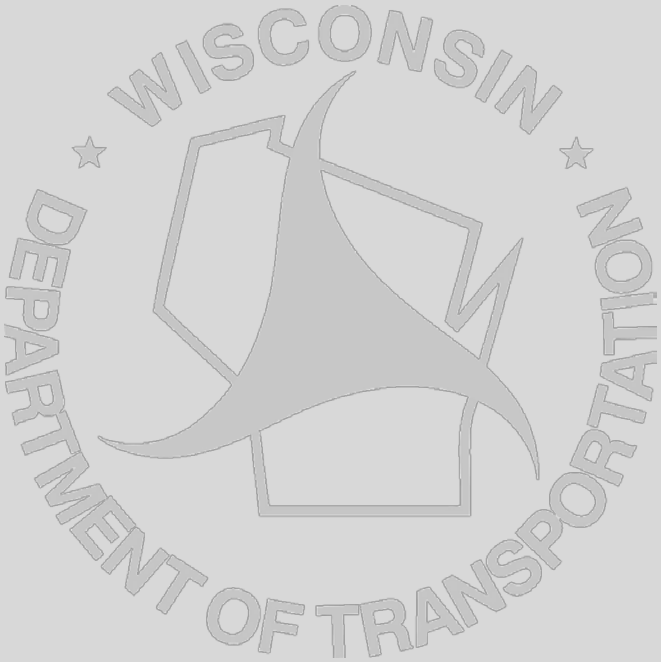
STRUTURE SURVEY REPORT WORKSHOP

Division of Transportation System Development

Bureau of Structures



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CORRESPONDENCE/MEMORANDUM.....BUREAU OF STRUCTURES

Date: November 13, 2007

To: Region Designers

From: Bill Dreher, DTSD, BOS, Structures Design Section

SUBJECT: 2007 Structure Survey Report Workshop

This is the handbook for the Training Course titled “Structure Survey Report Training”.

This handbook contains “typical” examples of Structure Survey Report (SSR) submittals. We feel that it is important to have good working examples of the various SSR’s and attachments to help understand the type of information that is needed to complete preliminary and final structure design.

Also included in this handbook is information about project scheduling, geotechnical coordination, structure details, structure cost, and consultant preliminary plan submittal.

It is our desire to provide this information and training in order to maintain and improve the working relationships between the Region Project Development Designers and Structures Designers, improve product quality, and reduce design costs.

TABLE OF CONTENTS

1. STRUCTURE SURVEY REPORT WORKSHOP

Structure Survey Reports are the primary tools that Region Project Development Designers use to request structure design services from the Structures Design Section.

The purpose of this workshop is to maintain and improve the working relationships between the Transportation Regions and the Structures Design Section. One key factor of a successful working relationship is the communication of expectations and information required for the design of projects.

The primary goal of the workshop is to clearly define the data in the SSR needed to help Structures designers to supply the Regions with the plans they require. This workshop will also cover scheduling, geotechnical coordination, structure types that are typically used, structural details that can be utilized, relative cost of various structure types, and the review and approval of consultant preliminary and final plans.

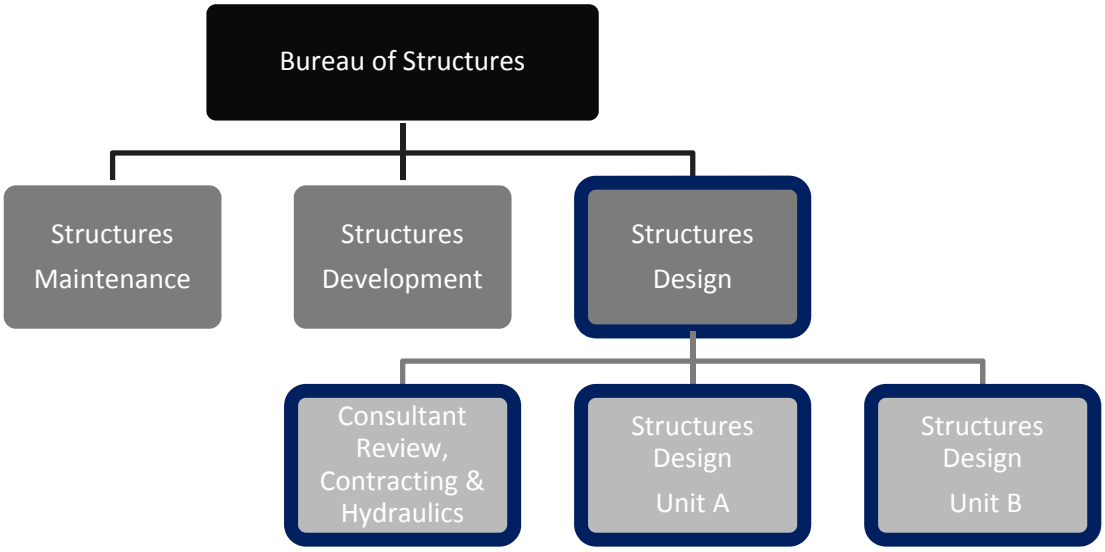
Ultimately the results of good communication between Region designers and Structures designers will be reduced design cost, reduced re-design frequency, and improved project quality.

OVERVIEW

- Bureau of Structure organizational structure, specifically structures design staff and liaisons duties
- structure project schedule and geotechnical coordination
- various structure types typically used and conditions that may influence design
- relative cost of various structure types
- structure elements and aesthetics
- consultant Preliminary Plan submittal and approval process

BUREAU OF STRUCTURES

The Bureau of Structures is composed of three different sections, Structures Maintenance, Structures Development and Structures Design. The Structures Design section will be the primary focus of this manual since the Structure Survey Report (SSR) is the primary tool available to the Region Project Development Designers for requesting structure design services from the Structures Design section. The SSR is also a tool used by design consultants to document structure survey and design considerations for preparation of preliminary structure plans.



SUPPORT SERVICES

- Address design/construction-related structure questions
- Site visits to aid in structure selection
- Aesthetic concepts and alternatives for structures
- Attend project scoping meetings
- Economic studies for structure types including rehab vs. replacement
- Participate in Value Engineering studies
- Preliminary design and plan development for bridges
- Final design and contract plan development for bridges
- Design and contract plan development for retaining walls and sign structures
- Cost estimates for new and rehabilitation structures work
- Review fabrication drawings
- Floodplain hydrologic and hydraulic studies
- Participate in selection of structural engineering consultants
- Mentor, train and support region structural staff
- Review consultant plans
- Manage consultant contracts and services

STRUCTURES DESIGN SECTION

The Bureaus of Structures, Structures Design Section consists of three units. The two design units follow projects from early project scoping through construction. The Consultant Review, Contracting and Hydraulics unit reviews consultant plans, performs hydraulic and scour analyses for in-house designs, assists the regions with Detention Basin Design and DNR floodplain coordination. In addition to addressing design and construction related questions, the units will be assisting the regions with project scoping, Value Engineering Studies, cost estimating, selecting structural engineering consultants, and supporting Region staff.

Structures Design Section Staff

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Bill Dreher 608-266-8489

Design Unit A

Unit Supervisor

Aaron Bonk 608-261-0261

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Nick Rice..... 608-266-5092
John Sendor 608-266-5163
Adam Swierczek..... 608-267-4593
Vu Thao..... 608-267-2869
Stacie Weis..... 608-261-6109

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Dean Smith..... 608-266-5091

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Micah Brooks 608-266-5080
Brandan Burger.....608-267-4019
Alex Crabtree 608-266-3686
Dominique Bechle.....608-261-8205
Chris Doll.....608-266-3229
Michael Larson.....608-267-4539
Dan Monroe.....608-266-8490
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Warner Risser.....608-266-5081

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Steve Revello 608-266-5095

Engineer Specialist

Chris Foltman..... 608-266-5094

REGION LIAISONS

The Structures Design Section will have an engineer assigned to each one of the five regions to act as a liaison. The liaisons will serve as the main contact between the regions and the Structures Design Section. The following is the list of the liaisons:

Southwest Region:	Brandan Burger	brandan.burger@dot.wi.gov
Southeast Region:	Vu Thao	vu.thao@dot.wi.gov
Northwest Region:	Nick Rice	nick.rice@dot.wi.gov
Northeast Region:	Tim Borowski	tim.borowski@dot.wi.gov
North Central Region:	Emily Kuehne	emily.kuehne@dot.wi.gov

SCHEDULING

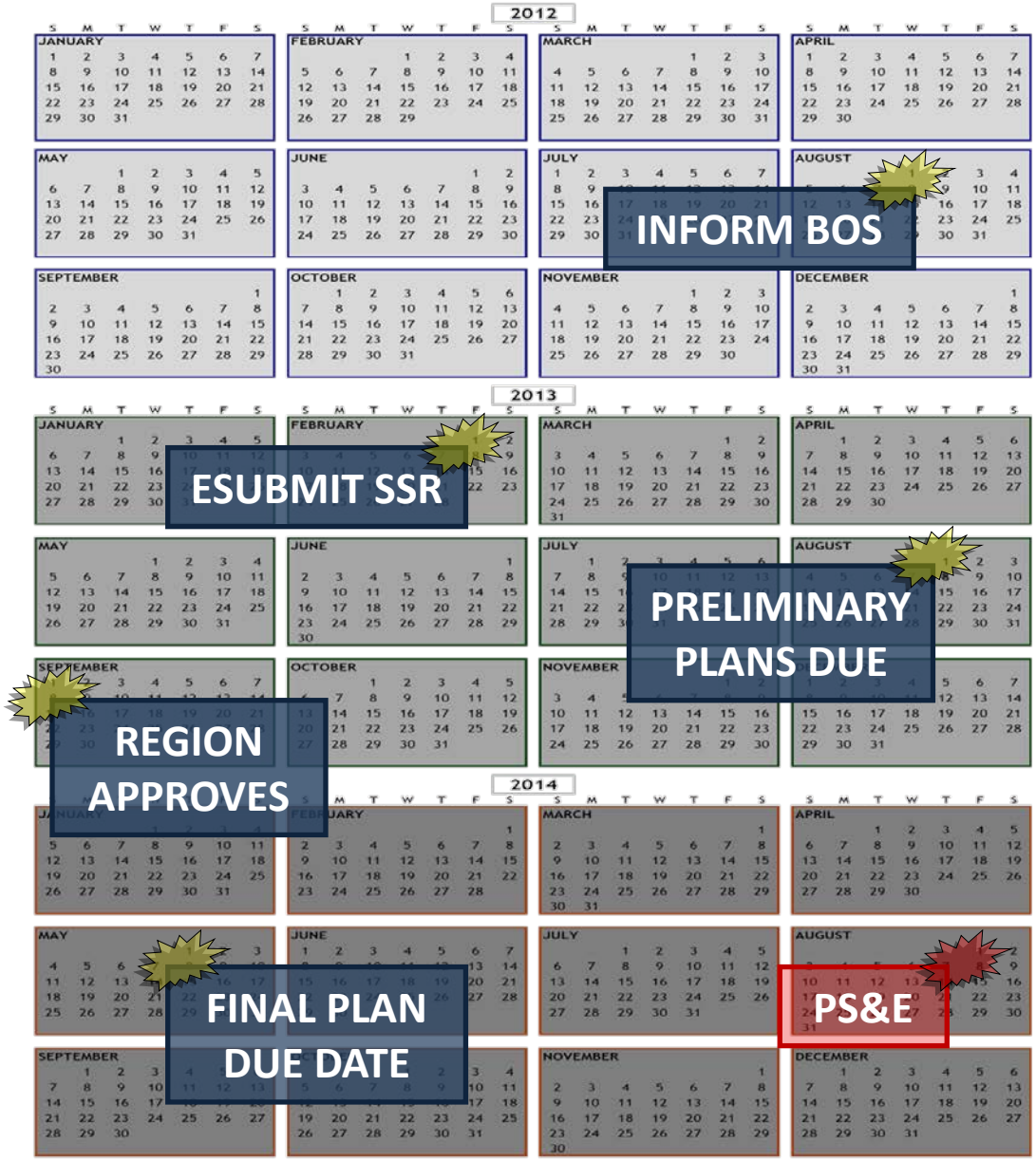
2. SCHEDULING

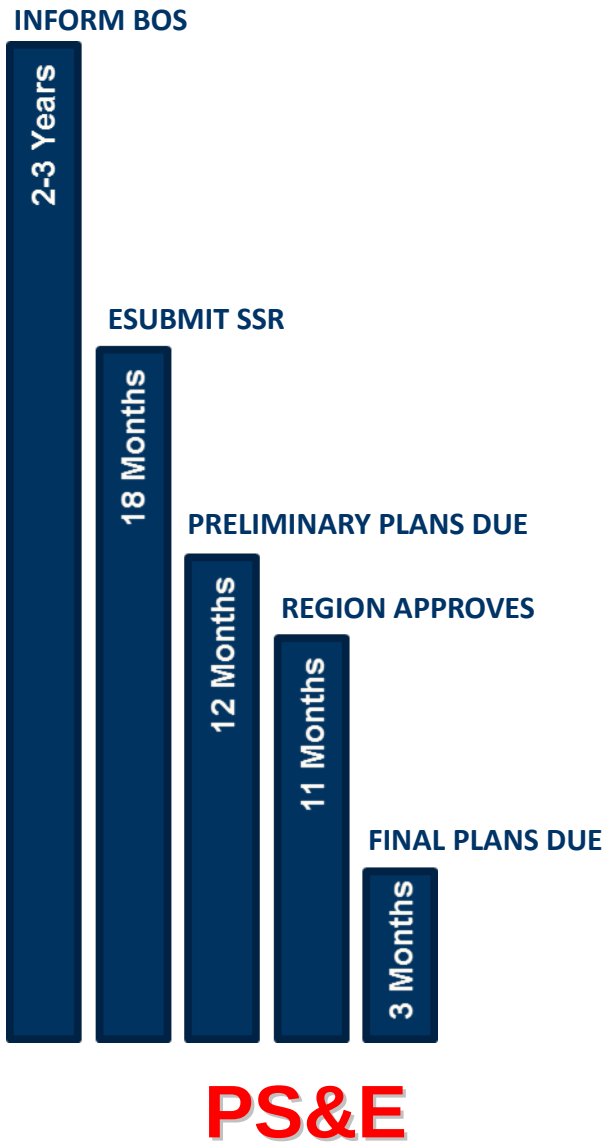
It is important to understand how the development and submittal of the Structure Survey Reports fit into the schedule of the entire project. The following will discuss the Bureau of Structures (BOS) and Geotechnical Coordination project schedule.

BOS PROJECT SCHEDULE

The following deadlines relate to in-house structures design project scheduling and how the submittal of the SSR fits into the bigger picture.

WHO	WHAT	WHEN
Region	Early notification to Bureau of Structures (BOS) of anticipated need for Structures Design services.	2–3 years prior to PS&E date
BOS	Design Unit supervisors determine if structures work will be taken in-house or consulted out.	
Region	SSR and supporting documentation are submitted through the WisDOT ESubmit process.	18 months prior to PS&E date
BOS	Preliminary design and plan preparation.	
BOS	Preliminary Structure Plan completed and a copy sent to the Region and geotechnical engineer.	12 months prior to PS&E date
Geotechnical Section	Perform soil borings and develop Site Investigation Report.	
Region	Review Preliminary Structure Plans and get comments back to BOS. Give “go-ahead” to move onto final design.	11 months prior to PS&E date
BOS	Approximately 8 months to complete the final structure design and plans.	
BOS	Submits Final Structure Plans and Estimate. Copy of final plans sent to the Region.	3 months prior to PS&E date
Region	Review Final Plans and provide comments to BOS.	1 month prior to PS&E date
BOS	Structure plans become part of the Central Office “eplans” process. The “official” structure plans will remain in the Bureau of Structures for insertion into the final plan documents by the Central Office Plans Examiner.	PS&E date


2012
2013
2014
INFORM BOS
ESUBMIT SSR
PRELIMINARY PLANS DUE
REGION APPROVES
FINAL PLAN DUE DATE
PS&E


INFORM BOS
2-3 Years
ESUBMIT SSR
18 Months
PRELIMINARY PLANS DUE
12 Months
REGION APPROVES
11 Months
FINAL PLANS DUE
3 Months
PS&E

GEOTECHNICAL COORDINATION

Soil boring coordination for Bureau of Structures (BOS) designed structures begins before the submittal of the Structure Survey Report (SSR). When the SSR is submitted it should be noted in the "Additional Information" section whether Central Office Bureau of Technical Services (BTS) or a Consultant will be completing the geotechnical report.

On the following page is a flowchart highlighting the soil boring coordination for BOS designed structures. Once it is determined that BOS will be completing the structure design, the Region Project Development Section (PDS) should discuss the project scope with their Region Soil Engineers. The Region Soil Engineers should then send an email BTS requesting Geotechnical Engineering and Subsurface Exploration Work. The Geotechnical Engineering and Subsurface Exploration Unit supervisors then review project details provided and either accept or decline work, informing the Region Soils Engineer and copying BOS supervisors for their records.

Request for Geotechnical Engineering and Subsurface Exploration Work should be sent in an e-mail to the following:

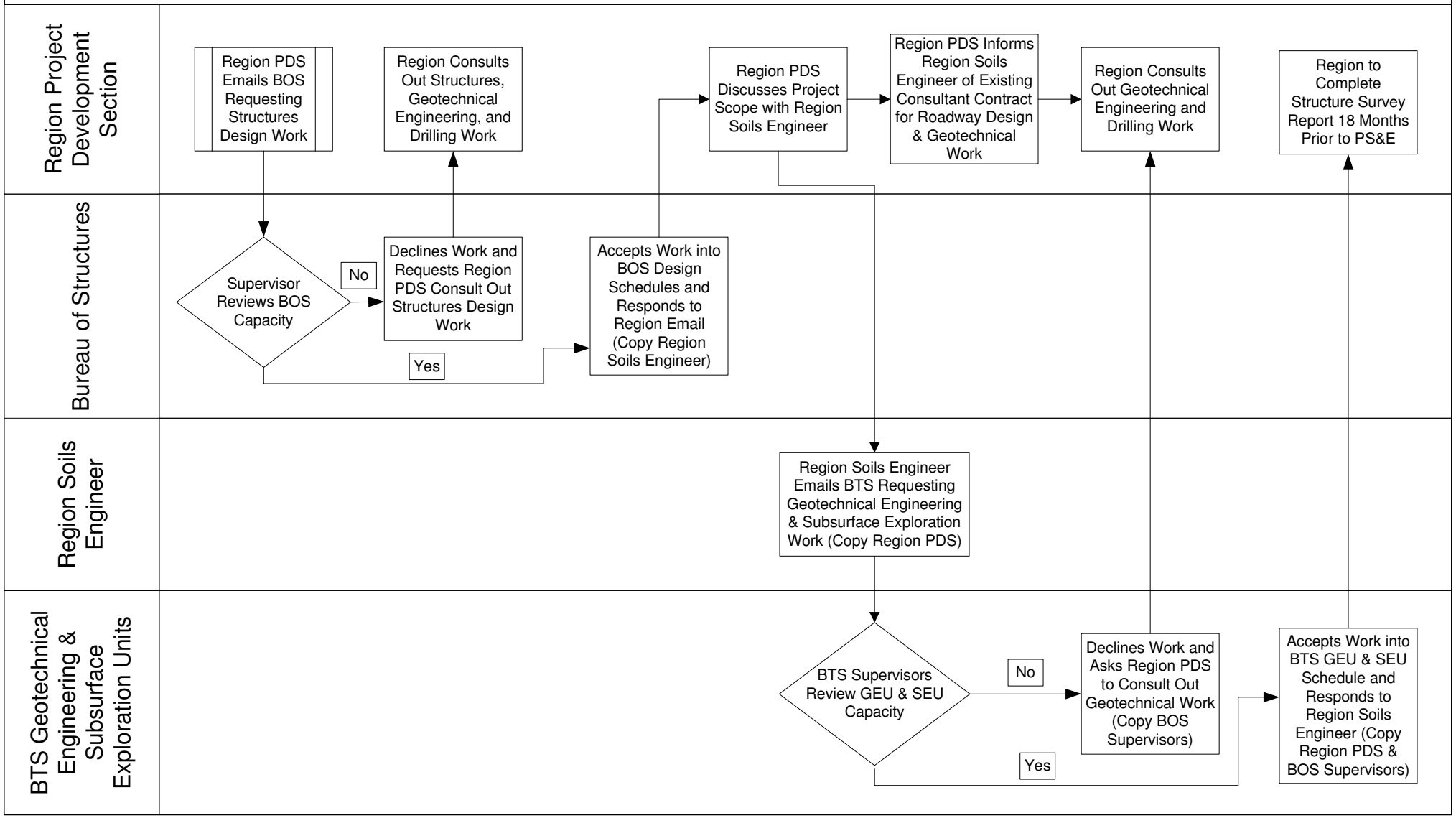
TO: Bureau of Technical Services
- Subsurface Exploration Unit Supervisor
  Penny Rollins
- Geotechnical Unit Supervisor
  Bob Arndorfer

CC: Region Project Development
- Region Project Manager

This e-mail should include the following relevant project information:

a. Who is completing the roadway/PDS design work
b. Who is doing the roadway soils investigation/report
c. Expectations of encountering other non-structure geotechnical issues such as marsh, bedrock, slope stability issues, etc.
d. What is the timeframe for the structure work, i.e. PSE/Let dates
e. How many structures, and what types of structures, are involved in the project
f. What are approximate sizes of structures (any requiring barge drilling work or difficult site access)
g. What is the expected level of traffic control/coordination needed for borings
h. Will there be coordination with others required (RR, DNR, County, Municipality, dam operators, etc.)
i. Is there a possibility of retaining walls to be associated with the bridges
j. Is there a possibility of sign/light/high mast light structures and/or noise walls that need geotechnical drilling/reports

Determination of Structures, Geotechnical Engineering, and Subsurface Drilling Work



TYPICAL WISCONSIN STRUCTURE TYPES AND FEATURES

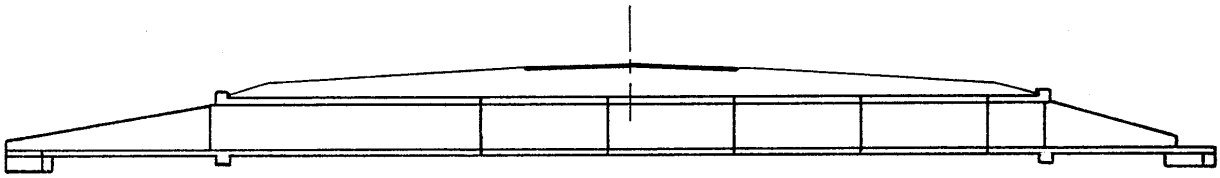
3. TYPICAL WISCONSIN STRUCTURE TYPES AND FEATURES

In selecting the most economical structure, ease of fabrication and erection, general features of terrain, hydraulic considerations, constructability, roadway geometrics, subsurface exploration and geographic location in the State of Wisconsin are considered. The proposed structure should blend into existing site conditions in a manner that does not detract from its surrounding environment. Every attempt should be made to select an aesthetically attractive structure consistent with structural requirements, economy and geographic surroundings while considering the future maintenance needs.

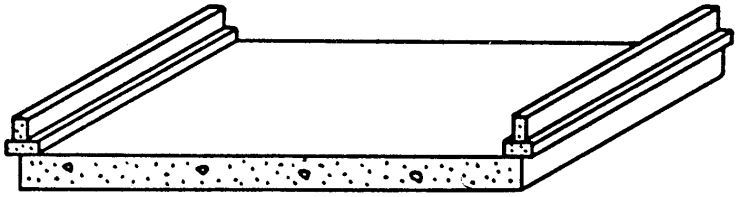
BRIDGE SELECTION CRITERIA

The selection of the proposed structure type is based on evaluation of the Structure Survey Report including accompanying supplemental data, site considerations, anticipated construction costs and past experience. A space is provided on the SSR to give a preference for structure type, but ultimately comes down to the decision of the design engineer in selecting the most appropriate type. The use of non-redundant structures, including single-box and two-box steel girder bridges should be avoided unless absolutely necessary. Common Wisconsin DOT bridge types are shown in the following pages.

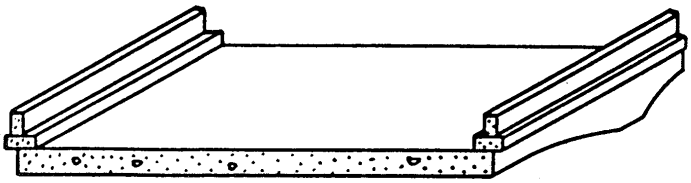
For a more detailed discussion of structure type refer to Bridge Manual Chapter 17.



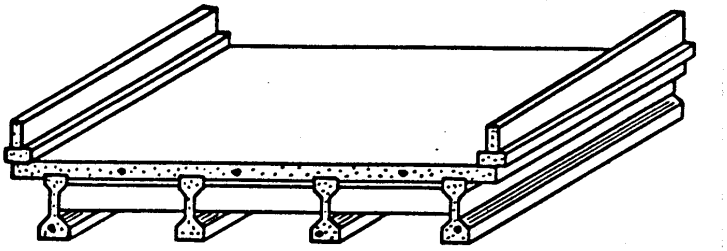
BOX CULVERT



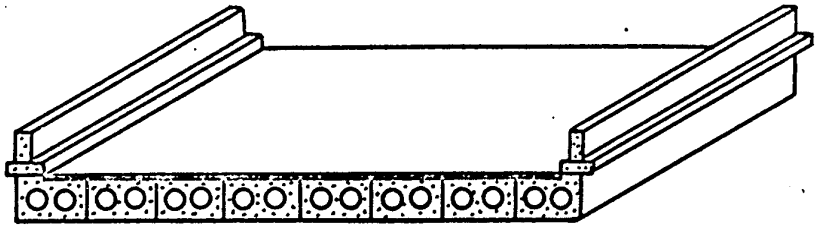
FLAT CONCRETE SLAB



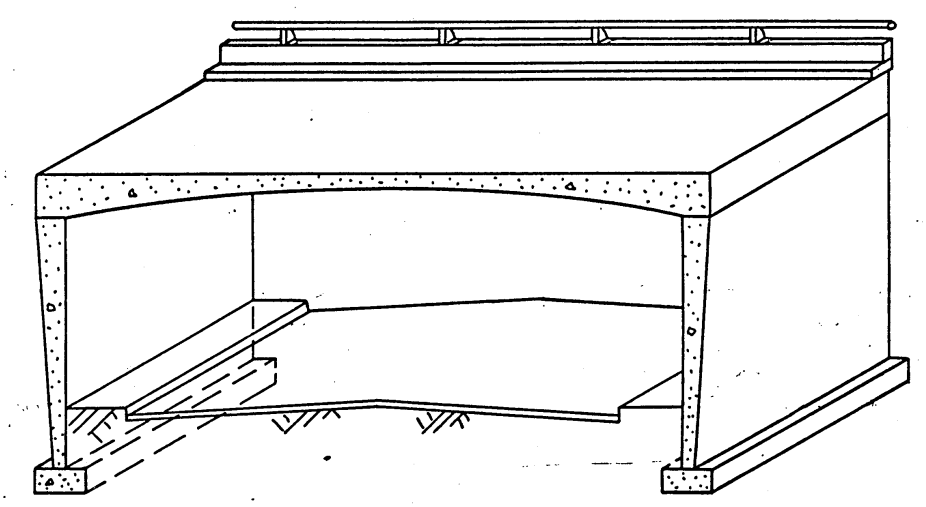
HAUNCHED CONCRETE SLAB



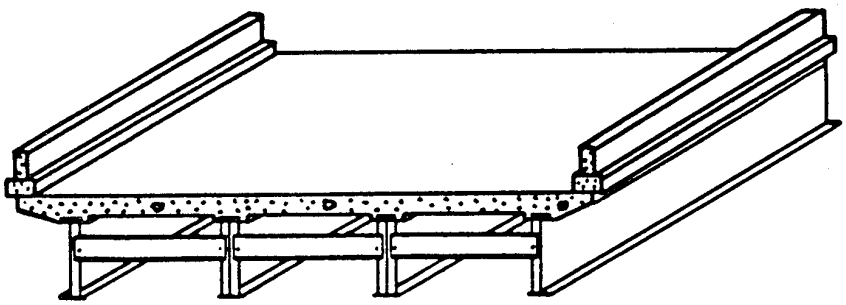
PRESTRESSED GIRDER



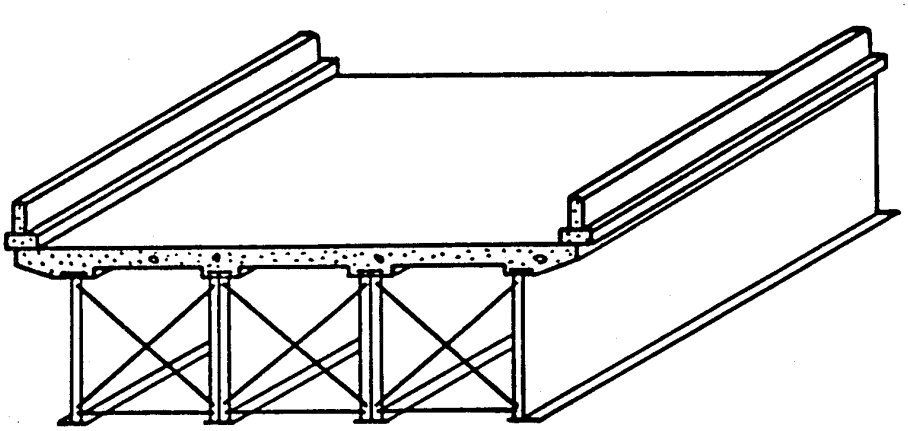
PRECAST PRESTRESSED SLAB



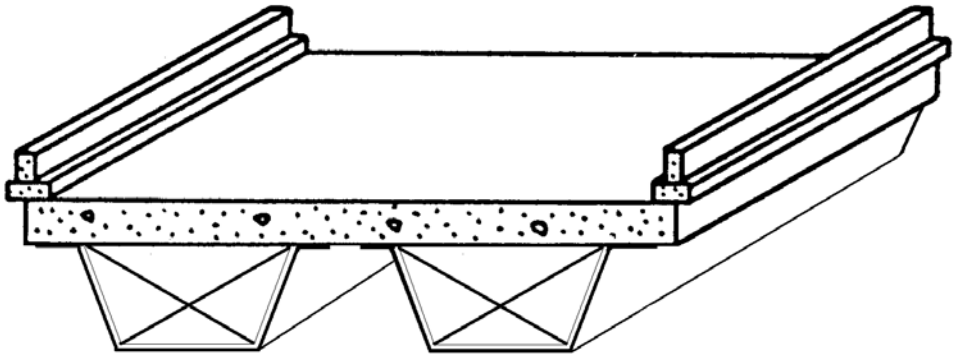
CONCRETE RIGID FRAME



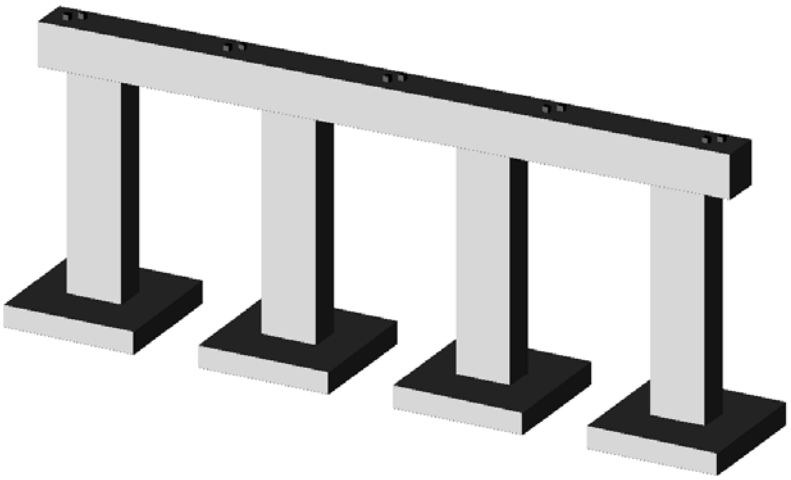
STEEL BEAMS



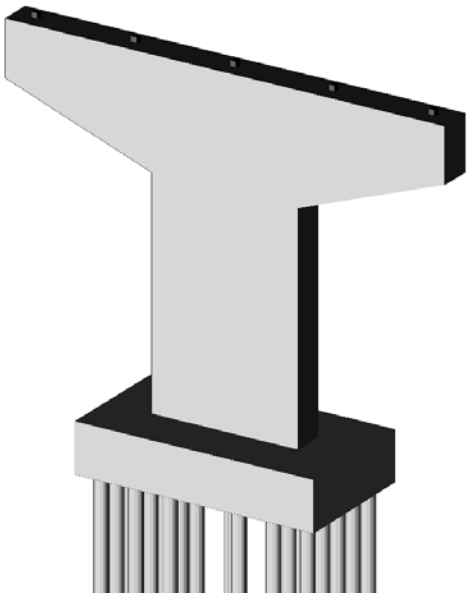
STEEL PLATE GIRDERS



STEEL TUB GIRDERS



MULTI COLUMNED PIER



HAMMERHEAD PIER

BRIDGE RAILING SELECTION CRITERIA

The bridge railing for new and rehabilitation projects shall be preliminarily determined by the Region and listed in the Structure Survey Report under "Additional Information." Common WisDOT railings are shown in the following pages to aid in the railing selection.

The primary purpose of bridge railings shall be to contain and redirect vehicles and/or pedestrians using the structure. In general, there are three types of bridge railings – Traffic Railings, Combination Railings, and Pedestrian Railings. The following guidelines indicate the typical application of each railing type:

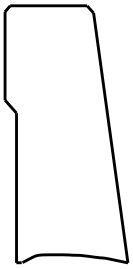
1. Traffic Railings shall be used when a bridge is used exclusively for highway traffic.
   - Traffic Railings can be composed of, but are not limited to: single slope concrete parapets, sloped face concrete parapets, vertical face concrete parapets, tubular steel railings, and timber railings.

2. Combination Railings can be used concurrently with a raised sidewalk on roadways with a design speed of 45 mph or less.
   - Combination Railings can be composed of, but are not limited to: single slope concrete parapets with chain link fence, vertical face concrete parapets with tubular steel railings such as type 3T, and aesthetic concrete parapets with combination type C1-C6 railings.

3. Pedestrian Railings can be used at the outside edge of a bridge sidewalk when a Traffic Railing is used concurrently to separate highway and pedestrian traffic.
   - Pedestrian Railings can be composed of, but are not limited to: chain link fence, tubular screening, vertical face concrete parapets with combination type C1-C6 or type 3T railings, and single slope concrete parapets.

Selection criterion for bridge railings is listed below:

- All railing must be crash-tested.
- Railing must meet criteria for TL-3 or greater to be used on all roadways.
- Railings meeting TL-2 criteria may be used on roadways where the speed is 45mph or less.
- A concrete barrier between vehicular traffic and pedestrian traffic is required if speed is greater than 45 mph.
- Open metal railing may be used if roadway slope is less than .5%.
- Environmental concerns may impact railing choices.
- Aesthetic considerations may impact railing choices.
- Protective screening required on overpasses with pedestrian traffic.

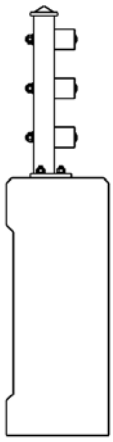


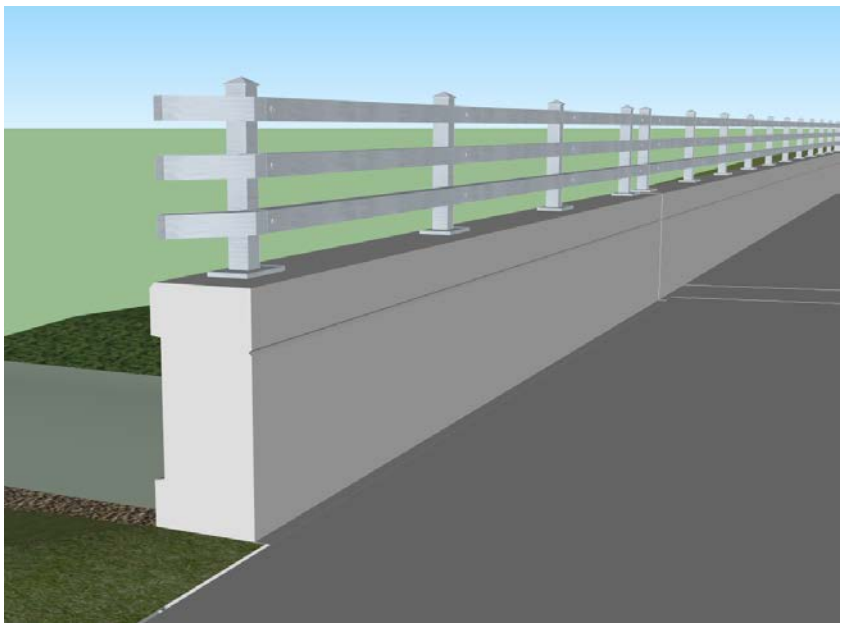
Type 32/36/42/56SS” Parapet

new design - meets TL-4 criteria
specify required height

Type LF parapet

rehab, commonly used (prior to ##SS” Parapet) - meets TL-4 criteria



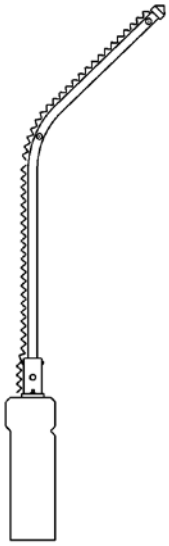


Type A Parapet with 3T Rail

new design with sidewalk - meets TL-4 criteria
specify required

Type A Parapet with H Rail

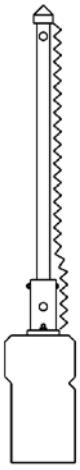
typically rehab work - meets TL-4 criteria
specify height of Type A parapet



Type A Parapet with Bent Chain Link Fence

new design with sidewalk in urban areas - meets TL-4 criteria

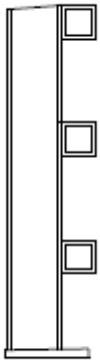
2’-8” Type A Parapet



Type A Parapet with Decorative Fencing

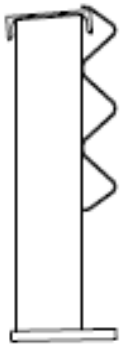
new design with sidewalk in urban areas - meets TL-4 criteria

specify required parapet and fencing height



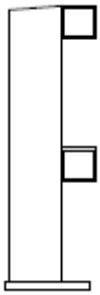
Type M Rail

typically rehab, where an open railing is desired – meets TL-4 criteria



Type W Rail

typically rehab, where an open railing is desired - meets TL-3 criteria
used on structures 80 ft or less in length



F Rail

not to be used on rehab

DECORATIVE RAILS

Texas Rail

Costly – Meets TL-2 criteria – 45 mph or less

Combination Railing

Meets TL-2 criteria – 45 mph or less

DECORATIVE RAILS

Type PF Rail

Modified F Rail

AESTHETIC FEATURES ON STRUCTURES

The desired aesthetic features of the structure need to be listed in the Structure Survey Report under "Additional Information." This is required when requesting an aesthetic level 2 and higher. There may be multiple organizations that have input into the desirable look of the structure such as locals, DNR, as well as Bureau of Structures. It is imperative that the structural design engineer is involved early in the aesthetic decision making process for a given structure. BOS should have early representation on projects with considerable aesthetic concerns, and should be consulted before options are presented to local stakeholders. When choosing desired aesthetic features please keep in mind the long term maintenance requirements and associated costs.

In July of 2015 the state budget reduced state Community Sensitive Solutions, or C-S-S funding to zero. CSS are aesthetic and community elements that can be included on projects in hopes of improving local acceptance.

What does this mean to aesthetics on structure projects?

- Depending on the project funding this means certain aesthetic features are to be paid for by the municipality.
- Very low cost aesthetic enhancements through appropriate shape and geometric relief will continue to be included in project costs and considered non-CSS.

BOS has developed a few non-CSS, funded aesthetic concepts. The three types, or options, use a combination of rustications and recessed panels to complete the look. There are new standard details that can be found on standards 4.02-4.05 located on the Bureau of Structures webpage, detailing the 3 types.

Additionally, updated guidance in Bridge Manual Chapter 4 shows renderings of each type.
The SSR requires the level of aesthetics desired to be identified. Below is a short explanation of each level. For a more in-depth explanation please see Bridge Manual Chapter 4.

- Level One – Standard structure details, no aesthetics
- Level Two – Cosmetic improvements. Use of color stains/paints, texturing surfaces and more pleasing column shapes. (see BOS non-CSS aesthetic concepts)
- Level Three – Structure needs to blend in with existing landscape. Structure systems that are more architecturally pleasing such as shaped piers and smooth superstructure lines.
- Level Four – Level Three plus landscape design of the surrounding area would be required to complete the appearance.

When determining aesthetics for a structure keep in mind that aesthetics should aim to be:

- Low maintenance
- Aesthetically pleasing
- Funded appropriately
- Applied appropriately
- Appropriate for surrounding area
- Provisions and agreements between WisDOT and local communities should be established for future maintenance.


LEVEL 1


LEVEL 2


LEVEL 3


LEVEL 4

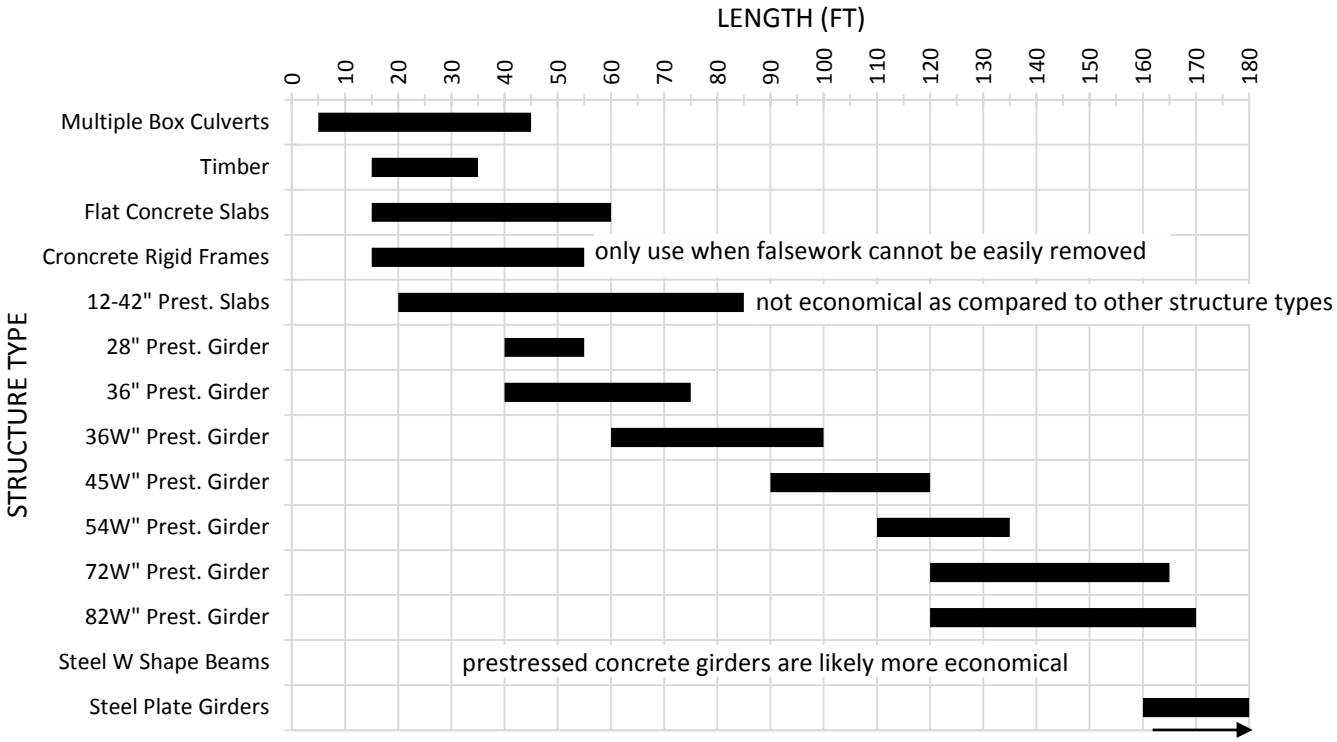
STRUCTURE COSTS

4. STRUCTURE COSTS

Average structure costs are tabulated from bids received for all bridges let in a given year. While these costs indicate some trends, they do not reflect all the factors that affect the final bridge cost. Each bridge has unique conditions which affect the construction cost. Some factors governing bridge costs are: location, superstructure type, constructability, foundation type, subsurface conditions and depth and velocity of water.

ECONOMIC SPAN LENGTH

The graph shown indicates the economic span lengths of various structure types based on typical conditions. Refer to Bridge Manual Chapter 17 for discussion on selecting the type of superstructure.



BRIDGE COSTS

Annual bid letting costs per square foot by structure type are included in Bridge Manual Chapter 5. The area of bridge is from back to back of abutments and out to out of concrete superstructure. In using these cost reports, exercise care when a small number of bridges are reported, as these costs may not be representative.

SSR INTRODUCTION

5. SSR INTRODUCTION

The Structure Survey Report is the primary tool available to the Region Project Development Designers for requesting structure design services from the Structures Design Section. The SSR is also a tool used by design consultants to document structure survey and design considerations for preparation of preliminary structure plans. When submitted for design the engineers are relying on the information provided on the SSRs and in the accompanying material for all their information. It is essential that the information provided is accurate and complete.

3 DIFFERENT STRUCTURE SURVEY REPORT FORMS

- Separation, DT1694
  Grade Separation, Railroad, Retaining Wall, Noise Barrier, Sign Structure, High Mast Lighting
- Rehabilitation, DT1696
  Grade Separation, Stream Crossing, Culvert, Railroad, Retaining Wall, Noise Barrier, Sign Structure
- Stream Crossing, DT1698
  Stream Crossing, Box Culvert, Box Culvert Extension

STRUCTURE SURVEY REPORT FORM LOCATIONS

All forms can be accessed through the DOTNET or Extranet:

http://www.dot.wisconsin.gov/forms/index.htm
http://dotnet/forms/authorized.htm

WHERE TO START!?

1. determine which Structure Survey Report form is appropriate for your type of structure work
2. download and save form to your computer
3. read instructions on page 1 of Structure Survey Report
4. see completed SSR examples in following chapters of this manual
5. use checklists
   http://on.dot.wi.gov/dtid_bos/extranet/structures/reports-checklists.htm
6. use Blue Sheets (SSR forms with helpful sticky notes)
   http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/survey.aspx
7. read chapter 6 and other appropriate chapters of the Bridge Manual
   http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/bridge-manual.aspx
8. read appropriate sections of the FDM
   http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/rdwy/fdm.aspx
   - Chapter 3 Section 20
   - Chapter 9 Section 55
   - Chapter 11 Section 35
9. contact Bureau of Structures with any questions not covered in the above materials
   - Region Liaison

SEPARATION
STRUCTURE SURVEY REPORT

E-SUBMIT CHECKLIST

GRADE SEPARATION STRUCTURE SURVEY REPORT

1 STRUCTURE SURVEY REPORT

- ☐ **Complete DT1694, Structure Survey Report ☒Grade Separation**
  - *SSR Workshop Manual and Videos*
  - *Bridge Manual Chapter 6.2.1*

2 SUPPORTING DOCUMENTATION

PDF Files:

- ☐ **Project Location Map**
  - *structure location and number*
  - *other proposed structures within project limits*
- ☐ **Plan and Profile Sheet (graphical or tabulated)**
  - *horizontal curve data*
  - *vertical curve data (grades to nearest thousandth)*
  - *super transition locations*
- ☐ **Typical Roadway Cross Section**
  - *typical dimensions, slopes, clear zones, sidewalks, curb and gutter, etc.*
- ☐ **Labeled Photographs**
  - *existing structures, utilities, buildings, etc.*
- ☐ **Preliminary Staging Plan (if required)**

DGN Files:

- ☐ **Alignment**
- ☐ **Proposed Pavement**
- ☐ **Utilities**
- ☐ **Contours**
- ☐ **Base Mapping**
- ☐ **Right of Way**
- ☐ **Cross Section**
  - *at proposed structure*
  - *at existing structure (if applicable)*

3 SUBMITTAL

- ☐ **E-Submit**
  - *STRUCTURE SURVEY REPORT and SUPPORTING DOCUMENTATION are submitted using the E-Submit process (as "BOS DESIGN")*
  - *E-Submit*
  - *E-Submit Help*
- ☐ **Email: Region Soils Engineer**
  - *IMPORTANT! The formal notice of the project to the Region Geotechnical Section*
  - *State on the SSR who will be doing the geotechnical work/soil borings*

SEPARATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1694 6/2012

☐ **Grade Separation** ☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **High Mast Lighting** ☐ **Other:** _____

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID	Construction Project ID	Highway (Project Name)			
Final Plan Due Date	Preliminary Plan Due Date	☐ Town ☐ Village ☐ City			
PS&E Date	Letting Date	County			
New Structure Number	Existing Structure Number	Section	Town	Range	
Station	Latitude: Longitude:	☐ YES ☐ NO Structure Located on National Highway System			
For Survey and CADD Files Horizontal Coordinate System: Vertical Datum:		**Traffic Forecast Data**			
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On		Feature On			
Feature Under		Feature Under			
Region Contact: (Area Code) Telephone Number(s): Email:		Consultant Contact: (Area Code) Telephone Number(s): Email:			

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (see ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.

2. **Plan and Profile Sheet** on proposed reference line of feature on and feature under showing the following:
(a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance; (g) For railroad project, survey top of each rail and provide proposed geometrics in conformance with railroad company standards.

3. **Layout Sketch** of the site drawn to a scale of not less than 1 inch = 100 feet showing the following:
(a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) Reference line intersection stationing and intersection angle; (e) North Arrow; (f) Buildings; (g) Above and below ground facilities; (h) Proposed structure when report submitted with Preliminary Plan; (I) Railroad company stationing; (j) Station at ends of existing structure; (k) Other features which influence the design.

4. **Typical Sections** of all roadways showing the following:
(a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Subgrade; (e) Sidewalk, curb and gutter; (f) Median treatment at underpass mounted or ditch section; (g) Clear zone width; (h) Horizontal clearances at underpass.

5. **Labeled Photographs** of: (a) Existing structure; (b) Site pictures in all controlling directions including, but not limited to North, East, South and West; (c) Buildings within 100 feet of proposed structure.

Proposed Structure

Preference for Structure Type at this Site: ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☐ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 3)

Spans- Number	Approximate Centerline to Centerline Span Lengths Along Reference Line of Highway
Clear Roadway Width on Structure Ft.	Cross Slope on Deck or N.C. (Normal Crown) Ft./Ft.
Skew ☐ R.H.F. ☐ L.H.F.	

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☐ No	Ft.	☐ Yes ☐ No	Ft.	☐ Yes ☐ No

Type of Slope Protection

Specify Wing Location(s) for Beam Guard Attachment	Specify Wing Location(s) for Surface Drain Anchors

Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach

YES	NO		
☐	☐	Structure Will be Constructed to Accommodate Traffic Staging	
☐	☐	Structural Approach Slab	
☐	☐	Lighting Required: Bolt Circle Diameter _____ inches	
☐	☐	Traffic/Lighting Staff been Notified for Review	
☐	☐	Conduit in Parapet: Diameter _____ Number _____	
☐	☐	Historical Properties (Archaeological, Historic) Present Near Structure	

Vertical Clearance Design
☐ 14' 9" to 15' 3"
☐ 16' 3" to 16' 9"
☐ Other: _____

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☐	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 3)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 3)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☐	☐	Structure will be Removed ☐ Bid Item ☐ Later Contract ☐ Other: _____
☐	☐	Structure will Remain in Service, Purpose: _____

For Structure Designers Use Only
Proposed Structure

Spans – Number:	Span Lengths (C.L. to C.L. of Substructure):	Skew: ☐ R.H.F. ☐ L.H.F.
Latitude:	Longitude:	

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

The more information that can be provided, the better. This will result in fewer questions from BOS during structure design or consultant review and a better end product.

The following is not all inclusive; please add/delete discussion items to fit site/project specific details that may influence structure design:

Geotechnical Coordination:
Detail who is completing geotechnical work/soil borings (in-house or consultant) and anticipated schedule of work.

Aesthetics:
If aesthetic level 2 or more is indicated, you must suggest particular requirements such as railing type, pier shape, aesthetic option (type I,II or III), special form liners, stain/paint, color (federal color number), etc. See Bridge Manual Chapter 4 for updated information. Also include coordination that is yet to be made. If applicable, provide B-##-### for example structures in the area that are similar to proposed or desired; attach an exhibit for reference. contact BOS with questions.

Structural Approach Slabs:
If requested, provide justification for their inclusion. See Bridge Manual Chapter 12.11.

Proposed Structure (& Future Expansion):
Discuss proposed size and type of structure and vertical/horizontal clearances (if special clearances are required for construction staging). Describe future expansion, if any is anticipated, which may include lower roadway lane expansion, upper roadway widening, etc. Anticipated future expansion of bridge may have impacts to profile grade, consider vertical clearance requirement.

Temporary Shoring:
Describe anticipated locations of temporary shoring needed for construction. Especially important for stage construction or current structure that remain in service during construction.

Construction Staging:
Discuss construction staging in detail and describe desired sequencing; provide sketches of staging.

Traffic Barrier:
Discuss barrier locations, type, and heights approaching the structure, if applicable.

Bike/Pedestrian/Other Structure Accommodations:
Discuss proposed sidewalks, multi-use paths, separation barriers, medians, wildlife passages, etc.

Utilities:
List utilities located under, near, or on the proposed structure. Include type of utility, action to be taken and who owns the utility. If conduit/utility will be on the proposed structure describe who will be servicing it, number and size of conduits needed and any other pertinent information. Justification for placing utilities on proposed structure and means of attaching.

Site Drainage:
Discuss potential drainage concerns involving the proposed structure. Possible concerns include proposed roadway drainage pipes under substructure units, anticipated need for deck drains and median drainage. Include locations of pipes and invert elevations as appropriate.

DNR:
Discuss the status of coordination between Region/Consultant and DNR. Include any agreements made, concerns with the site, or areas requiring special attention as expressed by DNR.

SEPARATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1694 6/2012

☒ **Grade Separation** ☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **High Mast Lighting** ☐ **Other:** _____

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID 5300-02-02	Construction Project ID 5300-02-73	Highway (Project Name) High Point Road Bridge		
Final Plan Due Date 05-01-2015	Preliminary Plan Due Date 10-01-2012	☐ Town ☐ Village ☒ City Madison		
PS&E Date 08-01-2015	Letting Date 12-01-2015	County Dane		
New Structure Number B-13-572	Existing Structure Number B-13-233	Section 26	Town 7N	Range 8E
Station 249+10.72	Latitude: 43.05535 Longitude: -89.517696	☐ YES ☒ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: NAD 83(1991), US Survey Feet Vertical Datum: NAVD 88, Feet		**Traffic Forecast Data**		
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On High Point Road		Feature On 2036	21,000	40 MPH	Urban Collector
Feature Under USH 12		Feature Under 2036	83,000	60 MPH	Freeway
Region Contact: Joe Smith (Area Code) Telephone Number(s): (608)242-8808 Email: Joe.Smith@dot.wi.gov		Consultant Contact: N/A (Area Code) Telephone Number(s): Email:			

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (see ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.

2. **Plan and Profile Sheet** on proposed reference line of feature on and feature under showing the following:
(a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance; (g) For railroad project, survey top of each rail and provide proposed geometrics in conformance with railroad company standards.

3. **Layout Sketch** of the site drawn to a scale of not less than 1 inch = 100 feet showing the following:
(a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) Reference line intersection stationing and intersection angle; (e) North Arrow; (f) Buildings; (g) Above and below ground facilities; (h) Proposed structure when report submitted with Preliminary Plan; (I) Railroad company stationing; (j) Station at ends of existing structure; (k) Other features which influence the design.

4. **Typical Sections** of all roadways showing the following:
(a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Subgrade; (e) Sidewalk, curb and gutter; (f) Median treatment at underpass mounted or ditch section; (g) Clear zone width; (h) Horizontal clearances at underpass.

5. **Labeled Photographs** of: (a) Existing structure; (b) Site pictures in all controlling directions including, but not limited to North, East, South and West; (c) Buildings within 100 feet of proposed structure.

Proposed Structure

Preference for Structure Type at this Site:
45W Prestressed Concrete Girder ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☐ 1 ☐ 2 ☒ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 3)

Spans- Number	Approximate Centerline to Centerline Span Lengths Along Reference Line of Highway
2	117 Ft.

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)	Skew
54.0 Ft.	0.02 Ft./Ft.	37.1381 ☐ R.H.F. ☒ L.H.F.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☒ Yes ☐ No	12.0 Ft.	☒ Yes ☐ No	8.00 Ft.	☐ Yes ☒ No

Type of Slope Protection
Retaining Walls

Specify Wing Location(s) for Beam Guard Attachment	Specify Wing Location(s) for Surface Drain Anchors
N/A	N/A

Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach
SE, NW and NE bridge barrier continues to roadway approach (retaining wall)

YES	NO		
☒	☐	Structure Will be Constructed to Accommodate Traffic Staging	
☒	☐	Structural Approach Slab	
☐	☒	Lighting Required: Bolt Circle Diameter _____ inches	
☐	☒	Traffic/Lighting Staff been Notified for Review	
☒	☐	Conduit in Parapet: Diameter 3" Number 2 locate in median barrier	
☐	☒	Historical Properties (Archaeological, Historic) Present Near Structure	

Vertical Clearance Design
☐ 14' 9" to 15' 3"
☐ 16' 3" to 16' 9"
☒ Other: 16'-4" MIN to 16'-9" DES

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☒	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 3)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 3)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☒	☐	Structure will be Removed ☒ Bid Item ☐ Later Contract ☐ Other: _____
☐	☒	Structure will Remain in Service, Purpose: _____

For Structure Designers Use Only
Proposed Structure

Spans – Number:	Span Lengths (C.L. to C.L. of Substructure):	Skew:	☐ R.H.F. ☐ L.H.F.
Latitude:		Longitude:	

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

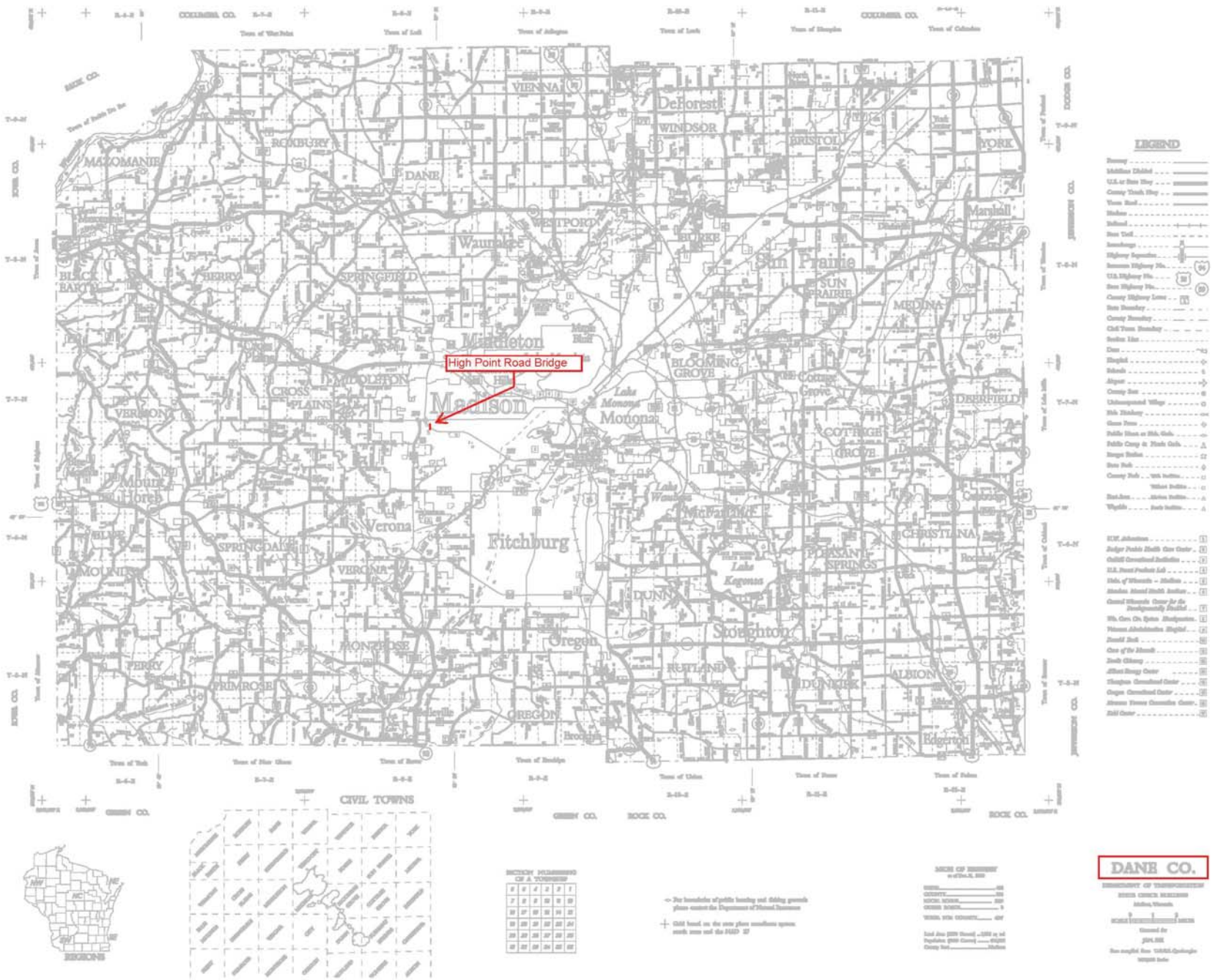
Soil borings and geotechnical report will be completed by WisDOT Central Office Soils.
Need confirmation of proposed structure type and approximate pier and abutment locations before soil borings can be made.

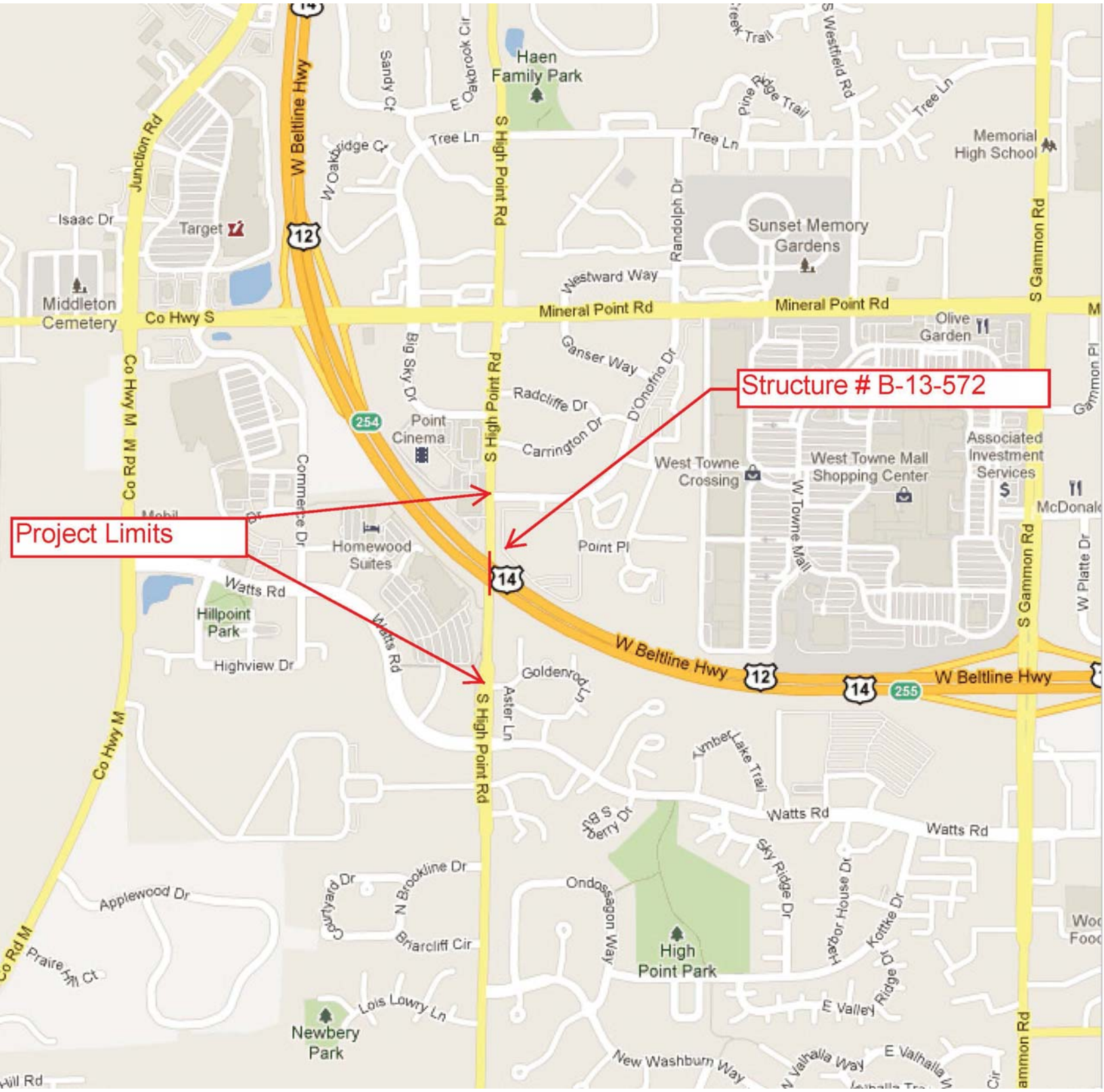
Level 3 Aesthetics:
Coordination with City of Madison. Project Agreement includes $300,000 for CSS items. City requests same aesthetics (Capital Foundation theme) that was used on the IH39 bridges (Buckeye Road B-13-544 and Hanson Road B-13-540). This does include the medallion that was used on those bridges.

West and East Parapets:
Type A, 3'-6" high with pedestrian screening (TBD) a minimum 4'-6" high.

Median Barrier:
Minimum 2'-8" high.
West sidewalk 12'-0" multi-use path, median barrier required.

High Point Road will be fully closed during construction. Only single lane closures and rolling stops can be used on USH 12.


High Point Road Bridge
Madison
Fitzburg
Verona
Monona
Oregon
Stoughton
DeForest
Marshall
CIVIL TOWNS
DANE CO.

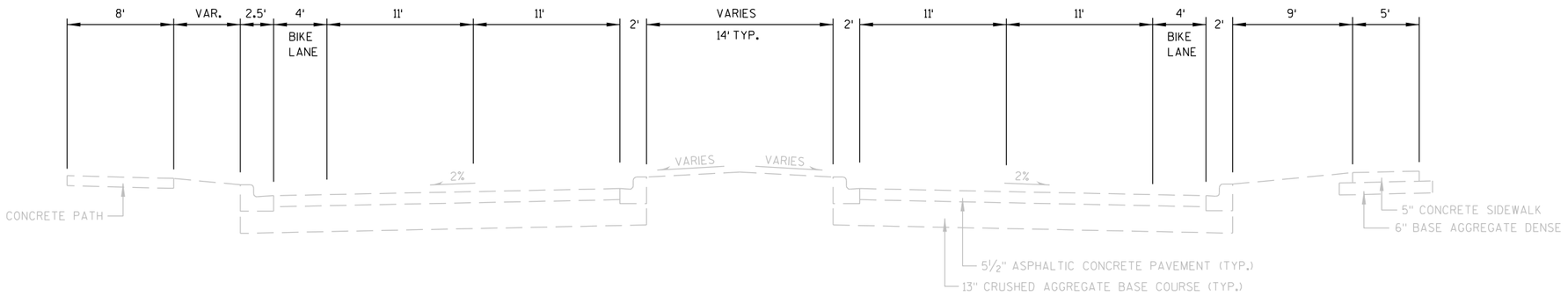

Structure # B-13-572
Project Limits
Haen Family Park
Memorial High School
Sunset Memory Gardens
Middleton Cemetery
Co Hwy S
Mineral Point Rd
Olive Garden
Point Cinema
West Towne Crossing
West Towne Mall Shopping Center
Associated Investment Services
Homewood Suites
Hillpoint Park
Watts Rd
Highview Dr
W Beltline Hwy
S High Point Rd
S Gammon Rd
Co Hwy M
Co Rd M
Junction Rd
Target
Isaac Dr
Tree Ln
Randolph Dr
Westward Way
Ganser Way
Radcliffe Dr
Carrington Dr
D'Onofrio Dr
Big Sky Dr
Commerce Dr
Point Pl
Goldenrod Ln
Aster Ln
Timber Lake Trail
Sky Ridge Dr
Harbor House Dr
Kottke Dr
E Valley Ridge Dr
Ondossagon Way
High Point Park
Newbery Park
Lois Lowry Ln
Briarcliff Cir
N Brookline Dr
Courtyard Dr
Applewood Dr
Prairie Hill Ct
New Washburn Way
E Valhalla Way
W Platte Dr
W Towne Mall
Sandy Ct
W Oakridge Ct
Oakbrook Cir
Ridge Trail
S Westfield Rd


S High Point Rd
at South Abutment
looking North East


S High Point Rd
at South Abutment
looking North at West
side of bridge

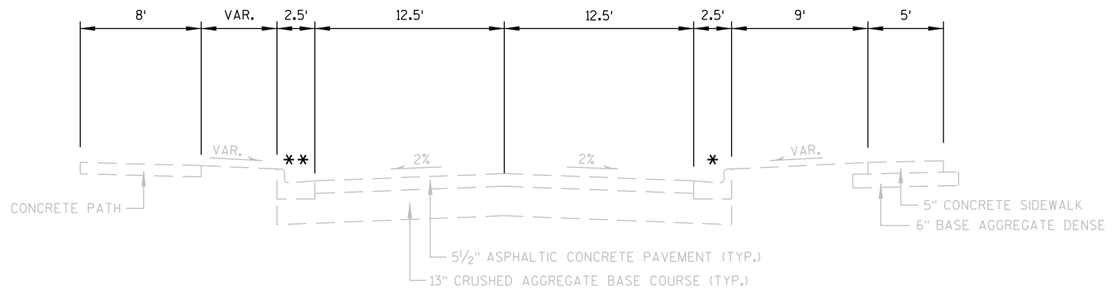

S High Point Rd
at South Abutment
Looking North


S High Point Rd
at North Abutment
looking South



EXISTING TYPICAL SECTION

STA. 237+39 - STA. 243+50

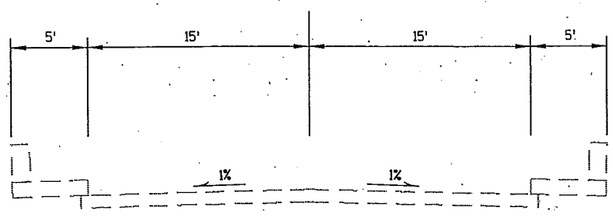


EXISTING TYPICAL SECTION

STA. 243+50 - STA. 255+14

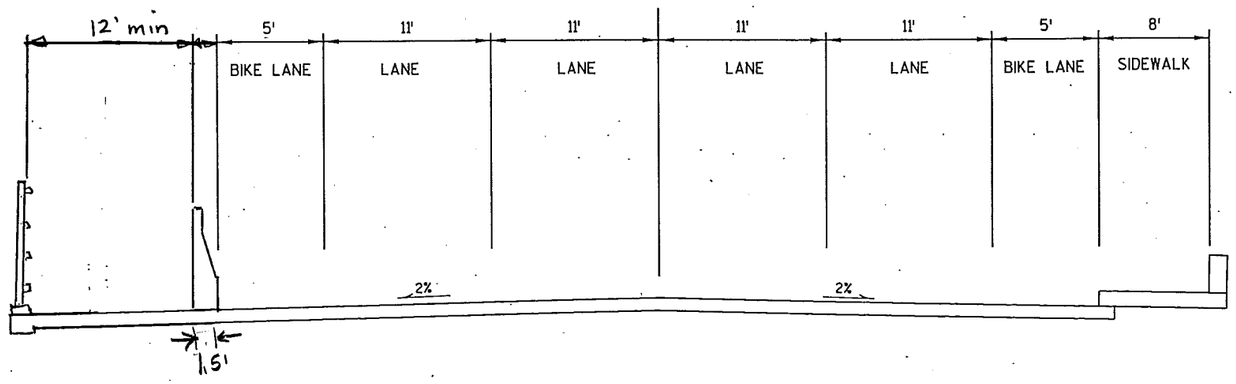
*24" CURB & GUTTER STA. 243+50 - STA. 247+70
**24" CURB & GUTTER STA. 243+70 - STA. 247+93

PROJECT NO: 5300-02-73	HWY: USH 12	COUNTY: DANE	TYPICAL SECTIONS	SHEET	E



EXISTING TYPICAL SECTION

HIGH POINT BRIDGE



PROPOSED TYPICAL SECTION

HIGH POINT BRIDGE

STA. 247+83.60 - STA. 250+21.60

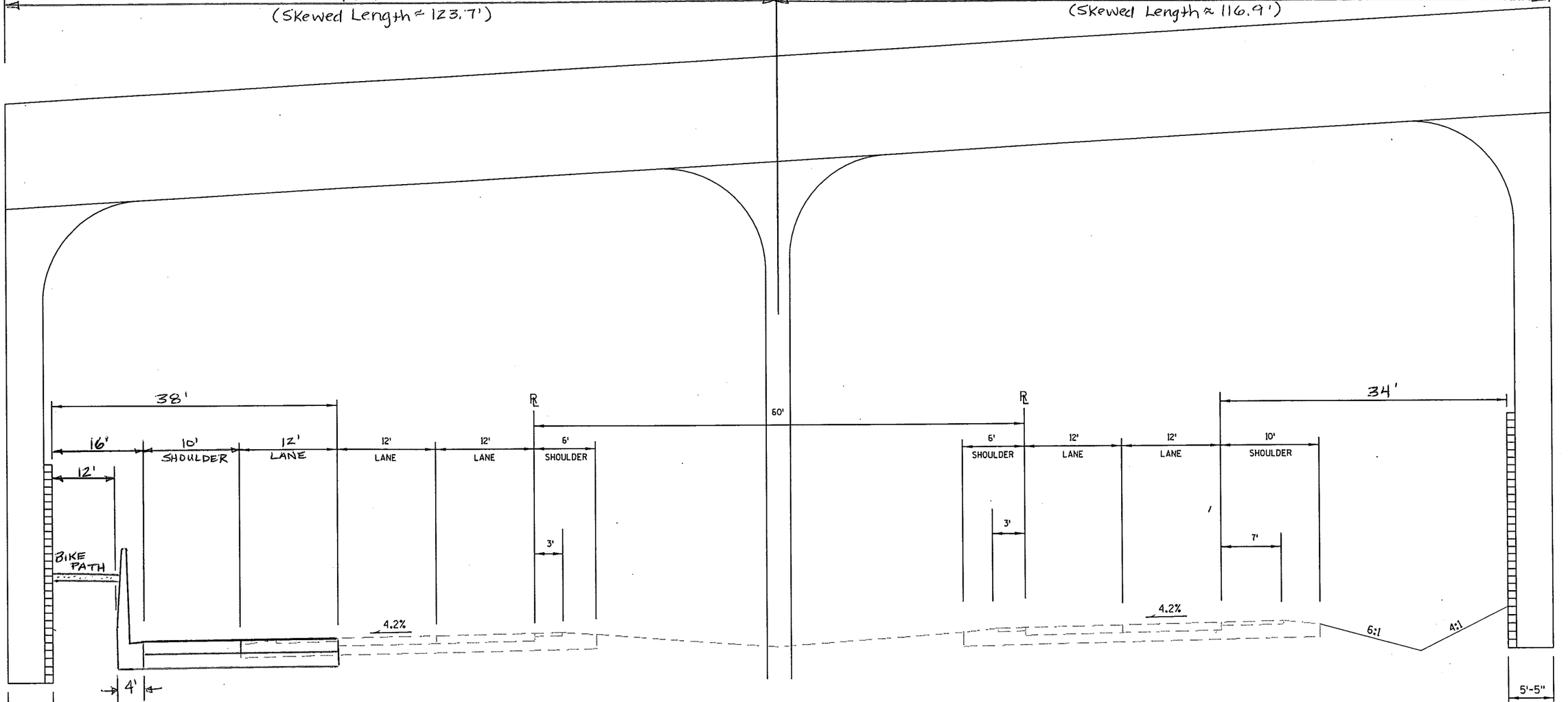
PROJECT NO: 5300-02-73	HWY: USH 12	COUNTY: DANE	TYPICAL SECTIONS	SHEET	E

2

190.8' (Skewed Length ≈ 240.6')
*TOTAL BRIDGE LENGTH

97.4'
(Skewed Length ≈ 123.7')

93.4'
(Skewed Length ≈ 116.9')

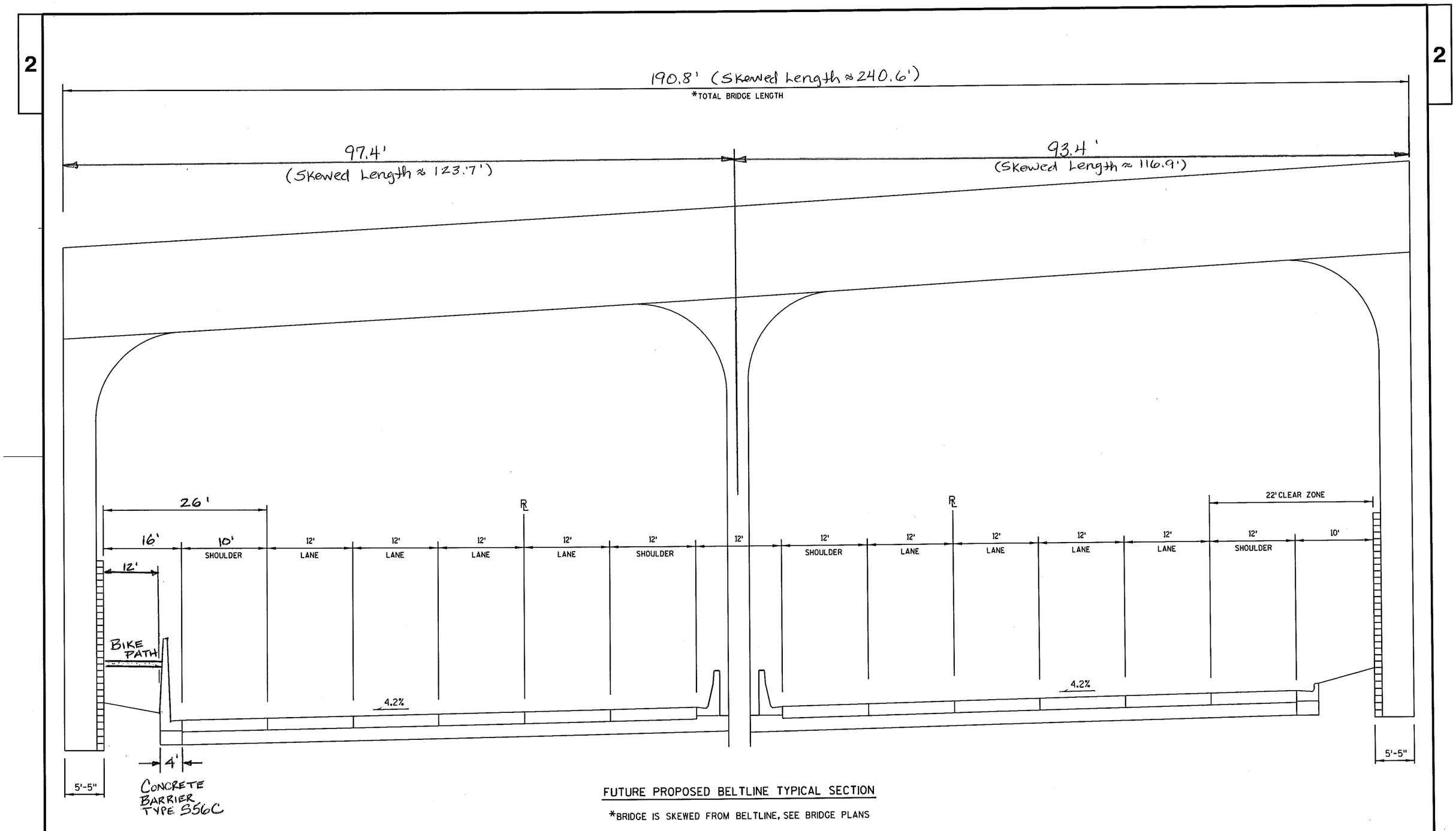


PROPOSED BELTLINE TYPICAL SECTION

*BRIDGE IS SKEWED FROM BELTLINE. SEE BRIDGE PLANS

PROJECT NO: 5300-02-73	HWY: USH 12	COUNTY: DANE	TYPICAL SECTIONS	SHEET	E

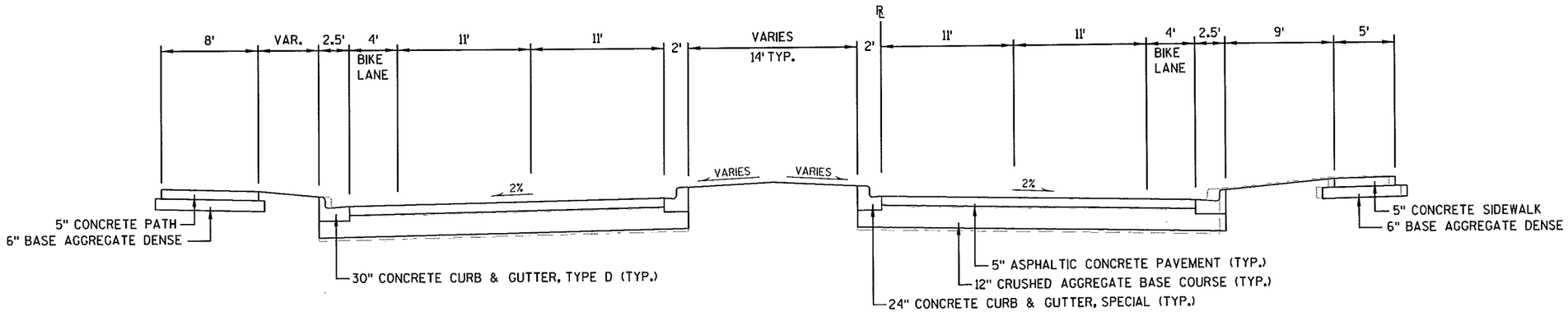
FILE NAME : C:\Documents and Settings\dotajf\Desktop\Structure Survey Report\020301_ts.dgn PLOT DATE : 30-AUG-2011 11:08 PLOT BY : dotajf PLOT NAME : PLOT SCALE : 200.000000:1.000000 WISDOT/CADDS SHEET 5442



FUTURE PROPOSED BELTLINE TYPICAL SECTION

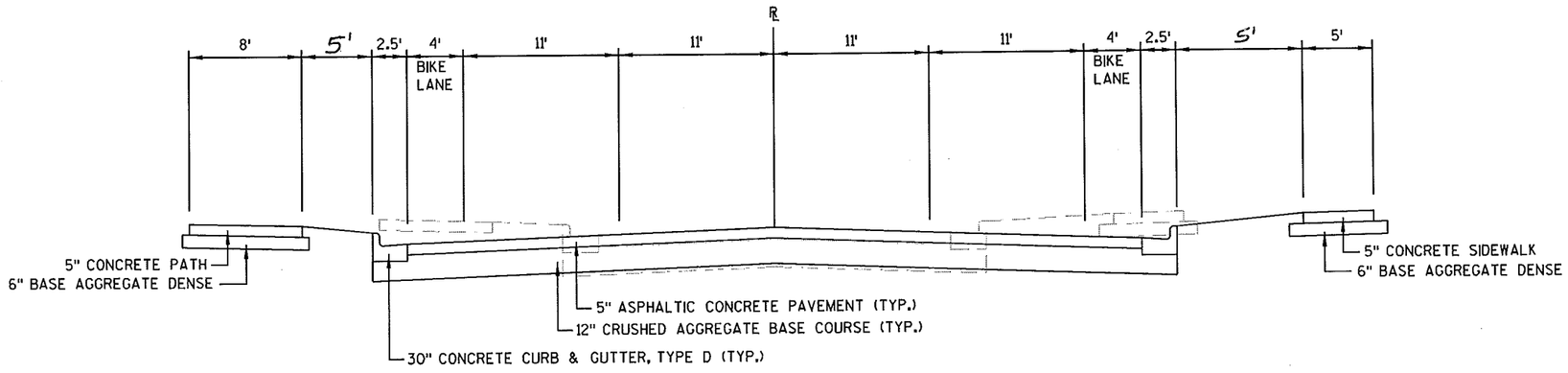
*BRIDGE IS SKEWED FROM BELTLINE, SEE BRIDGE PLANS

PROJECT NO: 5300-02-73	HWY: USH 12	COUNTY: DANE	TYPICAL SECTIONS	SHEET	E



PROPOSED TYPICAL SECTION

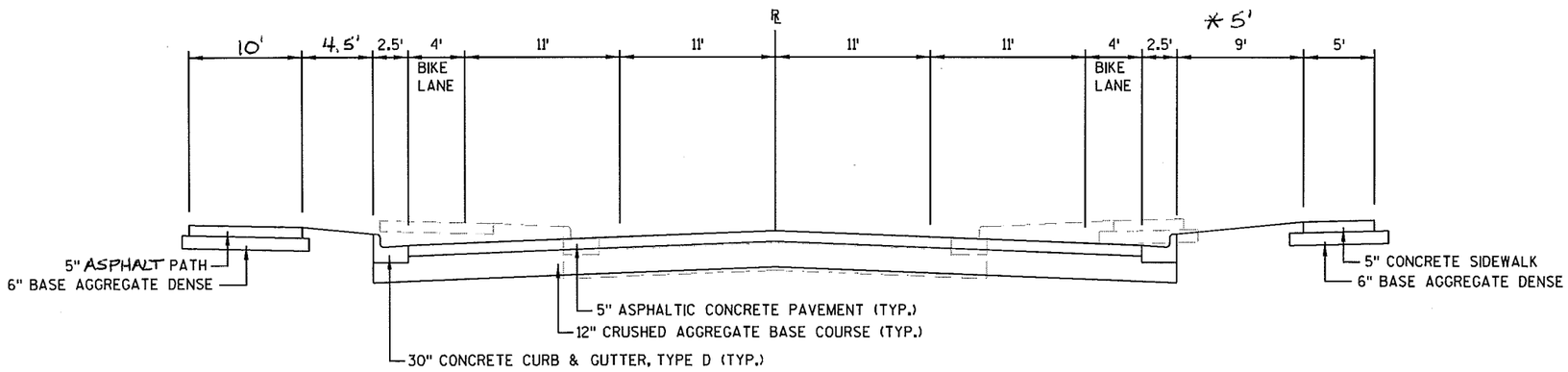
STA. 237+39 - STA. 243+50



PROPOSED TYPICAL SECTION

STA. 252+00 - STA. 255+14

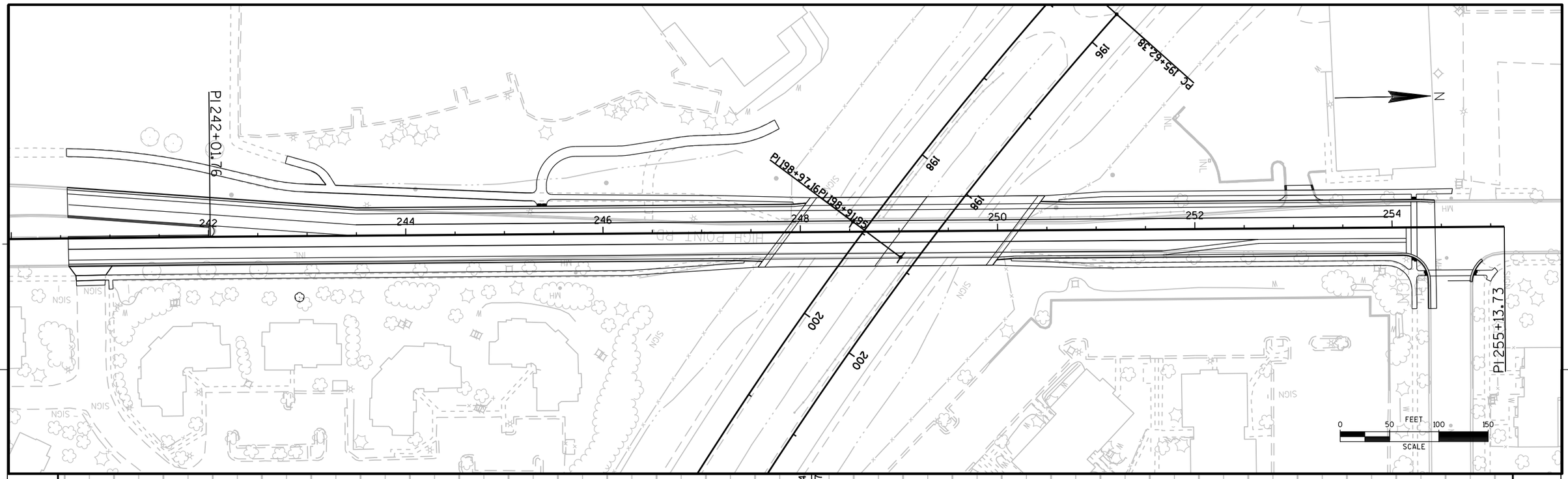
PROJECT NO: 5300-02-73	HWY: USH 12	COUNTY: DANE	TYPICAL SECTIONS	SHEET	E

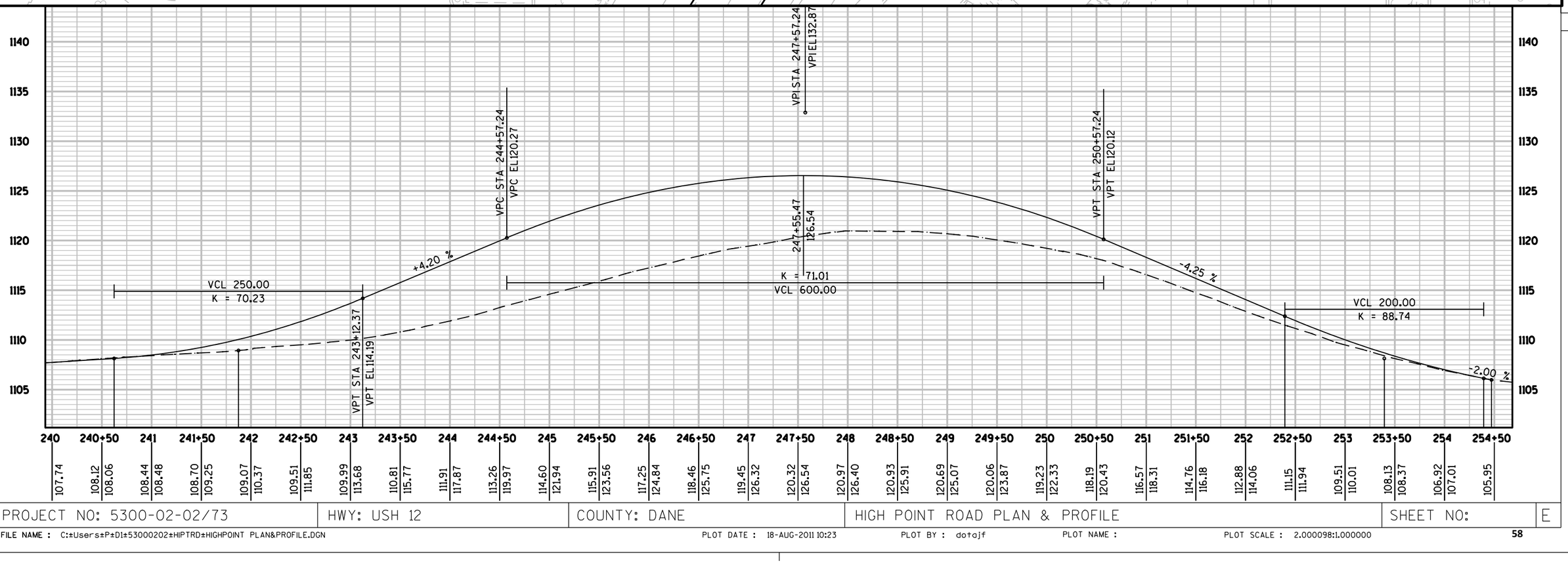


PROPOSED TYPICAL SECTION

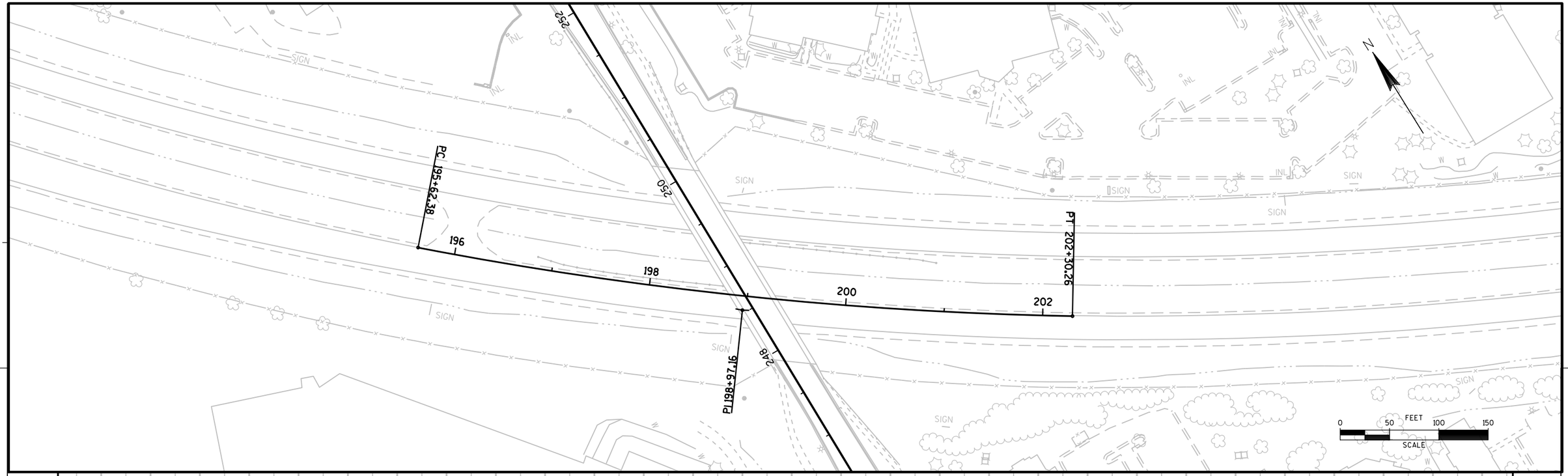
STA. 243+50 - STA. 247+83.60
STA. 250+21.60 - STA. 252+00 *

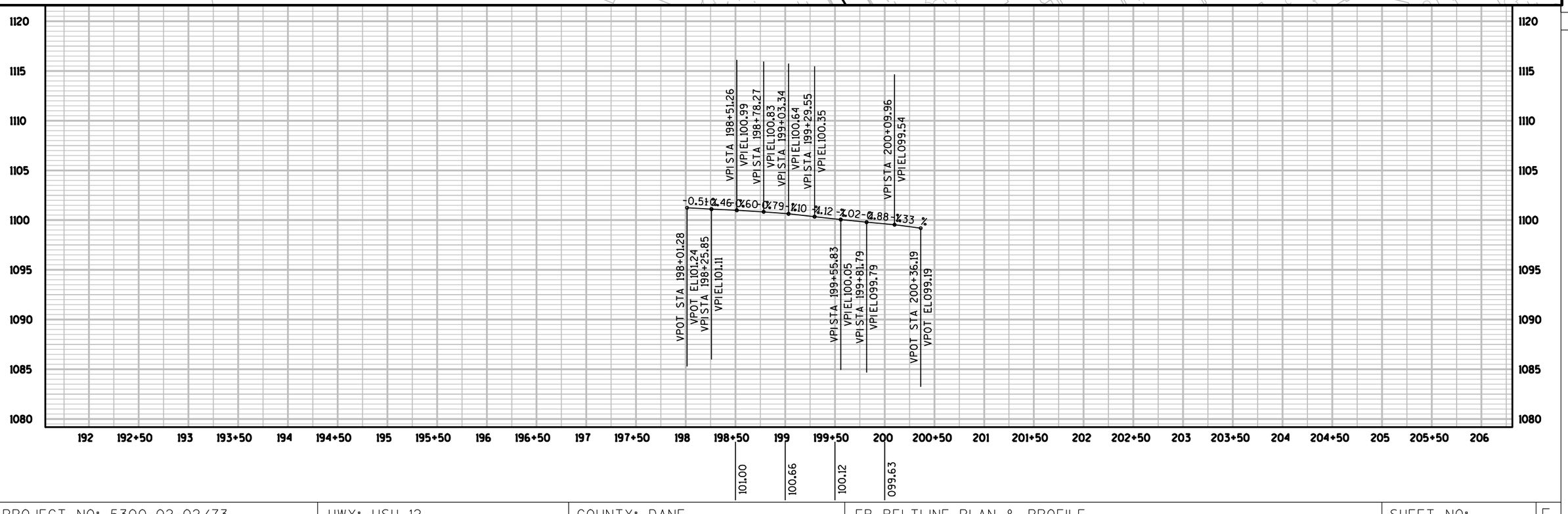
PROJECT NO: 5300-02-73	HWY: USH 12	COUNTY: DANE	TYPICAL SECTIONS	SHEET	E



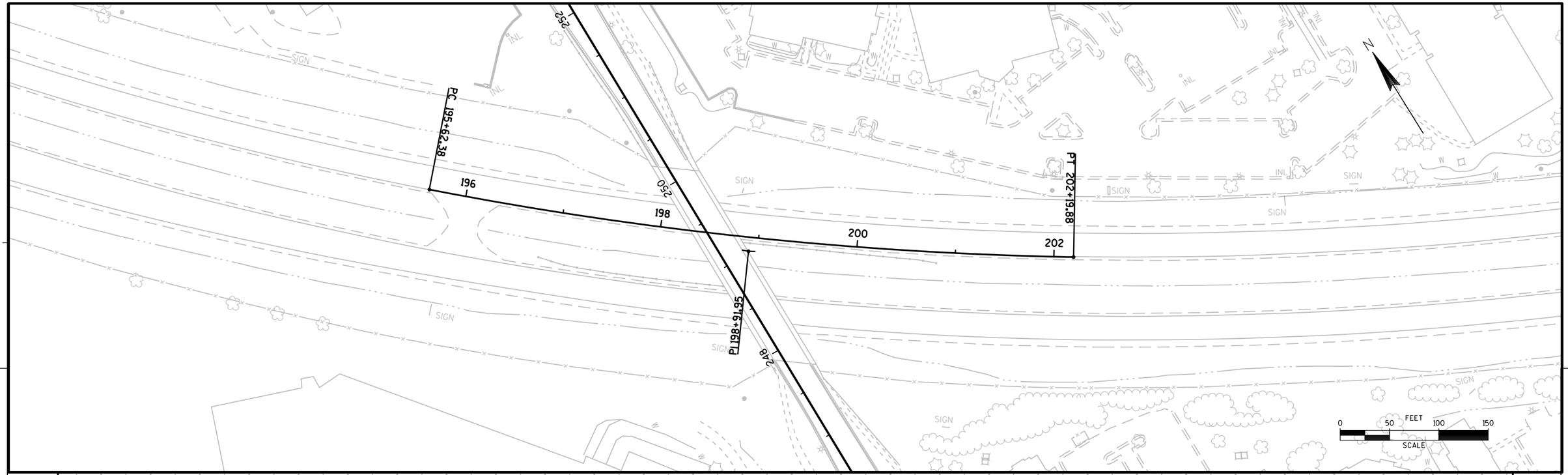


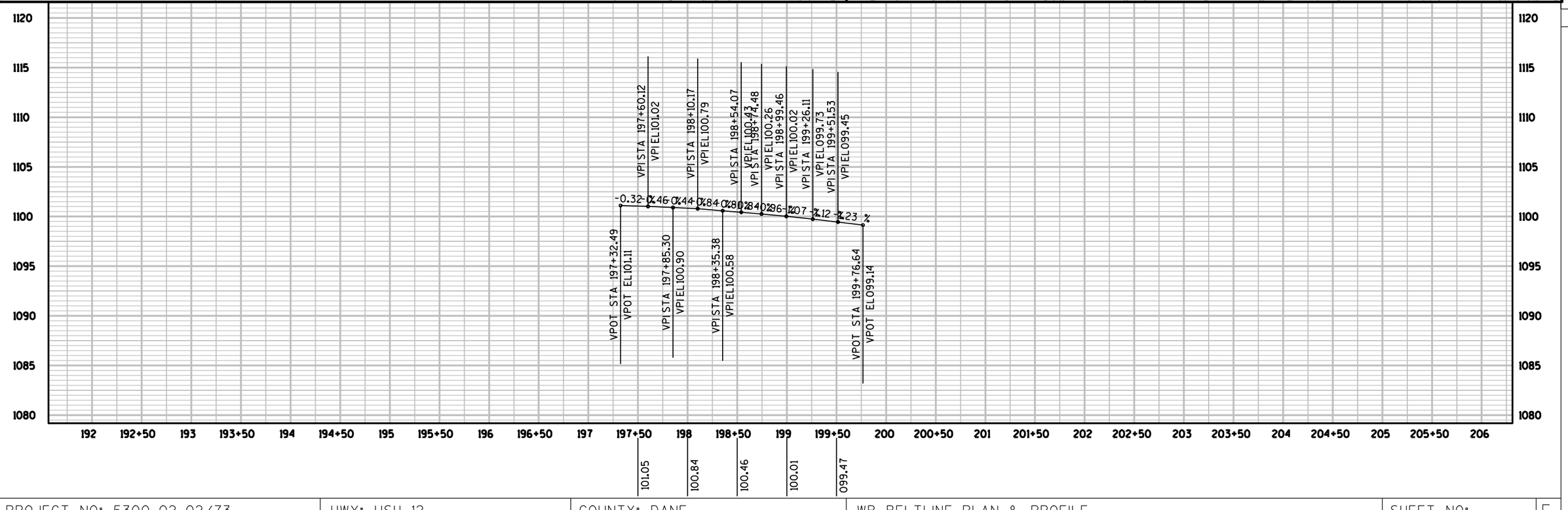
PROJECT NO: 5300-02-02/73	HWY: USH 12	COUNTY: DANE	HIGH POINT ROAD PLAN & PROFILE	SHEET NO:	E





PROJECT NO: 5300-02-02/73	HWY: USH 12	COUNTY: DANE	EB BELTLINE PLAN & PROFILE	SHEET NO:	E





PROJECT NO: 5300-02-02/73	HWY: USH 12	COUNTY: DANE	WB BELTLINE PLAN & PROFILE	SHEET NO:	E

2

2

N

241+00

241+00

242+00

242+00

243+00

243+00

244+00

245+00

246+00

PI 242+01.76

240+43.92

PI 243+50.03

SCALE, FEET 0 20 40

PROJECT NO: 5300-02-02/73	HWY: USH 12	COUNTY: DANE	PLAN DETAIL SHEET	SHEET	E

2

2

EXISTING BRIDGE
BEGINNING STA 247+87.05

EXISTING BRIDGE
END STA 250+16.2

PI 198+97.16

52.8619°

PI 198+91.95

STA 198+98.12 = STA 248+63.89

STA 198+47.25 = STA 249+39.5

R/W

247+00

248+00

249+00

250+00

251+00

252+00

195+00

196+00

197+00

198+00

199+00

200+00

201+00

SCALE, FEET 0 20 40

PROJECT NO: 5300-02-02/73	HWY: USH 12	COUNTY: DANE	PLAN DETAIL SHEET	SHEET	E

2

2

N

253+00

254+00

255+00

PI 255+13.73

PARKING

HIGH POINT RD.

SIGN

SCALE, FEET 0 20 40

PROJECT NO: 5300-02-02/73	HWY: USH 12	COUNTY: DANE	PLAN DETAIL SHEET	SHEET	E

** NOT FOR BRIDGE B-13-572 **
** Example of vertical curve information we like submitted **

136RAB1 : Alignment Station Map
Station Back Station Ahead
80+07.01
116+91.55 116+91.55

CAiCE Visual Roads Design System
Profile Report

Profile Name : 136RAB1 Wed Dec 07 14:05:56 2011
Description : 136 EB RAB PROFILE

		STATION	ELEVATION	GRADE PERCENT	TOTAL VC LEN	BACK VC LEN	AHEAD VC LEN	K-VALUE
VPI AT	1	85+25.00	885.44					
VPC		85+37.50	885.80	2.8480				
VPI AT	2	86+50.00	889.00		225.000	112.500	112.500	104.570100
VPT		87+62.50	894.62	4.9997				
VPC		91+75.05	915.25	4.9997				
VPI AT	3	94+00.05	926.50		450.000	225.000	225.000	150.034344
VPT		96+25.05	931.00	2.0004				
VPI AT	4	96+83.00	932.16		0.000	0.000	0.000	0.000000
VPC		98+47.50	933.20	0.6303				
VPI AT	5	100+22.50	934.30		350.000	175.000	175.000	123.322346
VPT		101+97.50	930.44	-2.2078				
VPI AT	6	103+45.00	927.18		0.000	0.000	0.000	0.000000
VPC		103+55.00	926.85	-3.3143				
VPI AT	7	104+50.00	923.70		190.000	95.000	95.000	128.057000
VPT		105+45.00	919.14	-4.7980				
VPI AT	8	109+50.00	899.71					

End of Report Profile.

CAiCE Visual Roads Design System
Profile Elevation Report

Profile Name : 136RAB1 Wed Dec 07 14:05:56 2011
Description : 136 EB RAB PROFILE

STATION	ELEVATION	GRADE PERCENT	LOCATION
85+25.00	885.44	2.848	BETWEEN VPI 1 AND VPI 2
85+30.00	885.58	2.848	BETWEEN VPI 1 AND VPI 2
85+35.00	885.72	2.848	BETWEEN VPI 1 AND VPI 2
85+40.00	885.87	2.872	ON VERTICAL CURVE AT VPI 2
85+45.00	886.01	2.920	ON VERTICAL CURVE AT VPI 2
85+50.00	886.16	2.968	ON VERTICAL CURVE AT VPI 2
85+55.00	886.31	3.015	ON VERTICAL CURVE AT VPI 2
85+60.00	886.46	3.063	ON VERTICAL CURVE AT VPI 2
85+65.00	886.62	3.111	ON VERTICAL CURVE AT VPI 2
85+70.00	886.77	3.159	ON VERTICAL CURVE AT VPI 2
85+75.00	886.93	3.207	ON VERTICAL CURVE AT VPI 2
85+80.00	887.09	3.254	ON VERTICAL CURVE AT VPI 2
85+85.00	887.26	3.302	ON VERTICAL CURVE AT VPI 2
85+90.00	887.42	3.350	ON VERTICAL CURVE AT VPI 2
85+95.00	887.59	3.398	ON VERTICAL CURVE AT VPI 2
86+00.00	887.76	3.446	ON VERTICAL CURVE AT VPI 2
86+05.00	887.94	3.494	ON VERTICAL CURVE AT VPI 2
86+10.00	888.11	3.541	ON VERTICAL CURVE AT VPI 2
86+15.00	888.29	3.589	ON VERTICAL CURVE AT VPI 2
86+20.00	888.47	3.637	ON VERTICAL CURVE AT VPI 2
86+25.00	888.65	3.685	ON VERTICAL CURVE AT VPI 2
86+30.00	888.84	3.733	ON VERTICAL CURVE AT VPI 2
86+35.00	889.03	3.780	ON VERTICAL CURVE AT VPI 2
86+40.00	889.22	3.828	ON VERTICAL CURVE AT VPI 2
86+45.00	889.41	3.876	ON VERTICAL CURVE AT VPI 2
86+50.00	889.61	3.924	ON VERTICAL CURVE AT VPI 2
86+55.00	889.80	3.972	ON VERTICAL CURVE AT VPI 2
86+60.00	890.00	4.019	ON VERTICAL CURVE AT VPI 2
86+65.00	890.20	4.067	ON VERTICAL CURVE AT VPI 2
86+70.00	890.41	4.115	ON VERTICAL CURVE AT VPI 2
86+75.00	890.62	4.163	ON VERTICAL CURVE AT VPI 2
86+80.00	890.83	4.211	ON VERTICAL CURVE AT VPI 2
86+85.00	891.04	4.259	ON VERTICAL CURVE AT VPI 2

SURVEY FOR STREAM CROSSING STRUCTURES

7. SURVEY FOR STREAM CROSSING STRUCTURES

This chapter details the information requested on the Stream Crossing Structure Survey Report and materials that need to be prepared with the form. Much of this information can be collected during field survey and included in the Structure Survey Report for the structural designer or for submittal to the Bureau of Structures. Use the same datum for site, upstream and downstream survey if structures are within 1500 feet of subject structure. Examples and diagrams are provided on the following pages.

1. FDM sections containing survey information
    a. 9-55-1
    b. 9-55-5
    c. 9-55-10
    d. 9-55-15

2. Stream Survey Points/Cross Sections
    a. Submit surveyed cross section points as DWG file and DGN file
    b. Coordinates, ID, type and elevation labels should also be provided in a CSV file
    c. Stream channel points, between edges of water, should be taken at the following locations:
        i. Upstream and downstream faces of existing structure (parallel to face)
        ii. Approximately 1 bridge length upstream and downstream of existing structure (perpendicular to flow)
            1. Additional downstream cross section about 200' further is beneficial (perpendicular to flow)
    d. Channel points are sufficient provided that 1' contours can be produced for the surface beyond the stream banks, out to the extents of the floodplain
    e. For box culverts, collect survey of streambed profile along channel flowline for at least 150' upstream and downstream of existing structure
        i. Take upstream and downstream cross sections near the ends of the streambed profile
        ii. If culvert fish passage/Aquatic Organism Passage (AOP) considerations are requested, consult FDM Chapter 13 for additional guidance

3. Labeled Photographs
    a. Existing structure; upstream and downstream faces showing abutments, piers and stream channel
    b. Upstream and downstream structures
    c. Buildings within 100' of the proposed structure
    d. Unobstructed panoramic view upstream and downstream of proposed structure location showing channel and floodplains
        i. Show channel geometry and bank vegetation
        ii. Avoid snow cover
    e. Any noteworthy details on existing structure or surrounding site (e.g. downstream obstructions, utilities on or near structure, floodplain obstructions)
    f. Roadway approaches in both directions
    g. Looking into the water at the streambed material, if visible
    h. Label photos or provide a key/list describing what is shown in each photo

4. Pier width
    a. Measured normal to centerline of pier

5. Latitude and longitude
    a. For structure location reference
    b. Taken at location of existing structure name plate

6. Finished grade and low chord elevations
    a. Low chord elevation - bottom of gider, slab, or superstructure member
    b. Finished grade elevation - top of deck at face of parapet or rail
    c. Include both elevations at each corner of the structure in survey DGN file
        i. Provide low chord and finished grade elevations at the lowest corner of the bridge for inclusion on SSR

7. Recorded high water elevation and date of occurrence
    a. Can be obtained from observation, owner, adjacent property owner, County personnel, Regional Planning Commission, DNR, local officials, or bridge maintenance or inspection personnel
    b. Approximate elevation, relative to the structure, from one of the above sources is better than no elevation

8. Observed high water mark elevation
    a. Only required if there are signs of recent flood or high water
    b. May include any water mark, sediment, or debris on the bridge or abutments; record elevation at top of such a mark
    c. Indicates level to which floodwaters rose

9. Low water elevation
    a. Elevation of the stream at the structure during lowest known flow of the year
    b. Approximate elevation (e.g. 1’ deep, dry, etc.).

10. Ordinary high water mark (OHWM)
    a. Generally required only if recreational navigation clearance is a consideration for the proposed structure
    b. Early coordination with the DNR should be made to determine if this elevation needs to be collected near the structure being replaced
    c. If required, the DNR will mark the elevation for survey; described as, “the point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic”

11. Observed water surface and streambed elevations
    a. Water elevations should be taken on the same day, provide date of survey
        i. If recorded on multiple days provide all elevations and corresponding date
    b. Take both elevations at same point in the stream channel near the structure
    c. If there are two or more stream branches upstream of subject structure, survey bridge on branch with larger drainage area
    d. <u>Do not</u> collect survey downstream of the mouth of the subject stream

12. Water surface elevation 1500’ upstream and downstream of site
    a. Elevation at upstream or downstream structure can be used if located at least 1500’ or further from subject structure
    b. Record streambed elevation if dry at any of the locations
    c. Location can be adjusted if abrupt change in stream profile occurs within 1500’ of structure, contact hydraulic engineer if questions remain
        i. Provide distance from existing structure along channel thread if elevation is taken at an alternate location
        ii. If a dam is located nearby, take water elevation on face nearest to structure
    d. Record water surface elevation at mouth of subject stream if it joins a larger stream/river (confluence) within 1500’ of structure

13. Distance from proposed site (in miles) to upstream and downstream structures
    a. Can be measured on a map as the crow flies, if located further than 1500’ away from the subject structure

14. Provide existing culvert length on Existing Culvert page of Stream Crossing SSR
    a. i.e. Barrel Width Perpendicular to Walls: “5’, 73.6’ long” (for 5’ span x 5’ rise, 73.6’ long box culvert)

15. Existing inlet and outlet type/configuration (sketch or photograph), as well as observations of:
    a. Outlet scour
    b. Wing wall and barrel condition

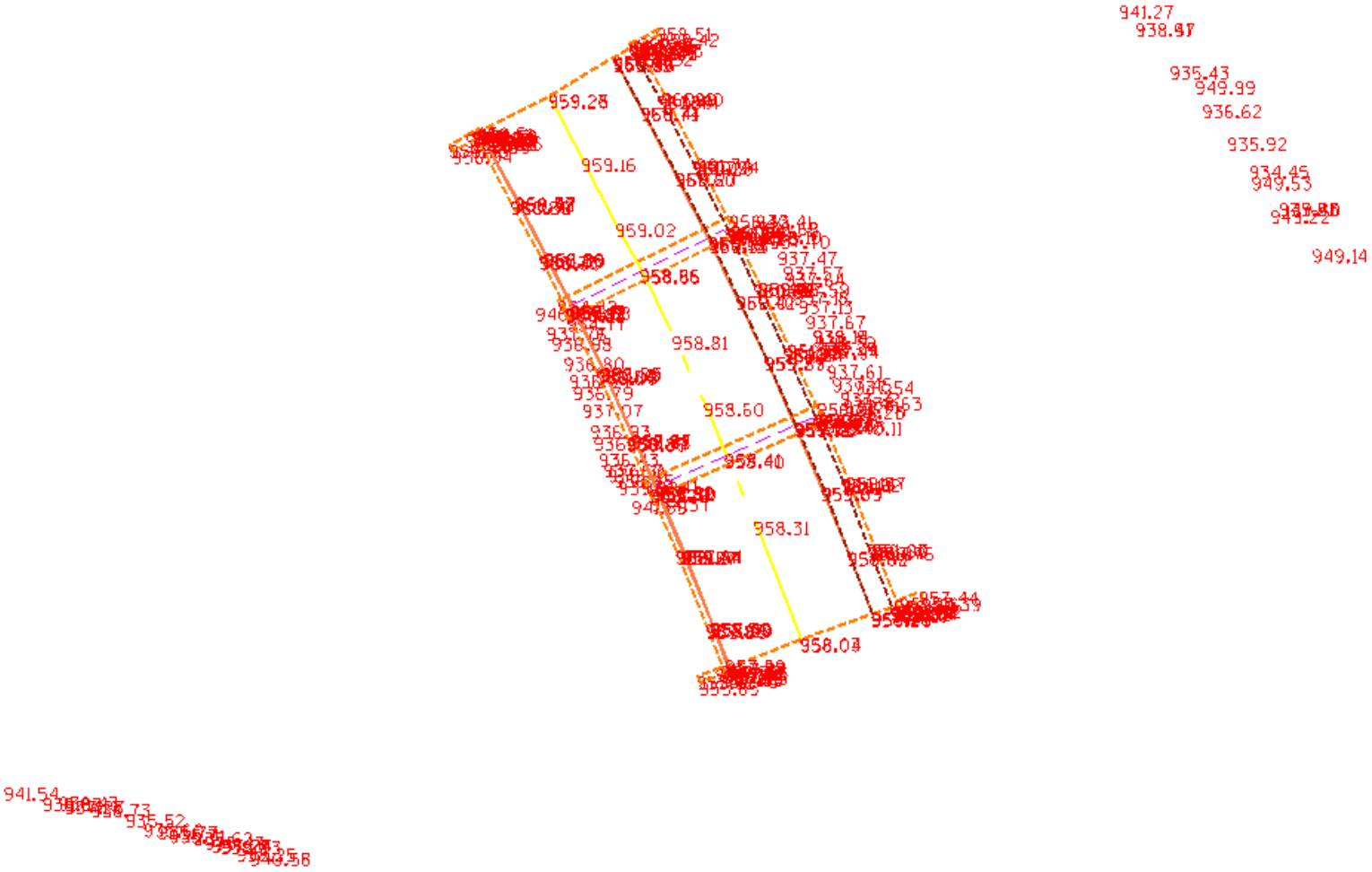
16. Culvert floor material (concrete, earth, etc.)
    a. If culvert floor is concrete, but has accumulated sediment/silt, indicate depth of sediment in the culvert barrel at the inlet and outlet
    b. Thorough investigation should be made to determine if a concrete floor is present

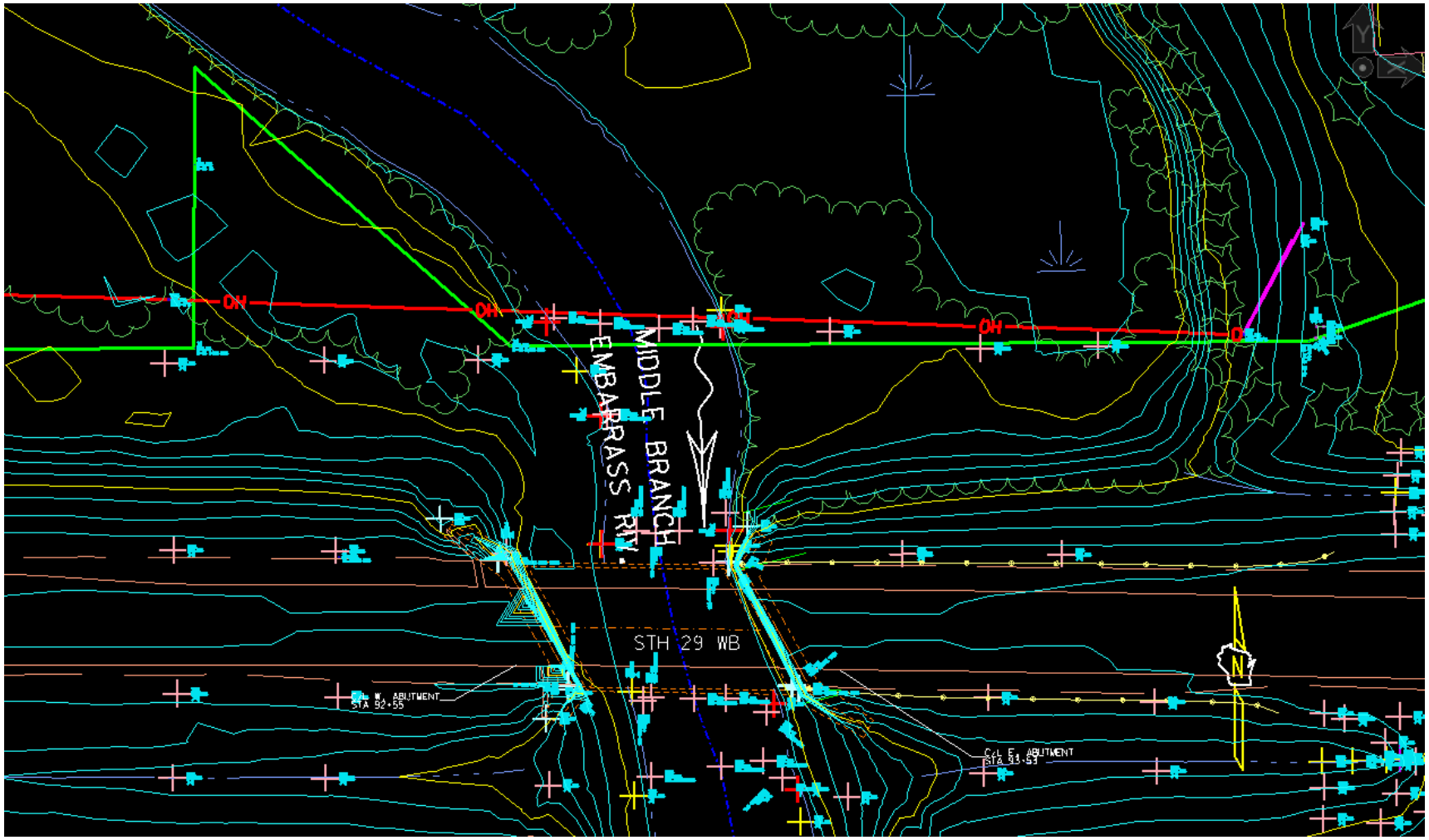
17. Survey of existing structure is required to ensure the extensions match well
    a. Provide field surveyed elevations at all four corners of each culvert cell, including invert and top of opening
    b. Elevations are needed at end(s) of existing culvert that will have extension added
    c. Accurate culvert opening span and rise are needed
        i. Even if existing structure plans are available, field verification of dimensions is requested

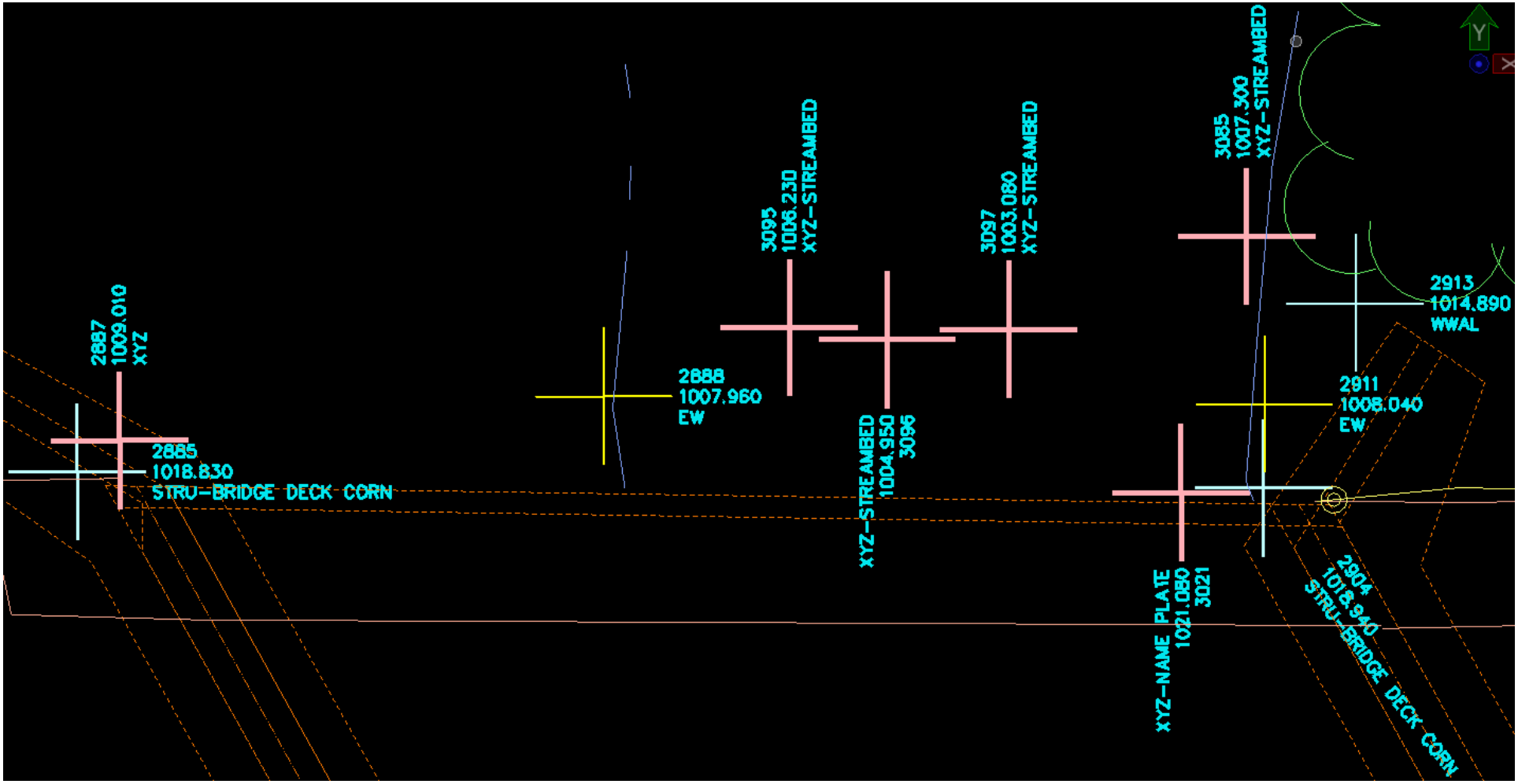
18. Location and pictures of any unusual features in the vicinity of an extension

19. Survey notes and/or sketches
    a. Elevation view of existing structure at both faces if channel location, substructure units or other special features need to be shown; particularly helpful at culverts
    b. Other features of the site such as observed scour, supplementary structures or obstructions

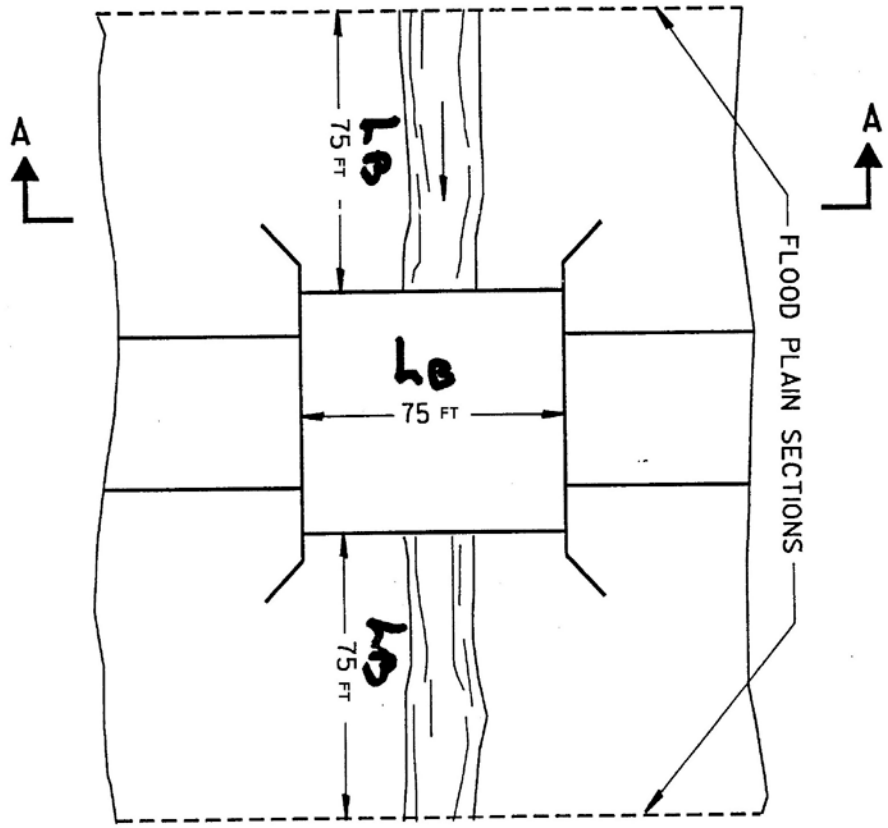
Stream and Structure Survey Shots (DGN File)

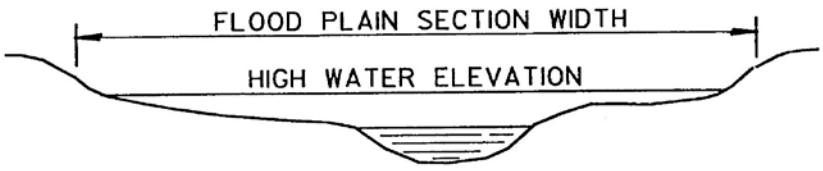



OH
OH
OH
MIDDLE BRANCH
EMBARRASS RIV.
STH 29 WB
W. ABUTMENT
STA 92+55
ABUTMENT
STA 91+93
N


2887
1009.010
XYZ
2885
1018.830
STRU-BRIDGE DECK CORN
2888
1007.960
EW
3095
1006.230
XYZ-STREAMBED
XYZ-STREAMBED
1004.950
3096
3097
1003.080
XYZ-STREAMBED
3085
1007.300
XYZ-STREAMBED
2913
1014.890
WWAL
2911
1008.040
EW
XYZ-NAME PLATE
1021.080
3021
2904
1018.940
STRU-BRIDGE DECK CORN

Stream Cross Section Locations

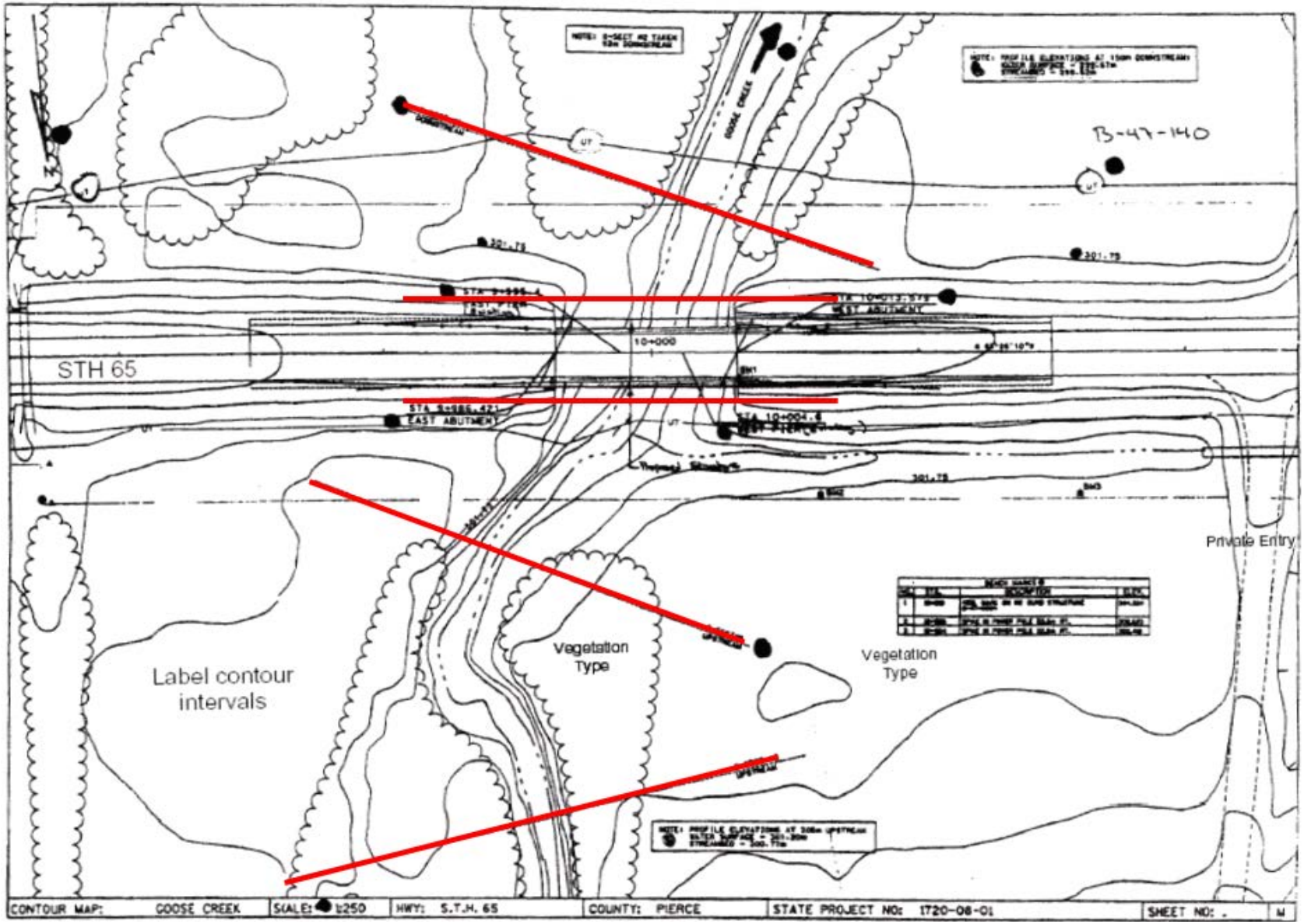




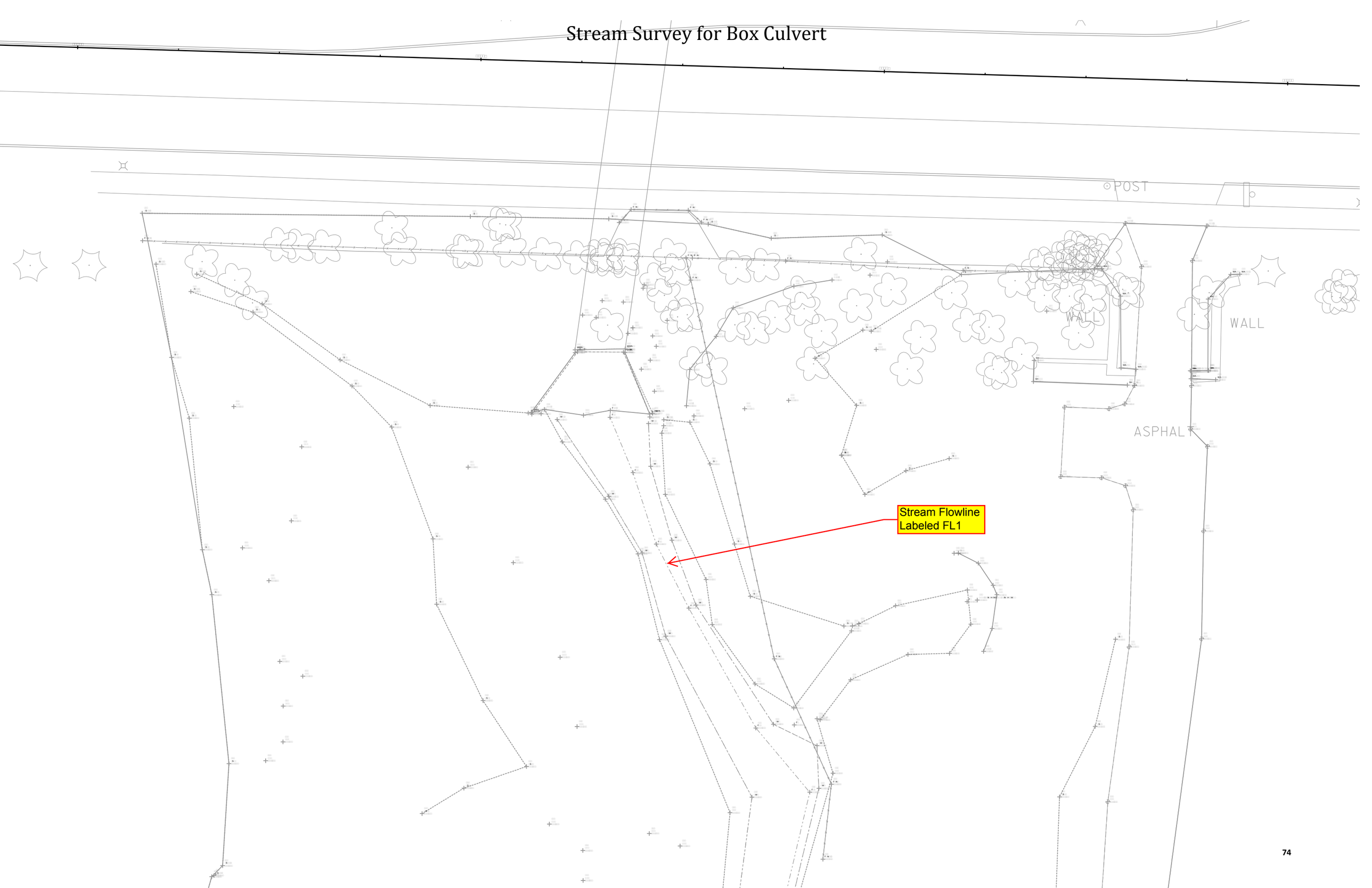
SECTION A-A

NORMAL TO FLOW

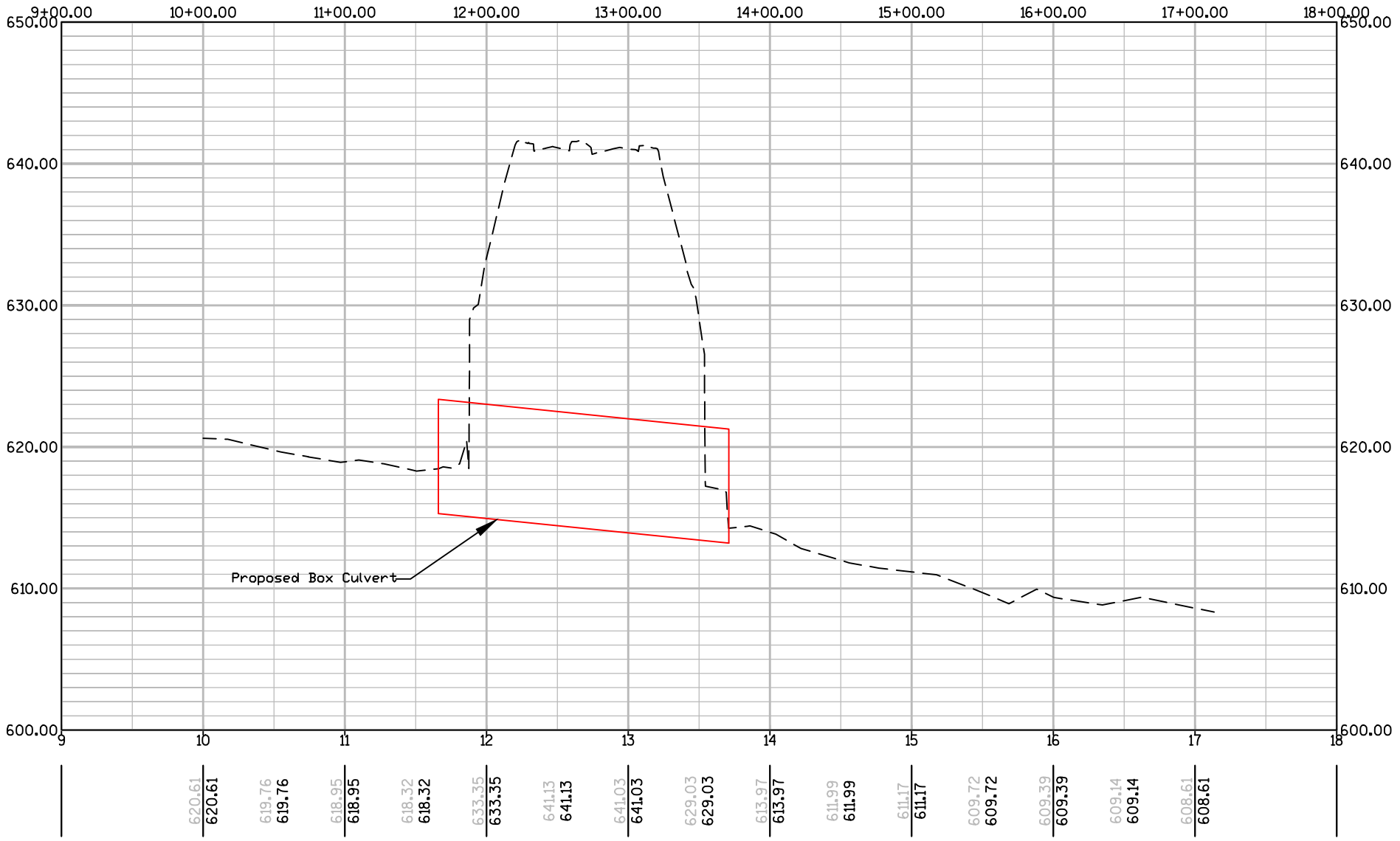
Stream/Floodplain Cross Section Location and Orientation



Stream Survey for Box Culvert



Streambed Profile



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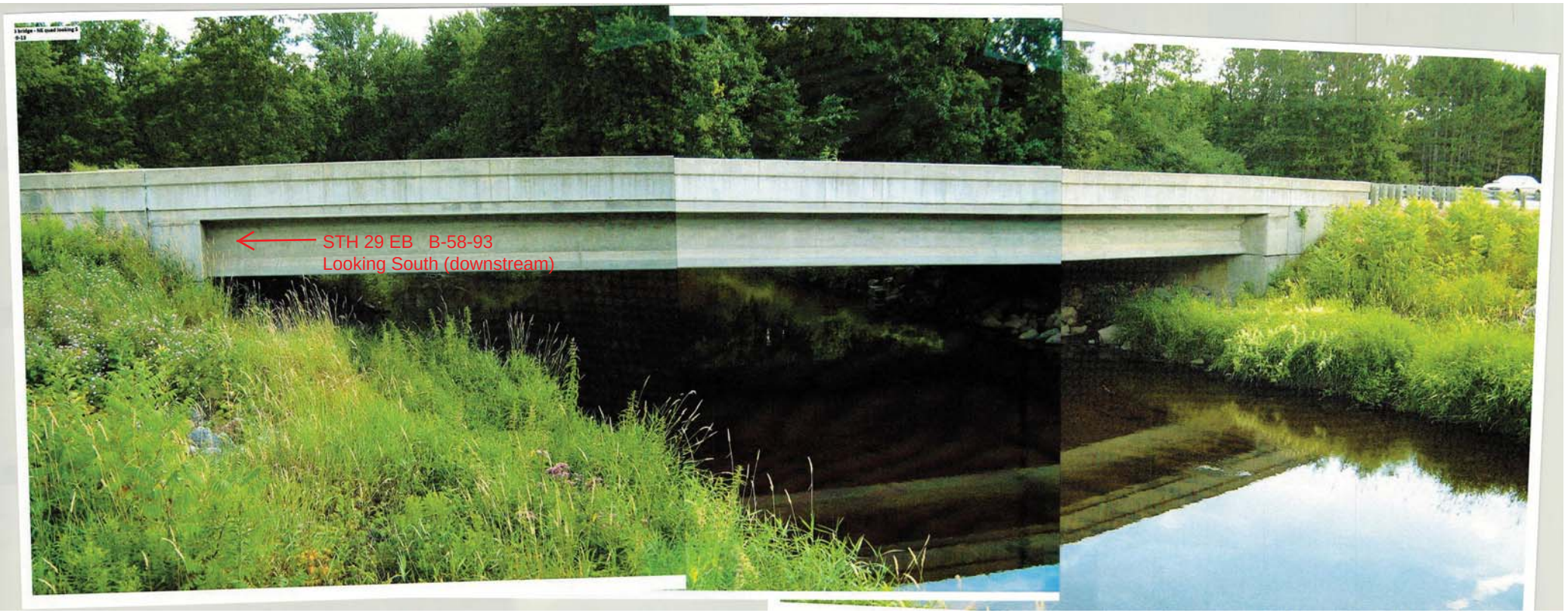
6



7

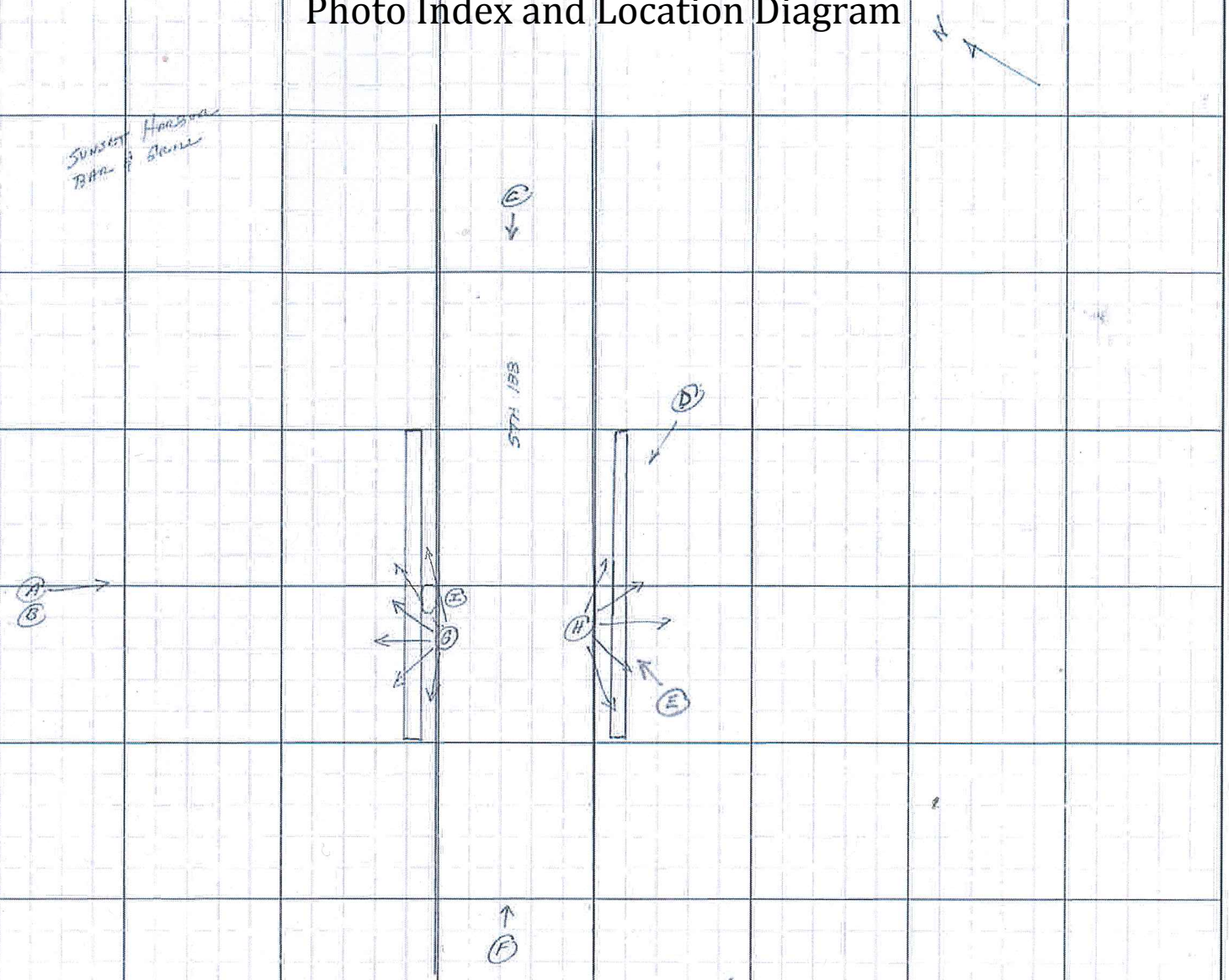
8

9

Photo List

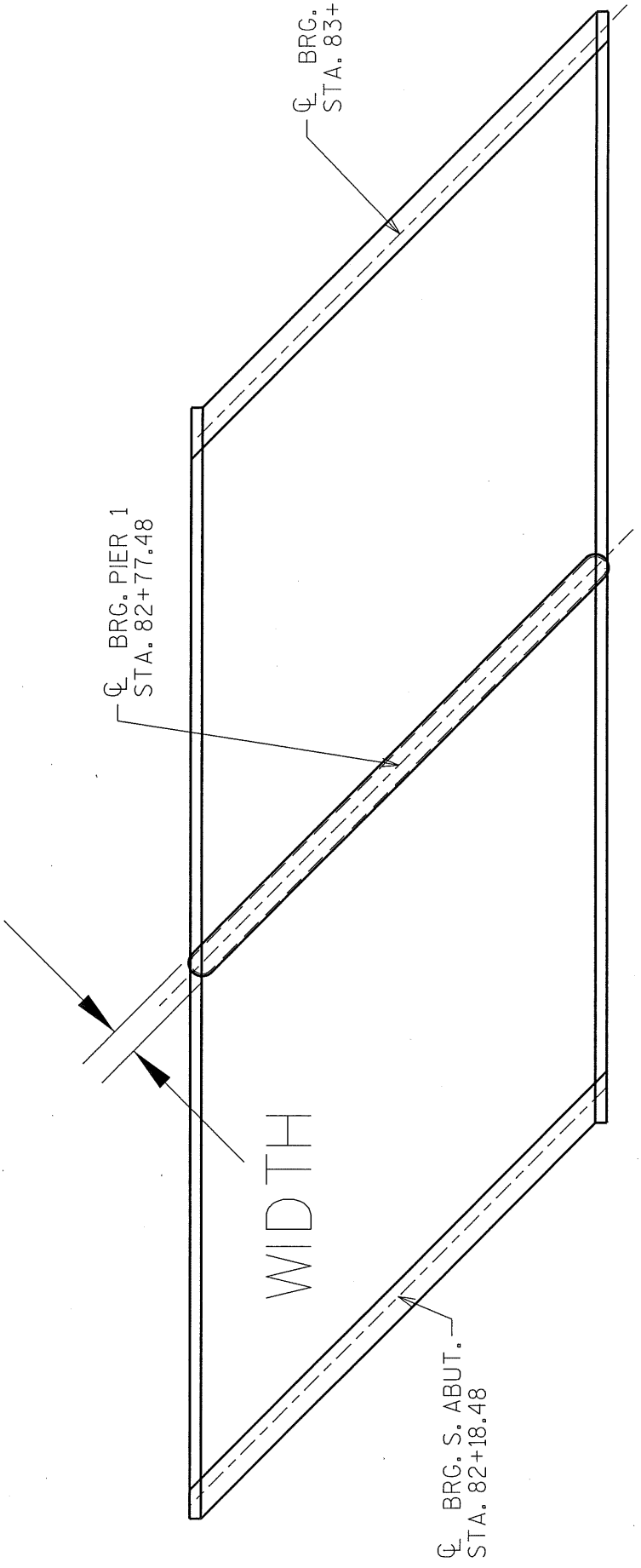
1. **IMG_1803 Upstream face existing structure**
2. **IMG_1773 Downstream face existing structure looking upstream**
3. **Upstream structure**
4. **IMG_1784 Downstream structure**
5. **IMG_1791 Upstream channel and floodplain**
6. **Downstream channel and floodplain**
7. **IMG_1779 Site details**
8. **IMG_1796 Roadway approach looking east**
9. **IMG_1795 Roadway approach looking west**

Photo Index and Location Diagram



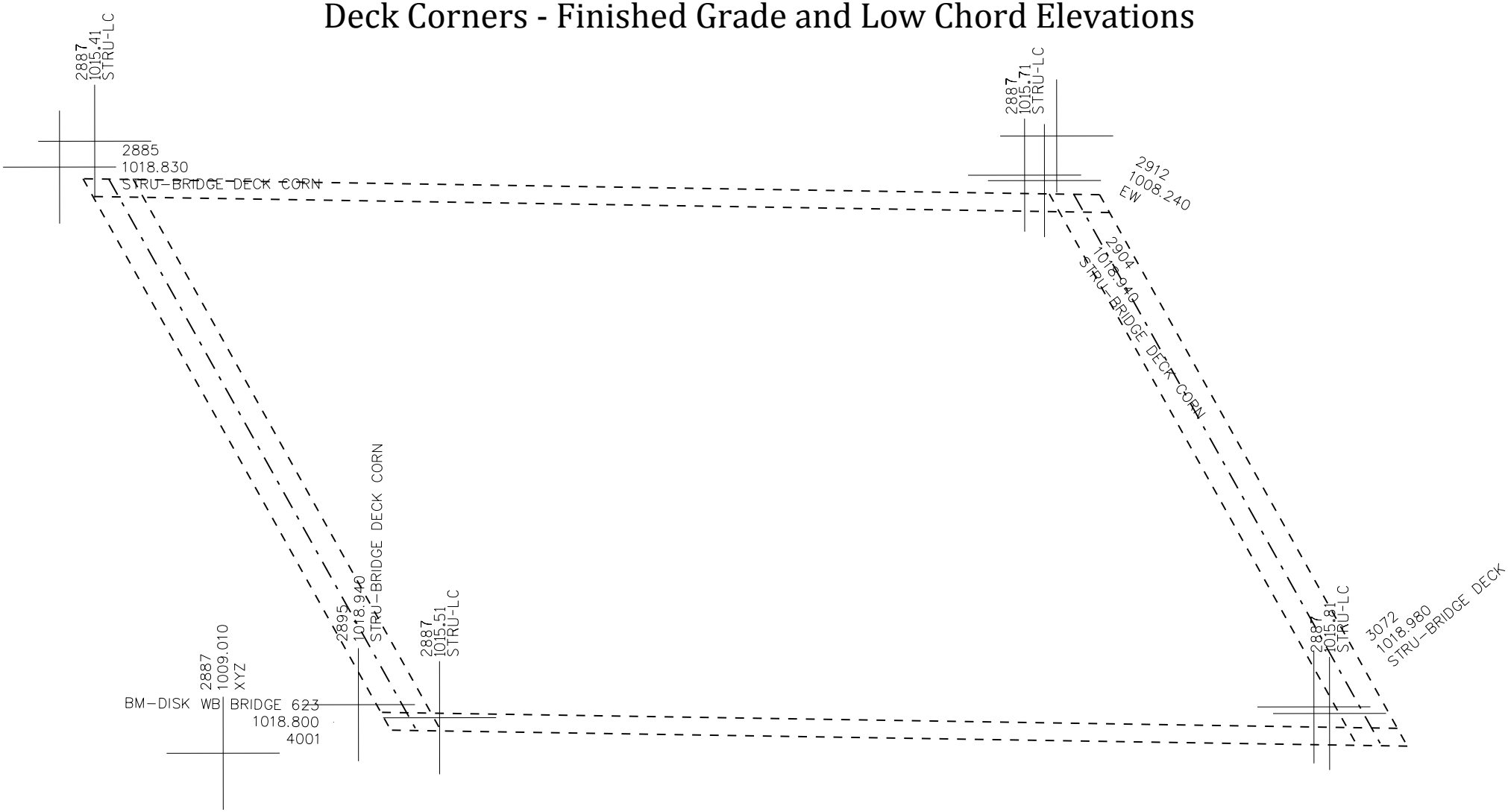
Picture #	Location / Direction
4374	A
4375	B
4376	C
4377	D
4378	E
4379	F
4380-4385	G (6 Pictures LT to RT)
4386-4390	H (5 Pictures LT to RT)
4391	I (Hole @ top of Box Culvert w/ Exposed Gas Line Shown) = ○

Pier Width


℄ BRG. N. ABUT.
STA. 83+36.48
℄ BRG. PIER 1
STA. 82+77.48
WIDTH
℄ BRG. S. ABUT.
STA. 82+18.48


bridge name plate location

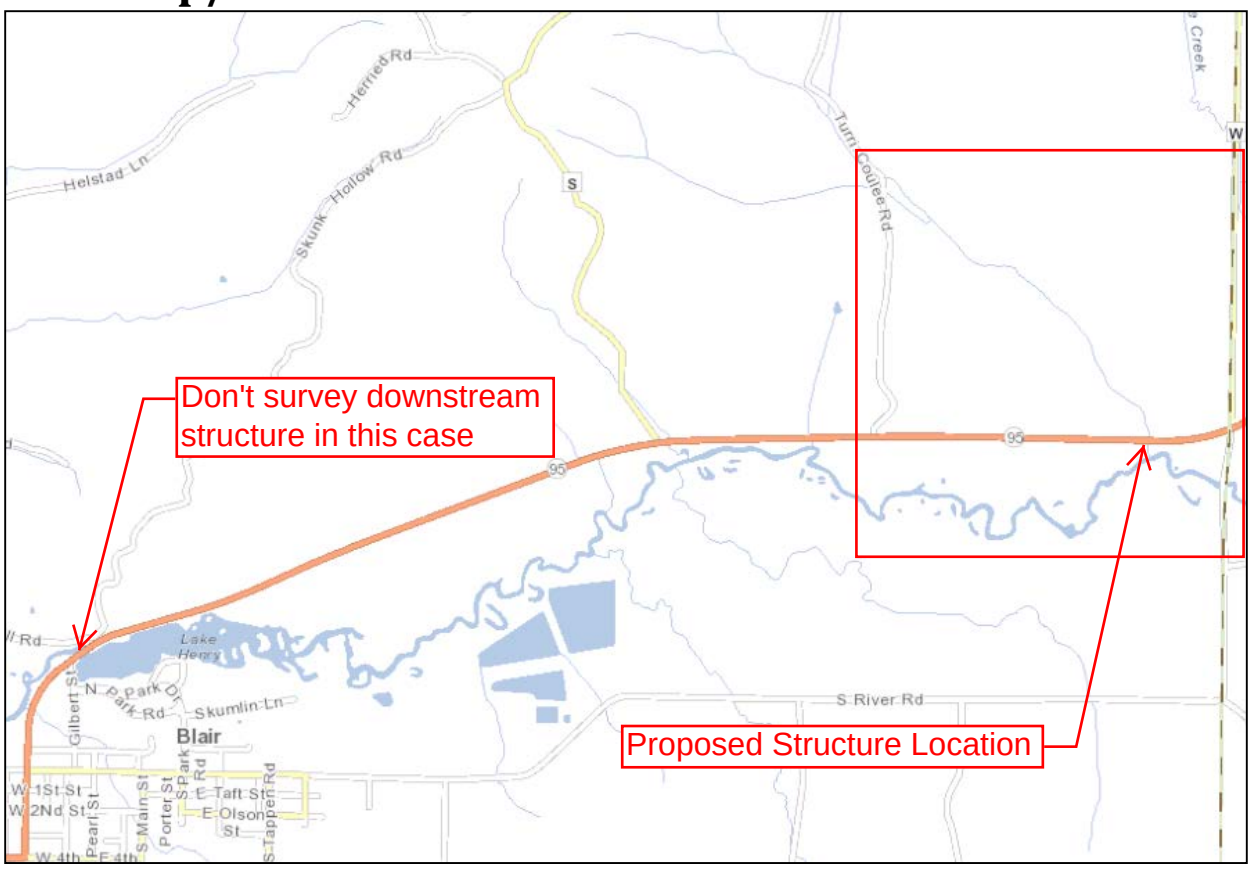
Deck Corners - Finished Grade and Low Chord Elevations



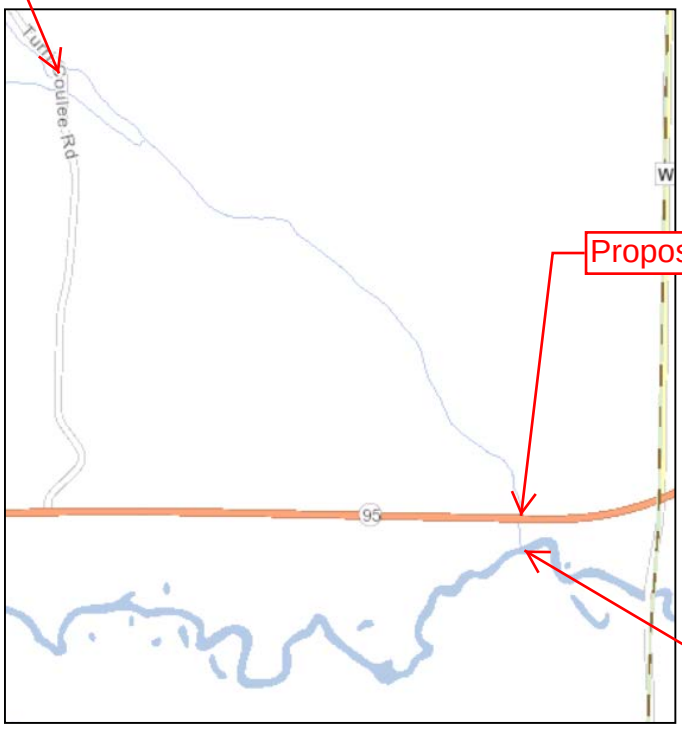
High Water Elevation and Date

Observed High Water Mark Elevation

Up/Downstream Structures and Confluence

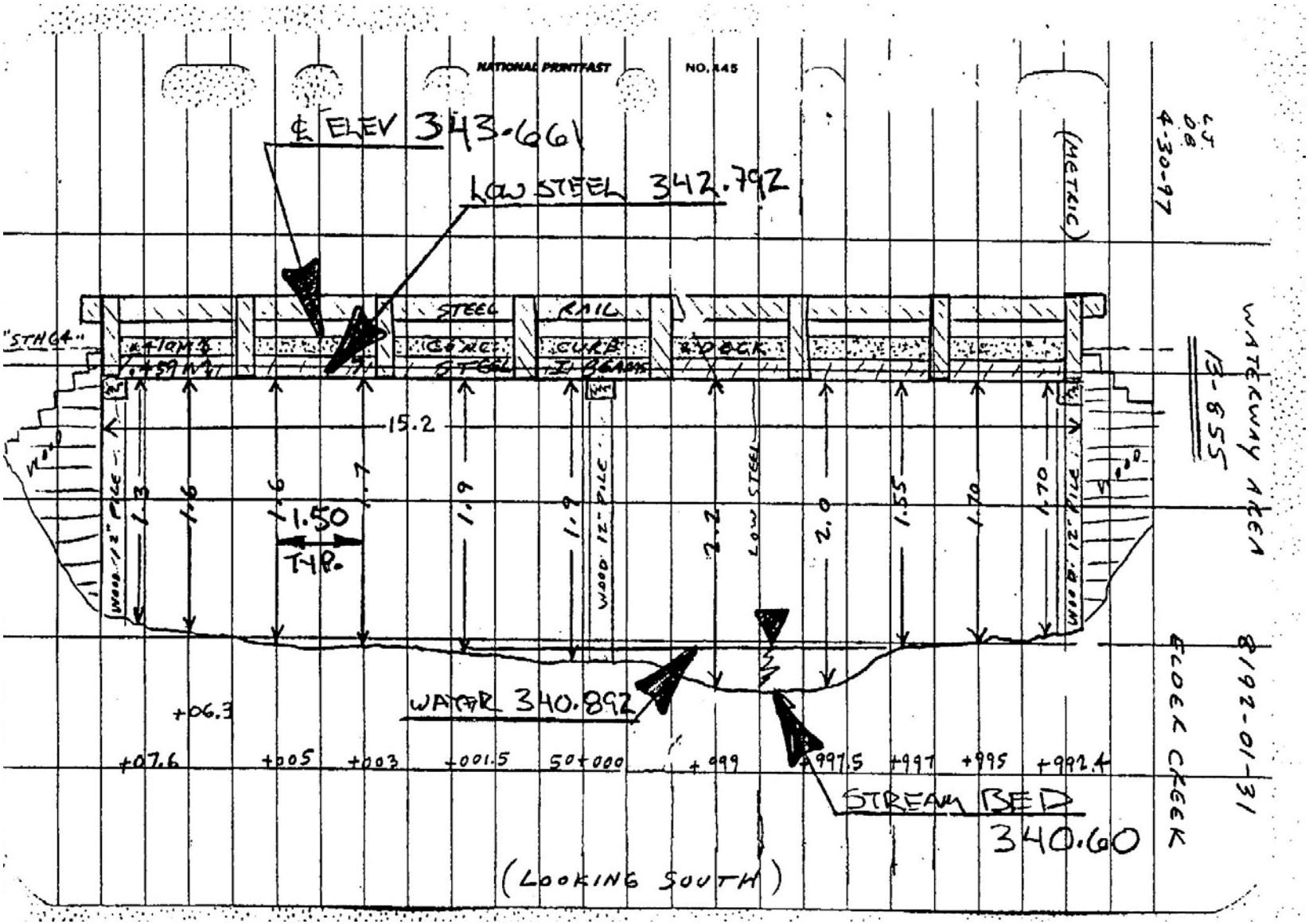


Inset

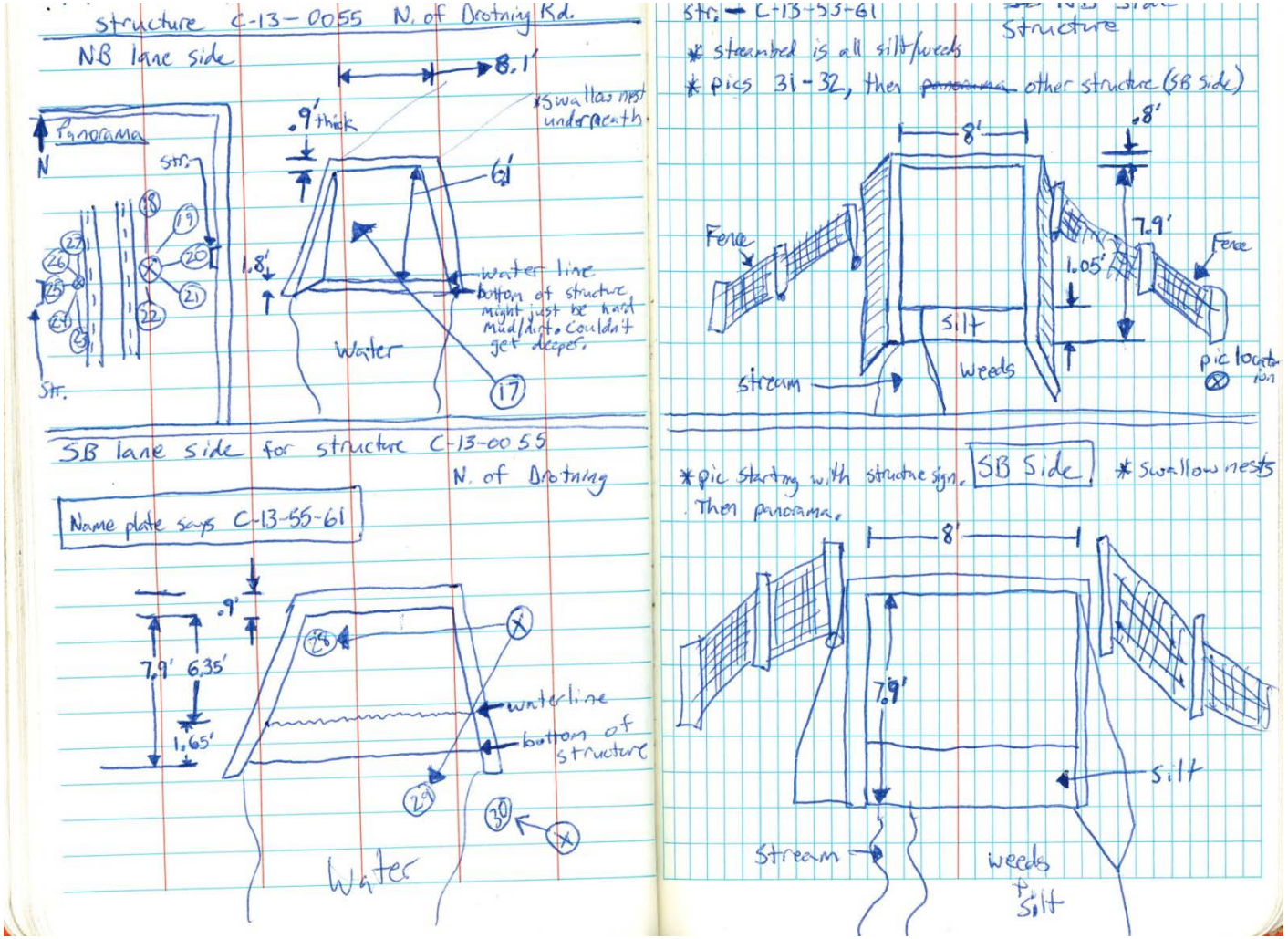


Water Surface Elevation at Downstream Dam

Field Notes - Stream Bed and Structure Elevation View

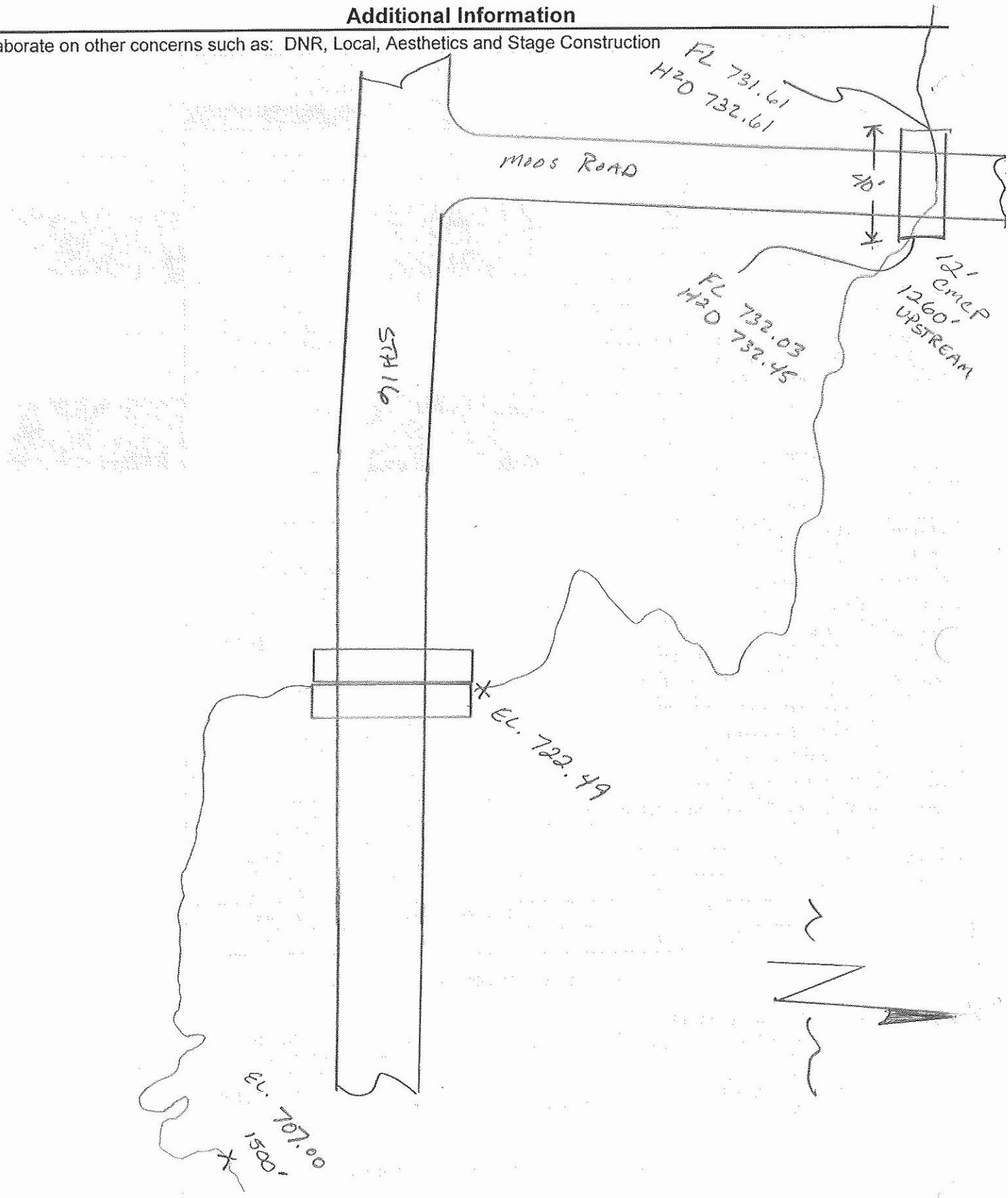


Field Notes - Labeled Culvert Inlet and Outlet Sketches



Additional Information

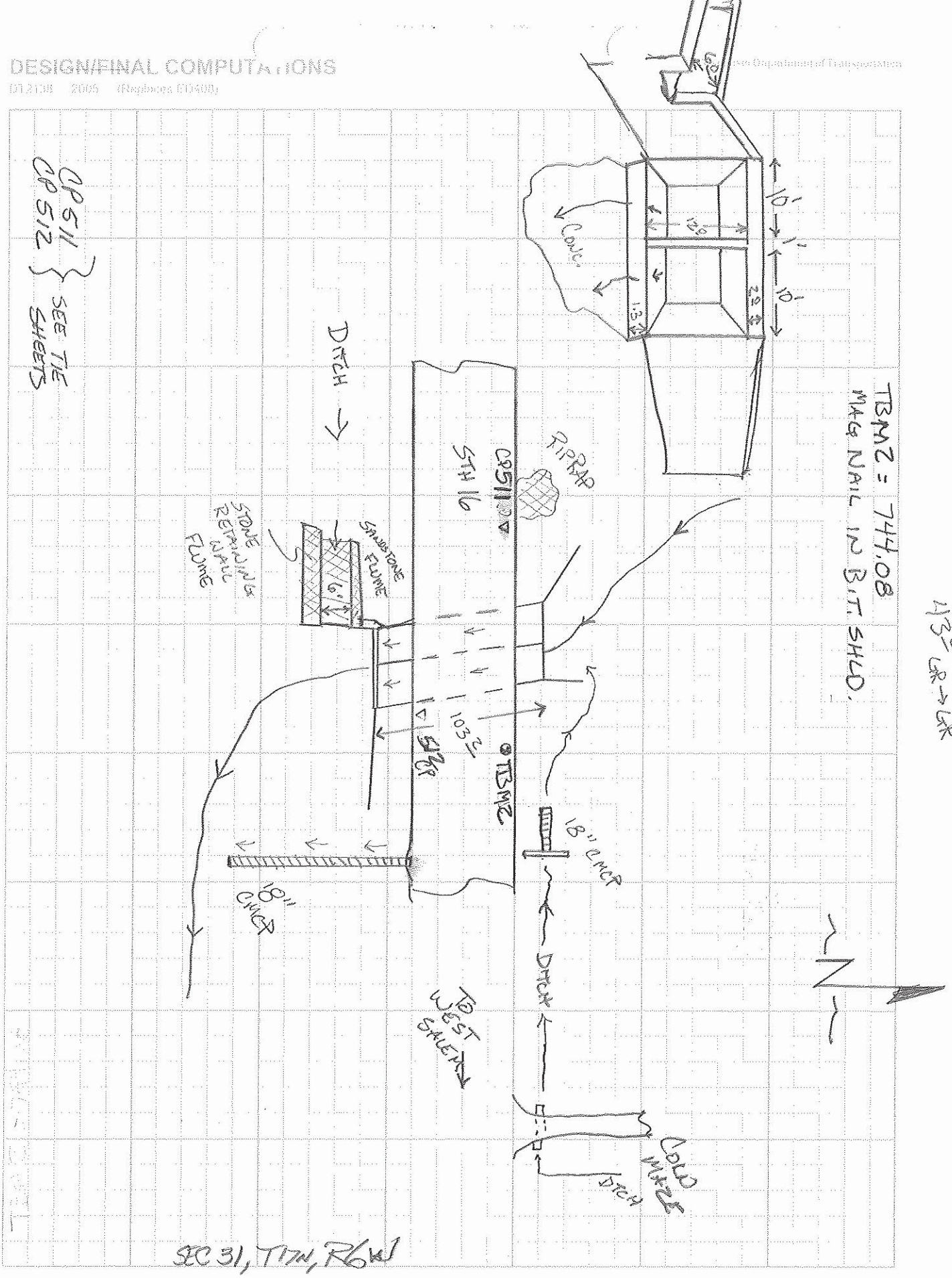
Elaborate on other concerns such as: DNR, Local, Aesthetics and Stage Construction



FOR BRIDGE OFFICE USE

Plans Checked By

Date



Project/Structure No.	Highway	County	Date
7570-02-02	16	LA CROSSE	9-14-11

Name/Title	Checked By	Date
TJF		

STH 16
STRUCTURE SURVEY OF B-32-572

Sheet 1 of 1

Translate DWG to DGN Workflow using Civil 3D

Contents

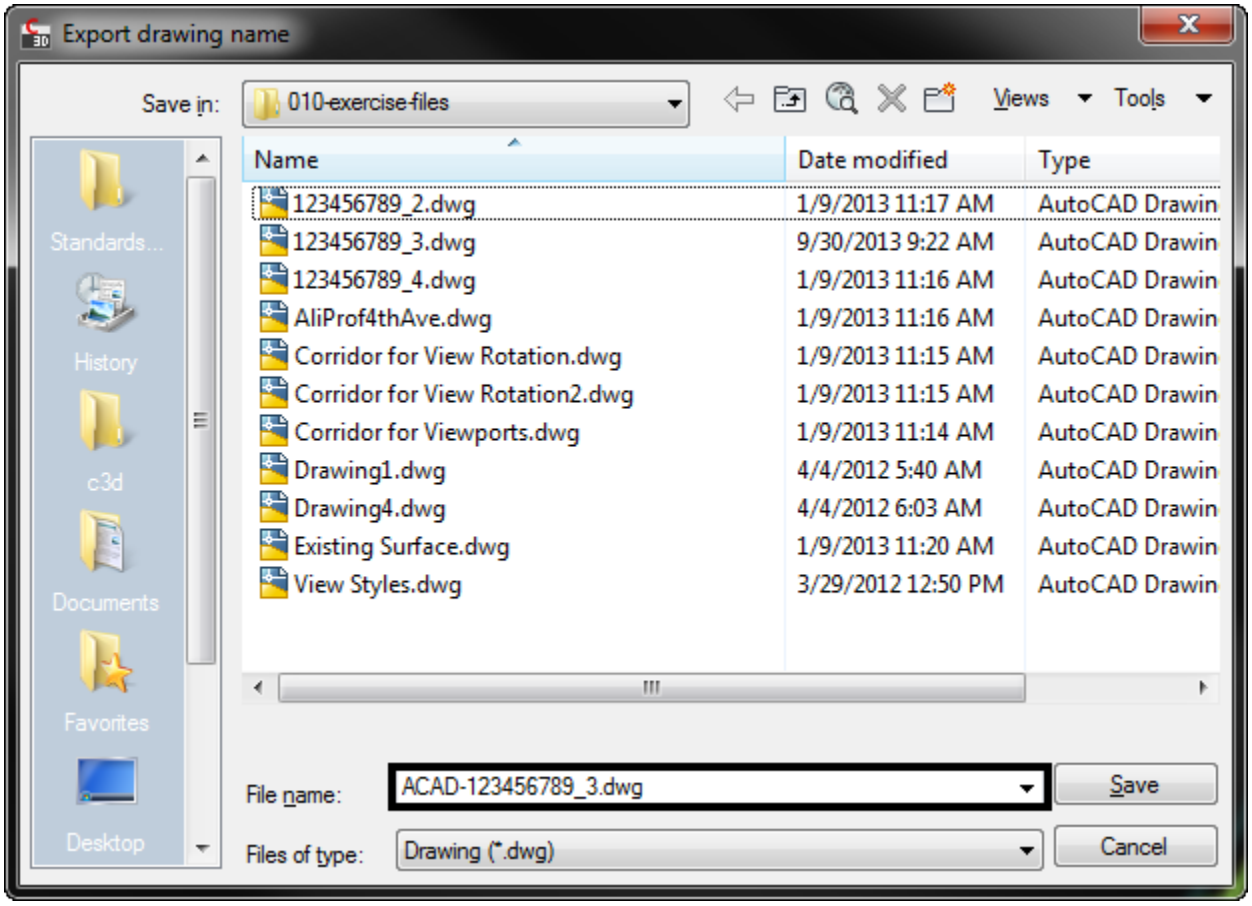
Translate DWG to DGN Workflow using Civil 3D

This workflow document will outline the steps involved to translate an AutoCAD Civil 3D 2014 file formation to MicroStation V8 DGN file format. The workflow will be Civil 3D based and the final deliverable will be the V8 DGN file. The workflow requires the installation of Productivity Pack 1 to be installed.

AutoCAD Civil 3D 2014

Export to AutoCAD

1. In AutoCAD Civil 3D open DWG drawing file you want to convert to MicroStation DGN.
2. In the command line type "**EXPORTTOAUTOCAD**". The Export drawing name dialog will appear with the file name you are exporting with an ACAD- prefix.



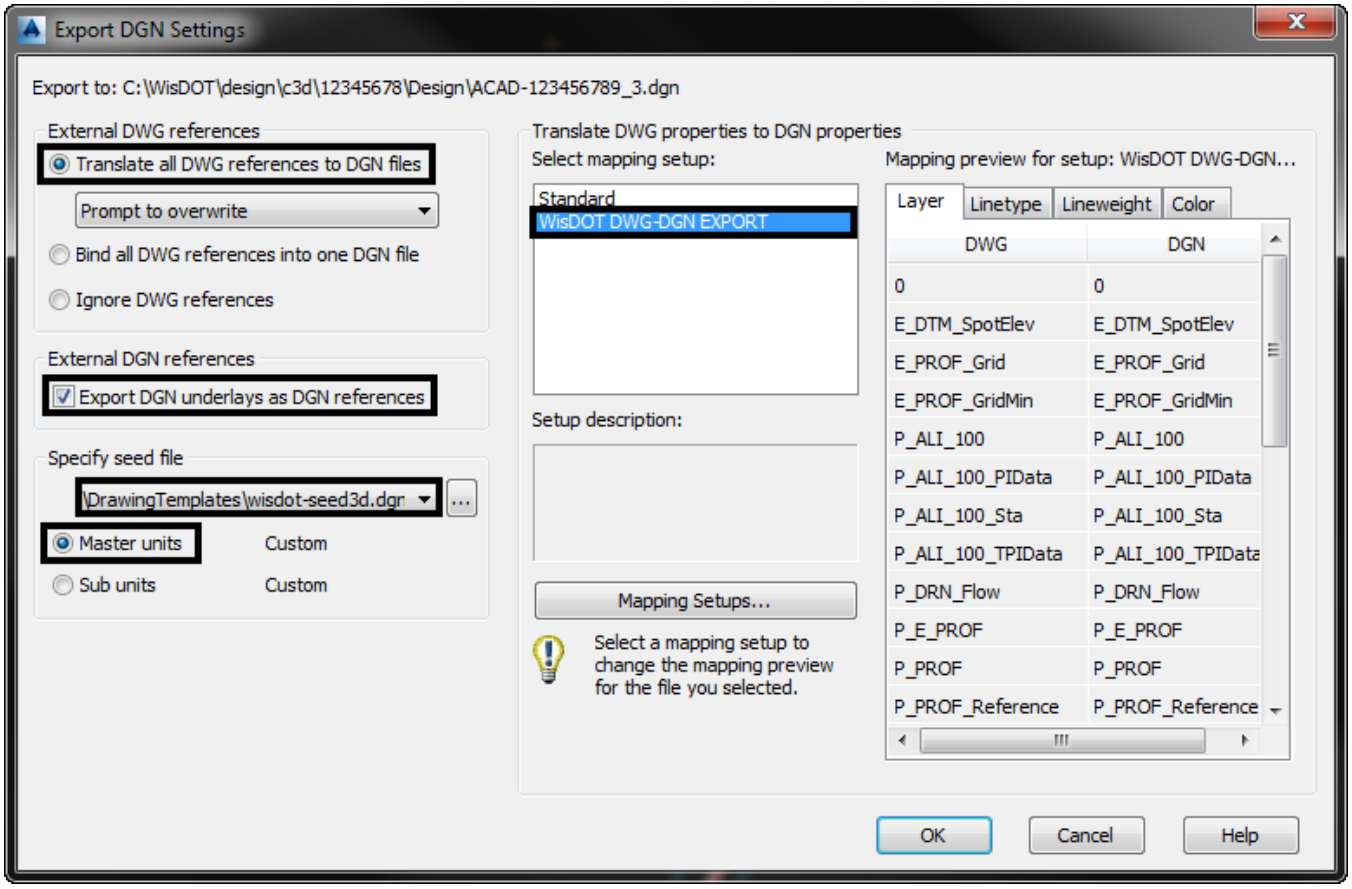
3. Click the **Save** button. The file will be exported to the folder.

Note: Exporting a Civil 3D file to AutoCAD will create a new DWG file with all AEC objects exploded. The default Export Options should work for most files. If any options need to be changed use the command entry: -exporttoautocad or aectoacad

Export to MicroStation DGN

4. In AutoCAD Civil 3D open the previously exported "ACAD-file. Some of the colors of the elements may have changed now that the Styles are not being used.
5. From the Application Menu Button select **Export > DGN File**. The Export DGN File dialog will appear.
6. Click the **Save** button to create the DGN file with the same name as the original dwg file. The Export DGN Settings dialog will appear.

7. In the External DWG references section of the dialog select the radio button **Translate all DWG references to DGN files**.
8. Check **ON** Export DGN underlays as DGN references.
9. In the **Specify Seed File** section of the dialog select the browse icon. The Select Seed File dialog will appear.
10. Select the ***wisdot-seed3d.dgn*** file from C:\WisDOT\Stnd\C3D2014\DrawingTemplates then click **Open**.
11. Make sure the **Master units** radio button is selected.



12. Click the **OK** button in the Export DGN settings dialog. The file will be exported to DGN.

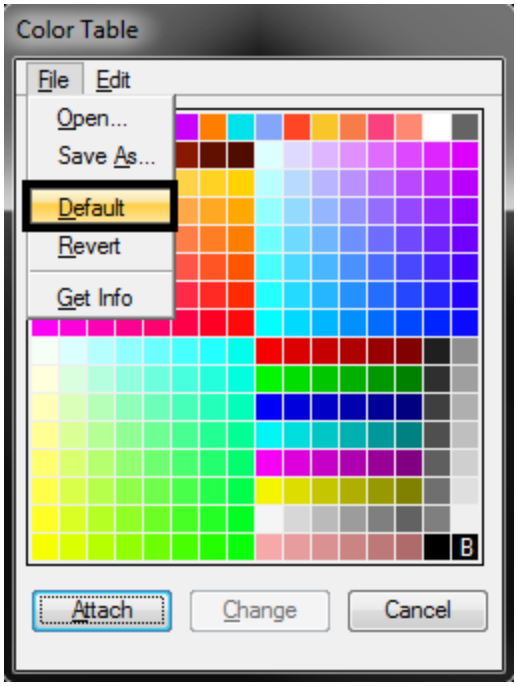
Verify DGN results

1. **Open** the exported DGN file in **MicroStation**.
2. Locate a known coordinate location in the file and verify the coordinates out to 3 decimal points.
3. From the MicroStation pull down menu **Settings > Design File**. The Design File Settings dialog will appear.
4. On the left side of the dialog select **Working Units**. Verify the units are **US Survey Feet**.

DGN Cleanup

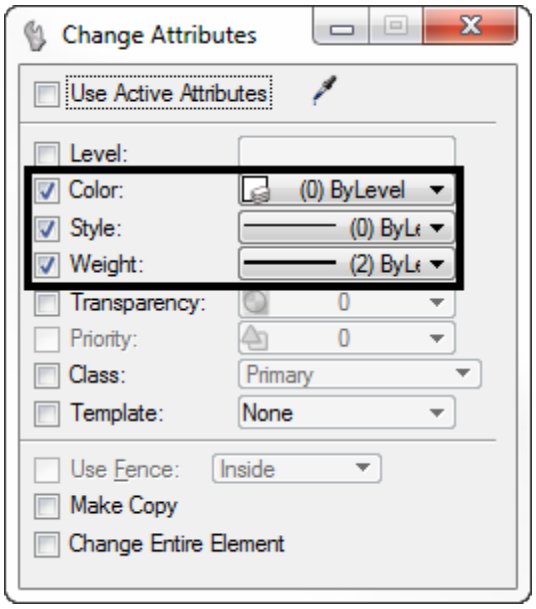
Color

5. From the MicroStation pull down menu **Settings > Color Table**. The Color Table dialog will appear.
6. From the Color Table dialog pull down menu **File > Default**. The WisDOT default color table will be loaded.



ByLevel Symbology

7. **Select All** elements in the drawing.
8. Select the Change Attributes icon. From the Tool settings dialog check **ON *Color***, ***Style***, and ***Weight*** and check OFF all others. Set the Color, Style, and Weight to **ByLevel** for all three. Then accept the change in the MicroStation view.

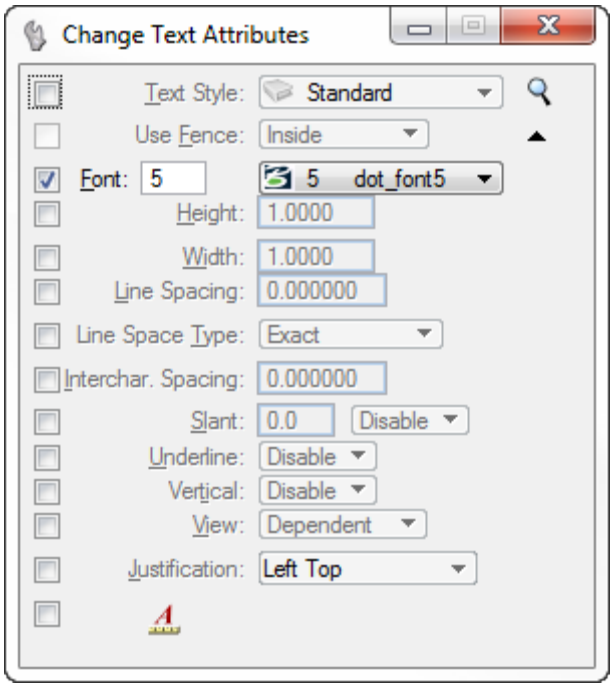


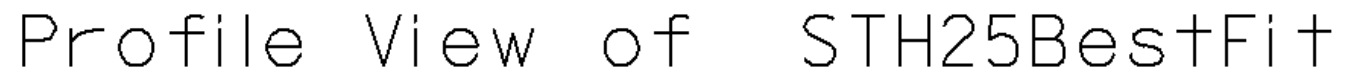
9. Clear the selection set.

Text

In the MicroStation file all the AutoCAD text has been converted to TrueType fonts. This causes display issues with some of the characters as shown below.

10. **Select All** elements in the drawing. Select the Change Text Attributes icon. From the Tool settings dialog check on **Font** and set it to "**5 dot_font5**" then accept the change in the MicroStation view.





11. Clear the selection set.
12. **Save Settings** and **Exit** MicroStation.

STREAM CROSSING STRUCTURE SURVEY REPORT (BRIDGE)

E-SUBMIT CHECKLIST

STREAM CROSSING STRUCTURE SURVEY REPORT

1 STRUCTURE SURVEY REPORT

☐ **Complete DT1698, Structure Survey Report ☒Stream Crossing or Box Culvert**
- *SSR Workshop Manual and Videos*
- *Bridge Manual Chapter 6.2.1* - *Bridge Manual Chapter 8*

2 SUPPORTING DOCUMENTATION

PDF Files:

☐ **Project Location Map**
- *structure location and number*
- *other proposed structures within project limits*

☐ **Plan and Profile Sheet (graphical or tabulated)**
- *horizontal curve data*
- *vertical curve data (grades to nearest thousandth)*
- *super transition locations*

☐ **Contour Map (preferred as DGN file for BOS designed structures)**
- *contours labeled, existing structure, north arrow, and stream direction (1"=20' scale)*

☐ **Typical Roadway Cross Section**
- *typical dimensions, slopes, clear zones, sidewalks, curb and gutter, etc.*

☐ **Labeled Photographs**
- *existing structures, utilities, buildings, etc.*
- *panoramic view up- and downstream showing channel, banks, and floodplains, existing structure, up- and downstream structures and roadway*

☐ **FEMA Floodplain Map**
- *location of structure(s) relative to any mapped floodplain*

☐ **DNR Initial Review Letter**

☐ **Preliminary Staging Plan (if required)**

DGN Files:

☐ **Alignment**

☐ **Proposed Pavement**

☐ **Utilities**

☐ **Contours**

☐ **Base Mapping**

☐ **Right of Way**

☐ **Cross Section**
- *at proposed structure and at existing structure (if applicable)*

☐ **Stream Survey Points/Cross Sections**
- *with point ID and elevation labels*
- *for box culverts also provide streambed points along channel flowline*

3 SUBMITTAL

☐ **E-Submit**
- *STRUCTURE SURVEY REPORT and SUPPORTING DOCUMENTATION are submitted using the E-Submit process (as "BOS DESIGN")*
- *E-Submit*
- *E-SUBMIT HELP*

☐ **Email: Region Soils Engineer**
- *IMPORTANT! The formal notice of the project to the Region Geotechnical Section*
- *State on the SSR who will be doing the geotechnical work/soil borings*

STREAM CROSSING STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1698 6/2012

☐ **Stream Crossing** ☐ **Box Culvert** ☐ **Box Culvert Extension:** ☐ Right

☐ **Other:** _____ ☐ Left

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID	Construction Project ID	Highway (Project Name)		
Final Plan Due Date	Preliminary Plan Due Date	☐ Town ☐ Village ☐ City		
PS&E Date	Letting Date	County		
New Structure Number	Existing Structure Number	Section	Town	Range
Station	Latitude: Longitude:	☐ YES ☐ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: Vertical Datum:		**Traffic Forecast Data**		
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed / Functional Class
Feature On				mph
Feature Under ☐ Waterway:		☐ Other:		
Region Contact: (Area Code) Telephone Number(s): Email:		Consultant Contact: (Area Code) Telephone Number(s): Email:		

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (See ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with hydraulic engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.
2. **Plan and Profile Sheet** on proposed reference line of highway showing: (a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance.
3. **Contour Map** of the site drawn to a scale of not less than 1" = 20' with one-foot contours and showing: (a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) North arrow; (e) Buildings; (f) Above and below ground facilities; (g) Recommended channel change; (h) Direction of stream flow; (i) Station at ends of existing structure; (j) Location of river cross sections or individual survey shots; (k) Proposed structure and extent of riprap for report submitted with preliminary plans; (l) Other features that influence design.
4. **Typical Roadway Cross Section** of proposed approaches showing: (a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Sidewalk, curb & gutter; (e) Subgrade and pavement thickness; (f) Clear zone width.
5. **Stream Cross Sections** at upstream and downstream face of existing bridge and at one structure length upstream and downstream. Water and streambed elevations to be taken at structure and water surface elevations 1500 feet upstream and downstream of existing bridge.
6. **Labeled Photographs** of: (a) Existing structure; (b) Upstream and downstream structures; (c) Buildings within 100 feet of the proposed structure; (d) Unobstructed panoramic view looking upstream and downstream from location of proposed structure, showing stream and floodplains; (e) Any noteworthy details on existing structure or surrounding site (i.e. downstream obstructions); (f) Air photo mosaics referenced to contour map DGN if available.
7. Attach a copy of the regulatory floodplain map (FEMA map) depicting the site.
8. Report submitted with preliminary plans – **Hydraulic Report** (See Bridge Manual Chapter 8) which may contain: (a) USGS quadrangle sheet showing proposed location, highway alignment and reach of river; (b) All available flood history, high water marks with date of occurrence, nature of flooding, damages, scour information, and factors affecting water stages; (c) Navigation clearance; (d) Discussion of alternatives considered, factors influencing selection.
9. Attach a copy of DNR initial concurrence letter.

Proposed Structure

Preference for Structure Type at this Site: ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☐ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 5)

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)
Ft.	Ft./Ft.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☐ No	Ft.	☐ Yes ☐ No	Ft.	☐ Yes ☐ No

Specify Wing Location(s) for Beam Guard Attachment	Specify Clear Zone Width When Beam Guard Not Used on Culvert
Specify Wing Location(s) for Surface Drain Anchors	Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach

YES	NO	
☐	☐	Project Is in Flood Hazard Area (FIS Mapped Floodplain)
☐	☐	Structure Will be Constructed to Accommodate Traffic Staging
☐	☐	Temporary Structure Required
☐	☐	Riprap Required
☐	☐	Structural Approach Slab
☐	☐	Lighting Required: Bolt Circle Diameter _____ inches
☐	☐	Traffic/Lighting Staff been Notified for Review
☐	☐	Conduit in Parapet: Diameter _____ Number _____
☐	☐	Historical Properties (Archaeological, Historic) Present Near Structure

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☐	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 4)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 4)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☐	☐	Structure will be Removed ☐ Bid Item ☐ Later Contract ☐ Other: _____
☐	☐	Structure will Remain in Service, Purpose: _____

Removal
- ☐ Normal Removal
- ☐ Removal With Minimal Debris
- ☐ Removal With Capture System

Existing Structures

STRUCTURE DATA		UPSTREAM	AT SITE	DOWNSTREAM
Structure Number (B/P/C)				
Highway, Railroad, Path, or Structure Name				
Year Built				
◊ Latitude				
◊ Longitude				
‡ Distance from Proposed Site in Miles				
Number of Spans				
Clear Span *(Between Inside Faces of Substructure Units)* Lengths Along C.L. Rdwy/Track				
Sidewalk:	Right Side Clear Width			
	Left Side Clear Width			
Roadway Width on Structure Between Curbs				
Superstructure Type				
Abutment Type(s)				
Pier Type(s) and Width(s)				
Is Structure Supported on Piles?				
Condition:	Superstructure Rating (NBI)			
	Substructure Rating (NBI)			
	Sufficiency Rating (NBI)			
Skew:	Stream			
	Structure			
* Elevation + +	Finished Grade			
	Low Chord			
Character of Material in Stream Bed				
Does Drift Pass Satisfactorily (Y/N/no record)				
Does Ice Pass Satisfactorily (Y/N/no record)				
Evidence of Damage From Floating Debris				
Streambed Scour Visible (Y/N) Ⓟ	Provide Additional Details on Page 5			
Streambank Scour Visible (Y/N) Ⓟ				
† Recorded High Water Elevation - Date				
** Observed High Water Mark Elevation Ⓟ				
History of Flooding over Roadway (Date or Frequency)				
Abutment Slope Washout From:	Stream Flow Ⓟ			
	Roadway Drainage Ⓟ			
Low Water Elevation				
º Ordinary High Water Mark				
Observed Water Elevation				
Streambed Elevation				
Water Surface Elevation	Date	1500' Upstream ‡	At Site	1500' Downstream ‡

Ⓟ Provide labeled photograph.

* Use same vertical datum for all structures within 1500' of existing structure.

** High water marks may include, but are not limited to, debris, leaves, or dirt on structure that appear to have been left by recent flooding.

+ + Take these elevations at the same location.

† Information on high water can be obtained from observation, owner, adjacent property owner, County Road Commission, Regional Planning Commission, DNR, FIS, local officials, bridge inspector, or WisDOT bridge maintenance engineer.

º If marked by DNR, "The point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic."

‡ Measured along thread of channel. If there is an abrupt river profile change within 1500' contact hydraulic engineer for revised location.

◊ Lat./Long. taken at name plate location (with photograph or sketch of location).

Existing Culvert Information

Number of Barrels			
Barrel Width Perpendicular to Walls			
Allowable High Water			
Floor: Concrete, Earth, Silted			
If Silted Indicate Depth of Silt in Barrel			
Elevation:	Inlet	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	Discharge	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	For Structures with Concrete Aprons:		
	At Beginning of Upstream Apron		
		Apron Elevation	
		Streambed	
		Top of Water	
	At End of Downstream Apron		
		Apron Elevation	
		Streambed	
		Top of Water	
Condition Ⓟ:	Wingwalls		
	Barrel		

Attach Sketch
Ⓟ Provide labeled photograph.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

The more information that can be provided, the better. This will result in fewer questions from BOS during structure design or consultant review and a better end product.

The following is not all inclusive; please add/delete discussion items to fit site/project specific details that may influence structure design:

Geotechnical Coordination:
Detail who is completing geotechnical work/soil borings (in-house or consultant) and anticipated schedule of work.

Aesthetics:
If aesthetic level 2 or higher is indicated, you must suggest particular requirements such as railing type, pier shape, new aesthetic option (type I,II or III), special form liners, stain/paint color (federal color number), etc. See Bridge Manual Chapter 4 for updated information. Also include coordination that is yet to be made. If applicable, provide B-##-### for example structures in the area that are similar to proposed or desired; attach an exhibit for reference. Contact BOS with questions.

Structural Approach Slabs:
If requested, provide justification for their inclusion. See Bridge Manual Chapter 12.11.

Proposed Structure (& Future Expansion):
Discuss proposed size and type of structure and vertical/horizontal clearances (if special clearances are required for construction staging). Describe future expansion, if any is anticipated, which may include lower roadway lane expansion, upper roadway widening, etc. Anticipated future expansion of bridge may have impacts to profile grade, consider vertical clearance requirement.

Temporary Shoring:
Describe anticipated locations of temporary shoring needed for construction. Especially important for staged construction or current structure that remains in service during construction.

Construction Staging:
Discuss construction staging in detail and describe desired sequencing; provide sketches of staging.

Traffic Barrier:
Discuss barrier locations, type and heights approaching the structure, if applicable.

Bike/Pedestrian/Other Structure Accommodations:
Discuss proposed sidewalks, multi-use paths, separation barriers, medians, wildlife passages, etc.

Utilities:
List utilities located under, near, or on the proposed structure. Include type of utility, action to be taken and who owns the utility. If conduit/utility will be on the proposed structure describe who will be servicing it, number and size of conduits needed and any other pertinent information. Justification for placing utilities on proposed structure and means of attaching.

Site Drainage:
Discuss potential drainage concerns involving the proposed structure. Possible concerns include proposed roadway drainage pipes under substructure units, anticipated need for deck drains and median drainage. Include locations of pipes and invert elevations as appropriate.

DNR:
Discuss the status of coordination between Region/Consultant and DNR. Include any agreements made, concerns with the site, or areas requiring special attention as expressed by DNR (e.g. AOP, etc.).

For Structure Designers Use Only
Proposed Box Culvert

Aprons	Type	Elevations
Inlet		
Outlet		
Openings - Number	Clear Span at Right Angles to Axis of Box	Inside Height of Box
Slope of Channel at Culvert		

All Proposed Structures

Spans – Number:	Spans Lengths (C.L. to C.L. of Substructure):	Skew:	☐ R.H.F. ☐ L.H.F.
Latitude:	Longitude:		

Drainage Area _____ Sq. Mi.
High Water (100) _____ Ft.
Velocity _____ Ft/Sec.
Waterway Area _____ Sq. Ft.
Scour Code _____

Q (100) _____ cfs
Q (Struct.) _____ cfs
Q (Rdwy.) _____ cfs
Q (Suple. Struct.) _____ cfs

Existing Bridge
High Water (100) _____ Ft.

Regulatory High Water
_____ Ft.
Source FIS _____

Erosion Control
Q_2 = _____ cfs.
HW_2 = _____ Ft.

Temporary Structure
Q _____ Yr. _____ cfs.
High Water _____ Ft.
Min. A (BR) _____ Sq. Ft.

Overtopping Frequency (If>100Yrs.-NA)
Q _____ Yr. _____ cfs.
High Water _____ Ft.

STREAM CROSSING STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1698 6/2012

☒ **Stream Crossing** ☐ **Box Culvert** ☐ **Box Culvert Extension:** ☐ Right

☐ **Other:** _____ ☐ Left

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID 1690-02-04	Construction Project ID 1690-02-74	Highway (Project Name) STH 69		
Final Plan Due Date 3/13/2012	Preliminary Plan Due Date 8/15/2011	☒ Town ☐ Village ☐ City Mount Pleasant		
PS&E Date 5/15/2012	Letting Date 11/13/2012	County Green		
New Structure Number B-23-151	Existing Structure Number B-23-007	Section 19	Town 3 N	Range 8 E
Station 502+93; CL south abut. cap	Latitude: 42.746216 Longitude: -89.59931	☐ YES ☒ NO Structure Located on National Highway System		

For Survey and CADD Files
Horizontal Coordinate System: NAD 83 (1991), US Survey Feet
Vertical Datum: NAVD 88, Feet

Traffic Forecast Data

Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
2029	7,410	60 mph	Principal Arterial

Feature On
STH 69

Feature Under
☒ Waterway: Burgy Creek ☐ Other:

Region Contact: Matt A (Area Code) Telephone Number(s): (xxx) xxx-xxxx Email: matt.a@dot.wi.gov	Consultant Contact: N/A (Area Code) Telephone Number(s): Email:

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (See ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with hydraulic engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.
2. **Plan and Profile Sheet** on proposed reference line of highway showing: (a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance.
3. **Contour Map** of the site drawn to a scale of not less than 1" = 20' with one-foot contours and showing: (a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) North arrow; (e) Buildings; (f) Above and below ground facilities; (g) Recommended channel change; (h) Direction of stream flow; (i) Station at ends of existing structure; (j) Location of river cross sections or individual survey shots; (k) Proposed structure and extent of riprap for report submitted with preliminary plans; (l) Other features that influence design.
4. **Typical Roadway Cross Section** of proposed approaches showing: (a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Sidewalk, curb & gutter; (e) Subgrade and pavement thickness; (f) Clear zone width.
5. **Stream Cross Sections** at upstream and downstream face of existing bridge and at one structure length upstream and downstream. Water and streambed elevations to be taken at structure and water surface elevations 1500 feet upstream and downstream of existing bridge.
6. **Labeled Photographs** of: (a) Existing structure; (b) Upstream and downstream structures; (c) Buildings within 100 feet of the proposed structure; (d) Unobstructed panoramic view looking upstream and downstream from location of proposed structure, showing stream and floodplains; (e) Any noteworthy details on existing structure or surrounding site (i.e. downstream obstructions); (f) Air photo mosaics referenced to contour map DGN if available.
7. Attach a copy of the regulatory floodplain map (FEMA map) depicting the site.
8. Report submitted with preliminary plans – **Hydraulic Report** (See Bridge Manual Chapter 8) which may contain: (a) USGS quadrangle sheet showing proposed location, highway alignment and reach of river; (b) All available flood history, high water marks with date of occurrence, nature of flooding, damages, scour information, and factors affecting water stages; (c) Navigation clearance; (d) Discussion of alternatives considered, factors influencing selection.
9. Attach a copy of DNR initial concurrence letter.

Proposed Structure

Preference for Structure Type at this Site:

☒ No Preference

Aesthetics Level – See Bridge Manual Chapter 4

☒ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 5)

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)
36 Ft.	0.054 Ft./Ft.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☒ Yes ☐ No	10 Ft.	☐ Yes ☒ No	N/A Ft.	☐ Yes ☐ No

Specify Wing Location(s) for Beam Guard Attachment	Specify Clear Zone Width When Beam Guard Not Used on Culvert
All four wings, runs full length of structure.	N/A
Specify Wing Location(s) for Surface Drain Anchors	**Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach**
N/A	

YES	NO	
☐	☒	Project Is in Flood Hazard Area (FIS Mapped Floodplain)
☐	☒	Structure Will be Constructed to Accommodate Traffic Staging
☐	☒	Temporary Structure Required
☒	☐	Riprap Required
☒	☐	Structural Approach Slab
☐	☒	Lighting Required: Bolt Circle Diameter _____ inches
☐	☐	Traffic/Lighting Staff been Notified for Review
☐	☒	Conduit in Parapet: Diameter _____ Number _____
☐	☒	Historical Properties (Archaeological, Historic) Present Near Structure

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☒	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 4)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 4)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO		Removal
☒	☐	Structure will be Removed ☒ Bid Item ☐ Later Contract ☐ Other: _____	☐ Normal Removal ☐ Removal With Minimal Debris ☒ Removal With Capture System
☐	☒	Structure will Remain in Service, Purpose: _____	

Existing Structures

STRUCTURE DATA		UPSTREAM	AT SITE	DOWNSTREAM
Structure Number (B/P/C)		P-23-103	B-23-007	B-23-76
Highway, Railroad, Path, or Structure Name		Washington Rd.	STH 69	Feldt Rd.
Year Built		1968	1951	1990
◊ Latitude		42.712724	42.714527	42.720408
◊ Longitude		-89.61841	-89.598881	-89.585867
‡ Distance from Proposed Site in Miles		1.2		1.02
Number of Spans		1	2	1
Clear Span *(Between Inside Faces of Substructure Units)* Lengths Along C.L. Rdwy/Track		21'	60'	32'
Sidewalk:	Right Side Clear Width		N/A	
	Left Side Clear Width		N/A	
Roadway Width on Structure Between Curbs		15'	24'	18'
Superstructure Type		Concrete Rigid Frame	Concrete Slab	Concrete Slab
Abutment Type(s)		Concrete	Wood Timber	Concrete
Pier Type(s) and Width(s)		no piers	Wood Piles 2ft	no piers
Is Structure Supported on Piles?		unknown	yes	yes
Condition:	Superstructure Rating (NBI)	N/A	7 (cracking on deck)	7
	Substructure Rating (NBI)	N/A	4 (fair)	8
	Sufficiency Rating (NBI)	N/A	46.3	92.4
Skew:	Stream	0	30 degrees	0
	Structure	0	25	0
* Elevation	Finished Grade	100	847.52	100
+ +	Low Chord	95.7	844.35	97
Character of Material in Stream Bed		Muck	Muck	Muck
Does Drift Pass Satisfactorily (Y/N/no record)		yes	yes	yes
Does Ice Pass Satisfactorily (Y/N/no record)		yes	yes	yes
Evidence of Damage From Floating Debris		none observed	none observed	none observed
Streambed Scour Visible (Y/N) Ⓟ	Provide Additional Details on Page 5	no	no	no
Streambank Scour Visible (Y/N) Ⓟ		no	(see pictures)	no
† Recorded High Water Elevation - Date		N/A	841 April 2004	N/A
** Observed High Water Mark Elevation Ⓟ		N/A	none observed	N/A
History of Flooding over Roadway (Date or Frequency)		N/A	none	N/A
Abutment Slope Washout From:	Stream Flow Ⓟ	none	(none, rip rap present)	none
	Roadway Drainage Ⓟ	none	none	none
Low Water Elevation		N/A	835	N/A
º Ordinary High Water Mark			(none noted)	
Observed Water Elevation		88.3	836.52	91.7
Streambed Elevation		87.2	834.5	89.2
Water Surface Elevation	Date	1500' Upstream ‡	At Site	1500' Downstream ‡
	7/26/06	837.87	836.52	832.78

Ⓟ Provide labeled photograph.

* Use same vertical datum for all structures within 1500' of existing structure.

** High water marks may include, but are not limited to, debris, leaves, or dirt on structure that appear to have been left by recent flooding.

+ + Take these elevations at the same location.

† Information on high water can be obtained from observation, owner, adjacent property owner, County Road Commission, Regional Planning Commission, DNR, FIS, local officials, bridge inspector, or WisDOT bridge maintenance engineer.

º If marked by DNR, "The point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic."

‡ Measured along thread of channel. If there is an abrupt river profile change within 1500' contact hydraulic engineer for revised location.

◊ Lat./Long. taken at name plate location (with photograph or sketch of location).

Existing Culvert Information

Number of Barrels			
Barrel Width Perpendicular to Walls			
Allowable High Water			
Floor: Concrete, Earth, Silted			
If Silted Indicate Depth of Silt in Barrel			
Elevation:	Inlet	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	Discharge	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	For Structures with Concrete Aprons:		
	At Beginning of Upstream Apron		
		Apron Elevation	
		Streambed	
		Top of Water	
	At End of Downstream Apron		
		Apron Elevation	
		Streambed	
		Top of Water	
Condition℗:	Wingwalls		
	Barrel		

Attach Sketch

℗ Provide labeled photograph.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

Soil borings and geotechnical report will be completed by WisDOT Central Office Soils.

Structural approach slabs will be required for this structure based on the ADT and current guidance in the Bridge Manual.

DNR indicated preference for a bridge with a pier outside of the creek channel if proposed structure requires two spans.

Traffic will be detoured during construction.

Recorded High Water Elevation and Date gathered from a resident who lives near the structure and observed the floodwaters and an approximate elevation.

For Structure Designers Use Only
Proposed Box Culvert

Aprons	Type	Elevations
Inlet		
Outlet		
Openings - Number	Clear Span at Right Angles to Axis of Box	Inside Height of Box
Slope of Channel at Culvert		

All Proposed Structures

Spans – Number:	Spans Lengths (C.L. to C.L. of Substructure):	Skew:	☐ R.H.F. ☐ L.H.F.
Latitude:	Longitude:		

Drainage Area _____ Sq. Mi. Q (100) _____ cfs **Existing Bridge**

High Water (100) _____ Ft. Q (Struct.) _____ cfs High Water (100) _____ Ft.

Velocity _____ Ft/Sec. Q (Rdwy.) _____ cfs **Regulatory High Water**

Waterway Area _____ Sq. Ft. Q (Suple. Struct.) _____ cfs _____ Ft.

Scour Code _____ Source FIS _____

Erosion Control

Q_2 = _____ cfs.

HW_2 = _____ Ft.

Temporary Structure

Q _____ Yr. _____ cfs.

High Water _____ Ft.

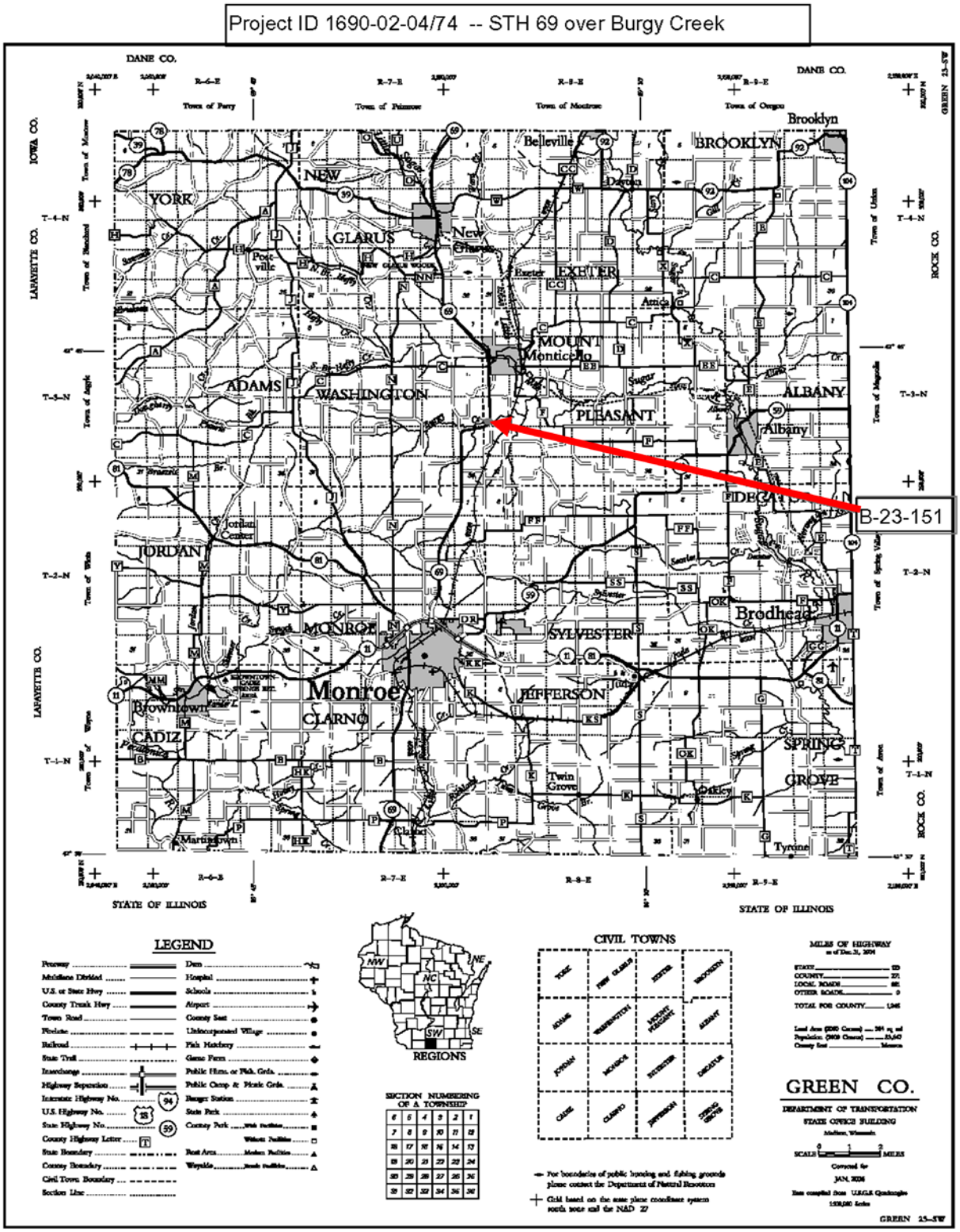
Min. A (BR) _____ Sq. Ft.

Overtopping Frequency (If>100Yrs.-NA)

Q _____ Yr. _____ cfs.

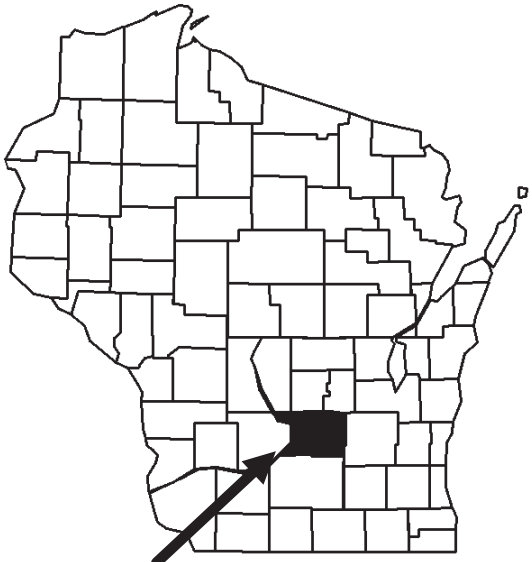
High Water _____ Ft.

Small County and Location Maps



PROJECT LOCATION MAP

PROJECT ID: 6020-04-01/81
DEFOREST – PORTAGE ROAD
ROWAN CREEK BRIDGE B-11-861
USH 51
COLUMBIA COUNTY



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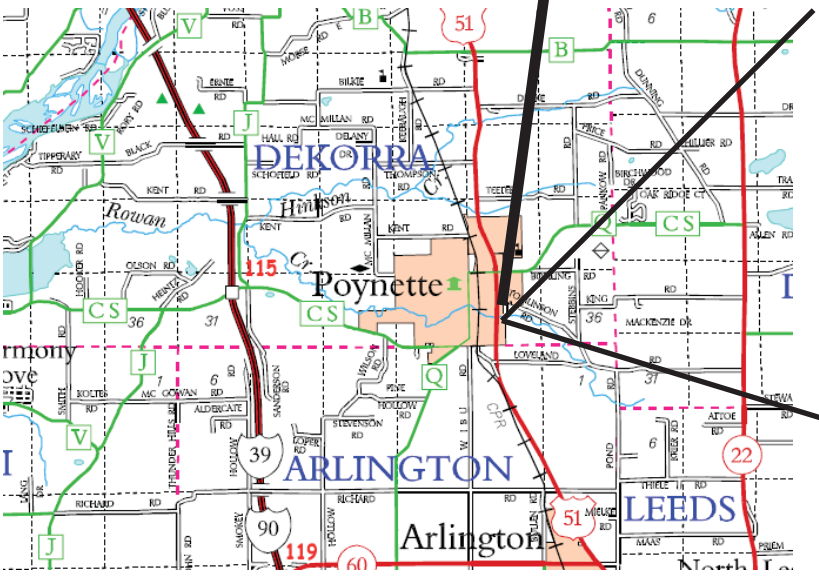
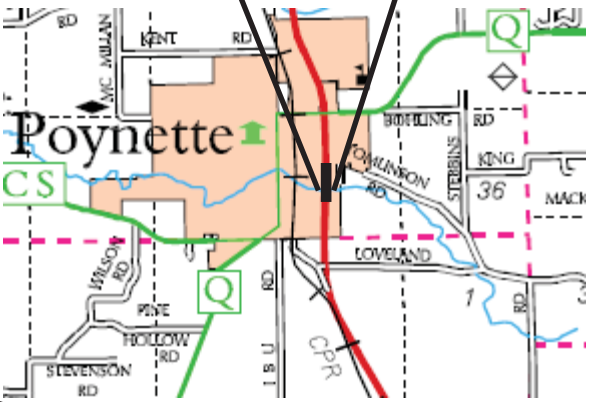
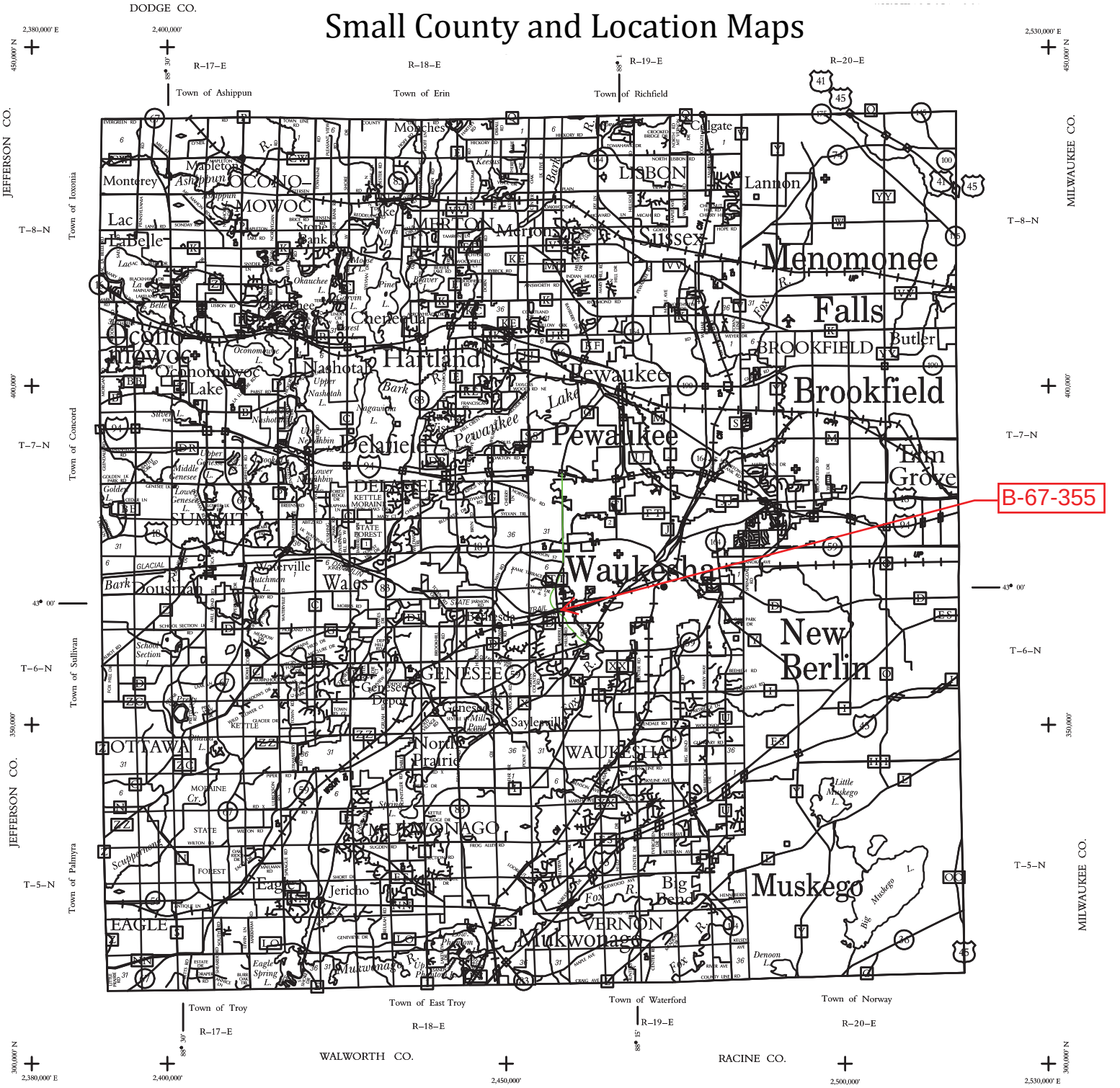
PROJECT LOCATION
STRUCTURE B-11-861
COLUMBIA COUNTY

PROJECT LOCATION
ROWAN CREEK



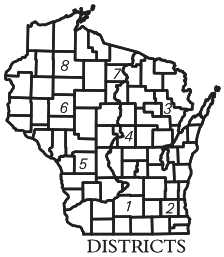


Small County and Location Maps



LEGEND

Freeway	Dam
Multilane Divided	Hospital
U.S. or State Hwy	Schools
County Trunk Hwy	Airport
Town Road	County Seat
Firelane	Unincorporated Village
Railroad	Fish Hatchery
State Trail	Game Farm
Interchange	Public Hunt. or Fish. Grds.
Highway Separation	Public Camp & Picnic Grds.
Interstate Highway No. 94	Ranger Station
U.S. Highway No. 18	State Park
State Highway No. 59	County Park — With Facilities
County Highway Letter T	Without Facilities
State Boundary	Rest Area — Modern Facilities
County Boundary	Wayside — Rustic Facilities
Civil Town Boundary	*Ethan Allen School* 1
Section Line	*Univ. of Wisconsin – Waukesha* 2



DISTRICTS

SECTION NUMBERING OF A TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

CIVIL TOWNS

OCONOMOWOC	MERTON	LISBON	VILLAGE
SUMMIT	DELAFIELD	PEWAUKEE	BROOKFIELD
OTTAWA	GENESEE	WAUKESHA	CITY
EAGLE	MUKWONAGO	VERNON	CITY

For boundaries of public hunting and fishing grounds please contact the Department of Natural Resources

* Public hunting and fishing grounds not shown within Kettle Moraine State Forest

Grid based on the state plane coordinate system south zone and the NAD 27

MILES OF HIGHWAY
as of Dec. 31, 2002

STATE	232
COUNTY	393
LOCAL ROADS	2,266
OTHER ROADS	1
TOTAL FOR COUNTY	2,892

Land Area (2000 Census) ..... 556 sq mi
Population (2000 Census) 360,767
County Seat ..... Waukesha

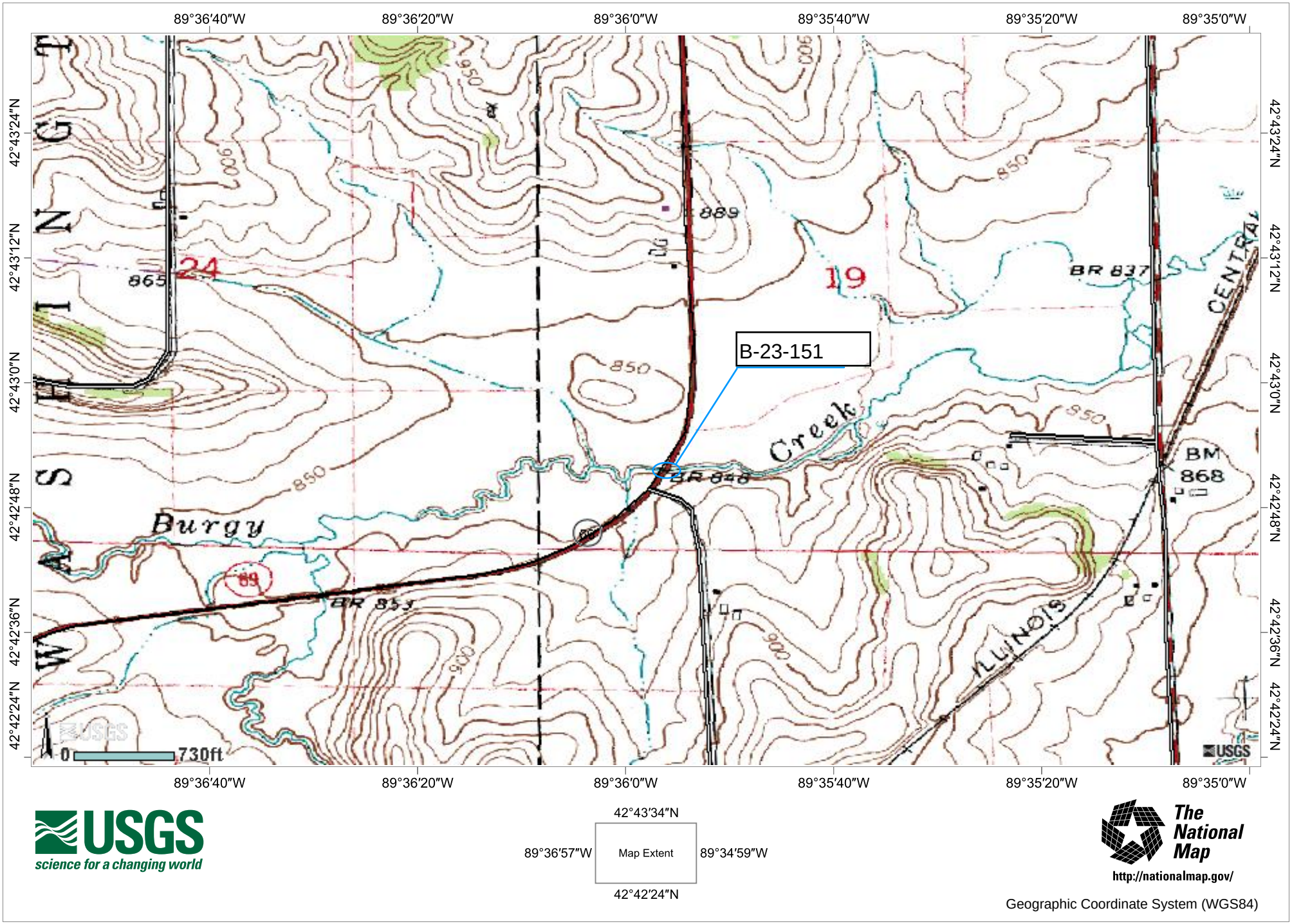
WAUKESHA CO.

DEPARTMENT OF TRANSPORTATION
STATE OFFICE BUILDING
Madison, Wisconsin

SCALE 0 1 2 MILES

Corrected for
JAN. 2004

Base compiled from U.S.G.S. Quadrangles

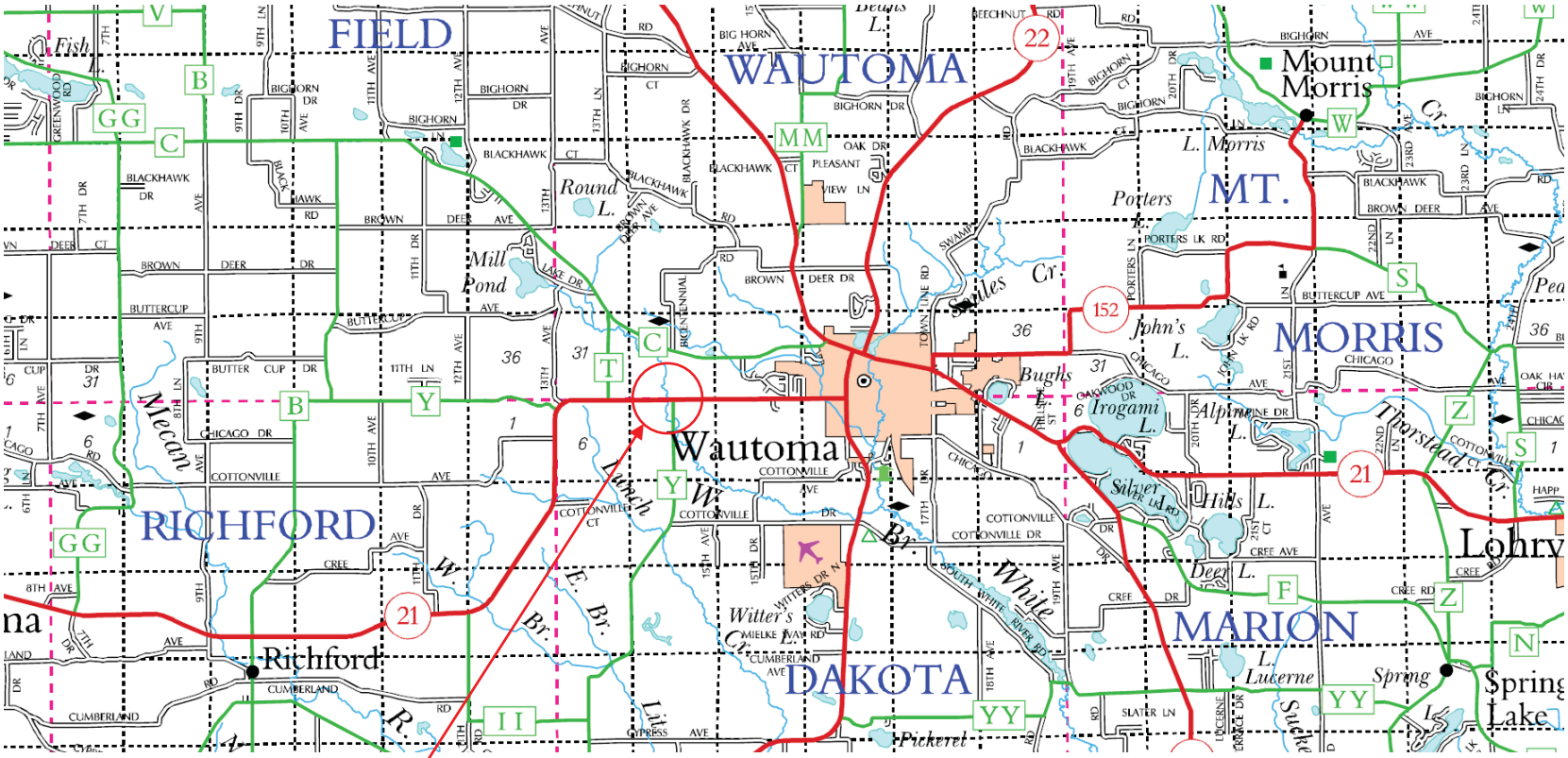


USGS science for a changing world

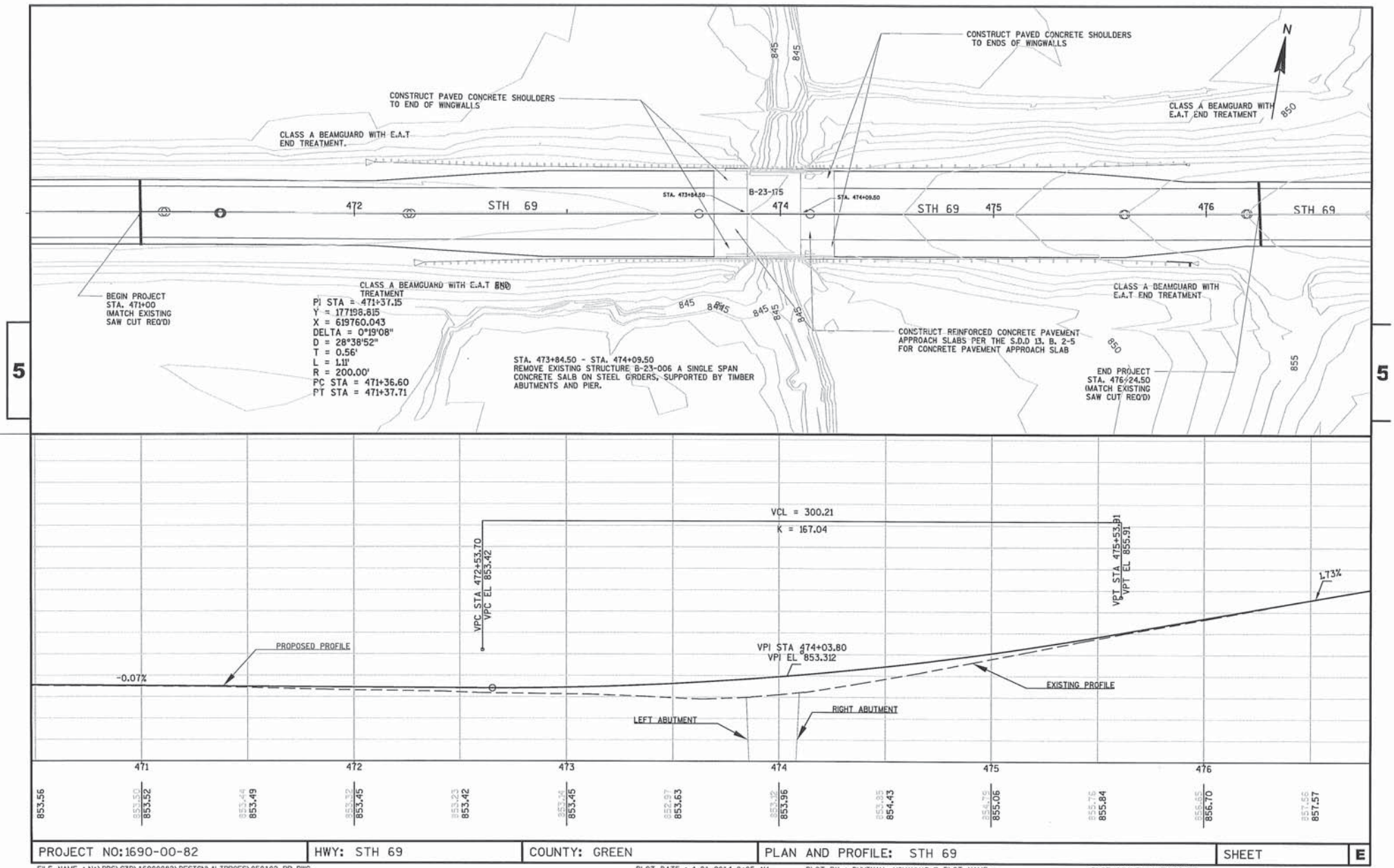
42°43'34"N
89°36'57"W Map Extent 89°34'59"W
42°42'24"N

The National Map
http://nationalmap.gov/

Geographic Coordinate System (WGS84)



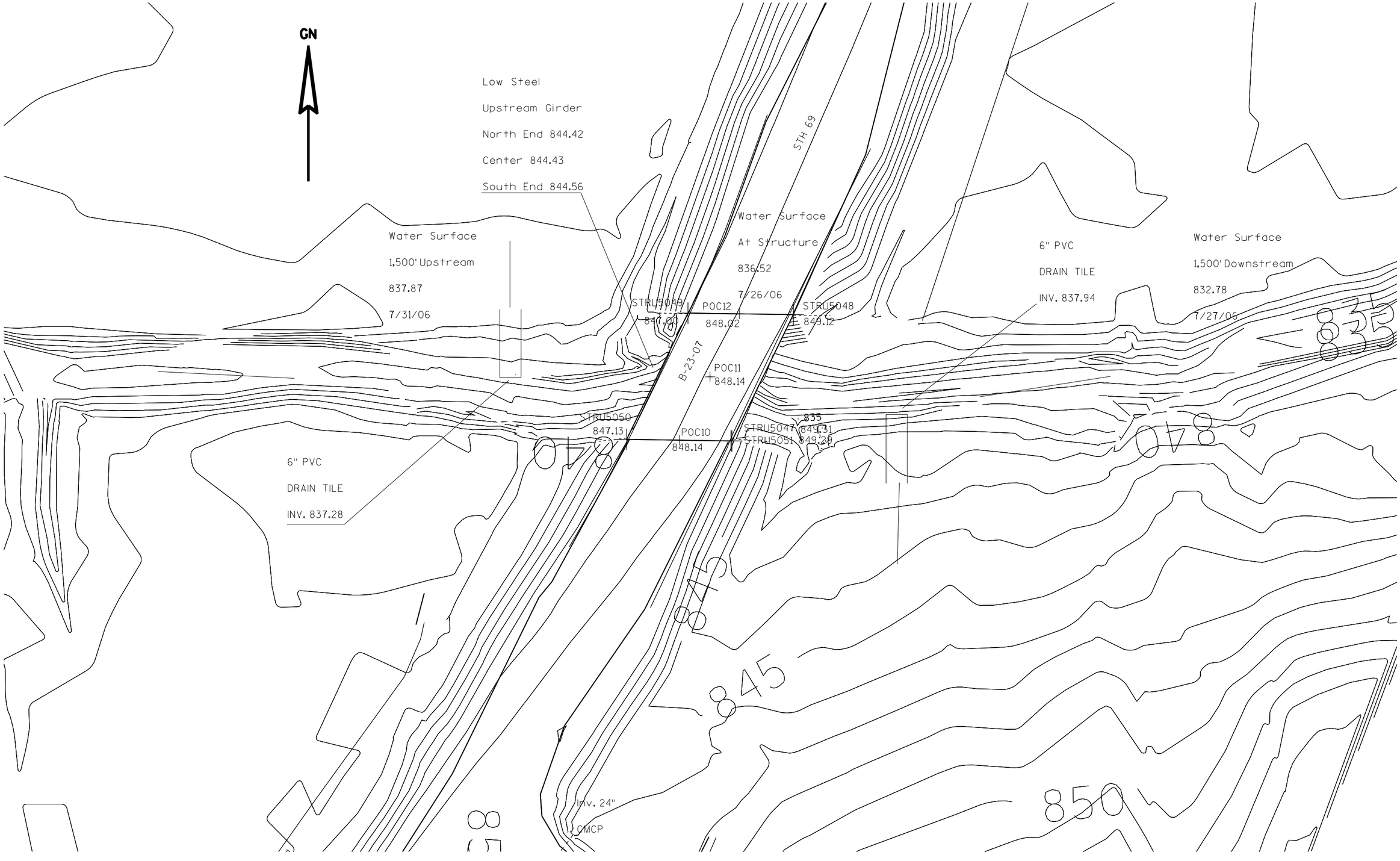
ID 6170-00-01/71
Coloma – Redgranite
White River Culvert
STH 21
Waushara County



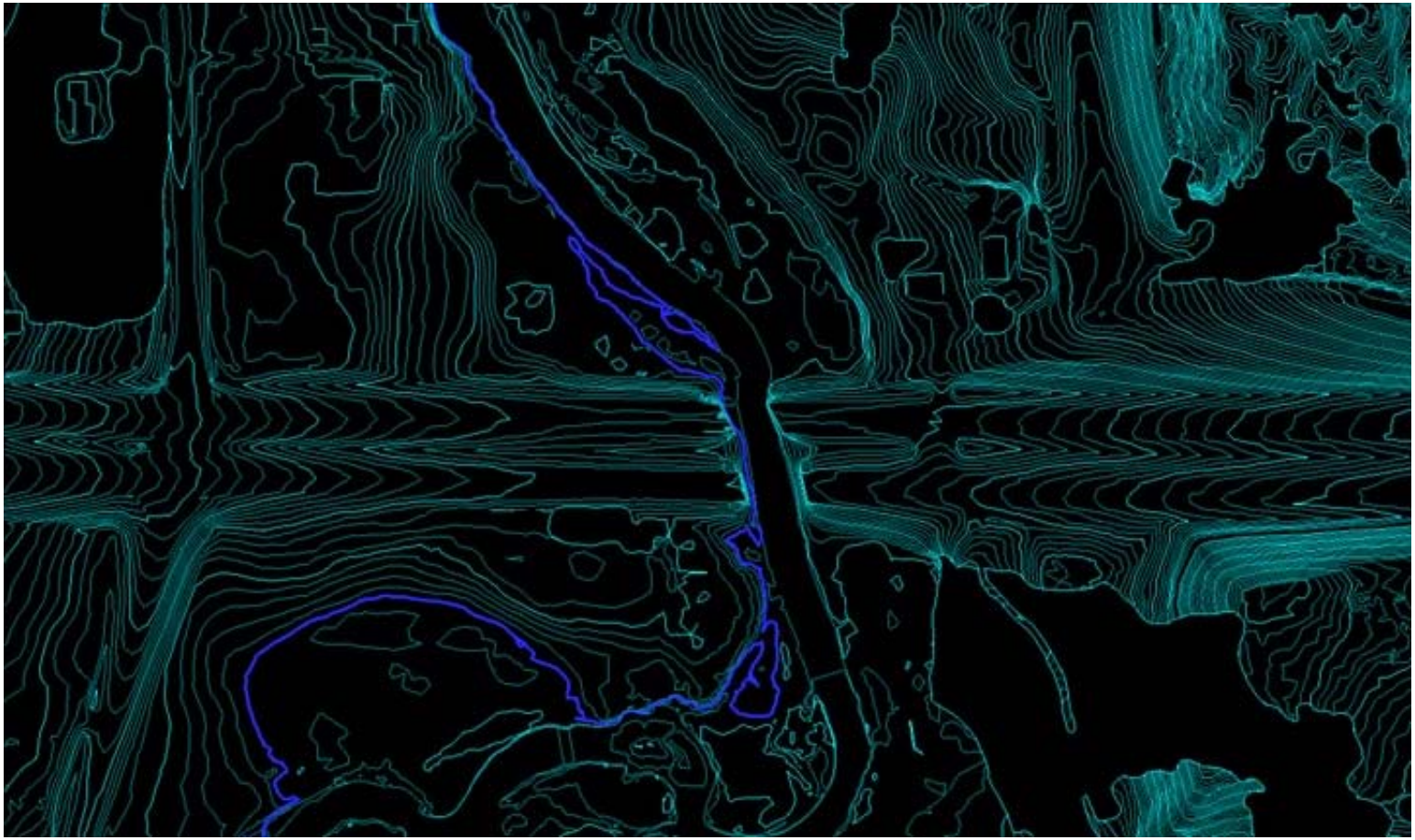
PROJECT NO: 1690-00-82	HWY: STH 69	COUNTY: GREEN	PLAN AND PROFILE: STH 69	SHEET	E

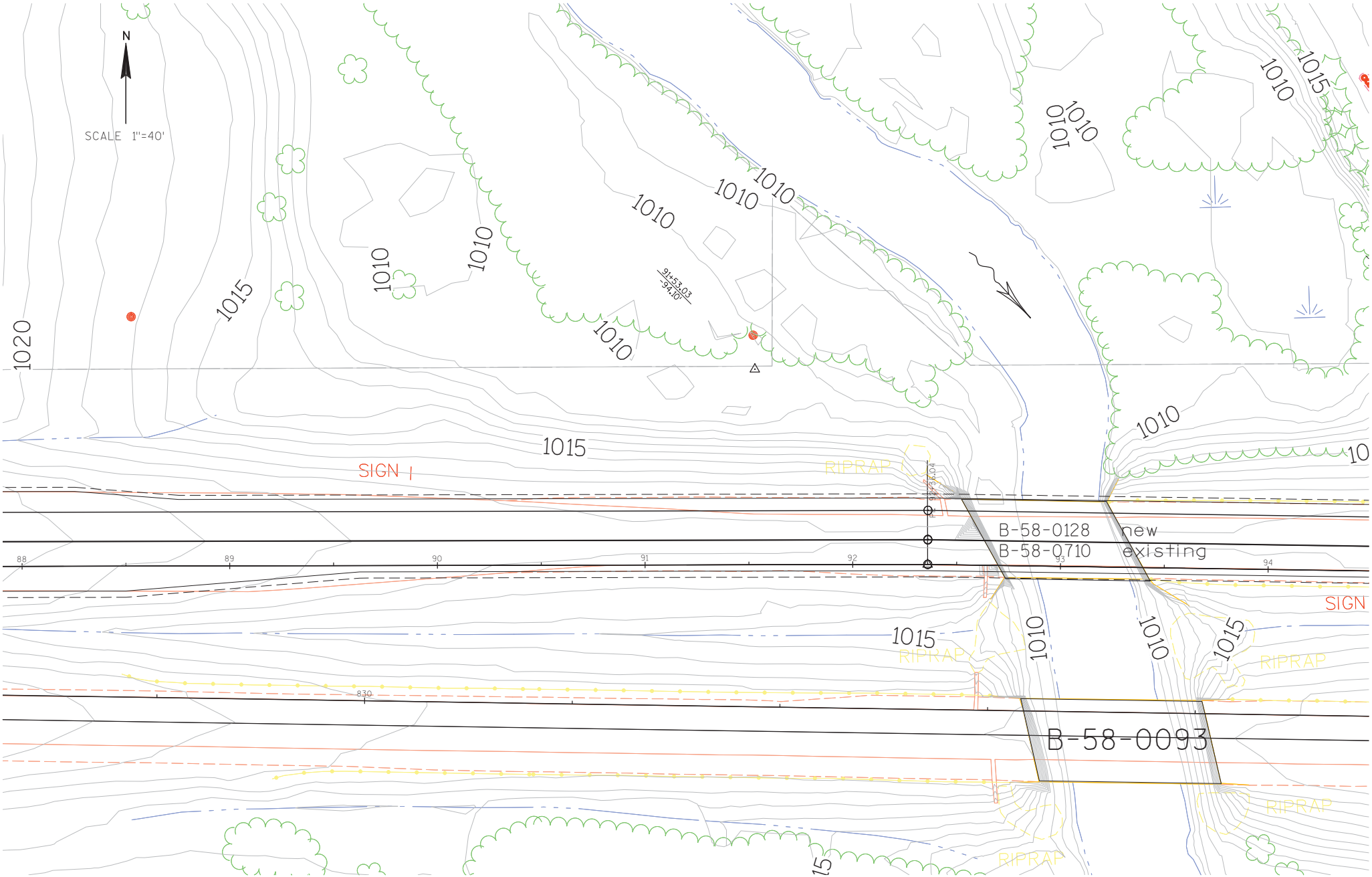
FILE NAME : N:\PDS\C3D\16900082\DESIGN\ALIPROFS\050102_PP.DWG PLOT DATE : 4/21/2014 8:05 AM PLOT BY : BHUIYAN, MOHAMMAD E PLOT NAME : PLOT SCALE : 1 IN:40 FT WISDOT/CADDS SHEET 44

2



PROJECT NO:1690-02-04	HWY: STH 69	COUNTY: GREEN	B-23-07 CONTOURS STRUCTURE	SHEET	E




N
SCALE 1"=40'
1020
1015
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SIGN
RIPRAP
RIPRAP
RIPRAP
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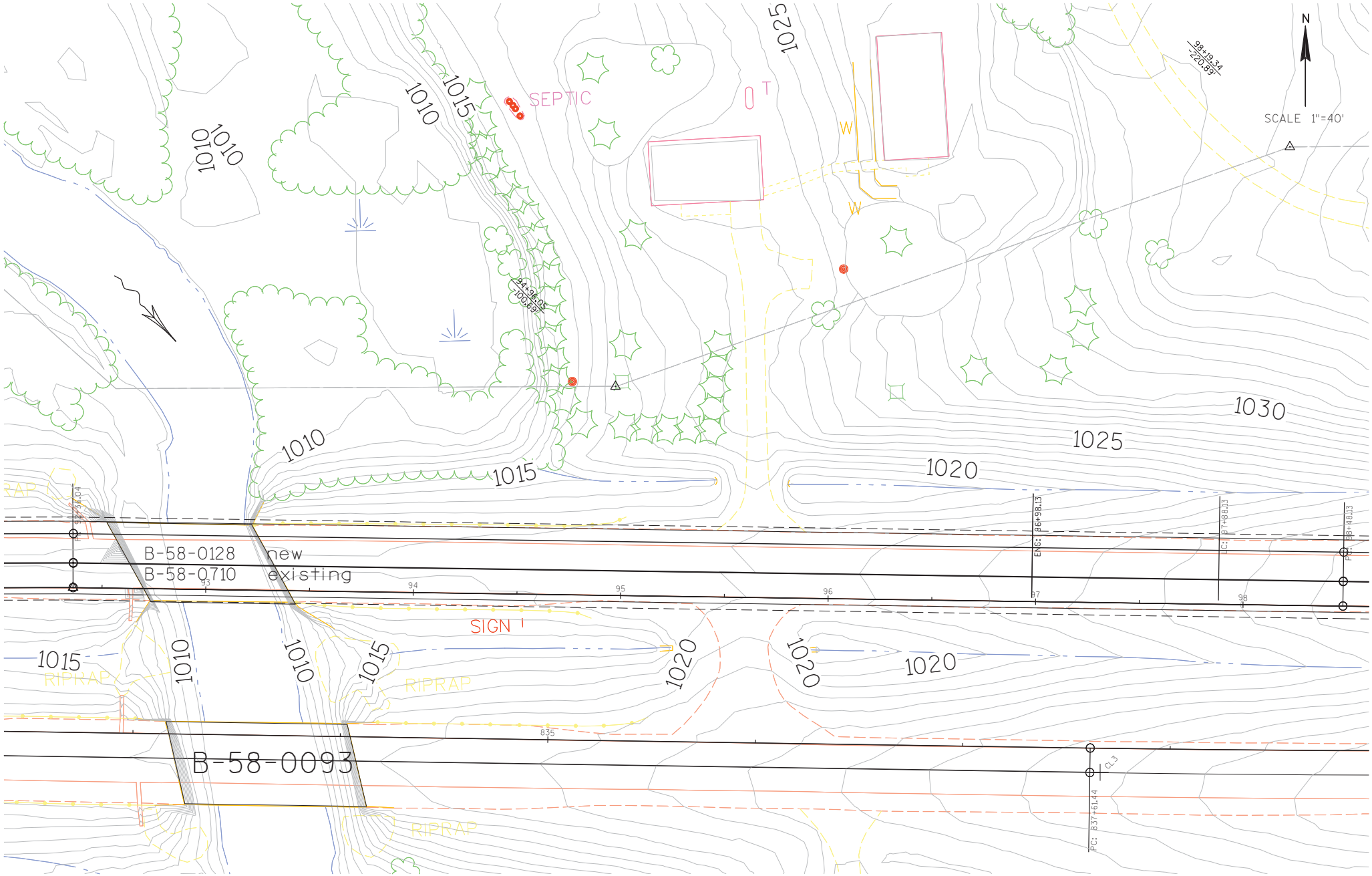
B-58-0128 new
B-58-0710 existing
B-58-0093
88
89
90
91
92
93
94
830


N
SCALE 1"=40'
SEPTIC
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1025
1010
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1030
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1020
1020
1020
1020
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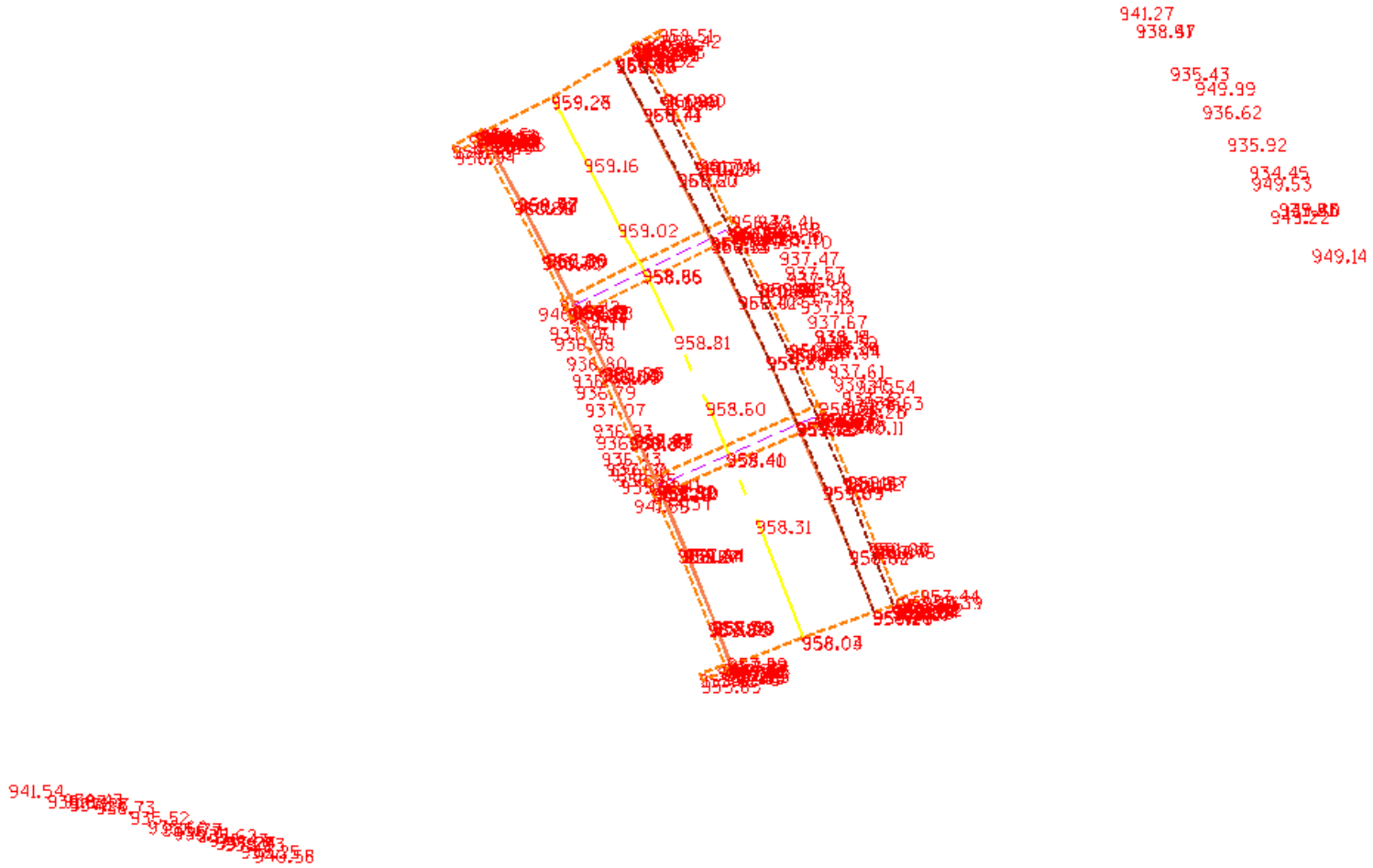
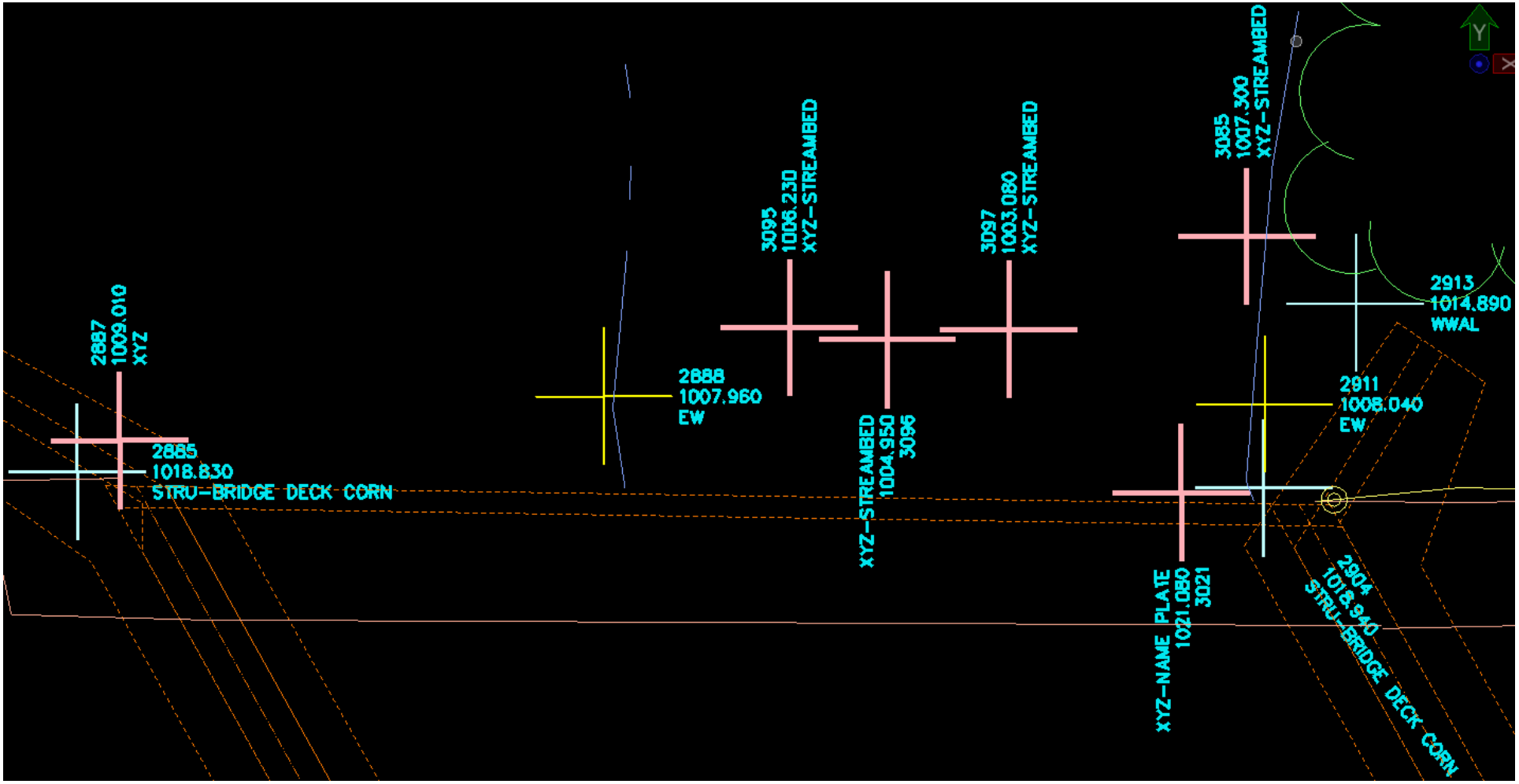
1010
1015
1015
B-58-0128 new
B-58-0710 existing
B-58-0093
SIGN
RIPRAP
RIPRAP
RIPRAP
RIPRAP
93
94
95
96
97
98
835
94+96.05
100.89
98+19.34
220.89
PC: 93+38.04
ENS: 96+98.13
LC: 97+88.13
PT: 98+48.13
PC: 837+61.44
CL3

Stream and Structure Survey Shots (DGN File)




2887
1009.010
XYZ
2885
1018.830
STRU-BRIDGE DECK CORN
2888
1007.960
EW
3095
1006.230
XYZ-STREAMBED
XYZ-STREAMBED
1004.950
3096
3097
1003.080
XYZ-STREAMBED
3085
1007.300
XYZ-STREAMBED
2913
1014.890
WWAL
2911
1008.040
EW
XYZ-NAME PLATE
1021.080
3021
2904
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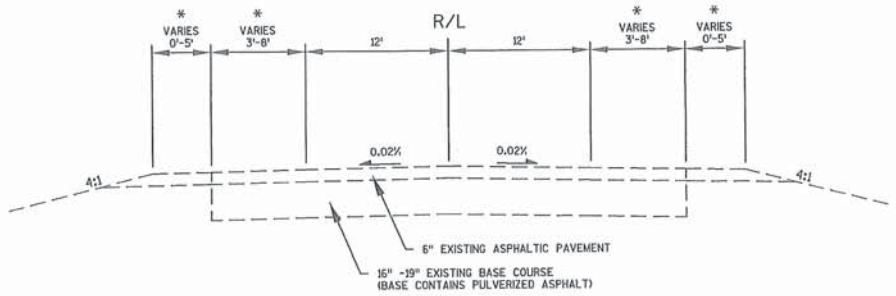
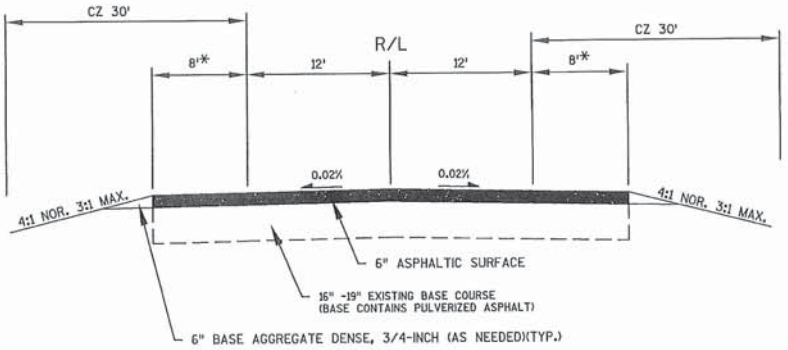
STRU-BRIDGE DECK CORN



* ASPHALTIC SHOULDERS TAPER FROM 8' WIDE AT ENDS OF EAT'S TO 3' WIDE AT NORMAL WIDTH SHOULDERS

TYPICAL EXISTING SECTION

STH 69



* ASPHALTIC SHOULDERS TAPER FROM 8' (AT BEGINNINGS OF EAT SECTION) TO MATCH EXISTING SHOULDER WIDTH AT MATCHLINE.

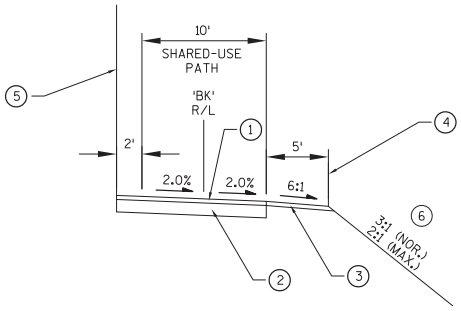
TYPICAL FINISHED SECTION

STH 69

PROJECT NO:1690-00-82	HWY: STH 69	COUNTY: GREEN	TYPICAL SECTIONS	SHEET	E

FILE NAME : N:\PDS\C3D\16900082\020301_TS.DWG PLOT DATE : 3/11/2014 10:04 AM PLOT BY : BHUIYAN, MOHAMMAD E PLOT NAME : PLOT SCALE : 1 IN:10 FT WISDOT/CADDS SHEET 42

Section Under Structure
(if trail will be carried)



LEGEND

1	HMA PAVEMENT TYPE E-0.3, XX-INCH
2	BASE AGGREGATE DENSE 1 1/4", XX-INCH
3	BASE AGGREGATE DENSE 3/4", XX-INCH
4	RAILING
5	BRIDGE ABUTMENT / RETAINING WALL
6	HEAVY RIPRAP

TYPICAL FINISHED SECTION - SPRING BROOK TRAIL
STA 32+71.95'BK' - STA 35+16.27'BK'

PROJECT NO: 1005-10-76	HWY: IH-39/90	COUNTY: ROCK	PLAN: TYPICAL SECTIONS	SHEET PRE19__	E

FILE NAME : G:\WDOTSW\WSW10-11032\CIVIL3D\SEGMENT1_SOUTH_JANESVILLE\SHEETSPLAN\PLAN DETAILS\020301_TS.DWG PLOT DATE : 4/30/2014 PLOT BY : KL ENGINEERING PLOT NAME : ---------- PLOT SCALE : 1:10_XREF

WISDOT/CADDS SHEET 42

SITE PHOTOGRAPHS

Titled Individual JPGs


e side box B-66-44 looking west.JPG


e side shadow looking n B-66-12.JPG


e side shadowB-66-12 looking sw.JPG


e side siteC-66-2.JPG


site looking neC-66-2.JPG


site looking westC-66-2.JPG


site1C-66-2.JPG


site2C-66-2.JPG


site3C-66-2.JPG


site4C-66-2.JPG


site5C-66-2.JPG


site6C-66-2.JPG

Titled Individual Full Page PDFs

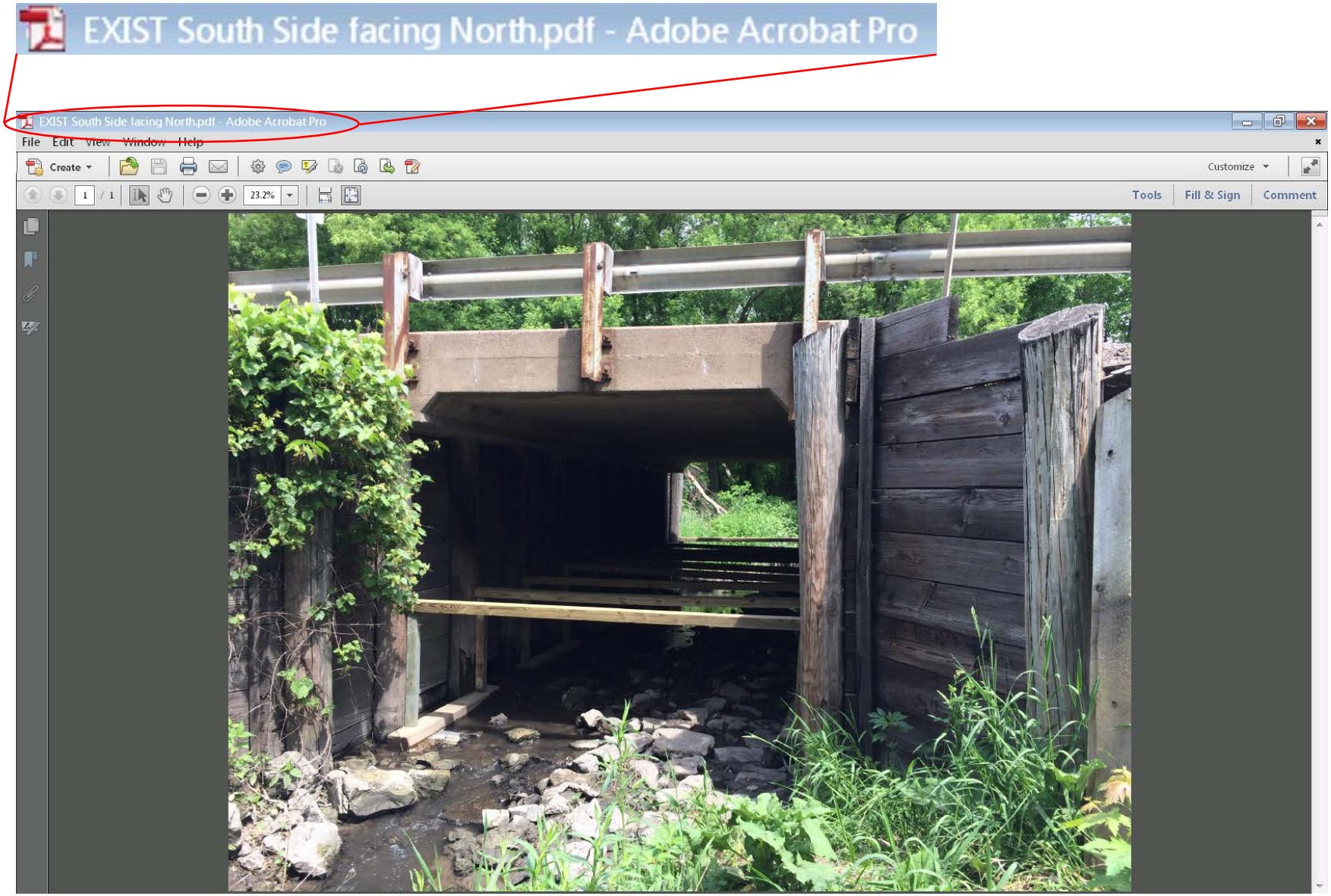
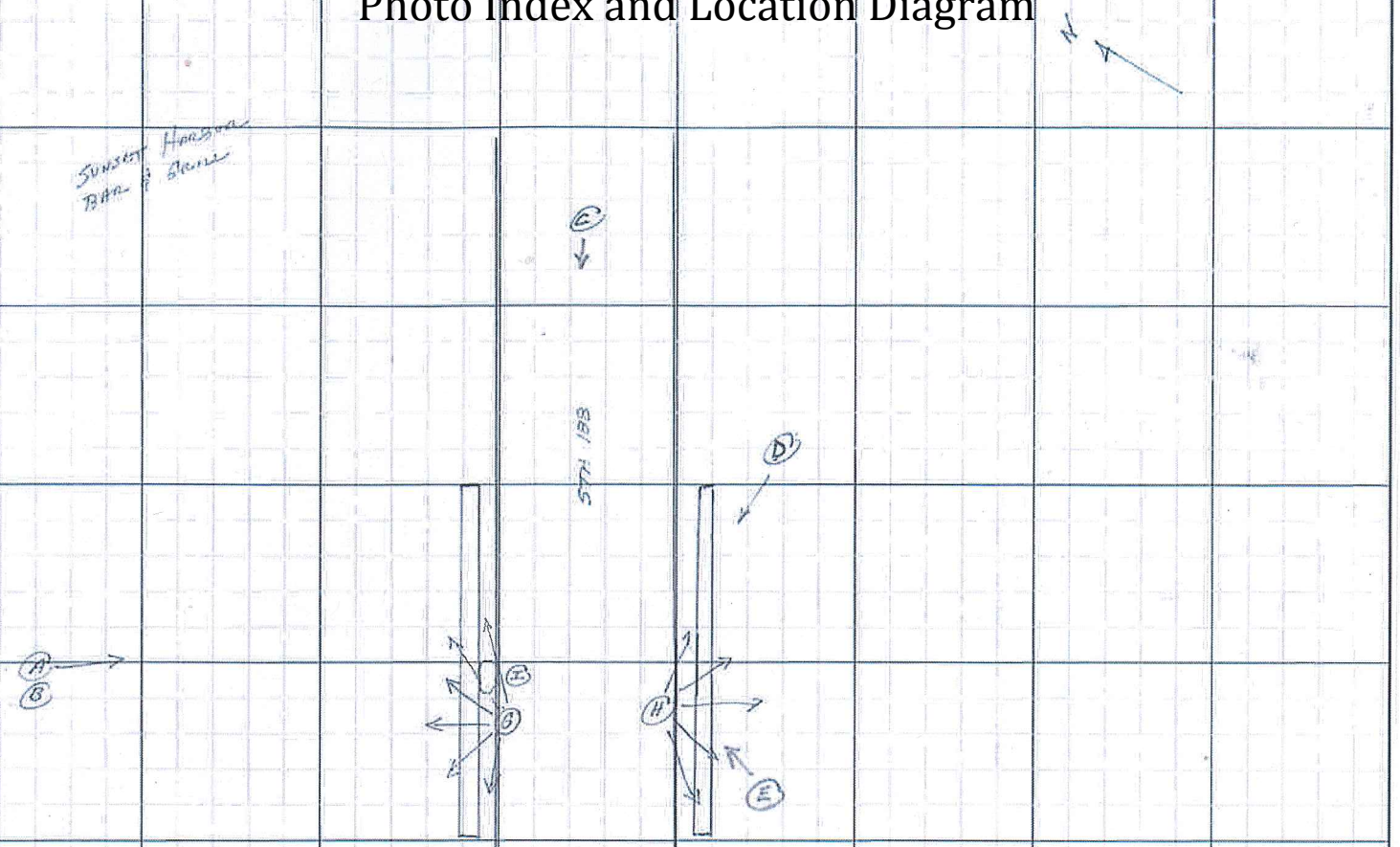
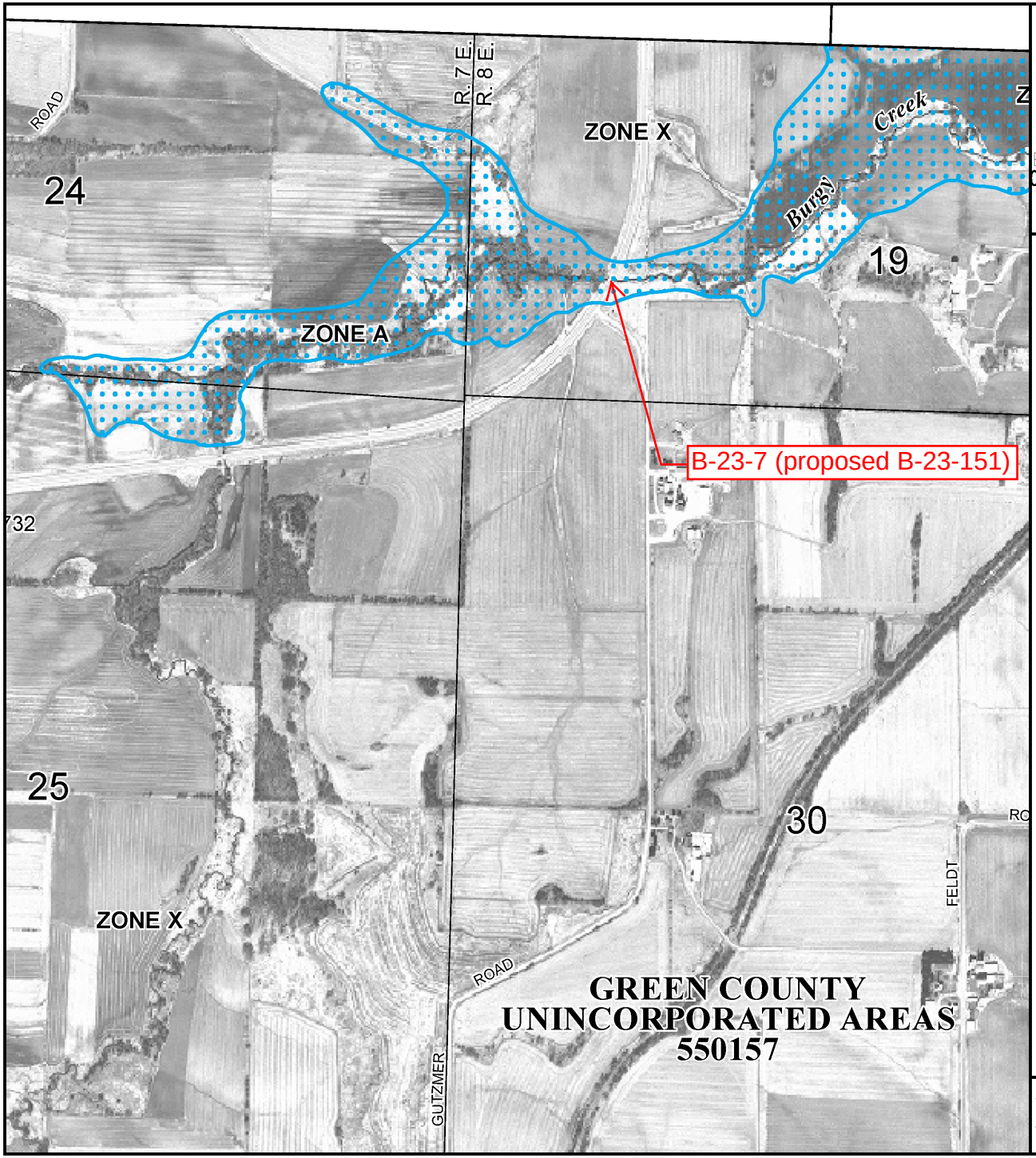


Photo Index and Location Diagram



Picture #	Location / Direction
4374	A
4375	B
4376	C
4377	D
4378	E
4379	F
4380-4385	G (6 Pictures Lt to Rt)
4386-4390	H (5 Pictures Lt to Rt)
4391	I (Hole @ top of Box Culvert w/ Exposed Gas Line Shown) = ○



MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

00 0 300 600 ME

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0180G

FIRM

FLOOD INSURANCE RATE MAP

GREEN COUNTY, WISCONSIN

AND INCORPORATED AREAS

PANEL 180 OF 375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GREEN COUNTY	550157	0180	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
55045C0180G

EFFECTIVE DATE
MAY 18, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
2984 Shawano Avenue
Green Bay WI 54313-6727

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

June 11, 2012

DOT: Oconto, 13294

Wisconsin Department of Transportation
944 Vanderperren Way
Green Bay, WI 54304

SUBJECT: DOT/DNR Initial Project Review
Project I.D.#: 9180-22-00
Project Title: STH 22 Recondition
Location: Highland Drive to USH 141
County: Oconto

Dear Ms. Nelson:

Preliminary information on the above referenced project has been reviewed by DNR Northeast Region staff under the DOT/DNR Cooperative Agreement. This project includes an asphaltic overlay, culvert replacements and a culvert extension. Pertinent environmental considerations are presented below:

WETLANDS

According to the DNR Surface Water Data Viewer there are wetlands at the project site. Mike Helmrick and I did a wetland determination for this area so wetlands have been identified. Some wetlands start off the toe-of-slope.

WILDLIFE/FISHERIES

Splinter Creek (proposed culvert replacement) was surveyed in 1997 and fish species such as mudminnows and stickleback were found. The other waterway (proposed culvert extension) is a similar type of waterway and like Splinter Creek empties in to the Oconto River. During my site visit on June 8, 2012 the waterways did not have flow and much of the stream bed was dry. I did see some forage fish in the small pools of water in Splinter Creek.

The majority of this area is rural with a few business and residential buildings. Much of the area is considered wetland which should be considered higher quality wildlife habitat.

ENDANGERED RESOURCES

There are no recent records for any federal or state endangered, threatened, or special concern species at the project site.

FLOODPLAINS

A determination must be made as to whether the project lies within a mapped/zoned floodplain. If the project lies in such an area, DNR required submittal of the results of a 100 year flood analysis for the structure(s). Also, if the new structure(s) will create an increase in the 100 year backwater condition, DNR requires that all affected upstream landowners be notified, and appropriate legal arrangements made. For areas lying outside mapped/zoned floodplain, DNR may request the results of DOT flow and backwater calculations. For project-specific information, please consult with the Oconto County Zoning Administrator.

OTHER COMMENTS

1. There is potential for wetland impacts to occur as a result of this project and therefore wetland impacts must be minimized and/or avoided to the greatest extent possible. Unavoidable wetland impacts must be mitigated in accordance to the DOT/DNR Cooperative Agreement and the Wisconsin Department of Transportation Wetland Mitigation Banking Technical Guideline. The Department requests information regarding the amount of unavoidable wetland impacts.

2. The culverts should be inspected for evidence of swallow nesting. If evidence exists then swallow nests with eggs and/or young cannot be disturbed between May 1 and August 30 of a given year. If the proposed construction schedule will conflict with the swallow nesting period, means of preventing swallows from nesting on the bridge must be implemented.

3. The width and depth of waterways must not be altered.

4. Equipment is not allowed on the bed of the waterways.

5. Structure removal must conform with 203.3.6.2, Removing Old Structure Over Waterway With Minimal Debris, which states: during superstructure removal, prevent all large pieces and minimize the number of small pieces from entering the waterway or wetland. Remove all reinforcing steel, all concrete, and all other debris that falls into the waterway or wetland. Limited amounts of small pieces of concrete scattered over the waterway floor or wetland may be left in place only if the engineer allows.

6. All demolition material generated as a result of this project must be disposed of according to state law.

7. Common Reed Grass (*Phragmites australis*) is classified as a *restricted* invasive species under the NR-40 rule. *Restricted* species are already established in the state, but they may not be transported, transferred, or introduced. If they are already on your property, you are encouraged to remove them. Information of common reed grass can be found at http://dnr.wi.gov/org/water/greatlakes/Phragmites2007.pdf .

8. Efforts should be taken to prevent the spread of invasive species from the active work zone.

9. Proper erosion control measures must be used and maintained during and after construction. An erosion control implementation plan for the project must be developed by the contractor and submitted to this office 14 days prior to the preconstruction conference.

The above comments represent the Department's initial concerns for the proposed project and do not constitute final concurrence. Final concurrence will be granted after review of plans and further consultation if necessary. If any of the concerns or information provided in this letter requires further clarification, please contact this office at (920) 662-5119.

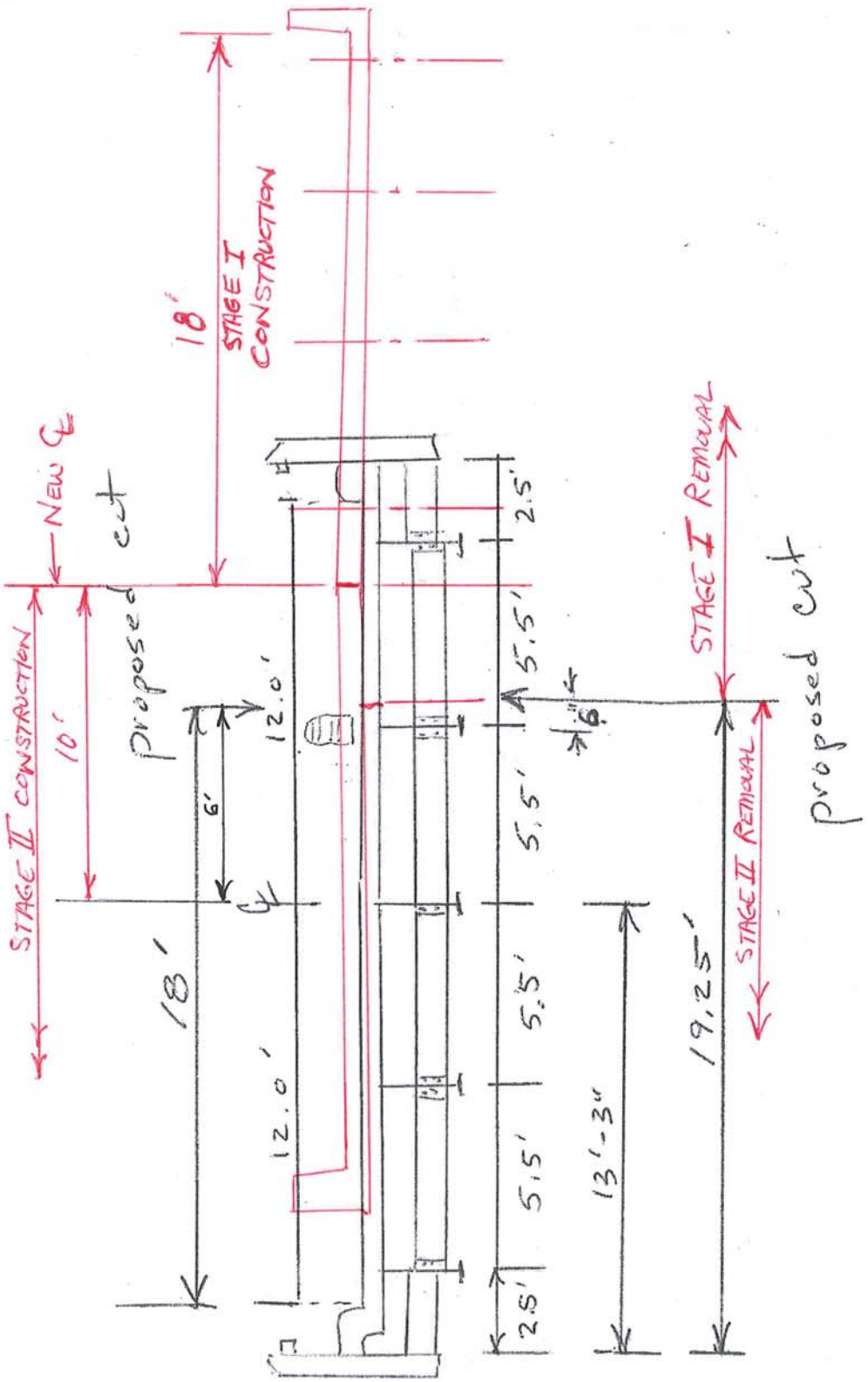
Sincerely,

Environmental Analysis and Review Specialist

c. Mike Helmrick – DOT NER, Green Bay
File: 13294

Sample Staging Sketch

(not required for this structure
because traffic will be detoured)



STREAM CROSSING STRUCTURE SURVEY REPORT (BOX CULVERT)

9. STREAM CROSSING SSR (BOX CULVERT)

The instructions in this section should be used when a box culvert or group of pipes requiring structural design will be constructed or replaced. Much of the information requested for stream crossings is common between bridges and box culverts so the same SSR form and checklist are used for both. This section highlights requested information that is unique to culverts as well as information about the structure type.

Advantages of box culverts:

1. Ease of construction
2. Lower initial construction costs
3. Minimal long-term maintenance costs
4. Improved safety, where clear zone is used rather than beam guard

Additional considerations for box culvert design:

1. Water handling or temporary diversion for construction staging

2. DNR concerns or requests for fish passage/Aquatic Organism Passage (AOP)
    a. Indicate if DNR liaison has requested box culvert floor to be placed below streambed (typically 6 inches to 1 foot below streambed)
    b. Include DNR initial review letter with submittal

3. Culverts may also be used to carry multi-use paths or trails under a roadway
    a. Specify this when providing “Feature Under” information on the SSR

4. Safety details, such as fencing or railings, when required

5. Box culvert plans will typically show a note indicating that the contractor has the option to use pre-cast alternative

Information required for box culvert or extension design:

1. Stream survey points
    a. Submit surveyed cross section points as DWG file and DGN file
    b. Coordinates, ID, type and elevation labels should also be provided in a CSV file
    c. Stream channel cross sections perpendicular to direction of flow
    d. Collect survey of streambed profile along channel flowline at least 150’ upstream and downstream of existing structure
        i. Take upstream and downstream cross sections near the ends of the streambed profile
        ii. Natural stream profile is used to select appropriate box culvert or extension inverts
        iii. If culvert fish passage/Aquatic Organism Passage (AOP) considerations are requested, consult FDM Chapter 13 for additional guidance

2. Provide existing culvert length on Existing Culvert page of Stream Crossing SSR
    a. i.e. Barrel Width Perpendicular to Walls: “5’, 73.6’ long” (for 5’ span x 5’ rise, 73.6’ long box culvert)

3. Existing inlet and outlet type/configuration (sketch or photograph), as well as observations of:
    a. Outlet scour
    b. Wing wall and barrel condition

4. Culvert floor material (concrete, earth, etc.)
    a. If culvert floor is concrete, but has accumulated sediment/silt, indicate depth of sediment in the culvert barrel at the inlet and outlet
    b. Thorough investigation should be made to determine if a concrete floor is present

5. Specify clear zone width, unless beam guard will be used

6. Potential right-of-way conflicts; provide right-of-way in DGN file

7. Proposed roadway cross sections at the structure to be used in culvert or extension sizing

E-SUBMIT CHECKLIST

STREAM CROSSING STRUCTURE SURVEY REPORT

1 STRUCTURE SURVEY REPORT

☐ **Complete DT1698, Structure Survey Report ☒Stream Crossing or Box Culvert**
- *SSR Workshop Manual and Videos*
- *Bridge Manual Chapter 6.2.1* - *Bridge Manual Chapter 8*

2 SUPPORTING DOCUMENTATION

PDF Files:

☐ **Project Location Map**
- *structure location and number*
- *other proposed structures within project limits*

☐ **Plan and Profile Sheet (graphical or tabulated)**
- *horizontal curve data*
- *vertical curve data (grades to nearest thousandth)*
- *super transition locations*

☐ **Contour Map (preferred as DGN file for BOS designed structures)**
- *contours labeled, existing structure, north arrow, and stream direction (1"=20' scale)*

☐ **Typical Roadway Cross Section**
- *typical dimensions, slopes, clear zones, sidewalks, curb and gutter, etc.*

☐ **Labeled Photographs**
- *existing structures, utilities, buildings, etc.*
- *panoramic view up- and downstream showing channel, banks, and floodplains, existing structure, up- and downstream structures and roadway*

☐ **FEMA Floodplain Map**
- *location of structure(s) relative to any mapped floodplain*

☐ **DNR Initial Review Letter**

☐ **Preliminary Staging Plan (if required)**

DGN Files:

☐ **Alignment**

☐ **Proposed Pavement**

☐ **Utilities**

☐ **Contours**

☐ **Base Mapping**

☐ **Right of Way**

☐ **Cross Section**
- *at proposed structure and at existing structure (if applicable)*

☐ **Stream Survey Points/Cross Sections**
- *with point ID and elevation labels*
- *for box culverts also provide streambed points along channel flowline*

3 SUBMITTAL

☐ **E-Submit**
- *STRUCTURE SURVEY REPORT and SUPPORTING DOCUMENTATION are submitted using the E-Submit process (as "BOS DESIGN")*
- *E-Submit*
- *E-SUBMIT HELP*

☐ **Email: Region Soils Engineer**
- *IMPORTANT! The formal notice of the project to the Region Geotechnical Section*
- *State on the SSR who will be doing the geotechnical work/soil borings*

STREAM CROSSING STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1698 6/2012

☐ **Stream Crossing** ☐ **Box Culvert** ☐ **Box Culvert Extension:** ☐ Right

☐ **Other:** _____ ☐ Left

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID	Construction Project ID	Highway (Project Name)		
Final Plan Due Date	Preliminary Plan Due Date	☐ Town ☐ Village ☐ City		
PS&E Date	Letting Date	County		
New Structure Number	Existing Structure Number	Section	Town	Range
Station	Latitude: Longitude:	☐ YES ☐ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: Vertical Datum:		**Traffic Forecast Data**		
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed / Functional Class
Feature On				mph
Feature Under ☐ Waterway:		☐ Other:		
Region Contact: (Area Code) Telephone Number(s): Email:		Consultant Contact: (Area Code) Telephone Number(s): Email:		

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (See ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with hydraulic engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.
2. **Plan and Profile Sheet** on proposed reference line of highway showing: (a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance.
3. **Contour Map** of the site drawn to a scale of not less than 1" = 20' with one-foot contours and showing: (a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) North arrow; (e) Buildings; (f) Above and below ground facilities; (g) Recommended channel change; (h) Direction of stream flow; (i) Station at ends of existing structure; (j) Location of river cross sections or individual survey shots; (k) Proposed structure and extent of riprap for report submitted with preliminary plans; (l) Other features that influence design.
4. **Typical Roadway Cross Section** of proposed approaches showing: (a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Sidewalk, curb & gutter; (e) Subgrade and pavement thickness; (f) Clear zone width.
5. **Stream Cross Sections** at upstream and downstream face of existing bridge and at one structure length upstream and downstream. Water and streambed elevations to be taken at structure and water surface elevations 1500 feet upstream and downstream of existing bridge.
6. **Labeled Photographs** of: (a) Existing structure; (b) Upstream and downstream structures; (c) Buildings within 100 feet of the proposed structure; (d) Unobstructed panoramic view looking upstream and downstream from location of proposed structure, showing stream and floodplains; (e) Any noteworthy details on existing structure or surrounding site (i.e. downstream obstructions); (f) Air photo mosaics referenced to contour map DGN if available.
7. Attach a copy of the regulatory floodplain map (FEMA map) depicting the site.
8. Report submitted with preliminary plans – **Hydraulic Report** (See Bridge Manual Chapter 8) which may contain: (a) USGS quadrangle sheet showing proposed location, highway alignment and reach of river; (b) All available flood history, high water marks with date of occurrence, nature of flooding, damages, scour information, and factors affecting water stages; (c) Navigation clearance; (d) Discussion of alternatives considered, factors influencing selection.
9. Attach a copy of DNR initial concurrence letter.

Proposed Structure

Preference for Structure Type at this Site: ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☐ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 5)

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)
Ft.	Ft./Ft.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☐ No	Ft.	☐ Yes ☐ No	Ft.	☐ Yes ☐ No

Specify Wing Location(s) for Beam Guard Attachment	Specify Clear Zone Width When Beam Guard Not Used on Culvert
Specify Wing Location(s) for Surface Drain Anchors	Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach

YES	NO	
☐	☐	Project Is in Flood Hazard Area (FIS Mapped Floodplain)
☐	☐	Structure Will be Constructed to Accommodate Traffic Staging
☐	☐	Temporary Structure Required
☐	☐	Riprap Required
☐	☐	Structural Approach Slab
☐	☐	Lighting Required: Bolt Circle Diameter _____ inches
☐	☐	Traffic/Lighting Staff been Notified for Review
☐	☐	Conduit in Parapet: Diameter _____ Number _____
☐	☐	Historical Properties (Archaeological, Historic) Present Near Structure

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☐	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 4)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 4)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☐	☐	Structure will be Removed ☐ Bid Item ☐ Later Contract ☐ Other: _____
☐	☐	Structure will Remain in Service, Purpose: _____

Removal
- ☐ Normal Removal
- ☐ Removal With Minimal Debris
- ☐ Removal With Capture System

Existing Structures

STRUCTURE DATA		UPSTREAM	AT SITE	DOWNSTREAM
Structure Number (B/P/C)				
Highway, Railroad, Path, or Structure Name				
Year Built				
◊ Latitude				
◊ Longitude				
‡ Distance from Proposed Site in Miles				
Number of Spans				
Clear Span *(Between Inside Faces of Substructure Units)* Lengths Along C.L. Rdwy/Track				
Sidewalk:	Right Side Clear Width			
	Left Side Clear Width			
Roadway Width on Structure Between Curbs				
Superstructure Type				
Abutment Type(s)				
Pier Type(s) and Width(s)				
Is Structure Supported on Piles?				
Condition:	Superstructure Rating (NBI)			
	Substructure Rating (NBI)			
	Sufficiency Rating (NBI)			
Skew:	Stream			
	Structure			
* Elevation + +	Finished Grade			
	Low Chord			
Character of Material in Stream Bed				
Does Drift Pass Satisfactorily (Y/N/no record)				
Does Ice Pass Satisfactorily (Y/N/no record)				
Evidence of Damage From Floating Debris				
Streambed Scour Visible (Y/N) Ⓟ	Provide Additional Details on Page 5			
Streambank Scour Visible (Y/N) Ⓟ				
† Recorded High Water Elevation - Date				
** Observed High Water Mark Elevation Ⓟ				
History of Flooding over Roadway (Date or Frequency)				
Abutment Slope Washout From:	Stream Flow Ⓟ			
	Roadway Drainage Ⓟ			
Low Water Elevation				
º Ordinary High Water Mark				
Observed Water Elevation				
Streambed Elevation				
Water Surface Elevation	Date	1500' Upstream ‡	At Site	1500' Downstream ‡

Ⓟ Provide labeled photograph.

* Use same vertical datum for all structures within 1500' of existing structure.

** High water marks may include, but are not limited to, debris, leaves, or dirt on structure that appear to have been left by recent flooding.

+ + Take these elevations at the same location.

† Information on high water can be obtained from observation, owner, adjacent property owner, County Road Commission, Regional Planning Commission, DNR, FIS, local officials, bridge inspector, or WisDOT bridge maintenance engineer.

º If marked by DNR, "The point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic."

‡ Measured along thread of channel. If there is an abrupt river profile change within 1500' contact hydraulic engineer for revised location.

◊ Lat./Long. taken at name plate location (with photograph or sketch of location).

Existing Culvert Information

Number of Barrels			
Barrel Width Perpendicular to Walls			
Allowable High Water			
Floor: Concrete, Earth, Silted			
If Silted Indicate Depth of Silt in Barrel			
Elevation:	Inlet	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	Discharge	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	For Structures with Concrete Aprons:		
	At Beginning of Upstream Apron		
		Apron Elevation	
		Streambed	
		Top of Water	
	At End of Downstream Apron		
		Apron Elevation	
		Streambed	
		Top of Water	
Condition Ⓟ:	Wingwalls		
	Barrel		

Attach Sketch
Ⓟ Provide labeled photograph.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

The more information that can be provided, the better. This will result in fewer questions from BOS during structure design or consultant review and a better end product.

The following is not all inclusive; please add/delete discussion items to fit site/project specific details that may influence structure design:

Geotechnical Coordination:
Detail who is completing geotechnical work/soil borings (in-house or consultant) and anticipated schedule of work.

Aesthetics:
If aesthetic level 2 or higher is indicated, you must suggest particular requirements such as railing type, pier shape, new aesthetic option (type I,II or III), special form liners, stain/paint color (federal color number), etc. See Bridge Manual Chapter 4 for updated information. Also include coordination that is yet to be made. If applicable, provide B-##-### for example structures in the area that are similar to proposed or desired; attach an exhibit for reference. Contact BOS with questions.

Structural Approach Slabs:
If requested, provide justification for their inclusion. See Bridge Manual Chapter 12.11.

Proposed Structure (& Future Expansion):
Discuss proposed size and type of structure and vertical/horizontal clearances (if special clearances are required for construction staging). Describe future expansion, if any is anticipated, which may include lower roadway lane expansion, upper roadway widening, etc. Anticipated future expansion of bridge may have impacts to profile grade, consider vertical clearance requirement.

Temporary Shoring:
Describe anticipated locations of temporary shoring needed for construction. Especially important for staged construction or current structure that remains in service during construction.

Construction Staging:
Discuss construction staging in detail and describe desired sequencing; provide sketches of staging.

Traffic Barrier:
Discuss barrier locations, type and heights approaching the structure, if applicable.

Bike/Pedestrian/Other Structure Accommodations:
Discuss proposed sidewalks, multi-use paths, separation barriers, medians, wildlife passages, etc.

Utilities:
List utilities located under, near, or on the proposed structure. Include type of utility, action to be taken and who owns the utility. If conduit/utility will be on the proposed structure describe who will be servicing it, number and size of conduits needed and any other pertinent information. Justification for placing utilities on proposed structure and means of attaching.

Site Drainage:
Discuss potential drainage concerns involving the proposed structure. Possible concerns include proposed roadway drainage pipes under substructure units, anticipated need for deck drains and median drainage. Include locations of pipes and invert elevations as appropriate.

DNR:
Discuss the status of coordination between Region/Consultant and DNR. Include any agreements made, concerns with the site, or areas requiring special attention as expressed by DNR (e.g. AOP, etc.).

For Structure Designers Use Only
Proposed Box Culvert

Aprons	Type	Elevations
Inlet		
Outlet		
Openings - Number	Clear Span at Right Angles to Axis of Box	Inside Height of Box
Slope of Channel at Culvert		

All Proposed Structures

Spans – Number:	Spans Lengths (C.L. to C.L. of Substructure):	Skew:	☐ R.H.F. ☐ L.H.F.
Latitude:	Longitude:		

Drainage Area _____ Sq. Mi. Q (100) _____ cfs **Existing Bridge**

High Water (100) _____ Ft. Q (Struct.) _____ cfs High Water (100) _____ Ft.

Velocity _____ Ft/Sec. Q (Rdwy.) _____ cfs **Regulatory High Water**

Waterway Area _____ Sq. Ft. Q (Suple. Struct.) _____ cfs _____ Ft.

Scour Code _____ Source FIS _____

Erosion Control

Q_2 = _____ cfs.

HW_2 = _____ Ft.

Temporary Structure

Q _____ Yr. _____ cfs.

High Water _____ Ft.

Min. A (BR) _____ Sq. Ft.

Overtopping Frequency (If>100Yrs.-NA)

Q _____ Yr. _____ cfs.

High Water _____ Ft.

STREAM CROSSING STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1698 6/2012

☐ **Stream Crossing** ☒ **Box Culvert** ☐ **Box Culvert Extension:** ☐ Right

☐ **Other:** _____ ☐ Left

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID 9240-10-00	Construction Project ID 9240-10-70	Highway (Project Name) STH 182		
Final Plan Due Date 11/30/2012	Preliminary Plan Due Date 5/31/2012	☒ Town ☐ Village ☐ City Eisenstein		
PS&E Date 3/1/17	Letting Date 9/12/17	County Price		
New Structure Number C-50-17	Existing Structure Number C-50-9717	Section 13	Town 40N	Range 1E
Station 391+00	Latitude: 45.945935 Longitude: -90.297039	☐ YES ☒ NO Structure Located on National Highway System		

For Survey and CADD Files
Horizontal Coordinate System: NAD 83 (1991), US Survey Feet
Vertical Datum: NAVD 88, Feet

Traffic Forecast Data

Feature On	Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
STH 182	2033	770	55 mph	Minor Arterial

Feature Under
☒ Waterway: Hay Creek ☐ Other:

Region Contact: Matt A (Area Code) Telephone Number(s): (xxx) xxx-xxxx Email: matt.a@dot.wi.gov	Consultant Contact: N/A (Area Code) Telephone Number(s): Email:

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (See ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with hydraulic engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.
2. **Plan and Profile Sheet** on proposed reference line of highway showing: (a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance.
3. **Contour Map** of the site drawn to a scale of not less than 1" = 20' with one-foot contours and showing: (a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) North arrow; (e) Buildings; (f) Above and below ground facilities; (g) Recommended channel change; (h) Direction of stream flow; (i) Station at ends of existing structure; (j) Location of river cross sections or individual survey shots; (k) Proposed structure and extent of riprap for report submitted with preliminary plans; (l) Other features that influence design.
4. **Typical Roadway Cross Section** of proposed approaches showing: (a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Sidewalk, curb & gutter; (e) Subgrade and pavement thickness; (f) Clear zone width.
5. **Stream Cross Sections** at upstream and downstream face of existing bridge and at one structure length upstream and downstream. Water and streambed elevations to be taken at structure and water surface elevations 1500 feet upstream and downstream of existing bridge.
6. **Labeled Photographs** of: (a) Existing structure; (b) Upstream and downstream structures; (c) Buildings within 100 feet of the proposed structure; (d) Unobstructed panoramic view looking upstream and downstream from location of proposed structure, showing stream and floodplains; (e) Any noteworthy details on existing structure or surrounding site (i.e. downstream obstructions); (f) Air photo mosaics referenced to contour map DGN if available.
7. Attach a copy of the regulatory floodplain map (FEMA map) depicting the site.
8. Report submitted with preliminary plans – **Hydraulic Report** (See Bridge Manual Chapter 8) which may contain: (a) USGS quadrangle sheet showing proposed location, highway alignment and reach of river; (b) All available flood history, high water marks with date of occurrence, nature of flooding, damages, scour information, and factors affecting water stages; (c) Navigation clearance; (d) Discussion of alternatives considered, factors influencing selection.
9. Attach a copy of DNR initial concurrence letter.

Proposed Structure

Preference for Structure Type at this Site:
Conspan precast arch ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☒ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 5)

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)
36 Ft.	.045 superelevation Ft./Ft.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☒ No	N/A Ft.	☐ Yes ☐ No	N/A Ft.	☐ Yes ☐ No

Specify Wing Location(s) for Beam Guard Attachment	Specify Clear Zone Width When Beam Guard Not Used on Culvert
N/A	24'
Specify Wing Location(s) for Surface Drain Anchors	**Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach**
N/A	N/A

YES	NO	
☐	☒	Project Is in Flood Hazard Area (FIS Mapped Floodplain)
☒	☐	Structure Will be Constructed to Accommodate Traffic Staging
☐	☒	Temporary Structure Required
☒	☐	Riprap Required
☐	☒	Structural Approach Slab
☐	☒	Lighting Required: Bolt Circle Diameter _____ inches
☐	☐	Traffic/Lighting Staff been Notified for Review
☐	☒	Conduit in Parapet: Diameter _____ Number _____
☐	☒	Historical Properties (Archaeological, Historic) Present Near Structure

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☒	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 4)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 4)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO		Removal
☒	☐	Structure will be Removed ☒ Bid Item ☐ Later Contract ☐ Other: _____	☒ Normal Removal ☐ Removal With Minimal Debris ☐ Removal With Capture System
☐	☒	Structure will Remain in Service, Purpose: _____	

Existing Structures

STRUCTURE DATA			UPSTREAM	AT SITE	DOWNSTREAM
Structure Number (B/P/C)			B-153-02.6	C-50-9717	old 182 bridge
Highway, Railroad, Path, or Structure Name			Forest Rd 153	STH 182	vacated town rd
Year Built			unknown	1953	unknown
◊ Latitude			45.969467	45.945935	45.945659
◊ Longitude			-90.300815	-90.297039	-90.297403
‡ Distance from Proposed Site in Miles			1.5	[redacted]	.02
Number of Spans			1	1	1
Clear Span *(Between Inside Faces of Substructure Units)* Lengths Along C.L. Rdwy/Track			27.75'	15.78' span, 74' long	22.0'
Sidewalk:	Right Side Clear Width		[redacted]	N/A	[redacted]
	Left Side Clear Width			N/A	
Roadway Width on Structure Between Curbs			24'	32'	19'
Superstructure Type			asphalt	15' span SPPA, 74' long	asphalt
Abutment Type(s)			wood plank	N/A	concrete
Pier Type(s) and Width(s)			N/A	N/A	N/A
Is Structure Supported on Piles?			unknown	no	unknown
Condition:	Superstructure Rating (NBI)		N/A	N/A	N/A
	Substructure Rating (NBI)		N/A	N/A	N/A
	Sufficiency Rating (NBI)		N/A	N/A (culvert)	N/A
Skew:	Stream		0	27D LHF	40D LHF
	Structure		0	29D LHF	0
* Elevation + +	Finished Grade		1527.59	1517.25	1511.63
	Low Chord		1524.84	1512.90	1510.09
Character of Material in Stream Bed			sand/silt	sand/silt	sand/muck
Does Drift Pass Satisfactorily (Y/N/no record)			yes	yes	yes
Does Ice Pass Satisfactorily (Y/N/no record)			yes	yes	yes
Evidence of Damage From Floating Debris			no	no	no
Streambed Scour Visible (Y/N) Ⓟ		Provide Additional Details on Page 5	no	yes (see details, pg. 5)	no
Streambank Scour Visible (Y/N) Ⓟ			no	no	no
† Recorded High Water Elevation - Date			1522.7 5/12	1508.7 (spring runoff)	1507.8 (spring runoff)
** Observed High Water Mark Elevation Ⓟ			none observed	none observed	none observed
History of Flooding over Roadway (Date or Frequency)			not reported	not reported	not reported
Abutment Slope Washout From:	Stream Flow Ⓟ		none	none	none
	Roadway Drainage Ⓟ		none	none	none
Low Water Elevation			1520.12	1505.55	1505.42
º Ordinary High Water Mark			[redacted]	unknown	[redacted]
Observed Water Elevation			1520.5	1506.0	1505.9
Streambed Elevation			1518.6	1504.0	1502.0
Water Surface Elevation	Date		1500' Upstream ‡	At Site	1500' Downstream ‡
	7/18/12		1506.38	1505.55	1504.61

Ⓟ Provide labeled photograph.

* Use same vertical datum for all structures within 1500' of existing structure.

** High water marks may include, but are not limited to, debris, leaves, or dirt on structure that appear to have been left by recent flooding.

+ + Take these elevations at the same location.

† Information on high water can be obtained from observation, owner, adjacent property owner, County Road Commission, Regional Planning Commission, DNR, FIS, local officials, bridge inspector, or WisDOT bridge maintenance engineer.

º If marked by DNR, "The point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic."

‡ Measured along thread of channel. If there is an abrupt river profile change within 1500' contact hydraulic engineer for revised location.

◊ Lat./Long. taken at name plate location (with photograph or sketch of location).

Existing Culvert Information

Number of Barrels			1 (74' long)
Barrel Width Perpendicular to Walls			15.78
Allowable High Water			1512.6
Floor: Concrete, Earth, Silted			earth
If Silted Indicate Depth of Silt in Barrel			N/A
Elevation:	Inlet	Invert	1503.93
		Finished Grade	1517.29
		Top of Opening	1513.18
		Top of Water	1506.02
	Discharge	Invert	1504.00
		Finished Grade	1517.29
		Top of Opening	1512.61
		Top of Water	1506.00
	For Structures with Concrete Aprons:		
	At Beginning of Upstream Apron		N/A
		Apron Elevation	
		Streambed	
		Top of Water	
	At End of Downstream Apron		N/A
		Apron Elevation	
		Streambed	
		Top of Water	
Condition℗:	Wingwalls		poor
	Barrel		poor

Attach Sketch

℗ Provide labeled photograph.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

Soil borings and geotechnical report will be completed by WisDOT Central Office Soils.

STREAM CONTAINS MULTIPLE CHANGING BEAVER DAMS

For Structure Designers Use Only
Proposed Box Culvert

Aprons	Type	Elevations
Inlet		
Outlet		
Openings - Number	Clear Span at Right Angles to Axis of Box	Inside Height of Box
Slope of Channel at Culvert		

All Proposed Structures

Spans – Number:	Spans Lengths (C.L. to C.L. of Substructure):	Skew:	☐ R.H.F. ☐ L.H.F.
Latitude:	Longitude:		

Drainage Area _____ Sq. Mi. Q (100) _____ cfs **Existing Bridge**

High Water (100) _____ Ft. Q (Struct.) _____ cfs High Water (100) _____ Ft.

Velocity _____ Ft/Sec. Q (Rdwy.) _____ cfs **Regulatory High Water**

Waterway Area _____ Sq. Ft. Q (Suple. Struct.) _____ cfs _____ Ft.

Scour Code _____ Source FIS _____

Erosion Control

Q_2 = _____ cfs.

HW_2 = _____ Ft.

Temporary Structure

Q _____ Yr. _____ cfs.

High Water _____ Ft.

Min. A (BR) _____ Sq. Ft.

Overtopping Frequency (If>100Yrs.-NA)

Q _____ Yr. _____ cfs.

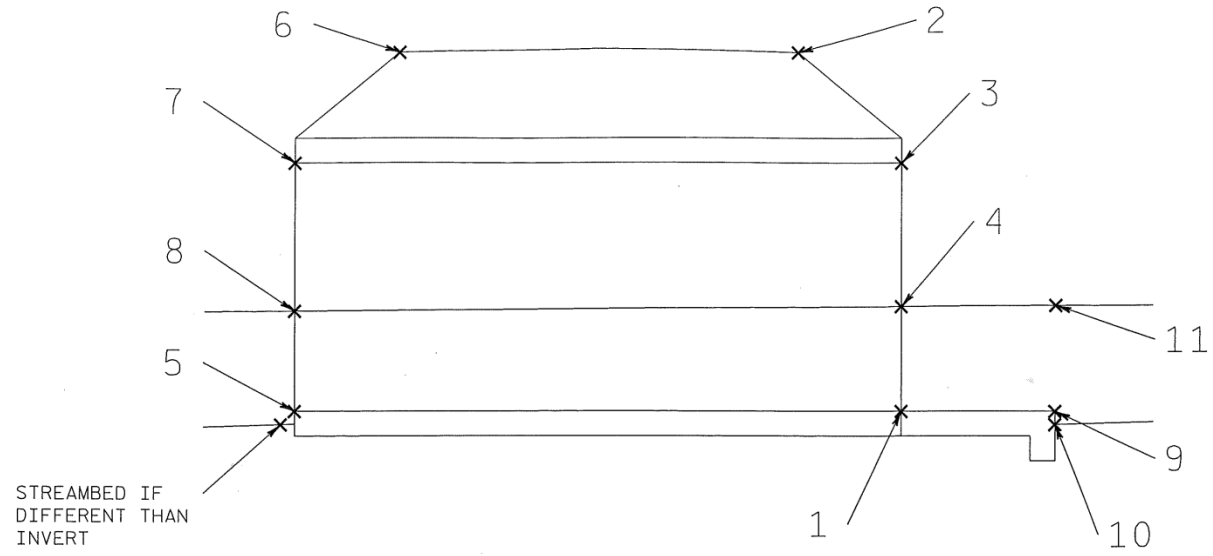
High Water _____ Ft.

Existing Culvert Information

Number of Barrels			1	
Barrel Width Perpendicular to Walls			15.78	
Allowable High Water			1512.6	
Floor: Concrete, Earth, Silted			earth	
If Silted Indicate Depth of Silt in Barrel			N/A	
Elevation:	Inlet	Invert	1503.93	1
		Finished Grade	1517.29	2
		Top of Opening	1513.18	3
		Top of Water	1506.02	4
	Discharge	Invert	1504.00	5
		Finished Grade	1517.29	6
		Top of Opening	1512.61	7
		Top of Water	1506.00	8
	For Structures with Concrete Aprons:			
	At Beginning of Upstream Apron		N/A	
		Apron Elevation		9
		Streambed		10
		Top of Water		11
	At End of Downstream Apron		N/A	
		Apron Elevation		12*
		Streambed		13*
		Top of Water		14*
Condition℗:	Wingwalls		poor	
	Barrel		poor	

Attach Sketch
℗ Provide labeled photograph.

* - Same as point 9, 10, and 11, respectively, on DS end of culvert
Finished grade elevations should be taken at edges of pavement over the structure



CULVERT PROFILE CROSS SECTION

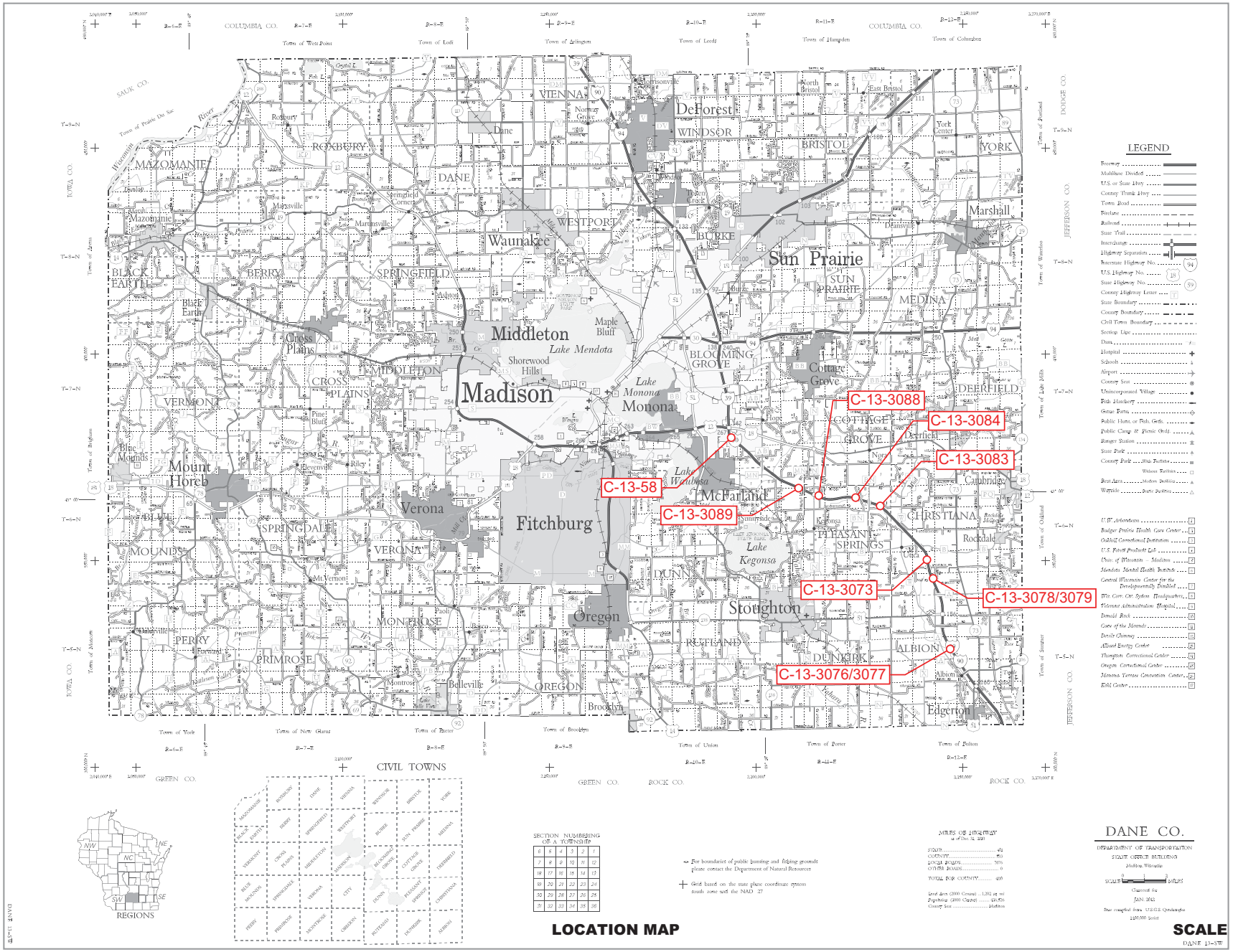
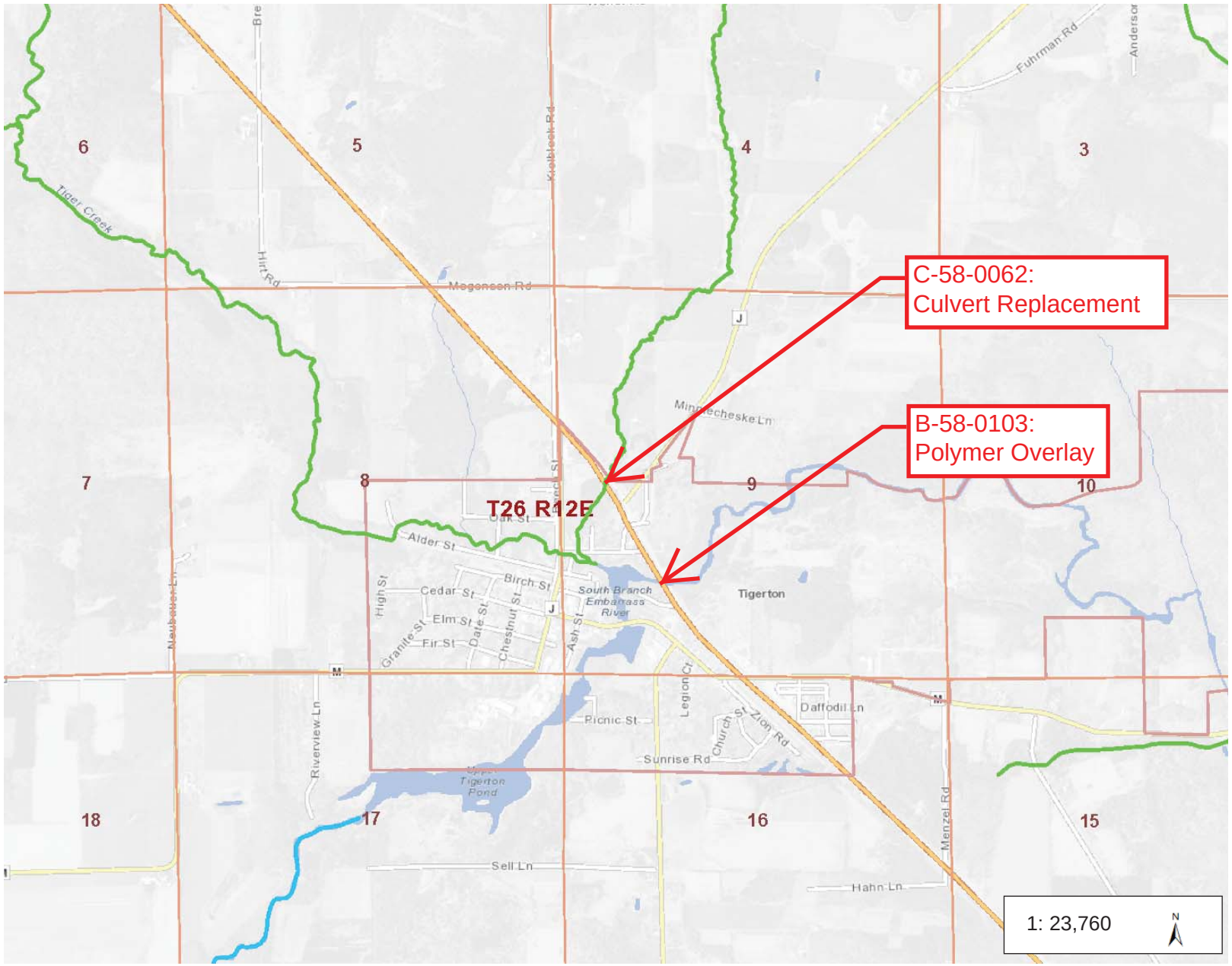


FIGURE 1 **LOCATION MAP** **SCALE 1:250000**

1600-22-31/62: Culvert Replacement



Legend

- Trout Stream Lines
  - Class 1
  - Class 2
  - Class 3
- Trout Spring Ponds
  - Class 1
  - Class 2
  - Class 3
- Rainbow Smelt Point
- Rainbow Smelt Lines
- Rainbow Smelt Areas
- Western Mosquito Fish Points
- Western Mosquito Fish Lines
- Western Mosquito Fish Areas
- Bighead Carp Points
- Silver Carp Points
- Grass Carp Points
- Township
- Section
- Cities, Towns & Villages
  - City
  - Village
  - Civil Town
- Rivers and Streams
- Open Water
- 2010 Air Photos (WROC)

1: 23,760

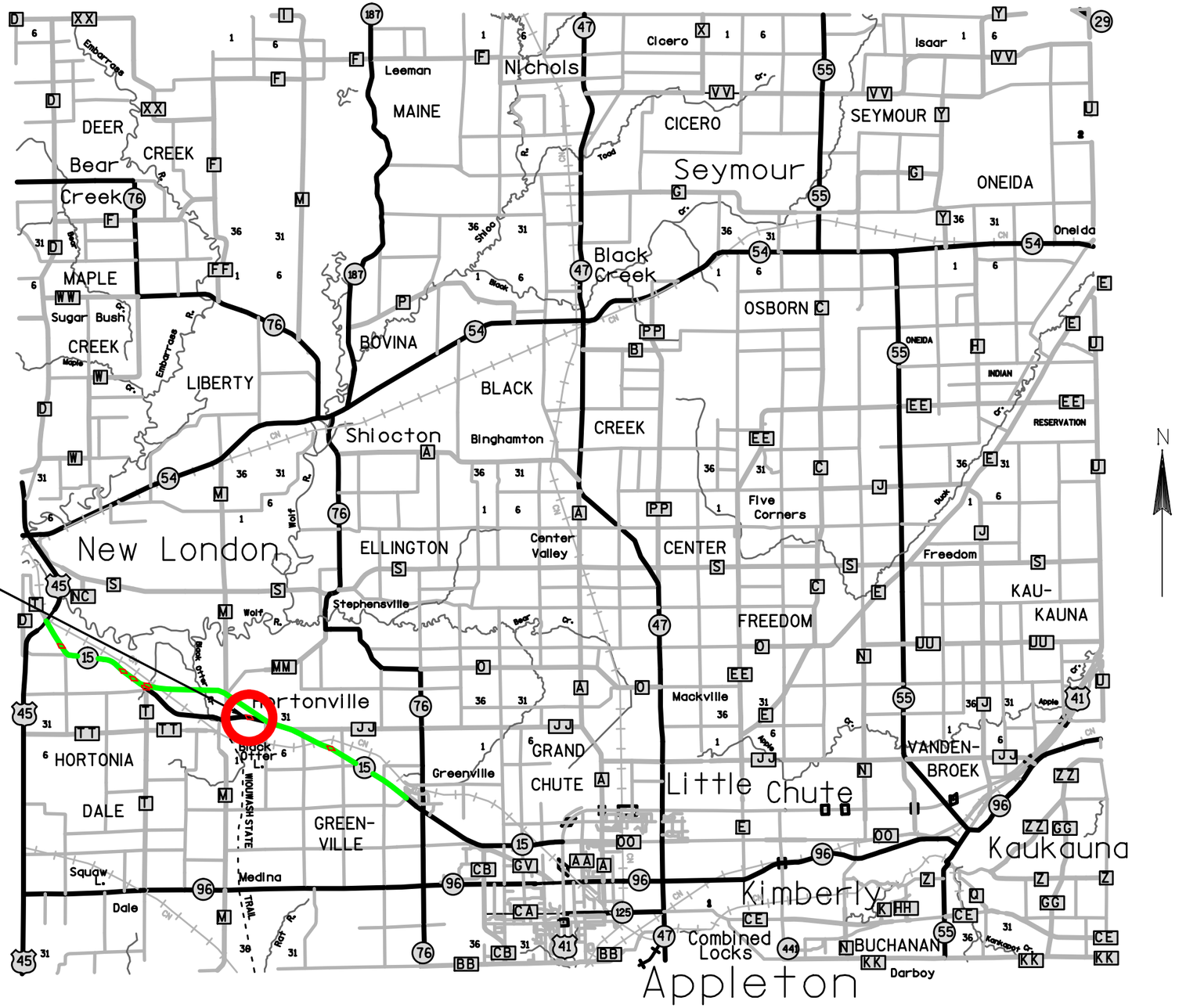
0.8 0 0.38 0.8 Miles

NAD_1983_HARN_Wisconsin_TM

Notes

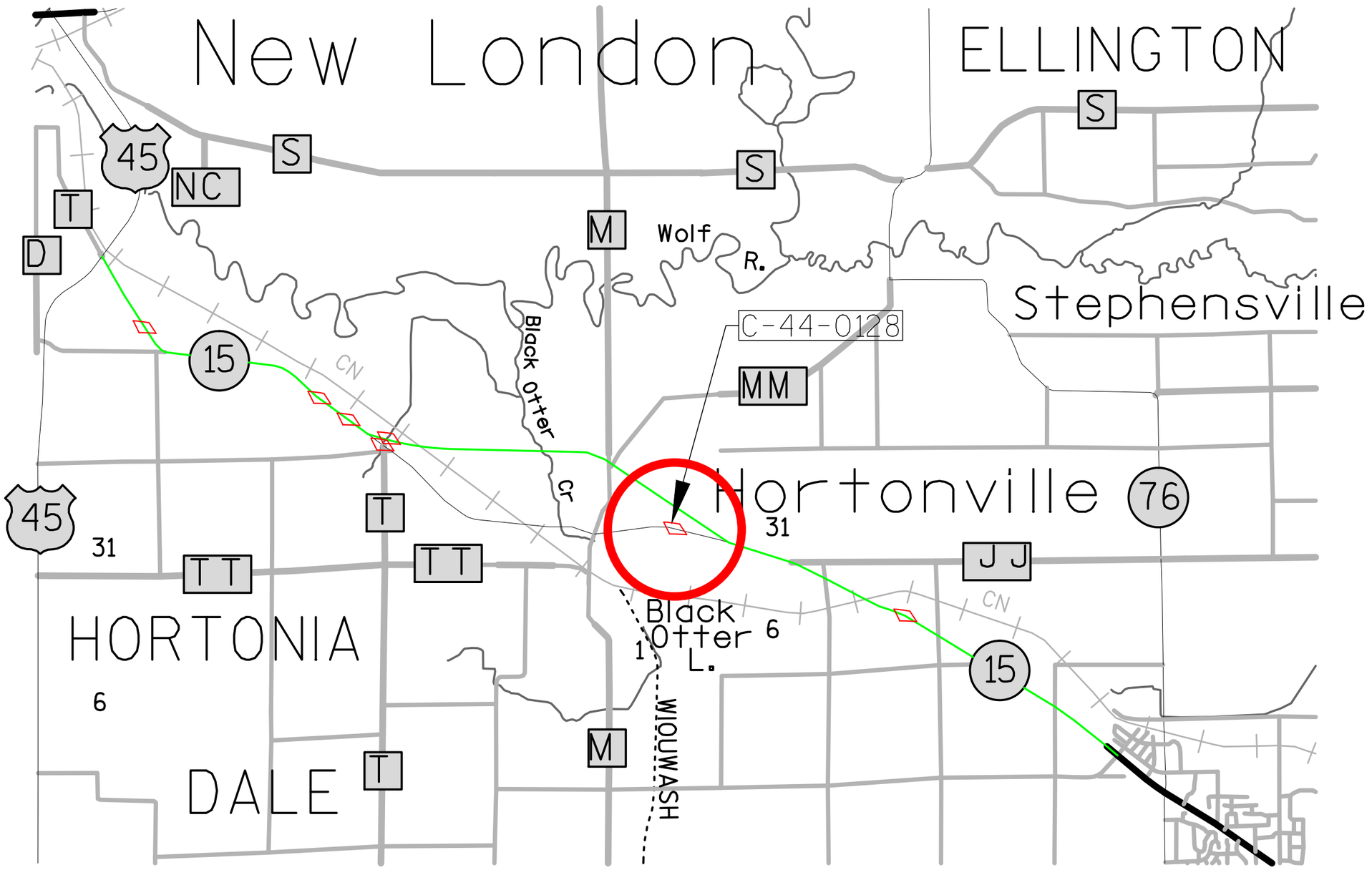
Location of C-58-0062 specified on map.

PROJECT LOCATION MAP



OUTAGAMIE CO.

SMALL COUNTY MAP



OUTAGAMIE CO.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0278D

FIRM

FLOOD INSURANCE RATE MAP

OUTAGAMIE COUNTY, WISCONSIN AND INCORPORATED AREAS

PANEL 278 OF 500

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HORTONVILLE, VILLAGE OF	550529	0278	D
OUTAGAMIE COUNTY	550302	0278	D

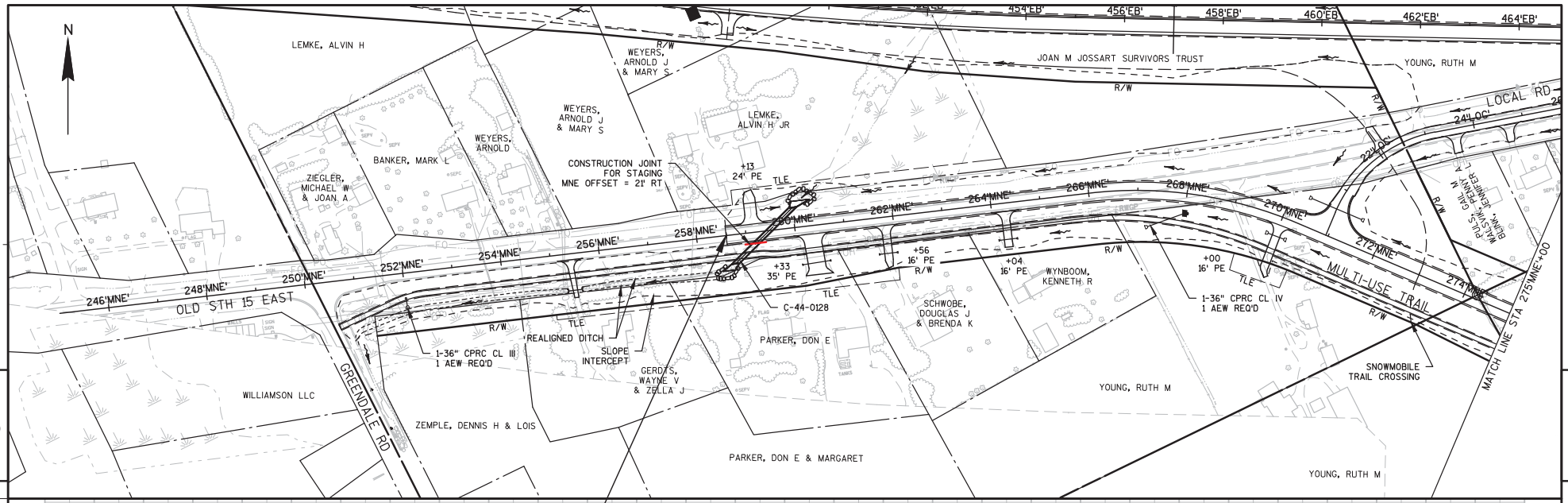
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
55087C0278D

EFFECTIVE DATE
JULY 22, 2010

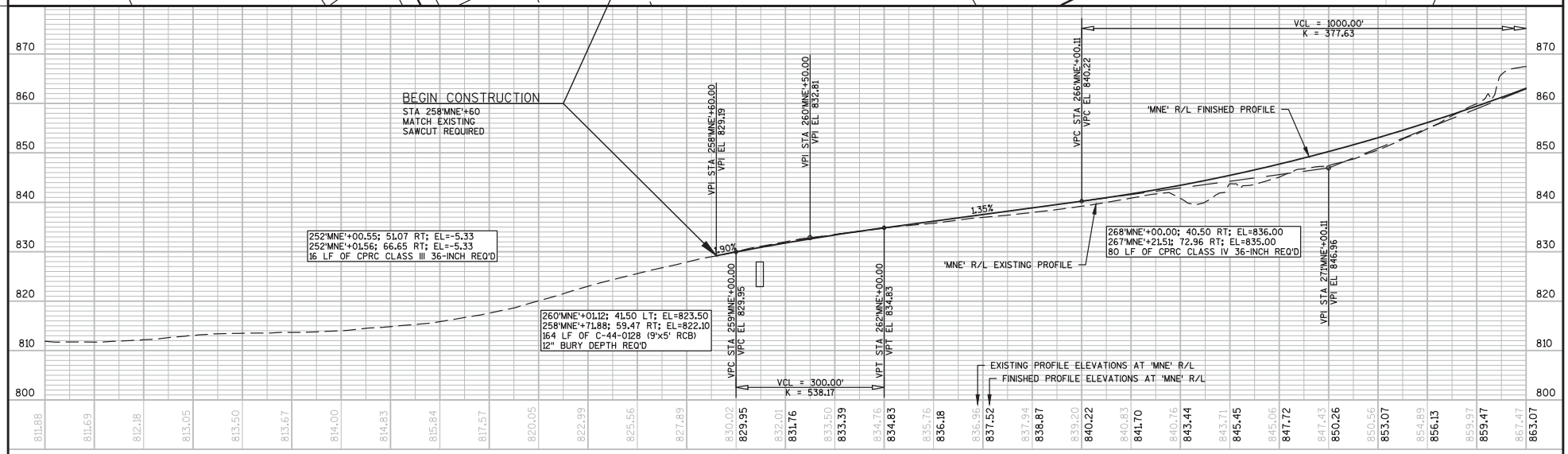
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



5

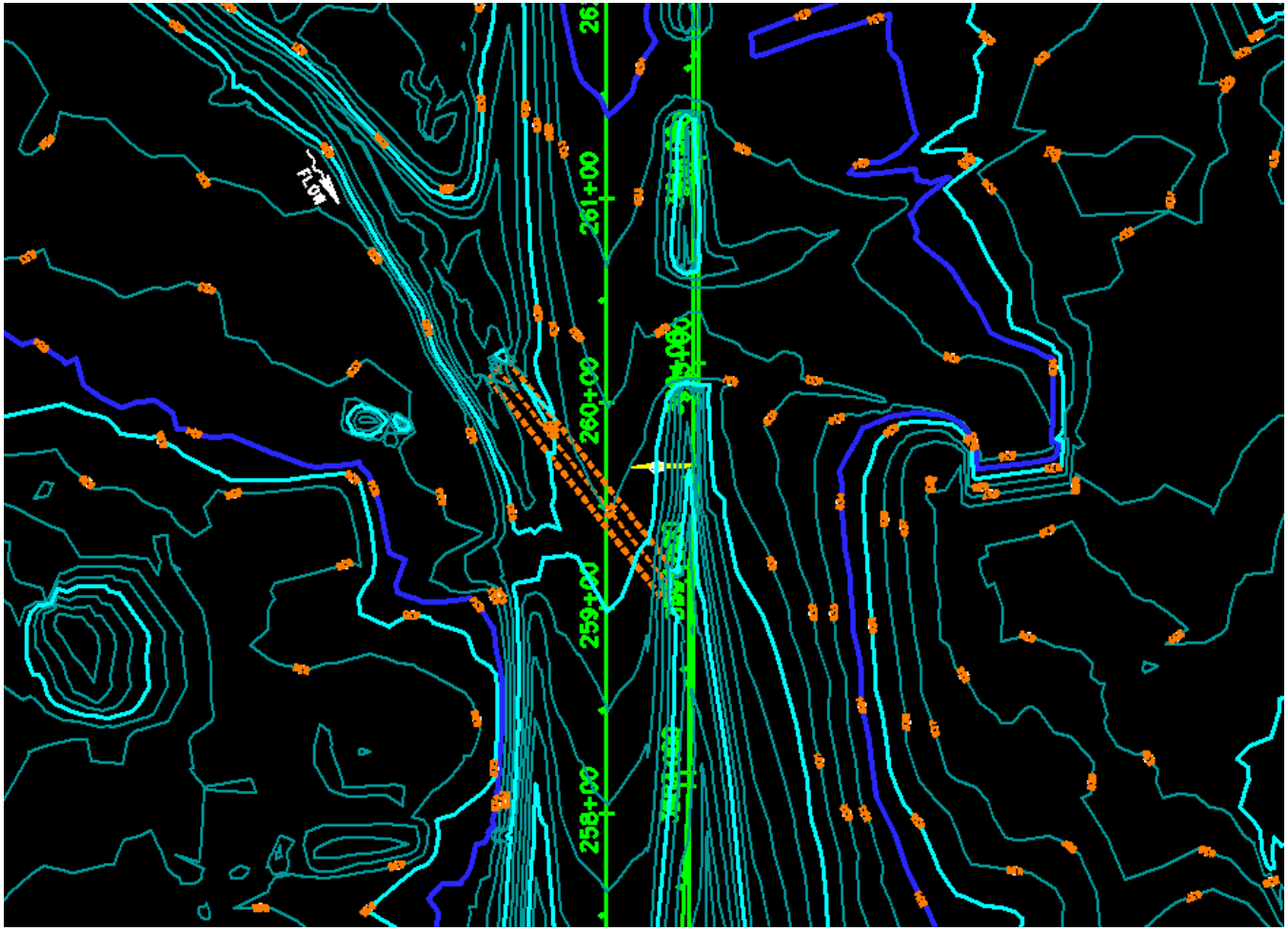
5



PROJECT NO: 1146-75-72	HWY: STH 15	COUNTY: OUTAGAMIE	PLAN AND PROFILE - OLD STH 15 EAST	SHEET	E

FILE NAME : C:\PW_WORKDIR\DEN001\MMORGAN\DMS96651\11467572_050103_PP.DWG
LAYOUT NAME - MNE-01
PLOT DATE : 1/29/2015 12:20 PM PLOT BY : MORGAN, MARC/MKE PLOT NAME : PLOT SCALE : 1" = 200'_XREF

WISDOT/CADDS SHEET 44


261+00
260+00
259+00
258+00

2

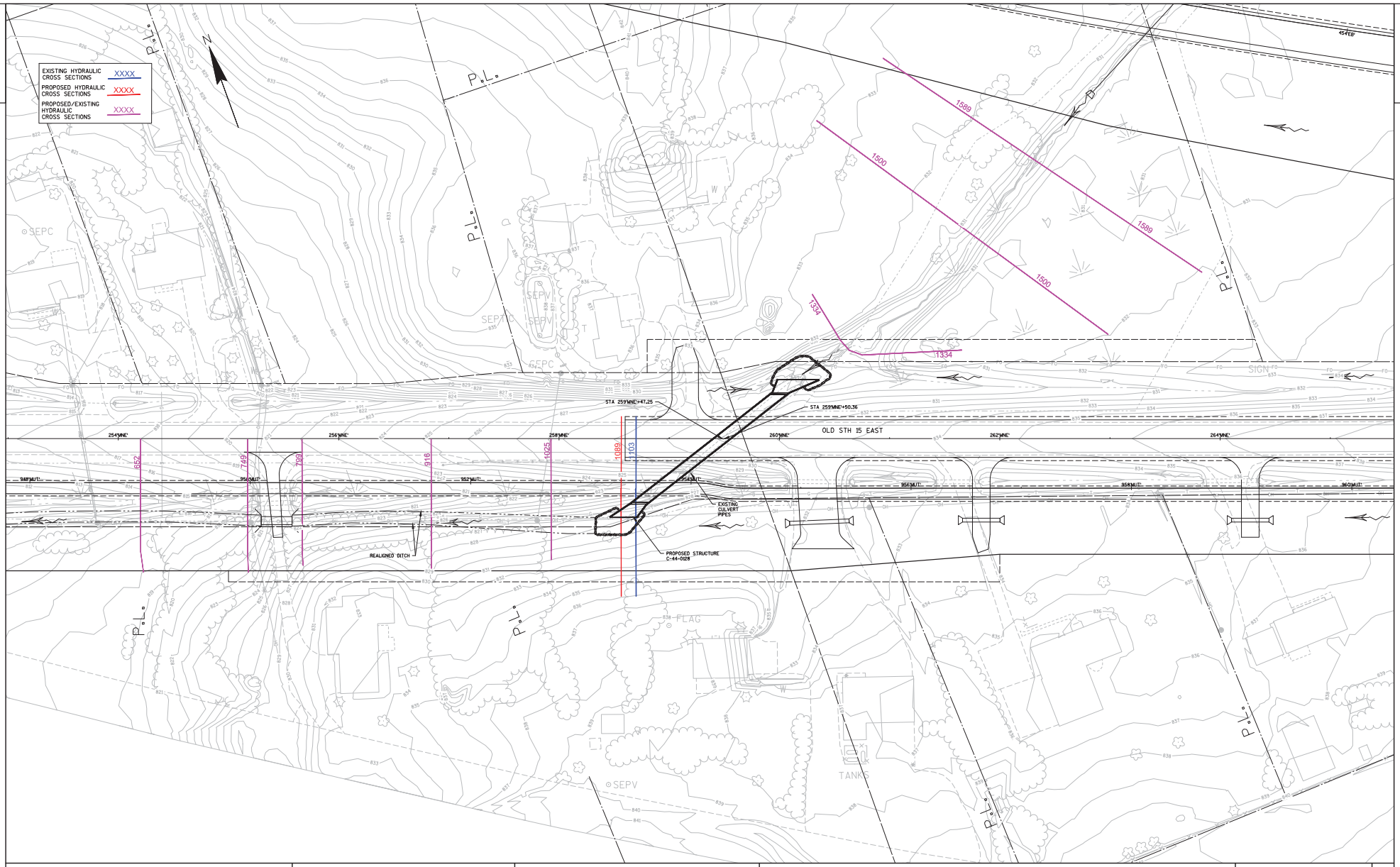
2

PROJECT NO: 1146-75-72	HWY: STH 15	COUNTY: OUTAGAMIE	CONTOUR MAP: C-44-0128	SHEET	E

FILE NAME : C:\PW_WORKDIR\DEN001\MMORGAN\D0209628\C44-128-CON_AERIAL.DWG
LAYOUT NAME - C-44-0128

PLOT DATE : 1/13/2015 9:36 AM PLOT BY : MORGAN, MARC/MKE PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42



PROJECT NO: 1146-75-72	HWY: STH 15	COUNTY: OUTAGAMIE	CONTOUR MAP: C-44-0128	SHEET	E

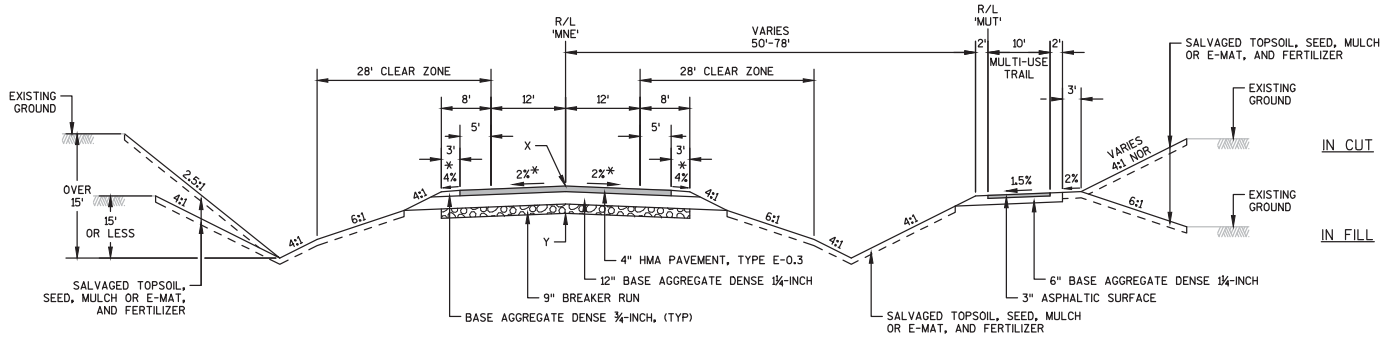
FILE NAME : C:\PW_WORKDIR\DEN001\MMORGAN\D0209628\C44-128-CON.DWG
LAYOUT NAME - C-44-0128

PLOT DATE : 1/20/2015 3:10 PM PLOT BY : MORGAN, MARC/MKE PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

NOTES

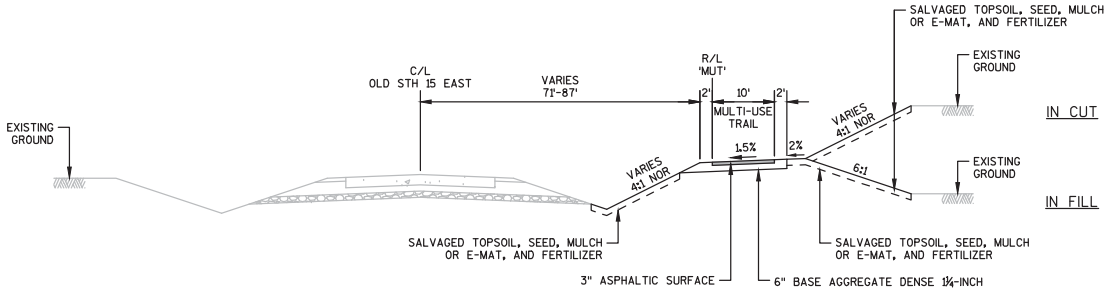
"X" = POINT REFERENCED TO ON PROFILE (PROFILE GRADE LINE - PGL)
"Y" = SUBGRADE REFERRED TO ON CROSS SECTIONS
* CROSS SLOPE VARIES DUE TO SUPERELEVATION (SEE CROSS SECTIONS AND SUPERELEVATION TABLE FOR FURTHER DETAILS)



FINISHED TYPICAL SECTION

OLD STH 15 EAST

STA 258'MNE'+60 TO STA 290'MNE'+82
(STA 953'MUT'+86 TO STA 994'MUT'+52)



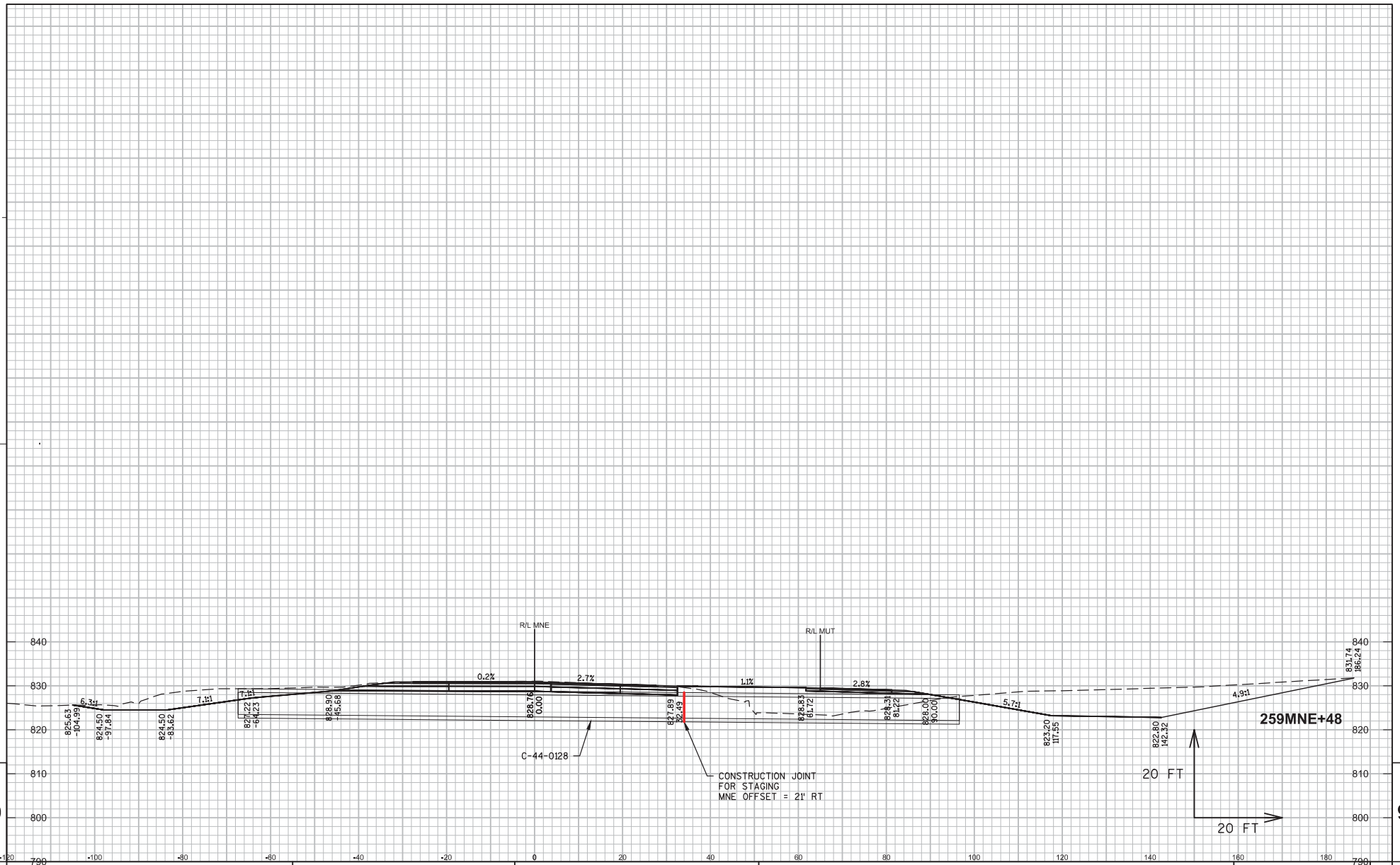
FINISHED TYPICAL SECTION

MULTI-USE TRAIL ALONG OLD STH 15 EAST

STA 250'MNE'+44 TO STA 258'MNE'+60
(STA 945'MUT'+71 TO STA 953'MUT'+86)

PROJECT NO: 1146-75-72	HWY: STH 15	COUNTY: OUTAGAMIE	TYPICAL SECTIONS	SHEET	E

FILE NAME : C:\PW_WORKDIR\DEN001\RPARKE10\DMS96651\11467572_020302_TS.DWG
LAYOUT NAME - FINISHED - 06
PLOT DATE : 1/8/2015 11:31 AM PLOT BY : PARKER, REBECCA/MKE PLOT NAME : PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 42

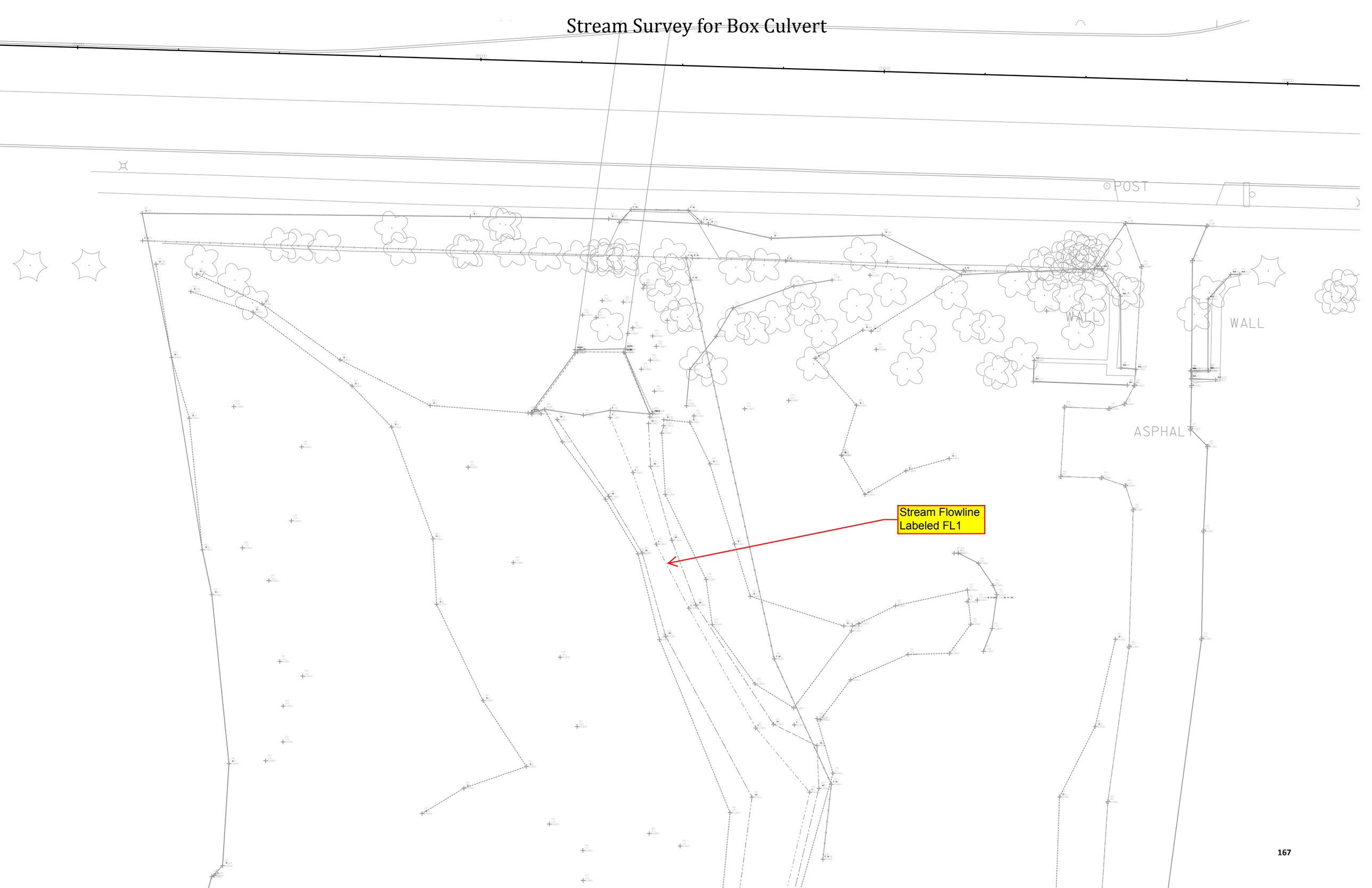


PROJECT NO: 1146-75-72	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: C-44-0128	SHEET _____	E

FILE NAME : C:\PW_WORKDIR\DEN001\JWENDT\DMS97412\CH-7572-CRDR-MNE.DWG PLOT DATE : 1/29/2015 1:31 PM PLOT BY : WENDT, JARED/MKE PLOT NAME : _____ PLOT SCALE : 1:20_XREF

WISDOT/CADDS SHEET 49

Stream Survey for Box Culvert



C-38-639 LEFT SIDE ELEVATION

ROW Requirements.dgn 4/13/2011 2:59:30 PM

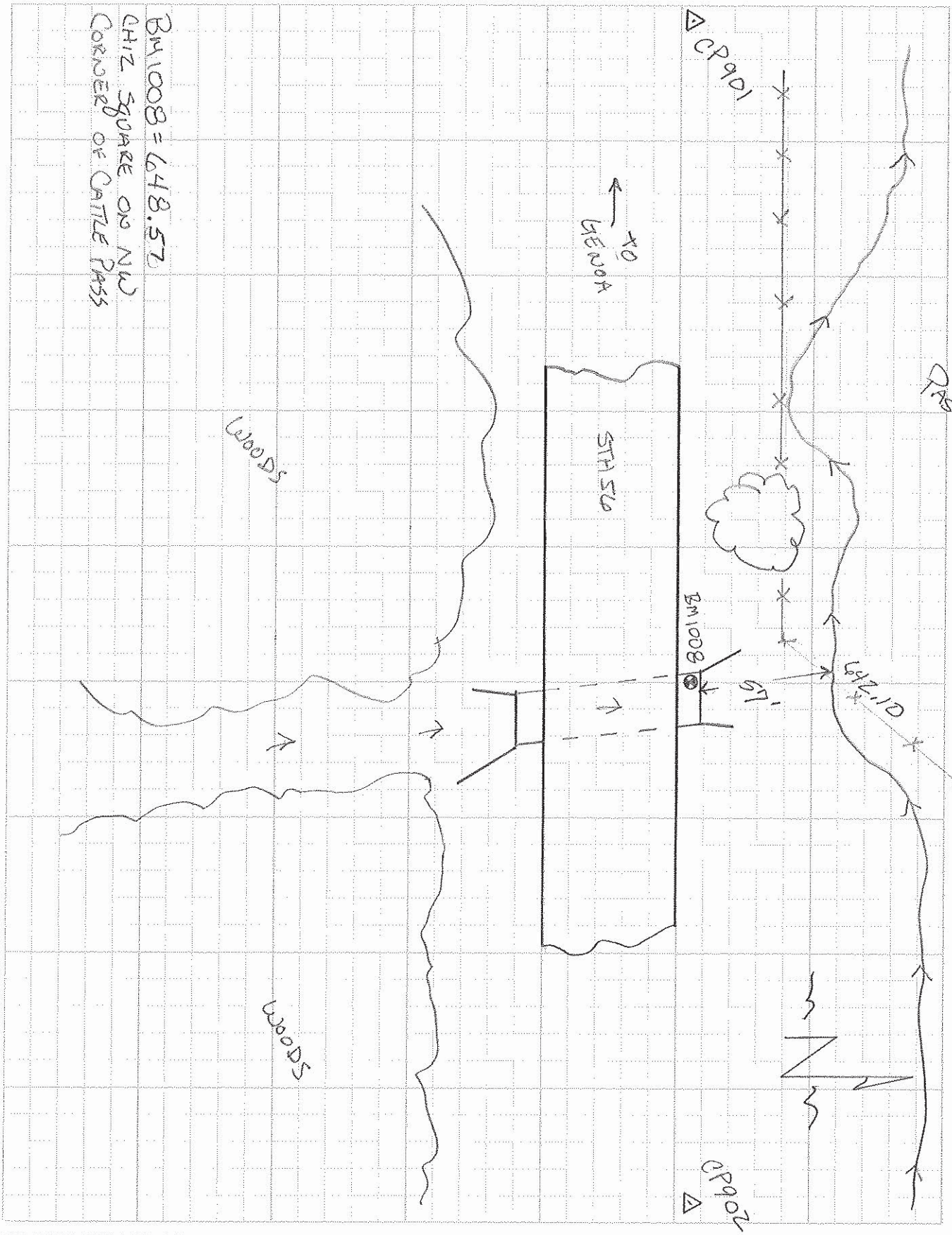
LEFT SIDE PANORAMIC VIEW UPSTREAM OF C-38-639.
PROJECT ID 9670-09-00
STH 180
MARINETTE COUNTY

C-38-639 RIGHT SIDE ELEVATION

ROW Requirements.dgn 4/13/2011 3:47:24 PM

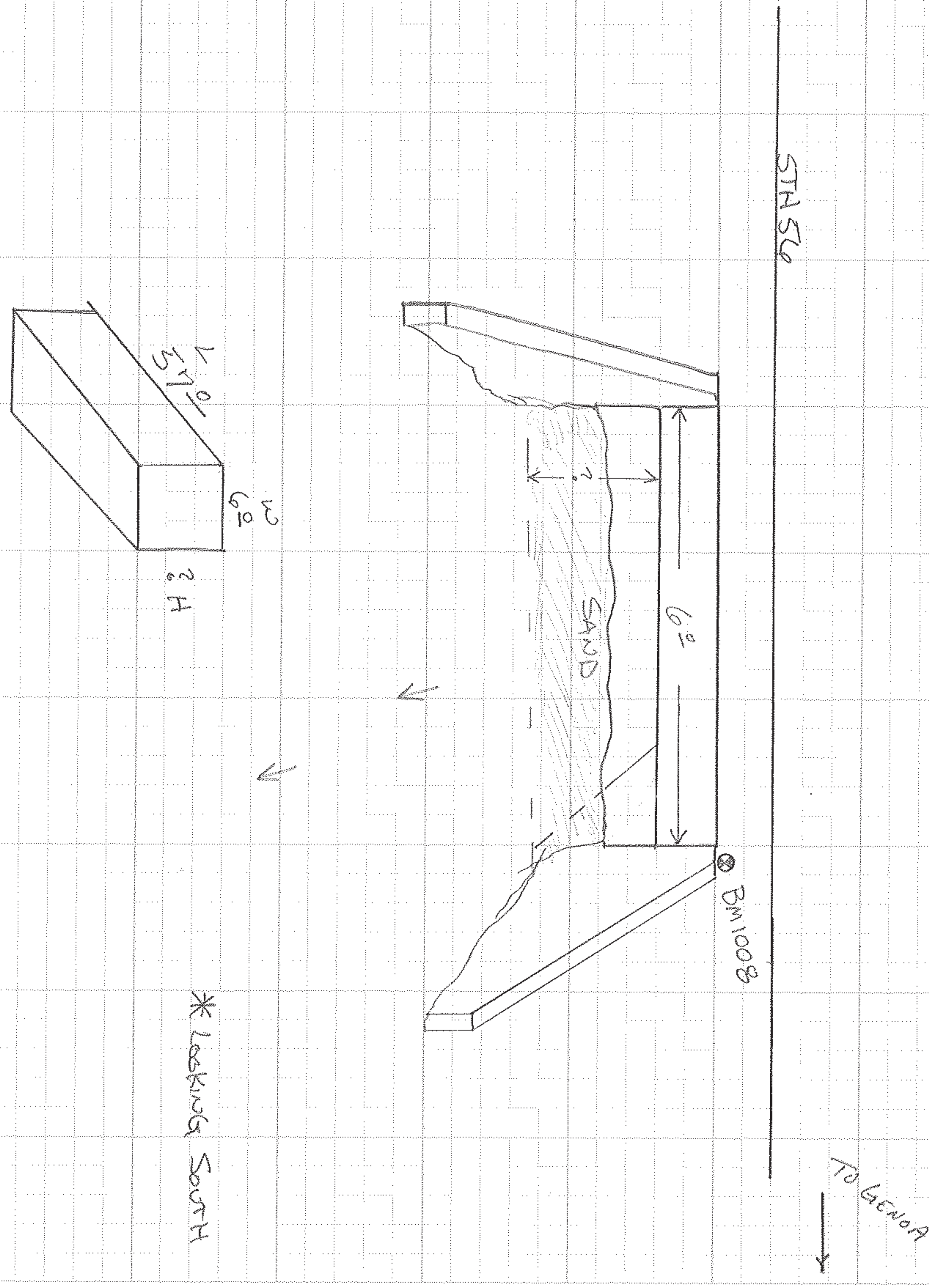
RIGHT SIDE PANORAMIC VIEW DOWNSTREAM OF C-38-639
PROJECT ID 9670-09-00
STH 180
MARINETTE COUNTY


ONLY BUILDING WITHIN
100 FEET OF C-38-639



BM1008 = 648.57
CHIZ SQUARE ON NW
CORNER OF CATTLE PASS

Proj.(Structure)No. 5730-01-31	Hwy 56	County VERNON	Computed By FINCHER	Date 8-18-11	
Name of Road STH 56			Checked By	Date	
Title C-62-1509			Sheet	Of	173

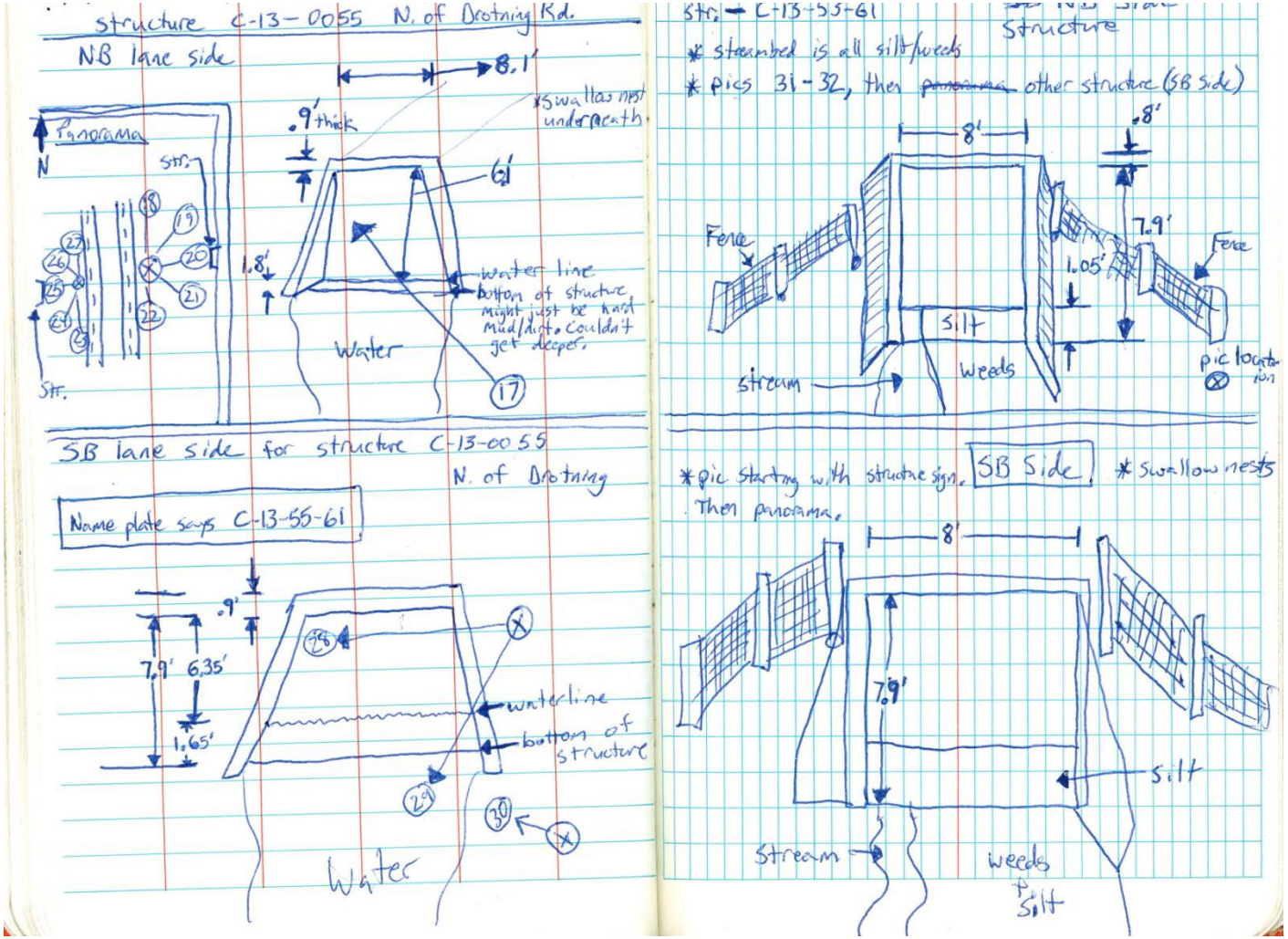


5730-01-31 56 VERNON FINCHER 8-18-11

STH 56

C-62-1509

Field Notes - Labeled Culvert Inlet and Outlet Sketches



Inlet and Outlet Types

Flared Wingwalls

Straight Wingwalls

90^{o} Headwall

Projecting Pipe

Pipe Apron

Culvert Deterioration

Spalls and Exposed Rebar below Roadway Inlet

Degradation of Floor Concrete below Roadway Inlet

Outlet Scour Holes

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
Northeast Region Headquarters
2984 Shawano Ave.
Green Bay, WI 54313-6727

Scott Walker, Governor
Cathy Stepp, Secretary
Jean Romback-Bartels, Regional Director
Telephone 920-662-5114
FAX 920-662-5413

April 16, 2013

Wisconsin Department of Transportation – NE Region
944 Vanderperren Way
Green Bay, Wi 54304-5344

Subject: **DNR Initial Project Review**:
Project I.D. 1146-75-00
STH 15 – US 45 to Lily of the Valley Drive
Outagamie County
City of New London to Town of Greenville

Dear Mr. Bertrand:

The Department has received the information you provided for the proposed above referenced project on 3/11/2013. According to your proposal, the purpose of this project is to improve traffic capacity and safety conditions. Proposed improvements include widening of STH 15 to a 4-lane divided rural expressway, with a bypass of the Village of Hortonville, for a project length of 10.6 miles. In addition, there will be vertical and horizontal alignment improvements, installation of roundabouts at several intersections, and numerous culvert/structure replacements for the length of the project.

Preliminary information has been reviewed by DNR staff for the project under the DOT/DNR Cooperative Agreement. Initial comments on the project as proposed are included below and assume that additional information will be provided that addresses all resource concerns identified.

A. Project-Specific Resource Concerns

Wetlands:

There is high potential for wetland impacts to occur as a result of this project and therefore wetland impacts must be avoided and/or minimized to the greatest extent possible. Unavoidable wetland impacts must be mitigated for in accordance with the DOT/DNR Cooperative Agreement and the Wisconsin Department of Transportation Wetland Mitigation Banking Technical Guideline. The Department requests information regarding the amount and type of unavoidable wetland impacts.

Given the length of the project corridor, combined with the new highway alignment for the Hortonville bypass segment, the Department is requesting that a wetland *delineation* be completed by qualified personnel. Any wetland determinations that have completed to this point should suffice for the existing mainline project, but the Hortonville bypass segment should be addressed in more detail so we can better assess potential habitat impacts.

Waterways & Fisheries:

Numerous waterways are intersected by this segment of STH 15, which include the following: Rat River (headwater) and unnamed tributaries to the Rat River; Black Otter Creek and unnamed tributaries to Black Otter Creek; unnamed tributaries to the Wolf River; unnamed tributaries to Potters Creek. It is anticipated that most, if not all of the aforementioned waterways will have culvert or structure work conducted in them.

The above referenced waterways are known warm and/or coolwater fisheries spawning habitat. In order to protect developing fish eggs and substrate for aquatic organisms, all instream work that could adversely impact water quality should be undertaken between June 16th and February 28th of any given year.

Culverts/Aquatic Organism Passage (AOP):

AOP is a concern in many of the waterway crossings along this segment of STH 15, between New London and Greenville. The Department will work with DOT to help address those concerns, and that coordination has already begun prior to the issuance of this letter. Throughout the planning process please keep in mind that the culverts/structures should be set in such a manner that they do not cause stream fragmentation, and allow fish and other aquatic organisms to migrate upstream and downstream during low-flow conditions. This requires that the invert be set an adequate distance below the final streambed elevation to allow a natural and continuous streambed condition to occur. A gravel bed substrate may be installed in the culvert to obtain this condition. The desired end-result is that during high-flow conditions, the stream does not cause a large pool (scour hole) to develop at the downstream edge of the structure. Such a pool can act as an impassable barrier to aquatic organisms during low-flow conditions.

The invert elevations of the existing and proposed structure(s) should be specified in the plans. The width and depth of the waterways must not be altered; however, a minor amount of dredging necessary to place the structure elements is permissible. Please provide this Department with details on all culvert and/or structure work, including, but not limited to, the following information: size of existing structures (length, diameter, flow capacity, etc.); size of the proposed structures (length, diameter, flow capacity, etc.); estimated flow velocities through proposed structures at base flow, Q5 discharge, and Q100 discharge; any improvements being made to address AOP.

Endangered Resources (ER):

Based upon a review of the Natural Heritage Inventory (NHI) and other Department records on 4/16/2013 the following Endangered Resources are known to occur in the project area or its vicinity and could be impacted by this project:

- Blanding's Turtle – *Emydoidea* blandingii – State Threatened

Blanding's turtles have a strong preference for nesting in sandy soils and will often travel long distances from water to nest, but this species can be found in a variety of other habitats on occasion, including streams. Taking into consideration the length of the proposed project corridor (approximately 10.6 miles), the Department will work with DOT to narrow down the areas where the Blanding's Turtles are most likely to occur. Any areas of disturbed soil should be protected with properly trenched in silt fence with J-turns (aka turtle turn-arounds), which should be installed prior to May 1 if project will start in the spring. Any turtles that are found within the project area should be removed, prior to any site disturbance. The project area should be monitored prior to and throughout the construction period. All turtles should be safely relocated outside the project area if found.

The Department has initiated coordination with Lisie Kitchel, Bureau of Endangered Resources.

Migratory birds:

An inspection will need to be conducted for the existing structures to determine if they are currently utilized by migratory birds, prior to construction activity. The Department will assist in this matter.

Under the U.S. Migratory Bird Treaty Act, destruction of swallows and other migratory birds or their nests is unlawful unless a permit has been obtained from the U.S. Fish & Wildlife Service. Therefore, the project should either utilize measures to prevent nesting *(e.g., remove unoccupied nests during the non-nesting season and install barrier netting prior to May 1)*, or should occur only between August 30th and May 1st (non-nesting season). If netting is used, ensure it is properly maintained, then removed as soon as the nesting period is over. If neither of these options is practicable then the U.S. Fish & Wildlife Service must be contacted to apply for a depredation permit.

Invasive species & VHS:

Adequate precautions should be taken to prevent transporting or introducing invasive species via construction equipment, as provided under NR 40, Wis. Administrative Code. This website provides further information and lists those species classified as Restricted or Prohibited under NR 40: http://dnr.wi.gov/invasives/classification/.

The Department will work with project managers to help identify specific locations of problem areas across the project site and to recommend preventive measures. The following Best Management Practices (BMPs) for rights-of-way provide a series of measures that will ensure reasonable precautions are taken throughout the stages of construction:
http://council.wisconsinforestry.org/invasives/transportation/pdf/ROW-Manual.pdf

For work involving water bodies, all equipment must be properly cleaned and disinfected to address the spread of invasive species and viruses. Special provisions should require contractors to implement the following measures before and after mobilizing in-water equipment to prevent the spread of Viral Hemorrhagic Septicemia (VHS), Zebra Mussel, and other invasive species. Follow **STSP 107-055** Environmental Protection – Aquatic Exotic Species Control, which includes the protocol found here:
http://dnr.wi.gov/fish/documents/disinfection_protocols.pdf

For up to date information on invasive species and infested waters go to
http://dnr.wi.gov/lakes/invasives/AISByWaterbody.aspx

Floodplains:

A determination must be made as to whether the project lies within a mapped/zoned floodplain. In order to meet the standards of NR 116, Floodplain Management, a hydraulic and hydrologic analysis must be conducted for the 100-year flood event for any new structure or existing structure that is not being replaced "in-kind" within a mapped floodplain. These results must be submitted to the Department and the plans for the structure must comply with the provisions of the local community's floodplain zoning ordinance. For project-specific information, please consult with the Outagamie County Zoning Administrator.

For areas lying outside mapped/zoned floodplain, DNR may request the results of DOT flow and backwater calculations.

Other Issues/Unique Features:
As discussed previously with regards to the Hortonville bypass segment, it is very important that no access be allowed as part of this new highway corridor. Not only would this impact the overall purpose of the project, access would also have dramatic impacts on the surrounding landscape. Access opens a path to development and sprawl. It is quite clear that the intent of this highway project is not to increase development, but rather to improve capacity and safety. Furthermore, if access is allowed it will be difficult for the DOT to receive approvals from the Department as this would go beyond the purpose and need of the project.

Oak Wilt: This project involves work that may involve cutting or wounding of oak trees. To prevent the spread of oak wilt disease, please avoid cutting or pruning of oaks from April through September. See the DNR webpage at: http://dnr.wi.gov/forestry/fh/oakWilt/index.htm#causes

It is anticipated that the bypass segment will impact the former Hortonville landfill. Please coordinate this issue with Greg Tilkens (Solid Waste Management) at 920/662-5433, or email at gregory.tilkens@wisconsin.gov.

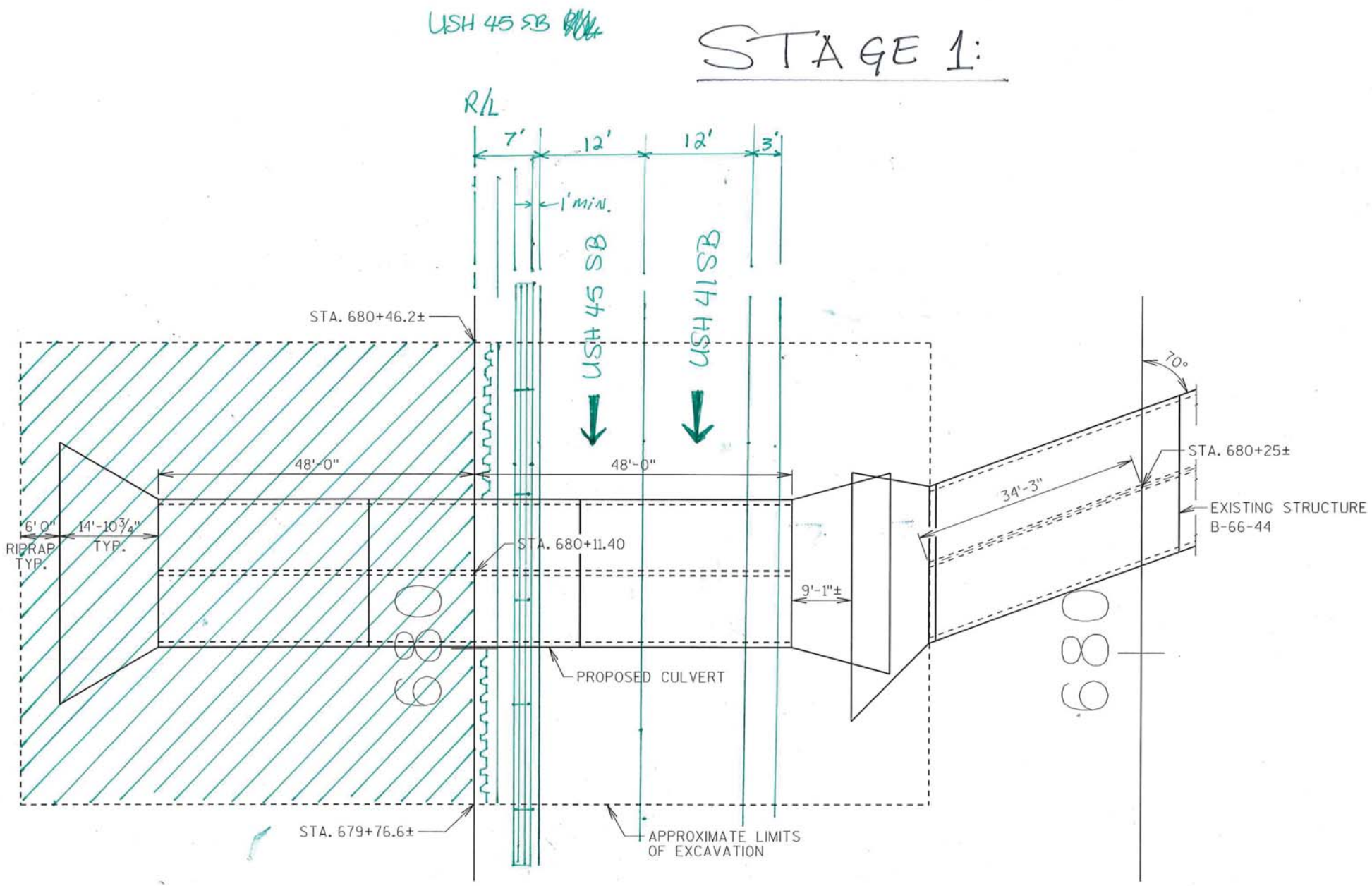
Since numerous wetlands and waterways are associated with this project, you will likely need a permit from the U.S. Army Corps of Engineers (ACOE). For further details on permit requirements from the ACOE, you should contact Ann Nye located in the Green Bay office, at 920/448-2824.

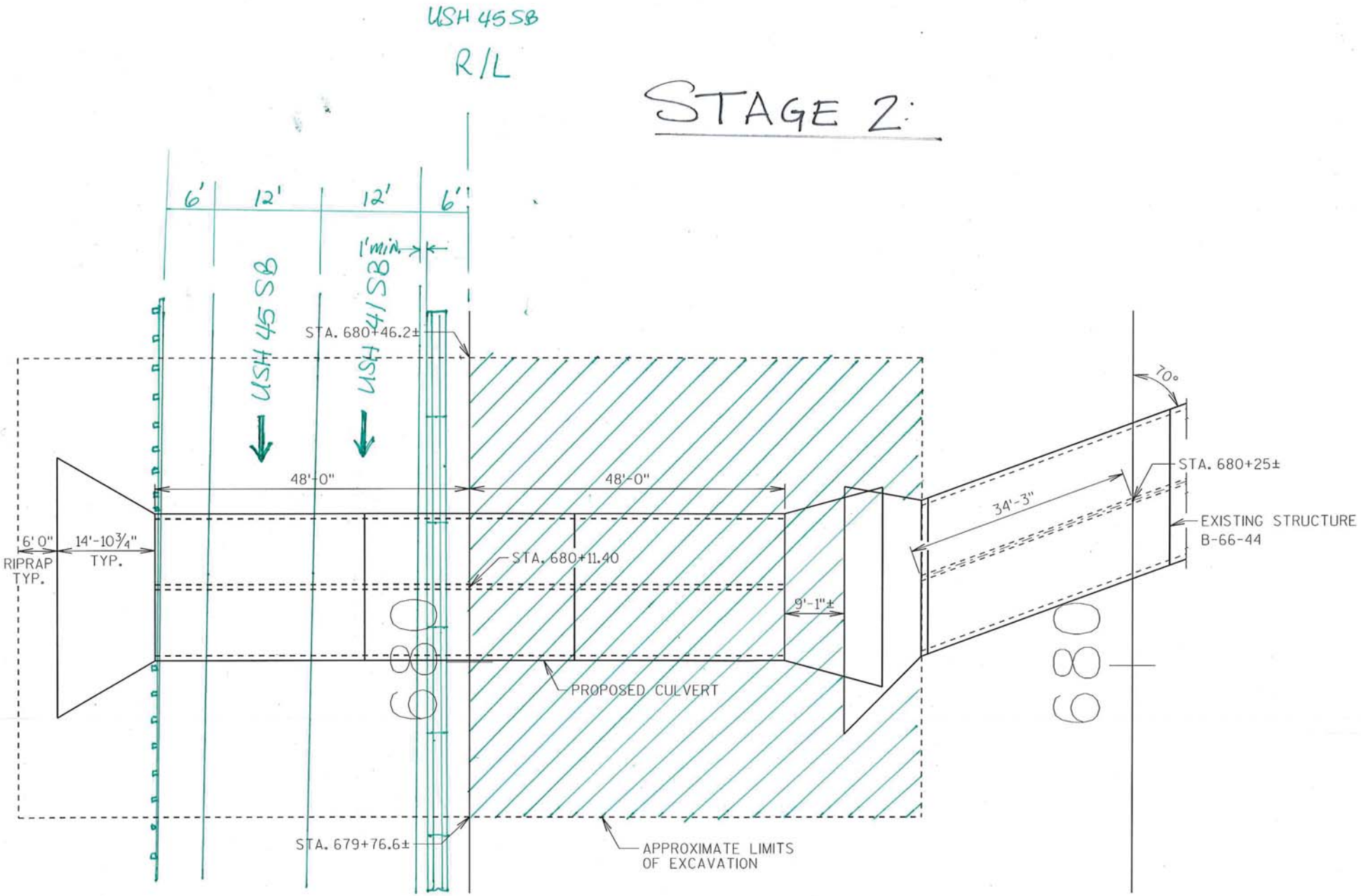
The above comments represent the Department's initial concerns for the proposed project and do not constitute final concurrence. Final concurrence will be granted after review of plans and further consultation as necessary. If any of the concerns or information provided in this letter requires further clarification, please contact this office at 920/662-5472 or matthew.schaeve@wisconsin.gov.

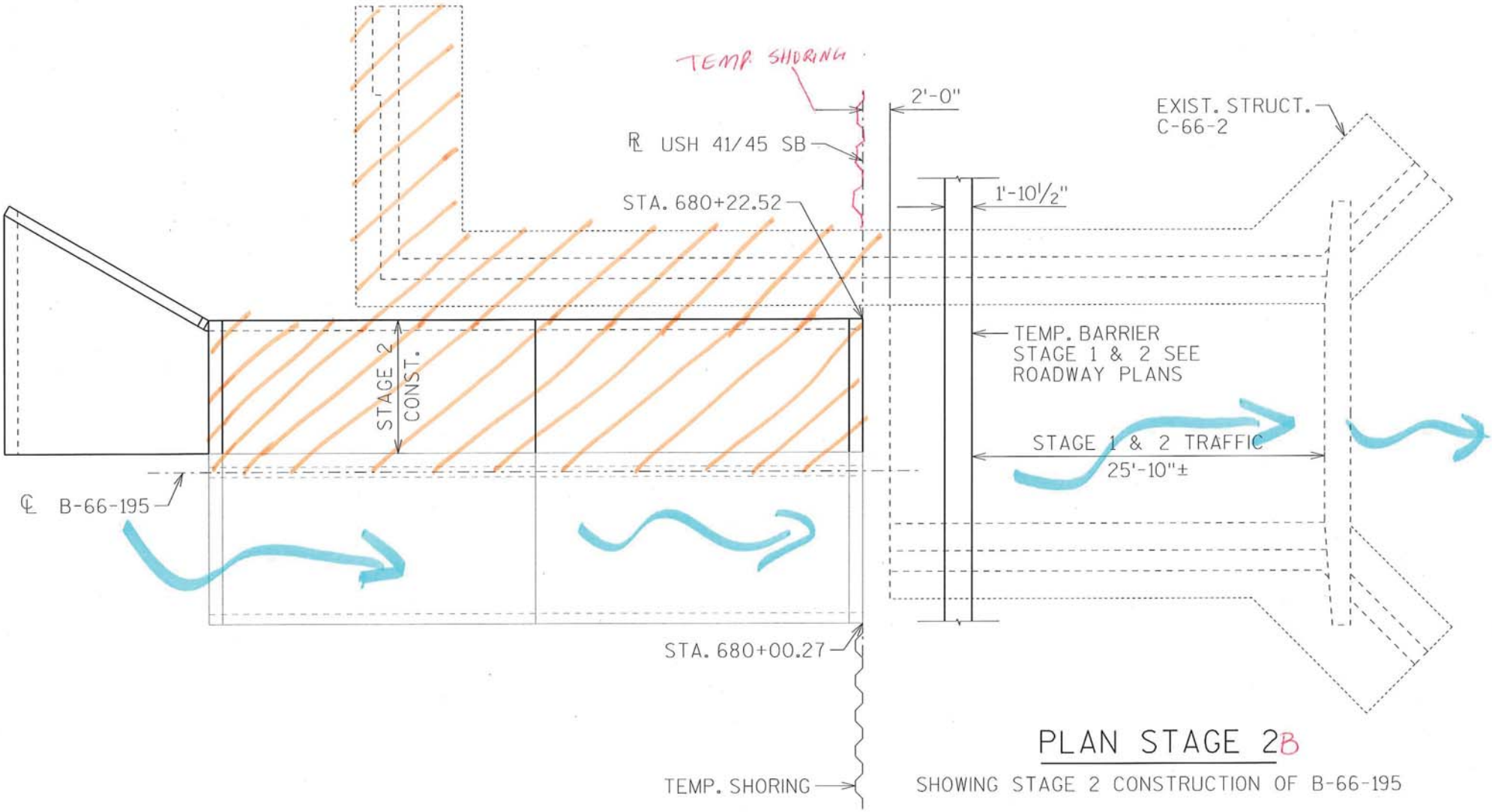
Sincerely,

Environmental Analysis & Review Specialist
Northeast Region

Email copy: Ann Nye – U.S. Army Corps of Engineers, Green Bay
Mike Helmrick – WiscDOT Regional Environmental Coordinator, Green Bay
Al Guerts – Outagamie County Highway Commissioner
Tim Roach – Outagamie County Zoning Administrator
Kendal Kamke – WDNR Fisheries Biologist, Oshkosh
Lisie Kitchel – WDNR Bureau of Endangered Resources, Madison
Greg Tilkens – WDNR Solid Waste Management, Green Bay
DNR File # 13355

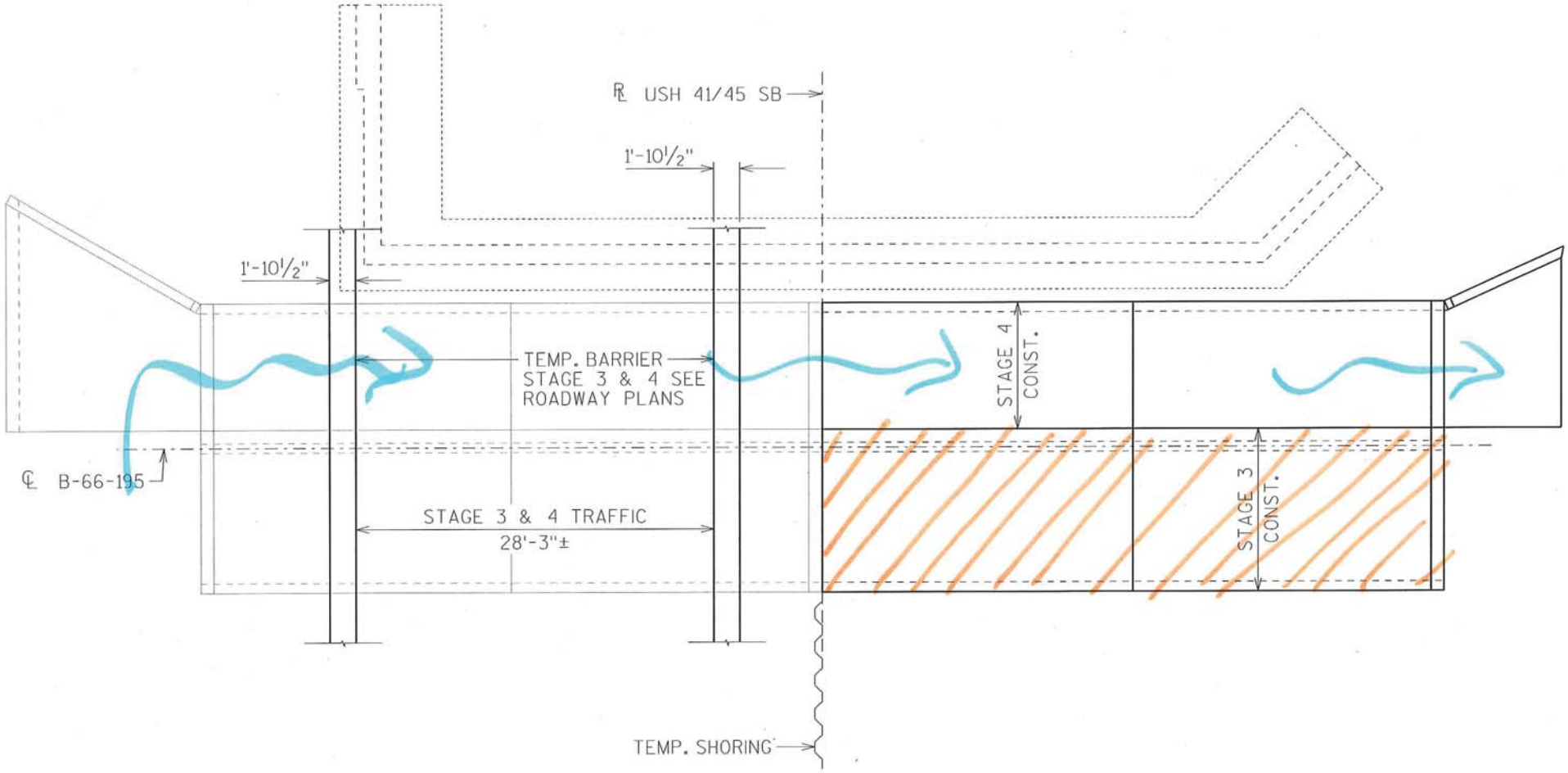

USH 45 SB
STAGE 1:
R/L
7'
12'
12'
3'
1' MIN.
USH 45 SB
USH 41 SB
STA. 680+46.2±
70°
48'-0"
48'-0"
34'-3"
STA. 680+25±
EXISTING STRUCTURE
B-66-44
6'-0"
RIPRAP
TYP.
14'-10¾"
TYP.
STA. 680+11.40
9'-1"±
PROPOSED CULVERT
STA. 679+76.6±
APPROXIMATE LIMITS
OF EXCAVATION


USH 45 SB
R/L
STAGE 2:
6'
12'
12'
6'
1' MIN
USH 45 SB
USH 41 SB
STA. 680+46.2±
48'-0"
48'-0"
70°
STA. 680+25±
34'-3"
EXISTING STRUCTURE
B-66-44
6' 0"
RIPRAP
TYP.
14'-10¾"
TYP.
STA. 680+11.40
9'-1"±
PROPOSED CULVERT
STA. 679+76.6±
APPROXIMATE LIMITS
OF EXCAVATION



PLAN STAGE 2B

SHOWING STAGE 2 CONSTRUCTION OF B-66-195



PLAN STAGE ~~4~~ 3A

SHOWING STAGE 3 & 4 CONSTRUCTION OF B-66-195

STREAM CROSSING STRUCTURE SURVEY REPORT (CULVERT EXTENSION)

10. STREAM CROSSING SSR (CULVERT EXTENSION)

The instructions in this section should be used when a box culvert or group of pipes requiring structural design will be extended. Much of the information requested for stream crossings is common between bridges and box culverts so the same SSR form and checklist are used for both. This section highlights requested information that is unique to culverts and culvert extensions.

Box culvert extension considerations:

1. Improved safety, where clear zone is used rather than beam guard
2. Water handling or temporary diversion for construction staging
3. Safety details, such as fencing or railings, when required

Information required for box culvert or extension design:

1. Stream survey points
    a. Submit surveyed cross section points as DWG file and DGN file
    b. Coordinates, ID, type and elevation labels should also be provided in a CSV file
    c. Stream channel cross sections perpendicular to direction of flow
    d. Collect survey of streambed profile along channel flowline at least 150' upstream and downstream of existing structure
        i. Take upstream and downstream cross sections near the ends of the streambed profile
        ii. Natural stream profile is used to select appropriate box culvert or extension inverts
        iii. If culvert fish passage/Aquatic Organism Passage (AOP) considerations are requested, consult FDM Chapter 13 for additional guidance
2. Provide existing culvert length on Existing Culvert page of Stream Crossing SSR
    a. i.e. Barrel Width Perpendicular to Walls: "5', 73.6' long" (for 5' span x 5' rise, 73.6' long box culvert)

3. Existing inlet and outlet type/configuration (sketch or photograph), as well as observations of:
    a. Outlet scour
    b. Wing wall and barrel condition

4. Culvert floor material (concrete, earth, etc.)
    a. If culvert floor is concrete, but has accumulated sediment/silt, indicate depth of sediment in the culvert barrel at the inlet and outlet
    b. Thorough investigation should be made to determine if a concrete floor is present

5. Specify clear zone width, unless beam guard will be used

6. Potential right-of-way conflicts; provide right-of-way in DGN file

7. Proposed roadway cross sections at the structure to be used in culvert or extension sizing

Additional information required for box culvert extension design:

1. Survey of existing structure is required to ensure the extensions match well
    a. Provide field surveyed elevations at all four corners of each culvert cell, including invert and top of opening
    b. Elevations are needed at end(s) of existing culvert that will have extension added
    c. Accurate culvert opening span and rise are needed
        i. Even if existing structure plans are available, field verification of dimensions is requested

2. Location and pictures of any unusual features in the vicinity of an extension

E-SUBMIT CHECKLIST

STREAM CROSSING STRUCTURE SURVEY REPORT

1 STRUCTURE SURVEY REPORT

☐ **Complete DT1698, Structure Survey Report ☒Stream Crossing or Box Culvert**
- *SSR Workshop Manual and Videos*
- *Bridge Manual Chapter 6.2.1* - *Bridge Manual Chapter 8*

2 SUPPORTING DOCUMENTATION

PDF Files:

☐ **Project Location Map**
- *structure location and number*
- *other proposed structures within project limits*

☐ **Plan and Profile Sheet (graphical or tabulated)**
- *horizontal curve data*
- *vertical curve data (grades to nearest thousandth)*
- *super transition locations*

☐ **Contour Map (preferred as DGN file for BOS designed structures)**
- *contours labeled, existing structure, north arrow, and stream direction (1"=20' scale)*

☐ **Typical Roadway Cross Section**
- *typical dimensions, slopes, clear zones, sidewalks, curb and gutter, etc.*

☐ **Labeled Photographs**
- *existing structures, utilities, buildings, etc.*
- *panoramic view up- and downstream showing channel, banks, and floodplains, existing structure, up- and downstream structures and roadway*

☐ **FEMA Floodplain Map**
- *location of structure(s) relative to any mapped floodplain*

☐ **DNR Initial Review Letter**

☐ **Preliminary Staging Plan (if required)**

DGN Files:

☐ **Alignment**

☐ **Proposed Pavement**

☐ **Utilities**

☐ **Contours**

☐ **Base Mapping**

☐ **Right of Way**

☐ **Cross Section**
- *at proposed structure and at existing structure (if applicable)*

☐ **Stream Survey Points/Cross Sections**
- *with point ID and elevation labels*
- *for box culverts also provide streambed points along channel flowline*

3 SUBMITTAL

☐ **E-Submit**
- *STRUCTURE SURVEY REPORT and SUPPORTING DOCUMENTATION are submitted using the E-Submit process (as "BOS DESIGN")*
- *E-Submit*
- *E-SUBMIT HELP*

☐ **Email: Region Soils Engineer**
- *IMPORTANT! The formal notice of the project to the Region Geotechnical Section*
- *State on the SSR who will be doing the geotechnical work/soil borings*

STREAM CROSSING STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1698 6/2012

☐ **Stream Crossing** ☐ **Box Culvert** ☐ **Box Culvert Extension:** ☐ Right

☐ **Other:** _____ ☐ Left

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID	Construction Project ID	Highway (Project Name)		
Final Plan Due Date	Preliminary Plan Due Date	☐ Town ☐ Village ☐ City		
PS&E Date	Letting Date	County		
New Structure Number	Existing Structure Number	Section	Town	Range
Station	Latitude: Longitude:	☐ YES ☐ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: Vertical Datum:		**Traffic Forecast Data**		
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed / Functional Class
Feature On				mph
Feature Under ☐ Waterway:		☐ Other:		
Region Contact: (Area Code) Telephone Number(s): Email:		Consultant Contact: (Area Code) Telephone Number(s): Email:		

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (See ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with hydraulic engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.
2. **Plan and Profile Sheet** on proposed reference line of highway showing: (a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance.
3. **Contour Map** of the site drawn to a scale of not less than 1" = 20' with one-foot contours and showing: (a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) North arrow; (e) Buildings; (f) Above and below ground facilities; (g) Recommended channel change; (h) Direction of stream flow; (i) Station at ends of existing structure; (j) Location of river cross sections or individual survey shots; (k) Proposed structure and extent of riprap for report submitted with preliminary plans; (l) Other features that influence design.
4. **Typical Roadway Cross Section** of proposed approaches showing: (a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Sidewalk, curb & gutter; (e) Subgrade and pavement thickness; (f) Clear zone width.
5. **Stream Cross Sections** at upstream and downstream face of existing bridge and at one structure length upstream and downstream. Water and streambed elevations to be taken at structure and water surface elevations 1500 feet upstream and downstream of existing bridge.
6. **Labeled Photographs** of: (a) Existing structure; (b) Upstream and downstream structures; (c) Buildings within 100 feet of the proposed structure; (d) Unobstructed panoramic view looking upstream and downstream from location of proposed structure, showing stream and floodplains; (e) Any noteworthy details on existing structure or surrounding site (i.e. downstream obstructions); (f) Air photo mosaics referenced to contour map DGN if available.
7. Attach a copy of the regulatory floodplain map (FEMA map) depicting the site.
8. Report submitted with preliminary plans – **Hydraulic Report** (See Bridge Manual Chapter 8) which may contain: (a) USGS quadrangle sheet showing proposed location, highway alignment and reach of river; (b) All available flood history, high water marks with date of occurrence, nature of flooding, damages, scour information, and factors affecting water stages; (c) Navigation clearance; (d) Discussion of alternatives considered, factors influencing selection.
9. Attach a copy of DNR initial concurrence letter.

Proposed Structure

Preference for Structure Type at this Site: ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☐ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 5)

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)
Ft.	Ft./Ft.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☐ No	Ft.	☐ Yes ☐ No	Ft.	☐ Yes ☐ No

Specify Wing Location(s) for Beam Guard Attachment	Specify Clear Zone Width When Beam Guard Not Used on Culvert
Specify Wing Location(s) for Surface Drain Anchors	Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach

YES	NO	
☐	☐	Project Is in Flood Hazard Area (FIS Mapped Floodplain)
☐	☐	Structure Will be Constructed to Accommodate Traffic Staging
☐	☐	Temporary Structure Required
☐	☐	Riprap Required
☐	☐	Structural Approach Slab
☐	☐	Lighting Required: Bolt Circle Diameter _____ inches
☐	☐	Traffic/Lighting Staff been Notified for Review
☐	☐	Conduit in Parapet: Diameter _____ Number _____
☐	☐	Historical Properties (Archaeological, Historic) Present Near Structure

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☐	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 4)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 4)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☐	☐	Structure will be Removed ☐ Bid Item ☐ Later Contract ☐ Other: _____
☐	☐	Structure will Remain in Service, Purpose: _____

Removal
- ☐ Normal Removal
- ☐ Removal With Minimal Debris
- ☐ Removal With Capture System

Existing Structures

STRUCTURE DATA		UPSTREAM	AT SITE	DOWNSTREAM
Structure Number (B/P/C)				
Highway, Railroad, Path, or Structure Name				
Year Built				
◊ Latitude				
◊ Longitude				
‡ Distance from Proposed Site in Miles				
Number of Spans				
Clear Span *(Between Inside Faces of Substructure Units)* Lengths Along C.L. Rdwy/Track				
Sidewalk:	Right Side Clear Width			
	Left Side Clear Width			
Roadway Width on Structure Between Curbs				
Superstructure Type				
Abutment Type(s)				
Pier Type(s) and Width(s)				
Is Structure Supported on Piles?				
Condition:	Superstructure Rating (NBI)			
	Substructure Rating (NBI)			
	Sufficiency Rating (NBI)			
Skew:	Stream			
	Structure			
* Elevation + +	Finished Grade			
	Low Chord			
Character of Material in Stream Bed				
Does Drift Pass Satisfactorily (Y/N/no record)				
Does Ice Pass Satisfactorily (Y/N/no record)				
Evidence of Damage From Floating Debris				
Streambed Scour Visible (Y/N) Ⓟ	Provide Additional Details on Page 5			
Streambank Scour Visible (Y/N) Ⓟ				
† Recorded High Water Elevation - Date				
** Observed High Water Mark Elevation Ⓟ				
History of Flooding over Roadway (Date or Frequency)				
Abutment Slope Washout From:	Stream Flow Ⓟ			
	Roadway Drainage Ⓟ			
Low Water Elevation				
º Ordinary High Water Mark				
Observed Water Elevation				
Streambed Elevation				
Water Surface Elevation	Date	1500' Upstream ‡	At Site	1500' Downstream ‡

Ⓟ Provide labeled photograph.

* Use same vertical datum for all structures within 1500' of existing structure.

** High water marks may include, but are not limited to, debris, leaves, or dirt on structure that appear to have been left by recent flooding.

+ + Take these elevations at the same location.

† Information on high water can be obtained from observation, owner, adjacent property owner, County Road Commission, Regional Planning Commission, DNR, FIS, local officials, bridge inspector, or WisDOT bridge maintenance engineer.

º If marked by DNR, "The point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic."

‡ Measured along thread of channel. If there is an abrupt river profile change within 1500' contact hydraulic engineer for revised location.

◊ Lat./Long. taken at name plate location (with photograph or sketch of location).

Existing Culvert Information

Number of Barrels			
Barrel Width Perpendicular to Walls			
Allowable High Water			
Floor: Concrete, Earth, Silted			
If Silted Indicate Depth of Silt in Barrel			
Elevation:	Inlet	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	Discharge	Invert	
		Finished Grade	
		Top of Opening	
		Top of Water	
	For Structures with Concrete Aprons:		
	At Beginning of Upstream Apron		
		Apron Elevation	
		Streambed	
		Top of Water	
	At End of Downstream Apron		
		Apron Elevation	
		Streambed	
		Top of Water	
Condition Ⓟ:	Wingwalls		
	Barrel		

Attach Sketch
Ⓟ Provide labeled photograph.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

The more information that can be provided, the better. This will result in fewer questions from BOS during structure design or consultant review and a better end product.

The following is not all inclusive; please add/delete discussion items to fit site/project specific details that may influence structure design:

Geotechnical Coordination:
Detail who is completing geotechnical work/soil borings (in-house or consultant) and anticipated schedule of work.

Aesthetics:
If aesthetic level 2 or higher is indicated, you must suggest particular requirements such as railing type, pier shape, new aesthetic option (type I,II or III), special form liners, stain/paint color (federal color number), etc. See Bridge Manual Chapter 4 for updated information. Also include coordination that is yet to be made. If applicable, provide B-##-### for example structures in the area that are similar to proposed or desired; attach an exhibit for reference. Contact BOS with questions.

Structural Approach Slabs:
If requested, provide justification for their inclusion. See Bridge Manual Chapter 12.11.

Proposed Structure (& Future Expansion):
Discuss proposed size and type of structure and vertical/horizontal clearances (if special clearances are required for construction staging). Describe future expansion, if any is anticipated, which may include lower roadway lane expansion, upper roadway widening, etc. Anticipated future expansion of bridge may have impacts to profile grade, consider vertical clearance requirement.

Temporary Shoring:
Describe anticipated locations of temporary shoring needed for construction. Especially important for staged construction or current structure that remains in service during construction.

Construction Staging:
Discuss construction staging in detail and describe desired sequencing; provide sketches of staging.

Traffic Barrier:
Discuss barrier locations, type and heights approaching the structure, if applicable.

Bike/Pedestrian/Other Structure Accommodations:
Discuss proposed sidewalks, multi-use paths, separation barriers, medians, wildlife passages, etc.

Utilities:
List utilities located under, near, or on the proposed structure. Include type of utility, action to be taken and who owns the utility. If conduit/utility will be on the proposed structure describe who will be servicing it, number and size of conduits needed and any other pertinent information. Justification for placing utilities on proposed structure and means of attaching.

Site Drainage:
Discuss potential drainage concerns involving the proposed structure. Possible concerns include proposed roadway drainage pipes under substructure units, anticipated need for deck drains and median drainage. Include locations of pipes and invert elevations as appropriate.

DNR:
Discuss the status of coordination between Region/Consultant and DNR. Include any agreements made, concerns with the site, or areas requiring special attention as expressed by DNR (e.g. AOP, etc.).

For Structure Designers Use Only
Proposed Box Culvert

Aprons	Type	Elevations
Inlet		
Outlet		
Openings - Number	Clear Span at Right Angles to Axis of Box	Inside Height of Box
Slope of Channel at Culvert		

All Proposed Structures

Spans – Number:	Spans Lengths (C.L. to C.L. of Substructure):	Skew:	☐ R.H.F. ☐ L.H.F.
Latitude:	Longitude:		

Drainage Area _____ Sq. Mi.
High Water (100) _____ Ft.
Velocity _____ Ft/Sec.
Waterway Area _____ Sq. Ft.
Scour Code _____

Q (100) _____ cfs
Q (Struct.) _____ cfs
Q (Rdwy.) _____ cfs
Q (Suple. Struct.) _____ cfs

Existing Bridge
High Water (100) _____ Ft.

Regulatory High Water
_____ Ft.
Source FIS _____

Erosion Control
Q_2 = _____ cfs.
HW_2 = _____ Ft.

Temporary Structure
Q _____ Yr. _____ cfs.
High Water _____ Ft.
Min. A (BR) _____ Sq. Ft.

Overtopping Frequency (If>100Yrs.-NA)
Q _____ Yr. _____ cfs.
High Water _____ Ft.

STREAM CROSSING STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1698 6/2012

☐ **Stream Crossing** ☐ **Box Culvert** ☒ **Box Culvert Extension:** ☒ Right

☐ **Other:** _____ ☒ Left

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID 9670-09-00	Construction Project ID 9670-09-71	Highway (Project Name) STH 180		
Final Plan Due Date 9/1/2013	Preliminary Plan Due Date 3/1/2013	☒ Town ☐ Village ☐ City Porterfield		
PS&E Date 5/1/2014	Letting Date 11/10/2014	County Marinette		
New Structure Number C-38-639	Existing Structure Number C-38-639	Section 11	Town 31N	Range 22E
Station 416+39	Latitude: 45.171668 Longitude: -87.737074	☐ YES ☒ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: NAD 83 (1991), US Survey Feet Vertical Datum: NAVD 88, Feet		**Traffic Forecast Data**		
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On STH 180		2033	4,800	50 mph	Minor Arterial
Feature Under ☒ Waterway: Unnamed tributary to Menominee River		☐ Other:			
Region Contact: Matt A (Area Code) Telephone Number(s): (xxx) xxx-xxxx Email: matt.a@dot.wi.gov		Consultant Contact: N/A (Area Code) Telephone Number(s): Email:			

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (See ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with hydraulic engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.
2. **Plan and Profile Sheet** on proposed reference line of highway showing: (a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance.
3. **Contour Map** of the site drawn to a scale of not less than 1" = 20' with one-foot contours and showing: (a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) North arrow; (e) Buildings; (f) Above and below ground facilities; (g) Recommended channel change; (h) Direction of stream flow; (i) Station at ends of existing structure; (j) Location of river cross sections or individual survey shots; (k) Proposed structure and extent of riprap for report submitted with preliminary plans; (l) Other features that influence design.
4. **Typical Roadway Cross Section** of proposed approaches showing: (a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Sidewalk, curb & gutter; (e) Subgrade and pavement thickness; (f) Clear zone width.
5. **Stream Cross Sections** at upstream and downstream face of existing bridge and at one structure length upstream and downstream. Water and streambed elevations to be taken at structure and water surface elevations 1500 feet upstream and downstream of existing bridge.
6. **Labeled Photographs** of: (a) Existing structure; (b) Upstream and downstream structures; (c) Buildings within 100 feet of the proposed structure; (d) Unobstructed panoramic view looking upstream and downstream from location of proposed structure, showing stream and floodplains; (e) Any noteworthy details on existing structure or surrounding site (i.e. downstream obstructions); (f) Air photo mosaics referenced to contour map DGN if available.
7. Attach a copy of the regulatory floodplain map (FEMA map) depicting the site.
8. Report submitted with preliminary plans – **Hydraulic Report** (See Bridge Manual Chapter 8) which may contain: (a) USGS quadrangle sheet showing proposed location, highway alignment and reach of river; (b) All available flood history, high water marks with date of occurrence, nature of flooding, damages, scour information, and factors affecting water stages; (c) Navigation clearance; (d) Discussion of alternatives considered, factors influencing selection.
9. Attach a copy of DNR initial concurrence letter.

Proposed Structure

Preference for Structure Type at this Site:
Extension ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☒ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 5)

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)
36 Ft.	.046 Ft./Ft.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☒ No	Ft.	☐ Yes ☒ No	Ft.	☐ Yes ☒ No

Specify Wing Location(s) for Beam Guard Attachment	Specify Clear Zone Width When Beam Guard Not Used on Culvert
All four wings, runs full length of structure	30
Specify Wing Location(s) for Surface Drain Anchors	**Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach**
none	none

YES	NO	
☒	☐	Project Is in Flood Hazard Area (FIS Mapped Floodplain)
☐	☒	Structure Will be Constructed to Accommodate Traffic Staging
☐	☒	Temporary Structure Required
☒	☐	Riprap Required
☒	☐	Structural Approach Slab
☐	☒	Lighting Required: Bolt Circle Diameter _____ inches
☐	☒	Traffic/Lighting Staff been Notified for Review
☐	☒	Conduit in Parapet: Diameter _____ Number _____
☐	☒	Historical Properties (Archaeological, Historic) Present Near Structure

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☒	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 4)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 4)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO		Removal
☐	☒	Structure will be Removed ☒ Bid Item ☐ Later Contract ☐ Other: _____	☐ Normal Removal ☐ Removal With Minimal Debris ☐ Removal With Capture System
☒	☐	Structure will Remain in Service, Purpose: _____	

Existing Structures

STRUCTURE DATA			UPSTREAM	AT SITE	DOWNSTREAM
Structure Number (B/P/C)			N/A	C-38-639	N/A
Highway, Railroad, Path, or Structure Name				STH 180	
Year Built				1936	
◊ Latitude				45.1717, -87.7371	
◊ Longitude					
‡ Distance from Proposed Site in Miles					
Number of Spans				SINGLE CELL 5'x5'	
Clear Span *(Between Inside Faces of Substructure Units)* Lengths Along C.L. Rdwy/Track				5' span, 73.6' long	
Sidewalk:	Right Side Clear Width			N/A	
	Left Side Clear Width			N/A	
Roadway Width on Structure Between Curbs				36'	
Superstructure Type				BOX CULVERT	
Abutment Type(s)				N/A	
Pier Type(s) and Width(s)				N/A	
Is Structure Supported on Piles?				no	
Condition:	Superstructure Rating (NBI)			N/A	
	Substructure Rating (NBI)			N/A	
	Sufficiency Rating (NBI)			N/A (culvert)	
Skew:	Stream			0	
	Structure			0	
* Elevation	Finished Grade			627.96	
+ +	Low Chord			619.01	
† Character of Material in Stream Bed				SANDY W/ STONE	
† Does Drift Pass Satisfactorily (Y/N/no record)				yes	
† Does Ice Pass Satisfactorily (Y/N/no record)				yes	
† Evidence of Damage From Floating Debris				no	
† Streambed Scour Visible (Y/N) Ⓟ		Provide Additional Details on Page 5		yes-DS (**see details)	
† Streambank Scour Visible (Y/N) Ⓟ				no	
† Recorded High Water Elevation - Date				616.35 (unk. date)	
† ** Observed High Water Mark Elevation Ⓟ				none observed	
† History of Flooding over Roadway (Date or Frequency)				not reported	
† Abutment Slope Washout From:	Stream Flow Ⓟ			none	
	Roadway Drainage Ⓟ			none	
† Low Water Elevation				unknown	
† º Ordinary High Water Mark				614.09	
Observed Water Elevation				613.97	
Streambed Elevation				913.11	
Water Surface Elevation	Date		1500' Upstream ‡	At Site	1500' Downstream ‡
	5/19/11		614.12 (300' US)	613.97	611.47 (100' DS at Menominee Riv.)

Ⓟ Provide labeled photograph.

* Use same vertical datum for all structures within 1500' of existing structure.

** High water marks may include, but are not limited to, debris, leaves, or dirt on structure that appear to have been left by recent flooding.

+ + Take these elevations at the same location.

† Information on high water can be obtained from observation, owner, adjacent property owner, County Road Commission, Regional Planning Commission, DNR, FIS, local officials, bridge inspector, or WisDOT bridge maintenance engineer.

º If marked by DNR, "The point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic."

‡ Measured along thread of channel. If there is an abrupt river profile change within 1500' contact hydraulic engineer for revised location.

◊ Lat./Long. taken at name plate location (with photograph or sketch of location).

Existing Culvert Information

Number of Barrels			1 (73.6' long)
Barrel Width Perpendicular to Walls			5'
Allowable High Water			623
Floor: Concrete, Earth, Silted			CONCRETE
If Silted Indicate Depth of Silt in Barrel			N/A
Elevation:	Inlet	Invert	613.71
		Finished Grade	628.50
		Top of Opening	619.01
		Top of Water	613.97
	Discharge	Invert	613.07
		Finished Grade	628.50
		Top of Opening	618.07
		Top of Water	613.29
	For Structures with Concrete Aprons:		
	At Beginning of Upstream Apron		
		Apron Elevation	613.65
		Streambed	613.58
		Top of Water	613.99
	At End of Downstream Apron		N/A
		Apron Elevation	
		Streambed	
		Top of Water	
Condition℗:	Wingwalls		GOOD
	Barrel		GOOD

Attach Sketch

℗ Provide labeled photograph.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

A bridge unit inspection in 2010 noted some minor vertical cracking.

**Downstream scour is believed to be due to slope of culvert - which results in higher velocity water scouring at the outlet.

For Structure Designers Use Only
Proposed Box Culvert

Aprons	Type	Elevations
Inlet		
Outlet		
Openings - Number	Clear Span at Right Angles to Axis of Box	Inside Height of Box
Slope of Channel at Culvert		

All Proposed Structures

Spans – Number:	Spans Lengths (C.L. to C.L. of Substructure):	Skew:	☐ R.H.F. ☐ L.H.F.
Latitude:	Longitude:		

Drainage Area _____ Sq. Mi. Q (100) _____ cfs **Existing Bridge**

High Water (100) _____ Ft. Q (Struct.) _____ cfs High Water (100) _____ Ft.

Velocity _____ Ft/Sec. Q (Rdwy.) _____ cfs **Regulatory High Water**

Waterway Area _____ Sq. Ft. Q (Suple. Struct.) _____ cfs _____ Ft.

Scour Code _____ Source FIS _____

Erosion Control

Q_2 = _____ cfs.

HW_2 = _____ Ft.

Temporary Structure

Q _____ Yr. _____ cfs.

High Water _____ Ft.

Min. A (BR) _____ Sq. Ft.

Overtopping Frequency (If>100Yrs.-NA)

Q _____ Yr. _____ cfs.

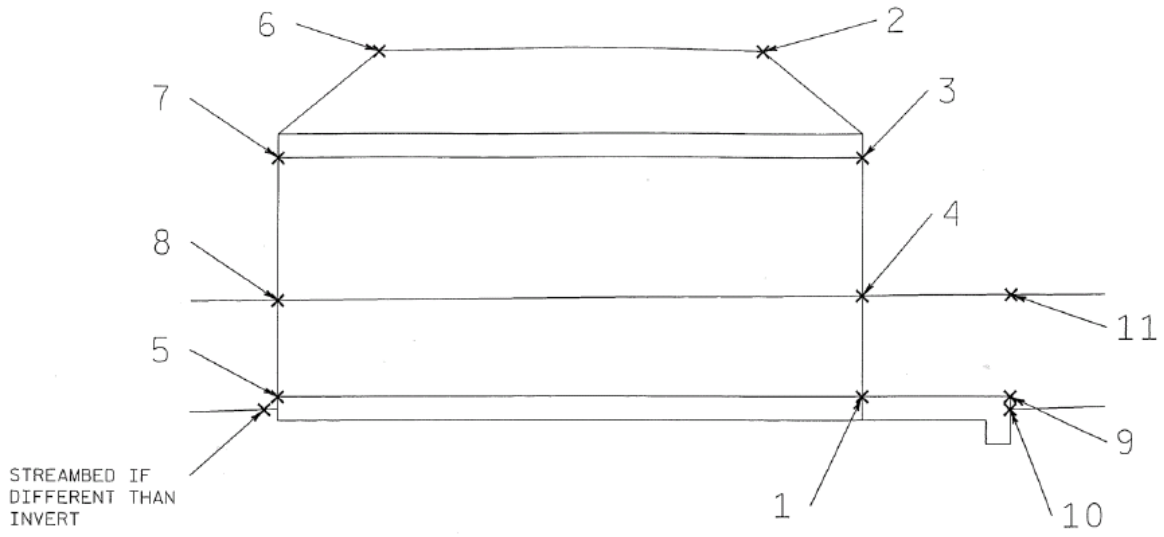
High Water _____ Ft.

Existing Culvert Information

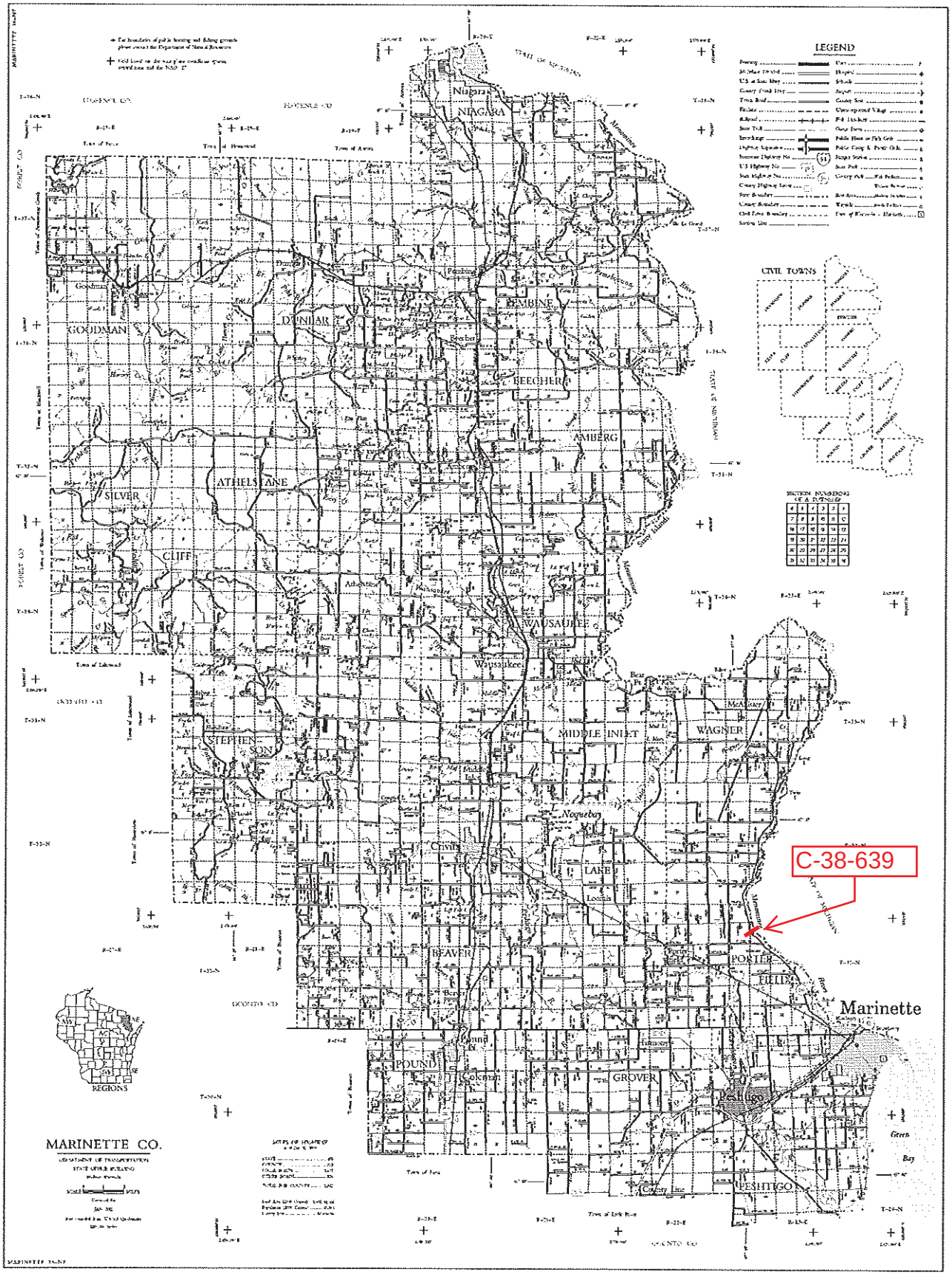
Number of Barrels			1 (73.6' long)	
Barrel Width Perpendicular to Walls			5'	
Allowable High Water			623	
Floor: Concrete, Earth, Silted			CONCRETE	
If Silted Indicate Depth of Silt in Barrel			N/A	
Elevation:	Inlet	Invert	613.71	1
		Finished Grade	628.50	2
		Top of Opening	619.01	3
		Top of Water	613.97	4
	Discharge	Invert	613.07	5
		Finished Grade	628.50	6
		Top of Opening	618.07	7
		Top of Water	613.29	8
	For Structures with Concrete Aprons:			
	At Beginning of Upstream Apron			
		Apron Elevation	613.65	9
		Streambed	613.58	10
		Top of Water	613.99	11
	At End of Downstream Apron		N/A	
		Apron Elevation		12*
		Streambed		13*
		Top of Water		14*
Condition@:	Wingwalls		GOOD	
	Barrel		GOOD	

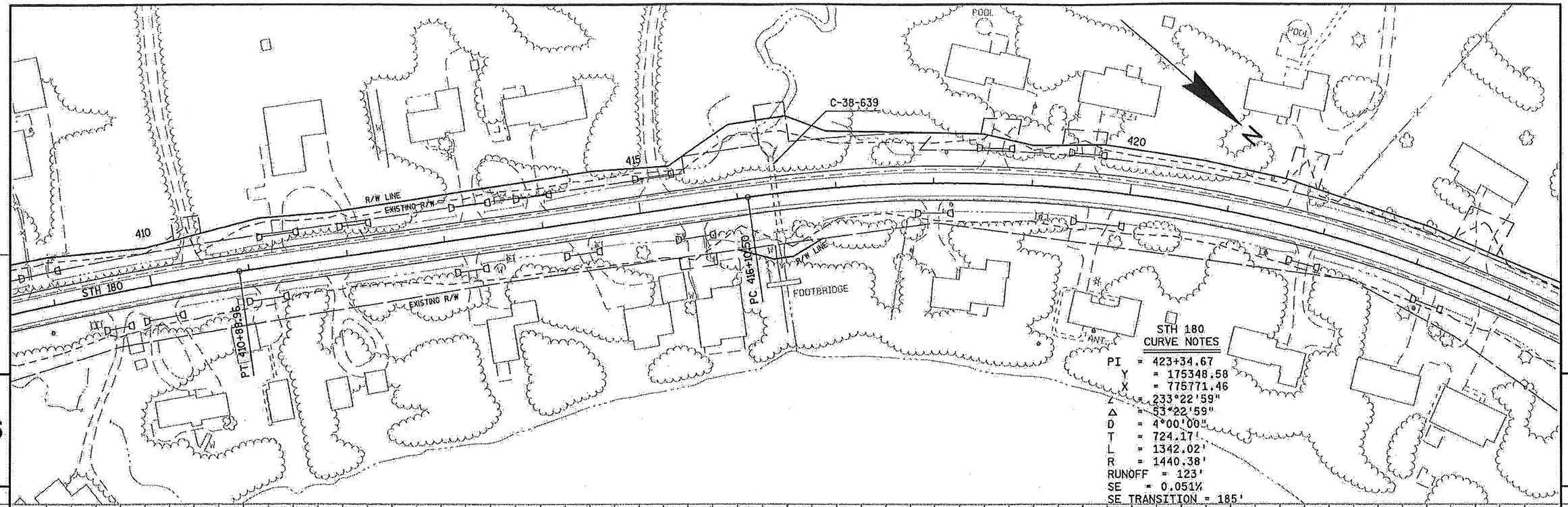
Attach Sketch
@ Provide labeled photograph.

* - Same as point 9, 10, and 11, respectively, on DS end of culvert
Finished grade elevations should be taken at edges of pavement over the structure



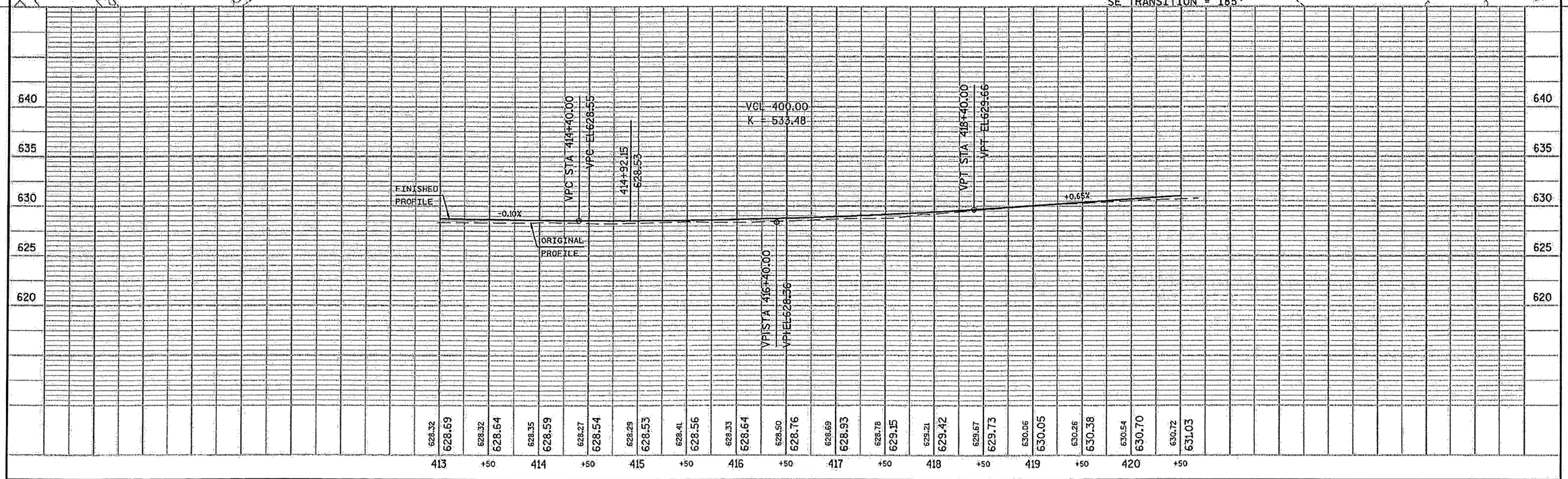
CULVERT PROFILE CROSS SECTION


LEGEND
CIVIL TOWNS
MARINETTE CO.
REGIONS
C-38-639
Marinette
NIAGARA
PEMBINE
DUNBAR
GOODMAN
BEECHER
AMBERG
ATHELSTANE
SILVER CLIFF
WAUSAUKEE
MIDDLE INLET
WAGNER
STEPHENSON
BEAVER
POSTER
FIELDS
POUND
GROVER
PESHTIGO



STH 180 CURVE NOTES

PI = 423+34.67
Y = 175348.58
X = 775771.46
Δ = 233°22'59"
Δ = 53°22'59"
D = 4°00'00"
T = 724.17'
L = 1342.02'
R = 1440.38'
RUNOFF = 123'
SE = 0.051%
SE TRANSITION = 185'



PROJECT NO: 9670-09-71	HWY: STH 180	COUNTY: MARINETTE	~~SHEET~~ PAGE 23	E

FILE NAME : F:\d3_967009\050101_pp_esr.dgn PLOT DATE : 04-APR-2011 09:02 PLOT BY : dotbrb PLOT NAME : PLOT SCALE : 100.000000:1.000000

2

2

N

620

630

615

615

625

625

414

STH 180

415

416

417

418

419

PC 415+10.50

625

625

625

630

C-38-639

620

615

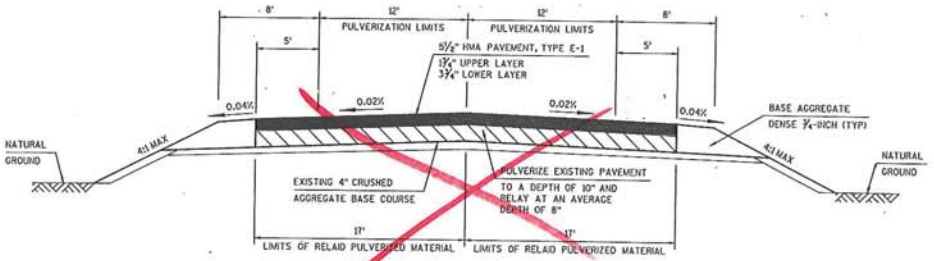
615

SCALE, FEET 0 20 40

PROJECT NO: 9670-09-71	HWY: STH 180	COUNTY: MARINETTE	CONTOURS	~~SHEET~~ PAGE 22	E

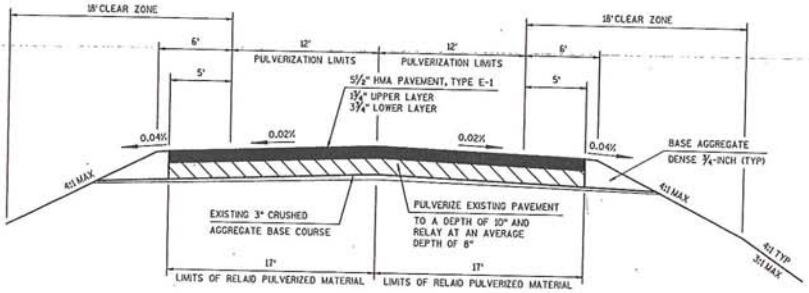
FILE NAME : F:\d3_967009\021601_cm.dgn

PLOT DATE : 04-APR-2011 09:21 PLOT BY : dotbrb PLOT NAME : PLOT SCALE : 40.000000:1.000000



TYPICAL FINISHED CROSS SECTION FOR STH 180

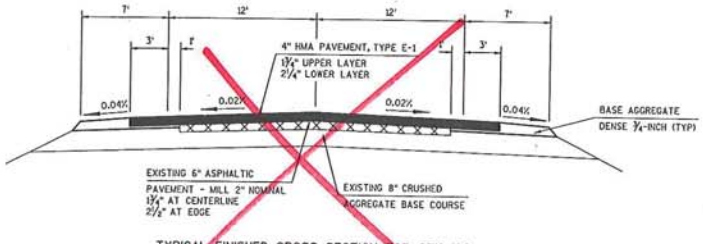
PROJECT 9670-09-71
107+50(BK) TO 105+00(AH)



TYPICAL FINISHED CROSS SECTION FOR STH 180

PROJECT 9670-09-71
105+00(AH) TO 448+00

C-38-639



TYPICAL FINISHED CROSS SECTION FOR STH 180

PROJECT 9670-10-71
448+00 TO 845+95

PAGE 21

PROJECT NO: 9670-09-71	HWY: STH 180	COUNTY: MARINETTE	TYPICAL CROSS SECTIONS	SHEET	E

FILE NAME : F:\d3_967009\020301_ts.dgn
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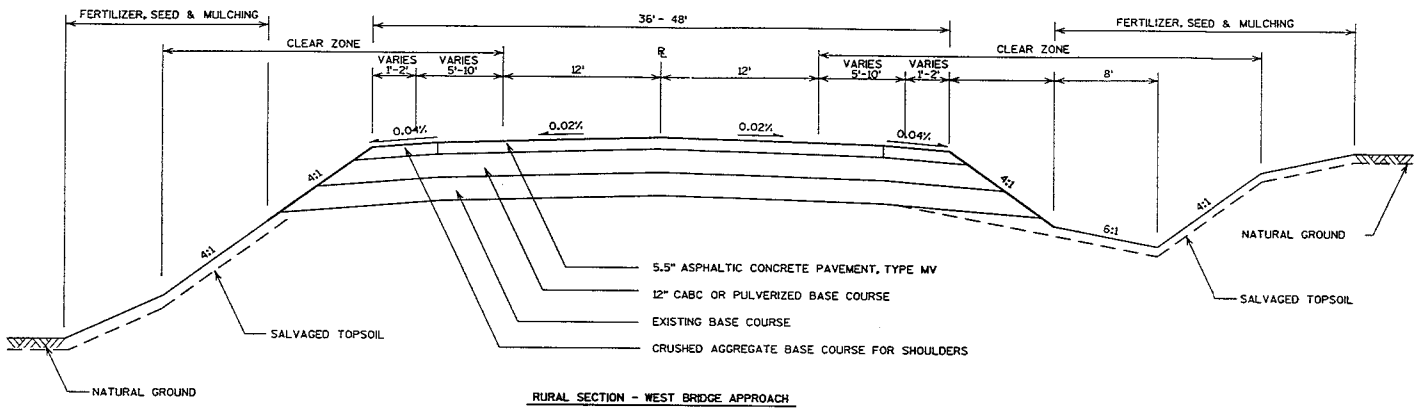
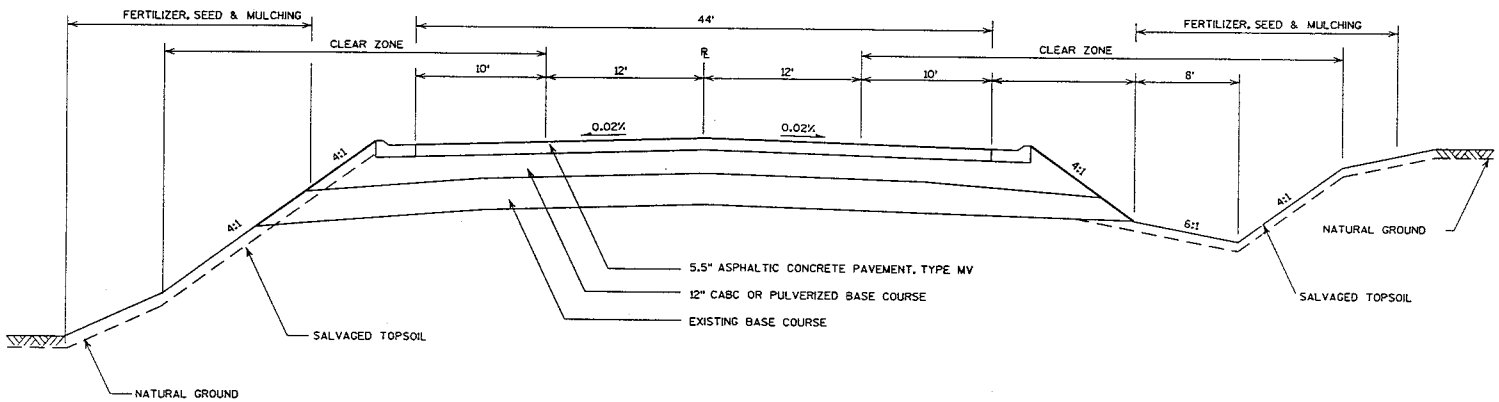
WISDOT/CADDS SHEET 42



RURAL SECTION - WEST BRIDGE APPROACH

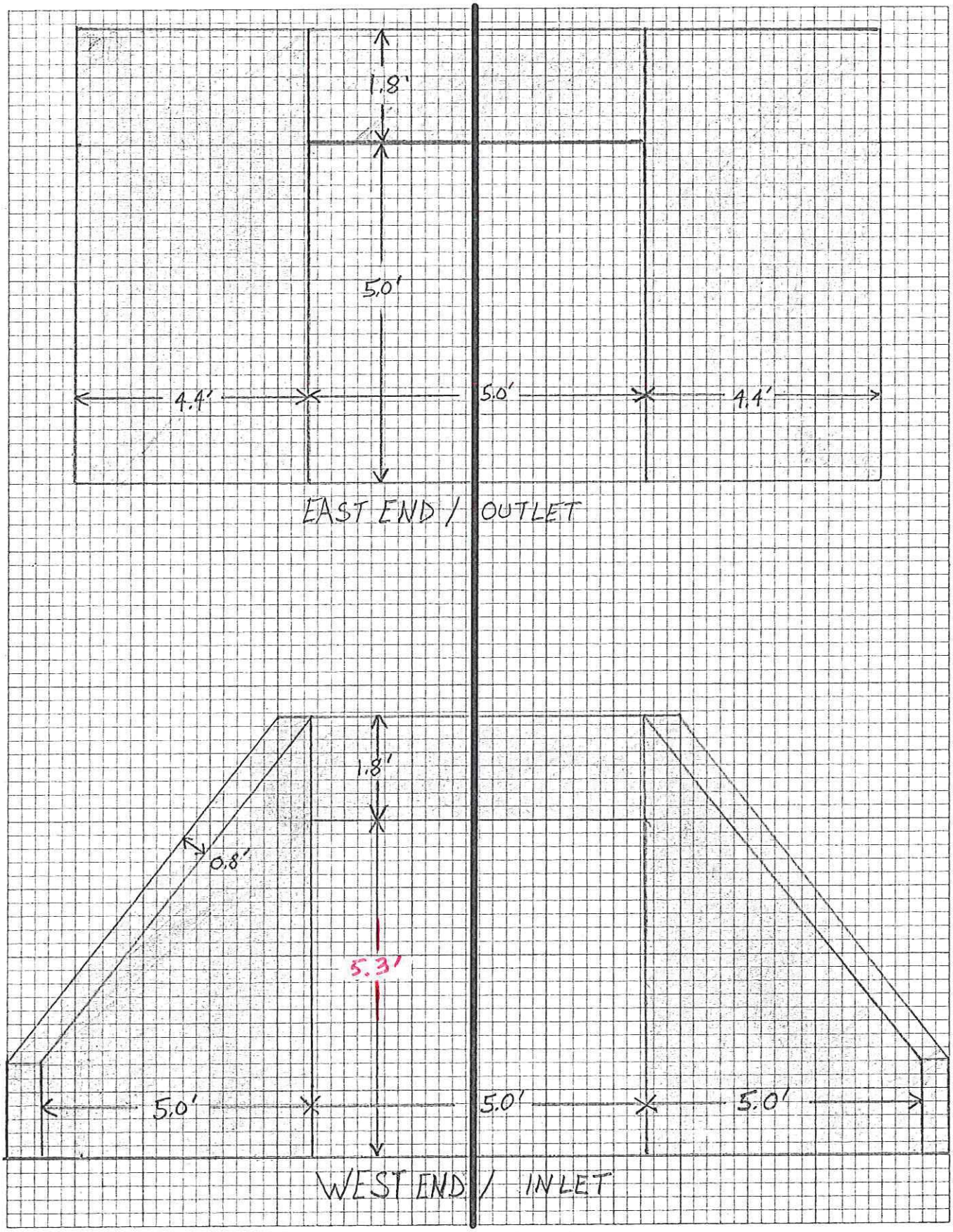
(NOTE : THICKNESSES OF THE VARIOUS SECTION ELEMENTS ARE PRELIMINARY ONLY AND WILL BE DETERMINED DURING DESIGN.)



EAST BRIDGE APPROACH

(NOTE : THICKNESSES OF THE VARIOUS SECTION ELEMENTS ARE PRELIMINARY ONLY AND WILL BE DETERMINED DURING DESIGN.)

STATE PROJECT NUMBER: 3576-07-0♦	HWY: STH 106	COUNTY: JEFFERSON	TYPICAL SECTION	SCALE, FEET 0	SHEET NO: E



☐ TOPOGRAPHY
☐ SURVEY ALIGNMENT

BM 73	5.24	632.32			627.08
⊙			4.55	627.77	
	4.72	632.49			
CP 5000			6.46	626.03	
CP 5001			5.36	627.13	
BOX SE CORNER			12.59	619.90	
NE			12.75	619.74	
SW			11.69	620.80	
NW			11.69	620.80	
OUTLET FL	ON CONC FLOOR		19.42	613.07	
" FL	3' OFF STREAMBED		20.10	612.39	
INLET FL	ON CONC FLOOR		18.78	613.71	
FL	ON CONC FLOOR END OF WING		18.63	613.86	
FL	1' OFF WING STREAMBED		19.38	613.11	
SW WING	TOP		11.70	620.79	
SW WING	BOTTOM		16.86	615.63	
NW WING	TOP		11.69	620.80	
NW WING	BOTTOM		16.82	615.67	

(1)

5-19-11
JCK, CFW, PRR
STH 180
9670-09-00
Bm, CP, BOX
LEVEL SHOTS

624.210
627.316

(2)

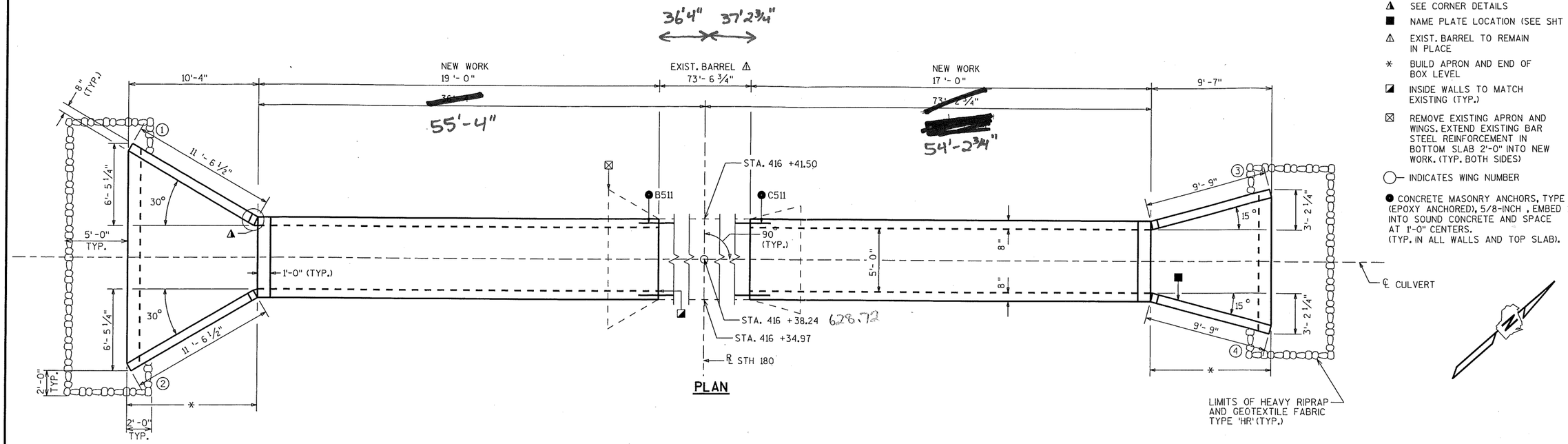
OUTLET
POINT A
STA. 416+42.15
37.02' RT.
9'-7"
17'-0"
POINT B
STA. 416+35.60
37.41' RT.
37'-2¼"
STA. 416+41.50
STA. 416+38.24
13'-8¼"
STA. 416+34.97
35'-4⅛"
PC STA. 416+10.50
POINT C
STA. 416+40.90
36.39' LT
POINT D
STA. 416+34.38
36.29' LT
19'-0"
10'-3¼"
INLET

C-38-639
R/W LINE
FOOTBRIDGE
PC 416+10.50
416+10.50

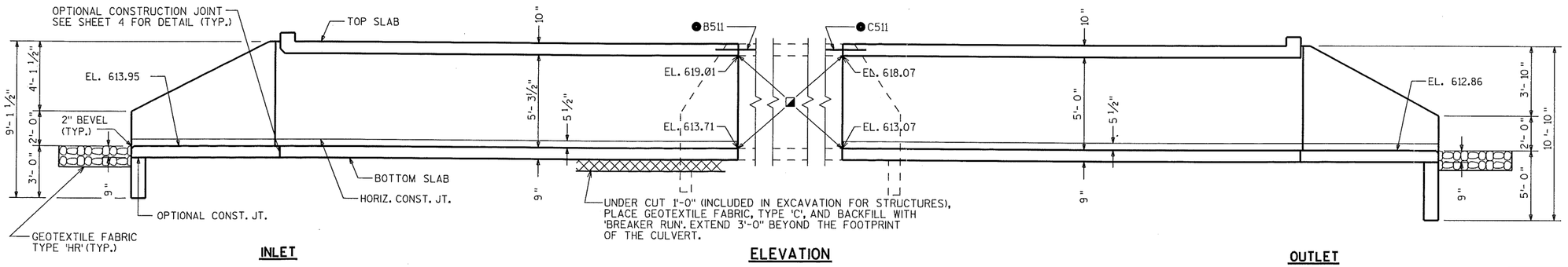
NOTE: STRUCTURE BACKFILL REQUIRED BEHIND ALL WING WALLS.

STATE PROJECT NUMBER
9670-09-71

△ SEE CORNER DETAILS
■ NAME PLATE LOCATION (SEE SHT 5)
△ EXIST. BARREL TO REMAIN IN PLACE
* BUILD APRON AND END OF BOX LEVEL
◪ INSIDE WALLS TO MATCH EXISTING (TYP.)
⊠ REMOVE EXISTING APRON AND WINGS. EXTEND EXISTING BAR STEEL REINFORCEMENT IN BOTTOM SLAB 2'-0" INTO NEW WORK. (TYP. BOTH SIDES)
◯— INDICATES WING NUMBER
● CONCRETE MASONRY ANCHORS, TYPE S (EPOXY ANCHORED), 5/8-INCH , EMBED 1'-3" INTO SOUND CONCRETE AND SPACE AT 1'-0" CENTERS. (TYP. IN ALL WALLS AND TOP SLAB).



PLAN



INLET ELEVATION OUTLET

LIST OF DRAWINGS

1. LAYOUT
2. INLET EXTENSION
3. OUTLET EXTENSION
4. APRON DETAILS
5. DETAILS
6. SUBSURFACE EXPLORATION

STRUCTURE DESIGN CONTACT:

KENT BAHLER (608) 266-8490
NICK RICE (608) 266-5092

DESIGN DATA

LIVELOAD: HL-93
EARTHLOAD: DESIGNED FOR 5.0 FT. OF FILL.
ULTIMATE DESIGN STRESSES:
CONCRETE MASONRY, GRADE A-FA — f'_c = 3500 P.S.I.
HIGH STRENGTH BAR STEEL REINFORCEMENT — f_y = 60000 P.S.I.

TRAFFIC VOLUME

STH 180
A.D.T. = 4800 (2033)
R.D.S. = 50 M.P.H.

TOTAL ESTIMATED QUANTITIES

BID ITEMS

203.0200	REMOVING OLD STRUCTURE STA. 416+38.24	1	LS
206.2000	EXCAVATION FOR STRUCTURES CULVERTS C-38-639	1	LS
210.0100	BACKFILL STRUCTURE		CY
311.0115	BREAKER RUN		CY
502.6105	MASONRY ANCHORS TYPE S 5/8-INCH		EACH
504.0100	CONCRETE MASONRY CULVERTS		CY
505.0410	BAR STEEL REINFORCEMENT HS CULVERTS		LB
505.0610	BAR STEEL REINFORCEMENT HS COATED CULVERTS		LB
516.0500	RUBBERIZED MEMBRANE WATERPROOFING		SY
606.0300	RIPRAP HEAVY		CY
645.0105	GEOTEXTILE FABRIC TYPE C		SY
645.0120	GEOTEXTILE FABRIC TYPE HR		SY

NON-BID ITEMS

FILLER	3/4"	SIZE

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.

THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES SHALL BE THE EXISTING GROUNDLINE.

ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TO THE TOP OF THE BOX WITHIN THE LENGTH OF THE CULVERT.

THE CONCRETE IN THE CUTOFF WALLS MAY BE PLACED UNDERWATER IF THE EXCAVATION CANNOT BE DEWATERED.

PLACE A 18" (MIN.) WIDE SHEET OF 'RUBBERIZED MEMBRANE WATERPROOFING' ON TOP SLAB OVER ALL CONSTRUCTION JOINTS AND EXTEND DOWN TO BOTTOM OF OUTSIDE WALLS.

CONTRACTOR MAY ELECT TO SUBSTITUTE #1 OR #2 CONCRETE COARSE AGGREGATE, SELECT CRUSHED MATERIAL OR OTHER GRANULAR MATERIAL AS APPROVED BY THE FIELD ENGINEER, IN LIEU OF THE BREAKER RUN, TO BE UTILIZED AS A CONSTRUCTION PLATFORM FOR THE BOX. THE CONTRACTOR IS RESPONSIBLE FOR BASE STABILITY WITH ANY SUBSTITUTED MATERIAL.

NO.	DATE	REVISION	BY

Plans Prepared By WISDOT
BUREAU OF STRUCTURES

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-38-639

STH 180 OVER UNNAMED TRIB. TO MENOMINEE RIVER

COUNTY MARINETTE | TOWN ~~CITY/VILLAGE~~ PORTERFIELD

DESIGN SPEC. AASHTO LRFD DESIGN SPEC. 5th EDITION

DESIGNED BY	NAR	DESIGN CK'D.		DRAWN BY	NAR	PLANS CK'D.	

LAYOUT | SHEET 1 OF 6

SCALE = 4

REHABILITATION
STRUCTURE SURVEY REPORT

E-SUBMIT CHECKLIST

REHABILITATION STRUCTURE SURVEY REPORT

1 STRUCTURE SURVEY REPORT

☐ **Complete DT1696, Structure Survey Report ☒Rehabilitation**
- *SSR Workshop Manual and Videos*
- *Bridge Manual Chapter 6.2.1* - *Bridge Manual 40*

2 SUPPORTING DOCUMENTATION

PDF Files:

☐ **Project Location Map**
- *structure location and number*
- *other proposed structures within project limits*
- *only required if no structure number is available*

☐ **Plan and Profile Sheet (graphical or tabulated)**
- *horizontal curve data*
- *vertical curve data (grades to nearest thousandth)*
- *superelevation transition locations*

☐ **Typical Roadway Cross Section (existing and proposed)**
- *typical dimensions, slopes, clear zones, sidewalks, curb and gutter, etc.*

☐ **Labeled Photographs**
- *clearly show areas to be repaired, and their location on the structure*

☐ **Preliminary Staging Plan (if required)**

☐ **Approximate Rehabilitation Areas**

DGN Files:

☐ **Alignment**

☐ **Proposed Pavement**

☐ **Utilities**

☐ **Contours**

☐ **Base Mapping**

☐ **Right of Way**

☐ **Cross Section**
- *at proposed structure*
- *at existing structure (if applicable)*

3 SUBMITTAL

☐ **E-Submit**
- *STRUCTURE SURVEY REPORT and SUPPORTING DOCUMENTATION are submitted using the E-Submit process*
- *E-Submit*
- *E-Submit Help*

☐ **Email: Region Soils Engineer**
- *IMPORTANT! The formal notice of the project to the Region Geotechnical Section*
- *State on the SSR who will be doing the geotechnical work/soil borings*

REHABILITATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1696 6/2012

☐ **Grade Separation** ☐ **Stream Crossing** ☐ **Culvert**

☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **Other:** _____

For guidance see: http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm

Design Project ID	Construction Project ID	Highway (Project Name)		
Final Plan Due Date	Preliminary Plan Due Date	☐ Town ☐ Village ☐ City		
PS&E Date	Letting Date	County		
Structure Number		Section	Town	Range
Station	Latitude: Longitude:	☐ YES ☐ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: Vertical Datum:		**Traffic Forecast Data**		
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed / Functional Class
Feature On		Feature On		
Feature Under		Feature Under		
Region Contact: (Area Code) Telephone Number(s): Email:		Consultant Contact: (Area Code) Telephone Number(s): Email:		

Work To Be Performed

Field Information Required
Item Number *(see Pages 2–4)*

- ☐ A. Structural Repair 1–3, 22
- ☐ B. Overlay 1–3, 10–22, 26–28, 32, 34
  - ☐ Concrete Overlay ☐ Asphalt Overlay
  - ☐ Polymer Modified Asphalt Overlay ☐ Thin Bonded Polymer Overlay
  - ☐ Other: _____
- ☐ C. New Bearings 3, 8, 9, 22
- ☐ D. New Railings 15–17, 20–23
- ☐ E. Curb and Sidewalk Repair 2, 3, 16, 22, 23
- ☐ F. Abutment Repair 2, 3, 12, 16
- ☐ G. Pier Repair 2, 3, 12, 16
- ☐ H. New Deck 1–6, 9, 10, 13–28, 32–34
- ☐ I. Widening 1–28, 30, 32–35
- ☐ J. Joint Repair 2, 3, 8, 16, 19, 22
- ☐ K. Surface Repair 2, 3, 22
- ☐ L. Raising Bridge 3, 6, 9, 16, 20–24
- ☐ M. Slope Stabilization 1–3, 30
- ☐ N. Scour Repair ..... 1, 2 or 3, 16, 19, 21, 27, 29, 31–35
- ☐ O. Painting 16, 22, 24
- ☐ P. Other: _____

Field Information Required

If no structure number exists provide the following: Small County Map on which the location of proposed structure is shown in red and any highway relocation in green. In addition, provide Location Map of scale not less than 1" = 2000' showing the structure location and number.

☐ 1. Most recent inspection report, brief history of bridge construction date, and description of repairs with dates.

☐ 2. Outline deficient areas on existing structure plan or drawing.

☐ 3. Photographs of details requiring repairs or modifications, such as: bearings, x-frames, joints, etc. Photograph all deficient areas. Clearly label all photographs.

☐ 4. Provide proposed typical section for roadway and structure showing dimensions and cross slopes.

☐ 5. Survey beam seat or girder elevations at both sides of bridge at all substructure units.

☐ 6. Provide cross-section elevations at 10 foot intervals extending across the structure and a minimum of 100 feet beyond each end. Sections should be normal to centerline and show elevations at centerline roadway and gutter line. Take elevations along joints and at floor drains.

☐ 7. Show and identify starting stationing on bridge.

☐ 8. Record measurement, temperature of the structure, and date taken for each of the following:
(a) Joint opening measured normal to joint at centerline of roadway and both curb lines.
(b) Clearance between girder ends at piers.
(c) Distance from front face of abutment backwall to closest point of girder end measured parallel to girder.
(d) Temperature of structure determined by averaging top and under deck (if accessible) readings.

☐ 9. Fixed and expansion bearings - condition and orientation.

☐10. Number and width of proposed pours including construction staging sequence.

☐11. Location of existing construction joints in the deck.

☐12. Estimated Quantities:

Preparation, Decks, Type 1	Sq. Yd. _____	
Preparation, Decks, Type 2	Sq. Yd. _____	
Full Depth Deck Repair	Sq. Yd. _____	Galvanic Anodes? _____
Concrete Surface Repair Superstructure	Sq. Ft. _____	Galvanic Anodes? _____
Concrete Surface Repair Substructure	Sq. Ft. _____	Galvanic Anodes? _____
Curb Repair	LF. _____	Galvanic Anodes? _____

☐13. Sufficiency number: _____ (obtain from HSI Bridge Inventory System)

☐14. Appraisal and Condition Rating

	Deck Condition	Superstructure Condition	Substructure Condition	Load Capacity Appraisal	Structural EVAL Appraisal
Current					

☐ 15. Load Ratings

	Inventory	Operational
Current Calculated Date:		
After Completed by Bridge Designer		

☐ 16. Utilities on/near Structure. (WisDOT policy is to avoid placing utilities on the structure.)
☐ Yes ☐ No

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

☐ 17. Is existing bridge railing deficient?
☐ Yes ☐ No If Yes – Replacement Rail Type:

☐ 18. Drains to be:
☐ Raised ☐ Closed ☐ Downspouted ☐ New

☐ 19. Traffic maintained on bridge during work?
☐ Yes ☐ No If Yes – Include sketches

☐ 20. Will guard rail be attached?
☐ Yes ☐ No If Yes – Which corners?

☐ 21. Will work to be performed eliminate all deficiencies?
☐ Yes ☐ No If No – Explain:

☐ 22. Hazardous waste (asbestos) to be removed?
☐ Yes ☐ No If Yes – Explain:

☐ 23. Wing location(s) for surface drain anchors:

☐ 24. Painting?
☐ Yes ☐ No If Yes – Explain on Page 4
(all, part, railing, color system, containment, bid items)

☐ 25. Desired roadway width: *(new deck / widening)* _____ Ft.
Desired sidewalk clear width: Left: _____ Ft. Right: _____ Ft.

☐ 26. Maximum increase in grade line elevation _____ In.

☐ 27. Benchmark description to be shown

☐ 28. Desired final cross slopes on bridge _____ Ft./Ft.

☐ 29. Underwater Inspection Report including:
- Streambed Cross Section With Pier, Footing and Seal Elevations
- Pier Elevation Drawings
- Pier Layout
- Hydrographic Survey

☐ 30. Slope stabilization, provide:
Type: _____ Quantity: _____ CY.
Slope: _____ Ft./Ft. Fill: _____ CY.

☐ 31. Preliminary layout of grout bags or proposed scour repair.
C.I.P. Articulated Mats (for Scour) _____ CY.
Grout Bags (for Scour) _____ CY.
Heavy Riprap _____ CY.
Extra Heavy Riprap _____ CY.

☐ 32. Report submitted with Preliminary Plan requires **no** CADD file submittal *(See ESubmittal instructions)*.

☐ 33. Report submitted for development of Preliminary Plan to structure design engineer requires CADD file (if available) submittal and Report submittal to Soils Engineer if project involves foundation modifications.

☐ 34. Coordinate with structure design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.

☐ 35. If project involves substructure widening coordinate with structure and/or hydraulic design engineer to determine if information on the separation and/or stream crossing SSR will be required.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

The more information that can be provided, the better. This will result in fewer questions from BOS during structure design and a better end product.

The following is not all inclusive; please add/delete discussion items to fit site/project specific details that may influence structure design:

Item ##:
Expand on any items from the previous sections of this form requiring additional information. The more information the better!

Geotechnical Coordination:
Detail who is completing geotechnical work/soil borings (in-house or consultant) and anticipated schedule of work.

Aesthetics:
Include desired federal color number for painting/staining rehabs.

Structural Approach Slabs:
Structural approach slabs generally can't be added to existing structures without substantial modifications to the abutments. Contact BOS with questions about using structural approach slabs.

Proposed Structure (& Future Expansion):
Discuss proposed final size of structure and vertical/horizontal clearances (if special clearances are required for construction staging). Describe future expansion, if any is anticipated, which may include lower roadway lane expansion, upper roadway widening, etc.

Temporary Shoring:
Describe anticipated locations of temporary shoring needed for construction.

Construction Staging:
Discuss construction staging in detail and describe desired sequencing.

Concrete Barrier:
Discuss barrier locations, type, and heights approaching the structure, if applicable.

Bike/Pedestrian/Other Structure Accommodations:
Discuss impacts of sidewalks, multi-use paths, separation barriers, medians, etc.

Existing Structure Information:
Provide detailed existing structure information regarding size, type, bridge number, dimensions, type of substructures and location, with respect to the proposed structure.

Utilities:
List utilities located under, near, or on the proposed structure. Include type of utility, action to be taken and who owns the utility. If conduit/ utility will be on the structure describe who will be servicing it, number and size of conduits needed and any other pertinent information.

Site Drainage:
Discuss potential drainage concerns involving the proposed structure. Possible concerns include proposed roadway drainage pipes under substructure units, anticipated need for deck drains and median drainage. Include locations of pipes and invert elevations as appropriate.

DNR:
Discuss the status of coordination between Region/Consultant and DNR. Include any agreements made, concerns with the site, or areas requiring special attention as expressed by DNR (e.g. AOP, etc.).

REHABILITATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1696 6/2012

☐ **Grade Separation** ☒ **Stream Crossing** ☐ **Culvert**

☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **Other:** _____

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID 5042-05-31	Construction Project ID 5042-05-61	Highway (Project Name) STH 80		
Final Plan Due Date 03/01/2017	Preliminary Plan Due Date 06/01/2016	☒ Town ☐ Village ☐ City Henrietta		
PS&E Date 05/01/2017	Letting Date 09/12/2017	County Richland		
Structure Number B-52-0049		Section S22	Town T12N	Range R01E
Station 80+37.38	Latitude: 43° 29' 37.49"N Longitude: 90° 21' 27.40" W	☐ YES ☒ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: Richland County (NAD 83 (91)) Vertical Datum: NAVD 88 (2007) GEOID 09		**Traffic Forecast Data**		
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On STH 80		Feature On STH 80	2300	50 mph	Minor Arterial
Feature Under Melancthon Creek		Feature Under Melanc Crk			
Region Contact: Joe Smith (Area Code) Telephone Number(s): (xxx) xxx-xxxx Email: joe.smith@dot.wi.gov		Consultant Contact: N/A (Area Code) Telephone Number(s): Email:			

Work To Be Performed

Field Information Required
Item Number *(see Pages 2–4)*

- ☐ A. Structural Repair 1–3, 22
- ☒ B. Overlay 1–3, 10–22, 26–28, 32, 34
  - ☒ Concrete Overlay ☐ Asphalt Overlay
  - ☐ Polymer Modified Asphalt Overlay ☐ Thin Bonded Polymer Overlay
  - ☐ Other: _____
- ☐ C. New Bearings 3, 8, 9, 22
- ☐ D. New Railings 15–17, 20–23
- ☐ E. Curb and Sidewalk Repair 2, 3, 16, 22, 23
- ☐ F. Abutment Repair 2, 3, 12, 16
- ☐ G. Pier Repair 2, 3, 12, 16
- ☐ H. New Deck 1–6, 9, 10, 13–28, 32–34
- ☐ I. Widening 1–28, 30, 32–35
- ☐ J. Joint Repair 2, 3, 8, 16, 19, 22
- ☒ K. Surface Repair 2, 3, 22
- ☐ L. Raising Bridge 3, 6, 9, 16, 20–24
- ☐ M. Slope Stabilization 1–3, 30
- ☐ N. Scour Repair ..... 1, 2 or 3, 16, 19, 21, 27, 29, 31–35
- ☐ O. Painting 16, 22, 24
- ☐ P. Other: _____

Field Information Required

If no structure number exists provide the following: Small County Map on which the location of proposed structure is shown in red and any highway relocation in green. In addition, provide Location Map of scale not less than 1" = 2000' showing the structure location and number.

☒ 1. Most recent inspection report, brief history of bridge construction date, and description of repairs with dates.

☒ 2. Outline deficient areas on existing structure plan or drawing.

☒ 3. Photographs of details requiring repairs or modifications, such as: bearings, x-frames, joints, etc. Photograph all deficient areas. Clearly label all photographs.

☐ 4. Provide proposed typical section for roadway and structure showing dimensions and cross slopes.

☐ 5. Survey beam seat or girder elevations at both sides of bridge at all substructure units.

☐ 6. Provide cross-section elevations at 10 foot intervals extending across the structure and a minimum of 100 feet beyond each end. Sections should be normal to centerline and show elevations at centerline roadway and gutter line. Take elevations along joints and at floor drains.

☐ 7. Show and identify starting stationing on bridge.

☐ 8. Record measurement, temperature of the structure, and date taken for each of the following:
(a) Joint opening measured normal to joint at centerline of roadway and both curb lines.
(b) Clearance between girder ends at piers.
(c) Distance from front face of abutment backwall to closest point of girder end measured parallel to girder.
(d) Temperature of structure determined by averaging top and under deck (if accessible) readings.

☐ 9. Fixed and expansion bearings - condition and orientation.

☒10. Number and width of proposed pours including construction staging sequence.

☒11. Location of existing construction joints in the deck.

☒12. Estimated Quantities:

Preparation, Decks, Type 1	Sq. Yd. 8.1	
Preparation, Decks, Type 2	Sq. Yd. 4.0	
Full Depth Deck Repair	Sq. Yd. 1	Galvanic Anodes? No
Concrete Surface Repair Superstructure	Sq. Ft. 17.5	Galvanic Anodes? Yes
Concrete Surface Repair Substructure	Sq. Ft. 0	Galvanic Anodes? No
Curb Repair	LF. 0	Galvanic Anodes? No

☒13. Sufficiency number: 88.6 (obtain from HSI Bridge Inventory System)

☒14. Appraisal and Condition Rating

	Deck Condition	Superstructure Condition	Substructure Condition	Load Capacity Appraisal	Structural EVAL Appraisal
Current	5	6	6	5	6

☒ 15. Load Ratings

	Inventory	Operational
Current Calculated Date: 2/10/2014	HS19	HS23
After Completed by Bridge Designer		

☒ 16. Utilities on/near Structure. (WisDOT policy is to avoid placing utilities on the structure.)
☐ Yes ☒ No

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

☒ 17. Is existing bridge railing deficient?
☒ Yes ☐ No If Yes – Replacement Rail Type: Retrofit Railing, 98 LF - See attached

☐ 18. Drains to be:
☐ Raised ☐ Closed ☐ Downspouted ☐ New

☒ 19. Traffic maintained on bridge during work?
☒ Yes ☐ No If Yes – Include sketches

☒ 20. Will guard rail be attached?
☒ Yes ☐ No If Yes – Which corners? All four

☒ 21. Will work to be performed eliminate all deficiencies?
☒ Yes ☐ No If No – Explain: Retrofit Railing - See attached

☒ 22. Hazardous waste (asbestos) to be removed?
☐ Yes ☒ No If Yes – Explain:

☐ 23. Wing location(s) for surface drain anchors:

☐ 24. Painting?
☐ Yes ☐ No If Yes – Explain on Page 4
(all, part, railing, color system, containment, bid items)

☐ 25. Desired roadway width: *(new deck / widening)* _____ Ft.
Desired sidewalk clear width: Left: _____ Ft. Right: _____ Ft.

☒ 26. Maximum increase in grade line elevation 2 In.

☒ 27. Benchmark description to be shown

☒ 28. Desired final cross slopes on bridge Superelevation = 0.056 Ft./Ft.

☐ 29. Underwater Inspection Report including:
- Streambed Cross Section With Pier, Footing and Seal Elevations
- Pier Elevation Drawings
- Pier Layout
- Hydrographic Survey

☐ 30. Slope stabilization, provide:
Type: _____ Quantity: _____ CY.
Slope: _____ Ft./Ft. Fill: _____ CY.

☐ 31. Preliminary layout of grout bags or proposed scour repair.
C.I.P. Articulated Mats (for Scour) _____ CY.
Grout Bags (for Scour) _____ CY.
Heavy Riprap _____ CY.
Extra Heavy Riprap _____ CY.

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(if available) submittal and Report submittal to Soils Engineer if project involves foundation modifications.

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Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

Include Protective Surface Treatment.
Concrete Surface Repair for Superstructure (17.5 Sq. Ft.) is for edge of deck.
Place galvanic anodes on the low side box girder attached to the pre-stressing stands in the concrete repair areas.
Region Bridge Engineer believes the anchor assembly is not to standards. If there is a cost effective retrofit for this problem then we will incorporate it.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION

Inspection Report for

B-52-049

STH 80 over MELANCTHON CREEK

Owner

STATE HIGHWAY DEPT

Apr 02,2014

Type	Prior	Frequency (mos)	Performed
Routine	04-02-14	24	X
SI&A	04-05-12	48	

Latitude	43°29'37.49"N	Longitude	90°21'27.40"W

Time Log

Hours	Minutes
1	4

Team members

	Name	Number	Signature	Date
Inspector	Bohnsack, Dave	5015		
Reviewer				

BRIDGE INSPECTION REPORT
Wisconsin Department of Transportation
DT2007 2003 s.84.17 Wis. Stats.

Identification & Location

Feature On: STH 80	Owner: STATE HIGHWAY DEPT	Maintainer: STATE HIGHWAY DEPT	Structure Number: **B-52-049**
Feature Under: MELANCTHON CREEK	County: RICHLAND(52)		
Location: 0.8M N JCT CTH C	Municipality: TOWN-HENRIETTA(52014)		Structure Name:
Section Town Range: S22 T12N R01E			

Geometry

measurements in feet, except where noted

Approach Roadway Width: 30	Bridge Roadway Width: 30.0	Total Length: 50.2
Approach Pavement Width: 22	Deck Width: 33.0	Deck Area (sq ft): 1656

Traffic

	Lanes	ADT	ADT year	Traffic Pattern
On	2	1100	2009	TWO WAY TRAFFIC
Under	0			NO TRAFFIC

Capacity

Load Rating

Inventory rating: HS19	Overburden depth File (in): 0.0	Overburden depth New (in):	Controlling:
Operating rating: HS23	Deck surface material: CONCRETE	Re-rate for capacity (Y/N):	Control location:
Posting: EVALUATE PERMIT MANUALLY	Re-rate notes:		
Last rating date:			

Hydraulic

Classification

Scour Critical Code(113): (8) STABLE-ABOVE TOP FOOTING		Q100 (ft3/sec): 1320	
Scour POA on file:	POA date:	Velocity (ft/sec): 7.5	Sufficieny #: 88.6

Span(s)

Span #	Material	Configuration	Depth (in)	Length (ft)	Main
1	PREST CONCRETE	BOX SECTIONS		50.0	Y

Expansion joint(s)

Temperature:

File:	New:

Vertical Clearance

	Measurement file (ft)	File Date	Measurement new (ft)
Highway Minimum Under Cardinal			
Highway Minimum Under Non-Cardinal			
Highway Minimum On			
Railroad Minimum Under			

Elements

Chk	Element	Protect System	Defect	Description	UOM	Total	Quantity in Condition State 1	2	3	4
X	15			Prestressed Concrete Top Flange	SF	1,656	0	1,656	0	0
				Top flange is not visible. Condition rating base on condition of grouted keyway joints.						
			8906	Precast Concrete Connections	SF		0	1,656	0	0
				(14) The grouted keyway joints are experiencing light to moderate efflorescence with small areas of grout spalling at the underside.						
		8514		Concrete Overlay	SF	1,656	1,256	192	208	0
				(08) Chained = +/-4% DETERIORATION, SA - SPALLING (1 FT WIDE BY 15 FT ALONG SB LANE). (10) VISUAL INSPECTION. (12) 16% distress - delam & spalling. Delam along longit cracks and along both approach ends. Spalling along west edge. Spalling along deck edges and at C/L crack.(14) Reflective longitudinal cracks at each longitudinal girder joint. Some areas of the cracks are experiencing spalling/deteriorating edges.						
			3210	Debonding/Spall/Patched Area/Pothole	SF		0	172	92	0
				(14) Reflective cracking is deteriorating/spalling along edges. Some areas sealed or patched with asphalt material. Spalling and delamination occurring at leading edges of deck. Spalling being along lowside edge of deck.						
			3220	Crack (Wearing Surface)	SF		0	20	116	0
				(14) Reflective cracking at each longitudinal girder joint, most are hairline to narrow width with some cracks medium in width. Medium width cracks have deteriorating edges.						
X	104			Prestressed Concrete Closed Web / Box Girder	LF	550	0	529	21	0
			8906	Precast Concrete Connections	LF		0	529	0	0
				(14) The grouted keyway joints are experiencing light to moderate efflorescence with small areas of grout spalling at the underside.						
			1080	Delamination - Spall - Patched Area	LF		0	3	18	0
				(14) G1 (west fascia) has areas of spalling with exposed p/s strands, other spalling with exposed stirrups, and delamination; also a small area of cracking with delamination.						
			1100	Exposed Prestressing	LF		0	0	10	0
				(14) G1 has 2 spalls with an exposed p/s strand with minor section loss. This quantity is rolled up within the spall defect.						
			1110	Cracking (PSC)	LF		0	0	3	0
X	215			Reinforced Concrete Abutment	LF	85	69	16	0	0
				Cracks and spalls at top of NA. (08) NA: 2 HLV CRKS; SA: SPALL AT TOP (SMALL). (14) Photos of spalls on NA.						
			1080	Delamination - Spall - Patched Area	LF		0	16	0	0
				(14) Spalls on NA.						
			1130	Cracking (RC)	LF		2	0	0	0
				(14) HLV crks on north abutment.						
X	330			Metal Bridge Rail	LF	98	0	98	0	0
				(08) MASONRY PLATES ARE RUSTING. (10) FRECKLE RUST ON ALL PANELS. (14) Small dent on east rail.						
			1000	Corrosion	LF		0	98	0	0
				(14) Masonry plates are rusting and freckle rust exists on all panels.						
			1900	Distortion	LF		0	1	0	0
				(14) Small dent on east rail.						
X	8400			Integral Wingwall	EA	4	0	4	0	0
				Cracked at top, HL cracks w/ staining and lite efflorescence.						
			8902	Wingwall Movement	EA		0	0	0	0
			8903	Wingwall Deterioration.	EA		0	4	0	0
				(14) Small spall at the top of NE & SW wings.						

Assessments

Chk	Element	Description	UOM	Total	Quantity in Condition State 1	2	3	4
X	9030	Signs - Object Markers	EA	4	4	0	0	0
		GOOD CONDITION						
X	9045	Slope Protection- Riprap	EA	2	2	0	0	0
		(08) REPAIRED IN 07 AFTER FLOOD.						
X	9323	Approach Roadway - Asphalt	EA	2	0	1	1	0
		(08) SA: CRKD & SETTLED SLIGHTLY; NA: NEW IN 07. (10) crkd, settled, some crks sealed. (12) NA: joint has been sealed. SA: cracked, settled.						

NBI Ratings

	File	New
Deck	5	5
Superstructure	6	5
Substructure	6	6
Culvert	N	N
Channel	8	8
Waterway	8	8

Structure Specific Notes

TK 290 applied to decksurface in 1998.

Inspection Specific Notes

CO - 2018

Inspector Site-Specific Safety Considerations

Structure Inspection Procedures

Special Requirements

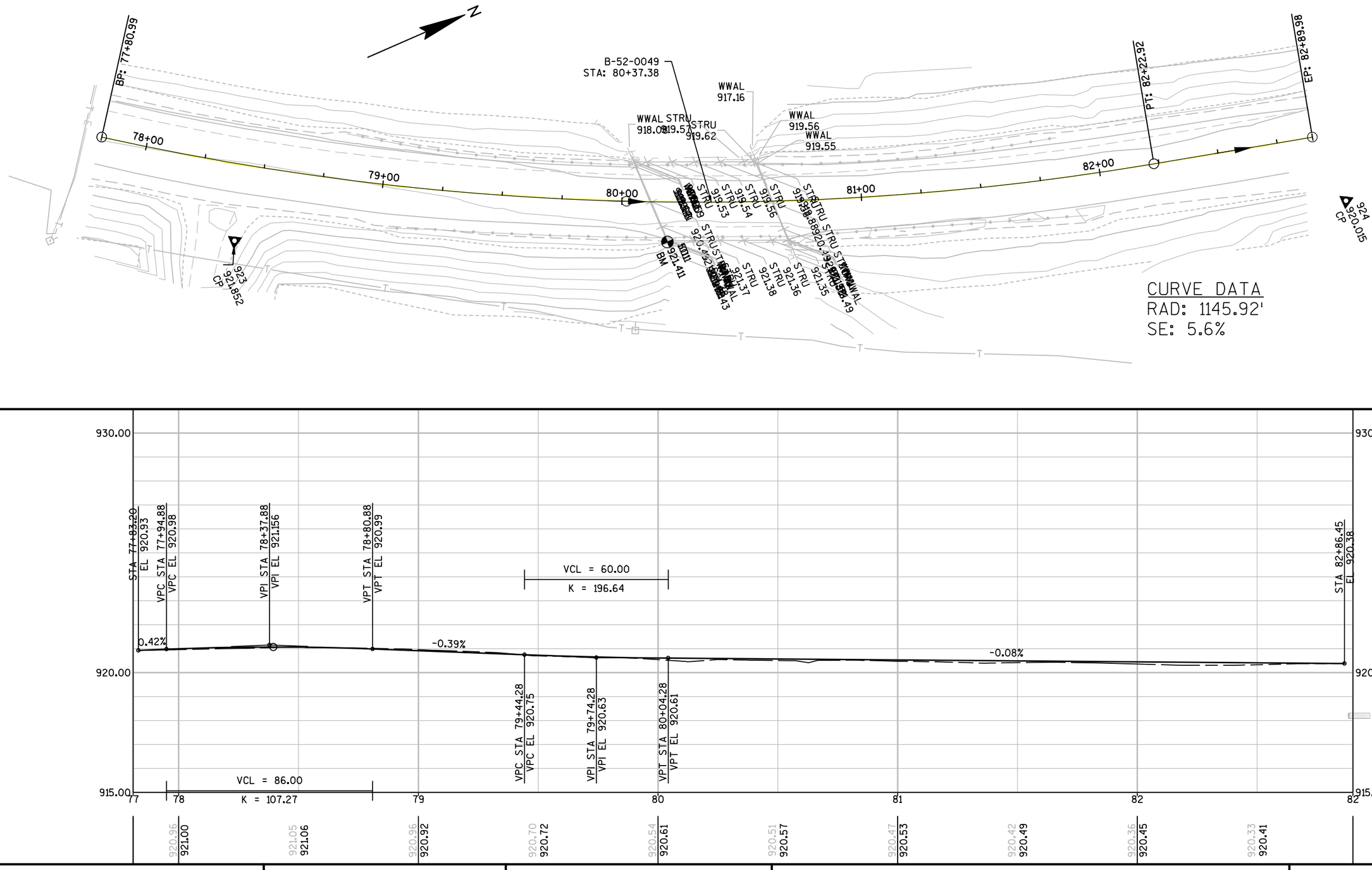
	Chk	Comments
Traffic Control		
Access Equipment		
Other		

Construction History

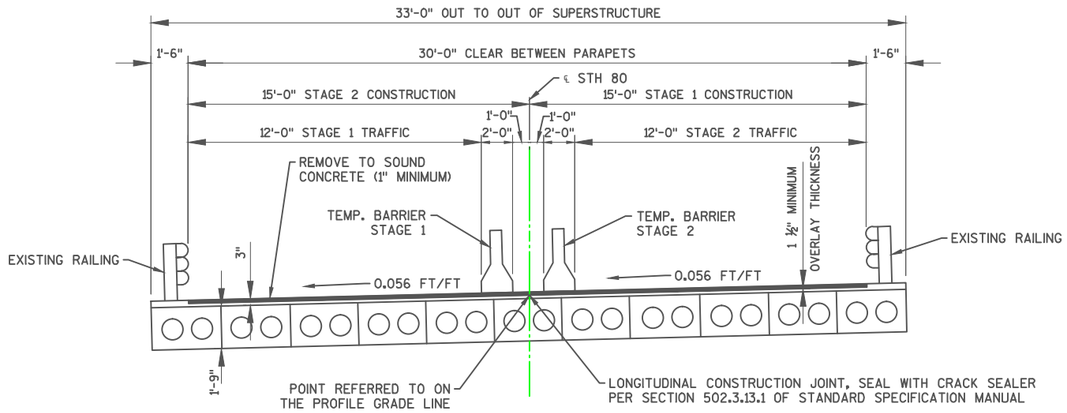
Year	Work Performed	FOS id
1976	NEW STRUCTURE	5448-71-02

Maintenance Items

Item	Priority	Recommended by	Status	Status change
Deck - Patching	HIGH	Bohnsack, Dave (5015)	IDENTIFIED	04/23/14
Patch pothole in deck.				
Approach - Wedge Approach	HIGH	Bohnsack, Dave (5015)	IDENTIFIED	04/23/14
Wedge approaches to smooth ride.				

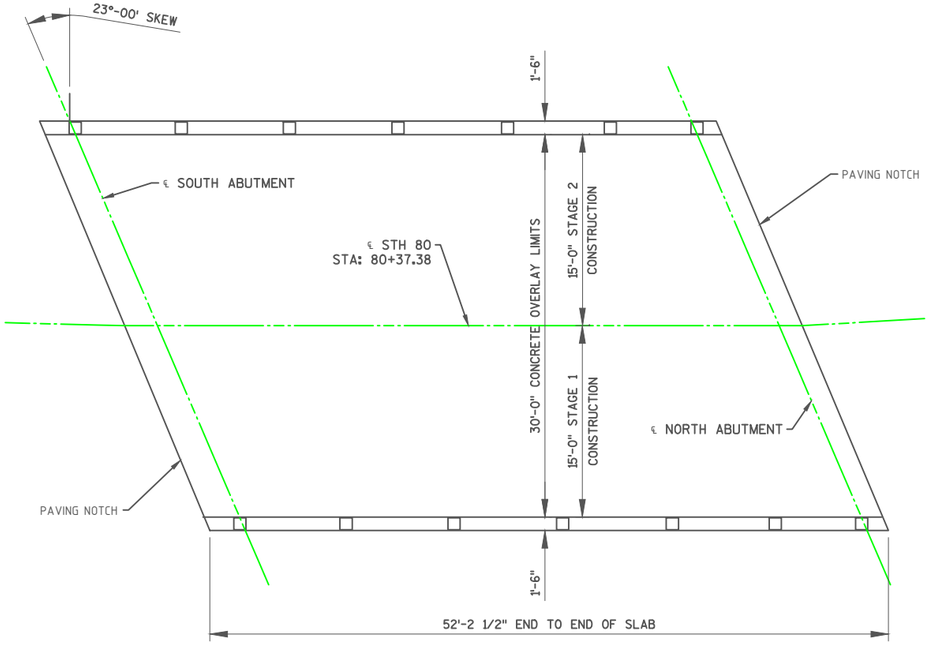


PROJECT NO: 5042-05-31	HWY: STH 80	COUNTY: RICHLAND	PLAN AND PROFILE: B-52-0049	SHEET	E

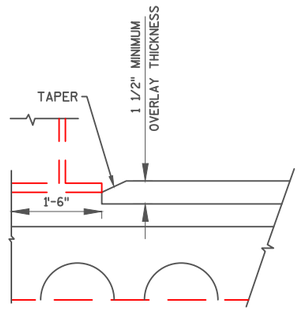


AVERAGE OVERLAY THICKNESS = 2"

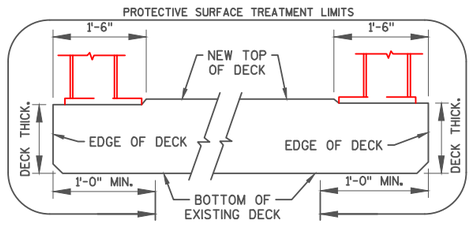
CROSS SECTION THRU ROADWAY - LOOKING NORTH



PLAN B-52-0049



EDGE DETAIL



PROTECTIVE SURFACE TREATMENT LIMITS

DESIGN DATA:

LIVE LOAD:
INVENTORY RATING:
OPERATIONAL RATING:

GENERAL NOTES:

DRAWINGS SHALL NOT BE SCALED.

STAGE 1 AND 2 TRAFFIC SHALL BE CONTROLLED USING A TEMPORARY TRAFFIC SIGNAL.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE TOP OF DECK SURFACE, EDGES OF DECK, AND A PORTION OF THE UNDERSIDE OF DECK.

DIMENSIONS SHOWN ARE BASED ON THE EXISTING ORIGINAL STRUCTURE PLANS.

ANY EXCAVATION NECESSARY TO COMPLETE THE OVERLAY AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS."

CONTACT THE BUREAU OF STRUCTURES BEFORE PLACEMENT OF OVERLAY IF THE AVERAGE THICKNESS OF THE NEW OVERLAY WILL EXCEED THE AVERAGE SHOWN ON THE PLANS BY MORE THAN ½."

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS."

"PREPARATION DECKS TYPE 1," "PREPARATION DECKS TYPE 2," AND "FULL DEPTH DECK REPAIR" AREAS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

REMOVE ANY/ALL LOOSE CONCRETE AT THE PIERS AND THE UNDERSIDE OF DECK UNDER BID ITEM "CONCRETE SURFACE REPAIR." SURFACES SHALL BE BLAST CLEANED AND EXPOSED STEEL SHALL BE BRUSHED CLEAN PRIOR TO THE CONCRETE SURFACE REPAIRS BEING COMPLETED. REPAIR AREA SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

FOR THE CONCRETE SURFACE REPAIR AT EDGE OF SLAB, MATCH 3/4-INCH DRIP GROOVE AND DECK CHAMFERS OF EXISTING SLAB.

TOTAL ESTIMATED QUANTITIES:

5

5

PROJECT NO: 5042-05-31	HWY: STH 80	COUNTY: RICHLAND	B-52-0049 STAGING PLAN	SHEET	E

Form E B-11-69

PROJECT I.D.	SHEET NUMBER	TOTAL SHEETS
5448-2-71	7	
FEDERAL PROJECT DESIGNATION		

TRAFFIC VOLUME

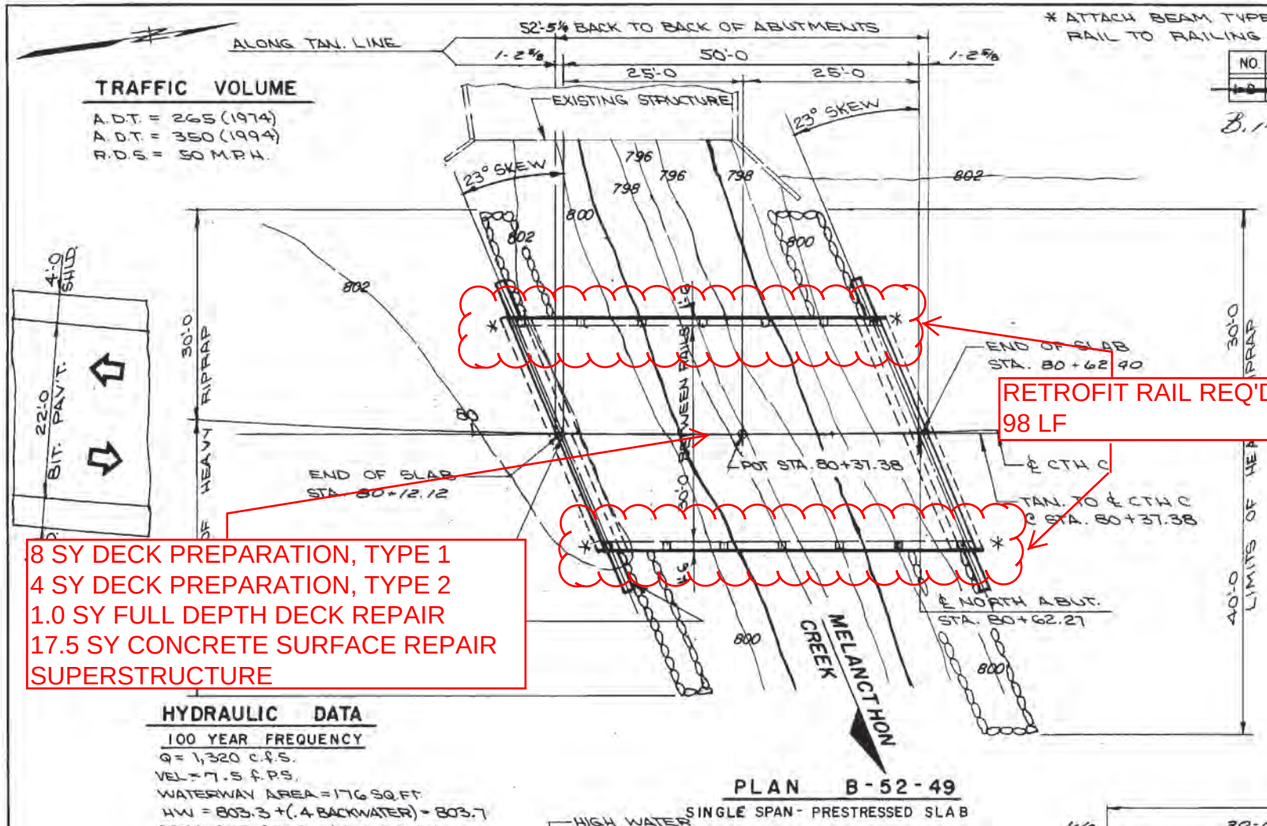
A.D.T. = 265 (1974)
A.D.T. = 350 (1994)
R.D.S. = 50 M.P.H.

* ATTACH BEAM TYPE GUARD RAIL TO RAILING.

BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
1-0	80+44	SHIS "D" NW. COR. BRIDGE ABUT.	806.51

B.M. S.E. Cor. Wkr. Elev. 809.15



8 SY DECK PREPARATION, TYPE 1
4 SY DECK PREPARATION, TYPE 2
1.0 SY FULL DEPTH DECK REPAIR
17.5 SY CONCRETE SURFACE REPAIR
SUPERSTRUCTURE

CURVE DATA

PI · STA. 79+17.59
Δ · 35°-50'-00"
D · 5°-00'
T · 370.99'
L · 716.67'
R · 1,145.92'
SE · 0.056 ft/ft

DESIGN DATA

LIVE LOAD:
DESIGN RATING: H20
INVENTORY RATING:
OPERATIONAL RATING:
STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

ALLOWABLE DESIGN STRESSES:

CONCRETE MASONRY	SLAB	f'_c = 4,000 P.S.I.
	ALL OTHER	f'_c = 3,500 P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60		f_y = 60,000 P.S.I.
PRESTRESSED SLAB, CONCRETE MASONRY		f'_c = 5,000 P.S.I.
STRANDS - ½"ϕ WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.		

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10×42 STEEL PILING DRIVEN TO A MIN. BRG. CAP. 45 TONS PER PILE. ESTIMATED LENGTH 25-0.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE IMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
THE FIRST DIGIT OR THE FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP TO THE EXTENT SHOWN ON THIS SHEET AND SHEETS 3 & 4.

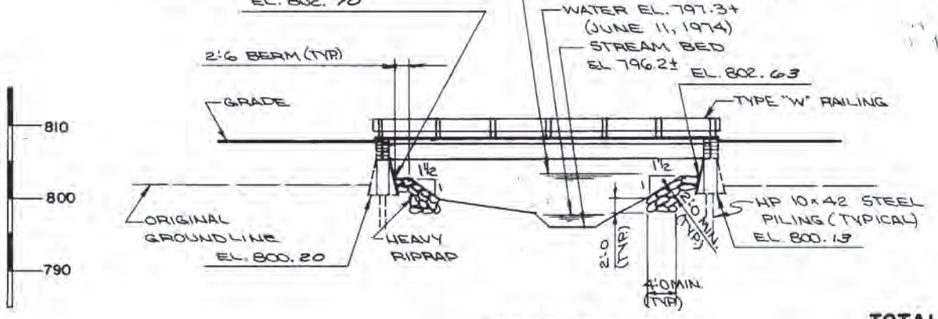
#11) THERE ARE NO CONSTRUCTION JOINTS ON THE EXISTING STRUCTURE.
#18) THERE ARE NO DRAINS ON THE EXISTING STRUCTURE.

HYDRAULIC DATA

100 YEAR FREQUENCY
Q = 1,320 C.F.S.
VEL. = 7.5 F.P.S.
WATERWAY AREA = 176 SQ.FT.
HW = 803.3 + (.4 BACKWATER) = 803.7
DRAINAGE AREA = 14.6 SQ. MI.

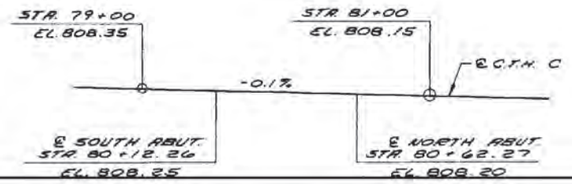
PLAN B-52-49

SINGLE SPAN - PRESTRESSED SLAB

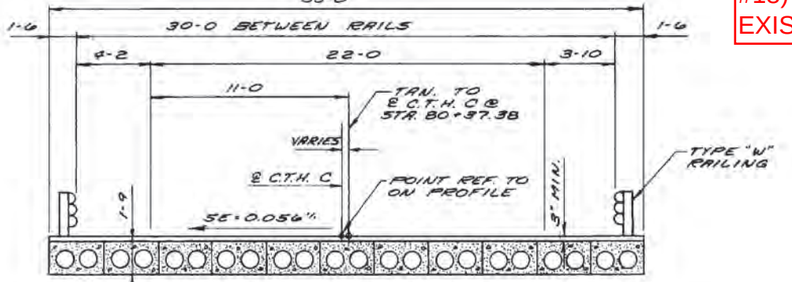


ELEVATION

NORMAL TO MELANCTHON CREEK



PROFILE GRADE LINE C T H C

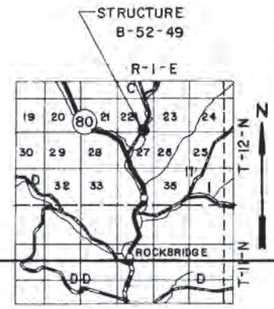


CROSS SECTION THRU ROADWAY LOOKING NORTH

TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT	S. ABUT.	N. ABUT.	SUPER	TOTAL
EXCAVATION FOR STRUCTURES	L.S.	——	——	——	1
CONCRETE MASONRY	C.Y.	27	27	15	69
HIGH-STRENGTH BAR STEEL REINFORCEMENT	LB.	1,580	1,640	——	3220
PRESTRESSED GIRDER, SLAB TYPE, 21 INCH	L.F.	——	——	553	553
MEMBRANE WATERPROOFING, 2-PLY	S.Y.	——	——	12	12
STEEL PILING, DELIVERED AND DRIVEN HP10×42	L.F.	150	150	——	300
STEEL RAILING, TYPE 'W'	L.S.	——	——	——	1
STEEL FABRIC REINFORCEMENT	S.Y.	——	——	184	184
HEAVY RIPRAP	C.Y.	67	73	——	140
NON-BID ITEMS					
FILLER	SIZE	½"	½"	——	½"
POLYVINYL CHLORIDE WATERSTOP	L.F.	41	41	——	82

LIST OF DRAWINGS



LAYOUT

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-52-49

CTH C OVER MELANCTHON CREEK

County RICHLAND	City Village	T.N. HENRIETTA	
Design Spec. A.A.S.H.O. 1973	Load H20	Const. Spec. 1975	
Designed By A.P.L.	Design Checked W.G.	Drawn By D.J.A.	Plans Checked J.H.G.

Approved W. E. Kuhn 2-17-76
Chief Bridge Engineer — Date

GENERAL PLAN

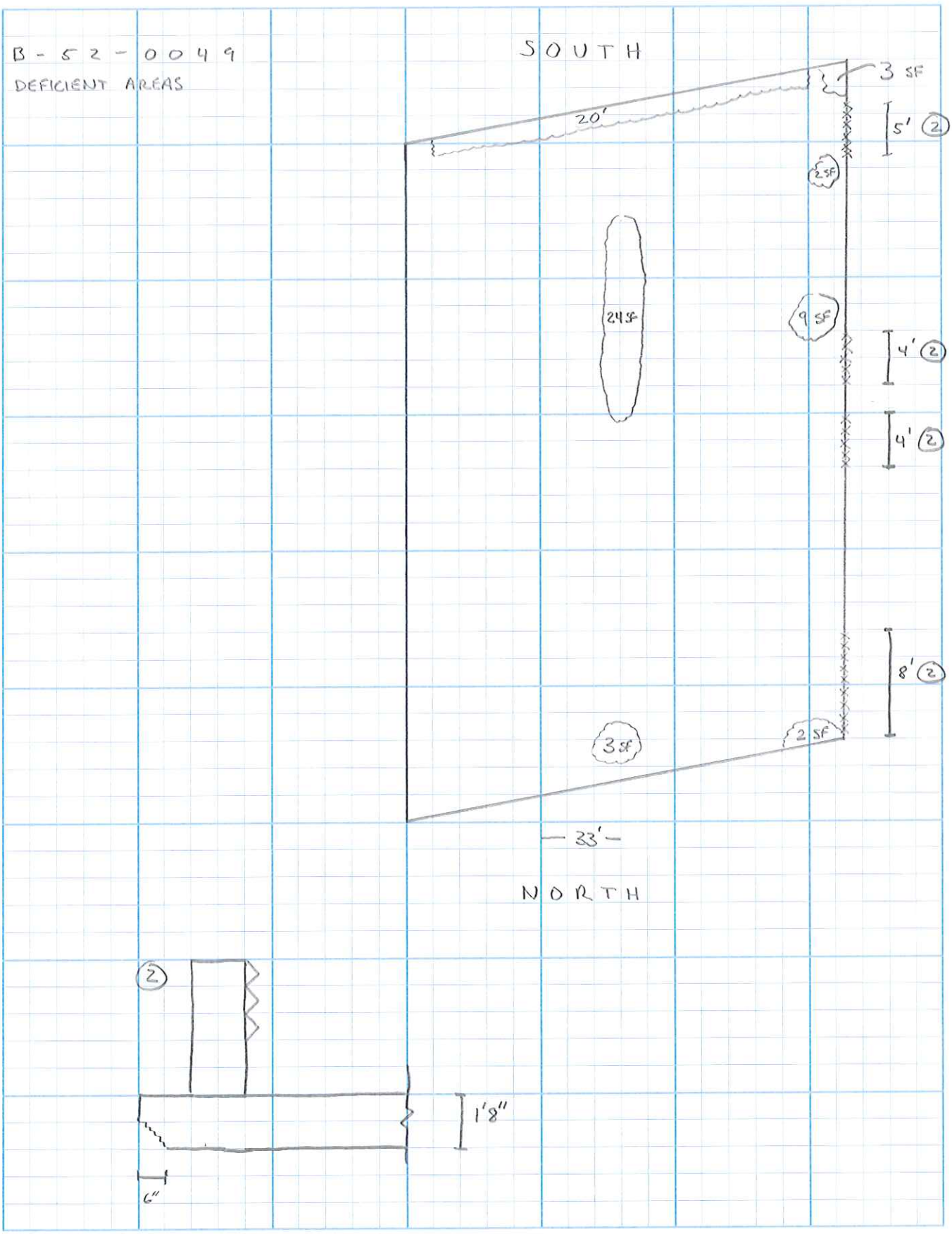
SHEET 1 OF 6

X 54894

232

ID. = 5448-02-00-A

B - 52 - 0049
DEFICIENT AREAS



Project/Structure No		Hwy No	County	Computations by	Date
5042-05-31	B-52-0049	STH 80	RICHLAND		
Name of Road				Checked by	Date
Title/Item				Sheet	Of

Routine

Document Comment/Description

Spalling with exposed p/s strand in G1 - near north abutment.

Routine

Document Comment/Description

Spall with exposed p/s strand on G1 - west fascia.

Routine

Document Comment/Description

Spall/Pothole at northwest corner of concrete overlay.

Routine

Document Comment/Description

View of deck with deteriorated longitudinal reflection joint.

Routine

Document Comment/Description

South approach

Routine

Document Comment/Description

Looking north at reflective cracks in concrete overlay

Routine

Document Comment/Description

G1 (west fascia)

Routine

Document Comment/Description

Spall with exposed p/s strand in G1 near south abutment.

REHABILITATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1696 6/2012

☐ **Grade Separation** ☒ **Stream Crossing** ☐ **Culvert**

☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **Other:** _____

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID 1009-45-35	Construction Project ID 1009-45-65	Highway (Project Name) STH 34		
Final Plan Due Date 6/2/12	Preliminary Plan Due Date 2/2/12	☒ Town ☐ Village ☐ City Knowlton		
PS&E Date 7/2/12	Letting Date 1/7/13	County Marathon		
Structure Number B-37-187		Section 20 & 29	Town 26N	Range 7E
Station 627+02	Latitude: 44.71466 Longitude: -89.699593	☐ YES ☒ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: NAD 83 (1991), US Survey Feet Vertical Datum: NAVD 88, Feet		**Traffic Forecast Data**		
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed / Functional Class
Feature On STH 34		Feature On		
Feature Under Wisconsin River		Feature Under		
Region Contact: Tim Harney (Area Code) Telephone Number(s): (715) 412-8233 Email: tim.harney@dot.wi.gov		Consultant Contact: N/A (Area Code) Telephone Number(s): Email:		

Work To Be Performed

Field Information Required
Item Number *(see Pages 2–4)*

- ☐ A. Structural Repair 1–3, 22
- ☐ B. Overlay 1–3, 10–22, 26–28, 32, 34
  - ☐ Concrete Overlay ☐ Asphalt Overlay
  - ☐ Polymer Modified Asphalt Overlay ☐ Thin Bonded Polymer Overlay
  - ☐ Other: _____
- ☐ C. New Bearings 3, 8, 9, 22
- ☐ D. New Railings 15–17, 20–23
- ☐ E. Curb and Sidewalk Repair 2, 3, 16, 22, 23
- ☐ F. Abutment Repair 2, 3, 12, 16
- ☐ G. Pier Repair 2, 3, 12, 16
- ☐ H. New Deck 1–6, 9, 10, 13–28, 32–34
- ☐ I. Widening 1–28, 30, 32–35
- ☐ J. Joint Repair 2, 3, 8, 16, 19, 22
- ☐ K. Surface Repair 2, 3, 22
- ☐ L. Raising Bridge 3, 6, 9, 16, 20–24
- ☐ M. Slope Stabilization 1–3, 30
- ☒ N. Scour Repair ..... 1, 2 or 3, 16, 19, 21, 27, 29, 31–35
- ☐ O. Painting 16, 22, 24
- ☐ P. Other: _____

Field Information Required

If no structure number exists provide the following: Small County Map on which the location of proposed structure is shown in red and any highway relocation in green. In addition, provide Location Map of scale not less than 1" = 2000' showing the structure location and number.

☒ 1. Most recent inspection report, brief history of bridge construction date, and description of repairs with dates.

☒ 2. Outline deficient areas on existing structure plan or drawing.

☒ 3. Photographs of details requiring repairs or modifications, such as: bearings, x-frames, joints, etc. Photograph all deficient areas. Clearly label all photographs.

☐ 4. Provide proposed typical section for roadway and structure showing dimensions and cross slopes.

☐ 5. Survey beam seat or girder elevations at both sides of bridge at all substructure units.

☐ 6. Provide cross-section elevations at 10 foot intervals extending across the structure and a minimum of 100 feet beyond each end. Sections should be normal to centerline and show elevations at centerline roadway and gutter line. Take elevations along joints and at floor drains.

☐ 7. Show and identify starting stationing on bridge.

☐ 8. Record measurement, temperature of the structure, and date taken for each of the following:
(a) Joint opening measured normal to joint at centerline of roadway and both curb lines.
(b) Clearance between girder ends at piers.
(c) Distance from front face of abutment backwall to closest point of girder end measured parallel to girder.
(d) Temperature of structure determined by averaging top and under deck (if accessible) readings.

☐ 9. Fixed and expansion bearings - condition and orientation.

☐ 10. Number and width of proposed pours including construction staging sequence.

☐ 11. Location of existing construction joints in the deck.

☐ 12. Estimated Quantities:

Preparation, Decks, Type 1	Sq. Yd. _____	
Preparation, Decks, Type 2	Sq. Yd. _____	
Full Depth Deck Repair	Sq. Yd. _____	Galvanic Anodes? _____
Concrete Surface Repair Superstructure	Sq. Ft. _____	Galvanic Anodes? _____
Concrete Surface Repair Substructure	Sq. Ft. _____	Galvanic Anodes? _____
Curb Repair	LF. _____	Galvanic Anodes? _____

☐ 13. Sufficiency number: _____ (obtain from HSI Bridge Inventory System)

☐ 14. Appraisal and Condition Rating

	Deck Condition	Superstructure Condition	Substructure Condition	Load Capacity Appraisal	Structural EVAL Appraisal
Current					

☐ 15. Load Ratings

	Inventory	Operational
Current Calculated Date:		
After Completed by Bridge Designer		

☒ 16. Utilities on/near Structure. (WisDOT policy is to avoid placing utilities on the structure.)
☐ Yes ☒ No

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

☐ 17. Is existing bridge railing deficient?
☐ Yes ☐ No If Yes – Replacement Rail Type:

☐ 18. Drains to be:
☐ Raised ☐ Closed ☐ Downspouted ☐ New

☒ 19. Traffic maintained on bridge during work?
☒ Yes ☐ No If Yes – Include sketches

☐ 20. Will guard rail be attached?
☐ Yes ☐ No If Yes – Which corners?

☒ 21. Will work to be performed eliminate all deficiencies?
☐ Yes ☒ No If No – Explain: No, repair only scour issues

☐ 22. Hazardous waste (asbestos) to be removed?
☐ Yes ☐ No If Yes – Explain:

☐ 23. Wing location(s) for surface drain anchors:

☒ 24. Painting?
☐ Yes ☒ No If Yes – Explain on Page 4
(all, part, railing, color system, containment, bid items)

☐ 25. Desired roadway width: *(new deck / widening)* _____ Ft.
Desired sidewalk clear width: Left: _____ Ft. Right: _____ Ft.

☐ 26. Maximum increase in grade line elevation _____ In.

☒ 27. Benchmark description to be shown

☐ 28. Desired final cross slopes on bridge _____ Ft./Ft.

☒ 29. Underwater Inspection Report including:
- Streambed Cross Section With Pier, Footing and Seal Elevations
- Pier Elevation Drawings
- Pier Layout
- Hydrographic Survey

☐ 30. Slope stabilization, provide:
Type: _____ Quantity: _____ CY.
Slope: _____ Ft./Ft. Fill: _____ CY.

☒ 31. Preliminary layout of grout bags or proposed scour repair.
C.I.P. Articulated Mats (for Scour) _____ CY.
Grout Bags (for Scour) _____ CY.
Heavy Riprap _____ CY.
Extra Heavy Riprap _____ CY.

☐ 32. Report submitted with Preliminary Plan requires **no** CADD file submittal *(See ESubmittal instructions)*.

☒ 33. Report submitted for development of Preliminary Plan to structure design engineer requires CADD file (if available) submittal and Report submittal to Soils Engineer if project involves foundation modifications.

☒ 34. Coordinate with structure design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.

☒ 35. If project involves substructure widening coordinate with structure and/or hydraulic design engineer to determine if information on the separation and/or stream crossing SSR will be required.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

Construction History:

1980 New Structure
2006 Concrete Overlay

Scour Mitigation Repairs:

Pier 2 Location - Fill scoured area with grout bags placed on top of cast in place articulated mat around pier 2, then use structure grout to fill any undermined areas. Grout bags should only be placed at the upstream pier 2 nose. Cast in place articulated mat should surround pier 2. See attached sketch of proposed repairs for more detail. See attached underwater dive inspection report for elevations.

Pier 3 Location - Fill scoured area with grout bags placed on top of cast in place articulated mat around pier 3, then use structure grout to fill any undermined areas. Grout bags and cast in place articulated mat should be placed around the entire perimeter of pier 3. See attached sketch of proposed repairs for more detail. See attached underwater dive inspection report for elevations.

19. Traffic will be maintained during work on bridge and no sketches are included since repairs are being made to the piers underwater. No lanes will be closed.

29. Underwater Inspection Report attached.

31. Scour repair layout and quantities to be determined by BOS.

Preliminary Estimate - Structure # B-37-187 STH 34

Pier 2 Location

Item #	Description	Unit	Quantity	Cost Per Unit	Cost Per Item
spv.xxxx.xx	C.I.P. Articulated Mat	C.Y.	26.0	$ 825.00	$ 21,450.00
90034B	Grout Bags	C.Y.	12.0	$ 700.00	$ 8,400.00
SPV.0035.01	Grout	C.Y.	1.0	$ 2,000.00	$ 2,000.00
619.1000	Mobilization	EACH	0.5	$ 15,000.00	$ 7,500.00
643.0100	Traffic Control (Project)	EACH	0.5	$ 10,000.00	$ 5,000.00
				Pier 2 Estimated Total	$ 44,400.00

Pier 3 Location

Item #	Description	Unit	Quantity	Cost Per Unit	Cost Per Item
spv.xxxx.xx	C.I.P. Articulated Mat	C.Y.	39.0	$ 825.00	$ 32,175.00
90034B	Grout Bags	C.Y.	43.0	$ 700.00	$ 30,100.00
SPV.0035.01	Grout	C.Y.	1.0	$ 2,000.00	$ 2,000.00
619.1000	Mobilization	EACH	0.5	$ 15,000.00	$ 7,500.00
643.0100	Traffic Control (Project)	EACH	0.5	$ 10,000.00	$ 5,000.00
				Pier 3 Estimated Total	$ 76,800.00

Project

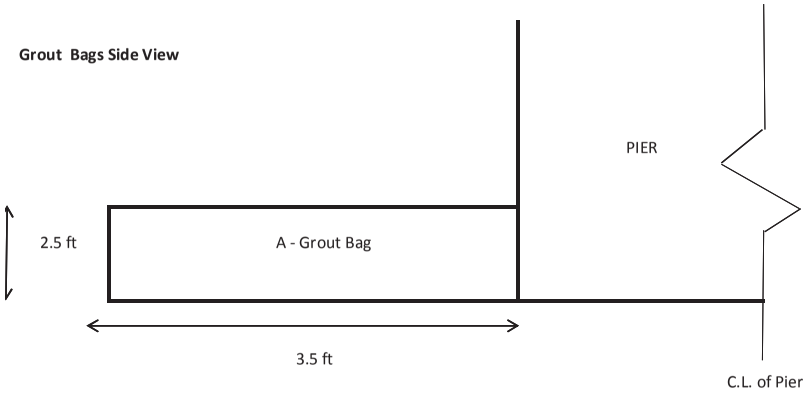
Item #	Description	Unit	Quantity	Cost Per Unit	Cost Per Item
spv.xxxx.xx	C.I.P. Articulated Mat	C.Y.	65	$ 825.00	$ 53,625.00
90034B	Grout Bags	C.Y.	55	$ 700.00	$ 38,500.00
SPV.0035.01	Grout	C.Y.	2	$ 2,000.00	$ 4,000.00
619.1000	Mobilization	EACH	1	$ 15,000.00	$ 15,000.00
643.0100	Traffic Control (Project)	EACH	1	$ 10,000.00	$ 10,000.00
				Project Estimated Total	$ 121,200.00

Remarks

Estimate Surrounding 8 ft of the Length of Pier 2 with Grout Bags
Estimate Surrounding the Entire Length of Pier 3 with Grout Bags
Void/Undermining Demensions Taken from UW Dive Inspection
UW Dive Report States Undermining at Pier Two = 5 ft long x 5 ft deep x 1 ft high = 25 cf
UW Dive Report States Undermining at Pier Three = 3 ft long x 3 ft deep x 2 ft high = 18 cf

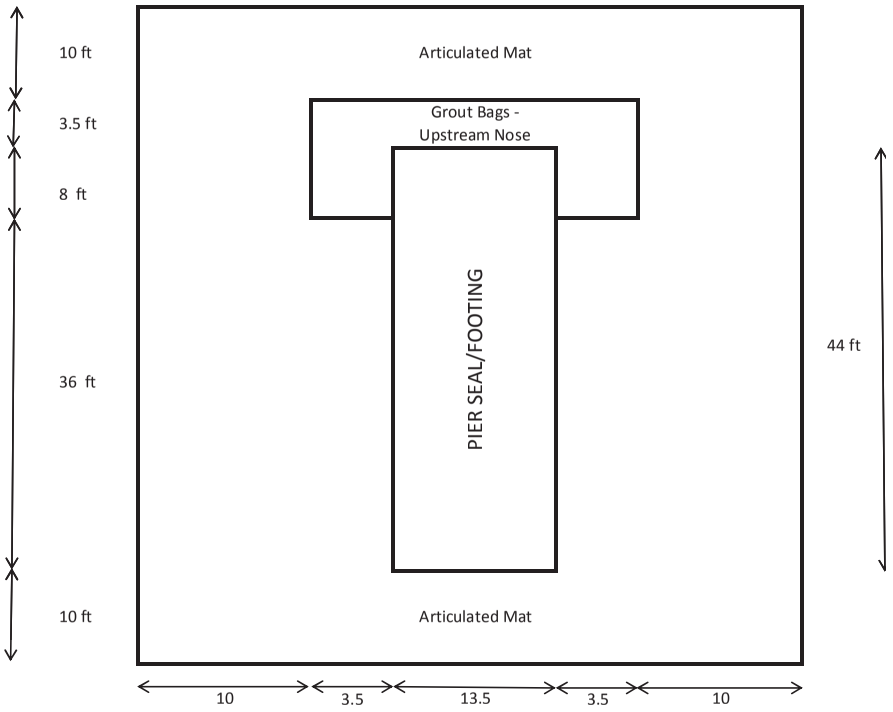
PIER 2 LOCATION

Grout Bags Side View



Area A	8.75 ft^2
Calc. Area of Concrete	8.75 ft^2

Plan View of Scour Mediation

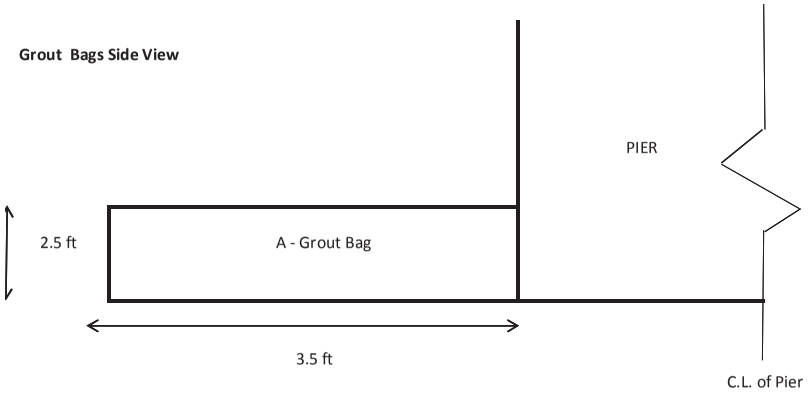


Quantity Calculations

Volume of Mat =	26 CY
Volume of Grout =	12 CY

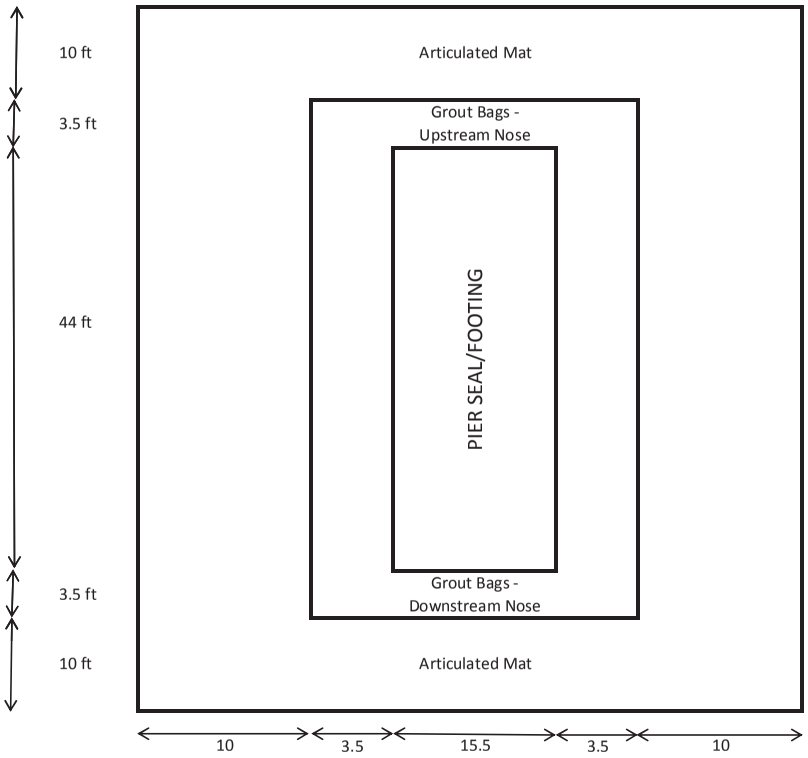
PIER 3 LOCATION

Grout Bags Side View



Area A	8.75 ft^2
Calc. Area of Concrete	8.75 ft^2

Plan View of Scour Mediation



Quantity Calculations

Volume of Mat =	29 CY
Volume of Grout =	43 CY

BRIDGE INSPECTION REPORT
Wisconsin Dept. of Transportion
DT2007 2003 s.84.17 Wis. Stats. Type = UW-DIVE INSPECTION

Inventory Data

Feature On: STH 34		**Maintainer:** STATE HIGHWAY DEPT		**Structure No: B-37-0187**
Feature Under: WISCONSIN RIVER 2		**Sect/Twn/Rng:** S29 T26N R07E		
Location: 1.8M N JCT CTH C TO		**County:** MARATHON	**Municipality:** TOWN-KNOWLTON(37048)	
Inv Rating: HS22	**Rdwy Width (ft):** 40.0	**Deck Width (ft):** 43.0	**Existing Posting:**	
Oper Rating: HS37	**Total Length (ft):** 554.2	**Deck Area(ft2):** 23830	**ADT On:** 5430 **Yr:** 2003	**ADT Under:** **Yr:**

Inspection Type (* = Supplemental Form Required)

	Routine Visual	Fracture Critical*	In-Depth*	UW-Dive*	UW-Surv*	UW-Probe/Visual*	Movable*
Last Insp.	08-18-09		06-23-08	06-01-11	08-25-03	08-18-09	
Frequency	24		72	60	60	24	
Recom. Freq.	24				60	24	
	Initial*	**Damage**	**Interim**	**Load Posted**	**SI & A Field Review***		
Last Insp.							
Frequency	**N/A**						
Recom. Freq.	**N/A**				**Item No. Needing Change**		

Load Rating Information

Overburden	**Measurement (in):** 2.2	**Date:** 06-01-06	**Deck Surface Type:** CONCRETE	
Section Loss	**File Meas. (%):**	**File Insp. Date:** 10-13-10	**Insp. Measurement (%):**	**Describe:**
Re-rate for load capacity?		**Reason:**		**Date Last Rated:** 06-01-04

Expansion Joints

Location	Type	Temp: File Insp. Date	File Insp. (in)	New Insp. (in)
SOUTH EN	S-400E			
NORTH EN	S-400E			

Signing Condition

Type of Marker	File	Y/N	Comments
Bridge Markers	Y	Y	4 TIGER BOAR
Narrow Bridge			
One Lane Road			
Vertical Clearance			
Weight Limit Post			
Other(Addl. Sign)			

Clearances(Cardinal = N or E)	File Meas. (ft.)	File Date	New Meas. (ft.)
Min. Vertical Clearance Under (Cardinal)			
Min. Veritcal Clearance Under (non-Cardinal)			
Min. Vertical Clearance On			

Structure Type

Material	Configuration	# of Spans	Overall Length (ft)
CONT STEEL	DECK GIRDER		122.0
CONT STEEL	DECK GIRDER		153.0
CONT STEEL	DECK GIRDER		153.0
CONT STEEL	DECK GIRDER		122.0

Construction/Rehabilitation History

Year	Work Performed	Plan	Shop
1980	NEW STRUCTURE	C168	C168
2006	CONCRETE OVER	PLAN	

Inspection Information

Special Requirements	Y/N	Comments
Traffic Control		
Access Equipment	Y	20 ft BOAT
Other		

Inspector Information

Team Leader Name and No. Printed: Forsyth, Roy A (9534)	**Team Member(s) Name(s) Printed:** Jordan Furlan, Mark Sorenson	
Team Leader Signature:	**Inspection Date:** 06-01-11	**Inspection Agency:** CONSULTANT (10)
District/Local Manager and No. Printed:	**District/Local Manager Signature:**	**Review Date:**

Element Inspection (X) Check Elements Inspected

Ck	Elem./Env.	Description	Unit	Total QTY.	Quantity in Condition States 1	2	3	4	5
	22 / 4	Conc Deck/Conc Ov	SF	23830		23830			
	NEW "04; INFRARED THERMOGRAPHY SURVEY 6/08 INDICATES TOTAL 0.5% DETERIORATION SEE INSPECTION PDF								
	106 / 2	Unpnt Stl Opn Girder	LF	2755	2751	4			
	5-62 IN. KOR 10; ENDS PAINTED; MINOR RUST @ N ABUT G5								
	171 / 2	Unpainted Steel Diap	EA	96	96				
	KOR 10.								
	174 / 2	Unpainted Steel Late	EA	28	28				
	KOR 10; ENDS PAINTED "04;								
X	210 / 3	R/Conc Pier Wall	LF	120	113	7			
	TVC, 1 OPEN V CRK @ PIER1, BAY 3 & PIER 3, BAYS 1 & 3 & PIER 2, GIRDER 3; SM CHIP @ E. END PIER 3								
	215 / 3	R/Conc Abutment	LF	85	79	6			
	2 SMALL SPLS & 4 FT TVCS IN N ABUT;								
	220 / 3	R/C Sub Pile Cap/Ftg	EA	3	3				
	PIER FOOTINGS EXPOSED - INSPECT BY DIVING INSPECTION. 10/2010 DIVING INSPECTION INDICATES PIERS IN GOOD CONDITION EXCEPT UNDERMINING AT PIER 1 PENETRATING UP TO 1 FT. DEEP.								
	300 / 4	Strip Seal Exp Joint	LF	80	80				
	NEW "04;								
	311 / 4	Moveable Bearing	EA	20	20				
	ABUT, P1 & P3, BRZ PLTS (KOR 10); ABUTS PAINTED "04;								
	313 / 4	Fixed Bearing	EA	5	5				
	PIER 2.								
	322 / 4	Bituminous Approach	EA	2	2				
	NEW "08;								
	331 / 4	Conc Bridge Railing	LF	1108	800	308			
	PATCHED & STAINED "04; E RAIL WORSE								
X	342 / 2	RipRap Slope Protect	EA	2	2				
	358 / 4	Deck Cracking SmFlag	EA	1		1			
	SCTRD TIGHT LONG. & TRANS CRKS; UNSLD "09								

Element Inspection (X) Check Elements Inspected

Ck	Elem./Env.	Description	Unit	Total QTY.	Quantity in Condition States 1	2	3	4	5
	359 / 4	Und Dk Surf Sm Flag	EA	1	1				
	FEW TVC W/ LT EFFLOR; FULL DEPTH REPAIR, SPN2-BAY1, SPN3-BAY1; DLM/SPL SPN2-BAY2;								
X	361 / 4	Scour Smart Flag	EA	1		1			
	Local scour at the upstream nose of Piers 2 and 3 with undermining penetrating up to 3 ft. under the seal.								
	400 / 3	Concrete Wingwall	EA	4	4				
	405 / 2	Drainage	EA	4	2	2			
	2-FLUMES - NORTH/2-DECK DRAINS - SPAN-4; BOTH DECK DRAINS PLUGGED , VEGITATION GROWING FROM E. DRAIN								
	416 / 2	Utilities	EA	1	1				
	3 INCH GAS IN BAY 4.								

General Inspection/Maintenance Notes

Maintenance Recommendations (See standard code items & numbers)

Maintenance Item:
Amount: **Date(YYYY-MM-DD):**
Maintenance item comment:

Maintenance Item:
Amount: **Date(MM-DD-YY):**
Maintenance item comment:

Maintenance Item:
Amount: **Date(MM-DD-YY):**
Maintenance item comment:

NBI Ratings

NBI	File	New	NBI	File	New
Deck	7	7	Culvert	N	N
Superstructure	8	8	Channel	6	6
Substructure	5	5	Waterway	8	8

Wisconsin Dept. of Transportion
Underwater Bridge Inspection Report/Dive Log
Emxx-01xx Section 84.17 Wis. Statues

This form may be required as a supplement to form EM30-01xx for Underwater Bridge Inspections.

Structure No: B-37-0187

Inspection Date: 01-Jun-2011 **Weather Condition.:** Sunny, 70 F **Waterline Elev.(ft):** 1114.5

Safety Concern: Boat Traffic, Depth **Water Temp.(F):** 55 **Total Days On Site:** 1

Current (ft/s): 0 **Visibility:** 6 in to 1ft **Total Inspection Hours:** 3
Total Inspection Minutes:

Elevation Marker Description: Top of Pier 3 wall at upstream (w) nose. (Elev. = 1120.3 ft. from plans)

General Site Condition	
Scour at Bridge Site	Yes, local scour at Piers 2 and 3.
Embankment Erosion / Conditions	Stable
Dive Platform: Shore, Boat, Other	Boat
Location of Boat Access	<1/4 mile downstream at south bank or at southeast quadrant

Substructure Unit(s)	Pier #1	Pier #2
Level of Inspection	Level II	Level II
Abutment / Pier Type	SOLID SHAFT	SOLID SHAFT
Dive Log		
Maximum Water Depth, at Unit (ft)	20.9	39.4
Channel Bottom Material, at Unit	Sand w/ Gravel	Sand w/ Gravel
Scour at Unit	None	Yes
Marine Growth / Cleaning Performed? (Y/N)	Y / Y	Y / Y
Debris / Clearing Performed? (Y/N)	N / N	N / N
Mode: Wade,Scuba,Surface Supplied Air:	Scuba	Scuba
Inspection Comments:		Seal undermined 1 ft vertically with 2 ft penetration at NW corner.

Substructure Unit(s)	Pier #3	Pier #4
Level of Inspection	Level II	
Abutment / Pier Type	SOLID SHAFT	
Dive Log		
Maximum Water Depth, at Unit (ft)	33.5	
Channel Bottom Material, at Unit	Sand w/ Gravel	
Scour at Unit	Yes	
Marine Growth / Cleaning Performed? (Y/N)	Y / Y	/
Debris / Clearing Performed? (Y/N)	N / N	/
Mode: Wade,Scuba,Surface Supplied Air:	Scuba	
Inspection Comments:	Seal undermined 2 ft vertically with 3 ft penetration at SW corner.	

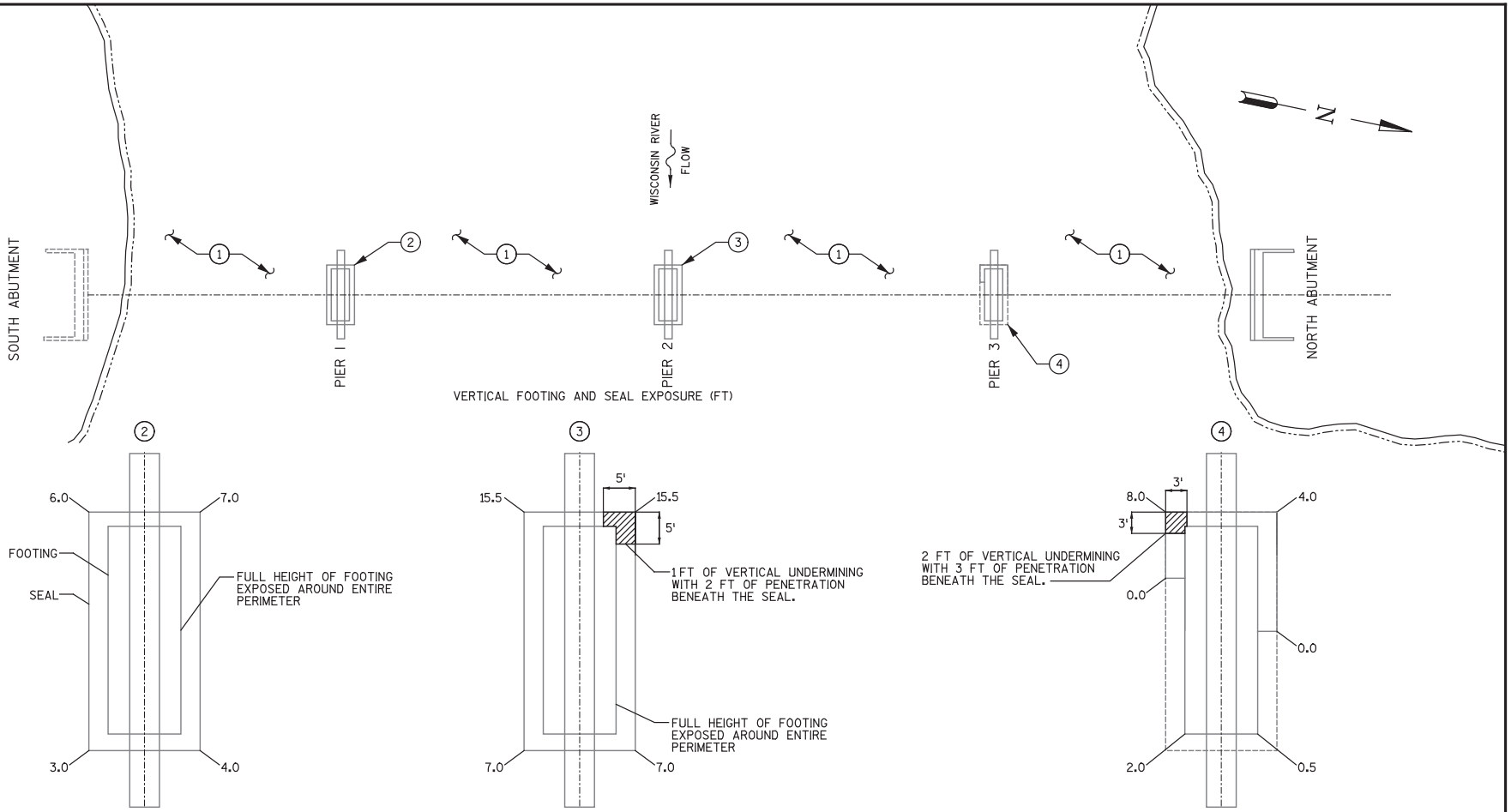
Substructure Unit(s)	Abutment Cardinal	Abutment Non-Cardinal
Level of Inspection		
Dive Log		
Maximum Water Depth, at Unit (ft)		
Channel Bottom Material, at Unit		
Scour at Unit		
Marine Growth / Cleaning Performed? (Y/N)	N / N	N / N
Debris / Clearing Performed? (Y/N)	N / N	N / N
Mode: Wade,Scuba,Surface Supplied Air:		
Inspection Comments:	The North Abutment was dry at the time of inspection and was not inspected.	The South Abutment was dry at the time of inspection and was not inspected.

Conclusions

Previously noted undermining at the NW corner of Pier 1 was not observered. Piers 2 and 3 are founded on spread footings and undermining was observed at the upstream noses.

Recommendations

Place riprap at the upstream nose of Piers 2 and 3.



INSPECTION PLAN

INSPECTION NOTES

(1) CHANNEL BOTTOM MATERIAL CONSISTED OF 3 IN. DIAMETER SAND AND GRAVEL.

GENERAL NOTES

1. ACCORDING TO PLANS DATED 1/18/1979, THE 100 YEAR FLOOD WATER LEVEL IS LOCATED AT ELEVATION 1119.2.
2. ACCORDING TO PLANS DATED 1/18/1979, BOTH ABUTMENTS AND PIER 3 ARE FOUNDED ON HP 10 X 42 STEEL PILES. PIERS 1 AND 2 ARE FOUNDED ON SPREAD FOOTINGS.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

2011 UNDERWATER BRIDGE INSPECTIONS

STRUCTURE NO.: B-37-187

WATERLINE REFERENCE: TOP OF PIER 3 WALL AT UPSTREAM NOSE = 1120.3		
06/01/2011 WATERLINE EL. = 1120.3 - 5.8 = 1114.5		
BRIDGE LOCATION: STH 34 OVER THE WISCONSIN RIVER - KNOWLTON, WI		
BOAT LAUNCH: SOUTHEAST QUADRANT OF BRIDGE (1/4 MILE D/S)		
INSP BY: RAF	COLLINS ENGINEERS, INC. 2033 W. HOWARD AVE. MILWAUKEE, WI 53221 (414) 282-6905	DATE: 06/01/2011
DRAWN BY: JTF		SCALE: 1"=50'
CHECKED BY: RAF		FIGURE NO.: 1

USER:Roy Forsyth PEN TABLE:CEI_TextSub_ScreenControlByLevel.tbl PLOT DRIVER:Pdf_bw_HS.plt FILE:B-37-187.dgn

2010 HYDROGRAPHIC SURVEY PLAN

GENERAL NOTES

1. THE HYDROGRAPHIC SURVEY WAS COMPLETED ON JUNE 01, 2011 BY COLLINS ENGINEERS, INC. SOUNDINGS WERE OBTAINED USING A CONTINUOUSLY RECORDING FATHOMETER
2. OPERATING AT 200kHz AND LINKED TO A WAAS CAPABLE GPS RECEIVER.
3. ALL WATER DEPTHS ARE IN FEET AND ARE REFERENCED TO THE WATERLINE ELEVATION STATED IN THE TITLE BLOCK.
4. BASE MAP INFORMATION SHOWN ON THIS DRAWING SHALL BE CONSIDERED APPROXIMATE.

LEGEND

—5— MAJOR CONTOUR
—1— MINOR CONTOUR

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

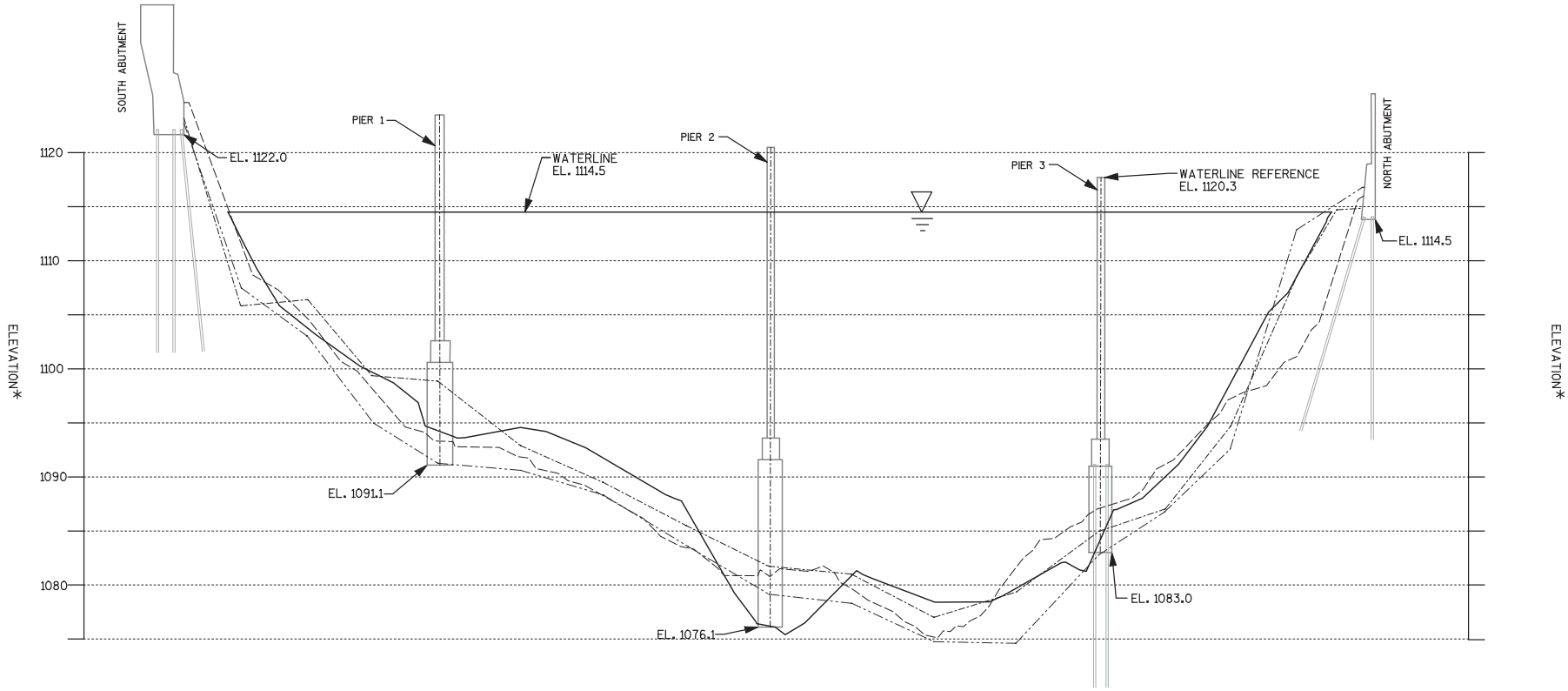
2011 UNDERWATER BRIDGE INSPECTIONS

STRUCTURE NO.: B-37-187

WATERLINE REFERENCE: TOP OF PIER 3 WALL AT UPSTREAM NOSE = 1120.3	
06/01/2011 WATERLINE EL. = 1120.3 - 5.8 = 1114.5	
BRIDGE LOCATION: STH 34 OVER THE WISCONSIN RIVER - KNOWLTON, WI	
BOAT LAUNCH: SOUTHEAST QUADRANT OF BRIDGE (1/4 MILE D/S)	
INSP BY: RAF	DATE: 06/01/2011
DRAWN BY: JTF	SCALE: 1"=60'
CHECKED BY: RAF	FIGURE NO.: 2

COLLINS ENGINEERS INC
2033 W. HOWARD AVE.
MILWAUKEE, WI 53221
(414) 282-6905

USER:Roy Forsyth PEN TABLE:CEI_TextSub_ScreenControlByLevel.tbl PLOT DRIVER:Pdf_bw_HS.plt FILE:B-37-187.dgn



UPSTREAM FASCIA CHANNEL CROSS SECTION

(LOOKING WEST)

LEGEND

- CHANNEL BOTTOM PER PLANS DATED 1979
- CHANNEL BOTTOM PER 2005 INSPECTION
- CHANNEL BOTTOM PER 2010 INSPECTION
- CHANNEL BOTTOM PER 6/1/11 INSPECTION

GENERAL NOTES

VERTICAL ELEVATION DATUM IS PER PLANS DATED 1/18/1979.

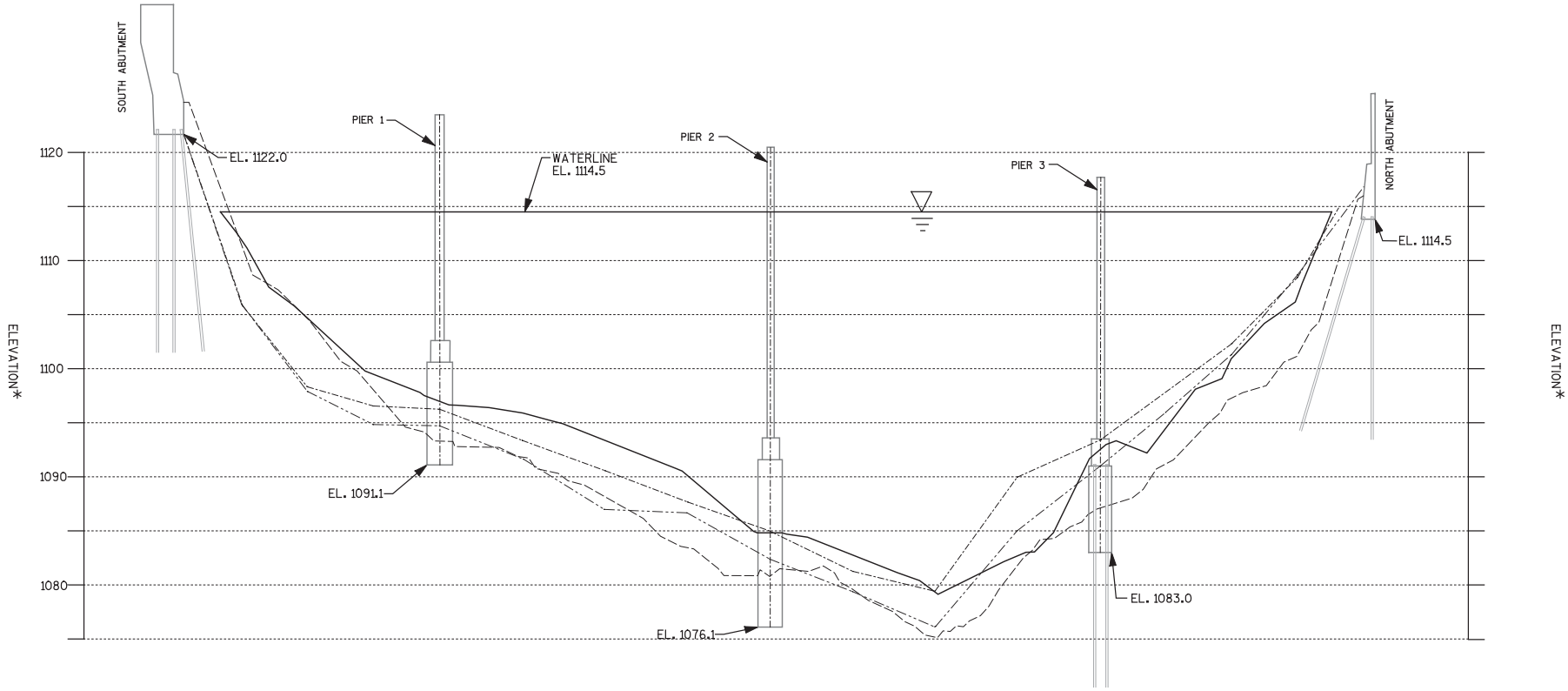
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

2011 UNDERWATER BRIDGE INSPECTIONS

STRUCTURE NO.: B-37-187

WATERLINE REFERENCE: TOP OF PIER 3 WALL AT UPSTREAM NOSE = 1120.3		
06/01/2011 WATERLINE EL. = 1120.3 - 5.8 = 1114.5		
BRIDGE LOCATION: STH 34 OVER THE WISCONSIN RIVER - KNOWLTON, WI		
BOAT LAUNCH: SOUTHEAST QUADRANT OF BRIDGE (1/4 MILE D/S)		
INSP BY: RAF	COLLINS ENGINEERS INC 2033 W. HOWARD AVE. MILWAUKEE, WI 53221 (414) 282-6905	DATE: 06/01/2011
DRAWN BY: JTF		SCALE: 1"=50'
CHECKED BY: RAF		FIGURE NO.: 3

USER:Roy Forsyth PEN TABLE:CEI_TextSub_ScreenControlByLevel.tbl PLOT DRIVER:Pdf_bw_HS.plt FILE:B-37-187.dgn



DOWNSTREAM FASCIA CHANNEL CROSS SECTION

(LOOKING WEST)

LEGEND

- CHANNEL BOTTOM PER PLANS DATED 1979
- CHANNEL BOTTOM PER 2005 INSPECTION
- CHANNEL BOTTOM PER 2010 INSPECTION
- CHANNEL BOTTOM PER 6/1/11 INSPECTION

GENERAL NOTES

VERTICAL ELEVATION DATUM IS PER PLANS DATED 1/18/1979.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

2011 UNDERWATER BRIDGE INSPECTIONS

STRUCTURE NO.: B-37-187

WATERLINE REFERENCE: TOP OF PIER 3 WALL AT UPSTREAM NOSE = 1120.3		
06/01/2011 WATERLINE EL. = 1120.3 - 5.8 = 1114.5		
BRIDGE LOCATION: STH 34 OVER THE WISCONSIN RIVER - KNOWLTON, WI		
BOAT LAUNCH: SOUTHEAST QUADRANT OF BRIDGE (1/4 MILE D/S)		
INSP BY: RAF	COLLINS ENGINEERS, INC. 2033 W. HOWARD AVE. MILWAUKEE, WI 53221 (414) 282-6905	DATE: 06/01/2011
DRAWN BY: JTF		SCALE: 1"=50'
CHECKED BY: RAF		FIGURE NO.: 4

USER:Roy Forsyth PEN TABLE:CEI_TextSub_ScreenControlByLevel.tbl PLOT DRIVER:Pdf_bw_HS.plt FILE:B-37-187.dgn

PIER 5 EAST FACE AND DOWNSTREAM NOSE

PIER 6 WEST FACE AND UPSTREAM NOSE

RETAINING WALL
STRUCTURE SURVEY REPORT

E-SUBMIT CHECKLIST

RETAINING WALL STRUCTURE SURVEY REPORT

1 STRUCTURE SURVEY REPORT

☐ **Complete DT1694, Structure Survey Report ☒Retaining Wall**
- ***Preference:*** *desired wall type*
  - *i.e. MSE, Modular Block, Sheet Pile, CIP…*
- *SSR Workshop Manual and Videos*
- *Bridge Manual Chapter 6.2.1* - *Bridge Manual Chapter 14*

2 SUPPORTING DOCUMENTATION

PDF Files:

☐ **Project Location Map**
- *structure location and number*
- *other proposed structures within project limits*

☐ **Plan and Profile Sheet (graphical or tabulated)**
- *horizontal curve data*
- *vertical curve data (grades to nearest thousandth)*

☐ **Typical Roadway Cross Section**
- *typical dimensions, slopes, clear zones , sidewalks, curb and gutter, etc.*

☐ **Wall Layout Information**
- *geometry table showing offsets, ground line elevation and top of wall elevation at 25ft stations*
- *roadway and wall cross sections*
- *typical section of wall*

☐ **Labeled Photographs**
- *existing structures, utilities, buildings, etc.*

☐ **Preliminary Staging Plan (if required)**

DGN Files:

☐ **Alignment**
☐ **Proposed Pavement**
☐ **Utilities**
☐ **Contours**
☐ **Base Mapping**
☐ **Right of Way**
☐ **Cross Section**
- *at proposed structure*
- *at existing structure (if applicable)*

3 SUBMITTAL

☐ **E-Submit**
- *STRUCTURE SURVEY REPORT and SUPPORTING DOCUMENTATION are submitted using the E-Submit process (as "BOS DESIGN")*
- *E-Submit*
- *E-Submit Help*

☐ **Email: Region Soils Engineer**
- *IMPORTANT! The formal notice of the project to the Region Geotechnical Section*
- *State on the SSR who will be doing the geotechnical work/soil borings*

SEPARATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1694 6/2012

☐ **Grade Separation** ☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **High Mast Lighting** ☐ **Other:** _____

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID	Construction Project ID	Highway (Project Name)			
Final Plan Due Date	Preliminary Plan Due Date	☐ Town ☐ Village ☐ City			
PS&E Date	Letting Date	County			
New Structure Number	Existing Structure Number	Section	Town	Range	
Station	Latitude: Longitude:	☐ YES ☐ NO Structure Located on National Highway System			
For Survey and CADD Files Horizontal Coordinate System: Vertical Datum:		**Traffic Forecast Data**			
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On		Feature On			
Feature Under		Feature Under			
Region Contact: (Area Code) Telephone Number(s): Email:		Consultant Contact: (Area Code) Telephone Number(s): Email:			

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (see ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.

2. **Plan and Profile Sheet** on proposed reference line of feature on and feature under showing the following:
(a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance; (g) For railroad project, survey top of each rail and provide proposed geometrics in conformance with railroad company standards.

3. **Layout Sketch** of the site drawn to a scale of not less than 1 inch = 100 feet showing the following:
(a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) Reference line intersection stationing and intersection angle; (e) North Arrow; (f) Buildings; (g) Above and below ground facilities; (h) Proposed structure when report submitted with Preliminary Plan; (I) Railroad company stationing; (j) Station at ends of existing structure; (k) Other features which influence the design.

4. **Typical Sections** of all roadways showing the following:
(a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Subgrade; (e) Sidewalk, curb and gutter; (f) Median treatment at underpass mounted or ditch section; (g) Clear zone width; (h) Horizontal clearances at underpass.

5. **Labeled Photographs** of: (a) Existing structure; (b) Site pictures in all controlling directions including, but not limited to North, East, South and West; (c) Buildings within 100 feet of proposed structure.

Proposed Structure

Preference for Structure Type at this Site: ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☐ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 3)

Spans- Number	Approximate Centerline to Centerline Span Lengths Along Reference Line of Highway
Clear Roadway Width on Structure Ft.	Cross Slope on Deck or N.C. (Normal Crown) Ft./Ft.
Skew ☐ R.H.F. ☐ L.H.F.	

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☐ No	Ft.	☐ Yes ☐ No	Ft.	☐ Yes ☐ No

Type of Slope Protection

Specify Wing Location(s) for Beam Guard Attachment	Specify Wing Location(s) for Surface Drain Anchors

Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach

YES	NO		
☐	☐	Structure Will be Constructed to Accommodate Traffic Staging	
☐	☐	Structural Approach Slab	
☐	☐	Lighting Required: Bolt Circle Diameter _____ inches	
☐	☐	Traffic/Lighting Staff been Notified for Review	
☐	☐	Conduit in Parapet: Diameter _____ Number _____	
☐	☐	Historical Properties (Archaeological, Historic) Present Near Structure	

Vertical Clearance Design
☐ 14' 9" to 15' 3"
☐ 16' 3" to 16' 9"
☐ Other: _____

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☐	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 3)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 3)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☐	☐	Structure will be Removed ☐ Bid Item ☐ Later Contract ☐ Other: _____
☐	☐	Structure will Remain in Service, Purpose: _____

For Structure Designers Use Only
Proposed Structure

Spans – Number:	Span Lengths (C.L. to C.L. of Substructure):	Skew: ☐ R.H.F. ☐ L.H.F.
Latitude:	Longitude:	

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

The more information that can be provided, the better. This will result in fewer questions from BOS during structure design or consultant review and a better end product.

The following is not all inclusive; please add/delete discussion items to fit site/project specific details that may influence structure design:

Geotechnical Coordination:
Detail who is completing geotechnical work/soil borings (in-house or consultant) and anticipated schedule of work.

Aesthetics:
If aesthetic level 2 or more is indicated, you must suggest particular requirements such as railing type, pier shape, aesthetic option (type I,II or III), special form liners, stain/paint, color (federal color number), etc. See Bridge Manual Chapter 4 for updated information. Also include coordination that is yet to be made. If applicable, provide B-##-### for example structures in the area that are similar to proposed or desired; attach an exhibit for reference. contact BOS with questions.

Structural Approach Slabs:
If requested, provide justification for their inclusion. See Bridge Manual Chapter 12.11.

Proposed Structure (& Future Expansion):
Discuss proposed size and type of structure and vertical/horizontal clearances (if special clearances are required for construction staging). Describe future expansion, if any is anticipated, which may include lower roadway lane expansion, upper roadway widening, etc. Anticipated future expansion of bridge may have impacts to profile grade, consider vertical clearance requirement.

Temporary Shoring:
Describe anticipated locations of temporary shoring needed for construction. Especially important for stage construction or current structure that remain in service during construction.

Construction Staging:
Discuss construction staging in detail and describe desired sequencing; provide sketches of staging.

Traffic Barrier:
Discuss barrier locations, type, and heights approaching the structure, if applicable.

Bike/Pedestrian/Other Structure Accommodations:
Discuss proposed sidewalks, multi-use paths, separation barriers, medians, wildlife passages, etc.

Utilities:
List utilities located under, near, or on the proposed structure. Include type of utility, action to be taken and who owns the utility. If conduit/utility will be on the proposed structure describe who will be servicing it, number and size of conduits needed and any other pertinent information. Justification for placing utilities on proposed structure and means of attaching.

Site Drainage:
Discuss potential drainage concerns involving the proposed structure. Possible concerns include proposed roadway drainage pipes under substructure units, anticipated need for deck drains and median drainage. Include locations of pipes and invert elevations as appropriate.

DNR:
Discuss the status of coordination between Region/Consultant and DNR. Include any agreements made, concerns with the site, or areas requiring special attention as expressed by DNR.

SEPARATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1694 6/2012

☐ **Grade Separation** ☐ **Railroad** ☒ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **High Mast Lighting** ☐ **Other:** _____

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID 5300-02-02	Construction Project ID 5300-02-73	Highway (Project Name) STH 161 near CTH Q		
Final Plan Due Date 05-01-2015	Preliminary Plan Due Date 10-01-2015	☐ Town ☐ Village ☒ City Madison		
PS&E Date 08-01-2015	Letting Date 12-01-2015	County Dane		
New Structure Number R-13-870	Existing Structure Number N/A	Section 26	Town 7N	Range 8E
Station 208+32.57 to 211+57.57 45'RT	Latitude: 430902.82 Longitude: 892405.81	☐ YES ☒ NO Structure Located on National Highway System		

For Survey and CADD Files
Horizontal Coordinate System: NAD 83(1991), US Survey Feet
Vertical Datum: NAVD 88, Feet

Traffic Forecast Data

	Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On N/A	Feature On			
Feature Under N/A	Feature Under			

Region Contact: Joe Smith
(Area Code) Telephone Number(s): (608)242-8808
Email: Joe.Smith@dot.wi.gov

Consultant Contact:
(Area Code) Telephone Number(s):
Email:

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (see ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.

2. **Plan and Profile Sheet** on proposed reference line of feature on and feature under showing the following:
(a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance; (g) For railroad project, survey top of each rail and provide proposed geometrics in conformance with railroad company standards.

3. **Layout Sketch** of the site drawn to a scale of not less than 1 inch = 100 feet showing the following:
(a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) Reference line intersection stationing and intersection angle; (e) North Arrow; (f) Buildings; (g) Above and below ground facilities; (h) Proposed structure when report submitted with Preliminary Plan; (I) Railroad company stationing; (j) Station at ends of existing structure; (k) Other features which influence the design.

4. **Typical Sections** of all roadways showing the following:
(a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Subgrade; (e) Sidewalk, curb and gutter; (f) Median treatment at underpass mounted or ditch section; (g) Clear zone width; (h) Horizontal clearances at underpass.

5. **Labeled Photographs** of: (a) Existing structure; (b) Site pictures in all controlling directions including, but not limited to North, East, South and West; (c) Buildings within 100 feet of proposed structure.

Proposed Structure

Preference for Structure Type at this Site:
Concrete Panel Mechanically Stabilized Earth Wall ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☐ 1 ☒ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 3)

Spans- Number	Approximate Centerline to Centerline Span Lengths Along Reference Line of Highway
N/A	Length of Wall = 325 +/-

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)	Skew
N/A Ft.	N/A Ft./Ft.	N/A ☐ R.H.F. ☐ L.H.F.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☒ No	Ft.	☐ Yes ☒ No	Ft.	☐ Yes ☐ No

Type of Slope Protection
N/A

Specify Wing Location(s) for Beam Guard Attachment	Specify Wing Location(s) for Surface Drain Anchors
N/A	N/A

Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach
N/A

YES	NO		
☐	☒	Structure Will be Constructed to Accommodate Traffic Staging	
☐	☒	Structural Approach Slab	
☐	☒	Lighting Required: Bolt Circle Diameter _____ inches	
☐	☒	Traffic/Lighting Staff been Notified for Review	
☐	☒	Conduit in Parapet: Diameter _____ Number _____	
☐	☒	Historical Properties (Archaeological, Historic) Present Near Structure	

Vertical Clearance Design
☐ 14' 9" to 15' 3"
☐ 16' 3" to 16' 9"
☒ Other: N/A

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☒	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 3)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 3)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☐	☒	Structure will be Removed ☐ Bid Item ☐ Later Contract ☐ Other: _____
☐	☒	Structure will Remain in Service, Purpose: _____

For Structure Designers Use Only
Proposed Structure

Spans – Number:	Span Lengths (C.L. to C.L. of Substructure):	Skew:	☐ R.H.F. ☐ L.H.F.
Latitude:		Longitude:	

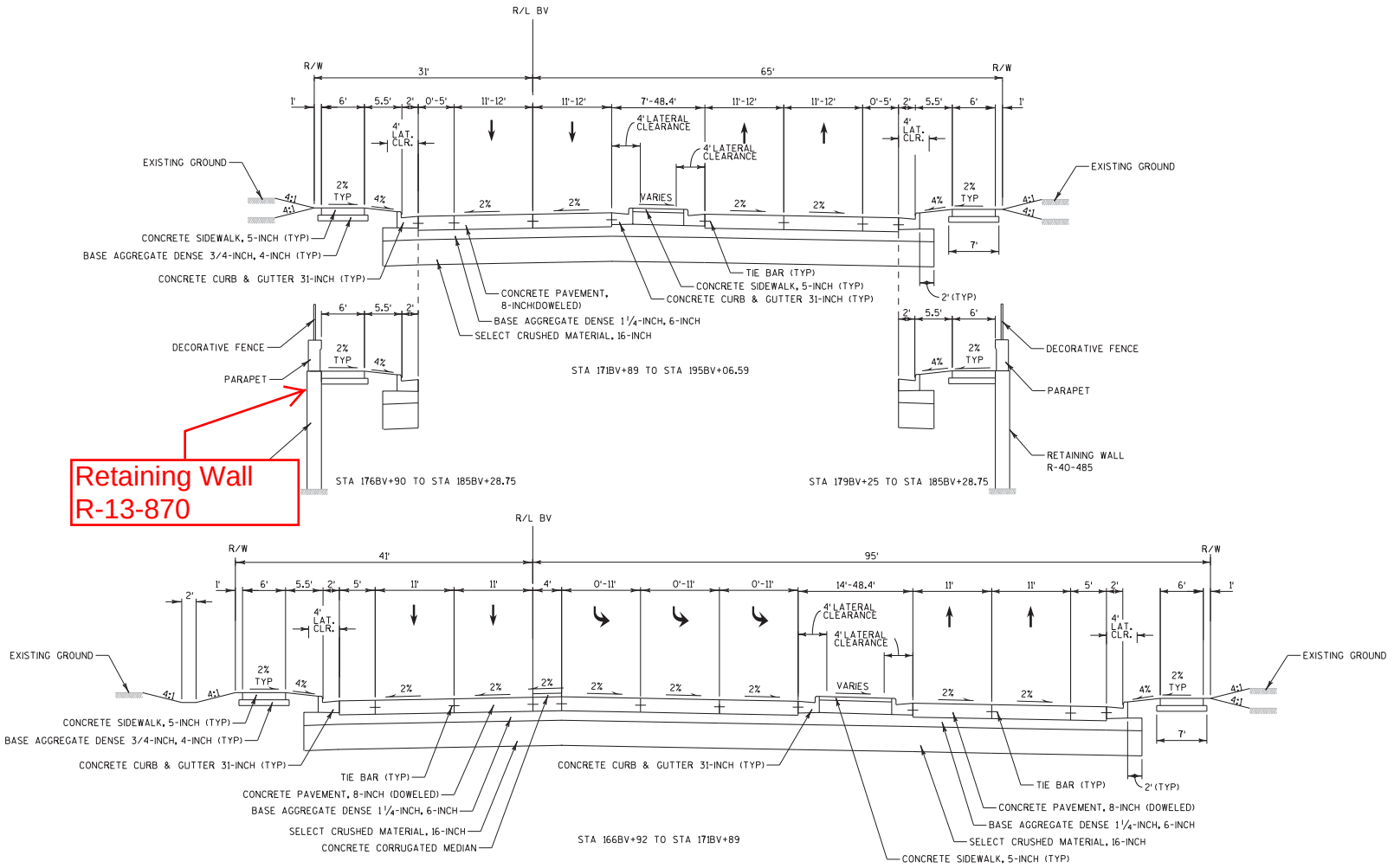
Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

Aesthetics:
Concrete form liner on front face of wall . Concrete form liner will match adjacent bridge formliner B-13-905.

The railing for the retaining walls will be a modified version of the type ‘C1’ rail shown on Wisconsin Bridge Manual Standard 30.17 and will have a height of 42-inches.

Utilities:
An existing fiber optic line is located in close proximity to the proposed retaining wall. The location shown on the plans is based on system maps and may not be accurate. The exact location of the fiber optic line should be field verified during final design.



TYPICAL FINISHED SECTION

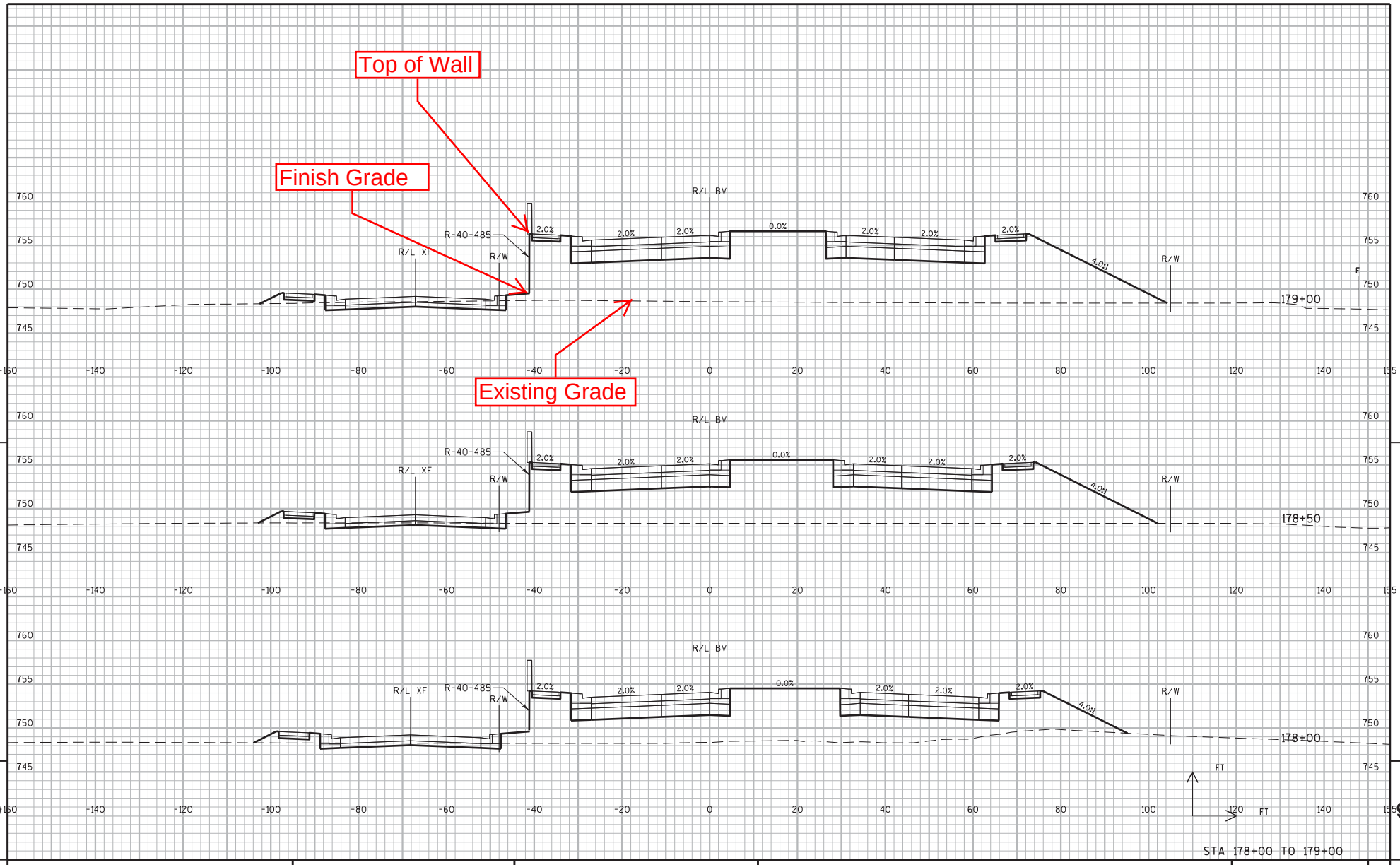
SWAN BOULEVARD

STA 166BV+92 TO STA 195BV+06.59

PROJECT NO: 1060-33-73	HWY: SWAN BOULEVARD	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET	E

FILE NAME : W:\Cadd\Preliminary\Swan\Roads\cds\020401_ts.dgn PLOT DATE : 04-JAN-2012 21:53 PLOT BY : MSCD1S PLOT NAME : 020401_ts PLOT SCALE : 15:1

WISDOT/CADDS SHEET 42



PROJECT NO: 1060-33-73	HWY: SWAN BOULEVARD	COUNTY: MILWAUKEE	CROSS SECTIONS: SWAN BOULEVARD	SHEET	E

FILE NAME : W:\Cadd\Preliminary\Swan\Roads\cds\090516_xs_bv.dgn PLOT DATE : 04-JAN-2012 22:08 PLOT BY : MSCD1S PLOT NAME : 090516_xs_bv6 PLOT SCALE : 20:1

WISDOT/CADDS SHEET 21

GEOMETRY TABLE (R-13-870)

Wall STA.	R.L. STA.	R.L. OFFSET TO F.F. OF WALL	TOP OF WALL EL.	FINISH GRADE EL.	EXISTING GRADE EL.
0+00.00	208+32.57	45.00' RT	882.93	882.93	882.90
0+25.00	208+57.57	45.00' RT	888.42	882.57	881.61
0+50.00	208+82.57	45.00' RT	893.90	882.21	882.55
0+75.00	209+07.57	45.00' RT	899.39	881.84	882.68
1+00.00	209+32.57	45.00' RT	904.87	881.48	881.57
1+25.00	209+57.57	45.00' RT	904.87	881.11	882.56
1+50.00	209+82.57	45.00' RT	904.87	880.75	879.03
1+75.00	210+07.57	45.00' RT	904.87	880.39	879.65
2+00.00	210+32.57	45.00' RT	904.87	880.02	881.13
2+25.00	210+57.57	45.00' RT	899.54	879.66	879.99
2+50.00	210+82.57	45.00' RT	894.20	879.29	880.46
2+75.00	211+07.57	45.00' RT	888.87	878.93	878.26
3+00.00	211+32.57	45.00' RT	883.53	878.56	878.40
3+25.00	211+57.57	45.00' RT	878.20	878.20	878.20

NOTE: ALL WALL STATIONING & OFFSETS ARE GIVEN AT THE FRONT FACE OF THE WALL

SIGN STRUCTURE
STRUCTURE SURVEY REPORT

E-SUBMIT CHECKLIST

SIGN STRUCTURE SURVEY REPORT

1 STRUCTURE SURVEY REPORT

☐ **Complete DT1694, Structure Survey Report ☒Sign Structure**

- ***Preference:*** *sign structure type*
  - *overhead, cantilever, single pole sign support and approximate span length*
- ***Additional Information:*** *sign structure design requires the following*
  - *sign type (VMS, I, II, or III)*
  - *sign size*
  - *posted speed limit*
  - *direction of viewing*
  - *catwalks or lighting (provide only clearances for electrical feed entrances)*
- *SSR Workshop Manual and Videos*
- *Bridge Manual Chapter 6.2.1* - *Bridge Manual Chapter 39*

2 SUPPORTING DOCUMENTATION

PDF Files:

☐ **Project Location Map**
- *structure location and number*
- *other proposed structures within project limits*

☐ **Plan and Profile Sheet (graphical or tabulated)**
- *horizontal curve data*
- *vertical curve data (grades to nearest thousandth)*
- *horizontal RL offset to center of footing/upright*
- *right of way encroachments*

☐ **Typical Roadway Cross Section**
- *typical dimensions, slopes, clear zones, sidewalks, curb and gutter, etc.*
- *show high point elevation and location (survey shots if existing roadway)*

DGN Files:

☐ **Alignment**
☐ **Proposed Pavement**
☐ **Utilities**
☐ **Base Mapping**
☐ **Right of Way**
☐ **Cross Section**
- *at proposed structure*

3 SUBMITTAL

☐ **E-Submit**
- *STRUCTURE SURVEY REPORT and SUPPORTING DOCUMENTATION are submitted using the E-Submit process (as "BOS DESIGN")*
- *E-Submit*
- *E-Submit Help*

☐ **Email: Region Soils Engineer**
- *IMPORTANT! The formal notice of the project to the Region Geotechnical Section*
- *State on the SSR who will be doing the geotechnical work/soil borings*

SEPARATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1694 6/2012

☐ **Grade Separation** ☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **High Mast Lighting** ☐ **Other:** _____

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID	Construction Project ID	Highway (Project Name)			
Final Plan Due Date	Preliminary Plan Due Date	☐ Town ☐ Village ☐ City			
PS&E Date	Letting Date	County			
New Structure Number	Existing Structure Number	Section	Town	Range	
Station	Latitude: Longitude:	☐ YES ☐ NO Structure Located on National Highway System			
For Survey and CADD Files Horizontal Coordinate System: Vertical Datum:		**Traffic Forecast Data**			
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On		Feature On			
Feature Under		Feature Under			
Region Contact: (Area Code) Telephone Number(s): Email:		Consultant Contact: (Area Code) Telephone Number(s): Email:			

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (see ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.

2. **Plan and Profile Sheet** on proposed reference line of feature on and feature under showing the following:
(a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance; (g) For railroad project, survey top of each rail and provide proposed geometrics in conformance with railroad company standards.

3. **Layout Sketch** of the site drawn to a scale of not less than 1 inch = 100 feet showing the following:
(a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) Reference line intersection stationing and intersection angle; (e) North Arrow; (f) Buildings; (g) Above and below ground facilities; (h) Proposed structure when report submitted with Preliminary Plan; (I) Railroad company stationing; (j) Station at ends of existing structure; (k) Other features which influence the design.

4. **Typical Sections** of all roadways showing the following:
(a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Subgrade; (e) Sidewalk, curb and gutter; (f) Median treatment at underpass mounted or ditch section; (g) Clear zone width; (h) Horizontal clearances at underpass.

5. **Labeled Photographs** of: (a) Existing structure; (b) Site pictures in all controlling directions including, but not limited to North, East, South and West; (c) Buildings within 100 feet of proposed structure.

Proposed Structure

Preference for Structure Type at this Site: ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☐ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 3)

Spans- Number	Approximate Centerline to Centerline Span Lengths Along Reference Line of Highway
Clear Roadway Width on Structure Ft.	Cross Slope on Deck or N.C. (Normal Crown) Ft./Ft.
Skew ☐ R.H.F. ☐ L.H.F.	

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☐ Yes ☐ No	Ft.	☐ Yes ☐ No	Ft.	☐ Yes ☐ No

Type of Slope Protection

Specify Wing Location(s) for Beam Guard Attachment	Specify Wing Location(s) for Surface Drain Anchors

Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach

YES	NO		
☐	☐	Structure Will be Constructed to Accommodate Traffic Staging	
☐	☐	Structural Approach Slab	
☐	☐	Lighting Required: Bolt Circle Diameter _____ inches	
☐	☐	Traffic/Lighting Staff been Notified for Review	
☐	☐	Conduit in Parapet: Diameter _____ Number _____	
☐	☐	Historical Properties (Archaeological, Historic) Present Near Structure	

Vertical Clearance Design
☐ 14' 9" to 15' 3"
☐ 16' 3" to 16' 9"
☐ Other: _____

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☐	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 3)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 3)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☐	☐	Structure will be Removed ☐ Bid Item ☐ Later Contract ☐ Other: _____
☐	☐	Structure will Remain in Service, Purpose: _____

For Structure Designers Use Only
Proposed Structure

Spans – Number:	Span Lengths (C.L. to C.L. of Substructure):	Skew: ☐ R.H.F. ☐ L.H.F.
Latitude:	Longitude:	

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

The more information that can be provided, the better. This will result in fewer questions from BOS during structure design or consultant review and a better end product.

The following is not all inclusive; please add/delete discussion items to fit site/project specific details that may influence structure design:

Geotechnical Coordination:
Detail who is completing geotechnical work/soil borings (in-house or consultant) and anticipated schedule of work.

Aesthetics:
If aesthetic level 2 or more is indicated, you must suggest particular requirements such as railing type, pier shape, aesthetic option (type I,II or III), special form liners, stain/paint, color (federal color number), etc. See Bridge Manual Chapter 4 for updated information. Also include coordination that is yet to be made. If applicable, provide B-##-### for example structures in the area that are similar to proposed or desired; attach an exhibit for reference. contact BOS with questions.

Structural Approach Slabs:
If requested, provide justification for their inclusion. See Bridge Manual Chapter 12.11.

Proposed Structure (& Future Expansion):
Discuss proposed size and type of structure and vertical/horizontal clearances (if special clearances are required for construction staging). Describe future expansion, if any is anticipated, which may include lower roadway lane expansion, upper roadway widening, etc. Anticipated future expansion of bridge may have impacts to profile grade, consider vertical clearance requirement.

Temporary Shoring:
Describe anticipated locations of temporary shoring needed for construction. Especially important for stage construction or current structure that remain in service during construction.

Construction Staging:
Discuss construction staging in detail and describe desired sequencing; provide sketches of staging.

Traffic Barrier:
Discuss barrier locations, type, and heights approaching the structure, if applicable.

Bike/Pedestrian/Other Structure Accommodations:
Discuss proposed sidewalks, multi-use paths, separation barriers, medians, wildlife passages, etc.

Utilities:
List utilities located under, near, or on the proposed structure. Include type of utility, action to be taken and who owns the utility. If conduit/utility will be on the proposed structure describe who will be servicing it, number and size of conduits needed and any other pertinent information. Justification for placing utilities on proposed structure and means of attaching.

Site Drainage:
Discuss potential drainage concerns involving the proposed structure. Possible concerns include proposed roadway drainage pipes under substructure units, anticipated need for deck drains and median drainage. Include locations of pipes and invert elevations as appropriate.

DNR:
Discuss the status of coordination between Region/Consultant and DNR. Include any agreements made, concerns with the site, or areas requiring special attention as expressed by DNR.

SEPARATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation

DT1694 6/2012

☐ **Grade Separation** ☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☒ **Sign Structure** ☐ **High Mast Lighting** ☐ **Other:** _____

For guidance see: **http://dotnet/dtid_bos/extranet/structures/reports-checklists.htm**

Design Project ID 7200-02-01	Construction Project ID 7200-02-71	Highway (Project Name) Raio Dr Bridge Signage		
Final Plan Due Date 11/1/2012	Preliminary Plan Due Date 9/1/2012	☒ Town ☐ Village ☐ City Troy		
PS&E Date 12/1/2012	Letting Date 6/1/2012	County St. Croix		
New Structure Number S-55-42	Existing Structure Number N/A	Section 23	Town 28N	Range 19W
Station 200+20.50 (Raio Rd)	Latitude: 44.898869 Longitude: -92.64925	☒ YES ☐ NO Structure Located on National Highway System		

For Survey and CADD Files
Horizontal Coordinate System: NAD 83 (1991)
Vertical Datum: NAVD 88 (2007)

Traffic Forecast Data

	Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On Radio Rd	Feature On 2032	13500	55	RT3
Feature Under STH 35	Feature Under 2032	46000	60	3RA3

Region Contact: Joe Smith (Area Code) Telephone Number(s): (xxx) xxx-xxxx Email: joe.smith@dot.wi.gov	Consultant Contact: N/A (Area Code) Telephone Number(s): Email:

Instructions for Structure Survey

- *Report submitted with Preliminary Plan requires **no** CADD file submittal (see ESubmittal instructions).*
- *Report submitted for development of Preliminary Plan to structure design engineer requires CADD file(s) submittal and Report submittal to Soils Engineer.*
- *Coordinate with design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.*

In addition to this report, the following information shall be submitted.

1. **Small County Map** on which the location of proposed structure is shown in red, any highway relocation in green, and **Location Map** of scale not less than 1" = 2000' showing the structure location and number.

2. **Plan and Profile Sheet** on proposed reference line of feature on and feature under showing the following:
(a) Ground line; (b) Finished grade line; (c) Profile grade line elevations at least every 100 feet for 1,000 feet each side of the structure; (d) Vertical curve control points; (e) Horizontal curve control points; (f) Curve data, including full SE and runoff distance; (g) For railroad project, survey top of each rail and provide proposed geometrics in conformance with railroad company standards.

3. **Layout Sketch** of the site drawn to a scale of not less than 1 inch = 100 feet showing the following:
(a) Existing highway and structure; (b) Proposed highway alignment and R/W; (c) Station numbers; (d) Reference line intersection stationing and intersection angle; (e) North Arrow; (f) Buildings; (g) Above and below ground facilities; (h) Proposed structure when report submitted with Preliminary Plan; (I) Railroad company stationing; (j) Station at ends of existing structure; (k) Other features which influence the design.

4. **Typical Sections** of all roadways showing the following:
(a) Dimensions; (b) Slopes; (c) Type and width of surfacing or pavement; (d) Subgrade; (e) Sidewalk, curb and gutter; (f) Median treatment at underpass mounted or ditch section; (g) Clear zone width; (h) Horizontal clearances at underpass.

5. **Labeled Photographs** of: (a) Existing structure; (b) Site pictures in all controlling directions including, but not limited to North, East, South and West; (c) Buildings within 100 feet of proposed structure.

Proposed Structure

Preference for Structure Type at this Site:
over head sign bridge truss full span attached to proposed interchange structure ☐ No Preference

Aesthetics Level – See Bridge Manual Chapter 4
☒ 1 ☐ 2 ☐ 3 ☐ 4 (For Levels 2, 3 & 4 Explain on Page 3)

Spans- Number	Approximate Centerline to Centerline Span Lengths Along Reference Line of Highway
1	86'

Clear Roadway Width on Structure	Cross Slope on Deck or N.C. (Normal Crown)	Skew
62 Ft.	0.02 Ft./Ft.	0 ☐ R.H.F. ☐ L.H.F.

Sidewalks/Multi-Use Path	Left Clear Sidewalk/Path Width	Separation Barrier	Right Clear Sidewalk/Path Width	Separation Barrier
☒ Yes ☐ No	Ft.	☐ Yes ☐ No	10 Ft.	☒ Yes ☐ No

Type of Slope Protection
attached to outside of structure

Specify Wing Location(s) for Beam Guard Attachment	Specify Wing Location(s) for Surface Drain Anchors
N/A	N/A

Specify Wing Location(s) where Bridge Barrier/Rail Continues on Roadway Approach
N/A

YES	NO		
☒	☐	Structure Will be Constructed to Accommodate Traffic Staging	**Vertical Clearance Design**
☐	☒	Structural Approach Slab	☐ 14' 9" to 15' 3"
☐	☒	Lighting Required: Bolt Circle Diameter _____ inches	☐ 16' 3" to 16' 9"
☐	☒	Traffic/Lighting Staff been Notified for Review	☒ Other: 18'
☐	☒	Conduit in Parapet: Diameter _____ Number _____	
☐	☒	Historical Properties (Archaeological, Historic) Present Near Structure	

Utilities on Structure (WisDOT policy is to avoid placing utilities on the structure.)

YES	NO	
☐	☒	Utilities will be located on the structure? (if YES, provide the following information as well as the alignment and profile on Page 3)
☐	☐	Utilities have been approved by Region Utility Coordinator or previously approved by the Bureau of Structures? (if NO, please explain on Page 3)

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

Proposed Disposition of Existing Structure

YES	NO	
☐	☒	Structure will be Removed ☐ Bid Item ☐ Later Contract ☐ Other: _____
☐	☒	Structure will Remain in Service, Purpose: _____

For Structure Designers Use Only
Proposed Structure

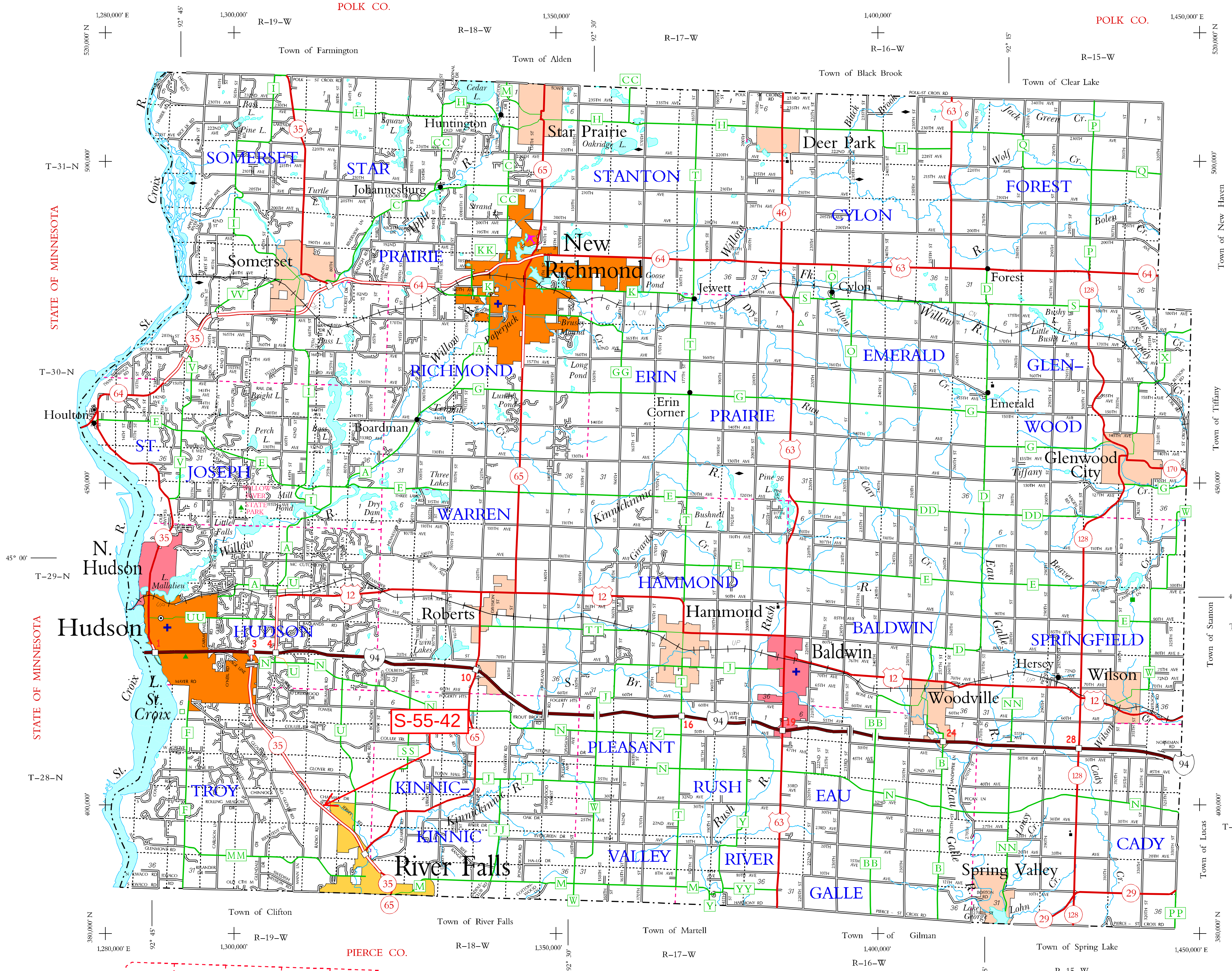
Spans – Number: Span Lengths (C.L. to C.L. of Substructure): Skew: ☐ R.H.F. ☐ L.H.F.

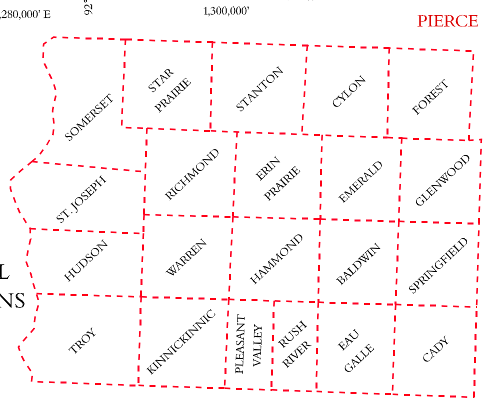
Latitude: Longitude:

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

Sign Type: II

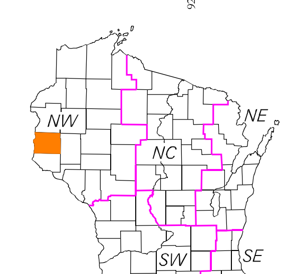




CIVIL TOWNS

SECTION NUMBERING OF A TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36



REGIONS

LEGEND

- Freeway
- Multilane Divided
- U.S. or State Hwy
- County Trunk Hwy
- Town Road
- Firelane
- Railroad
- State Trail
- Interchange
- Highway Separation
- Interstate Highway No. 94
- U.S. Highway No. 18
- State Highway No. 59
- County Highway Letter T
- State Boundary
- County Boundary
- Civil Town Boundary
- Section Line
- Dam
- Hospital
- Schools
- Airport
- County Seat
- Unincorporated Village
- Fish Hatchery
- Game Farm
- Public Hunt. or Fish. Grds.
- Public Camp & Picnic Grds.
- Ranger Station
- State Park
- County Park — With Facilities; Without Facilities
- Rest Area — Modern Facilities
- Wayside — Rustic Facilities

For boundaries of public hunting and fishing grounds please contact the Department of Natural Resources

Grid based on the state plane coordinate system central zone and the NAD 27

MILES OF HIGHWAY
as of Dec. 31, 2008

STATE	204
COUNTY	338
LOCAL ROADS	1,383
OTHER ROADS	0
TOTAL FOR COUNTY	1,925

Land Area (2000 Census) ..... 722 sq mi
Population (2000 Census) 63,155
County Seat .... Hudson

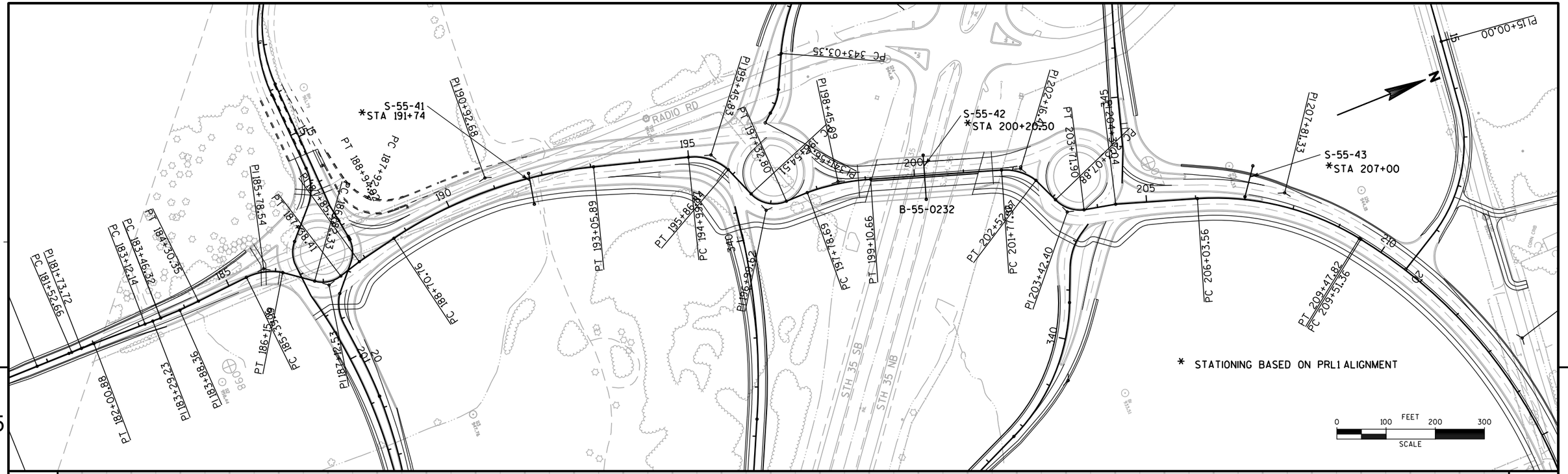
ST. CROIX CO.

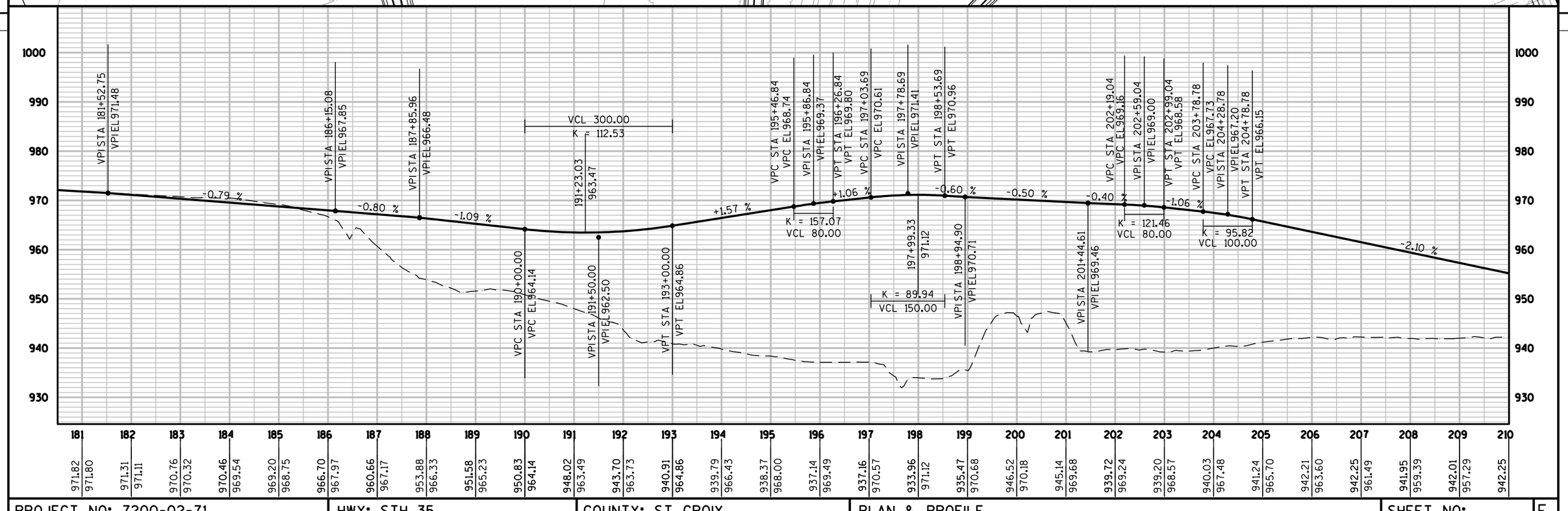
DEPARTMENT OF TRANSPORTATION
STATE OFFICE BUILDING
Madison, Wisconsin

SCALE 0 1 2 MILES

Corrected for
JAN. 2010

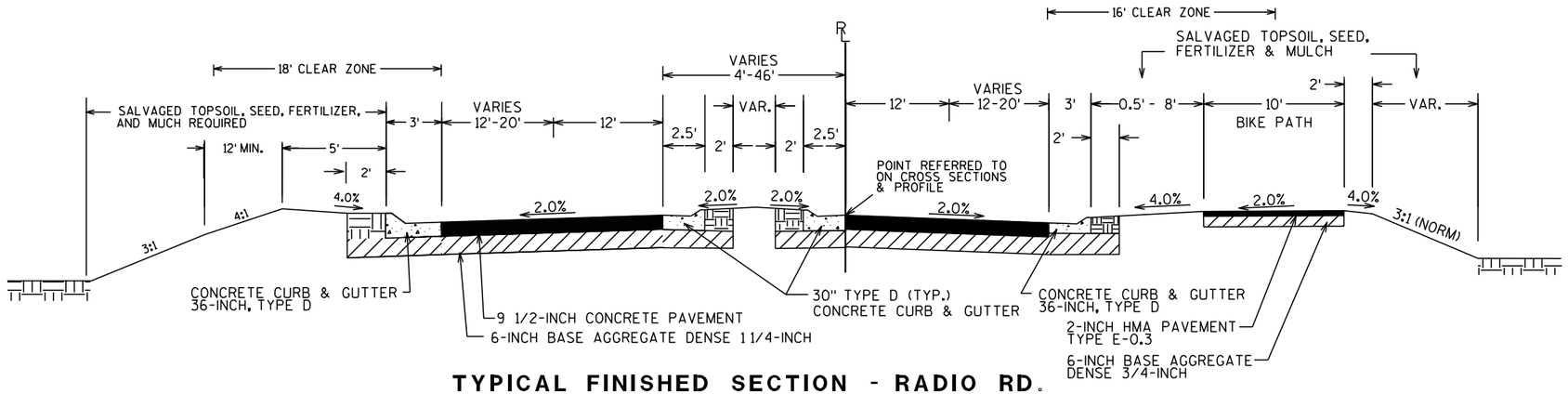
Base compiled from U.S.G.S. Quadrangles
1:100,000 Series





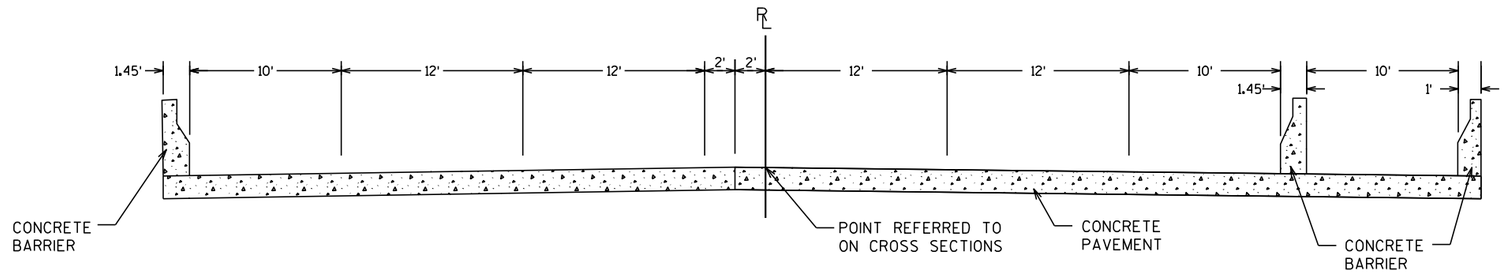
PROJECT NO: 7200-02-71	HWY: STH 35	COUNTY: ST. CROIX	PLAN & PROFILE	SHEET NO: E

FILE NAME : n:\PDS\Projects-LET\7200-02-71_Radio_Road\Structure\sign structures\S-55-42-SSR.dgn PLOT DATE : 23-MAR-2011 14:03 PLOT BY : dotmar PLOT NAME : PLOT SCALE : 200:1



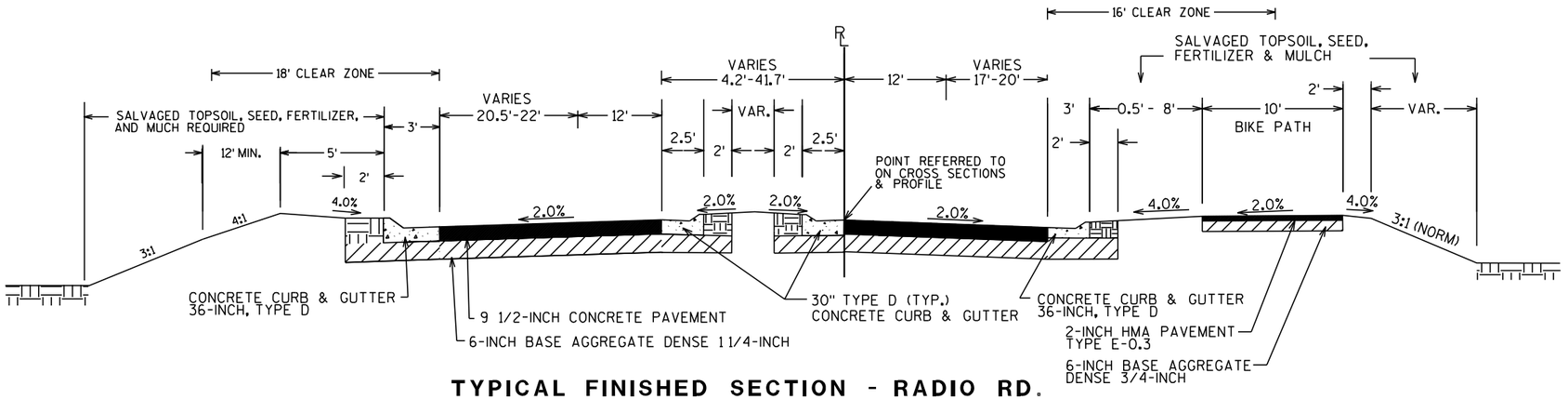
TYPICAL FINISHED SECTION - RADIO RD. ROUNDABOUT APPROACH

STA 198+35.15 - STA 199+33.77



TYPICAL FINISHED SECTION - (STRUCTURE) RADIO RD./CHAPMAN DR.

STA 198+58.51 - STA 201+68.56



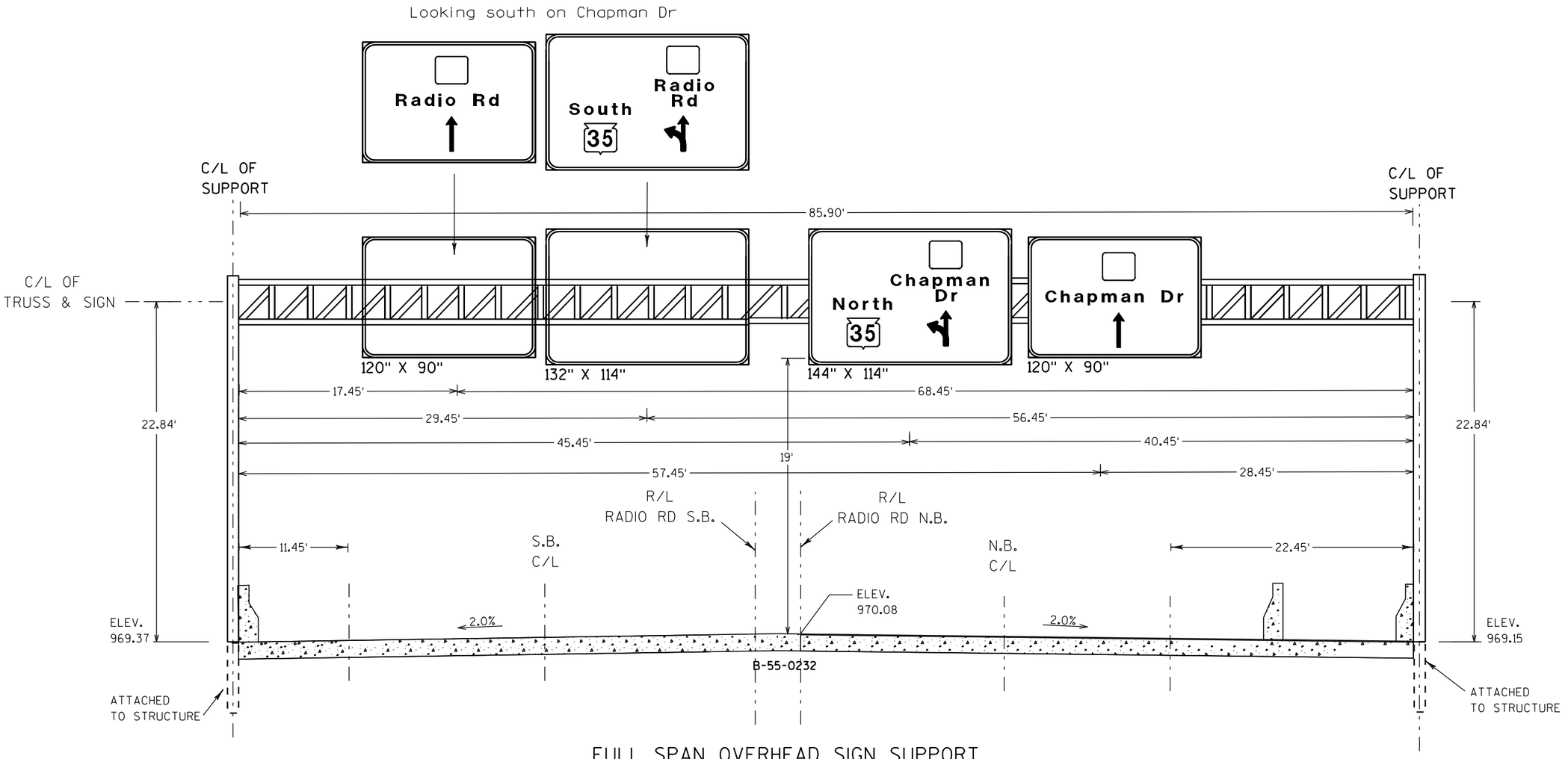
TYPICAL FINISHED SECTION - RADIO RD. ROUNDABOUT APPROACH

STA 201+98.00 - STA 202+71.08

PROJECT NO: 7200-02-71	HWY: STH 35/RADIO RD	COUNTY: ST. CROIX	TYPICAL SECTIONS	SHEET	E

2

STRUCTURE NO. S-55-42



FULL SPAN OVERHEAD SIGN SUPPORT

LOOKING NORTH
STA. 200+20.50, RADIO RD. N.B.
ON STRUCTURE B-55-0232

DRAWING NOT TO SCALE

PROJECT NO: 7200-02-71	HWY: STH 35	COUNTY: ST. CROIX	FULL SPAN OVERHEAD SIGN SUPPORT DETAIL: S-55-42	SHEET	E

2

2

S-55-42
*STA 200+20.50
SIGN BRIDGE ATTACHED
TO STRUCTURE

B-55-0232

CHAPMAN DR

RADIO RD.

STH 35 NB

STH 35 SB

RADIO RD

0 100 FEET 200 300
SCALE

PROJECT NO: 7200-02-71	HWY: STH 35	COUNTY: ST. CROIX	PROPOSED LOCATION MAP: S-55-42	SHEET	E

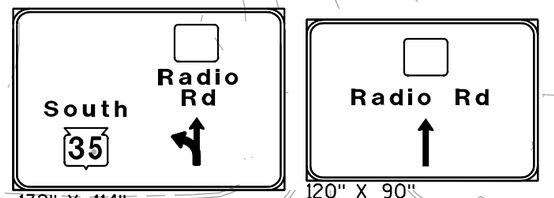
FILE NAME : n:\PDS\Projects-LET\7200-02-71_Radio_Road\Structure\sign structures\S-55-42-SSR.dgn PLOT DATE : 23-MAR-2011 14:04 PLOT BY : dotmar PLOT NAME : PLOT SCALE : 200:1

2

2

RADIO RD

Looking south on Chapman Dr



132" X 114"

120" X 90"

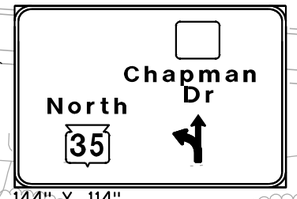
S-55-42
*STA 200+20.50
SIGN BRIDGE ATTACHED
TO STRUCTURE

B-55-0232

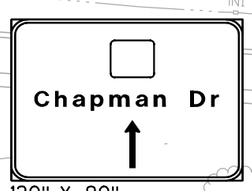
STH 35 NB

STH 35 SB

Looking north on Radio Rd



144" X 114"
S-55-42
*STA 200+20.50
SIGN BRIDGE ATTACHED
TO STRUCTURE



120" X 90"

PROJECT NO: 7200-02-71	HWY: STH 35	COUNTY: ST. CROIX	FULL SPAN OVERHEAD SIGN SUPPORT DETAIL: S-55-43	SHEET	E

CONSULTANT PRELIMINARY STRUCTURE PLAN REVIEW AND APPROVAL

14. CONSULTANT PRELIMINARY STRUCTURE PLAN REVIEW AND APPROVAL

SSR and Preliminary Structure Plan Submittal:

1. Additional items to submit with SSR
    a. Project location map
    b. Preliminary roadway plans
    c. Preliminary structure plans
    d. Geotechnical report
    e. Labeled photographs
    f. Summarize evaluation of type, size and location; design considerations; and alternatives evaluated (see Bridge Manual Section 6.2.2.2)
    g. For stream crossings:
        i. Contour map
            1. PDF
            2. Show location of hydraulic cross sections
        ii. Hydraulic report
            1. See Bridge Manual Chapter 8, Appendix 8-A
        iii. Hydraulic model
            1. Include scour analysis
        iv. FEMA floodplain map
        v. DNR initial review letter
2. See SSR Manual Chapters:
    a. 3 – additional information regarding specific structure types
    b. 6, 8, 9, 10, 11, 12 and 13 – information regarding filling out SSRs
3. E-Submit
    a. SSR
    b. Preliminary structure plans
    c. Supporting materials

Consultant Preliminary Structure Plan Review:

1. Preliminary plan submittals
    a. Consist of appropriate structure type, size, and location (TSL) selection
        i. Plans should undergo Consultant's QA-QC process prior to being submitted to WisDOT Bureau of Structures (BOS)
        ii. Include documentation or correspondence regarding evaluation of alternative type, size or location along with design considerations
    b. Submit no later than 3 months prior to final plan due date
        i. Suggest submitting as early as possible
        ii. Allows time to incorporate any necessary TSL changes into final plans
        iii. Avoid disruption of PS&E date and final review timeline
2. BOS Consultant Review Unit areas of emphasis
    a. Type, size and location
    b. Constructability
    c. Review does not include performing formal plans checking
    d. If TSL is not acceptable, then new preliminary plan set submittal will be required

Consultant Performance Evaluation and Rating:

1. Performance report is filled out as part of the BOS Consultant Review process
    a. A blank Design Consultant Evaluation Report can be found in this section
    b. Evaluation Rating Scale is also included
    c. An approved set of marked up preliminary structure plans with comments to be addressed before or during final design are provided with the evaluation

E-SUBMIT CHECKLIST

CONSULTANT PRELIMINARY PLANS AND STRUCTURE SURVEY REPORT SUBMITTAL

1 STRUCTURE SURVEY REPORT

☐ **Complete Structure Survey Report**
- *SSR Workshop Manual and Videos*
- *Bridge Manual Chapter 6.2.1*
- *Bridge Manual Chapter 6.5*

2 PRELIMINARY SUBMITTAL

PDF Files:

☐ **Project Location Map**
- *structure location and number*
- *other proposed structures within project limits*

☐ **Preliminary Roadway Plans**
- *existing and proposed profile grade line*
- *horizontal and vertical curve data (grades to nearest thousandth)*
- *structure location, typical section, super transition locations*

☐ **Preliminary Structure Plans**
- *dimensions, plan view, elevation view, section through roadway, subsurface information*

☐ **Geotechnical Report**
- *boring logs and foundation recommendations*
- *If report is not included with submittal, state on SSR who is doing this work*

☐ **Labeled Photographs**
- *existing structures, utilities, buildings, etc.*

☐ **Other Documentation**
- *summary of design considerations and alternatives evaluated; see Bridge Manual Section 6.2.2.2*
- *existing and proposed contours, if available*

3 ADDITIONAL SUBMITTAL FOR STREAM CROSSINGS

PDF Files:

☐ **Contour Map**
- *labeled contours, location of new and/or existing structure(s), proposed contours,* ***proposed riprap limits*** *, north arrow, stream direction and scale 1":20'.*

☐ **Hydraulic Report**
- *discussion of hydraulics, nature of previous flooding, scour information, design considerations and alternatives considered; see Bridge Manual Chapter 8 Appendix 8-A, for example*

☐ **Hydraulic Model**
- *existing conditions and proposed conditions hydraulic model (preferably HEC-RAS); see Bridge Manual Section 8.3.2*

☐ **FEMA Floodplain Map**
- *location of structure(s) relative to any mapped floodplain*

☐ **DNR Initial Review Letter**

4 SUBMITTAL

☐ **E-Submit**
- *STRUCTURE SURVEY REPORT, PRELIMINARY SUBMITTAL, ADDITIONAL SUBMITTAL* (if necessary) and SUPPORTING DOCUMENTATION *are submitted using the E-Submit process (as "PRELIMINARY")*
- *E-Submit*
- *E-Submit Help*

2

N

BURIED GAS (TYP.)
(WE ENERGIES)

SANITARY SEWER (TYP.)
(CITY OF WATERTOWN)

FIBER OPTIC (TYP.)
(AT&T)

PC: 8+24.82
PC: 8+24.82

PT: 8+43.57
PT: 8+43.57

PI: 12+52.02
PI: 12+52.02

NORTH 2ND STREET

8+00

9+00

10+00

11+00

12+00

13+00

NORTH 2ND STREET

N. 2ND STREET

P.E.
CONCRETE

EXISTING R/W

OVERHEAD UTILITIES (TYP.)
(WE ENERGIES & CHARTER)

EXISTING STRUCTURE
P-14-0713

PROPOSED STRUCTURE
B-14-209

END OF EXISTING BRIDGE STA 8+35

EXISTING STORM SEWER OUTFALL

ROCK RIVER

END OF EXISTING
BRIDGE STA 11+65

WATER MAIN (TYP.)
(CITY OF WATERTOWN)

PROJECT NO: 3997-00-70	HWY: NORTH 2ND STREET	COUNTY: DODGE	CONTOUR MAP	SHEET	E

FILE NAME : P:\60S\69\00069005\CADD\C3D\SHEETSPLAN\CONTOUR MAP.DWG
LAYOUT NAME - CONTOUR MAP - PLAN 1 IN 40 FT

PLOT DATE : 8/7/2015 11:40 AM PLOT BY : PLOT NAME : PLOT SCALE : 1" = 40'

8.6 Appendix 8-A, Check List for Hydraulic/Site Report

A hydraulic and site report shall be prepared for all stream crossing bridge and culvert projects that are completed by consultants. The report shall be submitted to the Bureau of Structures for review along with the "Stream Crossing Structure Survey Report" and preliminary structure plans (see WisDOT Bridge Manual, 6.2.1). The hydraulic and site report needs to include information necessary for the review of the hydraulic analysis and the type, size and location of proposed structure. The following is a list of the items that need to be included in the hydraulic site report:

- Document the location of the stream crossing or project site. Indicate county, municipality, Section, Town, and Range.

- List available information and references for methodologies used in the report. Indicate when survey information was collected and what vertical datum was used as reference for elevations used in hydraulic models and shown on structure plans. Indicate whether the site is in a mapped flood hazard area and type of that mapping, if any.

- Provide complete description of the site, including description of the drainage basin, river reach upstream and downstream of the site, channel at site, surrounding bank and over bank areas, and gradient or slope of the river. Also, provide complete description of upstream and downstream structures.

- Provide a summary discussion of the magnitude and frequency of floods to be used for design. Hydrologic calculations shall be provided to the Bureau of Structures beforehand for their review and concurrence. Indicate in the hydraulic site report when calculations were submitted and whether approval was obtained.

- Provide a description of the hydraulic analyses performed for the project. Indicate what models were used and the basis for and assumptions used in the selection of various modeling parameters. Specifically, discuss the assumptions used for defining the modeling reach boundary conditions, roughness coefficients, location and source of hydraulic cross sections, and any assumptions made in selecting the bridge modeling methodology. (Hydraulic calculations shall be submitted with the hydraulic site report).

- Provide a complete description of the existing structure, including a description of the geometry, type, size and material. Indicate the sufficiency rating of the structure. Provide information about observed scour, flooding, roadway overtopping, ice or debris, navigation clearance and any other structurally or hydraulically pertinent information. Provide a discussion of calculated hydraulic characteristics at the site.

- Provide a description of the various sizing constraints considered at the site, including but not limited to regulatory requirements, hydraulic and roadway geometric conditions, environmental and constructability considerations, etc.

Transmittal
Consultant Structure Plans

Date:

To:
ATTN:

cc: , WisDOT Region -

From: , WisDOT Bureau of Structures

Comments: Returning Review Preliminary Structure Plans

Inventory Data Forms are available electronically at this location: http://dotnet/dtid_bos/extranet/structures/structureinventoryforms.htm . Please fill out one per structure and return with the final plan submittal to the Structures Design Section. Rehabilitation projects do not require an inventory data form.

This is a bridge design in accordance with the LRFD specifications. Please submit the appropriate current forms for the LRFD plan submittal of this bridge. The appropriate forms can be found at this BOS website:
https://trust.dot.state.wi.us/extntgtwy/dtid_bos/extranet/structures/LRFD/index.htm

B-XX-XXX

☐ Resubmit **Electronic** Copy of Revised Preliminary Structure Plans using Esubmit*

☒ Please send **Electronic** copies of the following items, if applicable, using Esubmit*:

- Completed Final Structure plans that are ready for final review
- Structural Special Provisions
- Structural & quantity computations
- Completed “Structure Inventory Data” form.
- LRFD Rating form and excel spreadsheet found at BOS Website
- QA/QC Verification Form

Please submit the above documents a minimum of **two** months before the PS & E date. Review of final structure plans, incorporation of review comments, and signing of structure plans need to be completed by the PS & E date. Consultant performance rating will be based on the original final plans submittal.

Electronic structure final plans will be filed in the Structures Design Section and inserted into the plan set when the Proposal Management Section receives the completed PS & E.

* If you are unfamiliar with the process used to create electronic plans, please refer to section 15-5-10 of the FDM. Please take special note of item 7 in the procedure that indicates that all PDF files must be 11 x 17 inch documents. These must be exact dimensions.

* Please refer to section 19-10-1 of the FDM for directions on how to submit electronic plans using ESubmit. Page 4 of this section specifically addresses the electronic submittal of structure plans.

DESIGN CONSULTANT PERFORMANCE EVALUATION REPORT

Project I.D.	Structure:
Highway:	County:
Project Name:	
District Contact:	Region:
Consultant:	

Type of Structure: ___ Stream Crossing ___ Grade Separation ___ Retaining Wall
___ Rehabilitation ___ Other _____

Average Rating_____

1 = Unacceptable Performance 2= Below Average 3 = Satisfactory
4 = Above Average Performance 5 = Outstanding
(See rating system in FDM 8-25-5)

Preliminary Submittal Reviewer:_____ Date:_____
Hours:_____

1.	Completeness and clearness Preliminary plan submittal	☐
2.	Hydrologic and Hydraulic Calculations	☐
3.	Preliminary Structure selection	☐
4.	Preliminary Plan details and Engineering	☐
5.	Plans submitted with sufficient lead-time for review	☐

Preliminary Submittal Comments: _____

2. Project Rating Scale

①- **Unacceptable Performance:** Unacceptable or Marginal Work. Project submittal deficient to the point that review not possible. Excessive amount of review time and effort required. Proposed alternatives and details were not acceptable. Type, Size, and Location may have to be revised and resubmitted prior to approval. Good Engineering Practice and judgment was not exercised. Project reflects lack of knowledge of basic policies and standards. Submittal was unacceptable.

②- **Below Average:** Performance is Below Average. Minor deficiencies in submittal. Above average amount of review time and effort required do to deficiencies. Practical alternatives were not adequately considered and documented. Errors were noted in supporting Engineering. Some problems with details and policy.

③- **Satisfactory:** Performance is Acceptable. Submittal complete. Average amount of review time is required. Good engineering practice and judgment were exercised. All practical alternatives considered and reasonable alternative was selected. Type, Size, and Location meets approval. Structure plans are adequately detailed and conform to applicable standards and policy.

④- **Above Average Performance:** Above Average. Submittal complete and well organized. Below average amount of review time required. All requirements of the project are met and often exceeded. Project reflects above average engineering practice and insight. All practical alternatives were considered and documented. Details are complete, well organized, and conform to all standards and policy.

⑤- **Outstanding:** Performance Exceeds Requirements. Submittal is complete and well organized. Minimum amount of review time was required. Alternatives were evaluated in great detail and proposed alternative reflects innovation and superior qualities that distinguish it as most desirable. Project reflects superior understanding of design standards and policy.