THE CITY OF DULUTH MINNESOTA

MEETING AGENDA

Duluth Heritage Preservation Commission, Special Meeting
To view the meeting, visit http://duluthmn.gov/live-meeting

Tuesday, May 26, 2020, 12:00 PM
(Note: Special Date, Time, and Location)

Call to Order and Roll Call

1. Recognition of Two New Commission Members, M. Anderson and B. Hartung

New Business

2. PL 20-054 Historic Construction Permit (Façade/Windows/Doors), Temple Opera Building at 201 East Superior Street, Related to Rehabilitation of the Structure for New Occupancy
3. PL 20-057 Historic Construction Permit (Impacts of 335 Feet/Temporary and 185 Feet/Permanent), Lake Superior and Mississippi Rail Road, Related to the Spirit Lake Sediment Remediation Project
4. Memorandum of Agreement Between US EPA, MN SHPO, Fond Du Lac Band of the Lake Superior Chippewa, City of Duluth, and the United States Steel Corporation Regarding the Spirit Lake Sediment Remediation Project

Communication and Other Business

5. Consideration of Minutes: March 17, 2020
6. Correspondence: Delay in Announcing MN SHPO CLG Grant Awards Until After May 15, 2020
7. Correspondence: MNDOT Section 106/Section 306108 Review of Lakewalk Extension Through Brighton Beach and Congdon Boulevard

Adjournment

Planning & Development Division
Planning & Economic Development Department

Room 160
411 West First Street
Duluth, Minnesota 55802

218-730-5580
planning@duluthmn.gov

MEMORANDUM

DATE: May 15, 2020

TO: Heritage Preservation Commission

FROM: Chris Lee, Planner I

RE: Review of Historic Construction/Demolition Permit for the Temple Opera Building Renovations (PL 20-054)

201E, LLC is proposing to impact the south and west façades of the Temple Opera Building. The proposal is to update exterior elements and compromised parts of the structure. The elements being replaced are not original to the building and have deteriorated beyond usable life. By updating these parts, the building will have better weather proofing and energy efficiency. The work will follow the intent of the Preservation Plan for the Temple Opera Building, especially in regards to Section IV: Restoration and Rehabilitation, Section C-Windows and Doors and Section D-Storefronts.

This will not alter the character of the building and the new designs will recreate the original designs on the building. Work proposed will be to remove existing doors and windows, clean the masonry, and replace with modern efficient windows and clear glass (see attached project description).

The Temple Opera Building was designated a Duluth Landmark July 9, 1991, by the City Council. Therefore, according to Sec. 50-37.14.B of the Duluth Legislative Code, before demolition and construction may occur the Heritage Preservation Commission (HPC) must review the application for the proposed work and approve a Historic Construction/Demolition Permit.

Criteria to be considered as part of the HPC's permit review are found in Sec. 50-37.14.C:

> The commission shall approve the application, or approve it with modifications, if the commission determines that the application complies with all applicable provisions of this Chapter and state law and that the work to be performed shall not adversely affect the historic preservation landmark or district based on adopted historic preservation guidelines.

As there is an adopted preservation plan on file for this Duluth Landmark specifically, the HPC may want to consider the project relative to the purpose statements from the body's bylaws.

The Heritage Preservation Commission's (HPC) purpose relative to this:

- Promote of the use and preservation of historic landmarks and districts for the educational and general

welfare of the people of the City of Duluth; and
- Safeguard the heritage of the City of Duluth by preserving sites and structures which reflect elements of the City's cultural, social, economic, political, engineering or architectural history; and
- Enhance the economic viability of heritage preservation landmarks and districts through the promotion of their unique character; and
- Protect and enhance the City's attractions to residents, tourists and visitors, and serve as a support and stimulus to business and industry.

It is recommended that any determination made by the HPC regarding the MOA include findings to support the decision.

Scope of Work Form
Temple Opera Building
201 E Superior Street

Work Item Number: 1
Approx. Date of Feature: Unknown, but appear to have been replaced in last 50 years

Architectural Feature: Exterior Windows, Storefront, Doors

Describe the existing feature and its condition:
The exterior openings are comprised of wood sash type windows, wood sash type storefront and wood doors and frames. See drawings and photos for locations. It appears they have all been replaced within last 50 years which means they are not original to the building. These units are now deteriorated to the point of failure. The rehabilitation of the building requires new exterior windows/doors to maintain the building aesthetic and weather integrity. Furthermore, the new window/door openings are required for the energy upgrade goals being implemented throughout the building.

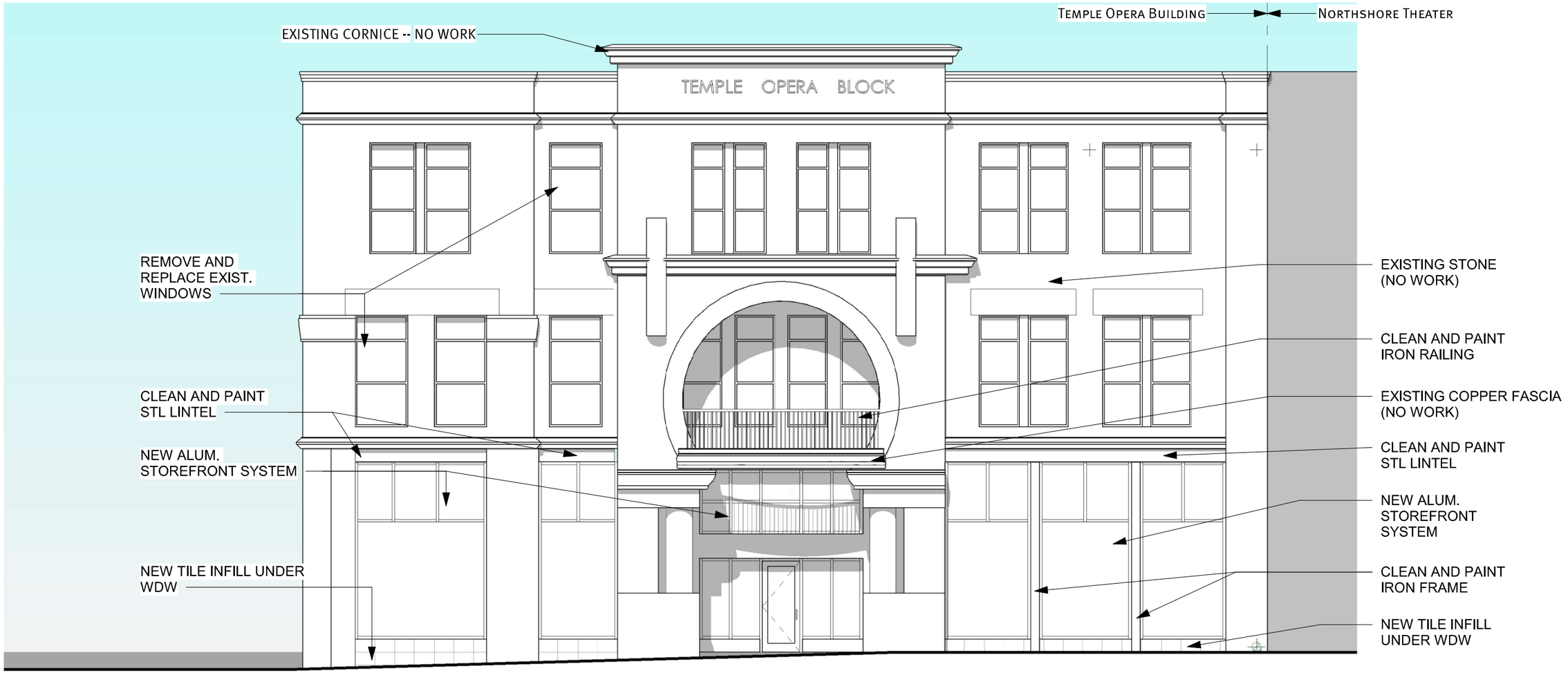
Accompanying photo number:
See photo sheet showing west and south facades

Describe the work to be done on exiting feature:
The work will follow the intent of the *Preservation Plan for the Temple Opera Building, notably Section IV. Restoration and Rehabilitation, Section C-Windows and Doors and Section D-Storefronts.*

The commercial character of the building shall be preserved. The new windows/doors will match the design of the original building (see drawings). The work shall include the removal of existing windows and doors. The existing masonry openings will be cleaned and prepared for new window and door units. The new window/door units shall be aluminum thermally broken, insulated glass units, with a factory painted finish. Glass shall be clear. Ground floor storefront units will also receive the same type of window system. Exterior doors will be same type of system and shall be stile and rail aluminum doors with divided glass.

Paint Color: Dark grey

Other Materials: Storefront knee wall: masonry stone tile



1 South Elevation

1/8" = 1'-0"

print 11x17

dsgw enriching communities through architecture

Temple Opera Renovations

South Elevation

A1

Date: 4/29/2020 2:39:12 PM

1 West Elevation

1/8" = 1'-0"

print 11x17

dsgw enriching communities through architecture

TEMPLE OPERA RENOVATIONS

WEST ELEVATION

A2

Date: 4/29/2020 2:39:13 PM

1 Superior Street View

print 11x17

dsgw enriching communities through architecture

Temple Opera Renovations

Street View

A3

Date: 4/29/2020 2:39:14 PM

print 11x17

dsgw enriching communities through architecture

Temple Opera Renovations

Photos

A4

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DRAFT 7-9-91

PRESERVATION PLAN
MASONIC TEMPLE BUILDING HERITAGE PRESERVATION LANDMARK

I. INTRODUCTION

The following preservation plan contains design review guidelines which will serve as a basis for the Duluth Heritage Preservation Commission's permit review decisions with regard to exterior building facades of the Masonic Temple Heritage Preservation Landmark. These guidelines define the acceptable means by which the Masonic Temple Building unique physical appearance can be preserved and enhanced through rehabilitation, restoration, or new construction.

One purpose of these guidelines is to provide assurance to the owners of the property that the permit review process will be based on clear standards rather than the taste of individual commission members.

The guidelines will be interpreted with flexibility depending on the particular merit of the proposed changes under review and their impacts on any part of the building. Consideration will be given to the availability of historical materials. When applying the guidelines, the Commission will also consider the economic impacts of the design requirements. Decisions of the Heritage Preservation Commission are subject to appeal to the City Council within ten days of written notice of the decision by any party aggrieved by the Commission's decision.

II. AREAS TO BE PRESERVED

A. South (front) exterior building facade
B. West exterior building facade

III. NEW CONSTRUCTION

New construction is not anticipated for the Masonic Temple Building Heritage Preservation Landmark since the footprint of the existing building takes up the entire property. Any new addition to the landmark would necessarily be an upward expansion. In this case, such addition would need to provide height, massing, setback materials, and rhythm compatible to the original building. Guidelines for new construction focus on general rather than specific design elements as follows:

A. Setback-Siting.

In general, new construction should match the setback of the original building.

B. Massing, volume, and height.

Any new construction should conform to the massing of the original structure respecting the height, volume, and scale of adjacent structures.

C. Roofs, Caps and Cornices.

New roof, cap and/or cornice design should replicate the style of roof and materials of the original structure. A new roof should also relate in size and proportion to adjacent buildings.

D. Materials and Detail.

Any new construction should match the brownstone of the existing building and restore details lost in the removal of the three upper stories.

E. Windows and Doors.

Windows should relate to those of the existing building in terms of solid to opening ratios, distribution of window openings, and window setback from the wall surface. The proportion, size, and detailing of windows and doors in any new construction should restore the appearance of the original facade and relate to that of the existing building. Double-hung windows are traditional in the district and shall be encouraged for new construction. Window and door frames shall be wood, appropriately colored aluminum and/or vinyl clad materials.

IV. RESTORATION AND REHABILITATION

In general, the United States Secretary of the Interior's Recommended Standards for Historic Rehabilitation shall be followed (see Attachment A). In addition, the following standards shall be applied:

A. Masonry and Walls.

1. Original masonry and mortar shall be retained whenever possible without application of waterproofing, water repellent coatings or surface consolidation treatments unless these treatments are absolutely required to solve a specific technical problem.

2. Where necessary, repair or replacement of deteriorated materials should be made with new material that duplicates the old as closely as possible.

3. To preserve the life of building materials, masonry should

be cleaned only when necessary to halt deterioration or to remove graffiti and stains. The most gentle method shall be used, such as the use of low pressure water or approved chemical solutions.

4. The original or early color and texture treatment of masonry surfaces should be retained wherever possible.

5. When repointing, old mortar shall be duplicated in composition, color and texture and be duplicated in joint size, profile type, and method of application in order to preserve the original appearance. If laboratory analysis shows the composition characteristics of the original mortar to be unsuitable, mortar composition may be altered. If the mortar composition is to be altered, the appearance of the mortar shall duplicate the color and texture of the original mortar. Mortar shall be no more than 1 part in 8 Portland Cement.

B. Roofs, Cornices and Details.

1. Since the existing roof is flat and not visible from the street level, the manner of repair or replacement is not critical. However, some thought should be given to the fact that many buildings further up the hill do have views of the roof of this building, thus new roofing materials should blend in with the existing building and adjacent structures.

2. All historic craftsmanship, detailing and decorative features that give the roof its essential character should be preserved or restored. Similar material shall be used to repair or replace deteriorating or missing architectural elements such as cornices, brackets, cupolas, chimneys, cresting, vanes, gutters, downspouts, and railings wherever possible.

C. Windows and Doors.

1. Existing window and door openings shall be retained. Whenever possible, original windows and doors and their hardware shall be repaired for reuse.

2. A missing or non-repairable original window or door should be replaced with a window or door that has an appropriate profile and resembles the original and which is recessed to its original depth.

3. Replacement of windows and doors with new stock windows, sashes or doors shall not be allowed if they require alteration of the frame opening or if the size of the window panes, sash or door cause changes in the scale and original

proportions of the building.

4. Infilling of window openings is generally not acceptable.

5. Plastic or metal awnings and fake shutters should not be allowed. Shutters are inappropriate for this building.

6. Heating and air conditioners should be installed in such a manner as to not damage window and door frames or require the removal of the original doors or windows. Window or door installation shall be considered only when all other viable heating and cooling systems installations will result in significant damage to historic materials.

7. Storm windows and doors should be selected to be compatible with the character of the building and shall not damage window and door frames or require the removal of the original windows or doors. Exterior storm windows should be appropriate in size and color and should be operable.

8. Awnings and canopies shall not be utilized when they conceal richly detailed entries and/or windows. Aluminum or plastic awnings shall not be allowed. Large or garish lettering shall not be allowed.

9. Lintels, sills, pediments, hoods and steps should be retained or repaired if possible. If repairing, the color and texture shall match existing colors and textures.

D. Storefronts

1. Existing storefronts should be retained and repaired including windows, sash, doors, transoms, signage, and decorative features which contribute to the architectural and historic character of the building.

2. Where original or early storefronts no longer exist or are too deteriorated to save, the commercial character of the building should be preserved, preferably through an accurate restoration of the original storefront based on historical research and physical evidence; or where this is prohibitive, with a building design which is compatible with the scale, design, materials, color and texture of the historic building.

3. Storefront or new design elements on the ground floors should not be introduced which alter the architectural or historic character of the building nor shall these elements disturb its relationship with the street, its setting, or cause destruction of the significant historic fabric. Materials which distract from the historic architectural character of the building shall not be used.

V. SIGNS AND ACCESSORIES

Signs shall be compatible with the character of the building. Signs should not conceal architectural detail, clutter the building's image, or distract from the unity of the facade.

A. Materials

Sign materials shall complement materials of the existing building. Surface design elements shall not distract from or conflict with the structure's age and/or design. Materials which are the same as those that were used for signage during the period of the building construction shall be encouraged. Newer materials and technologies such as extruded aluminum and plastics, internally lit cabinet signs, or backlit awning signs are not appropriate for the building.

B. Type Styles

The type styles used to letter the signboard shall enhance the building's design and materials. Type styles should also be compatible with types from the period of the building's construction.

C. Method of Attachment

Painted signs may be permissible on glass windows and doors. The facade shall not be damaged in sign installation except for minor attachment. The method of attachment shall respect the structure's architectural integrity and shall become an extension of the buildings architectural features wherever possible.

D. Lighting

Location of exterior lights shall be appropriate to the individual structure. Subdued lighting is preferred. There shall be no flashing, blinking, moving or varying intensity lighting, fixtures shall relate to the historic period of the building's construction.

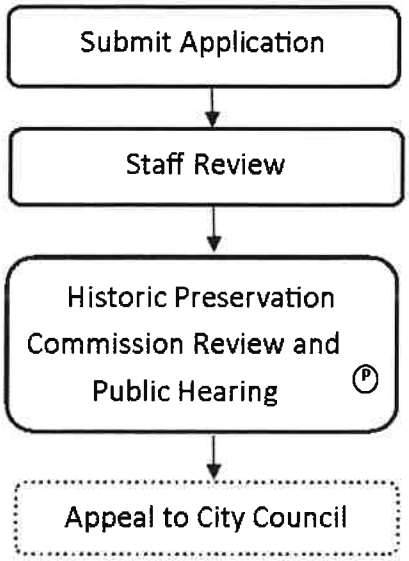
VI. DEMOLITION

The Heritage Preservation Commission is charged with reviewing permit applications for demolition of structures under Duluth City Code, Chapter 28A, Article II, Sec. 28A-5; Duluth City Code, Chapter 10, Article II, Sec. 10.3; and Duluth City Code, Chapter 10, Article III, Sec. 10-4.

In general, demolition of the Masonic Temple Building Heritage Preservation Landmark will be discouraged. In the event that a building is over 50% destroyed by fire or an act of God, demolition may be permitted.

3.16 Checklist
Historic Construction/Demolition Permit

Historic Construction/ Demolition Permit



Ⓟ Indicates Public Hearing Required

A historic construction/demolition permit applies for construction or demolition within a historic district or on a historic property listed in UDC Section 50-18.3. See UDC Section 50-37.14 for more information.

Starting the Application Process

☒ Submit your application materials to the One Stop Shop, Room 210 City Hall, four weeks prior to the HPC meeting. HPC meetings are held on the fourth Tuesday of each month. Your application must include the following:

- ☒ Application Cover Sheet and Applicable Fee
- ☒ Required fee
- ☒ Application for Certificate of Appropriateness

After Your Application

1. Determination of Completeness. Within 15 business days of your application, you should expect to:

- Receive an "Applicant Letter," which acknowledges a complete application, shares the date of the Planning Commission meeting and the assigned staff person, and notifies you of state-mandated deadlines for the City to make a decision, **OR**
- Receive notification that your application is incomplete, with details on further information to submit.

2. Public Notice.

☐ **You are required to post a sign notice** on the property at least two weeks before the date of the public hearing. See UDC Section 50-37.1.H for information on size, placement, and content of each sign; you may want to contact a sign company or printing company to have the sign made. You must provide evidence that the signs were in place; ***submit photo(s) of the signs to the Planning Division at least two weeks before the date of the public hearing.***

3. Historic Preservation Commission Decision. The Historic Preservation Commission will review the application, conduct a public hearing, and make a decision to adopt, adopt with modifications, or deny the application. Historic Preservation Commission meetings are scheduled at 2:00 pm on the fourth Tuesday of each month. **We ask that applicants or an agent attend this meeting.** If approved, you will receive a Certificate of Appropriateness (COA).

Important Dates

Application Deadline: _____

Sign Notice Placed: _____

HPC: _____

Effective: _____

**Please note that these dates are approximate guidelines and may change*

Note that other city codes may apply to your project. Please be aware of any applicable Building Code (Construction Services Division), Fire Code (Life Safety Division), and stormwater/engineering (Engineering Division) regulations. The zoning approval may be only the first step in a several step process.

Application for
CERTIFICATE OF APPROPRIATENESS
for Duluth Heritage Preservation Landmarks and Districts

Please complete this application as it pertains to your project. Attach all information required, including a scope of work form.

Location of Building: 201E Superior St (Street Address) Duluth, MN (City, State) 55802 (Zip Code)

Temple Opera Building (Historic Name) (Architect Name(s) - if known)

Owner: 201E, LLC (Name) 1330 East Superior St, Duluth, MN 55802 218-461-4344 (Street Address, City, State, Zip Code) (Daytime Phone)

Applicant: Same as Owner (Applicant's Name, if other than owner) (Street Address, City, State, Zip Code) (Daytime Phone)

Owner's Signature: Bin Zi / 201E, LLC **Date:** 4/30/20

TYPE OF WORK PROPOSED

☒ Exterior Restoration ☐ Addition to Building ☐ Landscaping ☐ Signs ☐ New Construction
☐ Interior Restoration (COA may not be required - please check building's preservation plan)

☒ EXTERIOR ALTERATIONS (CHECK ALL THAT APPLY)

- ☒ **Windows**
- ☒ **Doors**
- ☐ **Siding**
- ☐ **Roof change**
- ☐ **Chimney**
- ☐ **Lighting**
- ☐ **Facade**
- ☐ **Other**

Checklist of items needed for application:

- ☐ Scale drawings of all building elevations impacted by change
- ☐ Photos of current condition of all building elevations impacted by
- ☐ Detailed specifications and scope of work
- ☐ Materials to be used (color number, sample of material & that which is being matched, name of manufacturer & material)
- ☐ Detailed drawings of new windows, doors, or other features in scope of work

Description of proposed changes:
Replacement of existing exterior windows, storefront and entry doors.

Reason for changes: Exterior openings are beyond life expectancy with excessive deterioration and need to be replaced to maintain the exterior weather proof integrity of the building.

Location of changes on building: West and South facades

☐ ADDITION TO BUILDING

Description of addition:

Reason for changes:
Location of addition on site:
Reason for addition:
Size: (Number of Stories) (Length) (Width) (Height)

Architect: (Name) (Street Address, City, State, Zip Code) ( ) - (Phone)

Contractor: (Name) (Street Address, City, State, Zip Code) ( ) - (Phone)

Checklist of items needed for application:

☐ Scale drawings of all building elevations impacted by change
☐ Photos of current condition of all building elevations impacted by change
☐ Detailed specifications and architectural drawings of existing structure
☐ Detailed specifications and architectural drawings of new construction (Including but not limited to materials to be used on exterior and architectural elements - color numbers, samples of materials & samples of existing materials being matched, name of manufacturers & materials)
☐ Site plan showing existing and new construction

☐ LANDSCAPING:

Description of proposed landscape changes: _____

_____

Reason for changes: _____

Location of changes on site: _____

Checklist of items needed for application:

☐ Detailed architectural landscape design plans to scale with building elevations shown
☐ Detailed site plans to scale
☐ Material samples and existing materials samples
☐ Photos of existing landscape and structures to be impacted.
☐ Detailed scope of work and specifications.
☐ Photos of statues, structures, etc. to be incorporated, if appropriate

☐ SIGNS

Purpose: _____
Location: _____
Size: _____
Material: _____
Description: _____

Checklist of items for application:

☐ Architectural drawings of all building elevations related to new sign - must illustrate the location of both proposed and existing signs and method of lighting (if any).
☐ Architectural drawings of all proposed signs illustrating style(s), noting dimensions, materials, method of attachment to building or below ground structure, if free-standing, etc.
☐ Samples of all materials to be used (specific colors).
☐ Associated lighting, specifications, photos and/or catalog cuts
☐ A full description of the work to be performed.
☐ If prefabricated sign, photos and name of manufacturer, model number, etc.

☐ INTERIOR RESTORATION

Description of proposed interior changes:

_____

_____

_____

Reason for interior changes: _____

_____

Location of changes within building: _____

_____

_____

Checklist of items for application:

☐ Scale drawings of all building elevations impacted by change
☐ Photos of current condition of all building to be impacted by changes
☐ Detailed specifications and architectural drawings of modifications to be made (Including but not limited to: materials to be used on exterior and architectural elements - color numbers, samples of materials & samples of existing materials being matched, name of manufacturers & materials)
☐ Detailed floor plan showing existing and new construction

☐ **NEW CONSTRUCTION ON SITE**

Description of Addition: _____

_____

_____

_____

Reason for Addition: _____

Location of Addition on site: _____

Size: _____

(Number of Stories) (Length) (Width) (Height)

Architect: _____ ( ) - _____

(Name) (Street Address, City, State, Zip Code) (Phone)

Contractor: _____ ( )- _____

(Name) (Street Address, City, State, Zip Code) (Phone)

Checklist of items needed for application:

☐ Scale drawings of all building elevations impacted by change
☐ Photos of current condition of all building elevations impacted by change
☐ Detailed specifications and architectural drawings of existing structure
☐ Detailed specifications and architectural drawings of new construction (Including but not limited to: materials to be used on exterior and architectural elements - color numbers, samples of materials & samples of existing materials being matched, name of manufacturers & materials)
☐ Site Plan showing existing and new construction

Reductions to 11" by 17" are required of all oversized blueprints, plans, and drawings.
No applications will be processed without a complete application, signed by the owner, and all required attachments.

Duluth Heritage Preservation Commission
Duluth Community Planning Division
Room 208 City Hall
Duluth, MN 55802
Phone: 730-5580

SCOPE OF WORK FORM

Instructions for Completing the Scope of Work Form for Local Historic Landmark Designations

Detailed Description of Work. In the numbered blocks, provide a description of project work. Describe the site work. A separate block should be used to describe each work item and its effect on architectural features or spaces.

In the left block, identify the architectural feature to be impacted, and indicate whether the feature described is original to the building, was added at a later date, or is new construction. Give the approximate date of the feature. In the appropriate space, describe its physical condition. Indicate the photograph or drawing numbers that show the feature described.

In the right block, explain in detail the work to be undertaken. Describe the effect (visual, structural, or other) on existing features. List drawings, marked photographs, or specification page numbers that show the work and impact on the existing building.

Photographs. The applicant must submit a sifficient number of good, clear photographs to document both interior and exterior conditions, including site and environment, prior to any work to be performed, and to show the areas of proposed or completed work.

Elevations and interior features and spaces of the buildings should be shown. All photographs should be numbered, dated and labeled with the property name, the view (e.g., east side) and a brief description of what is shown; photographs should be keyed to the application narrative, where appropriate. In many cases, it may be helpful to mark directly on the photographs the areas of proposed or complete work. Photographs may be black-and-white or color, but must show architectural features *clearly.* Photographs are not returnable.

Drawings or sketches. Drawings or sketches are required for proposed work to show planned alterations or new construction. They must be sufficiently detailed to show existing wall configurations and anticipated changes. If warranted by the work to be performed, documentation should include floor plans, sections and elevations. All drawings and sketches submitted with the review form should be numbered and should be keyed to the form.

Project amendments. If changes are made to a project at any time after submission of the initial review form, submit a continuation/amendment sheet. Provide the name and address of the property, indicate changes in project work, giving the originally proposed treatment and the amended work item description. Give the owner's name. Sign and date the form. Give the owner's address and daytime telephone number. Return to City Planning Department. (See sample format.below)

Scope of Work (Please provide scope of work from architect for all features to be addressed - include all items that follow.) Work Item number: _____ Approx. Date of Feature: _____ Architectural Feature: _____ _____ Describe the existing feature and its condition: Accompanying photo number:	Describe the work to be done on existing feature: Paint Color Name & Number and Manufacturer: Other materials: Type, Color and Manufacturer (Use additional page if necessary)

SCOPE OF WORK

No. 1 **Architectural feature:** facade brick **Approximate date of feature:** ca. 1880 **Description of feature and its condition:** Hard pressed red brick with butter joints in good condition. Mortar mostly sound, but deteriorated and missing around downspout at east end of facade. Some graffiti at first floor. Photo No. 3.6 Drawing No. ____	**Description of work to be performed on existing feature:** Repair and replace existing mortar with new to match existing (see specs.). Remove graffitti with chemical cleaners (see specs.).
No. 2 **Architectural feature:** **Approximate date of feature:** **Description of feature and its condition:** Photo No.____ Drawing No. ____	**Description of work to be performed on existing feature:**

Planning & Development Division
Planning & Economic Development Department

Room 160
411 West First Street
Duluth, Minnesota 55802

218-730-5580
planning@duluthmn.gov

MEMORANDUM

DATE: May 19, 2020

TO: Heritage Preservation Commission

FROM: Kyle Deming, Planner II

RE: Review of Historic Construction/Demolition Permit for effects to the Lake Superior and Mississippi Railroad, a Duluth Landmark, due to the Spirit Lake Sediment Remediation Project (PL 20-057)

The U.S. Environment Protection Agency (EPA), Great Lakes National Program Office, is proposing temporary impacts to 355 feet and permanent impacts to 185 feet of the Lake Superior and Mississippi Railroad (LSMRR) as part of the Spirit Lake Sediment Remediation Project. Please see attached application for Certificate of Appropriateness and related Attachments A and B.

The LSMRR from Spring Street to Boy Scout Landing was designated a Duluth Landmark July 15, 2019, by the City Council via Ordinance 10634 (Planning file number PL 18-007). Therefore, according to Sec. 50-37.14.B of the Duluth Legislative Code, before demolition or construction may occur the Heritage Preservation Commission (HPC) must review the application and approve a Historic Construction/Demolition Permit.

Criteria to be considered by the HPC's are found in Sec. 50-37.14.C:

> The commission shall approve the application, or approve it with modifications, if the commission determines that the application complies with all applicable provisions of this Chapter and state law and that the work to be performed shall not adversely affect the historic preservation landmark or district based on adopted historic preservation guidelines.

As there is not an adopted preservation plan on file for this Duluth Landmark specifically, the HPC may want to consider the project relative to the recent Duluth Landmark Nomination documents (see attached LSMRR Nomination) and the HPC's purpose statements from the body's bylaws.

The HPC's purpose relative to this

- Promote of the use and preservation of historic landmarks and districts for the educational and general welfare of the people of the City of Duluth; and
- Safeguard the heritage of the City of Duluth by preserving sites and structures which reflect elements of the City's cultural, social, economic, political, engineering or architectural history; and
- Enhance the economic viability of heritage preservation landmarks and districts through the promotion of their unique character; and

- Protect and enhance the City's attractions to residents, tourists and visitors, and serve as a support and stimulus to business and industry.

It is recommended that any determination made by the HPC regarding the Historic Construction/Demolition Permit include findings related to the above criteria to support the decision.

Planning & Development Division
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Room 160
411 West First Street
Duluth, Minnesota 55802
218-730-5580
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Check One Box

_____ Accessory Home Share-**$100**

_____ Appeal to Planning Com. - **$385**

_____ Concurrent Use of Streets - **$772**

_____ District Plan - **$2,500**

_____ EAW or EIS- **$2,769,** plus any applicable professional fees

__x__ Historic
____x Construction/Demolition - **$57**
_____Resource Designation - **$100**

_____ Interim Use Permit **$621**

_____ Planning Review - **$1,036**

_____ Sidewalk Use Permit
_____New Permit- **$166**
_____Renewal Permit - **$84**

_____ Special Use Permit, General - **$1,554**

_____ Special Use Permit, Wireless Telecommunications*
____ Modifying or Co-locating – **$2,770**
_____New Facility or Tower – **$5,542**
_____Escrow Deposit - **$9,421**

_____ Subdivision Plat Approval or Amendment:
_____Concept Plan - **$277**
_____Preliminary Plat - **$1,103**
_____Final Plat- **$831**
_____Minor Subdivision-**$414**
_____Plat Amendment or Boundary Line Adjustment - **$277**
_____Registered Land Survey-**$414**

_____ Temporary Use Permit - **$275**

_____ UDC Zoning Map Amendment/Rezoning
_____General - **$884**
_____MU-P or R-P **$2,500**

_____ Vacation of Street or Utility Easement - **$878**

_____ Variance - **$829**

_____ Wetland,
____ De Minimus, Delineation, or No Loss- **$220**
_____Exemption-**$166**
_____Replacement Plan - **$825**

_____ Zoning Verification Letter-**$93**

APPLICATION COVER SHEET

CONTACT INFORMATION:

Applicant/Owner Diana Mally, U.S. Environmental Protection Agency, Great Lakes National Program Office Phone 312-886-7275 Email Mally.Diana@epa.gov

Address 77 West Jackson Blvd

City Chicago State IL Zip 60604

Owner's Agent (if applicable)

Phone Email

Address

City State Zip

APPLICATION INFORMATION:

Street Address and Zoning of Property Not applicable

Parcel ID Number Multiple parcels; Section, Township, Range: S – 49, R – 15, Rs – 25, 26, 35, 36 and S – 48, R – 15, Rs – 1, 2

Reason for this Request (*Attach Additional Pages or Cover Letter if Necessary*)

Providing application for Historic Construction/Demolition Permit for the Spirit Lake Sediment Remediation Project. This project occurs at the Former U.S Steel Duluth Works/Spirit Lake Sediment Site and will impact several locations along the historic landmark Lake Superior and Mississippi Railroad within the 1.2-mile segment of track present in the project boundary.

The undersigned hereby represents upon all of the penalties of law for the purpose of inducing the City of Duluth to take the action herein requested, that all statements herein and attached are true and that all work herein mentioned will be done in accordance with the Ordinances of the City of Duluth and the laws of the State of Minnesota. Undersigned also understands that all documents provided to the City may be considered public data, per Minnesota Government Data Practices Act.

Diana Mally 5/12/20

Signature of Applicant Date

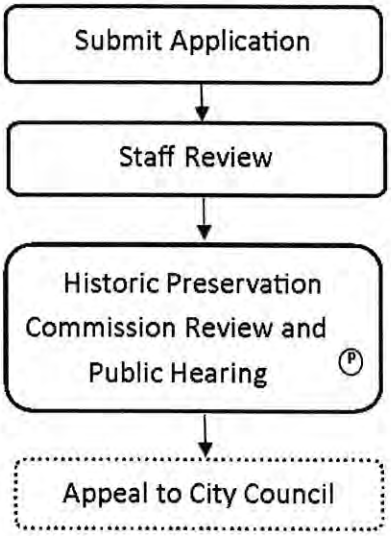
Reminder: include application checklist and all supporting information, including pre-application verification (if applicable). Submit completed information to Room 100, Construction Services and Inspections.

*Special Use Permit Checklist required to be submitted with this application coversheet.

Updated Jan 9, 2020

3.16 Checklist
Historic Construction/Demolition Permit

Historic Construction/ Demolition Permit



Ⓟ Indicates Public Hearing Required

A historic construction/demolition permit applies for construction or demolition within a historic district or on a historic property listed in UDC Section 50-18.3. See UDC Section 50-37.14 for more information.

Starting the Application Process

☒ Submit your application materials to the One Stop Shop, Room 210 City Hall, four weeks prior to the HPC meeting. HPC meetings are held on the fourth Tuesday of each month. Your application must include the following:

- ☒ Application Cover Sheet and Applicable Fee
- ☒ Required fee – in mail week of 5/11
- ☒ Application for Certificate of Appropriateness

After Your Application

1. Determination of Completeness. Within 15 business days of your application, you should expect to:

- Receive an "Applicant Letter," which acknowledges a complete application, shares the date of the Planning Commission meeting and the assigned staff person, and notifies you of state-mandated deadlines for the City to make a decision, **OR**
- Receive notification that your application is incomplete, with details on further information to submit.

2. Public Notice.

☒ **You are required to post a sign notice** on the property at least two weeks before the date of the public hearing. See UDC Section 50-37.1.H for information on size, placement, and content of each sign; you may want to contact a sign company or printing company to have the sign made. You must provide evidence that the signs were in place; ***submit photo(s) of the signs to the Planning Division at least two weeks before the date of the public hearing.***

3. Historic Preservation Commission Decision. The Historic Preservation Commission will review the application, conduct a public hearing, and make a decision to adopt, adopt with modifications, or deny the application. Historic Preservation Commission meetings are scheduled at 2:00 pm on the fourth Tuesday of each month. **We ask that applicants or an agent attend this meeting.** If approved, you will receive a Certificate of Appropriateness (COA).

Important Dates

Application Deadline: _____

Sign Notice Placed: 5/12/2020

HPC: _____

Effective: _____

**Please note that these dates are approximate guidelines and may change*

Note that other city codes may apply to your project. Please be aware of any applicable Building Code (Construction Services Division), Fire Code (Life Safety Division), and stormwater/engineering (Engineering Division) regulations. The zoning approval may be only the first step in a several step process.

Application for
CERTIFICATE OF APPROPRIATENESS
for Duluth Heritage Preservation Landmarks and Districts

Please complete this application as it pertains to your project. Attach all information required, including a scope of work form.

Location of Building: N/A Duluth, MN
(Street Address) (City, State) (Zip Code)
Lake Superior and Mississippi Railroad
(Historic Name) (Architect Name(s) - if known)

Owner: **City of Duluth** **City Hall, 411 West 1st Street, Duluth, MN 55802**
(Name) (Street Address, City, State, Zip Code) (Daytime Phone)

Applicant: **USEPA Great Lakes National Program Office** **77 W. Jackson Blvd, Chicago, IL 60604** **312-886-7275**
(Applicant's Name, if other than owner) (Street Address, City, State, Zip Code) (Daytime Phone)

Owner's Signature: _____ **Date:** _____

TYPE OF WORK PROPOSED

☒ Exterior Restoration ☐ Addition to Building ☐ Landscaping ☐ Signs ☒ New Construction
☐ Interior Restoration (COA may not be required - please check building's preservation plan)

☐ EXTERIOR ALTERATIONS (CHECK ALL THAT APPLY)

- ☐ **Windows**
- ☐ **Doors**
- ☐ **Siding**
- ☐ **Roof change**
- ☐ **Chimney**
- ☐ **Lighting**
- ☐ **Facade**
- ☒ **Other**

Checklist of items needed for application:

- ☐ Scale drawings of all building elevations impacted by change
- ☐ Photos of current condition of all building elevations impacted by
- ☐ Detailed specifications and scope of work
- ☐ Materials to be used (color number, sample of material & that which is being matched, name of manufacturer & material)
- ☐ Detailed drawings of new windows, doors, or other features in scope of work

Description of proposed changes:

Please see Attachment A for an introduction to the scope of work and references to enclosed documentation submitted as part of consultation under Section 106 of the National Historic Preservation Act. The reports enclosed provide full detail on work to be performed and restoration measures to be implemented on the historic landmark as part of the Spirit Lake Sediment Remediation Project.

Reason for changes: **Please see Attachment A.**

Location of changes on building: **Please see Attachment A.**

☐ ADDITION TO BUILDING

Description of addition:

Reason for changes: _____
Location of addition on site: _____
Reason for addition: _____
Size: _____
(Number of Stories) (Length) (Width) (Height)

Architect: _____ ( ) -
(Name) (Street Address, City, State, Zip Code) (Phone)

Contractor: _____ ( )-
(Name) (Street Address, City, State, Zip Code) (Phone)

Checklist of items needed for application:

☐ Scale drawings of all building elevations impacted by change
☐ Photos of current condition of all building elevations impacted by change
☐ Detailed specifications and architectural drawings of existing structure
☐ Detailed specifications and architectural drawings of new construction (Including but not limited to materials to be used on exterior and architectural elements - color numbers, samples of materials & samples of existing materials being matched, name of manufacturers & materials)
☐ Site plan showing existing and new construction

☐ **LANDSCAPING:**

Description of proposed landscape changes: _____

_____

Reason for changes: _____

Location of changes on site: _____

Checklist of items needed for application:

☐ Detailed architectural landscape design plans to scale with building elevations shown
☐ Detailed site plans to scale
☐ Material samples and existing materials samples
☐ Photos of existing landscape and structures to be impacted.
☐ Detailed scope of work and specifications.
☐ Photos of statues, structures, etc. to be incorporated, if appropriate

☐ **SIGNS**

Purpose: _____

Location: _____

Size: _____

Material: _____

Description: _____

Checklist of items for application:

☐ Architectural drawings of all building elevations related to new sign - must illustrate the location of both proposed and existing signs and method of lighting (if any).
☐ Architectural drawings of all proposed signs illustrating style(s), noting dimensions, materials, method of attachment to building or below ground structure, if free-standing, etc.
☐ Samples of all materials to be used (specific colors).
☐ Associated lighting, specifications, photos and/or catalog cuts
☐ A full description of the work to be performed.
☐ If prefabricated sign, photos and name of manufacturer, model number, etc.

☐ **INTERIOR RESTORATION**

Description of proposed interior changes:

_____

_____

_____

Reason for interior changes: _____

_____

Location of changes within building: _____

_____

_____

Checklist of items for application:

☐ Scale drawings of all building elevations impacted by change

☐ Photos of current condition of all building to be impacted by changes

☐ Detailed specifications and architectural drawings of modifications to be made (Including but not limited to: materials to be used on exterior and architectural elements - color numbers, samples of materials & samples of existing materials being matched, name of manufacturers & materials)

☐ Detailed floor plan showing existing and new construction

☒ **NEW CONSTRUCTION ON SITE**

Description of Addition: **Please see Attachment A.**

_____

_____

_____

Reason for Addition: _____

Location of Addition on site: _____

Size: _____

(Number of Stories) (Length) (Width) (Height)

Architect: _____ ( ) - _____

(Name) (Street Address, City, State, Zip Code) (Phone)

Contractor: _____ ( ) - _____

(Name) (Street Address, City, State, Zip Code) (Phone)

Checklist of items needed for application: – Items included in reports - Attachment B

☒ Scale drawings of all building elevations impacted by change

☒ Photos of current condition of all building elevations impacted by change

☒ Detailed specifications and architectural drawings of existing structure

☒ Detailed specifications and architectural drawings of new construction (Including but not limited to: materials to be used on exterior and architectural elements - color numbers, samples of materials & samples of existing materials being matched, name of manufacturers & materials)

☒ Site Plan showing existing and new construction

Reductions to 11" by 17" are required of all oversized blueprints, plans, and drawings.

No applications will be processed without a complete application, signed by the owner, and all required attachments.

Duluth Heritage Preservation Commission
Duluth Community Planning Division
Room 208 City Hall
Duluth, MN 55802
Phone: 730-5580

SCOPE OF WORK FORM – See Note.

Instructions for Completing the Scope of Work Form for Local Historic Landmark Designations

Detailed Description of Work. In the numbered blocks, provide a description of project work. Describe the site work. A separate block should be used to describe each work item and its effect on architectural features or spaces.

In the left block, identify the architectural feature to be impacted, and indicate whether the feature described is original to the building, was added at a later date, or is new construction. Give the approximate date of the feature. In the appropriate space, describe its physical condition. Indicate the photograph or drawing numbers that show the feature described.

In the right block, explain in detail the work to be undertaken. Describe the effect (visual, structural, or other) on existing features. List drawings, marked photographs, or specification page numbers that show the work and impact on the existing building.

Photographs. The applicant must submit a sifficient number of good, clear photographs to document both interior and exterior conditions, including site and environment, prior to any work to be performed, and to show the areas of proposed or completed work.

Elevations and interior features and spaces of the buildings should be shown. All photographs should be numbered, dated and labeled with the property name, the view (e.g., east side) and a brief description of what is shown; photographs should be keyed to the application narrative, where appropriate. In many cases, it may be helpful to mark directly on the photographs the areas of proposed or complete work. Photographs may be black-and-white or color, but must show architectural features *clearly*. Photographs are not returnable.

Drawings or sketches. Drawings or sketches are required for proposed work to show planned alterations or new construction. They must be sufficiently detailed to show existing wall configurations and anticipated changes. If warranted by the work to be performed, documentation should include floor plans, sections and elevations. All drawings and sketches submitted with the review form should be numbered and should be keyed to the form.

Project amendments. If changes are made to a project at any time after submission of the initial review form, submit a continuation/amendment sheet. Provide the name and address of the property, indicate changes in project work, giving the originally proposed treatment and the amended work item description. Give the owner's name. Sign and date the form. Give the owner's address and daytime telephone number. Return to City Planning Department. (See sample format.below)

Scope of Work (Please provide scope of work from architect for all features to be addressed - include all items that follow.) Work Item number: _____ Approx. Date of Feature: _____ Architectural Feature: _____ _____ Describe the existing feature and its condition: Accompanying photo number:	Describe the work to be done on existing feature: Paint Color Name & Number and Manufacturer: Other materials: Type, Color and Manufacturer (Use additional page if necessary)

***Please note that in lieu of completing this scope of work form, USEPA is submitting with this application two reports which document the full scope of work to be performed on the LSMRR as a result of the Spirit Lake Sediment Remediation Project. These reports contain all information requested in this Scope of Work Form.**

APPLICATION FOR A HISTORIC CONSTRUCTION/DEMOLITION PERMIT

ATTACHMENT A

Scope of Work for Elements of The Spirit Lake Sediment Remediation Project that Impact the Lake Superior & Mississippi Railroad

May 12, 2020

Project Introduction

The environmental remediation and restoration project at the Spirit Lake site has been designed to address project effects on the City of Duluth-owned historic landmark Lake Superior and Mississippi Railroad (LSMRR), consistent with the Secretary of the Interior's Standards for Rehabilitation (standards 9 and 10). The new construction, alterations, and restorations to the historic property have been designed to be as protective to the historic integrity of the affected railroad structures as possible. These modifications will serve as improvements to the existing condition of the railroad.

The purpose of the Spirit Lake Sediment Remediation Project is to address chemical constituents of concern, primarily polycyclic aromatic hydrocarbons (PAHs) and associated heavy metals (including lead, copper and zinc), in the Spirit Lake area, and to support the eventual de-listing of the Saint Louis River AOC. The project site is located in an open reach of the St. Louis River approximately eight miles upstream of Lake Superior and adjacent to the former USS Duluth Works Steel Mill Superfund site in Duluth, Minnesota (Figure 1). The Site is bounded by the Morgan Park neighborhood of Duluth to the north, Spirit Lake and the St. Louis River to the east, and the USS-owned former steel mill property to the west and south. The remediation area is bisected by the LSMRR, situated on the western lake shore.

A 1.2-mile segment of the LSMRR is located within the project boundary (Figure 1); this project will produce temporary effects on approximately 355 feet of railroad and permanent effects on 185 feet of railroad. The LSMRR is a historic railroad owned by the City of Duluth and was designated as an historic landmark in July 2019. The construction that will be undertaken on this property to implement the remediation project warrants application for a Historic Construction/Demolition Permit from the City of Duluth Heritage Preservation Commission. The project design minimizes effects to the LSMRR and provides for site restoration to address effects where possible. For the environmental cleanup and habitat restoration of the project area to be successful and achieve the USEPA's remedial action objectives, some effect on the railroad is unavoidable. Remedial actions performed as part of the project will include sediment/soil removal sediment/soil capping, construction of three confined disposal facilities (CDF), as well as monitored- and enhanced-natural recovery (Figure 2).

As part of extensive consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA), USEPA has evaluated the effect of project components on the LSMRR, and demonstrated that the construction and restoration work on the railroad will be performed in a manner that is consistent with the Secretary of the Interior's Standards for Rehabilitation, specifically standards 9 and 10, which state that any new construction, alterations, or restorations to the historic property should be designed to be as protective to the historic integrity of the structure as possible. USEPA has produced two reports detailing these evaluations, both of which have been formally reviewed by the State Historic Preservation Office (SHPO), the LSMRR organization, and the City of Duluth. These reports are enclosed with this permit application as Attachment B. Additionally, USEPA is in the process of negotiating into a Memorandum of Agreement with the City of Duluth (an invited signatory) and the LSMRR organization (a consulting party) which documents the agreed upon mitigation for the unavoidable impacts to the railroad.

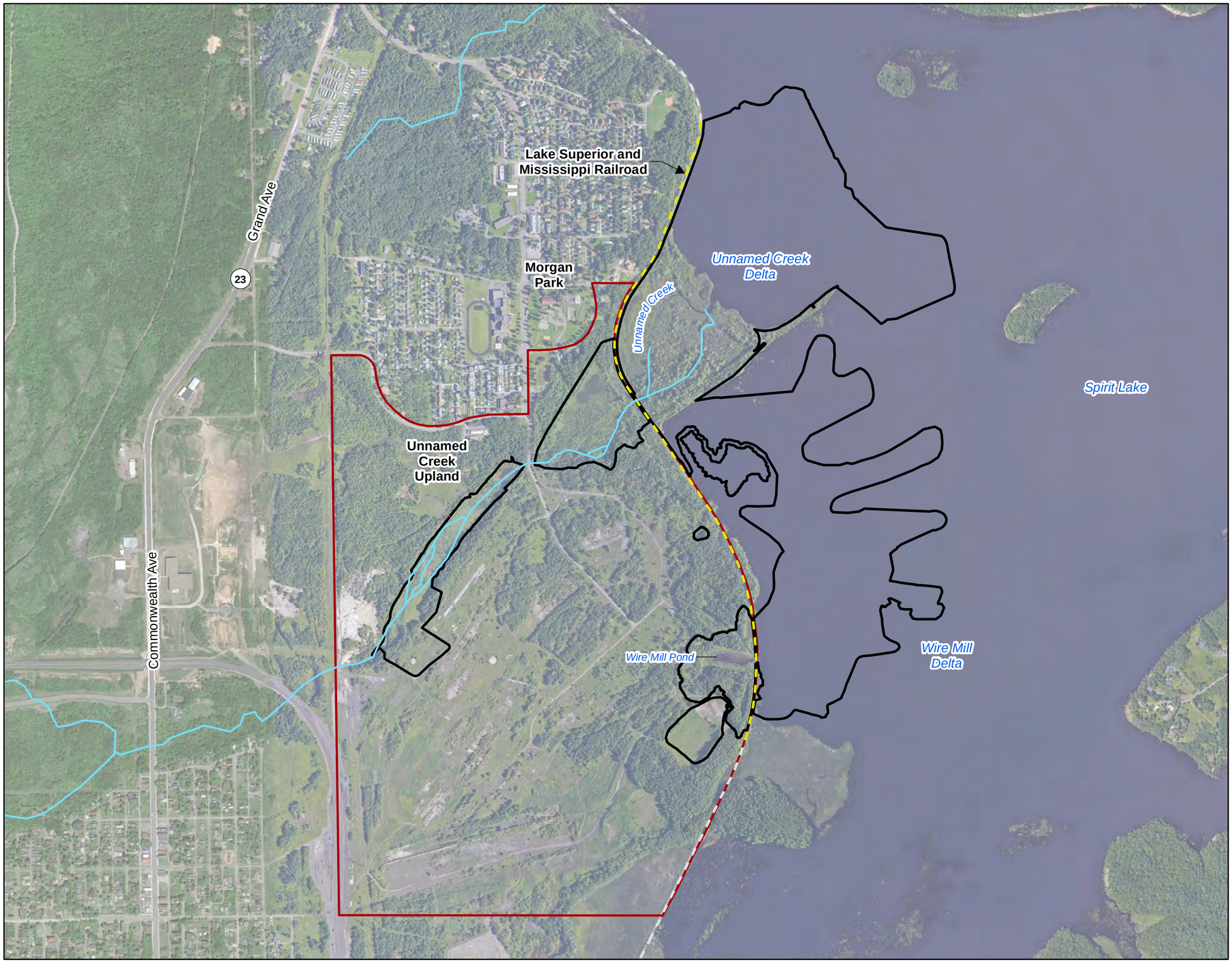
The information provided below is a brief overview of the type of work that will be performed on the LSMRR in order to successfully complete remediation and restoration of the project site, and describes how the work as a whole will be undertaken to protect the historic integrity of the landmark to the maximum extent practicable.

Scope of Work Overview

Remedial activities will directly intersect the railroad at nine locations within the project footprint (Figures 3 and 4). Construction will produce both temporary and permanent effects; there will be approximately 355 feet of railroad temporarily impacted and 185 feet of railroad permanently impacted. Temporary impacts include installation of chain link fences for site control, placement of temporary truck crossing to allow for movement of material during remediation, slight rail line elevation adjustment in one location (tenths of inches adjustment), and excavation to allow diversion of water into Spirit Lake (Figures 3 and 4). The temporary effects were not evaluated for adherence to the Standards for Rehabilitation, as these will only occur during the construction period; once construction is complete, any new elements added to or near the track will be removed and the area restored to original condition, with no permanent landscape changes and no impact to the historical integrity of the railroad. Permanent impacts include construction of two new bridges at the railroad and construction of an at-grade crossing for a new permanent access road. Each of these impacts was evaluated for adherence to the rehabilitation standards. USEPA concluded that, to the maximum extent practicable, the project design at each impact area repairs or replaces rail components with in-kind material, compatible materials are used to keep the historical integrity of the railroad, and where other materials (such as concrete) must be used, these materials will be colorized to match the timber aesthetic of the railroad. Where allowable, materials made available by the LSMRR will be utilized for restorations. The project will also implement all best management practices to maintain the structural sufficiency of existing materials during removal, handling and reconstruction. The report *Analysis of Design Impacts to the Lake Superior and Mississippi Railroad from the Spirit Lake Sediment Remediation Project (July 2019)* is included in Attachment B and provides full detail on this evaluation.

The project also includes construction of a new pedestrian multi-use trail (walking and biking) which will be located adjacent (15-foot offset) to the LSMRR along the segment within the project boundary. The pedestrian trail design was developed in close coordination with the City of Duluth's plans for adjacent trail development and is compatible with the future recreational features that may be developed within the Delta CDF area of the project footprint. In accordance with 36 CFR Part 800.5, Assessment of Adverse Effects under Section 106 of the NHPA, USEPA evaluated the potential effects of the pedestrian trail for adverse effects on the LSMRR property. The design of the pedestrian trail itself takes several approaches to maximize protectiveness to the LSMRR. These include: trail construction at a lower elevation than the rail where possible; use of a shallow cross slope away from the railroad to promote runoff; extension of existing railroad culverts beneath the new trail to maintain proper drainage routing; and avoidance of excavation into the toe of the hill adjacent to the railroad to minimize stability risk to the LSMRR. The associated features included with the trail (interpretive signage, pedestrian bridge and footbridges, an access trail crossing, and a stabilized embankment area) are either designed to have minimal or no impact (would not directly contact) the LSMRR (Figures 5 through 7). USEPA concluded through this evaluation that the design of the pedestrian trail and associated features proposed as part of the Spirit Lake Sediment Remediation Project will have no adverse effect on the LSMRR segment within the project footprint. The report *Analysis of Design Impacts to the Lake Superior and Mississippi Railroad and Spirit Island from the Proposed Pedestrian Trail Feature as Part of the Spirit Lake Sediment Remediation Project (January 2020),* is included in Attachment B and provides full detail on this evaluation.

USEPA has formally consulted with the SHPO, LSMRR organization, and the City of Duluth on the findings contained in these reports. The SHPO has concurred with these evaluations and the Memorandum of Agreement between the USEPA, SHPO, LSMRR, and the City of Duluth lays out the agreed upon mitigation for the project impacts to the LSMRR.



Legend

- LSMRR Segment Within the Project Boundary
- Continuation of LSMRR
- Project Boundary
- Approximate U.S. Steel Property (URS, 2008)

Hydrology

- Creek

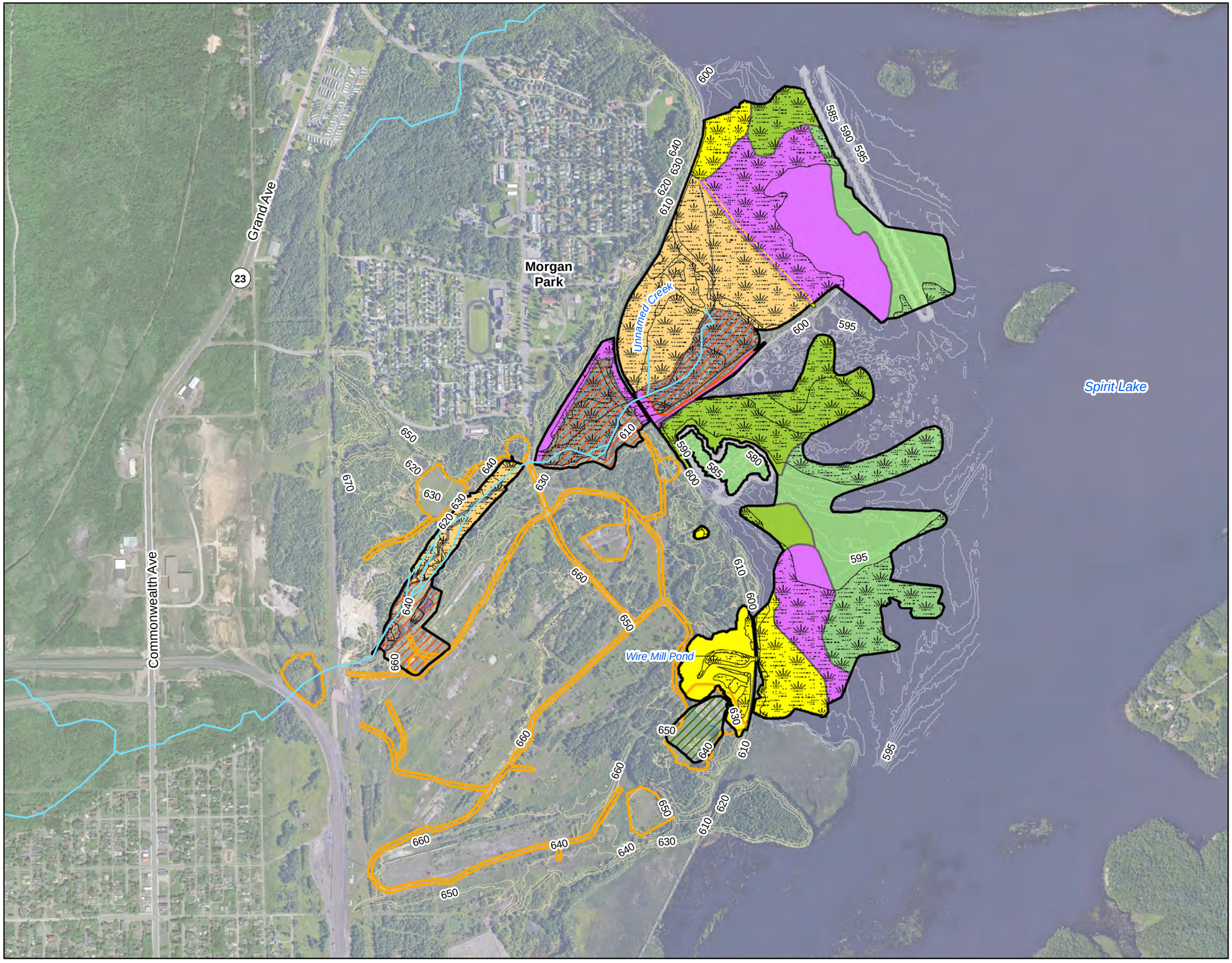
0 500 1,000
Feet

N

Map Date: 5/12/2020
Base Map: Google Earth 2017
Rivers: USGS NHD 2013

Figure 1
Spirit Lake Site Location
Spirit Lake
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\Permitting\Figure 1 Spirit Lake Site Location.mxd



Legend

- Elevation Contours (10 ft)
- Bathymetry Contours (1 ft)
- Potential Area of Temporary Effects
- Shoal Feature
- Project Boundary
- Borrow
- CDF
- Drainage Feature
- Dredge
- Dredge to Set Elevation and Remedial Cap
- ENR Thin Cover
- Remedial Cap
- Monitored Natural Recovery (MNR) Area

Hydrology

- Creek
- Wetland

0 500 1,000
Feet

N

Map Date: 6/21/2019
Base Map: Google Earth 2017
Rivers: USGS NHD 2013
Wetlands: Barr 2014, U.S. Steel 2014
Topography/Bathymetry: EA Engineering 2017

Figure 2
Spirit Lake Design Summary
Spirit Lake
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\JPA\Figure X-X Spirit Lake Design Summary.mxd

Area 1
Temporary Impact
Rail Stop
Chain Link Fence

Area 2
Temporary Impact
Truck Crossing = 20'

Spirit Lake

Area 3
Permanent Impact
Install Bridge:
Bridge (50')
Bridge Install (40')
Total = 90'
Temporary Impact
Temporary Water Division

Area 4
Temporary Impact
Rail Taper to Bridge Elevation = 260'

Area 5
Temporary Impact
Culvert Abandonment = 35'

Area 6
Permanent Impact
New At-Grade Crossing
Temporary Impact
Truck Crossing = 20'

Legend

- Railroad
- Project Boundary
- Permanent and Temporary Impacts

Note:
Any impacted railroad will be restored to previous condition. The railroad ties and rail steel will be reused whenever possible.

For impact Area 3, no photo showing the railroad in the exact location was available. Photo presented shows the track just north of the impact area. The railroad at the impact area is in similar condition to the track shown in the photo.

N

0 1,000

Feet

Map Date: 2/7/2019
Base Map: ESRI 2016

Figure 3
Permanent and Temporary Railroad Impacts- North
Spirit Lake
Duluth, Minnesota

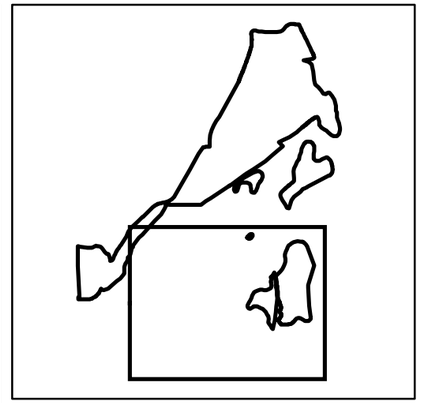
Area 7
Temporary Impact
Truck Crossing = 20'

Area 8
Permanent Impact
Install Bridge:
Bridge (55')
Bridge Install (40')
Total = 95'

Area 9
Temporary Impact
Chain Link Fence

Spirit Lake

Wire Mill Pond



Legend

- Railroad
- Project Boundary
- Permanent and Temporary Impacts

Note:
Any impacted railroad will be restored to previous condition. The railroad ties and rail steel will be reused whenever possible.

N

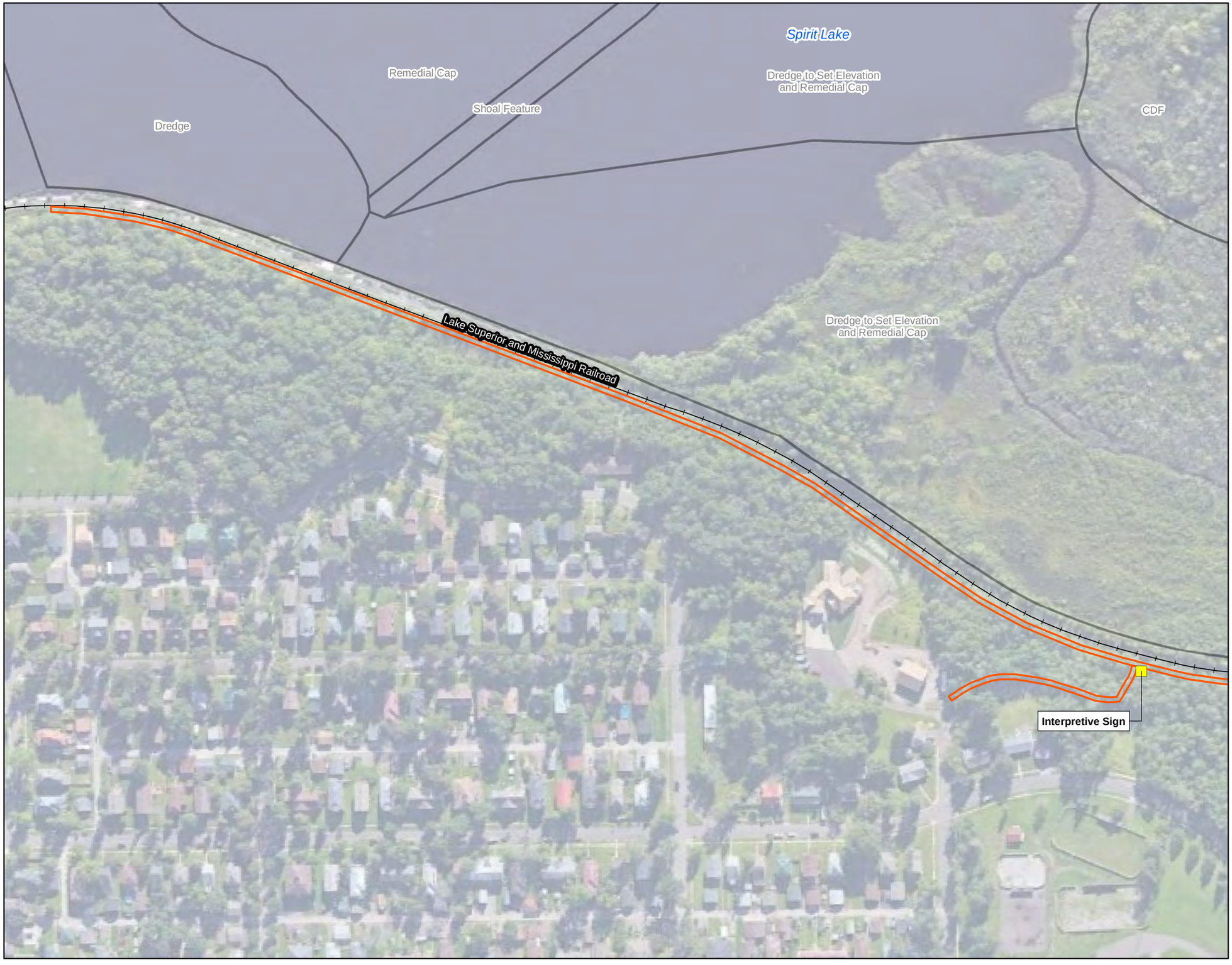
0 800

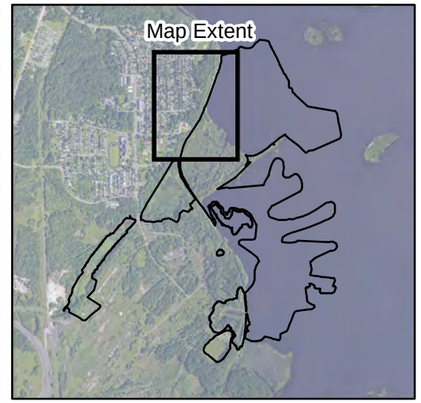
Feet

Map Date: 2/7/2019
Base Map: ESRI 2016

Figure **4**
Permanent and Temporary Railroad Impacts- **South**
Spirit Lake
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\SHPO\Figure 2.mxd





Legend

- Intepretive Sign
- Pedestrian Trail
- Railroad
- Project Boundary

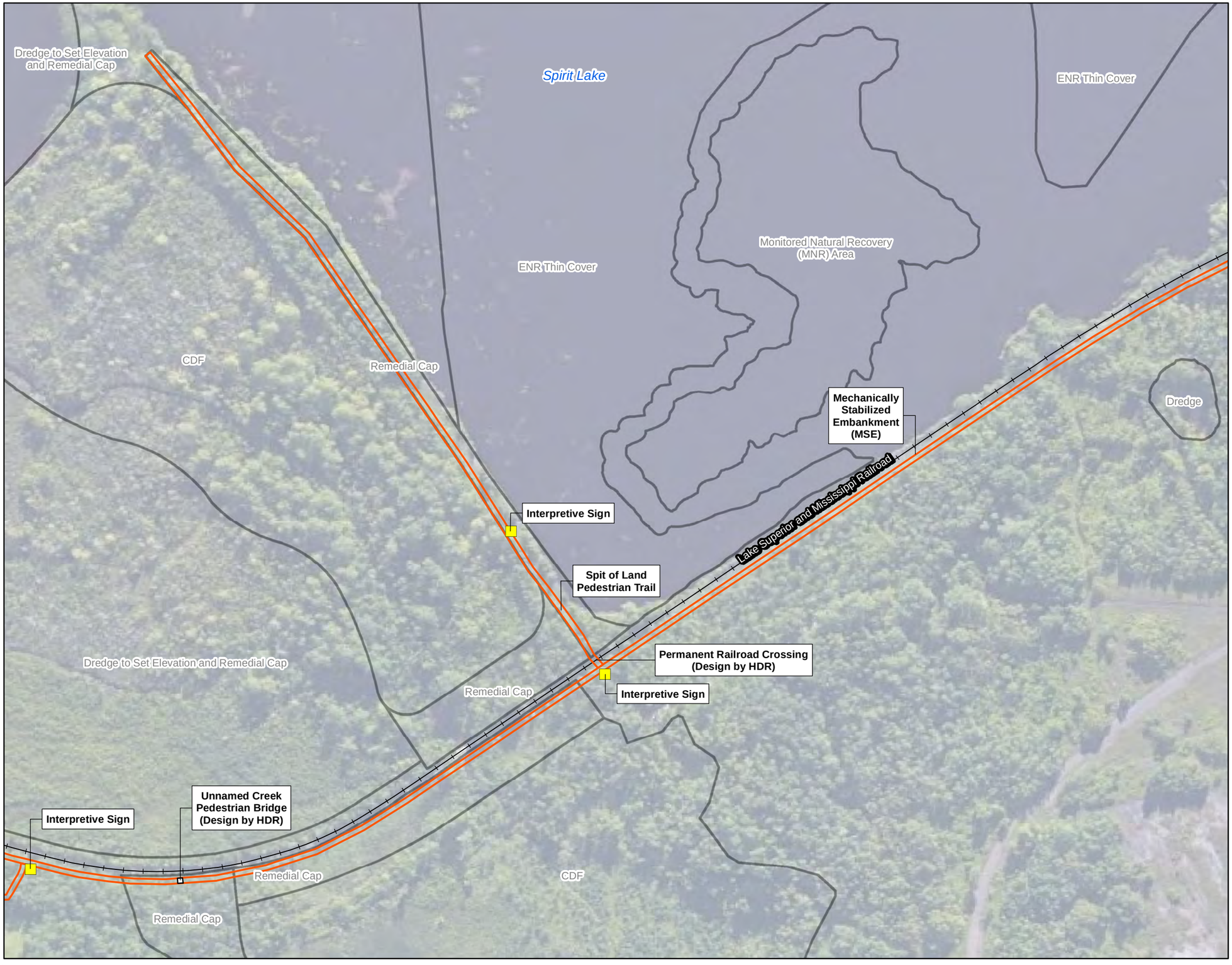
0 100 200
Feet

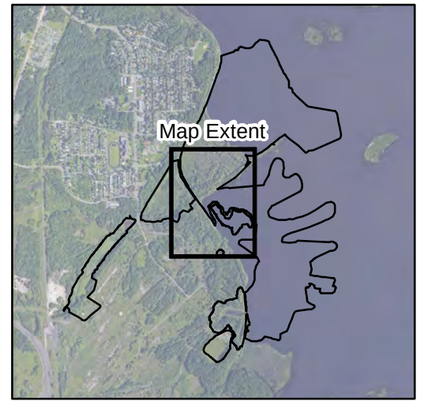
N

Map Date: 11/4/2019
Base Map: Google Earth 2017

Figure **5**
Pedestrian Trail Features - North
Spirit Lake Sediment Remediation Project
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\RailroadReport\Figure 1 Pedestrian Trail Features - North.mxd





Legend

- Intepretive Sign
- Pedestrian Trail
- Railroad
- Project Boundary
- Pedestrian Trail Footbridge

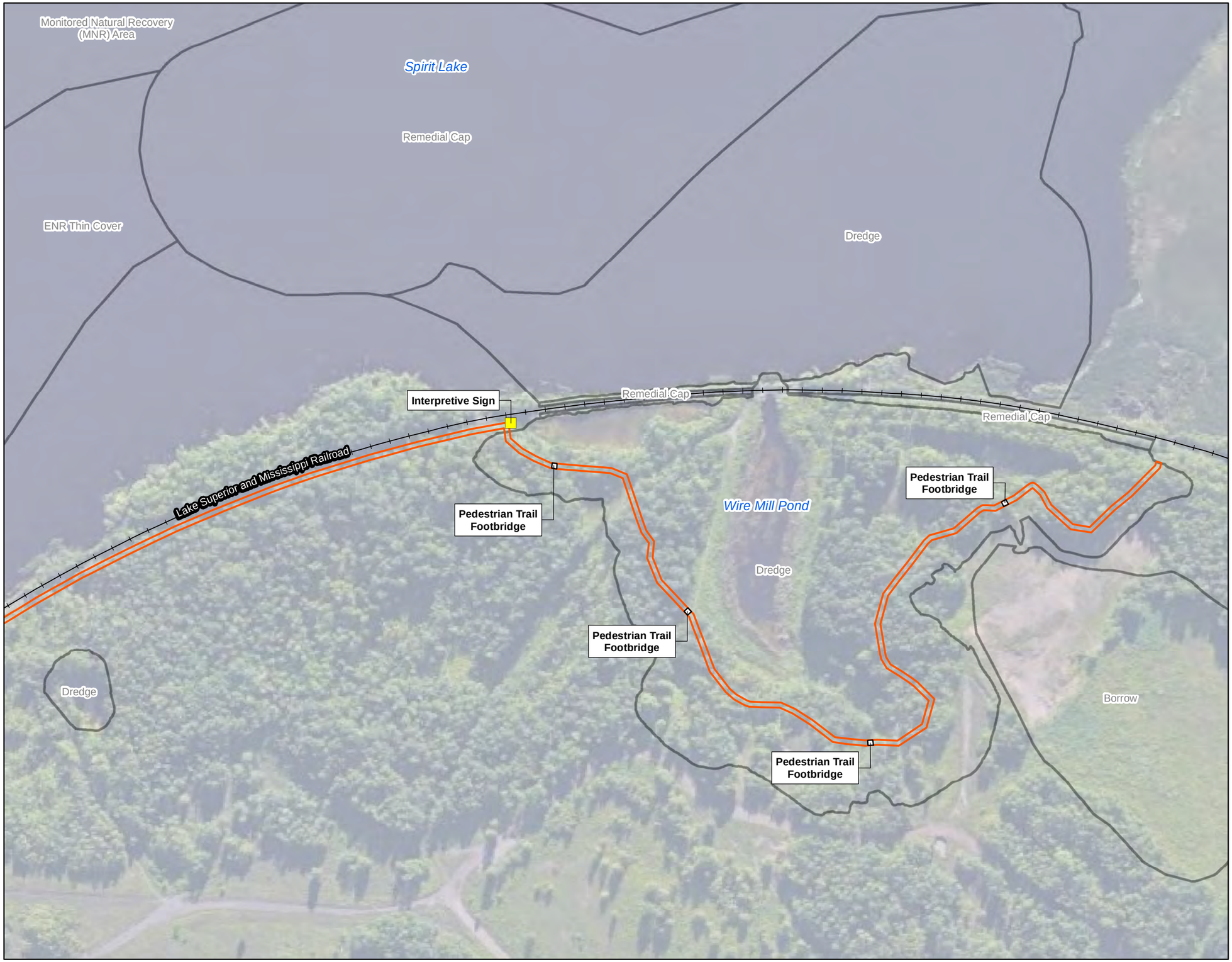
0 100 200
Feet

N

Map Date: 11/4/2019
Base Map: Google Earth 2017

Figure **6**
Pedestrian Trail Features - Central
Spirit Lake Sediment Remediation Project
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\RailroadReport\Figure 2 Pedestrian Trail Features - Central.mxd



Legend

- Intepretive Sign
- Pedestrian Trail
- Railroad
- Project Boundary
- Pedestrian Trail Footbridge

0 100 200
Feet

N

Map Date: 11/4/2019
Base Map: Google Earth 2017

Figure **7**
Pedestrian Trail Features - South
Spirit Lake Sediment Remediation Project
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\RailroadReport\Figure 3 Pedestrian Trail Features - South.mxd

ATTACHMENT B

LAKE SUPERIOR AND MISSISSIPPI RAILROAD EVALUATION REPORTS

Report 1- Analysis of Design Impacts to the Lake Superior and Mississippi Railroad from the Spirit Lake Sediment Remediation Project (July 2019)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

July 16, 2019

REPLY TO THE ATTENTION OF William Murray

Minnesota Historical Society
State Historic Preservation Office
Government Programs and Compliance
Attention: Sarah J. Beimers, Manager
345 Kellogg Blvd. West
St. Paul, Minnesota 55102

Re: Analysis of Design Impacts to the Lake Superior and Mississippi Railroad from the Spirit Lake Sediment Remediation Project

Dear Ms. Beimers:

The United States Environmental Protection Agency (USEPA), Great Lakes National Program Office (GLNPO) is providing a revised version of the Analysis of Design Impacts to the Lake Superior and Mississippi Railroad from the Spirit Lake Sediment Remediation Project Report (submitted to SHPO on February 22, 2019) that addresses comments received from your office and from the LSMRR organization. Also included are the requested design drawings depicting the railroad bridge design elements.

Any questions can be directed to Mr. William Murray at (312)-353-6324.

Sincerely,

William J. Murray
Project Manager

Enclosure
Response to Comments Table
Bridge Design Drawings

CC (via email):
Jim Filby Williams (City of Duluth)
David Moore (LSMRR)
Jill Hoppe (Fond du Lac)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

16 July 2019

MEMORANDUM
Revision 01

TO: Sarah Beimers, Environmental Review Program Manager, Minnesota State Historic Preservation Office

FROM: William Murray, U.S. Environmental Protection Agency

SUBJECT: Analysis of Design Impacts to the Lake Superior and Mississippi Railroad from the Spirit Lake Sediment Remediation Project

The purpose of this memorandum is to provide Minnesota SHPO with a review of the design approach for the areas of the Lake Superior and Mississippi Railroad (LSMRR) that will be directly impacted by the Spirit Lake sediment remediation project. A six-mile segment of the LSMRR falls within the project boundary. Following evaluation, this segment was determined to be eligible for listing on the National Register of Historic Places as a railroad corridor historic district.

Specifically, this memorandum will:

1) Provide a description of the current railroad structure at each impact area and the design approach at that area;
2) Define the components of the structure at each impact area that contribute to the overall historic district (character defining components);
3) Summarize the existing and proposed replacement materials at each impact area, and how the proposed new materials are compatible with the character of the historic district; and
4) Summarize the project design approach to avoid or minimize adverse effects to the LSMRR.

The evaluation presented in this memorandum is intended to support the finding that the new crossing structures proposed have been designed in accordance with the Secretary of the Interior's Standards for Rehabilitation, standards 9 and 10, which state:

> **Standard No. 9**- *New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.*
>
> **Standard No. 10**- *New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

Section 1 of this memorandum presents the description of each adverse effect and the design approach at the location. Section 2 describes how the design approach at each location meets the requirements set forth by the standards listed above.

1. Railroad Adverse Effects

The LSMRR is a historic railroad owned by the City of Duluth that is eligible for listing on the National Register of Historic Places under the National Historic Preservation Act, Section 106. The intent of the project design is to minimize adverse effects to the LSMRR and provide for site restoration to address adverse effects where possible. For the remedy to be successful and achieve the USEPA's remedial action objectives, some impact to the railroad is unavoidable. Remedial actions performed as part of the project will include sediment/soil removal sediment/soil capping, construction of 3 confined disposal facilities (CDF), and monitored and enhanced natural recovery (Figure 1).

Remedial activities will intersect the railroad at nine locations within the project footprint. Construction will produce both temporary and permanent adverse effects; it is estimated that there will be approximately 355 feet of railroad temporarily impacted and 185 feet of railroad permanently impacted as a result of direct project construction actions. These locations and a photo of the structure at each is shown in Figures 2 and 3. A description of the design approach and existing and proposed structure components for each of the adverse effects is presented below. Additionally, approximately 3 miles of the LSMRR will experience a temporary adverse effect from the loss of operation during the 3 year construction period.

Area 1
Area 1 is at the northernmost point of the project footprint (Figure 2). The impact at this location will be temporary; this area of the railroad segment will be temporarily closed during remedy construction.

> *Existing rail components*: Open rail line.
> *Design approach*: Installation of standard chain link fence across the track. No components of the track or ties will be impacted. The fence will be removed after construction is complete.

Area 2
Area 2 is located north of Unnamed Creek (Figure 2). The impact at this location will be temporary; a truck crossing will be built to allow for movement of materials dredged from the estuary to the CDFs.

> *Existing rail components*: Open rail line.
> *Design approach*: A 20-foot truck crossing is planned north of Unnamed Creek during construction to transport dredged material from one side of the railroad tracks to the other without damaging the existing tracks. The crossing will be designed to 20 feet to allow for the possibility of two-way vehicle traffic. The track will be left in-place and construction will involve an at-grade crossing structure over the track. Geotextile fabric will be placed on top of the existing track to provide separation and prevent material and overspill from the crossing contaminating the original track bed. For additional protection, gravel may be placed next to further reduce the truck impact. Gravel would be followed by an additional layer of fabric to prevent gravel from settling in and around the rail line. This fabric would be a higher strength woven mono-filament

fabric to withstand gravel removal activities once construction is complete. Timber planking/mats will be placed over the geotextile fabric, between and outside of the rails, to spread the loads from trucks and other construction equipment and raise the surface of the crossing above the rail. Finally, grading will be completed on both sides of the rail tracks to minimize jostling of material crossing the tracks. Restoration will include removing the geotextile and timber planking/mats, and mats and replacing the ballast with similar material as needed. A construction monitoring and post-construction monitoring survey will include rail and ties to confirm no changes during construction, a post-construction to confirm no changes will also be completed. The crossing location is show in Attachment A, Drawing CA-101.

Area 3

Area 3 is located at a section of rail line at the rail curve in Unnamed Creek (Figure 2). Both a temporary and a permanent impact will occur at this location. A temporary diversion of water is under consideration in Unnamed Creek. A permanent new bridge will be constructed to allow for stream flow from Unnamed Creek to be rerouted to pass below the railroad. The area where the current bridge is located has been damaged by flooding as recently as 2012.

Existing rail components: Open rail line.
Design approach: The temporary diversion of water (if necessary) will involve excavation through the railroad embankment to allow Unnamed Creek to divert and discharge to Spirit Lake. The temporary diversion will be located along the west side of the Upland CDF and discharge to Spirit Lake at the northernmost extent of the CDF. If required, this excavation will be similar to temporary crossing impacts regarding removal of railroad rails, ties, and ballast, reconstruction of embankment following temporary diversion activities during remediation, and reuse of existing components to extent practical. The bridge design in shown in Attachment A, Drawing CU-104.

The newly constructed permanent bridge will impact 90 total feet of railroad; the bridge will span 50 feet and require 40 feet of total excavation to construct the bridge foundations. The bridge will be composed of precast concrete and prestressed, with a 3-span concrete ballast deck bridge. A trapezoidal opening for hydraulic capacity will be installed and bridge component elevations will transition to existing rail and tie elevation, with only minor adjustments. The top of rail elevation for the proposed bridge will be 606.2 ft. The existing top of rail elevation is 606.3 ft. The top of bridge elevation will be 606.3 feet and the bridge deck will be 2.5 ft thick with a bottom of bridge elevation of 603.8 ft. The channel dimensions under the bridge include a top channel width of 40 ft, a bottom channel width of 26.2 ft, and side slopes at a 3:1 grade. The bridge design will reduce flooding impact to the railroad since the channel under the bridge will be able to convey the 100-year storm event without overtopping the railroad, though this flow will submerge the bottom of the bridge deck. Since the bridge has been designed to convey all upstream flow from Unnamed Creek, existing culverts under the railroad at the original crossing will be abandoned and filled with flowable fill (as described for Area 5, below). A construction monitoring survey will include evaluation of the rail and ties to confirm no changes are occurring during construction of the track; a post-construction survey to confirm no changes have occurred once will also be performed.

Area 4

Area 4 is located on both the north and south sides of the newly constructed bridge in Unnamed Creek (Figure 2). The impact at this location will be temporary; the rail line on either side of the new bridge will be adjusted to meet the bridge elevation. A detailed photograph showing the existing rail line at the location of Area 4 was not available; however, based upon visual observations from site reconnaissance performed in 2016, the condition and components of the track in Area 4 is comparable to that of the track shown in the photograph for Area 3.

Existing rail components: open rail line.
Design approach: The rail on the north and south sides of the new bridge at Unnamed Creek will be tapered to meet the new bridge elevation; approximately 260 feet of rail will be impacted. The rail steel alignment may be adjusted to meet design standards for maintaining curvature, grades, and related tolerances for rail steel to connect to new rail segments for bridges. Adjustments on the order of tenths of inches are expected and in general this is not considered an impact to the railroad historical integrity, as rail is reused, and only slight adjustments will be made.

Area 5
Area 5 is in Unnamed Creek near the boundary of the estuary confined disposal facility (CDF) (Figure 2). The impact at this location will be permanent; five culverts that were originally installed to replace a 2-span timber bridge that was damaged by flooding in 2012 are in poor condition will be abandoned.

Existing rail components: Five 42 to 48-inch corrugated metal pipes.
Design approach: The Unnamed Creek channel alignment will be moved as part of the design and several storm water culverts under the railroad will be abandoned with flowable fill as the channel alignment shifts north. A construction monitoring and post-construction monitoring survey will include a survey of the rail and ties to confirm that no changes are expected to occur/occurred during construction. Work to abandon the culverts will not remove the existing rail embankment and/or tracks. The location of the culvert abandonment is show in Attachment A, Drawing CA-102.

Area 6
Area 6 is located near the access to the spit of land in Unnamed Creek (Figure 2). Both a temporary and a permanent impact will occur at this location. A temporary truck crossing will be built to allow for movement of materials dredged from the estuary to the CDFs and the rest of the site. Once the remedy is complete, the temporary road will be converted into a permanent maintenance road to access the Delta CDF.

Existing rail components: open rail line.
Design approach: A 20-foot truck crossing is planned at the spit of land in Unnamed Creek during construction to transport soil and equipment between the Shallow Sheltered Bay, the Delta CDF, and rest of the site. The crossing will be designed to 20 feet to allow for the possibility of two-way vehicle traffic and will allow the transport of material without damaging the existing track. The track will be left in-place and construction will involve an at-grade crossing structure over the track. For additional protection, gravel may be placed next to further reduce the truck impact. Gravel would be followed by an additional layer of fabric to prevent gravel from settling in and around the rail line. This fabric would be a higher strength woven mono-filament fabric to withstand gravel removal activities once construction is complete. Once the remedy is complete, the at-grade crossing will be left in place to become a permanent maintenance road for access to the Delta CDF. Concrete pads will be placed between the tracks to protect the rail line from repeated crossing by a standard utility truck that would access the Delta CDF to perform routine long-term monitoring and maintenance activities. The crossing location is show in Attachment A, Drawing CA-101.

Area 7
Area 7 is located just north of the current opening to Wire Mill Pond (Figure 3). The impact at this location is temporary; a truck crossing will be built to allow for movement of materials dredged from the estuary to the CDFs and the rest of the site.

Existing rail components: open rail line.
Design approach: A 20-foot truck crossing is planned at Wire Mill Pond to allow dredged material to be transport to the CDFs. The crossing will be designed to 20 feet to allow for the

possibility of two-way vehicle traffic and will allow the transport of material without damaging the existing track. The track will be left in-place and construction will involve an at-grade crossing structure over the track. For additional protection, gravel may be placed next to further reduce the truck impact. Gravel would be followed by an additional layer of fabric to prevent gravel from settling in and around the rail line. This fabric would be a higher strength woven mono-filament fabric to withstand gravel removal activities once construction is complete. The crossing materials, construction process, and restoration of the rail post construction will be as described for the temporary truck crossings in Areas 2 and 6. The crossing location is show in Attachment A, Drawing CA-101.

Area 8

Area 8 is at the entrance to Wire Mill Pond (Figure 3). The impact at this location is permanent; a new bridge will be installed to improve connectivity between Wire Mill Pond and the estuary.

Existing rail components: The Wire Mill Pond outlet structure with retaining wall abutments; the bridge was rebuilt in 1945, with modifications in the late 1990's.
Design approach: The existing timber bridge and culvert will be removed, and the channel will be widened to allow greater circulation of water in and out of Wire Mill Pond. The new precast concrete, prestressed, 3-span concrete ballast deck bridge will have a total length of approximately 55 ft and will be installed to allow the train to cross the new, wider channel. The new bridge will require 40 feet of total excavation to construct the foundations. Bridge component elevations will transition to existing rail and tie elevation, with only minor adjustments. The new railroad bridge will have a top of rail ties elevation of 607 ft and a thickness of 2.5 feet. The existing top of rail elevation is 607 ft. The bottom of the bridge will be at an elevation of 604.2 ft. The channel below the bridge will have a top width of 46 ft, a bottom width of 26.8 ft, an invert elevation of 599.5 ft, and side slopes at a 3:1 grade. A construction monitoring survey will include evaluation of the rail and ties to confirm no changes are occurring during construction of the track; a post-construction survey to confirm no changes have occurred once will also be performed. The bridge design is shown in Attachment A, Drawing CA-102 and CR-105.

Area 9

Area 9 is located at the southernmost extent of the project boundary (Figure 3). The impact at this location will be temporary; this area of the railroad segment will be temporarily closed during remedy construction.

Existing rail components: Open rail line.
Design approach: Installation of standard chain link fence across the track. No components of the track or ties will be impacted. The fence will be removed once construction is complete.

2. Consideration of the Secretary of the Interior's Standards for Rehabilitation

The Secretary of Interior's standards defines the act of rehabilitation as the process by which a compatible use for a historic property is made possible through repair, alterations, and additions while preserving those portions of features which convey its historical, cultural or architectural values. Of the ten Standards for Rehabilitation, standards 9 and 10 are most applicable to the project adverse effects on the LSMRR, as they pertain to new additions, alterations and construction being compatible with and differentiated from historic materials, and new components being added in such a way that the integrity of the historic property is unimpaired.

Each of the permanent adverse effects to the LSMRR from the project have been evaluated for adherence to these standards. The temporary adverse effects described above were not evaluated, as these will only occur during the construction period; once construction is complete, any new elements added to or near

the track will be removed and the area restored to original condition, with no permanent landscape changes and no impact to the historical integrity of the railroad.

The discussion below (and summary in Table 1) presents the elements of permanent impact to the LSMRR that contribute to historic character, the elements that do not contribute to historic character, and how the design at each location meets the following guidelines for rehabilitation set forth in the Secretary's recommendations which are applicable to this project:

- *Identify, retain, and preserve historic materials and features*- Identification of the features and materials that are important in defining the property's historic character and which must be retained to preserve that character.
- *Protect and maintain historic materials and features*- Protection of the features involves the least degree of intervention possible and includes maintenance of the materials and ensuring property is protected during work.
- *Repair historic materials and features*- Repairing includes the limited replacement of in kind or with a compatible suitable material of deteriorating or missing components.
- *Replace deteriorated historic materials and features*- Replacement of an entire character-defining feature with new material; feature should be replaced to match the historic feature based on physical documentation of its form and detailing.

The following guidance provided in the rehabilitation standards is not discussed for the adverse effects to the LSMRR, as these items are not applicable to the project:

- *Design for the replacement of missing historic features*- Replacement of a missing feature (when information about the feature is inadequate to permit reconstruction) by designing a new feature that is compatible with the overall historic character of the property.
    - It is anticipated that adequate information on contributing components of the LSMRR is available such that reconstruction of features with in kind material would be possible.
- *Alterations*- Includes changes to the feature site or setting, such as removal of portions of the property that are intrusive, to ensure its continued use.
    - It is not anticipated that any areas of the property will be removed entirely without any repair or replacement of contributing historical features.
- *Accessibility and Life Safety*- Rehabilitation work that involves accessibility or life safety requirements must be assessed for impact on the historic property.
    - The project does not involve work specific to rehabilitation of accessibility or life safety features on the property.
- *Resilience to Natural Hazards*- If the historic property has existing characteristics that help to address or minimize adverse effects from natural hazards, these must be considered during rehabilitation work such that there is minimal effect on the historic character of the property.
    - The LSMRR does not currently have existing characteristics that specifically address or minimize adverse effects from natural hazards; therefore, impacts to the LSMRR as defined in this memorandum will not negatively affect the railroad resilience.
- *Sustainability*- The historic property's existing energy efficient features should be retained and/or repaired during the rehabilitation work.
    - The LSMRR does not contain any energy efficient features.
- *New Exterior Additions and Related New Construction*- Applicable if the historic property is being expanded by an attached exterior addition.
    - The project will not involve any additions to the LSMRR.

New Bridges at Unnamed Creek and at Wire Mill Pond Outlet

Existing rail components where the new bridge is to be constructed at Unnamed Creek (Figure 2, Area 3) that contribute to historical character and integrity include 90 total feet of railroad segment, and associated rails, ties, ballast, and embankment materials. Components that do not contribute to historical

integrity include all embankment materials below ballast; these materials are considered replaceable with general fill or other geotechnically suitable material.

Existing rail components where the bridge is to be constructed at Wire Mill Pond Outlet (Figure 3, Area 8) that contribute to historical character and integrity include 95 feet of railroad segment and wooden bridge structure, and associated rails and ties. Components that do not contribute to historical integrity include the retaining wall abutments.

The design of these bridges will meet the guidelines for rehabilitation (Table 1):

- *Identify, retain, and preserve historic materials and features*- The project team has identified which components of the rail at these locations are contributing and non-contributing (Table 1).
- *Protect and maintain historic materials and features*- Existing historic materials at these locations will be reused to the maximum extent practicable while still achieving the goals of the overall project design, and to the extent the materials are structurally sufficient. All best management practices to maintain the structural sufficiency of existing materials during removal, handling and reconstruction will be implemented. To be reused, the existing materials much achieve design standards and design criteria involving maintenance and longevity considerations for new railroad materials.
- *Repair historic materials and features/ Replace deteriorated historic materials and features* - Work may include repair or limited replacement of contributing components with in kind or with a compatible suitable material. Both bridges will be designed with colorized concrete for bents, abutments and spans and other features to match the look of timber for historical aesthetics.

At-grade Crossing for Permanent Road in Unnamed Creek
Existing rail components where the permanent maintenance road will be constructed near the spit of land in Unnamed Creek (Figure 2, Area 6) that contribute to historical character and integrity include open rail line and associated ties and ballast. Components that do not contribute to historical integrity will include concrete or equivalent material to support vehicle loading (feature added during construction).

The design of the permanent maintenance road will meet the guidelines for rehabilitation (Table 1):

- *Identify, retain, and preserve historic materials and features*- The project team has identified which components of the rail at this location are contributing and non-contributing (Table 1).
- *Protect and maintain historic materials and features*- Only minor changes to historic features involving replacement of ballast with concrete slightly higher in elevation to protect rails are anticipated. All best management practices to maintain the structural sufficiency of existing materials during removal, handling and reconstruction will be implemented.
- *Repair historic materials and features/ Replace deteriorated historic materials and features* - Existing historically significant materials removed for construction of the crossing (rail, ties, ballast) will be reused to extent practical as described above for bridge construction. The added concrete or equivalent material to support vehicle loading is not contributing to historical integrity, but as a new component will be designed to have some visual appeal to subdue the change, such as colorized concrete to match the timber aesthetic of the remaining historic contributing rail ties. Over time, many rail ties have been replaced with modern appearing ties throughout the property.

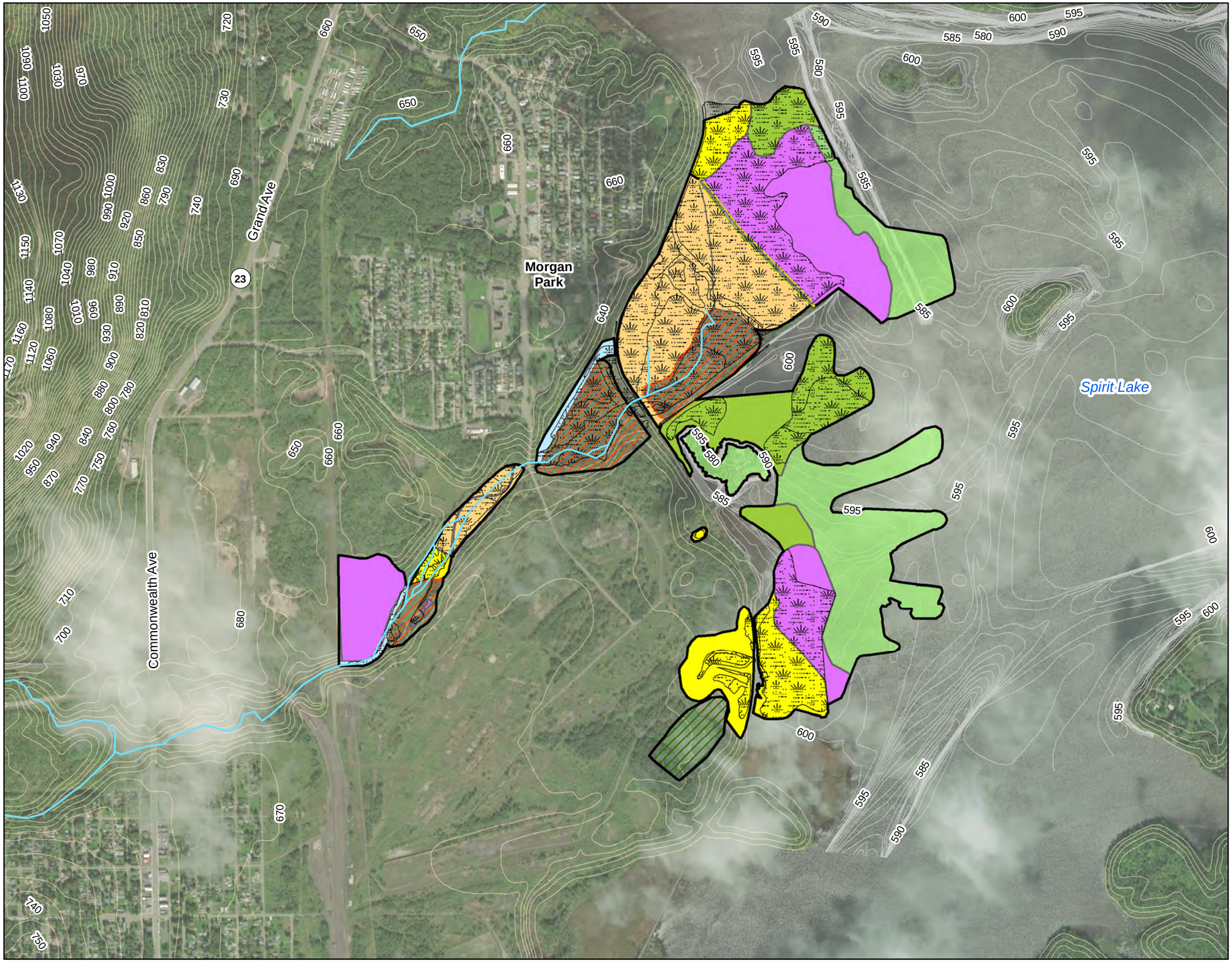
Culvert Abandonment
There are no existing rail components that will be impacted at this location in Unnamed Creek (Figure 1, Area 3). Components that do not contribute to historical character and integrity include five 42 to 48-inch corrugated metal pipes. Although culvert abandonment is a permanent impact along the LSMRR, the work to abandon these culverts and fill with flowable material will not remove or negatively impact existing rail embankment or tracks (Table 1).

Avoidance and Minimization Efforts in All Impact Areas

Throughout the design construction, all practicable efforts to avoid or minimize adverse effects to historical features of the LSMRR will be implemented. Where permanent adverse effects are likely to occur, the following measures will be taken, as practicable:

- Avoidance in the design: where possible, additional adverse effects to the historical features of the LSMRR will be avoided. Note that to achieve project goals, impacts may not be avoidable, but all efforts will be taken to minimize the severity of the impact.
- Recordation consistent with documenting resources prior to adverse effect will be performed: this will enable minimization of impacts as well as support the best repair/replacement efforts, if necessary.
- Material reuse: original historical components will be reused to the maximum extent possible and new bridge components will be constructed to be compatible with the historical integrity of the property.
- Compatible new materials: for the bridge at Unnamed Creek and at Wire Mill Pond, all efforts will be made to construct the piling configuration such that it is slightly recessed, an select pilings of an appropriate type and size to give the impression of timber piles that are compatible with the historical character.
- Inclusion of signage: at some adverse effect locations (in coordination with City of Duluth planned public trail), signage may be displayed to present historical information about the LSMRR.
- Monitoring and surveys: construction surveys will be performed that document the pre-construction condition and post-construction condition of all impacted areas.

TABLE 1. SUMMARY OF SPIRIT LAKE LSMRR DESIGN ELEMENT COMPLIANCE WITH THE GUIDELINES FOR REHABILITATION							
Permanent Impact	**Impact Area**	**Historical Resource Components Affected**	**Non-historical Resource Components Affected**	**Compliance with the Secretary of the Interior's Guidelines for Rehabilitating Historic Properties**			
				Identify, Retain, and Preserve Historic Materials and Features	**Protect and Maintain Historic Materials and Features**	**Repair Historic Materials and Features**	**Replace Deteriorated Materials and Features**
New Bridge at Unnamed Creek	Area 3 (Figure 2)	• Segment of railroad embankment, including rails, ties, ballast, and embankment materials	• Embankment materials below ballast	YES	YES • Protection during construction • Reuse material as possible	YES • Repair/replace with in kind material if possible • Compatible material to keep historical integrity • Repair vs. replace dictated by structural sufficiency of existing material and suitability to achieve design criteria for current railroad construction materials • Added concrete colorized to match timber aesthetic	
Bridge at Wire Mill Pond Outlet	Area 8 (Figure 3)	• Wooden bridge structure constructed in 1945, including rail and ties	• Retaining wall abutments	YES	YES • Protection during construction • Reuse material as possible	YES • Repair/replace with in kind material if possible • Compatible material to keep historical integrity • Repair vs. replace dictated by structural sufficiency of existing material and suitability to achieve design criteria for current railroad construction materials • Added concrete colorized to match timber aesthetic	
At-grade crossing for permanent road in Unnamed Creek	Area 6 (Figure 2)	• Segment of railroad embankment, including rails, ties, ballast, and embankment materials	• Added concrete or equivalent material to support vehicle loading	YES	YES • Protection during construction of crossing • Minor changes needed for rail protection • Reuse material as possible	YES • Repair/replace with in kind material if possible • Added concrete colorized to match timber aesthetic of the rail ties	
Culvert Abandonment	Area 5 (Figure 2)	• No components contributing to historic integrity identified at this area, culverts were installed in 2012	• Five 42 to 48-inch corrugated metal culverts	Not applicable- Work to abandon culverts will not impact the existing rail embankment and/or rail line			



Legend

- Elevation Contours (10 ft)
- Bathymetry Contours (1 ft)
- Shoal Feature
- Project Boundary
- Borrow
- CDF
- Drainage Feature
- Remove
- Remove to Set Elevation and Remedial Cap
- ENR Thin Cover
- Remedial Cap
- Monitored Natural Recovery (MNR) Area

Hydrology

- Creek
- Wetland

0 500 1,000
Feet

N

Map Date: 7/13/2018
Base Map: ESRI 2011
Rivers: USGS NHD 2013
Wetlands: Barr 2014, U.S. Steel 2014
Topography: USGS 2014
Bathymetry: Barr 2014

Figure 1
Spirit Lake Design Summary
Spirit Lake
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\Basis_of_DesignReport\Figure 1-4 Spirit Lake Design Summary.mxd

Area 1
Temporary Impact
Rail Stop
Chain Link Fence

Area 2
Temporary Impact
Truck Crossing = 20'

Spirit Lake

Area 3
Permanent Impact
Install Bridge:
Bridge (50')
Bridge Install (40')
Total = 90'
Temporary Impact
Temporary Water Division

Area 4
Temporary Impact
Rail Taper to Bridge Elevation = 260'

Area 5
Temporary Impact
Culvert Abandonment = 35'

Area 6
Permanent Impact
New At-Grade Crossing
Temporary Impact
Truck Crossing = 20'

Legend

- Railroad
- Project Boundary
- Permanent and Temporary Impacts

Note:
Any impacted railroad will be restored to previous condition. The railroad ties and rail steel will be reused whenever possible.

For impact Area 3, no photo showing the railroad in the exact location was available. Photo presented shows the track just north of the impact area. The railroad at the impact area is in similar condition to the track shown in the photo.

0 1,000

Feet

Map Date: 2/7/2019
Base Map: ESRI 2016

Figure **2**
Permanent and Temporary Railroad Impacts- **North**
Spirit Lake
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\SHPO\Figure 1.mxd

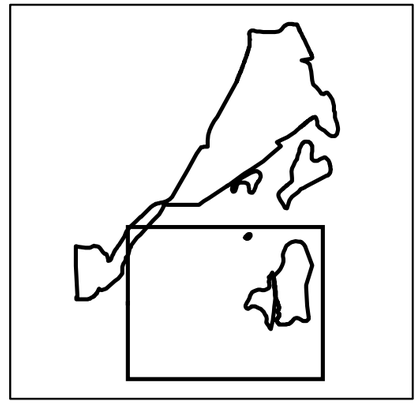
Area 7
Temporary Impact
Truck Crossing = 20'

Area 8
Permanent Impact
Install Bridge:
Bridge (55')
Bridge Install (40')
Total = 95'

Area 9
Temporary Impact
Chain Link Fence

Spirit Lake

Wire Mill Pond



Legend

- Railroad
- Project Boundary
- Permanent and Temporary Impacts

Note:
Any impacted railroad will be restored to previous condition. The railroad ties and rail steel will be reused whenever possible.

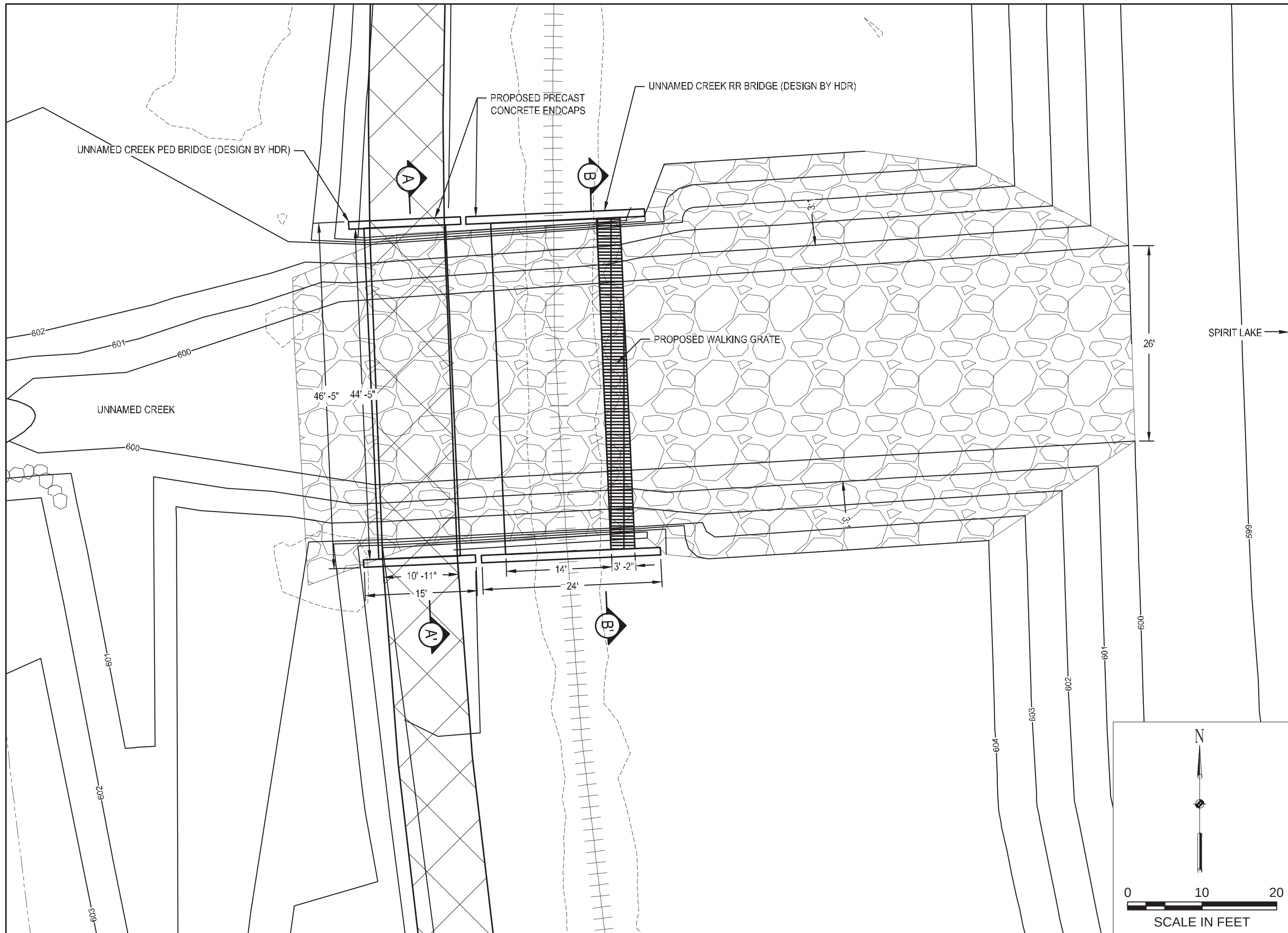
0 800

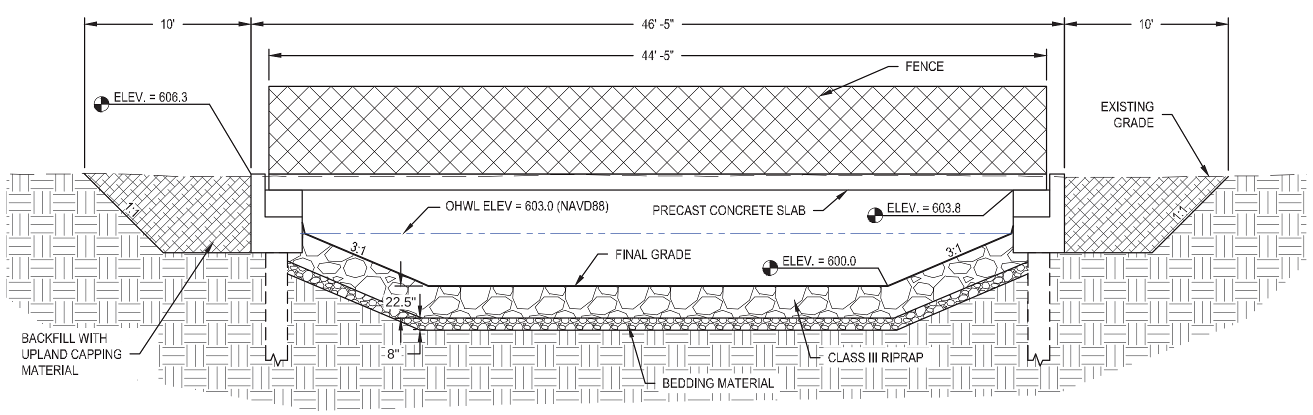
Feet

Map Date: 2/7/2019
Base Map: ESRI 2016

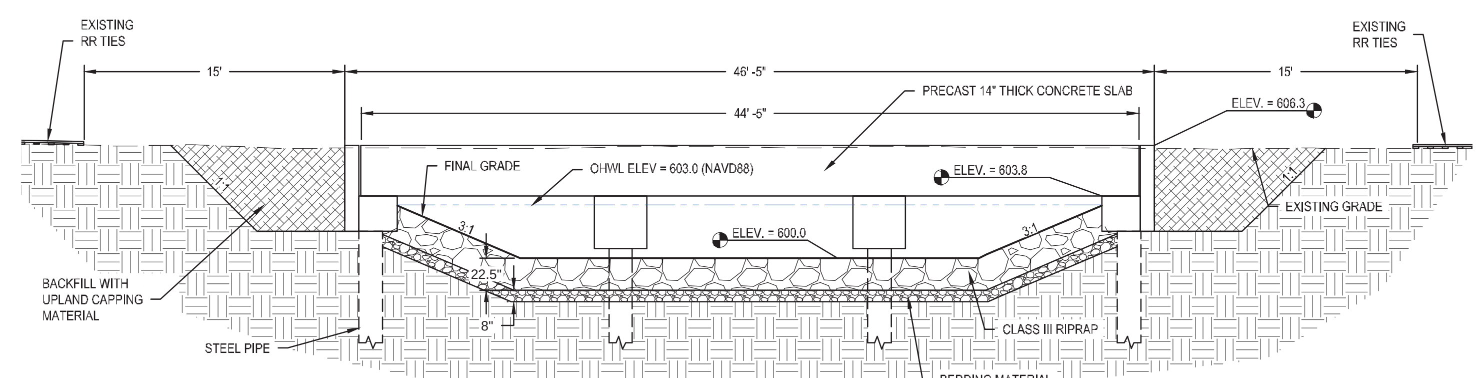
Figure 3
Permanent and Temporary Railroad Impacts- **South**
Spirit Lake
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\SHPO\Figure 2.mxd





A UNNAMED CREEK PED BRIDGE SECTION
CU-104 SCALE: NO SCALE



B UNNAMED CREEK RR BRIDGE SECTION
CU-104 SCALE: NO SCALE

NOTE:

1. REMOVE RAILROAD TIES 15' FROM BASE OF THE PROPOSED PRECAST CONCRETE ABUTMENT CAPS ON BOTH SIDE OF BRIDGE.

REVISIONS: NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION: DESIGNED BY: LLR | DRAWN BY: JRM | CHECKED BY: JMT | PROJECT MANAGER: JB

SEAL: THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF JAMES BEAVER P.E. 48712, MAY 2019. IT IS NOT TO BE USED FOR CONSTRUCTION OR BIDDING.

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

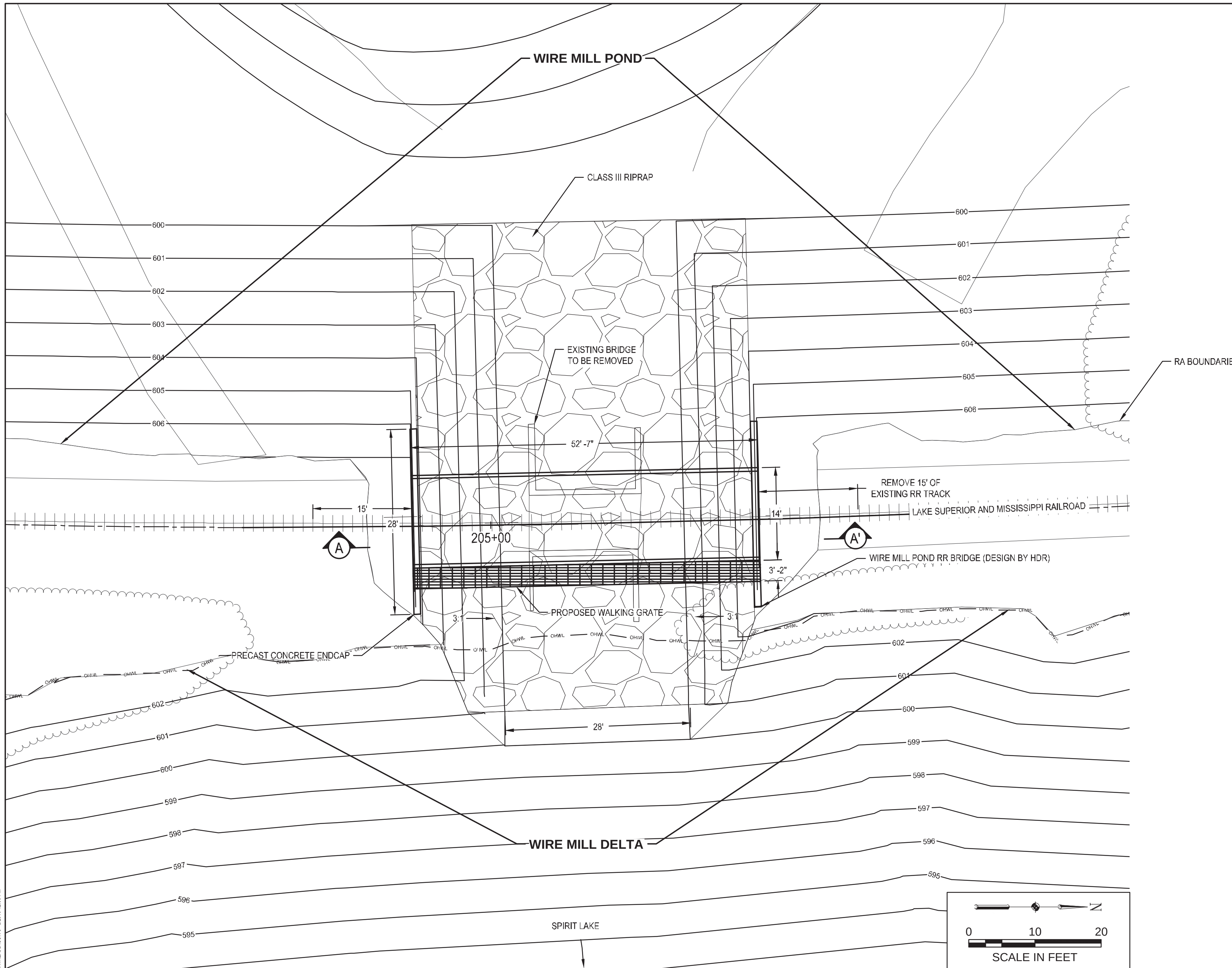
UNNAMED CREEK BRIDGE PLAN

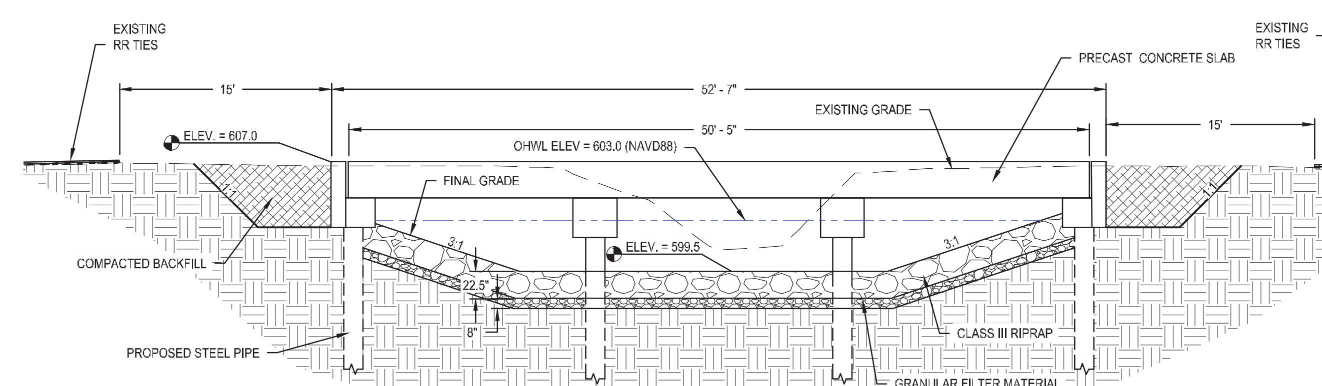
PREPARED FOR:
EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
847-945-8010

DATE: JUNE 2019
PROJECT NUMBER: 1518924
CU-104
SHEET: 23 OF 116

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION





B
CU-104

WMP RR BRIDGE SECTION

SCALE: NO SCALE

NOTE:

1. REMOVE RAILROAD TIES 15' FROM BASE OF THE PROPOSED PRECAST CONCRETE ABUTMENT CAPS ON BOTH SIDE OF BRIDGE.
2. STOCKPILE RAILS, SALVAGEABLE TIES, AND BALLAST MATERIAL FOR REUSE IN ACCORDANCE WITH THE NATIONAL HISTORIC PRESERVATION ACT SECTION 106 PERMITTING REQUIREMENTS.

NO.	DATE	BY	DESCRIPTION

REVISIONS

DESIGN INFORMATION

DESIGNED BY: LLR
DRAWN BY: JRM
CHECKED BY: JMT
PROJECT MANAGER: JB

SEAL

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REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN

DULUTH, MINNESOTA

WIRE MILL POND SEDIMENT REMOVAL PLAN

PREPARED FOR:

EPA

EA Engineering, Science, and Technology, Inc., PBC
221 Sun Valley Boulevard; Suite D
Lincoln, NE 68528
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DATE: JUNE 2019

PROJECT NUMBER: 1518924

CR-104

SHEET: 48 OF 116

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

GENERAL NOTES

DESIGN LOADING

ALL COMPONENTS ARE DESIGNED IN ACCORDANCE WITH THE 2017 AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8-CONCRETE STRUCTURES AND FOUNDATIONS.

LIVE LOAD:	E40 w/ DIESEL IMPACT
DESIGN SPEED:	10 MPH
MINIMUM BALLAST:	15 INCHES
MAXIMUM BALLAST:	24 INCHES
MAXIMUM TRACK ECCENTRICITY:	6 INCHES (FROM ℄ BRIDGE TO ℄ TRACK)

REFERENCE DATA

ALL DETAILS AND DIMENSIONS OF THE EXISTING SITE ARE BASED ON FIELD SURVEY DATA SUPPLIED BY LHB CORPORATION ON JUNE 15, 2016 WITH SUPPLEMENTARY DATA SUPPLIED ON JUNE 12, 2018.

BRIDGE STATIONING IS BASED ON THE INSIDE FACE OF THE NORTH EXISTING BACKWALL OF THE EXISTING WIRE MILL POND BRIDGE AS STATION 204+78.00.

BENCHMARK DATA:	SURVEY CONTROL POINT (HV-1302), STA 165+96.52, OFFSET 276.76' RIGHT, ELEV 651.21'.
VERTICAL DATUM:	NAVD88
HORIZONTAL DATUM:	NAD83/96 MINNESOTA NORTH ZONE

HYDRAULIC INFORMATION IS BASED ON HYDRAULIC MODELING INFORMATION PROVIDED BY EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC. DATED JANUARY 24, 2019 AND FEMA FIRM PANEL NO. 2704210045C.

GEOTECHNICAL INFORMATION IS BASED ON HDR ENGINEERING, INC. GEOTECHNICAL REPORT DATED MAY 2019.

BRIDGE STATIONING AND RIGHT-OF-WAY ARE BASED ON HISTORICAL NORTHERN PACIFIC RAILWAY (N.P. RY.) TRACK CHARTS.

GENERAL

IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE ACTUAL FIELD CONDITIONS AND ANY NECESSARY AS-BUILT DIMENSIONS AFFECTING THE SATISFACTORY COMPLETION OF THE WORK REQUIRED FOR THIS PROJECT.

NEW CONSTRUCTION SHOWN AS HEAVY LINES. EXISTING STRUCTURES TO REMAIN SHOWN AS LIGHT LINES. EXISTING STRUCTURES TO BE REMOVED SHOWN AS LIGHT DOTTED LINES.

CONTRACTOR IS RESPONSIBLE FOR DEWATERING TO FACILITATE CONSTRUCTION WHEN REQUIRED TO SATISFACTORILY COMPLETE THE WORK REQUIRED FOR THIS PROJECT.

IN ORDER TO ENSURE THE HYDRAULIC CAPACITY OF THE BRIDGE, THE FINISHED GROUND UNDER THE BRIDGE SHALL BE SHAPED TO MATCH THE UPSTREAM CHANNEL AND FLOODPLAIN AS SHOWN ON DRAWING BU-101.

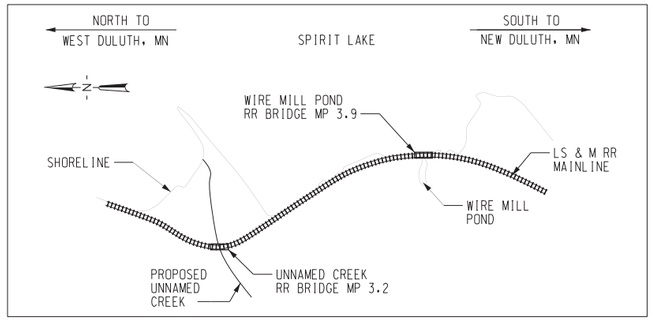
CONTRACTOR SHALL DOCUMENT ALL WORK IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS INCLUDING SUPPLYING: AS-BUILT DRAWINGS, PILE DRIVING RECORDS, AND SHOP DRAWINGS FOR ALL PREFABRICATED COMPONENTS. ALL SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION PER THE PROJECT SPECIFICATIONS.

CONTRACTOR SHALL DISPOSE OF ALL WASTE MATERIALS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS INCLUDING BUT NOT LIMITED TO EXISTING TIMBER STRUCTURES, SOILS, AND DEFICIENT TRACK MATERIALS.

THE L.S.&M. RAILROAD IS AN HISTORIC RAILROAD. CONTRACTOR SHALL TAKE EXTREME CARE TO PRESERVE THE HISTORIC NATURE OF THE SITE AND RESTORE ANY DISTURBED AREAS TO PRE-CONSTRUCTION CONDITIONS.

TRACK MATERIALS INCLUDING TIES, RAIL, TIE PLATES, SPIKES, ETC. SHALL BE REUSED DURING TRACK RESURFACING TO PRESERVE THE HISTORIC NATURE OF THE RAILROAD. COMPONENTS SHALL BE INSPECTED FOR DEFECTS PRIOR TO PLACING BACK INTO SERVICE TO ENSURE SAFE OPERATION OF TRAINS. DEFECTIVE COMPONENTS MAY BE REPLACED WITH NEW MATERIAL OF A TYPE THAT CLOSELY MATCHES THE EXISTING COMPONENTS.

INFORMATION SHOWN ON THESE PLANS CONCERNING TYPE AND LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL VERIFY THE LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES BEFORE BEGINNING CONSTRUCTION.



VICINITY MAP

0 500 1000 2000 3000

SCALE IN FEET

BID ITEMS ~ UNNAMED CREEK RR BR 3.2

ITEM NO.	ITEM DESCRIPTION	QTY.	UNIT
1	FURNISH AND DRIVE PILE*	924	LF
2	FABRICATE AND INSTALL BRIDGE**	1	LS

*INCLUDES COAL TAR EPOXY COATING AS SPECIFIED ON SHEET BU-102.

**INCLUDES ALL COMPONENTS OF BRIDGE SHOWN ON THESE PLANS EXCEPT PILING.

LIST OF DRAWINGS ~ UNNAMED CREEK RR BR 3.2

DRAWING NUMBER	SHT. NO.	TITLE
BU-001	86	GENERAL NOTES AND ESTIMATED QUANTITIES
BU-101	87	GENERAL LAYOUT AND TYPICAL SECTIONS
BU-102	88	PILE PLAN AND DETAILS
BU-501	89	PRESTRESSED CONCRETE SLAB BEAM DETAILS (SHEET 1 OF 2)
BU-502	90	PRESTRESSED CONCRETE SLAB BEAM DETAILS (SHEET 2 OF 2)
BU-503	91	WALK AND DECK PLAN AND HANDRAIL DETAILS
STANDARD RR BRIDGE COMPONENTS AND DETAILS		
BG-501	98	PRECAST CONCRETE BENT CAP DETAILS AND NOTES
BG-502	99	PRECAST CONCRETE END BENT CAP DETAILS
BG-503	100	WALKWAY AND HANDRAIL DETAILS
BG-504	101	STEEL DETAILS
BG-505	102	MISCELLANEOUS DETAILS

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: CLB
DRAWN BY: RLW
CHECKED BY: AGH
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

UNNAMED CREEK RR BRIDGE
GENERAL NOTES AND ESTIMATED QUANTITIES

PREPARED FOR:

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MISSOULA, MT 59803-1489

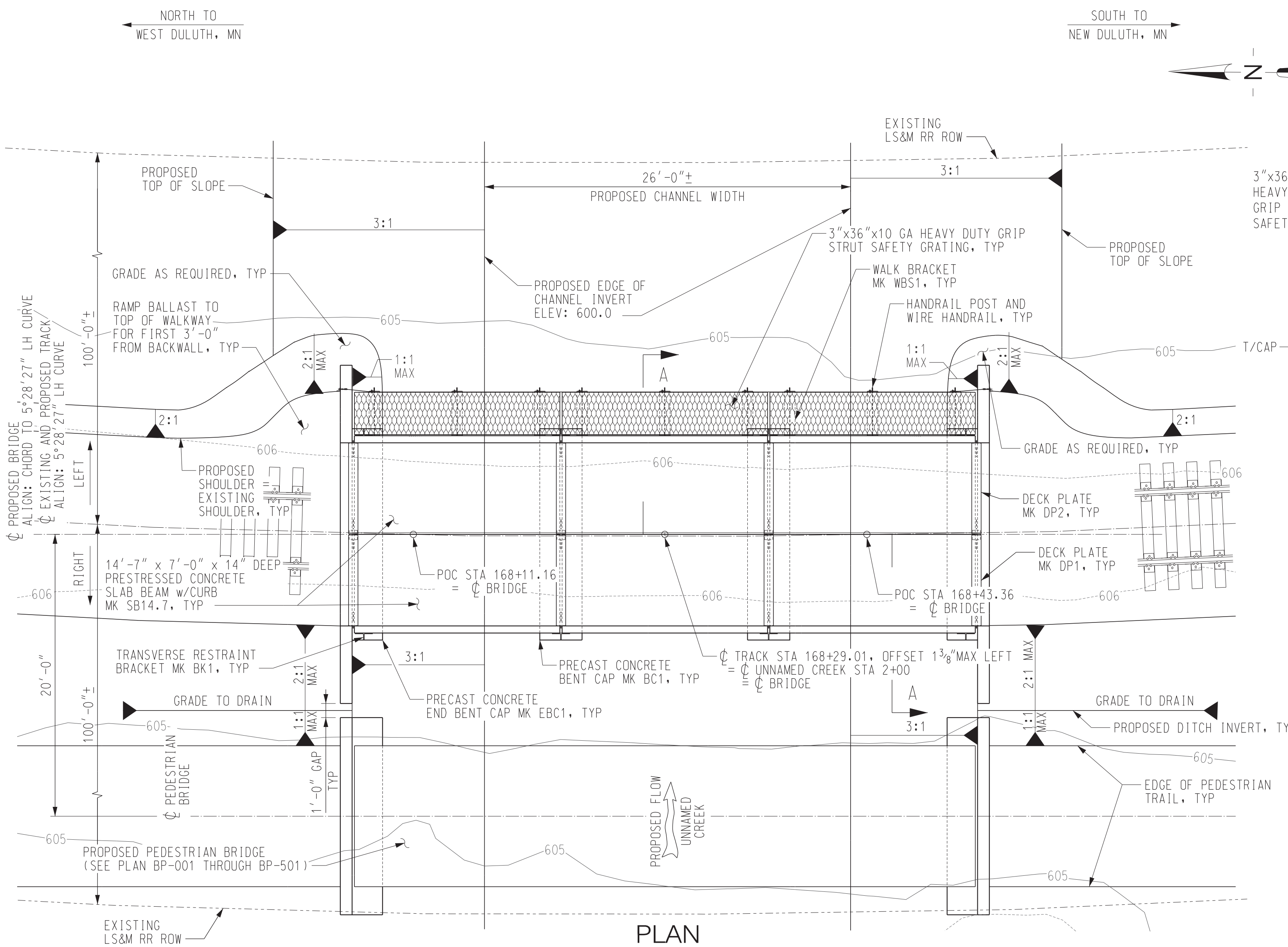
DATE: MAY 2019

PROJECT NUMBER:

BU-001

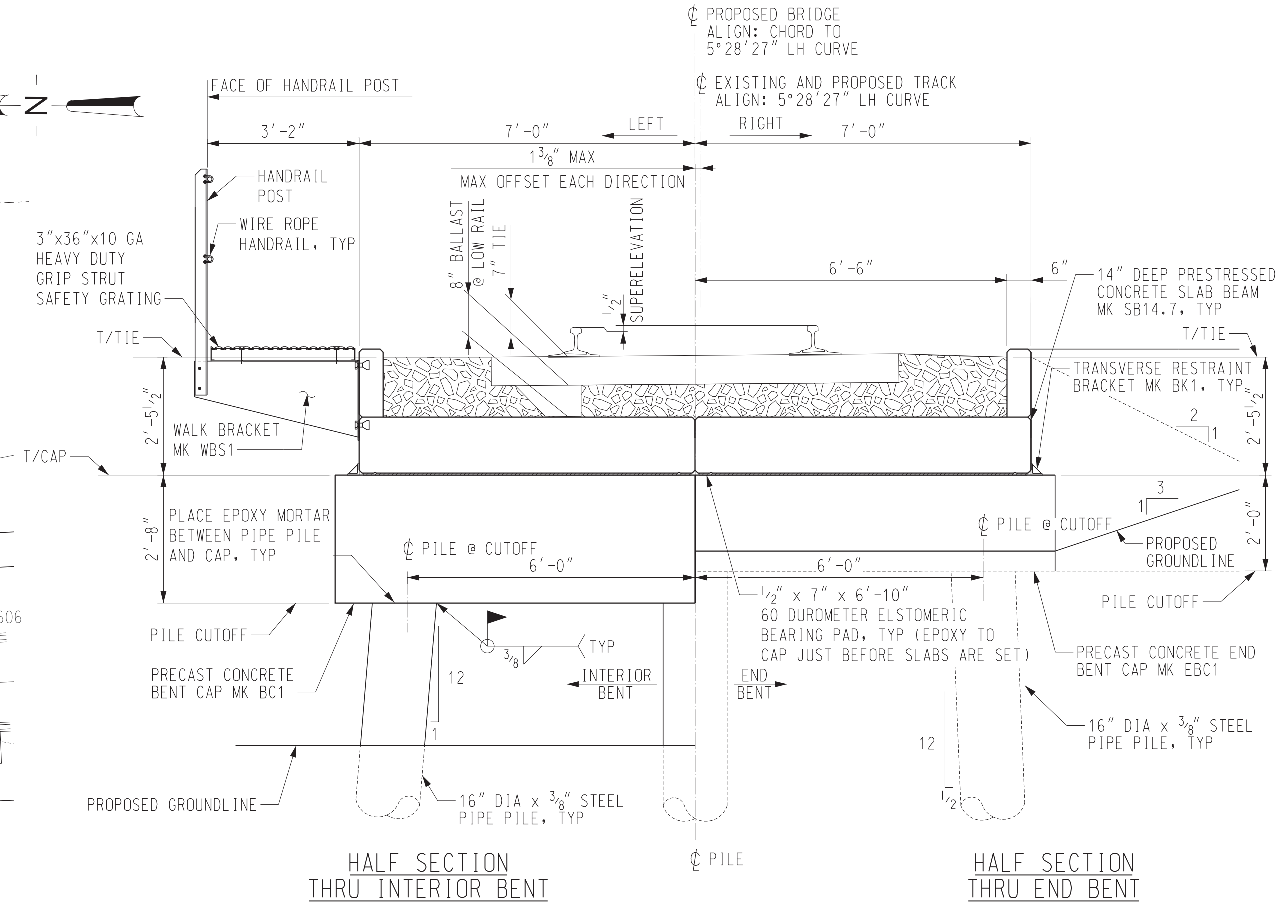
SHEET: 86 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



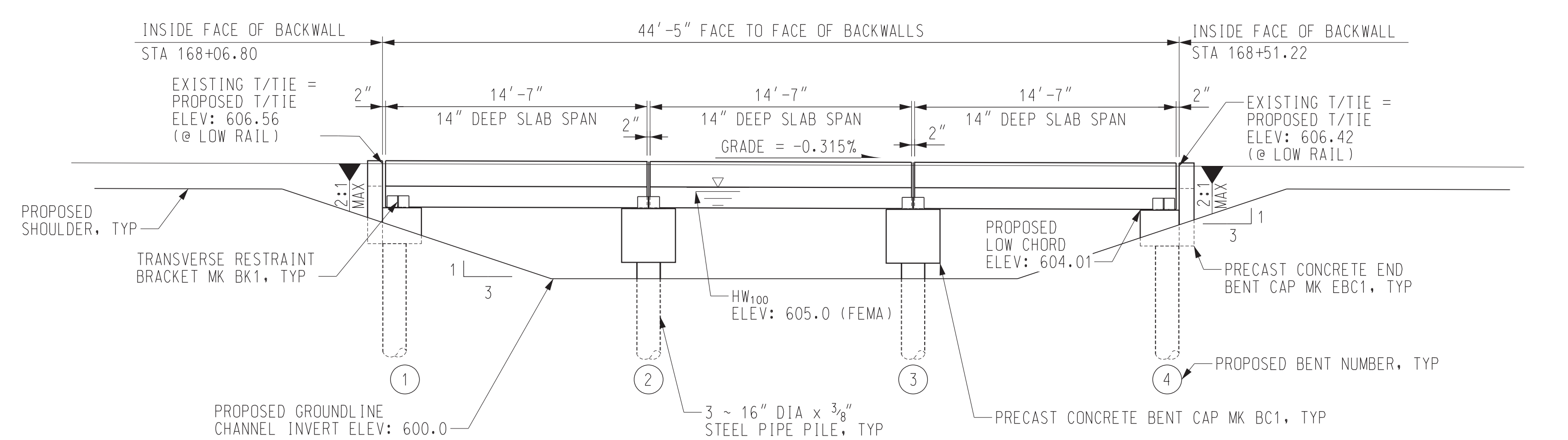
PLAN

SCALE: 3/16" = 1'-0"



SECTION A–A

SCALE: 1/2" = 1'-0"



ELEVATION

SCALE: 3/16" = 1'-0"
WALKWAY AND HANDRAIL NOT SHOWN FOR CLARITY

TABLE OF ELEVATIONS ~ UNNAMED CREEK RR BR 3.2

LOCATION	END BENT 1	BENT 2	BENT 3	END BENT 4
PROPOSED TOP OF TIE (@ LOW RAIL)	606.56	606.51	606.47	606.42
TOP OF CAP	604.10	604.05	604.01	603.97
PILE CUTOFF	602.10	601.39	601.34	601.97
TOP OF TIE TO PILE CUTOFF	4'-5½"	5'-1½"	5'-1½"	4'-5½"

REVISIONS: NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION: DESIGNED BY: CLB; DRAWN BY: RLW; CHECKED BY: AGH; PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

UNNAMED CREEK RR BRIDGE
GENERAL LAYOUT AND TYPICAL SECTIONS

PREPARED FOR:
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HDR ENGINEERING, INC.
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MISSOULA, MT 59803-1489

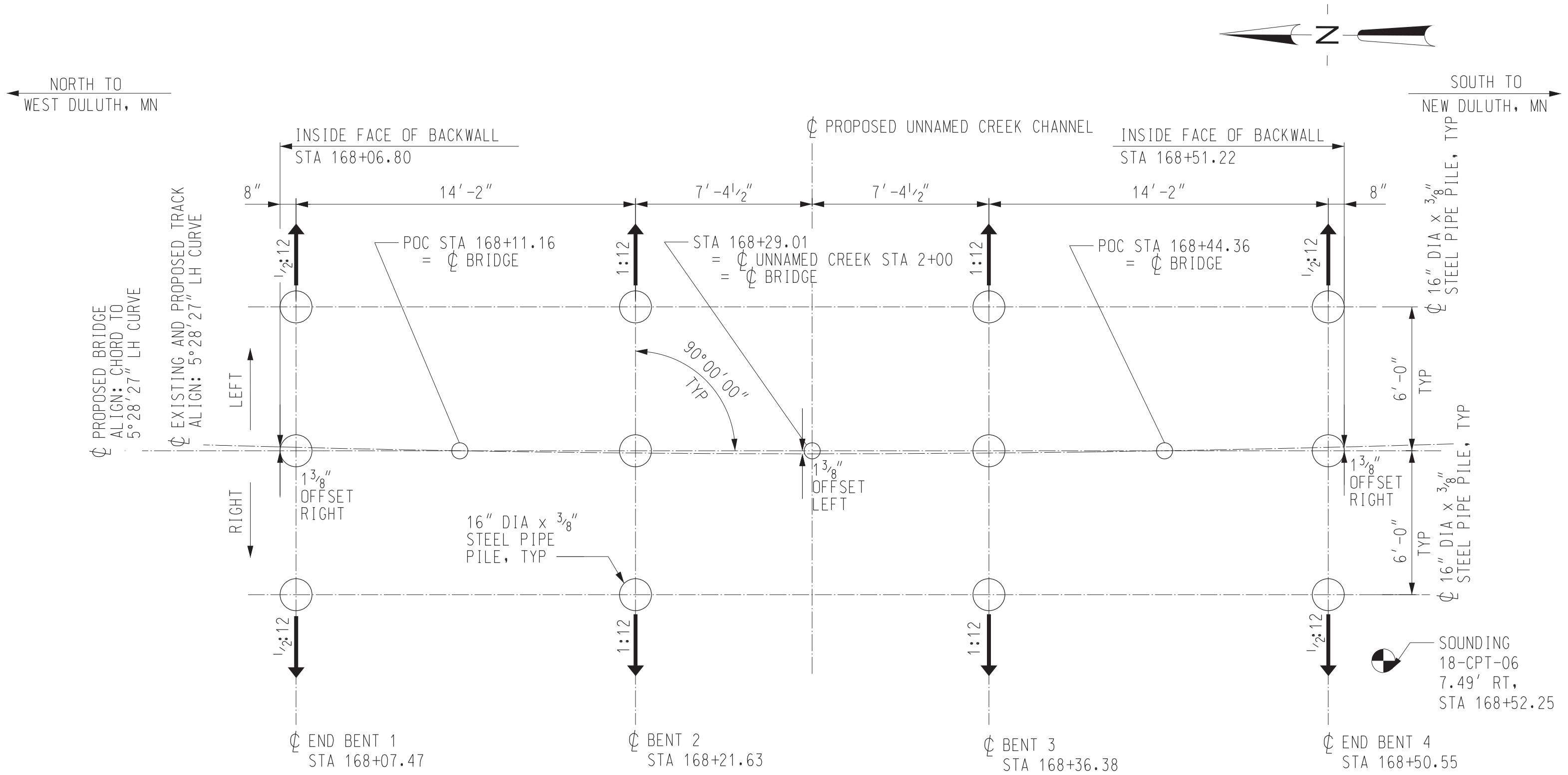
DATE: MAY 2019

PROJECT NUMBER:

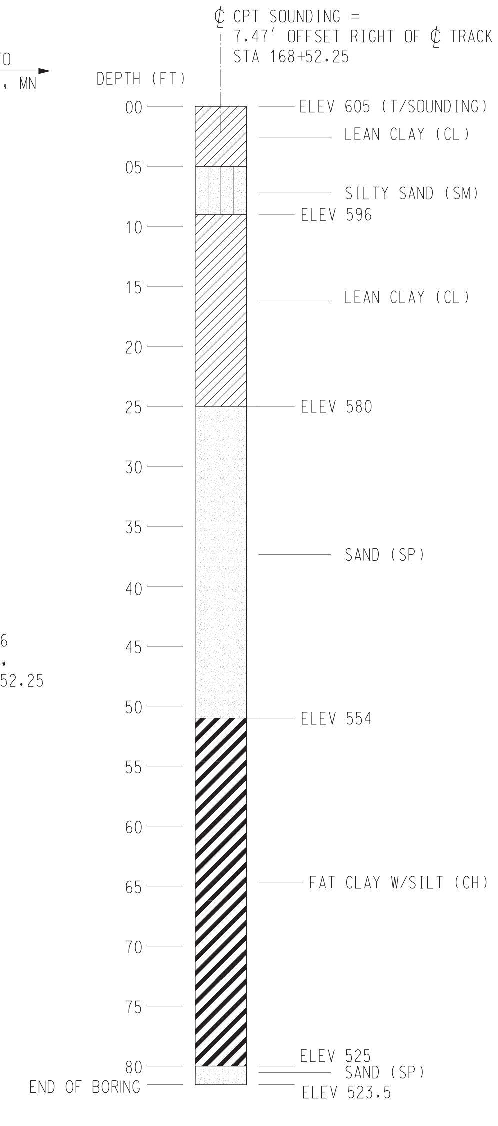
BU-101

SHEET: 87 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



PILE PLAN
NO SCALE



SOUNDING 18-CPT-06
NO SCALE

PILE NOTES

PIPE PILES SHALL BE 16" DIA x ⅜" CONCRETE FILLED STEEL PIPE PILES AND MEET THE REQUIREMENTS OF ASTM A252 GRADE 3, Fy = 45 KSI.

PILE POINTS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS ON ALL PIPE PILES PRIOR TO DRIVING.

DEBURR ALL EDGES.

FABRICATION SHALL CONFORM TO CURRENT AREMA GUIDELINES.

BRIDGE PIPE PILES SHALL BE DRIVEN PER THE PROJECT PROJECT SPECIFICATIONS TO THE DEEPER, MORE CONSERVATIVE DEPTH REQUIRED BY EITHER THE MINIMUM TIP ELEVATION OR TO ACHIEVE THE REQUIRED ULTIMATE CAPACITY NOTED IN THE PILE DATA TABLE. CONTACT THE ENGINEER IF PRACTICAL REFUSAL IS REACHED PRIOR TO REACHING THE MINIMUM TIP ELEVATION. ESTIMATED PILE LENGTH BELOW CUTOFF IS SHOWN IN THE PILE DATA TABLE.

CONTRACTOR SHOULD BE PREPARED TO ADJUST PILE LENGTH WITHOUT DELAYING THE PROJECT.

SYMBOL 1:12 → DENOTES DIRECTION AND AMOUNT OF PILE BATTER.

THE CONTRACTOR SHALL HAVE SUFFICIENT PILE SPLICE MATERIAL ON HAND BEFORE PILE DRIVING IS STARTED.

CONTRACTOR TO SUBMIT PROPOSED DRIVING SYSTEM WITH ACCOMPANYING DRIVEABILITY ANALYSIS TO ENGINEER FOR CONFIRMATION OF DRIVEABILITY. MINIMUM RECOMMENDED PILE DRIVING HAMMER ENERGY IS 40 KIP-FT (DELMAG 16-32 OR GREATER). NOTE THE RECOMMENDED HAMMER SIZE IS BASED ON ANTICIPATED ENERGY REQUIRED TO ACHIEVE THE MINIMUM TIP ELEVATION WHICH MAY BE DEEPER THAN THE ELEVATION AT WHICH THE REQUIRED ULTIMATE CAPACITY IS REACHED TO ENSURE PILE TIP REACHES COMPETENT SOIL LAYERS.

THE MAXIMUM HORIZONTAL OUT OF POSITION TOLERANCE AT THE CUTOFF ELEVATION IS 3 INCHES.

PILE COATING NOTES

A COATING OF TWO COMPONENT (SELF-CURING) COAL TAR EPOXY PAINT CONFORMING TO STEEL STRUCTURES PAINTING COUNCIL SPECIFICATION SSPC-PAINT 16, COAL TAR EPOXY BLACK (OR DARK RED PAINT) SHALL BE SHOP APPLIED (AS PER THE MANUFACTURER'S (RECOMMENDATIONS) TO THE ENTIRE OUTER SURFACE OF EACH PILE AND EMBED PLATE PRIOR TO PLACEMENT AS DETAILED BELOW.

STEEL SURFACES WHICH ARE TO RECEIVE THIS COATING SHALL BE PREPARED BY BLAST CLEANING TO NEAR WHITE, GRADE SSPC 10. THE COAL TAR EPOXY PAINT SHALL BE APPLIED BEFORE RUSTING OCCURS AND IN NO CASE LATER THAN 24 HOURS AFTER BLAST CLEANING.

THE COATING MAY BE APPLIED BY SPRAY OR BRUSH. IF THE APPLICATION IS BY BRUSH, APPLY WITH A STIFF BRUSH HEAVILY LOADED WITH PAINT; APPLY QUICKLY AND SMOOTHLY AND AVOID EXCESSIVE BRUSHING.

THE COATING SHALL BE APPLIED IN TWO COATS TO A TOTAL DRY FILM THICKNESS OF 16 MILS AT ITS THINNEST SPOT.

DRYING TIME BETWEEN COATS SHALL BE A MINIMUM OF 12 HOURS AND A MAXIMUM OF 72 HOURS UNDER NORMAL PAINTING CONDITIONS. LONG DRYING TIMES BETWEEN COATS MAY RESULT IN POOR INTERCOAT ADHESION AND IT IS ADVISABLE IN WARM WEATHER TO REDUCE THE MAXIMUM INTERVAL BETWEEN COATS. IN VERY HOT WEATHER IT MAY BE NECESSARY TO LIMIT THE INTERCOAT DRYING PERIOD TO 24 HOURS OR LESS.

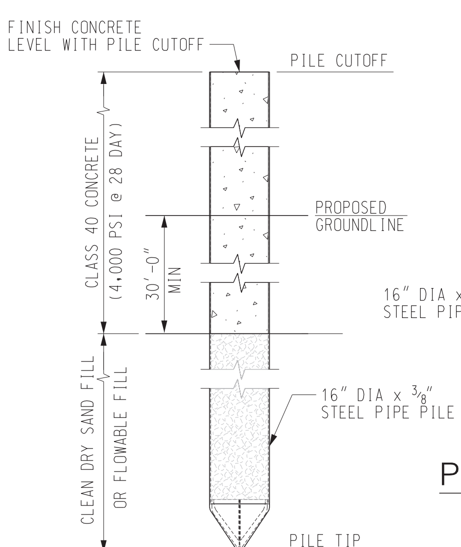
AT NORMAL TEMPERATURES THE COATING DRIES DUST FREE IN ABOUT FOUR HOURS AND BECOMES THOROUGHLY HARDENED AFTER 3 TO 5 DAYS OF CURING. PILE PLACEMENT SHALL NOT BEGIN SOONER THAN 5 DAYS AFTER COATING.

THE COATING SHALL NOT BE APPLIED WHEN THE RECEIVING SURFACES OR AMBIENT TEMPERATURES ARE BELOW 50 DEGREES FAHRENHEIT UNLESS IT CAN REASONABLY BE ANTICIPATED THAT THE AVERAGE AMBIENT TEMPERATURE WILL BE 50 DEGREES FAHRENHEIT OR HIGHER FOR THE 5 DAY PERIOD FOLLOWING THE APPLICATION OF ANY COAT.

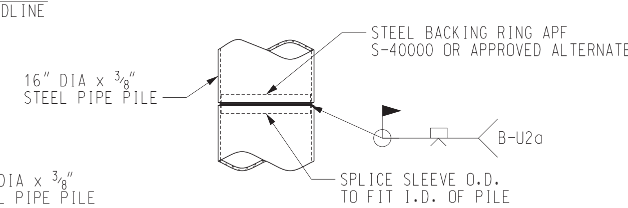
STEEL MEMBERS WHICH ARE WELDED AFTER COATING SHALL HAVE THE COATING REMOVED FROM THE WELD AREAS AND SHALL RECEIVE TWO COATS OF THE COATING APPLIED TO THE WELD HEAT AFFECTED AREAS.

AFTER PLACEMENT, THE AREAS OF THE PILES AND BASE PLATES WHERE THE COATING HAS BEEN DAMAGED SHALL BE TOUCHED UP.

THE COST OF FURNISHING AND APPLYING THE COATING SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER FOOT FOR 16" DIA x ⅜" THICK STEEL PIPE BEARING PILE, FURNISH AND DRIVE.

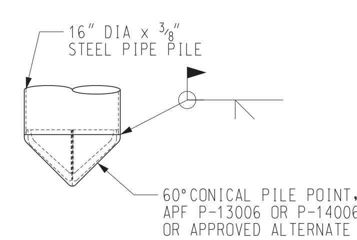


PILE FILL DETAIL
NO SCALE



PIPE PILE SPLICE DETAIL
NO SCALE

PILE SPLICE QUANTITY AND LOCATION TO BE DETERMINED BY CONTRACTOR BASED ON ORDERED LENGTHS



PIPE PILE POINT DETAIL
NO SCALE

PILE DATA TABLE ~ UNNAMED CREEK RR BR 3.2					
LOCATION	T/TIE ELEV	PILE CUTOFF ELEV	REQUIRED ULTIMATE CAPACITY (TON) *	MINIMUM TIP ELEV	ESTIMATED PILE LENGTH BELOW CUTOFF (FT)
END BENT 1	606.56	602.10	113	525	77.1
BENT 2	606.51	601.39	113	525	76.4
BENT 3	606.47	601.34	113	525	76.3
END BENT 4	606.42	601.97	113	525	77.0

* BASED ON FACTOR OF SAFETY = 2.0.

REVISIONS | NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: CLB
DRAWN BY: RLW
CHECKED BY: AGH
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

UNNAMED CREEK RR BRIDGE
PILE PLAN AND DETAILS

PREPARED FOR:
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HDR ENGINEERING, INC.
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MISSOULA, MT 59803-1489

DATE: MAY 2019
PROJECT NUMBER:
BU-102
SHEET: 88 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

PRESTRESSED CONCRETE NOTES

MATERIALS

CONCRETE

CONCRETE MATERIAL, PLACING AND CURING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE PROJECT SPECIFICATIONS FOR PRECAST/PRESTRESSED CONCRETE PRODUCTS AND THE CURRENT EDITION OF CHAPTER 8 OF THE AREMA MANUAL FOR RAILWAY ENGINEERING.

THE COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE:
PRETENSIONED CONCRETE:
f'ci = 4,500 PSI (AT TRANSFER)
f'c = 7,000 PSI (28-DAY)

CURB CONCRETE:
f'c = 4,500 PSI (28-DAY)

AIR ENTRAINING AGENTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE CURRENT EDITION OF ASTM C260. THE TOTAL ENTRAINED AIR CONTENT SHALL BE 6% +/- 1% BY VOLUME OF THE PLASTIC CONCRETE.

CONCRETE AGGREGATE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE CURRENT EDITION OF ASTM C33. COARSE AGGREGATE SHALL BE SIZE NO. 67.

CONCRETE SHALL BE DYED TO ACHIEVE A UNIFORM NATURAL WOOD TONE FINISH PER THE PROJECT SPECIFICATIONS. PROPOSED COLOR SAMPLE SHALL BE SUBMITTED AND APPROVED PRIOR TO FABRICATION. PROPOSED COLOR SHALL MATCH THAT OF THE PRECAST CONCRETE BENT CAPS.

PRESTRESSING STRANDS

PRESTRESSING STRAND SHALL BE 0.5-INCH DIAMETER, SEVEN-WIRE, UNCOATED, LOW-RELAXATION STRAND WHICH IS IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN ASTM A416. THE STRAND SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 270 KSI. THE INITIAL PRESTRESS SHALL BE 31,000 LBS. PER STRAND UNLESS NOTED OTHERWISE.

STRAND SHALL BE TESTED IN ACCORDANCE WITH PCI RECOMMENDATIONS (MOUSTAFA METHOD) AND CERTIFIED BY THE FABRICATOR AS HAVING ADEQUATE BOND CHARACTERISTICS TO SATISFY THE PREDICTION EQUATIONS FOR TRANSFER AND DEVELOPMENT LENGTH GIVEN IN THE AREMA MANUAL FOR RAILWAY ENGINEERING.

AN ALTERNATE STRAND PATTERN WHICH HAS THE SAME ECCENTRICITY AS THE PATTERN SHOWN ON THIS PLAN AND IS BETTER SUITED TO THE MANUFACTURER'S FACILITIES WILL BE CONSIDERED. MANUFACTURER MUST SUBMIT PLAN AND COMPUTATIONS TO ENGINEER FOR APPROVAL PRIOR TO CASTING.

REINFORCING STEEL

REINFORCING STEEL SHALL BE DEFORMED, PER CURRENT ASTM A615 SPECIFICATIONS AND MUST MEET GRADE 60 REQUIREMENTS. UNCOATED BLACK BARS SHALL BE USED FOR ALL LOCATIONS EXCEPT FOR CURB REINFORCING.

CURB REINFORCING DENOTED WITH "X" AT THE END OF THE MARK NUMBER (I.E. 3F1X) SHALL BE DEFORMED, CORROSION RESISTANT, HIGH STRENGTH REINFORCEMENT MEETING THE CURRENT ASTM A1035 SPECIFICATIONS AND MUST MEET GRADE 100 REQUIREMENTS.

FABRICATION OF REINFORCING STEEL SHALL BE PER CHAPTER 7 OF THE CRSI MANUAL OF STANDARD PRACTICE. DIMENSIONS OF BENDING DETAILS ARE OUT-TO-OUT OF BAR.

REINFORCING STEEL IS TO BE BLOCKED TO PROPER LOCATION AND SECURELY WIRED AGAINST DISPLACEMENT. USE PLASTIC PROTECTED REINFORCING SUPPORTS MEETING CRSI SPECIFICATIONS CHAPTER 3, CLASS 1. TACK WELDING OF REINFORCING IS PROHIBITED. MINIMUM CONCRETE ON REINFORCEMENT SHALL MEET CURRENT AREMA REQUIREMENTS. MINIMUM CONCRETE COVER IS 1 1/2 INCHES.

GALVANIZING

ALL INSERTS, NUTS, AND WASHERS SHALL BE GALVANIZED ACCORDING TO ASTM A153 (HOT DIP PROCESS) OR ACCORDING TO ASTM B695, CLASS 50, TYPE 1 (MECHANICAL PROCESS).

FABRICATION

CONCRETE

PRODUCTION PROCEDURES AND DIMENSIONAL TOLERANCES FOR THE MANUFACTURE OF PRECAST, PRESTRESSED BEAMS SHALL BE IN ACCORDANCE WITH THE AREMA MANUAL FOR RAILWAY ENGINEERING AND THE PRESTRESSED CONCRETE INSTITUTES CURRENT MANUAL MNL-116 FOR QUALITY CONTROL.

TOLERANCE FOR LOCATION OF LIFTING LOOPS SHALL BE +/- 1/2".

THE ENDS OF THE STRANDS SHALL BE CUT OFF FLUSH WITH THE END OF THE BEAM AND PAINTED. RECESSES AND MINOR SPALLS MUST BE FILLED AND FINISHED TO THE PLAN DIMENSIONS USING AN EPOXY BONDING COMPOUND AND GROUT.

CURB SHALL BE CAST AFTER THE BEAM IS REMOVED FROM THE FORM.

CONCRETE BONDING AGENT: REFER TO SPECIFICATIONS

SURFACES SHALL BE FORMED IN A MANNER WHICH WILL PRODUCE A SMOOTH AND UNIFORM APPEARANCE WITHOUT RUBBING OR PLASTERING. UNLESS OTHERWISE NOTED, EXPOSED EDGES OF 90-DEGREES OR LESS ARE TO BE CHAMFERED 3/4" X 3/4". UNFORMED SURFACES SHALL HAVE A SMOOTH FINISH FREE OF ALL FLOAT AND TROWEL MARKS.

THE FABRICATOR SHALL STENCIL THE FABRICATOR'S NAME, DATE OF FABRICATION, PLACE MARK, AND LIFTING WEIGHT AT LOCATION SHOWN.

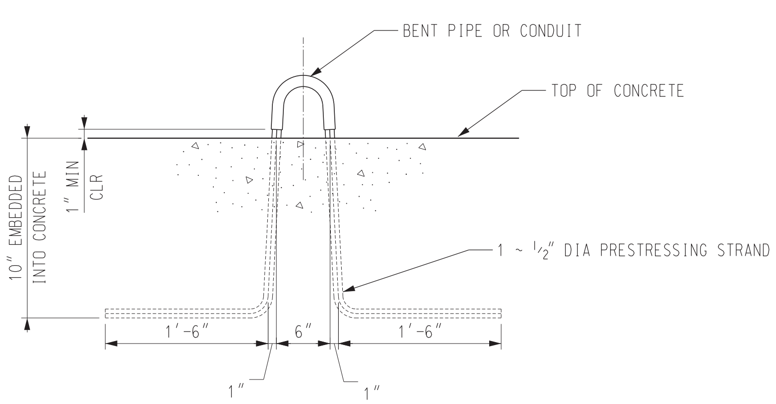
CURB TO BE DIVIDED INTO THREE EQUAL SEGMENTS AS SHOWN. IF CURB JOINTS CANNOT BE EQUALLY SPACED DUE TO CONFLICTS WITH HANDRAIL CONNECTIONS, THEN FABRICATOR SHALL ADJUST CURB SEGMENT LENGTHS SO THAT EACH CURB JOINT IS A MINIMUM OF 12" FROM THE CENTERLINE OF ANY WALKWAY/HANDRAIL CONNECTION.

CONSTRUCTION

MORTAR FOR SETTING BEAMS

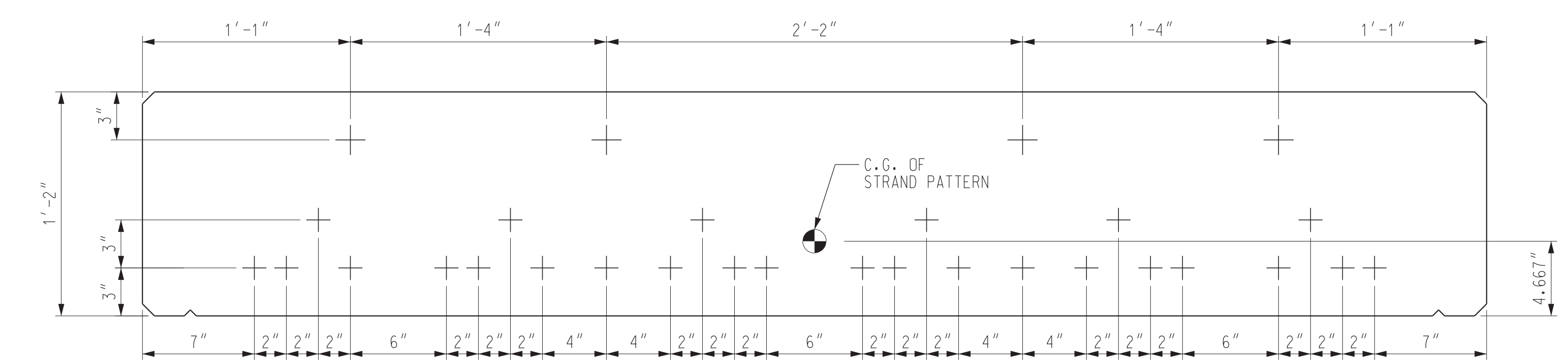
BEAMS SHALL HAVE FULL AND EVEN BEARING UPON THE BRIDGE SEAT AREAS. IF NEEDED, MORTAR CONSISTING OF EQUAL PARTS BY VOLUME OF CLASS B EPOXY AND DRY SILICA SAND, MIXED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS, SHALL BE SPREAD ON THE TOP OF BEARING PADS TO OBTAIN UNIFORM BEARING. SCRAPE EXCESS MORTAR FROM AROUND BEARING PADS AFTER THE BEAMS ARE SET.

AFTER PRECAST CONCRETE MEMBERS ARE SET, THE ENDS OF THE LIFTING LOOP STRANDS SHALL BE BURNED OFF AND RECESSED TO A DEPTH OF 1 INCH. FILL RECESSES AT LIFT ANCHORS WITH CEMENT GROUT TO TOP OF SURROUNDING CONCRETE.



LIFTING DETAIL

FABRICATOR IS RESPONSIBLE FOR ADEQUACY OF LIFTING LOOPS.



PRESTRESSED STRAND PATTERN FOR MK SB14.7

MILD REINFORCING NOT SHOWN FOR CLARITY
(30 ~ 0.5" 270 KSI STRANDS ALL STRAIGHT STRANDS)
SCALE: 2" = 1' -0"

REVISIONS: NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION: DESIGNED BY: CLB; DRAWN BY: RLW; CHECKED BY: AGH; PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

UNNAMED CREEK RR BRIDGE
PRESTRESSED CONCRETE SLAB BEAM DETAILS (SHEET 1 OF 2)

PREPARED FOR:
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MISSOULA, MT 59803-1489

DATE: MAY 2019

PROJECT NUMBER:

BU-501

SHEET: 89 OF 111

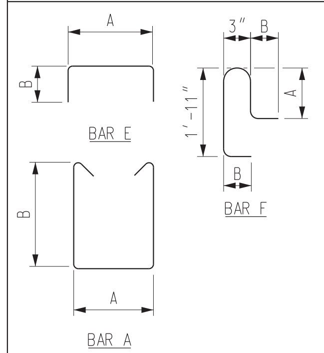
PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

REINFORCING SCHEDULE

MARK	QTY	SIZE	TYPE	A	B	LENGTH
3F1X	27	3	F	1'-10"	5"	4'-10"
4S1	6	4	STR	-	-	4'-7"
4S2	12	4	STR	-	-	4'-6"
5A1	48	5	A	2'-11"	10"	5'-6"
5A2	24	5	A	2'-10"	10"	5'-5"
5E1	10	5	E	9 1/2"	9"	2'-3 1/2"
5E2	12	5	E	8 1/4"	2'-0"	4'-8 1/4"
5E3	24	5	E	6'-8"	10"	8'-4"
5S1	18	5	STR	-	-	14'-3"

1075 LBS = WEIGHT OF REINFORCING STEEL PER BEAM (ASTM A615)

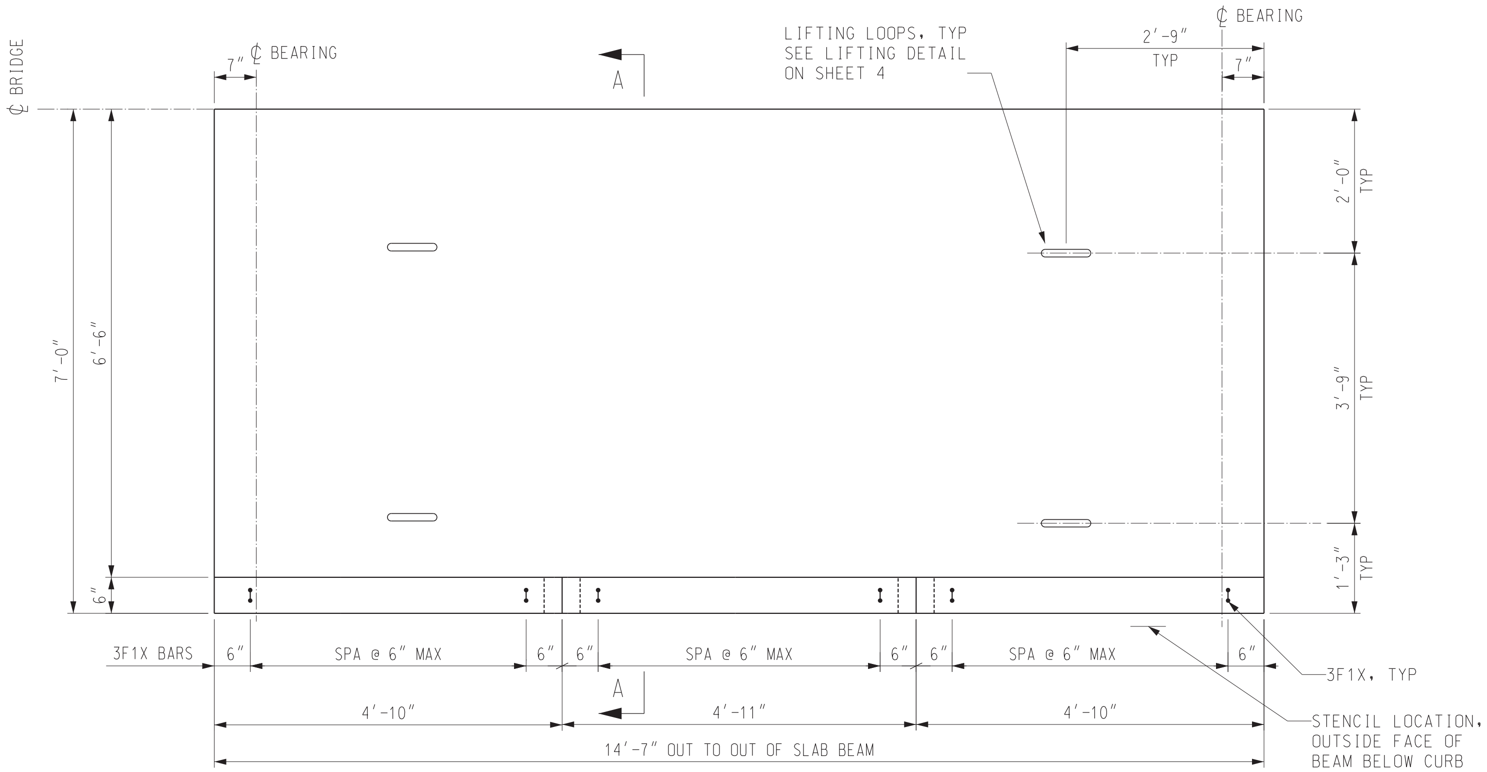
BENDING DETAILS



DIMENSIONS ARE OUT TO OUT

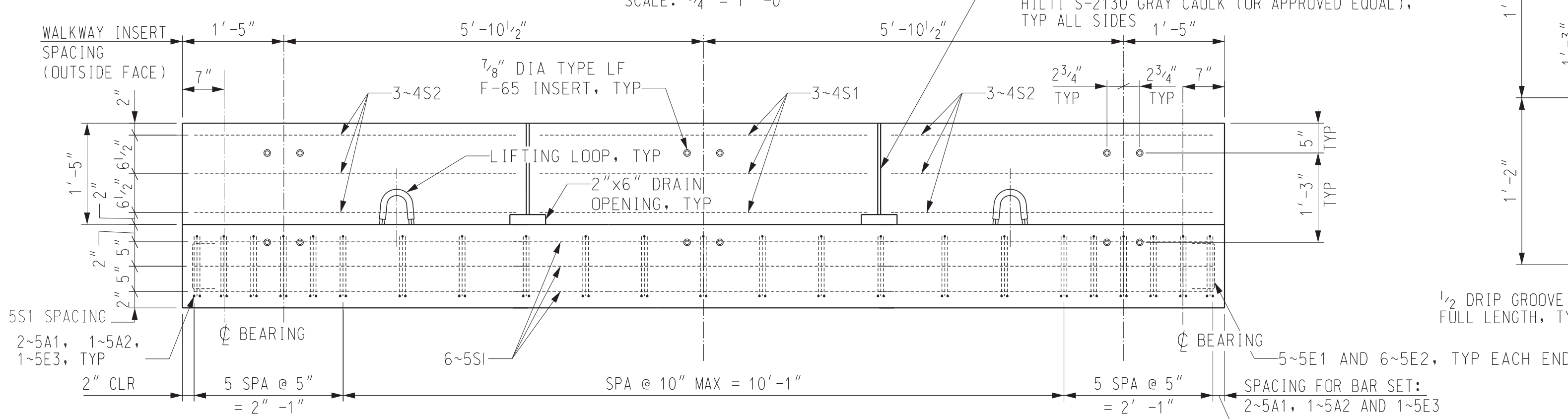
NOTES

SEE SHEET 89 FOR PRESTRESSED CONCRETE NOTES, STRAND PATTERN, AND LIFTING DETAIL.



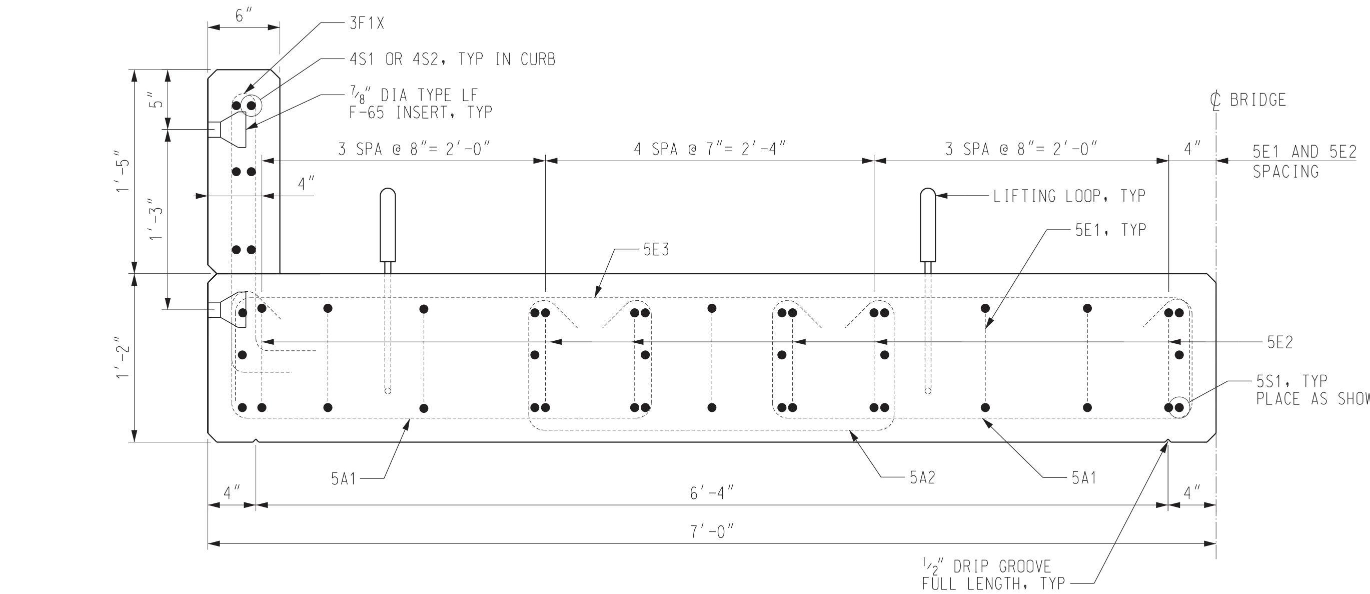
PLAN

SCALE: 3/4" = 1' -0"



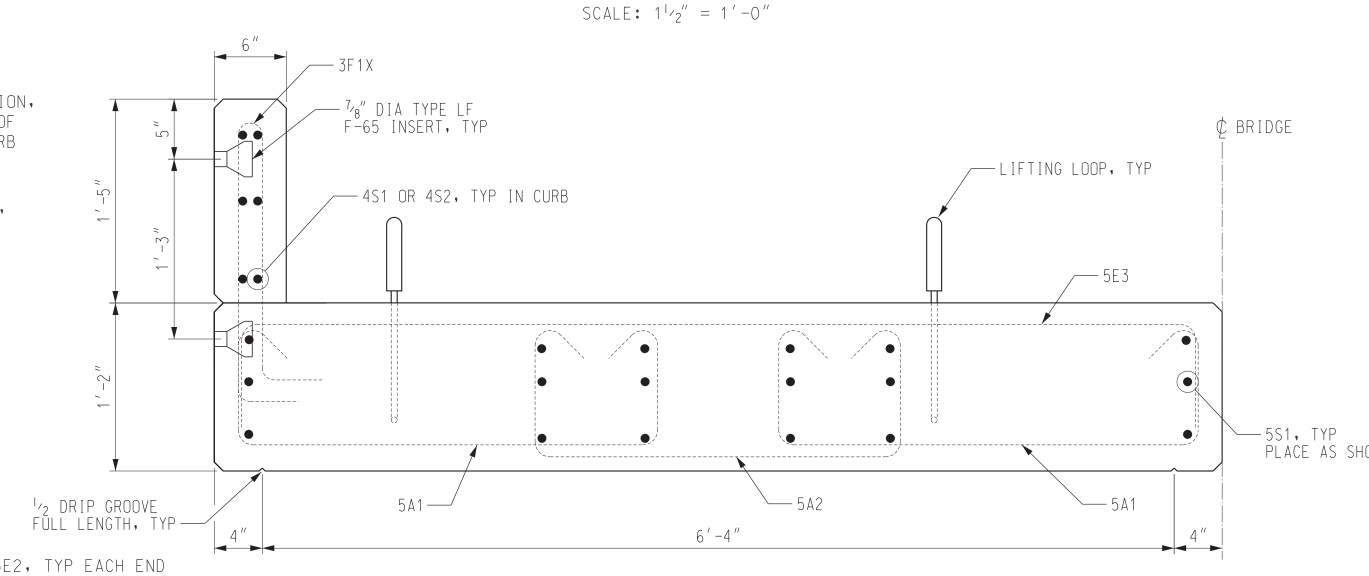
ELEVATION

SCALE: 3/4" = 1' -0"



END VIEW

SCALE: 1 1/2" = 1'-0"



SECTION A-A

SCALE: 1 1/2" = 1'-0"

14" DEEP PRESTRESSED CONCRETE SLAB BEAM MK SB14.7

6 REQUIRED

CONCRETE VOLUME = 4.5 CU.YD (BEAM), 0.4 CU.YD (CURB)

LIFT WEIGHT = 19,500 LBS (19.5 KIPS)

REVISIONS: NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION: DESIGNED BY: CLB; DRAWN BY: RLW; CHECKED BY: AGH; PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN

DULUTH, MINNESOTA

UNNAMED CREEK RR BRIDGE
PRESTRESSED CONCRETE SLAB BEAM DETAILS (SHEET 2 OF 2)

PREPARED FOR:

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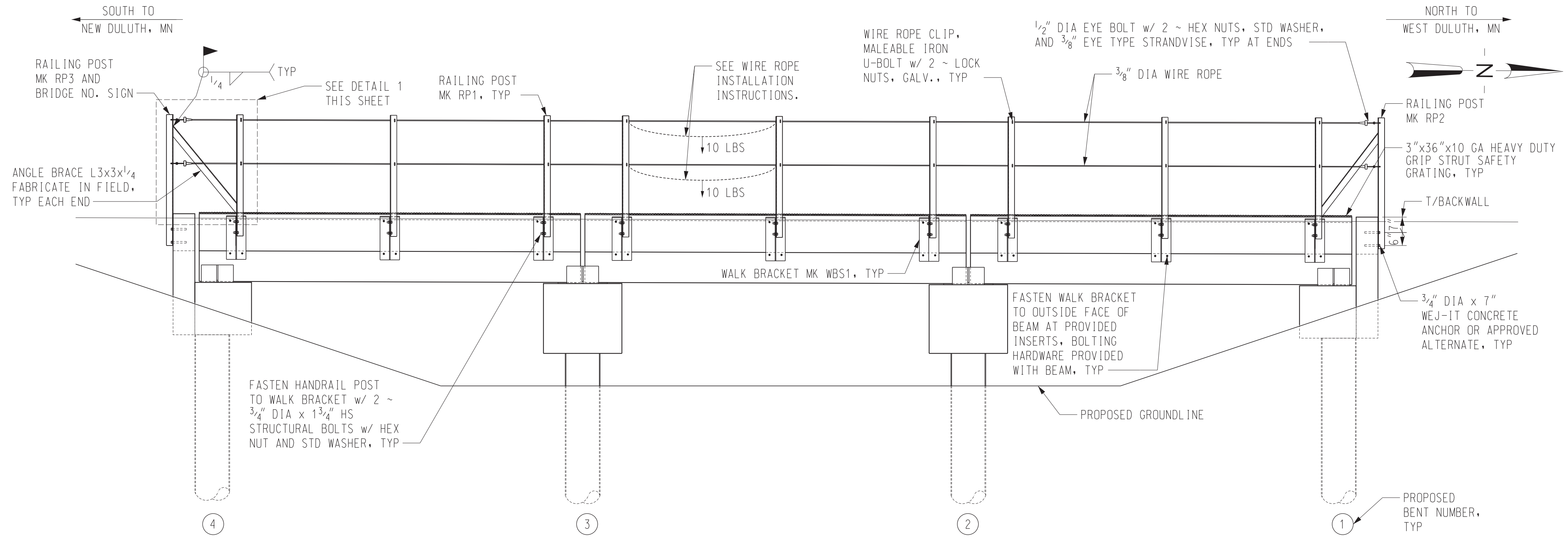
DATE: MAY 2019

PROJECT NUMBER:

BU-502

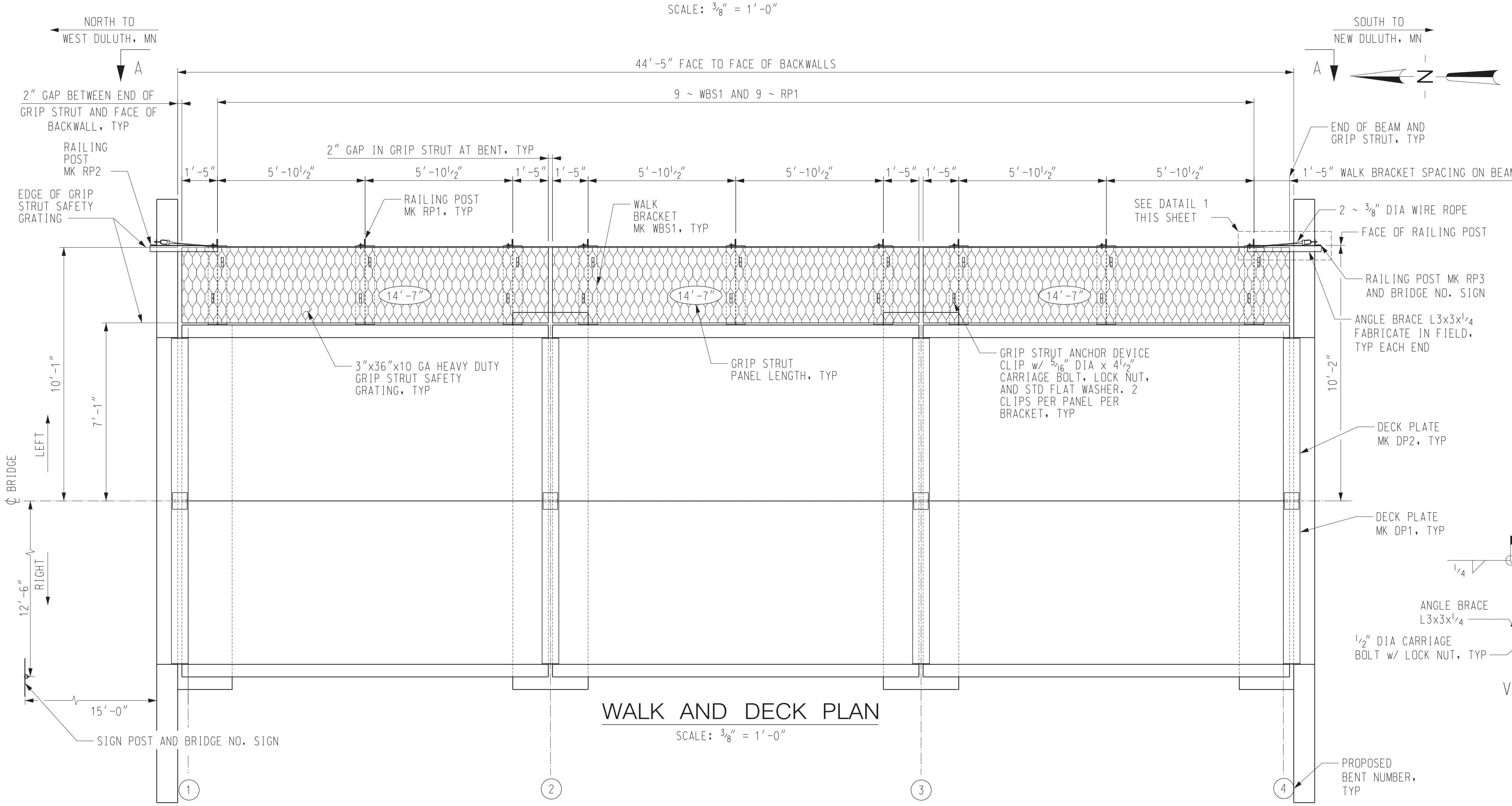
SHEET: 90 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



VIEW A–A

SCALE: 3/8" = 1'-0"



WALK AND DECK PLAN

SCALE: 3/8" = 1'-0"

WALKWAY GENERAL NOTES

STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH ASTM DESIGNATION A36 OR APPROVED EQUIVALENT. ALL STRUCTURAL STEEL ITEMS AND HARDWARE TO BE GALVANIZED UNLESS OTHERWISE NOTED.

HANDRAIL POSTS ON WALKWAYS SHALL BE ERECTED PLUMB AND IN LINE.

GALVANIZING OF STRUCTURAL STEEL AFTER FABRICATION SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM DESIGNATION A123.

GALVANIZING OF IRON AND STEEL HARDWARE SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM DESIGNATION A153.

FIELD PAINT ANGLE BRACES, WELDED AREAS, AND ABRASIONS OR CUTS ON RAILING POSTS, WALK BRACKETS, AND GRIP STRUT WALKWAY WITH ONE PRIME AND ONE FINISH COAT OF ZINC RICH PAINT.

WIRE ROPE SHALL BE 3/8" DIA, 7-WIRE STRAND, SIEMENS MARTIN GRADE, TYPE A COATING.

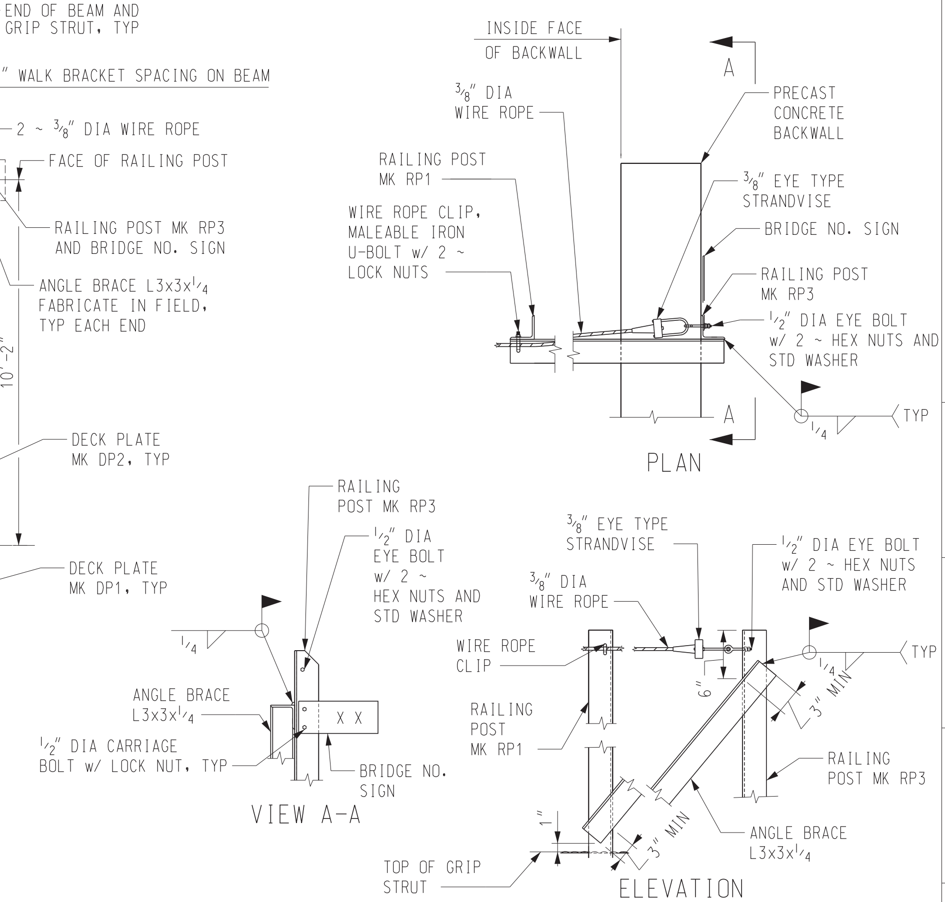
EYE BOLTS SHALL BE 1/2" DIAMETER WITH 2" LONG SHANK AND 1" INSIDE DIAMETER EYE.

WIRE ROPE CLIPS SHALL BE MALLEABLE IRON U-BOLTS 1/4" DIAMETER x 1 1/2" LONG WITH A 1" CENTERLINE WIDTH.

GRIP STRUT ANCHOR DEVICE CLIPS SHALL BE MCNICHOLS NO. 12262 DIAMOND ANCHOR DEVICE OR APPROVED EQUAL AND BE COMPATIBLE WITH THE GRIP STRUT PANELS ORDERED.

WIRE ROPE INSTALLATION INSTRUCTIONS

1. THREAD WIRE ROPE THROUGH ALL CLIPS AND BARREL ANCHORS AND SEAT RETAINING WEDGES ON ONE END RAILING POST (DO NOT TIGHTEN).
2. STRETCH WIRE ROPE AND HANG A MINIMUM OF 10 LBS ON ROPE BETWEEN TWO POSTS AS SHOWN. REMOVE ALL SAG IN ROPE TO A MAXIMUM OF 2 INCHES.
3. SEAT RETAINING WEDGES AT REMAINING END POST.
4. REMOVE WEIGHTS.
5. TIGHTEN CLIPS AT INTERMEDIATE POSTS.
6. CUT AND REMOVE EXCESS WIRE ROPE, COAT CUT PORTIONS OF WIRE ROPE WITH COLD GALVANIZING COMPOUND.



DETAIL 1

SCALE: 1" = 1'-0"

REVISIONS | NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION: DESIGNED BY: CLB | DRAWN BY: RLW | CHECKED BY: AGH | PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN

DULUTH, MINNESOTA

UNNAMED CREEK RR BRIDGE
WALK AND DECK PLAN AND HANDRAIL DETAILS

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DATE: MAY 2019

PROJECT NUMBER:

BU-503

SHEET: 91 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

GENERAL NOTES

DESIGN LOADING

ALL COMPONENTS ARE DESIGNED IN ACCORDANCE WITH THE 2017 AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8-CONCRETE STRUCTURES AND FOUNDATIONS.

LIVE LOAD:	E40 w/ DIESEL IMPACT
DESIGN SPEED:	10 MPH
MINIMUM BALLAST:	15 INCHES
MAXIMUM BALLAST:	24 INCHES
MAXIMUM TRACK ECCENTRICITY:	6 INCHES (FROM ℄ BRIDGE TO ℄ TRACK)

REFERENCE DATA

ALL DETAILS AND DIMENSIONS OF THE EXISTING SITE ARE BASED ON FIELD SURVEY DATA SUPPLIED BY LHB CORPORATION ON JUNE 15, 2016 WITH SUPPLEMENTARY DATA SUPPLIED ON JUNE 12, 2018.

BRIDGE STATIONING IS BASED ON THE INSIDE FACE OF THE NORTH EXISTING BACKWALL OF THE EXISTING WIRE MILL POND BRIDGE AS STATION 204+78.00.

BENCHMARK DATA:	SURVEY CONTROL POINT (HV-3702), STA 195+97.67, OFFSET 923.70' RIGHT, ELEV 648.82'.
VERTICAL DATUM:	NAVD88
HORIZONTAL DATUM:	NAD83/96 MINNESOTA NORTH ZONE

HYDRAULIC INFORMATION IS BASED ON HYDRAULIC MODELING INFORMATION PROVIDED BY EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC. DATED MARCH 15, 2018 AND FEMA FIRM PANEL NO. 2704210045C.

GEOTECHNICAL INFORMATION IS BASED ON HDR ENGINEERING, INC. GEOTECHNICAL REPORT DATED MAY 2019.

BRIDGE STATIONING AND RIGHT-OF-WAY ARE BASED ON HISTORICAL NORTHERN PACIFIC RAILWAY (N.P. RY.) TRACK CHARTS.

GENERAL

IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE ACTUAL FIELD CONDITIONS AND ANY NECESSARY AS-BUILT DIMENSIONS AFFECTING THE SATISFACTORY COMPLETION OF THE WORK REQUIRED FOR THIS PROJECT.

NEW CONSTRUCTION SHOWN AS HEAVY LINES. EXISTING STRUCTURES TO REMAIN SHOWN AS LIGHT LINES. EXISTING STRUCTURES TO BE REMOVED SHOWN AS LIGHT DOTTED LINES.

CONTRACTOR IS RESPONSIBLE FOR DEWATERING TO FACILITATE CONSTRUCTION WHEN REQUIRED TO SATISFACTORILY COMPLETE THE WORK REQUIRED FOR THIS PROJECT.

IN ORDER TO ENSURE THE HYDRAULIC CAPACITY OF THE BRIDGE, THE FINISHED GROUND UNDER THE BRIDGE SHALL BE SHAPED TO MATCH THE UPSTREAM CHANNEL AND FLOODPLAIN AS SHOWN ON DRAWING BW-101. THE EXISTING LOW WATER CHANNEL SHALL BE MAINTAINED AS NEAR AS POSSIBLE TO THE EXISTING LOCATION.

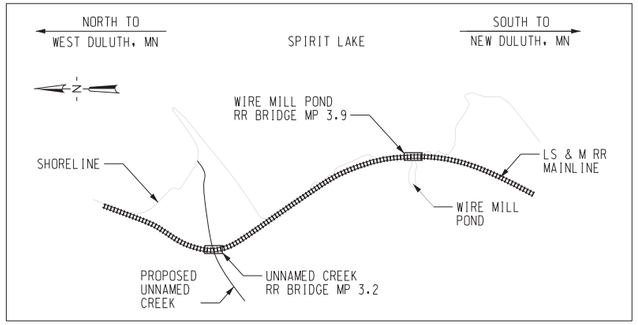
CONTRACTOR SHALL DOCUMENT ALL WORK IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS INCLUDING SUPPLYING: AS-BUILT DRAWINGS, PILE DRIVING RECORDS, AND SHOP DRAWINGS FOR ALL PREFABRICATED COMPONENTS. ALL SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION PER THE PROJECT SPECIFICATIONS.

CONTRACTOR SHALL DISPOSE OF ALL WASTE MATERIALS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS INCLUDING BUT NOT LIMITED TO EXISTING TIMBER STRUCTURES, SOILS, AND DEFICIENT TRACK MATERIALS.

THE L.S.&M. RAILROAD IS AN HISTORIC RAILROAD. CONTRACTOR SHALL TAKE EXTREME CARE TO PRESERVE THE HISTORIC NATURE OF THE SITE AND RESTORE ANY DISTURBED AREAS TO PRE-CONSTRUCTION CONDITIONS.

TRACK MATERIALS INCLUDING TIES, RAIL, TIE PLATES, SPIKES, ETC. SHALL BE REUSED DURING TRACK RESURFACING TO PRESERVE THE HISTORIC NATURE OF THE RAILROAD. COMPONENTS SHALL BE INSPECTED FOR DEFECTS PRIOR TO PLACING BACK INTO SERVICE TO ENSURE SAFE OPERATION OF TRAINS. DEFECTIVE COMPONENTS MAY BE REPLACED WITH NEW MATERIAL OF A TYPE THAT CLOSELY MATCHES THE EXISTING COMPONENTS.

INFORMATION SHOWN ON THESE PLANS CONCERNING TYPE AND LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL VERIFY THE LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES BEFORE BEGINNING CONSTRUCTION.



VICINITY MAP

0 500 1000 2000 3000

SCALE IN FEET

BID ITEMS ~ WIRE MILL POND RR BR 3.9

ITEM NO.	ITEM DESCRIPTION	QTY.	UNIT
1	FURNISH AND DRIVE PILE*	1080	LF
2	FABRICATE AND INSTALL BRIDGE**	1	LS
3	REMOVE EXISTING TIMBER BRIDGE	1	LS

*INCLUDES COAL TAR EPOXY COATING AS SPECIFIED ON SHEET BW-102.

**INCLUDES ALL COMPONENTS OF BRIDGE SHOWN ON THESE PLANS EXCEPT PILING.

LIST OF DRAWINGS ~ WIRE MILL POND RR BR 3.9

DRAWING NUMBER	SHT. NO.	TITLE
BW-001	92	GENERAL NOTES AND ESTIMATED QUANTITIES
BW-101	93	GENERAL LAYOUT AND TYPICAL SECTIONS
BW-102	94	PILE PLAN AND DETAILS
BW-501	95	PRESTRESSED CONCRETE SLAB BEAM DETAILS (SHEET 1 OF 2)
BW-502	96	PRESTRESSED CONCRETE SLAB BEAM DETAILS (SHEET 2 OF 2)
BW-503	97	WALK AND DECK PLAN AND HANDRAIL DETAILS
STANDARD RR BRIDGE COMPONENTS AND DETAILS		
BG-501	98	PRECAST CONCRETE BENT CAP DETAILS AND NOTES
BG-502	99	PRECAST CONCRETE END BENT CAP DETAILS
BG-503	100	WALKWAY AND HANDRAIL DETAILS
BG-504	101	STEEL DETAILS
BG-505	102	MISCELLANEOUS DETAILS

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION

DESIGNED BY:	CLB
DRAWN BY:	GJT
CHECKED BY:	AGH
PROJECT MANAGER:	DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

WIRE MILL POND RR BRIDGE
GENERAL NOTES AND ESTIMATED QUANTITIES

PREPARED FOR:

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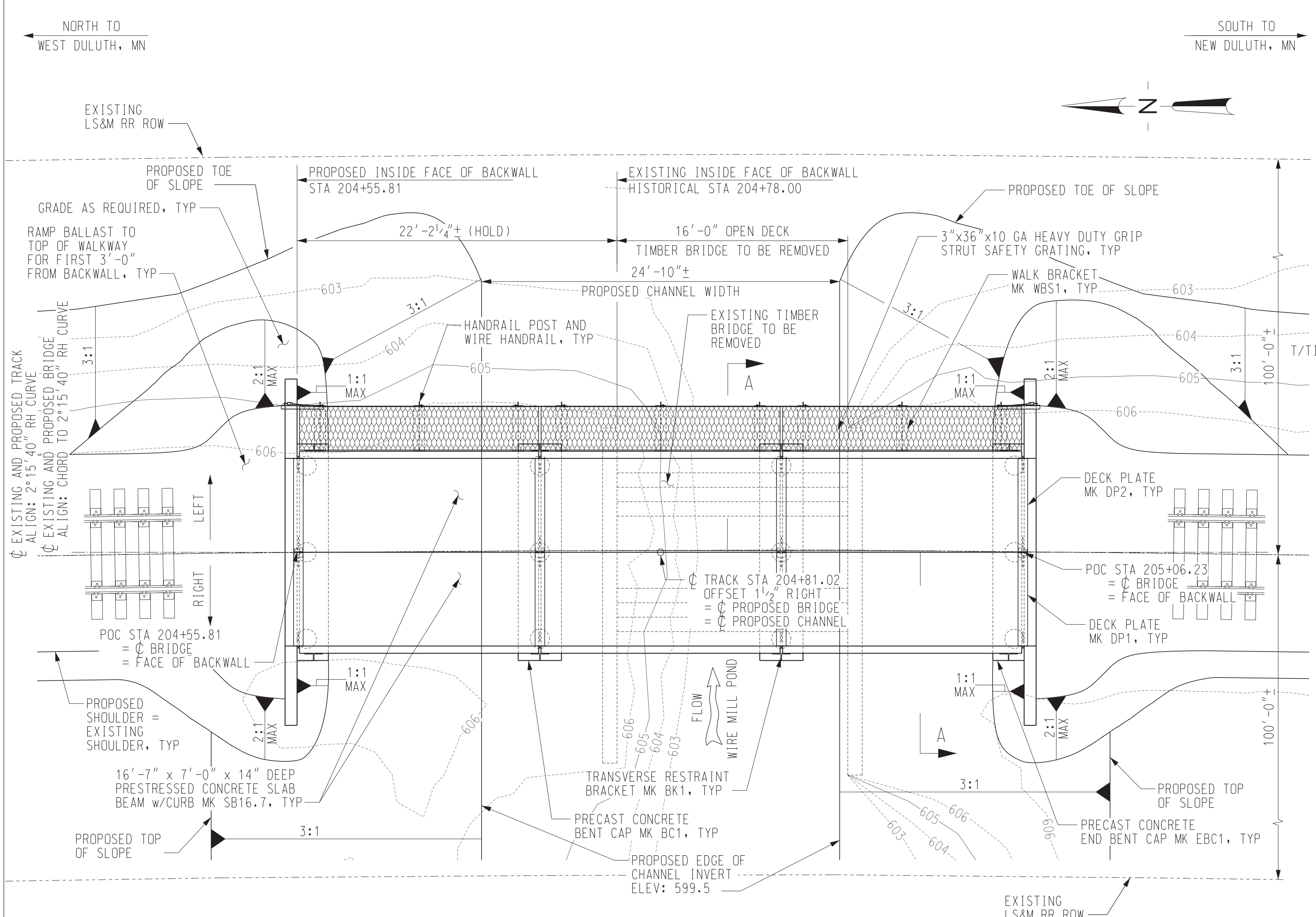
DATE: MAY 2019

PROJECT NUMBER:

BW-001

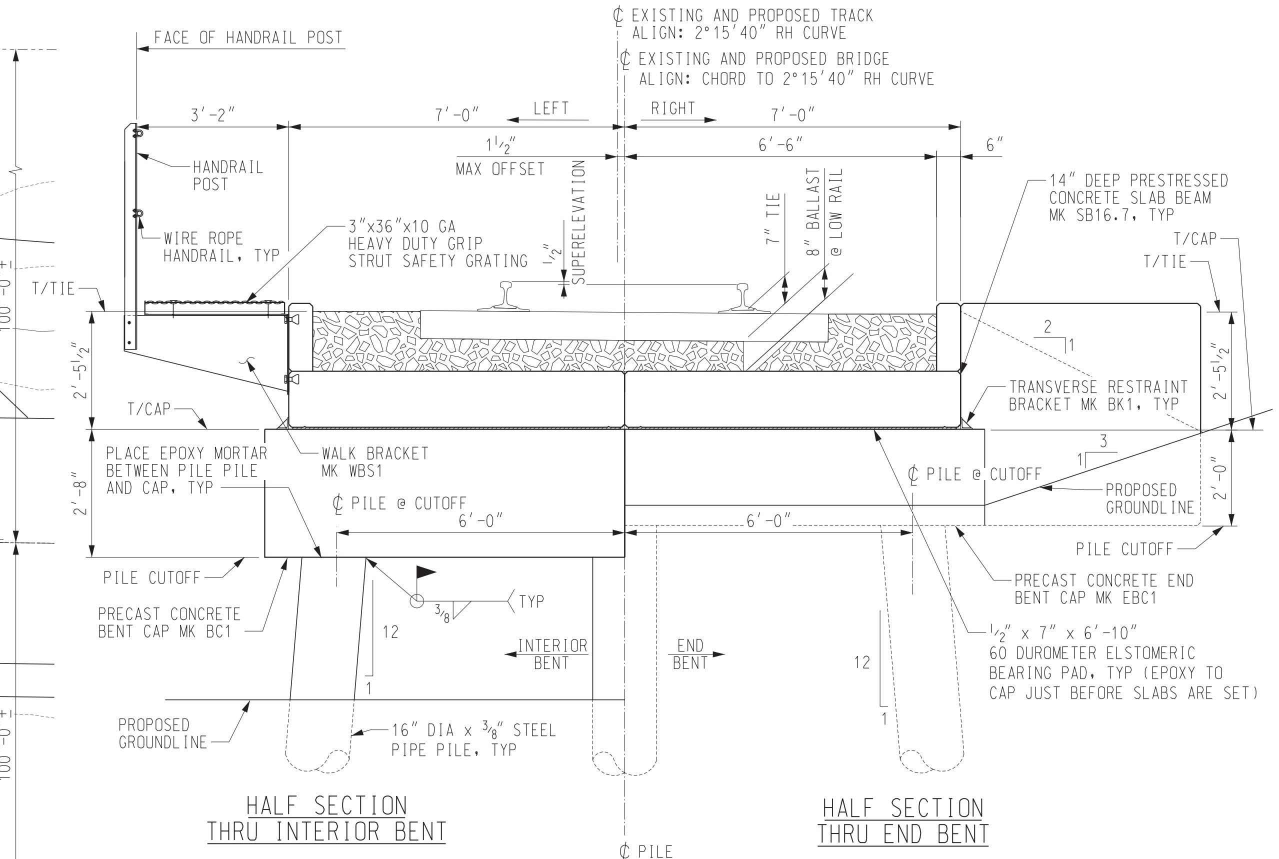
SHEET: 92 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



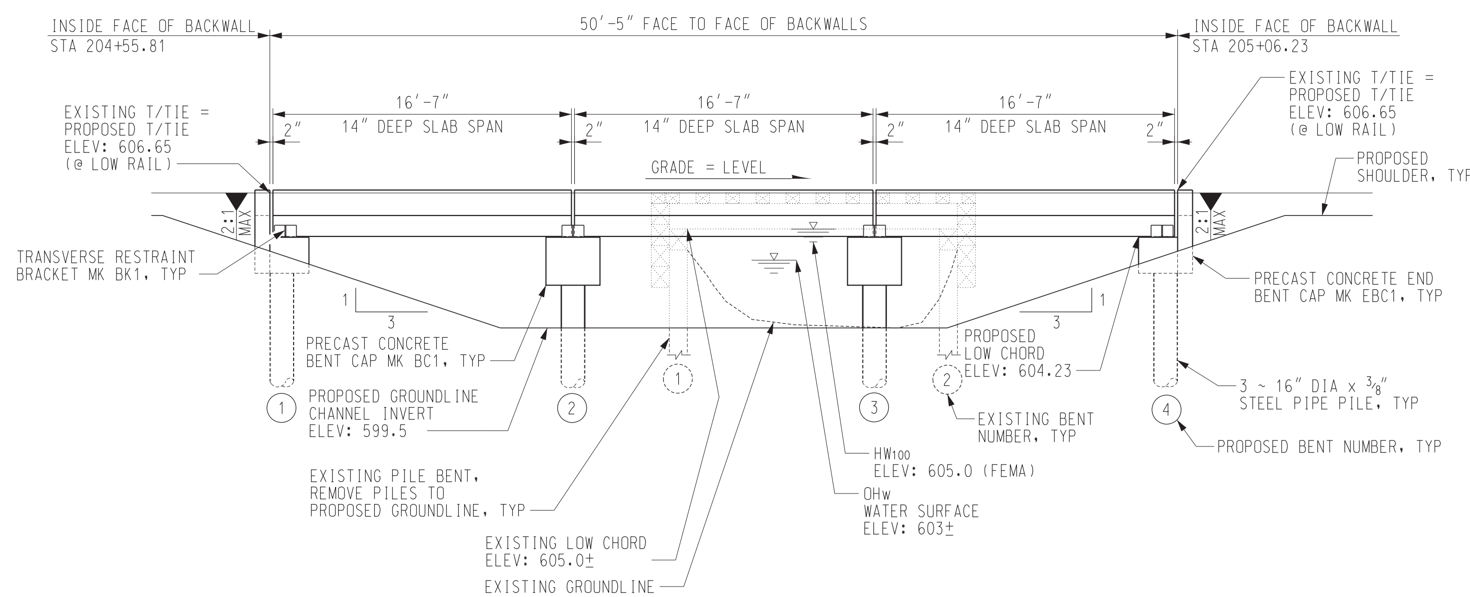
PLAN

SCALE: 3/16" = 1'-0"



SECTION A–A

SCALE: 1/2" = 1'-0"



ELEVATION

SCALE: 3/16" = 1'-0"

WALKWAY AND HANDRAIL NOT SHOWN FOR CLARITY

TABLE OF ELEVATIONS ~ WIRE MILL POND RR BR 3.9

LOCATION	END BENT 1	BENT 2	BENT 3	END BENT 4
PROPOSED TOP OF TIE (@ LOW RAIL)	606.65	606.65	606.65	606.65
TOP OF CAP	604.19	604.19	604.19	604.19
PILE CUTOFF	602.19	601.52	601.52	602.19
TOP OF TIE TO PILE CUTOFF	4'-5 1/2"	5'-1 1/2"	5'-1 1/2"	4'-5 1/2"

REVISIONS: NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION: DESIGNED BY: CLB; DRAWN BY: GJT; CHECKED BY: AGH; PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

WIRE MILL POND RR BRIDGE
GENERAL LAYOUT AND TYPICAL SECTIONS

PREPARED FOR:

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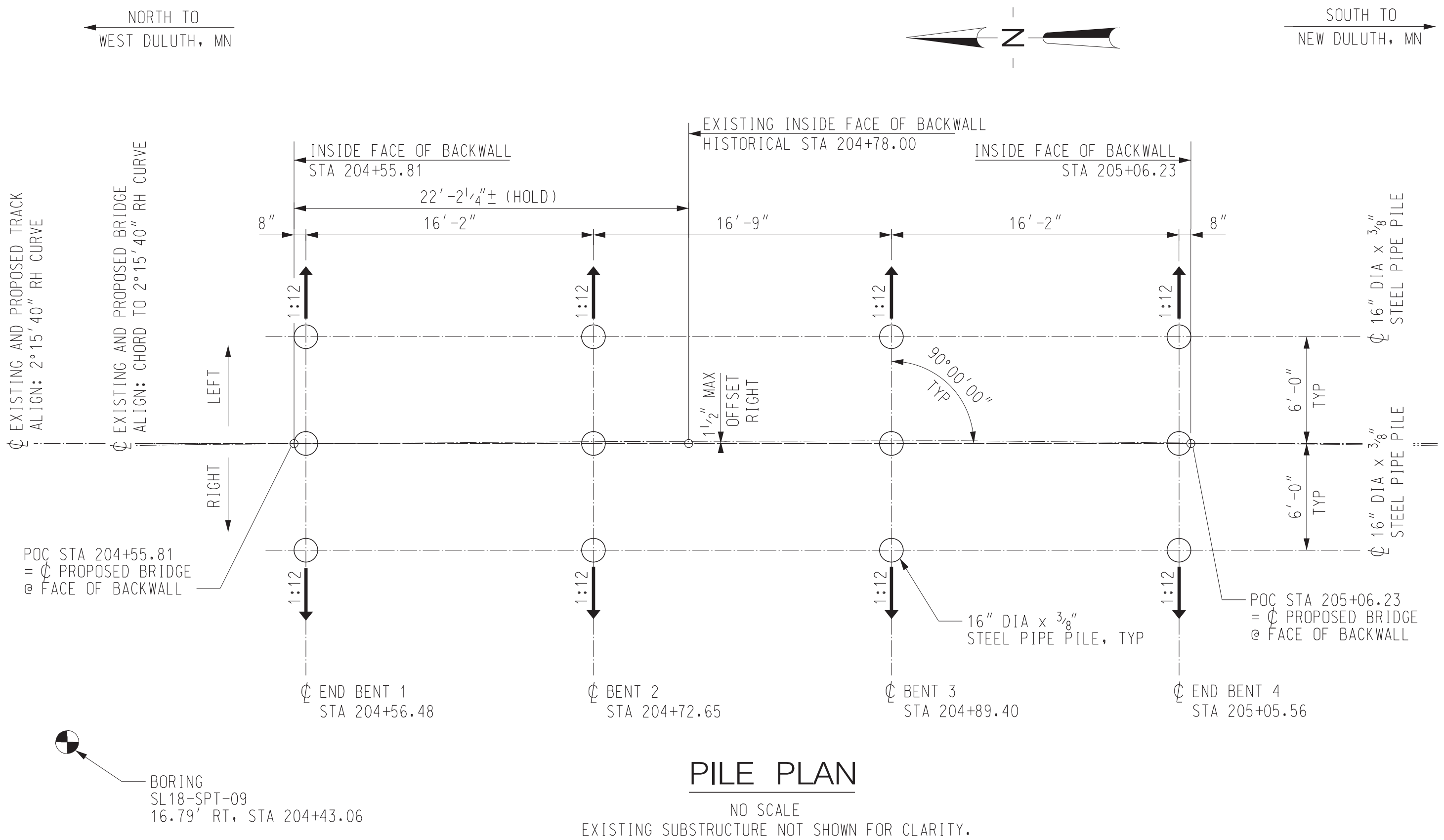
DATE: MAY 2019

PROJECT NUMBER:

BW-101

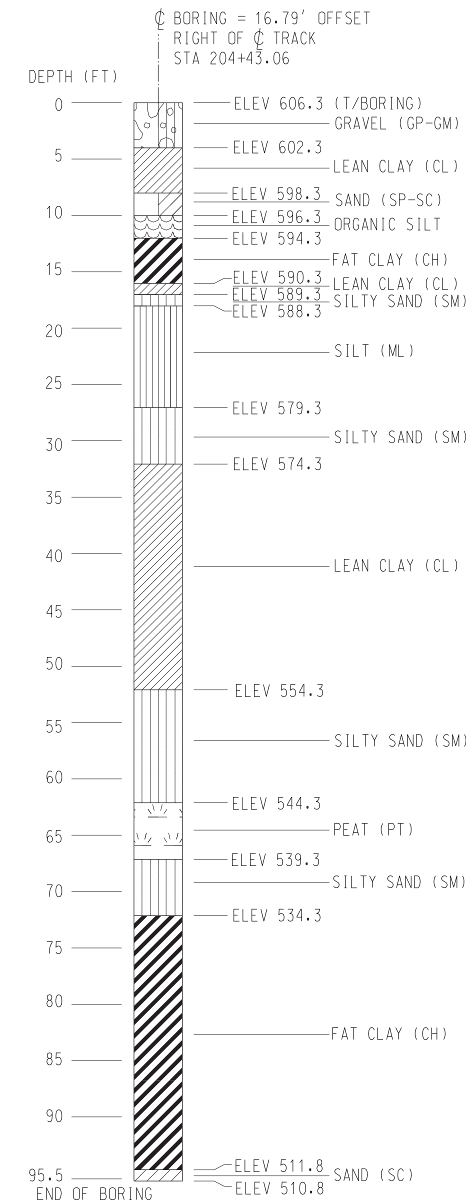
SHEET: 93 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



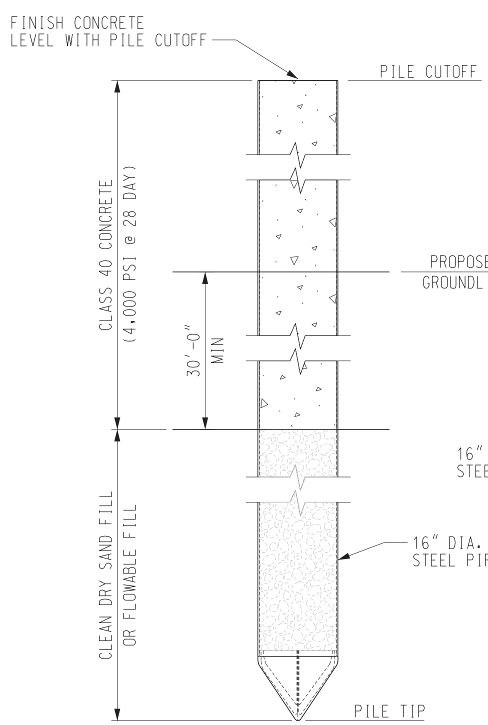
PILE PLAN

NO SCALE
EXISTING SUBSTRUCTURE NOT SHOWN FOR CLARITY.



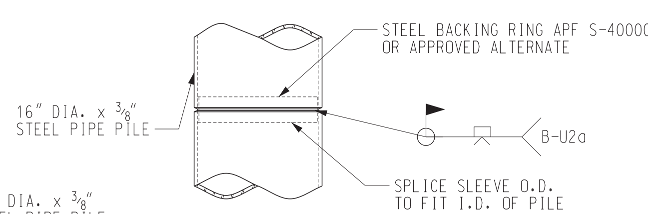
BORING SL18-SPT-09

NO SCALE



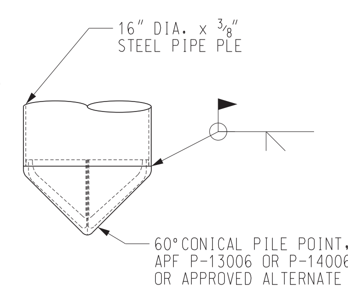
PILE FILL DETAIL

NO SCALE



PIPE PILE SPLICE DETAIL

NO SCALE
PILE SPLICE QUANTITY AND LOCATION
TO BE DETERMINED BY CONTRACTOR BASED
ON ORDERED LENGTHS.



PIPE PILE POINT DETAIL

NO SCALE

PILE NOTES

PIPE PILES SHALL BE 16" DIA x ⅜" CONCRETE FILLED STEEL PIPE PILES AND MEET THE REQUIREMENTS OF ASTM A252 GRADE 3, Fy = 45 KSI.

PILE POINTS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS ON ALL PIPE PILES PRIOR TO DRIVING.

DEBURR ALL EDGES.

FABRICATION SHALL CONFORM TO CURRENT AREMA GUIDELINES.

BRIDGE PIPE PILES SHALL BE DRIVEN PER THE PROJECT SPECIFICATIONS TO THE DEEPER, MORE CONSERVATIVE DEPTH REQUIRED BY EITHER THE MINIMUM TIP ELEVATION OR TO ACHIEVE THE REQUIRED ULTIMATE CAPACITY NOTED IN THE PILE DATA TABLE. CONTACT THE ENGINEER IF PRACTICAL REFUSAL IS REACHED PRIOR TO REACHING THE MINIMUM TIP ELEVATION. ESTIMATED PILE LENGTH BELOW CUTOFF IS SHOWN IN THE PILE DATA TABLE.

CONTRACTOR SHOULD BE PREPARED TO ADJUST PILE LENGTH WITHOUT DELAYING THE PROJECT.

SYMBOL 1:12 → DENOTES DIRECTION AND AMOUNT OF PILE BATTER.

THE CONTRACTOR SHALL HAVE SUFFICIENT PILE SPLICE MATERIAL ON HAND BEFORE PILE DRIVING IS STARTED.

CONTRACTOR TO SUBMIT PROPOSED DRIVING SYSTEM WITH ACCOMPANYING DRIVEABILITY ANALYSIS TO ENGINEER FOR CONFIRMATION OF DRIVEABILITY. MINIMUM RECOMMENDED PILE DRIVING HAMMER ENERGY IS 40 KIP-FT (DELMAG 16-32 OR GREATER). NOTE THE RECOMMENDED HAMMER SIZE IS BASED ON ANTICIPATED ENERGY REQUIRED TO ACHIEVE THE MINIMUM TIP ELEVATION WHICH MAY BE DEEPER THAN THE ELEVATION AT WHICH THE REQUIRED ULTIMATE CAPACITY IS REACHED TO ENSURE PILE TIP REACHES COMPETENT SOIL LAYERS.

THE MAXIMUM HORIZONTAL OUT OF POSITION TOLERANCE AT THE CUTOFF ELEVATION IS 3 INCHES.

PILE COATING NOTES

A COATING OF TWO COMPONENT (SELF-CURING) COAL TAR EPOXY PAINT CONFORMING TO STEEL STRUCTURES PAINTING COUNCIL SPECIFICATION SSPC-PAINT 16, COAL TAR EPOXY BLACK (OR DARK RED PAINT) SHALL BE SHOP APPLIED (AS PER THE MANUFACTURER'S RECOMMENDATIONS) TO THE ENTIRE OUTER SURFACE OF EACH PILE AND EMBED PLATE PRIOR TO PLACEMENT AS DETAILED BELOW.

STEEL SURFACES WHICH ARE TO RECEIVE THIS COATING SHALL BE PREPARED BY BLAST CLEANING TO NEAR WHITE, GRADE SSPC 10. THE COAL TAR EPOXY PAINT SHALL BE APPLIED BEFORE RUSTING OCCURS AND IN NO CASE LATER THAN 24 HOURS AFTER BLAST CLEANING.

THE COATING MAY BE APPLIED BY SPRAY OR BRUSH. IF THE APPLICATION IS BY BRUSH, APPLY WITH A STIFF BRUSH HEAVILY LOADED WITH PAINT; APPLY QUICKLY AND SMOOTHLY AND AVOID EXCESSIVE BRUSHING.

THE COATING SHALL BE APPLIED IN TWO COATS TO A TOTAL DRY FILM THICKNESS OF 16 MILS AT ITS THINNEST SPOT.

DRYING TIME BETWEEN COATS SHALL BE A MINIMUM OF 12 HOURS AND A MAXIMUM OF 72 HOURS UNDER NORMAL PAINTING CONDITIONS. LONG DRYING TIMES BETWEEN COATS WILL CAUSE POOR INTERCOAT ADHESION AND IT IS ADVISABLE IN WARM WEATHER TO REDUCE THE MAXIMUM INTERVAL BETWEEN COATS. IN VERY HOT WEATHER IT MAY BE NECESSARY TO LIMIT THE INTERCOAT DRYING PERIOD TO 24 HOURS OR LESS.

AT NORMAL TEMPERATURES THE COATING DRIES DUST FREE IN ABOUT FOUR HOURS AND BECOMES THOROUGHLY HARDENED AFTER 3 TO 5 DAYS OF CURING. PILE PLACEMENT SHALL NOT BEGIN SOONER THAN 5 DAYS AFTER COATING.

THE COATING SHALL NOT BE APPLIED WHEN THE RECEIVING SURFACES OR AMBIENT TEMPERATURES ARE BELOW 50 DEGREES FAHRENHEIT UNLESS IT CAN REASONABLY BE ANTICIPATED THAT THE AVERAGE AMBIENT TEMPERATURE WILL BE 50 DEGREES FAHRENHEIT OR HIGHER FOR THE 5 DAY PERIOD FOLLOWING THE APPLICATION OF ANY COAT.

STEEL MEMBERS WHICH ARE WELDED AFTER COATING SHALL HAVE THE COATING REMOVED FROM THE WELD AREAS AND SHALL RECEIVE TWO COATS OF THE COATING APPLIED TO THE WELD HEAT AFFECTED AREAS.

AFTER PLACEMENT, THE AREAS OF THE PILES AND BASE PLATES WHERE THE COATING HAS BEEN DAMAGED SHALL BE TOUCHED UP.

THE COST OF FURNISHING AND APPLYING THE COATING SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER FOOT FOR 16" DIA x ⅜" THICK STEEL PIPE BEARING PILE, FURNISH AND DRIVE.

PILE DATA TABLE ~ WIRE MILL POND RR BR 3.9

LOCATION	T/TIE ELEV	PILE CUTOFF ELEV	REQUIRED ULTIMATE CAPACITY (TON) *	MINIMUM TIP ELEV	ESTIMATED PILE LENGTH BELOW CUTOFF (FT)
END BENT 1	606.65	602.19	95	512	90.2
BENT 2	606.65	601.52	95	512	89.5
BENT 3	606.65	601.52	95	512	89.5
END BENT 4	606.65	602.19	95	512	90.2

* BASED ON FACTOR OF SAFETY = 2.0.

REVISIONS | DESCRIPTION | NO. | DATE | BY

DESIGN INFORMATION
DESIGNED BY: CLB
DRAWN BY: GJT
CHECKED BY: AGH
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
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DULUTH, MINNESOTA

WIRE MILL POND RR BRIDGE
PILE PLAN AND DETAILS

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DATE: MAY 2019
PROJECT NUMBER:

BW-102

SHEET: 94 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

PRESTRESSED CONCRETE NOTES

MATERIALS

CONCRETE

CONCRETE MATERIAL, PLACING AND CURING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE PROJECT SPECIFICATIONS FOR PRECAST/PRESTRESSED CONCRETE PRODUCTS AND THE CURRENT EDITION OF CHAPTER 8 OF THE AREMA MANUAL FOR RAILWAY ENGINEERING.

THE COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE:

PRETENSIONED CONCRETE:
f'ci = 4,500 PSI (AT TRANSFER)
f'c = 7,000 PSI (28-DAY)

CURB CONCRETE:
f'c = 4,500 PSI (28-DAY)

AIR ENTRAINING AGENTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE CURRENT EDITION OF ASTM C260. THE TOTAL ENTRAINED AIR CONTENT SHALL BE 6% +/- 1% BY VOLUME OF THE PLASTIC CONCRETE.

CONCRETE AGGREGATE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE CURRENT EDITION OF ASTM C33. COARSE AGGREGATE SHALL BE SIZE NO. 67.

CONCRETE SHALL BE DYED TO ACHIEVE A UNIFORM NATURAL WOOD TONE FINISH PER THE PROJECT SPECIFICATIONS. PROPOSED COLOR SAMPLE SHALL BE SUBMITTED AND APPROVED PRIOR TO FABRICATION. PROPOSED COLOR SHALL MATCH THAT OF THE PRECAST CONCRETE BENT CAPS.

PRESTRESSING STRANDS

PRESTRESSING STRAND SHALL BE 0.5-INCH DIAMETER, SEVEN-WIRE, UNCOATED, LOW-RELAXATION STRAND WHICH IS IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN ASTM A416. THE STRAND SHALL HAVE AN ULTIMATE TENSILE STRENGTH OF 270 KSI. THE INITIAL PRESTRESS SHALL BE 31,000 LBS. PER STRAND UNLESS NOTED OTHERWISE.

STRAND SHALL BE TESTED IN ACCORDANCE WITH PCI RECOMMENDATIONS (MOUSTAFA METHOD) AND CERTIFIED BY THE FABRICATOR AS HAVING ADEQUATE BOND CHARACTERISTICS TO SATISFY THE PREDICTION EQUATIONS FOR TRANSFER AND DEVELOPMENT LENGTH GIVEN IN THE AREMA MANUAL FOR RAILWAY ENGINEERING.

AN ALTERNATE STRAND PATTERN WHICH HAS THE SAME ECCENTRICITY AS THE PATTERN SHOWN ON THIS PLAN AND IS BETTER SUITED TO THE MANUFACTURER'S FACILITIES WILL BE CONSIDERED. MANUFACTURER MUST SUBMIT PLAN AND COMPUTATIONS TO ENGINEER FOR APPROVAL PRIOR TO CASTING.

REINFORCING STEEL

REINFORCING STEEL SHALL BE DEFORMED, PER CURRENT ASTM A615 SPECIFICATIONS AND MUST MEET GRADE 60 REQUIREMENTS. UNCOATED BLACK BARS SHALL BE USED FOR ALL LOCATIONS EXCEPT FOR CURB REINFORCING.

CURB REINFORCING DENOTED WITH "X" AT THE END OF THE MARK NUMBER (I.E. 3F1X) SHALL BE DEFORMED, CORROSION RESISTANT, HIGH STRENGTH REINFORCEMENT MEETING THE CURRENT ASTM A1035 SPECIFICATIONS AND MUST MEET GRADE 100 REQUIREMENTS.

FABRICATION OF REINFORCING STEEL SHALL BE PER CHAPTER 7 OF THE CRSI MANUAL OF STANDARD PRACTICE. DIMENSIONS OF BENDING DETAILS ARE OUT-TO-OUT OF BAR.

REINFORCING STEEL IS TO BE BLOCKED TO PROPER LOCATION AND SECURELY WIRED AGAINST DISPLACEMENT. USE PLASTIC PROTECTED REINFORCING SUPPORTS MEETING CRSI SPECIFICATIONS CHAPTER 3, CLASS 1. TACK WELDING OF REINFORCING IS PROHIBITED. MINIMUM CONCRETE ON REINFORCEMENT SHALL MEET CURRENT AREMA REQUIREMENTS. MINIMUM CONCRETE COVER IS 1 1/2 INCHES.

GALVANIZING

ALL INSERTS, NUTS, AND WASHERS SHALL BE GALVANIZED ACCORDING TO ASTM A153 (HOT DIP PROCESS) OR ACCORDING TO ASTM B695, CLASS 50, TYPE 1 (MECHANICAL PROCESS).

FABRICATION

CONCRETE

PRODUCTION PROCEDURES AND DIMENSIONAL TOLERANCES FOR THE MANUFACTURE OF PRECAST, PRESTRESSED BEAMS SHALL BE IN ACCORDANCE WITH THE AREMA MANUAL FOR RAILWAY ENGINEERING AND THE PRESTRESSED CONCRETE INSTITUTES CURRENT MANUAL MNL-116 FOR QUALITY CONTROL.

TOLERANCE FOR LOCATION OF LIFTING LOOPS SHALL BE +/- 1/2".

THE ENDS OF THE STRANDS SHALL BE CUT OFF FLUSH WITH THE END OF THE BEAM AND PAINTED. RECESSES AND MINOR SPALLS MUST BE FILLED AND FINISHED TO THE PLAN DIMENSIONS USING AN EPOXY BONDING COMPOUND AND GROUT.

CURB SHALL BE CAST AFTER THE BEAM IS REMOVED FROM THE FORM.

CONCRETE BONDING AGENT: REFER TO SPECIFICATIONS

SURFACES SHALL BE FORMED IN A MANNER WHICH WILL PRODUCE A SMOOTH AND UNIFORM APPEARANCE WITHOUT RUBBING OR PLASTERING. UNLESS OTHERWISE NOTED, EXPOSED EDGES OF 90-DEGREES OR LESS ARE TO BE CHAMFERED 3/4" X 3/4". UNFORMED SURFACES SHALL HAVE A SMOOTH FINISH FREE OF ALL FLOAT AND TROWEL MARKS.

THE FABRICATOR SHALL STENCIL THE FABRICATOR'S NAME, DATE OF FABRICATION, PLACE MARK, AND LIFTING WEIGHT AT LOCATION SHOWN.

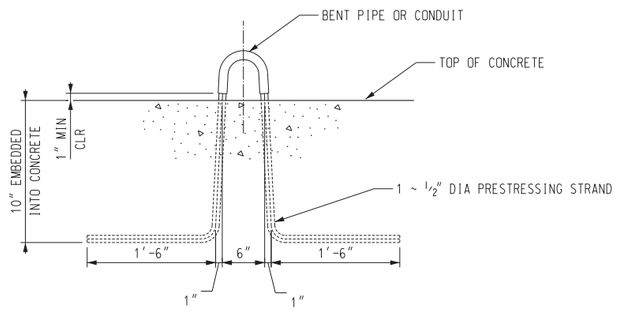
CURB TO BE DIVIDED INTO THREE EQUAL SEGMENTS AS SHOWN. IF CURB JOINTS CANNOT BE EQUALLY SPACED DUE TO CONFLICTS WITH HANDRAIL CONNECTIONS, THEN FABRICATOR SHALL ADJUST CURB SEGMENT LENGTHS SO THAT EACH CURB JOINT IS A MINIMUM OF 12" FROM THE CENTERLINE OF ANY WALKWAY/HANDRAIL CONNECTION.

CONSTRUCTION

MORTAR FOR SETTING BEAMS

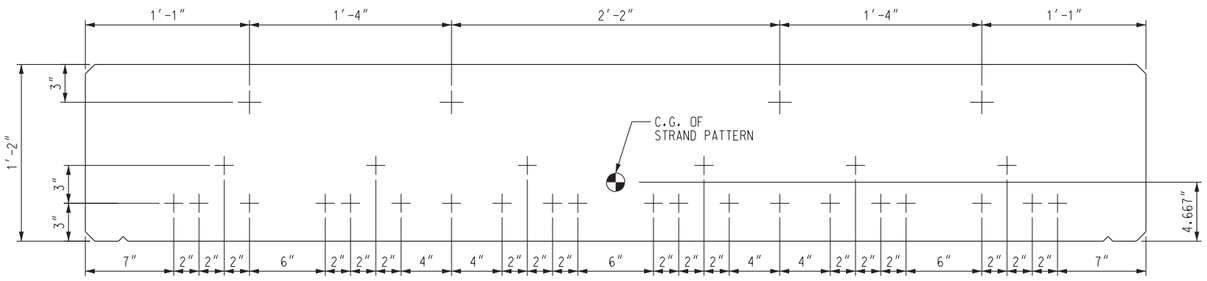
BEAMS SHALL HAVE FULL AND EVEN BEARING UPON THE BRIDGE SEAT AREAS. IF NEEDED, MORTAR CONSISTING OF EQUAL PARTS BY VOLUME OF CLASS B EPOXY AND DRY SILICA SAND, MIXED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS, SHALL BE SPREAD ON THE TOP OF BEARING PADS TO OBTAIN UNIFORM BEARING. SCRAPE EXCESS MORTAR FROM AROUND BEARING PADS AFTER THE BEAMS ARE SET.

AFTER PRECAST CONCRETE MEMBERS ARE SET, THE ENDS OF THE LIFTING LOOP STRANDS SHALL BE BURNED OFF AND RECESSED TO A DEPTH OF 1 INCH. FILL RECESSES AT LIFT ANCHORS WITH CEMENT GROUT TO TOP OF SURROUNDING CONCRETE.



LIFTING DETAIL

FABRICATOR IS RESPONSIBLE FOR ADEQUACY OF LIFTING LOOPS.



PRESTRESSED STRAND PATTERN FOR MK SB16.7

MILD REINFORCING NOT SHOWN FOR CLARITY
(30 ~ 0.5" 270 KSI STRANDS ALL STRAIGHT STRANDS)
SCALE: 2" = 1' -0"

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: CLB
DRAWN BY: GJT
CHECKED BY: AGH
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

WIRE MILL POND RR BRIDGE
PRESTRESSED CONCRETE SLAB BEAM DETAILS (SHEET 1 OF 2)

PREPARED FOR:
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MISSOULA, MT 59803-1489

DATE: MAY 2019

PROJECT NUMBER:

BW-501

SHEET: 95 OF 111

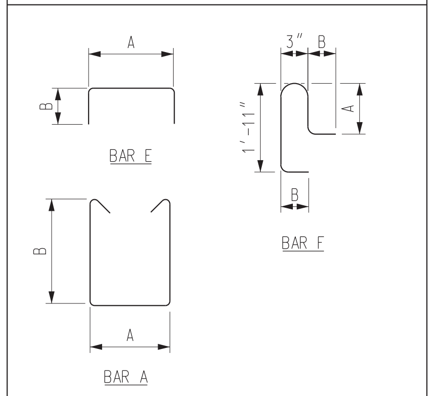
PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

REINFORCING SCHEDULE

MARK	QTY	SIZE	TYPE	A	B	LENGTH
3F1X	31	3	F	1'-10"	5"	4'-10"
4S1	6	4	STR	–	–	5'-3"
4S2	12	4	STR	–	–	5'-2"
5A1	52	5	A	2'-11"	10"	5'-6"
5A2	26	5	A	2'-10"	10"	5'-5"
5E1	10	5	E	9 1/2"	9"	2'-3 1/2"
5E2	12	5	E	8 1/4"	2'-0"	4'-8 1/4"
5E3	26	5	E	6'-8"	10"	8'-4"
5S1	18	5	STR	–	–	16'-3"

1180 LBS = WEIGHT OF REINFORCING STEEL PER BEAM (ASTM A615)

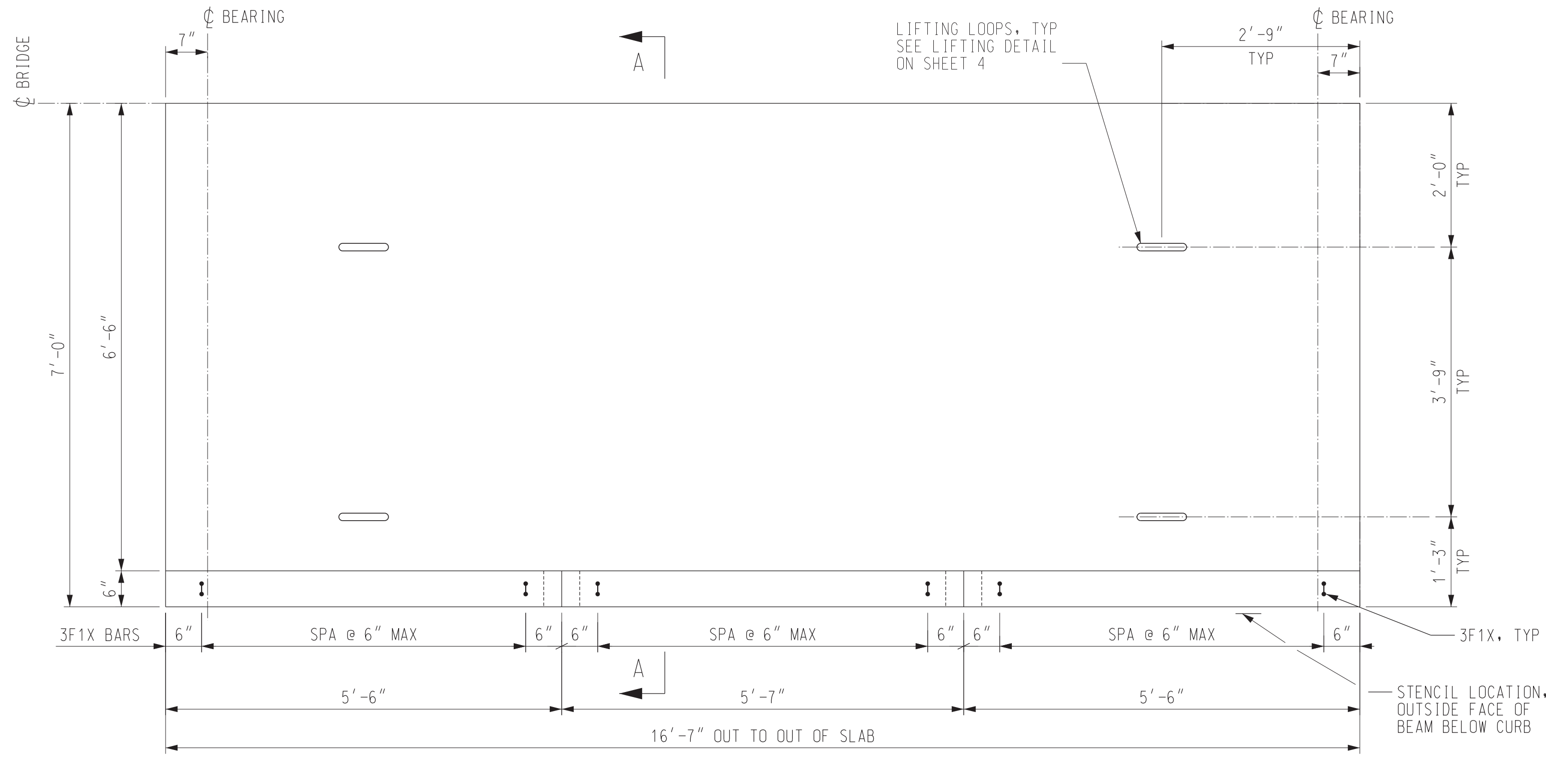
BENDING DETAILS



DIMENSIONS ARE OUT TO OUT

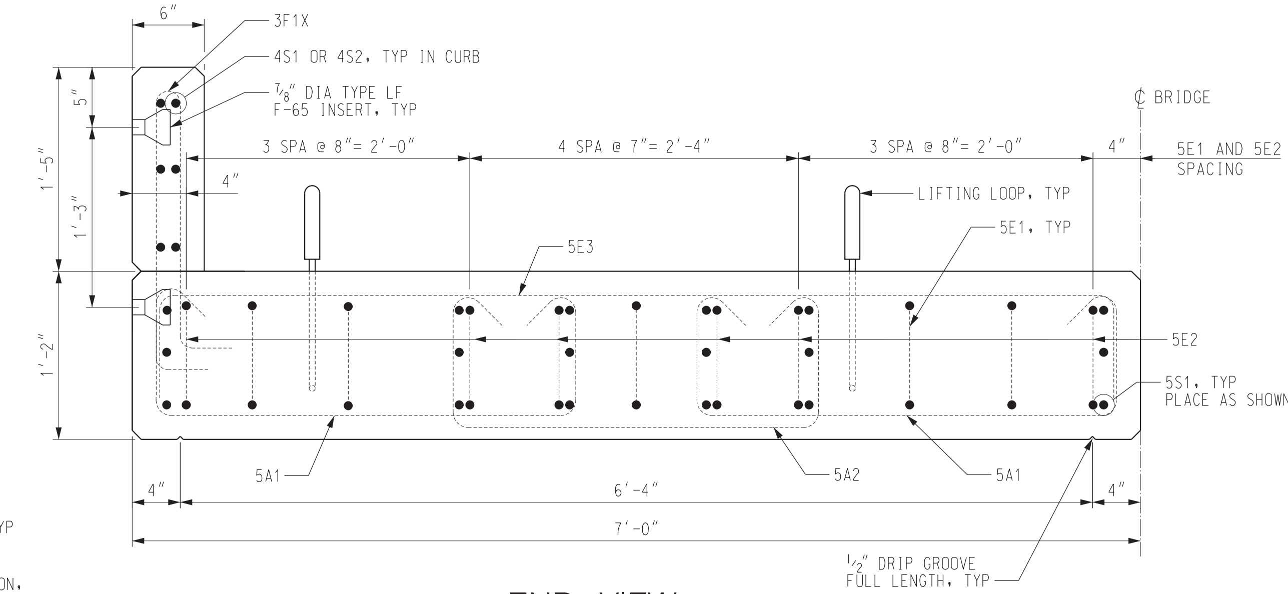
NOTES

SEE SHEET 95 FOR PRESTRESSED CONCRETE NOTES, STRAND PATTERN, AND LIFTING DETAIL.



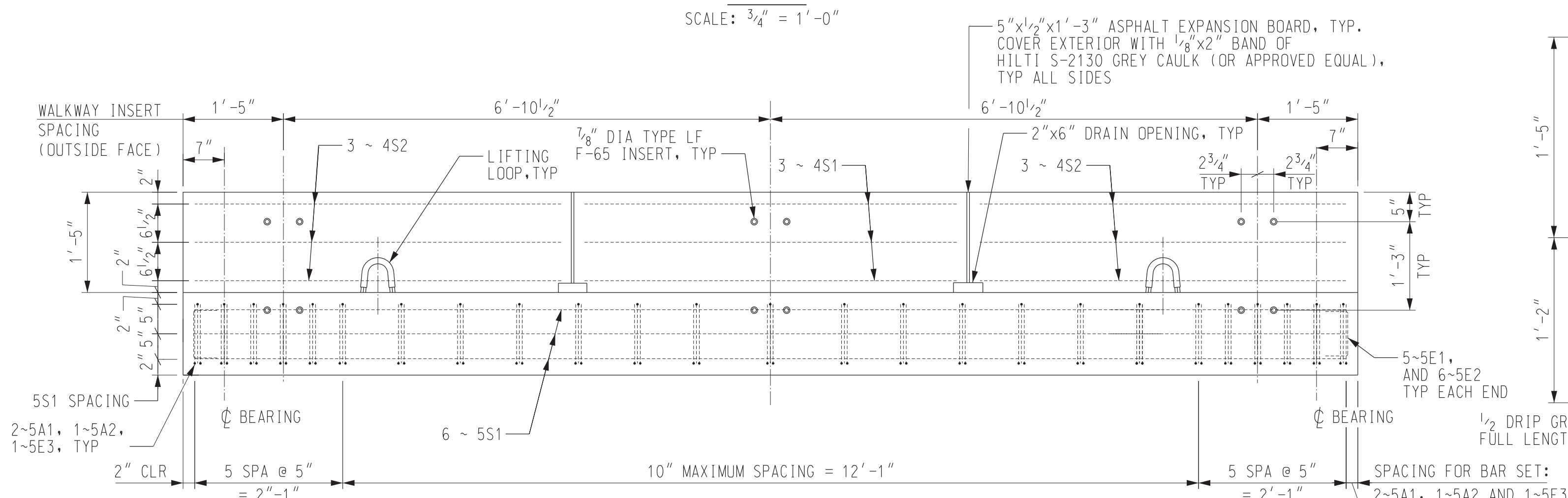
PLAN

SCALE: 3/4" = 1'-0"



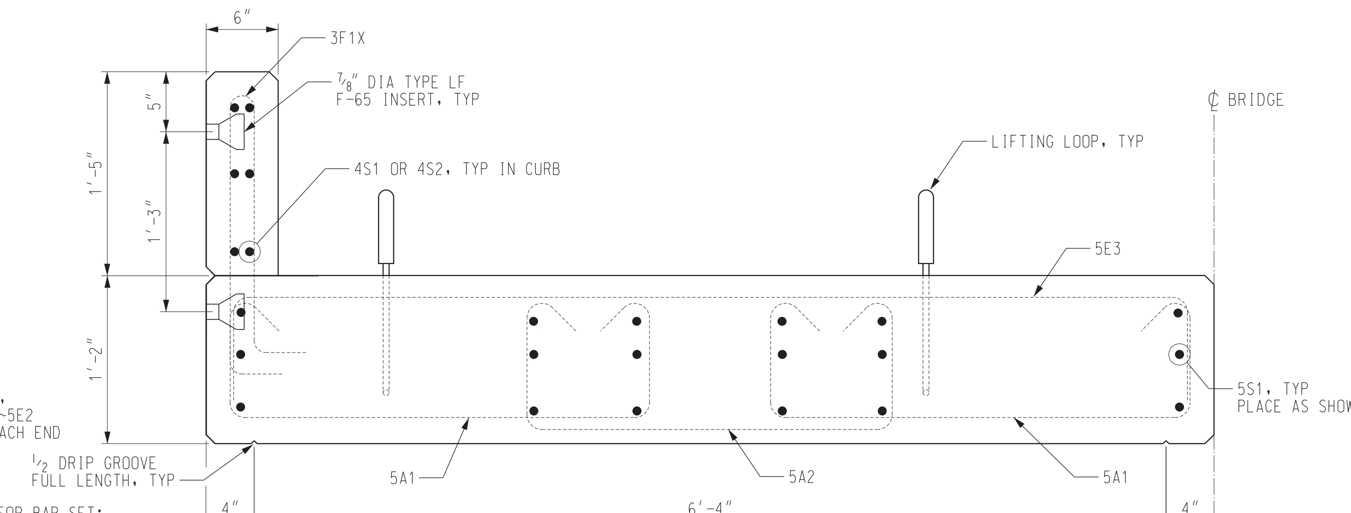
END VIEW

SCALE: 1 1/2" = 1'-0"



ELEVATION

SCALE: 3/4" = 1'-0"



SECTION A–A

SCALE: 1 1/2" = 1'-0"

14" DEEP PRESTRESSED CONCRETE SLAB BEAM MK SB16.7

6 REQUIRED

CONCRETE VOLUME = 5.1 CU. YD (BEAM), 0.5 CU.YD (CURB)

LIFT WEIGHT = 22,200 LBS (22.2 KIPS)

REVISIONS | NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: CLB
DRAWN BY: GJT
CHECKED BY: AGH
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

WIRE MILL POND RR BRIDGE
PRESTRESSED CONCRETE SLAB BEAM DETAILS (SHEET 2 OF 2)

PREPARED FOR:
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HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

DATE: MAY 2019

PROJECT NUMBER:

BW-502

SHEET: 96 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

WALKWAY GENERAL NOTES

STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH ASTM DESIGNATION A36 OR APPROVED EQUIVALENT. ALL STRUCTURAL STEEL ITEMS AND HARDWARE TO BE GALVANIZED UNLESS OTHERWISE NOTED.

HANDRAIL POSTS ON WALKWAYS SHALL BE ERECTED PLUMB AND IN LINE.

GALVANIZING OF STRUCTURAL STEEL AFTER FABRICATION SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM DESIGNATION A123.

GALVANIZING OF IRON AND STEEL HARDWARE SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM DESIGNATION A153.

FIELD PAINT ANGLE BRACES, WELDED AREAS, AND ABRASIONS OR CUTS ON RAILING POSTS, WALK BRACKETS, AND GRIP STRUT WALKWAY WITH ONE PRIME AND ONE FINISH COAT OF ZINC RICH PAINT.

WIRE ROPE SHALL BE $\frac{3}{8}$" DIA, 7-WIRE STRAND, SIEMENS MARTIN GRADE, TYPE A COATING.

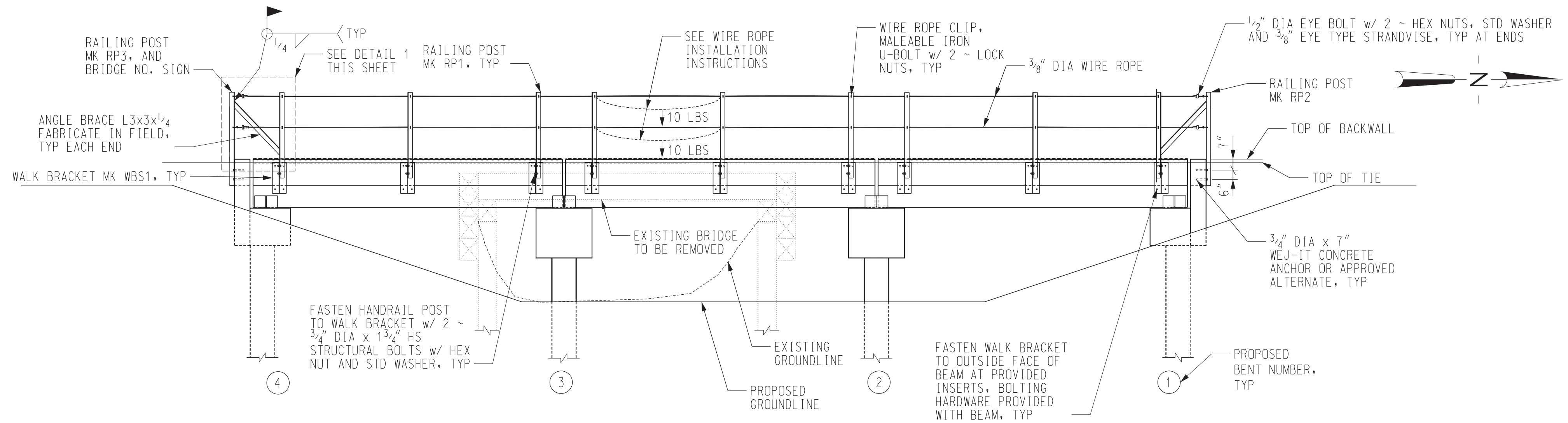
EYE BOLTS SHALL BE $\frac{1}{2}$" DIAMETER WITH 2" LONG SHANK AND 1" INSIDE DIAMETER EYE.

WIRE ROPE CLIPS SHALL BE MALLEABLE IRON U-BOLTS $\frac{1}{4}$" DIAMETER x $1\frac{1}{2}$" LONG WITH A 1" CENTERLINE WIDTH.

GRIP STRUT ANCHOR DEVICE CLIPS SHALL BE MCNICHOLS NO. 12262 DIAMOND ANCHOR DEVICE OR APPROVED EQUAL AND BE COMPATIBLE WITH THE GRIP STRUT PANELS ORDERED.

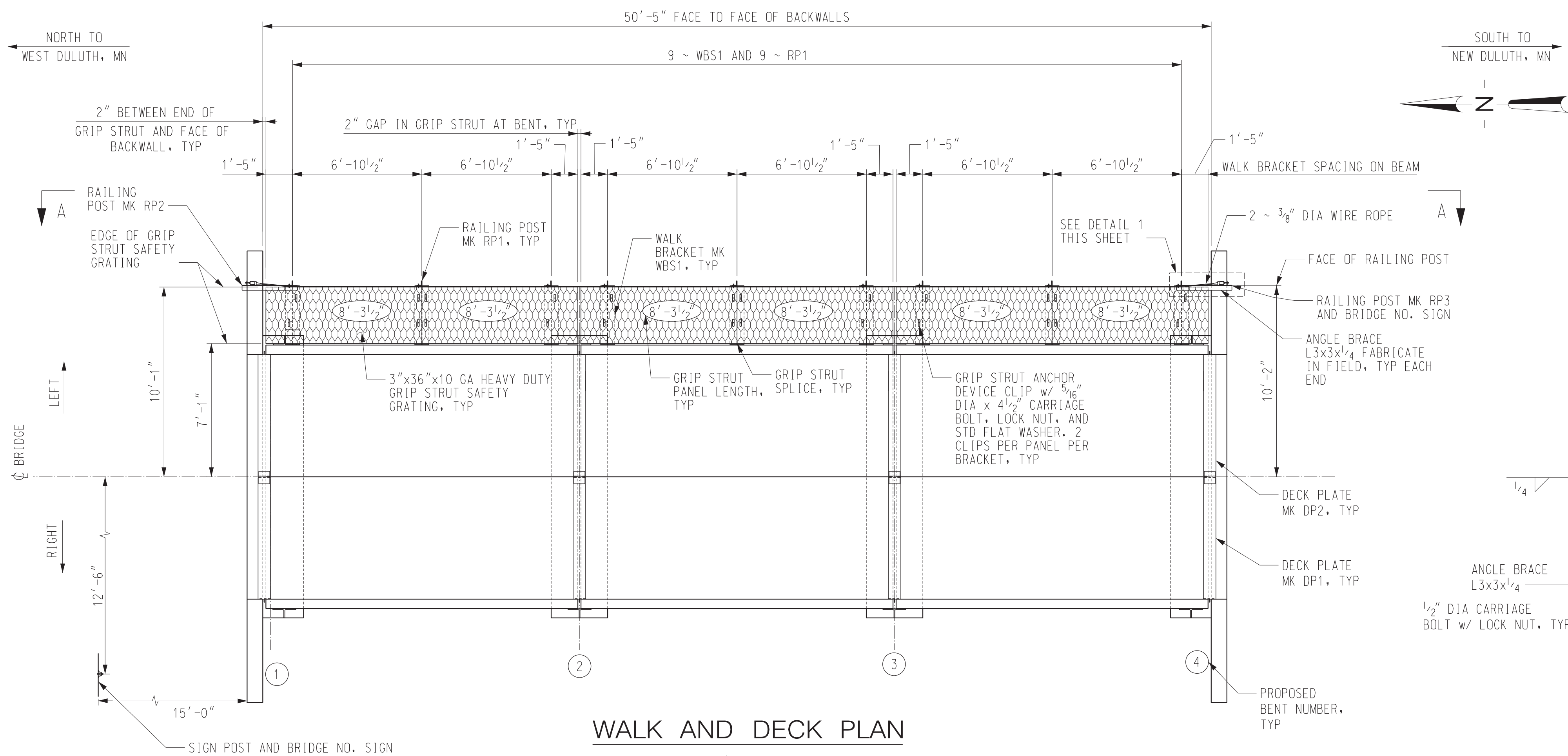
WIRE ROPE INSTALLATION INSTRUCTIONS

1. THREAD WIRE ROPE THROUGH ALL CLIPS AND BARREL ANCHORS AND SEAT RETAINING WEDGES ON ONE END RAILING POST (DO NOT TIGHTEN).
2. STRETCH WIRE ROPE AND HANG A MINIMUM OF 10 LBS ON ROPE BETWEEN TWO POSTS AS SHOWN. REMOVE ALL SAG IN ROPE TO A MAXIMUM OF 2 INCHES.
3. SEAT RETAINING WEDGES AT REMAINING END POST.
4. REMOVE WEIGHTS.
5. TIGHTEN CLIPS AT INTERMEDIATE POSTS.
6. CUT AND REMOVE EXCESS WIRE ROPE, COAT CUT PORTIONS OF WIRE ROPE WITH COLD GALVANIZING COMPOUND.



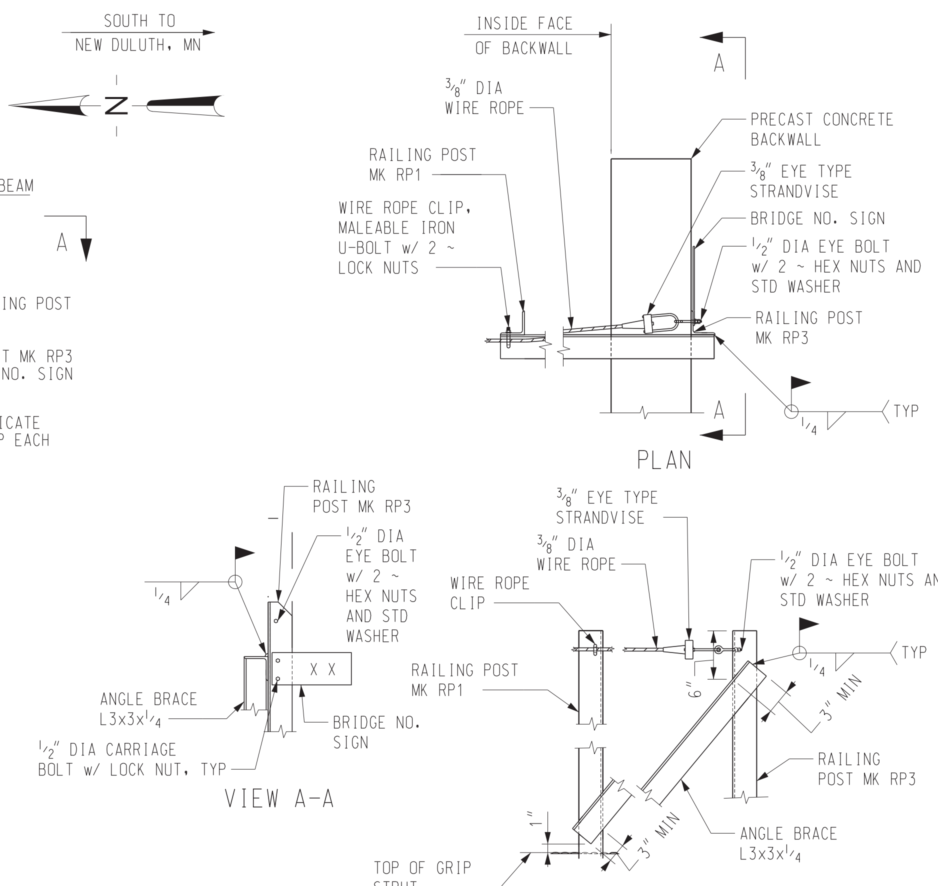
VIEW A–A

SCALE: 1/4" = 1'-0"



WALK AND DECK PLAN

SCALE: 1/4" = 1'-0"



DETAIL 1

SCALE: 1" = 1'-0"

DESIGN INFORMATION	DESIGNED BY: CLB
	DRAWN BY: GJT
	CHECKED BY: AGH
	PROJECT MANAGER: DLM

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN

DULUTH, MINNESOTA

WIRE MILL POND RR BRIDGE
WALK AND DECK PLAN AND HANDRAIL DETAILS

PREPARED FOR: EPA

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MISSOULA, MT 59803-1489

DATE: MAY 2019

PROJECT NUMBER:

BW-503

SHEET: 97 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

PRECAST CONCRETE NOTES

FABRICATION AND WORKMANSHIP SHALL CONFORM TO CURRENT AREMA MANUAL FOR RAILWAY ENGINEERING, CHAPTER 8, CONCRETE STRUCTURES AND PROJECT SPECIFICATIONS.

PRECAST CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS PER SPECIFICATION FOR PRECAST CONCRETE PRODUCTS.

CONCRETE SHALL BE VIBRATED INTERNALLY DURING PLACEMENT TO PROVIDE THROUGH CONSOLIDATION AND COMPACTION. CARE SHALL BE TAKEN TO AVOID DISPLACEMENT OF EMBEDDED ITEMS.

ALL REINFORCING STEEL FOR CAP SHALL CONFORM TO ASTM A615 GR 60.

ALL REINFORCING STEEL SHALL HAVE A MINIMUM OF 2" CLEAR COVER, UNLESS OTHERWISE NOTED.

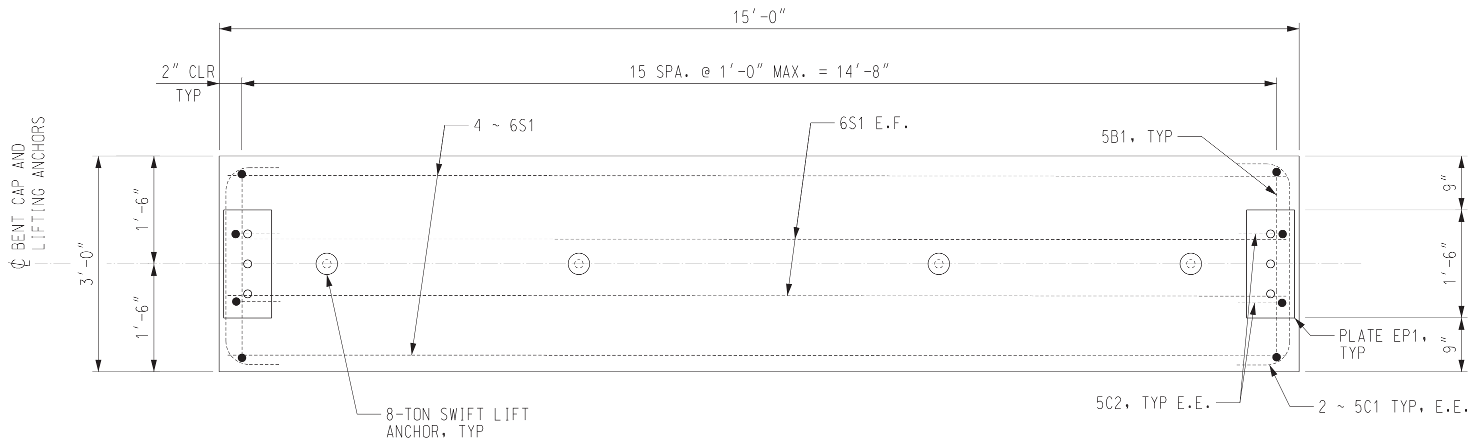
ALL BAR BENDING AND STANDARD HOOK DIMENSIONS SHALL BE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE" AS PUBLISHED BY THE CONCRETE REINFORCING STEEL INSTITUTE UNLESS OTHERWISE SHOWN OR NOTED.

CHAMFER ALL EXPOSED CORNERS $\frac{3}{4}$", TYPICAL.

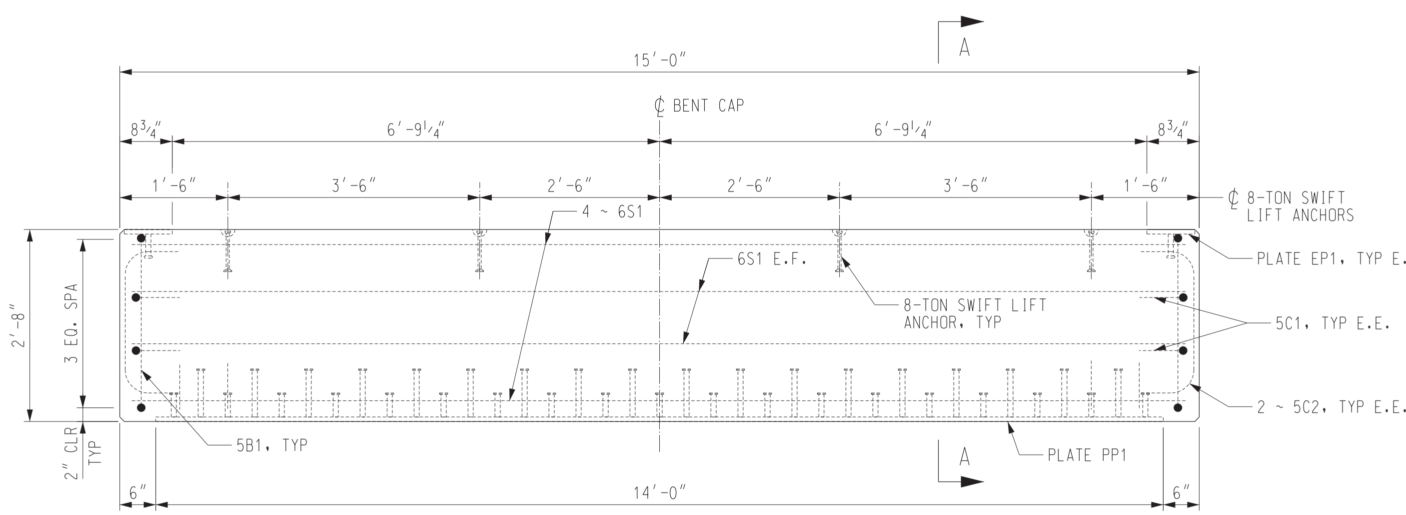
CONCRETE SHALL BE DYED TO ACHIEVE A UNIFORM NATURAL WOOD TONE FINISH PER THE PROJECT SPECIFICATIONS. PROPOSED COLOR SAMPLE SHALL BE SUBMITTED AND APPROVED PRIOR TO FABRICATION. PROPOSED COLOR SHALL MATCH THAT OF THE PRECAST CONCRETE BEAMS.

FABRICATOR TO VERIFY ALL LIFTING DEVICES NECESSARY FOR FABRICATION, TRANSPORTATION, AND PLACEMENT.

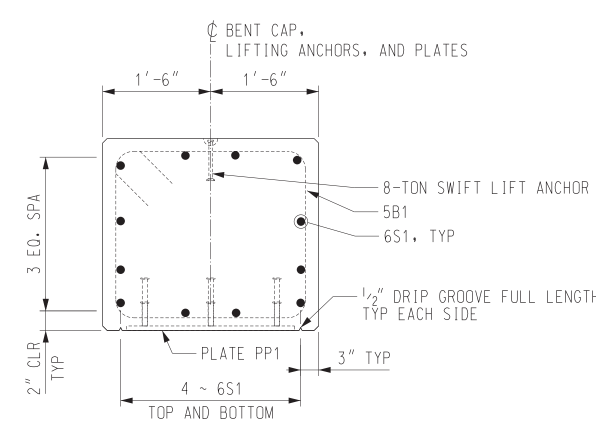
E.F. = EACH FACE
E.E. = EACH END



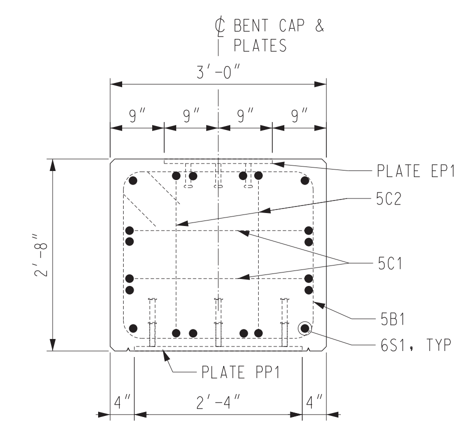
PLAN



ELEVATION



SECTION A–A



END VIEW

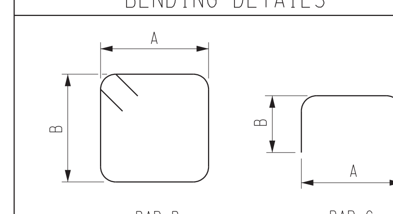
PRECAST CONCRETE BENT CAP MK BC1

SCALE: $\frac{3}{4}$" = 1'-0"
ESTIMATED LIFTING WEIGHT = 19,210 LBS. (9.6 TONS)
CONCRETE VOLUME = 4.5 C.Y.

REINFORCING SCHEDULE FOR BENT CAP MK BC1

QTY	MARK	SIZE	TYPE	A	B	LENGTH
16	5B1	5	B	2'-8"	2'-4"	10'-11"
4	5C1	5	C	2'-7"	10"	4'-3"
4	5C2	5	C	2'-3"	10"	3'-11"
12	6S1	6	STR	-	-	14'-8"
TOTAL REINFORCING WEIGHT (LBS) = 481						

BENDING DETAILS



ALL DIMENSIONS SHOWN ARE OUT TO OUT OF BARS.

REVISIONS
NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: CLB
DRAWN BY: GJT
CHECKED BY: AGH
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

STANDARD RR BRIDGE COMPONENTS AND DETAILS
PRECAST CONCRETE BENT CAP DETAILS AND NOTES

PREPARED FOR:
EPA

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DEERFIELD, IL 60015
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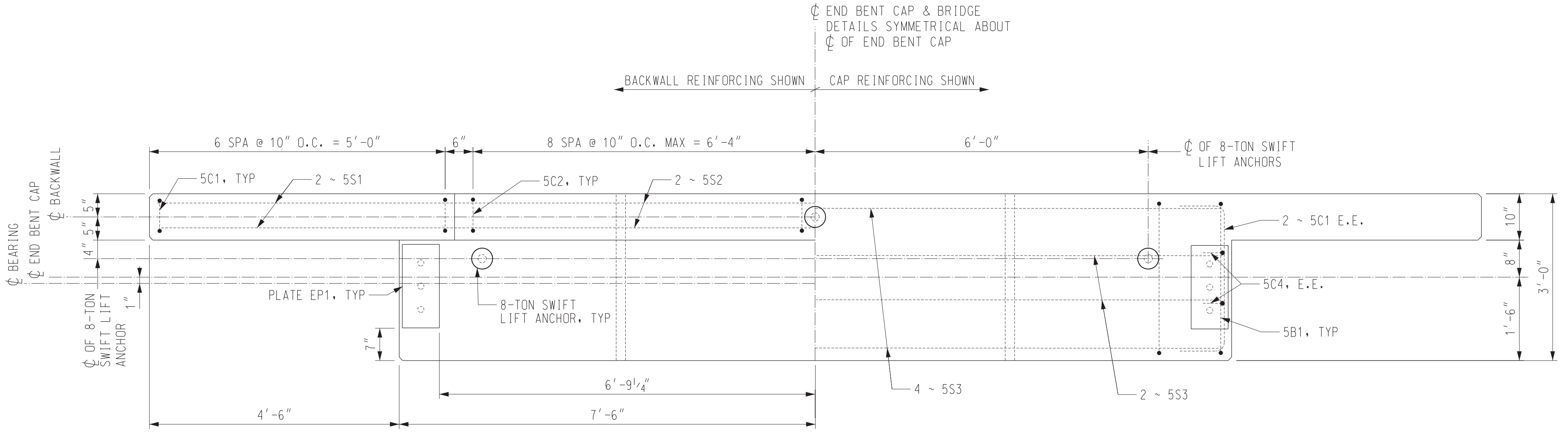
HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

DATE: MAY 2019
PROJECT NUMBER:
BG-501
SHEET: 98 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

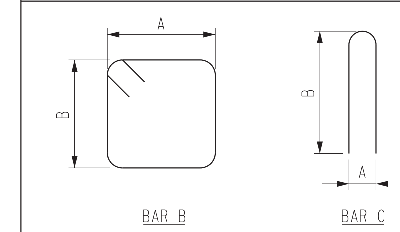


PLAN

BOTTOM AND SIDE LONGITUDINAL MATS OF
REINFORCING NOT SHOWN FOR CLARITY

REINFORCING SCHEDULE FOR END BENT CAP MK EBC1						
QTY	MARK	SIZE	TYPE	A	B	LENGTH
19	5B1	5	B	2′-8″	1′-8″	9′-7″
8	5S1	5	STR	–	–	5′-2″
4	5S2	5	STR	–	–	23′-8″
12	5S3	5	STR	–	–	14′-8″
16	5S4	5	STR	–	–	6′-4″
14	5C1	5	C	6″	4′-3½″	9′-1″
17	5C2	5	C	6″	2′-10½″	6′-3″
4	5C3	5	C	2′-7″	10″	4′-3″
4	5C4	5	C	1′-7″	10″	3′-3″
TOTAL REINFORCING WEIGHT (LBS) = 896						

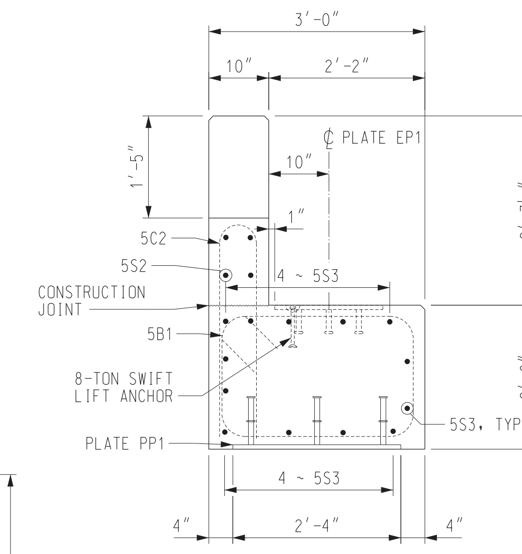
BENDING DETAILS



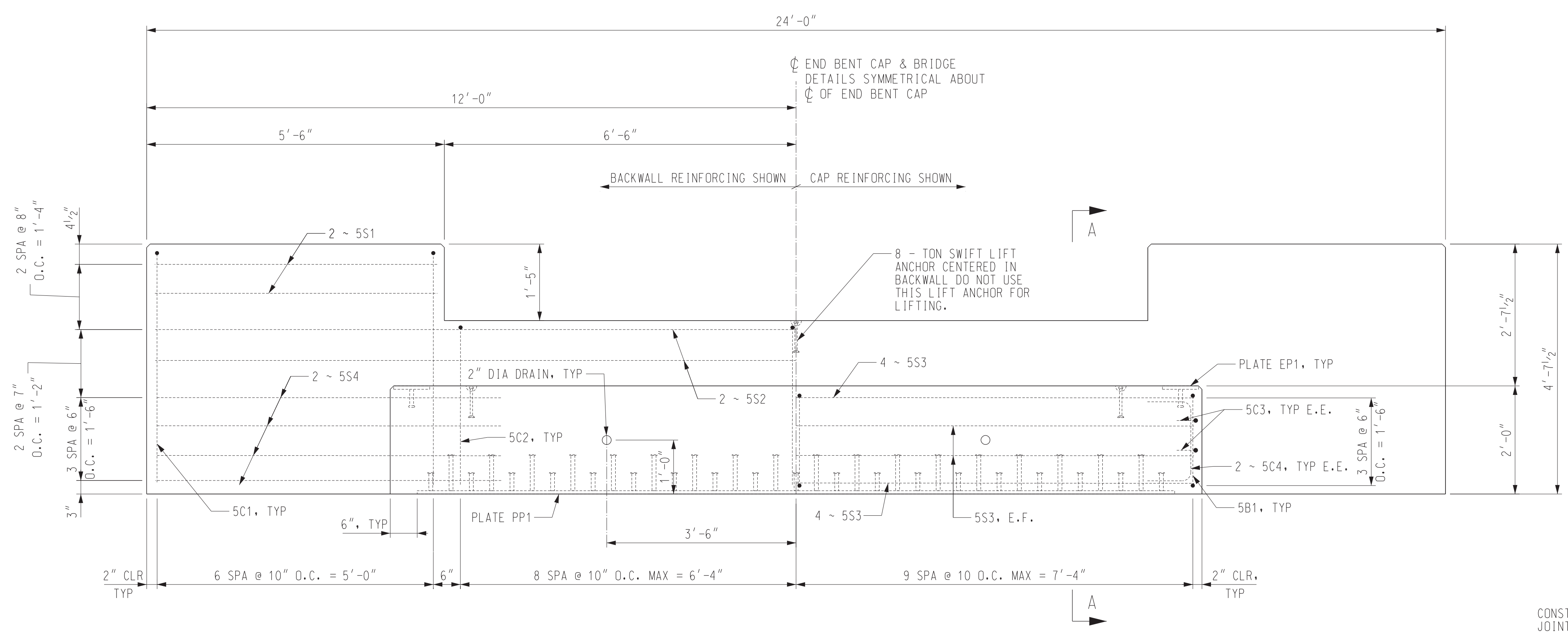
ALL DIMENSIONS SHOWN ARE OUT TO OUT OF BARS.

NOTES

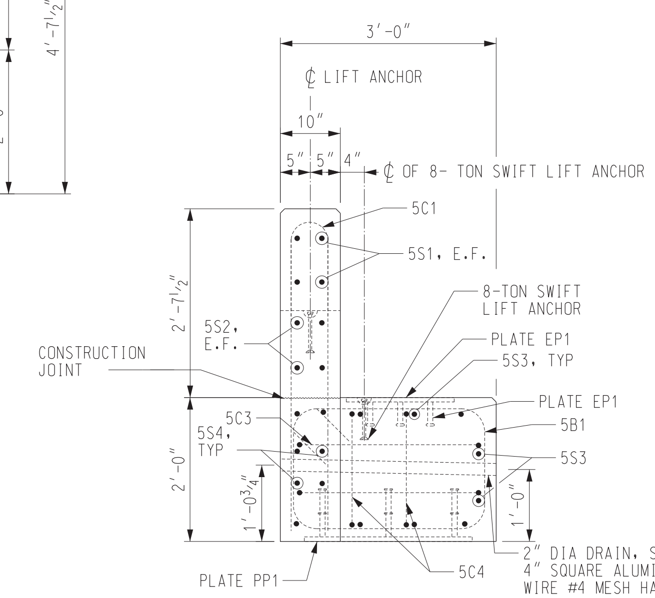
FOR PRECAST CONCRETE NOTES, SEE SHEET 98.



SECTION A–A



ELEVATION



END VIEW

2″ DIA DRAIN, SLOPE 2%.
4″ SQUARE ALUMINUM
WIRE #4 MESH HARDWARE
CLOTH ANCHORED FIRMLY
TO CONCRETE AT EACH DRAIN.

PRECAST CONCRETE END BENT CAP MK EBC1

SCALE: ⅜″ = 1′-0″
EST. LIFTING WEIGHT = 22,520 LBS (11.3 TONS)
CONCRETE VOLUME = 5.3 C.Y

REVISIONS | DESCRIPTION | BY | DATE | NO.

DESIGN INFORMATION
DESIGNED BY: CLB
DRAWN BY: GJT
CHECKED BY: AGH
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

STANDARD RR BRIDGE COMPONENTS AND DETAILS
PRECAST CONCRETE END BENT CAP DETAILS

PREPARED FOR:
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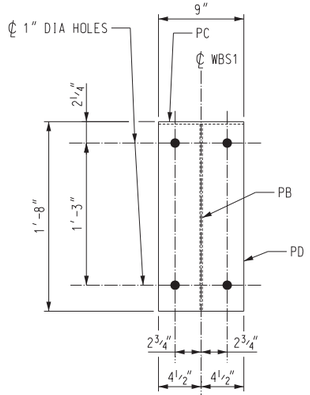
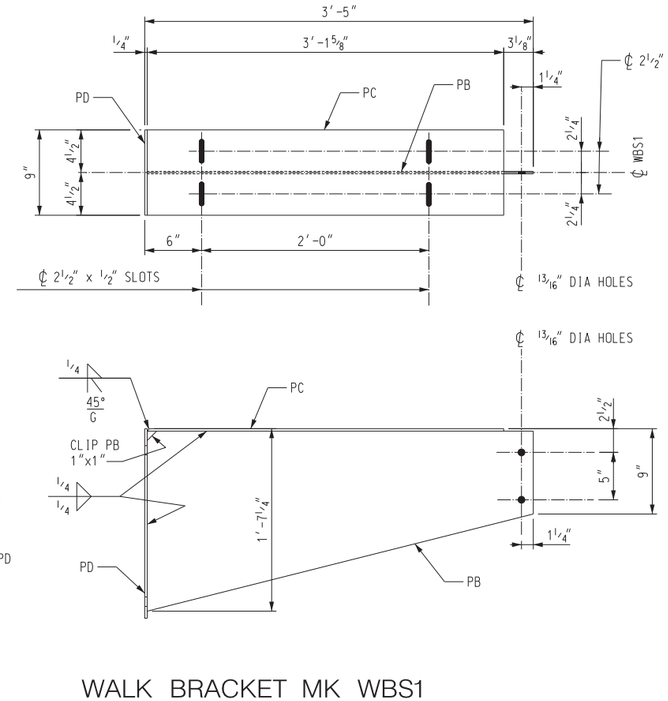
HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

DATE: MAY 2019
PROJECT NUMBER:
BG-502
SHEET: 99 OF 111

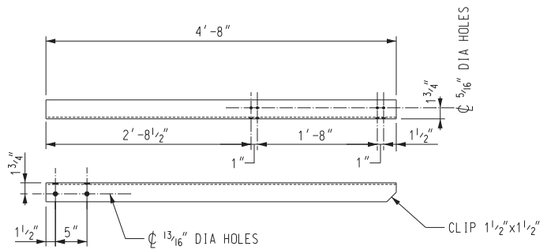
PRE-FINAL DESIGN - NOT FOR CONSTRUCTION





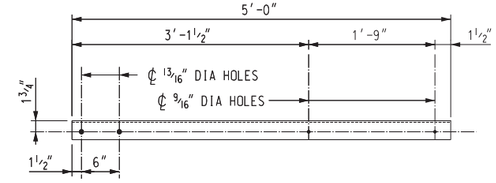
WALK BRACKET MK WBS1

SCALE: 3/4″ = 1′-0″
PB = 1 ~ PL ¼″ x 19″x 3′-4¾″
*PC = 1 ~ PL ¼″ x 9″x 3′-1⅝″
*PD = 1 ~ PL ¼″ x 9″x 1′-8″
WEIGHT = 77 LBS
GALVANIZE AFTER FABRICATION
* ONE (1) BENT PLATE MAY BE SUBSTITUTED FOR THE TWO (2) PLATES PC AND PD SHOWN. MINIMUM INSIDE RADII OF BEND IN PLATE SHALL BE 1.5 TIMES THE THICKNESS OF THE PLATE FOR COLD BENDING.



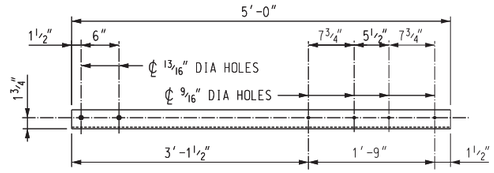
RAILING POST MK RP1

SCALE: 1″ = 1′-0″
1 ~ L3x3x¼ x 4′-8″
GALVANIZE AFTER FABRICATION.
WEIGHT = 23 LBS



RAILING POST MK RP2

SCALE: 1″ = 1′-0″
1 ~ L3x3x¼ x 5′-0″
GALVANIZE AFTER FABRICATION.
WEIGHT = 25 LBS



RAILING POST MK RP3

SCALE: 1″ = 1′-0″
1 ~ L3x3x¼ x 5′-0″
GALVANIZE AFTER FABRICATION.
WEIGHT = 25 LBS

GENERAL NOTES

ALL MATERIAL AND WORKMANSHIP SHALL BE PER THE CURRENT PROJECT SPECIFICATIONS.

STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF THE CURRENT ASTM DESIGNATION A36 UNLESS OTHERWISE NOTED.

FABRICATION AND ARC WELDING OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH CHAPTER 15, PART 3 OF THE CURRENT AREMA MANUAL FOR RAILWAY ENGINEERING.

GALVANIZING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM DESIGNATION A123.

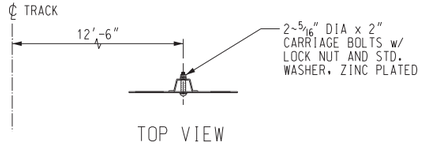
SIGN NOTES

SIGN POSTS SHALL MEET THE REQUIREMENTS OF ASTM A107, GRADE 1060 AND HAVE A WEIGHT PER LINEAL FOOT OF 2.0 LBS. POSTS SHALL BE MADE FROM NEW BILLET STEEL.

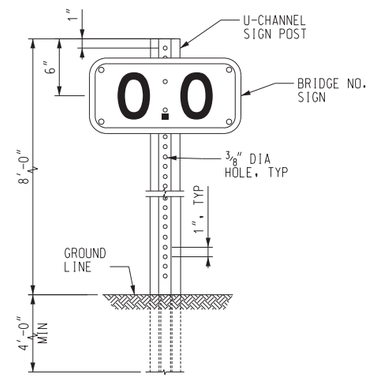
SIGNS TO BE WHITE 3M HIGH INTENSITY BACKGROUND ON 0.80″ 3105 ALUMINUM SHEET.

ALL LETTERS AND NUMERALS TO BE BLACK 3M 3650-12 "SCOTCHCAL PLUS" NON-REFLECTIVE OR 3M PROCESSED INK.

USE GOTHIC SERIES "D" LETTERS OR FIGURES OF THE SIZE SPECIFIED ON THE SIGN DETAIL.



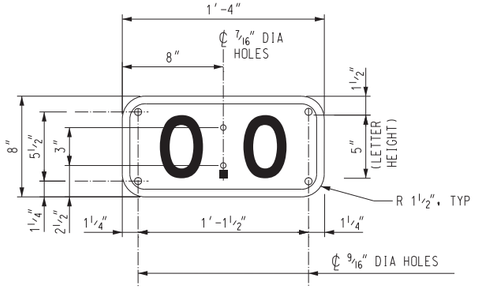
TOP VIEW



FRONT VIEW

SIGN POST MOUNTING DETAIL

SCALE: NTS
SIGN POST WEIGHT = 2.0 LB/FT
1 SIGN POST PER BRIDGE



BRIDGE NO. SIGN DETAIL

SCALE: 2″ = 1′-0″
LETTERING AND BACKGROUND
ON ONE SIDE ONLY
WEIGHT = 10 LBS
2 SIGNS PER BRIDGE,
BRIDGE NO.'S (3.2, 3.9)

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: CLB
DRAWN BY: GJT
CHECKED BY: AGH
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

STANDARD RR BRIDGE COMPONENTS AND DETAILS
WALKWAY AND HANDRAIL DETAILS

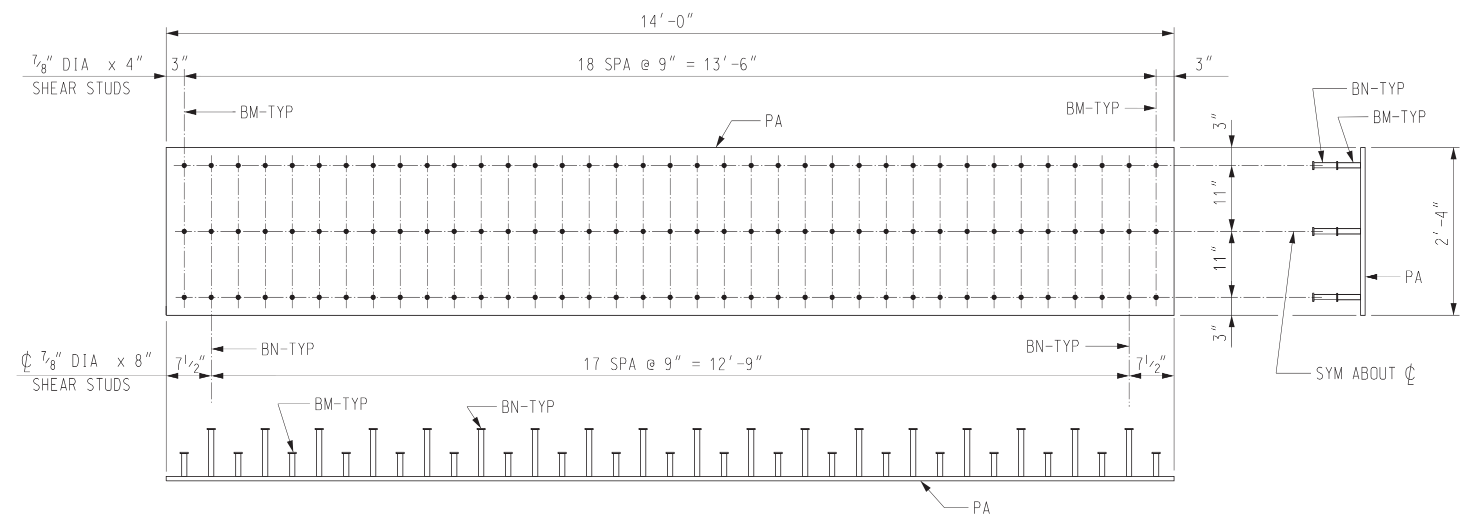
PREPARED FOR:
EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
847-915-8010

HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

DATE: MAY 2019
PROJECT NUMBER:
BG-503
SHEET: 100 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



PILE PLATE PP1

SCALE: 3/4" = 1'-0"
1~PL 3/4"x28"x 14'-0" - PA
57~7/8" DIA x 4" SHEAR STUDS - BM
54~7/8" DIA x 8" SHEAR STUDS - BN
WEIGHT = 1,113 LBS

STEEL NOTES

STRUCTURAL STEEL PLATES AND BARS SHALL MEET THE REQUIREMENTS OF THE CURRENT ASTM DESIGNATION A709, GRADE 36.

SHEAR STUD CONNECTORS CONFORMING TO ASTM A108, GRADE 1010 THRU 1020 SHALL BE FASTENED TO THE STEEL PLATE PER CURRENT AWS WELDING CODE D1.1, SECTION 7. CONTACT SURFACES OF PLATE SHALL BE CLEANED PER STEEL STUCTURES PAINTING COUNCIL SPECIFICATION SSPC-SP6 PRIOR TO WELDING STUDS. DO NOT SHOP PAINT.

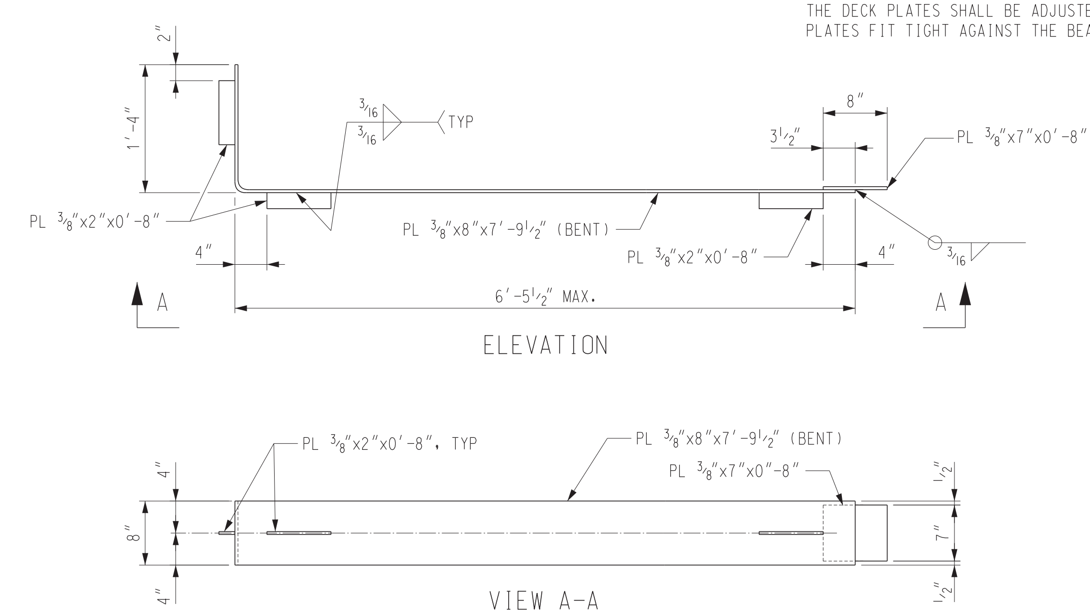
FABRICATION NOTES

FABRICATION AND ARC WELDING OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH CHAPTER 15, PART 3 OF THE CURRENT AREMA MANUAL FOR RAILWAY ENGINEERING.

AFTER GALVANIZING ALL ELEMENTS SHALL BE FREE OF FINS, ABRASIONS, ROUGH OR SHARP EDGES AND OTHER SURFACE DEFECTS.

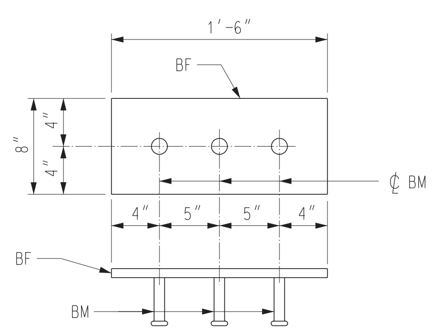
GALVANIZING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM DESIGNATION A123.

THE DECK PLATES SHALL BE ADJUSTED AS NECESSARY TO ENSURE THE PLATES FIT TIGHT AGAINST THE BEAMS AND CURBS.



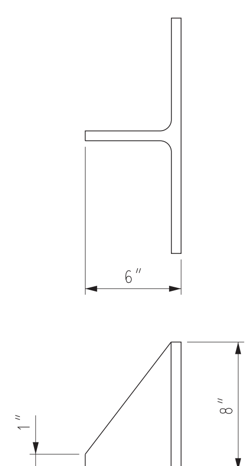
DECK PLATE MK DP1

SCALE: 1" = 1'-0"
WEIGHT = 91 LBS
GALVANIZED AFTER FABRICATION



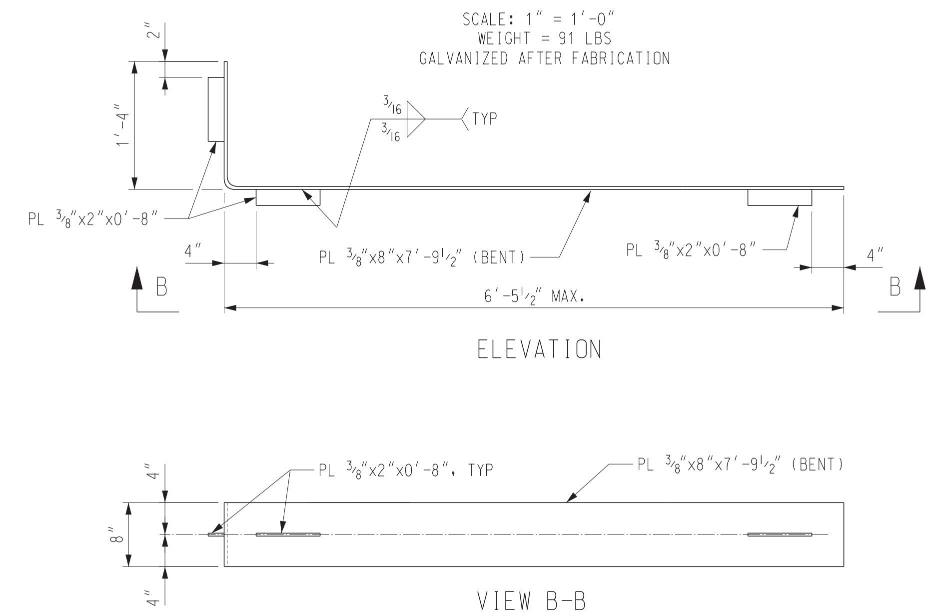
EMBED PLATE EP1

SCALE: 1 1/2" = 1'-0"
1~BAR 8"x3/4" x 1'-6" - BF
3-7/8" DIA x 4" STUDS - BM
WEIGHT = 33 LBS



TRANSVERSE RESTRAINT BRACKET MK BK1

SCALE: 2" = 1'-0"
FABRICATE FROM
HP14x89# PILE CUTOFFS.
WEIGHT = 30 LBS



DECK PLATE MK DP2

SCALE: 1" = 1'-0"
WEIGHT = 85 LBS
GALVANIZED AFTER FABRICATION

REVISIONS | DESCRIPTION | NO. | DATE | BY

DESIGN INFORMATION: DESIGNED BY: CLB | DRAWN BY: GJT | CHECKED BY: AGH | PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

STANDARD RR BRIDGE COMPONENTS AND DETAILS
STEEL DETAILS

PREPARED FOR:
EPA

EA Engineering, Science, and Technology, Inc., PBC
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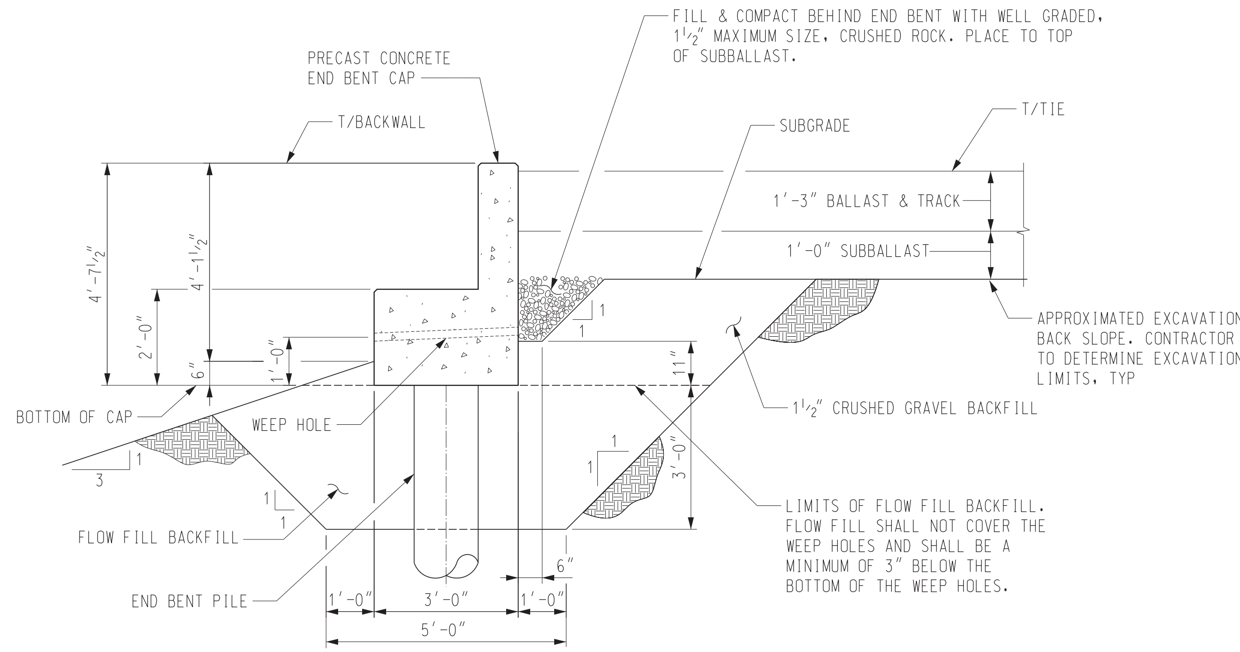
DEERFIELD, IL 60015
847-915-8010

HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

DATE: MAY 2019
PROJECT NUMBER:
BG-504
SHEET: 101 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



HEAD OF BANK DETAILS

BEFORE BACKFILLING END BENTS, APPLY A COATING OF PETROLATUM TO PILE PLATE PP1, AND TOP ONE FOOT OF PILES.

BEARING PAD SPECIFICATIONS

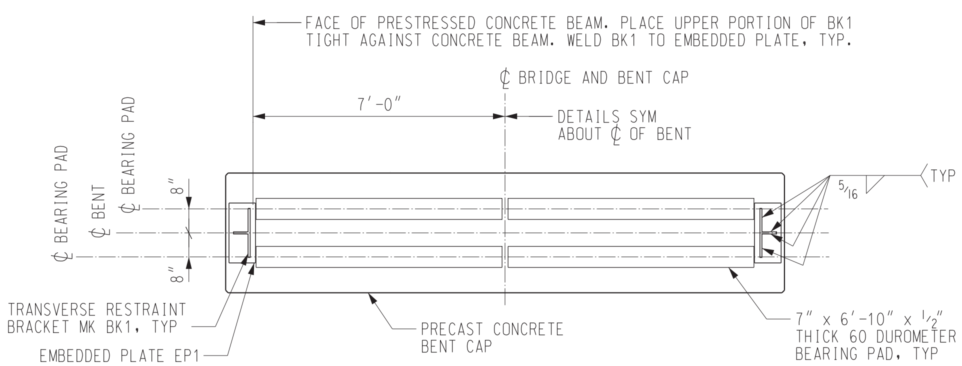
BEARING PADS SHALL BE RANDOM ORIENTED FIBER ELASTOMERIC MATERIAL COMPRISED OF HIGH-QUALITY OZONE-RESISTANT VIRGIN ELASTOMER AND SYNTHETIC FIBERS. PADS SHALL CONFORM TO THE PROJECT SPECIFICATIONS AND THE FOLLOWING MINIMUM MATERIAL PROPERTIES:

HARDNESS (SHORE A, ASTM D2240)	60 ± 5
TENSILE STRENGTH, PSI (ASTM D412, DIE C)	2500 ± 100
ULTIMATE ELONGATION, MINIMUM %	350
HEAT AGING (ASTM D573, 70 HOURS AT NOTED TEMPERATURE)	
DUROMETER, 212 °F, MAXIMUM POINT CHANGE	0 TO +15
TENSILE STRENGTH, 158 °F, MAXIMUM % CHANGE	-15
ULTIMATE ELONGATION, 212 °F, MAXIMUM % CHANGE	-40
COMPRESSION SET, MAXIMUM % (ASTM D395 22 HOURS AT 158 F, METHOD B)	25
APPARENT SHEAR MODULUS (GA), PSI, BASED ON TESTS CONDUCTED AT 70 F TO 80 F UNDER UNIFORM COMPRESSIVE STRESSES OF 500, 1000, AND 1500 PSI AND AT APPLIED HORIZONTAL SHEAR PLUS SLIP STRAIN OF 50%. GA IS CONSTANT IN ALL DIRECTIONS PARALLEL TO THE BEARING PLAN.	230 ± 30

CUTTING OF THE PADS SHALL BE DONE SO THAT THE EDGES HAVE NO TEARS OR OTHER JAGGED AREAS.

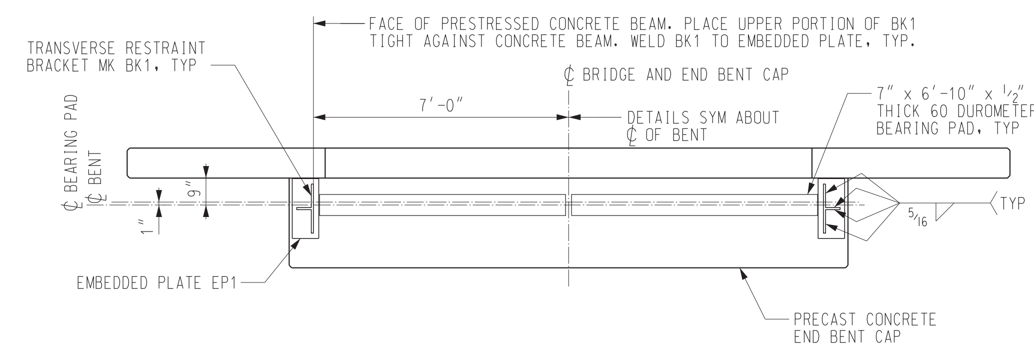
PERMISSIBLE TOLERANCES OF THE PAD SHALL BE AS STATED IN SECTION 5.12.6b, CHAPTER 15 OF THE 2017 AREMA MANUAL AND THE PROJECT SPECIFICATIONS.

THE CAP FABRICATOR SHALL FASTEN THE BEARING PADS TO THE CAP BY USING THE FOLLOWING PROCEDURE: CLEAN PADS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS; PRIME CONTACT SURFACE AND GLUE TO CAP WITH AN APPROVED EPOXY.



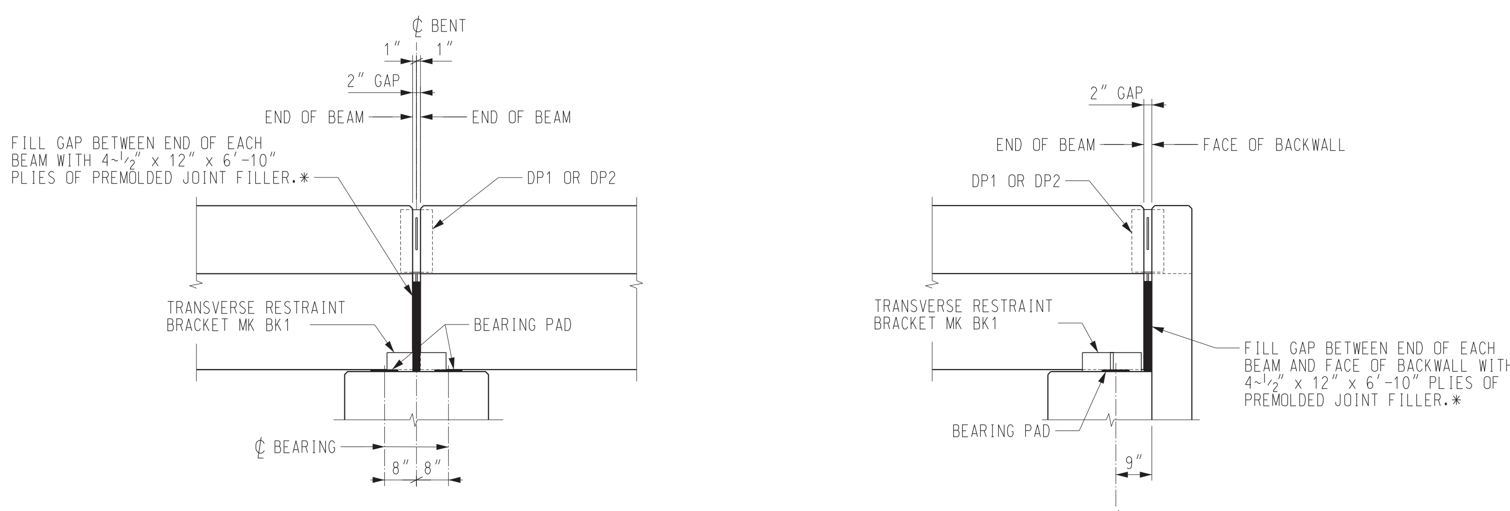
BEARING PAD LAYOUT–INTERIOR BENT

SCALE: 3/8" = 1'-0"



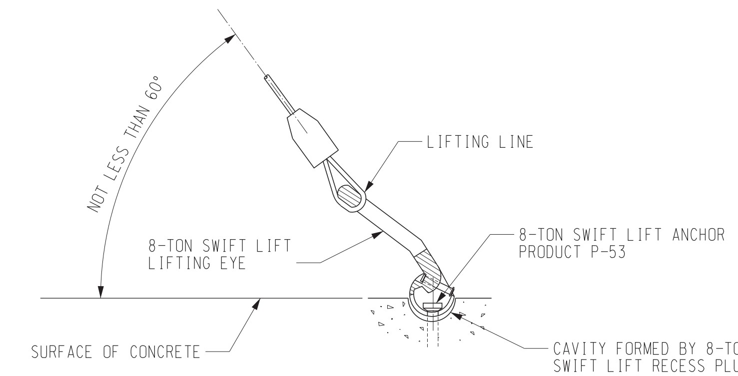
BEARING PAD LAYOUT–END BENT

SCALE: 3/8" = 1'-0"



BEARING DETAILS – SLAB BEAMS

* PREMOLDED JOINT FILLER SHALL BE ASPHALT IMPREGNATED



LIFTING DETAIL

NO SCALE

P-53 8-TON SWIFT LIFT RECESS PLUGS, ANCHORS AND LIFTING EYES ARE AVAILABLE FROM DAYTON SUPERIOR CORP. THE MATERIALS FOR THIS LIFTING SYSTEM ARE NOT INCLUDED IN THE BILL OF MATERIAL BUT ARE TO BE ORDERED AS REQUIRED.

REVISIONS: DESCRIPTION | BY | DATE | NO.

DESIGN INFORMATION: DESIGNED BY: CLB | DRAWN BY: GJT | CHECKED BY: AGH | PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

STANDARD RR BRIDGE COMPONENTS AND DETAILS
MISCELLANEOUS DETAILS

PREPARED FOR:

EPA

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444 LAKE COOK ROAD, SUITE 18
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847-945-8010

HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

DATE: MAY 2019

PROJECT NUMBER:

BG-505

SHEET: 102 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

GENERAL NOTES

DESIGN LOADING

PEDESTRIAN BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE CURRENT MINNESOTA DOT BRIDGE DESIGN MANUAL, AASHTO LRFD BRIDGE DESIGN SPECIFICATION, AND THE AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF THE PEDESTRIAN BRIDGES.

DESIGN LIVE LOADING IS THE GREATER OF UNIFORM 90 PSF PEDESTRIAN LOAD OR SINGLE H10 DESIGN VEHICLE.

FINAL BEARING LOADS FOR FOUNDATION DESIGN SHALL BE PROVIDED BY TRUSS FABRICATOR FOR VERIFICATION OF THE FOUNDATION DESIGN BY THE ENGINEER.

STEEL TRUSS SUPERSTRUCTURE

THE STEEL SUPERSTRUCTURE DESIGN MUST BE A TRUSS CONFIGURATION SIMILAR TO THAT SHOWN ON THE DRAWINGS. THE BRIDGE CROSS-SECTION SHALL BE DETERMINED BY THE CONTRACTOR BUT SHALL COMPLY WITH THE DETAILS SHOWN ON THE PLANS. THE CONTRACTOR SHALL DETERMINE TRUSS HEIGHT AND THE LOCATION OF THE DECK WITH RESPECT TO THE TOP AND BOTTOM CHORDS IN ACCORDANCE WITH THE PLANS.

THE STEEL BRIDGE SUPERSTRUCTURE, BEARINGS, AND ASSOCIATED DETAILS INCLUDING TIMBER COMPONENTS SHALL BE DESIGNED UNDER THE DIRECTION OF A MINNESOTA PROESSIONAL ENGINEER. THE COMPLETED DESIGN, DRAWINGS AND SPECIFICATION PACKAGE SHALL BE SIGNED AND SEALED BY AN ENGINEER LICENSED IN MINNESOTA AND SUBMITTED FOR REVIEW. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

INCLUDE ALL COSTS ASSOCIATED WITH DESIGN, FABRICATING, FURNISHING, AND ERECTING THE STEEL TRUSS SUPERSTRUCTURE INCLUDING THE HANDRAIL AND TIMBER DECKING IN THE UNIT PRICE BID FOR STEEL TRUSS SUPERSTRUCTURE.

SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

REFERENCE DATA

ALL DETAILS AND DIMENSIONS OF THE EXISTING SITE ARE BASED ON FIELD SURVEY DATA SUPPLIED BY AECOM, INC. ON JUNE 15, 2016 WITH SUPPLEMENTARY DATA SUPPLIED ON JUNE 12, 2018.

BRIDGE STATIONING IS BASED ON THE INSIDE FACE OF THE NORTH EXISTING BACKWALL OF THE EXISTING WIRE MILL POND RAILROAD BRIDGE AS STATION 204+78.00.

BENCHMARK DATA: SURVEY CONTROL POINT, STA 165+96.52, OFFSET 276.76' RIGHT, ELEV 651.21'.
VERTICAL DATUM: NAVD88
HORIZONTAL DATUM: NAD83/96 MINNESOTA NORTH ZONE

HYDRAULIC INFORMATION IS BASED ON HYDRAULIC MODELING INFORMATION PROVIDED BY EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC. DATED JANUARY 24, 2019 AND FEMA FIRM PANEL NO. 2704210045C.

GEOTECHNICAL INFORMATION IS BASED ON HDR ENGINEERING, INC. GEOTECHNICAL REPORT DATED MAY 2019.

BRIDGE STATIONING AND RIGHT-OF-WAY ARE BASED ON HISTORICAL NORTHERN PACIFIC RAILWAY (N.P. RY.) TRACK CHARTS.

GENERAL

IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE ACTUAL FIELD CONDITIONS AND ANY NECESSARY AS-BUILT DIMENSIONS AFFECTING THE SATISFACTORY COMPLETION OF THE WORK REQUIRED FOR THIS PROJECT.

NEW CONSTRUCTION SHOWN AS HEAVY LINES. EXISTING STRUCTURES TO REMAIN SHOWN AS LIGHT LINES. EXISTING STRUCTURES TO BE REMOVED SHOWN AS LIGHT DOTTED LINES.

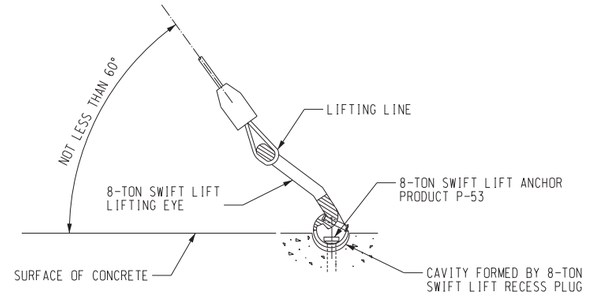
CONTRACTOR IS RESPONSIBLE FOR DEWATERING TO FACILITATE CONSTRUCTION WHEN REQUIRED TO SATISFACTORILY COMPLETE THE WORK REQUIRED FOR THIS PROJECT.

IN ORDER TO ENSURE THE HYDRAULIC CAPACITY OF THE BRIDGE, THE FINISHED GROUND UNDER THE BRIDGE SHALL BE SHAPED TO MATCH THE UPSTREAM CHANNEL AND FLOODPLAIN AS SHOWN ON DRAWING BP-101.

CONTRACTOR SHALL DOCUMENT ALL WORK IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS INCLUDING SUPPLYING: AS-BUILT DRAWINGS, PILE DRIVING RECORDS, AND SHOP DRAWINGS FOR ALL PREFABRICATED COMPONENTS. ALL SHOP DRAWINGS SHALL BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION PER THE PROJECT SPECIFICATIONS.

CONTRACTOR SHALL DISPOSE OF ALL SOIL WASTE MATERIALS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS INCLUDING, BUT NOT LIMITED TO, EXISTING TIMBER STRUCTURES, SOILS, AND DEFICIENT TRAIL MATERIALS.

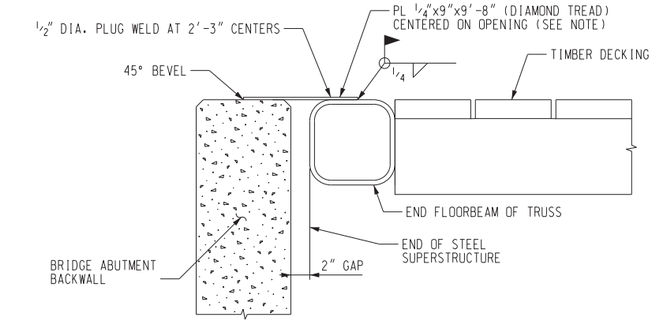
INFORMATION SHOWN ON THESE PLANS CONCERNING TYPE AND LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONCTRACTOR SHALL VERIFY THE LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES BEFORE BEGINNING CONSTRUCTION.



LIFTING DETAIL

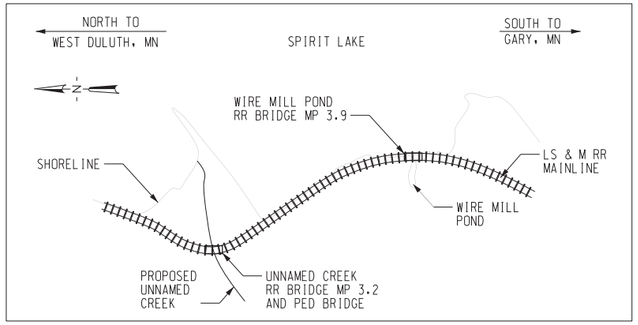
NO SCALE

P-53 8-TON SWIFT LIFT RECESS PLUGS, ANCHORS AND LIFTING EYES ARE AVAILABLE FROM DAYTON SUPERIOR CORP. THE MATERIALS FOR THIS LIFTING SYSTEM ARE NOT INCLUDED IN THE BILL OF MATERIAL BUT ARE TO BE ORDERED AS REQUIRED.



COVER PLATE DETAIL

SCALE: 1 1/2" = 1'-0"
COORDINATE WITH TRUSS SUPPLIER DETAILS OF COVER PLATE.



VICINITY MAP

0 500 1000 2000 3000
SCALE IN FEET

BID ITEMS ~ UNNAMED CREEK PED BRIDGE

ITEM NO.	ITEM DESCRIPTION	QTY.	UNIT
1	FURNISH AND DRIVE PILE*	308	LF
2	PREFABRICATED STEEL TRUSS SUPERSTRUCTURE AND DECK	1	LS
3	FABRICATE AND INSTALL PRECAST CONCRETE SUBSTRUCTURE**	1	LS
4	INSTALL PREFABRICATED STEEL TRUSS SUPERSTRUCTURE	1	LS

* INCLUDES COAL TAR EPOXY COATING AS SPECIFIED ON SHEET BP-102.
** INCLUDES ALL COMPONENTS OF SUBSTRUCTURE SHOWN ON THESE PLANS EXCEPT PILING.

LIST OF DRAWINGS ~ UNNAMED CREEK PED BRIDGE

DRAWING NUMBER	SHT. NO.	TITLE
BP-001	103	GENERAL NOTES AND ESTIMATED QUANTITIES
BP-101	104	GENERAL LAYOUT AND TYPICAL SECTIONS
BP-102	105	PILE PLAN AND DETAILS
BP-501	106	PRECAST CONCRETE END BENT CAP DETAILS

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: MCH
DRAWN BY: GJT
CHECKED BY: MCH
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

UNNAMED CREEK PED BRIDGE
GENERAL NOTES AND ESTIMATED QUANTITIES

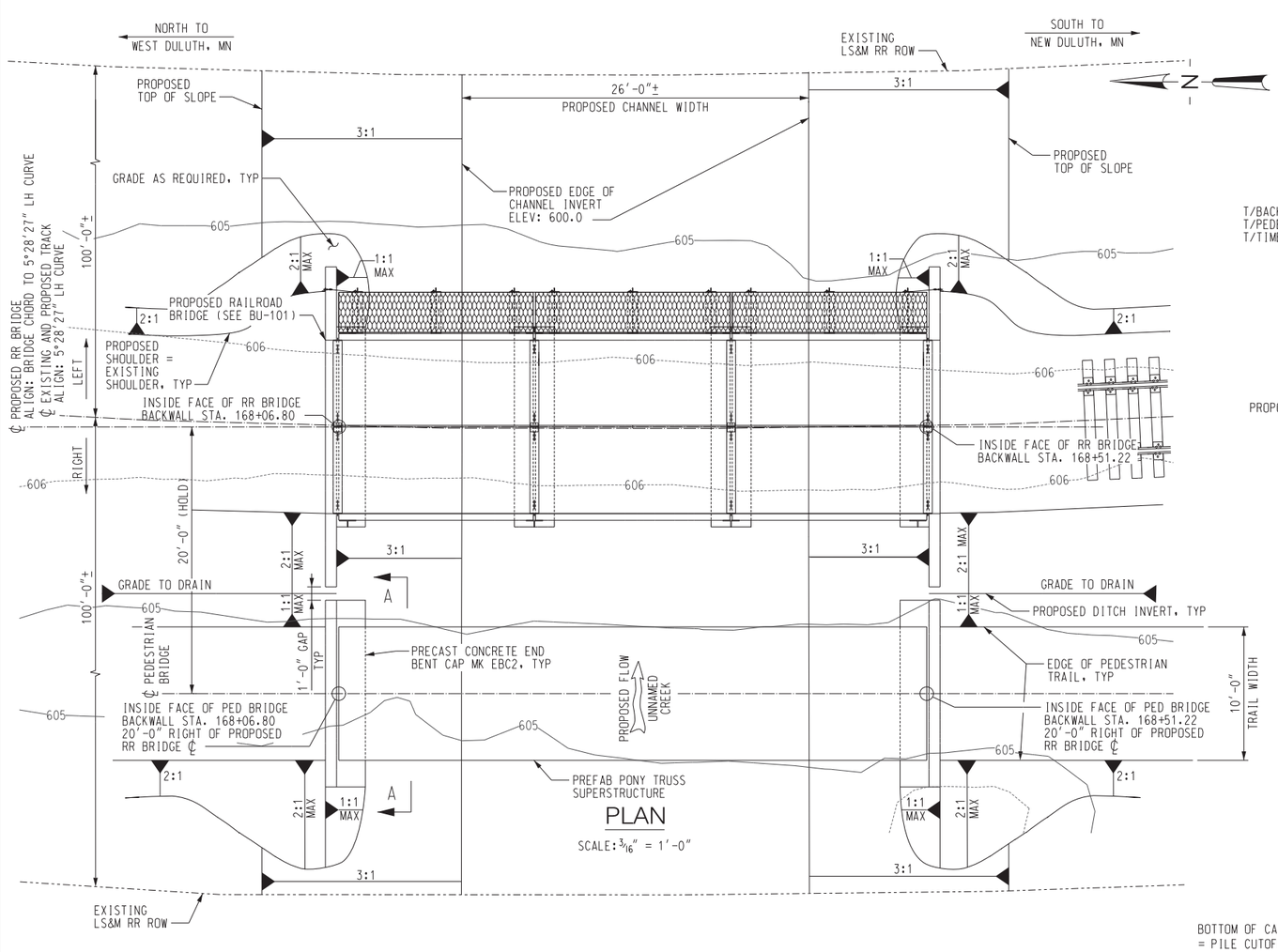
PREPARED FOR:
EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
847-915-8010

HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

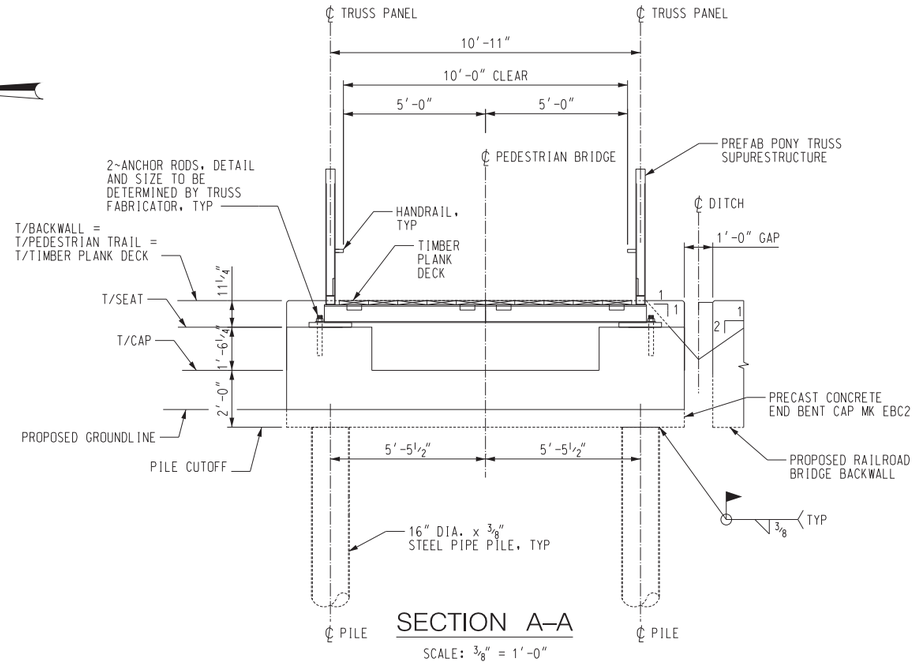
DATE: MAY 2019
PROJECT NUMBER:
BP-001
SHEET: 103 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



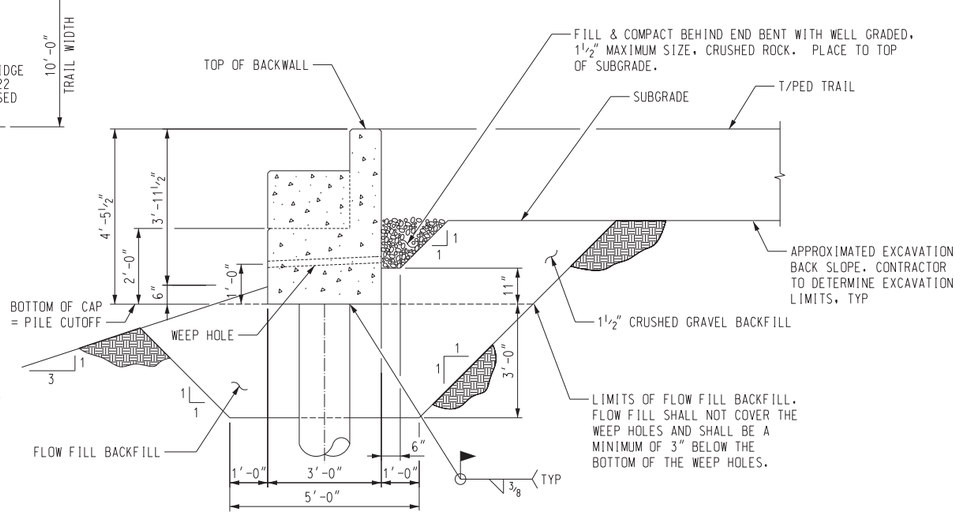
PLAN

SCALE: 3/16" = 1'-0"



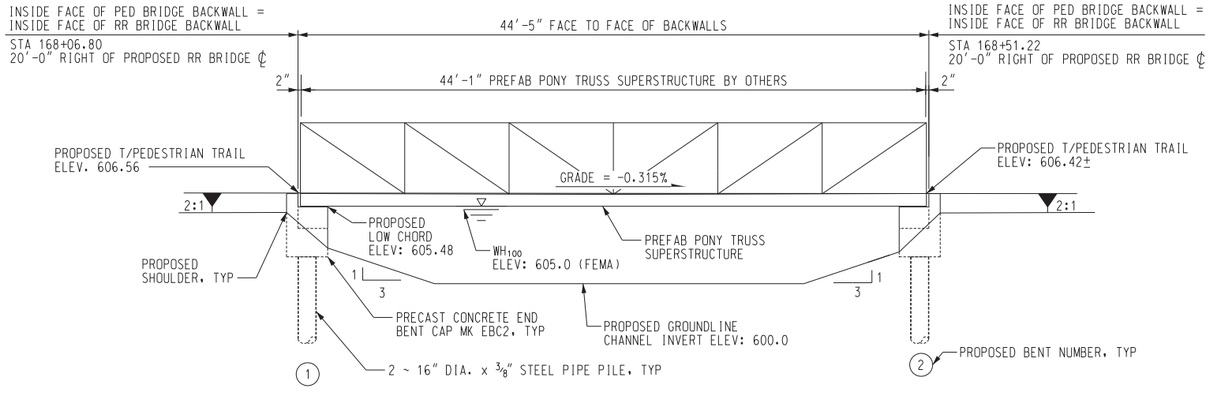
SECTION A–A

SCALE: 3/8" = 1'-0"



HEAD OF BANK DETAILS

BEFORE BACKFILLING END BENTS, APPLY A COATING OF PETROLATUM TO PILE PLATE PP2, AND TOP ONE FOOT OF PILES.



ELEVATION

SCALE: 3/16" = 1'-0"

TABLE OF ELEVATIONS ~ UNNAMED CREEK PED BRIDGE

LOCATION	END BENT 1	END BENT 2
PROPOSED TOP OF PEDESTRIAN TRAIL	606.56	606.42
TOP OF CAP	604.10	603.97
PILE CUTOFF	602.10	601.97
TOP OF PATH TO PILE CUTOFF	4'-5 1/2"	4'-5 1/2"

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: MCH
DRAWN BY: GJT
CHECKED BY: MCH
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

UNNAMED CREEK PED BRIDGE
GENERAL LAYOUT AND TYPICAL SECTIONS

PREPARED FOR:
EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
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HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

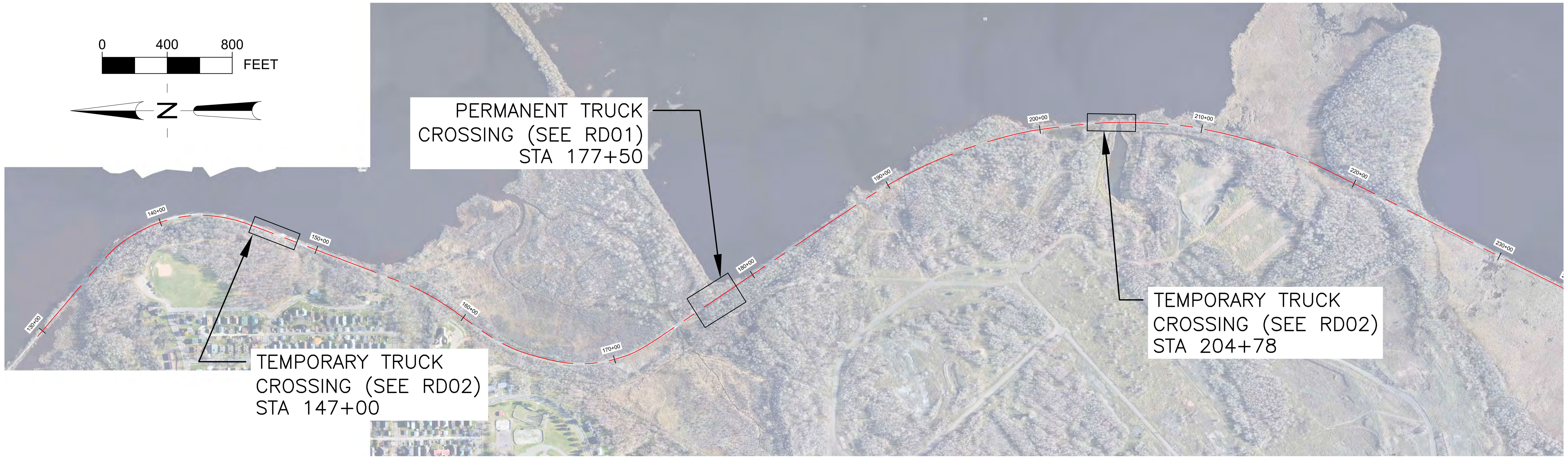
DATE: MAY 2019

PROJECT NUMBER:

BP-101

SHEET: 104 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN

RAILROAD AT-GRADE CROSSINGS

BID ITEMS ~ RAILROAD AT-GRADE CROSSINGS

ITEM NO.	ITEM DESCRIPTION	QTY.	UNIT
1	PERMANENT AT-GRADE CROSSING	1	LS
2	TEMPORARY AT-GRADE CROSSINGS	2	LS

LIST OF DRAWINGS ~ RAILROAD AT-GRADE CROSSINGS

DRAWING NUMBER	SHT. NO.	TITLE
GN-01	107	COVER SHEET
GN-02	108	GENERAL NOTES
GN-03	109	TYPICAL DETAILS
RD-01	110	PERMANENT CROSSINGS PLANS
RD-02	111	TEMPORARY CROSSINGS PLAN

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: JCM
DRAWN BY: JCM
CHECKED BY: WJJ
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

RAILROAD AT-GRADE CROSSINGS
COVER SHEET

PREPARED FOR:

EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
847-915-8010

HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

DATE: MAY, 2019
PROJECT NUMBER: 10085944

GN-01
SHEET: 107 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

SURFACE FEATURES LEGEND
SYMBOLS

- SCRIBED "X"
- PK NAIL
- METAL SIGN POST
- WOOD SIGN POST
- WATER MANHOLE
- FIRE HYDRANT
- WATER METER
- EL — ELECTRICAL JUNCTION BOX
- PM — POWER METER
- TC — TELECOMMUNICATION JUNCTION BOX
- JUNCTION BOX
- TELR — TELECOMMUNICATION RISER
- UTILITY POLE
- UG — UTILITY POLE W/ CONDUITS TO UNDERGROUND
- GUY ANCHOR
- GP — GUY POLE
- YARD LIGHT OR LUMINAIRE W/ NO MAST
- FENCE
- TRACK CENTERLINE
- CONTROL POINT
- SANITARY SEWER MANHOLE
- STORM DRAIN MANHOLE
- CO — CATCH BASIN
- WV — WATER VALVE
- STORM DRAIN

ABBREVIATIONS

A	= AREA
AC	= ASPHALT CONCRETE
AP	= ANGLE POINT
ASSY	= ASSEMBLY
BC	= BACK OF CURB
BNSF	= BURLINGTON NORTHERN SANTA FE RAILWAY
CB	= CATCH BASIN
CG	= CURB AND GUTTER
CIPP	= CURED IN PLACE PIPE
C/L, C.L.	= CENTERLINE
CLF	= CHAIN LINK FENCE
CMP	= CORRUGATED METAL PIPE
CO	= CLEANOUT
CONC	= CONCRETE
CPP	= CORRUGATED POLYETHYLENE PIPE
CS	= CONTROL STRUCTURE
CSBC	= CRUSHED SURFACING BASE COURSE
D.I., DIP	= DUCTILE IRON PIPE
EA	= EACH
EAC	= EDGE ASPHALT CURB
ECC	= EDGE CONCRETE CURB
ELEC	= ELECTRICAL
EL	= ELEVATION
EX., EXIST	= EXISTING
EXC	= EXTRUDED CONCRETE CURB
EOP	= EDGE OF PAVEMENT
ESC	= EROSION AND SEDIMENT CONTROL
F.O.C., FC	= FACE OF CURB
F.G., FIN GR	= FINISHED GRADE
FH	= FIRE HYDRANT
FSC	= FIRE SPRINKLER CONNECTION
FL	= FLANGE OR FLOWLINE
F.L.	= FLOWLINE
GA, GALV	= GALVANIZE
G.V.	= GATE VALVE
H	= HORIZONTAL
HMA	= HOT MIX ASPHALT
I.E., IE	= INVERT ELEVATION
LT	= LEFT
LF	= LINEAR FEET
MH	= MANHOLE
MAX	= MAXIMUM
MDD	= MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR)
MIL	= 1/1000 OF AN INCH
MIN	= MINIMUM
MN	= MINNESOTA
MNDOT	= MINNESOTA DEPARTMENT OF TRANSPORTATION
MON	= MONUMENT
MTCE	= MAINTENANCE
N, E, W, S	= NORTH, EAST, WEST, SOUTH
OC	= ON CENTER
OD	= OUTSIDE DIAMETER
OPS	= OPERATIONS
PC	= POINT OF CURVATURE
PVC	= POLYVINYLCHLORIDE PIPE
PCC	= PORTLAND CEMENT CONCRETE
PP	= POWER POLE
POC	= POINT OF CONNECTION or POINT ON CURVE
PT	= POINT OF TANGENCY
RCP	= REINFORCED CONCRETE PIPE
REQD	= REQUIRED
RT	= RIGHT
R.O.W.	= RIGHT OF WAY
RD	= ROAD
REQD	= REQUIRED
S	= SLOPE
SDMH	= STORM DRAINAGE MANHOLE
SF	= SQUARE FEET
SHT	= SHEET
SP	= STEEL POLE
SSMH	= SANITARY SEWER MANHOLE
SSSO	= SANITARY SEWER STUB OUT
STA	= STATION
STD	= STANDARD
SY	= SQUARE YARD
T/	= TOP OF HOT DIP
TP	= TOP OF PAVING
UNO	= UNLESS NOTED OTHERWISE
V, VERT	= VERTICAL
TYP	= TYPICAL
W/	= WITH
WP	= WOOD POLE

GENERAL NOTES

SPECIFICATIONS AND STANDARDS

1. MNDOT STANDARD CONSTRUCTION SPECIFICATIONS.
2. WHERE NOTED ON THE PLANS AND IN THE SPECIFICATIONS, METHODS AND MATERIALS SHALL CONFORM TO THE MINNESOTA STANDARD SPECIFICATIONS FOR CONSTRUCTION 2018. THE MINNESOTA STATE DEPARTMENT OF TRANSPORTATION (MNDOT),AND THE AMERICAN PUBLIC WORKS ASSOCIATION (APWA) MINNESOTA STATE CHAPTER.

GENERAL

1. THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT COMPLETE FOR CONSTRUCTION PURPOSES. CONTRACTOR SHALL VERIFY INFORMATION GIVEN HERE WITH SPECIFICATIONS AND OTHER DOCUMENTS AND BRING ANY CONFLICTS TO THE ATTENTION OF THE ENGINEER BEFORE BEGINNING AFFECTED WORK. OWNER WILL RESOLVE ANY SUCH CONFLICT.
2. THE EXISTING TRACKS AND ALL PARTS OF THE EXISTING YARD NOT ASSIGNED TO THE CONTRACTOR WILL BE IN OPERATION DURING CONSTRUCTION. EXCEPT WHERE IDENTIFIED ON THE PLANS, THE CONTRACTOR SHALL KEEP THEIR WORKERS, MATERIAL, AND EQUIPMENT A MINIMUM OF 25 FEET CLEAR OF ALL OPERATIONS AND SHALL NOT IN ANY WAY HINDER OR DISRUPT YARD OPERATIONS.
3. ALL DIMENSIONS AND DETAILS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
4. ALL SHOP DRAWINGS SHALL BE SUBMITTED TO, REVIEWED, AND APPROVED BY THE ENGINEER PRIOR TO FABRICATION.
5. ARRANGE CONSTRUCTION OPERATIONS TO AVOID CREATION OF HAZARDOUS CONDITIONS. MAINTAIN ADEQUATE CLEARANCE FROM CONSTRUCTION WORK TO PERMIT NORMAL OPERATIONS AND TRAFFIC TO CONTINUE. PROVIDE FLAGGERS, BARRICADES WITH FLASHING LIGHTS, ETC., AS REQUIRED AT NO COST TO THE RAILROAD.
6. PROTECT MATERIALS AND EQUIPMENT TO BE USED IN THE PROJECT FROM WEATHER AND TRAFFIC.
7. REPAIR AND OR REPAINT THE NEW WORK AND ADJACENT SURFACES DAMAGED DURING THE INSTALLATION OF THE NEW WORK, IN ACCORDANCE WITH THE RAILROAD STANDARD PROCEDURES.
8. COMPLY WITH RAILROAD, STATE AND OSHA SHORING REQUIREMENTS.
9. UNDERGROUND UTILITIES AND STRUCTURES, WHERE SHOWN ON THE DRAWINGS, ARE BASED ON FIELD SURVEYS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND WHAT IS SHOWN ON THE DRAWINGS.
10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL UTILITIES WHETHER SHOWN ON THE PLAN OR NOT.
11. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ALL UTILITY COMPANIES WHEN CONSTRUCTION WORK BEGINS AND TO ARRANGE FOR A REPRESENTATIVE OF THE UTILITY TO BE PRESENT WHEN THE CONTRACTOR'S CONSTRUCTION OPERATIONS ARE IN CLOSE PROXIMITY TO ANY LINES IN THEIR EXISTING OR RELOCATED POSITION . THE CONTRACTOR SHALL COORDINATE ITS ACTIVITIES WITH UTILITY COMPANIES.
12. THE CONTRACTOR SHALL REPAINT EXISTING PAVEMENT MARKINGS REMOVED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE RAILROAD
13. NO FIELD CHANGES WILL BE PERMITTED WITHOUT DIRECT WRITTEN AUTHORIZATION FROM THE RAILROAD PROJECT ENGINEER.
14. CONTRACTOR SHALL COORDINATE WORK WHICH AFFECTS ADJACENT PROPERTY OWNERS. ANY QUESTIONS OR AGREEMENTS BETWEEN ADJACENT PROPERTY OWNERS AND CONTRACTOR SHALL BE MADE IN WRITING. A COPY OF SUCH AGREEMENT SHALL BE PROVIDED TO THE BNSF RAILWAY.
15. CONTRACTOR SHALL REFER TO THE PROJECT TECHNICAL SPECIFICATIONS AND EROSION AND SEDIMENT CONTROL PLANS FOR ADDITIONAL EROSION CONTROL DETAILS.
16. CONTRACTOR SHALL COORDINATE ALL DAILY ACTIVITIES WITH THE RAILROAD STAFF.
17. CONTRACTOR TO COORDINATE EQUIPMENT STAGING AREA WITH RAILROAD STAFF.

DEMOLITION

1. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO CONTAIN THE DEMOLITION WITHIN THE LIMITS DESIGNATED, TO AVOID DAMAGE TO EXISTING STRUCTURES, UTILITIES, OR FACILITIES.
2. ANY DAMAGE INCURRED TO ANY PART OF THE SITE OR FACILITY NOT SPECIFICALLY DESIGNATED FOR DEMOLITION SHALL BE REPAIRED, REPLACED, AND/OR RECONSTRUCTED BY THE CONTRACTOR AT THEIR EXPENSE, TO ITS ORIGINAL CONDITION AS DIRECTED BY THE ENGINEER.
3. ALL DEMOLISHED MATERIAL, EXCEPT AS NOTED AND/OR SPECIFIED, SHALL BE COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR.

SURVEY

1. HORIZONTAL DATUM: NAD83/96 MINNESOTA COORDINATE SYSTEM, NORTH ZONE
2. VERTICAL DATUM: NAVD88 (GEIOD 03)
3. THE CONTRACTOR IS RESPONSIBLE FOR THE PRESERVATION OF ALL SURVEY CONTROL MONUMENTS. IN THE EVENT MONUMENTS ARE DAMAGED OR DESTROYED BY THE CONTRACTOR, THE ENGINEER WILL REPLACE THE MONUMENT SOLELY AT THE CONTRACTOR'S EXPENSE.

REVISIONS

NO.	DATE	BY	DESCRIPTION

SEAL

DESIGN INFORMATION
DESIGNED BY: JCM
DRAWN BY: JCM
CHECKED BY: WJJ
PROJECT MANAGER: DLM

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

RAILROAD AT-GRADE CROSSINGS
GENERAL NOTES

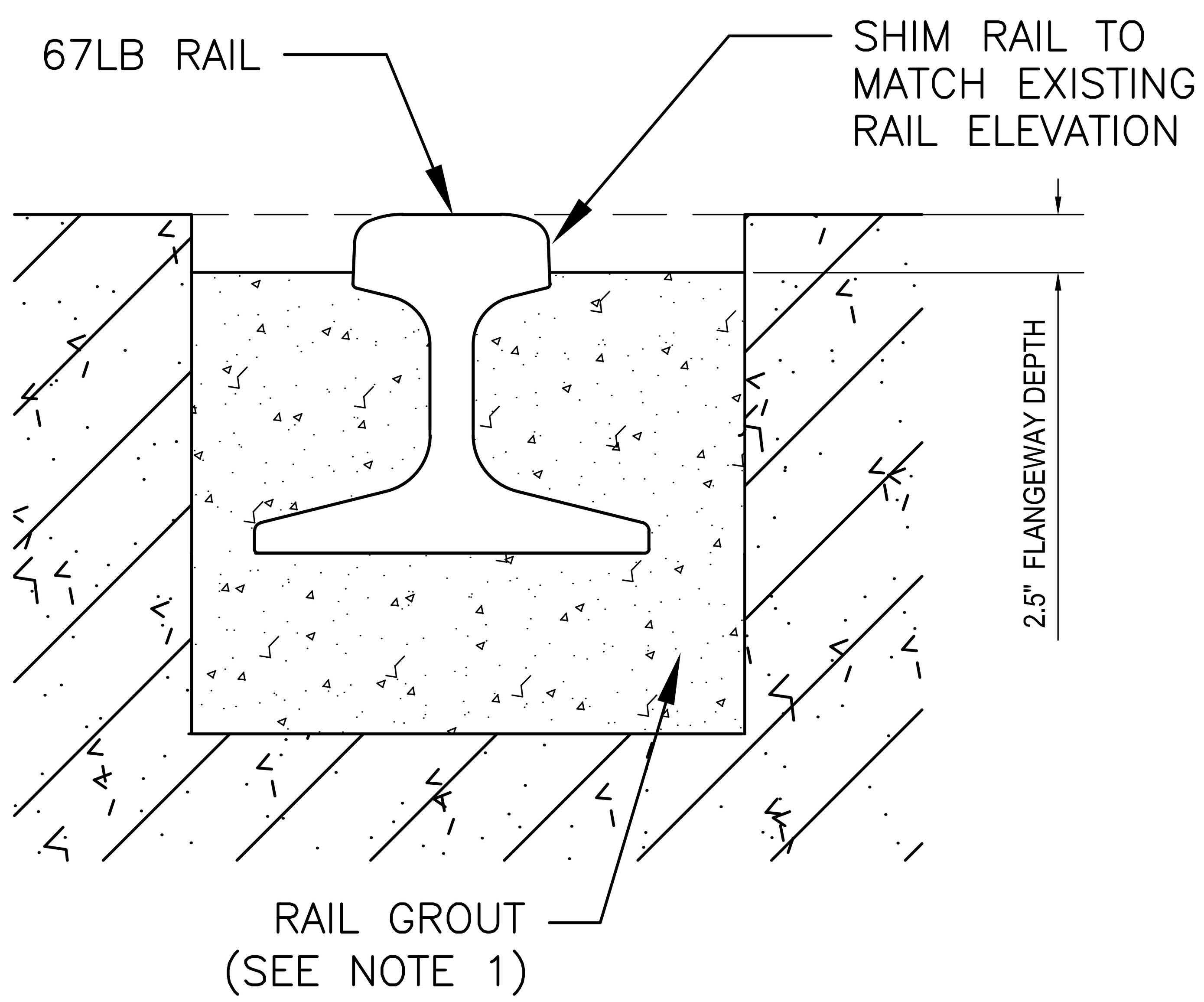
PREPARED FOR:
EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
847-915-8010

HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

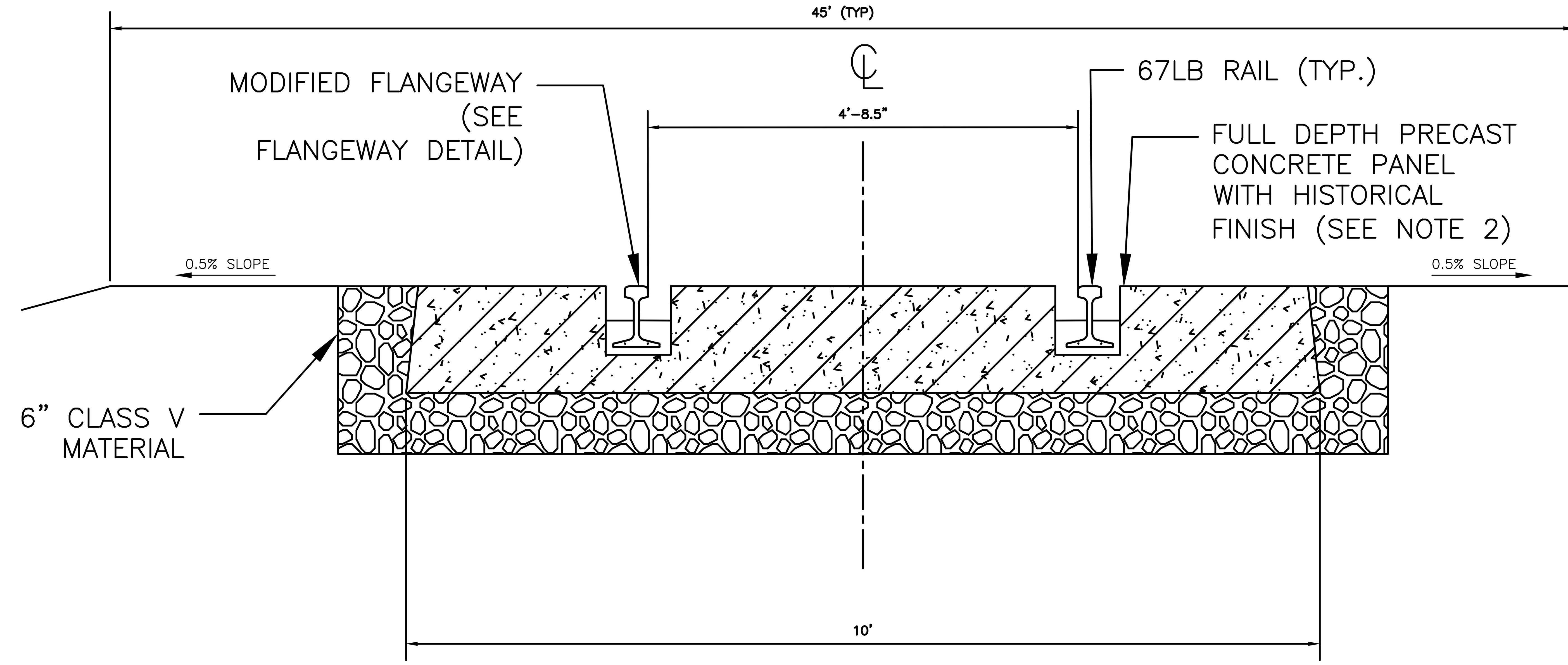
DATE: MAY, 2019
PROJECT NUMBER: 10085944
GN–02
SHEET: 108 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



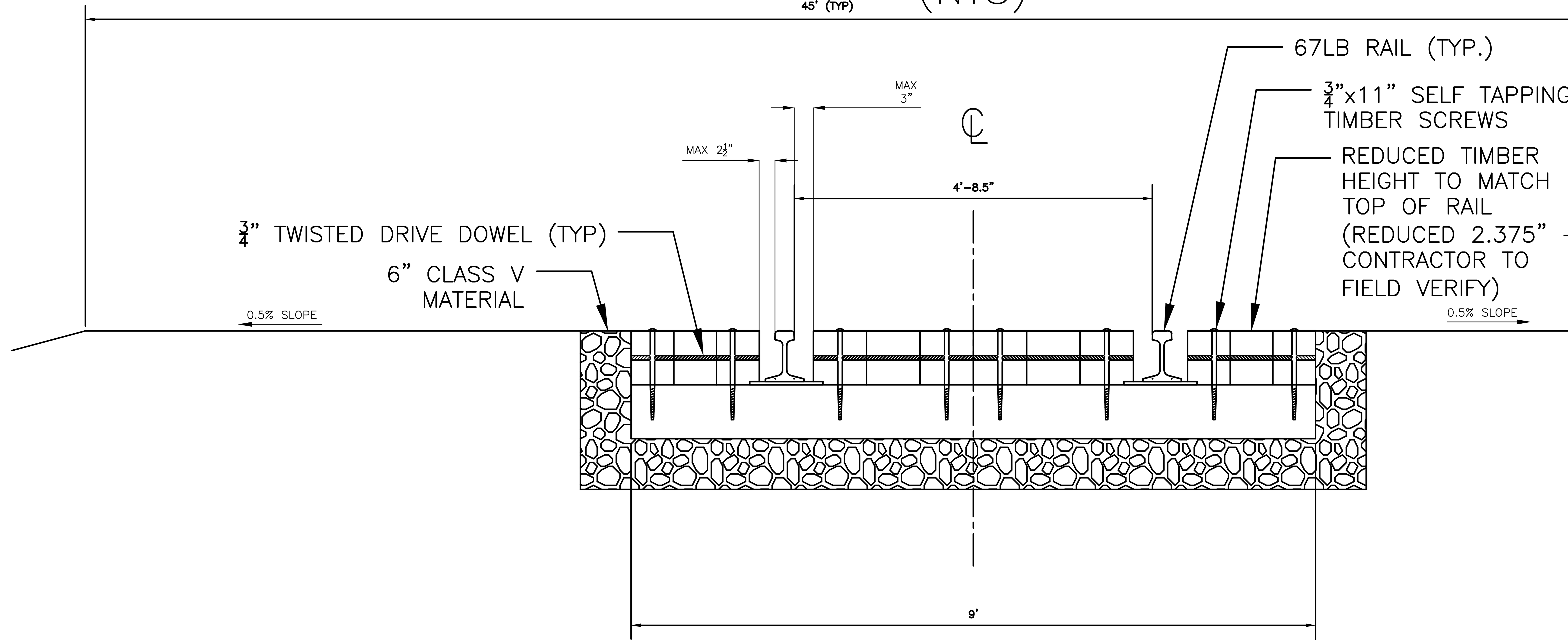
FLANGEWAY DETAIL

(NTS)



PERMANENT EMBEDDED CONCRETE CROSSING DETAIL

(NTS)



TEMPORARY TIMBER CROSSING DETAIL

(NTS)

NOTES:

1. SET RAIL IN LOAD–BEARING POLYURETHANE RAIL GROUT. SHIM RAIL TO MATCH TOP OF RAIL TO TOP OF FLANGEWAY CHANNEL. ⅛" VERTICAL TOLERANCE FOR RAIL ELEVATIONS – SEE AREMA FOR SPECIFICATIONS.
2. APPLY HISTORICAL FINISH TO CONCRETE PANELS TO MATCH CURRENT HISTORICAL CONDITIONS – SEE SPECIFICATIONS.
3. MAINTAIN POSITIVE DRAINAGE AWAY FROM TRACKS (MINIMUM 0.5%)

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: JCM
DRAWN BY: JCM
CHECKED BY: WJJ
PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

RAILROAD AT-GRADE CROSSINGS
CROSSING TYPICAL DETAILS

PREPARED FOR:

EPA

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444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
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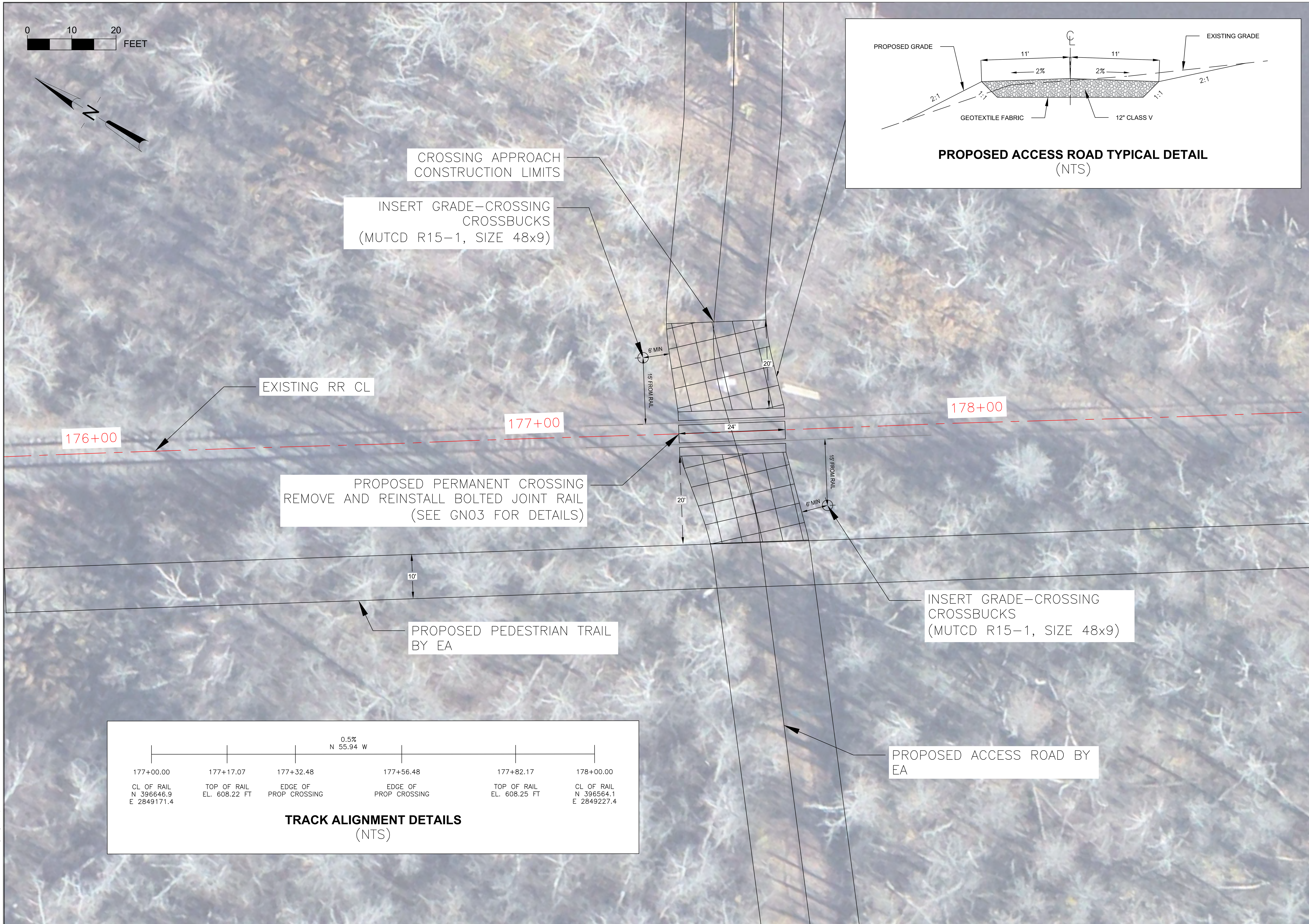
HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

DATE: MAY, 2019
PROJECT NUMBER: 10085944

GN–03

SHEET: 109 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION



REVISIONS: NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION: DESIGNED BY: JCM; DRAWN BY: JCM; CHECKED BY: WJJ; PROJECT MANAGER: DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

RAILROAD AT-GRADE CROSSINGS
PERMANENT CROSSING PLAN VIEW

PREPARED FOR:
EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
847-945-8010

HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

DATE: MAY, 2019
PROJECT NUMBER: 10085944
RD–01
SHEET: 110 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

0 10 20 FEET

N

INSERT GRADE–CROSSING CROSSBUCKS (MUTCD R15–1, SIZE 48x9)

PROPOSED TEMPORARY TIMBER CROSSING (SEE GN03 FOR CROSSING DETAIL)

STA 203+00

STA 204+00

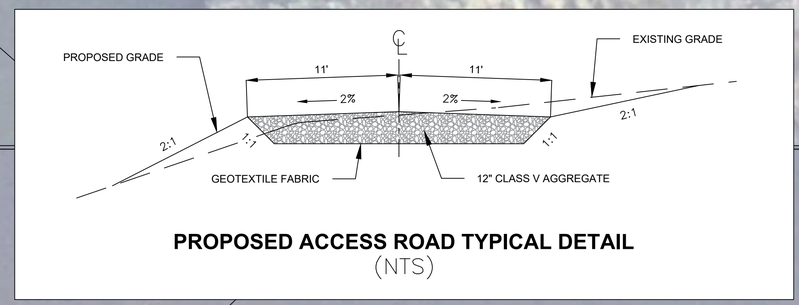
STA 205+00

EXISTING RR CL

CROSSING APPROACH CONSTRUCTION LIMITS

PROPOSED ACCESS ROAD BY EA

INSERT GRADE–CROSSING CROSSBUCKS (MUTCD R15–1, SIZE 48x9)



PROPOSED ACCESS ROAD TYPICAL DETAIL
(NTS)

0 10 20 FEET

N

INSERT GRADE–CROSSING CROSSBUCKS (MUTCD R15–1, SIZE 48x9)

STA 146+00

STA 147+00

STA 148+00

EXISTING RR CL

PROPOSED TEMPORARY TIMBER CROSSING BY EA

CROSSING APPROACH CONSTRUCTION LIMITS

INSERT GRADE–CROSSING CROSSBUCKS (MUTCD R15–1, SIZE 48x9)

PROPOSED ACCESS ROAD (ALIGNMENT TBD BY OTHERS)

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION

DESIGNED BY:	JCM
DRAWN BY:	JCM
CHECKED BY:	WJJ
PROJECT MANAGER:	DLM

SEAL

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

RAILROAD AT-GRADE CROSSINGS TEMPORARY CROSSING PLAN VIEW

PREPARED FOR:

EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
847-915-8010

HDR ENGINEERING, INC.
700 SW HIGGINS AVE., SUITE 200
MISSOULA, MT 59803-1489

DATE: MAY, 2019

PROJECT NUMBER: 10085944

RD–02

SHEET 111 OF 111

PRE-FINAL DESIGN - NOT FOR CONSTRUCTION

FILEPATH: C:\PW\WORK\254\01\10085944\DWG\BRIDGE\HAMPSON_AVIAN—

ANALYSIS OF DESIGN IMPACTS TO THE LAKE SUPERIOR AND MISSISSIPPI RAILROAD FROM THE SPIRIT LAKE SEDIMENT REMEDIATION PROJECT

RESPONSE TO COMMENTS ON DRAFT MEMORANDUM SUBMITTED TO MINNESOTA SHPO, LAKE SUPERIOR AND MISSISSIPPI RAILROAD, AND CITY OF DULUTH APRIL 2019

Comment	Response
State Historic Preservation Office (comments received April 3)	
Area 1- This section indicates that a standard chain link fence will be installed during the remedy construction. We assume that this will be removed once construction is complete. Please state this clearly.	It has been clearly stated that this fencing will be removed once construction is complete.
Area 2- We agree that the approach described in this document is in conformance with the Standards.	Comment noted.
Area 3- The narrative description and plan drawings presents an appropriate resolution to minimize the adverse effect. In order to fully evaluate conformance with the Standards, we request the opportunity to review elevation and drawings of the proposed new 3-span concrete ballast deck bridge including railings, abutments, and retaining/wing walls, if any.	Design drawings for the bridges have been provided with this revised package.
Area 4- The proposed adjustment to the rail line's elevation at the north and south ends of the Area3/bridge replacement in order to meet the elevation of the new bridge crossing are described as temporary impacts in the report. It is our opinion that these are permanent impacts to the historic property, but the narrative description indicates that they will be treated appropriately per the Standards.	Comment noted; the adjustments to the rail at this location would be on the tenths of inches.
Area 5- The proposed removal of five (5) pipe culverts at this location is described as a temporary impact in the report. It is our opinion that this work is a permanent impact, but the narrative description and project plans indicate the design of the work is in conformance with the Standards.	Comment noted; this impact is presented in the table and figure as a permanent impact.
Area 6- The report described both the temporary truck crossing during remedy construction and how this crossing will be converted to a permanent access road for post-construction monitoring. We agree that the narrative description and project plans indicate the design of the work is in conformance with the Standards.	Comment noted.
Area 7- The report describes the temporary truck crossing installed during remedy construction. We agree that the narrative description and project	Comment noted.

Comment	Response
plans indicate the design of the work is in conformance with the Standards.	
Area 8- The report describes the proposed construction of a new bridge crossing at Wire Mill Pond. While we agree that the narrative description and project plan views indicate the design is appropriate, as with Area 3 (above), in order to fully evaluate conformance with the Standards, we request the opportunity to review elevation drawings of the proposed new 3-span concrete ballast deck bridge including railings, abutments, and retaining/wing walls, if any.	Design drawings for the bridges have been provided with this revised package.
Area 9- As with Area 1 (above) we understand that the impact will be a temporary closure of part of the rail line during construction. Please clarify that the chain link fence will be removed following remedy construction.	It has been clearly stated that this fencing will be removed once construction is complete.
Avoidance and Minimization in All Impact Areas- Edit the first bullet point sentence to read: "Avoidance in design: where possible *additional* adverse effects to the historical features of the LSMRR will be avoided."	Change has been made as suggested.
Avoidance and Minimization in All Impact Areas- Under the second bullet point, it is suggested that the historic property will be recorded "consistent with documenting resources prior to adverse effects." Does this suggest that the LSMRR Historic District will be subject to archival documentation standards consistent with the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER), or our equivalent state documentation policy the Minnesota Historic Property Record (MHPR)? If so, then we agree with the provision but this will need to be further discussed as part of the consultation process for the MOA.	Comment noted.
Other provisions listed in this section- including suggestions for interpretative signage, construction monitoring, and pre-construction surveys- will also likely be included as terms of the MOA.	Comment noted.
LSMRR (comments received April 3)	
General - The LSMRR will experience a huge temporary adverse effect in the loss of operation for approximately 3 miles during the entire time of remediation.	Comment noted. Text has been added to section 1 noting the operation impact on the LSMRR.
Area 2 - Truck Crossing - Given the heavy nature of the traffic over the crossing, it may be advisable to add a layer of gravel between the	The following has been added for clarification: "For additional protection, gravel may be placed next to further reduce the truck impact. Gravel

Comment	Response
fabric and the timber mats. Regardless, the impact of truck loadings may deteriorate the track structure and require some additional maintenance upon removal of the crossing.	would be followed by an additional layer of fabric to prevent gravel from settling in and around the rail line. This fabric would be a higher strength woven mono-filament fabric to withstand gravel removal activities once construction is complete."
Area 3 - Where will the temporary diversion opening be located? Will this be in addition to current flowage thru Area 5? Top of Rail (T/R) is the preferred way to provide rail elevations. I believe the proposed T/R elevation at the Bridge is 606.9 ft. What is the existing elevation at that location? The assumption is made that replaced track across the bridge will consist of new ties. This is not a historical issue but a common maintenance practice on railroads as the pans of a ballast deck bridge make future replacement of individual ties difficult.	The following has been added to this section for clarification: "The temporary diversion will be located along the west side of the Upland CDF and discharge to Spirit Lake at the northernmost extent of the CDF." "The top of rail elevation for the proposed bridge will be 606.2 ft. The existing top of rail elevation is 606.3 ft."
Area 4 - Assuming existing and design elevations are close, there should be little impact in this area.	Comment noted.
Area 6 - Assuming the crossing design is the same as Area 2, same comments apply. When the permanent crossing surface is installed, there may be some maintenance or upgrades to the track structure required.	The same language as added to Area 2 has been added to Area 6.
Area 7 - Same comments as Area 2.	The same language as added to Areas 2 and 6 has been added to Area 7.
Area 8 - Same comments as Area 3. Is existing T/R elevation the same as proposed T/R at the new bridge? There is no indication of surfacing outside the limits of the bridge construction.	The following language has been added for clarification: "The new railroad bridge will have a top of rail ties elevation of 606.7607 ft and a thickness of 2.5 feet. The existing top of rail elevation is 607 ft."

Report 2-Analysis of Design Impacts to the Lake Superior and Mississippi Railroad and Spirit Island from the Proposed Pedestrian Trail Feature as Part of the Spirit Lake Sediment Remediation Project (January 2020)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
GREAT LAKES NATIONAL PROGRAM OFFICE
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

JAN 21 2020

Sarah J. Beimers, Manager
Minnesota Historical Society
State Historic Preservation Office
Government Programs and Compliance
345 Kellogg Blvd. West
St. Paul, Minnesota 55102

Re: Analysis of Design Impacts to the Lake Superior and Mississippi Railroad and Spirit Island from the Proposed Pedestrian Trail Feature as Part of the Spirit Lake Sediment Remediation Project

Dear Ms. Beimers:

The United States Environmental Protection Agency (EPA), Great Lakes National Program Office (GLNPO) is providing additional information regarding the proposed sediment remediation and habitat restoration project at Spirit Lake (SHPO Number 2015-2457). The purpose of the enclosed report is to continue project consultation under Section 106 of the National Historic Preservation Act (NHPA) and provide the Minnesota SHPO (and THPO of the Fond du Lac Band, Mille Lacs Band and Bois Forte Band) with a review of the design approach for the pedestrian trail feature proposed as part of the project. This report evaluates the potential effects of the pedestrian trail on the adjacent Lake Superior and Mississippi Railroad (LSMRR) within the Spirit Lake project area and on Spirit Island.

Based on the evaluation provided in this report, the EPA determines that the pedestrian trail and associated features proposed as part of the Spirit Lake Sediment Remediation Project will have no adverse effect on the LSMRR segment within the project footprint. Additionally, the EPA has reached a preliminary determination that the pedestrian trail will have no adverse effect on Spirit Island. EPA is requesting SHPO review of this finding for concurrence. Any questions can be directed to Ms. Diana Mally at (312)-886-7275.

Sincerely,

Christopher Korleski, Director
Great Lakes National Program Office

Enclosure

CC: Jill Hoppe, Fond du Lac Band
Natalie Weyaus, Mille Lacs Band
Bill Latady, Bois Forte Band
David Moore and Lynne Harrington-Hall, LSMRR
Jim Filby-Williams, City of Duluth
Darren Vogt, 1854 Treaty Authority

Analysis of Design Impacts to the Lake Superior and Mississippi Railroad and Spirit Island from the Proposed Pedestrian Trail Feature as Part of the Spirit Lake Sediment Remediation Project

Prepared for

U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Prepared by

EA Engineering, Science, and Technology, Inc., PBC
225 Schilling Circle, Suite 400
Hunt Valley, Maryland 21031
(410) 584-7000

January 2020
EA Project No. 1518924

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Analysis of Design Impacts to the Lake Superior and Mississippi Railroad and Spirit Island from the Proposed Pedestrian Trail Feature as Part of the Spirit Lake Sediment Remediation Project

Prepared for

U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Prepared by

EA Engineering, Science, and Technology, Inc., PBC
444 Lake Cook Road, Suite 18
Deerfield, Illinois 60015

January 2020
EA Project No. 1518924

Analysis of Design Impacts to the Lake Superior and Mississippi Railroad and Spirit Island from the Proposed Pedestrian Trail Feature as Part of the Spirit Lake Sediment Remediation Project

Prepared for

U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Prepared by

EA Engineering, Science, and Technology, Inc., PBC
225 Schilling Circle, Suite 400
Hunt Valley, Maryland 21031
(410) 584-7000

January 2020
EA Project No. 1518924

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TABLE OF CONTENTS

Page

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
BMP	Best Management Practices
CDF	Confined Disposal Facility
EPA	U.S. Environmental Protection Agency
LSMRR	Lake Superior and Mississippi Railroad
MSE	Mechanically Stabilized Embankment
NHPA	National Historic Preservation Act of 1966, as amended
SHPO	State Historic Preservation Office
THPO	Tribal Historic Preservation Office

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1. INTRODUCTION AND PURPOSE

The Spirit Lake Sediment Remediation Project area is located in an open reach of the St. Louis River, referred to as Spirit Lake, near the Morgan Park neighborhood of Duluth, Minnesota and adjacent to the former U. S. Steel Duluth Works Steel Mill facility. The purpose of this report is to continue project consultation under Section 106 of the National Historic Preservation Act (NHPA) and provide the Minnesota State Historic Preservation Office (SHPO) and the Tribal Historic Preservation Office (THPO) of the Fond du Lac Band of the Lake Superior Chippewa and of the Mille Lacs Band with a review of the design approach for the pedestrian trail feature proposed as part of the Spirit Lake Sediment Remediation Project (Project). This report evaluates the potential effects of the pedestrian trail on the adjacent Lake Superior and Mississippi Railroad (LSMRR) and on the traditional cultural property of Spirit Island. The pedestrian trail as included in the project design would be constructed adjacent to the LSMRR (Figure 1). A six-mile segment of the LSMRR falls within the project boundary. Spirit Island is located approximately 0.3 miles outside of the project boundary (Figure 1). It is owned by the Fond du Lac Band of Lake Superior Chippewa and is of immense cultural and spiritual significance to all Ojibwe tribes.

This report is organized as follows:

- *Section 2*- presents a detailed description of the trail and all associated features to be constructed within the project footprint.
- *Section 3*- presents a detailed description of the trail and all associated features to be constructed within the project footprint. Section 2 presents the EPA's determination of adverse effect from the trail on the segment of LSMRR that occurs within the project footprint, and on Spirit Island, in accordance with 36 CFR Part 800.5, Assessment of Adverse Effects under Section 106 of the NHPA.

It should be noted that the evaluation in this report includes the portion of the pedestrian trail that will be constructed as part of the Project and which occurs solely within the direct project footprint. Continuation of the trail to the north or south of the project footprint may be performed by the City of Duluth as part of separate efforts to develop trails adjacent to the project area. Potential continuation of the trail to north or south by the City of Duluth is not part of this undertaking and is not covered under this review or effects determination.

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2. DESCRIPTION OF THE PEDESTRIAN TRAIL AND ASSOCIATED FEATURES

A pedestrian multi-use (walking and biking) trail is included as part of the final design for the Project. The pedestrian trail design has been developed in close coordination with the City of Duluth's plans for adjacent trail development and is compatible with the future recreational features that may be developed within the Delta confined disposal facility (CDF) area of the project footprint. The trail and each associated feature are described below.

2.1 PEDESTRIAN TRAIL

The pedestrian trail will be located adjacent to the LSMRR for the full six-mile segment located within the project footprint (Figure 1). The trail will be 10 feet wide and will be surfaced with crushed stone; the path of the pedestrian trail will not physically contact the existing rail line. The offset distance between a railroad and a pedestrian trail is typically recommended to be a minimum of 25 feet from the center line of the railroad to be protective of both railroad and trail users. The design of the pedestrian trail considered this recommendation and considered the operation frequency of the LSMRR. Because the LSMRR has historically operated at a frequency of one to two times per week (and there is no currently known plan to increase the frequency of rail trips), the pedestrian trail will be constructed with a minimum offset distance (from the center line of the railroad) of 15 feet. The pedestrian trail will be constructed at this 15 foot offset distance for the full length of the trail, with the exception of the portion of the trail that follows the slopes of Wire Mill Pond (Figure 1) and one other location south of the spit of land (this is detailed in the discussion of the Mechanically Stabilized Embankment, below). The design of the pedestrian trail takes several approaches to maximize protectiveness to the LSMRR. Where topography allows, the trail will be constructed at a lower elevation than the railroad tracks to prevent impact from stormwater runoff on the railroad. The pedestrian trail will have a shallow cross slope (less than 1.5%) away from the railroad to promote drainage of runoff. Due to potential terrain restraints along the path of the pedestrian trail, there may be some areas where the trail will be constructed at the same elevation as the track. In these instances, poorly graded aggregate material will be used for the trail subgrade to promote drainage under the trail. Any existing culverts (not including those planned to be abandoned as part of the design) beneath the railroad will be extended beneath the pedestrian trail to maintain existing drainage routing. Excavation into the toe of the hill along the proposed path of the trail will be avoided to reduce the risk of the stability issues that could impact the LSMRR.

The trail design also meets the Americans with Disabilities Act (ADA) criteria for accessibility best management practices (BMPs) and standards to be used when developing this type of feature. The slopes of the pedestrian trail will comply with ADA standards which allow slopes of 5% or less for any length, and running slopes of 8.3, 10, and 12.5% for a maximum length of 200, 30 and 10 feet, respectively.

2.2 INTERPRETIVE SIGNAGE

The pedestrian trail design includes installation of interpretive signs at specific locations along the trail to provide trail users with information on trail orientation and natural and cultural

heritage interpretation for the surrounding location. Four signs will be located at key transition/entrance points along the pedestrian trail:

- One interpretive sign will be located at the trail entrance from the Morgan Park neighborhood (Figure 2)
- Two additional interpretive signs will be located along the trail at the spit of land (Figure 3)
    - A sign will be located at the railroad crossing
    - Another will be located approximately 400 feet east of the railroad on the spit of land portion of the pedestrian trail; this portion of the trail does not run adjacent to the LSMRR.
- A final interpretive sign will be located at the entrance to the portion of the pedestrian trail that follows the slopes of the remediated Wire Mill Pond area (Figure 4).

The interpretive signs will be positioned immediately adjacent to the path of the proposed pedestrian trail and will not encroach on the minimum offset distance between the trail and the railroad. The interpretive signs will include graphic panels presenting the information about the surrounding area. Signs will extend approximately 45 inches above the ground surface and consist of a cantilevered mounting structure atop two 8-inch diameter concrete footings (24 inches in length) that overlie 8 inches of stone bedding. Each sign will be constructed with approximately 2 inches of backfill.

2.3 UNNAMED CREEK PEDESTRIAN BRIDGE AND FOOTBRIDGES

A pedestrian bridge (Figure 3) will be constructed along the pedestrian trail to provide a crossing over the channel where Unnamed Creek will be rerouted as part of the remediation design. The pedestrian bridge over the Unnamed Creek relocation channel will be constructed using a typical pre-manufactured steel span for a 10-foot wide trail. This bridge is designed to be a single span founded on colorized precast concrete abutments supported by 16-inch closed end steel pipe pile. Standards set forth by the American Association of State Highway and Transportation Officials (AASHTO) and State of Minnesota will be used in the design.

Additionally, four small foot bridges will be installed along the portion of the pedestrian trail that follows the Wire Mill Pond slopes. This portion of the pedestrian trail does not run adjacent to the LSMRR. These foot bridges will be of wood construction and are designed to provide crossings over drainage letdown channels around the pond. The specific design details for these footbridges will be determined by the Contractor to meet minimum requirements outlined in the technical specifications for the design.

2.4 RAILROAD CROSSING AT THE SPIT OF LAND

An access trail stemming from the pedestrian trail to the Delta CDF will connect to the main pedestrian walking and biking trail at the spit of land (Figure 3). The access trail will cross the railroad at this location. A permanent railroad crossing with appropriate signage and safety information will be provided for pedestrian safety. This crossing will be constructed such that the full-depth precast panels used will be installed to match the existing top or rail conditions. To

achieve top of rail conditions, a load-bearing polyurethane rail grout will be placed beneath the rail in the precast concrete flangeway, which will allow the rail to be raised to match the existing top of rail. The concrete panel will be surrounded by 6 inches of Class V aggregate to promote drainage around the rail.

2.5 MECHANICALLY STABILIZED EMBANKMENT (MSE)

The pedestrian trail will be constructed at a lower elevation than the LSMRR along the full path, apart from one short span of the trail path 600 feet south of the spit of land (Figure 4). At this location the existing terrain does not provide adequate space for a 3:1 slope, and retaining wall was originally proposed for installation. Based upon comments received on the pre-final design for the pedestrian trail, a mechanically stabilized embankment (MSE) will be utilized at this location. The MSE is constructed with geotextile fabric doubled over to retain the soil. The final design for this feature is in progress. Installation of this feature will provide protection to the railroad without directly contacting the rail line.

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3. EVALUATION OF EFFECTS ON THE LSMRR AND SPIRIT ISLAND

The pedestrian trail itself, along with each of the above described trail features, have been evaluated for adverse effect on the segment of LSMRR that occurs within the project footprint, and on Spirit Island, in accordance with 36 CFR Part 800.5, Assessment of Adverse Effects under Section 106 of the NHPA. Adverse effect criteria include any direct or indirect alteration of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the property's location, design, setting, materials, workmanship, feeling, or association. Criteria also include reasonably foreseeable future effects caused by the undertaking. A summary of the evaluation of effects for the LSMRR and Spirit Island in Table 1. Detail on the evaluation of each trail feature is provided below.

3.1 EFFECT ON THE LSMRR

Due to the construction of the trail immediately adjacent to the LSMRR, evaluation of the trail impacts on the LSMRR are presented for each element of the trail feature.

3.1.1 Pedestrian Trail

The pedestrian trail will follow the path of the LSMRR and maintain an offset of at least 15 feet from the centerline of the railroad. The trail will not directly contact or impact the location of the LSMRR. The trail will be constructed of a semi-pervious gravel and is not expected to diminish the setting or feeling that contributes to the historic nature of the property. Public usage of the new trail feature will likely encourage tourism and awareness of the historic character and importance of the LSMRR. As such, the EPA finds that the pedestrian trail will have no adverse effect on the LSMRR.

3.1.2 Interpretive Signage

The four planned interpretive signs are aimed to inform public users of the pedestrian trail about the history of the Spirit Lake site and the history of the LSMRR. The signs will not physically touch the rail line and will be offset from the pedestrian trail opposite the railroad. The signs are not expected to impact the location of or diminish the setting or feeling that contributes to the historic character of the property. As such, the EPA finds that the interpretive signs will have no adverse effect on the LSMRR.

3.1.3 Unnamed Creek Pedestrian Bridge and Footbridges

The Unnamed Creek pedestrian bridge located at the creek relocation channel will be constructed at the same width as the pedestrian trail (10 feet) and composed of a typical steel span atop colorized concrete. These materials will be compatible with those used to construct the new railroad bridge at this location (this feature has been previously evaluated for impacts on the LSMRR) and will not come into physical contact with the LSMRR or alter the location of the rail. The footbridges along the Wire Mill Pond portion of the pedestrian trail will not be located adjacent to the LSMRR (Figure 4). The Unnamed Creek pedestrian bridge and footbridges at Wire Mill Pond will be in line of sight of the LSMRR but are not expected to diminish any

features that contribute to the historic character of the property, and would not impact the property's historic setting or feeling. As such, the EPA finds that the Unnamed Creek pedestrian bridge and footbridges will have no adverse effect on the LSMRR.

3.1.4 Railroad Crossing at the Spit of Land

This railroad crossing will allow access to the spit of land pedestrian trail. Although the track crossing will physically contact the rail line at this location, construction would not involve any alteration of the rail location, or removal, modification, or replacement of any components of the rail, including those components which may contribute to historical character of the property. Materials added to create this feature will be finished to be compatible with existing conditions of the rail line in that area and will be compatible to the extent practicable with historic materials. It is not expected that this feature will diminish the location, design, setting, materials, workmanship, feeling, or association that contribute to the historic character of the property. As such, the EPA finds that the railroad crossing at the spit of land will have no adverse effect on the LSMRR.

3.1.5 Mechanically Stabilized Embankment (MSE)

The MSE will be constructed slightly higher than the railroad but will be contained by geotextile fabric to avoid physical contact of any material with the rail line. While the final design for this feature is still in progress, installation will not directly contact the LSMRR and the dimensions of the feature are not expected to intrude on the historic feeling or setting of the property. As such the EPA finds that the MSE will have no adverse effect on the LSMRR.

3.2 EFFECT ON SPIRIT ISLAND

The cultural and spiritual feeling of Spirit Island, as well as the viewshed from the island is of the utmost importance to the Ojibwe tribes and is vital to the setting and cultural meaning of the area. To evaluate the trail's impacts on the cultural/spiritual setting and viewshed from Spirit Island, EPA has considered the trail itself and the above described associated features as a single element and therefore has evaluated these together for impacts on Spirit Island. We believe this method of evaluation is appropriate given that the trail itself and the associated features are likely to produce the same impacts on the property (e.g. impacts from the trail itself and impacts from the interpretive signage would not be distinguishable from one another). Therefore, when considering the impacts on Spirit Island "pedestrian trail" refers to the trail combined with all associated features described in Section 1.

Construction of the pedestrian trail will likely result in increased pedestrian traffic in the project area. While this will be noticeable to tribal members using Spirit Island, it is not anticipated to adversely affect the continued cultural and spiritual usage or setting/character of the island. Additionally, this increased public usage of the project site may introduce visual and audible elements noticeable from Spirit Island. However, it is unlikely that the frequency, duration, and magnitude of the increased usage would be significant enough to produce an adverse effect on the spiritual feeling and cultural association of Spirit Island.

4. SUMMARY AND DETERMINATION

4.1 LSMRR

The pedestrian trail and associated features as described above will be constructed largely adjacent to and not directly contacting the LSMRR, apart from the railroad crossing at the spit of land. The trail and features are all adjacent to the LSMRR and will be within view of rail users and other users of the project area post-remediation of the site and completion of the rest of the project design. EPA does not anticipate that the trail or any planned features will adversely affect the location, setting, feeling or association that contribute to the overall historical nature of the LSMRR. Several features including the trail itself and interpretive signs are compatible with the City of Duluth's long-term plan for pedestrian and bicycle trails within the Spirit Lake project area, and aim to engage and inform public users of the trail of the historical importance of the project area for which the LSMRR provides a significant contribution.

Based on the evaluation provided in this report, the EPA determines that the pedestrian trail and associated features proposed as part of the Spirit Lake Sediment Remediation Project will have no adverse effect on the LSMRR segment within the project footprint.

4.2 SPIRIT ISLAND

Based on the information available to the EPA, we understand that Spirit Island was and is still spiritually and religiously significant to spiritual healers and practitioners. Ceremonial practices held on the island represent a religious tradition that incorporates ancient teachings into a modern context. These current practices are based in healing and restoration of balance and aim to restore cultural traditions by extension of harmony with the natural landscape; therefore, the spiritual feeling of the land as well as the viewshed from the island is incredibly significant to the Ojibwe tribes. Through the evaluation presented in this report, the EPA has reached a preliminary determination that the pedestrian trail will have no adverse effect on Spirit Island. EPA may reevaluate this determination as necessary, based upon continued consultation with the federally recognized tribes for whom Spirit Island retains important cultural and spiritual significance.

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Figures and Tables

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Legend

- Pedestrian Trail
- Railroad
- Project Boundary

0 500 1,000
Feet

N

Map Date: 11/1/2019
Base Map: Google Earth 2017

Figure 1
Pedestrian Trail Overview Map
Spirit Lake Sediment Remediation Project
Duluth, Minnesota

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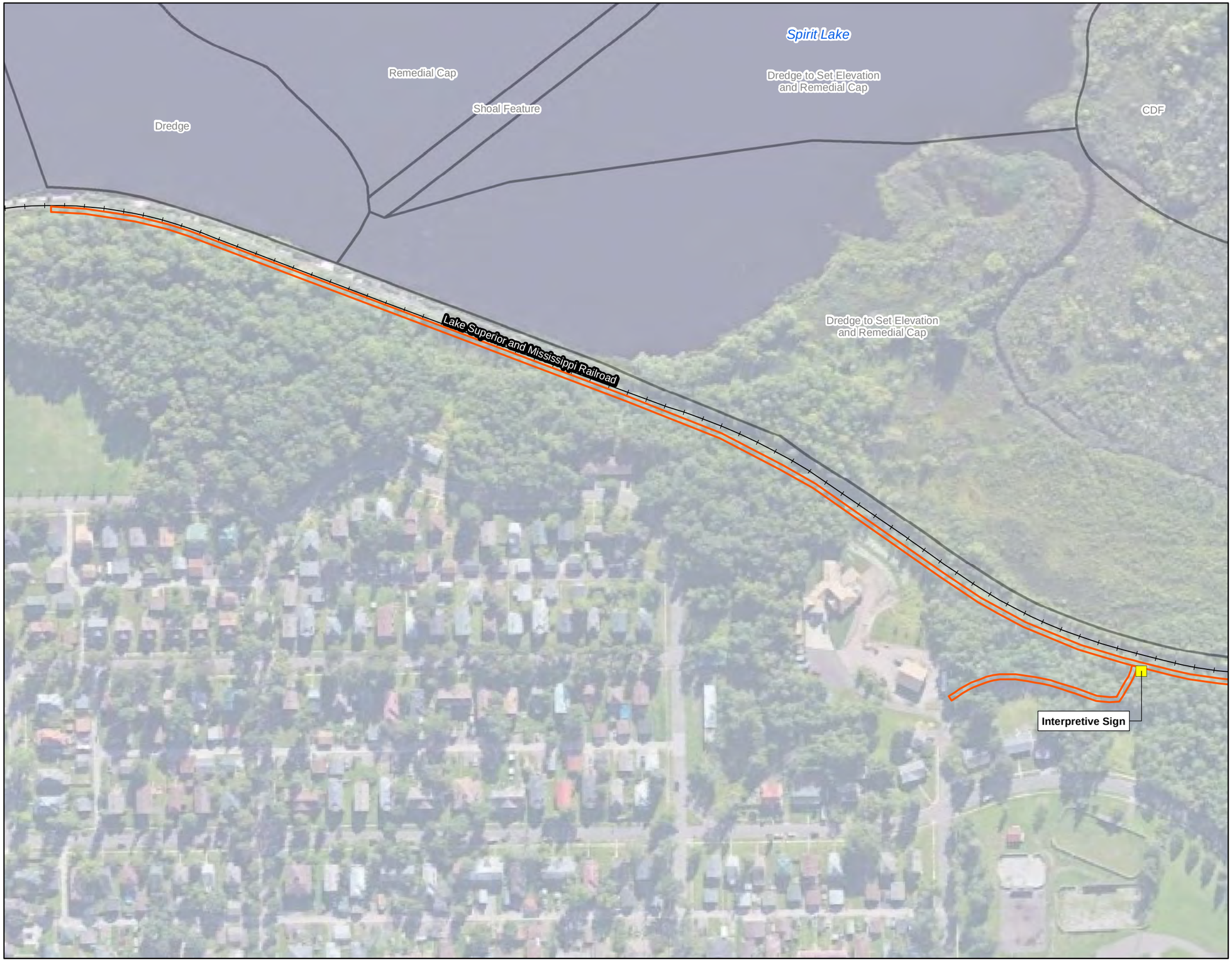
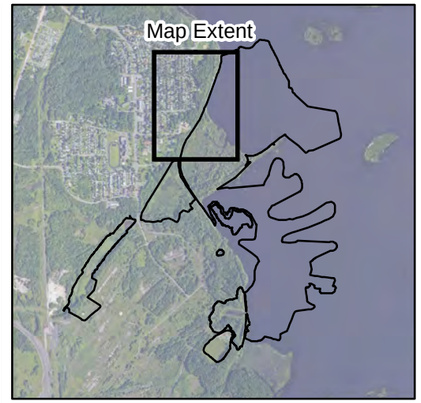




Legend

- Intepretive Sign
- Pedestrian Trail
- Railroad
- Project Boundary

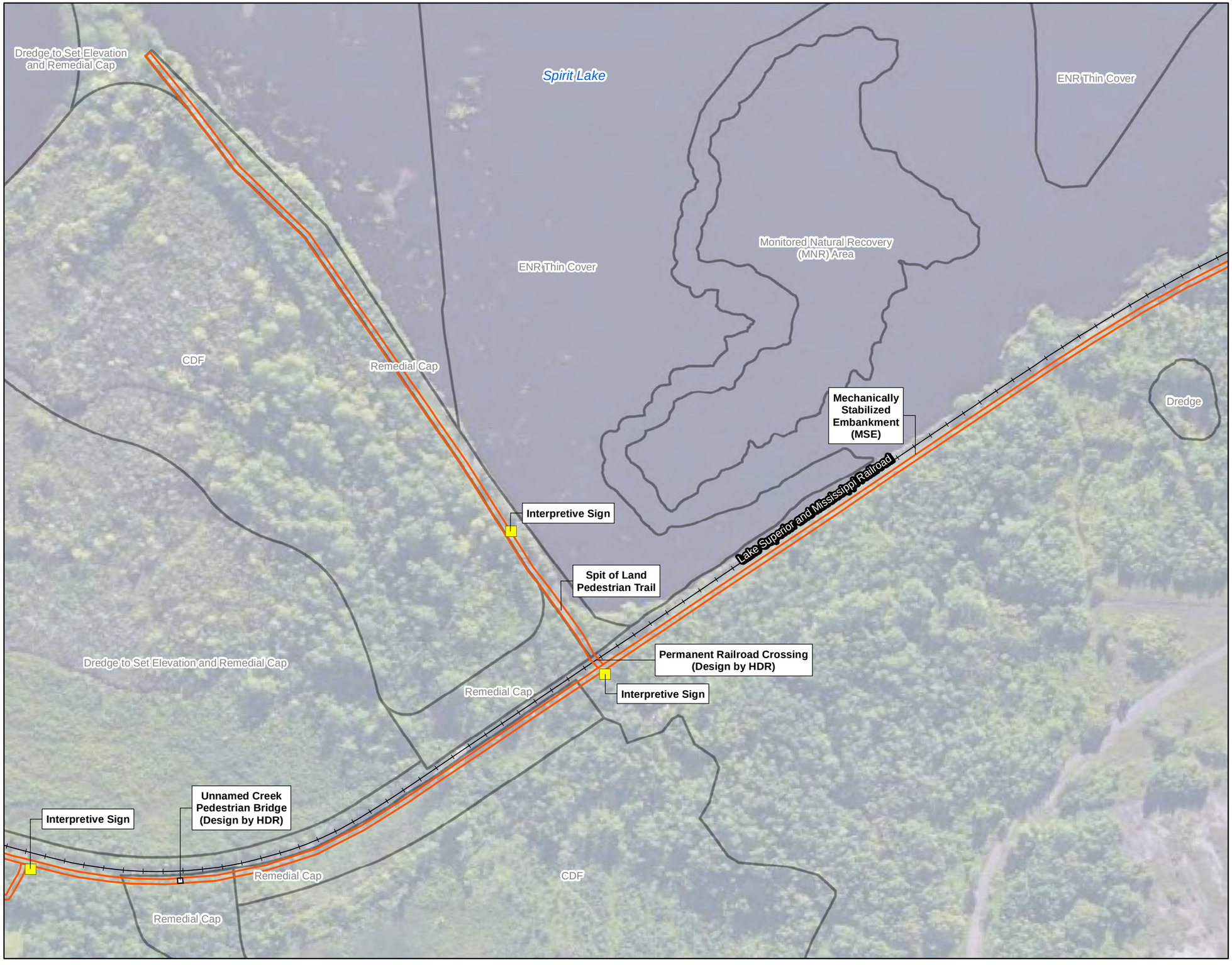
0 100 200
Feet

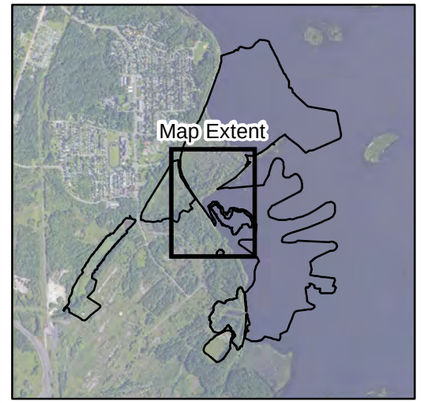
N

Map Date: 11/4/2019
Base Map: Google Earth 2017

Figure **2**
Pedestrian Trail Features - North
Spirit Lake Sediment Remediation Project
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\RailroadReport\Figure 1 Pedestrian Trail Features - North.mxd





Legend

- Intepretive Sign
- Pedestrian Trail
- Railroad
- Project Boundary
- Pedestrian Trail Footbridge

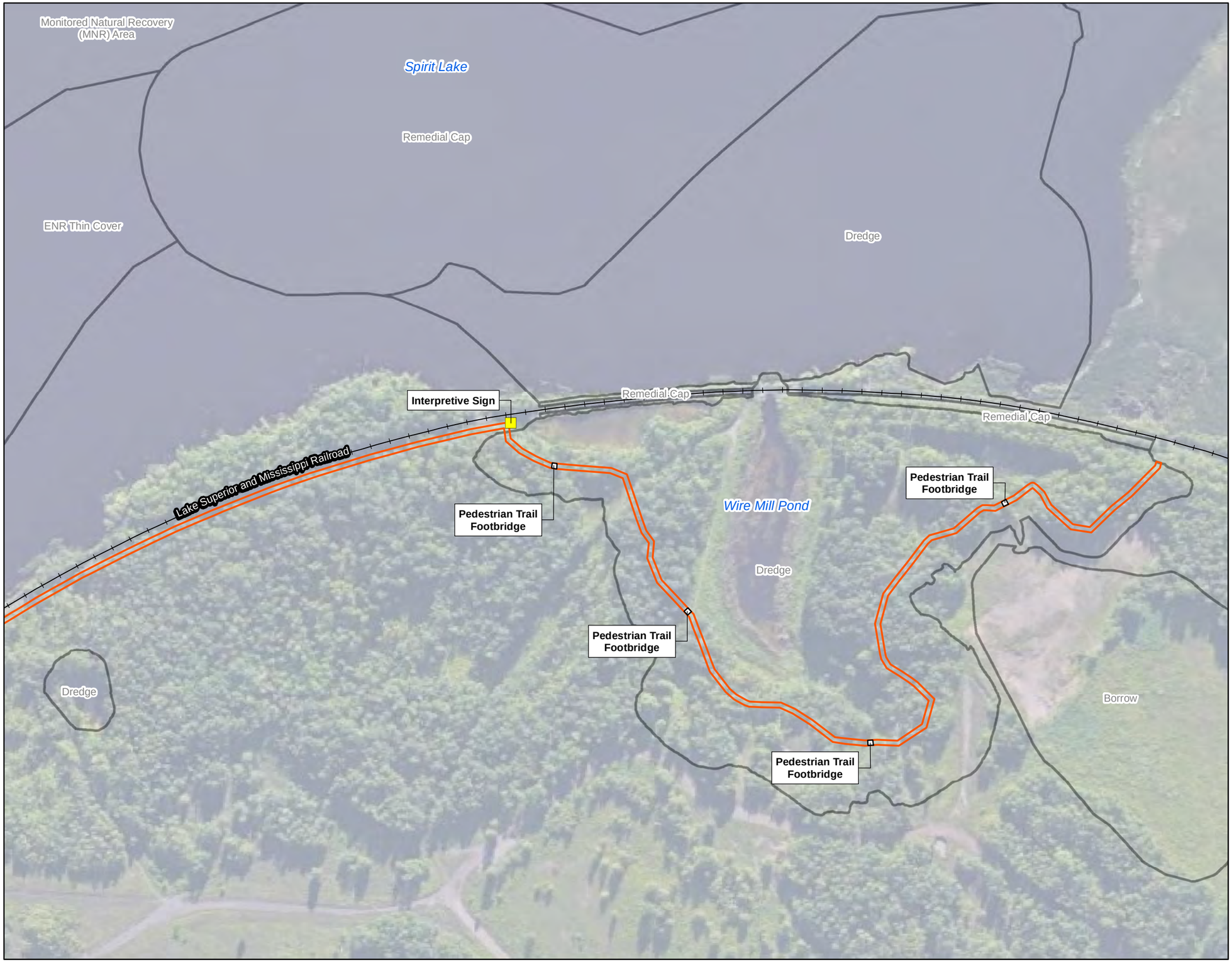
0 100 200
Feet

N

Map Date: 11/4/2019
Base Map: Google Earth 2017

Figure 3
Pedestrian Trail Features - Central
Spirit Lake Sediment Remediation Project
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\RailroadReport\Figure 2 Pedestrian Trail Features - Central.mxd



Legend

- Intepretive Sign
- Pedestrian Trail
- Railroad
- Project Boundary
- Pedestrian Trail Footbridge

0 100 200
Feet

N

Map Date: 11/4/2019
Base Map: Google Earth 2017

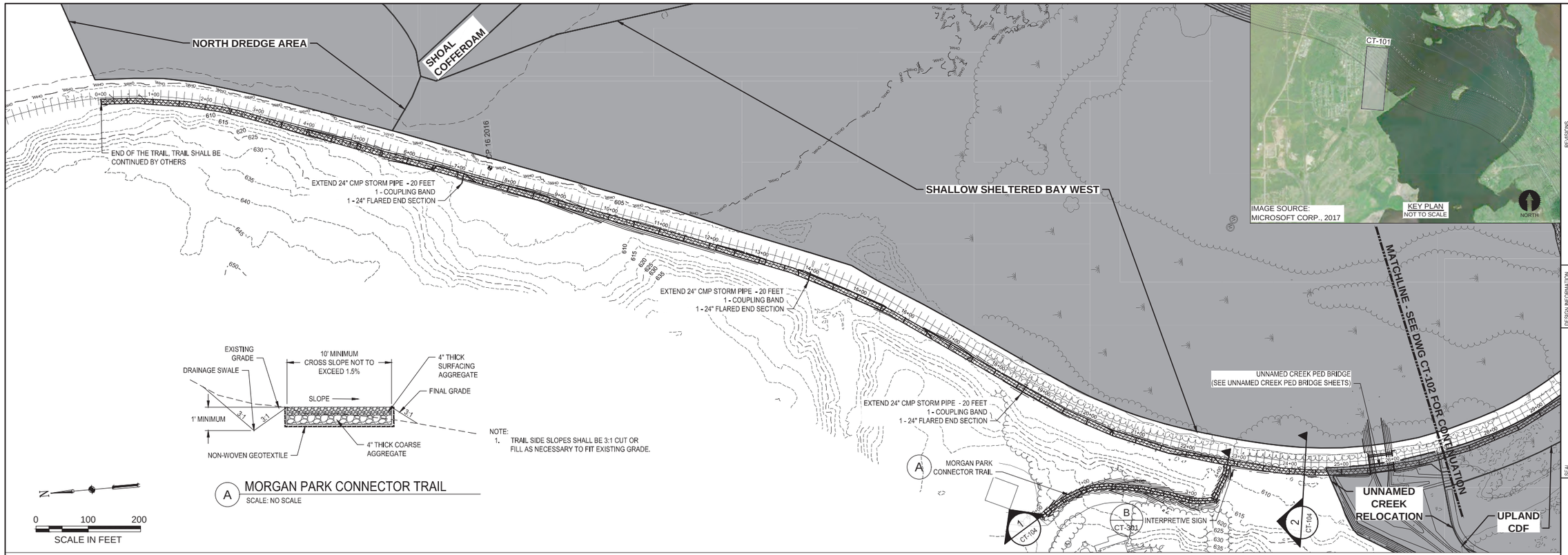
Figure **4**
Pedestrian Trail Features - South
Spirit Lake Sediment Remediation Project
Duluth, Minnesota

Document Path: \\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\RailroadReport\Figure 3 Pedestrian Trail Features - South.mxd

TABLE 1. SPIRIT LAKE SEDIMENT REMEDIATION PROJECT PEDESTRIAN TRAIL SUMMARY OF EFFECT ON THE LAKE SUPERIOR AND MISSISSIPPI RAILROAD AND SPIRIT ISLAND					
Trail /Feature	**Impact Area(s)**	**Determination of Adverse Effect**	**Adverse Effect Criteria**		
			Location	**Materials, workmanship**	**Setting, feeling, association**
Lake Superior and Mississippi Railroad					
Pedestrian trail	Adjacent to LSMRR for the 6-mile rail segment within the project footprint	No adverse effect	The trail will not remove or otherwise alter the location of the historic property.	The trail will not destroy, alter, remove, or otherwise impact the materials or workmanship of the historic property that contribute to historic character.	The trail will not change the setting or feeling of the property or introduce visual elements that diminish the integrity of the property's historic features.
Interpretive Signage	Four locations along the pedestrian trail	No adverse effect	The signs will not remove or otherwise alter the location of the historic property. The signs will not directly contact the LSMRR.	There will be no direct contact between the signs and the rail line. Therefore, the signs will not destroy, alter, remove, or otherwise impact the materials or workmanship of the historic property that contribute to historic character.	The signs will provide informative material regarding the cultural and historical significance of the project site. The signs will not change the setting or feeling of the property or introduce visual elements that diminish the integrity of the property's historic features.
Unnamed Creek Pedestrian Bridge and Footbridges	Unnamed Creek relocation channel and along Wire Mill Pond portion of the pedestrian trail	No adverse effect	The pedestrian bridge at the Unnamed Creek relocation channel will not alter the location of the historic property. The footbridges around the Wire Mill Pond portion of the pedestrian bridge are not adjacent to the LSMRR and will therefore not affect the location of the property.	The bridges will not destroy alter, remove, or otherwise impact the materials or workmanship of the historic property that contribute to historic character.	The bridges will not change the setting or feeling of the property or introduce visual elements that diminish the integrity of the property's historic features. The bridges will help to improve access and usage of the area by the public, contributing to appreciation of the historical setting/feeling of the property.
Railroad Crossing at the Spit of Land	LSMRR rail line at the spit of land	No adverse effect	The railroad crossing will not remove or otherwise alter the location of the historic property. Construction would not involve removal, modification, or replacement of any components of the rail, including those components	Materials added to create this crossing will be finished to be compatible with existing conditions of the rail line in that area and will be compatible to the extent practicable with historic materials. The crossing will	The crossing will not change the setting or feeling of the property or introduce visual elements that diminish the integrity of the property's historic features.

TABLE 1. SPIRIT LAKE SEDIMENT REMEDIATION PROJECT PEDESTRIAN TRAIL SUMMARY OF EFFECT ON THE LAKE SUPERIOR AND MISSISSIPPI RAILROAD AND SPIRIT ISLAND					
Trail /Feature	**Impact Area(s)**	**Determination of Adverse Effect**	**Adverse Effect Criteria**		
			Location	**Materials, workmanship**	**Setting, feeling, association**
			which may contribute to historical character of the property.	not destroy, alter, remove, or otherwise impact the materials or workmanship of the historic property that contribute to historic character.	
Mechanically Stabilized Embankment (MSE)	Along proposed pedestrian trail, 600 feet south of the spit of land	No adverse effect	The MSE will not directly contact the LSMRR. The MSE will not remove or otherwise alter the location of the historic property.	Installation of this feature will provide protection to the railroad without directly contacting the rail line. The MSE will not destroy, alter, remove, or otherwise impact the materials or workmanship of the historic property that contribute to historic character.	The dimensions of the feature are not expected to intrude on the historic feeling or setting of the property, or introduce visual elements that diminish the integrity of the property's historic features.
Spirit Island					
Pedestrian trail (including associated elements)	Trail will be within view of Spirit Island; trail constructed adjacent to LSMRR for the 6-mile rail segment within the project footprint	No adverse effect	The trail will not remove or otherwise alter the location of Spirit Island.	Not applicable- Spirit Island is not a built structure.	Cultural Setting: construction of the pedestrian trail will likely result in increased pedestrian traffic in the project area. While this will be noticeable to individuals using Spirit Island, it is not anticipated to adversely affect the continued cultural and spiritual usage or setting/character of the island. The pedestrian trail will provide improved access to the waterfront of Spirit Lake, which is an element desired by the Fond du Lac and other tribes. Cultural/Spiritual Feeling and Association: increased public usage of the project site may introduce visual and audible

TABLE 1. SPIRIT LAKE SEDIMENT REMEDIATION PROJECT PEDESTRIAN TRAIL SUMMARY OF EFFECT ON THE LAKE SUPERIOR AND MISSISSIPPI RAILROAD AND SPIRIT ISLAND					
Trail /Feature	**Impact Area(s)**	**Determination of Adverse Effect**	**Adverse Effect Criteria**		
			Location	**Materials, workmanship**	**Setting, feeling, association**
					elements noticeable from Spirit Island. However, it is unlikely that the frequency, duration, and/or magnitude of the increased usage would be significant enough to produce an adverse effect on the spiritual feeling and association of Spirit Island.

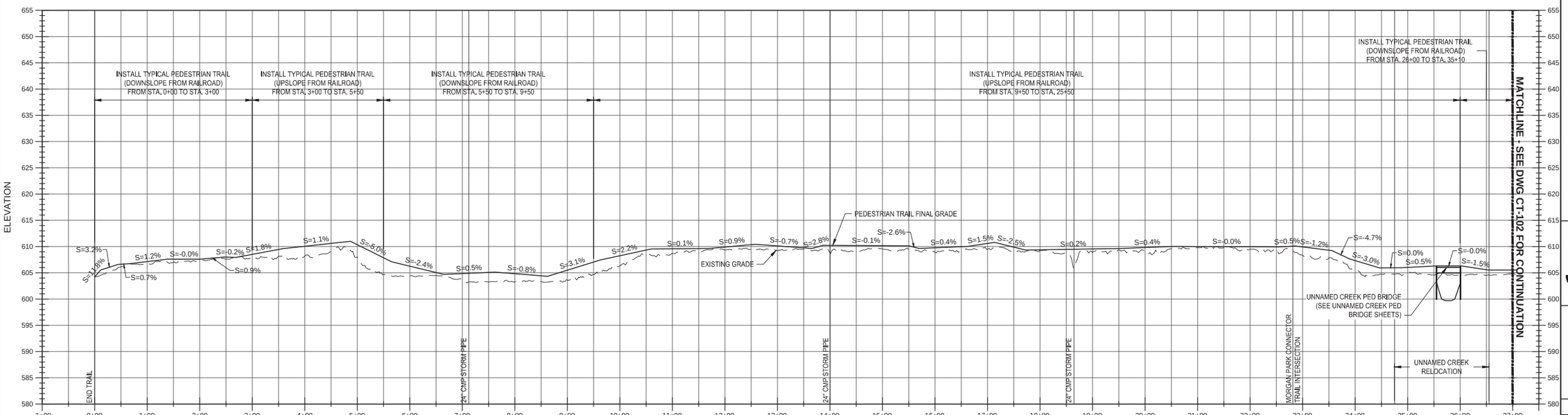


PEDESTRIAN TRAIL PLAN VIEW

SCALE: 1" = 100'

NOTES:

1. ALL TRAILS SHALL MEET ARCHITECTURAL BARRIERS ACT (U.S. ACCESS BOARD, www.access-board.gov) MAXIMUM RUNNING SLOPE LENGTH REQUIREMENTS FOR ACCESSIBLE TRAILS.
2. FOR CULVERT EXTENSION AND APRON DETAILS SEE SHEET CT-301.
3. FOR TYPICAL PEDESTRIAN TRAIL (DOWNSLOPE FROM RAILROAD) AND TYPICAL PEDESTRIAN TRAIL (UPSLOPE FROM RAILROAD) DETAILS SEE SHEET CT-301.



PEDESTRIAN TRAIL PROFILE

HORIZ. SCALE: 1" = 100'
VERT. SCALE: 1" = 10'

NO.	DATE	BY	REVISIONS DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: LLR
DRAWN BY: JRM
CHECKED BY: JMT
PROJECT MANAGER: JB

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF BIDDING. IT IS NOT TO BE USED FOR CONSTRUCTION.

SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Signature:
Typed Name: James Beaver
Date: 1/16/2020
License Number: 48712

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

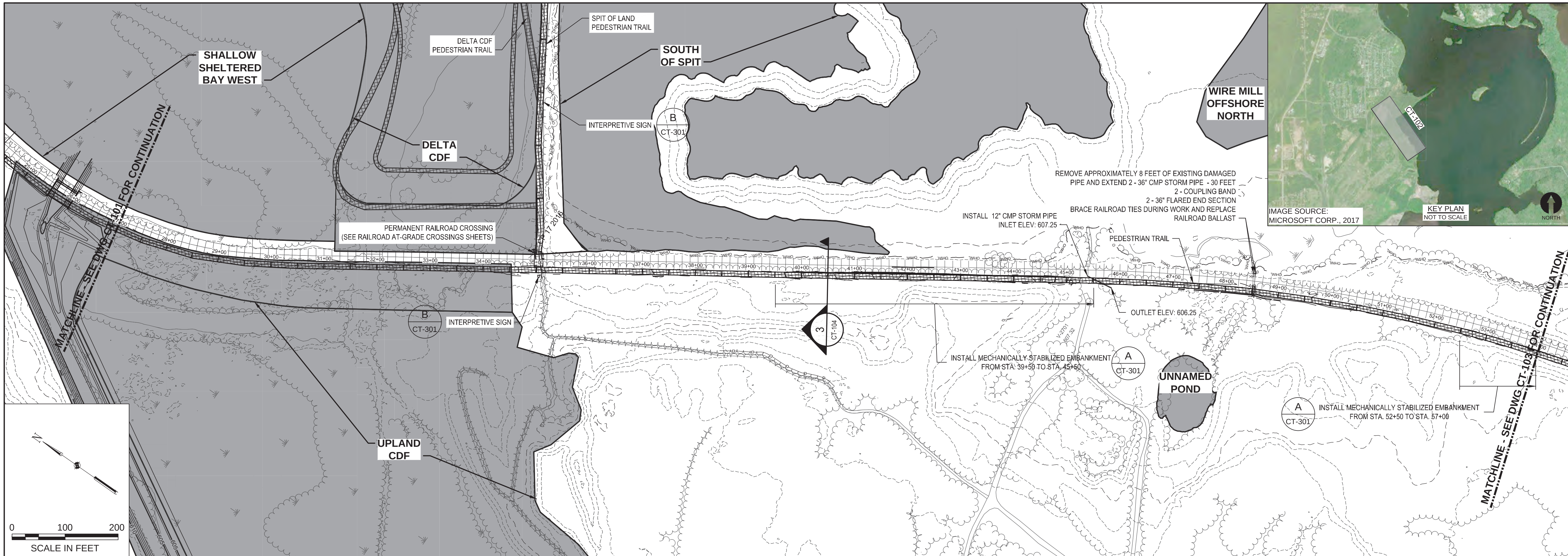
PEDESTRIAN TRAIL PLAN AND PROFILE (1 OF 4)

PREPARED FOR: EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
(847) 945-8010

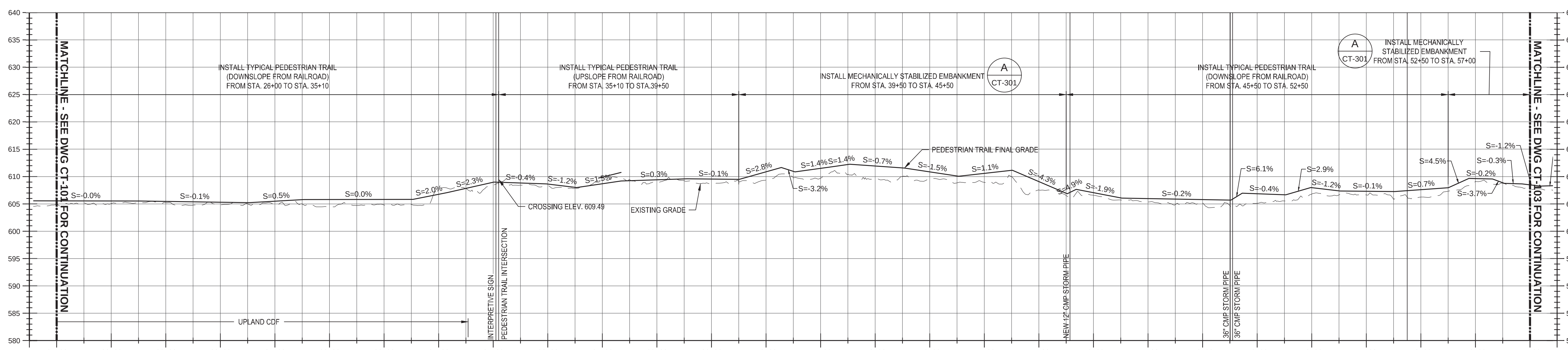
DATE: JANUARY 2020
PROJECT NUMBER: 1518924
CT-101
SHEET: 72 OF 113

FINAL DESIGN - NOT FOR CONSTRUCTION



PEDESTRIAN TRAIL PLAN VIEW
SCALE: 1" = 100'

NOTE:
1. ALL TRAILS SHALL MEET ARCHITECTURAL BARRIERS ACT (U.S. ACCESS BOARD, www.access-board.gov) MAXIMUM RUNNING SLOPE LENGTH REQUIREMENTS FOR ACCESSIBLE TRAILS.
2. FOR CULVERT EXTENSION AND APRON DETAILS SEE SHEET CT-301.
3. FOR PEDESTRIAN TRAIL DETAILS SEE SHEET CT-301.



PEDESTRIAN TRAIL PROFILE
HORIZ. SCALE: 1" = 100'
VERT. SCALE: 1" = 10'

REVISIONS: NO. | DATE | BY | DESCRIPTION

DESIGN INFORMATION: DESIGNED BY: LLR; DRAWN BY: JRM; CHECKED BY: JMT; PROJECT MANAGER: JB

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SEAL

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Signature:
Typed Name: James Beaver
Date: 1/16/2020
License Number: 48712

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

PEDESTRIAN TRAIL PLAN AND PROFILE (2 OF 4)

PREPARED FOR:
EPA

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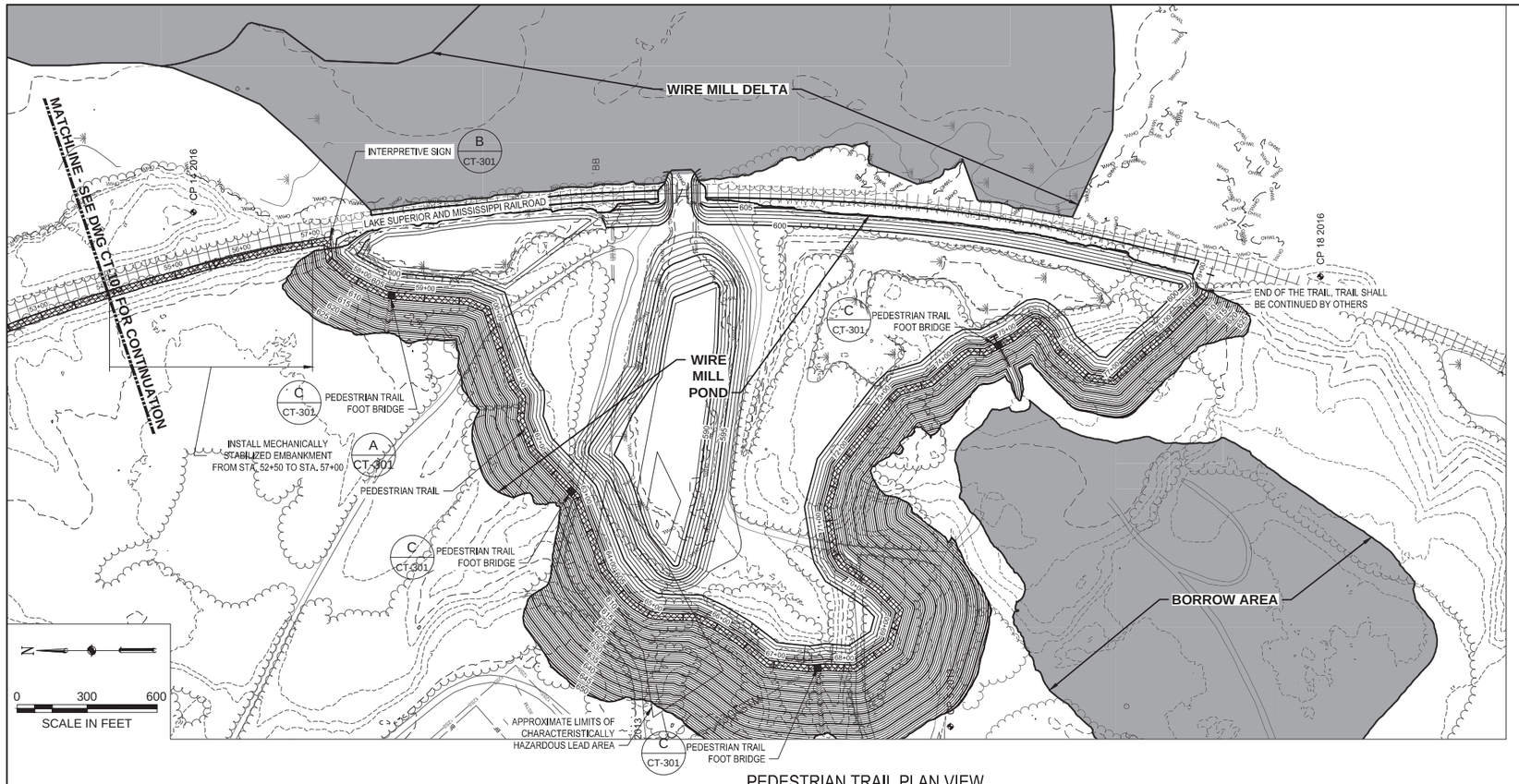
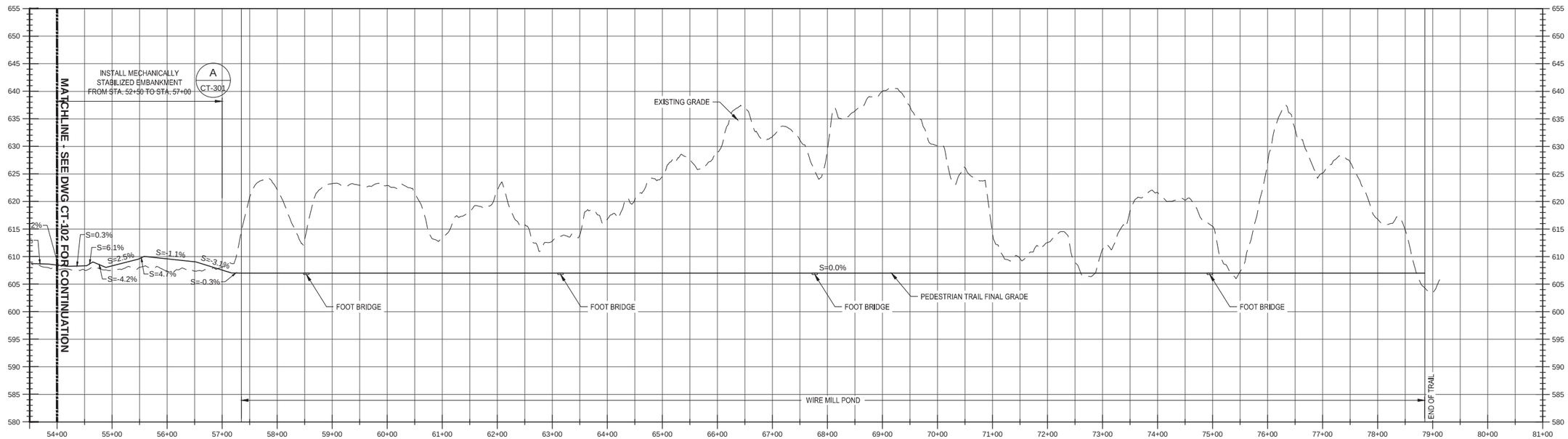
DATE: JANUARY 2020
PROJECT NUMBER: 1518924
CT-102
SHEET: 73 OF 113

FINAL DESIGN - NOT FOR CONSTRUCTION



PEDESTRIAN TRAIL PLAN VIEW
SCALE: 1" = 100'

NOTE:
1. ALL TRAILS SHALL MEET ARCHITECTURAL BARRIERS ACT (U.S. ACCESS BOARD, www.access-board.gov) MAXIMUM RUNNING SLOPE LENGTH REQUIREMENTS FOR ACCESSIBLE TRAILS.
2. FOR FOOT BRIDGE DETAILS SEE SHEET CT-301.
3. FOR PEDESTRIAN TRAIL DETAILS SEE SHEET CT-301.



PEDESTRIAN TRAIL PROFILE
HORIZ. SCALE: 1" = 100'
VERT. SCALE: 1" = 10'

NO.	DATE	BY	REVISIONS DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: LLR
DRAWN BY: JRM
CHECKED BY: JMT
PROJECT MANAGER: JB

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SEAL

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Signature:
Typed Name: James Beaver
Date: 1/16/2020
License Number: 48712

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

PEDESTRIAN TRAIL PLAN AND PROFILE (3 OF 4)

PREPARED FOR:
EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
(847) 945-8010

DATE: JANUARY 2020
PROJECT NUMBER: 1518924
CT-103
SHEET: 74 OF 113

FINAL DESIGN - NOT FOR CONSTRUCTION

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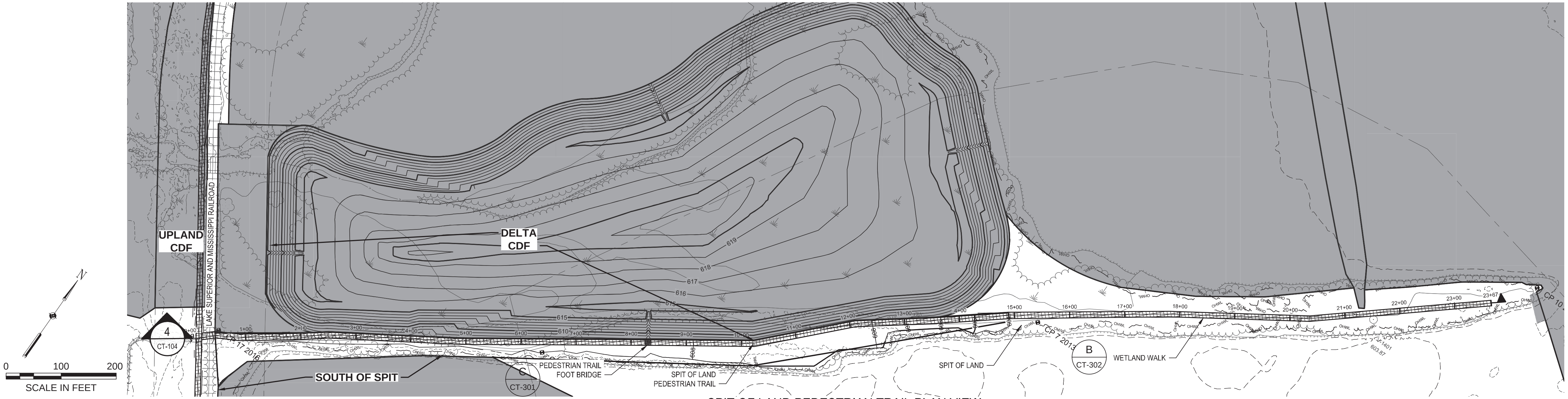
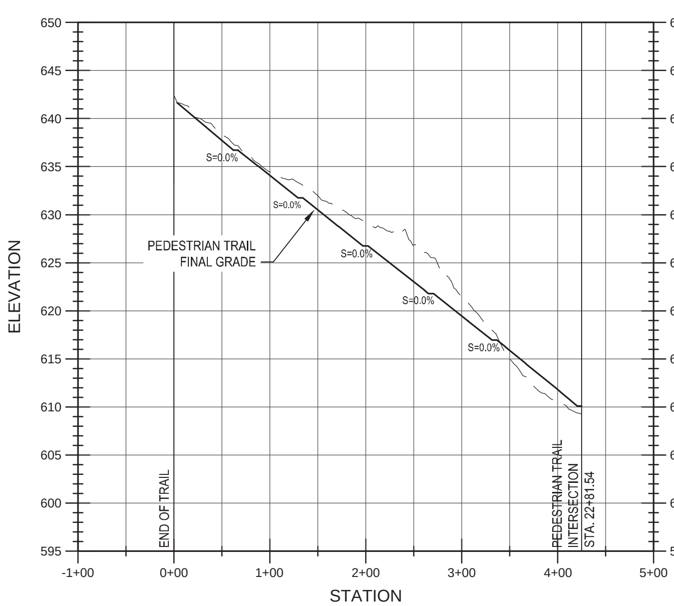


SPIT OF LAND PEDESTRIAN TRAIL PLAN VIEW

NOTE:

1. THE SPIT OF LAND PEDESTRIAN TRAIL SHALL ALSO PROVIDE PERMANENT ACCESS TO THE DELTA CDF.
2. FOR PEDESTRIAN TRAIL DETAILS SEE SHEET CT-301.
3. ALL TRAILS SHALL MEET ARCHITECTURAL BARRIERS ACT (U.S. ACCESS BOARD, www.access-board.gov) MAXIMUM RUNNING SLOPE LENGTH REQUIREMENTS FOR ACCESSIBLE TRAILS.
4. FOR FOOT BRIDGE AND RIPRAP SPILLWAY DETAILS SEE SHEET CT-301.



1 PROFILE (CT-101)
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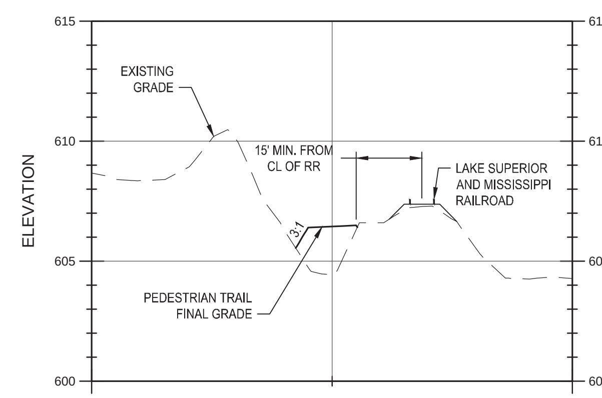
VERT. SCALE: 1" = 10'



2 SECTION (CT-101)
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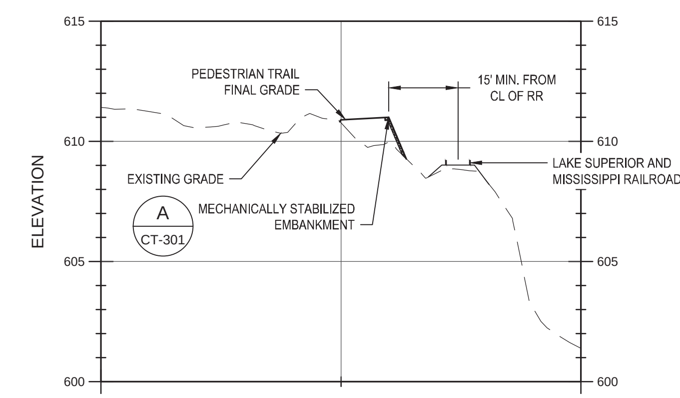
VERT. SCALE: 1" = 4'



3 SECTION (CT-102)
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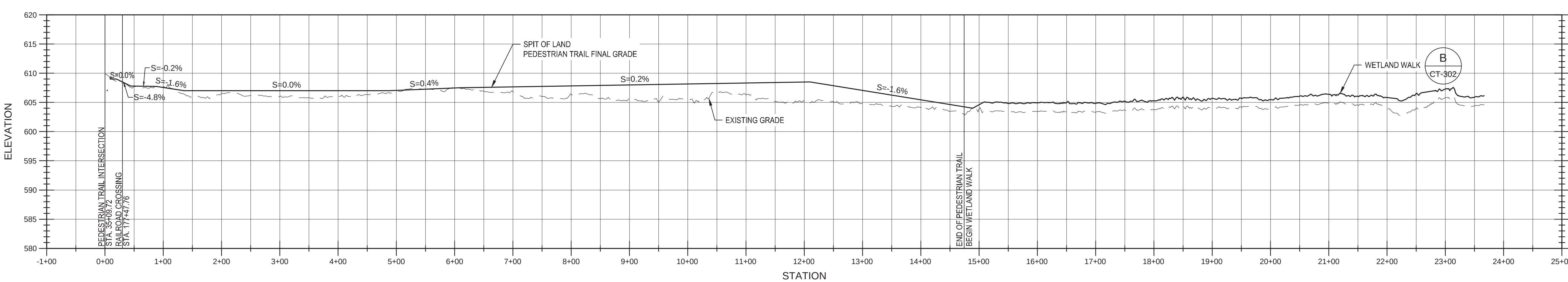
VERT. SCALE: 1" = 4'



4 SPIT OF LAND PEDESTRIAN TRAIL PROFILE (CT-104)
HORIZ. SCALE: 1" = 100'
VERT. SCALE: 1" = 10'

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: LLR
DRAWN BY: JRM
CHECKED BY: JMT
PROJECT MANAGER: JB

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF BIDDING. IT IS NOT TO BE USED FOR CONSTRUCTION.

SEAL
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Signature:
Typed Name: James Beaver
Date: 1/16/2020
License Number: 48712

REMEDIAL DESIGN
SPIRIT LAKE ESTUARY SITE
ST. LOUIS RIVER AREA OF CONCERN
DULUTH, MINNESOTA

PEDESTRIAN TRAIL PLAN AND PROFILE (4 OF 4)

PREPARED FOR:
EPA

EA Engineering, Science, and Technology, Inc., PBC
444 LAKE COOK ROAD, SUITE 18
DEERFIELD, IL 60015
(847) 945-8010

DATE: JANUARY 2020
PROJECT NUMBER: 1518924

CT-104
SHEET: 75 OF 113

FINAL DESIGN - NOT FOR CONSTRUCTION

Lake Superior & Mississippi Railroad

City of Duluth

Heritage Preservation Commission

Local Landmark Designation Presentation

Local Landmark Nomination Application

- **Property Information**
- **Findings on Designation Criteria**
- **Conclusions**
- **Bibliography**

Legal Description - Appendix A

Artifacts & Landmarks – Appendix B

Maps & Photos – Appendix C

November

2017

City of Duluth
Heritage Preservation Commission
Local Landmark Nomination Application

I. Name of Property
- A. Historic: **Lake Superior & Mississippi Railroad Company**
  Name of first railroad into Duluth in 1870
- B. Common: **Lake Superior & Mississippi Railroad Company**
  Current name of tourist railroad in same location originating in 1979

II. Location
- A. Mailing address: LS&M, P.O. Box 16211, Duluth, MN 55816
- B. Legal Description: See Appendix A (separate document)
  - A-1 Donation Deed – September 23, 1977
  - A-2 Donation Bill of Sale – November 15, 1982
  - A-3 Easement, Parcels Descriptions 1-11, November 15, 1982

III. Classification
- A. Type of Property: Linear railroad grade
- B. Current use: Historical Excursion train
- C. Current zoning:

IV. Current Owner
- A. Name: City of Duluth
- B. Address: 411 W First Street, Duluth, MN 55802
- C. Nomination brought forth through Duluth Heritage Preservation Commission

V. Property Status
- A. Occupied: LS&M tourist train operational weekends June – October
- B. Assessed Value:
- C. Condition: Track is Federal Railroad Administration approved as an operational Class I Railroad Track

VI. Historical Background
- A. Year Built: Original line from St Paul into Duluth completed August 1, 1870
- B. Builder: The LS&M was financed by Jay Cooke and its president was William Banning, both well-known names in this area.
- C. Original Site: Yes
- D. Unaltered: Original alignment is unaltered. Rail, ties, switches and other materials have been replaced as required.
- E. Architectural Style: Standard gauge rail

THE LAKE SUPERIOR AND MISSISSIPPI RAILROAD HISTORY

The following describes the construction and operation of the Lake Superior Railroad. A full historic context for railroads in Minnesota, and from which this evaluation is tiered, can be found in the Railroads in Minnesota, 1862–1956 National Register of Historic Places Multiple Property Documentation Form on file at the Minnesota State Historical Society (Minnesota State Historical Society 2002). The context is not repeated in this report.

Until the late 1800s, the 10,000 lakes and countless numbers of rivers and streams in Minnesota created a vast network of waterways to provide transportation throughout the state. The waterways fell into three drainage areas—the Red River to the north, the Mississippi River, and Lake Superior. Each of these drainages represents a distinct and totally separate water system with no connecting links between them (Luecke 2005). The river route from the Head of Lakes (Lake Superior) south toward the Mississippi River system was difficult, and sometimes impossible to traverse. The arrival of the railroad would end the region's reliance on waterborne transportation and establish the Head of the Lakes as a transportation gateway to all points in Minnesota (Luecke 2005).

Minnesota's earliest railroads were incorporated in 1857. Of the possible routes for the first railroads in the region, the concept of linking the territory's three major watersheds received considerable interest. The link between the Head of the Lakes and the head of navigation of the Mississippi River at St. Paul received considerable backing, but only as a part of a much grander scheme: a rail line from the Head of Lakes via St. Paul to the Missouri River at Omaha. On 23 May 1857, the Nebraska and Lake Superior Railroad Company was incorporated as one of the first original 31 territorial railroads (Luecke 2005, Prosser 1966). Of the 31 railroads chartered in this period, the four land grant roads managed to grade about 180 miles of potential railroad (Luecke 2005).

The Minnesota territorial legislature gave the Nebraska and Lake Superior Railroad Company a grant of swamp lands; however, the Panic of 1857 resulted in no work being completed on Minnesota's railroad system beyond the initial 180 miles of grading. By 1860, the Nebraska and Lake Superior Railroad silently slipped into receivership and the hopes of early completion of the "Portage Railroad" disappeared (Luecke 2005). By 1861, the exportation of small grains, particularly wheat, was becoming increasingly important to the economy of the state, and the need of central Minnesota for a trade outlet to the East created pressures which led to a legislative act reviving the company under a new name. On 8 March 1861, the Nebraska and Lake Superior was re-organized and emerged as the Lake Superior and Mississippi Railroad Company (LS&M) inhering the swamp land grant (Harnsberger 1960, Luecke 2005, Prosser 1966).

Events once again interfered with the company's second bid to complete the "Portage Road." One month after the LS&M was formed, the Civil War began. No progress would be made by the LS&M. In 1863, the legislature extended the time limits governing the construction of the road with the hope that time would allow the LS&M to recover from the effects of the war.

(Luecke 2005).
Minnesota had three railroads in operation in 1864. In the spring of that year, the LS&M became Minnesota's fourth railroad by breaking ground in St. Paul in early July and letting contracts for the grading of the first 21 miles of the line (Luecke 2005).

To keep the road construction moving, the Board of Directors voted to assess each stockholder the sum of $2 per share in June 1865; however, funds quickly ran out and construction was again halted. The LS&M slipped into another period of dormancy. The state of Minnesota tried to push the project in 1865, by authorizing a land grant of seven sections on either side of each completed mile in support of the "Portage Road." Even this land grant of more than 694,000 acres along the proposed route to Duluth, combined with the end of the Civil War, were not enough to result in immediate resumption of construction1. The project wallowed through 1866 and 1867 without appreciable progress. The deadline for completion was extended a third time. In an attempt to raise additional working capital, the road's Board of Directors attempted another emergency assessment. This proved to be the undoing of the project when many stockholders gave up their shares rather than invest more money (Luecke 2005).

The LS&M president, William L. Banning, scrambled for outside backers to support the construction of the road. Mr. Banning went to Jay Cooke and Company of Philadelphia. Mr. Cooke was one of the leading financiers in the United States at the time (Luecke 2005). In late 1867, Mr. Cooke backed the LS&M. The LS&M railroad would become strategically important to Cooke and the Northern Pacific (Lubetkin 2006).

On 5 May 1868, the first rail was spiked into place on the LS&M, and on 20 June 1868, the LS&M became Minnesota's sixth operating railroad with the arrival of its first locomotive at the St. Paul levee (Luecke 2005). Rail construction progressed northward to about 4 miles south of White Bear Lake during Summer 1868. On 27 July 1868, the railroad was "inspected" by a party of Eastern railroad gentlemen. This excursion was the first movement of passenger cars over the LS&M (Luecke 2005). The completion of the line to White Bear Lake was celebrated on 10 September 1868, with regular passenger service to White Bear Lake beginning on 16 September 1868 on a 6-day-per-week schedule. The train departed St. Paul at 6:45 a.m. and 6:45 p.m. from White Bear Lake. On 9 December, 1868, the LS&M opened regular passenger service to the railhead at the town of Wyoming. Track-laying continued north out of Wyoming on 26 May 1869 (Figure 2). Regular service was extended to Rush City on 26 June 1869. On 20 October, trains began running to within 1 mile of Pine City. It took more than a week for the railhead to reach Pine City due to a sinkhole which developed south of the city (Luecke 2005).

While the construction in St. Paul began in 1864, building from Duluth southward did not begin for another 5 years. In June 1869, grading operations began along the shores of Lake Superior at Rice's Point near Duluth. The geography of the shoreline was less than ideal for construction of the railroad due to high bluffs. A series of ridges and valleys ran down the slope to the very edge of the water. The route was interspersed with marshy, swampy back waters which would have to be crossed on piles. Much of these back waters were later filled, but in 1869, crossing them meant driving innumerable timber piles to support the railroad (Luecke 2005). The Duluth Bay did offer one advantage: Rice's Point. The low, relatively flat peninsula projected deep into the St. Louis River near its mouth, forming a natural meeting point for the railroads and ships. Since

Duluth was also to be its eastern terminal for the Lake Superior to Puget Sound railroad, the importance of the port increased accordingly. It was expected that the new city would not only compete with Chicago for the trade of central and southern Minnesota, but that it would become in time the single great outlet to the east for the Red River Valley and the plains of North Dakota (Harnsberger 1960). The LS&M realized the advantages of the point and based its Duluth operation on the point (Luecke 2005).

On 1 January 1870, the first 77 miles of the LS&M railroad were completed and a passenger and freight train ran from St. Paul to the newly platted town of Hinckley, which is located approximately halfway between Duluth and St. Paul. The train left St. Paul at 7:15 a.m. and arrived at Hinckley at 12:05 p.m., with stops at White Bear, Centreville, Forrest Lake, Wyoming, North Branch, Rush City, and Pine City. The train returned to St. Paul the same day at 6:00 p.m. (Luecke 2005).

As early as 1853, Minnesota legislators created a railroad charter for a line to run from Lake Superior to Puget Sound in Washington State. In 1864 President Lincoln approved an Act of Congress that essentially created the Northern Pacific Railroad (Dierckins and Norton 2012). On 1 January 1870, Jay Cooke and Company agreed to become the financial agent of the Northern Pacific Railroad.

In 1870, the Northern Pacific had made arrangements to use the LS&M mainline from a point near Thomson into Duluth. This rail link would provide the Northern Pacific with a supply line to Duluth and St. Paul for its own construction. The deal resulted in the decision to push construction of the LS&M throughout the winter (Luecke 2005).

As spring came, the LS&M was nearing completion. By 10 March, rails ran to within 10 miles north of Hinckley, or 87 miles north of St. Paul. Seven miles of track were in place on the Duluth division. Crews worked on the trestle along the St. Louis River at Fond du Lac, and at building culverts, retaining walls, and fills. A bridge at the St. Louis River crossing just below Thomson was completed (Luecke 2005). During the first week of April, the railroad reached the Kettle River, 96 miles north of St. Paul. Massive delays came on the Duluth side in late April when the winter frost thawed and poor engineering decisions made over the winter resulted in cuts and fills giving way, leaving tons of earth to be re-excavated (Luecke 2005).

When the LS&M was built in the late 1860s, the engineers chose the most obvious route for the railroad to leave the Duluth Harbor area: the route along the St. Louis River. This choice merely adhered to one of the most basic theories of railroad engineering: the easy grade offered by a water-level route. Countless railroads had made use of this theory prior to the LS&M. The St. Louis River route not only represented the easiest and most economical grade, but also the only gap in the hills surrounding Duluth that would allow the LS&M to build in the direction of St. Paul. While the line along the St. Louis River was much easier to complete, its physical characteristics required very expensive annual maintenance. The western portion above Fond du Lac was extremely difficult. Five great timber trestles, numerous smaller bridges and culverts, and thousands of feet of shoring and retaining walls were needed to complete this section of road. The steep grade between Fond du Lac and Thomson strained the capacity of the locomotives (Luecke 2005).

The Duluth division reached Fond du Lac on the evening of 22 June. On 1 August 1870, the final spike was driven near the town of Thomson, and the first railroad connecting the Twin Cities to Duluth was completed (Dierckins and Norton 2012; Martin 2010). The work crew had to scramble to meet the deadline, and 4 hours after the laying of the last rail, the first train from St. Paul to Duluth arrived. The first train consisted of a locomotive, baggage car, two passenger coaches, and two freight cars (Dierckins and Norton 2012).

The first regular schedule for the 154-mile portage route went into effect on 17 August 1870. By the end of the year, trains ran between Duluth and St. Paul every day (Dierckins and Norton 2012). The train started from the St. Paul station that day at 7:15 a.m. and arrived in Duluth at 11:30 p.m., making the 154-mile trip in 16 hours and 15 minutes (less than 10 miles per hour) (Carroll and Wisuri 2006).

Within a year, the time from St. Paul to Duluth was reduced to 12 hours, and progress was made as the equipment and the tracks were improved, although it was claimed by some that LS&M meant "long, slow & miserable." Throughout the 1870s, there was a daily day-time passenger train from St. Paul to Duluth, returning to St. Paul overnight. There was also a separate daily day-time freight train from St. Paul to Duluth, returning to St. Paul overnight (LS&M time schedule 1871, 1874, and 1876).

The LS&M provided wheat growers with a link to a vital grain port. In 1886, Duluth elevators transferred 22 million bushels of grain from railroad to ships on Lake Superior (Schmidt et al. 2013). The LS&M also provide transportation for tourists to destination outside of, but close to, the major cities, including White Bear Lake, Chisago Lakes, Taylor Falls, Center City, Lindstrom, and Forest Lake (Schmidt et al. 2013).

After the LS&M was completed, Jay Cooke began significant construction on the Northern Pacific as men became available for work (Lubetkin 2006). In the economic crash of 1873, the banking firm of Jay Cooke and Company failed, and the economic growth in Duluth ceased. Duluth lost half of its inhabitants between 1873 and 1875 (Schmidt et al. 2013). Duluth did become an important port for the Great Lake's trade with the completion of the Northern Pacific, the opening of the Red River Valley and the Great Plains to wheat production, and the development of the Minnesota mining industry in the 1880s and 1890s (Harnsberger 1960).

The Northern Pacific broke their lease with the LS&M. The LS&M managed to hang on without Cooke's money and the lease, but in 1877, the railroad failed. It reorganized as the St. Paul and Duluth Railroad on 17 July 1877 (Dierckins and Norton 2012, Prosser 1966). In 1886, the St. Paul and Duluth Railroad built a new line from West Duluth to Thomson to reduce the road's grade, remove some turns, and shorten the distance by 2½ miles. The original line continued to provide commuter train serve to Fond du Lac until the 1930s.

The St. Paul & Duluth Railroad was sold to the Northern Pacific Railroad on 15 June 1900, and the Northern Pacific acquired all of the track and facilities and integrating them into their system (Prosser 1966, Carroll and Wisuri 2006). The Northern Pacific was succeeded by Burlington Northern. Because Burlington Northern already had railways in place, much of the original

LS&M line was considered redundant. Most of the track was abandoned, and many segments have since been turned into rail trails, including the Willard Munger Trail which was the realigned section built by the St. Paul and Duluth (Dierckins and Norton 2012). On 19 September 1977, Burlington Northern donated the 6-mile track to the City of Duluth (LS&M Railroad Company 1983).

Beginning in the 1910s and increasing during the 1920s, the automobile became the preferred mode of travel for Minnesota tourists. As highways improved, automobiles carried increasing numbers of tourists, and train travel decreased (Schmidt et al. 2013).

1 By the time the railroad was completed, the land grant made by the federal government and the state of Minnesota, in aid of construction of this road was the largest in quantity and most valuable in kind ever made in aid of any railroad in the U.S. to date. The grant amounted to 17 square miles or sections (10,880 acres) of land for each mile of road, totaling 1,632,000 acres of land (Coffin 1870). Between the value of the land grant received and the bonuses from St. Paul and St. Louis County to be the terminus for the line, the railroad received approximately $4.8 million in gratuities (Prosser 1966).

VII. Description of Property

The LS&M track includes approximately 6.2 miles of original LS&M track alignment as described below.

DESCRIPTION OF THE SIX-MILE SEGMENT OF THE LAKE SUPERIOR & MISSISSIPPI RAILROAD

The original Lake Superior and Mississippi Railroad had its northern terminus in downtown Duluth and its southern terminus in St. Paul. The railroad ran south, southwest out of Duluth following the St. Louis River shoreline until the town of Thomson. From Thomson, the rail headed west of Carton for approximately 2 miles then turned south, southwest and followed what is today the Interstate 35 (I-35) and I-35E corridors into St. Paul. The segment from New Duluth to Thomson was rerouted in the 1880s farther to the north and followed what is now the Willard Munger Trail (Martin 2010).

The segment of the Lake Superior and Mississippi Railroad used by the Lake Superior and Mississippi Railroad Company currently for tourist rides and the subject of this evaluation begins at South 67th Avenue West at the Lake Superior and Mississippi Railroad Company parking lot and ticketing booth in West Duluth, and terminates at Commonwealth Avenue at the Boy Scout Landing parking lot in New Duluth. The roadway segment is approximately 6 miles in length and approximately 30 feet (ft) wide.

The location and design of the corridor is influenced by the natural shoreline of the St. Louis River. This section of the St. Louis River provided a relatively flat grade, and a gently meandering corridor. The railroad configuration is a single track on a railroad bed. The railroad roadway consists of ground modification (cut, fill, ditches, drainage features, and grade changes), although the cuts and fills are minimal along this section of rail due to minimal grade changes. The roadway comprises ballast, tracks, ties, and ditches. The ballast is primarily crushed stone. The top of the road bed varies, but averages 16 to 20 ft wide.

The tracks are standard gauge steel rails (photograph no. 2) spaced 4 ft, 8½ inches apart, mounted to wooden ties (photograph no. 4). The ties are imbedded into the ballast, and in some cases covered by the ballast. The rails are secured to the ties with spikes through steel plates (photograph no. 33). There are switch stations at each end of the rail line to re-position the engine (photograph no. 29 and 41). There is also a switch station approximately 300 ft south of Spring Street where another railroad line separates from the main line to the southwest. Materials have been replaced over the years with modern materials; however the overall design and installation techniques are similar to the original design and materials.

The following is a more detailed description from north to south. Photographs are included in Appendix C.

This segment of the Lake Superior and Mississippi railroad begins on the north end at the crossing of the main line with South 67th Avenue West (photograph no. 42). Adjacent to the northwest side of the railroad and just south of South 67th Avenue is the modern Lake Superior and Mississippi Railroad Company parking lot and ticket booth (photograph no. 43). There are also other modern businesses and residential areas visible on both sides of the railroad in the area.

Approximately 700 ft southwest of the parking lot, the Western Waterfront Trail crosses the tracks, and approximately 200 ft beyond the trail crossing is a modern concrete railroad bridge that spans Kingsbury Creek (photograph no. 44). Approximately 700 ft beyond Kingsbury Creek, the railroad crosses Pulaski Street and begins paralleling Bayhill Drive passing near residential and small commercial and retail businesses. Bayhill Drive continues for about 0.6 mile and ends at a warehouse. The railroad then parallels the Western Waterfront Trail and St. Louis River for another 0.6 mile and crosses Spring Street at the Spirit Lake Marina. Continuing in a southwest direction, the railroad follows the St. Louis River for less than ½ mile (0.47 mile) and crosses Clyde Avenue. This area also contains small commercial businesses, residential areas, and wooded areas with occasional views of the St. Louis River.

Nine hundred feet south of Clyde Avenue, the railroad crosses Stewart Creek with an open concrete culvert with separate track (steel) and pedestrian (timber) crossings (photograph nos. 36 and 39). The railroad curves to the southeast, and approximately 1,000 ft from Stewart Creek is an open wooden culvert to allow water on the west side of the track to drain water through the railroad bed into the St. Louis River. The culvert is spanned by the single track.

The railroad continues to follow the St. Louis River shoreline for approximately 2.3 miles in a more rural setting with no vehicular road crossings. In this section, the railroad passes along the east side of Morgan Park with only a few modern houses visible from the track (photograph nos. 5, 7, 8, and 9). The railroad then crosses the U. S. Steel property. There are six corrugated steel modern pipes that form a culvert at the Unnamed Creek (photograph no. 11). There are views of Spirit Lake to the east and wooded areas to the west.

The railroad then crosses Mud Lake for approximately 0.38 mile (photograph no. 23). This area was originally spanned by a timber pile trestle bridge but has been replaced (date unknown) by infilled railroad roadway. The roadway is approximately 30 ft wide at the top and 60 ft wide on

the lake bed. There is a wooden culvert approximately half way across the Mud Lake span (photograph no. 24). The views are of Mud Lake and wooded areas.

From the south end of Mud Lake, in approximately 0.2 mile, the railroad passes under an overhead steel beam Canadian National railroad bridge (Martin 2010) (photograph no. 25) and then, in 250 ft, crosses East McCuen Street (photograph no. 27). The railroad continues for another 0.6 mile and terminates at Commonwealth Avenue adjacent to residential apartments and the River Place campground. There is a 1,000-ft spur track with a switch station to reposition the engine (photograph no. 29). The track beyond this point has been removed (photograph no. 32).

VIII. Present Condition

The LS&M track is Federal Railroad Administration compliant for train operation. As with all operating railroads, as soon as a track is put in service, tracks and roadbeds must be regularly inspected and continually repaired and upgraded to comply with current regulations. Throughout the life of the LS&M, such improvement has taken place. Currently, twice-weekly track inspection is ongoing with ballast, tie and rail replacement as required. Although virtually no railroad operates without upgrades and replacements, a rail has been located on the LS&M stamped as original Carnegie rail from 1893 as well as a switch stand stamped 1889 (Appendix B) In addition, the earthen causeway which allows the LS&M to cross Mud Lake was built on the original 1890's trestle which was filled in during the 1950's.

IX. Statement of Significance

As the first railroad into Duluth, the LS&M connected Duluth with St Paul and later other railroads allowing the trading of goods. The railroad was critical to the economic growth of Duluth as well as the establishment of other towns along the route providing a vital economic driver and transportation system for the State of Minnesota.

Andrew Schmidt is quoted in the EPA Study as saying, "The LS&M Duluth Corridor retains integrity of location, design, materials, setting feeling and association. The shoreline of the St Louis River dictated the placement of the alignment and the swamp land required the placement of culverts and bridges. The linear roadway, road bed, tracks, road crossings, bridges, overhead bridge, switch equipment and spur tracks all convey the feeling of traveling on a late nineteenth/early twentieth century railroad.

The LS&M was the catalyst in opening up commerce in Duluth allowing both rail and shipping opportunities to increase the population in Duluth many fold. Thus, the LS&M is significant historically, culturally and socially by connecting Duluth with the other centers of population as well as bringing the advent of the technically advanced steam engine into use in the City.

By 1869, Duluth was gaining population. One of the new arrivals "counted only 14 families in Duluth in January 1869, but "by the 4th of July 1869 there were 3,500 people in place and still they are coming"

Luke Marvin would recall: "This rush of people comprised all classes. Most of them were from the Eastern states. Some came to work on the railroad; some came to engage in business, others in lumbering."

State Representative, James J Eagan, who visited Duluth in 1869, stated:

> "The lifeless corpse of Duluth.....touched by the wand of Jay Cooke, sprang full armed from the tomb; Banning, Branch and James Smith Jr. [executives of the LS&M and promoters of an all Minnesota railroad] had won the good fight and henceforth the sun of prosperity gilded the lake and your bluffs echoed and re-echoed back the acclaim: "Minnesota has triumphed!"

X. Findings On Designation Criteria

The following criteria are established by ordinance as the basis for designation of a site/district, with the requirement that the property proposed for designation meet at least one of the criteria.

Findings responding to each of the criteria are as follows:

A. It has character, interest, or value as part of the development, heritage, or cultural characteristics of the City of Duluth, State of Minnesota, or the United States.

FINDING:

Almost the entire modern history of Duluth begins with the LSMRR and its tracks. The Lake Superior and Mississippi Railroad, though only running for a short time before being reorganized and renamed, served as the foundation of what was to become one of the most important cities in Industrial America.

Prior to the train, people who wanted to go from Superior (WI) to St. Paul had to endure a 3-4 day rugged stagecoach ride on the Military Road, and pay more than the equivalent of $900 per person. That severely limited growth to the Northland area. As the idea for the train developed, many people hoped it would go through parts of Wisconsin on its journey to Superior. State political powers were able to keep it entirely in Minnesota (which, of course, makes the train and right-of-way significant to Minnesota History). The terminus of the trains would be in Minnesota, not Wisconsin.

As a result, the Duluth area expanded and at one time rivaled the city of Chicago in several ways (both being located at the tip of a Great Lake, with access to shipping and other forms of transportation). These tracks, and the

Excursion Train, show and tell a story of greatness that would flourish in the industrial city of Duluth at the turn of the century. Riding along the same path that millions of people (some with millions of dollars!) have taken, even though it is now down to only a few miles in Duluth out of its' original 146 miles, has enlightened thousands of visitors to the Duluth area about our historical past. We hear countless times, "I never knew that about Duluth's past!" and would hope that anyone reading this will come on board.

B. Its location was a site of a significant historical event

FINDING:

The arrival of the first train from St. Paul to Duluth was considered a extraordinarily major event on August 1, 1870. It was so important that in addition to the President of the Train and some other key officials, the Chief Justice of the United States Supreme Court, Salmon P. Chase, was there to "witness the iron marriage of our highest geographical circles." (The Northern Pacific in Minnesota, page 32).

The St. Paul Press (newspaper) printed the following on August 2, 1870.

"At thirty-five minutes past 11 o'clock p.m. of August 1st, 1870, the First Through Train [sic] on the Lake Superior & Mississippi Railroad arrived at Duluth—having left St. Paul at seven o'clock and fifteen minutes the same morning. Late was the hour crowds of the people of Duluth lined the track and surrounded the Depot on the Lake Shore [sic], and bonfires blazed and human voices cheered as the locomotive that had in the morning drank of the waters of the Mississippi stood smoking panting, and thirsty on the shores of our Inland Sea and replenished its tank from its crystal waters alongside the track."

Trevanion Hugo, who would be a popular Duluthian at the turn of the century, described the cacophony of the railroad whistle and the more familiar steamboat whistle that summer of 1870 as "a Wagnerian chant of commercial triumph." That it was. The Lake Superior & Mississippi provided the missing element that would make the Twin Ports actual twin ports.

Additionally, the Lake Superior & Mississippi Railroad rescued hundreds of people in the Hinckley and Moose Lake fires by transporting them away from the fire.

The original 1870 tracks were replaced in the 1890s (and the tracks with the name CARNEGIE and dates in the 1890s are still visible). As mentioned above, many people have ridden those tracks including Carnegie himself, Rockefeller, Jay P. Morgan, and more of the "Men Who Built America" (on the History Channel).

C. It is identified with a person or persons who significantly contributed to the cultural development of the City of Duluth, State of Minnesota, or the United States.

FINDING:

See above—just about all of the famous US industrial giants of the 1900s were involved in the creation or and/or have ridden on the train at some time. Thomson, Miller, Morgan, Jay Cooke, Rockefeller, Carnegie, Oliver, and more.

Extremely famous architects such as Clarence Johnson and Oliver Traphagen have ridden on these tracks. Master wood carvers, including Olaf Ahlberg and "nationally recognized furniture maker and interior decorator" William French would also have ridden on the train to complete work on the Glensheen Mansion. Because Duluth is a haven for historical buildings, numerous artisans traveled the railroad to work in the city.

Additionally, the Chief Justice of the United States Supreme Court (Salmon P. Chase) apparently felt it was important enough to come to Duluth to welcome the first train to Duluth from St. Paul.

D. It embodies a distinguishing characteristic of an architectural type.

FINDING:

Not applicable for standard gauge railroad track. However original 1870's trestle can be found under the earthen causeway which crosses Mud Lake. The trestle was filled in in the 1950's.

E. It is identified as the work of an architect or master builder whose individual work has influenced the development of the City of Duluth or the State of Minnesota.

FINDING:

Not applicable.

F. It embodies elements of architectural design, detail, materials, and craftsmanship which represent significant architectural innovation.

FINDING:

Not applicable

G. Its unique location or singular physical characteristics [sic] represent an established and familiar visual feature of a neighborhood, community, or the City as a whole.

FINDING:

The tracks go through many old neighborhoods in the area, and these are discussed at length during the historical narration on the train. Without the narration (such as "walking a trail and looking at signs") would in no way convey in depth the historical nature of the area. For example, Riverside and Morgan Park have deep and rich histories which impacted the United States in countless ways. Smithville (and the 1880s resort-turned-Socialist-college at the turn of the century) are discussed, Slag Point, the Boat Club(s), Oliver Bridge (crucial to the World Wars), Gary/New Duluth, and much more are a vital part of the narration on the LSMRR. All were or are located along the right-of-way corridor which we have been using since 1980. Volunteers have also explored various areas to uncover remnants of trestles, fire hydrants, foundations, ties, and much more connected with the train.

Without the Lake Superior and Mississippi Railroad, Duluth and NE Minnesota's history would be far different. U.S. Steel and the Iron Range depended upon the trains which used the right-of-way our historical excursion train uses every season. We are such a minute part of the original 154 mile trip, yet we bring historical knowledge to people from all over the world. Over and over we hear comments such as, "I had no clue about the importance of Duluth!" "I learned more on this train than I ever learned in history class." "I can't wait to read more about this!" "I have lived here all my life and was so surprised to learn about my home town!"

XI. Conclusions

A. Points in Favor:

- The LS&M meets four criteria for designation as a Heritage Preservation Landmark by being:
  - A significant part of the heritage of Duluth as well as Minnesota and was instrumental in Duluth's early growth by allowing the transportation of goods and opening up the opportunity for commerce.
  - Associated with the well documented event of the crowds waiting for the first LS&M train in the middle of the night August 1, 1870.
  - Identified with significant persons who contributed to the development of Duluth, Minnesota and the United States.
  - Uniquely located and represents an established visual feature of the community.
- The LS&M is eligible to be on the National Register of Historic Places as evaluated by EA Engineering, Science and Technology, Inc. PBC in the document "Evaluation and Determination of Eligibility for Listing of the Lake Superior and Mississippi Railroad in Duluth, St Louis County, Minnesota on the National Register of Historic Places"
- The LS&M is referred to as a "historic rail corridor" in MNDOT Environmental Categorical Exclusion document for I-35 reconstruction 2009 where SHPO is to be consulted before project plans are finalized.

B. Points in Opposition:

There is abundant documentation found throughout the history of Duluth and St Louis County referencing the significance of the Lake Superior & Mississippi Railroad.

It would be difficult to deny the historical, cultural & social contributions of this railroad to the City of Duluth, the State of Minnesota and the United States of America at the time it came into being.

Planning & Development Division
Planning & Economic Development Department

Room 160
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Duluth, Minnesota 55802

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MEMORANDUM

DATE: May 19, 2020

TO: Heritage Preservation Commission

FROM: Kyle Deming, Planner II

RE: Commission review of the Spirit Lake Sediment Remediation Project Memorandum of Agreement

The attached Memorandum of Agreement (MOA) memorializes the actions and responsibilities of the parties relative resolving the adverse effects to historic resources expected to occur as part of the Spirit Lake Sediment Remediation Project (see project description in Attachment 1). The agreement commits the U.S. EPA to archival documentation of the Lake Superior and Mississippi Railroad (LSMRR) prior to construction work and restoration of the railroad to an operational condition at the end of the three-year long project. It also commits the U.S. EPA and U.S. Steel to prepare an interpretation program at points along the proposed pedestrian walkway which is to be installed along a portion of the LSMRR as shown in the agreement's Figures 1-4. Lastly, the agreement commits the U.S. EPA to prepare a draft National Register of Historic Places Registration form for the LSMRR Historic District: West Duluth Segment.

The Heritage Preservation Commission's (HPC) review of the MOA is to verify that the document is consistent with the HPC's objectives listed in the body's bylaws including:

- Promotion of the use and preservation of historic landmarks and districts for the educational and general welfare of the people of the City of Duluth; and
- Safeguarding the heritage of the City of Duluth by preserving sites and structures which reflect elements of the City's cultural, social, economic, political, engineering or architectural history.

In consideration of this determination the HPC may want to review two documents found in Attachment B of the related file PL 20-057 Historic Construction/Demolition Permit that are also in Attachment 3 to the MOA (referenced here, rather than attached to save space). These documents analyze the effects of the project on two historic resources, the LSMRR and Spirit Island. The first is the July 16, 2019 Memorandum to Sarah Beimers (MN SHPO) from William Murray (U.S. EPA) on the analysis of design impacts to the LSMRR from the Spirit Lake project and the second is an "Analysis of Design Impacts to the LSMRR and Spirit Island from the Proposed Pedestrian Trail Feature as Part of the Spirit Lake Sediment Remediation Project."

The first document, the July 16, 2019 memo to MN SHPO, analyzes the project's impacts on the LSMRR itself. Table 1, Summary of Spirit Lake LSMRR Design Element Compliance with the Guidelines for Rehabilitation, at the end of the memorandum, summarizes how the project design approach at four locations of permanent

effects meet the Secretary of the Interior Standards applicable to this project in Standards 9 and 10. The memorandum finds the design approach in compliance with the standards.

The second document evaluated the pedestrian trail and related features for potential adverse effects on the LSMRR in accordance with Section 106 of the National Historic Preservation Act. A summary of the findings can be found below:

> The pedestrian trail and associated features as described above will be constructed largely adjacent to and not directly contacting the LSMRR, apart from the railroad crossing at the spit of land. The trail and features are all adjacent to the LSMRR and will be within view of rail users and other users of the project area post-remediation of the site and completion of the rest of the project design. EPA does not anticipate that the trail or any planned features will adversely affect the location, setting, feeling or association that contribute to the overall historical nature of the LSMRR. Several features including the trail itself and interpretive signs are compatible with the City of Duluth's long-term plan for pedestrian and bicycle trails within the Spirit Lake project area, and aim to engage and inform public users of the trail of the historical importance of the project area for which the LSMRR provides a significant contribution. Based on the evaluation provided in this report, the EPA determines that the pedestrian trail and associated features proposed as part of the Spirit Lake Sediment Remediation Project will have no adverse effect on the LSMRR segment within the project footprint.

The second document also evaluated the effect of the pedestrian trail on Spirit Island and made the following finding:

> Based on the information available to the EPA, we understand that Spirit Island was and is still spiritually and religiously significant to spiritual healers and practitioners. Ceremonial practices held on the island represent a religious tradition that incorporates ancient teachings into a modern context. These current practices are based in healing and restoration of balance and aim to restore cultural traditions by extension of harmony with the natural landscape; therefore, the spiritual feeling of the land as well as the viewshed from the island is incredibly significant to the Ojibwe tribes. Through the evaluation presented in this report, the EPA has reached a preliminary determination that the pedestrian trail will have no adverse effect on Spirit Island. EPA may reevaluate this determination as necessary, based upon continued consultation with the federally recognized tribes for whom Spirit Island retains important cultural and spiritual significance.

It is recommended that any determination made by the HPC regarding the MOA include findings to support the decision.

MEMORANDUM OF AGREEMENT
AMONG
THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
THE
MINNESOTA STATE HISTORIC PRESERVATION OFFICER
THE
FOND DU LAC BAND OF LAKE SUPERIOR CHIPPEWA
THE
CITY OF DULUTH
AND THE UNITED STATES STEEL CORPORATION
REGARDING THE SPIRIT LAKE SEDIMENT REMEDIATION PROJECT IN DULUTH, SAINT LOUIS COUNTY, MINNESOTA

WHEREAS the United States Environmental Protection Agency (USEPA) plans to carry out the Spirit Lake Sediment Remediation Project (Project) pursuant to the Great Lakes Legacy Act; and

WHEREAS USEPA has determined that the Project, which consists of the remediation of contaminated sediment at Spirit Lake as described in **Attachment 1**, is an undertaking subject to the requirements of 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (54 USC § 306108); and

WHEREAS, the United States Army Corps of Engineers St. Paul District (USACE) may issue permits authorizing the discharge of dredged or fill material in conjunction with the Project pursuant to 33 USC § 11 and Section 404 of the Clean Water Act (Section 404), 33 USC §§ 1252-1376, as amended; and has determined that any permit for the Project is an undertaking subject to the requirements of Section 106 and 36 CFR Part 800; and, pursuant to 36 CFR § 800.2(a)(2), in May 2017, designated the USEPA as the lead Federal agency for the Project to fulfill their collective responsibilities under Section 106; and

WHEREAS, pursuant to 36 CFR 800.4(a)(1), USEPA, in consultation with the Minnesota State Historic Preservation Officer (SHPO), has defined an area of potential effects (APE) for the Project as documented in **Attachment 2**; and

WHEREAS, pursuant to 36 CFR 800.2(c)(2)(iii), upon initiation of the Section 106 consultation for the Project, USEPA invited the following federally recognized Native American tribes for which Spirit Island may have religious and cultural significance to consult regarding the proposed Project: Bad River Band of Lake Superior Chippewa, Bois Forte Band, Fond du Lac Band of Lake Superior Chippewa, Grand Portage Band of Lake Superior Chippewa, Leech Lake Band of Ojibwe, Mille Lacs Band of Ojibwe, Red Cliff Band of Lake Superior Chippewa, Red Lake Band of Chippewa Indians, White Earth Nation and the Mille Lacs Band of Ojibwe and Fond du Lac Band of Lake Superior Chippewa (Fond du Lac Band) were the only tribes to respond and the Fond du Lac Band was the only tribe to request to participate in this Agreement; and

WHEREAS, USEPA, in consultation with the SHPO and the Fond du Lac Band, has completed field survey and evaluation efforts within the APE resulting in the identification of the following historic properties, all of which have been determined to be eligible for listing in the National Register of Historic Places (NRHP): the Morgan Park Residential Historic District, the Northern Pacific Railroad Historic District: Duluth Short Line Segment, the St. Paul and Duluth Railroad/Northern Pacific "Skally Line" Railroad Corridor Historic District, the Skyline Parkway: Bardon's Peak Segment, the Lake Superior and Mississippi Railroad Corridor Historic District: West Duluth Segment, and Spirit Island; and

WHEREAS, USEPA, in consultation with the SHPO, has found that the Project will have no adverse effect on the Morgan Park Residential Historic District, the Northern Pacific Railroad Historic District: Duluth Short Line Segment, the St. Paul and Duluth Railroad/Northern Pacific "Skally Line" Railroad Corridor Historic District, and the Skyline Parkway: Bardon's Peak Segment; and

WHEREAS, USEPA, in consultation with the SHPO and Fond du Lac Band, has found that the Project will have an adverse effect on the Lake Superior and Mississippi Railroad Corridor Historic District: West Duluth Segment (LSMRR Historic District) and Spirit Island, and has determined that the adverse effects to these historic properties cannot be avoided; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), USEPA has notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect finding with specified documentation and the intent to develop and execute a Memorandum of Agreement (Agreement) to resolve the adverse effect, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

WHEREAS, USEPA has consulted with the United States Steel Corporation (U. S. Steel), the project partner, and the City of Duluth, as owner of the LSMRR Historic District, regarding the effects of the undertaking on historic properties, and, because both of these entities have responsibilities under this Agreement, USEPA has invited U. S. Steel and the City of Duluth to sign this Agreement pursuant to 36 CFR § 800.6(c)(2); and

WHEREAS, USEPA has consulted with the Lake Superior and Mississippi Railroad Company (LSMRR Co), a 501(c)(3) organization which operates a passenger rail service utilizing the LSMRR Historic District, which contributes to its historic integrity, regarding the effects of the undertaking on historic properties and has invited the LSMRR Co to sign this Agreement as a concurring party pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, any invited signatory or concurring party who does not sign this Agreement does not retain any of the rights or duties of an invited signatory or concurring party as set forth in the regulations at 36 CFR Part 800 or as set forth in this Agreement; and

WHEREAS, USEPA has provided the public an opportunity to comment on the proposed Project and its effects on historic properties; and

NOW, THEREFORE, USEPA and the SHPO agree that the following stipulations are appropriate mitigation to take into account the adverse effect of the Project on historic properties.

STIPULATIONS

USEPA shall ensure that the following measures are carried out:

I. FUNDING FOR SPIRIT LAKE MANAGEMENT PLAN

The signatories and invited signatories as named in each provision, will take the following actions to resolve the adverse effect to Spirit Island.

A. Fond du Lac Band has initiated a funding request in the amount of $600,000 for work that meets the requirements of the GLRI and the GLLA for the development and implementation of a Spirit Island Management Plan for habitat restoration and enhancement of cultural resources and a regional interpretive plan. The funding award will be made through the regional interagency funding process for GLRI funds.

1. Fond du Lac Band will provide written acknowledgement of the receipt of funds within thirty (30) calendar days of receipt.

2. USEPA will provide written notification of the transfer of funds along with a copy of the Fond du Lac Band acknowledgment of receipt to the SHPO. This submission of notification will constitute fulfillment of **Stipulation I.**

II. ARCHIVAL DOCUMENTATION OF LAKE SUPERIOR AND MISSISSIPPI RAILROAD HISTORIC DISTRICT: WEST DULUTH SEGMENT

A. Prior to commencement of any Project-related work that has the potential to directly impact the LSMRR Historic District, USEPA will record the condition of the entire six-mile segment of the LSMRR Historic District that has been determined to be eligible for the NRHP.

The historic property will be documented in accordance with the "Minnesota Historic Property Record Guidelines - Updated June 2009," Level I Documentation (MHPR Level I) standards as currently published. The documentation will be completed by an Architectural Historian meeting the Professional Qualification Standards in the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716).

1. In consultation with the LSMRR Co, USEPA will determine the scope of Level I MHPR photographic documentation for the LSMRR Historic District identifying appropriate perspectives and views of the unique, linear historic property with

special attention to documentary images of the extent of historic property and its overall setting as well as specific character-defining features, including those which are proposed to be significantly altered as part of the Project.

2. USEPA will provide the SHPO and the LSMRR Co with a draft version of the MHPR Level I documentation for review and comment. The SHPO and the LSMRR Co will have thirty (30) calendar days to review the draft MHPR Level I. USEPA will take any comments of the SHPO and the LSMRR Co into account in developing the final MHPR Level 1 document.

3. USEPA will provide a final archival set of the MHPR Level I documentation to the SHPO for incorporation into the Minnesota Historical Society archives. USEPA will submit a high-quality PDF of the final MHPR Level I on an archival quality DVD to the LSMRR Co and the City of Duluth for their records. The SHPO will provide written acknowledgment of acceptance of the final MHPR Level I documentation within sixty (60) days of receipt. This acknowledgment will constitute fulfillment of **Stipulation II.A.**

III. RESTORATION AND REHABILITATION OF LSMRR TO OPERATIONAL CONDITION

A. USEPA will ensure that the Project is carried out in accordance with the results of Project design-related consultation with the SHPO, City of Duluth, and LSMRR Co that took place during the summer and fall of 2019 as documented the "Analysis of Design Impacts to the Lake Superior and Mississippi Railroad from the Spirit Lake Remediation Project" dated July 16, 2019 (**Attachment 3**).

B. Once the Project reaches a stage where it will no longer directly impact the LSMRR Historic District and operations of the LSMRR Co and rehabilitation of the Project impacted portion of the LSMRR Historic District (including the removal of temporary crossings) is complete, the USEPA will then provide written notification to the City of Duluth and the LSMRR Co.

1. Upon receipt of USEPA's notification that rehabilitation work is complete, the City of Duluth and LSMRR Co will have ninety (90) days from the date of receipt to inspect the two mile segment of the Lake Superior and Mississippi Railroad affected as stated in the 2019 "Analysis of Design Impacts to the Lake Superior and Mississippi Railroad from Spirit Lake Remediation Project," including any revised Project plans subsequently reviewed pursuant to **Stipulation III.B**.

i. Within the ninety (90) day review period, if the City of Duluth and/or the LSMRR Co identifies any deficiencies or issues with USEPA and U. S. Steel's implementation of the Project according to previous consultation, the City of Duluth and/or the LSMRR Co will provide written notice to USEPA describing the perceived deficiencies or issues.

1. If the City of Duluth and/or LSMRR Co does not respond within the ninety (90) day review period and the SHPO is notified in writing of this lack of response, then this will constitute fulfillment of **Stipulation III.B**.

2. USEPA will respond to the City of Duluth's and/or the LSMRR Co's identified deficiencies or issues within ninety (90) days of receipt of written comments. USEPA's response will include either a plan to remediate the deficiencies or issues or provide an explanation of why USEPA disagrees with the deficiencies or issues identified by the City of Duluth and/or the LSMRR Co.

3. The submission of a response by USEPA to the City of Duluth and/or the LSMRR C, and corresponding notification of this response to SHPO will constitute fulfillment of **Stipulation III.B**.

IV. PUBLIC INTERPRETATION

A. USEPA and U. S. Steel, in consultation with the City of Duluth, the LSMRR Co, the SHPO and Fond du Lac Band, shall prepare and implement a plan for interpretation (Plan) incorporating interpretation of the LSMRR Historic District and Spirit Island for the two mile stretch of the LSMRR Historic District within the APE. The Plan shall be informed by the Waabizheshikana: The Marten Trail Mini-Master Plan for Parks and Recreation Commission (November 2019) or as amended. USEPA shall ensure that the plan will be reviewed by a qualified historian or historic architect who meets the Secretary of the Interior's Professional Qualifications Standards (36 CFR § 61).

1. Within two (2) years of the execution of this Agreement, USEPA and U. S. Steel shall prepare a draft Plan including themes for interpretation, planned modes for delivering the interpretation, and draft text and graphics for each mode. Modes may include, but are not limited to, webpages; interpretive signage; walking tours; and integration of interpretive elements into the Project.

2. Prior to issuance of a draft Plan, USEPA and U. S. Steel shall invite the signatories, invited signatories, and concurring parties to a consultation meeting to discuss the proposed Plan.

3. USEPA and U. S. Steel shall distribute the draft Plan to the signatories, invited signatories, and concurring parties for a thirty (30) calendar day review and

comment period.

4. Following receipt of, and in response to, comments from signatories, invited signatories, and concurring parties, USEPA and U. S. Steel shall consider, incorporate as appropriate, and revise the draft Plan. If USEPA and U. S. Steel choose not to accept a comment by the signatories, invited signatories, and concurring parties, then USEPA and U. S. Steel shall provide a written explanation to the appropriate signatories, invited signatories, or concurring party and consult, as appropriate, to seek resolution.

5. USEPA and U. S. Steel shall submit the final Plan to the signatories, invited signatories, and concurring parties for review and concurrence. If any of the signatories or invited signatories do not concur, they shall explain the grounds for their disagreement with the Plan in a letter to USEPA and U. S. Steel. Upon receiving such comments, USEPA shall consult with the appropriate party to resolve the dispute in accordance with **Stipulation XII** of this Agreement.

6. Upon the signatories and invited signatories' concurrence or resolution of the dispute, USEPA and U. S. Steel shall distribute the final Plan to all parties to this Agreement.

7. Within two (2) years after fulfillment of **Stipulation III.B.,** USEPA and U. S. Steel shall complete its implementation of the Plan. USEPA and U. S. Steel shall notify all parties to this Agreement in writing upon completion of implementation. This notification shall constitute fulfilment of this stipulation.

V. COORDINATION OF PROJECT SCHEDULE AND COMPENSATION FOR THE DISRUPTION OF the LSMRR CO OPERATIONS

A. USEPA and U. S. Steel will coordinate with the City of Duluth and the LSMRR Co regarding the construction schedule of the Project at least sixty (60) days before initial Project construction activities that will impact the LMSRR Co operations begin in order to determine if the disruption can be minimized.

   1. USEPA and U. S. Steel will make a good faith effort to reduce disruption to the LSMRR Co operations, although the parties agree that it is likely that such disruptions will occur due to nature of the Project.
      i. USEPA and U. S. Steel retain final authority on approval of the Project schedule even if the schedule will impact LSMRR Co operations.
      ii. USEPA and U. S. Steel will notify, with as much lead time as possible, the LSMRR Co of any schedule changes that occur during Project construction that could impact LSMRR Co operations.
   2. The LSMRR Co will make a good faith effort to operate during times identified by USEPA and U. S. Steel as "safe to operate" through the Project area.

B. U. S. Steel will provide up to $XXXXX dollars per calendar year to the LSMRR Co for

each year that the Project impacts LSMRR Co's operations.

1. Each year, U. S. Steel, in consultation with LSMRR Co, will determine Project impacts to LSMRR Co operations within sixty (60) days after the LSMRR Co operating season. Compensation for years in which LSMRR Co operates in a limited capacity shall be commensurately reduced.

2. U. S. Steel will provide this compensation by December 31st of each year that operations are impacted.

    i. The LSMRR Co will provide written acknowledgement to U. S. Steel within thirty (30) days of receipt of funds and send a copy of this acknowledgement to USEPA.

3. Upon the fulfilment of **Stipulation III.B.,** U. S. Steel shall notify USEPA, the LSMRR Co, and the SHPO in writing that it will no longer provide compensation funds.

    i. If **Stipulation III.B**. is anticipated to be completed before the LSMRR Co operating season, U. S. Steel shall notify USEPA, the LSMRR Co, and the SHPO in writing that no compensation will be provided for that operating season or in the future. This shall constitute fulfillment of **Stipulation V.B.**

    ii. If **Stipulation III.B**. is anticipated to be completed during the LSMRR Co operating season, U. S. Steel will consult with the LSMRR Co about the appropriate compensation for that operating season. U. S. Steel will provide the appropriate compensation for that operating season and shall so notify LSMRR Co, the SHPO and USEPA. This shall constitute fulfillment of **Stipulation V.B.**

VI. DRAFT NATIONAL REGISTER REGISTRATION FORM FOR THE LAKE SUPERIOR AND MISSISSIPPI RAILROAD HISTORIC DISTRICT: WEST DULUTH SEGMENT

A. Within one (1) year of the execution of this Agreement, USEPA, in consultation with the LSMRR Co, the SHPO and the City of Duluth, shall prepare a draft National Register of Historic Places (NRHP) Registration form for the Lake Superior and Mississippi Railroad Historic District: West Duluth Segment.

1. The registration form shall be prepared by a historian and/or architectural historian who meets the Secretary of the Interior's Professional Qualification Standards (36 CFR 61) for history and/or architectural history.

2. USEPA will provide the SHPO, the City of Duluth, and the LSMRR Co with a draft version of the National Register form for review and comment. The SHPO,

LSMRR Co and City of Duluth will have sixty (60) calendar days to review the draft NRHP nomination form. USEPA will take any comments of the SHPO, the LSMRR Co, and the City of Duluth into account when revising the draft NRHP Registration form.

3. USEPA will submit a high-quality PDF and Microsoft Word version of the revised draft National Register form to the SHPO, the City of Duluth and the LSMRR Co on CD/DVD. The SHPO, the LSMRR Co and the City of Duluth will provide written acknowledgment of receipt of the revised draft National Register form within sixty (60) days of receipt. This acknowledgment will constitute fulfillment of **Stipulation VI.**

4. Submission of the NRHP Registration form for actual nomination of the Lake Superior and Mississippi Railroad Historic District: West Duluth Segment to the NRHP is outside the scope of this Agreement.

VII. CONTRACTORS

USEPA and U. S. Steel will ensure any contractors working on the Spirit Lake Sediment Remediation Project adhere to the requirements of this Agreement.

VIII. ANTI-DEFICIENCY ACT

A. USEPA's obligations under this Agreement are subject to the availability of appropriated funds and the stipulations of this Agreement are subject to the provisions of the Anti- Deficiency Act. USEPA will make reasonable and good faith efforts to secure the necessary funds to implement this Agreement in its entirety. If compliance with the Anti- Deficiency Act alters or impairs USEPA's ability to implement the stipulations of this Agreement, USEPA will consult in accordance with the amendment and termination procedures found at **Stipulations XV** and **XVIII** below.

B. U. S. Steel's obligations under this Agreement are subject to and conditioned upon the undertaking being carried out. In the event the undertaking is not carried out, U. S. Steel shall not be obligated to perform its obligations as set forth in this Agreement. The conditions and requirements for the undertaking itself are set forth in separate Agreements or other documents. This conditional limitation does not waive any obligations that U. S. Steel otherwise may have under any applicable laws or other Agreements.

IX. DURATION

This Agreement will expire if its terms are not carried out within ten (10) years from the date of its execution. Prior to such time, USEPA may consult with the other signatories and invited signatories to reconsider the terms of the Agreement and amend it in accordance with **Stipulation XV** below.

X. MONITORING AND REPORTING

Each year following the effective date of this Agreement until it expires, is fulfilled, or is terminated, USEPA will provide all signatories, invited signatories, and concurring parties to this Agreement a summary report detailing work undertaken pursuant to its terms. Such report will include any scheduling changes proposed, any problems encountered, and any disputes and objections received in USEPA's efforts to carry out the terms of this Agreement. Copies of this report will be provided to the point of contacts specified in **Stipulation XVII**.

XI. UNEXPECTED DISCOVERIES

A. If suspected historic properties, including sites that contain human remains, unidentified animal bone, or mortuary objects, are discovered during implementation of the Project, all activities shall cease within one hundred (100) feet of the discovery to avoid and/or minimize harm to the property.

1. USEPA and U. S. Steel shall include in construction contracts a requirement for the Construction Contractor(s) to immediately notify USEPA and U. S. Steel of any discovery of this type and implement interim measures to protect the discovery from damage, looting, and vandalism. Measures may include, but are not limited to, protective fencing, covering of the discovery with appropriate materials, and/or posting of security personnel.

2. Once notified of the discovery, USEPA and U. S. Steel shall immediately notify the SHPO, as well as other invited signatories and concurring parties. When appropriate, USEPA shall notify any Tribes that may attach religious and cultural significance to the property. The Contractor shall provide access to Consulting Parties and law enforcement to the site and shall not resume work within the area until notified by USEPA.

B. If any suspected human remains are encountered, USEPA and U. S. Steel shall also follow the requirements of Minnesota Statutes (MS) § 307.08 and immediately notify local law enforcement and the Office of the State Archaeologist (OSA), the lead state agency for authentication of burial sites on non-federal lands.

1. In accordance with MS § 307.08, the OSA has the final authority in determining if the remains are human and to ensure appropriate procedures are carried out in accordance with the statutes. Avoidance and preservation in place is the preferred option for the treatment of human remains. In accordance with MS § 307.08(3), OSA is required to coordinate with the Minnesota Indian Advisory Council (MIAC) if the remains or associated burial items are thought to be American Indian. USEPA and U. S. Steel shall work with OSA and MIAC to develop and implement a reburial plan, if that is the approach preferred as determined in accordance with MS § 307.08.

C. USEPA and U. S. Steel shall contract with a Secretary of the Interior-Qualified Professional to evaluate the newly discovered property for eligibility for listing in the NRHP. For discovered properties with suspected human remains, the consulting archaeologist must coordinate the evaluation with the OSA's authentication of the burial. In lieu of a consultant's recommendation, USEPA and U. S. Steel may assume a property is eligible for listing in the NHRP following consultation with, or based on input from, the SHPO, invited signatories and consulting Parties. When applicable, USEPA shall also engage in consultation with interested Tribes in relation to discovery of any properties that may have religious or cultural significance to a Tribe(s).

1. If USEPA determines that the property does not meet NRHP criteria and the SHPO concurs, construction activities can resume upon receipt of written concurrence with the eligibility determination by the SHPO and after completion of activities required under Paragraph B of this stipulation, if applicable.

2. For all properties determined eligible for the NRHP, USEPA shall make a finding of effect, including resolving any adverse effects through identification of appropriate mitigation through consultation with the SHPO, and subsequent development and implementation of an appropriate mitigation plan agreed to in writing. In addition to the requirements in those stipulations, construction activities may resume after completion of activities required under Paragraph B of this stipulation, if applicable.

XII. EMERGENCY SITUATIONS AND EMERGENCY ACTIONS

A. Should an emergency situation occur which represents an imminent threat to public health or safety or creates a hazardous condition, USEPA or U. S. Steel will immediately notify the SHPO and the ACHP of the condition that has initiated the situation and the measures taken to respond to the emergency or hazardous condition.

Should the SHPO or the ACHP desire to provide technical assistance to USEPA, the SHPO or the ACHP will submit comments within seven (7) calendar days from notification, if the nature of the emergency or hazardous condition allows for such coordination.

B. Emergency actions are those actions deemed necessary by USEPA as an immediate and direct response to an emergency, which is a disaster or emergency declared by the President, tribal government, or the governor of the state, or other immediate threats to life or property. Emergency actions under this Agreement are only those implemented within thirty (30) calendar days from the initiation of the emergency.

C. If the emergency action has the potential to affect historic properties, USEPA will notify the SHPO, interested Indian tribes, and other parties as appropriate prior to undertaking the action, when feasible. As part of the notification, USEPA will provide a plan to address the emergency. The SHPO and other parties will have seven (7) calendar days to

review and comment on the plan to address the emergency. If the SHPO and other parties do not comment or object to the plan within the review period, USEPA will implement the proposed plan.

D. If USEPA is unable to consult with the SHPO and other parties prior to carrying out emergency actions, USEPA will notify the SHPO and other parties as appropriate within forty-eight (48) hours after the initiation of the emergency action. This notification will include a description of the emergency action taken, the effects of the action(s) to historic properties, and, where appropriate, any further proposed measures to avoid, minimize, or mitigate potential adverse effects to historic properties. The SHPO and other parties will have seven (7) calendar days to review and comment on the proposal where further action is required to address the emergency. If the SHPO and other parties do not object to the plan within the review period, USEPA will implement the proposed plan.

E. Where possible, USEPA will ensure that such emergency actions be undertaken in a manner that does not foreclose future preservation or restoration of historic properties. Where such emergency actions may affect historic buildings, they will be undertaken in a manner that is consistent with the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (36 CFR Part 68). In addition, where possible, USEPA will ensure that such actions will be done with on-site monitoring by the appropriate preservation professional who meets, at a minimum, the Professional Qualification Standards in the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716) in his or her field of expertise.

F. Where the SHPO and/or any other party has reason to believe that a historic property may be adversely affected by an emergency action, the party will submit a request to USEPA to review and comment on that action. Immediate rescue and salvage operations conducted to preserve life or property are exempt from these and all other provisions of this Agreement.

XIII. DISPUTE RESOLUTION

Should any signatory, invited signatory, or concurring party to this Agreement object at any time to any actions proposed or the manner in which the terms of this Agreement are implemented, USEPA will consult with such entity, through the point of contact designed in **Stipulation XVII**, to resolve the objection. If USEPA determines that such objection cannot be resolved, USEPA will:

A. Forward all documentation relevant to the dispute, including USEPA's proposed resolution, to the ACHP. The ACHP will provide USEPA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, USEPA will prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories, invited signatories, and concurring parties, and provide the signatories, invited signatories, and concurring parties with a copy of this written

response. USEPA will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within thirty (30) days, USEPA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, USEPA will prepare a written response that takes into account any timely comments regarding the dispute from the signatories, invited signatories, and concurring parties to the Agreement and provide the signatories, invited signatories, and concurring parties and the ACHP with a copy of such written response.

C. USEPA and U. S. Steel's responsibility to carry out all other actions subject to the terms of this Agreement that are not the subject of the dispute remain unchanged.

XIV. POST REVIEW PROJECT CHANGES

Should any Project plan, scope of services, or other document that has been reviewed and commented on as part of Section 106 consultation to resolve adverse effects pursuant to this Agreement (except to finalize documents commented on in draft form or when USEPA determines that the alteration revision has no potential to cause effects to any historic properties), be significantly revised following execution of this Agreement, USEPA will afford the signatories, invited signatories, and concurring parties to this Agreement the opportunity to review the proposed change revision and determine whether it shall require that this Agreement be amended. If one or more such party determines than an amendment is needed, the parties to this Agreement shall consult in accordance with **Stipulation XV** to consider such an amendment.

XV. AMENDMENTS

This Agreement may be amended when such an amendment is agreed to in writing by all signatories and invited signatories. The amendment will be effective on the date a copy signed by all signatories and invited signatories is filed with the ACHP. If Agreement on an amendment cannot be reached, the Dispute Resolution procedures of **Stipulation XIII** will be implemented.

XVI. EFFECTIVE DATE

This Agreement will become effective on the date on which it is signed by USEPA and the SHPO.

XVII. COMMUNICATION

Electronic mail (Email) will serve as the official method of correspondence for all communications regarding this Agreement between all signatories, invited signatories, and concurring parties with the exception of the SHPO who will receive all communication in physical form. See **Attachment 4** for a list of contacts, email addresses and physical addresses.

A. Contact information in **Attachment 4** may be updated as needed, without an amendment to this Agreement. It is the responsibility of each signatory, invited signatory, and concurring party to immediately inform USEPA of any change in name, address, email address, or phone number of any point of contact. USEPA will forward this information to all signatories, invited signatories, and concurring parties by email. USEPA and the SHPO will maintain a physical copy of this Agreement along with a physical copy of any amendments or changes.

XVIII. TERMINATION

If any signatory or invited signatory to this Agreement determines that its terms will not or cannot be carried out, that signatory or invited signatory will immediately consult with the other signatories and invited signatories to attempt to develop an amendment per **Stipulation XV**, above. If within thirty (30) days (or another time period agreed to by all signatories and invited signatories) an amendment cannot be reached, any signatory or invited signatory may terminate the Agreement upon written notification to the other signatories' or invited signatories' points of contact as specified in **Stipulation XVII**.

If the Agreement is terminated, and prior to work continuing the undertaking, USEPA must either (a) execute an Agreement pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. USEPA will notify the signatories and invited signatories as to the course of action it will pursue.

Execution of this Agreement by USEPA and the SHPO and implementation of the terms and stipulations applicable to USEPA, is evidence that USEPA has taken into account the effects of this undertaking on historic properties, afforded the ACHP an opportunity to comment, and complied with Section 106 of the National Historic Preservation Act (54 USC § 306108), as implemented by 36 CFR Part 800.

SIGNATORIES (as defined under 36 C.F.R. § 800.6(c)(1):

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

_____ Date:

MINNESOTA STATE HISTORIC PRESERVATION OFFICER

_____ Date:
Amy H. Spong, Deputy State Historic Preservation Officer

INVITED SIGNATORIES (as defined under 36 C.F.R. § 800.6(c)(2):

CITY OF DULUTH

_____ Date:

U. S. STEEL

_____ Date:

FOND DU LAC BAND OF LAKE SUPERIOR CHIPPEWA

_____ Date:

CONCURRING PARTY (as defined under 36 C.F.R. § 800.6(c)(3):

Lake Superior and Mississippi Railroad Company

_____ Date:

Attachment 1
Project Description

DESCRIPTION OF THE SPIRIT LAKE SEDIMENT REMEDIATION PROJECT

Purpose and Need

The Great Lakes National Program Office (GLNPO) within the United States Environmental Protection Agency (USEPA) has been working throughout the Great Lakes region to implement contaminated sediment cleanups under the Great Lakes Legacy Act, focusing on sediment remediation at known areas of concern (AOCs). The Great Lakes AOCs are areas that have experienced severe environmental degradation and beneficial use impairments (BUIs) as a result of past pollution or industrial activity. GLNPO, in conjunction with U. S. Steel Corporation (USS – the project private partner), is planning to address sediment chemical constituents of concern in and adjacent to a portion of Spirit Lake, which is part of the St. Louis River AOC. The purpose of the Spirit Lake Sediment Remediation Project (Project) is to address chemical constituents of concern, primarily polycyclic aromatic hydrocarbons (PAHs) and associated metals, in the Spirit Lake area, and to support the eventual de-listing of the Saint Louis River AOC. This will result in ecological benefits to the Spirit Lake watershed. The project will also benefit the citizens of Minnesota and Duluth by restoring opportunities for recreation within the area.

Location and Background

The Spirit Lake site is in an open reach of the St. Louis River adjacent to the former USS Duluth Works Steel Mill Superfund site in Duluth, Minnesota. The Site is bounded by the Morgan Park neighborhood of Duluth to the north, the eastern two-thirds of Spirit Lake and the St. Louis River to the east, and the USS-owned former steel mill facility to the west and south. The remediation area is bisected by the Lake Superior & Mississippi Railroad (LSMRR), situated on the western lake shore. Spirit Lake is approximately 8 miles upstream from Lake Superior. The Site is largely comprised of the Wire Mill area and the Unnamed Creek area. Wire Mill Delta is near the former wire mill discharge pond. Wire Mill Pond currently contains a small area of open water connected to the delta through a culvert beneath the LSMRR bridge. Unnamed Creek Delta is north of the Wire Mill Delta at the outlet of Unnamed Creek, where it empties into Spirit Lake. Unnamed Creek is a creek and community stormwater conveyance channel that carries flow from approximately 2,000 acres of upstream watershed into Spirit Lake. Unnamed Creek enters the upland portion of the Site through a large culvert on the western edge, flows through the western portions of the Site, and discharges into Spirit Lake. The upland portion of the site is further divided into operable units (OUs).

The USS Duluth Works steel mill was closed in 1979, and the original Record of Decision identified a chosen remedy of No Action for sediments adjacent to the former facility (MPCA 1989). However, subsequent monitoring by USS and MPCA suggested that a remedial investigation (RI) of the sediments was warranted, and that potential remedial action (RA) may be necessary. The St. Louis River, which includes the area of Spirit Lake, was listed as one of 43 Great Lakes Areas of Concern (AOCs) in 1987. The Stage I RA Plan identified the following beneficial use impairments (BUIs) within the AOC: fish consumption advisories, degraded fish and wildlife populations, fish tumors and other deformities, degradation of benthic macroinvertebrate communities, restrictions on dredged material management, excessive loading of sediment and nutrients, beach closings and body contact restrictions, degradation of aesthetics, and loss of fish and wildlife habitat (MPCA and the Wisconsin Department of Natural Resources 1992). Areas with elevated levels of sediment-associated contaminants, including PAHs and metals, are contributing to the St. Louis River AOC's BUIs. The St. Louis River Citizens Action Committee identified remediation of contaminated sediment, including sediment at the former USS Duluth Works property/Spirit Lake area, as a priority action item for the St. Louis River AOC in the

Lower St. Louis River Habitat Plan (SLRCAC 2002). As a result, additional RI/Feasibility Study (FS) work was completed.

The remediation and restoration strategy as recommended by the Spirit Lake Feasibility Study (FS) includes a combination of sediment removal, confined disposal facility (CDF) construction, capping, enhanced natural recovery, and habitat enhancements. The Project also includes monitored natural recovery areas, which are not areas of site remedial action, but will be part of a long-term operation, maintenance, and monitoring plan to confirm compliance with remedial action objectives in accordance with accepted standards. Both before and following publication of the Spirit Lake FS in July 2015, extensive discussions with tribes, resource managers, and stakeholder groups were initiated by USEPA. These discussions following the FS resulted in modifications to the remedy proposed in the selected remedial alternative from the Spirit Lake FS. These changes were made in an attempt to both address review comments and balance competing stakeholder interests. As a result, an alternative that proposed a "hybrid" remediation approach, one that balanced stakeholder interests while achieving project goals (Alternative 08B), was selected as being consistent with the remedy evaluation criteria of the governing federal statute; rules and guidance provided by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); CERCLA's National Contingency Plan; USEPA's Contaminated Sediment Guidance (2005); and the Minnesota Environmental Response and Liability Act. The recommended alternative incorporates additional habitat features, positions the Delta CDF above the OHWL elevation for placement of removed material and provides a greater amount of open water area in both Unnamed Creek and Wire Mill Pond than is currently present. Pre-design investigation activities and extensive design evaluations were conducted following completing of the FS.

Remedy Description

The Project includes areas of sediment removal, capping, combined sediment removal and capping, and enhanced natural recovery. The material removed will be placed in onsite CDFs. The design also includes a habitat restoration component.

The major remediation and restoration project components are as follows:

- Permitting of construction activities.
- Mobilization and Site support services (such as field offices, dewatering pad, wastewater treatment pad and system, decontamination pads, access roads, temporary fencing, security, power, storage, etc.) within the areas that are available to the Contractor.
- Construction of remedy components, including three onsite CDFs- the Delta CDF (approximate capacity of 196,000 CY), the Upland CDF (approximate capacity of 347,000 CY) and the OU-J CDF (capacity of up to 275,000 CY, depending upon design plan chosen).
- Dredging approximately 771,000 total CY of contaminated sediments/soils:
    - 731,000 CY within the Unnamed Creek Delta and Wire Mill Pond.
    - 40,000 CY within the upland former coke settling basin (OU-I and the Tar between I&J).
- In-situ solidification of approximately 28,500 CY of impacted sediment from the Tar Between I&J.
- In-situ solidification of approximately 5,800 CY of impacted sediment and tar within OU-A areas T10 and T-11.
- Process, transport, and disposal of sediments in on-site CDFs.
- Treating contaminated water to effluent discharge requirements and discharge treated water with energy dissipation to Spirit Lake.

- Placement of an engineered cap (materials will include sand and selected areas with carbon amendment) over approximately 117 acres of the site:
    - 107 acres of cap placed over estuary sediments.
    - 9 acres of cap placed in the former coke settling basin (OU-I and the Tar between I&J).
- Placement of a thin layer (approximately 6-inches) of cover over approximately 41 acres of estuary sediments (enhanced monitored natural recovery [EMNR]). Additionally, 72 acres are designated for monitored natural recovery, which does not involve placement of cover or other site disturbances, but will be part of long-term operation, maintenance, and monitoring activities.
- Capping and restoration of surface of CDFs; additionally, grading of approximately 104 acres in selected areas surrounding wetlands within the upland.
- In situ mixing of amendments for chemical stabilization with approximately 15,600 CY of characteristically hazardous soil/sediment to achieve non-hazardous regulatory levels of lead prior to removal of material stockpiling and confirmation testing in advance of off-site disposal.
- Construction of one new railroad bridge in Unnamed Creek and replacement of one bridge in Wire Mill Pond.
- Creation of public trail and trail extension connector to Morgan Park neighborhood.
- Creation of park features on the Delta CDF to facilitate public access.
- Slope stabilization along Unnamed Creek adjacent to the OU-J CDF to accommodate placement of a culvert extension at the upstream end of the Site.
- Approximately 126 acres of habitat restoration.
- Site restoration and demobilization.

Each component of the proposed remedy is described in detail below.

Excavation/Dredging

Excavation with low ground pressure equipment or conventional equipment using temporary access roads will be used to remove soil and sediment from upstream areas of the site. Dredging will be used in the aquatic areas of the site for both the shallow and deeper water portions of the estuary. For upstream areas, removal will consist of mechanical excavation using standard off-road equipment. Control measures such as containment barriers, stream diversion, and/or cofferdams will be used to minimize downstream soil/sediment migration. Dredging in the estuary will consist of mechanical removal. Mechanical removal of sediments will involve the use of an articulated fixed-arm excavator or barge-based crane with a traditional clamshell bucket or environmental bucket. The contractor will select either truck transport from removal areas to dewatering areas or hydraulic transport through a pipeline.

- For hydraulic transport, sediment will first be removed mechanically, then a slurrying process will add water to the dredged sediment in an enclosed mixing vessel to create the slurry. The slurry will be transported by pumping in a pipeline to a sediment processing facility. The processing facility will be located at the destination CDF and will include sand separation and dewatering of the fine-grained fraction using filter presses. Water from the sediment processing facility will undergo solids filtration, then be recirculated back to the slurrying plant for re-use as carrier fluid for more dredged sediment. The remaining fine-grained fraction (filter cake) will be placed in the CDF. Recirculated water will be treated prior to final discharge back to the estuary.

- If the contractor selects conventional gravity dewatering and air drying for management of dredged/excavated materials, drained porewater and contact stormwater will be collected and treated prior to discharge to the estuary.

Selection of the most appropriate removal and material management methods will be based upon further evaluation of site-specific conditions and construction work planning by the contractor.

The project includes excavation of contaminated soils and sediment from portions of both the upland and estuary areas of the Site. Removal of material within the Unnamed Creek will result in a restored estuary through creation of a shallow sheltered bay with two depth profiles. For the main area of the bay (to the northwest of the Delta CDF) that connects Unnamed Creek to Spirit Lake, deeper depths are provided for fish habitat considerations (average water depth of 3 to 5 feet), while the area of the bay northeast of the Delta CDF provides shallow water depths of 1 to 2 feet for establishing emergent wetland type plant communities. The shallow sheltered bay will be created by removing material to a target elevation followed by placement of a subaqueous remedial cap (capping discussed in detail below). The work in this area will also create a shoal feature at the mouth of the bay that is intended to reduce wave energy as well as encourage water flow into and out of the sheltered bay, by focusing seiche flow through a channel at the northern end of the shoal. This configuration has been designed based on hydrodynamic modeling of the Spirit Lake/St. Louis river flow conditions at the Site. Impacted sediment near the shoreline in the Wire Mill Delta, Wire Mill Pond and the northern portion of the Unnamed Creek Delta will be removed but will not be followed with cap placement.

Approximately two feet of sediment will be removed from the former coke settling basin (OU-I and Tar Between I&J). A cap will be placed following removal of the sediments, as detailed in the following section, and the area will generally be restored to its existing condition.

Capping

Capping is a well-established, proven technology for reducing exposure to contaminants. Cap design for the Site was developed based on modeling using data from the pre-design investigation including groundwater, porewater, and chemistry data. Capping in the Site will consist of either capping over in-situ materials or excavated and placed materials. In the upland portion of the site, capping will be used to control direct exposure to and prevent the erosion of the impacted material. Upland caps are designed for recreational considerations in public access areas and industrial considerations in adjacent areas. In the estuary portion of the site, the caps will consist of a natural granular material such as clean sand or gravel. In some areas, caps may be amended with organic material or carbon to improve function and support restoration. Cap thickness in the estuary will depend on the thickness of the bioactive zone in each area to be capped. Caps will be constructed using standard construction and remediation equipment. Caps are designed for protection of ecological receptors using sediment quality targets and following the specific cap requirements set forth by the Minnesota Pollution Control Agency (MPCA).

The selected alternative includes the placement of a soil cap over the OU-I in the upland portion of the site after contaminated soils have been removed to a target elevation. Unnamed Creek downstream of OU-I and adjacent wetland areas will receive caps at a thickness dependent on engineering considerations. In the estuary area, the largest areas of capping will be in the northern portion of the Unnamed Creek Offshore adjacent to the shoal feature and in the Wire Mill Offshore. Subaqueous caps will occur both in the shallow sheltered bay and lakebed east of the shoal. For the shallow sheltered bay, a cap will be placed upon completion of dredging activities.

Confined Disposal Facility (CDF) Construction

CDFs are a widely used technology for consolidating and containing impacted sediments. CDFs are constructed based on the method of sediment/soil excavation and the geotechnical properties of their underlying sediment/soil. A detailed evaluation of the geotechnical properties of the material to be placed in CDFs on-site was conducted as part of the Pre-Design Investigation for the Project. Following site preparation activities (ground clearing and topsoil removal to one foot below soil surface below containment berms), the CDFs will be constructed by initially constructing perimeter containment berms followed by filling the containment berms with excavated/dredged material. The excavated/dredged material will undergo gravity dewatering and air drying to remove excess water. Portland cement or another similar material will be used as a drying agent, if needed, to improve geotechnical characteristics. Placement of excavated/dredged materials will include some compaction intended to provide sufficient strength and density to support construction equipment. CDFs are expected to undergo some settlement during and following construction by consolidation of fine-grained silt and clay. The consolidation process results in shear strength gain improvements in the underlying fine-grained soils (increase in resisting forces). Settlement monitoring of the Upland CDF will be performed to inform fill management and construction activities. This monitoring will be accomplished through the use of settlement plates and other techniques to confirm design assumptions. Temporary erosion controls such as seeding and use of erosion control blankets will be used during construction for CDFs, and permanent erosion control will be managed by engineered caps placed following filling of the CDFs.

Three CDFs will be constructed in the Site with berm heights ranging from 10 feet to 18 feet. The Delta CDF will be constructed in the Unnamed Delta along the spit of land and will be placed at an elevation greater than the OHWL. Estuary sediments will be placed in the Delta CDF; additionally, some upland material may be placed in the Delta CDF if the material passes the industrial soil reference values (SRVs). This material will be sourced from the slope areas in Wire Mill Pond and be used to construct the Delta CDF berms. The peninsula created by construction of the Delta CDF will not extend east past the OHWL (approximate current shoreline), thereby reducing the CDF footprint and avoiding containment of impacted materials in existing open water. The Upland CDF will be constructed in the Unnamed Creek ravine adjacent to the Unnamed Creek Delta. This CDF, along with the Delta CDF, will hold most of the removed material from the Site. The OU-J CDF will be constructed in the Unnamed Creek ravine west of the Upland CDF. Sediment excavated from OU-I will be consolidated in the OU-J CDF. Excess material from the estuary that cannot be accommodated in the Delta or Upland CDF will also be consolidated in the OU-J CDF. The final capacity of the OU-J CDF will be determined in final design; the final design will likely include two design options to provide flexibility in sediment management to the construction contractor. This application presents the engineering drawings for the 40,000 cy design and a proposed footprint for the largest design between 232,000 and 275,000 cy design (with below and above ground components). The CDFs constructed in the Unnamed Creek ravine will have the higher berm heights and will use the valley side near these areas during construction to help contain some of the material.

Enhanced Natural Recovery (ENR) Thin Cover

For estuary sediments, ENR will include placement of a thin layer (approximately 6 inches) of clean sediment or sand over impacted sediment. This thin cover amendment speeds the development of a clean sediment layer at the sediment-water interface. Natural recovery uses ongoing naturally occurring processes to contain or reduce the availability of contaminants in impacted sediment. Implementing ENR is a way to accelerate the recovery process. ENR thin cover will be placed in two areas within the Unnamed Creek Delta and in one area in between Unnamed Creek Delta and Wire Mill Delta (Exhibit

2A, Sheet 76). Due to the thin nature of the cover material, placement is not anticipated to contribute to changes in the landscape within the Site.

In-Situ Solidification/Stabilization

Solidification/stabilization encapsulates impacted soil to form a solid material that restricts the migration of contaminants by decreasing the amount of surface area available for leaching. This is commonly done by mixing cement with metal stabilization agents or other similar additives into impacted soils using a backhoe bucket, rotating mechanical mixing method, or large diameter auger. In-situ solidification/stabilization will be provided for sediments and soil in the Wire Mill pond area to address the delineation of materials with lead concentrations elevated above the regulatory level for toxicity characteristic. Chemical stabilization is further facilitated by the addition of metal binding agents within amendments. The solidified/stabilized materials will be sampled to confirm the modified soil mass is non-hazardous prior to offsite disposal.

This process has been historically used at OU-J and will be completed for the impacted soils located within the Tar Between I&J and OU-A Areas T-10 and T-11. The solidified and stabilized material will subsequently be excavated to a set elevation for stream restoration with a wetland cover placed over the solidified Tar between I&J area. The excavated material will be placed in the OU-J CDF (Exhibit 2C, Sheet CC-103).

Unnamed Creek Diversion

Unnamed Creek is an open channel stormwater conveyance feature that enters at the western edge of the site through a culvert. An approximately 250-foot culvert extension will be installed to allow for construction of slopes adjacent to the creek. Unnamed Creek will be temporarily diverted during construction to allow for stabilization of the Tar Between I&J, excavation and capping within OU-I, construction of the Delta CDF, Upland CDF, Unnamed Creek cap and creek bed, and construction of the shallow sheltered bay. The temporary diversion will reroute stormwater by a temporary open channel constructed of clean materials, aided by temporary features such as Port-a-dams to direct surface water flow away from disturbed areas. Once construction activities are completed, a permanent channel will be constructed on top of the OU-I cap and around the CDFs to protect them from storm and flood events. Storm water flow upstream of the Unnamed Creek water level control weir will be similar to current conditions and will include similar ponding capacity of peak flows. Downstream of the weir, storm water flow will be directed to the shallow sheltered bay created in the OU-M Delta.

<u>Habitat Restoration</u>

Habitat restoration is a major component of the Project. Almost all remedial areas are designed to have the appropriate vegetation for the final habitat type or water depth; these include shallow emergent marsh vegetation, mixed vegetation (emergent, submerged, and floating), submerged vegetation, and upland planting. Many wetland areas within the footprint will remain a wetland after habitat restoration is complete; however, the wetland type may change (e.g. forested wetland to shallow, open water wetland). The remediated wetland areas will benefit from improved aquatic function as a result of removal of contaminated substrate and improved hydrologic connectivity to surrounding areas. Implementation of the remedy will result more depth variations in the estuary, thus providing specific wetland habitat types desired by Minnesota natural resource managers. Areas not planted will serve as deepwater fish habitat. Habitat restoration and creation along with substrate improvement across the majority of the project footprint (approximately 126 acres) will restore the ecological condition of the area as a whole. As such, although some wetland loss will occur, the Project is proposed to be self-mitigating.

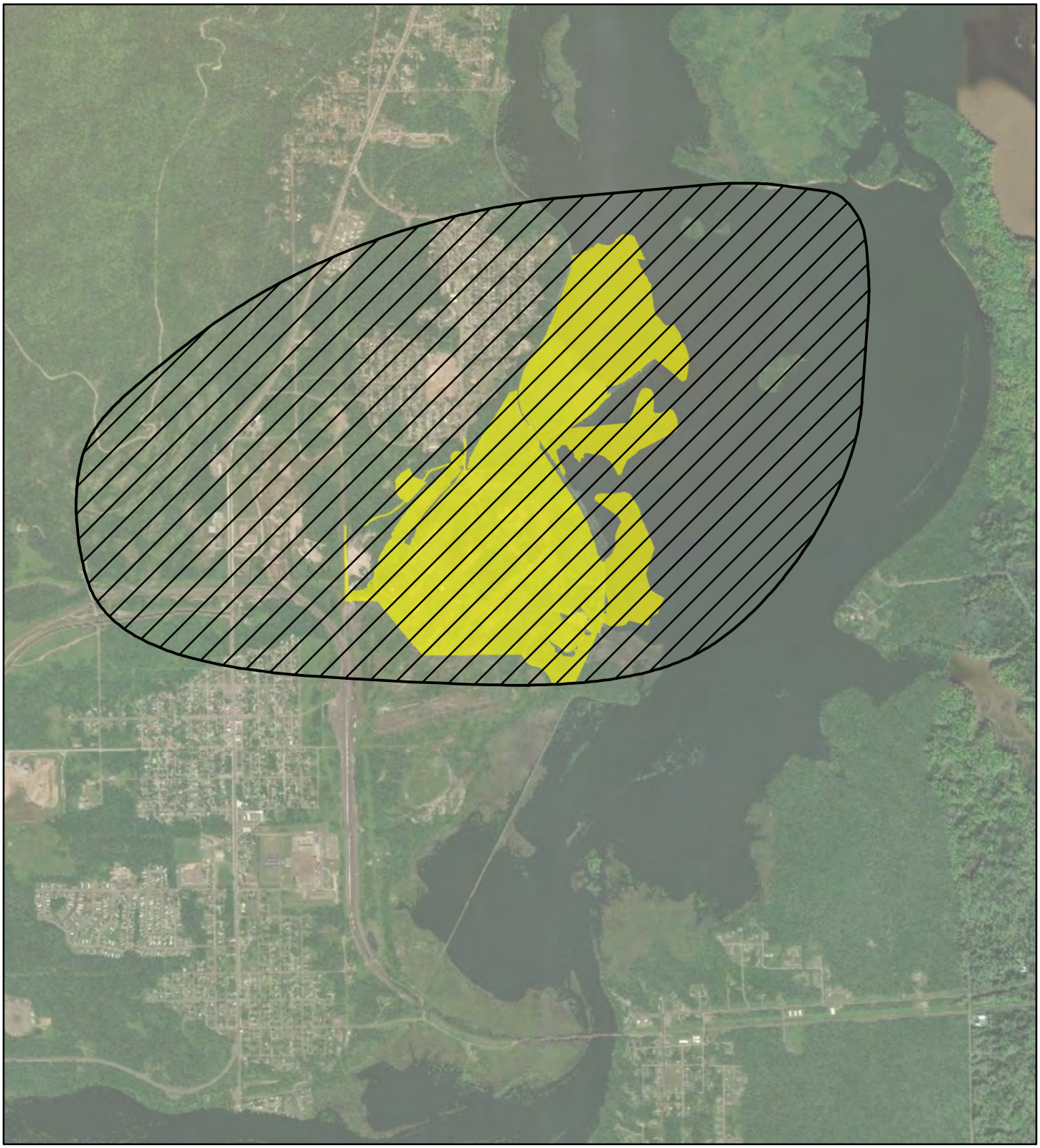
Public Trail and Park Features

A pedestrian trail is included as part of the project. The trail will follow the existing rail line and include a pedestrian bridge at the new Unnamed Creek railroad bridge. The portion of the trail located adjacent to the railroad has been spaced appropriately given accepted standards and considerations of frequency of railroad traffic, existing track speed limit, and other factors. Americans with Disabilities Act accessibility best management practices (BMPs) will be incorporated into the design. The design for the trail will be developed in coordination with the City of Duluth's plans for the rail and adjacent trail operations. The pedestrian trail provided as part of the Spirit Lake Sediment Remediation is designed in conjunction with park features that will be included on the surface of the Delta CDF, in coordination with the City of Duluth. These features align with the City's plans for future use of the site and include:

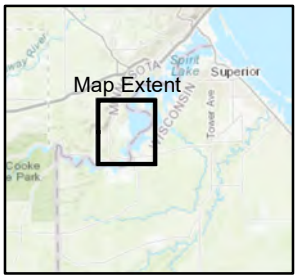
- A protected reflective seating area on the spit of land
- Additional sand area for boat put-in
- Stormwater swale to divert stormwater runoff around the sand area
- Small dock with a boat launch (ADA accessible)
- Viewing area ("Great River Lawn") on the southeast corner of the CDF overlooking Spirit Island
- Southwest walking path for access from the spit of land to the beach, small dock, and walking trail
- Southwest gravel walking trail from base CDF elevation to top of CDF
- Northeast walking path for access from the spit of land to the Northeast walking trail
- Northeast gravel walking trail from base CDF elevation to top of CDF
- Fishing pier
- Wetland walking path along the spit of land, with vegetated side slopes
- Specially selected trees planted along the CDF shoreline to provide a natural habitat appearance
- Shrub plantings along the ridgelines of the CDFs for a natural habitat appearance; low height to maintain views to surrounding areas; and
- Grass pedestrian path connecting the southwest trail to the Great River Lawn.

Attachment 2

Area of Potential Effects



\\lovetongis\GISdata\Federal\Midwest\Minnesota\SpiritLake\MXD\RemedialDesign\JPA\Area of Direct and Indirect Effect.mxd



Legend

- Area of Direct Effect
- Area of Indirect Effect

0 1,000 2,000
Feet

N

Area of Direct Effect and Area of Indirect Effect

Spirit Lake Sediment Site
Former U.S. Steel Duluth Works
St. Louis River, Duluth, Minnesota

Data Sources:
ESRI Basemap 2018

Map Date: 10/10/2019

Attachment 3

Lake Superior Mississippi Railroad

Omitted to save space

See related file:
PL 20-057 Historic Construction
Demolition Permit,
Attachment B

Attachment 4

Email Contacts

Agency	Point of Contact	Email
Environmental Protection Agency	Diana Mally, Project Manager	Mally.diana@epa.gov
	Bradly Benson	Benson.bradly@epa.gov
Minnesota State Historic Preservation Office	Sarah Beimers, SHPO	Minnesota Historical Society State Historic Preservation Office Government Programs and Compliance 345 Kellogg Blvd. West St. Paul, Minnesota 55102 ** Sarah.beimers@state.mn.us
Fond du Lac Band of Lake Superior Chippewa	Kevin DuPuis Sr., Chairperson	KevinDuPuis@FDLREZ.COM
	Jill Hoppe, THPO	jillhoppe@fdlrez.com
City of Duluth	Jim Filby Williams	jfwilliams@duluthmn.gov
U.S. Steel	Mark Rupnow	mrupnow@uss.com
Lake Superior Mississippi Railroad	Joel Manns	jdmmwm@gmail.com

** Official correspondences to the Minnesota State Historic Preservation Officer must be sent via hardcopy.

Heritage Preservation Commission
March 17, 2020 Special Meeting Minutes
City Hall – Council Chambers

1. Call to Order and Roll Call

President Jessica Fortney called to order the meeting of the Heritage Preservation Commission (HPC) at 12:02 p.m. on Tuesday, March 17, 2020.
Attending: Ken Buehler, Stacey DeRoche, Jessica Fortney, Mike Poupore, and Sarah Wisdorf (via phone)
Absent: N/A
Staff Present: Adam Fulton and Cindy Stafford

2. Old Business

RESOLUTION OF THE DULUTH HERITAGE PRESERVATION COMMISSION ESTABLISHING FINDINGS RELATED TO REDEVELOPMENT OF 319 AND 323 EAST SUPERIOR STREET, ESTABLISHING MITIGATION ACTIVITIES – Deputy Director Adam Fulton gave an overview. The timeline. 2/12/19 HPC review of project and mall area; 5/22/19 special meeting of HPC; 3/2/20 Initial HPC review of resolution for formal mitigation actions; 3/17/20 today
Received correspondence from Doctor Eric Ringsred, which was distributed to the hpc members; Next Fulton goes over proposal; then recommendation, he shares the draft resolution. Proposed mitigation activities: documentation of the properties by a professional photographer (complete).; Develop and implement a plan for interpretation to recognize and share the historic or architectural significance of the properties; consider adoption of design guidelines for the areas surrounding the properties in the Duluth Commercial Historic district; consider local historic designation of buildings in the vicinity of the properties; other activities previously discussed, but not included: retain elements of the building facades (developer agrees); create a phone app for virtual tours of the downtown commercial district; he shares a slide of 319 E. Superior St. was a restaurant for a number of years. The next slide shows 323 E. Superior Street. Stacey Derochse asked about the Millinery. Deputy Director Fulton noted a milllinary is for hats and women's clothing, and then was Duluth Oriental Grocery. The interior condition of the building is unknown. Buehler was is the developer willing to save and what are their thoughts. Willing to keep luxor windows. The indicated an openness.

Recommended Actions:

a. Open Public Hearing to obtain further public comment on the proposed findings and mitigation actions associated with demolition of properties at 319 and 323 E. Superior Street ; A public meeting was called. There were no speakers.

Fortney saving Architectural details and incorporating into their plan. Ornate colorful details would be nice if it could be saved. Buhler agrees. He hopes the developer can specify there would take first crack at trying to use it in their project. DeRoche - Street scape view is important. Fulton thinks the developer

would be in support of placing something in the lobby. Poupore stated for years they have been trying to save historic character of downtown. Try to create a dialog and it keeps dismantling. He feels they need help from the city where developers can't come in and destroy the historic character of the neighborhood. These buildings are no-brainers to save the front facades to maintain street scape on Superior Street. He feels now it's too little too late and urges the city to help by possibly putting a 10% fund away for historic preservation. He is frustrated because buildings keep getting dismantled. Fulton TIF financing. There is merit earlier communication with developers. Deroche – how is this a surprise? These buildings have been here forever. Fulton going forward its part of the first dialog with developers. City's commitment and therefore they are going through mitigation. DeRoche lot of areas missing from historic designation map. Fulton breadth of history balance economic prosperity and historical importance. Fortney asks who is responsible for placing a building on the local history designation. Can city staff help? DeRoche would like to add to the map. Fulton unfamiliar with this map dated January 2006. Fulton thinks 2 designations would be a good number. Reason Duluth history is important. Fulton new position supporting Steven Robertson would provide more resources to HPC. Poupore line item from DEDA listing amount. Fulton design guidelines. He doesn't have a specific amount. Poupore going forward would like to see dollar amounts. Grant money in place through CLG would quality for establishing these guidelines. Would like more of a commitment from the city to acquire the grants. Fulton always looking for matched dollars. Continue to work with SHPO. Funding out of CDBG money. SHPO no longer accepts this. Chair Fortney would like to offer her time to educate developers on what the HPC's role is before they start. She wants to be the solution ahead of time. Deputy Director Fulton is pleased to include an HPC rep in meetings. Helpful to have a robust work plan. Wisdorf suggests staffing HPC with cross overs from other committees including the indigenous commission and the parks commission. Fulton bylaws do not provide for that. There are 2 names to soon be added to the HPC. There is an opportunity to have shared meetings which he thinks would be helpful and relevant to the HPC.

Fortney Motion to amend the resolution #4 by adding "two" buildings

DeRoche/Buhler feels they should strike the statement which states the demo is not of significant

VOTE: (5-0)

Poupore notes the motion to add "two". He thinks they can do better. Fortney agrees, but notes staff time and the closure of the city. Buhler suggests adding a minimum of two properties. Poupore noted skyline parkway and the monumental task. How can the HPC solve this? Fortney supports local landmark district, so they can see project before it gets to this stage. Poupore affirms. Buhler agrees low hanging fruit for antoher day.

Buhler/Fortney with friendly amendment Motion to minimum of “two” local historic desingations (#4) in the resolution.

VOTE: (5-0)

Buhler/Poupore asks the HPC for a recommendation adding a #5 that historic aspects including the façade be considered by the developer for reuse in the existing project.

VOTE: (5-0)

b. Motion to approve Resolution, establish findings and mitigation activities

MOTION/Second: Buhler/Poupore support the resolution including the previous amendments

VOTE: (5-0)

Fulton city hall closed as of today through March 27,.

Adjournment at 1:08 p.m.

Respectfully,

_____

Adam Fulton – Deputy Director
Department of Planning and Economic Development

Steven Robertson

From: Koop, Michael (ADM) <michael.koop@state.mn.us>
Sent: Wednesday, April 29, 2020 9:44 AM
To: Koop, Michael (ADM)
Subject: FY20 CLG Grant Applications

Hello,

The coronavirus pandemic has impacted all of us in many ways, including the speed at which we are able to conduct business. Our intention was to notify CLG grant applicants by the end of this month about the status of their application. Unfortunately, the review process has been delayed, so we do not expect to make an announcement until May 15. I appreciate your patience.

With best wishes for continued good health to you and yours,

Michael Koop

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Michael Koop | Certified Local Government Coordinator and Preservation Specialist
50 Sherburne Avenue, Suite 203
Saint Paul, MN 55155
(651) 201-3291
michael.koop@state.mn.us

Given the Governor's announcement of Stay Home MN, the SHPO office will be closed to visitors and unable to accommodate in-person research and deliveries after 4 p.m. Friday, March 27, 2020 continuing through Sunday, May 3, 2020. Our office will continue to take file search requests via DataRequestSHPO@state.mn.us. SHPO staff will continue to work remotely and be available via phone and email. Check SHPO's webpage for the latest updates and we thank you for your continued patience.

DEPARTMENT OF TRANSPORTATION

Office of Environmental Stewardship
395 John Ireland Boulevard, St. Paul, MN 55155

Sarah Beimers, Environmental Review Program Manager
State Historic Preservation Office Administration Building #203
50 Sherburne Ave. Saint Paul, MN 55155

March 18, 2020

Re: S.P. 118-090-024, Lakewalk Trail Extension, Duluth, St. Louis County
Township 50N, Range 13W, Section 4

Dear Ms. Beimers,

We have reviewed the above-referenced undertaking pursuant to our FHWA-delegated responsibilities for compliance with Section 306108 (formerly known as Section106 of the National Historic Preservation Act [54 USC 300101 et. seq.] and its implementing regulations, 36 CFR 800, and as per the terms of the 2015 Section 106 Programmatic Agreement between the FHWA and the Minnesota State Historic Preservation Office (SHPO). MnDOT is not responsible for compliance with the Minnesota Historic Sites Act (MS 138.665-.666) since we are not funding or permitting the project, or for compliance with the Field Archaeology Act of Minnesota (MS 138.40) and the Private Cemeteries Act (MS 307.08) on this project, since MnDOT does not control the said lands (excepting a very minor strip on the edge of the TH 61 road); however, we did consult with the Minnesota Indian Affairs Council (MIAC) and the Office of State Archaeologist (OSA) on the behalf of the City.

The City of Duluth proposes to construct an extension of the Lakewalk Trail (a proposed 10-foot-wide pedestrian/bicycle trail), extending approximately 4400 linear feet from the intersection of TH 61/Congdon Boulevard and Brighton Beach Road, through Brighton Beach/Kitchi Gammi Park to the eastern intersection of Congdon Boulevard and Brighton Beach Road (see enclosed plans). The trail will cross multiple existing culverts/drainages (all installed since the 1960s or later), which will be replaced or extended. Some minor grading for drainage will occur. Also, the City is considering a new vehicular entrance to the park from the south and the removal of a portion of Brighton Beach Boulevard, along with improvements near the lakeshore as part of a revised 2019 "Mini Master Plan" available at https://duluthmn.gov/media/8180/draft-2019-revised-brighton-beach-mmp-low-res.pdf . While the future road realignment and park improvements are not part of this undertaking, our unit factored them into our assessment of potential indirect and cumulative effects.

CONSULTATION SUMMARY

Our unit consulted with the following tribal groups, as per 36 CFR 800 or existing agreement between FHWA and certain tribes: Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, Grand Portage Band of Lake Superior Chippewa, Santee Sioux Nation, Turtle Mountain Band of Chippewa, and Upper Sioux Community, in June 2019. We had no responses. In addition, consultation letters were sent to the Office of the State Archaeologist and the Minnesota Indian Affairs Council, requesting any information regarding sites not included in the SHPO and OSA databases. MIAC did not respond and OSA did not identify additional sites.

No specific Section 106 public meetings were held for this undertaking due to the relatively small scale nature of the trail project. The City of Duluth's Park Department, however, had multiple opportunities for public input on the Mini Master Plan, including an online survey and public comment period (a total of 31 comments received); an open house on June 3, 2019 (25 attendees) in which several alternatives were presented, including the final proposed layout; a Park and Recreation Commission public hearing with the preferred site plan June 12, 2019; another public comment period June 13-27, 2019 on the preferred plan; and Commission hearing July 10th and final adoption August 19, 2019. Overall the project was non-controversial and supported by the community due to the poor road conditions and issues it caused with the use of the park. The biggest public concern was over the potential of closing the park if the erosion and associated road damage was not address. See Master Mini Plan link above for details of the public involvement process.

AREA OF POTENTIAL EFFECT

As defined in 36 CFR 800.16, the area of potential effects is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character and use of a historic property, if any are present." While the current FHWA-funded project is limited to construction of a 10-ft.-wide bicycle-pedestrian trail, the plan sheets for the trail project indicates that the City is proposing to establish a new vehicular connection between Brighton Beach road and TH 61/Congdon Boulevard. Also, the City's Parks Department has developed a "Mini Master Plan" for Brighton Beach/Kitchi Gammi Park, which calls for many park improvements including: the Lakeview Trail extension project funded under this undertaking, the new vehicular entrance and parking area, a pedestrian trail looping off the Lakeview Trail extension, new picnic shelters, a restroom building, play area, viewing deck, beach/kayak landing, and shoreline stabilization (due to the extensive erosion in the park).

The purpose for all the proposed improvements stem from issues related to rising lake levels. As Lake Superior's levels rise, the park's infrastructure is experiencing cyclical damage and destruction, namely to Brighton Beach Boulevard. Through the studies conducted for the Mini Master Plan, the City determined that there were two courses of action for the future of the Kitchi Gammi Park beach area: move Brighton Beach Boulevard (which currently serves pedestrian, bike and vehicular traffic) to higher ground in order to keep the park open to vehicular traffic and separate the uses for safety reasons; or close the park to vehicular traffic and remove all of Brighton Beach Boulevard, since they are unable to maintain the road in its current location due to erosion caused by rising lake levels. The City considered but decided against installing extensive retaining wall systems and other infrastructure to address the erosion issue and keep the road where it is, since such infrastructure would detract from the scenic and natural qualities that characterize the park and shoreline. Further, since the park is well used and a key location where the public can directly access Lake Superior, it was decided that the park should not be closed and the natural shoreline should be maintained. Therefore, the relocation of the park road is essential in order for the park to remain in use. In addition to addressing the erosion issues to the road, the proposed new intersection between TH 61/Congdon Boulevard and Brighton Beach Road addresses the poor sightlines and traffic congestion at the current intersection caused by high volumes of vehicular, pedestrian, and bicycle traffic all seeking to access the Kitchi Gammi Park beach area.

The City currently has no funding to do the work beyond the trail covered under this current undertaking, and is exploring either funding the other improvements itself, or seeking State Park Road Account money from the DNR or funding through MnDOT for the intersection improvements (it has already obtained a MnDOT permit for the work).

With that background and project understanding in mind, our unit developed the project APE. Since the City's plan is to continue to use the land as a park, with improved facilities for the public, the current and planned projects would not alter the use of the park (one of the determining factors in defining a project APE as per 36 CFR 800.16). The proposed current trail project and planned future park improvement projects could change the park's character; therefore, we established the APE to incorporate the entirety of the Kitchi Gammi Site Plan, as shown on page 4 of the Brighton Beach Mini Master Plan. Since the park itself is a much larger property than the limits of the proposed current and future improvements, our unit decided we needed to evaluate the full extent of Brighton Beach/Kitchi Gammi Park, the Congdon Boulevard Segment of the potentially eligible Skyline Parkway, and portions of TH 61.

For archaeology, the survey area was limited to those locations within the Kitchi Gammi Site Plan that had potential to contain intact, significant archaeological sites, which were primarily the corridors for the potential future road and the currently proposed trail (see attached Phase I archaeology report Figure 4 Mapbook). Areas closer to the lakeshore have been subject to numerous episodes of erosion, as evidenced in the photos in the Mini Master Plan, and many areas consist of fill brought in throughout the decades.

IDENTIFICATION/EVALUATION OF HISTORIC PROPERTIES

Archaeology

Based on a search of the OSA Portal in May 2019 and the consultation listed above, there are no known archaeological sites within the APE. After reviewing MnModel, past construction logs, and review of aerial photos, CRU archaeologists determine the APE had potential to contain intact, significant archaeological sites and that archaeological testing was warranted. Merjent Inc. was contracted to perform a Phase I archaeological reconnaissance survey within the APE (see enclosed report). In summary, Merjent Inc. states there were no archaeological sites identified during the field investigations, and they recommend that no

additional survey is necessary. **MnDOT CRU concurs with this recommendation and our unit has determined that no further archaeological work is warranted.**

Architectural Properties/Above Ground Resources
Our unit reviewed our GIS layer of inventoried properties created from your office's inventory dated through April 1, 2019, and conducted a desktop review of resources of the APE (Google Earth, historic and current aerials, etc.). Based on that review, we determined there were five previously inventoried properties within or adjacent to the APE: Brighton Beach Tourist Camp (SL-DUL-2328), Brighton Beach Fireplace/Shelter (SL-DUL-3132), Brighton Beach Gazebo (SL-DUL-3125); Trunk Highway (TH) 61 (XX-ROD-006, the only property previously evaluated), and Congdon North Shore Boulevard (SL-XXX-001), which was recommended by Stark in 2011 as a contributing segment of the Skyline Parkway Historic District. However, his 2011 report on Skyline Parkway was a Phase I and not a full evaluation of the property. We also identified through the research for this project (conducted with the assistance of Andrea Pizza from Deco Cultural Services) that the Brighton Beach Tourist Camp is part of the larger Brighton Beach Park/Kitchi Gammi Park property, and not a stand-alone property, as was previously thought.

Brighton Beach Park/Kitchi Gammi Park
The park along the Congdon Boulevard segment of the Skyline Parkway/TH 61/Congdon Boulevard has a somewhat complicated history due to the park's expansion over time, the use of three different names concurrently throughout its history, and changing boundaries since its creation in 1922 (the road too has a complicated history—see discussion below). In 2011, Stark Preservation Planning identified the Brighton Beach Tourist Camp as being located near the lakeshore; however, the research conducted here demonstrates that it was located on the other side of TH 61/Congdon Boulevard. The discussion below accurately depicts the park's history and changes over time. Also, see Figure 1 for a map of the park.

History
After Samuel Snively was elected mayor of Duluth in April of 1921, one of his first proposals was to obtain the land that would become Brighton Beach for incorporation into the city's park system and the establishment of a tourist camp there (*The Duluth Herald* [*Herald*] 1921a, 1921b). Snively's vision, building on the work begun more than three decades earlier by the first president of the Duluth Board of Park Commissioners, William K. Rogers, was to construct a scenic parkway system to connect Duluth's major parks. Whereas Rogers, though, proposed a parkway system running from Miller Creek to the former corporate boundary at 40th Avenue East, Snively promoted a "'combined park and boulevard system' that included . . . extending and connecting the boulevards from Jay Cooke State Park along the brow of the hill all the way to Lester Park and Brighton Beach" (Nelson and Dierckins 2017:44, 28). He stated, "Our main boulevard passing through all of the parks will be the link connecting the state highway 1 with its easterly and westerly approaches to our city" (quoted in *Herald* 1922a). This boulevard came to be called the Skyline Parkway.

Citing the importance of retaining public views to water as part of his plan, Snively stated, "Every city should own the beaches that surround it . . . We have failed to get the land west of the Lester river, except for Lakeshore park, but this mistake must not be made to the east of the river. Here the shore line must belong to the city, and now is the time to get it" (*Herald* 1921a). Approval to purchase the approximately 65-acre, 1.5-mile stretch of shoreline east of the river, referred to as the Brighton Beach tract, initially failed due to a sudden rise in the price requested by the selling party. After the amount was reduced to $46,200 in August of 1921 and a few other requirements addressed, the city council acquiesced and approved the purchase on September 28th. The purchase was made possible by the issuance of bonds payable in 1952.

In December of 1922, while mentioning Brighton Beach, the *Herald* indicated it was "about 53 acres of land" rather than 65 acres. Almost one year later, it noted that the City purchased "two parcels of land lying between the Lakeshore and Brighton Beach, [consisting of] 7.38 acres in Lot 1 and 7.92 acres in Lot 2 of Brighton Beach." By January of 1925, according to the *Herald*, Brighton Beach was up to 120 acres. It was also during this time that the Brighton Beach Tourist Camp was established on the north side of TH 61/Congdon Boulevard. In its earliest manifestation, the camp provided tent spaces around a central pavilion. By the late 1920s, a shower and toilet building were also installed.

No archival information could be located to document the extent of park development between 1925 and 1928 (research conducted at the Duluth Public Library and the archives and special collections at the University of Minnesota Kathryn A. Martin Library [Martin Library]). The 1928 annual report of the Duluth Park Department identified Kitchi Gammi Park (the name it had "unofficially" bestowed on the portion of Brighton Beach Park near the lakeshore), as one of the parks maintained that year which had not been maintained

in 1925, but says nothing about the intervening years. The report indicates work carried out there in 1928 was as follows:

> The old road running through this area close to the lake shore, which has been almost impassable for years, was reconditioned by the installation of several corrugated iron culverts and by some widening, grading and graveling. A considerable portion of the area was cleared of brush and all rubbish was removed. It is hoped that the clearing will not only open up the vistas and picnic centers, but will tend to prevent in the future, the dumping of all kinds of disagreeable waste material.

The same report states that Kitchi Gammi Park comprised 80.86 acres at that time, with 69.68 acres classified as "natural scenic park – rough topography."

In 1931, 16,000 coniferous seedlings donated by the Isaac Walton League were planted in Kitchi Gammi Park along the "upper" (north) side of Brighton Beach Road. Also in 1930 and 1931, the City constructed nine cabins in the tourist camp, which had previously supported only tent sites.

In March of 1938, the National Youth Administration completed construction of nine additional cabins in the tourist camp. In September of 1938, the *Herald* reported that funding for a two-year, $1,500,000 WPA project to improve Duluth's parks had been approved, one aspect of which was the "development of Kitchi Gammi park on the lakeshore east of the Brighton Beach tourist camp." The specifics of this development are not noted in the article, but presumably included the fireplace shelter (SL-DUL-3132) present near the shoreline today (although one article identified the fireplace as being built by the "NYC (National Youth Corps) [*sic*]" rather than the WPA [Lewis 2015]).

A 1941 WPA publication describes Kitchi Gammi Park as being on both sides of TH 61 "between E. Lester Blvd (61st Ave. E.) and Lakewood Rd. (81st Ave. E.) [with] 153 acres of native trees and several species foreign to Minnesota, with excellent picnic sites along the lake." This marks the maximum park boundaries—only six years later, the easternmost area was sold off and developed with private homes and cabins as part of the Lakewood division plat. The cabins in the tourist camp were removed in 1963 and four years later, the National Water Quality Laboratory, now an EPA research facility, was built on the site of the tourist camp; the parcel is no longer within the park boundaries. Today, the City of Duluth records the boundaries of Kitchi Gammi Park as extending from 61st Avenue E to approximately 0.6 mile west of Lakewood Road (see Figure 1).

Integrity

In addition to the elimination of two parcels from the park boundaries and the loss of the tourist camp, a significant feature of the park, the features and amenities within the lakeshore portion of the park have changed through time, resulting today in a temporal hodgepodge of elements. The fireplace was built in 1938. A historic map found by the City noted the location of the "Historic Bridle Trail Route" running through the park (see pink dashed line on pages 18-22 of Mini Master Plan) , which was apparently a foot and horse path through the park. No physical expression remains of the trail, since the area has experienced extensive episodes of erosion and placement of up to 5 ft. of fill. A system of paved and unpaved pull offs between Brighton Beach Road and the lakeshore has evolved throughout time. The area covered by the proposed Kitchi Gammi Site Plan proposal (see Page 4 of the Mini Master Plan) as well as further east on both Brighton Boulevard and Congdon Boulevard show an ever-evolving circulation system in each area, mainly consisting of a series of seemingly informal, gravel pull offs along both roads. Over time, these pull offs were consolidated, paved, and in the case of the area covered on page 4 of the Mini Master Plan, connected immediately adjacent to the lakeshore. The configurations seen today, however, were not fully in place until sometime in the 1950s. The western entrance to Brighton Beach Boulevard off TH 61/Congdon Boulevard was realigned in the late 1960s and the gabbro stones that line it and other portions of Brighton Beach Boulevard were installed at that time. A gazebo was erected sometime after 1972; and a modern playground equipment and a pavilion were built in the 1980s.

Determination of Eligibility

The Brighton Beach Park/Kitchi Gammi Park property is associated with tourism and city planning; and has significance in these areas under Criterion A from its inception in 1922 through 1963, when substantial changes were made to the park and its use with the elimination of the tourist camp amenities. Based on research conducted to date, there is no indication that there was any intentional landscape design for the park, making it not historically significant for its design under Criterion C. While the park has significance under Criterion A for tourism and city planning, it does not retain sufficient integrity to convey its association with the time period of 1922-1963 due to the removal of key elements, such as the tourist camp, the eastern portion

of the park, and the numerous changes in the lakeshore side off Brighton Beach Boulevard and along TH 61/Congdon Boulevard. These changes have diminished its ability to convey an early to mid-twentieth century park in regards to design, material, workmanship, feeling and association. The park retains good integrity of location and setting. It is therefore the determination of this unit that the Brighton Beach/Kitchi Gammi Park is not individually eligible for listing on the National Register of Historic Places.

Trunk Highway 61 (XX-ROD-005) and Congdon North Shore Boulevard Segment (SL-XXX-001) of Skyline Parkway

As with Brighton Beach Park/Kitchi Gammi Park/Tourist Camp, the roadways near the proposed project have a complicated history, with changing names/route designation and boundaries over time. Only a small portion of SL-XXX-001 and XX-ROD-006 are within the project APE, where the proposed Lakewalk Trail connects with the roadway. However, it is necessary to understand the significance and integrity of TH 61, the Congdon North Shore Boulevard Segment and the associated Brighton Beach Park/Kitchi Gammi Park as a potential contributing element in order to assess the project's effects.

In 2011, Stark Preservation Planning completed a Phase I inventory of the Skyline Parkway. In the report, he identifies segments of the parkway system and likely contributing elements. The report provides a historical context and a period of significance (1891-1940), and potential contributing elements. He further suggests ways to identify the contributing elements and boundaries of the different parkway segments.

1. The historic roadway right-of-way, where known, forms the minimal district boundaries.
2. Immediately adjacent properties or a broader setting may be included within the boundaries if the properties or area historically contribute to the recreational and scenic qualities that define the Skyline Parkway.
3. Portions or entirety of surrounding parks may be included within the district boundaries if the parkway forms an important and dominant feature of the park and if the establishment of the park and extant built features also date to the period of significance for the parkway.

Since the report was not a full evaluation and no formal determination of eligibility was made, our unit examined the report and performed a site assessment in 2019 in order to make a determination of eligibility. Further, since the time of the completion of this report, our unit's approach to evaluating roadways has changed. While a historic road's boundaries might be based on historic right-of-way, the Stark report does not provide sufficient information on how to assess a roadway's integrity. Through our study of other roads (mainly trunk highways), we now base roadway integrity assessment on factors such as the original versus the current width and material of the road surface and prism, the presence/absence and type of material for shoulders, and other features, such as the presence of turn lanes.

Stark identified the Congdon North Shore Boulevard Segment (SL-XXX-001) as a part of the larger Skyline Parkway System. The segment is a 12.8 mile-long stretch from South 61 Street East to the St. Louis County border. It is beyond the scale and scope of this undertaking to evaluate the entire parkway system, since no work is proposed to the boulevard itself (just connections along the edge of its right-of-way). While he noted that the interchange with the expressway altered approximately 700 feet of the original road, the Phase I effort did not include a detailed analysis of the integrity of the rest of the road. We therefore examined the history, significance and integrity of this segment.

Congdon Boulevard was built in the early 1920s as an 18-foot wide concrete-surfaced road with no shoulders as a part of the Skyline Parkway system. In the 1930s, it was incorporated into the state's Trunk Highway system and reclassified as Trunk Highway 61. The roadway was expanded in 1951-1952 to 24-feet with bituminous overlay with gravel shoulders (width not specified but likely 2 ft. each side). In the late 1950s and early 1960s, the Minnesota Highway Department built an expressway between Duluth and Two Harbors, which became Trunk Highway 61. This resulted in a modification to the original road alignment to incorporate the expansion into a four-lane expressway. The old highway north and east of the new expressway interchange was again called Congdon Boulevard, and repaved. During the 1951-1952 project, 16 small, pull-off waysides off TH 61/Congdon Boulevard between Duluth and Knife River were constructed by the Minnesota Department of Highways. Five of these are within the current boundaries of Kitchi Gammi Park. An interpretive marker pertaining to the Skyline Parkway was installed in the westernmost one, located approximately 300 feet east of the Lester River, in 1972. At the next wayside to the east, approximately 0.2 mile east of the Lester River, a tourist information building was constructed during the 1960s. In 1998, the gravel shoulders were paved (4 feet in width) (see Figure 2).

XX-ROD-006/TH 61 in this location was determined not eligible in 2017 under the context of Trunk Highways

(1921-1954). The roadway was determined to lack integrity from the 1921-1954 period of the Trunk Highway development (the four-lane expressway [XX-ROD-005] was determined eligible for the National Register; however, it is outside the APE for this undertaking).

In evaluating the integrity of the road in association with Skyline Parkway, the roadway between East 61 Street and Lakewood Boulevard has poor integrity. As described above, the road was widened and surfaced with a different material after the proposed period of significance for Skyline Parkway (1891-1940), altered to incorporate the expressway interchange, and had paved shoulders installed, all of which changed the material, design, workmanship, feeling and association of the road. The road's integrity of location and setting are good. In the same way the roadway does not have the integrity to convey its association with its time as a trunk highway from the early to mid-twentieth century, it also has compromised integrity to covey its association with the Skyline Parkway's period of significance (ending in 1940) when it was an 18-foot-wide concrete road with no shoulders.

Determination of Eligibility
Due to the lack of integrity for this portion of the Congdon North Shore Boulevard and the Brighton Beach Park/Kitchi Gammi Park as detailed above, it is the determination of this unit that both the Congdon North Shore Boulevard and the Brighton Beach Park/Kitchi Gammi Park are non-contributing elements to the Skyline Parkway.

Brighton Beach Fireplace/Shelter (SL-DUL-3132)
Because our unit has determined that Congdon North Shore Boulevard and the Brighton Beach Park/Kitchi Gammi Park/Tourist Camp do not retain sufficient integrity from the end of the period of significance for the Skyline Parkway (1940), there is no further consideration of if the Brighton Beach Fireplace/Shelter (SL-DUL-3132) is a contributing element.

The fireplace shelter was evaluated with reference to the registration requirements for social and recreational facilities within the National Register Multiple Property Documentation Form for Federal Relief Construction in Minnesota, 1933-1943 (MPDF). While the overall 1.5 million-dollar parks improvement project under which the shelter was likely constructed may have been particularly important to Duluth, taken individually, the shelter does not meet this registration requirement (3a). It is noted that while the fireplace shelter exhibits fine craftsmanship using indigenous stone, this quality is common to numerous federal relief-era buildings, structures, and objects in the Rustic style throughout the state; the shelter, while attractive, does not stand out as a representative of this style, even when only the regional or local level is considered (3b). It is possible that this fireplace shelter is a relatively unique type of structure for the federal relief era in Minnesota (3c). Rarity alone, however, is not sufficient to bestow significance on a property, and as the shelter does not constitute a particularly important federal relief project; stand out from an architectural or engineering standpoint; or appear to have played an identifiably significant role in Duluth's recreational history. Registration requirement 4 indicates that a building or structure constructed as part of a larger complex, such as a park, parkway, wayside, or zoo, may not be considered eligible unless the original landscape design and spatial and functional relationships remain intact. The park lack integrity of design from the 1933-1943 era, so any association between this building and a larger complex is lost. Therefore the fireplace does not meet Registration Requirement 4. Due to a lack of significance, the Brighton Beach Fireplace/Shelter (SL-DUL-3132) is not individually eligible for listing in the National Register.

Brighton Beach Gazebo (SL-DUL-3125)
Because our unit has determined that Congdon North Shore Boulevard and the Brighton Beach Park/Kitchi Gammi Park/Tourist Camp do not retain sufficient integrity from the end of the period of significance (1940), we further determine that the Brighton Beach Gazebo (SL-DUL-3125) is not a contributing element; and that it does not have exceptional significance (since it is less than 50 years old, having been installed sometime after 1972) on its own to warranted further investigation/evaluation for individual eligibility, especially considering the scale and scope of this undertaking.

Assessment of Effects
It is the finding of this unit that the project as proposed would have **No Adverse Effects** to any historic properties. The Congdon Boulevard Segments and associated Brighton Beach/Kitchi Gammi Park are non-contributing to the larger potentially eligible Skyline Parkway (which we are treating as eligible for the purposes of this review since it has not had a full Phase II evaluation). The portion of the park within the current trail project area and the future Kitchi Gammi Park Site Plan especially have poor integrity. The proposed trail and future site improvements will be placed in an area with compromised integrity from the 1891-1940 era,

and the proposed changes do not represent a significant change to the character of this small segment of a very large resource (Skyline Parkway). The proposed site improvements continues to provide vehicular access, parking, access to the beach and recreational use of the area, and continues the historical pattern of cyclical improvements to the amenities in this area. Without the proposed work, the end result will be the removal of the road and vehicular use of the park, which has been a key feature since its founding. When comparing options—closing the park to vehicular traffic versus very minor modifications to the design and circulation patterns in an area with marginal integrity from the early to mid-twentieth century—it is best for the resource as a whole to remain open to vehicular traffic and used in a similar manner as it has been throughout its history.

Our office will submit updated inventory forms on all the properties discussed in this letter, since our research has clarified their history and integrity within three (3) months of your response to this letter.

This letter also fulfills the City's obligations under the Field Archaeology Act (M.S. 138.40 Cooperation of State Agencies; Development Plans) and the Private Cemeteries Act (M.S. 307.08, Subd. 10). Since there are no properties listed on the State or National Register of Historic Places in the APE, and no known or suspected archaeological sites or burials, the City of Duluth has no further obligations under these acts unless there are any unanticipated discoveries during construction.

Sincerely,

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Ben VanTassel, Duluth Heritage Preservation Commission (email)