Remedial Action Plan & Materials Management Plan
Chicago Street Rights of Way

River Point District
Manitowoc, Wisconsin

BRRTS ID:
02-36-585491 (Open ERP)

07-36-583000 (LGU Exemption/ General Property)

Prepared for:
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April 19, 2024
Project Number 193709902

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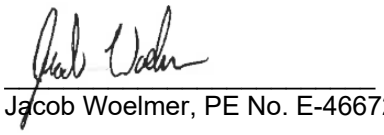
RIVER POINT DISTRICT
MANITOWOC, WISCONSIN

"I, Stu Gross, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wisconsin Administrative Code (WAC)."

Stu Gross, PG No. 1201-13 — April 19, 2024 Date

"I, Jacob Woelmer, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E8, WAC; that this document has been prepared in accordance with the Rules of Professional Conduct in cg. A-E8, WAC; and that to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR700 to 726, WAC."



Jacob Woelmer, PE No. E-46672-6 — April 19, 2024 Date

1.0 OVERVIEW

Using funds from a Site Assessment Grant awarded to the City of Manitowoc (City) by the Wisconsin Economic Development Corporation (WEDC) under Contract Number SAG FY24-53634, the City contracted Stantec Consulting Services Inc. (Stantec) to prepare a RAP/MMP for remediation and soil management activities as part of Chicago Street ROW construction between River Point Drive and North 11th Street (herein referred to as the "Project").

The proposed Chicago Street Rights of Way (ROW) is located in the northern portion of the River Point District. The proposed ROW consists of portions of former railroad/industrial property constituting roughly the 1100 and 1200 blocks of Chicago Street in Manitowoc, Wisconsin (herein referred to as the "Property"). The Property is outlined in black; the River Point Drive ROW is outlined in green to show alignment between the two ROWs; and the River Point District is outlined in yellow relative to regional topography on Figure 1 and similarly illustrated on a 2020 Orthophotograph on Figure 2.

Please note that placement of fill in the far western portion of the Chicago Street ROW was completed in Fall 2023 to compress underlying organic soils to a suitable point so that utilities and pavement could be installed during the 2024 construction season. The work described in this Remedial Action Plan and Material Management Plan (RAP/MMP) for the Chicago Street ROW is a continuance of the Stantec (2023b) RAP/MMP developed for placing fill in the River Point Drive ROW.

Following the Remedial Action Plan (RAP) in Section 2.0, a Materials Management Plan (MMP) is included as Section 3.0 of this submittal and outlines procedures planned to properly manage impacted soils, groundwater/fluids, and other solid materials, as well as responding to unforeseen conditions.

1.1 INTRODUCTION

Using funds from a Site Assessment Grant awarded to the City of Manitowoc (City) by the Wisconsin Economic Development Corporation (WEDC) under Contract Number SAG FY24-53634, the City contracted Stantec Consulting Services Inc. (Stantec) to prepare a RAP/MMP for remediation and soil management activities as part of Chicago Street ROW construction between River Point Drive and North 11th Street (herein referred to as the "Project").

For continuity with prior work, the proposed Project consists of portions of former railroad/industrial property constituting roughly the 1100 block of Chicago Street. Please note that the Project area does not include the intersection of Chicago Street with River Point Drive, as this portion of Chicago Street is already covered under a separate RAP/MMP (Stantec, 2023b). Property grading plans depicting the current and final proposed surfaces for the Project are included in **Appendix A**.

Project work first includes importing, compacting, and grading approximately 10,000 cubic yards of fill to raise the grade within the Project area between three and 10 feet above current grade while constructing the base of the engineered barrier to be finished at a later date. The imported material will consist of granular fill cut from the Rapids Road ROW reconstruction project, which was previously characterized by Stantec (2024b). Additional fill could come from a commercial quarry previously approved for the River Point District (refer to Section 2.1).

The final ground surface within the proposed ROW will be finished with hardscape (asphalt and/or concrete streetscapes, curbs and sidewalks) or landscaping (consisting of a minimum of 19 inches of clean fill plus five inches of clean topsoil finished with grass) to prevent direct human contact with contaminated soil and fill material and reduce leaching of residual impacts to groundwater. The final ground surface in adjacent non-industrial redevelopments will be described in future RAP/MMPs prepared as part of future developments.

Wisconsin Department of Natural Resources (WDNR) Bureau for Remediation and Redevelopment Tracking System (BRRTS) Environmental Repair Program (ERP) and Local Government Unit (LGU) cases for the Property associated with development and former occupation by Wisconsin Central Ltd. (WCL) and other railroad entities are referred to in this report by the following titles:

- 02-36-585491 RIVERPOINT DISTRICT - LGU (Open ERP); and
- 07-36-583000 RAILROAD PROPERTY (FORMER) (LGU/General Property).

Soil contaminants of concern (COCs) primarily consist of polycyclic aromatic hydrocarbons (PAHs) and Resource Conservation and Recovery Act (RCRA) metals exceeding Chapter NR 720 Wisconsin Administrative Code (WAC) (NR 720) groundwater migration and direct contact pathways largely attributable to the black granular fill across the River Point District (including the Property), with less significant contamination from volatile organic compounds (VOCs) from former industrial/railroad use. In groundwater, petroleum VOCs and cyanide were present in groundwater sampled within the Project area at concentrations greater than promulgated chapter NR 140 Wisconsin Administrative Code (NR 140) standards. The source of cyanide impacts to soil and/or groundwater remain speculative.

1.2 PROJECT LOCATION

The Property is located in the northeast quarter of the northeast quarter of Section 30, and in the southeast quarter of the southeast quarter of Section 19; Township 19 North, Range 24 East, in the City of Manitowoc, Manitowoc County, Wisconsin. The Property consists of 0.74 acres within the 21-acre former railroad/industrial peninsula referred to locally as the River Point District. Surrounding properties are a mix of vacant land, rights-of-way, commercial and industrial land uses.

The future proposed Chicago Street ROW consists of portions of former railroad/industrial property constituting roughly the 1100 and 1200 blocks of Chicago Street in Manitowoc, Wisconsin (herein referred to as the "Property"). The Property is outlined in black; the River Point Drive ROW is outlined in green to show alignment between the two ROWs; and the River Point District is outlined in yellow relative to regional topography on **Figure 1** and similarly illustrated on a 2020 Orthophotograph on **Figure 2.**

The parcels comprising the Property are illustrated on **Figure 3** and include all or portions of Parcel IDs 173001, 173002, 173010 and 173170. The Property is currently undeveloped and zoned Central Business B-4, as illustrated in **Figure 4**.

The Property is being redeveloped as the extension of the existing Chicago Street ROW. Proposed reuse and engineered barriers/caps to be constructed at the Property are illustrated on **Figure 5**.

An erosion control plan and a grading plan for the Property are depicted on Sheets C1.01 - C1.02 and C3.01 of the River Point – Phase 3 Bid Set included in **Appendix A**, respectively.

The approximate geographic coordinates of the center of the Property in the Wisconsin Transverse Mercator 1991 coordinate system are (X: 707065, Y: 405137); this was determined using the WDNR Remediation and Redevelopment Sites Map at a scale of 1 to 495 (WDNR, 2024a).

The Property is located near the City's downtown commercial district and offers a unique opportunity for non-industrial, multi-use redevelopment as a destination area to catalyze meaningful economic growth in the City. The Property is being redeveloped as an extension of the Chicago Street ROW planned for the River Point District. Proposed nearby/surrounding redevelopment features are illustrated on **Figure 5**.

1.3 CONTACT INFORMATION

Contact information for the Property owner and environmental consulting firm are provided below.

PROPERTY OWNER:
Community Development Authority of the City of Manitowoc
City of Manitowoc
900 Quay Street
Manitowoc, WI 54220-4543

Contact:
Mr. Adam Tegen
Community Development Director
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900 Quay Street
Manitowoc, WI 54220-4543
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Email: ategen@manitowoc.org

CONSULTANT: Stantec Consulting Services Inc.
12080 Corporate Parkway, Suite 200
Mequon, Wisconsin 53092

Contact: Harris Byers, Ph.D.
Sr. Brownfields Project Manager
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Email: harris.byers@stantec.com

1.4 PROPERTY USE/OWNERSHIP HISTORY

General Property Use
The Property consists of 0.74 acres of vacant former railroad/industrial land surrounded by a mix of vacant land, rights-of-way, commercial and industrial land uses.

Development of the River Point District
As outlined in yellow on **Figure 1**, the River Point District consists of a 21-acre peninsula bound to the north, south, and west by the Manitowoc River and bound to the east by North 10th Street and North 11th Street. As described in the Stantec (2019) Phase I ESA, the River Point District appears undeveloped in 1835 (**Figure 6a**); however, the proximity of the peninsula to the Lake Michigan/Great Lakes shipping routes facilitated initial large scale industrial transloading development of the River Point District by 1868. Transloading operations on the peninsula in the late 19th Century included large scale coal, lumber/mills, grain, and large warehouses. Although ownership records are not available, a panoramic map drawn in 1883 indicates the River Point District was fully developed and occupied by several large industrial-like buildings and smaller commercial-like buildings. Historic site features from the 19th Century are illustrated on **Figure 7** and site features from the 20th Century are illustrated on **Figure 8**.

Past Tenants and Property Uses – PIN 173001 and 173010
As illustrated on the panoramic birds-eye view maps provided on **Figure 6b**, the "Jones Saw Mill" was constructed at/near the Property between 1835 and 1868, which was renamed the "Hansen and Scove Saw Mill" by 1883; though notations on the Sanborn® Fire Insurance map published in 1883 indicates the saw mill was used infrequently.

The Property was platted as individual parcels by 1878, presumably for residential/commercial use as an extension of the downtown street grid and historic maps confirm several residential-size buildings were present at or adjacent to the Property by 1893 (**Figure 6a**). The Property was redeveloped as a railroad ROW in the late 19th Century (possibly as early as 1895) concurrent with the redevelopment of the River Point District for railroad use in the late 19th Century. The size/scale of the adjoining coal transloading operation is apparent on the panoramic photograph from 1898 adapted on **Figure 6c**. Sanborn ® Fire Insurance Maps indicate the coal storage/transloading facility operated as the "Wisconsin Central RR Coal Dock" by the "C. Reiss Coal Co." through at least 1945. The "Goodrich Transit Co." used the bulkhead line of the Manitowoc River in 1919 for winter storage of three steam ships (i.e., S.S. Christopher Columbus, S.S. Florida, and the S.S. Arizona).

Past Tenants and Property Uses – PIN 173002
The approximately 0.01 acres on the far southeastern corner of the Property was leased to the "Wisconsin Fuel and Light Company" in 1986, which was later renamed "Wisconsin Public Service Commission" (**Figure 8**). The purpose of the lease has yet to be confirmed; however, no buildings or industrial uses are apparent on this portion of the Property by the Wisconsin Fuel and Light Company (or their subsequent entities).

Past Tenants and Property Uses – PIN 173170
This portion of the Property served as a railroad right of way to deliver bulk petroleum to the storage facilities located adjacent to and immediately south of the Property through the 20th Century (**Figure 8**).

Property Ownership
Ownership in the mid-19th Century likely corresponds to the previous Property occupants. Ownership appears to have been consolidated under railroad ownership since the late 19th Century. Historic records indicate the Property was transferred from the Manitowoc Terminal Company to the Manitowoc and Western Railroad Company on July 22, 1895. Assessor records suggest the Property was later transferred to the Soo Line Railroad Company and ultimately transferred to WCL sometime during the latter half of the 20th Century. Railroad use of the Property largely ceased in the 1980s and the Property was decommissioned in the 2000s.

The CDA acquired the Property from WCL on April 12, 2019 for the purpose of blight elimination and subsequently received a LGU Environmental Liability Exemption from the WDNR on March 18, 2019 under BRRTS activity number 07-36-583000.

The CDA maintained the lease to the Braun Building Company, who has continued to operate a wooden truss assembly operation in Building "D" while storing structural lumber in Building "B" and Building "C" (**Figure 9**). The Braun Building Company does not appear to be storing/using hazardous substances and/or petroleum as part of the truss assembly operation. Building "A" is subleased to McMullen and Pitz, who uses the building for boat and equipment storage. McMullen and Pitz does not appear to be storing/using hazardous substances and/or petroleum in Building 1. All remaining structures depicted on **Figure 9** are in the process of being vacated and are slated for demolition in 2024.

Since taking ownership, the CDA has maintained compliance with the required continuing obligations and no records have been identified indicating the CDA is considered potentially liable or known to be affiliated with any other person that is potentially liable for contamination at the Property.

1.5 ENVIRONMENTAL INVESTIGATION HISTORY

The City began assessment work in 2018 as part of pre-acquisition due diligence activities. Assessment and remedial planning work have continued into 2024 and are briefly summarized below.

Stantec (2019) Phase I ESA, River Point District
The Stantec (2019) Phase I ESA performed for the greater River Point District identified the following recognized environmental conditions (RECs) associated with the Property:

- REC 1: Prior Railroad Use
- REC 2: Prior Industrial Use
- REC 3: Residual Impacts to Soil and Groundwater
- REC 4: Apparent Anthropogenic Fill
- REC 5: Residual Impacts to Soil and Groundwater from Nearby Properties

Stantec (2020) Phase II ESA, River Point District
Stantec completed a Phase II ESA at the River Point District using funds from a hazardous substance and a petroleum brownfield assessment grant awarded to the City by the United States Environmental Protection Agency (USEPA) in 2018 under Cooperative Agreement Number BF 00E02377-0. Results of the Stantec (2020) Phase II ESA investigation at the Property are summarized below.

- Soil. Select volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and heavy metals were detected in soil at the Property at concentrations greater than applicable NR 720 residual contaminant levels (RCLs) and/or Background Threshold Values (BTVs; **Figure 11**). This investigation identified a sitewide heterogeneous granular black anthropogenic fill unit of varying quality. Ubiquitous soil impacts are largely attributable to the granular anthropogenic fill across the River Point District, which is present in thicknesses of up to eight feet (**Figure 10**).
- Groundwater. The potentiometric surface of shallow groundwater grades downward in a radial manner towards the Manitowoc River, which serves as a constant head boundary for groundwater (**Figure 12)**. Select VOCs, SVOCs, and/or dissolved heavy metals were detected in groundwater at concentrations greater than applicable ch. NR 140 Wisconsin Administrative Code (NR 140) Preventive Action Limits (PAL) and/or Enforcement Standards (ES). Per- and polyfluoroalkyl substances (PFAS) were detected

in groundwater at concentrations greater than proposed ES and PALs. Recent work has suggested the potential for VOC impacts to be migrating downgradient to the Property from the south-adjacent former bulk petroleum storage areas with cyanide impacts to groundwater likely migrating from the adjoining former manufactured gas plant (**Figure 13**).

Stantec (ongoing) Site Investigation, Phase 3 Redevelopment Area
In April 2023, Stantec submitted a Site Investigation Workplan (SIWP) to define the nature, degree, extent, and source(s) of contamination within the Phase 3 Redevelopment Area, which includes the northern portion of the River Point Distrcit. Implementation of the Stantec (2023a) SIWP is still in progress, but soil and groundwater sampling results to date are consistent with sampling performed by Stantec (2020). Additionally, Stantec (2023c) completed a Site Investigation Report for the south-adjoining Phase 2 Redevelopment Area in June 2023 which provided additional identification/delineation of impacts on the northern portion of the River Point District. Cumulative soil and groundwater observations and the extents of impacts from are illustrated on **Figures 10 through 13** and are summarized below.

- Soil Lithology. Surface soils at the Property consist of anthropogenic fill/reworked native soils, underlain by native sands and clays at depth. Either present at the surface or immediately underlying these limited surface materials is a sitewide black granular fill unit of varying thickness. A spatial analysis model illustrating the thickness and horizontal extent of the fill unit is illustrated on **Figure 10** and indicates approximately 3,300 cubic yards of black granular fill are present in the proposed Chicago Street ROW. Saturated conditions were generally encountered four feet below ground surface (ft bgs).

- Soil Quality. Assessment work completed by Stantec (2023c) further confirms VOCs, PAHs, RCRA metals, and (to a lesser extent) amenable cyanide are present in soil at concentrations greater than established regulatory soil standards, as further summarized below.

    - The source of residual PAH and RCRA metal impacts is attributable to the black granular fill unit present across the River Point District.
    - Amenable cyanide impacts to soil were limited in extent, and were only found in fill soils, where present; underlying native soils are not impacted by these COCs.
    - VOC impacts to soil were identified during prior assessment work by others and recently confirmed by Stantec (2023c). VOC impacts appear to be associated with prior south-adjacent bulk petroleum storage operations District which were previously investigated by others and subsequently closed by WDNR (ex. Holmes Oil Corp; BRRTS activity number 03-36-001962).

  Soil assessment work in the Phase 3 Redevelopment Area is still in progress, as the remaining sampling proposed in the Stantec (2023a) Site Investigation Workplan cannot be completed until the existing Property buildings on **Figure 9** are demolished. However, the horizontal and vertical extents of identified soil impacts have been sufficiently defined (**Figure 10 and Figure 11**) to facilitate the proposed cleanup work within the Project area.

- Physical Hydrogeology. The potentiometric surface of shallow groundwater at the River Point District has consistently decreased radially towards the Manitowoc River (**Figure 12**) and the elevation gradient suggests the Manitowoc River is a constant head boundary for shallow groundwater at the River Point District.

- Groundwater Quality**.** The extents of groundwater impacts near the Project are illustrated on **Figure 13.** In summary, petroleum VOCs and amenable cyanide were present in groundwater sampled within the Project area at concentrations greater than promulgated NR 140 standards. VOC impacts to groundwater were identified during prior assessment work by others and recently confirmed by Stantec (2023c). VOC impacts appear to be associated with prior south-adjacent bulk petroleum storage operations which were previously investigated by others and subsequently closed by WDNR (ex. Holmes Oil Corp; BRRTS activity number 03-36-001962).

Groundwater assessment work in the Phase 3 Redevelopment Area (including evaluation of amenable cyanide) is still in progress, as the remaining sampling proposed in the Stantec (2023a) Site Investigation Workplan cannot be completed until the existing Property buildings illustrated on **Figure 9** are demolished. However, the extent of identified groundwater impacts have been sufficiently defined to facilitate the proposed cleanup work within the Project area.

1.6 SUMMARY OF BRRTS CASES AT THE PROPERTY

02-36-585491 RIVERPOINT DISTRICT - LGU (Open ERP)
Environmental activities performed to date at the Property are tracked under BRRTS ERP case number 02-36-585491 "RIVERPOINT DISTRICT- LGU". As summarized in Section 1.7, previous site investigations performed at/near the Property between 2018 and 2024 indicated that various COCs are present in soil and groundwater at concentrations greater than health-based standards.

07-36-583000 RAILROAD PROPERTY (FORMER) (LGU/General Property)
This General Property listing documents the CDA was granted state LGU environmental liability exemption on March 18, 2019 for the River Point District.

1.7 CONTAMINANTS OF CONCERN AND EXPOSURE ROUTES

COCs and exposure routes were evaluated for the Property relative to NR 720 residual contaminant levels (RCLs) for soil and NR 140 ESs and PALs for groundwater quality.

- Soil. As noted in Section 1.5, soil COCs primarily consist of PAHs and RCRA metals associated with sitewide black granular fill, with less significant soil impacts from VOCs and amenable cyanide. These COCs exceed direct contact RCLs (**Figure 10** and **Figure 11**) and therefore must be addressed to facilitate non-industrial redevelopment of the Property.
- Groundwater. As noted in Section 1.5, groundwater COCs include VOCs and amenable cyanide at concentrations greater than NR 140 standards (**Figure 13**). Groundwater impacts must be addressed to facilitate non-industrial redevelopment at the Property.

1.8 ENVIRONMENTAL RISK EVALUATION

Environmental risk has been evaluated for the Property based the erosion control plan (Sheets C1.01 – C1.02) and grading plan (Sheet C3.01) of the River Point – Phase 3 Bid Set included as **Appendix A.** This proposed RAP/MMP is intended to manage environmental risk and establish a constructible and cost-effective approach to facilitate Property redevelopment.

The RAP presented in Section 2.0 and MMP presented in Section 3.0 will prevent or minimize adverse environmental impacts and potential threats to human health and welfare, including worker safety. Each potential exposure and migration pathway of concern is addressed below.

Vapor Intrusion. The Property is being redeveloped as a road ROW. Structures currently present on/adjacent to the Property are in the process of being vacated for demolition in 2024/2025. No buildings are being reconstructed on the Property, as redevelopment will result in road ROW. Therefore, vapor intrusion is not a pathway of concern for the Chicago Street ROW. Vapor intrusion assessment for future developments to the north and/or south of the Property will be addressed as part of future RAP/MMP submittals.

Sediment/Surface Water. Based on the nature and extent of identified groundwater impacts, migration of groundwater impacts does not appear to be a significant threat to sediment or surface water. Additionally, the CDA will maintain ownership of the proposed ROW. Provided that the stormwater best management practices described in the future Notice of Intent (to be filed by the CDA) are followed during construction, residual soil impacts at the Property should not pose a threat to sediment or surface water.

Wetlands. Stantec conducted a search on the WDNR (2024b) Surface Water Data Viewer on April 4, 2024 to determine whether wetlands and critical habitat areas were present/absent at the Property; the review determined that no wetlands or critical habitats are present the Property (WDNR, 2024b).

Air Quality. Impacted soils will be capped with an engineered barrier, which will limit volatilization of residual petroleum VOCs. Construction methods will include best management practices to limit particulate emissions. Contractors will be required to adequately wet soil during dry periods to prevent visible emissions.

Direct Contact Risk. The current zoning of the Property is Central Business B-4 (**Figure 4**), with a proposed development/reuse as the Chicago Street ROW. After the surface in the ROW is finished, the direct contact pathway will be mitigated by finishing the engineered barriers illustrated on **Figure 5**, and the barriers maintained with an institutional control. Construction and remediation worker exposure will be managed by the Contractor through enforcement and compliance with approved Occupational Health and Safety (OSHA) compliant health and safety protocols detailed in project health and safety plans. Each Contractor will be responsible for preparing and following their health and safety plan. As illustrated on **Figure 5**, the surfaces of adjacent parcels will be finished with a variety of engineered barriers which will be described in future RAP/MMP submittals.

Groundwater Quality/Water Supply. Though there are areas on the Property where groundwater has been adversely impacted by COCs, the extent of groundwater contamination has been largely defined. City residents receive potable water from Lake Michigan. No water supply wells are present on the Property. Stantec conducted a search for nearby groundwater wells using the WDNR (2024c) Well Construction Information System on April 4, 2024; there are no known public or private wells located within 1,200 feet of the Property (WDNR, 2024c); therefore, the migration potential of contaminants in groundwater at the Property to water supply wells is very low.

Existing Utilities. As depicted on the Utility Plan & Profile Sheet (C4.03) included in **Appendix A**, a natural gas service lateral extends to the eastern-most building on/adjacent to the Property, which is slated for demolition in 2024. There are no other existing underground utilities at the Property. Overhead electrical utilities are present north of the proposed project area. Based on the extent of soil/groundwater impacts defined on the Property, it does not appear that contamination has migrated along former utilities and/or associated utility trenches.

Future Utilities. When soils have undergone suitable settlement and compaction, new utilities and streetscape will be installed within the future road ROWs on the Property to support future residential and commercial redevelopment at the River Point District (Sheet C4.03; **Appendix A**). The spoil generated during utility installation/trenching may include existing impacted granular fill or potentially impacted fill that will be placed as part of this RAP/MMP. Utility installation is not anticipated to encounter groundwater at the Property. Impacted fill materials excavated as part of utility installation will be transported offsite for disposal at a licensed solid waste landfill.

Due to the granular and heterogenous nature of Property soils and aquifer, and the nature of groundwater impacts combined with the elevations of proposed utilities, the installation of these new utilities is not expected to exacerbate contaminant transport. As a best management practice, a clean clay cut-off wall will be installed in the utility trench(es) at the Property boundary to reduce the risk for contaminant migration onto or through the Property,

2.0 REMEDIAL ACTION PLAN

As illustrated on **Figure 5**, the surfaces of adjacent parcels will be finished with a variety of engineered barriers which will be described in future RAP/MMP submittals. As such, the Remedial Action Plan (specifically engineered barriers described in Section 2.5 and continuing obligations described in Section 2.8) described in this section only pertains to the ROW targeted for this remediation work. The remedial approach for Property construction includes:

- Management of impacted soil/fill materials onsite to the extent practicable;
- Excavation and offsite disposal of impacted fill/soils if disturbed during utility installation;
- Raising the grade of the Property by importing clean fill and constructing a variety of engineered barriers (**Figure 5**) with adherence to a future, approved maintenance plan; and
- Establishing continuing obligations/institutional controls (GIS Registry of Closed Remediation Sites).

This approach will meet remedial objectives for the Project by:

- Beneficial reuse of contaminated soil, while managing overall construction and post-construction monitoring and maintenance costs;
- Preventing contact with contaminated soils; and
- Reducing migration of contaminated groundwater through the construction of an engineered barrier.

This remedial approach was selected such that the final use of the Property is protective of public health, safety, and welfare and incorporated in the project design and construction specifications while managing overall costs.

2.1 SOIL IMPORT AND GRADING PLAN

Project grading information is included on the Grading Plan exhibit (Sheet C3.01) of the River Point – Phase 3 Bid Set in **Appendix A**. Project construction work is scheduled to start in April 2024 with the importation, compaction, and grading of approximately 10,000 cubic yards of fill required to raise the grade in the proposed Chicago Street ROW between three and 10 feet above initial grade.

Imported fill will largely consist of soils sourced from the Rapids Road ROW reconstruction project in Manitowoc, Wisconsin. This material was characterized by Stantec (2024b) on April 3, 2024 and a letter report describing sampling results and proposed use within the Chicago Street ROW was submitted to WDNR. The proposed fill is described as:

- Soil observations. In March 2024, Stantec collected 20 discrete soil samples (plus one field duplicate) within the Rapids Road ROW for characterization as potential fill for the Chicago Street ROW. Rapids Road ROW soils consisted largely of rooted topsoil underlain by well-graded sands and gravels, with some areas of high plasticity clay. No waste materials, elevated photoionization detector readings, odors or evidence of staining was observed in any sample.

- Analytical results: VOCs were not present in the target fill at quantifiable concentrations greater than health-based standards. The concentrations of lead in several sample locations were greater than the soil to groundwater RCL, but did not exceed direct contact RCLs (consistent with fill soils currently present across the River Point District). Several PAH constituents were detected at concentrations greater than the non-industrial direct contact RCL and/or groundwater protection RCL. To assess the cumulative impact of these PAH detections, particularly for carcinogenic PAHs (cPAHs), a risk assessment using the WDNR cPAH calculator was completed. The cPAH assessment determined that approximately half of the material exceeded cPAH cumulative risk thresholds.

- Suitability for use in Chicago Street ROW. Following discussion with WDNR soils generated as part of the Rapids Road ROW street reconstruction are suitable for use as fill material in the Chicago Street ROW, provided that they are placed and managed in the following manner illustrated on Figure 5b (note the top of the existing black granular fill is lined in red on Figure 5b):

    - **cPAH impacted soil.** Soils with PAH concentrations greater than cPAH cumulative risk thresholds (approximately 5,000 cubic yards) are considered to exceed direct contact RCLs and must therefore be capped with material not exceeding direct contact RCLs. To accomplish this, cPAH impacted soils are to be placed first (i.e., at the bottom) while filling at the Chicago Street ROW. Following placement, the top of the cPAH impacted soil surface shall be surveyed prior to placement of additional fill for construction documentation. The top of the cPAH impacted soil is lined in orange on Figure 5b.

    - **Non-cPAH impacted soil**. Soils with PAH concentrations less than cPAH cumulative risk thresholds (approximately 5,000 cubic yards) are considered to be below direct contact RCLs. This soil will be placed on top of the cPAH impacted soils to act as an interim direct contact cap prior to final engineered barrier (i.e., paving) and finishing of the Chicago Street ROW. The top of the non-cPAH impacted soil is lined in green on Figure 5b.

2.2 SOIL MOVEMENT AND MANAGEMENT

An erosion control plan and a grading plan for the Property are depicted on Sheets C1.01 - C1.02 and C3.01 of the River Point – Phase 3 Bid Set included in **Appendix A**, respectively.

Approximately 10,000 cubic yards of fill will be imported to the Property to achieve the proposed grade. Imported fill will consist of the Rapids Road ROW soil described in Section 2.1. Additional clean structural fill may need to be imported from a commercial quarry and used as utility trench backfill, as appropriate.

Importation of fill and grading are proposed to start as early as possible at the Property (Spring 2024) to maximize the amount of time for settlement and associated monitoring to occur due to the compressible nature of existing River Point District soils, and to provide infrastructure/access to the northern portion of the River Point District for future proposed residential development in 2024/2025.

Impacted fill materials excavated as part of utility installation will be transported offsite for disposal at a licensed solid waste landfill. Due to the granular and heterogenous nature of Property soils and aquifer, and the nature of groundwater impacts combined with the elevations of proposed utilities, the installation of these new utilities is not expected to exacerbate contaminant transport. As a best management practice, a clean clay cut-off wall will be installed in the utility and water line trench(es) at the Property boundary to reduce the risk for contaminant migration onto or through the Property,

Proposed soil handling and placement procedures will meet environmental closure requirements of Chapter NR 726.13(b) WAC and shall not pose an unacceptable threat to public health, safety, welfare or the environment. If encountered, soils/fill excavated or cut during utility construction will be managed consistent with requirements of Chapter NR 718 WAC. A MMP included as Section 3.0 of this submittal has been developed to manage soil within the Project boundaries in a manner that does not expand the current limits of contamination, exacerbate existing groundwater contamination risks, or create new risks such as a direct contact risk.

Significant dewatering is not anticipated during the Project. Groundwater or stormwater that requires removal from the excavations will be characterized and managed appropriately by the Contractor.

2.3 CONSTRUCTION OBSERVATION

Construction observation will be performed by a qualified environmental engineer/consultant and will focus on specific remedial objectives. The following tasks will be performed:

- Observe and document (including photographs) appropriate phases of remediation activities, including equipment and materials, and provide recommendations to the Contractor for those not meeting specifications or special provisions.
- Make regular site visits to ensure the Contractor is complying with requirements of the approved RAP/MMP and obtaining the information necessary for preparation of the construction documentation report.
- Keep site visit notes, logs, photographs, and other pertinent information to prepare a record of the Contactor's work related to materials management, cap installation, and solid waste management.

2.4 ENVIRONMENTAL MONITORING

Stantec (2024c) abandoned the potentially affected monitoring wells in the Project area to facilitate filling of the ROW. If future monitoring is required, a monitoring program will be designed and implemented post-construction.

2.5 ENGINEERED SURFACE BARRIER

Due to the presence of impacted fill/soil across the Property (**Figure 10**) and additional soil impacts (**Figure 11)**, impacted soils will be managed long-term with a sitewide engineered barrier consisting of a combination of porous and non-porous surfaces (**Figure 5**).

As shown on **Figure 5** and in **Appendix A**, the Property is being redeveloped as a ROW and will provide access to municipal infrastructure, landscaping, future townhome development(s), and space for additional commercial businesses. To accommodate this desired future use, the proposed cap is intended to support a non-industrial end use.

In accordance with Chapter NR 718.12 (2) WAC, NR 140, and NR 720, direct contact or groundwater migration concern will be addressed through an engineered surface barrier (cap). This cap will consist of the following:

- Hardscape (e.g., asphalt and/or concrete streetscapes, curbs and sidewalks); and
- A 24-inch soil cap in softscape/landscape areas, with no less than 19 inches of clean imported granular or clay fill covered with five inches of imported topsoil finished in grass.

Given the low permeability of the cap materials, the cap will serve as an infiltration barrier to prevent further migration of contaminated groundwater. Construction practices for the placement of the final engineered barrier for the Property are discussed in Section 3.7.

2.6 CONSTRUCTION DOCUMENTATION REPORT

A Chapter NR 724 WAC construction documentation report will be submitted following the completion of Project construction and remedial actions. The report will document that the completed final remedial action meets or exceeds the design criteria and that the plans and specifications were developed in accordance with the requirements of Chapter NR 724.15 WAC. Construction observation and contingency procedures are discussed in Section 3.9.

2.7 PERMITTING

Stantec understands all appropriate construction permits will be obtained by the Contractor for the Project.

2.8 CONTINUING OBLIGATIONS

Continuing obligations/institutional controls will provide future control of the direct contact pathway and provide a mechanism to maintain the integrity of the engineered barriers in the ROWs constructed in the River Point District. Specifically, the Chicago Street ROW will be placed on the WDNR online GIS Registry for sites with

residual soil and groundwater contamination and will have an approved cap maintenance plan which describes requirements for annual cap inspection and timely repair of any damaged/deteriorated areas.

3.0 MATERIALS MANAGEMENT PLAN

The surfaces of adjacent parcels will be finished with a variety of engineered barriers which will be described in future RAP/MMP submittals. As such, the MMP described in this section (including the cap described in Section 3.7 and schedule described in Section 3.8) only pertains to the proposed ROW.

3.1 LOCATIONAL CRITERIA

Within a floodplain: No

Within 100 feet of any wetland or critical habitat area: No

Within 300 feet of any navigable river, stream, lake, pond, or flowage: Yes, Manitowoc River. However, as noted above and further in Section 3, an engineered barrier will be constructed at the Property. Therefore, the Manitowoc River will not be impacted by onsite management of impacted granular fill materials.

Within 100 feet of any on-site water supply well or 300 feet of any off-site water supply well: No

Within 3 feet of the high groundwater level: Impacted granular fill materials are currently within 3 feet of the high groundwater level and are not proposed to be disturbed as part of Project construction. Therefore, continued management of onsite granular fill materials is not anticipated to exacerbate current conditions.

At a depth greater than the depth of the original excavation from which the contaminated soil was removed: No

Explanation of why granting an exemption to the Wis. Admin. Code § NR 718.12 (1) (c) will be addressed by the proposed management. Construction of a sitewide barrier in the ROW (**Figure 5**), that when maintained with a continuing obligation, will mitigate the direct contact risk and the risk for mobilization of the granular fill during stormwater and/or flood events.

The following information is provided to support proposed onsite materials management.

Fill Characteristics and Quantities. As noted in Section 1.5, COCs for existing soils within the Project area primarily consist of PAHs and RCRA metals associated with sitewide black granular fill, with less significant impacts from PVOCs and amenable cyanide. These COCs exceed direct contact RCLs (**Figure 10 and Figure 11**) and therefore must be addressed to facilitate non-industrial redevelopment of the Property.

Geologic and Hydrogeologic Characteristics. As noted in Section 1.5, petroleum VOCs and amenable cyanide were present in groundwater sampled within the Project area at concentrations greater than promulgated NR 140 standards. The proposed non-industrial redevelopment of the Property includes construction of sitewide engineered barriers, which will be maintained with continuing obligation(s). The continuing obligation(s) will prevent direct contact with residual groundwater impacts while natural attenuation continues to reduce residual impacts.

As a conservative best management practice, clay dams/plugs will be installed at the Property boundary in utility and water line trenches, which include coarse bed and backfill material, to minimize the potential for contaminant migration.

Significant dewatering is not anticipated at this time. Groundwater or stormwater that requires removal will be characterized and managed appropriately by the Contractor.

Compliance with Other State and Federal Regulations. Soil management will follow other state and federal regulations and additional permits and approvals obtained as needed. The entire area will be managed as a construction site with proper erosion control and the soil will be managed per approved material management and capping plans for the Property designed to be protective of human health and the environment. Remaining soil impacts will be capped with an engineered barrier described in Section 2.5. Erosion control measures will

be taken to prevent the potential runoff or surface migration of contaminants during construction per any necessary permits (refer to the grading and erosion control plan exhibit [Sheets C1.01 - C1.02] of the River Point – Phase 3 Development Set included in **Appendix A**).

3.2 SITEWIDE PRELIMINARY GRADING

Project grading information is included on the Grading Plan exhibit (Sheet C3.01) of the River Point – Phase 3 Bid Set in **Appendix A**. Project construction work includes importing, compacting, and grading approximately 10,000 cubic yards of clean fill to raise the grade of the Property between three and 10 feet above current grade and provide weight/pressure to compress the underlying organic/compressible soils. Preliminary grading and compaction will be performed as early as possible at the Property (April 2024) to provide the amount of time for the required settlement of these filled areas prior to future streetscape and/or utility installation. The preliminary grading will serve as an immediate barrier for direct contact until final streetscape/utility work (**Figure 5**) is completed later in 2024.

3.3 NEW UTILITY INSTALLATION

When soils have undergone suitable settlement and compaction, new utilities and streetscape will be installed within the future road ROWs on the Property to support future residential and commercial redevelopment at the River Point District.

Future work includes the installation of sanitary sewer and potable watermain infrastructure. Impacted fill materials excavated as part of utility installation will be transported offsite for disposal at a licensed solid waste landfill. Due to the granular and heterogenous nature of Property soils and aquifer, and the nature of groundwater impacts combined with the elevations of proposed utilities, the installation of these new utilities is not expected to exacerbate contaminant transport. As a best management practice, a clay plug will be installed in the utility trench at the Property boundary to reduce the potential for contaminant migration.

3.4 SOIL MOVEMENT AND MANAGEMENT

In general, the Contractor will document the movement of imported and excavated materials at the Property. Material displaying obvious contamination or containing deleterious material (ex. brick, wood, or possible waste) will be segregated from other soils encountered on the Property and managed via a separate disposal stream, where warranted.

Impacted materials encountered during future utility installation will be transported offsite for disposal at a licensed solid waste landfill. Should it be necessary to place cut material in stockpiles, the stockpiles will be maintained in general accordance with Chapter NR 718.05 WAC.

3.5 OFFSITE DISPOSAL OF CONTAMINATED MATERIALS

As the Property requires a large amount of fill for grading as part of the project, significant offsite disposal of soil or fill sourced from the Property is not anticipated. As discussed in Section 3.3, impacted materials encountered during utility trenching will be transported offsite for disposal at a licensed solid waste landfill. If free flowing groundwater and/or accumulated stormwater is encountered in the excavations, fluids will be removed for offsite treatment and disposal.

3.6 POTENTIALLY CONTAMINATED MATERIALS AND OTHER MATERIALS

Surface Water and Groundwater Management
Dewatering is not anticipated during Property construction.

To assess and prevent run-off, erosion, and stormwater control during construction activities on the Property, the Contractor will submit a final Erosion Control Plan as part of the required Chapter NR 216 Notice of Intent submittal.

Management of Vegetation from Clearing and Grubbing
The majority of vegetation on the Property was cleared and grubbed in Fall 2020. Any remaining woody materials requiring removal from the Property as part of Project construction will be managed by the Contractor for offsite disposal.

Additional Materials
Other materials associated with prior railroad or industrial uses may be encountered during redevelopment. Solid wastes (if encountered) will be transported offsite for proper disposal at a licensed landfill. Potentially hazardous wastes, if encountered, will be characterized appropriately and transported offsite for appropriate management.

3.7 ENGINEERED CAP

The surfaces of adjacent parcels will be finished with a variety of engineered barriers which will be described in future RAP/MMP submittals. A description of the engineered barrier is provided below.

Site Cover System
As described in Section 2.5 and illustrated on **Figure 5**, an engineered barrier will cover the entire Property and will consist of asphalt, concrete, and landscaping. Where a soil cover (cap) system is required (ex. landscaping), the final cap will consist of a minimum of 19 inches of clean fill soil followed by placement of five inches of clean topsoil. This material will either come from characterized soil from municipal projects or granular fill imported from a quarry. Topsoil will be seeded and vegetated to reinforce and maintain the soil cap.

Cover System Placement
The Contractor will have a field representative present during soil cover system placement activities at the Property. Stantec anticipates that filling, rough grading and construction will be completed in Summer 2024.

Stantec anticipates that the placement of the final cap (paving, landscaping and seeding) on the Property will occur in 2025 following utility installation. Erosion and stormwater control at the Property will follow WDNR Best Management Practices (BMPs). As discussed in Section 3.6, The Contractor will be held to the requirements for a final Erosion Control Plan as part of the required Chapter NR 216 Notice of Intent submittal.

3.8 SCHEDULE

Importing and placing fill in the Chicago Street ROW is estimated to be completed by Summer 2024. The general planned sequence of work is as follows:

- Mobilization;
- Installation of erosion control measures BMPs;
- Sitewide grading and compaction (to allow for settlement prior to utility installation);

Utility installation is targeted for winter of 2024 and final grading, capping and establishing vegetation within the Project area is scheduled for 2025.

3.9 CONSTRUCTION OBSERVATION AND CONTINENCY PROCEDURES

Construction observation will be performed by a qualified environmental engineer/consultant to document the source/placement/compaction of imported materials. Once soils are sufficiently compacted, construction observation objectives will include utility excavation oversight and final cap construction. Excavated materials will be monitored by onsite personnel for the presence of:

- Strong or unusual odors indicative of petroleum impacts;
- Unusual soil discoloration not previously noted;
- Change in soil conditions not previously noted; and
- Possible industrial or solid waste (e.g., slag, cinders, tires, etc.).

If any of the above or other suspect materials are unexpectedly identified during utility excavation operations, excavation in this area will be suspended until the materials encountered are evaluated for proper management methods. The City's onsite representative and the general Contractor will evaluate unusual situations on a case-by-case basis to determine the appropriate alternative response required. In each situation, the City's onsite representative will direct the Contractor on proper disposal of the material. The protocol when such unusual or changed conditions arise is as follows:

- If the material encountered is unplanned or unexpected, stop work immediately within the general area of the discovery until directed otherwise by the field representative. The Contractor may continue working in a different area if one is available.
- The City's onsite representative will document the location where the discovery was made, the material type, volume, and characteristics.
- As directed by the City's onsite representative, the Contractor shall temporarily stockpile the material and cover the material with plastic.
- If necessary, the City or their designee will develop a plan for more permanent remediation or management of the newly discovered material including material handling alternatives, staging requirements, additional sampling and analyses, and additional characterization profiling for disposal and/or reuse. The Contractor shall have, and understand, the plan prior to continuing work in the affected area.
- The City or its designee will complete the required additional notifications to WDNR, if warranted, and direct Contractor in the loading, manifesting, and transport if offsite disposal is required.

These records will be accumulated throughout the duration of the construction project and will be incorporated into post-construction documentation.

4.0 CONCLUSIONS

This RAP/MMP was developed to guide the management of materials impacted with a variety of COCs during the upcoming ROW construction and utility installation in Chicago Street. Project construction work includes importing, compacting, and grading approximately 10,000 cubic yards of fill to raise the grade of the Property between three and 10 feet above current grade. The finished surface of the ROW will be constructed to serve as an engineered barrier, finished with hardscape (ex. concrete curbs/sidewalks and/or asphalt-paved streetscape) or landscaping (consisting of a minimum of 19 inches of clean fill plus five inches of clean topsoil finished with grass) to prevent direct human contact with contaminated soil and fill material and reduce leaching of residual impacts to groundwater.

Continuing obligations/institutional controls will provide future control of the direct contact pathway and provide a mechanism to maintain the integrity of the engineered barriers in the Chicago Street ROW. The Project area will be placed on the WDNR online GIS Registry for sites with residual soil and groundwater contamination and will have an approved cap maintenance plan which describes requirements for annual cap inspection and timely repair of any damaged/deteriorated areas.

5.0 REFERENCES

Stantec, 2019, 10th Street Railroad Property, Manitowoc, Wisconsin, Phase I Environmental Site Assessment, March 21, 2019.

Stantec, 2020, Phase II Environmental Site Assessment, Riverpoint District; Manitowoc, Wisconsin, March 23, 2020.

Stantec, 2023a. Site Investigation Workplan, Phase 3 Construction Area of the River Point District; Manitowoc, Wisconsin, April 7, 2023.

Stantec, 2023b. Remedial Action Plan & Materials Management Plan; Phase 2 Redevelopment Area; River Point District; Manitowoc, Wisconsin; River Point Drive Rights of Way, June 2, 2023.

Stantec, 2023c. Site Investigation Report, River Point District Phase 2 Construction Area; Manitowoc, Wisconsin, June 2, 2023.

Stantec, 2024a, Interim Construction Documentation Report – River Point Drive Rights of Way and Adjacent Future Multi-Family Residential and Commercial Parcels, January 19, 2024.

Stantec, 2024b, Characterization of Soil in Rapids Road (Waldo Boulevard to Menasha Road) Right of Way; Manitowoc, Wisconsin, April 3, 2024.

Stantec, 2024c, Well Sealing Documentation, River Point District, Phase III Redevelopment Area, April 5, 2024.

WDNR, 2024a, Wisconsin Department of Natural Resources RR Sites Map, accessed by Whitney Cull (Stantec), April 4, 2024.

WDNR, 2024b, Wisconsin Department of Natural Resources Surface Water Data Viewer, accessed by Whitney Cull (Stantec), April 4, 2024.

WDNR, 2024c, Wisconsin Department of Natural Resources Well Construction Information System, accessed by Whitney Cull (Stantec), April 4, 2024.

6.0 LIMITATIONS

The conclusions in this letter are Stantec's professional opinion, as of the time of the letter, and concerning the scope described in the letter. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. This letter relates solely to the specific project for which Stantec was retained and the stated purpose for which the letter was prepared. This letter is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from the City and the CDA and third parties in the preparation of this letter to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This letter is intended solely for use by the City and the CDA in accordance with Stantec's contract with the City and the CDA. While this letter may be provided to applicable authorities having jurisdiction and others for whom the City and the CDA is responsible, Stantec does not warrant the services to any third party. This letter may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

FIGURES

Figure No.
1

Title
Property Location and Regional Topography

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

0 395 790 Feet

Prepared by HLB on 4/15/2024

Legend

N

- River Point District
- Chicago Street Rights of Way
- River Point Drive Rights of Way

NOTE:
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

Figure No.
2

Title
Property Location and
2020 Orthophotograph

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

0 125 250 Feet

Prepared by HLB on 4/15/2024

N

Legend

- River Point District
- Chicago Street Rights of Way
- River Point Drive Rights of Way

NOTE:
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

Figure No.
3

Title
Property Location and Parcel Identification Numbers

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

0 40 80 Feet

Prepared by HLB on 4/15/2024

Legend

N

- River Point District
- Chicago Street Rights of Way
- Parcel Identification Numbers

NOTE:
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

Figure No.
4
Title
Property Location and Zoning

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

Prepared by HLB on 4/15/2024

0 130 260
Feet

N

Legend

- River Point District
- Chicago Street Rights of Way
- Parcels

Zoning

- B-1 Office - Residential
- B-2 Neighborhood
- B-3 General
- B-4 Central
- C-1 Commercial
- I-1 Light Industrial
- I-2 Heavy Industrial
- P-1 Conservancy
- R-1 Residential -
- R-2 Single Family
- R-3 Single Family
- R-4 Single and Two Family
- R-5 Low Density Multiple Family
- R-6 Multiple Family
- R-7 Central

Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

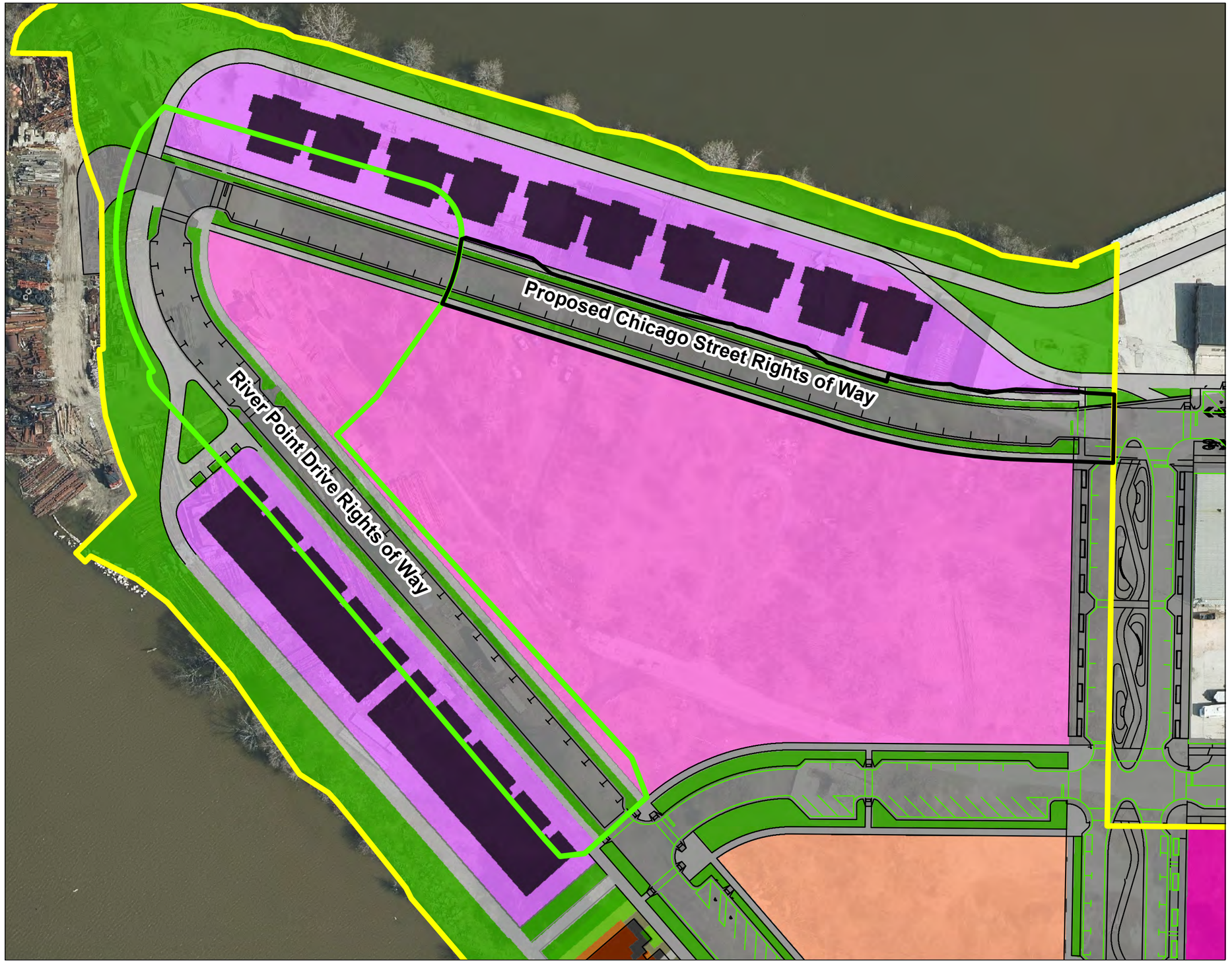


Figure No.
5

Title
Proposed Reuse and Engineered Barriers

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

0 65 130 Feet

Prepared by HLB on 4/15/2024

Legend

N

- Chicago Street Rights of Way
- River Point District
- River Point Drive Rights of Way

Proposed Redevelopments

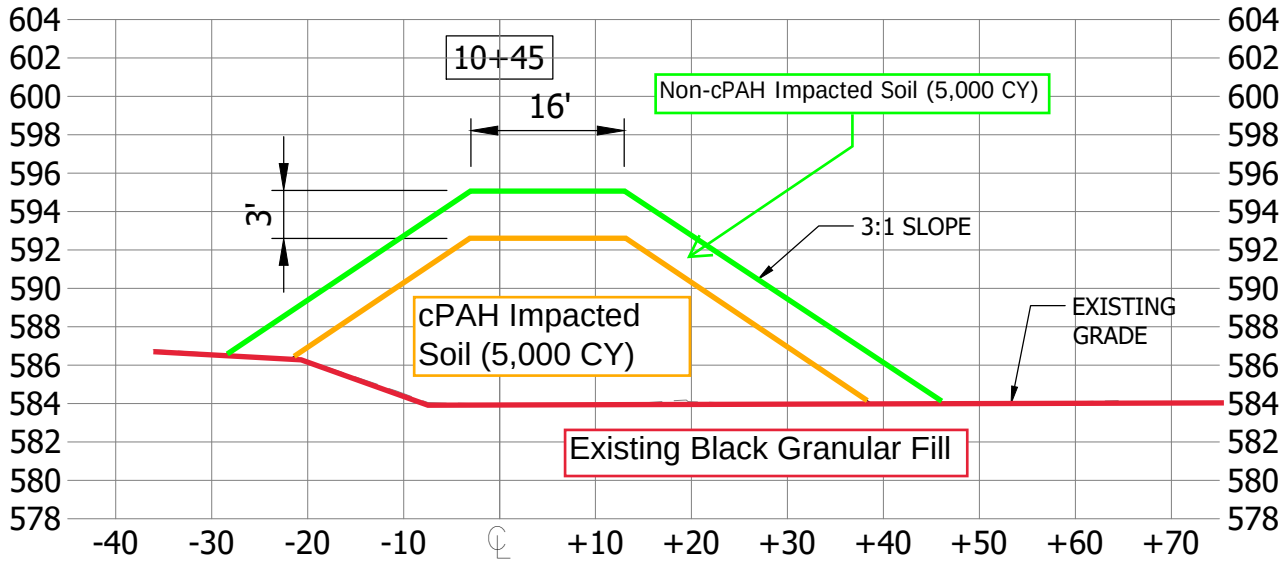
Notes

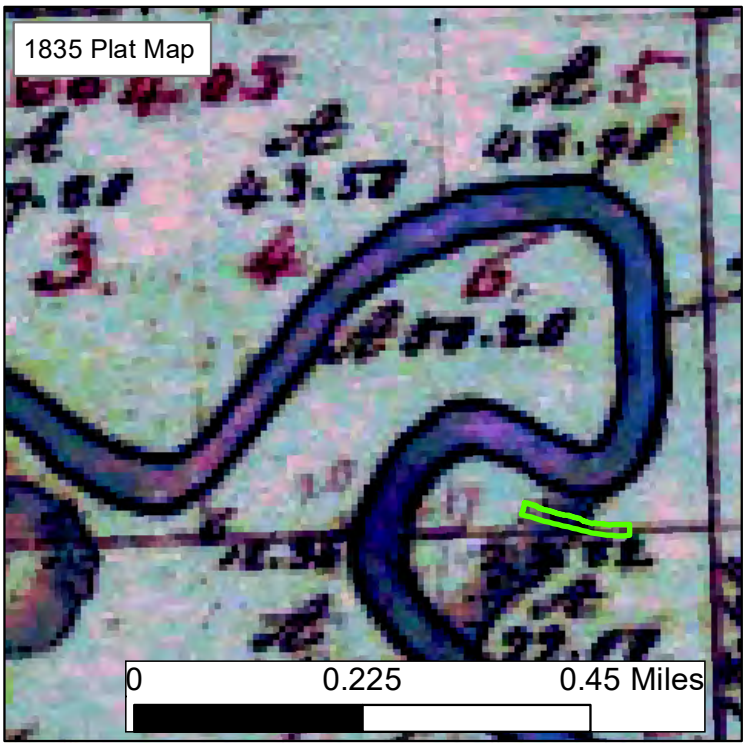
- Buildings (Conceptual)
- Town Homes (2025-2026)
- Town Homes (2024-2026)
- Commercial (Finished)
- Roadway (2021-2026)
- Landscaping (2023-2026)
- Multi-Family Residential (2025-2026)
- Sidewalk (2025-2026)
- River Walk / Park (2023-2026)
- Proposed Commercial (2025-2026)

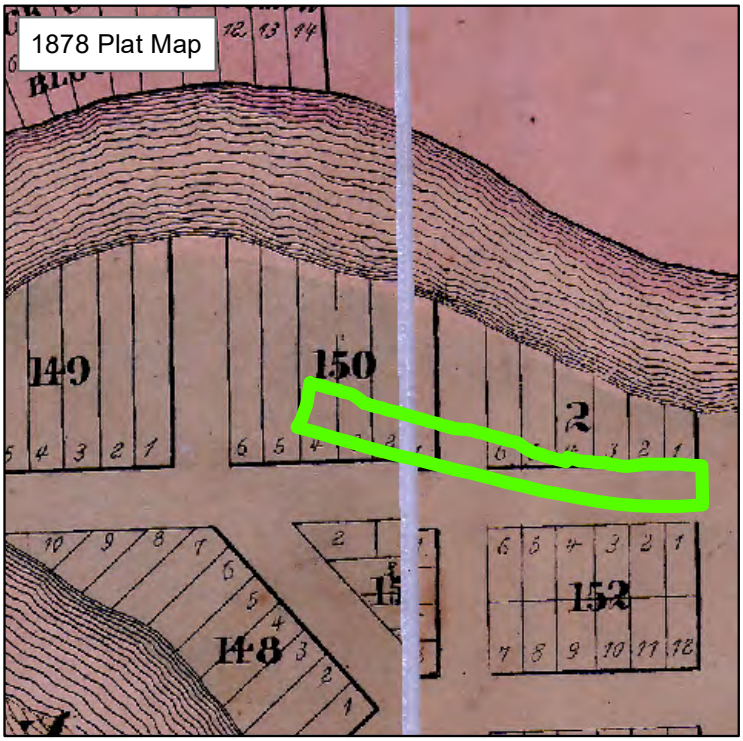
Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020

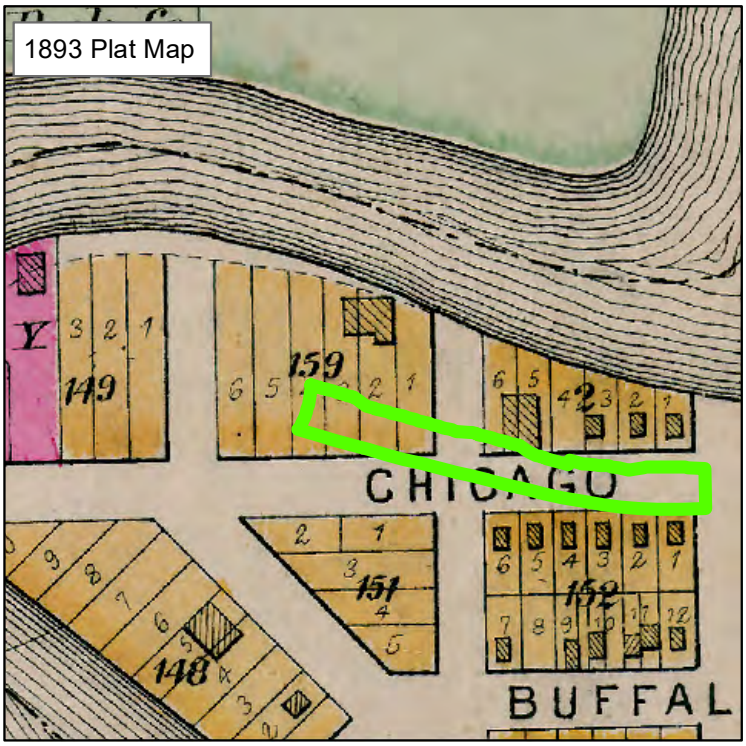
Stantec

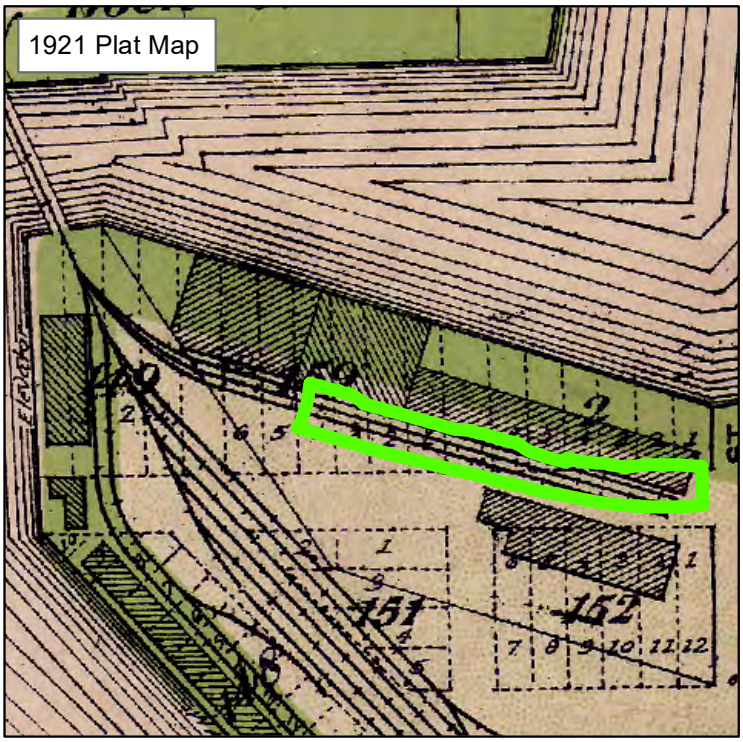
Figure 5B - Cross-Section of Proposed Filling in the Future Chicago Street Rights of Way











State Location

County Location

Legend

Chicago Street Rights of Way

0 195 390 780 Feet

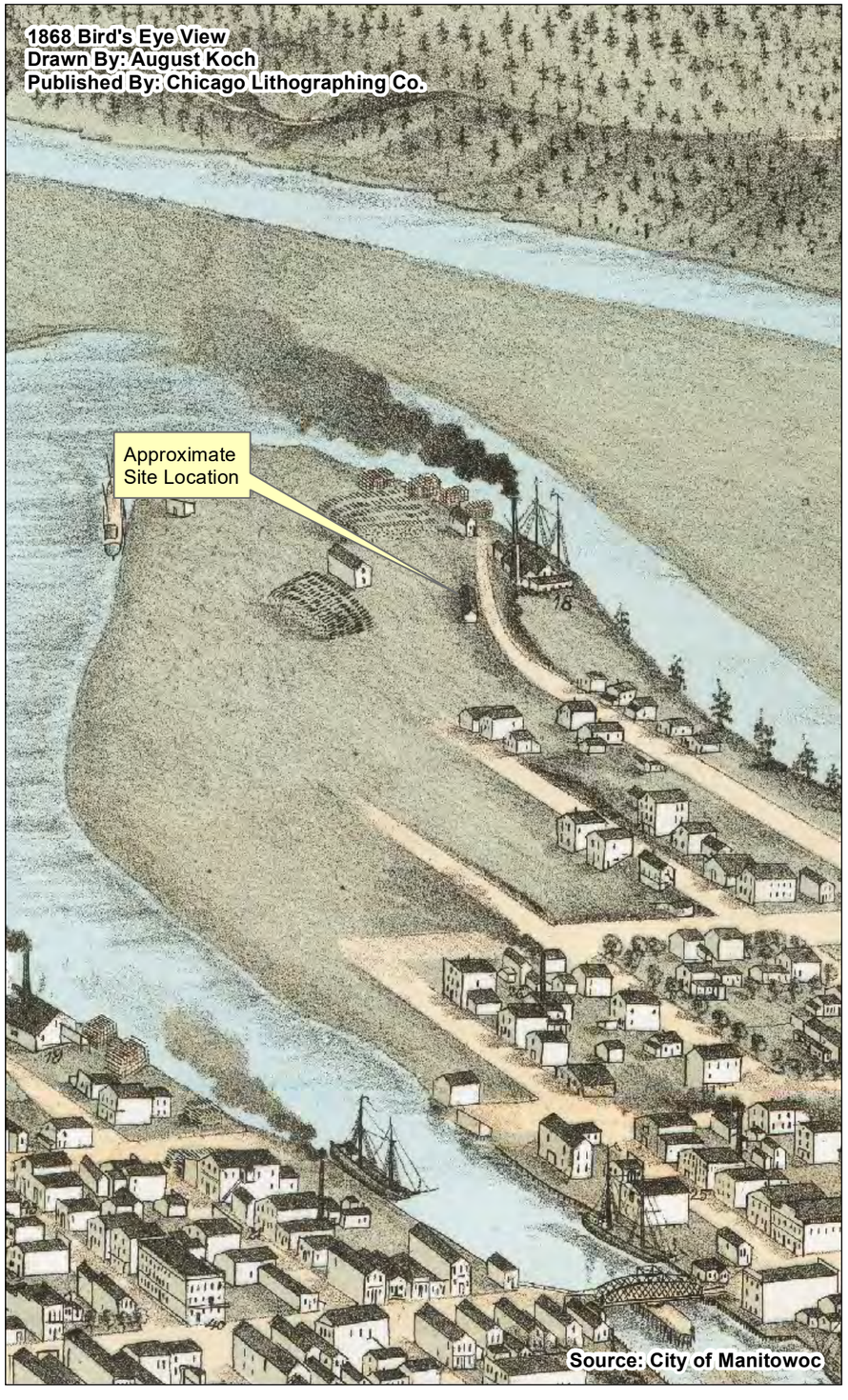
N

Stantec
12075 Corporate Parkway
Suite 200
Mequon, WI 53092
(262) 643-9174

Chicago St ROW
Manitowoc, Wisconsin

Figure 6a
Historic Plat Maps

DWG: 03.mxd
DATE: April 2024
PROJ NO.



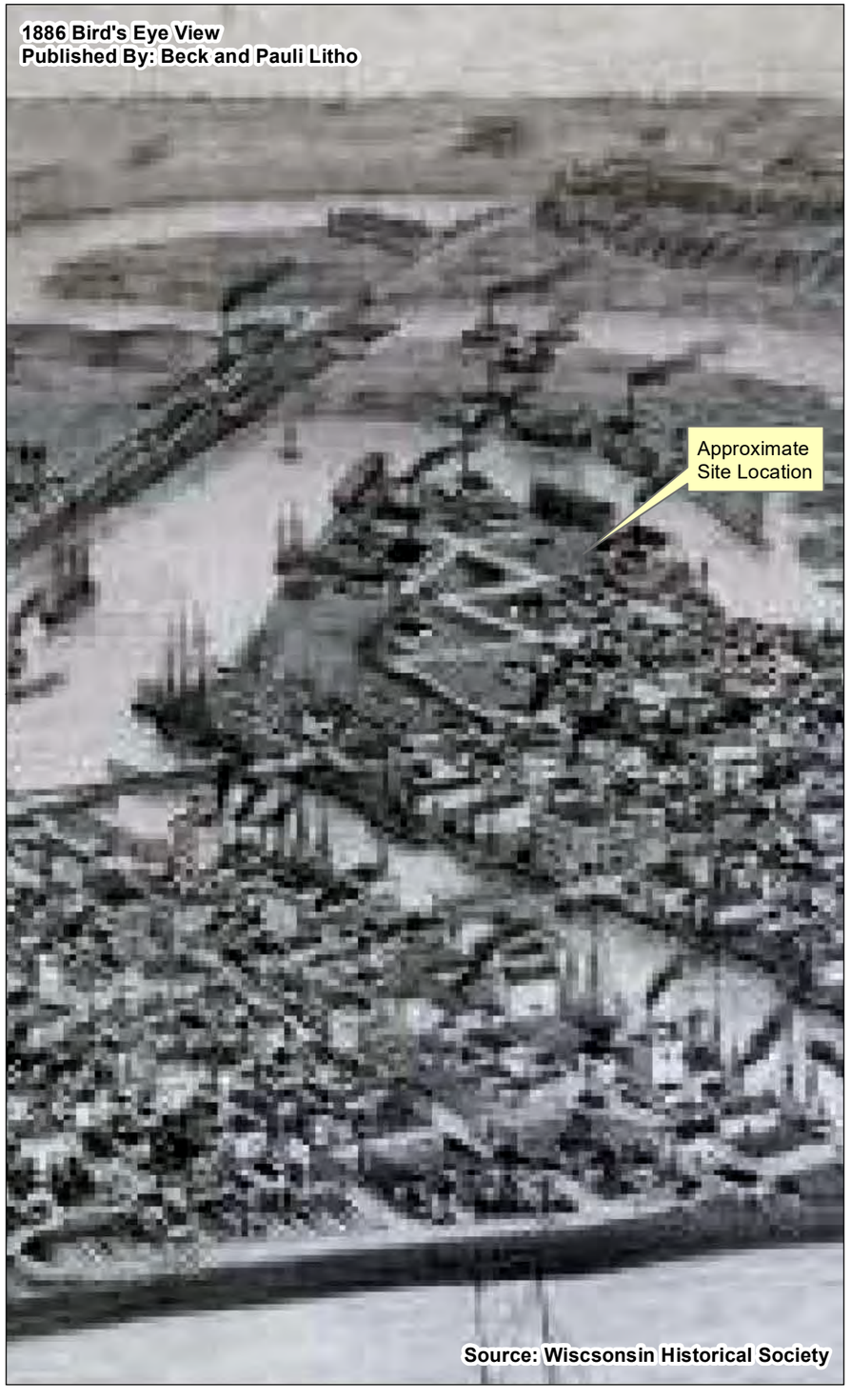


Figure No.
6b

Title
Project Area and 19th Century Birdseye Maps

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

Prepared by HLB on 4/15/2024

Stantec

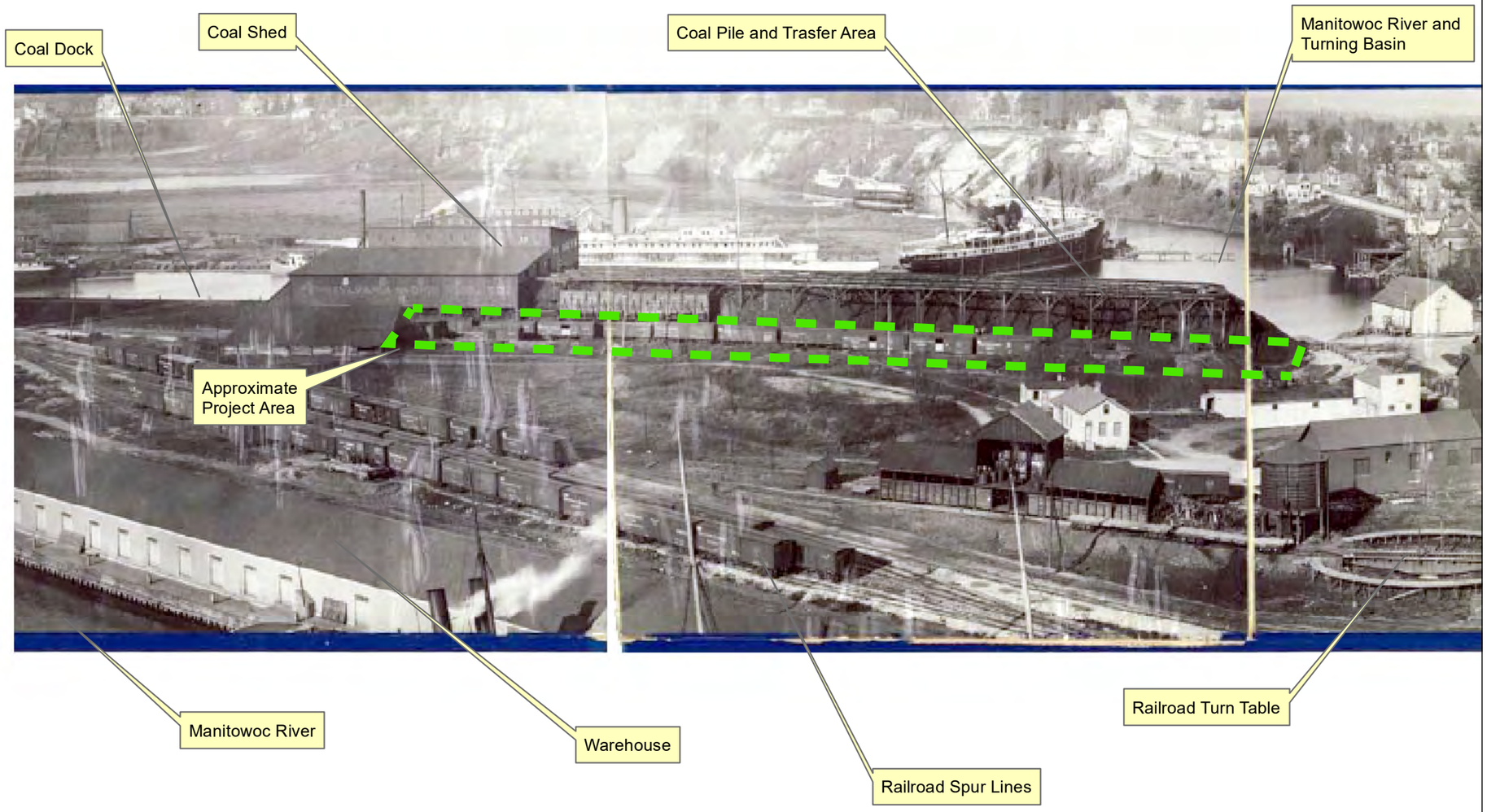


Figure No.
6C

Title
1898 Panoramic Photograph

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

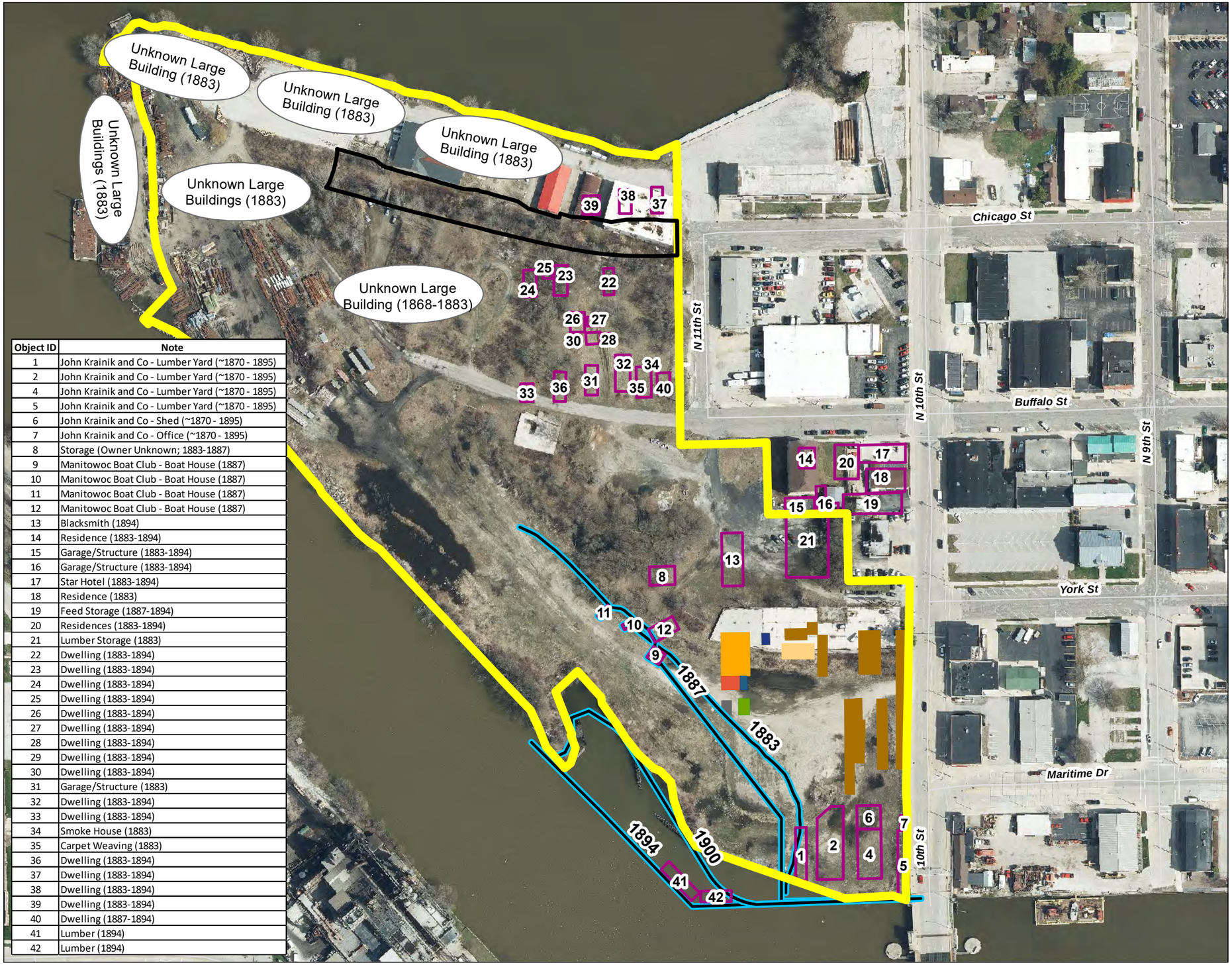
Prepared by HLB on 1/31/2023

Approximate Vertical Scale
30 Feet
0

Approximate Horizontal Scale
0 175 Feet

Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County Historical Society
3. Approximate horizontal and vertical scale for the Site Investigation Project Area based on measurements and notations on the Sanborn (R) Fire Insurance Map published in 1900. The approximate scales are not applicable outside of this area.

Stantec



Object ID	Note
1	John Krainik and Co - Lumber Yard (~1870 - 1895)
2	John Krainik and Co - Lumber Yard (~1870 - 1895)
4	John Krainik and Co - Lumber Yard (~1870 - 1895)
5	John Krainik and Co - Lumber Yard (~1870 - 1895)
6	John Krainik and Co - Shed (~1870 - 1895)
7	John Krainik and Co - Office (~1870 - 1895)
8	Storage (Owner Unknown; 1883-1887)
9	Manitowoc Boat Club - Boat House (1887)
10	Manitowoc Boat Club - Boat House (1887)
11	Manitowoc Boat Club - Boat House (1887)
12	Manitowoc Boat Club - Boat House (1887)
13	Blacksmith (1894)
14	Residence (1883-1894)
15	Garage/Structure (1883-1894)
16	Garage/Structure (1883-1894)
17	Star Hotel (1883-1894)
18	Residence (1883)
19	Feed Storage (1887-1894)
20	Residences (1883-1894)
21	Lumber Storage (1883)
22	Dwelling (1883-1894)
23	Dwelling (1883-1894)
24	Dwelling (1883-1894)
25	Dwelling (1883-1894)
26	Dwelling (1883-1894)
27	Dwelling (1883-1894)
28	Dwelling (1883-1894)
29	Dwelling (1883-1894)
30	Dwelling (1883-1894)
31	Garage/Structure (1883)
32	Dwelling (1883-1894)
33	Dwelling (1883-1894)
34	Smoke House (1883)
35	Carpet Weaving (1883)
36	Dwelling (1883-1894)
37	Dwelling (1883-1894)
38	Dwelling (1883-1894)
39	Dwelling (1883-1894)
40	Dwelling (1887-1894)
41	Lumber (1894)
42	Lumber (1894)

Figure No.
7

Title
Project Area and Historic Site Features (19th Century)

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

0 125 250 Feet

Prepared by HLB on 4/15/2024

N

Legend

- Chicago Street Rights of Way
- River Point District
- Additional Site Features (see table)
- Bank of the Manitowoc River

Carl Zander Planing Mill and Factory (~1870s-1895)

Site Feature

- Drying House
- Engine Room
- Lumber
- Planing Mill
- Warehouse
- Shavings
- Shed
- Steam Boxes

Notes
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Historic Site features illustrated on this figure were digitized from multiple historic maps/sources, including City Assessor files, WDNR files, and Sanborn (R) Fire Insurance Maps. These features are provided for illustration purposes only; Stantec makes no warranty as to the accuracy of these features.
3. Orthophotograph: Manitowoc County, 2020

Stantec

Key	Notes
7	Coal Shed
8	Coal Storage
17	Unk
24	Storage
25	Unknown
21	Garage
26	Residential Dwelling
28	Unknown Bldg
29	Unk (possible AST?)
30	Unk (possible AST?)
31	Unk (possible AST?)
33	Shredded Metal
35	Warehouse

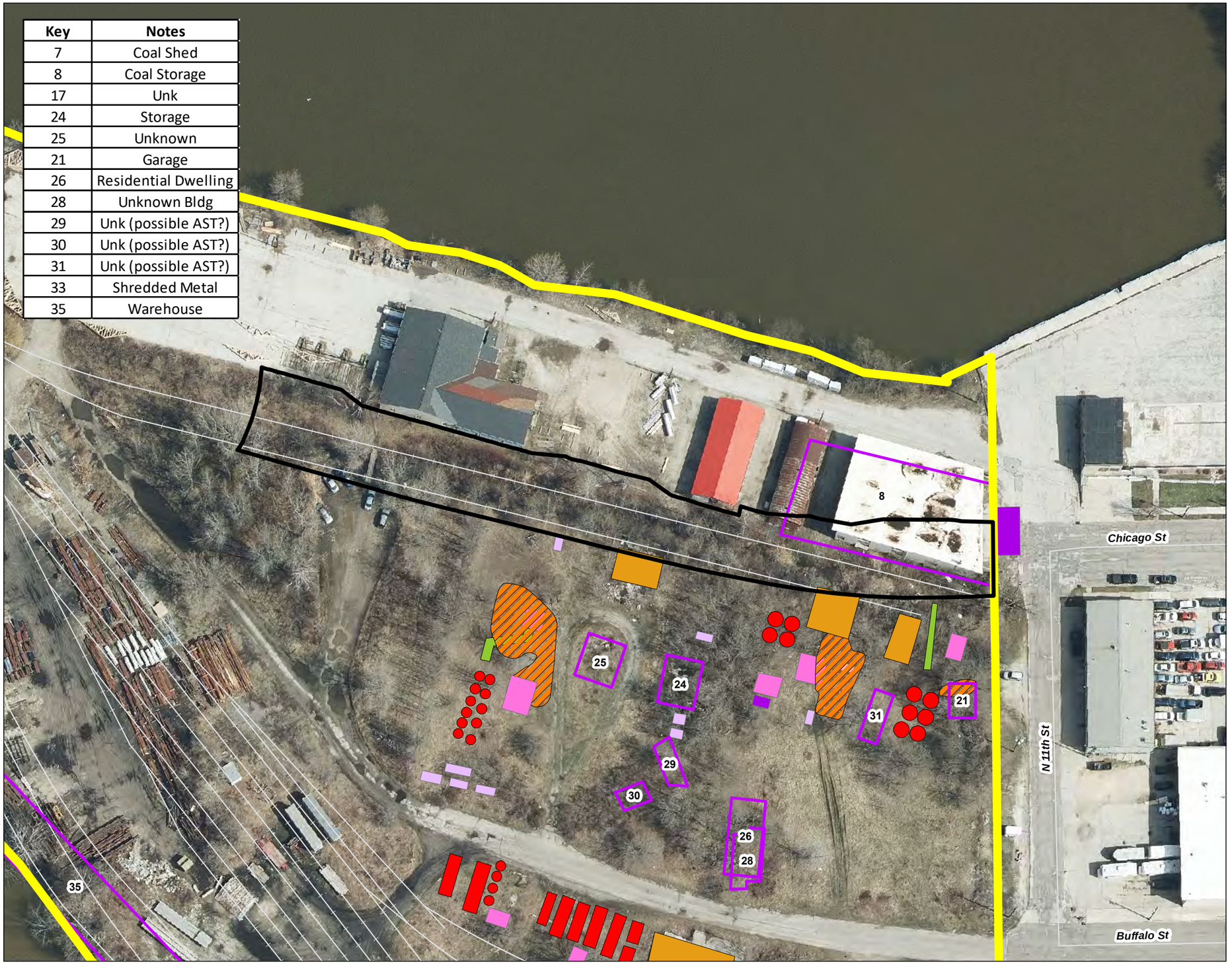


Figure No.
8

Title
Historical Site Features (20th Century)

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

0 55 110
Feet

Legend

- Chicago Street Rights of Way
- River Point District
- Historic Site Features (see table for details)

N

Prior Site Features (City Records)

- Oil House (4)
- Oil Tank (AST) (34)
- Pump House (5)
- UST (2)
- Railroad Spurs

Additional Site Features (WDNR Files)

- Former UST (10)
- Product Piping (2)
- Pump House (2)
- Soil Excavation (3)

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Historic Site features illustrated on this figure were digitized from multiple historic maps/sources, including City Assessor files, WDNR files, and Sanborn (R) Fire Insurance Maps. These features are provided for illustration purposes only; Stantec makes no warranty as to the accuracy of these features.
3. Orthophotograph: Manitowoc County, 2020

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ID	Notes	Year	Area (Square Feet)
A	Brick Commercial Building	1950	8,100
B	Shed	1951	2,000
C	Pole Barn (Lumber Storage)	1950	2,900
D	Truss Assembly / Millwork Shop	1950, addition 1997	8,100
4	Pole Barn (Lumber Storage)	1950 (razed 1988)	2,100
5	Pole Barn (Lumber Storage)	1958 (razed 1988)	2,000

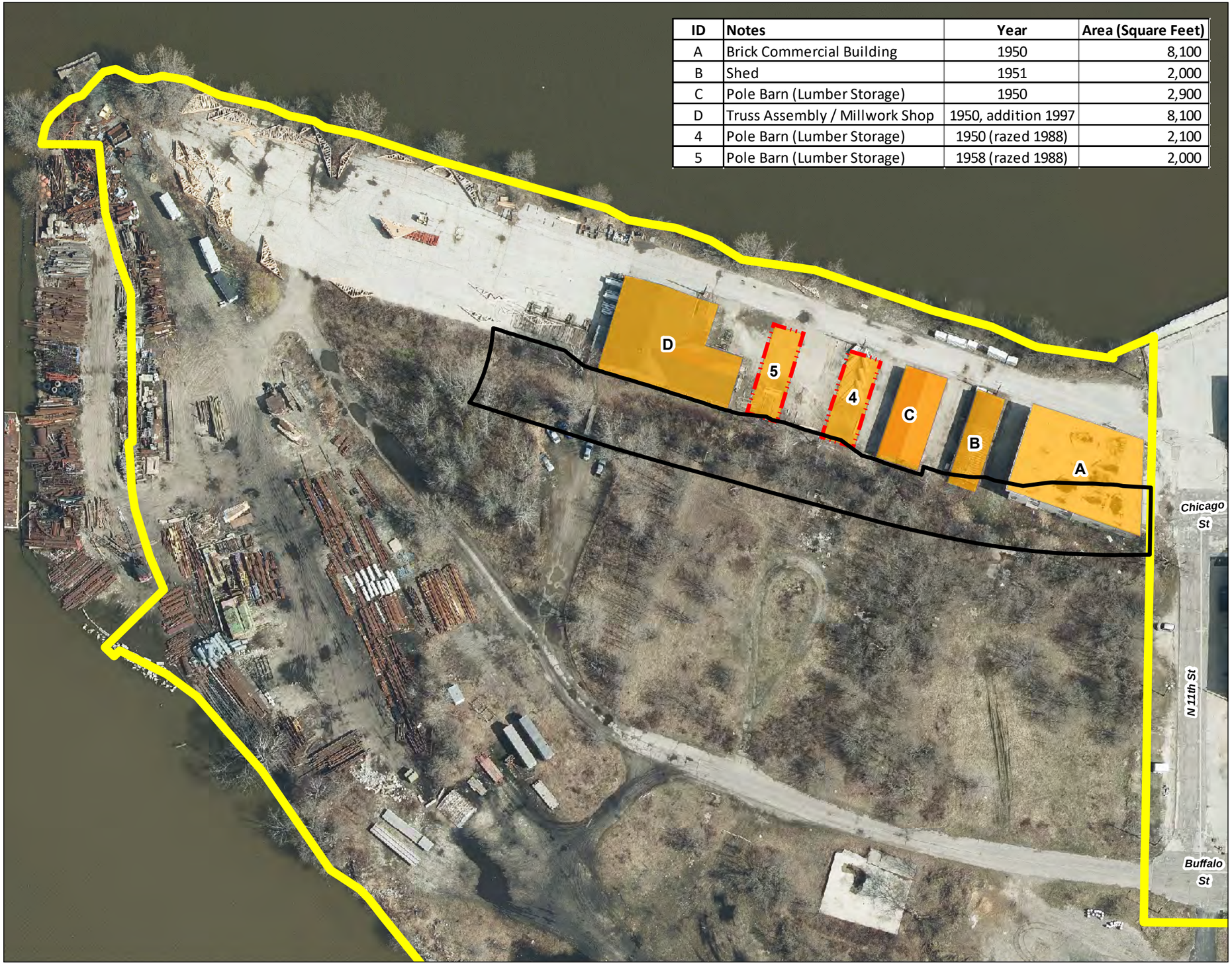

Figure No.
9

Title
Buildings Targeted for Demolition

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

Prepared by HLB on 4/15/2024

0 65 130
Feet

Legend

N

- River Point District
- Chicago Street Rights of Way
- Historic Structures Previously Razed
- Buildings Targeted for Demolition (Notes in Inset Table)

Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020
3. Notes on prior use and construction details as described in assessor records contained in the Stantec (2019) Phase I ESA.

Stantec

Figure No.
10

Title
Fill Material Thickness

Client/Project
Chicago Street Rights of Way
River Point District
City of Manitowoc

0 125 250 Feet

Prepared by HLB on 4/15/2024

N

Legend

- River Point District
- Chicago Street Rights of Way

Depth to Bottom of Fill
(Feet Below Ground Surface)

- 7.111 - 8
- 6.222 - 7.111
- 5.333 - 6.222
- 4.444 - 5.333
- 3.556 - 4.444
- 2.667 - 3.556
- 1.778 - 2.667
- 0.889 - 1.778
- 0 - 0.889

Notes
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

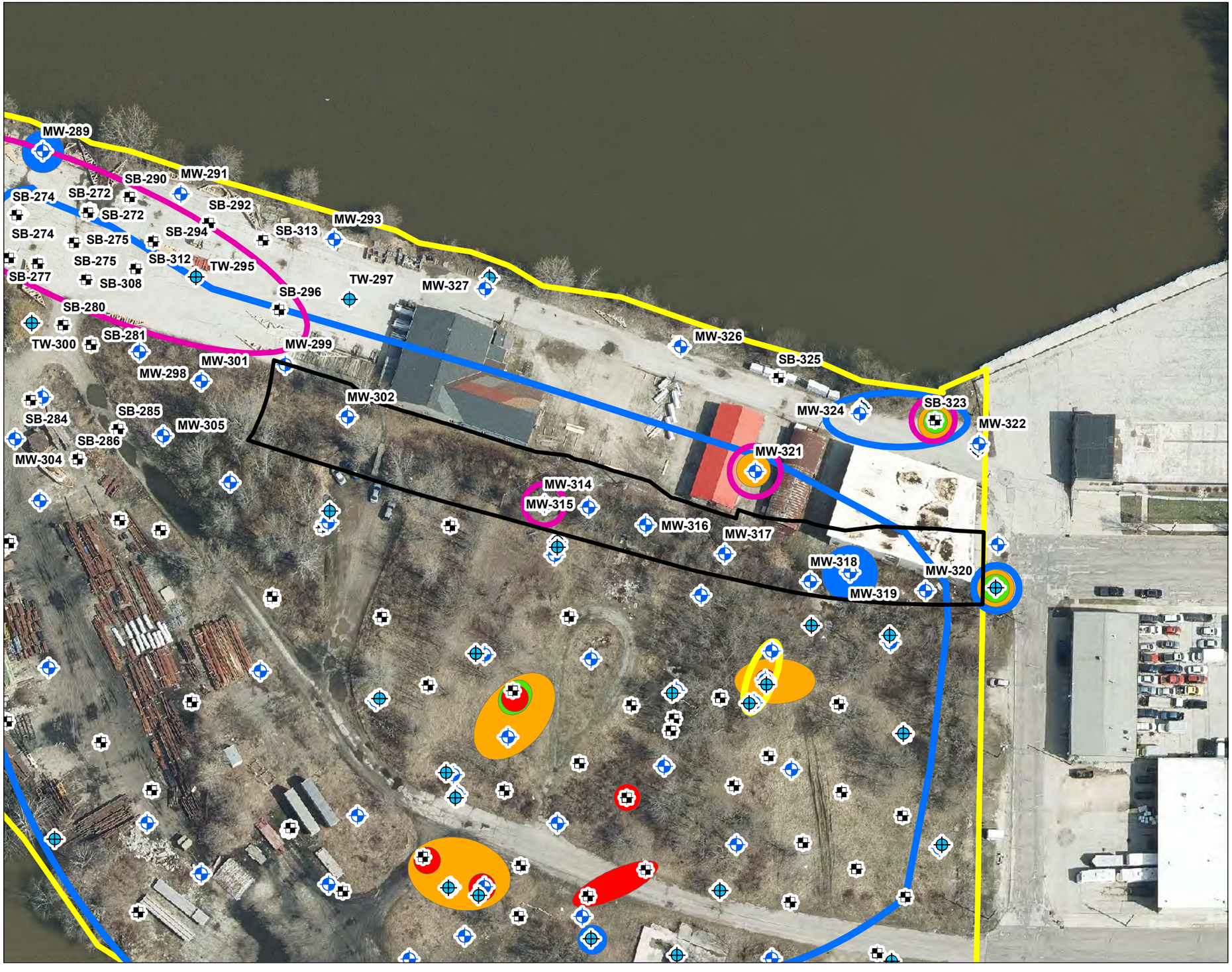

Figure No.
11

Title
Sample Locations and Soil Impacts

Client/Project
Chicago Street Rights of Ways
River Point District
City of Manitowoc

0 60 120 Feet

Prepared by HLB on 4/15/2024

Legend

N

River Point District

Chicago Street Rights of Way

Sample Locations

Soil Boring / Monitoring Well

Soil Boring

Soil Boring / Temp Well

Soil Impacts

Petroleum PAH > IDC

Cyanide Detected

Petroleum PAH > NIDC

PVOC > IDC

PVOC > NIDC

PVOC > GW Pathway

CVOCs > GW Pathway

Notes

1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020
3. PAH = polycyclic aromatic hydrocarbon; PVOC = petroleum volatile organic compound; CVOC = chlorinated volatile organic compound; SVOC = semi-volatile organic compound; IDC = industrial direct contact residual contaminant level; NIDC = non-industrial direct contact residual contaminant level; GW = groundwater.
4. Soil impacts illustrated on this drawing are in addition to the sitewide metals and PAH impacts associated with historic granular fill materials.

Stantec

Figure No.
12

Title
Project Area and Groundwater Elevation (March 2023)

Client/Project
Chicago Street Rights of Ways
River Point District
City of Manitowoc

0 55 110 Feet

Prepared by HLB on 4/15/2024

Legend

N

- River Point District
- Groundwater Monitoring Well
- Chicago Street Rights of Way
- Groundwater Elevation (feet above mean sea level)

Notes

1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

Figure No.
13

Title
Sample Locations and Groundwater Impacts

Client/Project
Chicago Street Rights of Ways
River Point District
City of Manitowoc

0 37.5 75 Feet

Prepared by HLB on 4/15/2024

Legend

N

River Point District

Chicago Street Rights of Way

Sample Locations

Soil Boring / Monitoring Well

Soil Boring

Soil Boring / Temp Well

Groundwater Impacts

Cyanide > PAL

CVOC > ES

CVOC > PAL

PVOC > ES

PVOC > PAL

Notes

1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020
3. PVOC = petroleum volatile organic compound; CVOC = chlorinated volatile organic compound; PAL = Preventive Action Limit; ES = Enforcement Standard

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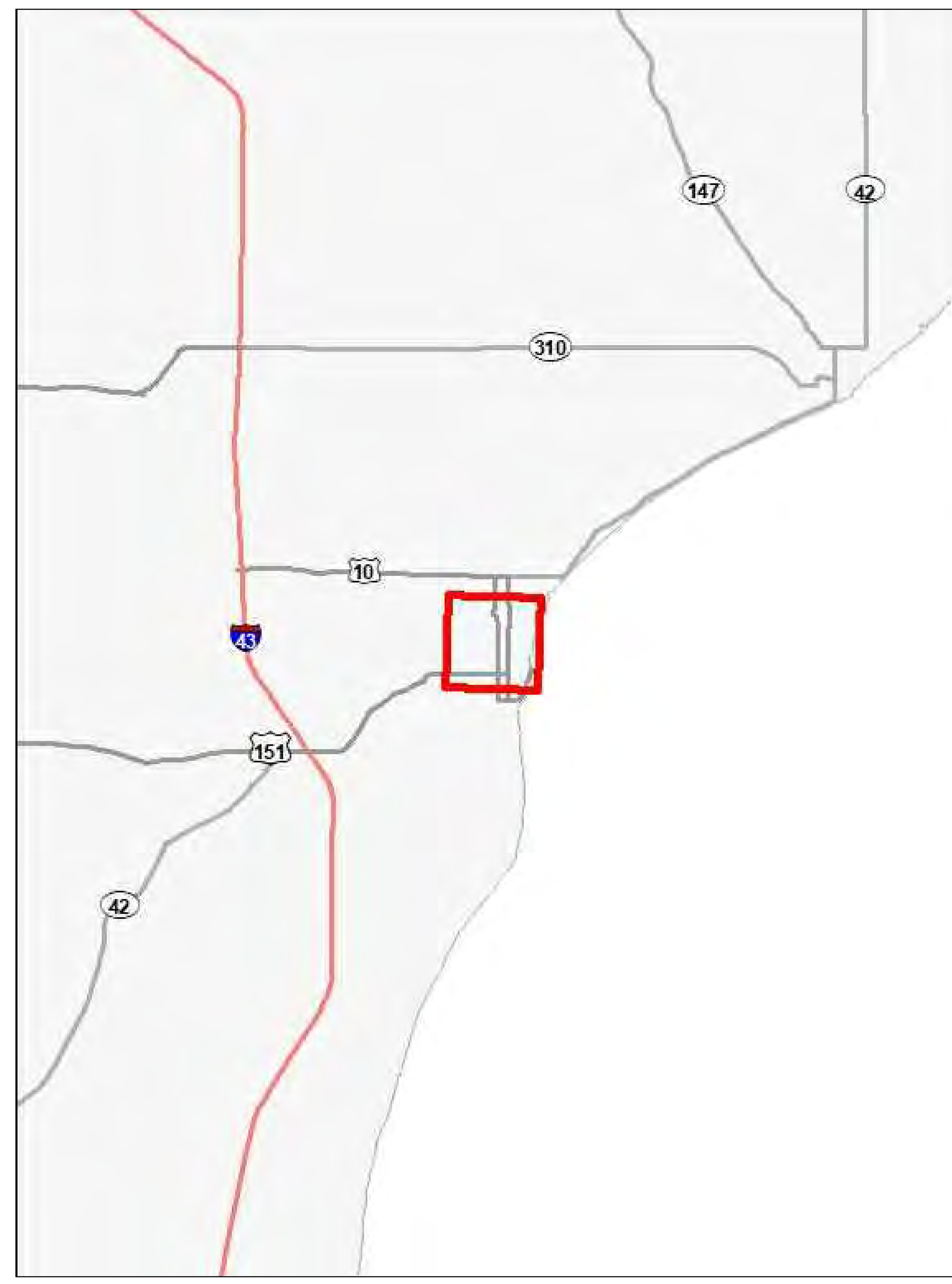
APPENDICES

APPENDIX A
River Point – Phase 3 Bid Set

WS-24-2

RIVER POINT DEVELOPMENT

CITY OF MANITOWOC
MANITOWOC COUNTY, WISCONSIN

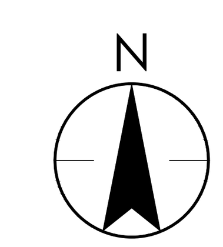


VICINITY MAP

NO SCALE

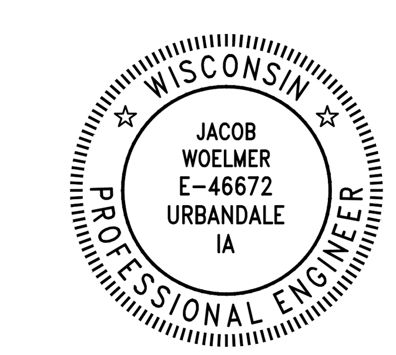
LOCATION MAP

NO SCALE

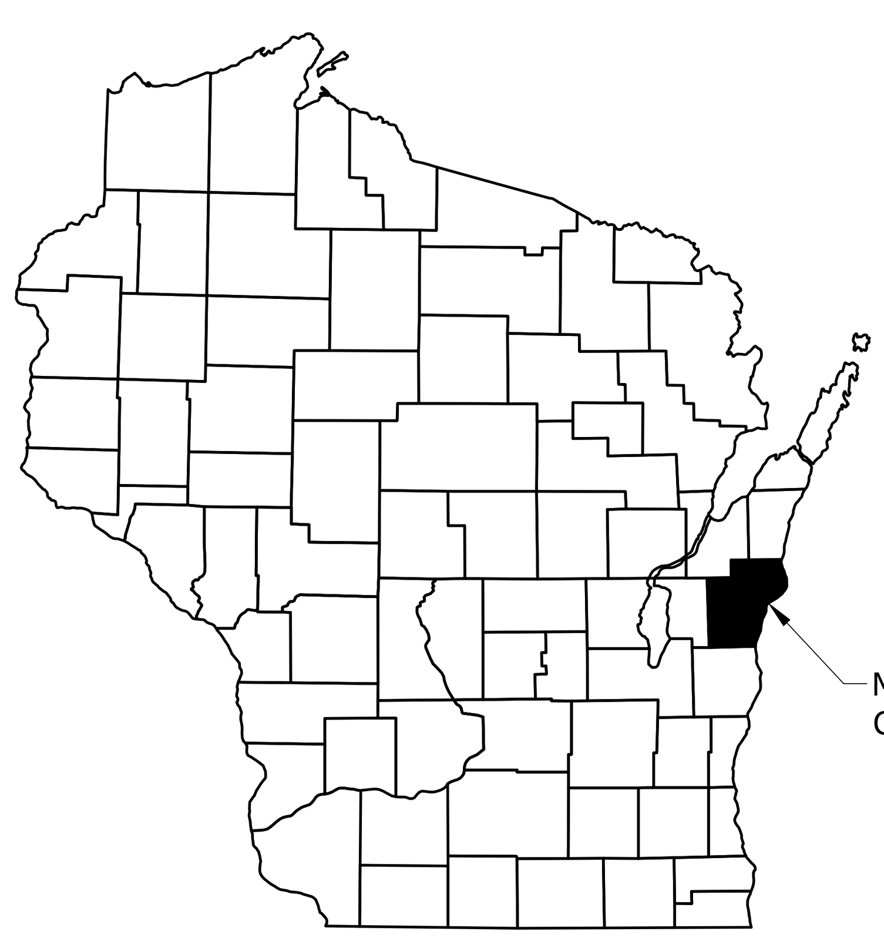


Sheet List Table

Sheet Number	Sheet Title
G0.01	TITLE SHEET
G0.02	LEGEND
G0.03	GENERAL NOTES
C1.01	DEMOLITION & EROSION CONTROL PLAN
C1.02	EROSION CONTROL DETAILS & NOTES
C2.01	SITE PLAN - RIVER POINT DRIVE
C3.01	GRADING PLAN
C3.02	GRADING PLAN - ALTERNATE
C3.03	ROAD PLAN & PROFILE - RIVER POINT DRIVE
C3.04	ROAD PLAN & PROFILE - RIVER POINT DRIVE
C4.01	UTILITY PLAN & PROFILE - RIVER POINT DRIVE
C4.02	UTILITY PLAN & PROFILE - CHICAGO STREET
C4.03	UTILITY PLAN & PROFILE - CHICAGO STREET (ALTERNATE)
C4.04	STORM PROFILES
C7.01	ROAD TYPICAL SECTIONS
C8.01	CONSTRUCTION DETAILS
C8.02	CONSTRUCTION DETAILS
C8.03	CONSTRUCTION DETAILS
C8.04	CONSTRUCTION DETAILS
C8.05	CONSTRUCTION DETAILS
C8.06	CONSTRUCTION DETAILS



JACOB A. WOELMER, P.E.
NO. 46672-6



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MANITOWOC PUBLIC UTILTIES
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rmichaelson@mpu.org

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MEQUON, WI
Contact:
JACOB WOELMER
TEL. 515.251.1038
JACOB.WOELMER@STANTEC.COM

The locations of existing utility installations as shown on this plan are approximate. There may be other underground utility installations within the project area that are not shown.

Stantec assumes no responsibility for damages, liability or costs resulting from changes or alterations made to this plan without written consent of Stantec.

These drawings have been prepared based on information provided by others. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result.

Stantec
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TITLE SHEET

RIVER POINT - PHASE 3
CITY OF MANITOWOC
MANITOWOC, WISCONSIN

DATE OF ISSUANCE
1/17/2024

NO	REVISION	DATE

SURVEY	CORNER POINT
DRAWN	
DESIGNED	
CHECKED	----
APPROVED	JAW
PROJ. NO.	193805824

SHEET NUMBER
G0.01

Plot Date: 01/17/2024 - 3:45pm
Drawing name: C:\pw_stn_bh_infra01\d0198016\193805824G100.dwg
Xrefs:, Border

EXISTING TOPOGRAPHIC SYMBOLS

- STORM SEWER APRON
- BASKETBALL POST
- BARRICADE PERMANENT
- BENCH
- BOOSTER STATION
- BUILDING LOWEST OPENING
- BURIAL CONTROL MONUMENT
- BUSH DECIDUOUS
- CATCH BASIN BEEHIVE
- CURB BOX
- CATCH BASIN
- COLUMN
- CONTROL BOX SIGNAL
- CLEAN OUT (SEWER)
- CULVERT END
- DRINKING FOUNTAIN
- ENERGY DISSIPATER
- FLAG POLE
- FUEL PUMP
- GUY WIRE
- GRILL
- HANDICAP SPACE
- HANDHOLE
- FIRE HYDRANT
- HYDRANT PVMNT MARKER (REFLECTOR)
- HYDRANT VALVE
- INLET (SMALL DIA.)
- LIFT STATION CONTROL PANEL
- LIFT STATION DRY WELL
- LIFT STATION WET WELL
- LIGHT YARD
- LOOP DETECTOR
- MAIL BOX
- MAIL RELAY BOX
- MANHOLE-AIR RELEASE
- MANHOLE-HEAT
- MANHOLE-GAS
- MANHOLE-POWER
- MANHOLE-SANITARY SEWER
- MANHOLE-STORM SEWER
- MANHOLE-COMMUNICATIONS
- MANHOLE-UNKNOWN
- MANHOLE-WATER
- METER POWER
- METER GAS
- ORDINARY HIGH WATER MARK
- OUTLET CONTROL STRUCTURE
- PARKING METER
- PEDESTRIAN PUSH BUTTON
- PEDESTAL POWER
- PEDESTAL CATV
- PEDESTAL COMMUNICATIONS
- POST INDICATOR VALVE
- POLE-COMMUNICATIONS
- POLE-GUY
- POLE-LIGHT
- POLE-POWER
- POLE-UTILITY
- POLE-UTILITY SERVICE
- POST
- PROPANE TANK
- PICNIC TABLE
- SAMPLING WELL
- ROCK
- RR SIGNAL CONTROL BOX
- RR CROSSING GATE
- RR SIGNAL
- REGULATION STATION GAS
- SATELLITE DISH
- SEPTIC TANK
- SEPTIC VENT
- SEPTIC DRAIN FIELD
- SIGN
- SOIL BORING
- STAND PIPE GAS
- SPIGOT WATER
- SPRINKLER HEAD
- SPRINKLER VALVE BOX
- STUMP
- SERVICE-GAS POINT ON LINE
- SERVICE-SANITARY SEWER POINT ON LINE
- SERVICE-STORM SEWER POINT ON LINE
- SERVICE-WATER POINT ON LINE
- TELEPHONE BOOTH
- TRANSMISSION TOWER ELECTRIC
- TEST PIT LOC
- TRACER WIRE BOX
- TRANSFORMER POWER
- TREE DEAD
- TREE-CONIFEROUS
- TREE-DECIDUOUS
- TREE-FRUIT
- TRASH CAN
- TRAFFIC SIGNAL
- VALVE GAS
- VALVE
- VENT GAS
- WATER REDUCER
- WETLAND
- WELL-MONITORING
- WELL-WATER

SURVEY SYMBOLS

- AERIAL CONTROL POINT
- BACKSIGHT CONTROL POINT
- GPS CONTROL POINT
- JUDICIAL LAND MONUMENT
- MONUMENT COMPUTED
- MONUMENT IRON FOUND
- MONUMENT IRON SET
- RESECTED POINT
- ROW MONUMENT
- ROW MARKER POST
- SECTION CORNER
- TRAVERSE CONTROL POINT
- BENCH MARK LOCATION

NEW TOPOGRAPHIC SYMBOLS

- BOLLARD
- SANITARY CLEANOUT
- MANHOLE
- SANITARY OR STORM LIFT STATION
- STORM SEWER BEEHIVE CATCH BASIN
- STORM SEWER CATCH BASIN
- STORM SEWER FLARED END SECTION
- STORM SEWER OUTLET STRUCTURE
- STORM SEWER OVERFLOW STRUCTURE
- CURB BOX
- FIRE HYDRANT
- WATER REDUCER
- VALVE
- RIP RAP
- DRAINAGE FLOW
- PEDESTRIAN RAMP

EXISTING PRIVATE UTILITY LINES

- CTV — CABLE TV
- FO — FIBER OPTIC
- E — POWER
- G — GAS
- C — COMMUNICATION
- OHP — OVERHEAD POWER
- OHC — OVERHEAD COMMUNICATION
- OHU — OVERHEAD UTILITIES

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EXISTING TOPOGRAPHIC LINES

- RETAINING WALL
- FENCE - BARBED WIRE
- FENCE - CHAIN LINK
- FENCE - DECORATIVE
- FENCE - STOCKADE
- FENCE - WOOD
- FENCE - ELECTRIC
- GUARD RAIL
- TREE LINE
- WETLAND

SURVEY LINES

- BOUNDARY
- NEW CENTERLINE
- EXISTING CENTERLINE
- EXISTING EASEMENT LINE
- NEW EASEMENT LINE
- FLOOD PLAIN BOUNDARY
- EXISTING LOT LINE
- NEW LOT LINE
- EXISTING RIGHT-OF-WAY
- NEW RIGHT-OF-WAY
- SETBACK LINE

EXISTING UTILITY LINES

- FORCE MAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- WATER MAIN
- WATER SERVICE

NEW UTILITY LINES

- FORCE MAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER DRAINTILE
- STORM SEWER
- WATER MAIN
- WATER SERVICE
- PIPE CASING

FUTURE UTILITY LINES

- FORCE MAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER DRAINTILE
- STORM SEWER
- WATER MAIN
- WATER SERVICE
- PIPE CASING

CONCRETE CURB AND GUTTER

- EXISTING
- NEW - STANDARD
- NEW - REJECT
- FUTURE
- DEMOLITION

GRADING INFORMATION

Symbol	Description
952	EXISTING CONTOUR MINOR
950	EXISTING CONTOUR MAJOR
952	NEW CONTOUR MINOR
950	NEW CONTOUR MAJOR
	NEW GRADING LIMITS / SLOPE LIMITS
744.40 / 745.47 / STA:5+67.19 980.87	NEW SPOT ELEVATION
743.21 / 743.78	EXISTING SPOT ELEVATION
4:1	RUN:RISE (SLOPE)

ABBREVIATIONS

AD	ALGEBRAIC DIFFERENCE
BV	BUTTERFLY VALVE
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
℄	CENTER LINE
CL.	CLASS
CMP	CORRUGATED METAL PIPE
C.O.	CHANGE ORDER
DIP	DUCTILE IRON PIPE
EL/ELEV	ELEVATION
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EX	EXISTING
FES	FLARED END SECTION
F/F	FACE TO FACE
FM	FORCE MAIN
F.O.	FIELD ORDER
GV	GATE VALVE
HP	HIGH POINT
HWL	HIGH WATER LEVEL
INV	INVERT
K	CURVE COEFFICIENT
LP	LOW POINT
MH	MANHOLE (SANITARY)
NTS	NOT TO SCALE
NWL	NORMAL WATER LEVEL
PC	POINT OF CURVE
PCC	COMPOUND CURVE
PI	POINT OF INTERSECTION
℘	PROPERTY LINE
PPVC	PERFORATED POLYVINYL CHLORIDE PIPE
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENT
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
R/W	RIGHT-OF-WAY
SS	STORM SEWER STRUCTURE
STA	STATION
TCE	TEMPORARY CONSTRUCTION EASEMENT
TNH	TOP NUT HYDRANT
TYP	TYPICAL
VC	VERTICAL CURVE
WM	WATER MAIN

HATCH PATTERNS

EXISTING	NEW	DEMOLITION	SECTION
CONCRETE	CONCRETE	CONCRETE DWY/WALK	EARTH
ASPHALT ROAD/DWY	ASPHALT ROAD/DWY	ASPHALT ROAD/DWY	ROCK
PAVERS	PAVERS	PAVERS	SAND
			BASE AGGREGATE DENSE

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LEGEND

RIVER POINT - PHASE 3
CITY OF MANITOWOC
MANITOWOC, WISCONSIN

DATE OF ISSUANCE	
1/17/2024	

NO	REVISION	DATE

SURVEY	CORNER POINT
DRAWN	
DESIGNED	
CHECKED	----
APPROVED	JAW
PROJ. NO.	193805824

SHEET NUMBER
G0.02

Plot Date: 01/17/2024 - 3:46pm
Drawing name: C:\pw_stn_bh_infra01\d0198016\193805824G100.dwg
Xrefs:, Border

STANTEC ASSUMES NO RESPONSIBILITY FOR DAMAGES, LIABILITY OR COSTS RESULTING FROM CHANGES OR ALTERATIONS MADE TO THIS PLAN WITHOUT THE EXPRESSED WRITTEN CONSENT OF STANTEC.

GENERAL

1. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE MUNICIPALITY FORTY-EIGHT HOURS PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL INDEMNIFY THE OWNER, THE ENGINEER, AND THE MUNICIPALITY, THEIR AGENTS, ETC., FROM ALL LIABILITY INVOLVED WITH THE CONSTRUCTION, INSTALLATION, AND TESTING OF THE WORK ON THIS PROJECT.
3. SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. THE BIDDER WILL BE SOLELY RESPONSIBLE FOR DETERMINING QUANTITIES AND SHALL STATE SUCH QUANTITIES IN HIS OR HER PROPOSAL. HE OR SHE SHALL BASE THEIR BID ON HIS OR HER OWN ESTIMATE OF THE WORK REQUIRED AND SHALL NOT RELY ON THE ENGINEER'S ESTIMATE.
5. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING SOIL CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. A GEOTECHNICAL REPORT MAY BE AVAILABLE FROM THE OWNER. THE CONTRACTOR SHALL ABIDE BY THE RECOMMENDATIONS FO THE GEOTECHNICAL ENGINEER.
6. THE CONTRACTOR IS RESPONSIBLE FOR EXAMINING ALL SITE CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL COMPARE FIELD CONDITIONS WITH DRAWINGS.
7. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED FOR EXECUTION OF THE WORK. THE CONTRACTOR SHALL CONDUCT HIS WORK ACCORDING TO THE REQUIREMENTS OF THE PERMITS.
8. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL UTILITY INFORMATION SHOWN ON THE PLANS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL CALL DIGGER'S HOTLINE AT 1-800-242-8511 TO NOTIFY THE UTILITIES OF HIS OR HER INTENTIONS, AND TO REQUEST FIELD STAKING OF EXISTING UTILITIES.
9. CONTRACTOR IS ADVISED THAT ALL MUD AND DEBRIS MUST NOT BE DEPOSITED ONTO THE ADJACENT ROADWAYS PER THE REQUIREMENT OF THE MUNICIPALITY OR OTHER APPROPRIATE GOVERNMENT AGENCIES.
10. ANY ADJACENT PROPERTIES OR ROAD RIGHTS-OF-WAY WHICH ARE DAMAGED DURING CONSTRUCTION MUST BE RESTORED BY THE CONTRACTOR. THE COST OF THE RESTORATION IS CONSIDERED INCIDENTAL AND SHOULD BE INCLUDED IN THE BID PRICES.

MAINTENANCE, INSPECTIONS AND REPORTING

1. EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED BEFORE CONSTRUCTION ACTIVITIES BEGIN IN EACH REPRESENTATIVE PROJECT PHASE. PRACTICES SHALL BE CHECKED FOR EFFECTIVENESS WEEKLY AND FOLLOWING RAINFALL EVENTS 0.5 INCHES OR GREATER. ANY DEVICES NEEDING REPAIR SHALL BE ADDRESSED IMMEDIATELY.
2. STORM DRAIN INLET PROTECTION SHALL BE REPLACED WHEN SEDIMENT COLLECTED IN THE DEVICE HAS REDUCED THE CAPACITY BY HALF. ACCUMULATED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED.
3. SILT FENCES SHALL BE REPAIRED WHEN SEDIMENT HAS REACHED HALF THE HEIGHT OF THE FENCE. SILT FENCES HAVE A LIFE SPAN OF ONE YEAR, AND SHALL BE REPLACED WHEN WORN OUT. DAMAGED OR DECOMPOSED FENCES, UNDERCUTTING, OR FLOW CHANNELS AROUND THE END OF BARRIERS SHALL BE REPAIRED OR CORRECTED.
4. SEEDED AREAS SHALL BE FERTILIZED, RESEEDED AND MULCHED AS NECESSARY. INSPECT SEEDED AREAS WEEKLY AFTER PLANTING TO ENSURE THAT VEGETATION IS ADEQUATELY ESTABLISHED. LIMIT VEHICLE TRAFFIC AND OTHER FORMS OF COMPACTION IN AREAS THAT ARE SEEDED.
5. MULCH THAT IS DISPLACED SHALL BE REAPPLIED AND PROPERLY ANCHORED. MAINTENANCE SHALL BE COMPLETED AS SOON AS POSSIBLE WITH CONSIDERATION TO SITE CONDITIONS.
6. EROSION MATTING, SILT FENCES, STRAW WATTLES, TEMPORARY DITCH CHECKS, STONE OUTLET PROTECTION, ETC. SHALL BE REPLACED AS NECESSARY.
7. STONE TRACKING PAD SHALL BE SCRAPED OR TOP DRESSED WHEN EXISTING STONE BECOMES BURIED OR IF SEDIMENT IS NOT BEING REMOVED EFFECTIVELY FROM TIRES. SEDIMENT THAT IS TRACKED ONTO THE PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY. A MINIMUM 12-INCH THICK PAD SHALL BE MAINTAINED.

THE FOLLOWING CONSTRUCTION SITE INSPECTIONS SHALL BE PERFORMED BY THE CONTRACTOR, AND ARE REQUIRED PER THE WPDES GENERAL PERMIT:

1. CONDUCT WEEKLY INSPECTIONS OF IMPLEMENTED EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES, AND REPORTING.
2. INSPECTIONS OF EROSION AND SEDIMENT CONTORL WITHIN 24 HOURS AFTER A PRECIPITATION EVENT OF 0.5 INCHES OR GREATER, AND REPORTING.
3. REPAIR OR REPLACE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES AS NECESSARY WITHIN 24 HOURS OF AN INSPECTION OR DEPARTMENT NOTIFICATION THAT A REPAIR OR REPLACEMENT IS NEEDED.
4. MAINTAIN WEEKLY WRITTEN REPORTS OF ALL INSPECTIONS CONDUCTED AT THE CONSTRUCTION SITE. WEEKLY INSPECTION REPORTS SHALL INCLUDE ALL OF THE FOLLOWING:

A. DATE, TIME AND LOCATION OF THE CONSTRUCTION SITE INSPECTION.
B. NAME OF THE INDIVIDUAL WHO PERFORMED THE INSPECTION.
C. ASSESSMENT OF THE CONDITION OF EROSION AND SEDIMENT CONTROLS.
D. DESCRIPTION OF ANY EROSION AND SEDIMENT CONTORL BEST MANAGEMENT PRACTICE IMPLEMENTATION AND MAINTENANCE PERFORMED.
E. DESCRIPTION OF THE PRESENT PHASE OF LAND DISTURBING ACTIVITY AT THE CONSTRUCTION SITE.

PAVING

1. THE PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED ACCORDING TO THE WISCONSIN D.O.T. STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, LATEST EDITION, AND THE LOCAL ORDINANCES AND SPECIFICATIONS.
2. PAVING SHALL CONSIST OF FINE GRADING PAVEMENT AREAS, INSTALLATION OF CRUSHED STONE BASE, CONCRETE AND / OR BITUMINOUS PAVEMENT, PAVEMENT MARKING, AND CLEANUP. ALL MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR.
3. AGGREGATE USED IN THE CRUSHED AGGREGATE BASE SHALL BE (1 ¼") DENSE GRADED BASE IN ACCORDANCE WITH SUBSECTION 305.2.2. OF THE STANDARD SPECIFICATIONS.
4. CONCRETE FOR CURB, DRIVEWAY, WALKS AND NON-FLOOR SLABS SHALL BE GRADE A (OR GRADE A2 IF PLACING BY SLIP-FORMED PROCESS) AIR ENTRAINED IN ACCORDANCE WITH SECTION 501 OF THE STANDARD SPECIFICATIONS, WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI.
5. CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE FOLLOWING SECTION OF THE STANDARD SPECIFICATIONS: SECTION 415 FOR CONCRETE PAVEMENT, SECTION 601 FOR CONCRETE CURB AND GUTTER, AND SECTION 602 FOR CONCRETE SIDEWALKS.
6. CONCRETE SIDEWALKS, PEDESTRIAN RAMPS, CURB, AND DRIVEWAYS SHALL BE TOOL JOINTED.
7. ALL FINISHED CONCRETE SHALL BE COVERED WITH A LIQUID CURING COMPOUND CONFORMING TO AASHTO M 148, TYPE 2, IN ACCORDANCE WITH SECTION 415 OF THE STANDARD SPECIFICATIONS.
8. FINAL PAVEMENT MARKINGS COLORS SHALL BE COORDINATED WITH OWNER.

GRADING

1. THE PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED ACCORDING TO THE WISCONSIN D.O.T. STANDARD SPECIFICATIONS, LOCAL ORDINANCES AND SPECIFICATIONS, AND RECOMMENDATIONS IN THE GEOTECHNICAL REPORT.
2. THE CONTRACTOR SHALL MAINTAIN SITE DRAINAGE THROUGHOUT CONSTRUCTION. THIS MAY INCLUDE THE EXCAVATION OF TEMPORARY DITCHES OR PUMPING TO ALLEVIATE WATER PONDING.
3. SILT FENCE AND OTHER EROSION CONTROL FACILITIES MUST BE INSTALLED PRIOR TO CONSTRUCTION OR ANY OTHER LAND DISTURBING ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EROSION CONTROL FACILITIES ONCE THE THREAT OF EROSION HAS PASSED WITH THE APPROVAL OF THE GOVERNING AGENCY.
4. THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPUTATIONS OF ALL GRADING AND FOR ACTUAL LAND BALANCE, INCLUDING UTILITY TRENCH SPOIL. THE CONTRACTOR SHALL IMPORT OR EXPORT MATERIAL AS NECESSARY TO COMPLETE THE PROJECT.
5. GRADING SHALL CONSIST OF CLEARING AND GRUBBING EXISTING VEGETATION, STRIPPING TOPSOIL, REMOVAL OF THE EXISTING PAVEMENT OR FOUNDATIONS, IMPORTING OR EXPORTING MATERIAL TO ACHIEVE AN ON-SITE EARTHWORK BALANCE, GRADING THE PROPOSED BUILDING PADS AND PAVEMENT AREAS, SCARIFYING AND FINAL COMPACTION OF THE PAVEMENT SUBGRADE, AND PLACEMENT OF TOPSOIL.
6. NO FILL SHALL BE PLACED ON A WET OR SOFT SUBGRADE. THE SUBGRADE SHALL BE PROOF-ROLLED AND INSPECTED BY THE GEOTECHNICAL ENGINEER BEFORE ANY MATERIAL IS PLACED.
7. ALL FILL SHALL BE CONSIDERED STRUCTURAL FILL AND SHALL BE PLACED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
8. ALL SIDEWALKS SHALL HAVE A MAXIMUM 2.0% CROSS SLOPE. SEE TYPICAL DETAIL.

EROSION CONTROL NOTES

1. EROSION CONTROL MEASURES MUST BE INSPECTED AND REPAIRED WEEKLY AND AFTER EACH RAIN TOTALING ONE-HALF INCH OR MORE. THE INSPECTIONS SHALL BE RECORDED AND KEPT ON FILE ONSITE WITH THE STORMWATER POLLUTION PREVENTION PLAN.
2. ANY SEDIMENT REACHING A PUBLIC OR PRIVATE ROAD OR SIDEWALK SHALL BE REMOVED BY STREET CLEANING, OTHER THAN FLUSHING, IMMEDIATELY.
3. CONTRACTOR SHALL KEEP A COPY OF THE EROSION CONTROL PLANS AT THE PROJECT SITE AND PROVIDE COMPLETED INSPECTION FORMS TO THE CITY OF MANITOWOC. THE CITY OF MANITOWOC AND WDNR MAY REQUEST INSPECTION REPORTS AT ANY TIME.
4. ALL EROSION CONTROL METHODS SHALL BE IN ACCORDANCE WITH WDNR TECHNICAL STANDARDS AND CITY OF MANITOWOC REQUIREMENTS AND STANDARDS.
5. ALL EXPOSED SOIL AREAS NOT DISTURBED FOR UP TO SEVEN DAYS SHALL BE IMMEDIATELY RESTORED WITH SEED AND MULCH.
6. COPIES OF THE INSPECTION REPORTS SHALL BE KEPT AT THE PROJECT SITE FOR CITY OF WDNR ACCESS.
7. TEMPORARY GRADING METHODS SHALL BE USED TO DIRECT WATER TO THE TEMPORARY STABILIZED CONVEYANCE SWALES.
8. DEWATERING AS NEEDED TO BE DONE ACCORDING TO WDNR STANDARD 1061.
9. DISTURBED AREAS THAT CANNOT BE STABILIZED WITH A DENSE GROWTH OF VEGETATION BY SEEDING AND MULCHING DUE TO TEMPERATURE (WINTER) OR TIMING OF CONSTRUCTION, SHALL BE STABILIZED BY APPLYING ANIONIC POLYACRYLAMIDE (PAM) IN ACCORDANCE WITH WDNR TECHNICAL STANDARD 1051.
10. CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL MEASURES AND PERFORMING MAINTENANCE THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.

UTILITY NOTES

GENERAL NOTES

1. CONTRACTOR TO COORDINATE WITH CITY OF MANITOWOC FOR UTILITY CONNECTION IN THE PUBLIC RIGHT OF WAY.
2. CONTRACTOR TO COORDINATE BUILDING GAS, ELECTRIC, COMMUNICATIONS UTILITY ENTRY LOCATIONS WITH ARCHITECT AND LOCAL UTILITY PROVIDERS.
3. CONTRACTOR TO PROVIDE A SPLASH BLOCK AT ALL DOWNSPOUTS TO GRADE. COORDINATE WITH ARCHITECTURAL PLANS.
4. CONTRACTOR TO CONFIRM AND VERIFY SITE LIGHTING PLAN WITH ARCHITECTURAL PLANS AND / OR MEP PLANS.

SANITARY MANHOLE (MH)

SANITARY MANHOLES SHALL BE PRE-CAST 48-INCH, WITH ECCENTRIC CONES AND PRECAST BOTTOMS.

SANITARY MANHOLE CASTING W/ INTERNAL CHIMNEY SEAL

MANHOLE FRAMES SHALL BE NEENAH R-1710 WITH TYPE "B" SELF-SEALING AND NON-ROCKING LID. INCLUDE CRETEX INTERNAL CHIMNEY SEAL.

SAMPLING MANHOLE (SAMPLING MH) & CASTING

REFER TO FILE NO. 23 (STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN).

SANITARY AND WATER NOTES

1. CONTRACTOR TO MAINTAIN MINIMUM 18" CLEARANCE WHEN WATER LATERAL CROSSES UNDER SEWER. PROVIDE INSULATION BETWEEN WATER MAIN & LATERALS AND SEWER CROSSING WHERE THE VERTICAL SEPARATION IS LESS THAN 2.0'.
2. CONTRACTOR TO PROVIDE 2" INSULATION BETWEEN WATER MAIN AND STORM SEWER AT ALL CROSSINGS.
3. WATERMAIN AND ASSOCIATED STRUCTURES ARE TO CONFORM TO THE CITY OF MANITOWOC'S SPECIFICATIONS AND THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN.
4. PROVIDE GRANULAR BACKFILL FOR WATER MAIN IN ALL PAVED AREAS. PROVIDE SPOIL BACKFILL FOR WATER MAIN OUTSIDE OF PAVED AREAS.
5. ALL JOINTS SHALL BE RESTRAINED WITH MEGALUGS.

STORM SEWER NOTES:

1. CONTRACTOR TO MAINTAIN MINIMUM 18" CLEARANCE WHEN WATER MAIN CROSSES ABOVE OR BELOW STORM SEWER.
2. CONTRACTOR TO MAINTAIN MINIMUM 18" CLEARANCE WHEN WATER SERVICE CROSSES ABOVE OR BELOW STORM SEWER.
3. BEFORE PROCEEDING WITH ANY UTILITY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE EACH EXISTING LATERAL OR POINT OF CONNECTION AND VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES. IF ANY EXISTING UTILITIES ARE NOT AS SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR POSSIBLE REDESIGN.
4. CONTRACTOR IS RESPONSIBLE FOR VERIFYING REQUIRED CASTING IS COMPATIBLE WITH SPECIFIED STRUCTURE. IF NOT COMPATIBLE, CONTACT ENGINEER IMMEDIATELY.
5. RIM ELEVATIONS FOR CURB INLETS ARE TO THE TOP OF THE CAST IRON INLET COVER.
6. ALL STORM SEWER AREA DRAINS ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL DESIGN-BUILD STORM BUILDING LATERALS AND ASSOCIATED AREA DRAINS.

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GENERAL NOTES

RIVER POINT - PHASE 3
CITY OF MANITOWOC
MANITOWOC, WISCONSIN

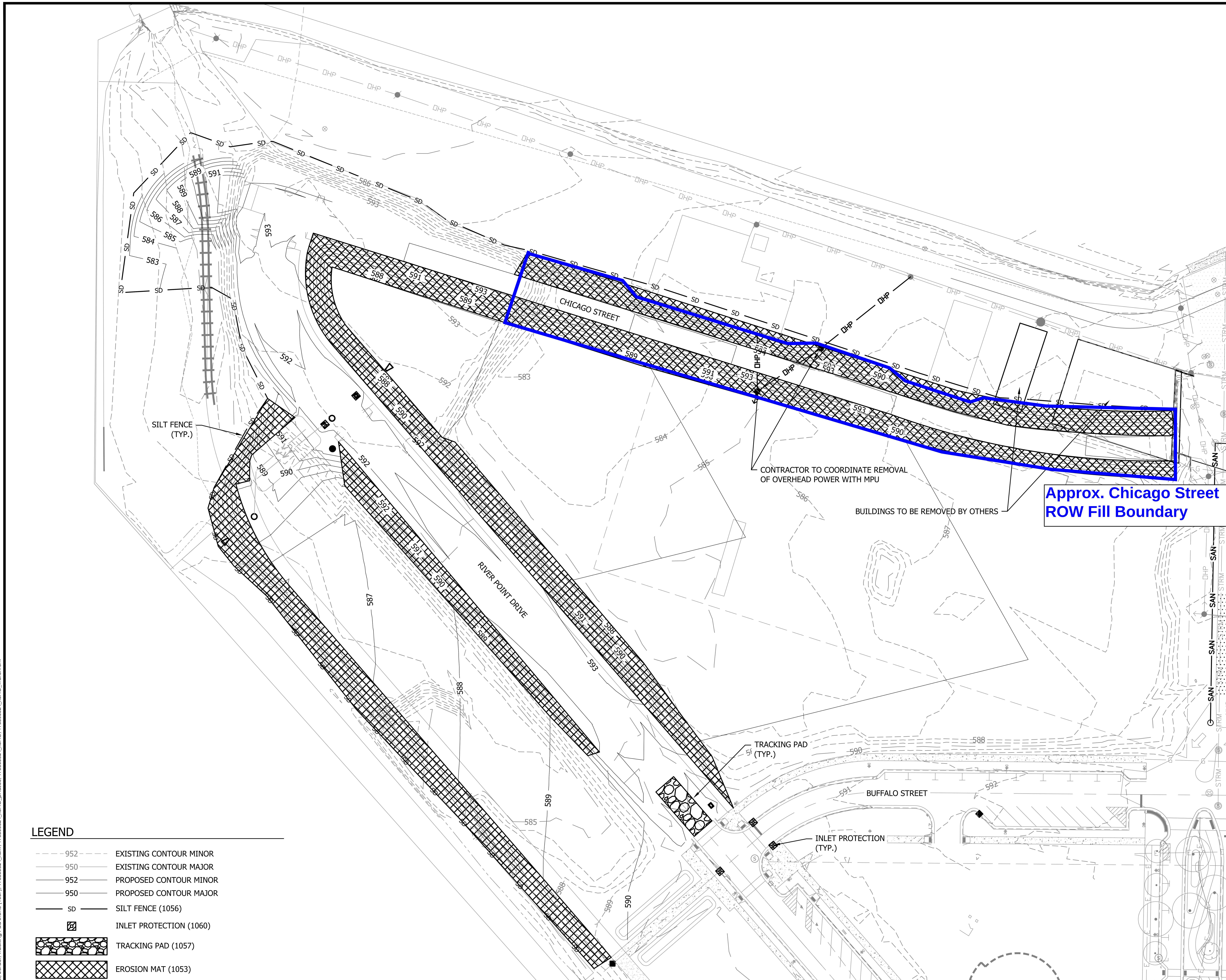
DATE OF ISSUANCE		
1/17/2024		
NO	REVISION	DATE

SURVEY	CORNER POINT
DRAWN	
DESIGNED	
CHECKED	----
APPROVED	JAW
PROJ. NO.	193805824

SHEET NUMBER
G0.03

Plot Date: 01/17/2024 - 3:47pm
Drawing name: C:\pw_stn_bh_infra01\d0198016\193805824G100.dwg
Xrefs:, Border

GENERAL NOTES:
1. EROSION CONTROL MEASURES TO BE INSTALLED PER MANITOWOC AND STATE STANDARDS. TBD



LEGEND

952	EXISTING CONTOUR MINOR
950	EXISTING CONTOUR MAJOR
952	PROPOSED CONTOUR MINOR
950	PROPOSED CONTOUR MAJOR
SD	SILT FENCE (1056)
	INLET PROTECTION (1060)
	TRACKING PAD (1057)
	EROSION MAT (1053)

Plot Date: 01/17/2024 - 4:56pm

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DEMOLITION & EROSION CONTROL PLAN

RIVER POINT - PHASE 3
CITY OF MANITOWOC
MANITOWOC, WISCONSIN

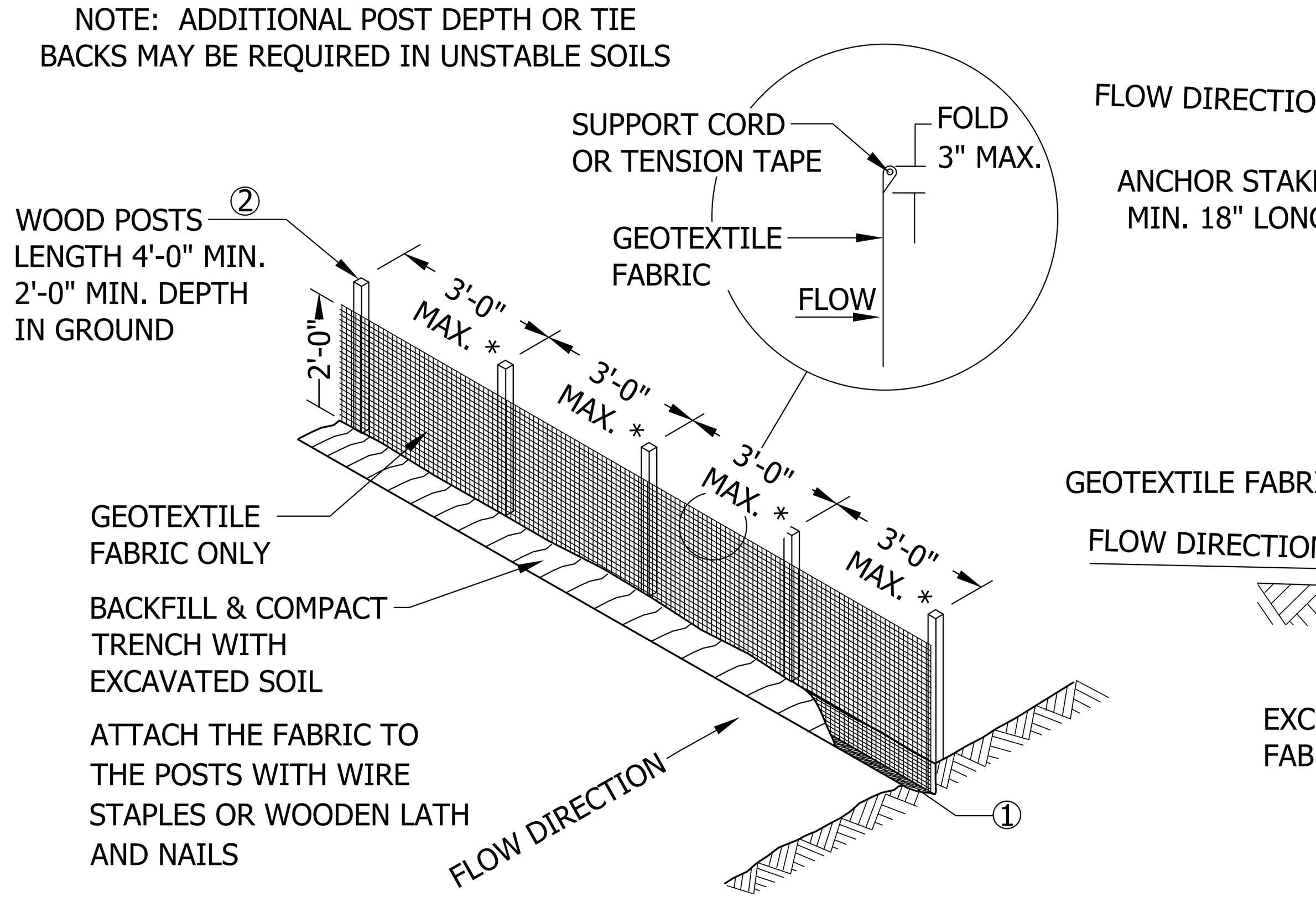
DATE OF ISSUANCE	1/17/2024

NO	REVISION	DATE

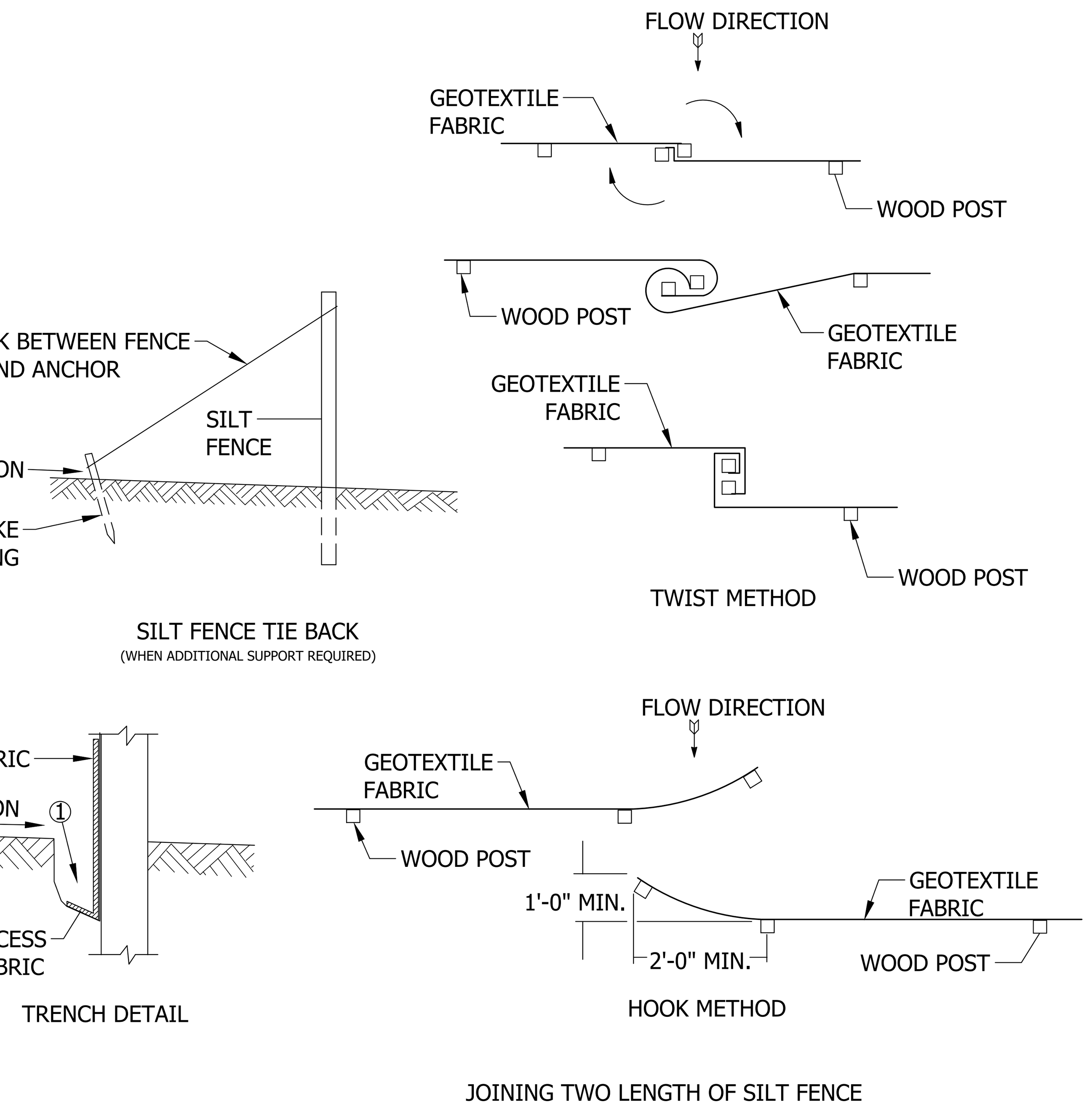
SURVEY	CORNER POINT
DRAWN	
DESIGNED	
CHECKED	---
APPROVED	JAW
PROJ. NO.	193805824
SHEET NUMBER	C1.01

1. TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL
2. WOOD POSTS SHALL BE MINIMUM SIZE OF $1\frac{1}{8}$" X $1\frac{1}{8}$" OF OAK OR HICKORY.
3. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS: A) TWIST METHOD -- OVERLAP THE END POSTS AND TWIST, OR ROTATE AT LEAST 180 DEGREES, B) HOOK METHOD -- HOOK THE END OF EACH SILT FENCE LENGTH.

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

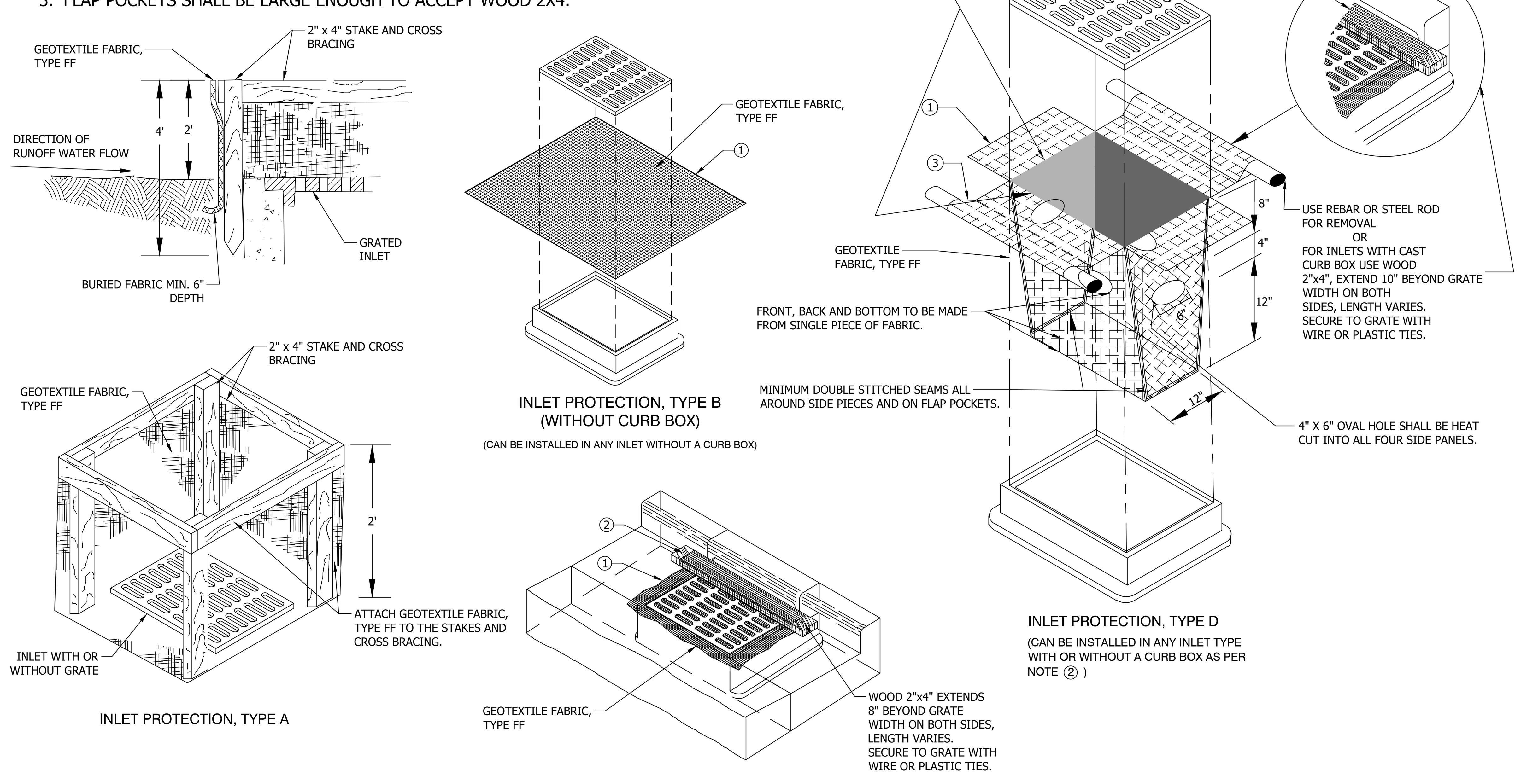


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



1 SILT FENCE (TYP)
NTS

1. FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
2. FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
3. FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

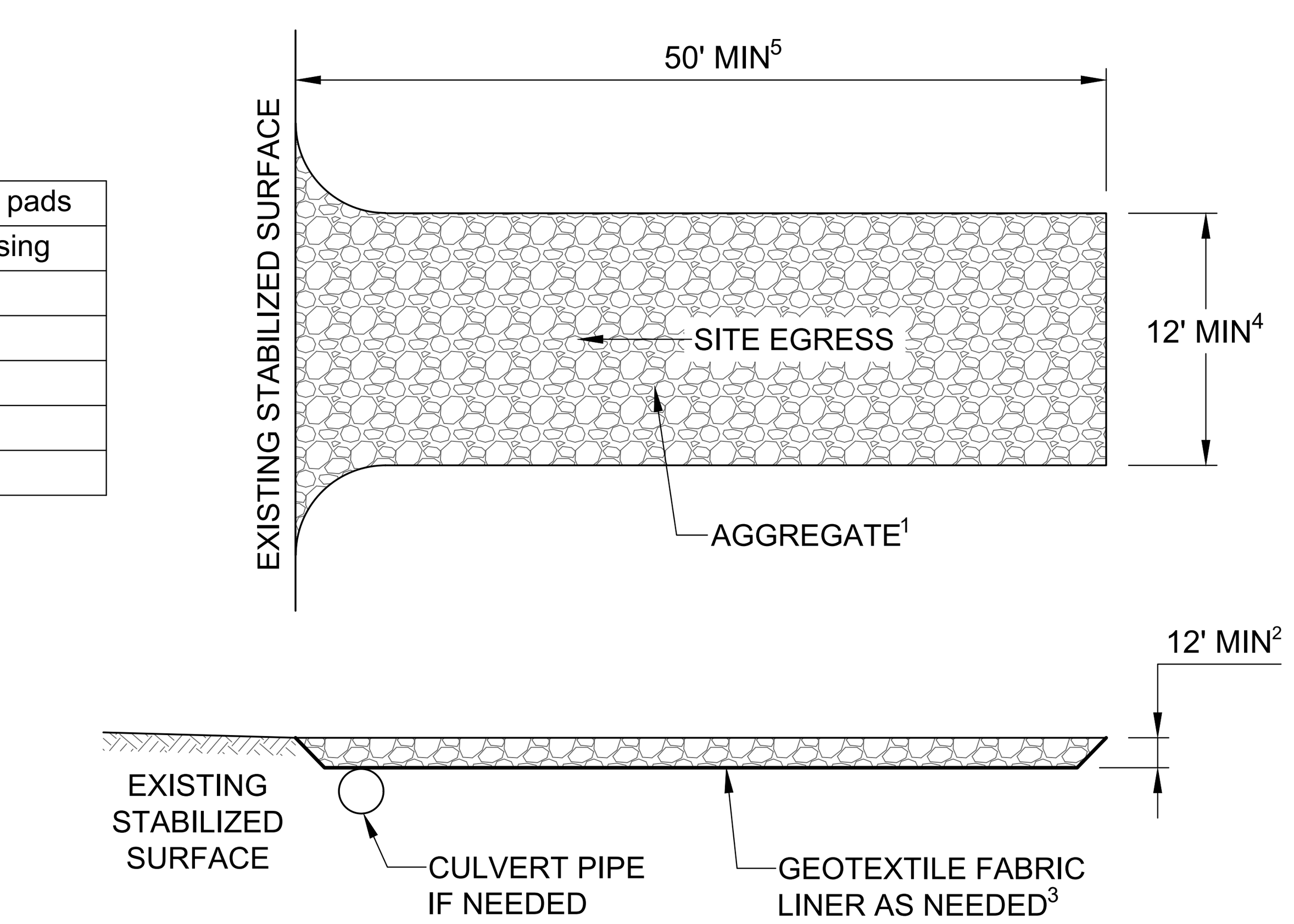


2 INLET PROTECTION (TYP)
NTS

NOTES
1. USE HARD, DURABLE, ANGULAR STONE OR RECYCLED CONCRETE MEETING THE GRADATION IN TABLE 1. WHERE THIS GRADATION IS NOT AVAILABLE, MEET THE GRADATION IN WISCONSIN DEPARTMENT OF TRANSPORTATION (DOT) 2018 STANDARD SPECIFICATIONS, SECTION 312, SELECT CRUSHED MATERIAL.
2. SLOPE THE STONE TRACKING PAD IN A MANNER TO DIRECT RUNOFF TO AN APPROVED TREATMENT PLACE.
3. SELECT FABRIC TYPE BASED ON SOIL CONDITIONS AND VEHICLES LOADING.
4. INSTALL TRACKING PAD ACROSS FULL WIDTH OF THE ACCESS POINT, OR RESTRICT EXISTING TRAFFIC TO A DEDICATED EGRESS LAND A LEAST 12 FEET WIDE ACROSS THE TOP OF THE PAD.
5. IF A 50' PAD LENGTH IS NOT POSSIBLE DUE TO SITE GEOMETRY, INSTALL THE MAXIMUM LENGTH PRACTICABLE AND SUPPLEMENT WITH ADDITIONAL PRACTICES AS NEEDED.

Table 1. Gradation for stone tracking pads

Sieve Size	Percent by weight passing
3"	100
2-1/2"	90-100
1-1/2"	25-60
3/4"	0-20
3/8"	0-5



3 TRACKING PAD (TYP)
NTS

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EROSION CONTROL DETAILS & NOTES
RIVER POINT - PHASE 3
CITY OF MANITOWOC
MANITOWOC, WISCONSIN

DATE OF ISSUANCE	
1/17/2024	

NO	REVISION	DATE

SURVEY	CORNER POINT
DRAWN	
DESIGNED	
CHECKED	---
APPROVED	JAW
PROJ. NO.	193805824

SHEET NUMBER
C1.02

Plot Date: 01/17/2024 - 4:56pm
Drawing name: C:\pw_stn_bh_infra01\vd0198016\193805824C110.dwg
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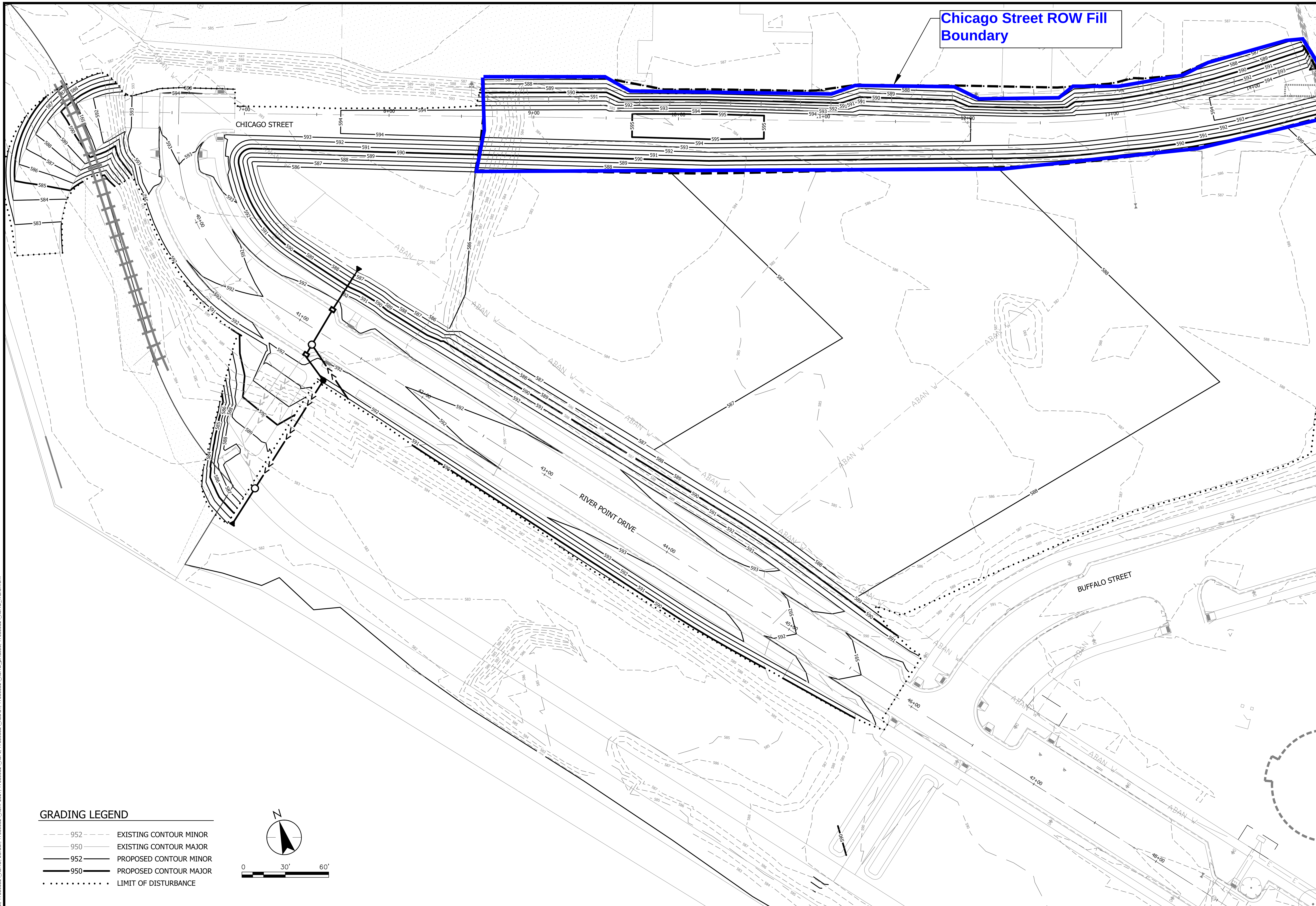

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GRADING PLAN

RIVER POINT - PHASE 3
CITY OF MANITOWOC
MANITOWOC, WISCONSIN

DATE OF ISSUANCE	
1/19/2024	

NO	REVISION	DATE

SURVEY	CORNER POINT
DRAWN	
DESIGNED	
CHECKED	----
APPROVED	JAW
PROJ. NO.	193805824

SHEET NUMBER
C3.01

Plot Date: 01/19/2024 - 4:27pm
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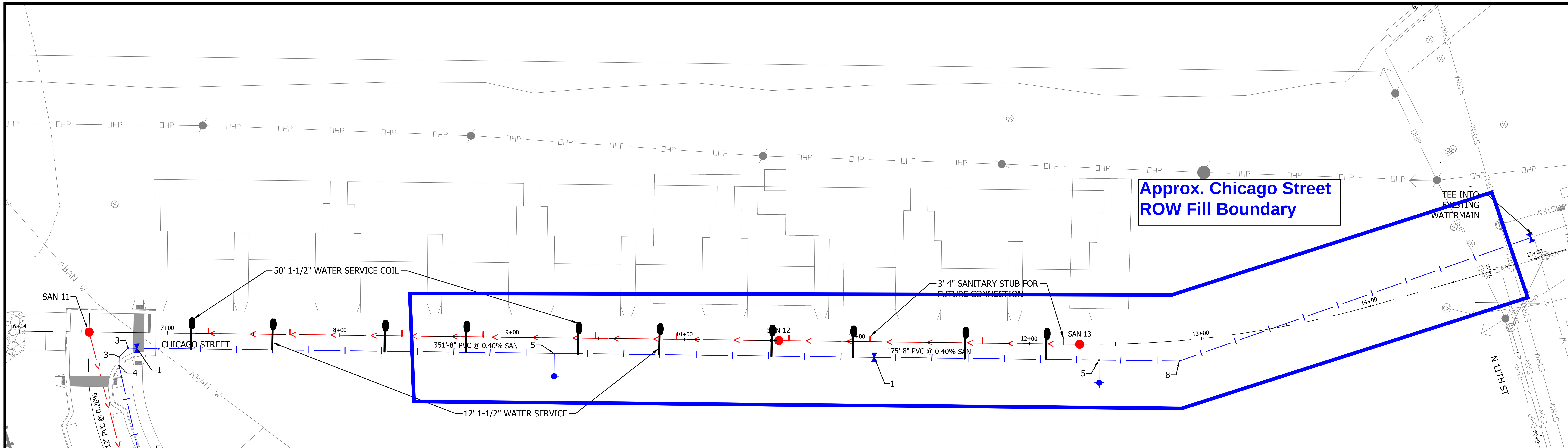


HYDRANTS: 8"X6", 6" WATER LINE TO HYDRANT, 6" GATE VALVE, FIRE HYDRANT ASSEMBLY. HYDRANTS MUST HAVE THEIR DRAIN PORTS PERMANENTLY PLUGGED OR BE INSTALLED WITHOUT DRAIN PORTS.

GAS/ELECTRICAL: ALL GAS AND UNDERGROUND ELECTRICAL LINES ARE SHOWN FOR REFERENCE ONLY. EXACT LOCATIONS WILL BE DETERMINED BY POWER COMPANY.

WATER: ALL WATER LINES AND SERVICE LINES TO BE WRAPPED IN POLYETHYLENE WRAP. WATERMAIN GASKETS WILL NEED TO BE FLUOROCARBON GASKETS.

KEYNOTES

1. 8" VALVE
2. GRADE BREAK
3. 8" 45° BEND
4. 8" 11.25° BEND
5. 8" x 6" TEE (FOR HYDRANTS SEE NOTES
6. 8" 90° BEND
7. DEFLECTION
8. 8" 22.5° BEND
9. 8" 22.5° BEND VERT.
10. CONNECT TO EXISTING 8" WATERMAIN

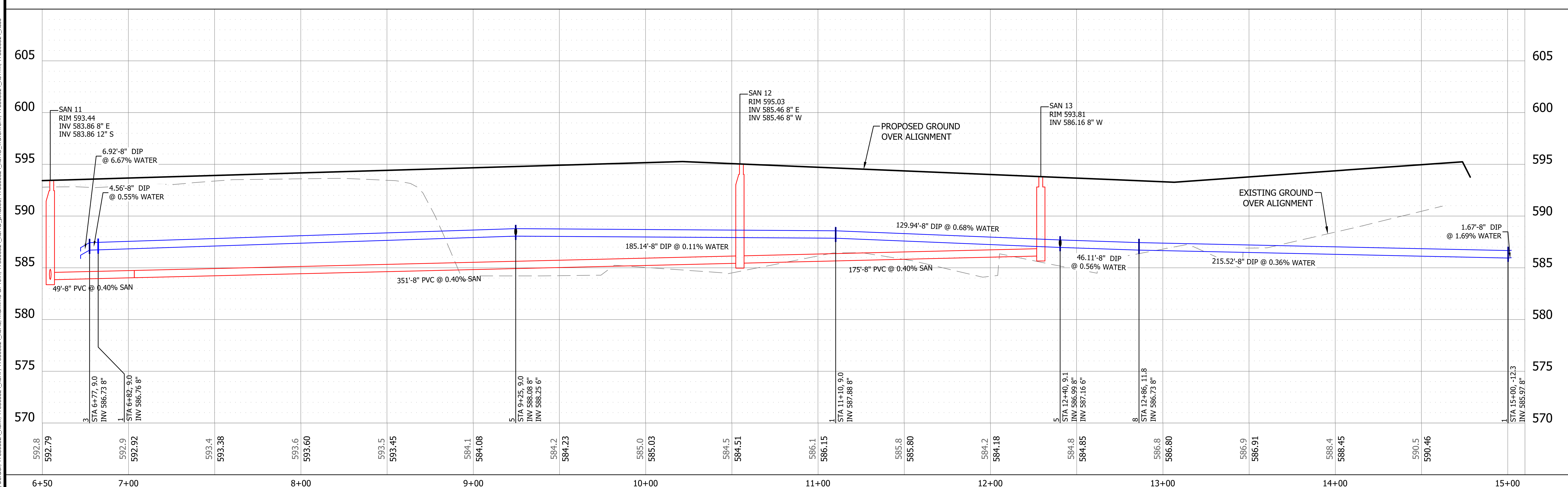
LEGEND

- SAN — EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- STRM — EXISTING STORM SEWER
- PROPOSED STORM SEWER
- W — EXISTING WATERMAIN
- PROPOSED WATERMAIN

N

0 30' 60' HORIZONTAL

0 5' 10' VERTICAL



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UTILITY PLAN & PROFILE - CHICAGO ST (ALTERNATE)

RIVER POINT - PHASE 3
CITY OF MANITOWOC
MANITOWOC, WISCONSIN

DATE OF ISSUANCE	
1/17/2024	

NO	REVISION	DATE

SURVEY	CORNER POINT
DRAWN	
DESIGNED	
CHECKED	----
APPROVED	JAW
PROJ. NO.	193805824

SHEET NUMBER
C4.03

Plot Date: 01/17/2024 - 6:31pm
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