WINNEBAGO STREET

WASHINGTON STREET

8" CONC

STMH (99)

STMH (98)

STMH (116)

63'-8" STM

STMH (96)

SLOPE INTERCEPT (TYP.)

6" CONC RESIDENTIAL (TYP.)

PROPOSED 6" STORM SEWER LATERAL (TYP.)

STMH (122)

39'-24" STM

STMH (121)

EXIST STMH (53)

EXIST STMH (52)

113'-18" STM

159'-18" PVC SAN

155'-18" PVC SAN

316'-15" RCP STM

161'-18" PVC SAN

144'-18" PVC SAN

EXIST SSMH CSI-012

EXIST SSMH CSI-013

EXIST SSMH CSI-014

EXIST SSMH CSI-015

EXIST RL

C-5

28' B-B

34' B-B

30'-12" PVC STM @ 0.33%

CONNECT TO EXISTING 12" PVC STM

ABANDON/REMOVE STORM SEWER INLETS AND PIPE.

REMOVE ASPHALT

ABANDON/REMOVE STORM SEWER PIPE.

ABANDON/REMOVE STORM SEWER INLET AND PIPE

ABANDON/REMOVE STORM SEWER INLET, MANHOLE AND PIPE

SAWCUT 8' BEHIND SIDEWALK, 4" ASPHALTIC CONCRETE PAVEMENT AND 12" CABC

84'-15" RCP STM

TENNIS COURTS

ED-81

ED-602 HO #134

HO #133

ROTATE OPENING TOWARD THE CURB
STMH (99)
STA 18+48.0 9' L
RIM = 612.70
D = 5.15'
DIA = 48"
FL = 607.55 (18" E)
FL = 607.55 (18" W)
FL = 607.88 (12" N)

ROTATE OPENING TOWARD THE CURB
STMH (98)
STA 19+61.0 9' L
RIM = 613.16
D = 5.25'
DIA = 48"
FL = 608.31 (12" E)
FL = 607.91 (18" W)
FL = 607.93 (12" S)

VPI STA = 19+74.00
ELEV = 613.44

(REMOVE MANHOLE)
EXIST STMH (53)
STA 19+96.26 8' L
RIM = 613.43
D = 5.26'
DIA = 48"
FL = 608.17 (15" E)
FL = 608.17 (15" W)

VPI STA = 20+36.00
ELEV = 613.59

ROTATE OPENING TOWARD THE CURB
STMH (116)
STA 20+37.0 9' L
RIM = 613.32
D = 4.77'
DIA = 48"
FL = 608.83 (8" E)
FL = 608.55 (12" W)
FL = 608.55 (12" N & S)

VPI STA = 21+50.00
ELEV = 614.05

EXIST RL PROFILE

PROP RL PROFILE

ROTATE OPENING TOWARD THE CURB
STMH (96)
STA 21+00.0 9' L
RIM = 613.58
D = 4.50'
DIA = 48"
FL = 609.08 (8" W)
FL = 609.20 (6" N)

LOW PT ELEV: 614.80
PVI STA: 23+00.00
PVI ELEV: 614.95
VC: 50.00'

PVC: 22+75.00
ELEV: 614.80

PVT: 23+25.00
ELEV: 615.37

ROTATE OPENING TOWARD THE CENTERLINE
STMH (122)
STA 23+12.3 7' L
RIM = 615.01
D = 5.77'
DIA = 60"
FL = 609.61 (24" E)
FL = 609.24 (30" N)
FL = 610.16 (12" NW)
FL = 609.74 (15" S)

EXIST STMH (52)
STA 23+12.30 7' L
RIM = 615.57
D = 6.11'
DIA = 48"
FL = 609.61 (24" E)
FL = 609.67 (15" W)
FL = 609.74 (15" S)
FL = 609.46 (30" N)

VPI STA = 24+00.00
ELEV = 616.63

ROTATE OPENING TOWARD THE CENTERLINE
STMH (121)
STA 23+51.5 7' L
RIM = 615.63
D = 5.64'
DIA = 48"
FL = 609.99 (24" W)
FL = 609.99 (24" E)
FL = 611.35 (12" N)

0.40%
0.24%
0.40%
0.60%
1.68%
1.88%

296'-15" STM RCP @ 0.39%
113'-18" STM @ 0.32%
76'-12" STM @ 0.32%
63'-8" STM @ 0.40%
316'-15" STM RCP @ 0.47%
39'-24" STM @ 0.97%
144'-18" SAN PVC @ 0.79%
161'-18" SAN PVC @ 0.51%
155'-18" SAN PVC @ 0.43%
159'-18" SAN PVC @ 0.52%

EXIST SSMH CSI-012
STA 18+44.57 0' L
RIM = 613.03
D = 9.36'
DIA = 48"
FL = 603.67 (18" E)
FL = 603.67 (18" W)

EXIST SSMH CSI-013
STA 20+03.47 0' R
RIM = 613.62
D = 9.12'
DIA = 48"
FL = 604.50 (18" E)
FL = 604.50 (18" W)

EXIST SSMH CSI-014
STA 21+58.59 0' R
RIM = 614.26
D = 9.10'
DIA = 48"
FL = 605.16 (18" E)
FL = 605.16 (18" W)

EXIST SSMH CSI-015
STA 23+19.55 0' R
RIM = 615.67
D = 9.69'
DIA = 48"
FL = 605.98 (18" E)
FL = 605.98 (18" W)
FL = 606.07 (15" N)

615
605

613.1 612.94 | 613.3 613.14 | 613.4 613.34 | 613.6 613.50 | 613.8 613.65 | 614.1 613.85 | 614.2 614.05 | 614.6 614.35 | 614.9 614.65 | 615.4 615.02 | 616.0 615.79 | 616.8 616.63 | 617.7 617.57

19+00 20+00 21+00 22+00 23+00 24+00

0 20' 40'

0 2'

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

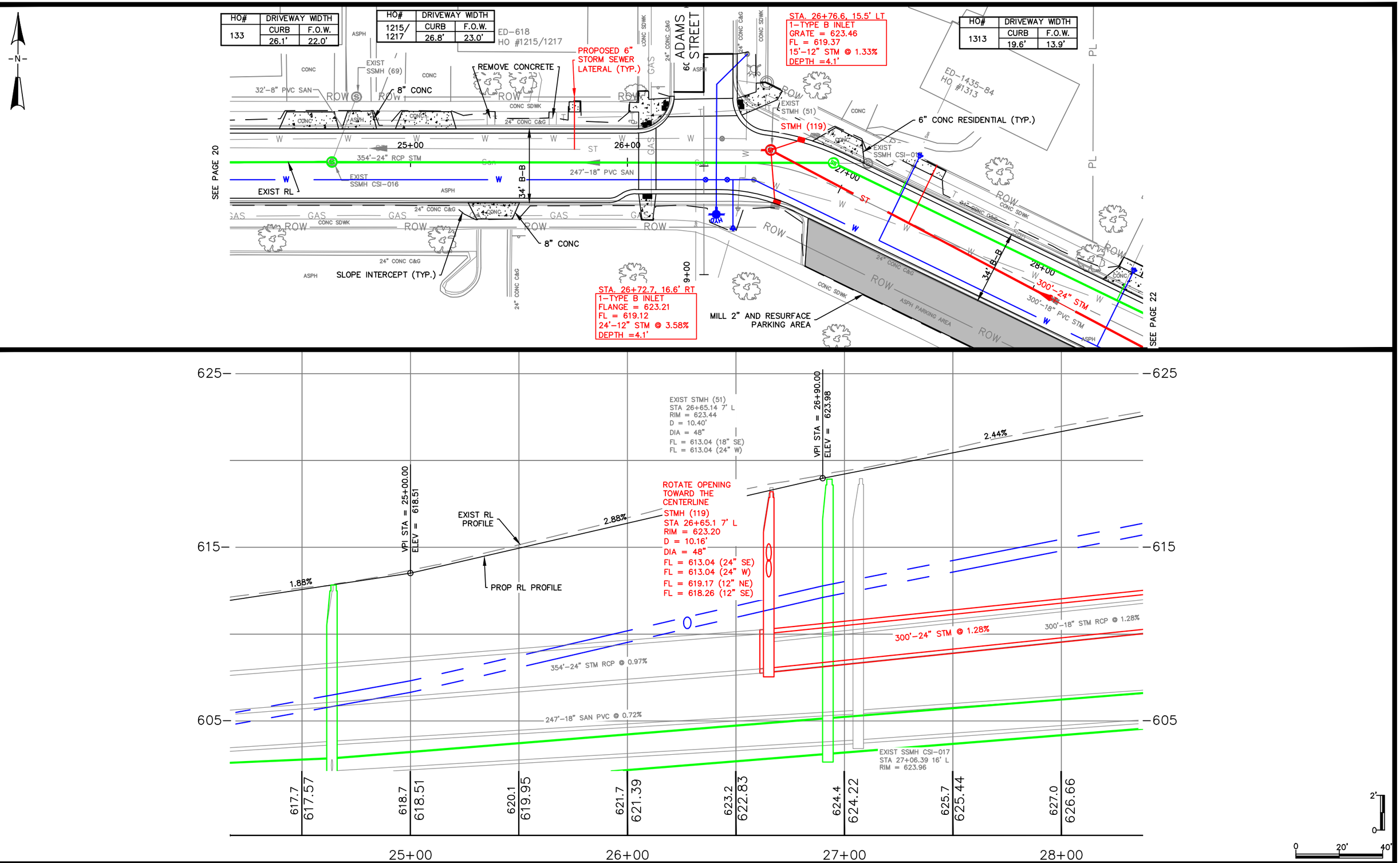
CHARLES STREET
FROM 200' W/O WINNEBAGO TO 250' W/O ADAMS ST
STORM SEWER AND STREET

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

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

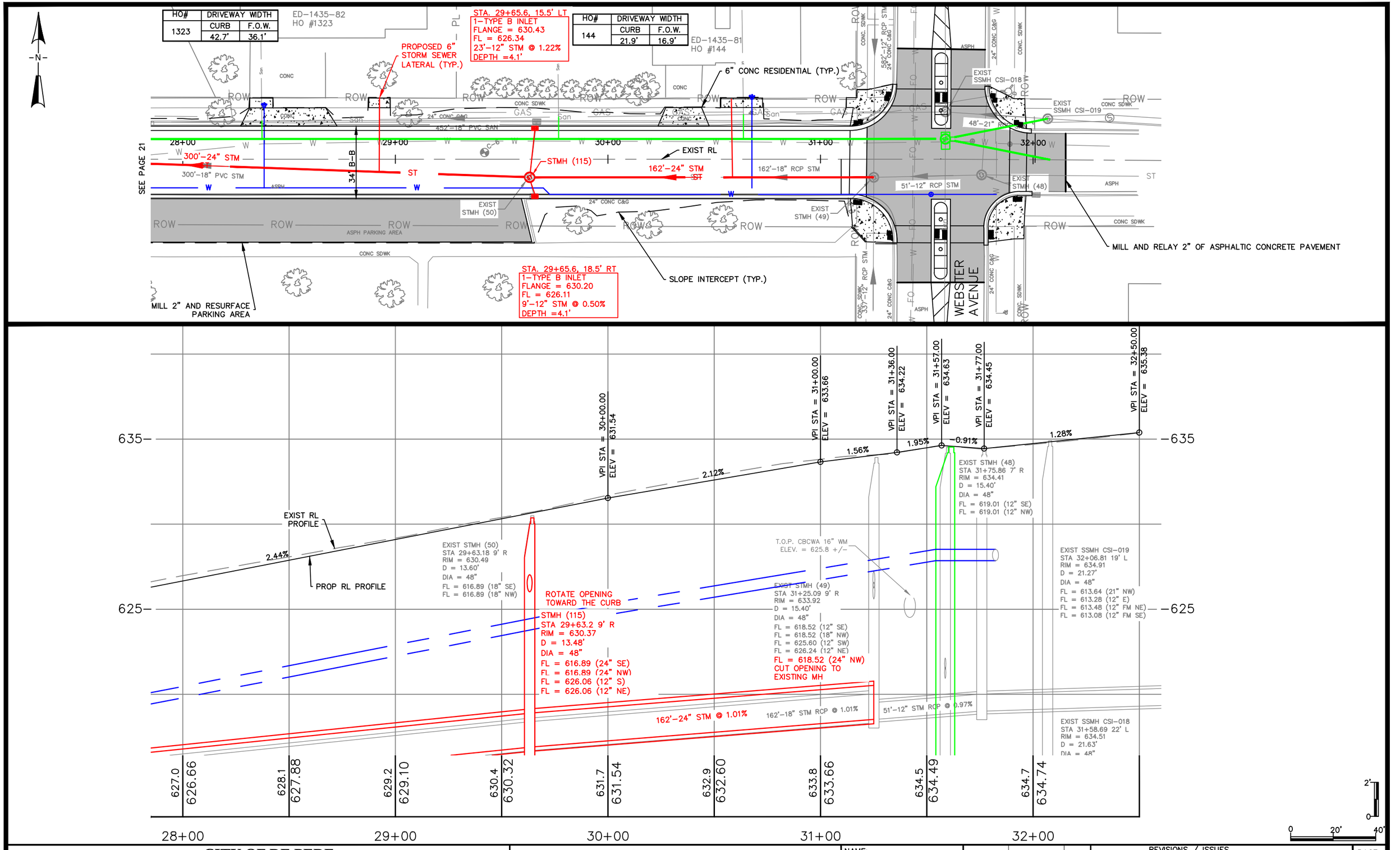
CHARLES STREET
FROM 250' W/O ADAMS TO 350' W/O WEBSTER AVE
STORM SEWER AND STREET

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 21



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

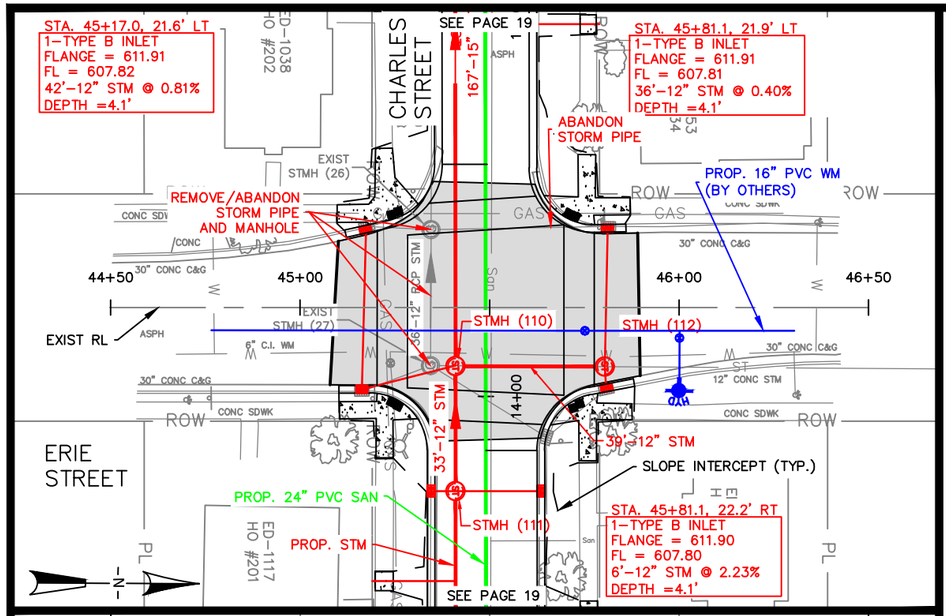
CHARLES STREET
FROM 350' W/O WEBSTER TO WEBSTER AVE
STORM SEWER AND STREET

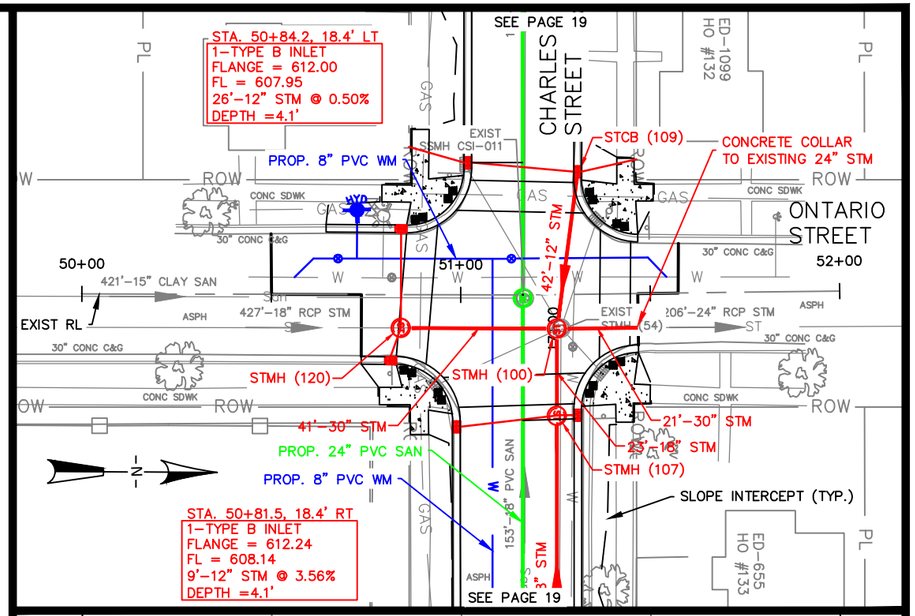
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

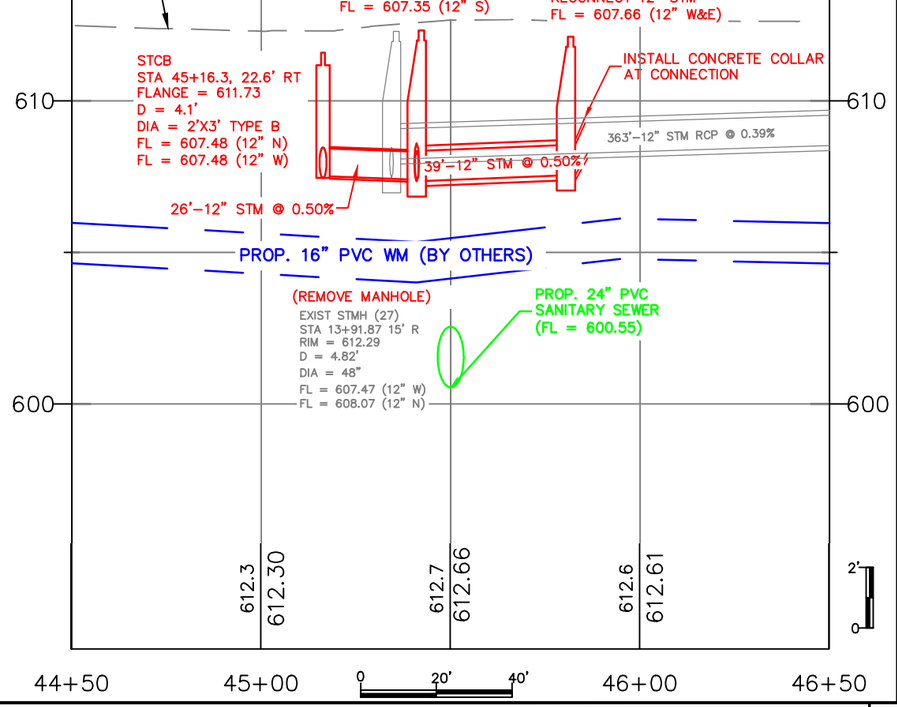
	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

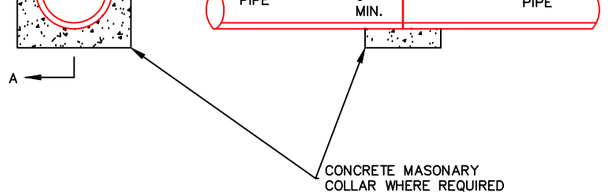
REVISIONS / ISSUES NO.	DATE	BY	REMARKS

PAGE NO. 22



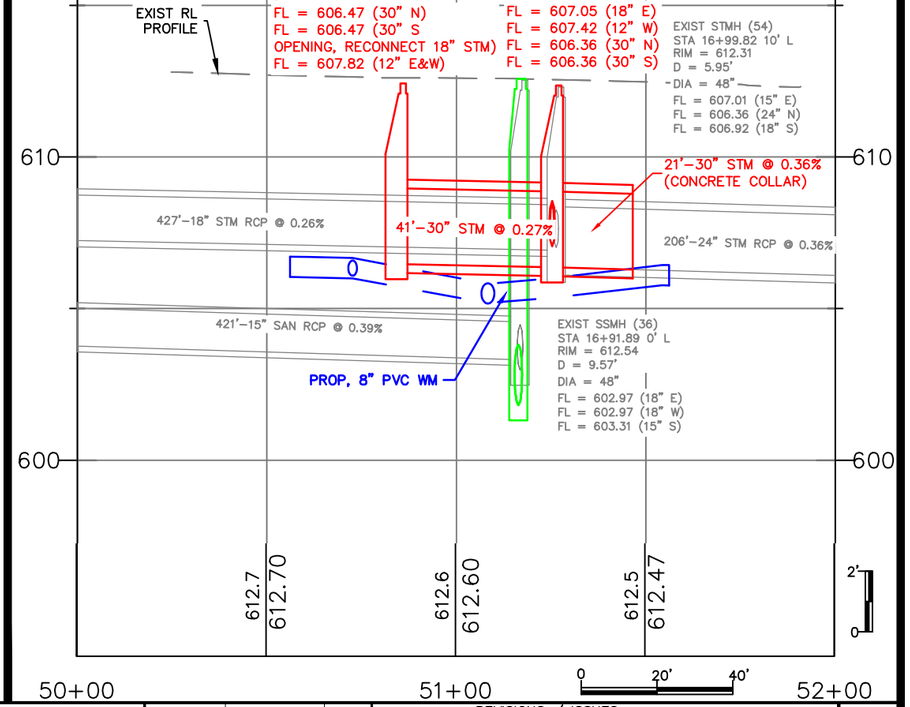






CONCRETE COLLAR DETAIL

0 2' 4'



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

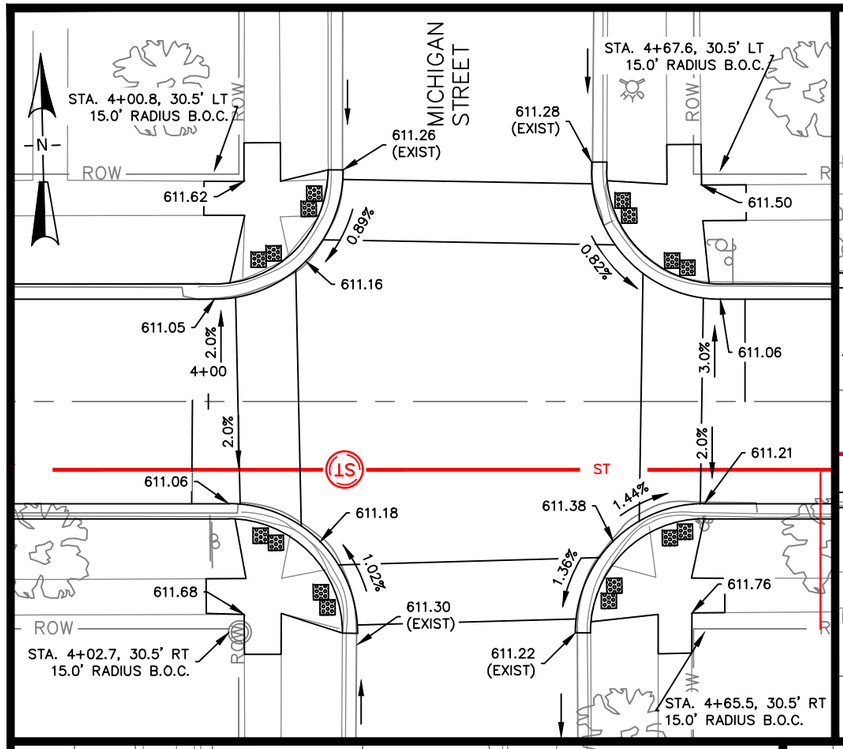
CHARLES STREET
ERIE STREET AND ONTARIO STREET
STORM SEWER AND STREET

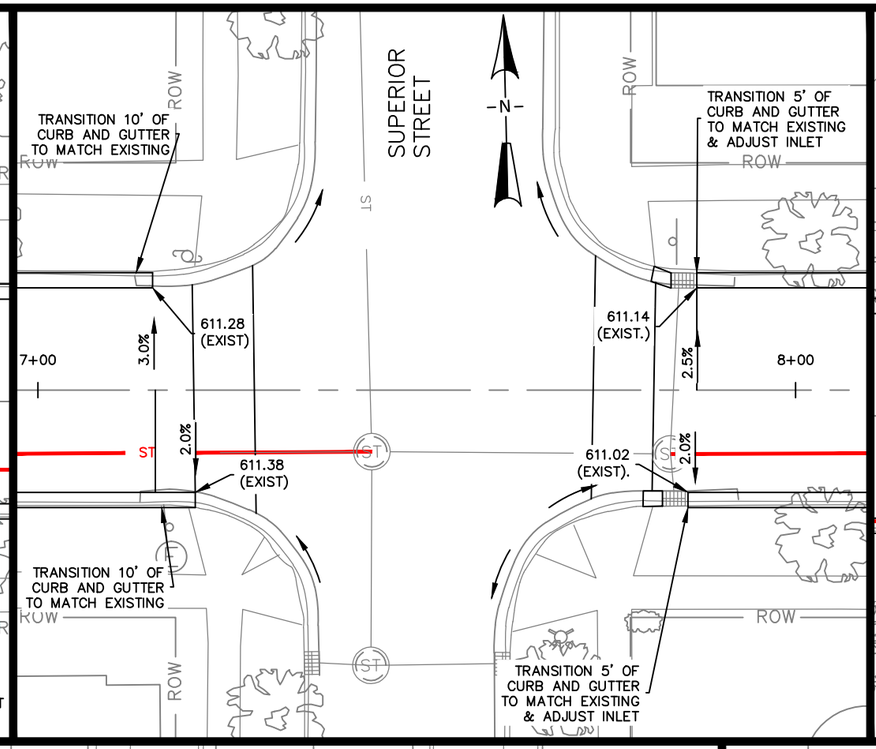
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

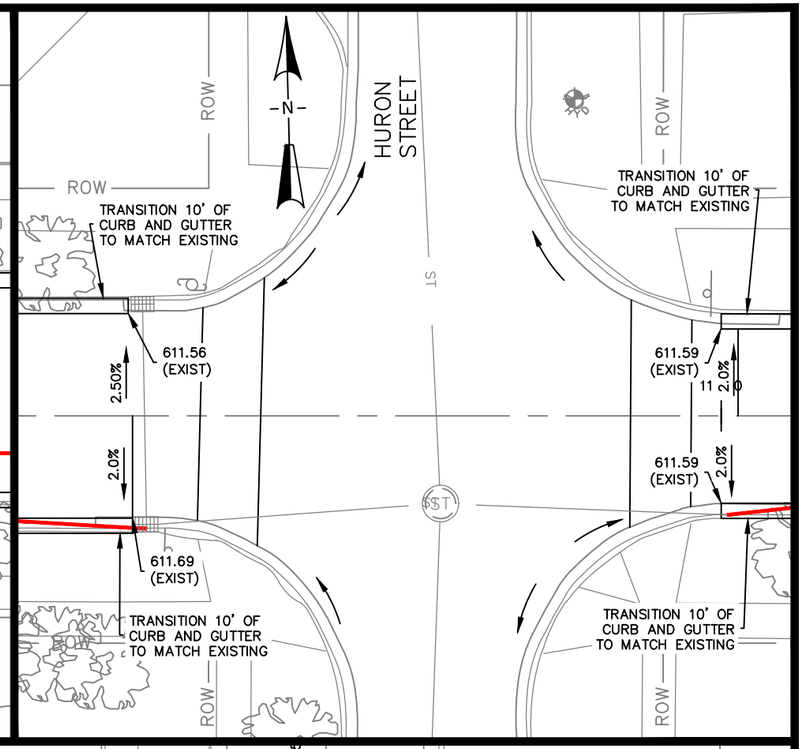
	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	11-2017
CHECKED	EPR	1-2018

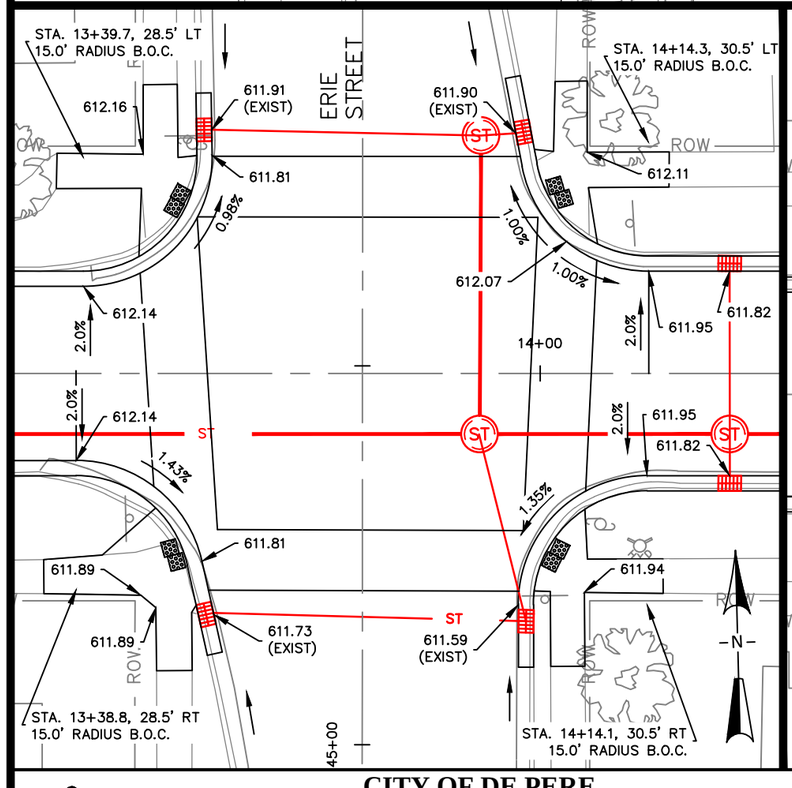
REVISIONS / ISSUES

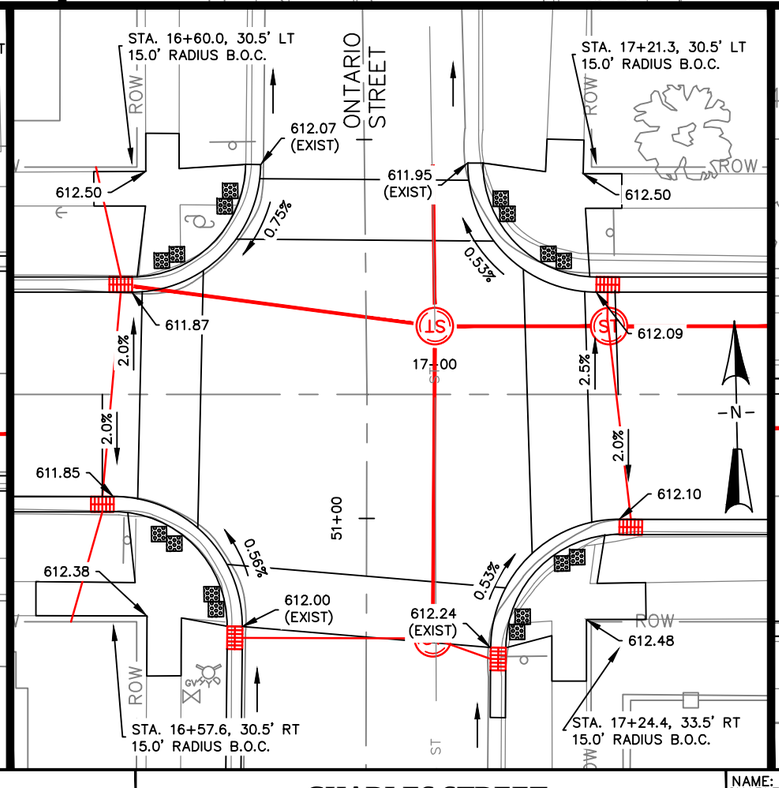
NO.	DATE	BY	REMARKS

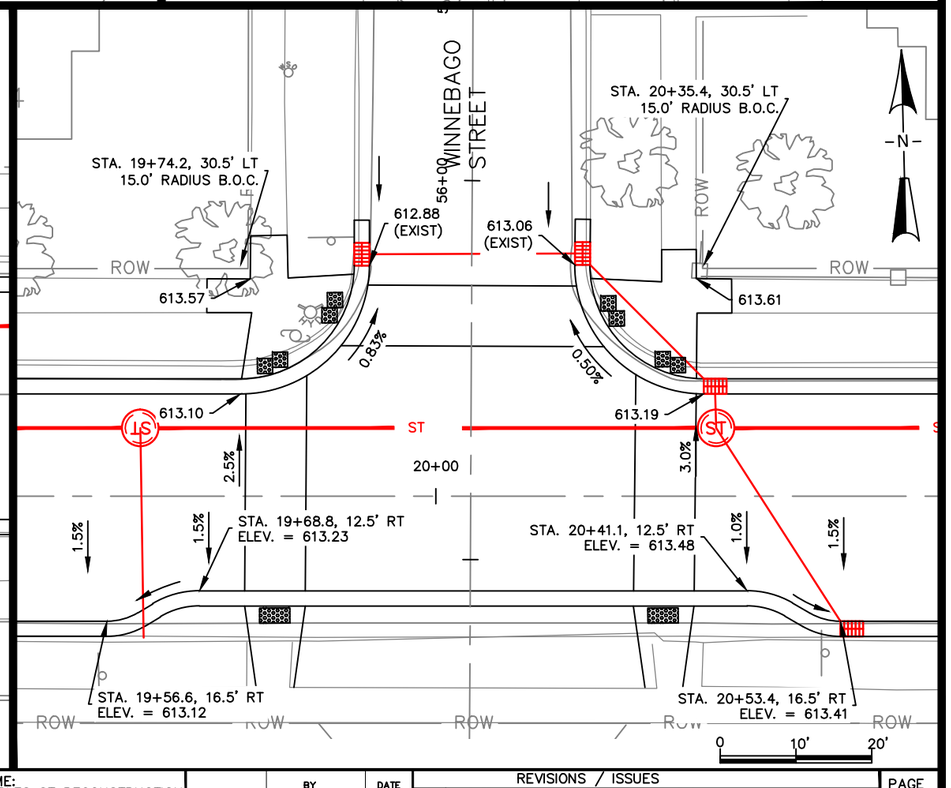












CITY OF DE PERE

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

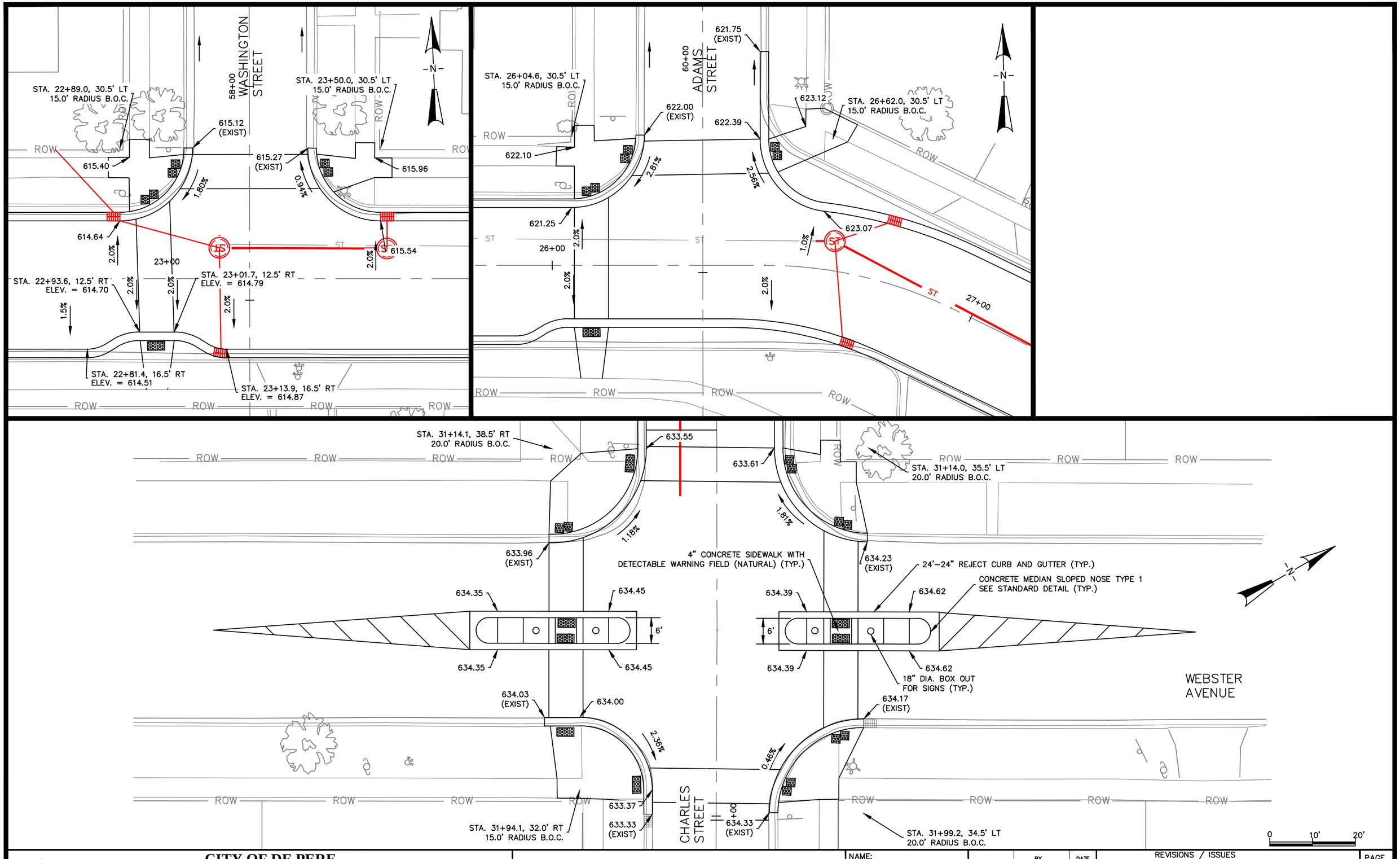
CHARLES STREET
INTERSECTION GRADES

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	12-2017
CHECKED	EPR	1-2018

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

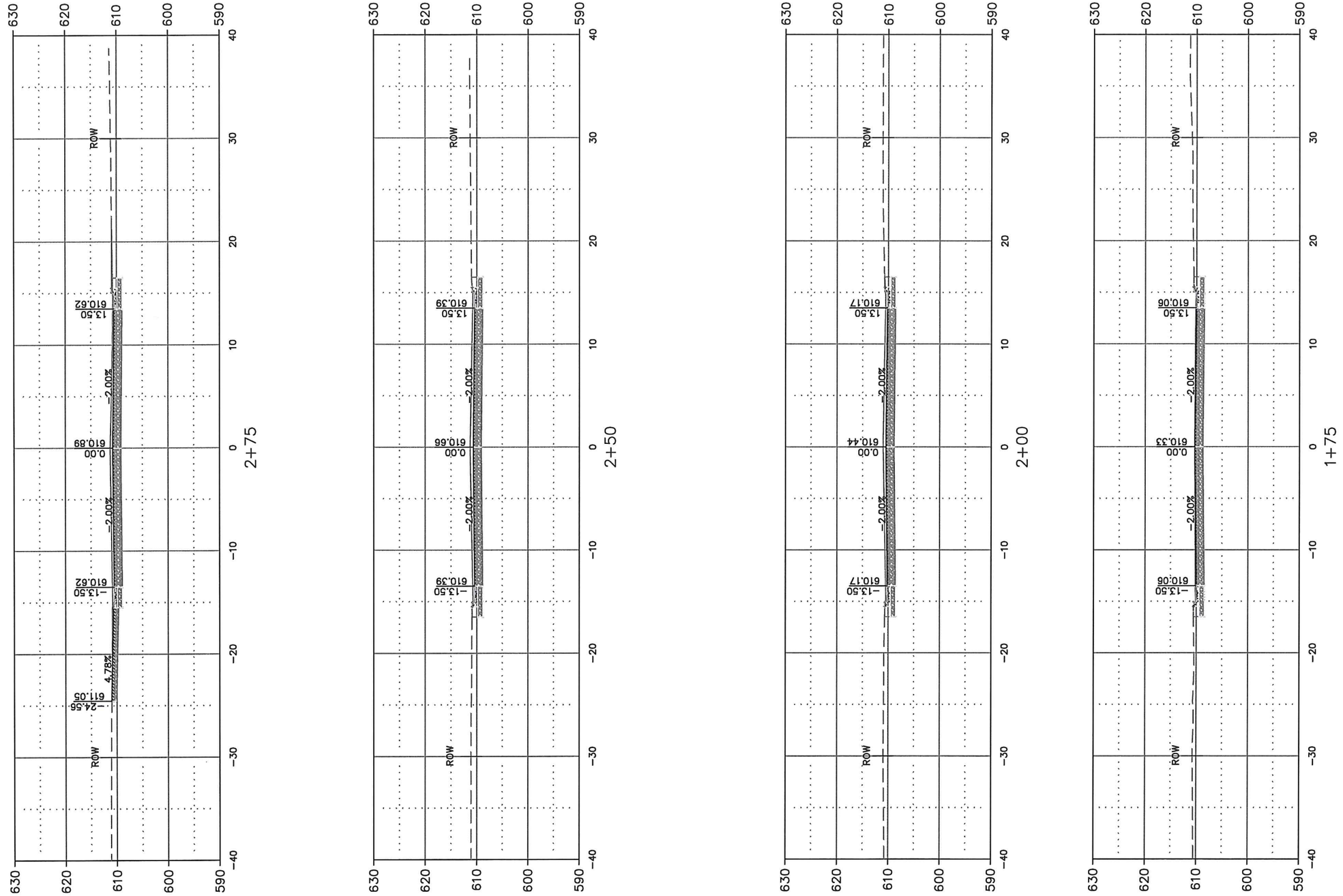
CHARLES STREET
INTERSECTION GRADES

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	12-2017
CHECKED	EPR	1-2018

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

CHARLES STREET

CROSS SECTIONS

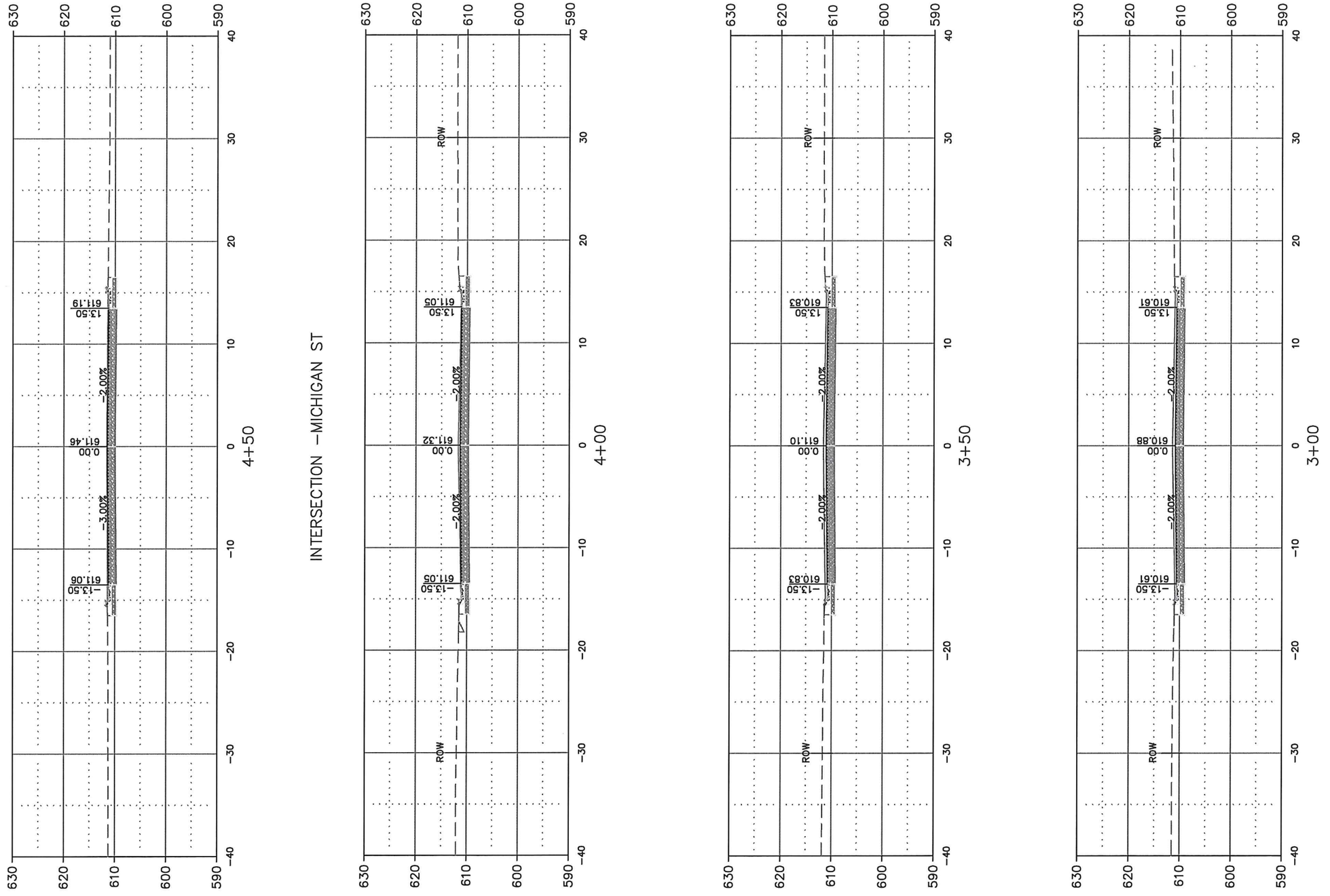
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

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

CHARLES STREET

CROSS SECTIONS

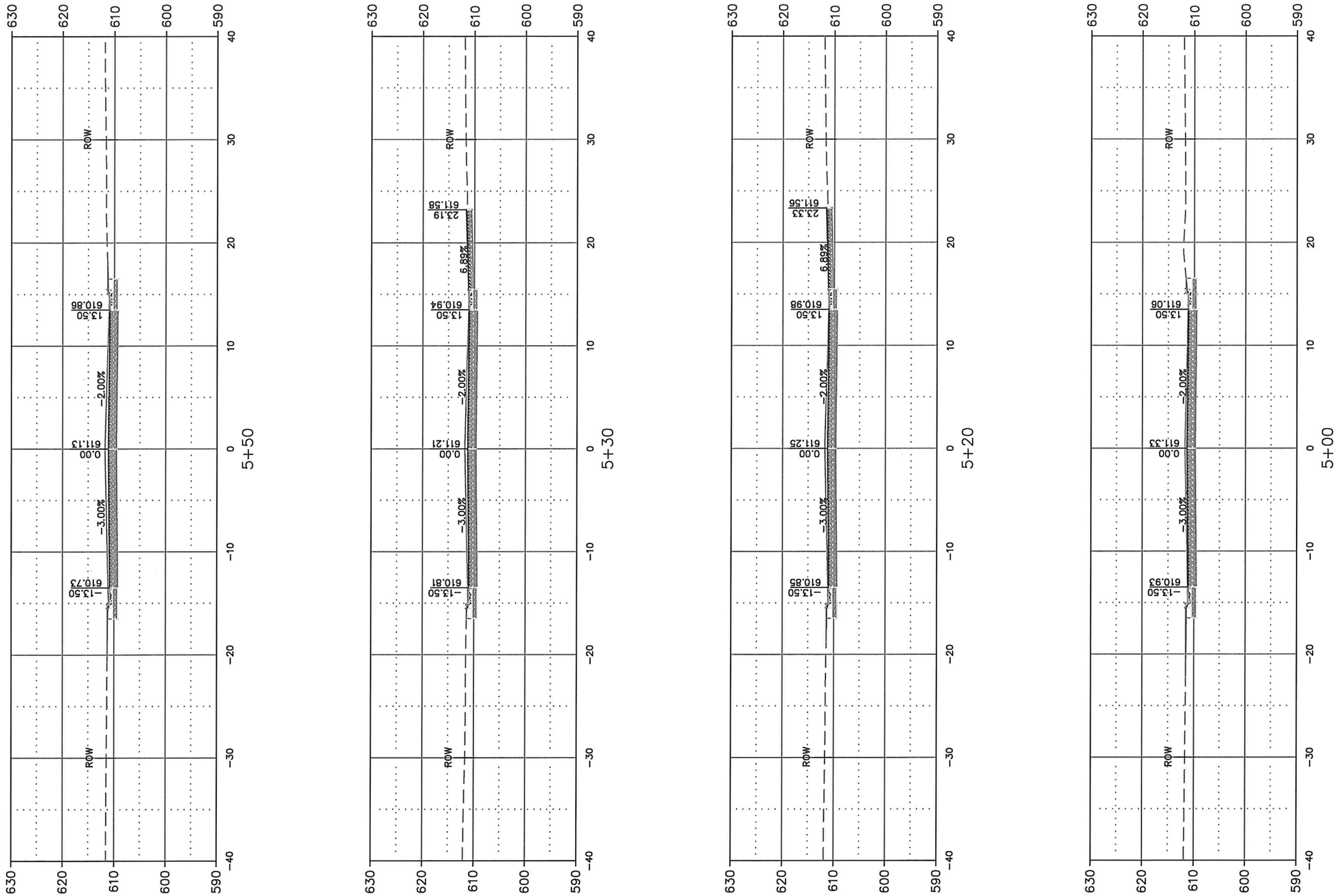
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18–02

	BY	DATE
SURVEYED	SRL	07–2017
DRAWN	SRL	01–2018
DESIGNED	SRL	01–2018
CHECKED	EPR	01–2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 27



CITY OF DE PERE

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

CHARLES STREET

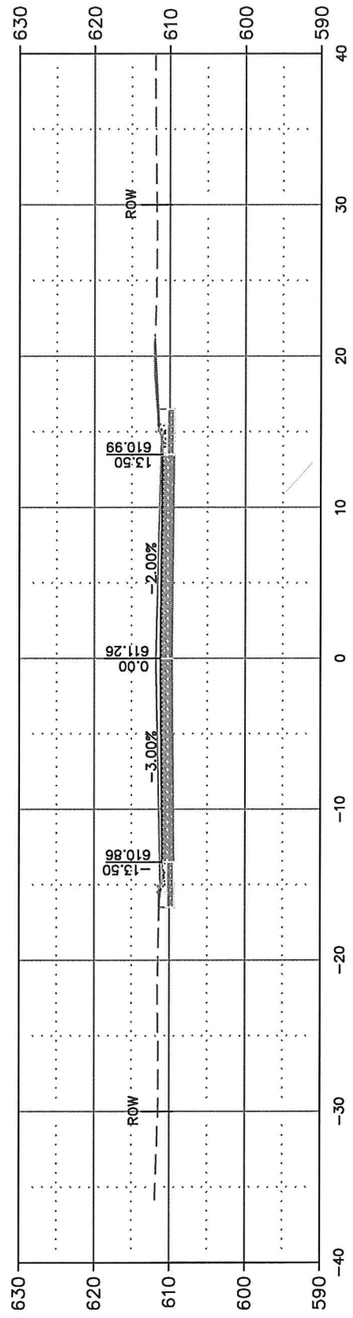
CROSS SECTIONS

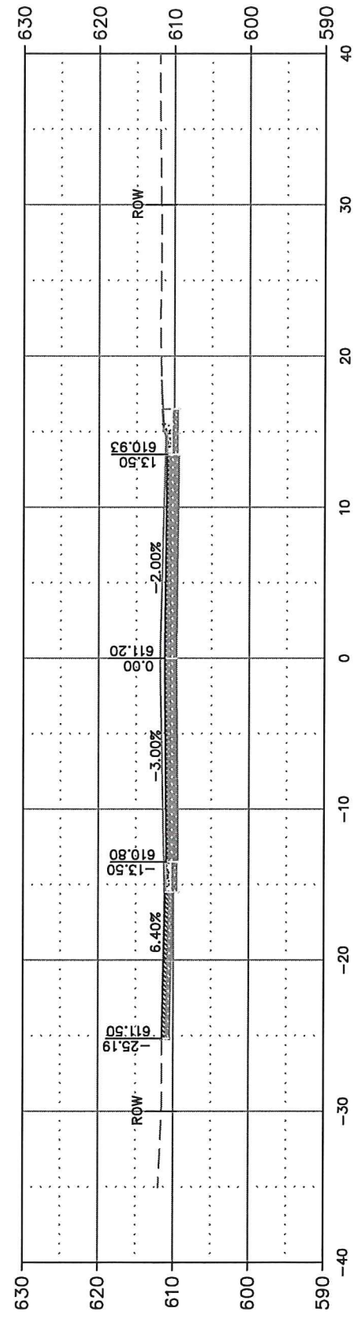
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

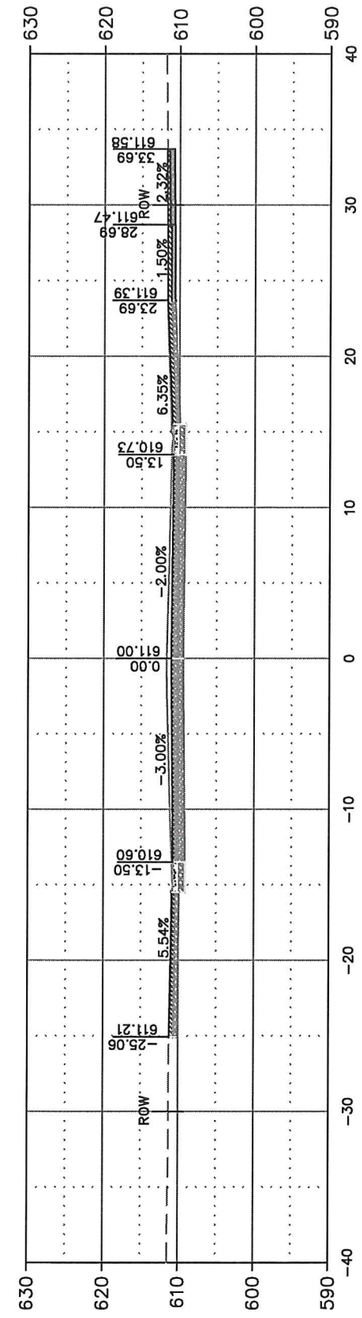
	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

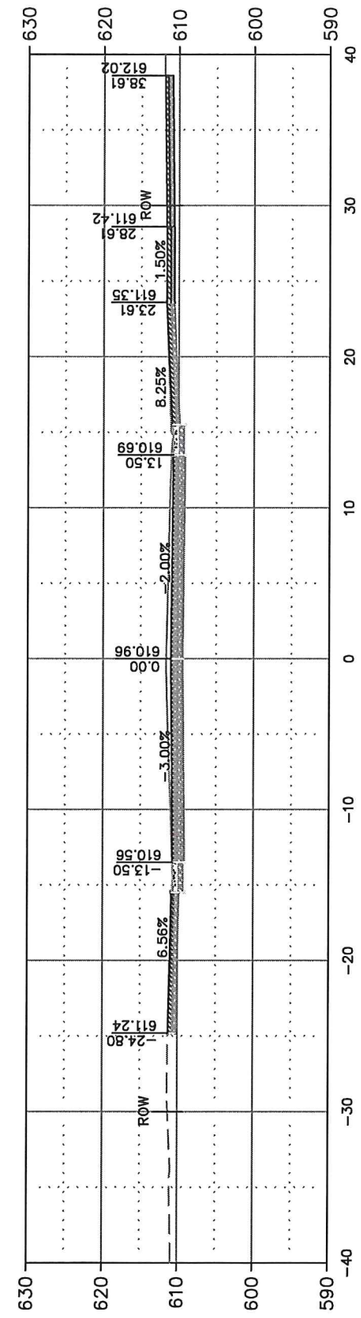
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. **28**









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

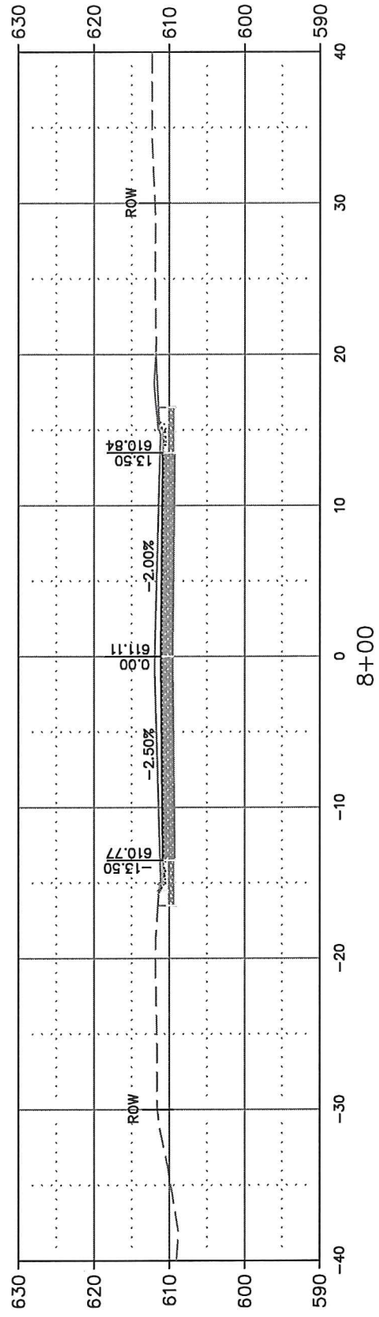
CHARLES STREET
CROSS SECTIONS

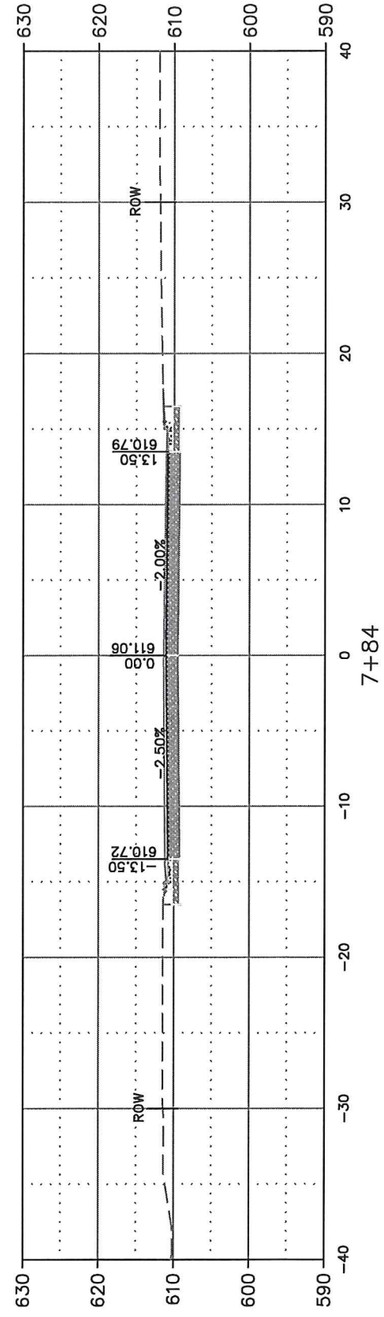
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

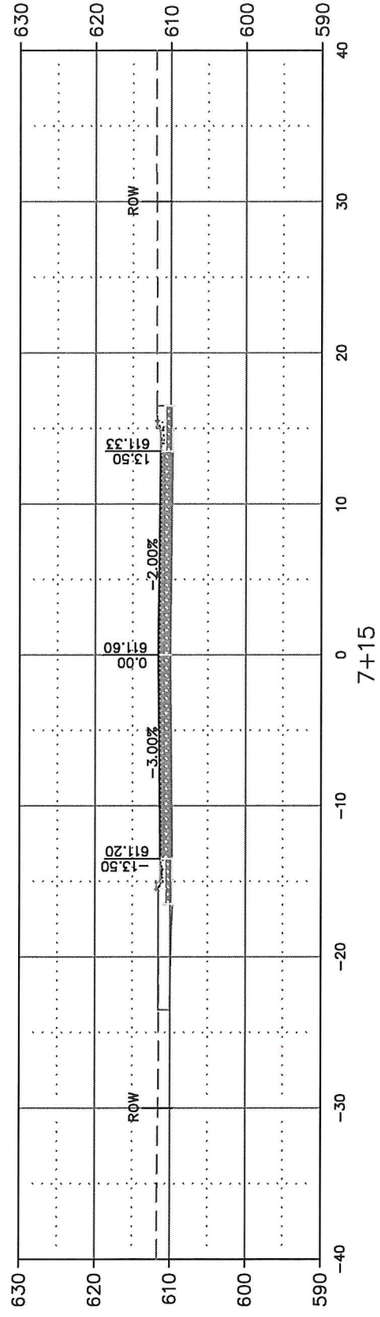
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

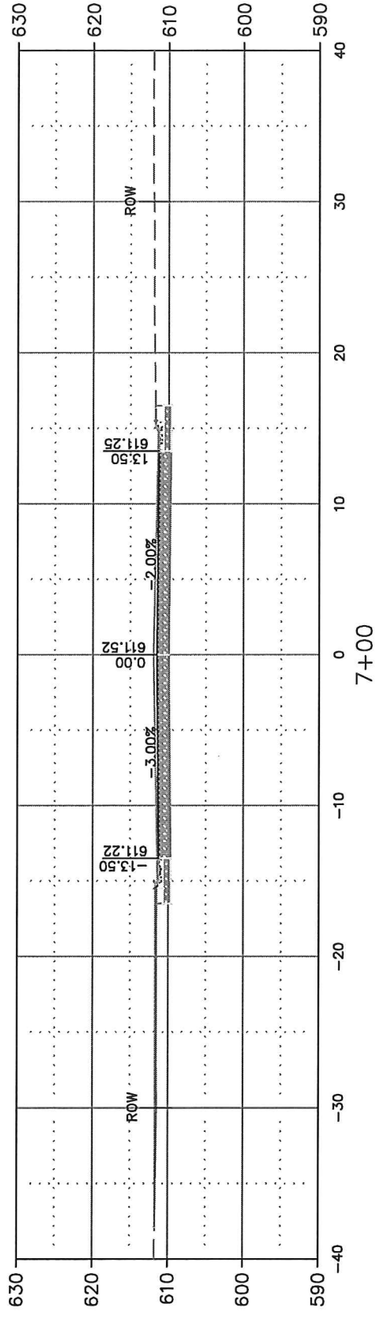
PAGE NO. 29





INTERSECTION-SUPERIOR ST





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

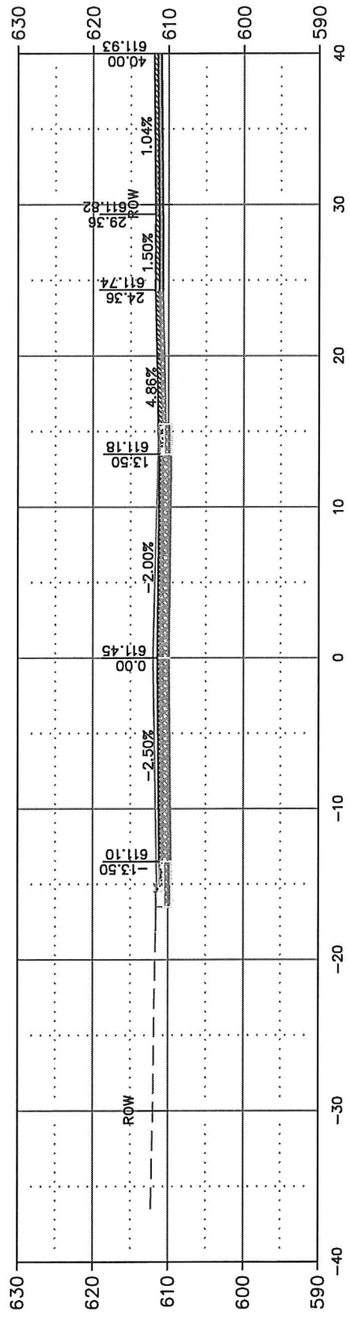
CHARLES STREET
CROSS SECTIONS

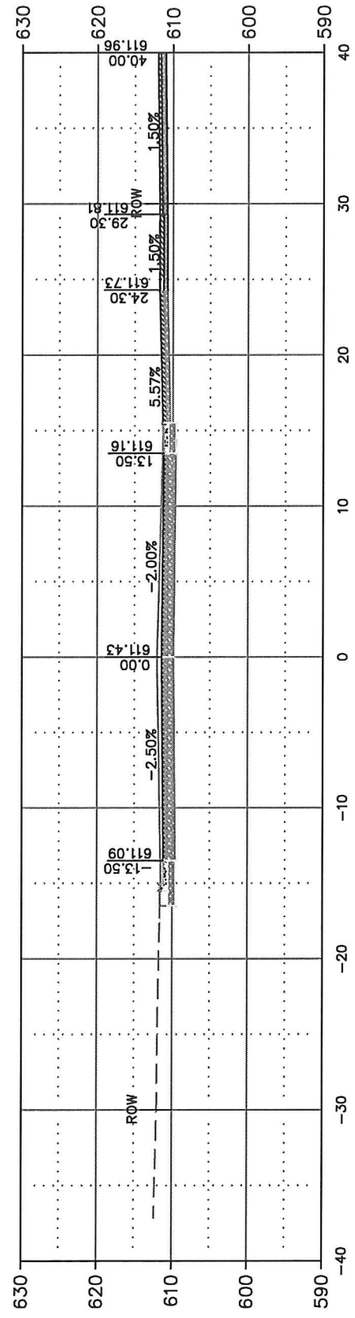
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

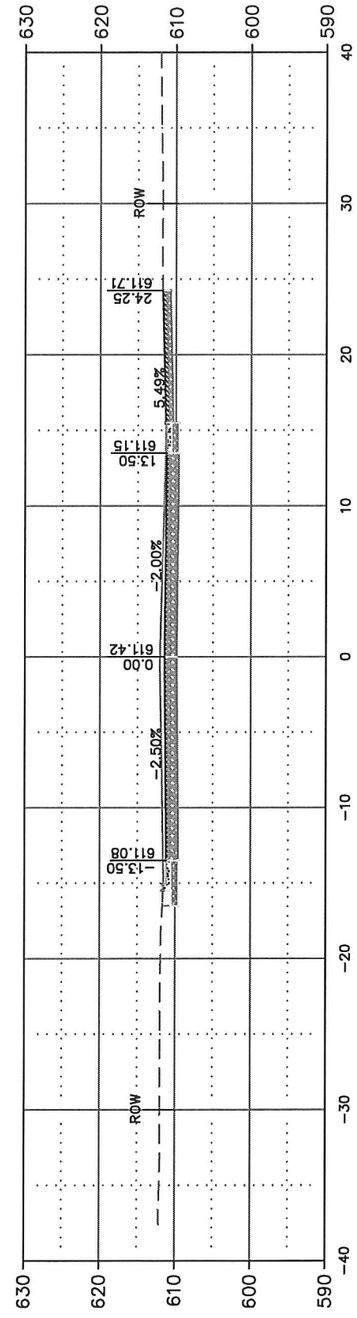
	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

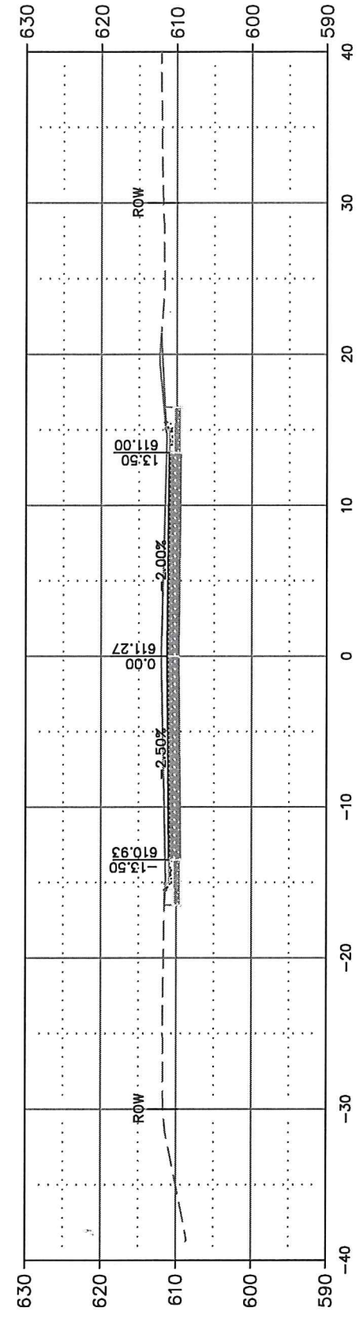
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 30









CITY OF DE PERE

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

CHARLES STREET

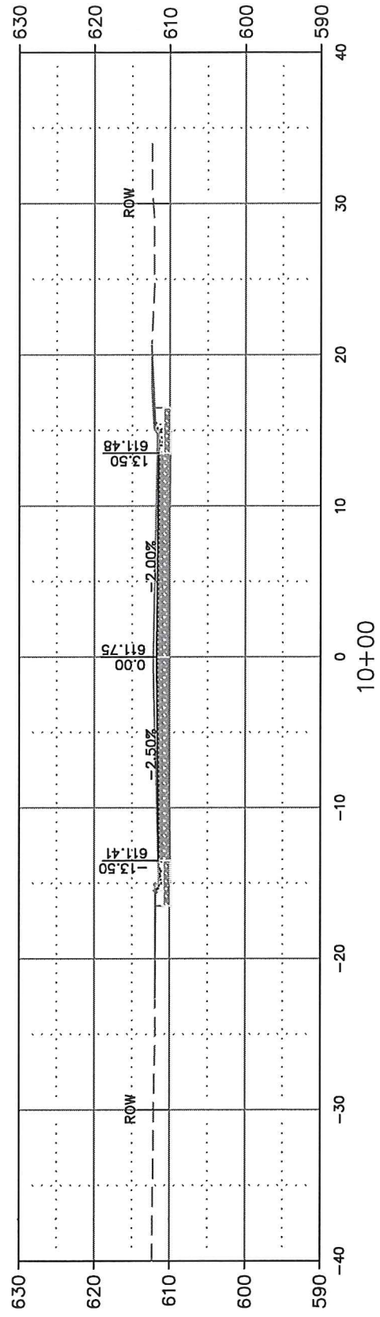
CROSS SECTIONS

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

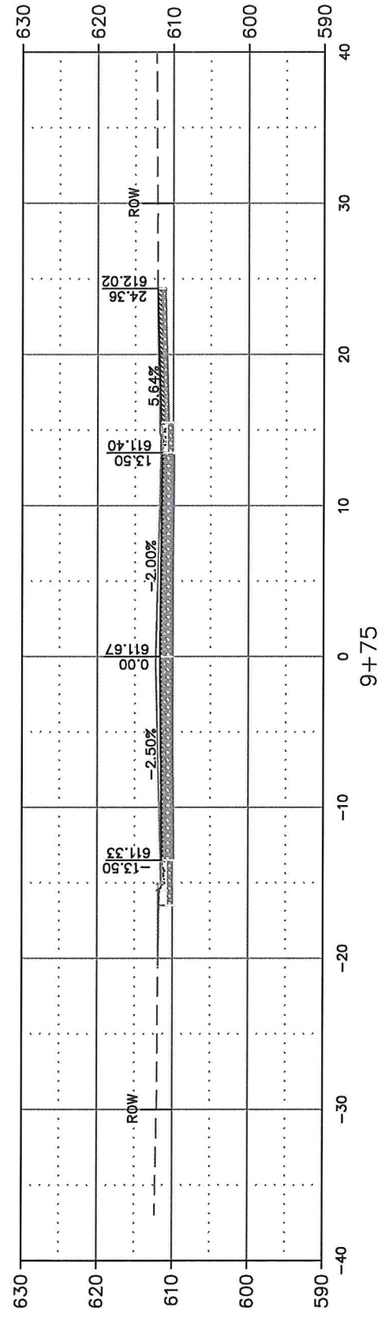
	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

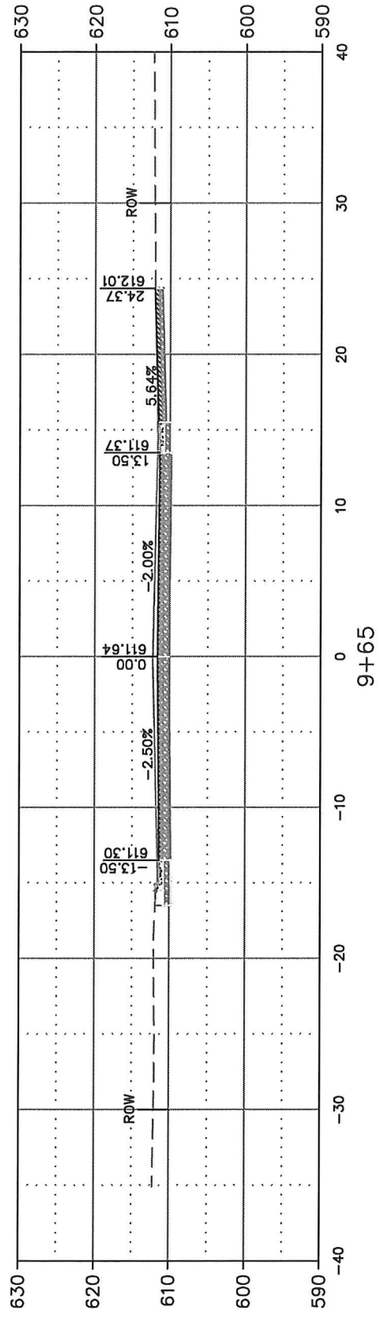
PAGE NO. 31



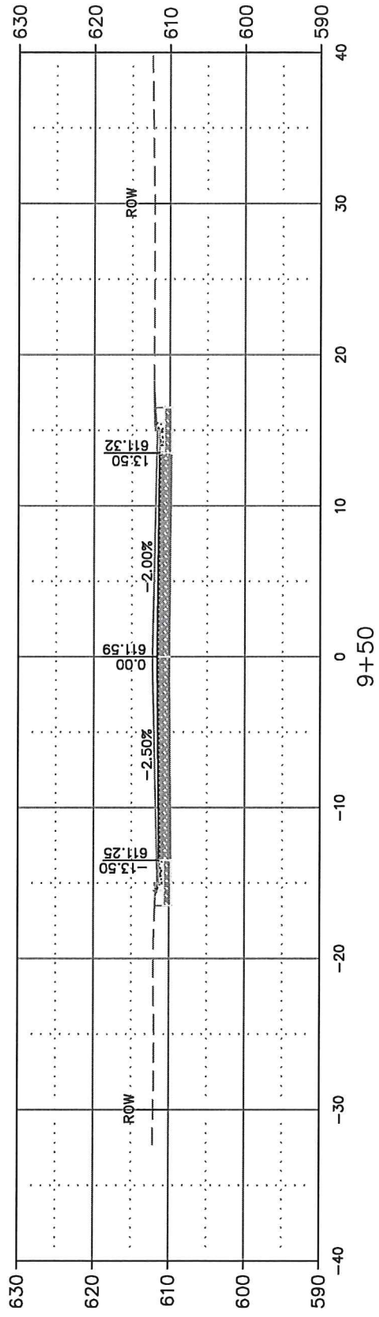
10+00



9+75



9+65



9+50

CITY OF DE PERE

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

CHARLES STREET

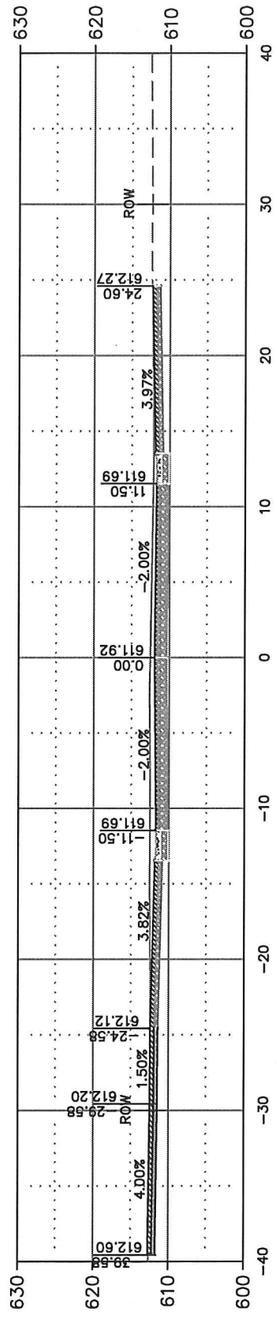
CROSS SECTIONS

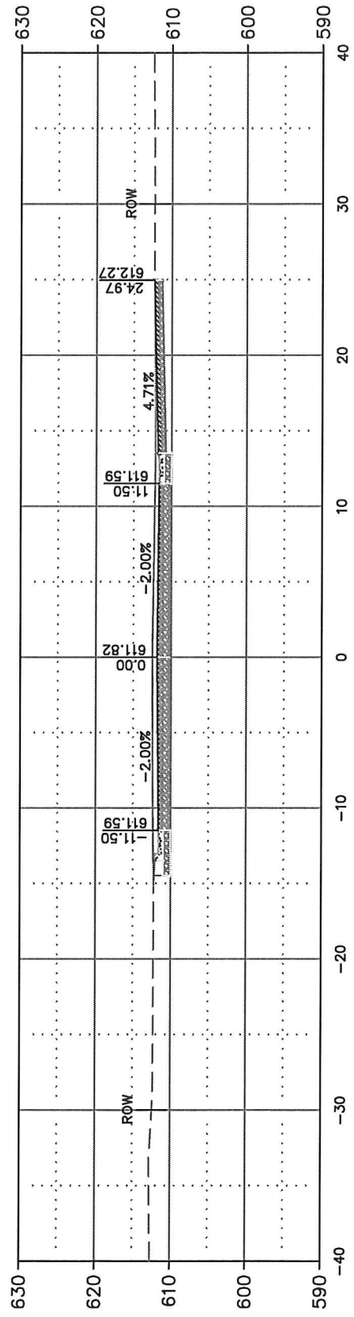
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

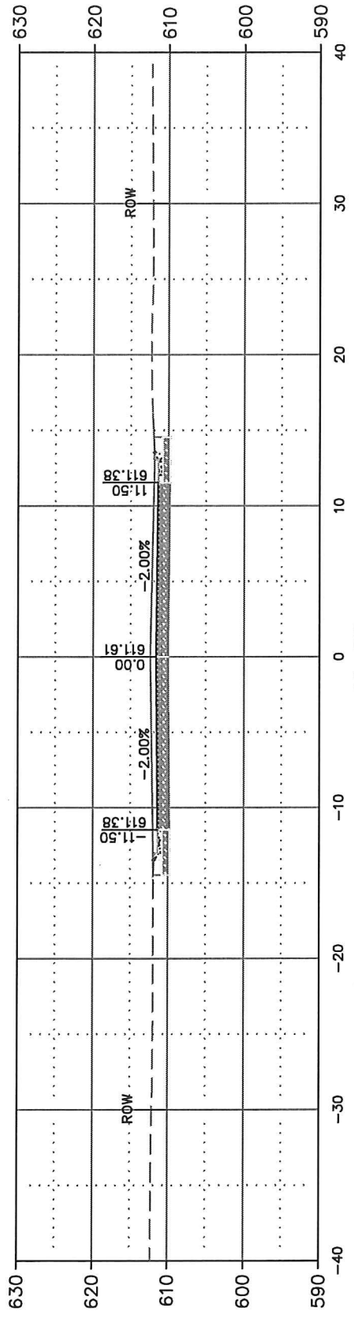
	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

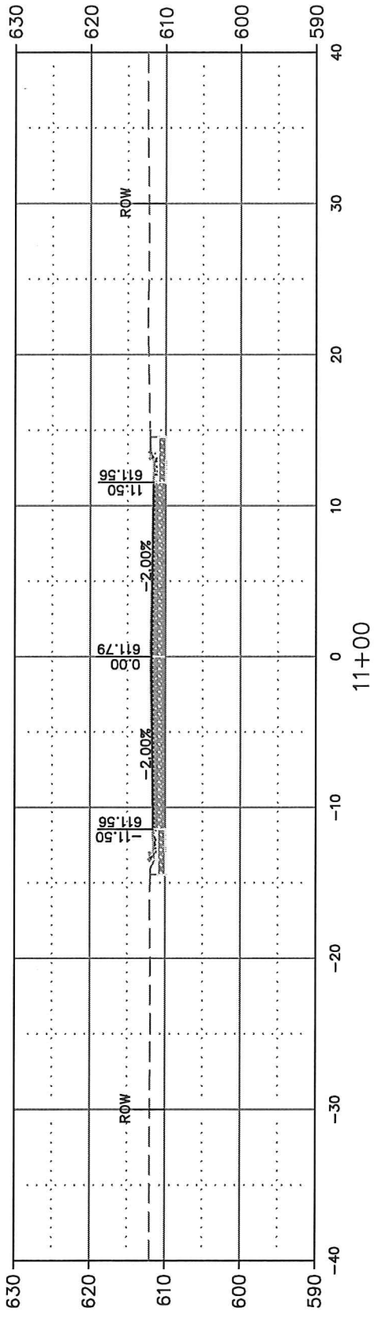
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 32









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

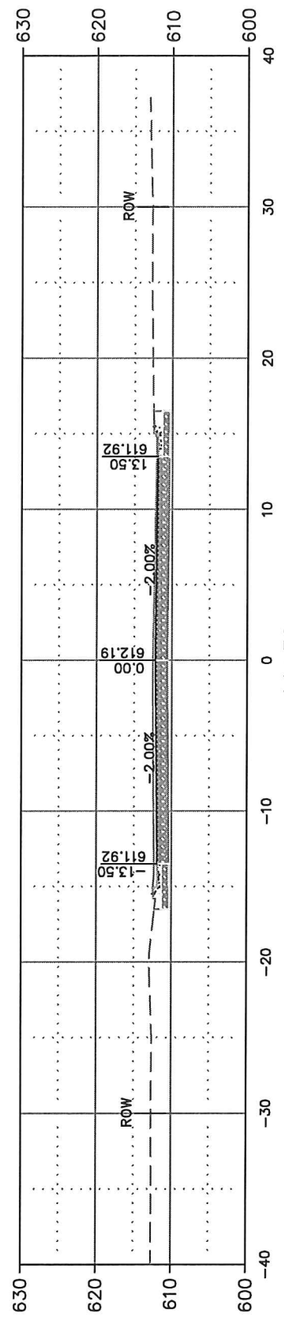
CHARLES STREET
CROSS SECTIONS

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

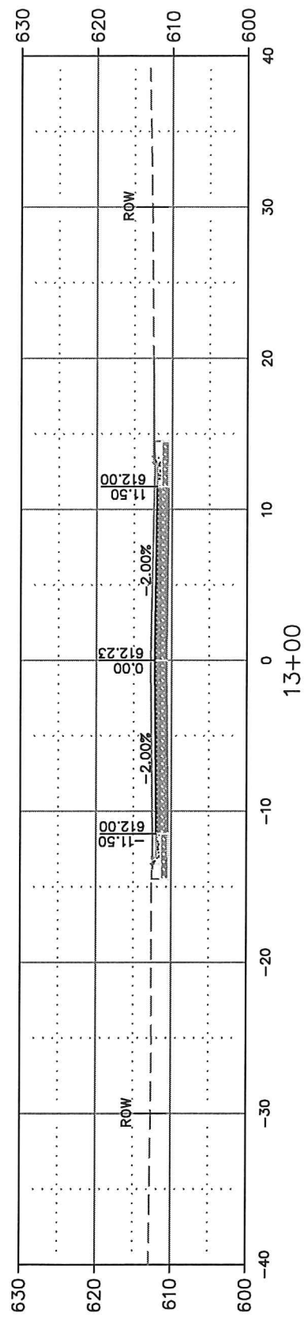
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 33

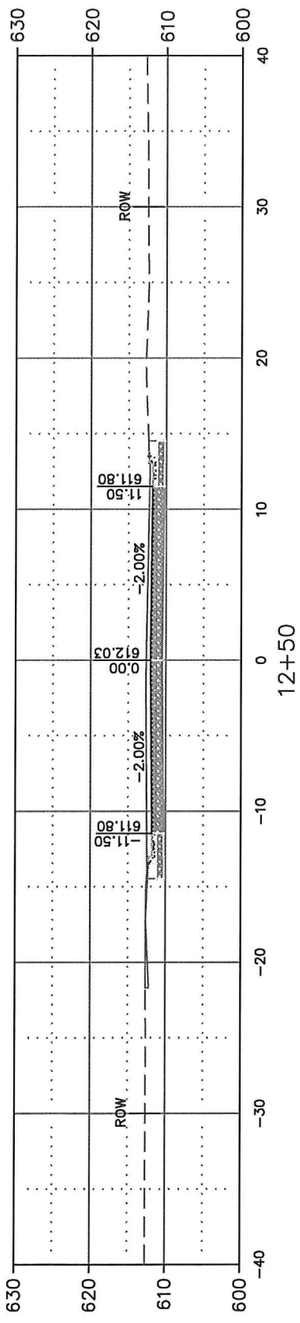


14+50

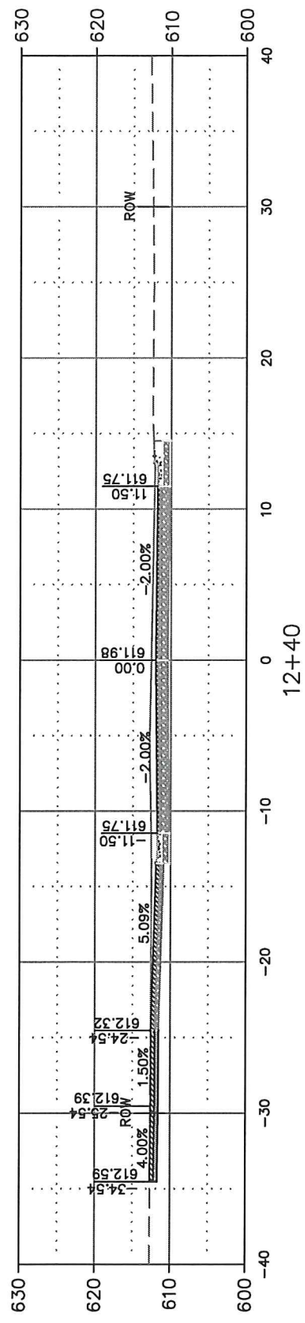
INTERSECTION-ERIE STREET



13+00



12+50



12+40

CITY OF DE PERE

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

CHARLES STREET

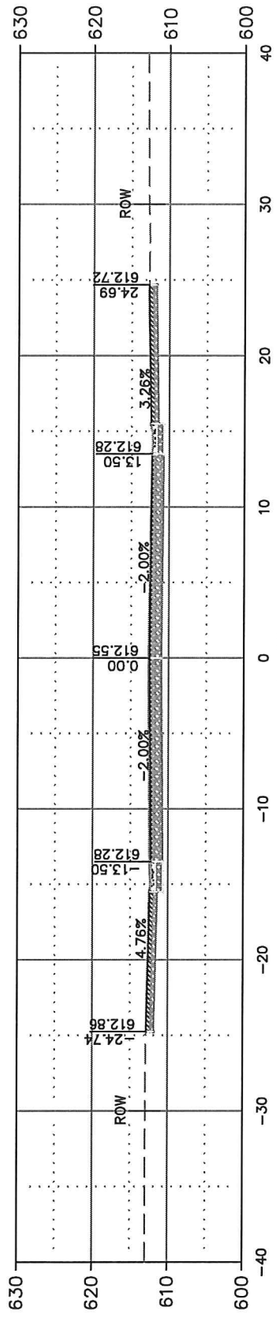
CROSS SECTIONS

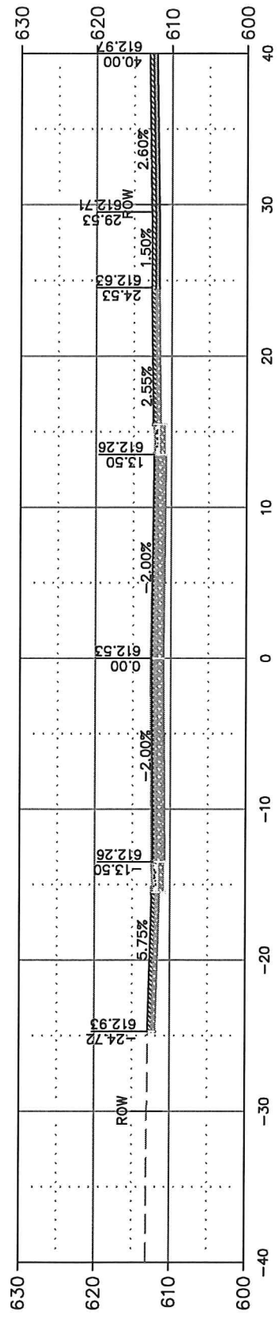
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

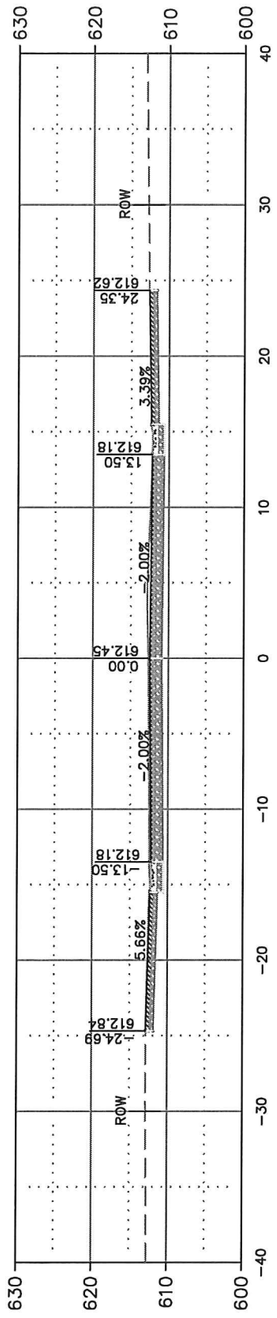
	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

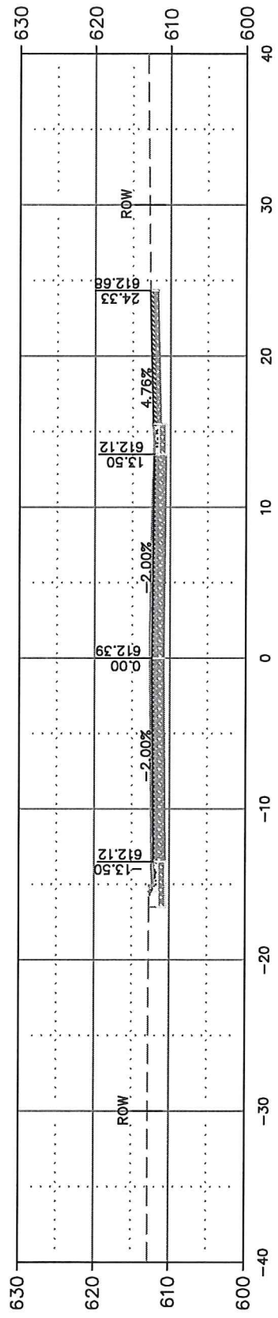
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 34









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

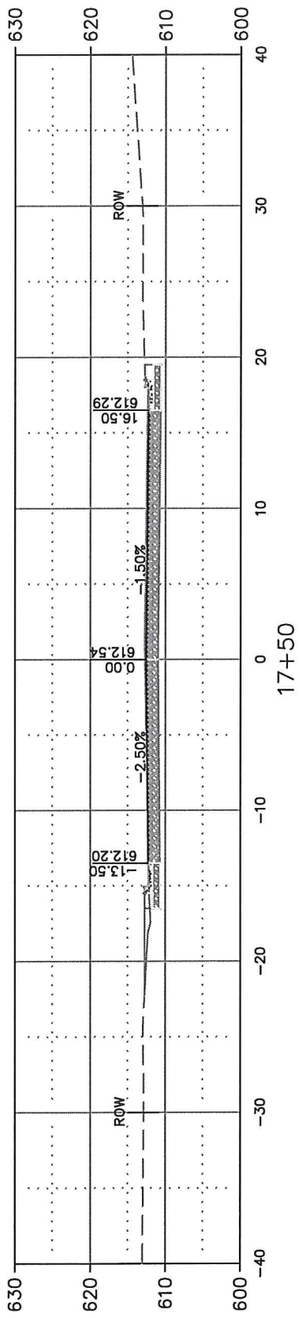
CHARLES STREET
CROSS SECTIONS

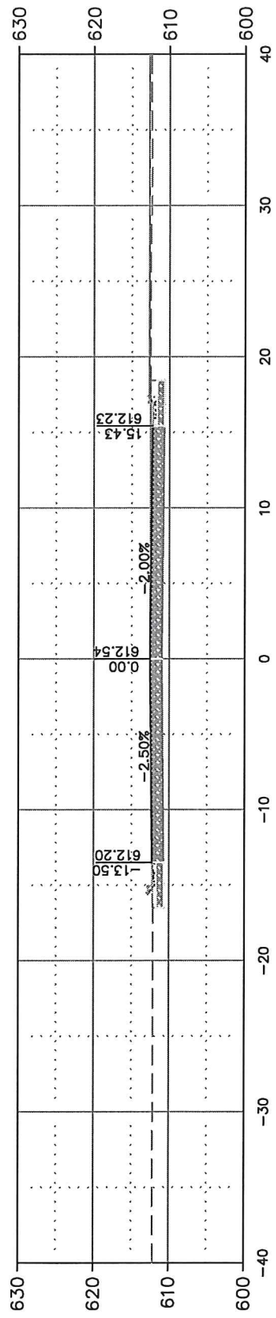
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

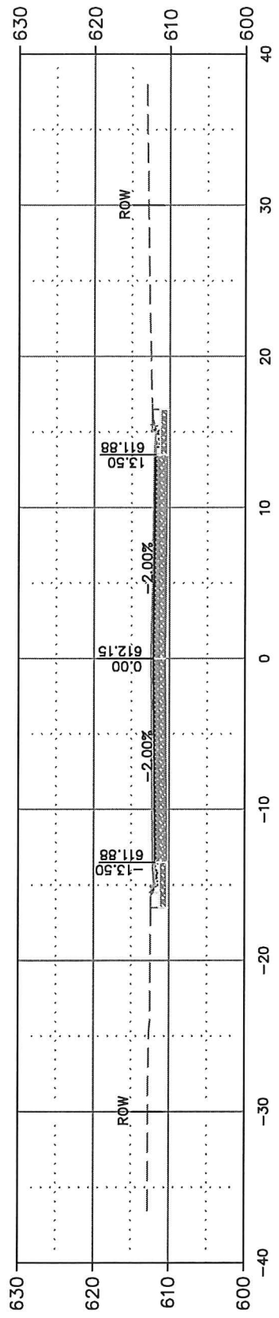
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

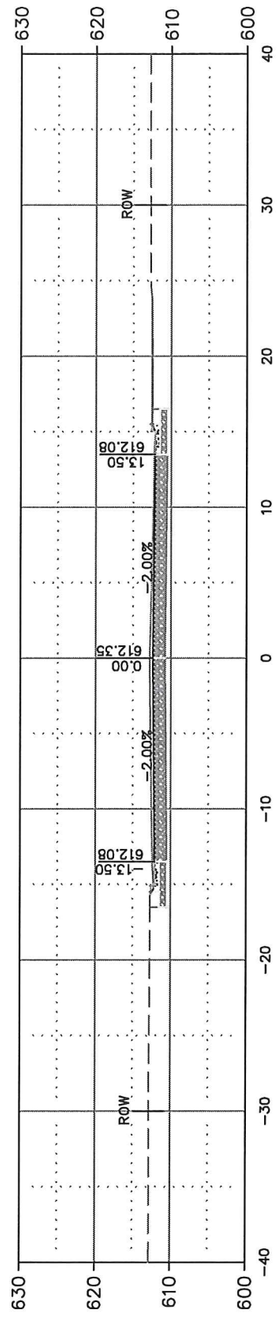
PAGE NO. 35





INTERSECTION–ONTARIO STREET





CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115

OFFICE 920–339–4061 FAX 920–339–4071

CHARLES STREET

CROSS SECTIONS

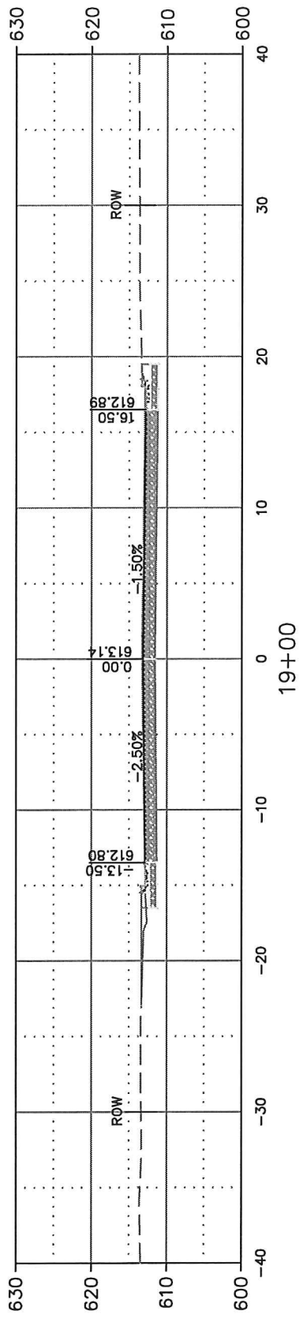
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY

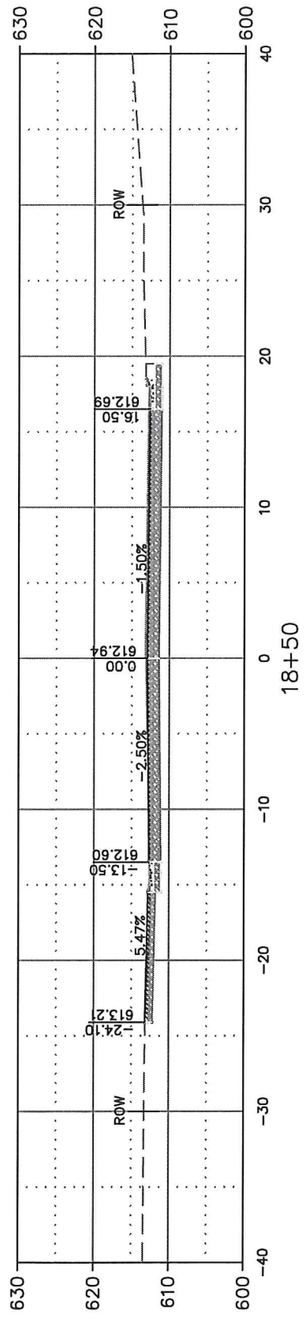
PROJECT # 18–02

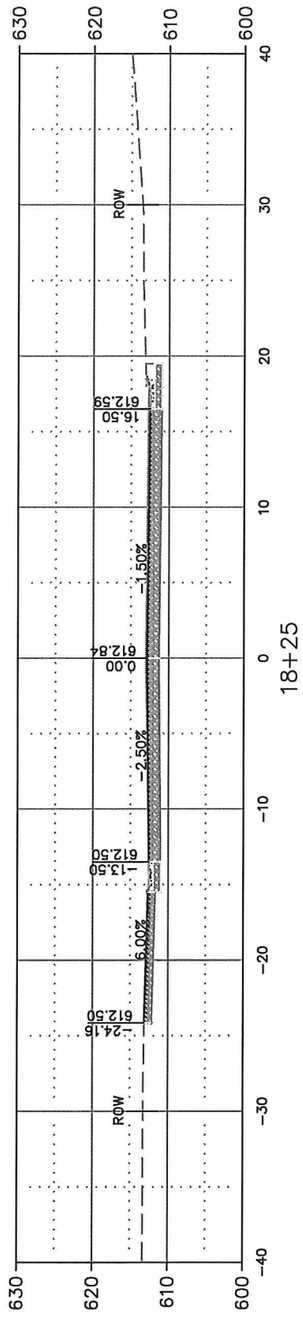
	BY	DATE
SURVEYED	SRL	07–2017
DRAWN	SRL	01–2018
DESIGNED	SRL	01–2018
CHECKED	EPR	01–2018

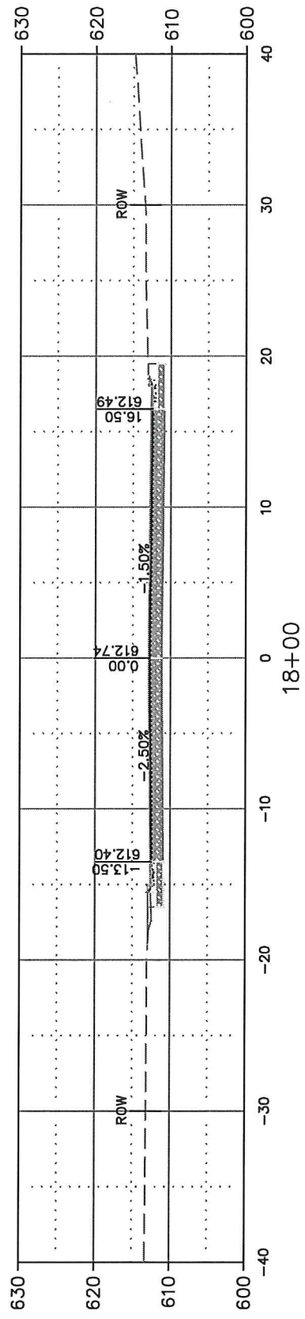
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 36









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

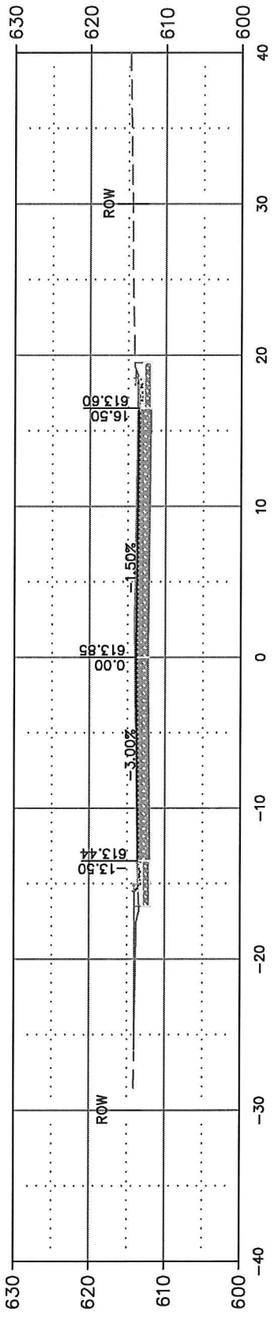
CHARLES STREET
CROSS SECTIONS

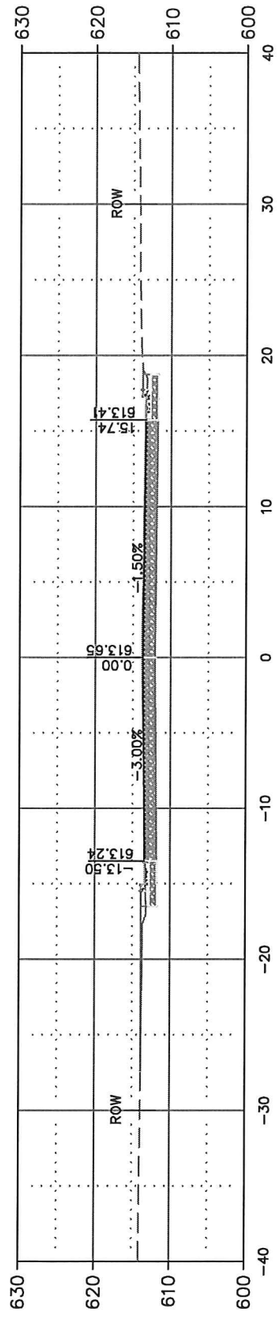
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

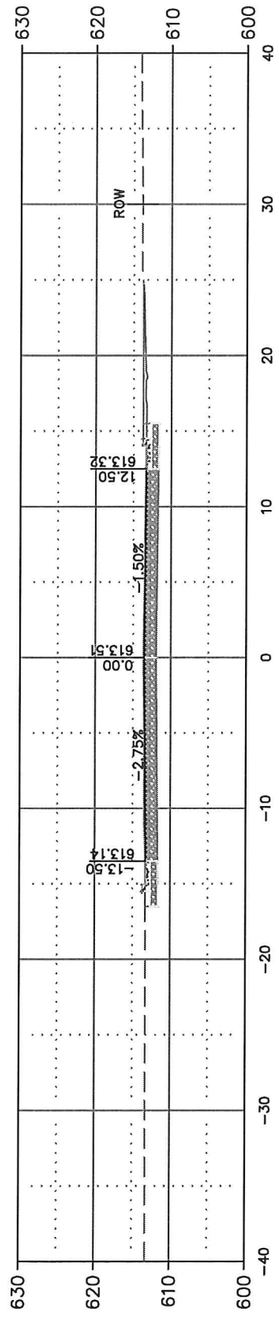
	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

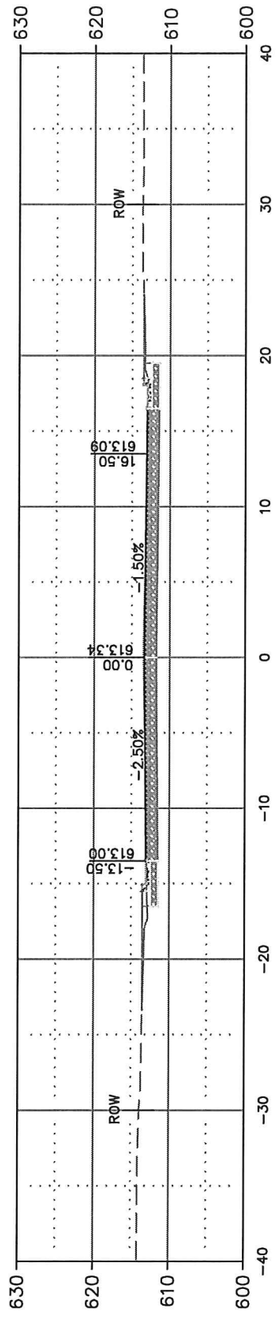
PAGE NO. 37







INTERSECTION—WINNEBAGO STREET



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

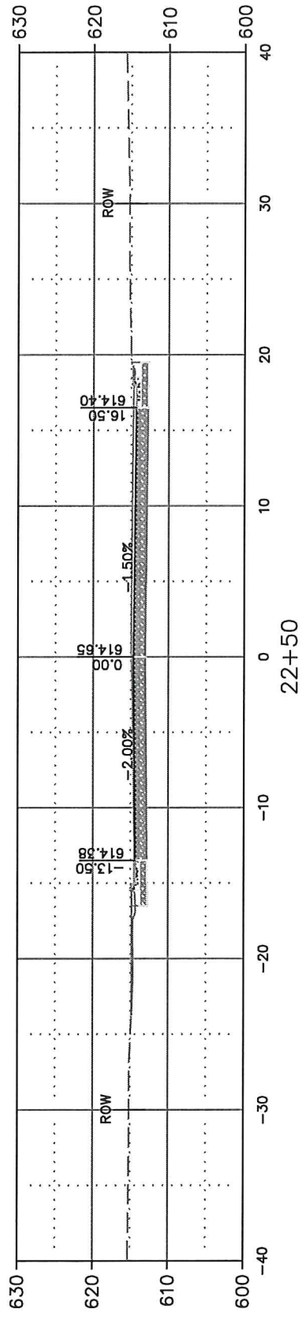
CHARLES STREET
CROSS SECTIONS

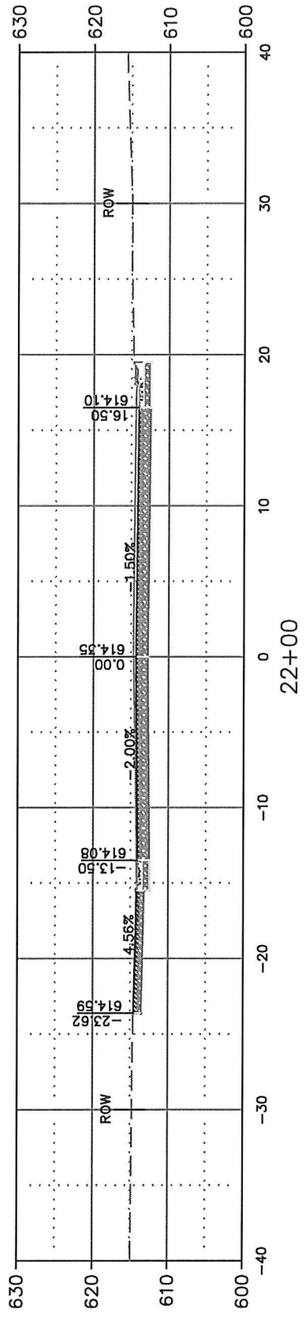
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

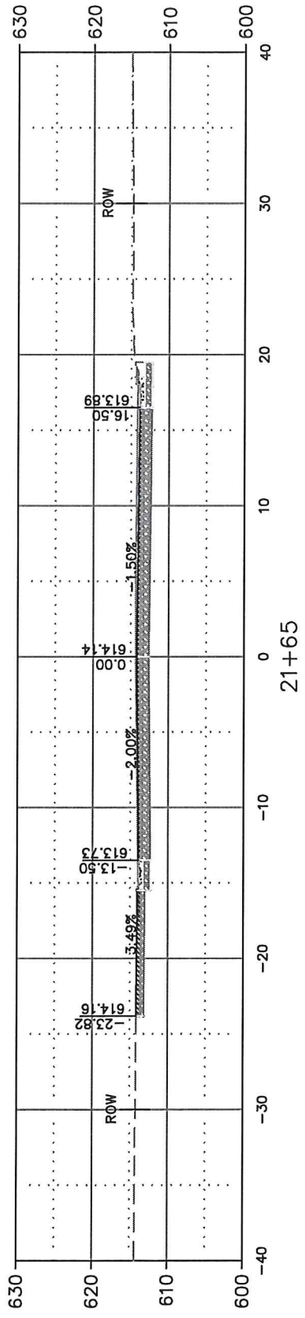
	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

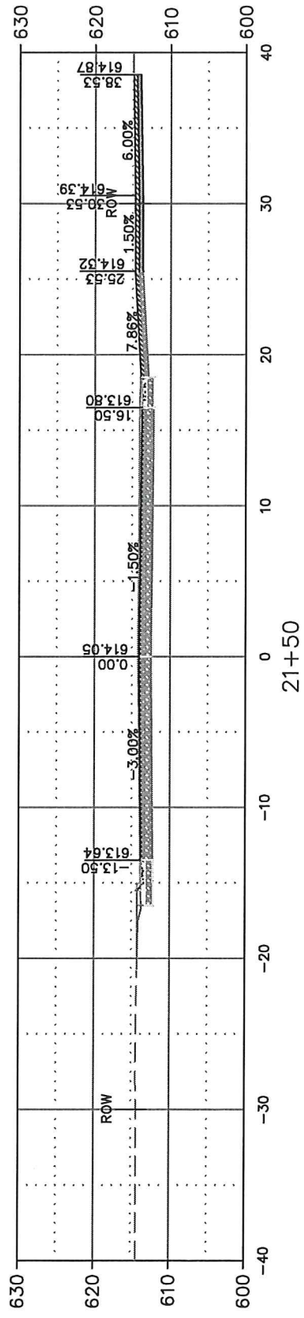
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 38









CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115

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

CHARLES STREET

CROSS SECTIONS

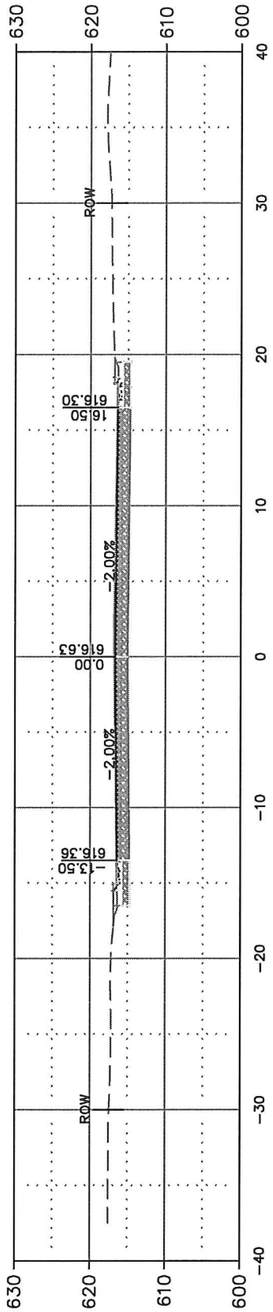
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-02

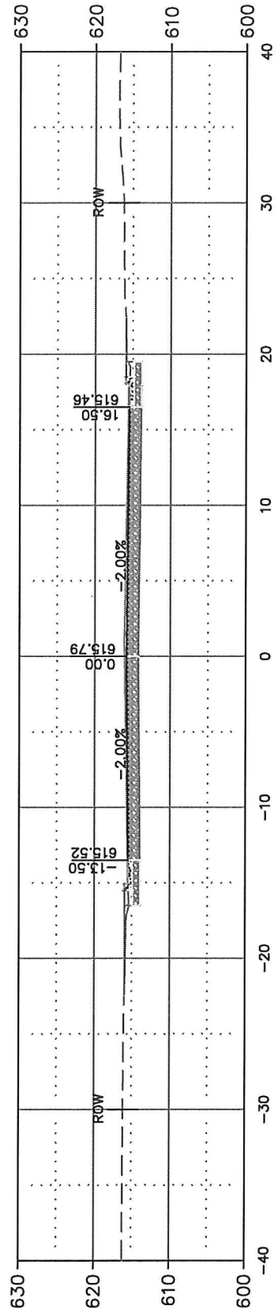
	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

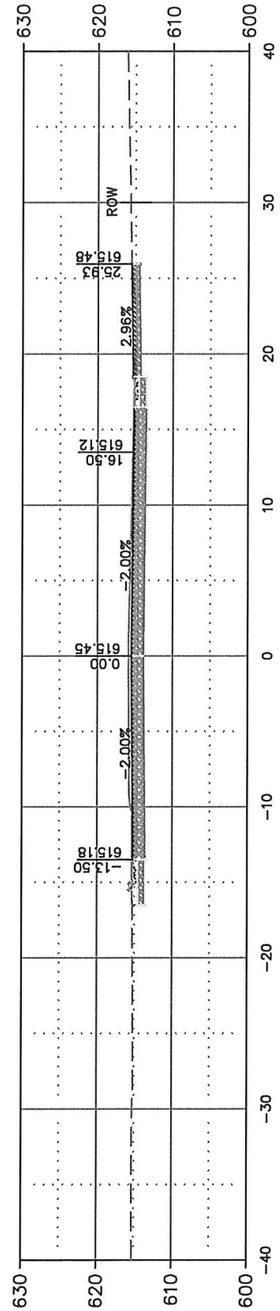
PAGE NO. 39



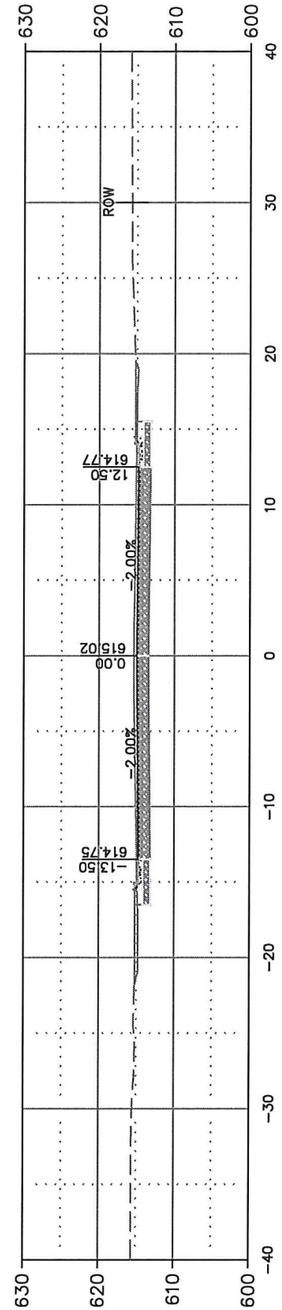
24+00



23+50



23+30



23+00

INTERSECTION – WASHINGTON STREET

CITY OF DE PERE

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

CHARLES STREET

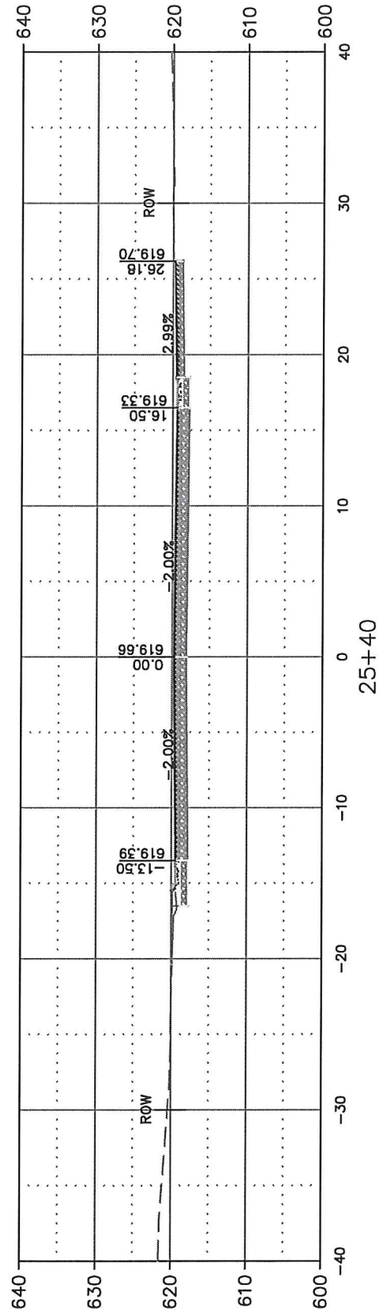
CROSS SECTIONS

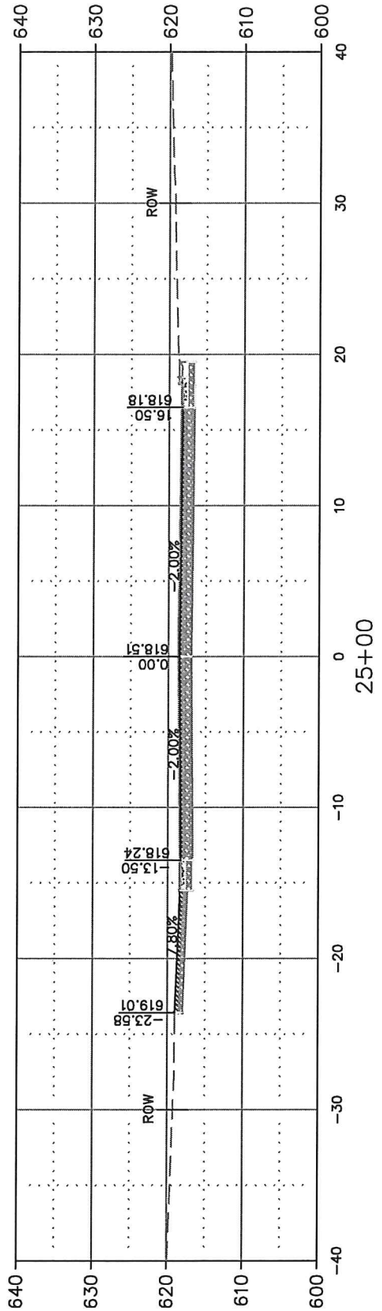
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

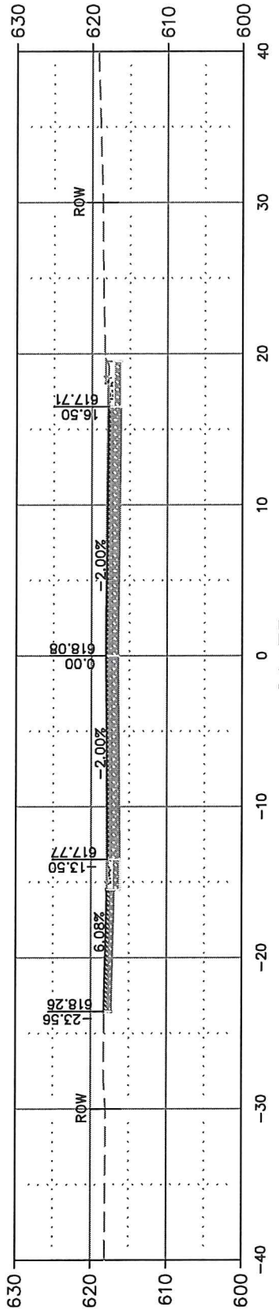
	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

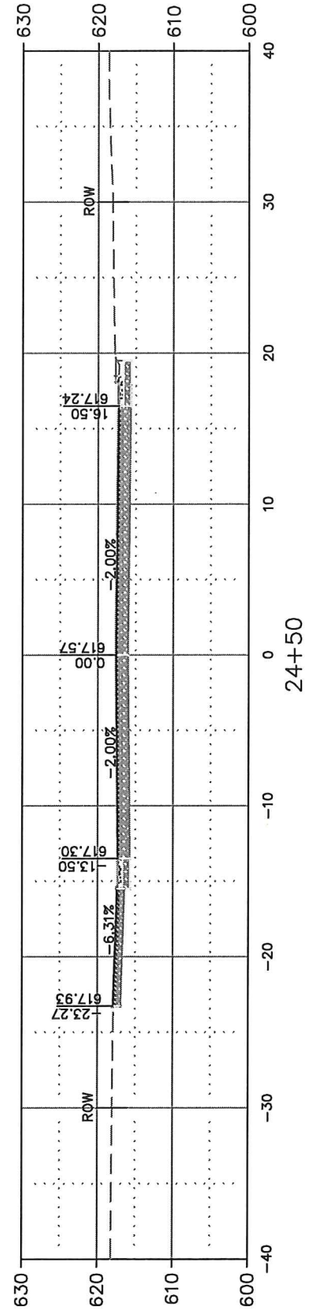
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 40









CITY OF DE PERE

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

CHARLES STREET

CROSS SECTIONS

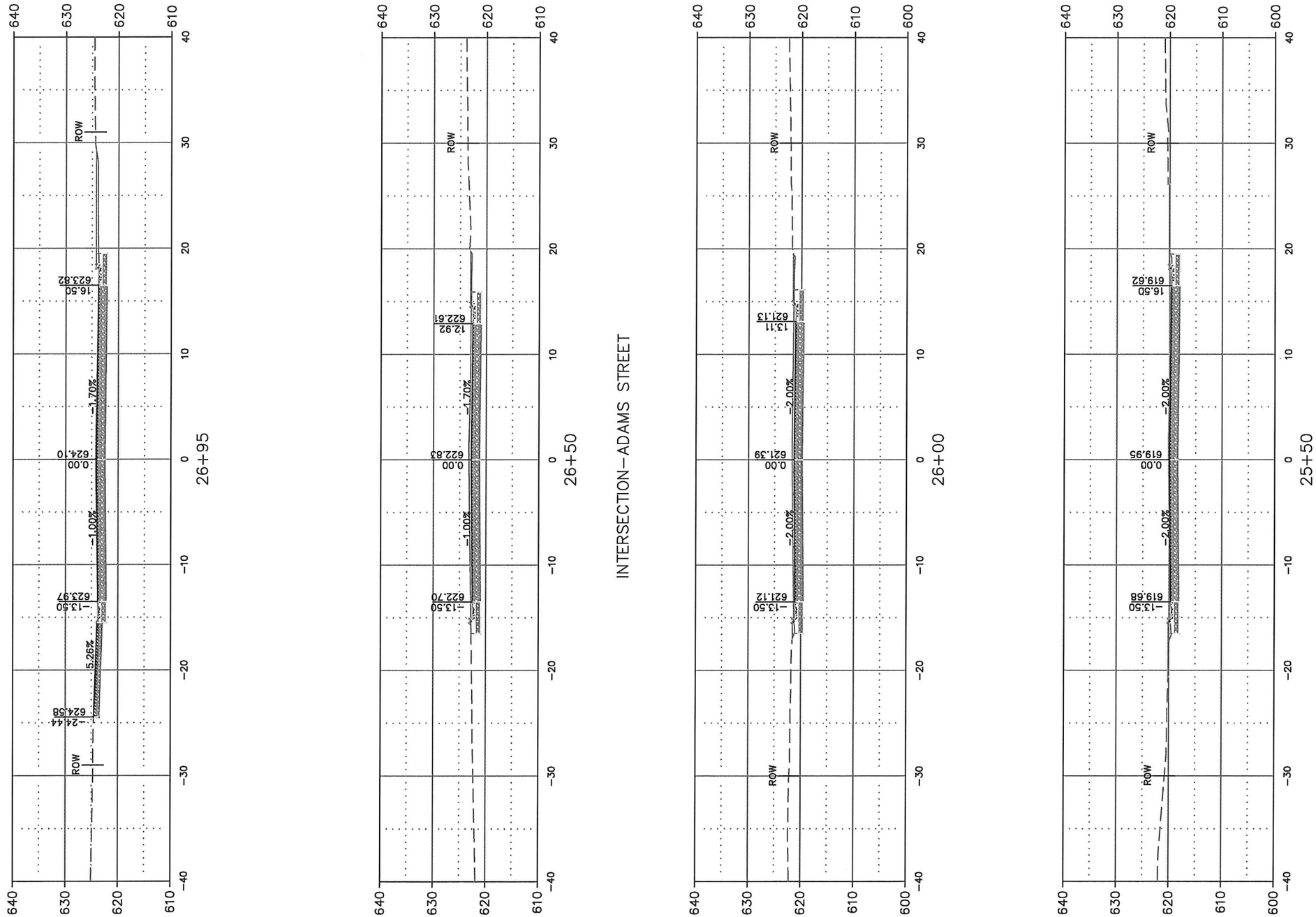
NAME:
CHARLES ST RECONSTRUCTION AND UTILITY RELAY

PROJECT #
18-02

	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 41



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

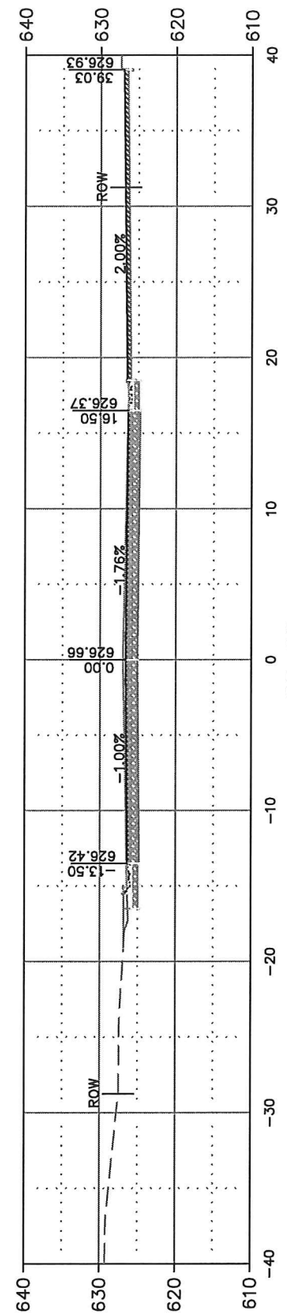
CHARLES STREET
CROSS SECTIONS

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18–02

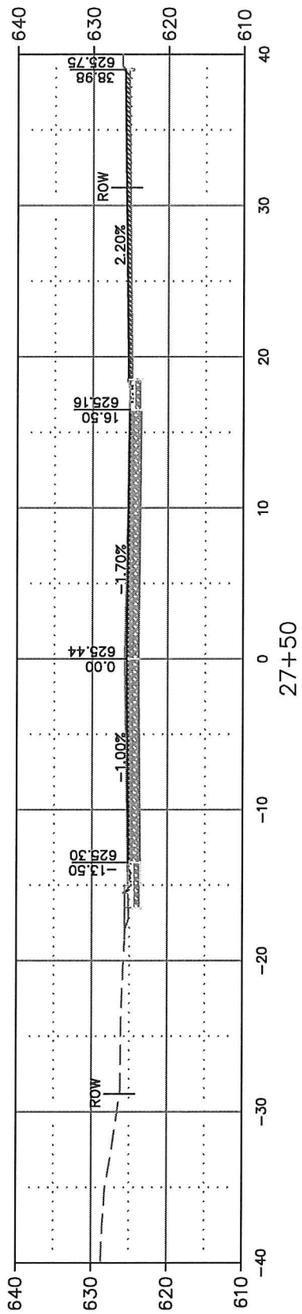
	BY	DATE
SURVEYED	SRL	07–2017
DRAWN	SRL	01–2018
DESIGNED	SRL	01–2018
CHECKED	EPR	01–2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

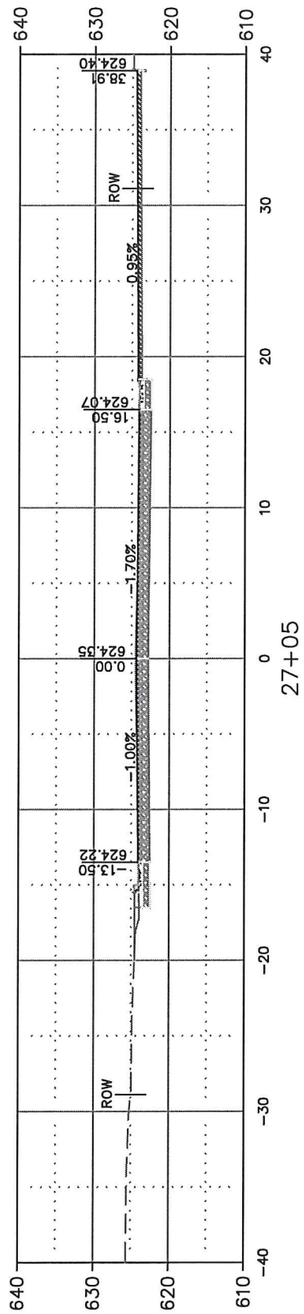
PAGE NO. 42



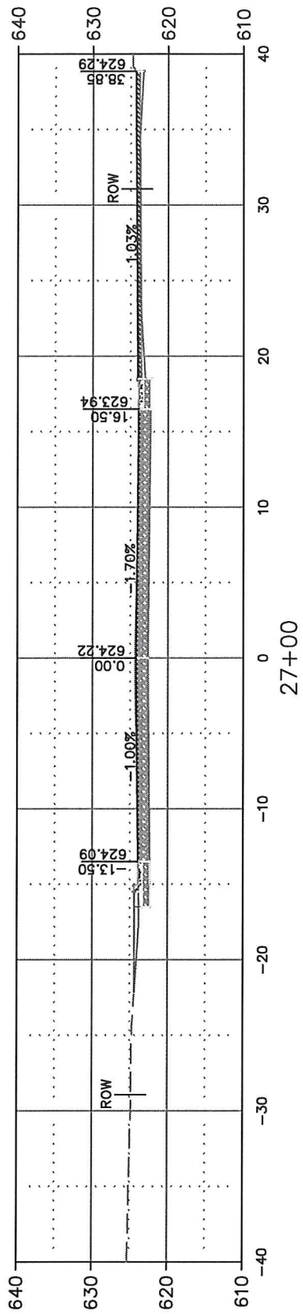
28+00



27+50



27+05



27+00

CITY OF DE PERE

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

CHARLES STREET

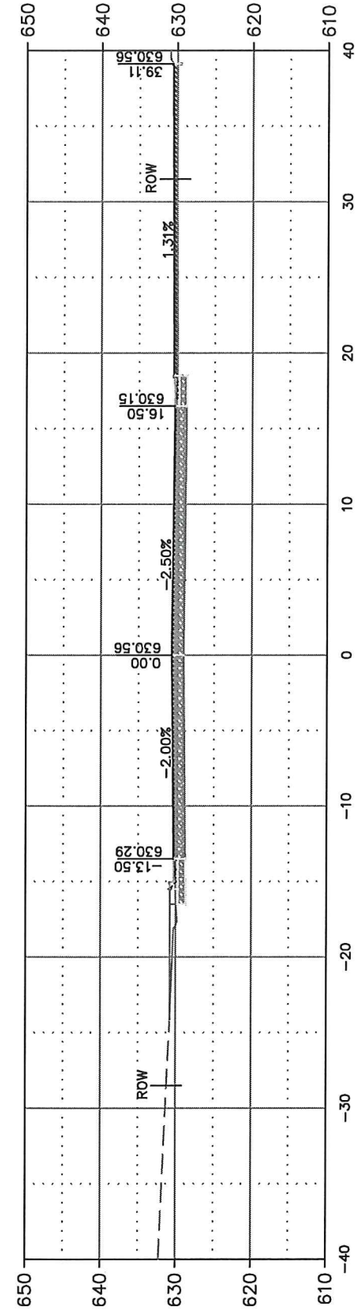
CROSS SECTIONS

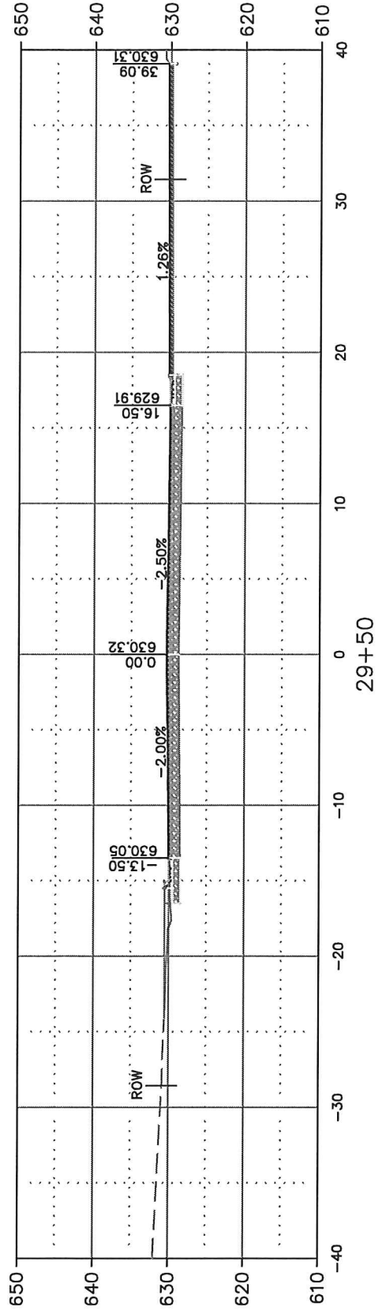
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

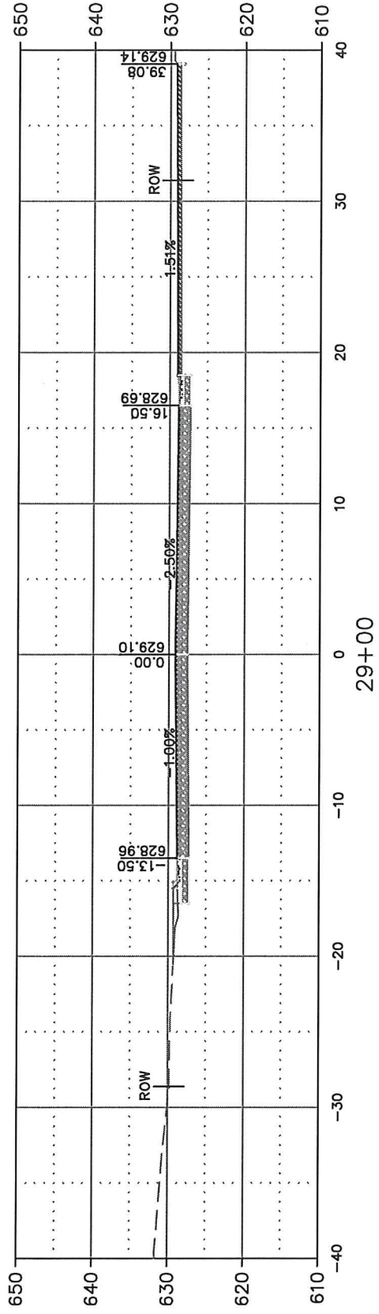
	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

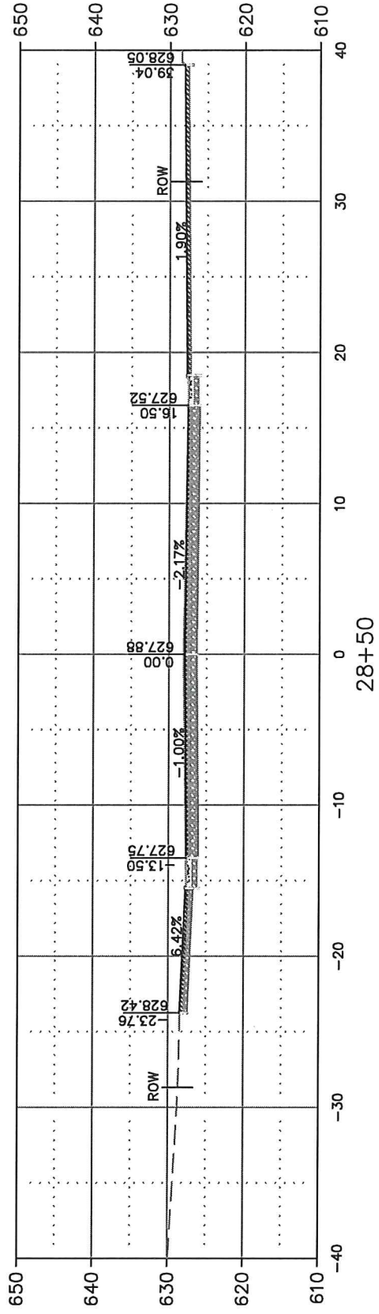
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 43









CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115

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

CHARLES STREET

CROSS SECTIONS

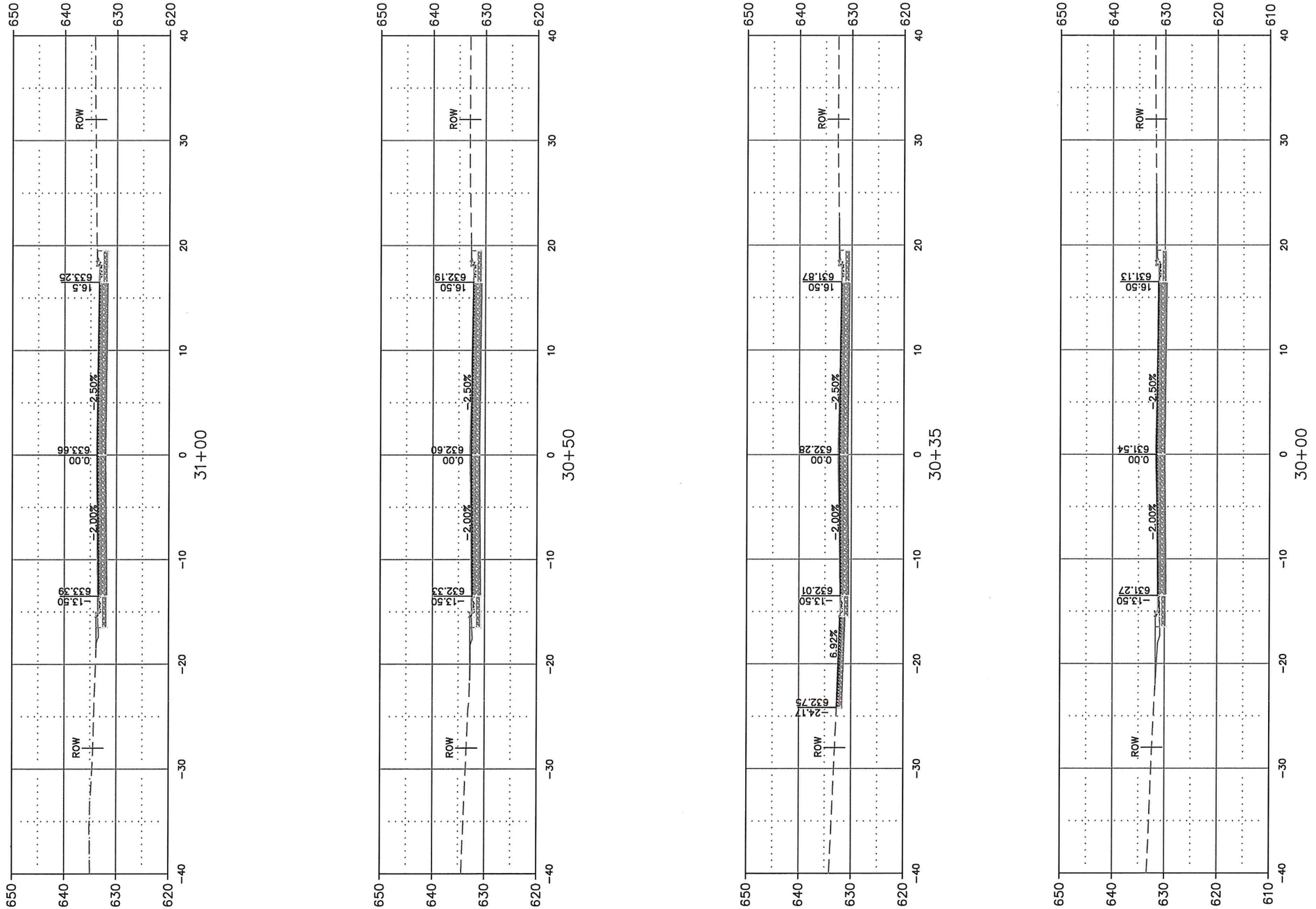
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY

PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 44



CITY OF DE PERE

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

CHARLES STREET

CROSS SECTIONS

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	07-2017
DRAWN	SRL	01-2018
DESIGNED	SRL	01-2018
CHECKED	EPR	01-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 45

Total Volume Table

Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
1+75.00	0.00	55.60	0.00	0.00	0.00	0.00
1+83.00	0.00	61.52	0.00	17.35	0.00	17.35
2+00.00	0.00	67.16	0.00	40.51	0.00	57.86
2+50.00	0.00	67.98	0.00	125.13	0.00	182.99
2+75.00	0.51	72.76	0.24	65.16	0.24	248.15
3+00.00	0.03	66.38	0.25	64.41	0.49	312.56
3+50.00	0.00	67.38	0.02	123.85	0.51	436.41
4+00.00	0.01	60.58	0.01	118.48	0.52	554.89
4+50.00	0.00	56.96	0.01	108.83	0.53	663.73
5+00.00	0.33	60.19	0.31	108.47	0.84	772.19
5+20.00	0.08	67.78	0.15	47.39	0.99	819.59
5+30.00	0.00	69.22	0.01	25.37	1.00	844.96
5+50.00	0.28	65.67	0.10	49.96	1.10	894.92
5+90.00	0.00	77.07	0.21	105.73	1.31	1000.65
6+00.00	0.00	79.84	0.00	29.06	1.31	1029.71
6+40.00	0.00	74.35	0.00	114.22	1.31	1143.92
6+50.00	0.03	66.51	0.01	26.09	1.32	1170.01
7+00.00	3.54	61.71	3.31	118.73	4.62	1288.74
7+15.00	0.00	65.24	0.98	35.26	5.61	1324.00
7+50.00	0.00	0.00	0.00	42.28	5.61	1366.28
7+84.00	0.00	62.50	0.00	39.35	5.61	1405.64
8+00.00	0.00	72.04	0.00	39.87	5.61	1445.50
8+50.00	0.00	72.31	0.00	133.66	5.61	1579.16
8+95.00	0.00	72.64	0.00	120.79	5.61	1699.95
9+00.00	0.01	72.60	0.00	13.45	5.61	1713.40
9+05.00	0.05	72.91	0.01	13.47	5.61	1726.87
9+50.00	0.00	67.46	0.04	116.97	5.66	1843.84
9+65.00	0.00	72.90	0.00	38.99	5.66	1882.83
9+75.00	0.19	71.75	0.03	26.79	5.69	1909.62
10+00.00	0.18	62.95	0.17	62.36	5.86	1971.98
10+50.00	0.00	0.00	0.16	58.28	6.03	2030.26
11+00.00	0.00	49.09	0.00	45.45	6.03	2075.72
11+50.00	0.00	64.88	0.00	105.53	6.03	2181.24
12+00.00	0.00	75.66	0.00	130.12	6.03	2311.37
12+25.00	0.00	86.66	0.00	75.14	6.03	2386.51
12+40.00	0.00	76.81	0.00	45.41	6.03	2431.92
12+50.00	0.00	63.71	0.00	26.02	6.03	2457.94
13+00.00	0.27	58.81	0.25	113.44	6.29	2571.38
13+50.00	0.00	0.00	0.25	54.45	6.54	2625.83

Total Volume Table						
14+00.00	0.00	0.00	0.00	0.00	6.54	2625.83
14+50.00	0.00	63.40	0.00	58.70	6.54	2684.53
15+00.00	0.00	67.57	0.00	121.26	6.54	2805.79
15+15.00	0.00	74.84	0.00	39.56	6.54	2845.35
15+35.00	0.00	71.23	0.00	54.10	6.54	2899.45
15+50.00	0.00	73.04	0.00	40.08	6.54	2939.53
16+00.00	0.56	61.99	0.52	125.03	7.06	3064.55
16+50.00	0.00	60.83	0.53	113.72	7.59	3178.27
17+00.00	0.00	57.85	0.00	109.89	7.59	3288.16
17+50.00	2.01	61.54	1.86	110.55	9.46	3398.71
18+00.00	0.64	63.62	2.46	115.89	11.91	3514.60
18+25.00	0.00	68.23	0.30	61.04	12.21	3575.64
18+50.00	0.00	67.34	0.00	62.76	12.21	3638.40
19+00.00	1.65	60.46	1.53	118.33	13.74	3756.73
19+50.00	2.20	57.66	3.57	109.37	17.31	3866.10
20+00.00	2.66	54.22	4.50	103.59	21.81	3969.69
20+50.00	1.78	57.51	4.12	103.46	25.93	4073.15
21+00.00	1.55	63.22	3.08	111.79	29.01	4184.95
21+50.00	0.59	67.98	1.98	121.48	30.99	4306.43
21+65.00	0.00	70.79	0.16	38.55	31.15	4344.97
22+00.00	0.00	72.01	0.00	92.56	31.15	4437.53
22+50.00	1.27	66.26	1.18	128.04	32.33	4565.56
23+00.00	2.99	60.86	3.95	117.71	36.28	4683.27
23+30.00	0.00	68.55	1.66	71.90	37.94	4755.17
23+50.00	1.07	62.88	0.40	48.68	38.34	4803.85
24+00.00	0.31	61.77	1.28	115.42	39.62	4919.27
24+50.00	0.02	66.07	0.31	118.37	39.93	5037.64
24+75.00	0.01	66.79	0.02	61.51	39.94	5099.15
25+00.00	0.01	69.65	0.01	63.17	39.95	5162.32
25+40.00	0.58	66.91	0.43	101.16	40.39	5263.48
25+50.00	0.83	62.50	0.26	23.96	40.65	5287.44
26+00.00	0.77	61.72	1.48	115.02	42.12	5402.46
26+50.00	0.80	62.99	1.45	115.48	43.58	5517.94
26+95.00	3.18	65.40	2.57	107.31	46.15	5625.25
27+00.00	2.03	67.42	0.48	12.30	46.63	5637.55
27+05.00	0.00	0.00	0.19	6.24	46.82	5643.79
27+50.00	0.00	0.00	0.00	0.00	46.82	5643.79
28+00.00	0.00	0.00	0.00	0.00	46.82	5643.79
28+50.00	0.00	0.00	0.00	0.00	46.82	5643.79
29+00.00	0.00	0.00	0.00	0.00	46.82	5643.79
29+50.00	0.00	0.00	0.00	0.00	46.82	5643.79
29+60.00	0.00	0.00	0.00	0.00	46.82	5643.79
30+00.00	2.67	55.79	1.98	41.33	48.80	5685.12
30+35.00	0.17	65.84	1.85	78.84	50.65	5763.96
30+50.00	0.83	62.82	0.28	35.74	50.92	5799.70
31+00.00	0.54	61.85	1.27	115.44	52.19	5915.14
31+13.94	0.00	0.00	0.14	15.97	52.33	5931.11
31+13.96	0.00	0.00	0.00	0.00	52.33	5931.11
INTERSECTIONS		4727	0.00	276.62	52.33	6207.73

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

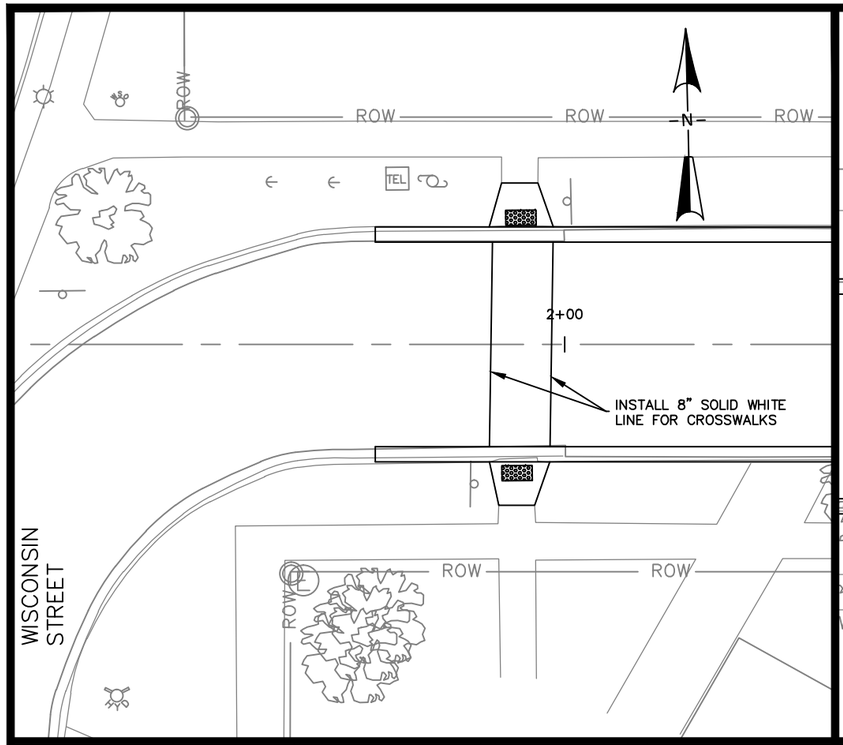
CHARLES STREET
CROSS SECTIONS

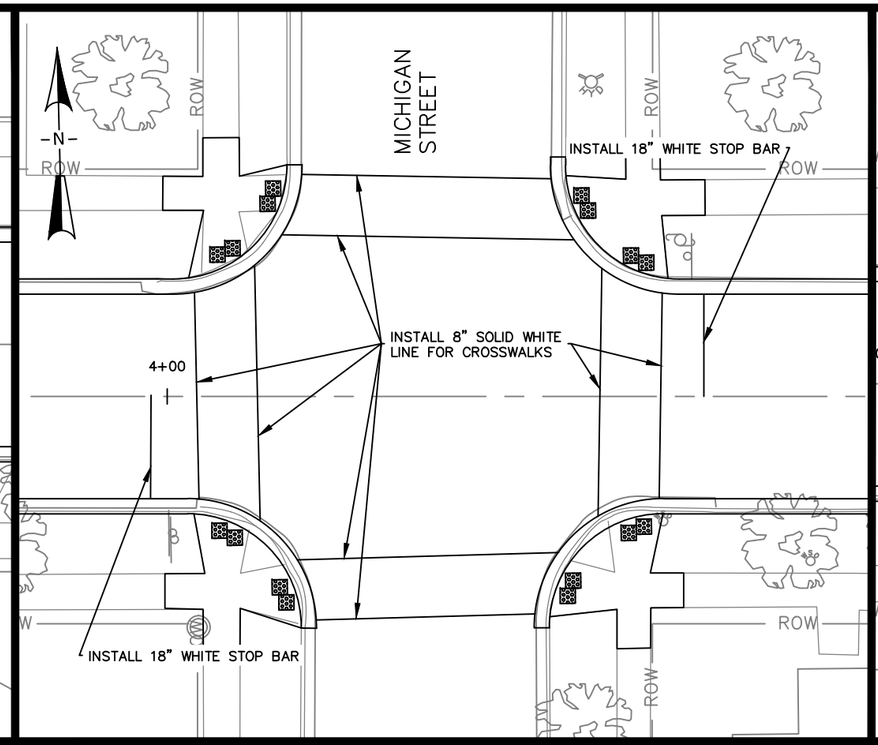
NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

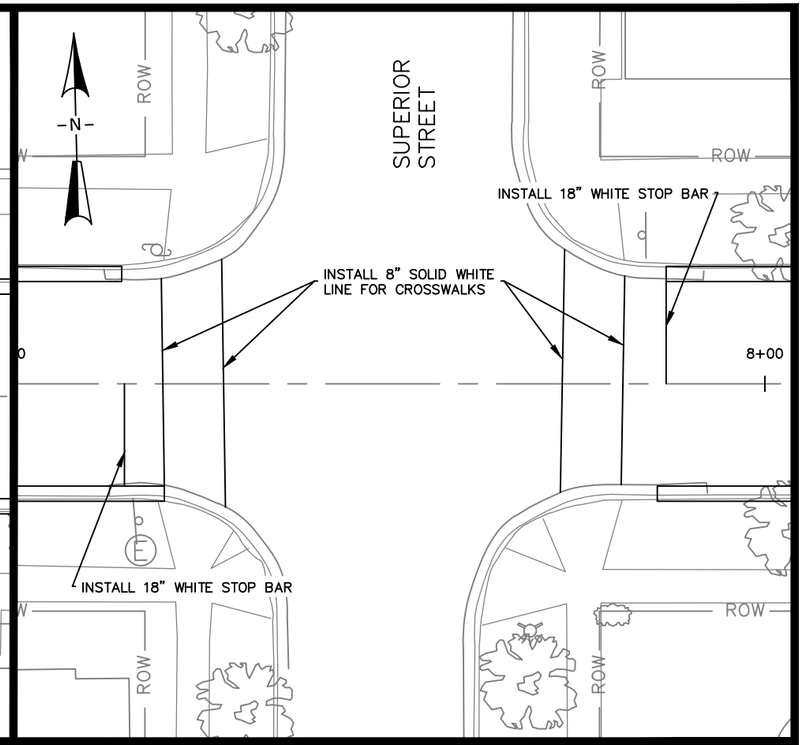
SURVEYED BY DATE
DRAWN SRL 07-2017
DESIGNED SRL 01-2018
CHECKED EPK 01-2018

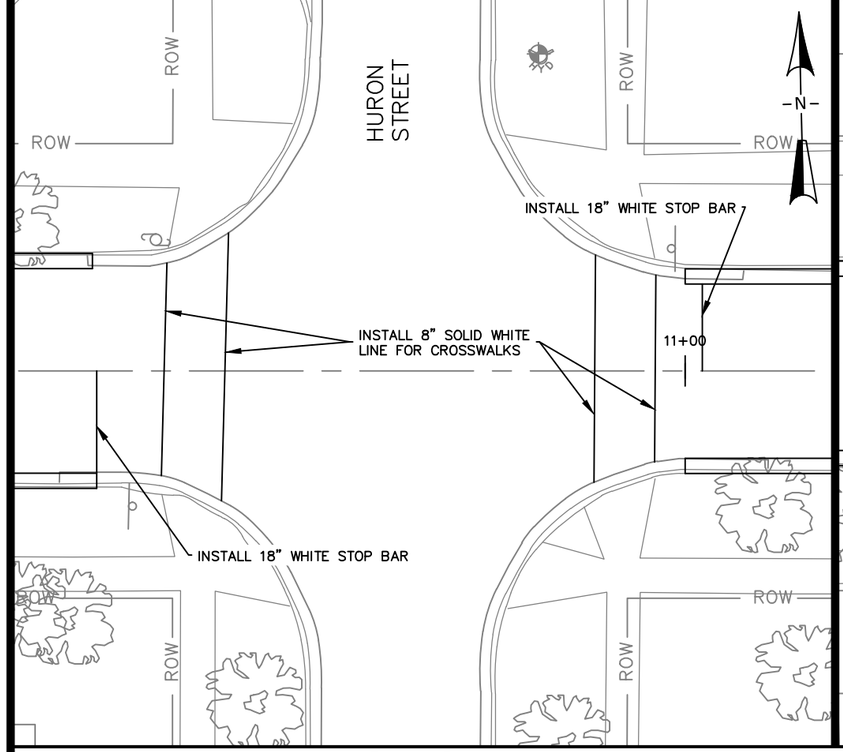
REVISIONS / ISSUES

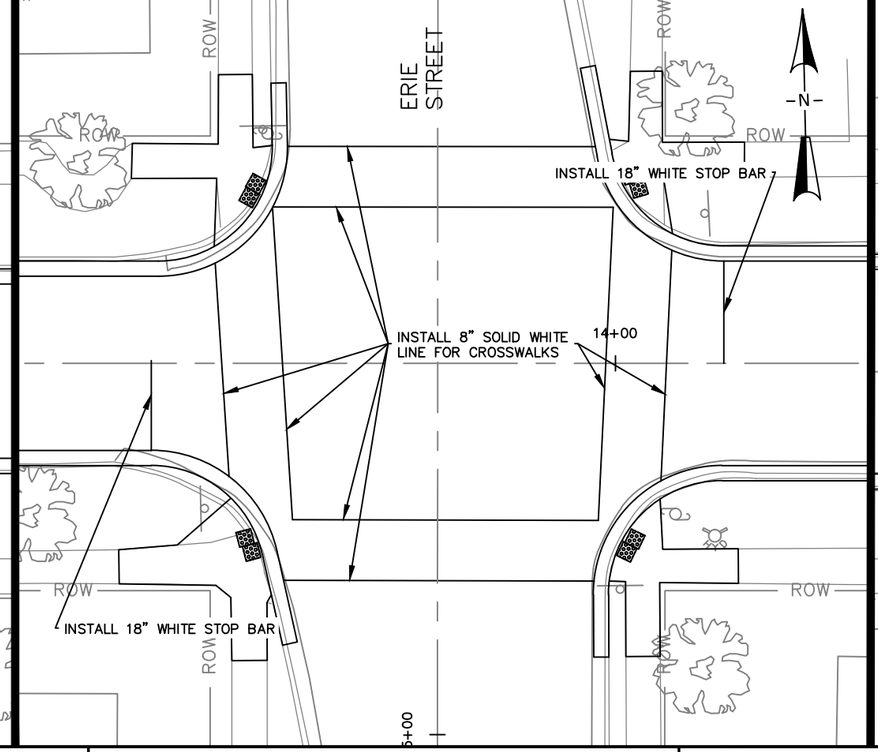
NO.	DATE	BY	REMARKS

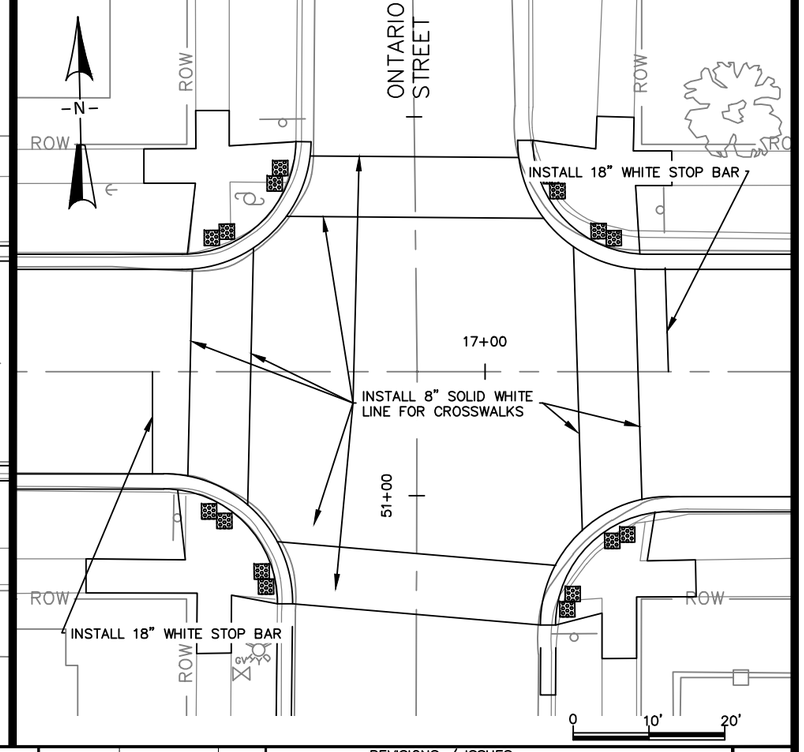












CITY OF DE PERE
ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
OFFICE 920-339-4061 FAX 920-339-4071

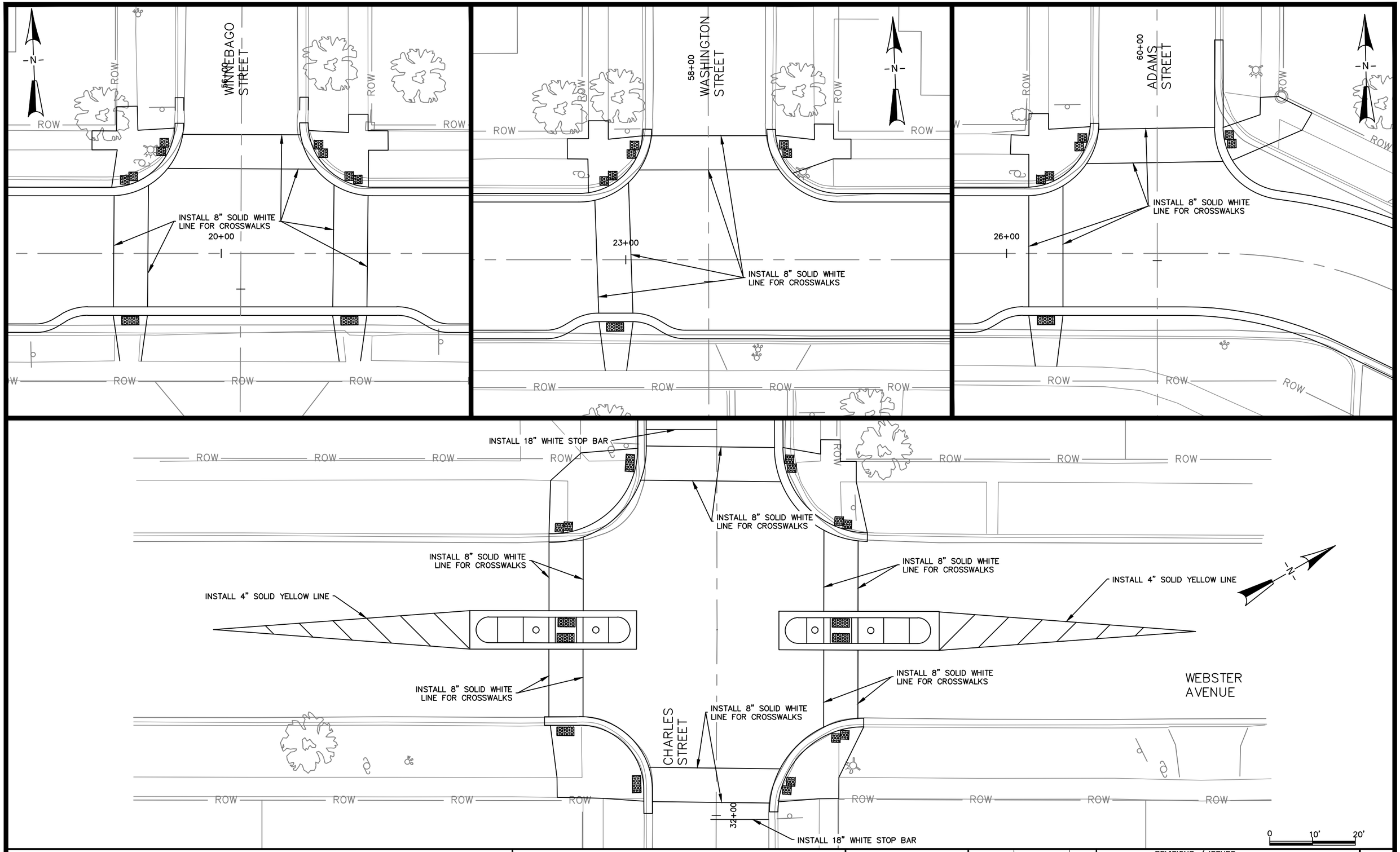
CHARLES STREET
PAVEMENT MARKINGS

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	12-2017
CHECKED	EPR	1-2018

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

CHARLES STREET
PAVEMENT MARKINGS

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	12-2017
CHECKED	EPR	1-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. **49**

WISCONSIN STREET

MICHIGAN STREET

SUPERIOR STREET

PROVIDE INLET PROTECTION

PROVIDE INLET PROTECTION

PROVIDE INLET PROTECTION

PROVIDE INLET PROTECTION

ED-914

ED-290
HO #220

ED-957
HO #121

ED-955
HO #132

ED-1013
HO #100

ED-290
HO #220

ED-947
HO #604

ED-948
HO #608

ED-937
HO #202

ED-1025
HO #201

ED-1015
HO #714

ED-1014
HO #200

1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

C-1 C-2

SEE PAGE BELOW

HURON STREET

ERIE STREET

ONTARIO STREET

PROVIDE INLET PROTECTION

PROVIDE INLET PROTECTION

PROVIDE INLET PROTECTION

PROVIDE INLET PROTECTION

ED-1054
HO #133

ED-1053
HO #134

ED-1100
HO #133

ED-1099
HO #132

ED-655
HO #133

ED-654
HO #134

ED-1014
HO #200

ED-1047
HO #203

ED-1038
HO #202

ED-1117
HO #201

ED-1106
HO #202

ED-81

11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00

44+50 45+00 46+00 46+50 50+00 51+00 52+00

C-3 C-4

SEE PAGE ABOVE

SEE PAGE 50

N

0 30' 60'

CITY OF DE PERE

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

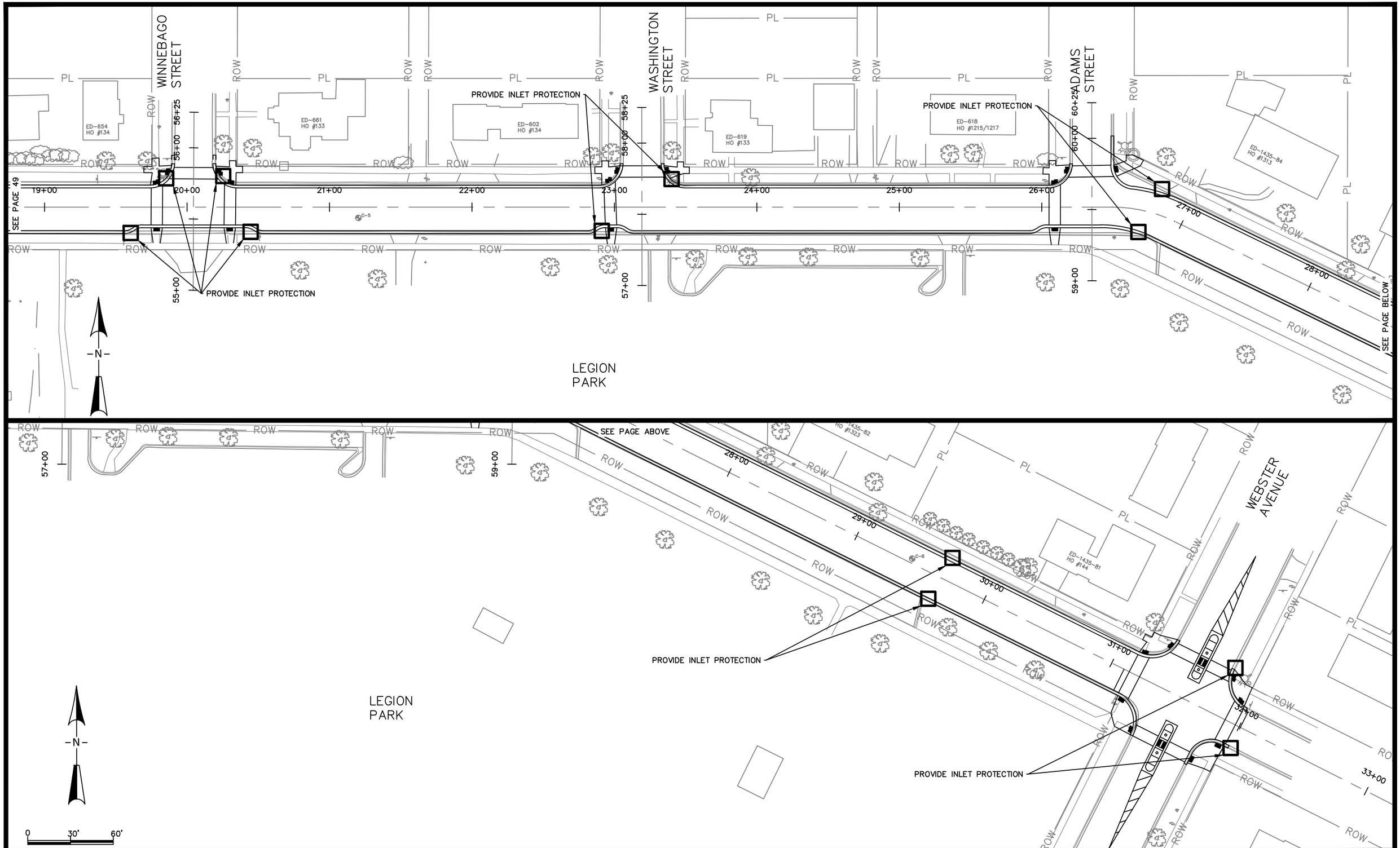
CHARLES STREET
EROSION CONTROL PLAN

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	1-2018
CHECKED	EPR	1-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 50



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

CHARLES STREET
EROSION CONTROL PLAN

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED	SRL	6-2017
DRAWN	SRL	11-2017
DESIGNED	SRL	1-2018
CHECKED	EPR	1-2018

REVISIONS / ISSUES

NO.	DATE	BY	REMARKS

CITY OF DE PERE

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

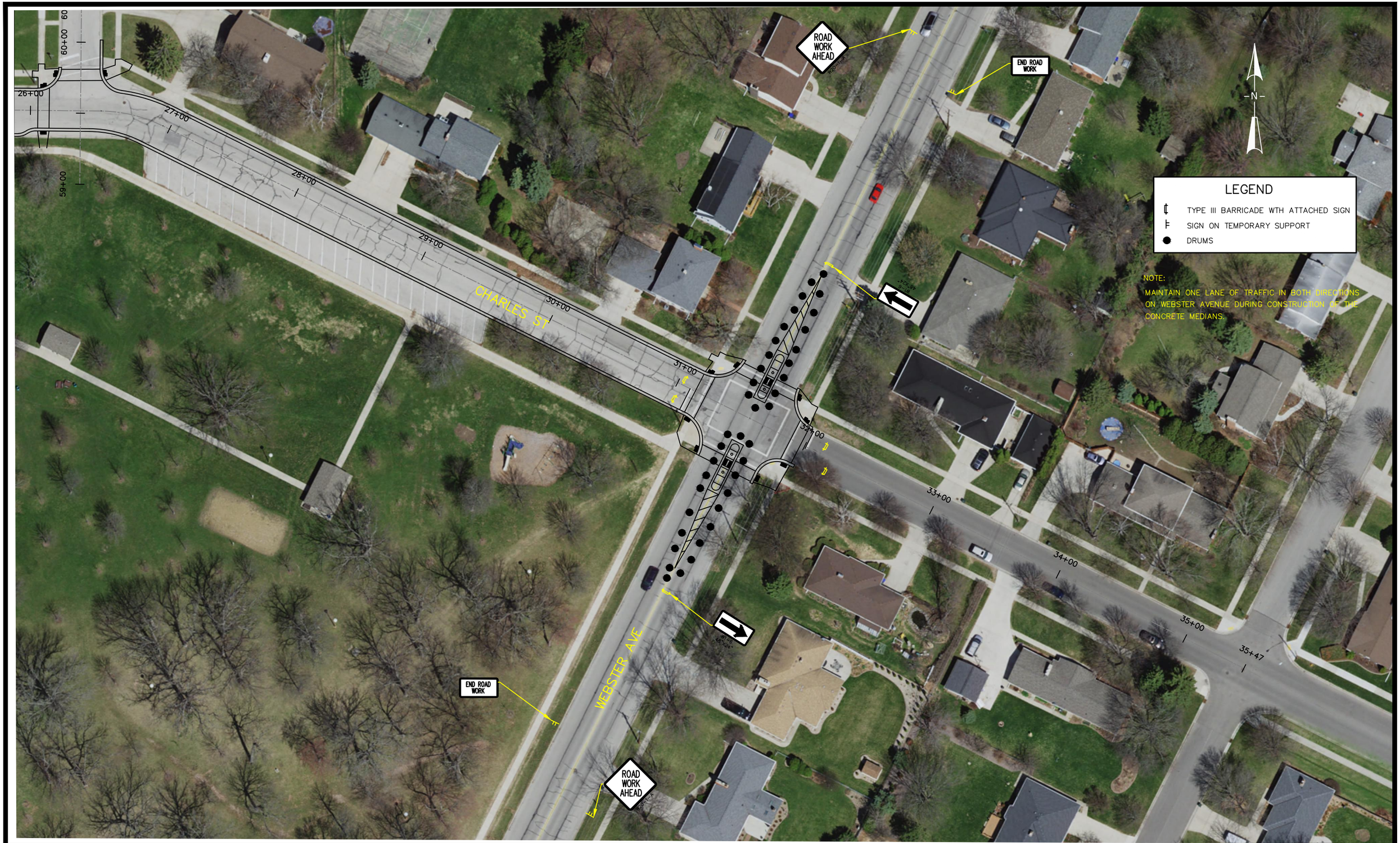
WEBSTER AND CHARLES
DETOUR ROUTE TRAFFIC CONTROL

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED		
DRAWN	SRL	02-2018
DESIGNED	SRL	02-2018
CHECKED	EPR	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 52



CITY OF DE PERE

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

WEBSTER AND CHARLES
TRAFFIC CONTROL

NAME: CHARLES ST RECONSTRUCTION AND UTILITY RELAY
PROJECT # 18-02

	BY	DATE
SURVEYED		
DRAWN	SRL	02-2018
DESIGNED	SRL	02-2018
CHECKED	EPR	02-2018

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS

PAGE NO. 53