Feasibility Study

26th Avenue & 41st Avenue Trail Segments

Minneapolis Park & Recreation Board

July 21, 2021

TKDA Project No.18053.000

TKDA®

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

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Feasibility Study

26th Avenue & 41st Avenue Trail Segments

Prepared for Minneapolis Park & Recreation Board

1.0 Background

The Minneapolis Park and Recreation Board (MPRB) requested TKDA prepare a feasibility study at two locations along the Mississippi River. Each location represents the most challenging segment of the trail gap along the west side of the Mississippi River within the Above the Falls Regional Park. Recreational connectivity for walking, bicycling, and rolling between neighborhoods, parks, and the Mississippi River is a goal of the park's Master Plan. Currently there are few safe off-street routes to make these important connections. The Above the Falls Regional Park Master Plan envisions a continuous trail running along the west bank of the Mississippi connecting North Mississippi Regional Park to Central Mississippi Riverfront Regional Park, as well as North Minneapolis residents to regional park space and the river.

Two segments of trail along this route are particularly challenging in terms of access and constructability. They are located near the termini of 26th Avenue North near the recently constructed 26th Avenue N Overlook (**Figure 1**) & 41st Avenue North (**Figure 2**) where railroad bridges cross the Mississippi River. Plan proposes to close these important trail gaps at locations to minimize active rail line crossings and to bring park visitors directly to and along the river.

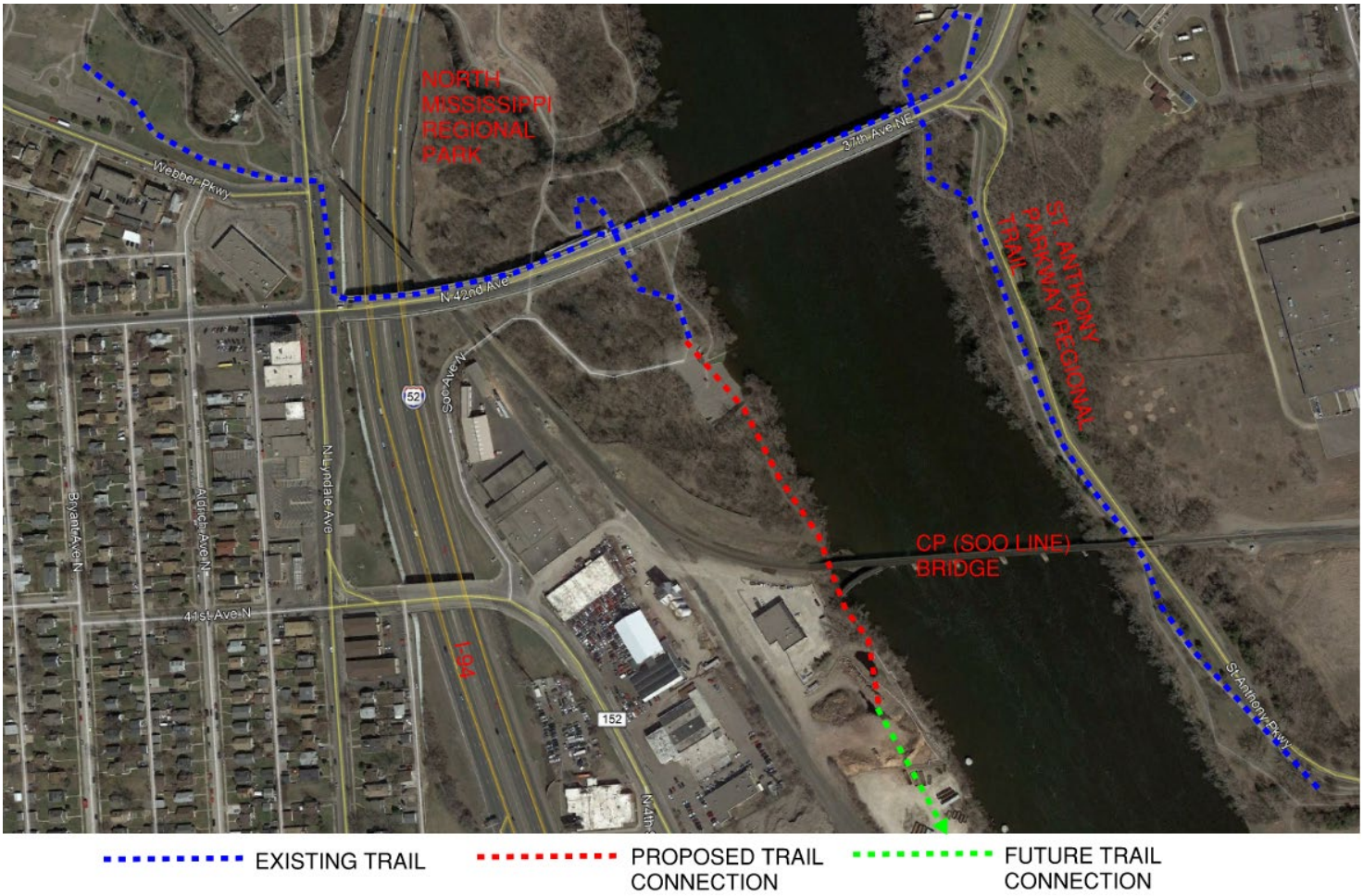
Figure 1 – 26th Avenue North Overlook Location

1.1 Planning Process

The Planning process involved with this study included the following steps:

- Meetings with MPRB staff to determine the objectives of the feasibility study and establish the basic parameters of it and the desired deliverables.
- Conduct field work including topographic survey and site visits in order to gain an understanding of the two trail areas and establish context for the design team.
- Conduct a review of the regulatory requirements associated with implementing the desired improvements and document the findings.
- Assess viability of trail projects as it relates to constructing trails with railroad crossings.
- Conduct preliminary engineering analysis of feasibility of constructing trails in these locations.
- Prepare a report summarizing the findings of the study.

Figure 2 – 41st Avenue Connection



2.0 Engineering Review

TKDA has evaluated the 26th and 41st Avenue North trail segments for feasibility. The MPRB requested elements of this feasibility study including:

- Assessment of available and required clearances beneath both bridges
- Assessment of constructing trail segments on or near steep slopes adjacent to the river
- Assessment of the need to elevate sections of the trails on a bridge or other structure to stay above the Ordinary High Water Level (OHW) of the river

- Ability to maintain ADA compliance
- Approach to seeking railroad approval
- Compilation of other permit compliance issues
- Estimation of construction costs

Preliminary engineering tasks included defining preferred horizontal and vertical alignments, possible alternative alignments, typical trail section(s), cross sections with associated construction impacts, and relation to the river OHW and adjacent private property. A full topographic survey was provided by MPRB for the 41st Avenue trail segment and a partial topographic survey was provided for the 26th Avenue segment which was supplemented by additional topographic survey by TKDA. These surveys were the basis for the existing conditions examined in this study.

A geotechnical investigation into the subsurface conditions of these areas was outside the scope of this study. While subsurface conditions are a significant factor impacting the costs of constructing these sections of trail, TKDA does not feel it will render the trail segments infeasible to construct. Rather, if challenging soil conditions are encountered, it will require more involved foundation systems and slope stabilization methods than would otherwise be the case.

2.1 Trail Design Parameters

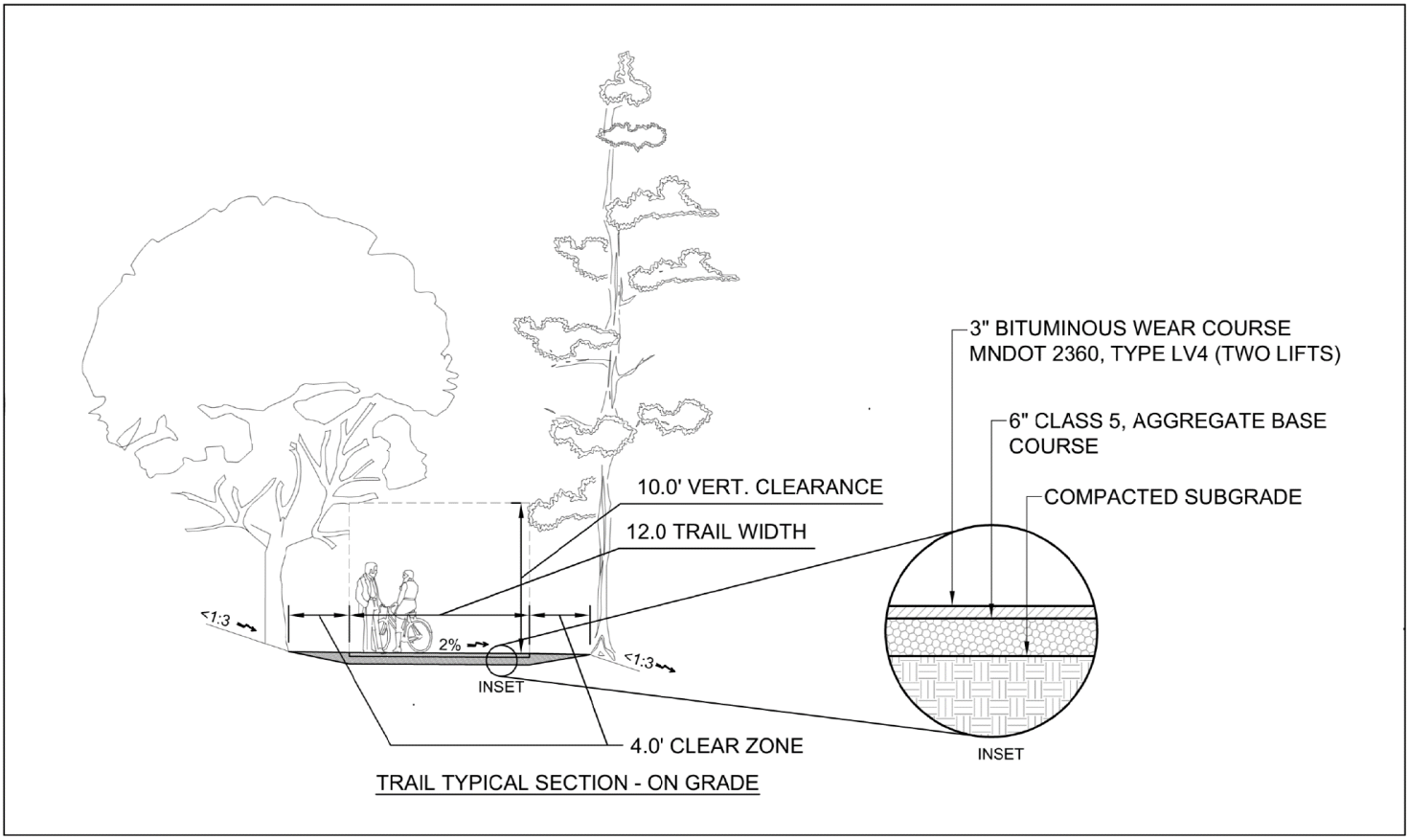
The trail design parameters were based upon a 20 mile per hour design speed and regional trail design standards of the MPRB, Minnesota Department of Transportation (MnDOT), and Federal Highway Administration (FHWA) along with engineering judgement.

In order to accommodate both bike and pedestrian traffic in these trail segments, the trail section was designed with 12 feet of pavement width and a four foot wide clear zone on each side of the trail as shown in **Figure 2A** below.

The 26th Avenue trail alignment, profile, cross sections and typical sections are shown graphically on **Drawings 001-002**. This alignment features a trail mostly cut into the riverbank north of the BNSF railroad bridge. An alternative alignment for this segment which is positioned closer to the river and utilizing a longer elevated bridge north of the BNSF railroad bridge is presented in **Drawings 003-004**.

The 41st Avenue trail alignment, profile, cross sections and typical sections are shown graphically on **Drawings 005-006**. The existing topography north of the CP railroad bridge will allow much of this segment to be constructed at or near existing grade with less intensive slope treatments, however an elevated trail utilizing a bridge structure will be necessary south of the railroad bridge where the trail passes over the river's edge and then begins the ascent up the slope to the top of the river bank.

Figure 2A – Trail Widths of Pavement & Clear Zones



2.2 Challenges and Opportunities

As part of the feasibility study, TKDA has evaluated various approaches to the most challenging aspects of these trail segments. The following sections describe the issues and the preferred approaches to addressing them.

2.2.1 Available Clearance at Railroad Bridges

The horizontal and vertical trail alignments presented in the plan sheets included with this report all reflect vertical clearances of greater than the 10-foot minimum clearance from the top of trail elevation to bottom of lowest bridge member at both bridge locations. Additionally there is sufficient horizontal clearance between the existing railroad bridge piers to construct a 12-foot wide trail with the required clear zones on either side of the trails.

Both alternatives of the 26th Avenue trail plan includes an elevated bridge structure at the railroad bridge underpass due to the existing low topography at that location. The 41st Avenue segment includes an at-grade trail beneath the primary railroad bridge but transitions to an elevated bridge structure as it passes beneath the adjacent spur track bridge. A retaining wall or other barriers of some type are likely to be necessary at the trail underpass location where the trail is on grade. This can be seen in the trail cross sections on **Drawing 006**.

Figure 3 – 26th Avenue (BNSF) Bridge

Figure 4 – 41st Avenue (CP/Soo Line) Bridge

2.2.2 Steep Slopes Adjacent to River

Constructing trails along the steep slopes of the Mississippi River and descending from the top of the bank down to beneath the railroad bridges and then ascending up to the top of the

bank present the greatest challenges related to this project. This is compounded by unknown but assumed challenging soil conditions and limited access to these locations. However, construction of trails and other structures in these locations is not without precedent and the approaches presented in this report have been proven to be feasible along the Mississippi River and in other locations.

Implementing the trail segments within the riverbank will require structural elements due to constructability issues and to avoid impacting hydraulics of the river. The structural elements consist of earth retaining systems and elevated trail segments.

2.2.2.1 Earth Retaining Systems

Potential design solutions for earth retaining systems include & considerations are stated in **Table 1**.

Table 1
Potential Design Solutions

Earth Retaining System	Type	Considerations
Soil Nail Wall	Vertical	Wall supported by horizontally drilled nails; typically used in cut slopes and built "top-down"; minimal amount of excavation; designed to either avoid rock or anchor into rock; penetration length of nails may require easement from adjacent landowners.
Steel Sheet Pile Wall	Vertical	Used for cut or fill slopes; feasible if rock/boulders are not present.
Reinforced Concrete Wall	Vertical	Common wall type; used for cut or fill slopes requires excavation to safe working slopes; may require pile supports.
Mechanically Stabilized Earth Wall	Vertical	Precast concrete vertical face w/ horizontally placed straps; used for cut or fill slopes; requires excavation to safe working slopes; stability concerns with water table or flood flow; length of straps may require easement from adjacent landowners.
Prefabricated Modular Block	Vertical	Used for cut or fill slopes; requires excavation to safe working slopes; stability concerns with water table or flood flow. If non-gravity type is utilized, length of horizontal geomembrane may require easement.
Reinforced Soil Slope	45 to 70 degree slope	Natural, seeded grass slope with stabilized with horizontal geomembrane layers; may require easement; stability concerns with water table or flood flow.

The feasibility of each of the listed retaining systems is subject to geotechnical review. Based on previous similar projects, the types that TKDA anticipates may be feasible for use in these locations are the soil nail, steel sheet pile, or prefabricated modular block walls for the cut slopes (upside wall) and steel sheet pile for the fill slopes (downside wall). See **Drawing 007** for an example cross section showing these slope treatments.

Figure 5 – Soil Nail Wall w/ Concrete Facing Example

Figure 6 – Sheet Pile Wall Example

Figure 7 – Prefabricated Modular Block Wall Example

2.2.2.2 Bridge Structures

To elevate the trail and avoid placing fill, potential structure types include timber boardwalk and prestressed concrete beam bridge spans. Boardwalks are commonly constructed in wetland environments and offer a rustic aesthetic as shown in **Figure 8**. The spans are usually supported on helical piles, requiring relatively small, lightweight equipment. Large radius horizontal curves can be introduced into the trail geometry for design flexibility. Within the flood zone, the spans would need to be designed to resist buoyancy forces and may be inundated during flood conditions. Typical section drawings of the supports for each of these bridge types are shown on **Drawing 007**.

Figure 8 – Boardwalk Bridge Example

Prestressed concrete beam spans with a concrete deck are common long span structures utilized in pedestrian/bicycle applications as shown in **Figure 9**. These structures also can be designed to accommodate large radius horizontal curves. This type would likely need to be supported on either pile or micropile type foundations, with or without footings. Similar to the boardwalk type, the spans would need to be designed to resist buoyancy forces and would be inundated during flood conditions. The beam type is approximately 1.5 times the cost per foot of the boardwalk type.

Figure 9 – Prestressed Concrete Beam Bridge Example

One other potential span type is a prefabricated truss. Similar to the prestressed beam type, long spans are attainable. However, the truss span would need to be introduced on straight segments only. Both the concrete beam and truss types may need to be delivered on barges due to hauling and access issues from the roadway above.

2.2.3 Trail Elevation Relative to River

The trail plan and profiles developed for each of the trails take into consideration the fact that the trail segments are located within the floodplain of the Mississippi River. This interaction with the river will be unavoidable as each trail must pass beneath a railroad bridge at an elevation that allows for 10 feet of vertical clearance above the trail. The horizontal locations where clearance is available are limited to locations on the river bank.

The trail plans and profiles presented on **Drawings 001, 003 & 005** show both the ordinary high water level (OHW) and the 100-year flood elevation in relation to the trails. The 26th Avenue Trail Plan includes an alignment that remains on grade and higher on the river bank allowing for most of the trail to be constructed above both the OHW and the 100-year flood elevation. In this case, the bridge supports/piers and the slope treatments (retaining walls) will need to be designed and constructed to withstand periodic flooding.

The Alternate 26th Avenue Trail Plan includes a trail alignment oriented much closer to the river and results in a significant portion of the trail below the 100-year flood elevation, but still almost 5 feet above the OHW. As with the other alignment, bridge supports and slope treatments must withstand periodic inundation but the at-grade trail and the bridge surfaces must also be capable of withstanding occasional flooding.

Most of the at-grade and bridge sections of 41st Avenue Trail Plan alignment are located within 100-year floodplain and similarly to the Alternate 26th Avenue Trail Plan, will require the trail surface, slope treatments, bridge supports and bridge surfaces to be capable of withstanding periodic flooding.

2.2.4 ADA Compliance

The projects will require compliance with the Americans with Disabilities Act (ADA) and US Access Board regulations. In general, the profile grade of the trails will need to be designed to a maximum of 5 percent without landing areas. The cross slope of the trails shall not exceed 2 percent. The feasibility study has taken these requirements into account.

2.2.5 Railroad Coordination

The proposed 26th Avenue Trail Plan segments pass beneath BNSF Railway Bridge 16.6 on the Staples Sub, Line Segment 25 and the proposed 41st Avenue Trail Plan segment passes beneath CP Railway Bridge 2.6 on the Paynesville Sub. Coordination with both railroads will follow a similar process. TKDA has not communicated with either railroad regarding this potential project, but based on previous experience with these railroads the following process is anticipated.

The line of communication generally flows from public agency or their consultant through the Railroad's public projects representative. The railroad will need to be involved as early in the project development as possible. Through this process, it will need be demonstrated that railroad property and operations not be negatively impacted. In addition to engineering review, the railroads will require the execution of a Construction and Maintenance Agreement as well as a License Agreement (easement) on the property for the trails. Depending on the railroad and workloads, these agreements may be started prior to final approval of construction documents, but likely will not be formally executed until after.

2.2.6 Power Line

A transmission power line runs generally parallel to the Mississippi River in the vicinity of the proposed trail corridor at the 26th Avenue Trail Plan segment that will need to be considered in the design of the trail and structural elements. For the trail, placement of embankment materials or excavation will need to avoid impacting the tower located to the south of the BNSF railroad bridge. Structural elements located in close proximity to the power lines will need to take into account safe working distances from high voltage lines for equipment mounted booms.

The scope of this study did not include coordination with the utility owner (Xcel Energy). In addition to engineering review, the utility easement, in which the power lines lay within, may need to be modified to allow for recreational use within it. Based on experience on previous projects, TKDA does not anticipate great risk to success of the project with respect to the power utility.

2.2.7 Agency Permitting

Riverine environments such as where these trails are proposed, are subject to considerable regulatory oversight. Filling with soil within the ordinary high water level and evaluating the presence of endangered species are areas that could impact the design and construction of these trails and should be investigated in greater detail in future phases of development of these projects. Because there are several examples of trails of these types constructed along the banks of the Mississippi River within the Metropolitan area, regulatory issues are not seen as a significant obstacle to these project's success.

The agencies that will likely have jurisdiction over this project and require permits include:

- US Army Corp. of Engineers
- US Fish and Wildlife Service
- Minnesota Department of Natural Resources (MN DNR)

- Minnesota Pollution Control Agency (MPCA)
- City of Minneapolis
- Mississippi Watershed Management Organization (MWMO)
- National Park Service

3.0 Cost Estimates

A summary cost estimate for the three segment options are provided below and a detailed line item cost estimate is provided in the appendix to this report.

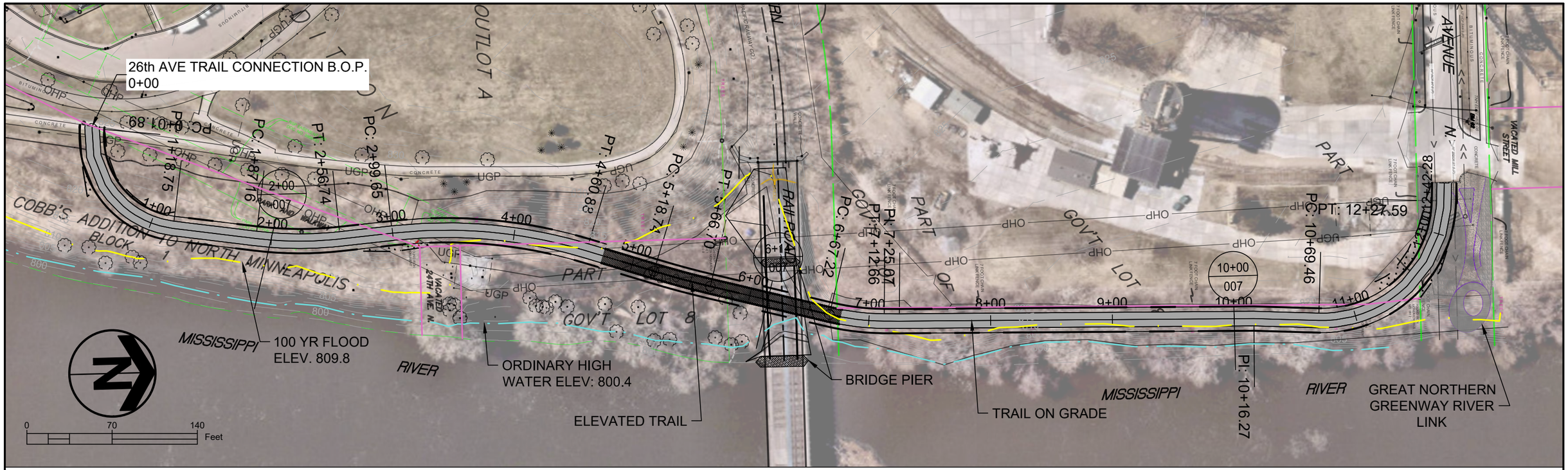
	26th AVE	26th AVE ALT	41st AVE
General Conditions	$ 150,000	$ 210,000	$ 150,000
Demolition	$ 10,400	$ 10,600	$ 7,000
Earthwork	$ 148,800	$ 207,000	$ 134,000
Site Improvements	$ 1,701,100	$ 2,226,600	$ 836,200
Construction Subtotal:	$ 2,010,300	$ 2,654,200	$ 1,127,200
Contingency (25%)	$ 502,575	$ 663,550	$ 281,800
Project Delivery (15%)	$ 301,545	$ 398,130	$ 169,080
Project Total	$ 2,814,420	$ 3,715,880	$ 1,578,080

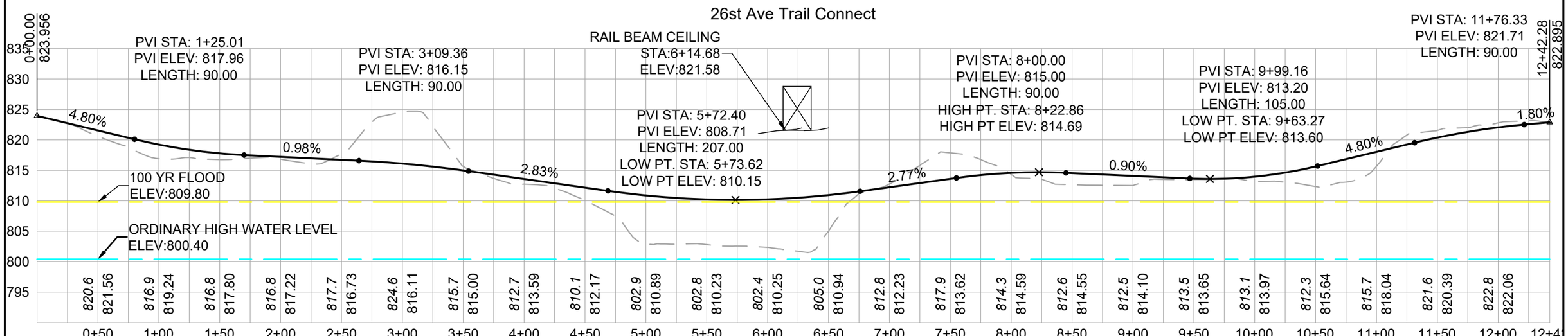
The estimated construction costs presented are in current (2021) dollars and are based on historical costs for similar types of projects. Potential land or easement acquisition and permitting costs have not been considered as part of these estimates. A larger than normal contingency of 25% has been applied to account for the unknown geotechnical factors that may impact foundations of bridges and retaining walls. Because of the significance of this variable, it is recommended a thorough geotechnical investigation and evaluation bridge and retaining structures be undertaken as part of the next phase in development of this project.

For estimating purposes for both the 26th Avenue and 41st Avenue locations, we have made retaining wall type assumptions. In sections where a retaining wall is needed to support the trail (i.e. along the river side of the trail), the wall type is assumed to be steel sheet pile. For retained cut slopes (i.e. along the upper bluff line), the wall type is assumed to be prefabricated modular block. For an itemized breakdown of estimated areas and costs, refer to **Appendix A**.

List of Drawings

Drawing 001 26th Avenue Plan & Profile
Drawing 002 26th Avenue Trail Cross Sections
Drawing 003 26th Avenue Plan & Profile-Alternative 1
Drawing 004 26th Avenue Trail Cross Sections-Alternative 1
Drawing 005 41st Avenue Plan & Profile
Drawing 006 41st Avenue Trail Cross Sections
Drawing 007 Slope and Bridge Typical Sections





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26th AVE PLAN & PROFILE

PROJ. NO. 18053.000
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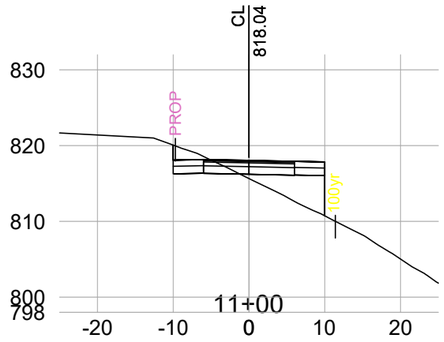

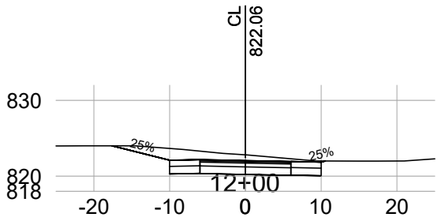

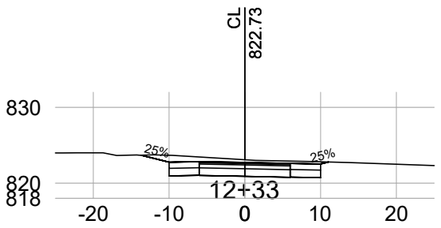

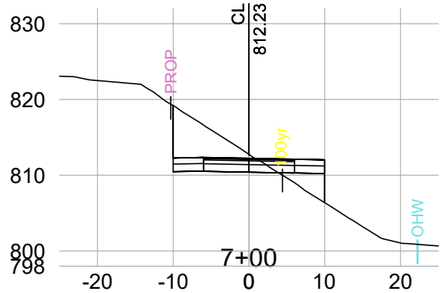

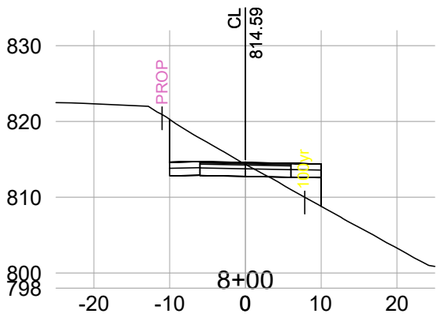

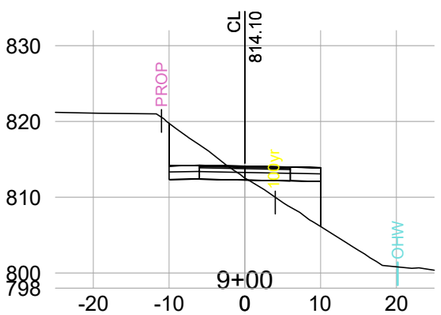

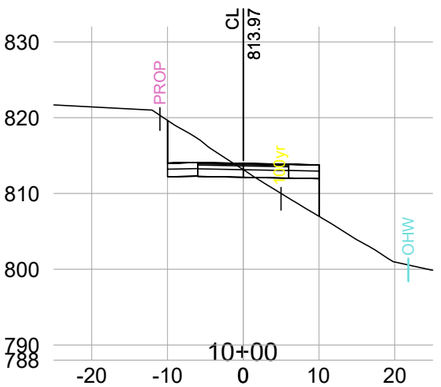

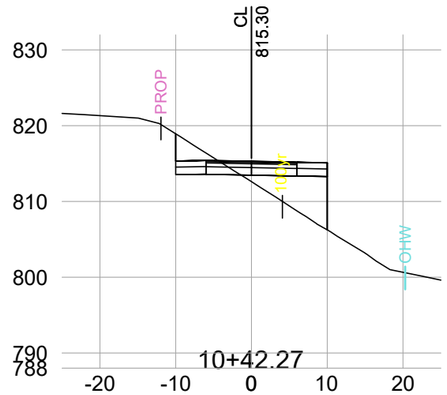

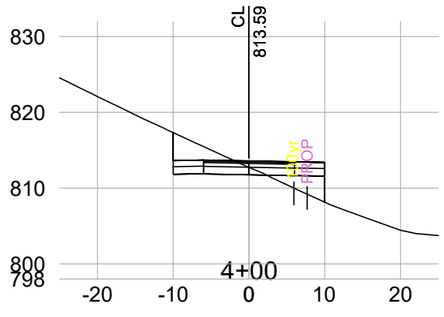

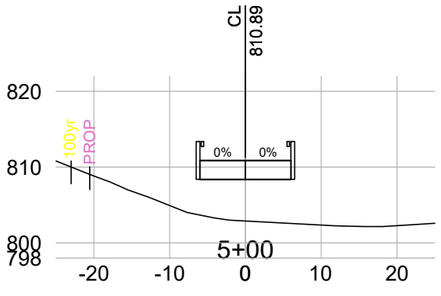

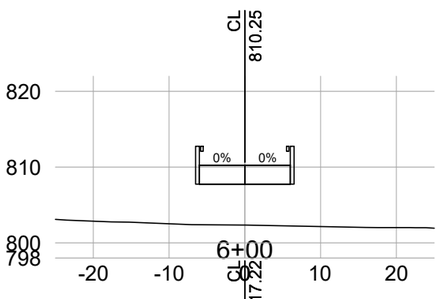

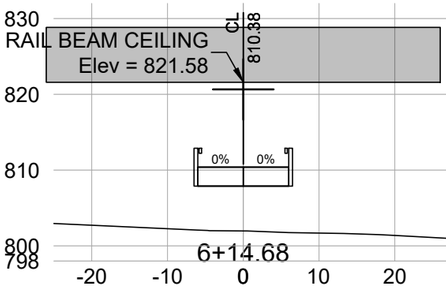

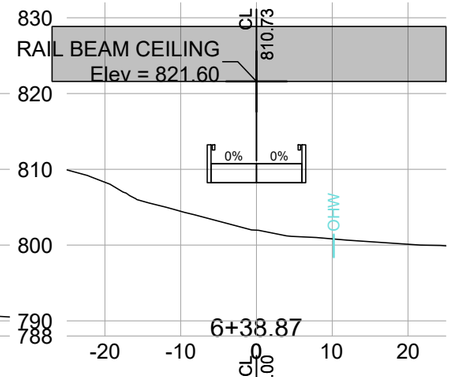

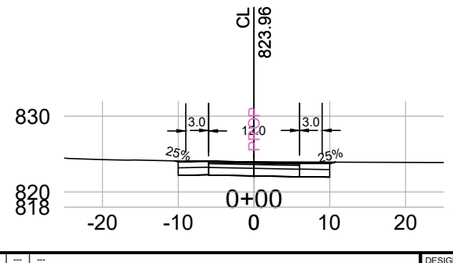

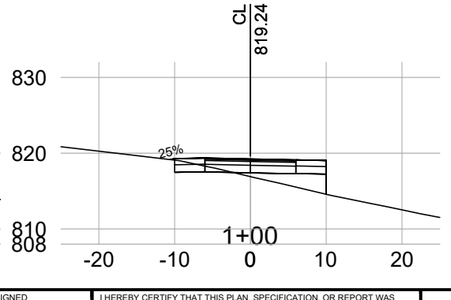

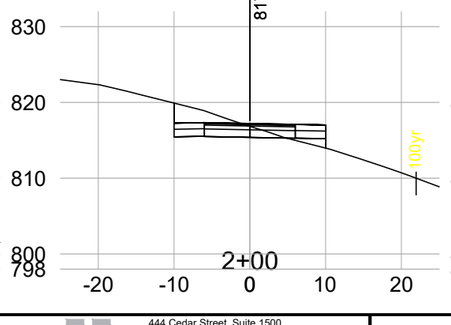

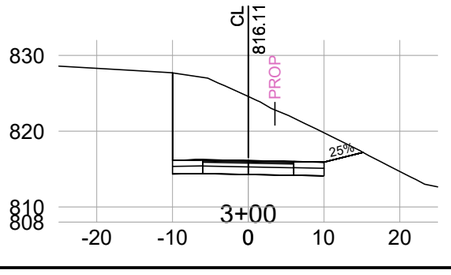

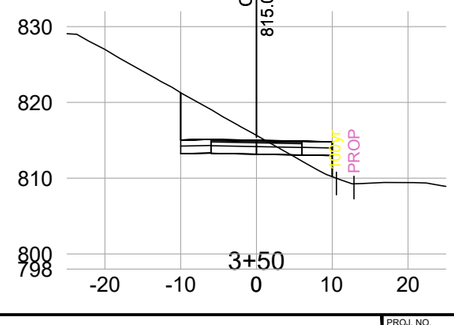

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26th AVE TRAIL CROSS SECTIONS

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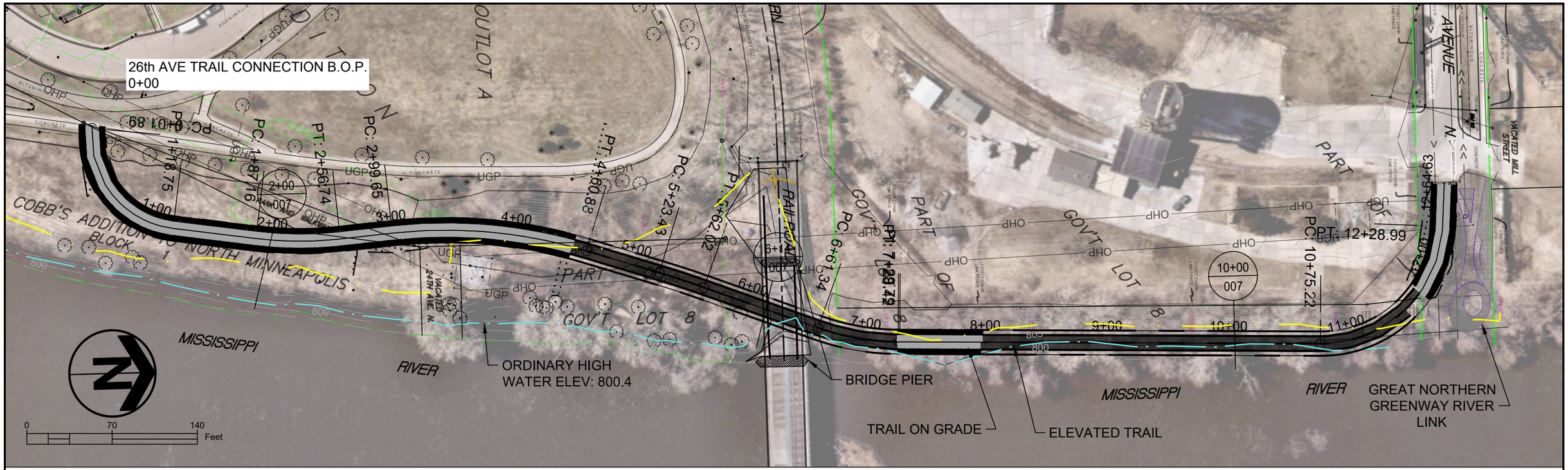

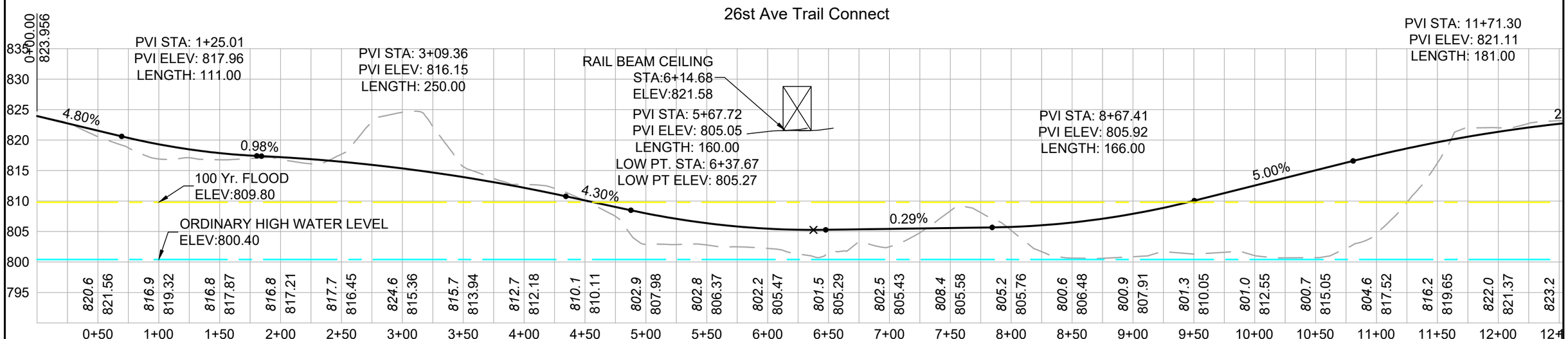

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26th AVE PLAN & PROFILE ALT 1

PROJ. NO. 18053.000
DRAWING NO. 003

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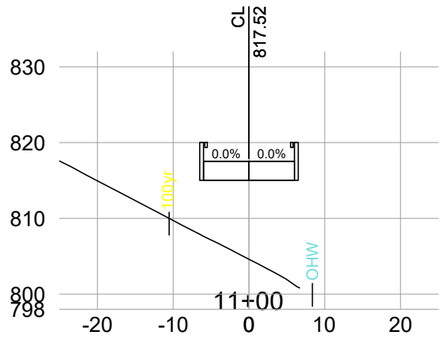

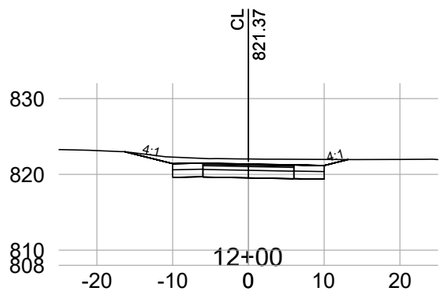

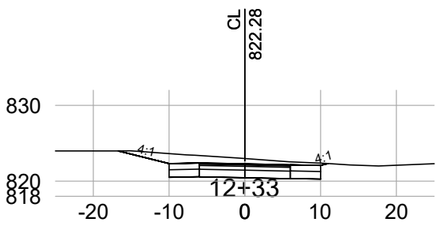

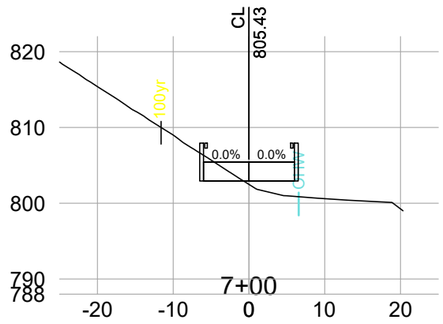

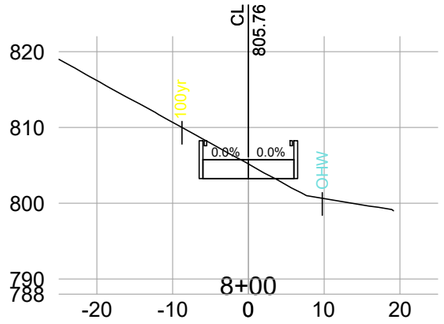

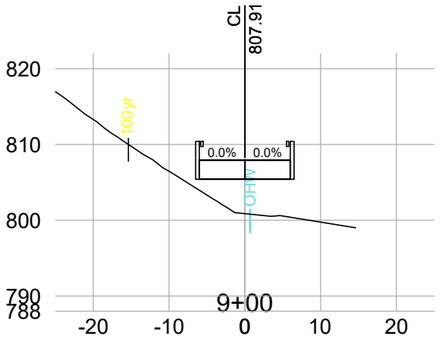

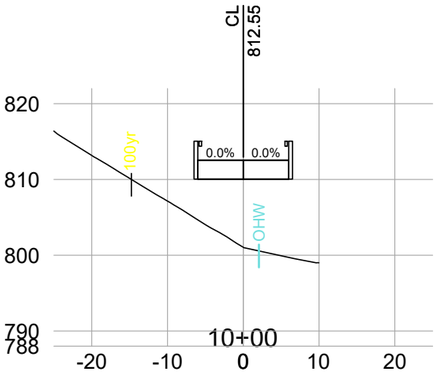

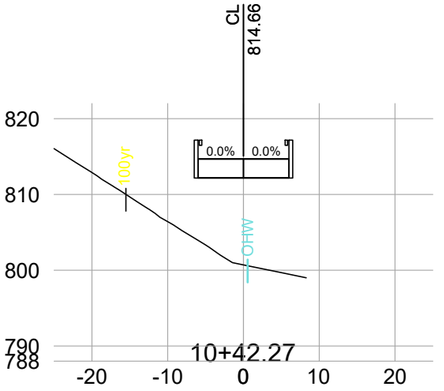

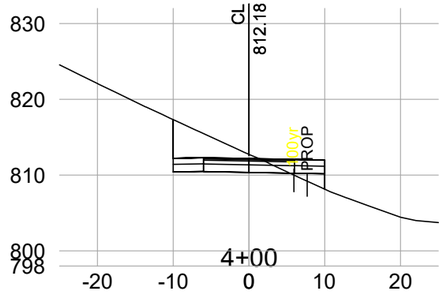

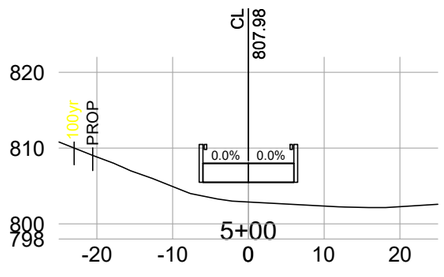

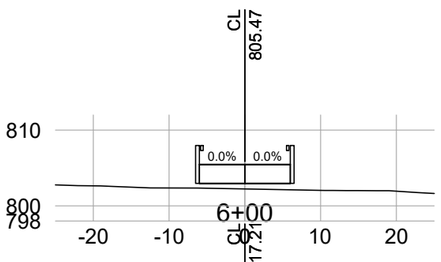

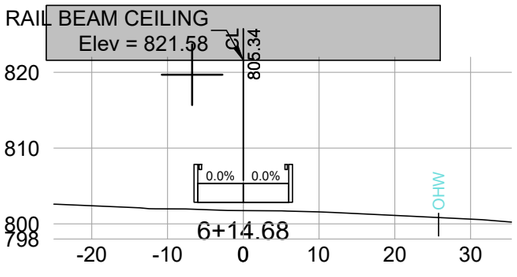

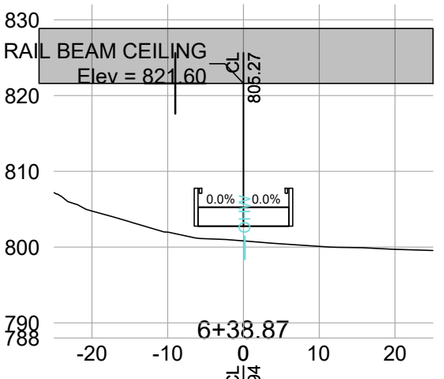

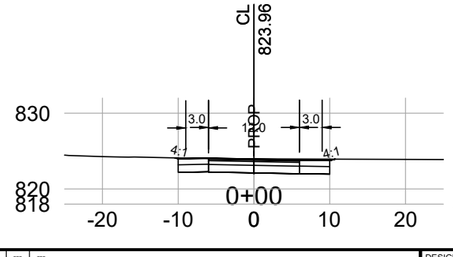

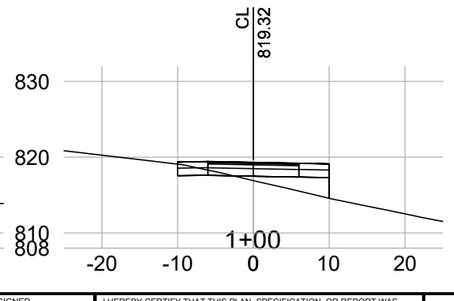

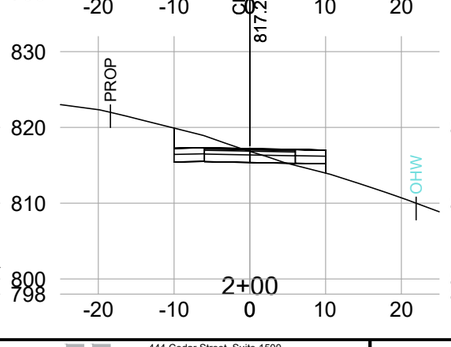

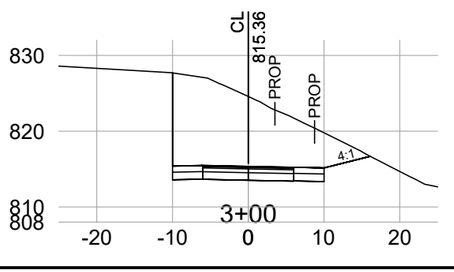

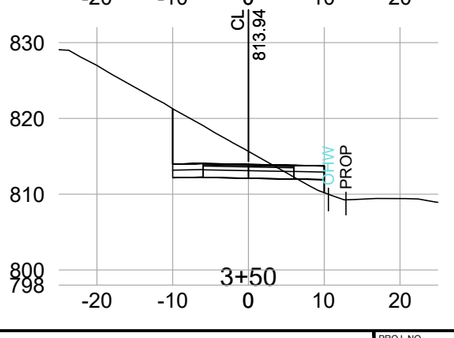

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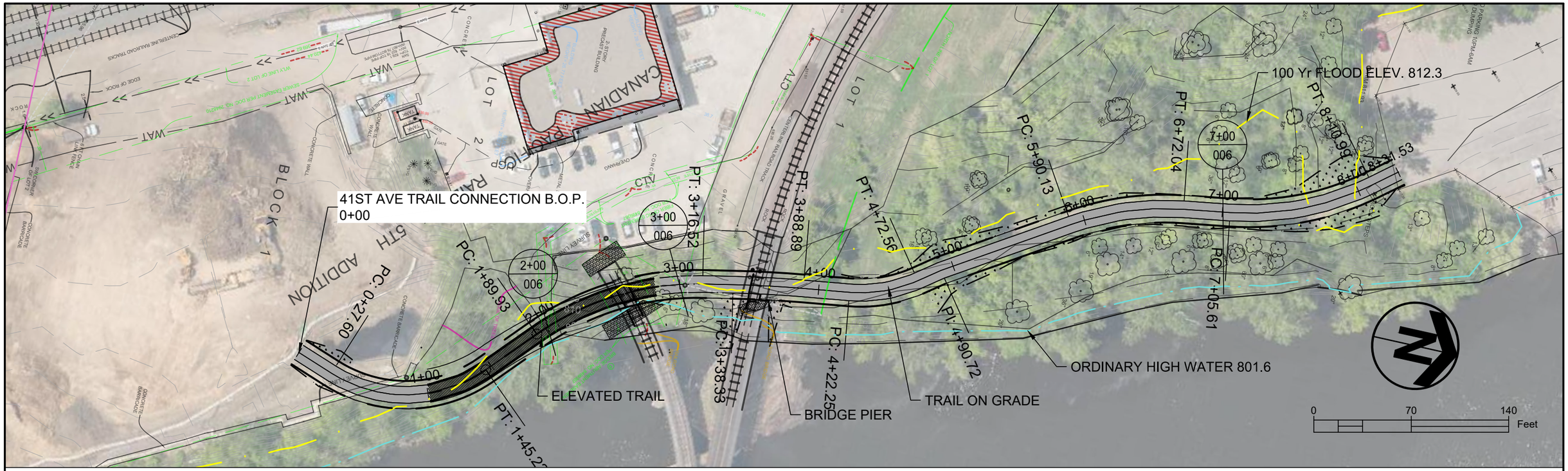
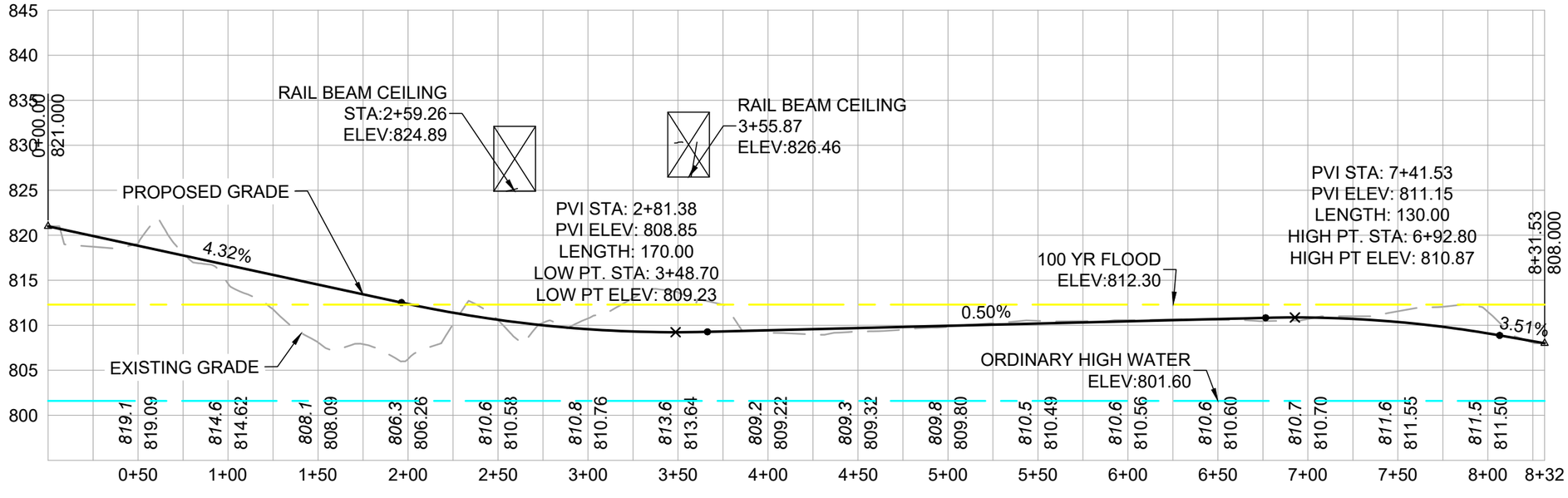
26th AVE TRAIL CROSS SECTIONS ALT 1

PROJ. NO. 18053.000
DRAWING NO. 004



41st Ave Trail Connect



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41ST AVE TRAIL PLAN & PROFILE

PROJ. NO. 18053.000
DRAWING NO. 005

PLOT DATE: Jun 01, 2021 - 9:33am
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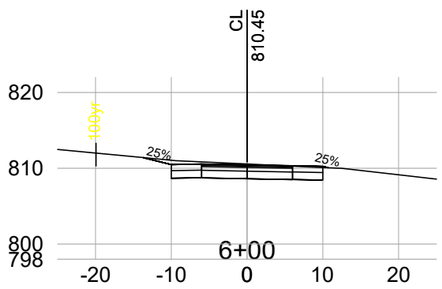

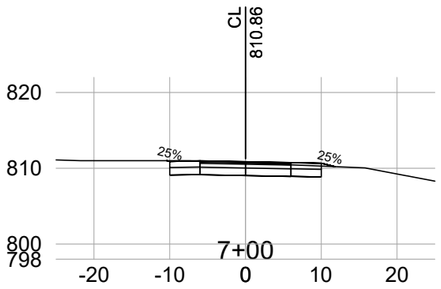

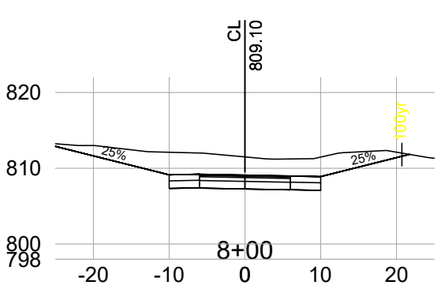

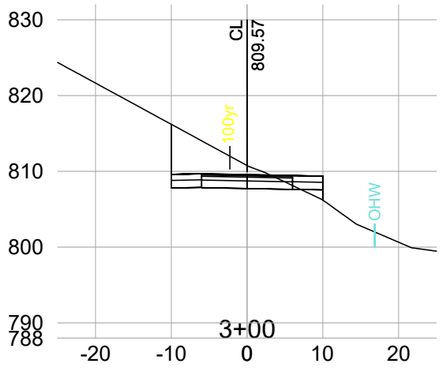

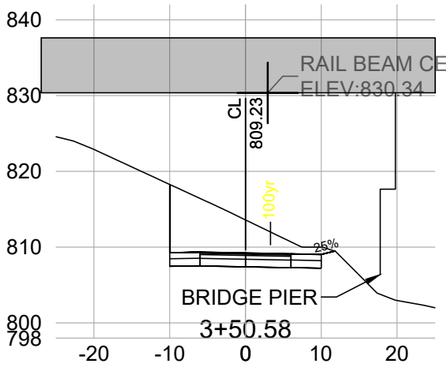

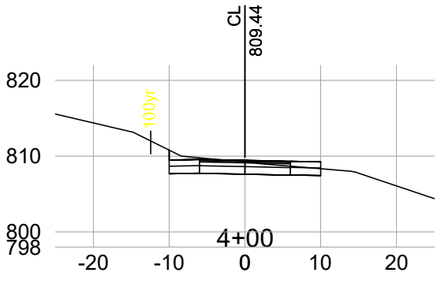

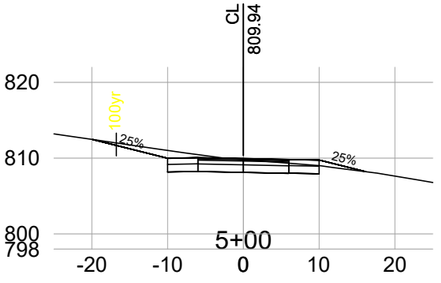

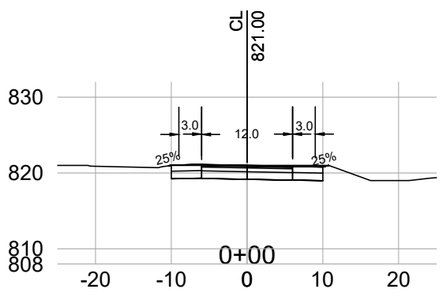

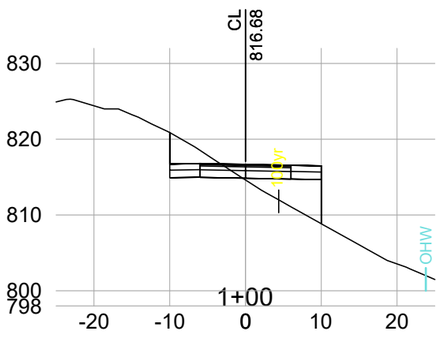

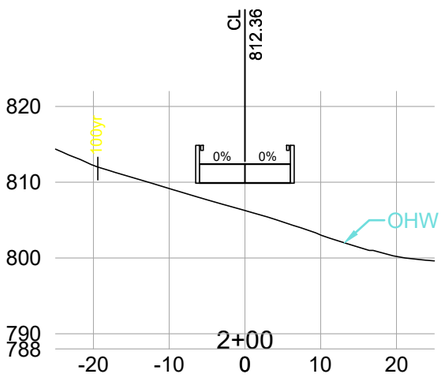

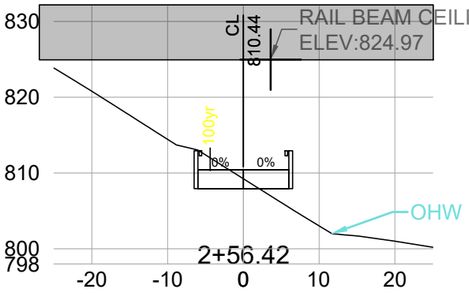

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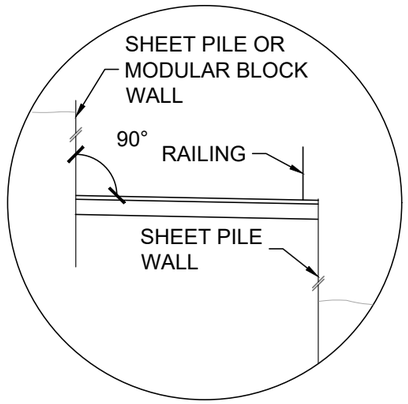
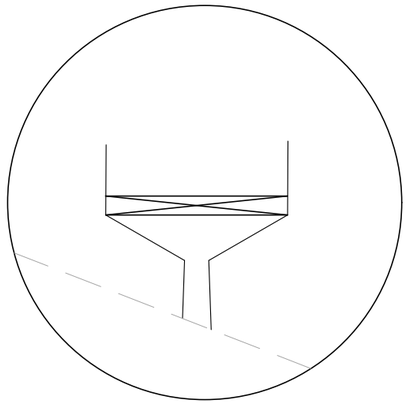
41st AVE TRAIL CROSS SECTIONS

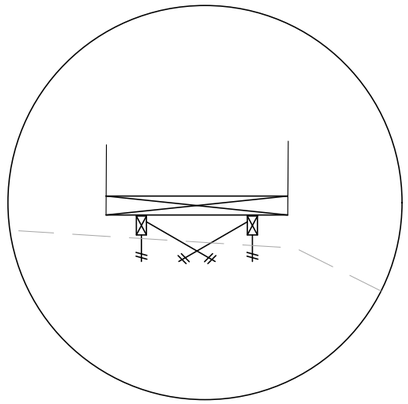
PROJ. NO. 18053.000
DRAWING NO. 006



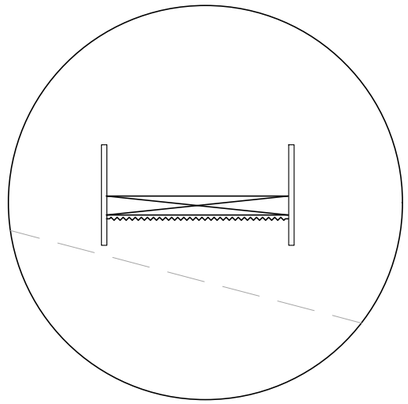
EXAMPLE CROSS SECTION OPTIONS



SUPPORTED BRIDGE



ELEVATED BOARDWALK



SPAN BRIDGE

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SLOPE AND BRIDGE TYPICAL SECTIONS

PROJ. NO. 18053.000
DRAWING NO. 007

PLOT DATE: Jun 01, 2021 - 9:33am
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Appendix A

Cost Estimates

26th Avenue Trail
41st Avenue Trail

26th Avenue Trail
Cost Estimate

MnDOT SPEC	DESCRIPTION	UNIT	UNIT PRICE	26TH AVE QTY	26TH AVE EXTENDED TOTAL	26TH AVE ALT QTY	26TH AVE ALT EXTENDED TOTAL
	TRAIL	LF		1245		1265	
DIVISION 1 - GENERAL CONDITIONS							
2021.501	MOBILIZATION	LS	$ 150,000.00	1	$ 150,000.00	1	$ 210,000.00
	Subtotal:				$ 150,000.00		$ 210,000.00
DIVISION 2 - DEMOLITION							
2105.505	CLEARING	ACRE	$ 9,000.00	0.57	$ 5,200.00	0.58	$ 5,300.00
2101.505	GRUBBING	ACRE	$ 9,000.00	0.57	$ 5,200.00	0.58	$ 5,300.00
	Subtotal:				$ 10,400.00		$ 10,600.00
DIVISION 31 - EARTHWORK							
2105.507	COMMON EXCAVATION	CY	$ 20.00	4512	$ 90,300.00	9525	$ 190,500.00
2411.511	STRUCTURE EXCAVATION CLASS E	CY	$ 15.00	3900	$ 58,500.00	1100	$ 16,500.00
	Subtotal:				$ 148,800.00		$ 207,000.00
DIVISION 32 - SITE IMPROVEMENTS							
2108.504	GEOTEXTILE FABRIC TYPE 7	SY	$ 4.00	2080	$ 8,400.00	2530	$ 10,200.00
2105.607	SELECT GRANULAR BORROW (CV)	CY	$ 25.00	693	$ 17,400.00	843	$ 21,100.00
2211.507	AGGREGATE BASE CLASS 5 (CV)	CY	$ 40.00	347	$ 13,900.00	422	$ 16,900.00
2211.507	SHOULDER BASE AGGREGATE (CV) CLASS 5	CY	$ 42.00	77	$ 3,300.00	94	$ 4,000.00
2360.509	TYPE SP 9.5 NON WEAR COURSE MIX (2,B)	TON	$ 100.00	125	$ 12,500.00	152	$ 15,200.00
2360.509	TYPE SP 9.5 WEARING COURSE MIX (2,B)	TON	$ 100.00	125	$ 12,500.00	152	$ 15,200.00
	TIMBER BOARDWALK	LF	$ 1,800.00	205	$ 369,000.00		
	PRESTRESSED CONCRETE BEAM BRIDGE	LF	$ 2,700.00			650	$ 1,755,000.00
	RETAINING WALL (UPPER) - PREFAB MOD BLOCK	SY	$500.00	683	$ 341,700.00	250	$ 124,800.00
	RETAINING WALL (LOWER) - SHEET PILE	SY	$1,200.00	611	$ 733,400.00	162	$ 194,600.00
2451.607	STRUCTURAL BACKFILL	CY	$40.00	3900	$ 156,000.00	1100	$ 44,000.00
2573.501	STABILIZED CONSTRUCTION EXIT	LS	$ 3,000.00	1	$ 3,000.00	1	$ 3,000.00
2573.503	SILT FENCE, TYPE HI	LF	$ 6.00	2490	$ 15,000.00	1265	$ 7,600.00
2575.501	TURF ESTABLISHMENT	ACRE	$ 10,000.00	1.5	$ 15,000.00	1.5	$ 15,000.00
	Subtotal:				$ 1,701,100.00		$ 2,226,600.00
			Construction Subtotal:		$ 2,010,300.00		$ 2,654,200.00
			Contingency (25%)		$ 502,575.00		$ 663,550.00
			Project Delivery (PM & Engineering) (15%)		$ 301,545.00		$ 398,130.00
			Project Total		$ 2,814,420.00		$ 3,715,880.00

41st Avenue Trail
Cost Estimate

MnDOT SPEC	DESCRIPTION	UNIT	UNIT PRICE	41ST AVE	TOTAL	EXTENDED TOTAL
	TRAIL	LF		830		
DIVISION 1 - GENERAL CONDITIONS						
2021.501	MOBILIZATION	LS	$ 150,000.00	1	$ 150,000.00	$ 150,000.00
	Subtotal:					$ 150,000.00
DIVISION 2 - DEMOLITION						
2105.505	CLEARING	ACRE	$ 9,000.00	0.4	$ 3,500.00	$ 3,500.00
2101.505	GRUBBING	ACRE	$ 9,000.00	0.4	$ 3,500.00	$ 3,500.00
	Subtotal:					$ 7,000.00
DIVISION 31 - EARTHWORK						
2105.507	COMMON EXCAVATION	CY	$ 20.00	6175	$ 123,500.00	$ 123,500.00
2411.511	STRUCTURE EXCAVATION CLASS E	CY	$ 15.00	700	$ 10,500.00	$ 10,500.00
	Subtotal:					$ 134,000.00
DIVISION 32 - SITE IMPROVEMENTS						
2108.504	GEOTEXTILE FABRIC TYPE 7	SY	$ 4.00	1270	$ 5,100.00	$ 5,100.00
2105.607	SELECT GRANULAR BORROW (CV)	CY	$ 25.00	423	$ 10,600.00	$ 10,600.00
2211.507	AGGREGATE BASE CLASS 5 (CV)	CY	$ 40.00	212	$ 8,500.00	$ 8,500.00
2211.507	SHOULDER BASE AGGREGATE (CV) CLASS 5	CY	$ 42.00	47	$ 2,000.00	$ 2,000.00
2360.509	TYPE SP 9.5 NON WEAR COURSE MIX (2,B)	TON	$ 100.00	76	$ 7,700.00	$ 7,700.00
2360.509	TYPE SP 9.5 WEARING COURSE MIX (2,B)	TON	$ 100.00	76	$ 7,700.00	$ 7,700.00
	PRESTRESSED CONCRETE BEAM BRIDGE	LF	$ 2,700.00	195	$ 526,500.00	$ 526,500.00
	RETAINING WALL (UPPER) - PREFAB MOD BLOCK	SY	$500.00	137	$ 68,400.00	$ 68,400.00
	RETAINING WALL (LOWER) - SHEET PILE	SY	$1,200.00	124	$ 148,700.00	$ 148,700.00
2451.607	STRUCTURAL BACKFILL	CY	$40.00	700	$ 28,000.00	$ 28,000.00
2573.501	STABILIZED CONSTRUCTION EXIT	LS	$ 3,000.00	1	$ 3,000.00	$ 3,000.00
2573.503	SILT FENCE, TYPE HI	LF	$ 6.00	1660	$ 10,000.00	$ 10,000.00
2575.501	TURF ESTABLISHMENT	ACRE	$ 10,000.00	1	$ 10,000.00	$ 10,000.00
	Subtotal:					$ 836,200.00
					Construction Subtotal:	$ 1,127,200.00
					Contingency (25%)	$ 281,800.00
					Project Delivery (PM & Engineering) (15%)	$ 169,080.00
					Project Total	$ 1,578,080.00