Application

17074 - 2022 Multiuse Trails and Bicycle Facilities

17582 - Phase 1 Bruce Vento Regional Trail Extension

Regional Solicitation - Bicycle and Pedestrian Facilities

Status:	Submitted
Submitted Date:	04/11/2022 9:56 AM

Primary Contact

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What Grant Programs are you most interested in?	Parks Legacy Fund			

Organization Information

Name:	RAMSEY COUNTY
Jurisdictional Agency (if different):	

Organization Type:	County Government
Organization Website:	PARKS AND RECREATION
Address:	PARKS AND RECREATION
	2015 N VAN DYKE ST
*	MAPLEWOOD (City) / Minnesota (State/Province) / 55109 (Postal Code/Zip)
County:	Ramsey
Phone:*	651-748-2500 Ext.
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PeopleSoft Vendor Number	0000023983A2

Project Information

Project Name	Phase 1 Bruce Vento Regional Trail Extension
Primary County where the Project is Located	Ramsey
Cities or Townships where the Project is Located:	White Bear Lake, White Bear Township, Gem Lake, Vadnais Heights
Jurisdictional Agency (If Different than the Applicant):	

Brief Project Description (Include location, road name/functional class, type of improvement, etc.)

The Bruce Vento Regional Trail corridor is thirteen miles in length and extends from the east side of downtown Saint Paul to the north county line in White Bear Township. The southern seven-mile segment of the regional trail was completed in 2005 from downtown Saint Paul to Buerkle Road in White Bear Lake on former Burlington Northern Santa Fe (BNSF) railway. The remaining six miles of trail is still undeveloped due to active rail use.

This project will construct a 2.7-mile extension of the Phase 1 Bruce Vento Regional Trail extension between Buerkle Road and the intersection of Hoffman Road/ Trunk Highway 61 in White Bear Lake. This project provides an alternate trail alignment in an active railway corridor, completes approximately one-half of a major gap in both the Regional Bike Transportation Network and National US Bike Route 41, and extends through the cities Gem Lake, White Bear Lake, White Bear Township and Vadnais Heights.

Significant access barriers will be eliminated from industrial areas and major vehicular transportation routes, providing a new multi-modal trail and increased access to multi-modal transportation facilities between Buerkle Road and Highway 96. The trail provides benefits for racially diverse populations, people of color, low-income populations, and substantial concentrations of youth, elderly, and residents with disabilities.

The trail will provide connections to other regional and local trails such as the Highway 96 Regional Trail, Lakes Links Regional Trail, Gateway State Trail, South Shore Boulevard Trail, and future connection to the proposed Hardwood Creek Regional Trail extension in Washington County at County Road J. In addition, the trail will connect populations near the southern Saint Paul segment

of the existing Bruce Vento Trail which extends through highly urban and concentrated areas of poverty making it a regionally important connection that will directly benefit diverse populations.

(Limit 2,800 characters; approximately 400 words)

TRANSPORTATION IMPROVEMENT PROGRAM (TIP) DESCRIPTION - will be used in TIP if the project is selected for funding. See MnDOT's TIP description guidance.

Bruce Vento Regional Trail extension from Buerkle Rd to Hoffman Road/US 61 - Construct 12-foot wide trail, at-grade trail crossings, concrete, retaining walls, landscaping, restoration, fencing, signage, stormwater management, and amenities.

Include both the CSAH/MSAS/TH references and their corresponding street names in the TIP Description (see Resources link on Regional Solicitation webpage for examples).

Project Length (Miles)

2.7

to the nearest one-tenth of a mile

Project Funding

Are you applying for competitive funds from another source(s) to implement this project?

Yes

If yes, please identify the source(s)

MN State bonding

Federal Amount

$4,000,000.00

Match Amount

$3,000,000.00

Minimum of 20% of project total

Project Total

$7,000,000.00

For transit projects, the total cost for the application is total cost minus fare revenues.

Match Percentage

42.86%

Minimum of 20%
Compute the match percentage by dividing the match amount by the project total

Source of Match Funds

MN State bonding, Ramsey County CIP

A minimum of 20% of the total project cost must come from non-federal sources; additional match funds over the 20% minimum can come from other federal sources

Preferred Program Year

Select one:

2026

Select 2024 or 2025 for TDM and Unique projects only. For all other applications, select 2026 or 2027.

Additional Program Years:

2024, 2025

Select all years that are feasible if funding in an earlier year becomes available.

Project Information

County, City, or Lead Agency

Ramsey County

Zip Code where Majority of Work is Being Performed	55110
(Approximate) Begin Construction Date	04/01/2024
(Approximate) End Construction Date	11/30/2024
Name of Trail/Ped Facility: *(i.e., CEDAR LAKE TRAIL)*	Bruce Vento Regional Trail

TERMINI:(Termini listed must be within 0.3 miles of any work)

From: **(Intersection or Address)**	Buerkle Road and BNSF Railway
To: **(Intersection or Address)** *DO NOT INCLUDE LEGAL DESCRIPTION; INCLUDE NAME OF ROADWAY IF MAJORITY OF FACILITY RUNS ADJACENT TO A SINGLE CORRIDOR*	Hoffman Road and Trunk Highway 61
Or At:	
Miles of trail (nearest 0.1 miles):	2.7
Miles of trail on the Regional Bicycle Transportation Network (nearest 0.1 miles):	2.7
Is this a new trail?	Yes
Primary Types of Work *Examples: GRADE, AGG BASE, BIT BASE, BIT SURF, SIDEWALK, SIGNALS, LIGHTING, GUARDRAIL, BIKE PATH, PED RAMPS, BRIDGE, PARK AND RIDE, ETC.*	GRADING, AGG. BASE, RET. WALLS, BRIDGE, STORM SEWER, BITUMINOUS PAVEMENT, CONCRETE CURB/GUTTER, FENCING, LANDSCAPING, SEEDING, STORMWATER MANAGEMENT

BRIDGE/CULVERT PROJECTS (IF APPLICABLE)

Old Bridge/Culvert No.:	
New Bridge/Culvert No.:	
Structure is Over/Under **(Bridge or culvert name):**	County Road E Bridge, Highway 61 Bridge

Requirements - All Projects

All Projects

1.The project must be consistent with the goals and policies in these adopted regional plans: Thrive MSP 2040 (2014), the 2040 Transportation Policy Plan (2018), the 2040 Regional Parks Policy Plan (2018), and the 2040 Water Resources Policy Plan (2015).

Check the box to indicate that the project meets this requirement. Yes

2.The project must be consistent with the 2040 Transportation Policy Plan. Reference the 2040 Transportation Plan goals, objectives, and strategies that relate to the project.

Briefly list the goals, objectives, strategies, and associated pages:

The project is consistent with several

goals, objectives, and strategies for Ch 2 of the 2040 TP.

Goal(A): Transportation Stewardship

Obj.(B): Operate a regional trans. system to efficiently & cost-effectively connect people to destinations.

Strategy: A1, A2, A3 (pgs. 2.2-2.4)

Goal(B): Safety & security

Obj.(B): Reduce the trans. system vulnerability to natural & man-made incidents & threats.

Strategy: B1,B6 (pgs. 2.5, 2.8)

Goal(C): Access to Destination

Obj:(A) Increase the avail. of multi-modal travel options especially in Hwy corridors, (D) Increase transit ridership & the share trips taken using transit/bicycling/walking, (E)Improve multi-modal travel options for people of all ages & abilities to connect with jobs & other opportunities particularly in underrepresented areas.

Strategy: C1,C15,C17 (pgs. 2.10, 2.22-2.24)

Goal(D): Competitive Economy

Obj:(A) Improve multi-modal access to regional job concentrations, (D)Invest in a multi-modal trans. system to attract & retain business/residents.

Strategy: D1,D3 (pgs. 2.26-2.28)

Goal(E): Healthy Env.

Obj:(C) Increase the avail. & attractiveness of transit/bicycling/walking to encourage healthy communities/active care-free lifestyles, (D) Provide a trans. system that promotes community cohesion/connectivity for people of all ages/abilities particularly in underrepresented areas.

Strategy: E3,E7 (pgs. 2.31-2.32, 2.34)

(Limit 2,800 characters; approximately 400 words)

3.The project or the transportation problem/need that the project addresses must be in a local planning or programming document. Reference the name of the appropriate comprehensive plan, regional/statewide plan, capital improvement program, corridor study document [studies on trunk highway must be approved by the Minnesota Department of Transportation and the Metropolitan Council], or other official plan or program of the applicant agency [includes Safe Routes to School Plans] that the project is included in and/or a transportation problem/need that the project addresses.

List the applicable documents and pages: Unique projects are exempt from this qualifying requirement because of their innovative nature.

Thrive 2040: Regional Parks Plan (Chapter 3, pg 43-50,73-76)(Chapter 7, pg 7.11-7.16,7.22-7.24)

Ramsey County Parks System Plan - Bruce Vento Section (pg 216-220)

Ramsey County Ped. & Bike Plan - Executive summary (pg iii-vii)

Lakes Links Network Master Plan - Bruce Vento section (pg 3.0-3.4)

Ramsey County Comp Plan Rush Line/Vento - Transportation section (pg 67,70)

White Bear Lake Comp Plan - Transportation section (pg 12,22,27,31)

White Bear Township Comp Plan - Trails section (pg 108,117,121)

Vadnais Heights Comp Plan - Parks/Trails section (pg 59,60), and Transportation Section (pg 103)

Bruce Vento Regional Trail Master Plan Amendment (pg 1-11)

(Limit 2,800 characters; approximately 400 words)

4.The project must exclude costs for studies, preliminary engineering, design, or construction engineering. Right-of-way costs are only eligible as part of transit stations/stops, transit terminals, park-and-ride facilities, or pool-and-ride lots. Noise barriers, drainage projects, fences, landscaping, etc., are not eligible for funding as a standalone project, but can be included as part of the larger submitted project, which is otherwise eligible. Unique project costs are limited to those that are federally eligible.

Check the box to indicate that the project meets this requirement. Yes

5.Applicant is a public agency (e.g., county, city, tribal government, transit provider, etc.) or non-profit organization (TDM and Unique Projects applicants only). Applicants that are not State Aid cities or counties in the seven-county metro area with populations over 5,000 must contact the MnDOT Metro State Aid Office prior to submitting their application to determine if a public agency sponsor is required.

Check the box to indicate that the project meets this requirement. Yes

6.Applicants must not submit an application for the same project in more than one funding sub-category.

Check the box to indicate that the project meets this requirement. Yes

7.The requested funding amount must be more than or equal to the minimum award and less than or equal to the maximum award. The cost of preparing a project for funding authorization can be substantial. For that reason, minimum federal amounts apply. Other federal funds may be combined with the requested funds for projects exceeding the maximum award, but the source(s) must be identified in the application. Funding amounts by application category are listed below in Table 1. For unique projects, the minimum award is $500,000 and the maximum award is the total amount available each funding cycle (approximately $4,000,000 for the 2020 funding cycle).
Multiuse Trails and Bicycle Facilities: *$250,000 to $5,500,000*
Pedestrian Facilities (Sidewalks, Streetscaping, and ADA): *$250,000 to $2,000,000*
Safe Routes to School: *$250,000 to $1,000,000*

Check the box to indicate that the project meets this requirement. Yes

8.The project must comply with the Americans with Disabilities Act (ADA).

Check the box to indicate that the project meets this requirement. Yes

9.In order for a selected project to be included in the Transportation Improvement Program (TIP) and approved by USDOT, the public agency sponsor must either have a current Americans with Disabilities Act (ADA) self-evaluation or transition plan that covers the public right of way/transportation, as required under Title II of the ADA. The plan must be completed by the local agency before the Regional Solicitation application deadline. For the 2022 Regional Solicitation funding cycle, this requirement may include that the plan is updated within the past five years.

The applicant is a public agency that employs 50 or more people and has a completed ADA transition plan that covers the public right of way/transportation. Yes

Date plan completed: 05/01/2016

Link to plan:

The applicant is a public agency that employs fewer than 50 people and has a completed ADA self-evaluation that covers the public right of way/transportation.

Date self-evaluation completed:

Link to plan:

Upload plan or self-evaluation if there is no link 1647022087665_RC Parks - ADA Plan Summary.pdf

Upload as PDF

10.The project must be accessible and open to the general public.

Check the box to indicate that the project meets this requirement. Yes

11.The owner/operator of the facility must operate and maintain the project year-round for the useful life of the improvement, per FHWA direction established 8/27/2008 and updated 6/27/2017. Unique projects are exempt from this qualifying requirement.

Check the box to indicate that the project meets this requirement. Yes

12.The project must represent a permanent improvement with independent utility. The term independent utility means the project provides benefits described in the application by itself and does not depend on any construction elements of the project being funded from other sources outside the regional solicitation, excluding the required non-federal match.
Projects that include traffic management or transit operating funds as part of a construction project are exempt from this policy.

Check the box to indicate that the project meets this requirement. Yes

13.The project must not be a temporary construction project. A temporary construction project is defined as work that must be replaced within five years and is ineligible for funding. The project must also not be staged construction where the project will be replaced as part of future stages. Staged construction is eligible for funding as long as future stages build on, rather than replace, previous work.

Check the box to indicate that the project meets this requirement. Yes

14.The project applicant must send written notification regarding the proposed project to all affected state and local units of government prior to submitting the application.

Check the box to indicate that the project meets this requirement. Yes

Requirements - Bicycle and Pedestrian Facilities Projects

1.All projects must relate to surface transportation. As an example, for multiuse trail and bicycle facilities, surface transportation is defined as primarily serving a commuting purpose and/or that connect two destination points. A facility may serve both a transportation purpose and a recreational purpose; a facility that connects people to recreational destinations may be considered to have a transportation purpose.

Check the box to indicate that the project meets this requirement. Yes

Multiuse Trails on Active Railroad Right-of-Way:

2.All multiuse trail projects that are located within right-of-way occupied by an active railroad must attach an agreement with the railroad that this right-of-way will be used for trail purposes.

Check the box to indicate that the project meets this requirement. Yes

Upload Agreement PDF

Check the box to indicate that the project is not in active railroad right-of-way.

Multiuse Trails and Bicycle Facilities projects only:

3.All applications must include a letter from the operator of the facility confirming that they will remove snow and ice for year-round bicycle and pedestrian use. The Minnesota Pollution Control Agency has a resource for best practices when using salt. Upload PDF of Agreement in Other Attachments.

Check the box to indicate that the project meets this requirement. Yes

Upload PDF of Agreement in Other Attachments.

Safe Routes to School projects only:

4.All projects must be located within a two-mile radius of the associated primary, middle, or high school site.

Check the box to indicate that the project meets this requirement.

5.All schools benefitting from the SRTS program must conduct after-implementation surveys. These include the student travel tally form and the parent survey available on the National Center for SRTS website. The school(s) must submit the after-evaluation data to the National Center for SRTS within a year of the project completion date. Additional guidance regarding evaluation can be found at the MnDOT SRTS website.

Check the box to indicate that the applicant understands this requirement and will submit data to the National Center for SRTS within one year of project completion.

Requirements - Bicycle and Pedestrian Facilities Projects

Specific Roadway Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Mobilization (approx. 5% of total cost)	$600,000.00
Removals (approx. 5% of total cost)	$300,000.00
Roadway (grading, borrow, etc.)	$0.00
Roadway (aggregates and paving)	$600,000.00
Subgrade Correction (muck)	$0.00
Storm Sewer	$420,000.00
Ponds	$0.00
Concrete Items (curb & gutter, sidewalks, median barriers)	$244,130.00
Traffic Control	$40,000.00
Striping	$20,000.00
Signing	$30,000.00
Lighting	$0.00
Turf - Erosion & Landscaping	$300,000.00
Bridge	$600,000.00
Retaining Walls	$1,220,900.00
Noise Wall (not calculated in cost effectiveness measure)	$0.00
Traffic Signals	$0.00
Wetland Mitigation	$0.00
Other Natural and Cultural Resource Protection	$0.00
RR Crossing	$0.00
Roadway Contingencies	$550,000.00
Other Roadway Elements	$40,000.00
Totals	**$4,965,030.00**

Specific Bicycle and Pedestrian Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Path/Trail Construction	$1,100,000.00
Sidewalk Construction	$34,970.00
On-Street Bicycle Facility Construction	$0.00
Right-of-Way	$0.00
Pedestrian Curb Ramps (ADA)	$30,000.00
Crossing Aids (e.g., Audible Pedestrian Signals, HAWK)	$25,000.00

Pedestrian-scale Lighting	$0.00
Streetscaping	$20,000.00
Wayfinding	$25,000.00
Bicycle and Pedestrian Contingencies	$400,000.00
Other Bicycle and Pedestrian Elements	$400,000.00
Totals	**$2,034,970.00**

Specific Transit and TDM Elements

CONSTRUCTION PROJECT ELEMENTS/COST ESTIMATES	Cost
Fixed Guideway Elements	$0.00
Stations, Stops, and Terminals	$0.00
Support Facilities	$0.00
Transit Systems (e.g. communications, signals, controls, fare collection, etc.)	$0.00
Vehicles	$0.00
Contingencies	$0.00
Right-of-Way	$0.00
Other Transit and TDM Elements	$0.00
Totals	**$0.00**

Transit Operating Costs

Number of Platform hours	0
Cost Per Platform hour (full loaded Cost)	$0.00
Subtotal	$0.00
Other Costs - Administration, Overhead,etc.	$0.00

Totals

Total Cost	$7,000,000.00
Construction Cost Total	$7,000,000.00
Transit Operating Cost Total	$0.00

Measure A: Project Location Relative to the RBTN

Select one:

Tier 1, Priority RBTN Corridor	Yes
Tier 1, RBTN Alignment	Yes
Tier 2, RBTN Corridor	
Tier 2, RBTN Alignment	
Direct connection to an RBTN Tier 1 corridor or alignment	
Direct connection to an RBTN Tier 2 corridor or alignment	

OR

Project is not located on or directly connected to the RBTN but is part of a local system and identified within an adopted county, city or regional parks implementing agency plan.	
Upload Map	1647272969714_Bike Corridors Map.pdf

Please upload attachment in PDF form.

Measure A: Population Summary

Existing Population Within One Mile (Integer Only)	25819
Existing Employment Within One Mile (Integer Only)	21832
Upload the "Population Summary" map	1647273174070_Population-Employment Map.pdf

Please upload attachment in PDF form.

Measure A: Engagement

i.Describe any Black, Indigenous, and People of Color populations, low-income populations, disabled populations, youth, or older adults within a ½ mile of the proposed project. Describe how these populations relate to regional context. Location of affordable housing will be addressed in Measure C.

ii.Describe how Black, Indigenous, and People of Color populations, low-income populations, persons with disabilities, youth, older adults, and residents in affordable housing were engaged, whether through community planning efforts, project needs identification, or during the project development process.

iii.Describe the progression of engagement activities in this project. A full response should answer these questions:

Populations are shown in the Population Summary attachment. At the south end of the project area, there is a high concentration of youth, minority, and low-income populations, and a high concentration of job and activity centers. To the north, there is a high concentration of elderly.

Engagement activities were completed through a public, stakeholder, and agency involvement process over the course of several years from 2015-2020. Engagement tactics included open houses, popup events, web site, social media, and fliers provided to schools, churches, libraries and local businesses and organizations. Focused engagement sessions connected with people of color, elders, or with disabilities.

Response:

In 2015, multiple engagement events for the Ramsey County Bike and Pedestrian Plan engaged project area communities. In 2016, two trail project-specific open houses invited residents and businesses along the route to provide input on the alignment. The connection to St. Paul employment and activity centers was frequently mentioned as a major advantage of the trail extension, making the trail extension a priority for Ramsey County. Three interactive workshops were held in 2018 - 2020 to allow the community to influence details of the trail project and the master plan amendment. In addition, multiple coordinated engagement events for the Purple Line BRT project also addressed trail design and included several on-trail activities that allowed trail users to provide input.

Engagement activities completed strived to connect with underrepresented communities living and working near the trail corridor. Underrepresented communities are those whose input has been

disproportionately unheard in public decision making, including people of color, people with disabilities and people with low incomes. Engagement opportunities were developed and prioritized events to attend using the following criteria: equity, inclusivity, maximizing voices heard, and geographic representation

The engagement activities outlined above resulted in several comments and themes which generally resonated with most of the diverse populations that participated in the engagement. The following is a summary of findings that helped shape planning and design activities such as prioritizing safety and security, trail amenities, maintain the natural character, utilize BNSF right-of-way and existing crossing structures, screening/buffer elements, and connection to other trail networks.

(Limit 2,800 characters; approximately 400 words):

Measure B: Equity Population Benefits and Impacts

Describe the projects benefits to Black, Indigenous, and People of Color populations, low-income populations, children, people with disabilities, youth, and older adults. Benefits could relate to:
This is not an exhaustive list. A full response will support the benefits claimed, identify benefits specific to Equity populations residing or engaged in activities near the project area, identify benefits addressing a transportation issue affecting Equity populations specifically identified through engagement, and substantiate benefits with data.
Acknowledge and describe any negative project impacts to Black, Indigenous, and People of Color populations, low-income populations, children, people with disabilities, youth, and older adults. Describe measures to mitigate these impacts. Unidentified or unmitigated negative impacts may result in a reduction in points.
Below is a list of potential negative impacts. This is not an exhaustive list.

Response:

The Bruce Vento Regional Trail benefits people with low-incomes, minority populations, populations with disabilities, youth, and elders by providing a safe, multiuse trail between housing, shopping, schools, jobs, services, and Rush Line BRT stations. The trail alignment includes two areas in White Bear Lake with higher-than-average shares of the population that are people of color and low-income. Several senior housing properties located within a half mile of the trail will have more safe and direct access. The project directly serves a high number of persons with a disability in White Bear Lake census tract 404.01, where 15% of residents have a disability. There are 3 subsidized affordable housing developments within a half mile, who are more likely to make trips on foot, by bicycle, or using transit and will benefit from direct and convenient access to both a multiuse trail and transit. At its northern terminus, the project provides a connection for a substantial population of children in White Bear Township census tract 405.04, where 20% of residents are under age 15. The project provides a safe walking/biking route to students within a half-mile of Willow Lane Elementary and Frassati Catholic Academy, and within one mile of the White Bear Lake Area middle and high north school campus.

This project will provide an ADA-accessible off-road multiuse trail where none exists today, and complete approximately one-half of the six-mile gap within the RBTN network and the National US Bike Route 41. The trail extension will provide new connections to regional and local trails such as the Highway 96 Regional Trail, Lakes Links Regional Trail, South Shore Trail and Gateway Regional Trail south of the project area. These regionally significant connections will allow diverse populations to access the project area, including people living in concentrated poverty at the existing

southern/St. Paul segment of the Bruce Vento Trail. The project will provide improved access to proposed Purple Line BRT station stops and existing Metro Transit bus route 265.

Anticipated negative externalities created by the trail project include temporary construction inconveniences such as dust, noise, and temporary detours. As the proposed trail will be constructed where there is none today, detours are only anticipated in the locations where the trail crosses an existing roadway. Construction in these areas is anticipated to be limited in duration and scope and will not result in significant impact to the traveling public.

(Limit 2,800 characters; approximately 400 words):

Measure C: Affordable Housing Access

Describe any affordable housing developmentsexisting, under construction, or plannedwithin ½ mile of the proposed project. The applicant should note the number of existing subsidized units, which will be provided on the Socio-Economic Conditions map. Applicants can also describe other types of affordable housing (e.g., naturally-occurring affordable housing, manufactured housing) and under construction or planned affordable housing that is within a half mile of the project. If applicable, the applicant can provide self-generated PDF maps to support these additions. Applicants are encouraged to provide a self-generated PDF map describing how a project connects affordable housing residents to destinations (e.g., childcare, grocery stores, schools, places of worship).

Describe the projects benefits to current and future affordable housing residents within ½ mile of the project. Benefits must relate to affordable housing residents. Examples may include:

This is not an exhaustive list. Since residents of affordable housing are more likely not to own a private vehicle, higher points will be provided to roadway projects that include other multimodal access improvements. A full response will support the benefits claimed, identify benefits specific to residents of affordable housing, identify benefits addressing a transportation issue affecting residents of affordable housing specifically identified through engagement, and substantiate benefits with data.

Response:

There are 12 existing affordable housing developments within ½ mile of the project corridor, as shown in BVT_AffordableHousing.pdf. There are no planned developments near the project corridor. Of those identified, three developments guarantee affordability through some form of subsidy - Hoffman Place and Willow Wood Apartments in White Bear Lake and Wyngate Townhomes in Maplewood. The remaining nine developments are naturally occurring affordable housing identified by Ramsey County because they fall within the AMI monthly rental cost as established by the Metropolitan Council.

The Bruce Vento Trail extension project will directly improve multimodal access for residents of these housing locations by providing a multimodal trail where none exists today. It will improve access for the residents to the regional bike transportation network by extending a safe, dedicated trail facility from Maplewood and St. Paul with connections to the Highway 96 Regional Trail, Lake Links Regional Trail, and the planned South Shore Regional Trail.

The proposed trail extension will also greatly improve access for people in affordable housing to the Rush Line BRT and to the existing Metro Transit bus route 265. Four proposed Rush Line BRT station locations are directly adjacent to the Bruce Vento Trail. Two are on the southern, built segments of the trail and two will be directly on the proposed trail extension at Cedar Lake Road and Hwy 96. The trail project will support people who rely on public transit in accessing areas in White Bear Lake and St. Paul outside the Rush Line station areas. Filling this gap in the regional bicycle and pedestrian network benefits residents of affordable housing or with low incomes by providing more safe and convenient multimodal

transportation and recreational opportunities.

(Limit 2,800 characters; approximately 400 words):

Measure D: BONUS POINTS

Project is located in an Area of Concentrated Poverty:	
Projects census tracts are above the regional average for population in poverty or population of color (Regional Environmental Justice Area):	Yes
Project located in a census tract that is below the regional average for population in poverty or populations of color (Regional Environmental Justice Area):	
Upload the Socio-Economic Conditions map used for this measure.	1647290176474_Socio-Economic Conditions Map.pdf

Measure A: Gaps closed/barriers removed and/or continuity between jurisdictions improved by the project

PART 1: Qualitative assessment of project narrative discussing how the project will close a bicycle network gap, create a new or improved physical bike barrier crossing, and/or improve continuity and connections between jurisdictions.
Specifically, describe how the project would accomplish the following: Close a transportation network gap, provide a facility that crosses or circumvents a physical barrier, and/or improve continuity or connections between jurisdictions.
Bike system gap improvements include the following:

- *Providing a missing link between existing or improved segments of a local transportation network or regional bicycle facility (i.e., regional trail or RBTN alignment);*

- *Improving bikeability to better serve all ability and experience levels by:*

- *Providing a safer, more protected on-street facility or off-road trail;*

- *Improving safety of bicycle crossings at busy intersections (e.g., through signal operations, revised signage, pavement markings, etc.); OR*

- *Providing a trail adjacent or parallel to a highway or arterial roadway or improving a bike route along a nearby and parallel lower-volume neighborhood collector or local street.*

Physical bicycle barrier crossing improvements include grade-separated crossings (over or under) of rivers and streams, railroad corridors, freeways and expressways, and multi-lane arterials, or enhanced routes to circumvent the barrier by channeling bicyclists to existing safe crossings or grade separations. Surface crossing improvements (at-grade) of major highway and rail barriers that upgrade the bicycle facility treatment or replace an existing facility at the end of its useful life may also be considered as bicycle barrier improvements. (For new barrier crossing projects, distances to the nearest parallel crossing must be included in the application to be considered for the full allotment of points under Part 1).
Examples of continuity/connectivity improvements may include constructing a bikeway across jurisdictional lines where none exists or upgrading an existing bicycle facility treatment so that it connects to and is consistent with an adjacent jurisdictions bicycle facility.

The proposed project will complete a 2.7-mile gap in the Tier 1 RBTN regional system and National USBR 41 bicycle and pedestrian network, remove access barriers, improve bikability/walkability, and expand local access to four planned Rush Line BRT stations. The Bruce Vento Trail is a Tier 1 RBTN between Saint Paul and White Bear Lake. The existing trail intersects the Gateway State Trail (Tier 2 RBTN alignment) and a network of other local trails south of Buerkle Road. The proposed trail extension from Buerkle Road to the intersection of Hoffman Road/US Highway 61 will remove barriers to additional local pedestrian facilities and regional connections like the Highway 96 Regional Trail, Lake Links Regional Trail, and South Shore Boulevard Trail, making the proposed trail extension regionally significant for filling gaps in the RBTN.

Response:

The existing Bruce Vento Regional Trail terminates at Buerkle Rd and transitions to on-street bike lanes on Buerkle Road ending at White Bear Ave (1/2-mile to the east), US Highway 61 to the west (1/4-mile to the west) and does not connect with other dedicated bike or pedestrian facilities. Currently, there are limited north/south and east/west pedestrian and bicycle facilities north of Buerkle Road due to current land use designations, high traffic roadways, and BNSF railway. By extending the trail north to the intersection of Hoffman Road/ US Highway 61, the Bruce Vento Trail will remove access barriers on Buerkle Road, direct connection to business and the Willow Marsh community (between Buerkle Road and County Road E), dedicated trail crossing under County Road E and connection to pedestrian and bike lanes along County Road E, enhanced connections to the adjacent community north of County Road E and along Hoffman, dedicated trail access under Highway 61, and enhanced connections along Hoffman Road to US Highway 61.

In addition to filling a network gap and providing safe, separated facilities, the proposed trail will provide improved access to the Rush Line BRT (Purple Line) corridor. Overall, the project would increase access to four Purple Line Station Stops. Two proposed station stops are directly adjacent to the proposed trail extension (Buerkle Road and Whitaker Street), and two station stops are within a ¼-mile walking distance with local connections provided through the Purple Line project. This trail project will provide a unique synergy between transit, pedestrian, and bicycle modes that will enhance usage, safety, and convenience for all modes.

(Limit 2,800 characters; approximately 400 words)

PART 2: Regional Bicycle Barrier Crossing Improvements and Major River Bicycle Barrier Crossings
DEFINITIONS:
Regional Bicycle Barrier Crossing Improvements include crossings of barrier segments within the Regional Bicycle Barrier Crossing Improvement Areas as updated in the 2019 Technical Addendum to the Regional Bicycle Barriers Study and shown in the RBBS online map (insert link to forthcoming RBBS Online Map). Projects must create a new regional barrier crossing, replace an existing regional barrier crossing at the end of its useful life, or upgrade an existing barrier crossing to a higher level of bike facility treatment, to receive points for Part 2.
Major River Bicycle Barrier Crossings include all existing and planned highway and bicycle/pedestrian bridge crossings of the Mississippi, Minnesota and St. Croix Rivers as identified in the 2018 update of the 2040 Transportation Policy Plan. Projects must create a new major river bicycle barrier crossing, replace an existing major river crossing at the end of its useful life, or upgrade the crossing to a higher level of bike facility treatment, to receive points for Part 2.
Projects that construct new or improve existing Regional Bicycle Barrier Crossings or Major River Bicycle Barrier Crossings will be assigned points as follows: (select one)

Tier 1 Yes

Tier 1 Regional Bicycle Barrier Crossing Improvement Area segments & any Major River Bicycle Barrier Crossings

Tier 2

Tier 2 Regional Bicycle Barrier Crossing Improvement Area segments

Tier 3

Tier 3 Regional Bicycle Barrier Crossing Improvement Area segments

Non-tiered

Crossings of non-tiered Regional Bicycle Barrier segments

No improvements

No Improvements to barrier crossings

If the project improves multiple regional bicycle barriers, check box.

Multiple Yes

Projects that improve crossing of multiple regional bicycle barriers receive bonus points (except Tier 1 & MRBBCs)

Measure B: Project Improvements

Response:

Currently, there are no north/south, and limited east/west ped-bike facilities north of Buerkle Road to the intersection of Hoffman/Highway 61 due to current land use designations, high traffic roadways (Buerkle Road, County Rd E, Hwy 61), and BNSF railway.

The project will provide a dedicated 12-foot off-road bituminous trail, ADA safety and access improvements, safety improvements, safe crossings, and underpasses to avoid at-grade ped-bike conflicts at County Rd E (18,300 ADT) and Hwy 61 (30,500 ADT). Safety improvements will be gained throughout the project such as safety fencing, pedestrian bridge facilities in the Willow Marsh area, minimization of at-grade crossings (two signalized, one stop controlled proposed along entire 2.7-mile corridor), and a curb separated facility when adjacent to Hoffman Rd (2,000 ADT). Additional connections are proposed to connect to existing bike lanes on Buerkle Road and County Road E.

Buerkle Rd crossing improvements will be provided through the Purple Line BRT project (2024-2026) consisting of a new signalized crossing, safe connections to existing bike lanes, and safe crossing over the BNSF tracks. Ramsey County will also assess curb bump outs, signage, striping, and high visibility markings/beacons at the Scheuneman Road at-grade crossing. The project has been designed to complement Purple Line BRT improvements, including its Hoffman Rd/Hwy 61/White Bear Ave intersection reconstruction, ADA access/safety improvements for access to other local trails to the east. Other local sidewalk connections to station stops will be provided through the Purple Line project at County Road E and at Cedar Avenue.

These trail improvements are critical for many reasons. At Highway 61, there are only shoulders, which do not provide safe pedestrian and bicycle passage. In the last 10 years, there have been 10 ped-bike crashes on or near Hwy 61, showing a need for safe, separated pedestrian and bike facilities where there are none. Two crashes involved serious injuries, seven involved minor or suspected injuries, and one was property damage only. Crash data is included as an attachment to this application. By providing a separated, off-road trail, the project will reduce pedestrians and bicyclists travelling on high ADT roadways. Rates of injury and death to people walking and biking in Ramsey County are notably higher than other parts of Minnesota. Ramsey County has the highest estimated pedestrian fatality rate, and the second highest serious injury rate of bicyclists. 40% of all crash fatalities are pedestrians, which is four times the state average.

(Limit 2,800 characters; approximately 400 words)

Measure A: Multimodal Elements

Response:

The trail extension will provide a multimodal facility that does not exist today and fills a gap in Regional RBTN and National USBR 41 bike networks. This trail project will increase multimodal access to the Metro Transit bus Route 265, Purple Line BRT stations, regional and local trail facilities, and adjacent neighborhoods-business. The project will extend the Bruce Vento trail (RBTN Tier 1; 491,514 trail users in 2019) 2.7 miles and provide connections to the Highway 96 Regional Trail (RBTN Tier 1; 356,456 trail users in 2019), the Lakes Link Regional Trail (RBTN Tier 2; 400,352 trail users in 2019), and the planned South Shore Boulevard Trail (RBTN Tier 1, construction planned for 2022). In addition, the trail will connect populations near the southern Saint Paul segment of the existing Bruce Vento Trail which extends through highly urban and concentrated areas of poverty including the Gateway State Trail making it a regionally important connection that will directly benefit diverse populations regionally.

The project also removes barriers to multiple activity centers via existing trails/facilities, including large commercial/office areas along Buerkle Rd; Maplewood Mall Transit Center via the highly used existing segment south of Buerkle Rd; TCO Sports Garden (1/4-mile west walking distance at County Rd E); South Shore Boulevard Trail (1/2-mile east of north terminus), and terminates within a ¼ mile of the Hwy 96 Regional Trail and Lakes Link Regional Trail (Aka. Lake Avenue Trail in White Bear Lake), for access to critical east-west corridors. By providing connection to the Purple Line BRT, residents will be able to access downtown St. Paul via a combination of the Bruce Vento Trail and the Purple Line BRT. Trail users be able to utilize the Bruce Vento Regional Trail to Rush Line BRT station stops that are planned directly adjacent to the planned trail at Buerkle Rd,

Co Rd E & Hwy 61, Cedar Ave & Hwy 61, and Whitaker St. By providing this critical bike/pedestrian connection, the linked multimodal corridors of Purple Line and Bruce Vento Trail will have safety and access improvements that benefits all users - directly within the project area and regionally.

In addition, planning for future phases is currently underway with White Bear Lake and White Bear Township to extend the trail north of the northern terminus of this project for connection to County Road J and Hardwood Creek Trail in Washington County.

(Limit 2,800 characters; approximately 400 words)

Transit Projects Not Requiring Construction

If the applicant is completing a transit application that is operations only, check the box and do not complete the remainder of the form. These projects will receive full points for the Risk Assessment.
Park-and-Ride and other transit construction projects require completion of the Risk Assessment below.

Check Here if Your Transit Project Does Not Require Construction

Measure A: Risk Assessment - Construction Projects

1.Public Involvement (20 Percent of Points)

Projects that have been through a public process with residents and other interested public entities are more likely than others to be successful. The project applicant must indicate that events and/or targeted outreach (e.g., surveys and other web-based input) were held to help identify the transportation problem, how the potential solution was selected instead of other options, and the public involvement completed to date on the project. The focus of this section is on the opportunity for public input as opposed to the quality of input. NOTE: A written response is required and failure to respond will result in zero points.

Multiple types of targeted outreach efforts (such as meetings or online/mail outreach) specific to this project with the general public and partner agencies have been used to help identify the project need.

Yes

100%

At least one meeting specific to this project with the general public has been used to help identify the project need.

50%

At least online/mail outreach effort specific to this project with the general public has been used to help identify the project need.

50%

No meeting or outreach specific to this project was conducted, but the project was identified through meetings and/or outreach related to a larger planning effort.

25%

No outreach has led to the selection of this project.

0%

Describe the type(s) of outreach selected for this project (i.e., online or in-person meetings, surveys, demonstration projects), the method(s) used to announce outreach opportunities, and how many people participated. Include any public website links to outreach opportunities.

Engagement activities were completed through a public, stakeholder, and agency involvement process over the course of several years from 2015-2020. Engagement tactics included open houses, popup events, web site, social media, and fliers provided to schools, churches, libraries and local businesses and organizations. In 2015, multiple engagement events were conducted for the Ramsey County Bike and Pedestrian Plan. In 2016, two trail project-specific open houses invited residents and businesses along the route to provide input on the alignment. Three interactive workshops were held in 2018 - 2020 to allow the community to influence details of the trail project and master plan amendment in addition to a 30-day public review of the master plan amendment.

Response:

Open houses were advertised through a variety of online platforms, direct mailings and were shared by cities, local advocacy groups, and community organizations. Local businesses including schools and libraries near the trail were directly engaged and provided flyers. During the open house staff were available for one-on-one discussion and layouts were provided for attendees to provide comments. In addition to public open houses, Ramsey County convened 5 meetings of municipal stakeholder agencies related to the project.

As part of Purple Line BRT, a series of engagement events were held on the Bruce Vento Trail to educate and solicit feedback on the future relationship between the transit corridor and the multimodal trail. Engagement during the summer of 2019 helped develop a Visioning Framework to guide the design of Ramsey County rail ROW and the Bruce Vento trail area.
Due to the proposed use of railroad ROW along several segments of the project, Ramsey County conducted several meetings with BNSF and

Minnesota Commercial staff to discuss the project, review details of the layout and obtain feedback on railroad criteria to obtain the necessary permits to construct and operate the trail. The current layout incorporates design criteria and feedback from railroad engagement process, including location of the trail at least 50 feet from track centerline.

Comments from engagement were supportive of the trail and its potential to connect to other existing and proposed trail facilities, and the Purple Line BRT. Engagement also established the desire to eventually connect the length of the trail all the way to Co Rd J and the Hardwood Creek Trail in Washington County. The overall connection to the greater St. Paul was frequently mentioned by stakeholders as a major advantage of the trail extension.

(Limit 2,800 characters; approximately 400 words)

2.Layout (25 Percent of Points)

Layout includes proposed geometrics and existing and proposed right-of-way boundaries. A basic layout should include a base map (north arrow; scale; legend; city and/or county limits; existing ROW, labeled; existing signals;* and bridge numbers*) and design data (proposed alignments; bike and/or roadway lane widths; shoulder width;* proposed signals;* and proposed ROW). An aerial photograph with a line showing the projects termini does not suffice and will be awarded zero points. *If applicable*

Layout approved by the applicant and all impacted jurisdictions (i.e., cities/counties/MnDOT. If a MnDOT trunk highway is impacted, approval by MnDOT must have occurred to receive full points. A PDF of the layout must be attached along with letters from each jurisdiction to receive points. *100%*	Yes
A layout does not apply (signal replacement/signal timing, stand-alone streetscaping, minor intersection improvements). Applicants that are not certain whether a layout is required should contact Colleen Brown at MnDOT Metro State Aid colleen.brown@state.mn.us. *100%*	
For projects where MnDOT trunk highways are impacted and a MnDOT Staff Approved layout is required. Layout approved by the applicant and all impacted local jurisdictions (i.e., cities/counties), and layout review and approval by MnDOT is pending. A PDF of the layout must be attached along with letters from each jurisdiction to receive points. *75%*	
Layout completed but not approved by all jurisdictions. A PDF of the layout must be attached to receive points.	

50%

Layout has been started but is not complete. A PDF of the layout must be attached to receive points.

25%

Layout has not been started

0%

Attach Layout 1649173892359_CD553009-Plans-2021_09_23.pdf

Please upload attachment in PDF form.

Additional Attachments

Please upload attachment in PDF form.

3.Review of Section 106 Historic Resources (15 Percent of Points)

No known historic properties eligible for or listed in the National Register of Historic Places are located in the project area, and project is not located on an identified historic bridge

100%

There are historical/archeological properties present but determination of no historic properties affected is anticipated. Yes

100%

Historic/archeological property impacted; determination of no adverse effect anticipated

80%

Historic/archeological property impacted; determination of adverse effect anticipated

40%

Unsure if there are any historic/archaeological properties in the project area.

0%

Project is located on an identified historic bridge

4.Right-of-Way (25 Percent of Points)

Right-of-way, permanent or temporary easements, and MnDOT agreement/limited-use permit either not required or all have been acquired

100%

Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - plat, legal descriptions, or official map complete Yes

50%

Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - parcels identified

25%

Right-of-way, permanent or temporary easements, and/or MnDOT agreement/limited-use permit required - parcels not all identified

0%

5.Railroad Involvement (15 Percent of Points)

No railroad involvement on project or railroad Right-of-Way agreement is executed (include signature page, if applicable)

100%

Signature Page 1649173892350_railway coordination letter.pdf

Please upload attachment in PDF form.

Railroad Right-of-Way Agreement required; negotiations have begun Yes

50%

Railroad Right-of-Way Agreement required; negotiations have not begun.

0%

Measure A: Cost Effectiveness

Total Project Cost (entered in Project Cost Form): $7,000,000.00

Enter Amount of the Noise Walls: $0.00

Total Project Cost subtract the amount of the noise walls: $7,000,000.00

Points Awarded in Previous Criteria

Cost Effectiveness $0.00

Other Attachments

File Name	Description	File Size
Bruce Vento Regional Trail Project Photo.pdf	1. Summary - Existing Conditions Photo	2.1 MB
Bruce Vento Trail Crash Data 2010-2022.pdf	4. Other - Bruce Vento Crash Data	3.1 MB
BVT_AffordableHousing.pdf	2. Maps - Affordable Housing Map	263 KB
BVT_PopulationSummary.pdf	2. Maps - Population Summary Map	290 KB
Lake Links Support Letter-3012022.pdf	3. Coordination - Letter of Support - Lake Links Association	515 KB
Letter of Support - Gem Lake.pdf	3. Coordination - Letter of Support - Gem Lake	750 KB
Letter of Support - Maplewood.pdf	3. Coordination - Letter of Support - Maplewood	76 KB
Letter of support - Ramsey County Master Plan Amendment Resolution.pdf	3. Coordination - Letter of Support - RC Board Resolution	162 KB
Letter of support - RC-ParkRec Agency.pdf	3. Coordination - Letter of Support - RC Parks & Rec	260 KB
Phase 1 Bruce Vento - Development Graphic.pdf	2. Maps - Development Graphic	16.1 MB
Phase 1 Bruce Vento Regional Trail Project Summary - 2022 Regional Solicitation.pdf	1. Summary - One-Page Project Summary	367 KB
railway coordination letter.pdf	3. Coordination - BNSF Railway Letter	125 KB
Standard Maintenance LOS for Regional Trails-2020.pdf	3. Coordination - Trail Maintenance Standards	192 KB
Support Letter - White Bear Lake.pdf	3. Coordination - Letter of Support - White Bear Lake	1.8 MB
Transit Connections Map.pdf	2. Maps - Transit Connection Map	4.2 MB

RAMSEY COUNTY
Parks & Recreation

recreation accessibility
consultants, llc

Ramsey County Parks and Recreation Department

Transition Plan

recreation accessibility consultants, llc

November 30, 2015

Scott Yonke
Director of Planning and Development
Ramsey County Parks and Recreation Department
2015 North Van Dyke Street
Maplewood, MN 55109-3796

Dear Scott:

Please accept this letter as the introduction to our final report to the Ramsey County Parks and Recreation Department, in regard to our access audit of Department buildings and sites.

Authority

Title II of the Americans with Disabilities Act (42 USC 12131) prohibits more than 89,000 units of state and local government, such as the Ramsey County Parks and Recreation Department from discrimination on the basis of disability in the delivery of programs and services. The definition of programs and services is broad and includes public parks, recreation programs, and the many opportunities made available for the enjoyment of your residents by the Department.

The Department of Justice (DOJ) issued an amended implementing regulation for title II, which became effective on March 15, 2011. This supplemented the regulation issued January 26, 1992. The DOJ regulation is integral to this audit and can be found at 28 CFR Part 35. The amended regulations were anticipated for quite a few years.

Title II requirements that come into play in our work for the Department include:

- section 35.105 self evaluation;
- the section 35.133 maintenance requirement;
- the section 35.150 program access test regarding existing sites;
- the section 35.151 requirements for new facilities and alterations to old facilities, and
- the section 35.163 requirements regarding building signage.

One Source.
Infinite Solutions.

2675 Pratum Avenue
Hoffman Estates, Illinois 60192
224/293-6451 Fax: 224/293-6455

Final and Enforceable Regulations…and Final *Guidelines*

Regarding parks and recreation site and facility design, two sets of federal guidelines were applied to the Department access audit. One is the Americans with Disabilities Act Accessibility Guidelines, also known as ADAAG.

Published by the US Department of Justice (DOJ) on July 26, 1991 as Appendix A to 28 CFR Part 36, this final and enforceable regulation is now known as the 1991 Standards. This older Standard adequately addresses entries, showers, curb cuts, doors, service counters, ramps, decks, and other typical building elements.

On September 14, 2010 the DOJ published the 2010 Standards for Accessible Design. As these Standards were already available as a final guideline, we have long used this as our guide for an access audit. It addresses many recreation environments.

The US Access Board developed the 2010 Standards, which include requirements for playgrounds, fishing areas, boating areas, and more. This process started in 1993 and lasted for almost 20 years.

It is important to know that there is ***not yet a final standard*** for some Ramsey County assets. Still pending are standards for trails, picnic areas, campsites, viewing areas, and outdoor constructed elements such as grills. Where we encountered those assets we used the most recent work of the US Access Board to guide our evaluation. The Access Board, a federal agency, develops ***all*** access guidelines.

We cite to the 2010 Standards in our work. Where Minnesota access standards are more stringent, we cite to those. Additionally, as a smart practice we cite to the work of the US Access Board.

Approach and Analysis

Section 35.150 of the DOJ regulation implementing the ADA makes it clear that not necessarily every facility or site of the same type must be made accessible. We interpret this requirement to mean that with similar sites, such as play areas, the Department has some flexibility in determining which site it will make accessible.

However, for unique sites, such as Battle Creek Water Works, the Department has no choice with regard to which site it will make accessible, as there is only one such site. Where we know the Department plans work at certain sites, we have tried to incorporate that in our phased retrofit recommendations.

In an access audit, it is critical to measure each feature of each element of each site, as we have done here. Where we found a variance from access requirements or a smart practice variance, we have digital images so that the Department will better understand the variance.

Our scope of work for the Department also included the identification of a severity rating for retrofit work, as well as facility diagrams. The diagrams don't address every deficit, but do illustrate the correction to be made.

An additional issue is whether a building has been altered since 1992. If so, there is little flexibility in how access requirements are applied to that site. That site or building should have fully complied with the 1991 Standards.

Settlement agreements by federal agencies (Justice, Interior, and Education) adhere to what are now the 2010 Standards. While these were effective for new construction on March 15, 2012, ***the 2010 Standards are to be used in evaluating recreation sites now in existence.***

Report Format

Our audit included an examination of 41 facilities or parks. Each facility or park has its own section in our final report. Our Conclusion section is found at the end of the site reports.

Here is an order of the reports:

1. This cover letter;

2. 41 site reports from the Aldrich Arena to White Bear Lake County Park;

3. Conclusion report with summarized recommendations;

4. A phased transition plan with cost references as well as severity rating; and

5. Program access grid and maps for playgrounds, ball fields, sports fields and picnic areas.

The Department is receiving one hard copy in six binders. The first and second binders have all the final site reports, the program access grid and maps, and the transition plan grid. The remaining four binders have all of the checklists.

Finally, you'll receive a user name and password to our FTP site, where all reports, checklists, and images are available for Department employees and contractors as you wish. Once downloaded; on your screen, the text in the reports section includes a hyperlink to the checklist and the photo being referenced. The checklists also have a hyperlink to the same access deficit images

Title II Program Access

As mentioned above, the title II program access test in 35.150(b) gives the Department great flexibility in making existing facilities and sites ***that have similar features*** accessible. For example, we counted 20, 5 to 12 play areas. Not all of those sites must be accessible.

The program access test requires the Department to make the "program of play areas" accessible to all Department residents. Our goal was then to have at least 1 of every 3 five to twelve play areas accessible, or able to be made accessible. Here is a summary of the results.

> There are 20 playgrounds for children aged 5 to 12. Three are currently accessible. The Department could create access to four more without much difficulty and leave the remaining 13 playgrounds "as is" and inaccessible, until those are renovated due to age or for other purposes.
>
> This exceeds the ratio we recommend of 1 of every 3 recurring sites.

Where we believe a site should be made accessible to comply with the program access test, leading into the recommended corrective work our reports will use language like that below:

> ***"Recommendations (Long Lake Regional Park is designated with an accessible 5 to 12 play area so 1.4.1 through 1.4.6 is integral to compliance with title II program access test)*:"**

Conversely, where we believe a site need not be made accessible, leading into the recommended corrective work our reports will use language like that below:

> ***"Recommendations (in the alternative to 1.3.1, leave as is and designate other Department play areas as accessible)*:"**

We applied this concept to the duplicated elements of volleyball, tennis, basketball, baseball, athletic fields and picnic areas. We believe our recommendations to you make these "programs" accessible to Department residents.

How to Use this Information

First, ***read this final report cover letter to Scott Yonke***. It describes the concepts and requirements invoked throughout the reports.

Second, ***read the Conclusion section***. This is a big picture review of the issues and solutions we recommend.

Third, read the 41 site reports. Use your computer and you'll have instant access to the report for that site, the images of access deficits, and the checklists. Resist the urge to visit these first…do so at the risk of being buried in detail.

Fourth, use your knowledge of the sites and of your staffs' expertise. You know Ramsey County Parks and Recreation Department sites very well, and you know the staff better than we do. Blend in what you know with what we recommend in the report. There is always another way to solve an access problem…perhaps you'll be the one to see that solution.

Conclusion

The final reports identify, we believe, every access deficit at the sites, as required by section 35.105 of title II. We have, in our approach to program access, made recommendations so that not every access deficit needs to be corrected.

Our recommendations are flexible enough that later modifications, should your own plans change, can occur. We worked well with all Ramsey County Parks and Recreation Department staff, but owe a special thanks to you, Scott, for your assistance.

The Ramsey County Parks and Recreation Department has shown its commitment to making parks and recreation available for all in the community, including people with disabilities. Addressing our recommendations will assure that those services are available to Ramsey County residents, including those with disabilities.

If there are any questions, please call me at 224/293-6451 or on my cell at 847/363-9384.

Sincerely,

John N. McGovern, J.D.
President

JNM/RCPRD COVER LETTER 201501

recreation accessibility consultants, llc

RAMSEY COUNTY PARKS AND RECREATION DEPARTMENT
TRANSITION PLAN SUMMARY
December 16, 2015

Summary	Phase				
	1	2	3	CO	Grand Total
Site Name					
Aldrich Arena	$ 279,888.50				$ 279,888.50
Bald Eagle-Otter Lakes Regional Park		$ 33,219.75	$ 21,035.00		$ 54,254.75
Battle Creek Regional Park		$ 115,722.50	$ 39,901.25	$ -	$ 155,623.75
Battle Creek Waterworks			$ 54,126.75	$ 9,100.00	$ 63,226.75
Beaver Lake County Park	$ 11,152.50	$ 1,695.00	$ 1,792.50	$ 65,425.00	$ 80,065.00
Birch Lake Regional Trail			$ 3,892.50		$ 3,892.50
Bruce Vento Regional Trail			$ 10,631.25		$ 10,631.25
Charles M. Schultz - Highland Arena	$ 155,652.50				$ 155,652.50
Goodrich Golf Course				$ 68,146.50	$ 68,146.50
Gustafson-Phalen Arena				$ 125,808.50	$ 125,808.50
Harding Arena				$ 125,958.75	$ 125,958.75
Highway 96 Regional Trail			$ 5,092.50		$ 5,092.50
Island Lake County Park	$ 67,214.25	$ 27,006.25	$ 7,400.00	$ 14,400.00	$ 116,020.50
Island Lake Golf Course				$ 34,274.75	$ 34,274.75
Keller Golf Course	$ 121,099.50		$ 49,161.25		$ 170,260.75
Keller Regional Park		$ 155,291.25	$ 30,250.00	$ 20,425.00	$ 205,966.25
Ken Yachel - West Side Arena				$ 78,631.00	$ 78,631.00
Lake Gervais County Park	$ 46,695.00	$ 4,985.00	$ 7,472.50	$ 56,618.75	$ 115,771.25
Lake Josephine County Park	$ 36,243.50	$ 15,652.50	$ 6,687.50		$ 58,583.50
Lake McCarrons County Park	$ 28,845.00	$ 9,217.50	$ 9,072.50	$ 10,700.00	$ 57,835.00
Lake Owasso County Park	$ 17,472.50	$ 32,850.00		$ 25,637.50	$ 75,960.00
Long Lake Regional Park		$ 182,118.25	$ 20,218.75	$ 1,460.00	$ 203,797.00

recreation accessibility consultants, llc

RAMSEY COUNTY PARKS AND RECREATION DEPARTMENT
TRANSITION PLAN SUMMARY
December 16, 2015

Summary	Phase				
	1	2	3	CO	Grand Total
Site Name					
Manitou Ridge Golf Course	$ 68,263.25		$ 30,089.50		$ 98,352.75
Oscar Johnson Arena				$ 87,325.00	$ 87,325.00
Parks and Recreation HQ			$ 266,283.75		$ 266,283.75
Pleasant Arena				$ 83,005.75	$ 83,005.75
Poplar Lake County Park				$ -	$ -
Rice Creek North Regional Trail			$ 13,472.50	$ 6,068.75	$ 19,541.25
Rice Creek Water Trail				$ 8,335.00	$ 8,335.00
Rice Creek West Regional Trail			$ 8,081.25		$ 8,081.25
Shoreview Arena	$ 92,440.25				$ 92,440.25
Tamarack Nature Center Regional Park		$ 111,836.75	$ 57,348.75	$ 13,597.50	$ 182,783.00
The Ponds at Battle Creek Golf Course				$ 58,107.75	$ 58,107.75
Tony Schmidt Regional Park		$ 95,066.50	$ 28,708.00	$ 174,968.75	$ 298,743.25
Trout Brook Regional Trail			$ 13,935.00		$ 13,935.00
Turtle Lake County Park	$ 24,580.00	$ 800.00		$ 27,825.00	$ 53,205.00
Vadnais Sports Center	$ 199,460.75				$ 199,460.75
Vadnais-Snail Lakes Regional Park		$ 96,787.75	$ 19,676.25	$ 8,168.75	$ 124,632.75
Vadnais-Sucker Lakes Regional Park		$ 53,192.50	$ 13,560.00	$ 17,400.00	$ 84,152.50
White Bear Arena				$ 87,522.25	$ 87,522.25
White Bear Lake County Park				$ 83,335.49	$ 83,335.49
Grand Total	$ 1,149,007.50	$ 935,441.50	$ 717,889.25	$ 1,292,245.74	$ 4,094,583.99

August 2018

RAMSEY COUNTY
Parks & Recreation

ADA IMPLEMENTATION PLAN

INTRODUCTION

In 2015, the Ramsey County Parks and Recreation department contracted with Recreation Accessibility Consultants, LLC (RAC) to assess compliancy with the American Disability Act (ADA) across Parks & Recreation areas and facilities. RAC identified items across all Parks & Recreation facilities that do not comply with the 2010 ADA Standards, and compiled this information into an extensive Transition Plan for Parks & Recreation. The Transition Plan details all the noncompliant items in each Parks & Recreation site, with the corrective action required, recommended priority level, and estimated repair costs.

Due to the magnitude and estimated cost of the required repairs (over 5,000 noncompliant items were listed, with a total estimated repair cost of nearly $5 million), Parks & Recreation created an ADA Implementation Team (ADAIT) to assist the department in developing a medium-term plan to implement the ADA corrections. The ADAIT, consists of Parks & Recreation staff, a Parks & Recreation Commission member, and individuals from various local ADA advocacy groups and organizations. This Implementation Plan is the product of that group's work.

ASSESSING PROGRESS

Overall, this ADA Implementation Plan strives to:

- Provide direction on the utilization of available 2018-19 ADA funding
- Lay out medium-term plan for funding and implementing corrections not included in 2018-19 plan
- Support the department's efforts in requesting funding in future budget cycles
- Provide a concise document for residents to reference to understand the department's goals and strategies for this project

Currently, the ADA Implementation Plan provides a general guide for Parks & Recreation as they address ADA items. There will be quarterly meetings to update the ADAIT and important stakeholders on the progress of ADA implementation, and maintain Parks & Recreation's accountability. The plan will also be updated every two years to reflect progress of the implementation plan, and any changes to funding and ADA standards in the future that may affect this plan.

SOURCES OF FUNDING

Maintenance of County parks, ice arenas, and golf courses is funded through the County, through its Comprehensive Asset Management Preservation Program (CCAMP) and Capital Improvement Program (CIP). Regional park maintenance is funded through the Metropolitan Council. For the 2018-2019 budget cycle, Parks and Recreation has requested and received $100,000 per year from both the CIP program and the Metropolitan County for ADA implementation. Parks and Recreation will continue to request this funding for future budget cycles, but this funding is not guaranteed to continue beyond 2019. The implementation of this Transition Plan will require significant funding to complete. Parks and Recreation will make every attempt to secure this funding, in addition to other project/grant opportunities that may become available, but the priorities set forth in this Plan may need to be adjusted based on availability of funding.

FACILITY CATEGORIES

Parks & Recreation facilities can be broken down into the following four categories:

1. Ice Arenas

- The County ice arena system is in the midst of a medium-term capital plan to modernize the facilities in compliance with current and future codes and regulation.
- ADA items will be addressed as part of these larger projects.
- Three projects are funded for the 2018-19 budget cycle: Aldrich Arena, Shoreview Arena, and White Bear arena. These projects include funding to address ADA issues

2. Golf Courses
    - Recommendations regarding golf courses will be on hold until a golf study is released in late 2018.
    - The report will guide the capital improvement plan for golf courses and guide ADA priorities.
3. Administrative Buildings
    - ADA items will be addressed when buildings receive funding for improvement/redevelopment projects.
    - Parks and Recreation requested CIP funding for 2018-19 for a significant remodel of the Parks administration building, which included budget for ADA items. This project was not funded. Parks and Recreation will request funding again for the 2020-21 cycle.
    - Tamarack Nature Center is in the midst of a multi-phase 15-year campus buildout project. The final phase of construction is anticipated to begin in 2020-21 and will include funding for ADA items
4. County and Regional Parks
    - Parks scheduled to be redeveloped or re-master planned by 2020 will incorporate ADA corrections into project plans and budgets
    - For parks or areas that are not planned to be addressed for two years or more, the implementation plan will detail the strategy for corrections.

IMPLEMENTATION PROCESS & TIMELINE

The implementation process consists of two phases:

- Phase 1: ADA implementation of physical aspects.
- Phase 2: ADA implementation of programing aspects.

Phase 1 of the implementation process is designed to make the built environment at Parks & Recreation facilities accessible. This would include areas such as parking lots, sidewalks, entrances, vertical transportation (elevators), restrooms, spectator areas, recreation areas, and others.

Phase 2 will focus on improving the accessibility of the programs and recreation services those offered by Parks & Recreation, such as summer camps or sport recreational activities. As Phase 1 items are completed, Phase 2 programming will be addressed when practical. Parks & Rec will not wait for all of Phase 1 or for all ADA items, regardless of priority tier, to be fully completed because we understand that this process will span several years. Phase 2 programming will be rolled in as Phase 1 items are addressed, to ensure that some programming aspects are also ADA compliant throughout the implementation process.

The following are current or future projects that will include ADA corrections:

- Lake Owasso
- Aldrich Ice Arena
- Keller Golf Course Driving Range
- Shoreview Ice Arena
- White Bear Lake Ice Arena

- Tamarack Nature Center expansion/remodel
- Beaver Lake County Park
- Snail Lake Beach Building

As an example, Lake Owasso is scheduled to be 100% ADA compliant by the end of September, 2018. This park will begin Phase 2 programming that will serve to model Phase 2 implementation at other parks.

For facilities not included in current or upcoming projects, the ADAIT recommends prioritizing county and regional parks for utilizing existing ADA specific funding. The other facility categories can be addressed through current and future projects (arenas, administration) or once long-term plans become clearer (golf).

Within individual parks, the ADAIT determined that the department's focus in implementing ADA corrections should mirror the experience of a user who has disabilities– i.e. from the parking lot to sidewalks/access routes to the shelter/restroom to the picnic areas to recreational areas such as beaches, playgrounds, fishing piers. Three tiers will be used to prioritize ADA corrections within individual parks:

- Tier 1: Parking and access/routes
- Tier 2: Bathrooms and picnic areas
- Tier 3: Recreation areas

There is an additional fourth tier noted in the ADA Transition Plan. Tier 4 items are considered best practices, and will not be considered for the time being.

Following the tiers of priority, the ADAIT decided to begin addressing ADA items at the following facilities:

1. Lake Gervais County Park
2. Lake Josephine County Park
3. Turtle Lake County Park
4. White Bear County Park
5. Bald Eagle-Otter Lake Regional Park
6. Vadnais-Snail Lakes Regional Park
7. Vadnais-Sucker Lakes Regional Park

The four County Parks were selected since there are no immediate plans to re-develop or re-master plan this spaces in the near future. The selected Regional Parks were selected because there is existing funding to allocate to them, and are areas that are not currently being re-master planned.

Within each park, it will be a good rule to follow the tier 1, 2 and 3 timeline. If it makes economical and/or logistical sense, some tier 2 or 3 aspects might be completed at a particular park or across all parks.

Appendix A contains a general implementation strategy for each Parks & Recreation facility. The end goal is to have all Ramsey County Parks & Recreations facilities to be 100% accessible. The implementation process will require years of planning and collaboration across various organizations and agencies, as well as whether the County receives adequate funding to fold in all the changes and ADA items we would like to implement. Parks & Recreation will continue to address ADA items at Parks facilities, following the three-tier approach, and we will roll in additional ADA items as Parks & Recreation facilities are subject to re-master planning/redevelopment, or makes economical/logistical sense to address some tiers at the same time.

If ADA standards change, Parks & Recreation will continue to update this plan accordingly and adapt to such changes, given the budgets and resources available.

Project to RBTN Orientation

Multiuse Trails and Bicycle Facilities Project: Phase 1 Bruce Vento Regional Trail Extension | Map ID: 1647010856398

Results

Project **IN** TIER 1
Bicycle Transport Corridor.

Project
RBTN Tier 2 Alignment
Railroads
RBTN Corridor Centerlines
Principal Arterials
RBTN Tier 1
RBTN Tier 1 Alignment
Minor Arterials
RBTN Tier 2

0 0.45 0.9 1.8 2.7 3.6 Miles

Created: 3/11/2022
LandscapeRSA6

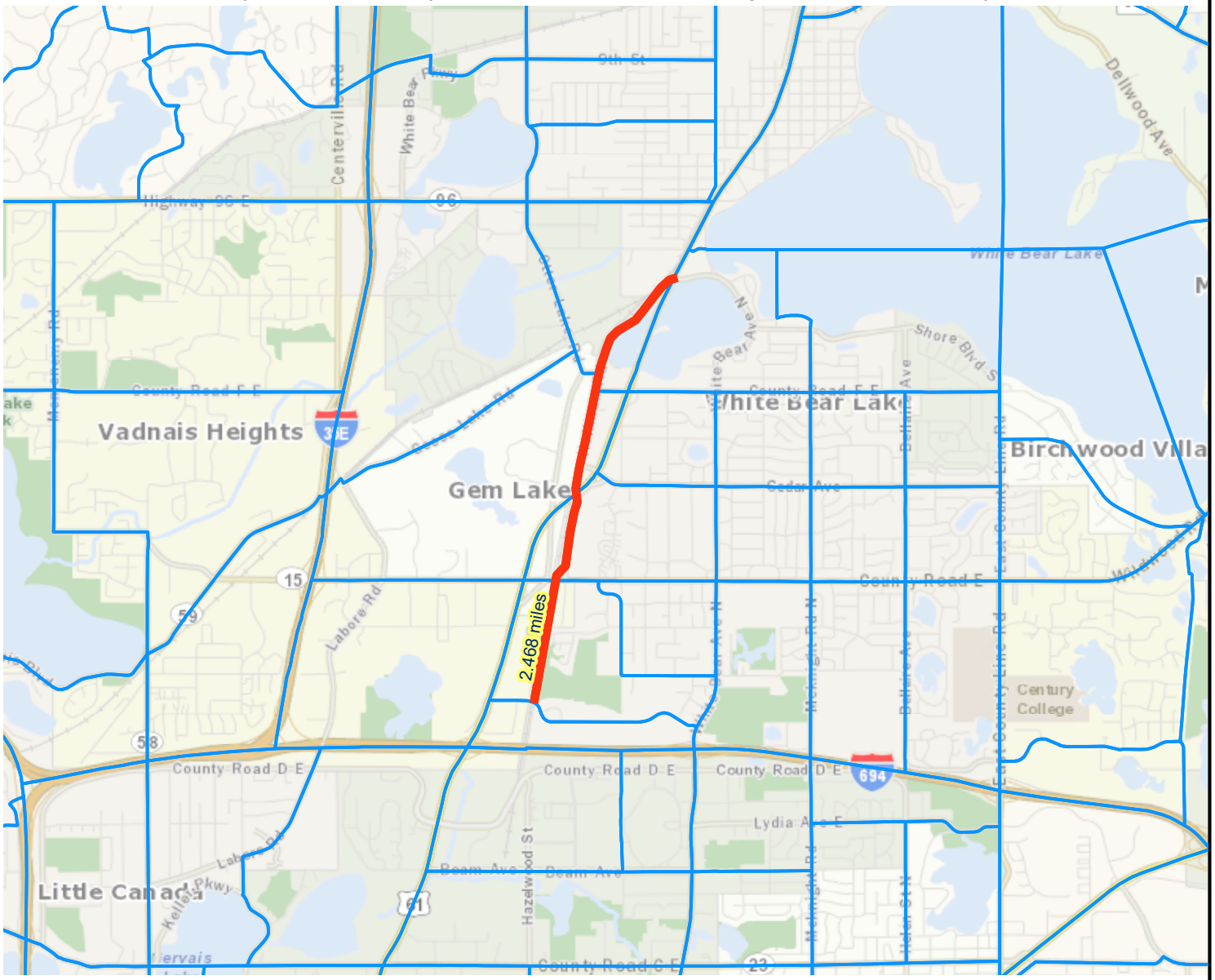
METROPOLITAN COUNCIL

Population/Employment Summary

Multiuse Trails and Bicycle Facilities Project: Phase 1 Bruce Vento Regional Trail Extension | Map ID: 1647010856398

Results

Within ONE Mile of project:
Total Population: 25819
Total Employment: 21832



Project Points
Project
Project Area
2016 TAZ

0 0.5 1 2 3 4 Miles

Created: 3/11/2022
LandscapeRSA4

METROPOLITAN COUNCIL

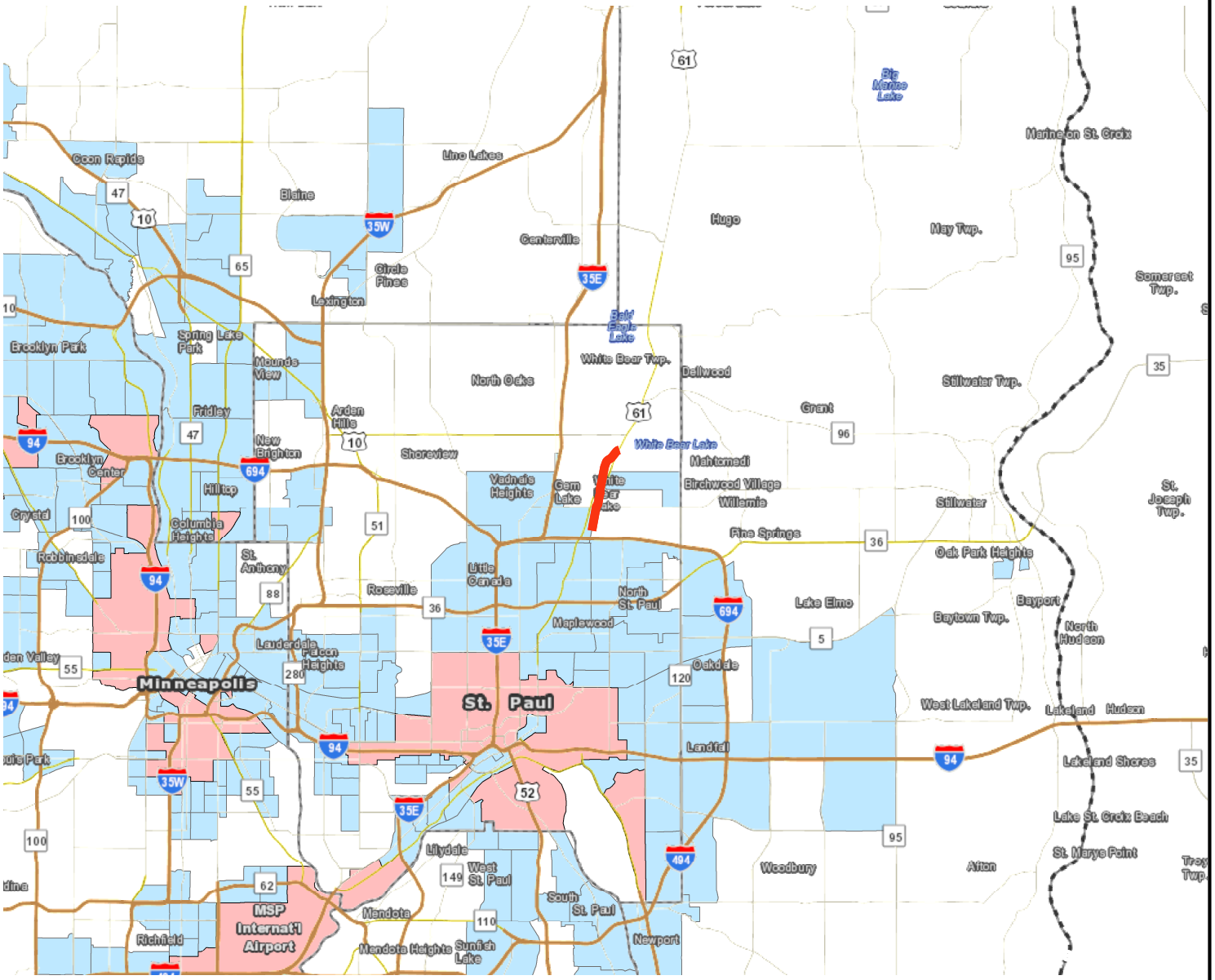
Socio-Economic Conditions

Multiuse Trails and Bicycle Facilities Project: Phase 1 Bruce Vento Regional Trail Extension | Map ID: 1647010856398

Results

Total of publicly subsidized rental housing units in census tracts within 1/2 mile: 1238

Project located in census tracts that are BELOW the regional average for population in poverty or population of color.



Lines

Regional Environmental Justice Area

Area of Concentrated Poverty

0 2.75 5.5 11 16.5 22 Miles

Created: 3/11/2022
LandscapeRSA2

For complete disclaimer of accuracy, please visit http://giswebsite.metc.state.mn.us/gissite/notice.aspx

METROPOLITAN COUNCIL

MINNESOTA DEPARTMENT OF TRANSPORTATION
RAMSEY COUNTY PARKS AND RECREATION DEPARTMENT

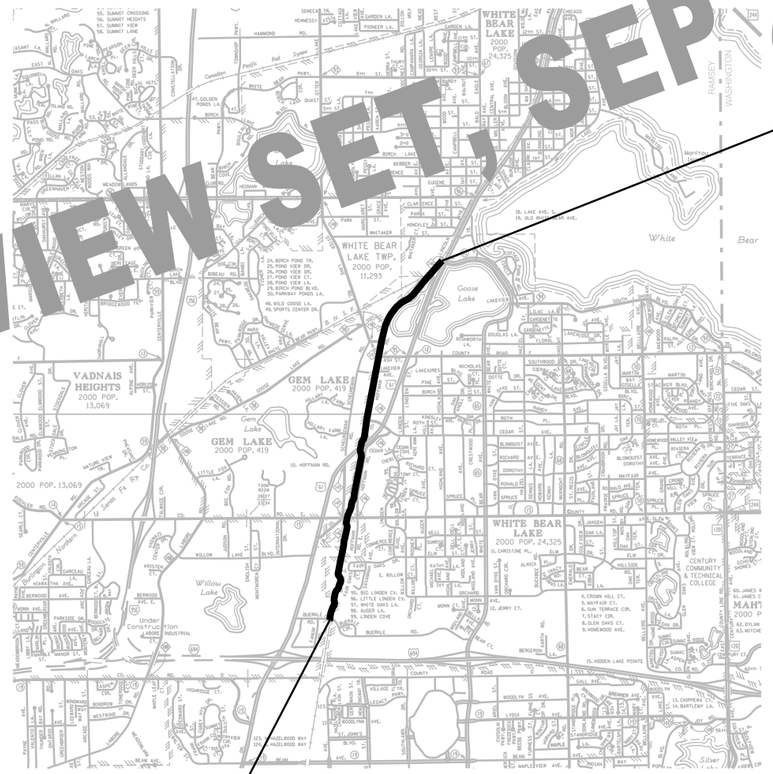
STATE AID PROJECT NUMBER xxx-xxx-xxx

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, STORM SEWER, BITUMINOUS TRAIL, BITUMINOUS MILL & OVERLAY, AND ADA IMPROVEMENTS.

LOCATED ON HOFFMAN ROAD FROM BUERKLE ROAD TO CSAH 96 IN WHITE BEAR LAKE

STATE AID PROJ. NO. XXX-XXX-XXX

GROSS LENGTH	12843.09	FEET	2.432 MILES
BRIDGES-LENGTH	150.00	FEET	0.028 MILES
EXCEPTIONS-LENGTH	0.00	FEET	0.000 MILES
NET LENGTH	12693.09	FEET	2.404 MILES



N

5000'

INDEX MAP

DESIGN DESIGNATION

TRAIL

Design Speed 20 MPH
Based on STOPPING Sight Distance
Height of eye 4.5'. Height of object 0.0'.

SCALES

INDEX MAP	5000'	
GENERAL LAYOUT	500'	
ALIGNMENT PLAN	200'	
PLAN	50'	
PROFILE	50' HORIZONTAL	10' VERTICAL

PLAN REVISIONS		
DATE	SHEET NO.	APPROVER

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MOST RECENT VERSION OF THE MN MUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL

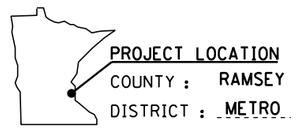
NOTE:
THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

THE EXACT LOCATION OF UNDERGROUND UTILITIES SHOWN IN THIS PLAN SET ARE UNKNOWN. THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE PRIOR TO STARTING ANY EXCAVATION.

GOPHER STATE ONE CALL SYSTEM.....1-800-252-1166

FOR PLANS AND UTILITIES SYMBOLS SEE TECHINICAL MANUAL

STATE PROJ. NO. 0000-00 CHARGE IDENTIFIER



PROJECT LOCATION
COUNTY : RAMSEY
DISTRICT : METRO

SAP xxx-xxx-xxx

STATE/LOCAL FUNDS

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN EXCEPT AS MODIFIED BY THE SPECIAL PROVISIONS OF THIS PROJECT.

INDEX

THIS PLAN CONTAINS 128 SHEETS

Kimley»Horn
767 EUSTIS ST, SUITE 100
SAINT PAUL, MINNESOTA 55114
Ph: 651-645-4197 www.kimley-horn.com

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: GREGORY S. BROWN LICENSE # 22814

DATE: SIGNATURE:

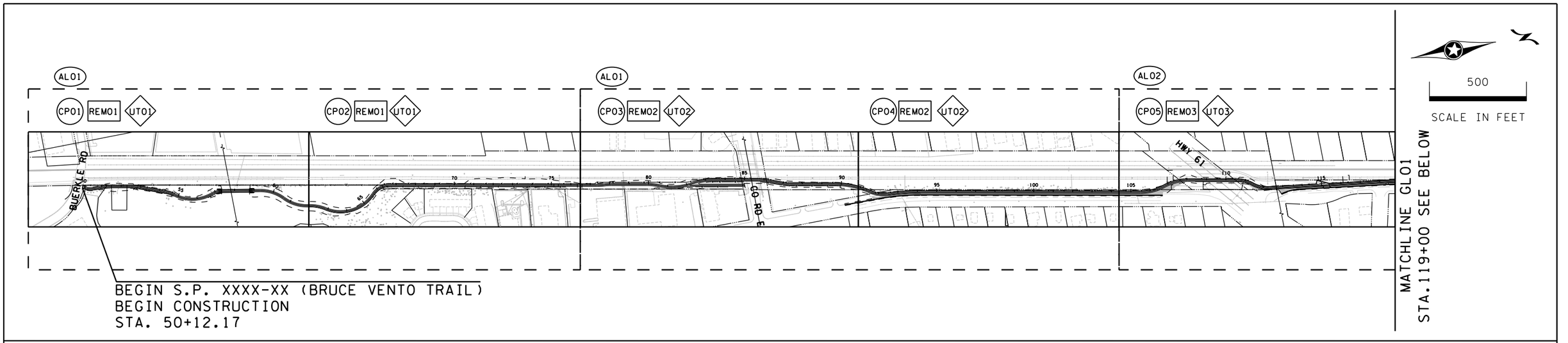
DESIGN SQUAD TIM G, EMILY B, KEVIN C, GREG K

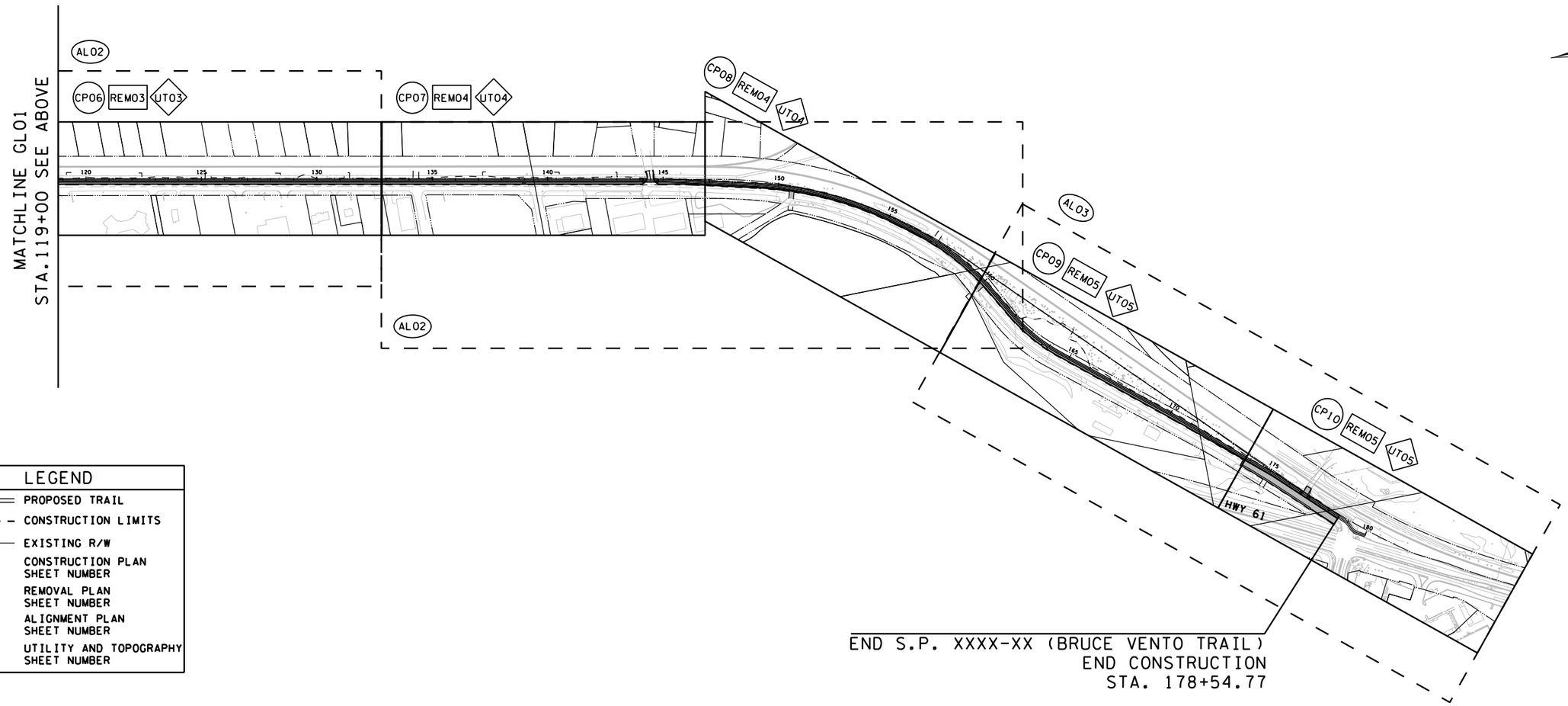
RECOMMENDED FOR APPROVAL ____ 2019
RAMSEY COUNTY ENGINEER

RECOMMENDED FOR APPROVAL ____ 2019
CITY OF WHITE BEAR LAKE ENGINEER

____ 2019
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

____ 2019
APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER





LEGEND

- PROPOSED TRAIL
- CONSTRUCTION LIMITS
- EXISTING R/W
- CP02 — CONSTRUCTION PLAN SHEET NUMBER
- REM02 — REMOVAL PLAN SHEET NUMBER
- AL02 — ALIGNMENT PLAN SHEET NUMBER
- UT02 — UTILITY AND TOPOGRAPHY SHEET NUMBER

DESIGNED BY:	RKM
DRAWN BY:	KJC
CHECKED BY:	GSB

NO.	BY	DATE	REVISIONS

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
PH: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

GENERAL LAYOUT
STA 50+00 TO STA 204+65

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

GL01 OF GL01

2 / 95

STATEMENT OF ESTIMATED QUANTITIES

					BRUCE VENTO TRAIL S.P. XXXX-XX		NON-FEDERAL AID PARTICIPATING	
					FEDERAL AID PARTICIPATING		RAMSEY COUNTY	CITY OF WHITE BEAR LAKE
					ROADWAY	TRAIL	LOCAL FUNDS	LOCAL FUNDS
NOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
	2011.601	CONSTRUCTION SURVEYING	LUMP SUM	1	1			
	2021.501	MOBILIZATION	LUMP SUM	1	1			
	2101.505	CLEARING	ACRE	3.7	3.7			
	2101.505	GRUBBING	ACRE	3.7	3.7			
	2101.524	CLEARING	TREE	96	96			
	2101.524	GRUBBING	TREE	96	96			
	2104.502	SALVAGE SIGN TYPE C	EACH	7	7			
	2104.503	SAWING BITUMINOUS PAVEMENT	LIN FT	8142	8142			
	2104.503	REMOVE WATER MAIN	LIN FT	73	73			
	2104.503	REMOVE RETAINING WALL	LIN FT	50	50			
	2104.503	REMOVE FENCE	LIN FT	1405	1405			
	2104.504	REMOVE CONCRETE PAVEMENT	SQ YD	17	17			
	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	11399	11399			
	2105.601	DEWATERING	LUMP SUM	1	1			
	2105.609	HAUL & DISPOSE OF CONTAMINATED SOIL	TON	500	500			
	2106.507	EXCAVATION - COMMON	CU YD	13230	13230			
	2106.507	EXCAVATION - SUBGRADE	CU YD	1500	1500			
	2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	1500	1500			
	2106.507	COMMON EMBANKMENT (CV)	CU YD	11872	11872			
	2118.507	AGGREGATE SURFACING (LV); CLASS 5	CU YD	450	450			
	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	20	20			
	2211.507	AGGREGATE BASE (LV) CLASS 6	CU YD	4229	4229			
	2231.509	BITUMINOUS PATCHING MIXTURE	TON	500	500			
	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	20850	20850			
	2360.509	TYPE SP 12.5 NON WEAR COURSE MIX (4;B)	TON	362	362			
	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4;F)	TON	3008	3008			
	2402.601	PREENGINEERED SOIL NAIL RETAINING WALL	SQ FT	3000	3000			
	2402.601	PREENGINEERED BRIDGE 14' X 150'	LUMP SUM	1	1			
	2411.603	CONCRETE EDGER	LIN FT	1450	1450			
	2411.604	REINFORCED SOIL SLOPE	SQ YD	249	249			
	2411.618	MODULAR BLOCK RETAINING WALL	SQ FT	15000	15000			
	2451.607	MEDIUM FILTER AGGREGATE (CV)	CU YD	835	835			
	2501.502	15" RC PIPE APRON	EACH	15	15			
	2501.502	18" RC PIPE APRON	EACH	2	2			
	2501.503	15" RC PIPE CULVERT DES 3006	LIN FT	2959	2959			
	2501.503	18" RC PIPE CULVERT DES 3006	LIN FT	40	40			
	2501.602	TRASH GUARD FOR 15" PIPE APRON	EACH	15	15			
	2502.503	18" PERF PE PIPE DRAIN	LIN FT	700	700			
	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	2	2			
	2504.603	WATERMAIN INSULATION	LIN FT	80	80			
	2504.603	12" WATERMAIN DUCTILE IRON CL 52	LIN FT	80	80			
	2504.608	DUCTILE IRON FITTINGS	POUND	645	645			
	2506.502	CONST DRAINAGE STRUCTURE DESIGN N	EACH	6	6			
	2506.502	CONST DRAINAGE STRUCTURE DES 48-4020	EACH	23	23			
	2506.502	CASTING ASSEMBLY	EACH	29	29			
	2506.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE	EACH	3	3			

STATEMENT OF ESTIMATED QUANTITIES

					BRUCE VENTO TRAIL S.P. XXXX-XX		NON-FEDERAL AID PARTICIPATING	
					FEDERAL AID PARTICIPATING		RAMSEY COUNTY	CITY OF WHITE BEAR LAKE
					ROADWAY	TRAIL	LOCAL FUNDS	LOCAL FUNDS
NOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
	2511.507	RANDOM RIPRAP CLASS III	CU YD	65	65			
	2511.602	LANDSCAPE BOULDERS	TON	200	200			
	2521.518	4" CONCRETE WALK	SQ FT	642	642			
	2521.518	6" CONCRETE WALK	SQ FT	853	853			
	2521.518	8" CONCRETE WALK	SQ FT	200	200			
	2521.518	8" CONCRETE WALK SPECIAL - BLACK ICE	SQ FT	945	945			
	2521.518	3" BITUMINOUS WALK	SQ FT	155274	155274			
	2531.503	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	7710	7710			
	2531.503	CONCRETE CURB & GUTTER DESIGN D418	LIN FT	952	952			
	2531.618	TRUNCATED DOMES	SQ FT	133	133			
	2540.601	INSTALL WAYFINDING SIGN	EACH	5	5			
	2540.601	INSTALL KIOSK SIGN	EACH	1	1			
	2540.602	INSTALL WASTE RECEPTACLE	EACH	12	12			
	2540.602	INSTALL BENCH	EACH	9	9			
	2557.502	VEHICULAR GATE-SPECIAL	EACH	1	1			
	2557.503	WIRE FENCE DESIGN 36V-9322	LIN FT	1605	1605			
	2557.503	WIRE FENCE DESIGN 54V-9322	LIN FT	768	768			
	2557.503	WIRE FENCE DESIGN 60V-9322	LIN FT	12626	12626			
	2563.601	TRAFFIC CONTROL	LUMP SUM	1	1			
	2564.618	SIGN TYPE C	SQ FT	110.5	110.5			
	2571.524	DECIDUOUS TREE 2" CAL B&B	TREE	133	133			
	2571.524	ORNAMENTAL TREE 2" CAL B&B	TREE	16	16			
	2571.525	DECIDUOUS SHRUB NO 5 CONT	SHRUB	96	96			
	2572.503	TEMPORARY FENCE	LIN FT	2000	2000			
	2572.503	TREE PROTECTION FENCE	LIN FT	1000	1000			
	2572.503	CLEAN ROOT CUTTING	LIN FT	100	100			
	2572.510	PRUNE TREES	HOUR	40	40			
	2573.501	STABILIZED CONSTRUCTION EXIT	LUMP SUM	1	1			
	2573.502	STORM DRAIN INLET PROTECTION	EACH	26	26			
	2573.503	SILT FENCE; TYPE MS	LIN FT	18330	18330			
	2574.505	SUBSOILING	ACRE	4.7	4.7			
	2574.505	SOIL BED PREPARATION	ACRE	4.7	4.7			
	2574.507	COMMON TOPSOIL BORROW	CU YD	2080	2080			
	2574.507	FILTER TOPSOIL BORROW	CU YD	500	500			
	2574.508	FERTILIZER TYPE 3	POUND	1130	1130			
	2575.504	SODDING TYPE SALT TOLERANT	SQ YD	12430	12430			
	2575.504	EROSION CONTROL BLANKETS CATEGORY 3N	SQ YD	10445	10445			
	2575.505	SEEDING	ACRE	2.16	2.16			
	2575.508	SEED MIXTURE 25-121	POUND	80	80			
	2575.508	SEED MIXTURE 34-261	POUND	11	11			
	2575.508	SEED MIXTURE 36-211	POUND	19	19			
	2575.508	HYDRAULIC BONDED FIBER MATRIX	POUND	7420	7420			
	2582.518	CROSSWALK PREF TAPE	SQ FT	150	150			

DESIGNED BY: KJC				
DRAWN BY: KJC				
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
Ph: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

ESTIMATED QUANTITIES

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

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OF EST01
3 / 95

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9/23/2021
K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\CD553009_est01.dgn
$MODELNAME$

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

MNDOT STANDARD PLATES

PLATE NO.	DESCRIPTION
3000M	REINFORCED CONCRETE PIPE (6 SHEETS)
3006H	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3007F	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3131C	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
4003B	30" PRECAST CATCH BASIN - DESIGN N
4005M	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) * CASTING NO. 806
4132G	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 805
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS)- CASTING NO. 825
4152C	CATCH BASIN GRATE CASTING - CASTING NO. 814A
4180J	MANHOLE OR CATCH BASIN STEP
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
9322K	CHAIN LINK FENCE (2 SHEETS)

SOILS AND CONSTRUCTION NOTES

1. STRIP AND STOCKPILE ALL EXISTING TOPSOIL MATERIAL IN AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE. PAYMENT FOR STRIPPING IS INCLUDED IN EXCAVATION-COMMON.

2. CONSTRUCTION SLOPES MUST BE COVERED WITH 6" OF TOPSOIL MATERIAL. INPLACE TOPSOIL THAT IS REUSED SHALL MEET MNDOT STANDARD SPECIFICATION 3877. PAYMENT FOR TOPSOIL MATERIAL IS PAID FOR AS COMMON EMBANKMENT.

3. ANY TOPSOIL MATERIAL NOT UTILIZED ON THIS PROJECT SHALL BE THE PROPERTY OF THE OWNER UNTIL RELEASED TO THE CONTRACTOR BY THE ENGINEER FOR USE OR DISPOSAL OUTSIDE OF THE RIGHT OF WAY IN ACCORDANCE WITH SPEC 2104.

4. NO EXTRA PAYMENT WILL BE MADE FOR TEMPORARY STOCKPILING OF EXCAVATION AND EMBANKMENT MATERIAL.

5. ANY EXCAVATED MATERIALS NOT USED ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR. DISPOSITION OF EXCAVATED MATERIAL SHALL BE IN ACCORDANCE WITH MNDOT STANDARD SPECIFICATION 2106 AND SHALL BE DISPOSED OF OFF THE RIGHT OF WAY, AT NO ADDITIONAL COMPENSATION, AND IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

6. TEMPORARY AND INTERMEDIATE EXCAVATION LIMITS AND SLOPES ARE TO BE DETERMINED BY THE CONTRACTOR DURING CONSTRUCTION. DEPENDING ON SOIL PROPERTIES AND SAFETY FACTORS, ADDITIONAL EXCAVATION AND BACKFILL BEYOND THE LIMITS SHOWN IN THE PLAN SHALL BE CONSIDERED THE CONTRACTOR EXPENSE (2106).

7. GRADING GRADE IS DEFINED AS THE BOTTOM OF THE PROPOSED CLASS 5 BASE. (MNDOT STANDARD SPEC 2106)

8. WHEN REMOVING PAVEMENTS, FULL-DEPTH SAWCUTS SHOULD BE MADE PERPENDICULAR TO THE ROADWAY CENTERLINE.

9. WHERE MATCHING TO INPLACE INTERSECTING PAVEMENT STRUCTURES, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TOP OF THE PROPOSED GRADING GRADE, WHICHEVER IS DEEPER, THEN TAPER AT 1:1 (V:H) TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION AT THAT LOCATION.

10. WHERE MATCHING TO INPLACE ROADWAYS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE TOP OF THE PROPOSED GRADING GRADE, WHICHEVER IS DEEPER, THEN TAPER AT 1:20 (V:H) TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION AT THAT LOCATION.

11. NON-STRUCTURAL GRADING MATERIAL ARE ALL MINERAL SOILS, EXCESS TOPSOIL, AND ORGANIC SOILS, CAPABLE OF SUPPORTING CONSTRUCTION EQUIPMENT. NON-STRUCTURAL GRADING MATERIAL SHALL ONLY BE PLACED OUTSIDE OF THE ROADWAY AND TRAIL CORE AND IN A MANNER IN WHICH THE MATERIAL WILL MAINTAIN LONG TERM STABILITY.

12. COMPACTION OF ALL EXCAVATION AND EMBANKMENT CONSTRUCTION, INCLUDING CULVERT BACKFILLS, SHALL BE AS DESCRIBED IN MNDOT 2106 AND PER THE TABLE ON THIS SHEET. AGGREGATE BASE COURSES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF MNDOT 2211 EXCEPT AS MODIFED IN THE TABLE ON THIS SHEET.

13. BITUMINOUS MATERIAL FOR TACK COAT PER SPEC 2357 IS INCIDENTAL.

14. FOR SATURATED SOILS IN CULVERT TREATMENTS, THE CONTRACTOR MAY SUBSTITUTE 1-1/2" MINUS ROCK FOR COARSE AGGREGATE BEDDING (INCIDENTAL).

15. EXCEPT FOR SUBGRADE ZONES WHERE SELECT GRANULAR MATERIAL IS SPECIFICALLY REQUIRED, THE SUBGRADE SHALL BE CONSTRUCTED OF SELECT GRADING MATERIAL.

16. STORM SEWERS CONNECTING TO MANHOLES AND CATCH BASINS SHALL BE IN ACCORDANCE WITH MNDOT STANDARD SPECIFICATION 2503. BEDDING AND BACKFILL SHALL CONSIST OF UNIFORM SELECT GRADING MATERIAL MATCHING ADJACENT SOILS UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR AS SHOWN IN THE PLAN.

17. WHERE UNSUITABLE MATERIAL IS ENCOUNTERED DURING COMMON OR SUBGRADE EXCAVATION, THE CONTRACTOR SHALL PROVIDE GRANULAR MATERIAL, FOUND ELSEWHERE ON THE JOB SITE. NO DIRECT COMPENSATION WILL BE MADE THEREAFTER.

18. THE TOP OF BACKSLOPES AND THE TOE OF FILL SLOPES SHALL BE ROUNDED TO NATURALIZE THE CONSTRUCTION EVEN THOUGH THE CROSS SECTIONS DO NOT SHOW ANY SUCH ROUNDING.

19. THE CONSTRUCTION LIMITS AS SHOWN IN THE PLANS REPRESENT THE POINT OF INTERSECTION BETWEEN THE REQUIRED FILL OR CUT SLOPE AND THE EXISTING GROUNDLINE AS DEPICTED ON THE CROSS SECTIONS. THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.

20. IF ORGANIC SOILS OR UNSUITABLE SOILS ARE PRESENT, THESE SOILS SHALL BE REMOVED FROM THE CRITICAL SUBGRADE ZONE, WHICH IS DEFINED AS THE SUBGRADE PORTION BENEATH AND WITHIN THREE VERTICAL FEET OF THE TOP OF THE SUBGRADE AND 1:1.5 EXTENDING DOWN/OUT FROM PI. THE SELECT GRANULAR LAYER IS THE UPPER PORTION OF THE CRITICAL SUBGRADE ZONE.

21. UTILITY RELOCATIONS IN THE AREA WILL BE OCCURRING PRIOR TO AND DURING THE PROJECT. THE CONTRACTOR IS TO EXPECT UTILITY CONFLICTS AND ACCOUNT FOR THEM ACCORDINGLY IN THEIR WORK SCHEDULE AND ANTICIPATED PRODUCTION.

22. CONTRACTORS SHALL INCORPORATE EXCAVATION, EMBANKMENT, AND GRADING RECOMMENDATIONS AS OUTLINED IN THE GEOTECHNICAL EVALUATION REPORT PREPARED BY BRAUN INTERTEC DATED SEPTEMBER 21, 2021

DESIGNED BY: KJC					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ (Licensed Professional Engineer)
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
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PH: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

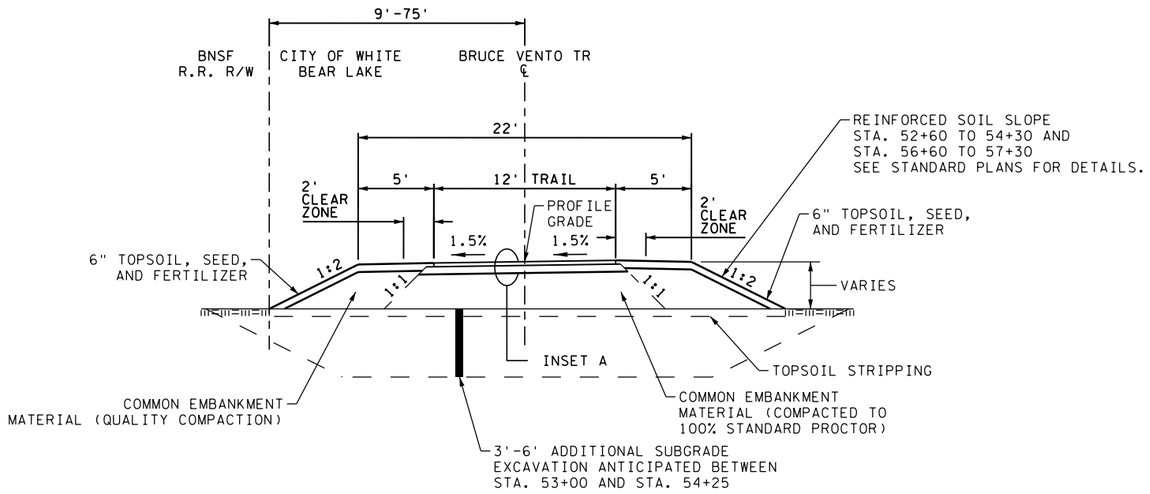
SOIL & CONSTRUCTION NOTES

SCN01 OF SCN01

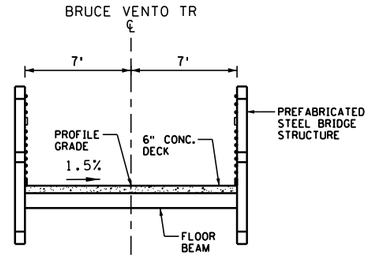
STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

4 / 95

PROPOSED BRUCE VENTO TRAIL
STA. 50+12 TO STA. 57+20
STA. 58+90 TO STA. 65+50

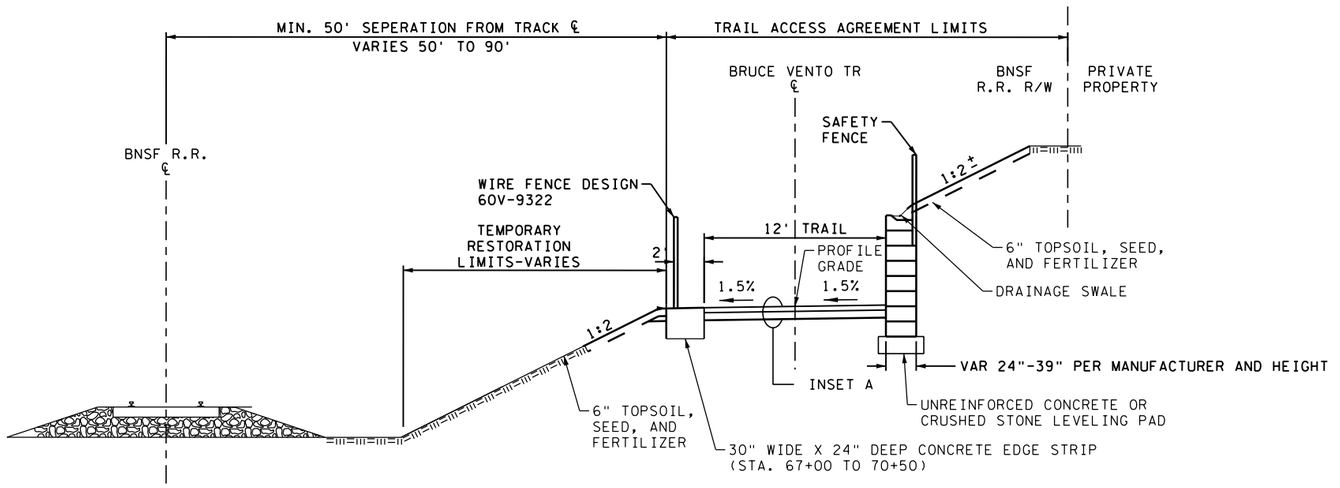


PROPOSED BRUCE VENTO TRAIL
BRIDGE SECTION
STA. 57+30 TO STA. 58+80



SEE BRIDGE PLANS FOR ADDITIONAL DETAILS

PROPOSED TRAIL
STA. 65+50 TO STA. 71+00
STA. 80+00 TO STA. 90+00



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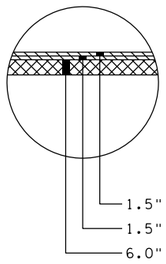

GENERAL NOTES:

1. MAXIMUM SLOPE OF 0.015 FOOT PER FOOT ON TRAIL.
2. UNLESS OTHERWISE SPECIFIED THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED GRADE.
3. SEE LANDSCAPING PLANS FOR ADDITIONAL INFORMATION ON PLANTING, SEEDING, AND SODDING ADJACENT TO TRAIL.
4. MODULAR BLOCK RETAINING WALL DESIGN TO BE COMPLETED BY THE CONTRACTOR. SEE SPECIAL PROVISIONS.

DESIGNED BY:	RKM						
DRAWN BY:	KJC						
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS		

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

Kimley»Horn
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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

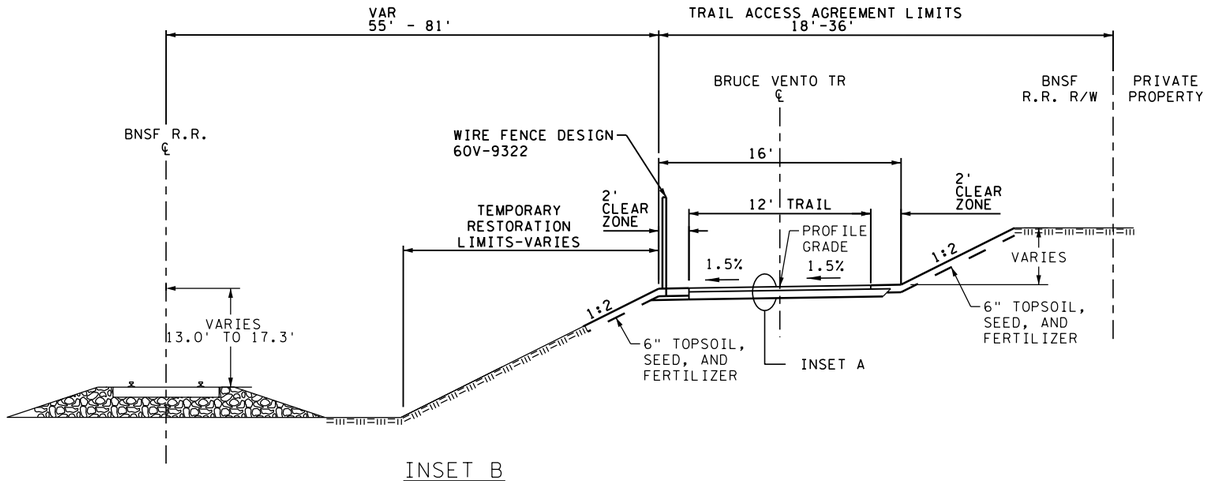
TYPICAL SECTIONS

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

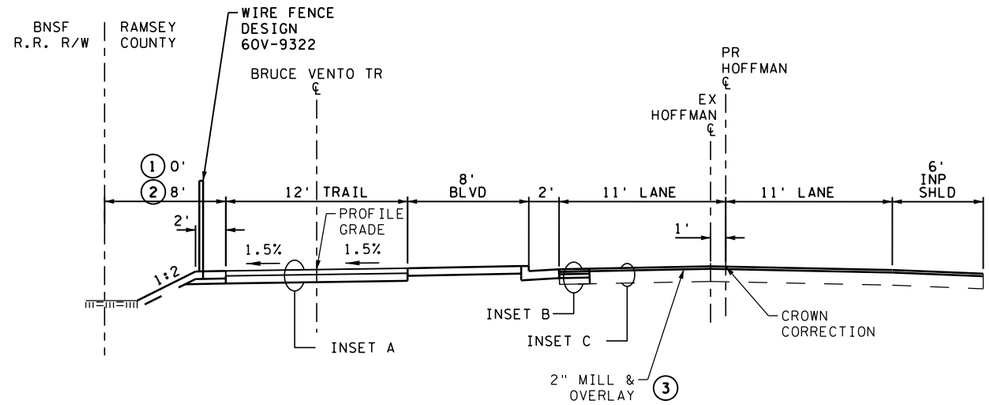
TS01
OF TS05

5 / 95

PROPOSED BRUCE VENTO TRAIL
STA. 71+00 TO STA. 75+00
STA. 90+50 TO STA. 92+45
STA. 106+57 TO STA. 109+00
STA. 110+27 TO STA. 112+90

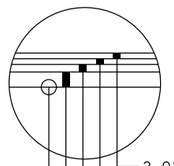


PROPOSED BRUCE VENTO TRAIL
① STA. 92+45 TO STA. 106+57
② STA. 112+91 TO STA. 145+00



③ LIMITS OF HOFFMAN ROAD PAVEMENT MILLING TO BE DETERMINED IN THE FIELD BY ENGINEER.

INSET B



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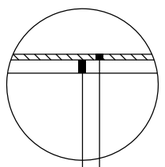

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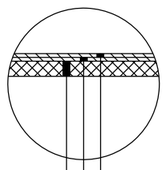
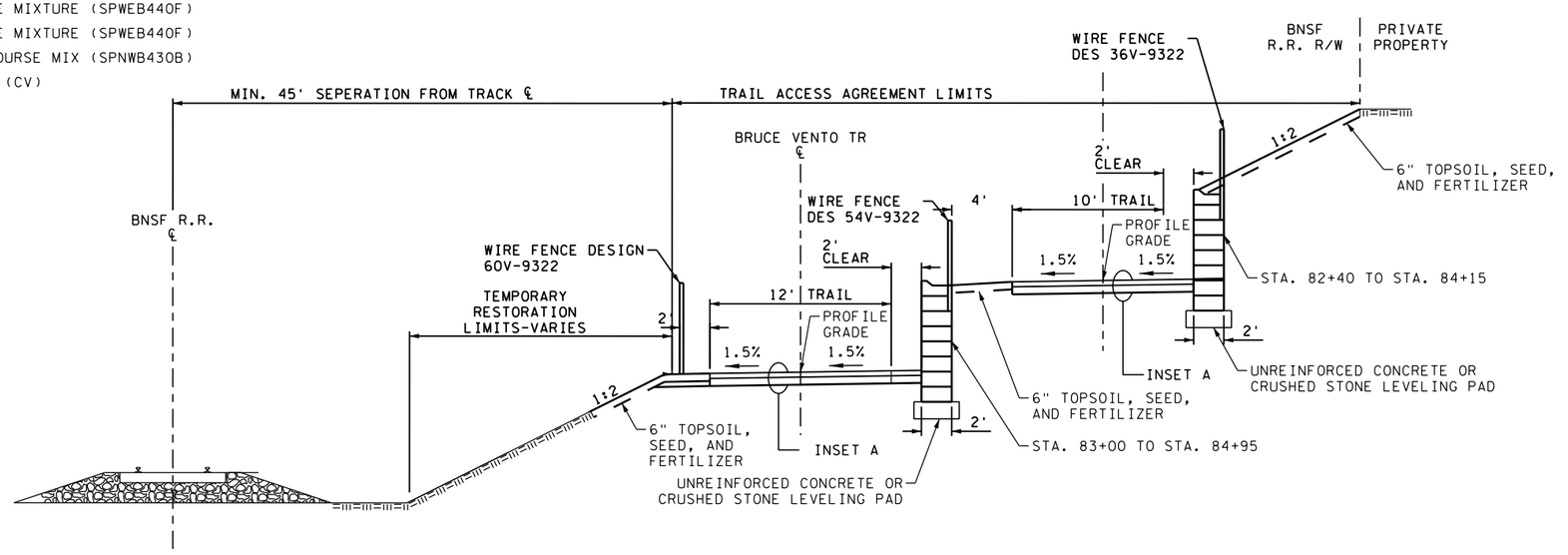


PROPOSED TRAIL
STA. 82+40 TO STA. 84+95



GENERAL NOTES:

1. MAXIMUM SLOPE OF 0.015 FOOT PER FOOT ON TRAIL.
2. UNLESS OTHERWISE SPECIFIED THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED GRADE.
3. SEE LANDSCAPING PLANS FOR ADDITIONAL INFORMATION ON PLANTING, SEEDING, AND SODDING ADJACENT TO TRAIL.
4. MODULAR BLOCK RETAINING WALL DESIGN TO BE COMPLETED BY THE CONTRACTOR.

DESIGNED BY: RKM					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA
DRAWN BY: KJC					Certified By: _____ Licensed Professional Engineer Lic. No. _____		BRUCE VENTO TRAIL
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

TYPICAL SECTIONS

TS02
OF TS05

6 / 95

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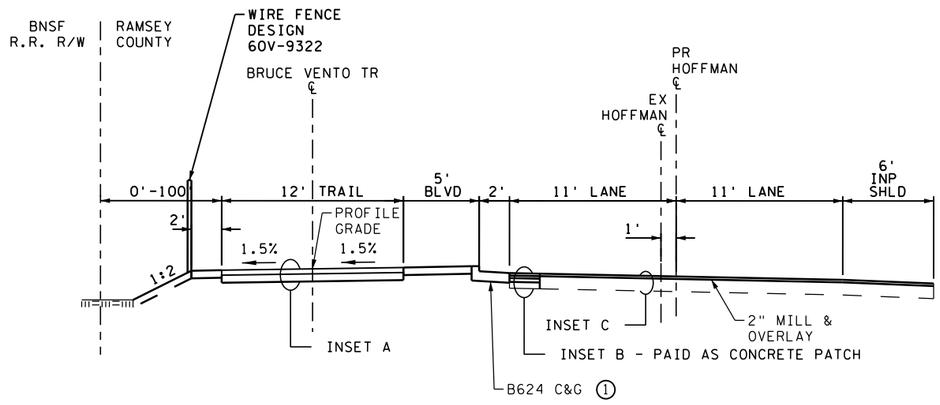
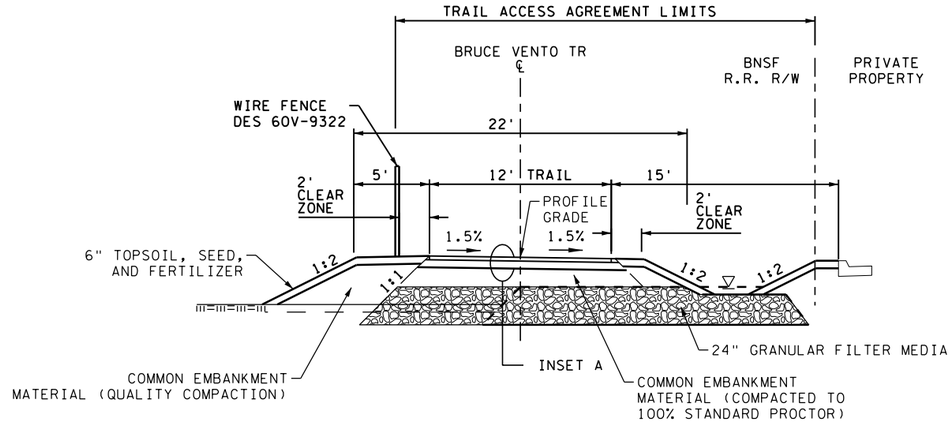
PROPOSED BRUCE VENTO TRAIL
STA. 145+00 TO STA. 173+77



① D418 SURMOUNTABLE CURB (TIP OUT)
STA. 150+00 TO STA. 160+00

PROPOSED BRUCE VENTO TRAIL
WATER QUALITY TREATMENT ZONE A
STA. 75+00 TO STA. 77+50



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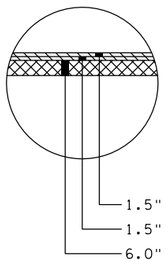

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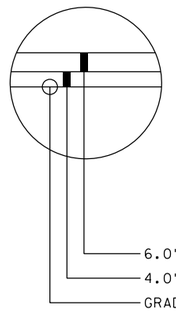

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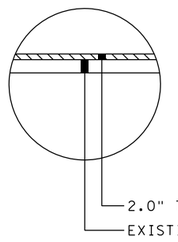


GENERAL NOTES:

1. MAXIMUM SLOPE OF 0.015 FOOT PER FOOT ON TRAIL.
2. UNLESS OTHERWISE SPECIFIED THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED GRADE.
3. SEE LANDSCAPING PLANS FOR ADDITIONAL INFORMATION ON PLANTING, SEEDING, AND SODDING ADJACENT TO TRAIL.
4. MODULAR BLOCK RETAINING WALL DESIGN TO BE COMPLETED BY THE CONTRACTOR.

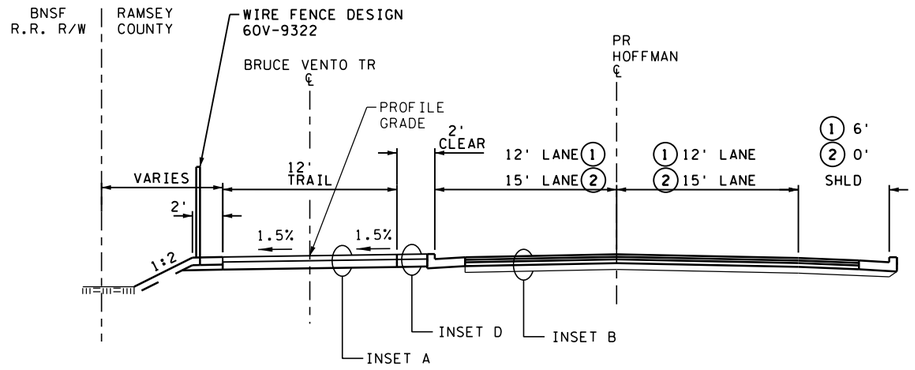
DESIGNED BY: RKM					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA BRUCE VENTO TRAIL
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer		TYPICAL SECTIONS
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

TS03 OF TS05

7 / 95

PROPOSED BRUCE VENTO TRAIL

① STA. 173+77 TO STA. 177+36
② STA. 177+36 TO STA. 178+59



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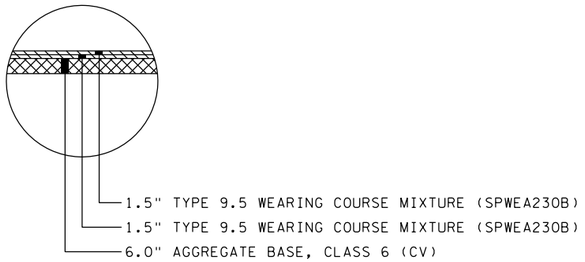

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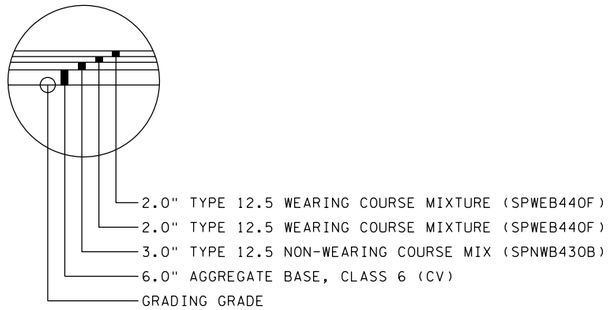

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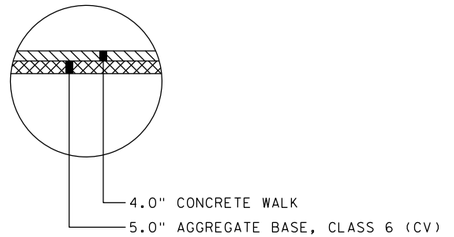

GENERAL NOTES:

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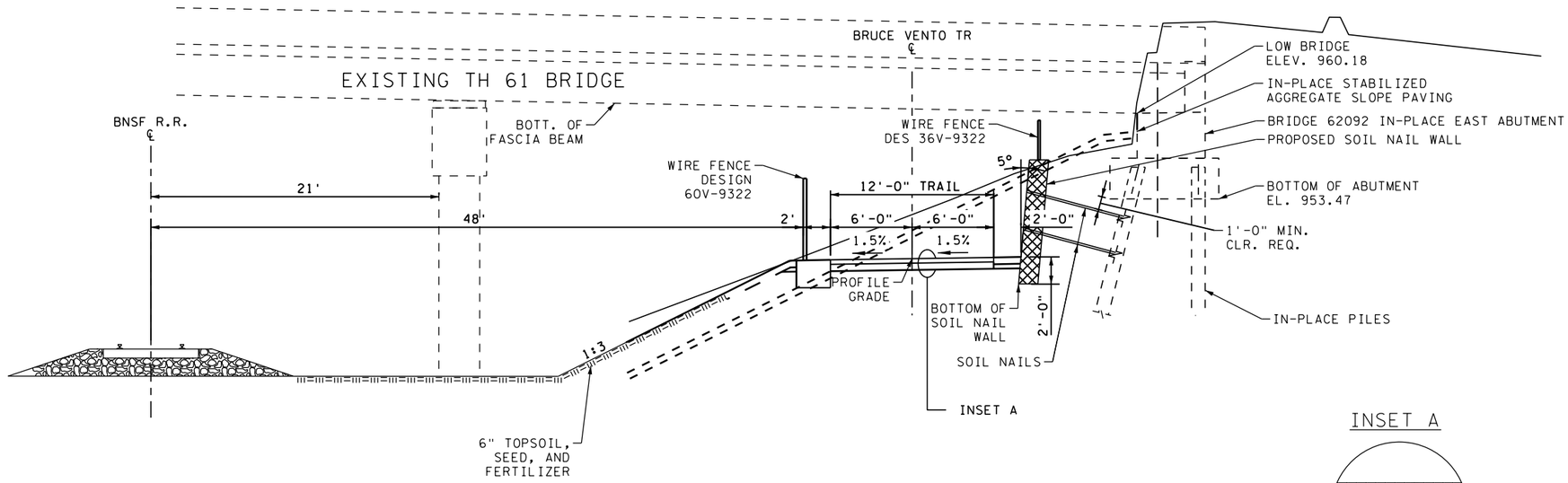
2. UNLESS OTHERWISE SPECIFIED THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED GRADE.
3. SEE LANDSCAPING PLANS FOR ADDITIONAL INFORMATION ON PLANTING, SEEDING, AND SODDING ADJACENT TO TRAIL.

DESIGNED BY: RKM					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn	RAMSEY COUNTY, MINNESOTA	TYPICAL SECTIONS	TS04
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ (Licensed Professional Engineer)	767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com	BRUCE VENTO TRAIL		OF TS05
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)		8 / 95

PROPOSED TRAIL - UNDER TH 61
STA. 109+00 TO STA. 110+27



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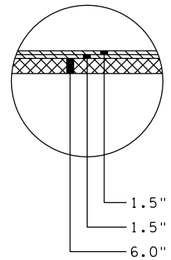
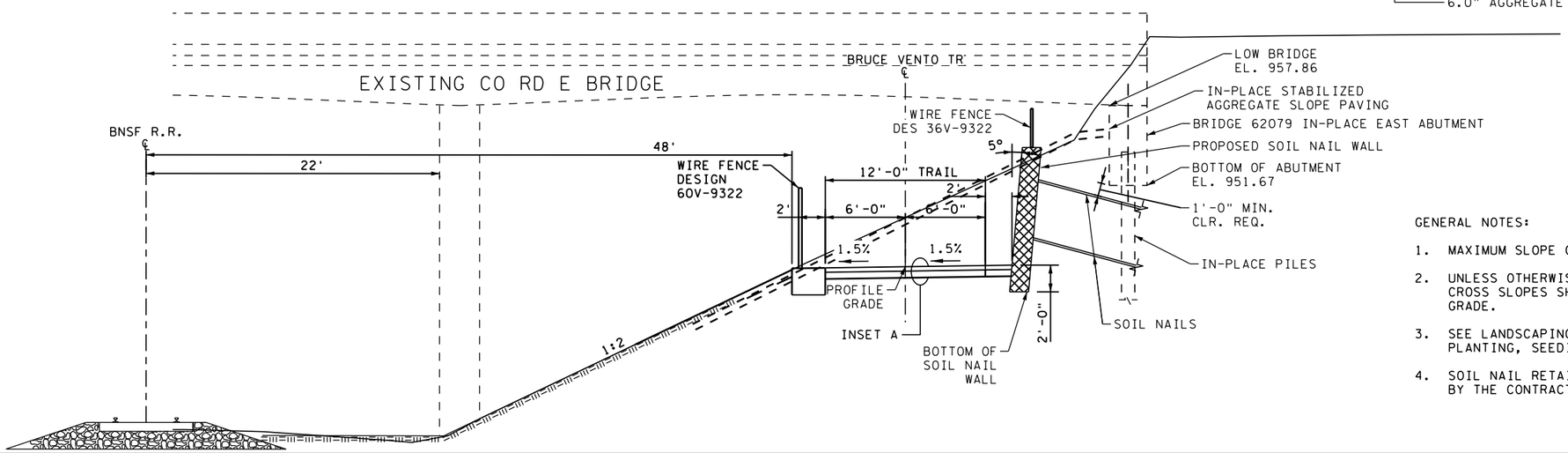


PROPOSED TRAIL - UNDER CR E
STA. 84+95 TO STA. 85+80



GENERAL NOTES:

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2. UNLESS OTHERWISE SPECIFIED THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED GRADE.
3. SEE LANDSCAPING PLANS FOR ADDITIONAL INFORMATION ON PLANTING, SEEDING, AND SODDING ADJACENT TO TRAIL.
4. SOIL NAIL RETAINING WALL DESIGN TO BE COMPLETED BY THE CONTRACTOR.

DESIGNED BY: RKM				I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA
DRAWN BY: KJC				Certified By: _____ Lic. No. _____ Licensed Professional Engineer		BRUCE VENTO TRAIL
CHECKED BY: GSB	NO.	BY	DATE	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

REVISIONS

TYPICAL SECTIONS

TS05 OF TS05

9 / 95

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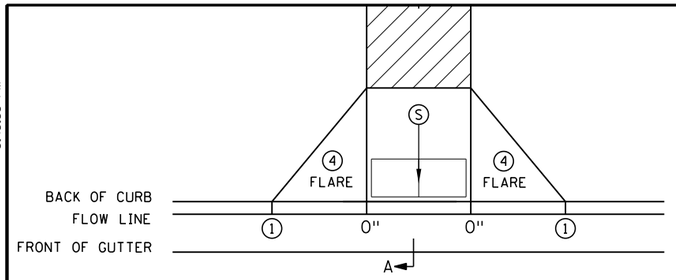
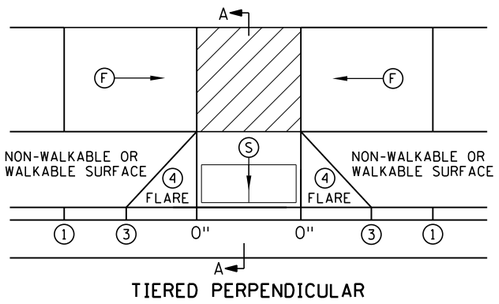


PERPENDICULAR



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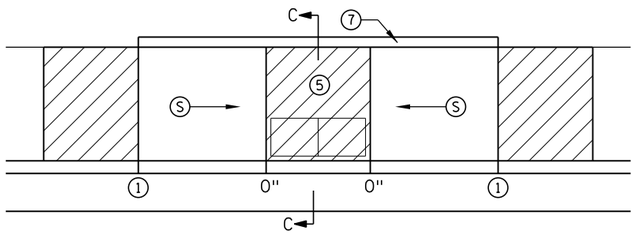

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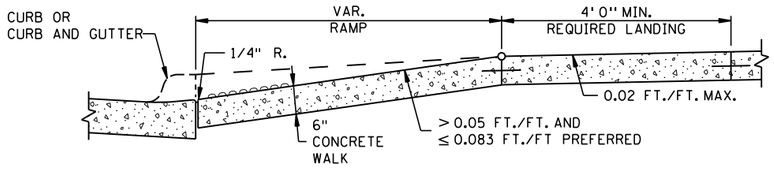
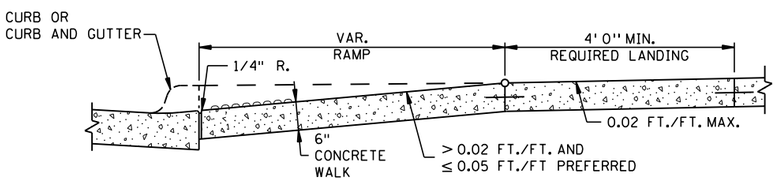


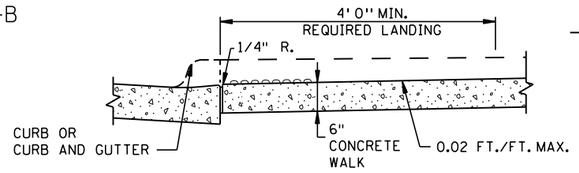
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



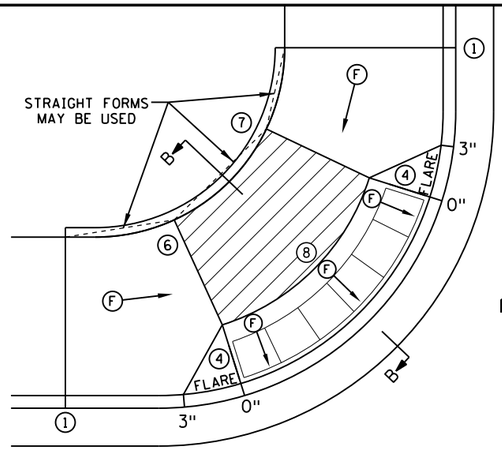
SECTION B-B

FAN

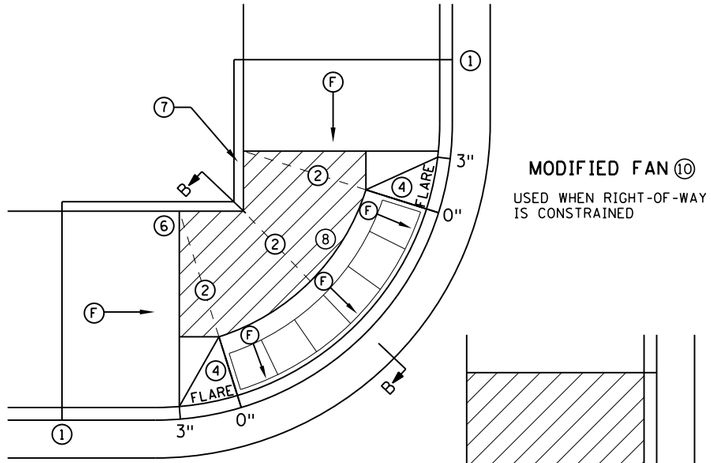


SECTION C-C

PARALLEL/DEPRESSED CORNER

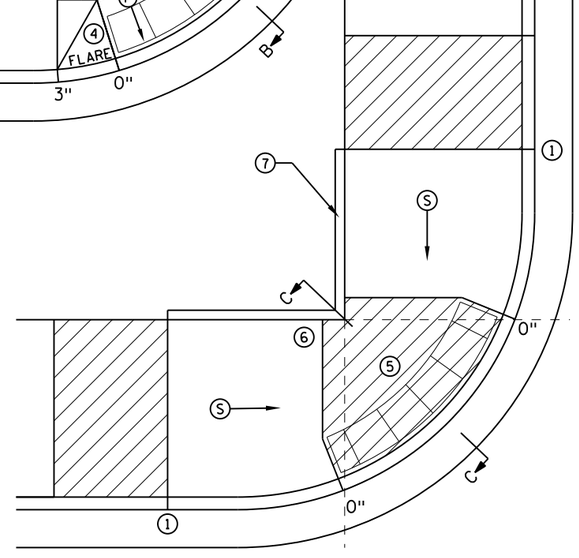


FAN⑩

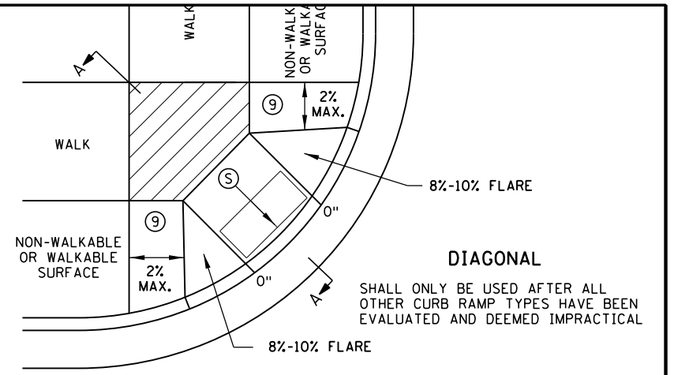


MODIFIED FAN ⑩

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN ⑥ BELOW.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

① MATCH FULL HEIGHT CURB.
② 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
③ 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
④ SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
⑤ DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
⑥ THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
⑦ WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
⑧ A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
⑨ PAVE FULL WALK WIDTH.
⑩ "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- (S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- X" CURB HEIGHT

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 1 OF 6

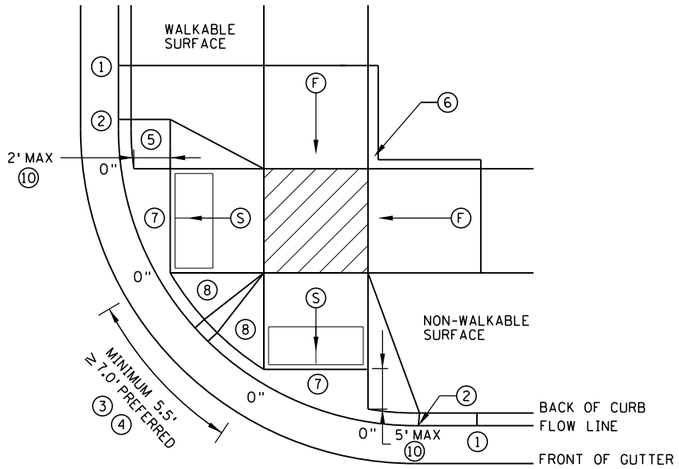
APPROVED: 1-23-2017
REVISED:

STATE DESIGN ENGINEER

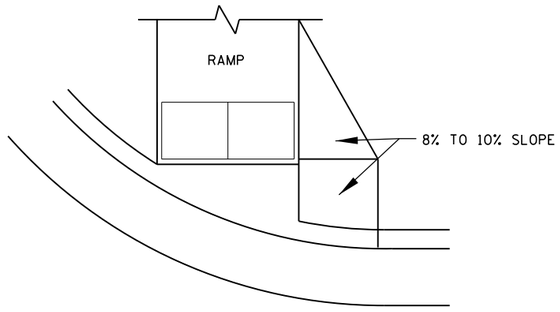
PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 10 OF 95 SHEETS



COMBINED DIRECTIONAL ⑨



DIRECTIONAL RAMP WALKABLE FLARE

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

① MATCH FULL CURB HEIGHT.

② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.

⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑧ 8% TO 10% WALKABLE FLARE.

⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

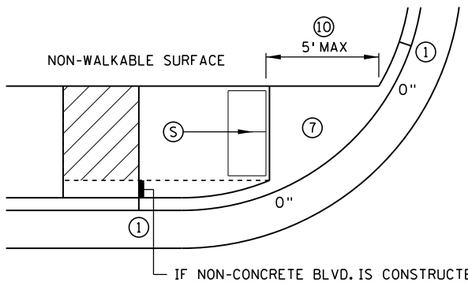
⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

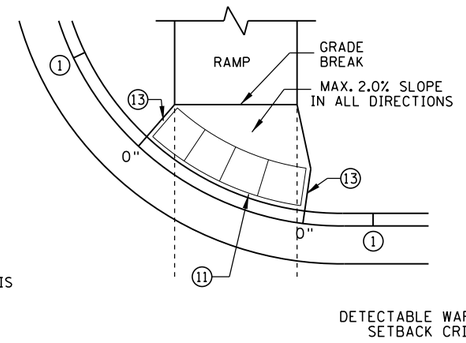
⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

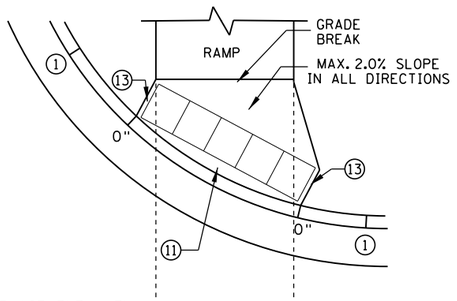
⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

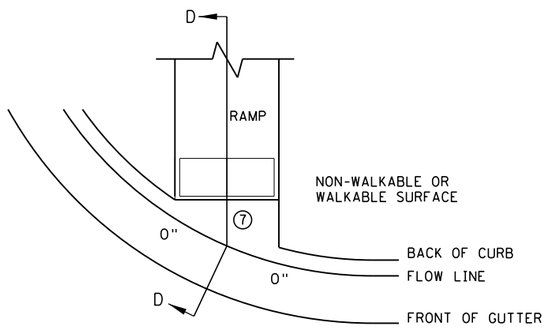


STANDARD ONE-WAY DIRECTIONAL ⑨

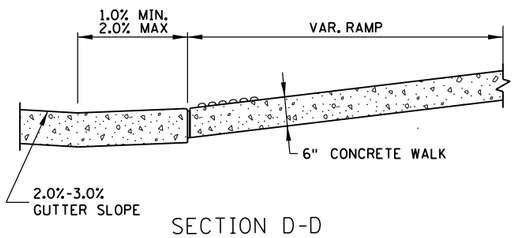


ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB

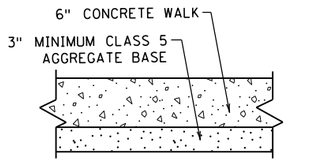




CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
X"	CURB HEIGHT

REVISION:

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OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 2 OF 6

APPROVED: 1-23-2017
REVISED:

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 11 OF 95 SHEETS

DISTRICT #:
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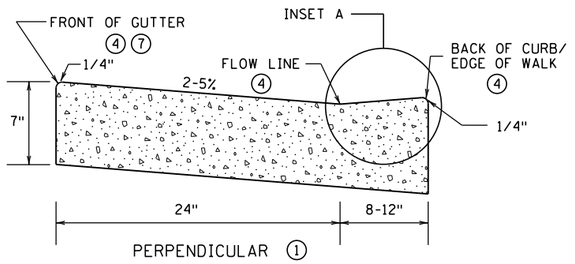
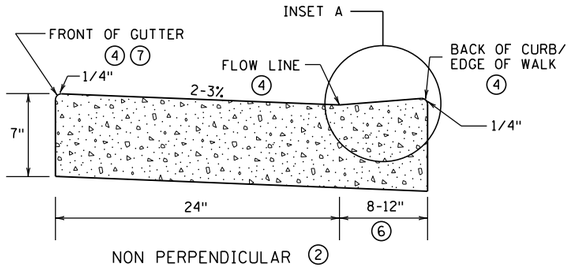
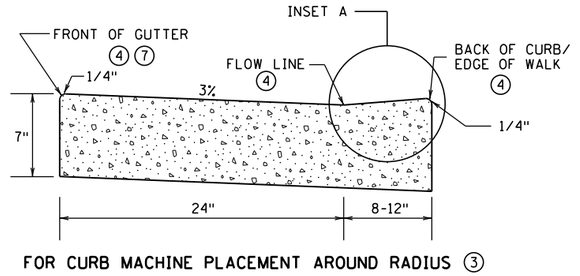


PERPENDICULAR (1)

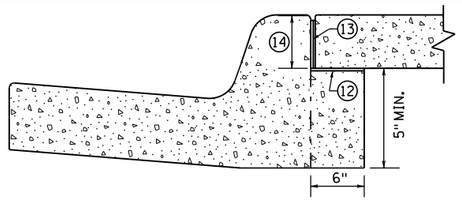


NON PERPENDICULAR (2)



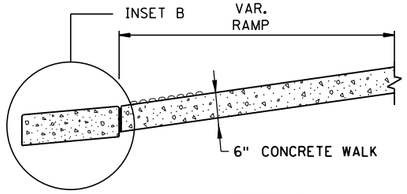
FOR CURB MACHINE PLACEMENT AROUND RADIUS (3)
(REGARDLESS OF RAMP TYPE)

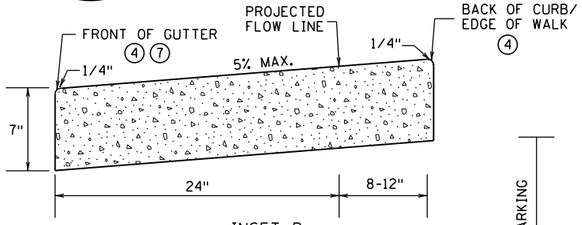
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB

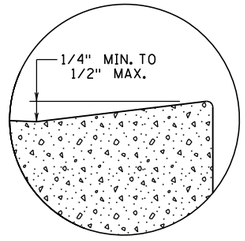
CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



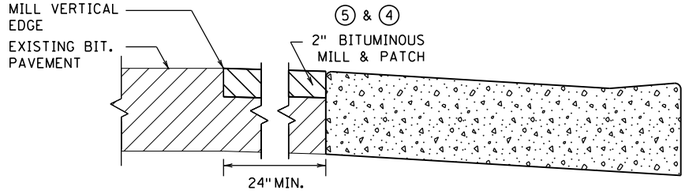


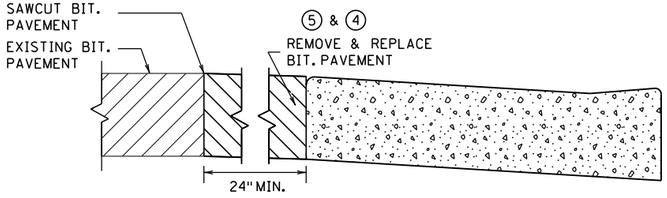
INSET B

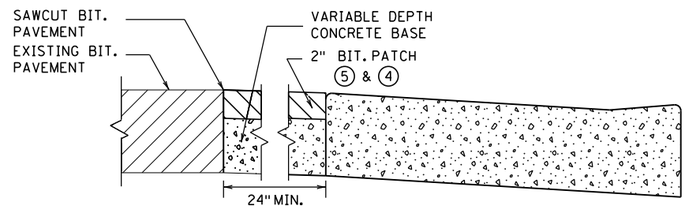
OUTFLOW GUTTER (8)



INSET A







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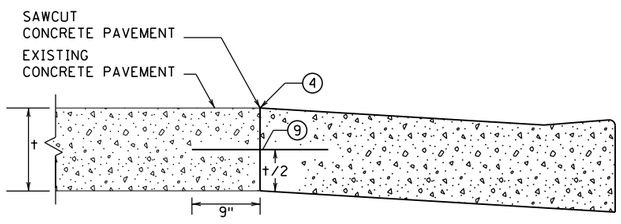
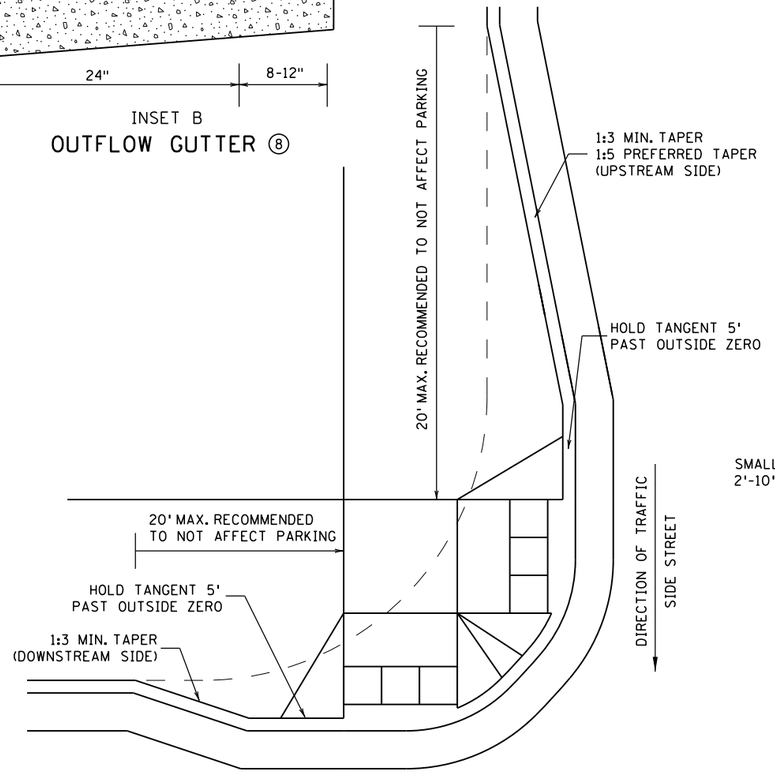


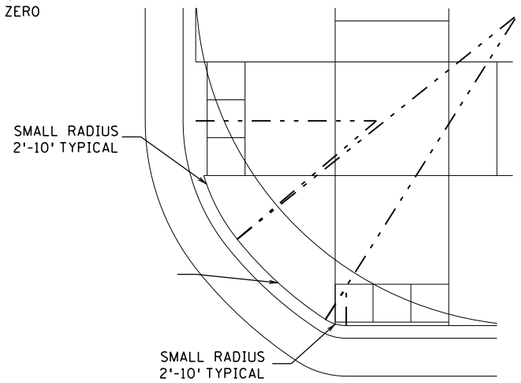
PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) (11)

DIRECTION OF TRAFFIC
MAIN STREET



COMBINED DIRECTIONAL (10)
(COMPOUND RADIUS)

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

(1) FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

(2) FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.

(3) BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.

(4) THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

(5) ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

(6) VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.

(7) TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.

(8) SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.

(9) DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.

(10) HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.

(11) CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

(12) PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.

(13) 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.

(14) DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.

REVISION:

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OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 3 OF 6

APPROVED: 1-23-2017
REVISED:

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 12 OF 95 SHEETS

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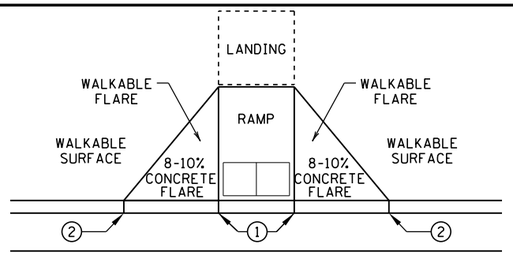
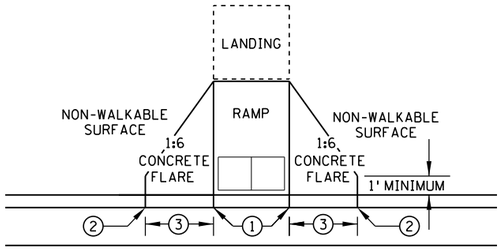
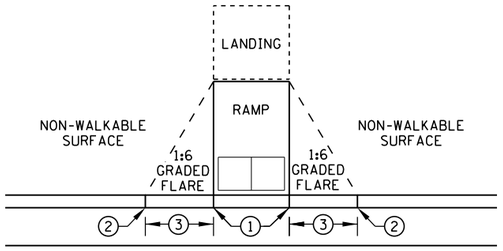


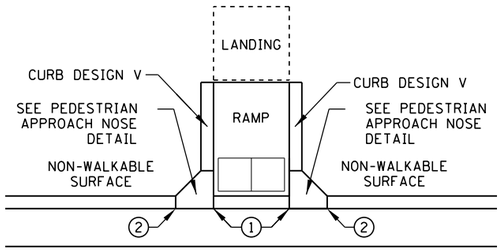
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

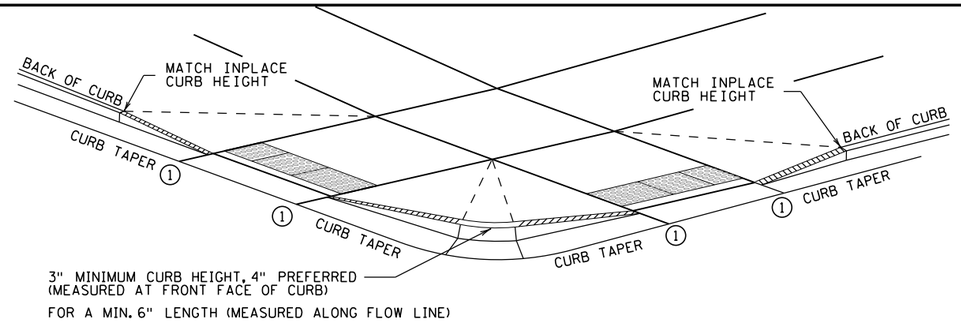


GRADED FLARES

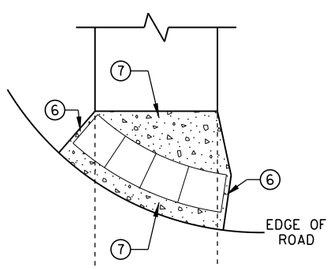


RETURNED CURB ⑤

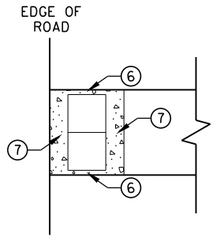
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪



DETECTABLE EDGE WITH ⑧
CURB AND GUTTER

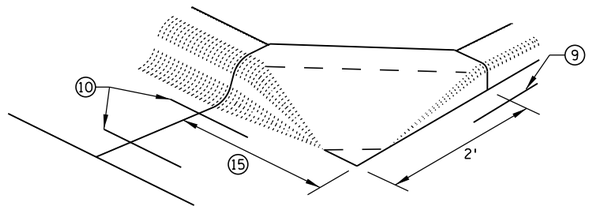


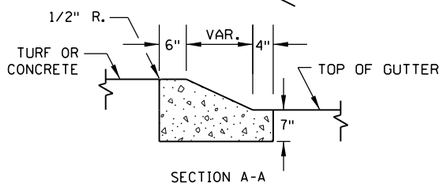
RADIAL DETECTABLE WARNING



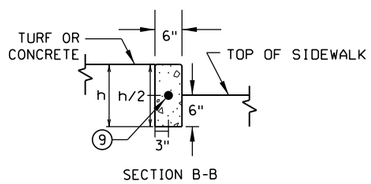
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

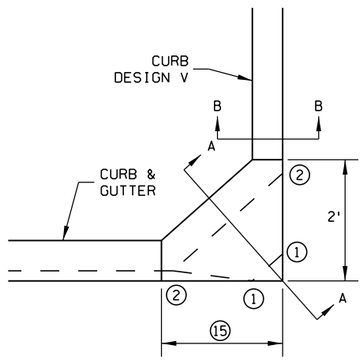




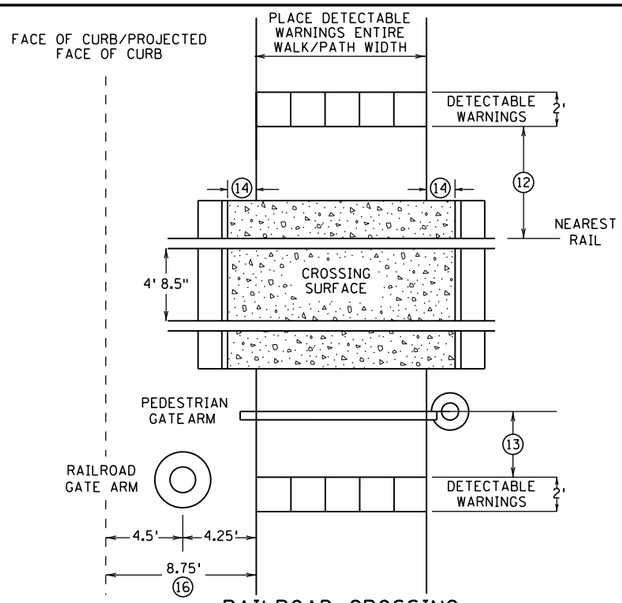
SECTION A-A



SECTION B-B



PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



RAILROAD CROSSING
PLAN VIEW

NOTES:

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT.

② FULL CURB HEIGHT.

③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.

④ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.

⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.

⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.

⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

⑨ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.

⑩ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.

⑪ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.

⑫ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑬ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑫.

⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.

⑯ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

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MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 4 OF 6

APPROVED: 1-23-2017

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STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 13 OF 95 SHEETS

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9/23/2021

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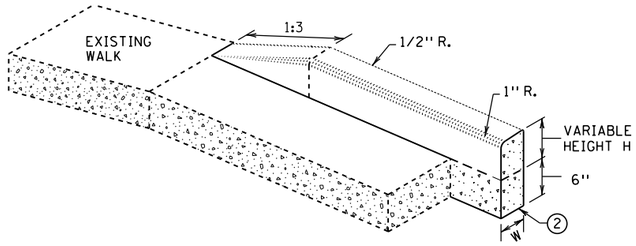
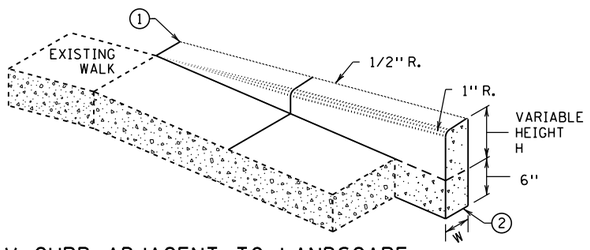


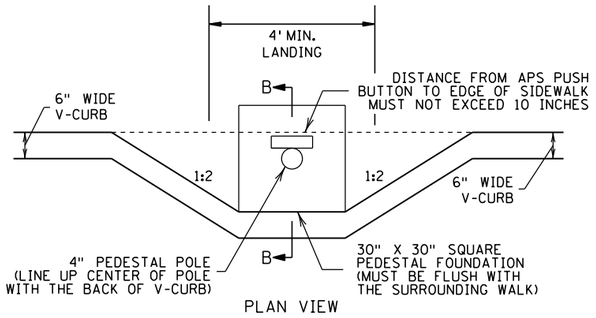
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS

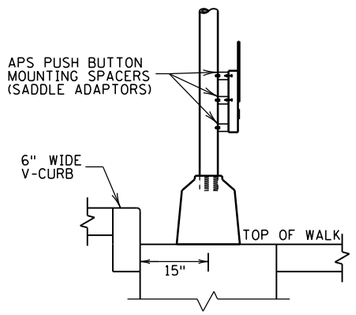


V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

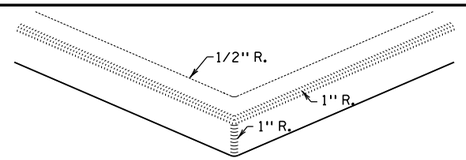


PLAN VIEW

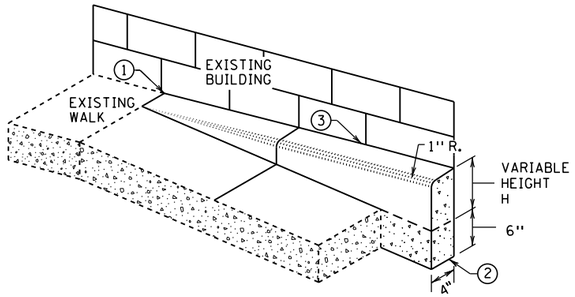


SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)

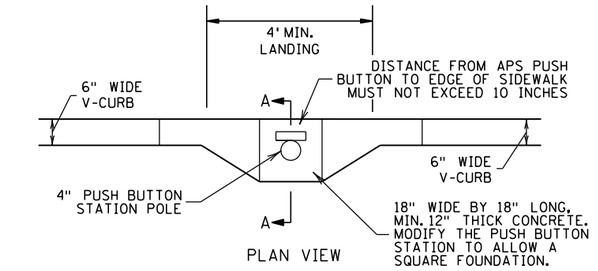


V CURB INTERSECTION

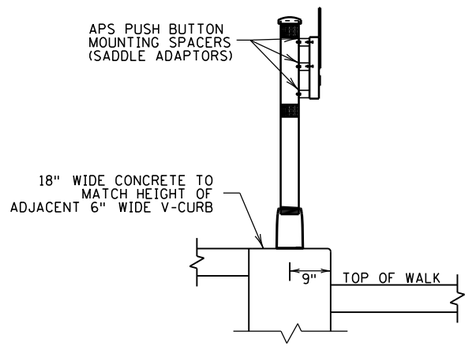


V CURB ADJACENT TO BUILDING OR BARRIER

CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"

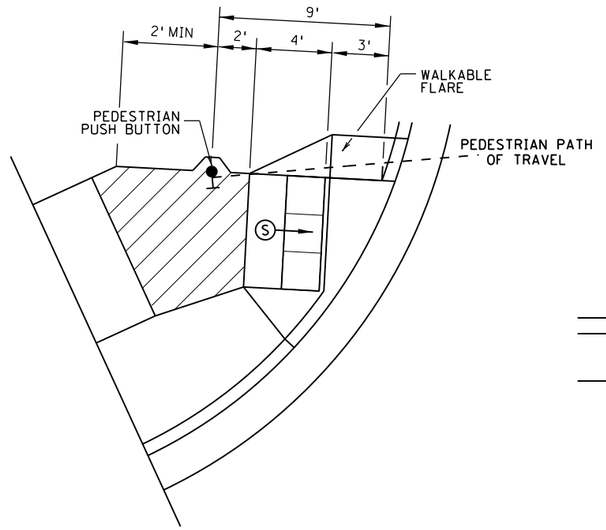


PLAN VIEW



SECTION A-A

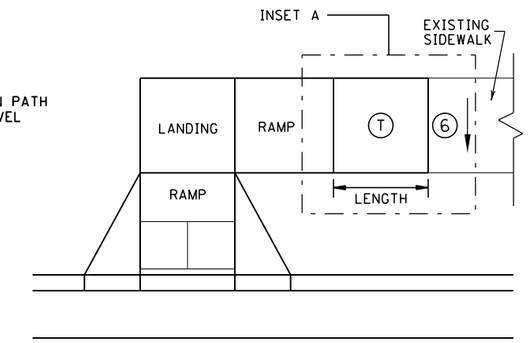
PUSH BUTTON STATION (V-CURB)

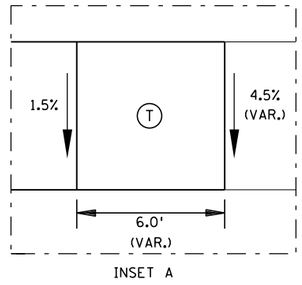


SEMI-DIRECTIONAL RAMP (3,4,9)

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)





TRANSITION PANEL ④⑤

NOTES:

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

(1) END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.

(2) ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.

(3) EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.

(4) THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.

(5) TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).

(6) EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

(T) TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

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MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 5 OF 6

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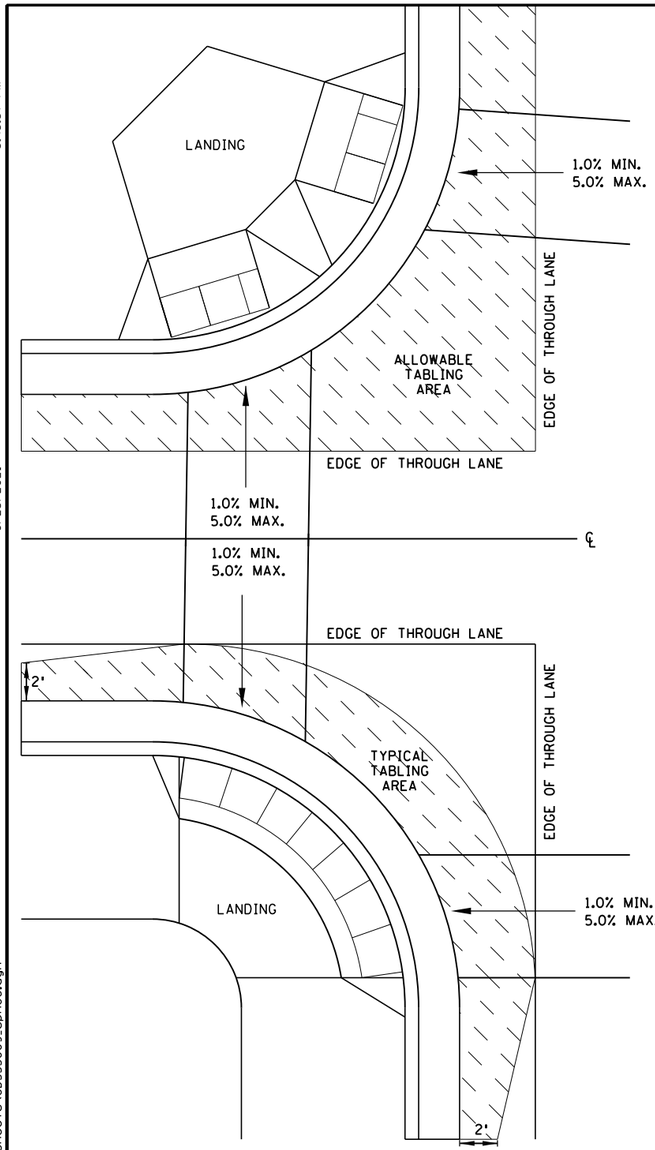
REVISED:

STATE DESIGN ENGINEER

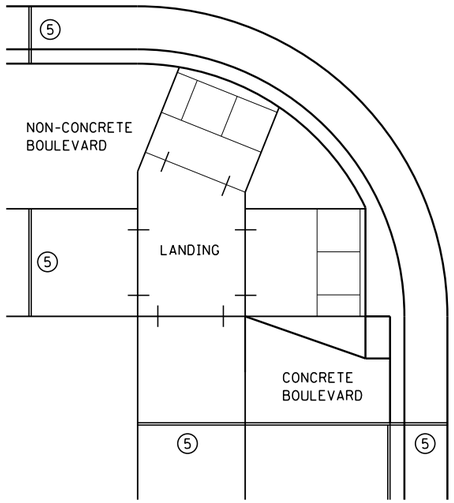
PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. XXXX-XX (TH XX)

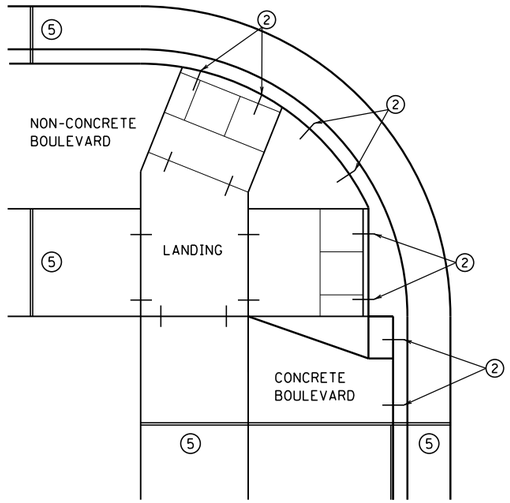
SHEET NO. 14 OF 95 SHEETS



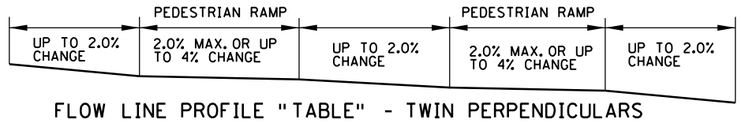
CURB LINE AND ROAD CROSSING ADJUSTMENTS



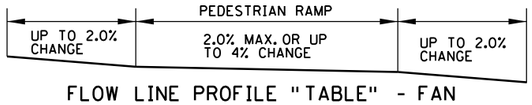
EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS



OPTIONAL CURB LINE REINFORCEMENT ④ PLACEMENT ON BITUMINOUS ROADWAYS



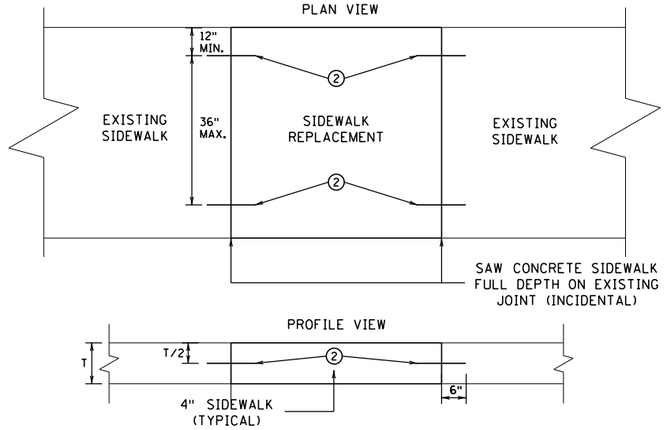
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



FLOW LINE PROFILE "TABLE" - FAN

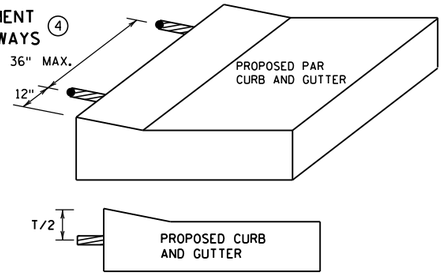
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

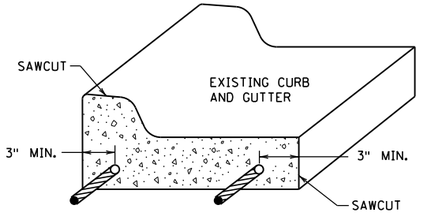
FLOW LINE PROFILE RAISE - FAN



OPTIONAL SIDEWALK REINFORCEMENT

SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

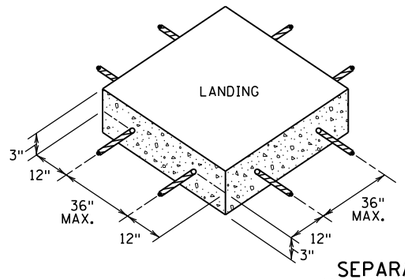


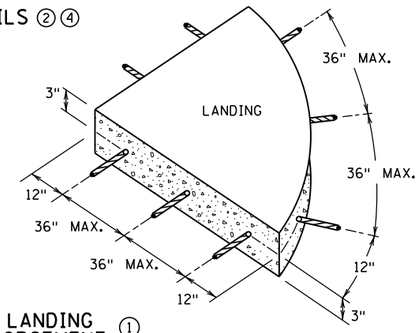


FOR USE ON CURB RAMP RETROFITS

CURB AND GUTTER REINFORCEMENT ③

OPTIONAL CURB LINE REINFORCEMENT DETAILS ②④





SEPARATE LANDING POUR REINFORCEMENT ①

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
3) 5.0% RECOMMENDED MAX. FLOW LINE
4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.

② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.

③ DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.

④ THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.

⑤ 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

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MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

APPROVED: 1-23-2017

REVISED:

STANDARD PLAN 5-297.250 | 6 OF 6

PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 15 OF 95 SHEETS

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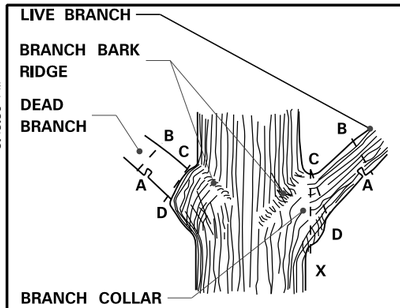
9/23/2021



STEPS TO PRUNING WITH PRUNING SAW:

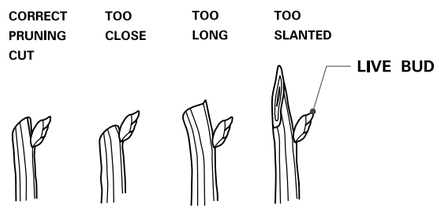
1. CUT PART WAY THROUGH THE BRANCH AT POINT A.
2. CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
3. AT BRANCH COLLAR CUT FROM POINT C TO D.

INCORRECT CUT FROM POINT C TO X (TOO CLOSE) WILL RESULT IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

CORRECT CUT FROM POINT C TO D (LEAVING BRANCH COLLAR BUT NOT THE STUB FROM POINT B TO A) WILL RESULT IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

BRANCHES PRUNED AT TRUNK

(SHIGO METHOD)



BRANCHES PRUNED TO LIVE BUD

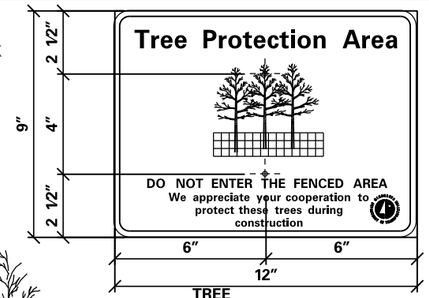
PRUNING NOTES:

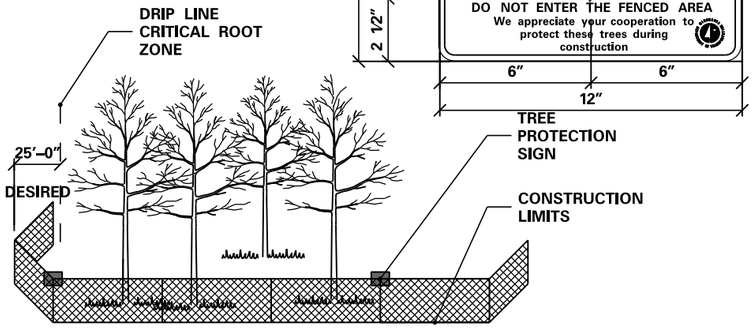
1. PRUNE USING CLEAN AND SHARP SCISSOR-TYPE PRUNER OR PRUNING SAW.
2. THE BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
3. AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
4. IF PRUNING IS NECESSARY OR IF WOUNDS OCCUR TO OAK TREES IN APRIL, MAY, JUNE OR JULY, IMMEDIATELY PAINT CUT SURFACE OR WOUND WITH LATEX PAINT OR SHELLAC.

PRUNING

(MnDOT 2571.3E.1 and 2571.3K.2.a(9))

1. FABRICATE 12" X 9" X 3/8" SIGN WITH 0.75" RADIUS CORNERS.
2. SIGN SHALL BE WHITE WITH BLACK LETTERING.
3. ATTACH SIGN TO POST USING 1" LENGTH WOOD SCREWS.

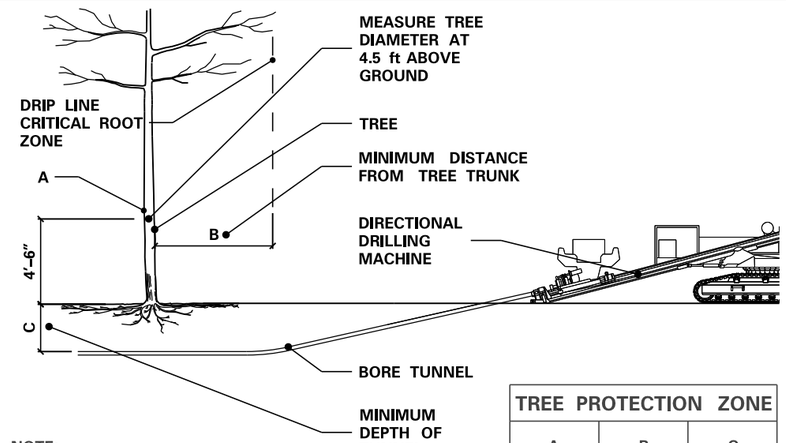




1. FURNISH AND INSTALL TEMPORARY FENCE AT THE TREE'S DRIPLINE OR CONSTRUCTION LIMITS AS SPECIFIED, PRIOR TO ANY CONSTRUCTION.
2. WHEN POSSIBLE PLACE FENCE 25 FEET BEYOND THE DRIP LINE.
3. PLACE TREE PROTECTION SIGNS ALONG FENCE AT 50' INTERVALS.

TEMPORARY FENCE

(MnDOT 2572.3A.1)



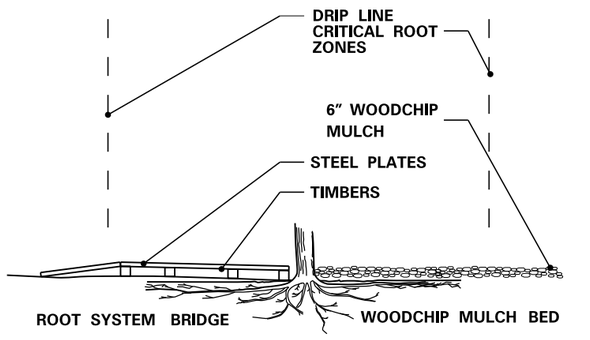
NOTE:

1. (A) IS THE DIAMETER OF TREES MEASURED 4'-6" FEET ABOVE THE GROUND AND IS TERMED THE "DIAMETER AT BREAST HEIGHT," (DBH).
2. USING A TREE DIAMETER TAPE, WRAP THE TAPE AROUND THE GIRTH OF THE TREE, AT THE DBH, BEING CAREFUL NOT TO TWIST THE TAPE.

TREE PROTECTION ZONE		
A	B	C
< 2"	2'	2'
2–4"	4'	2.5'
> 4–9"	6'	2.5'
> 9–14"	10'	3'
> 14–19"	12'	3.25'
> 19"	15'	4'

UTILITY CONSTRUCTION

(MnDOT 2572.3A.5)



IF CONSTRUCTION VEHICLES MUST PASS OVER ROOT ZONES, THE CONTRACTOR MUST EITHER:

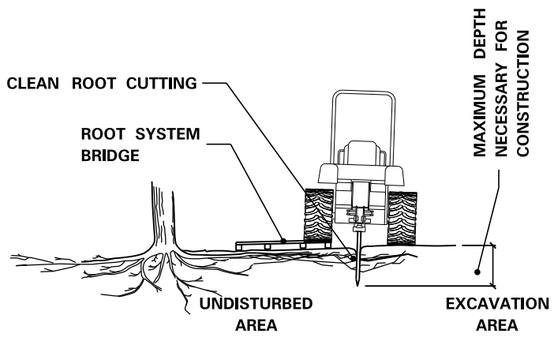
1. CONSTRUCT ROOT SYSTEM BRIDGES WITH STEEL PLATE SUPPORTED ON WOOD TIMBERS PLACED RADIALLY TO THE TREE TRUNK.

OR

2. PLACE A 6 INCH LAYER OF WOODCHIP MULCH OVER A TYPE III GEOTEXTILE (MnDOT 3733).

OTHER VEGETATION PROTECTION MEASURES

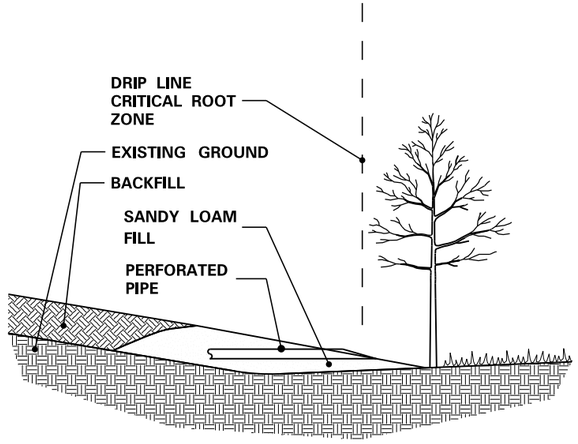
(MnDOT 2572.3A.12)



1. WHEN DESIGNATED IN THE PLAN OR DIRECTED BY THE ENGINEER, PRIOR TO EXCAVATION, ALL TREE ROOTS WILL BE CLEANLY CUT BY A VIBRATORY PLOW OR OTHER APPROVED ROOT CUTTER.
2. THE TREE ROOTS WILL BE CUT CLEANLY TO THE MINIMUM DEPTH NECESSARY FOR CONSTRUCTION.
3. IMMEDIATELY, AND CLEANLY CUT DAMAGED AND EXPOSED ROOTS.
4. ROOT ENDS EXPOSED BY EXCAVATION ACTIVITIES SHALL BE IMMEDIATELY COVERED WITH A 6" LAYER OF ADJACENT SOIL.
5. EXPOSED CUT OAK ROOTS SHALL BE IMMEDIATELY (WITHIN 5 MINUTES) TREATED WITH A WOUND DRESSING MATERIAL CONSISTING OF LATEX PAINT OR SHELLAC.

CLEAN ROOT CUTTING

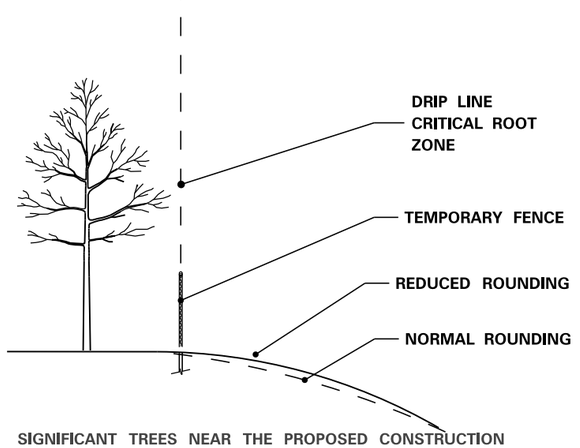
(MnDOT 2572.3A.2)



1. ANY FILL REQUIRED WITHIN THE DRIP LINE OF TREES, IS UNCOMPACTED ROOTING TOPSOIL BORROW.
2. EXCESSIVE FILL MAY REQUIRE PLACING PERFORATED PIPE WITH AT LEAST ONE DAYLIGHTED END OPENING AS AN AERATION SYSTEM.

ROOTING TOPSOIL BORROW

(MnDOT 2572.3A.4)



SIGNIFICANT TREES NEAR THE PROPOSED CONSTRUCTION LIMITS WILL BE IDENTIFIED IN THE PLAN OR BY THE ENGINEER AND WILL BE PRESERVED BY THE CONTRACTOR.

1. PLACE THE TEMPORARY FENCE.
2. REDUCE SLOPE ROUNDING WHERE ROOT ZONES ARE DISTURBED BY NORMAL SLOPE ROUNDING.
3. VARY BACKSLOPE STEEPNESS TO AVOID TREE LOSS OR UNNECESSARY ROOT DAMAGE.

SLOPE ROUNDING

REVISION:

APPROVED: DECEMBER 11, 2015

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.302 | 1 OF 1

APPROVED: 12-11-2015

REVISED:

STATE DESIGN ENGINEER

PROTECTION AND RESTORATION OF VEGETATION

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 16 OF 95 SHEETS

DISTRICT ":
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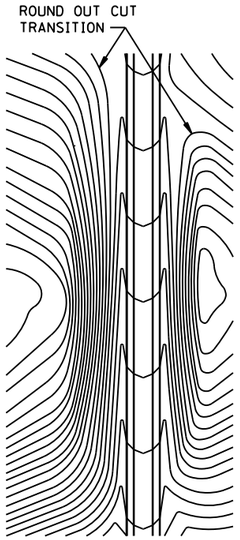
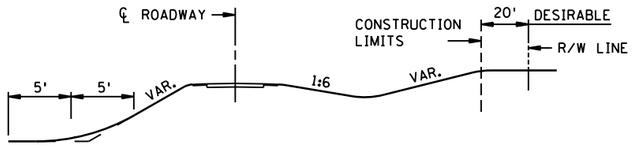
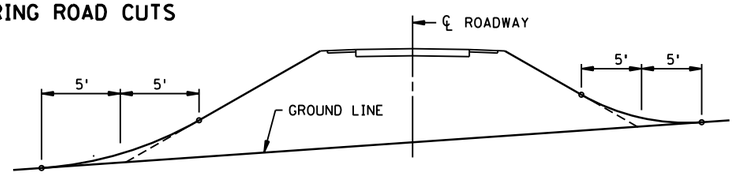


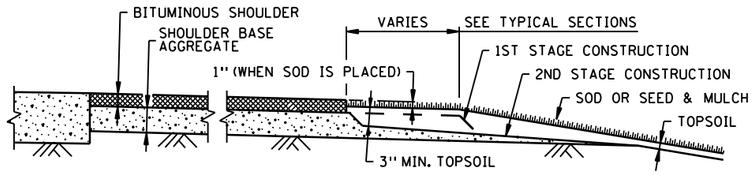
CONTOURING ROAD CUTS



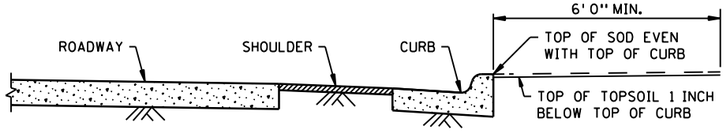
ROUNDING SHOULDERS AND BACKSLOPES



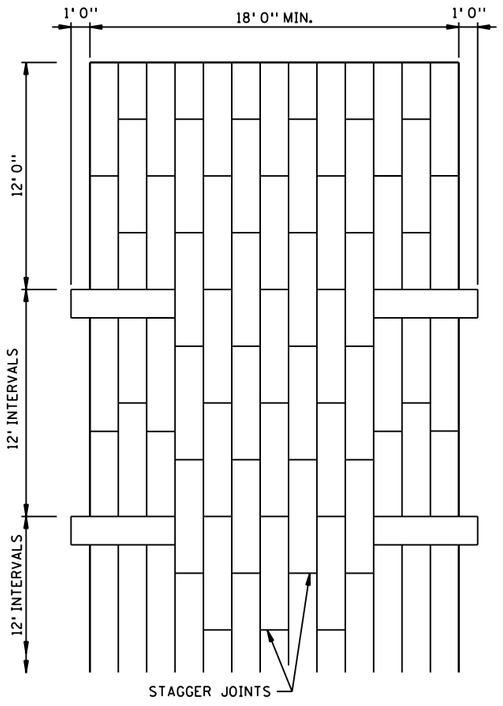
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



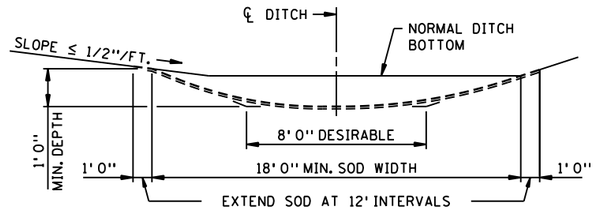
SHAPING AND TOPSOILING INSLOPES



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

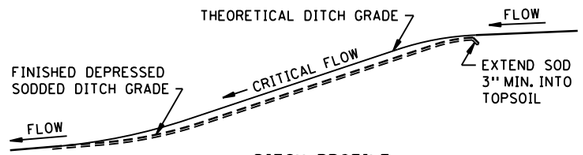


PLAN VIEW



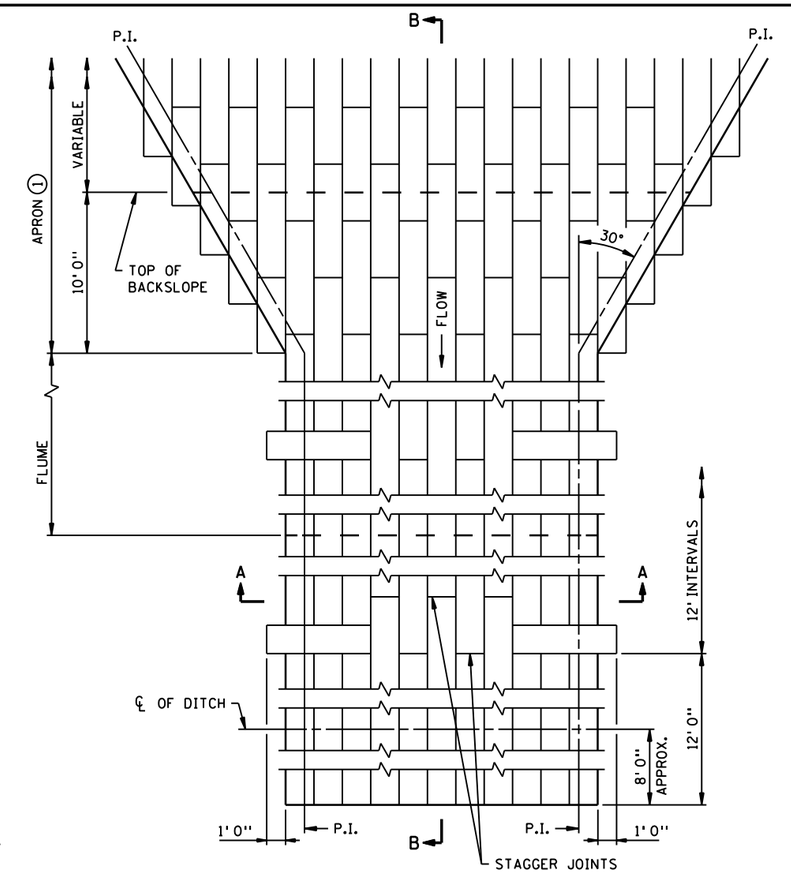
SODDED DITCH CROSS SECTION

WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.

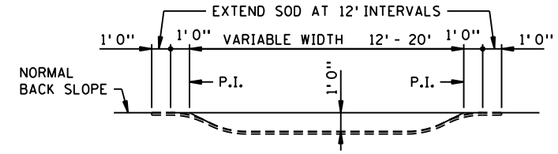


DITCH PROFILE

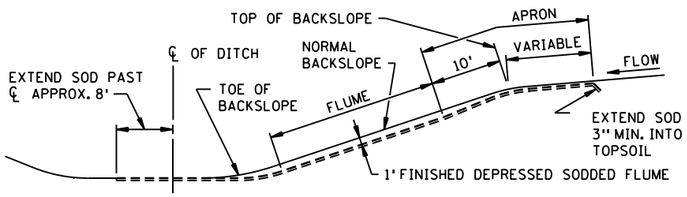
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

NOTES:

SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.404 | 1 OF 3

APPROVED: 2-28-2017

REVISED:

STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL

ALONG ROADWAYS, DITCHES AND FLUMES

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 17 OF 95 SHEETS

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9/23/2021

DISTRICT ":
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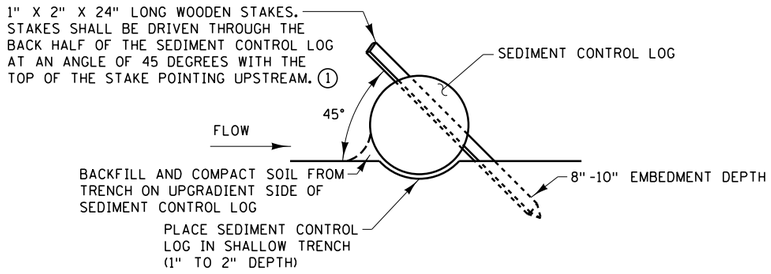
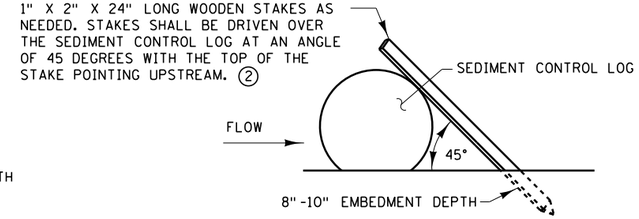
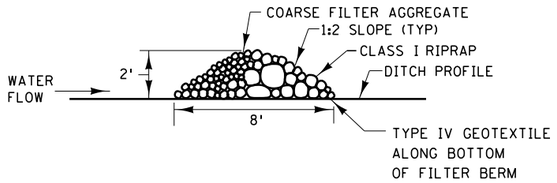


TYPES: STRAW, WOOD FIBER, OR COIR

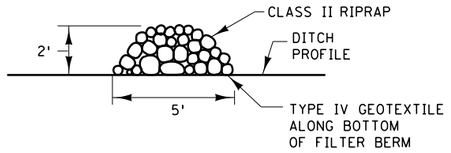


TYPES: WOOD CHIP, COMPOST, OR ROCK

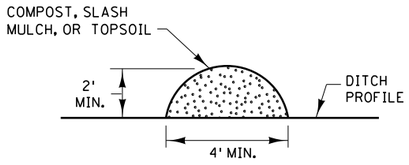
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

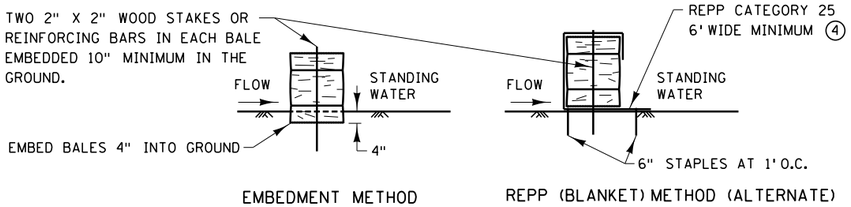


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

REPP (BLANKET) METHOD (ALTERNATE)

BALE BARRIERS③

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.

(2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

(3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

(4) INSTEAD OF TRENCHING, PLACE BALE ON THE REPP (BLANKET) AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISION:

APPROVED: JANUARY 8, 2020

MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

THOMAS STYRBICKI
STATE DESIGN ENGINEER

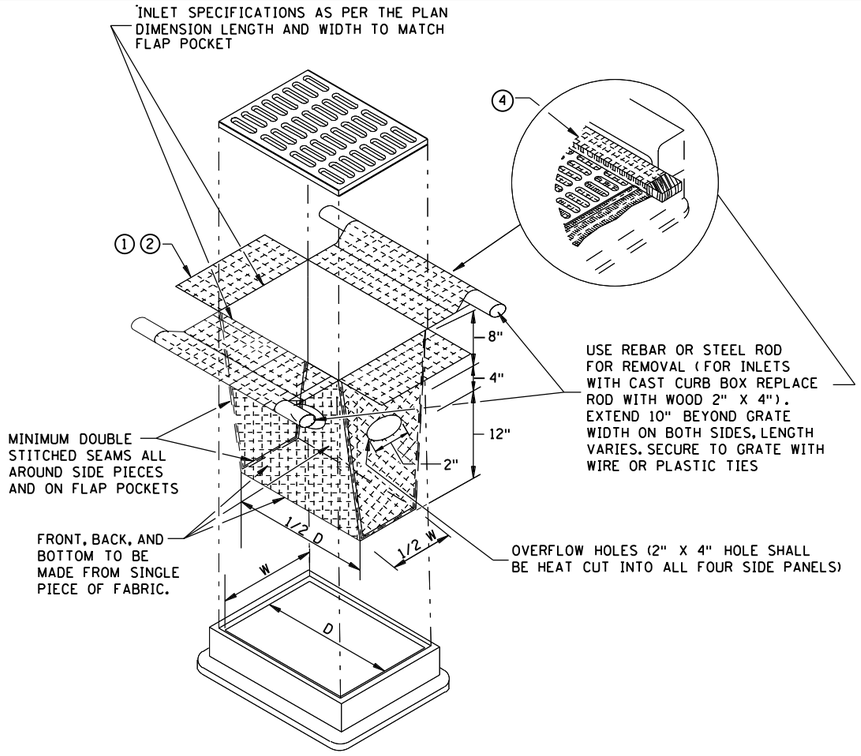
STANDARD PLAN 5-297.405	2 OF 8
APPROVED: 1-8-2020	
REVISED:	

TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

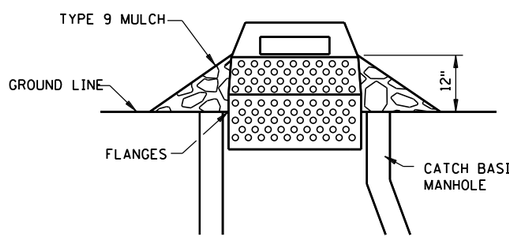
STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 18 OF 95 SHEETS



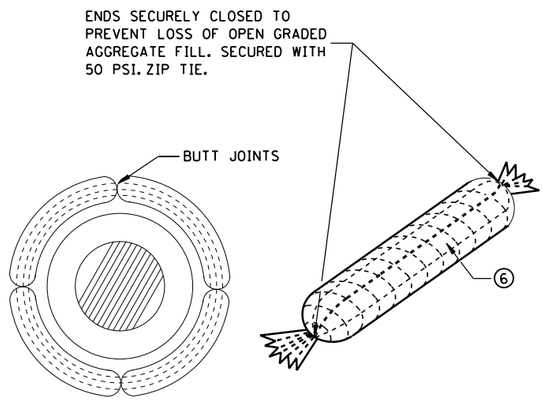
FILTER BAG INSERT ③

(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)

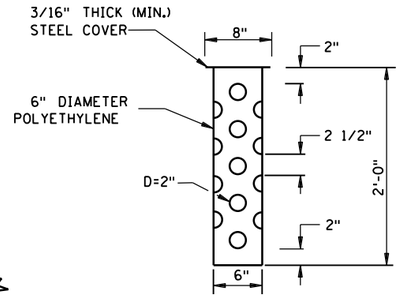


SEDIMENT CONTROL INLET HAT

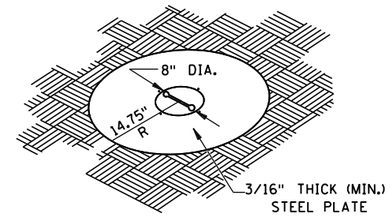
NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



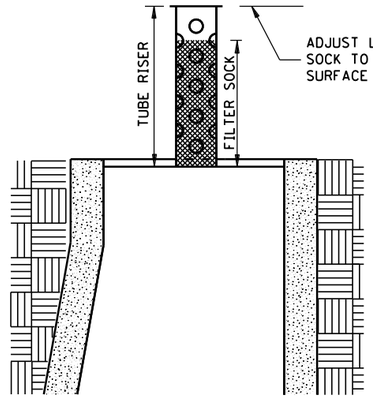
ROCK LOG/COMPOST LOG



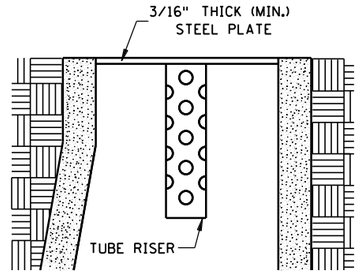
TUBE RISER



PERSPECTIVE VIEW

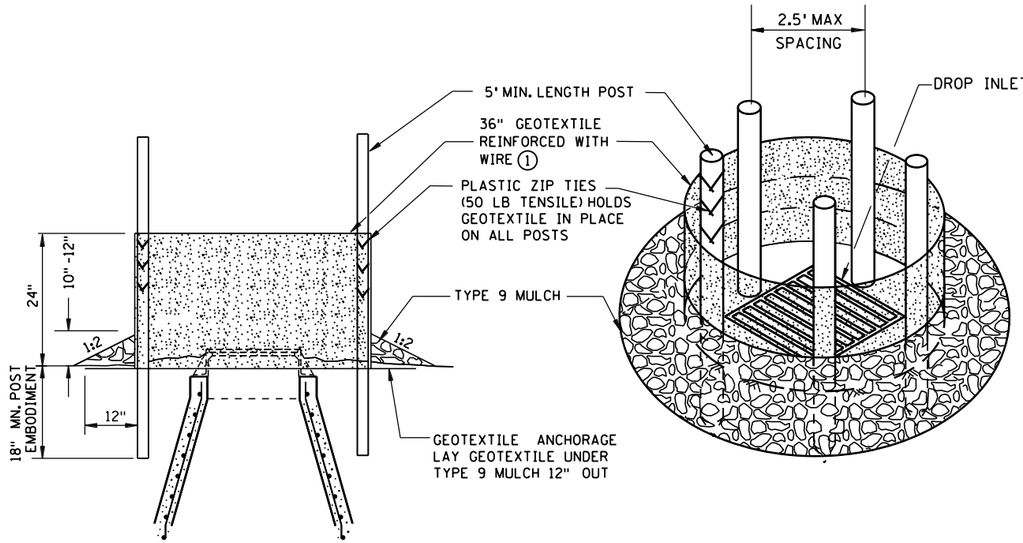


SECTION
(UP POSITION)



SECTION
(DOWN POSITION)

POP-UP HEAD



SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS

NOTES:

SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

1. ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
2. FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
3. INSTALLATION NOTES:
   DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
4. FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
5. SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
6. GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 4 OF 8

APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 19 OF 95 SHEETS

DISTRICT #:
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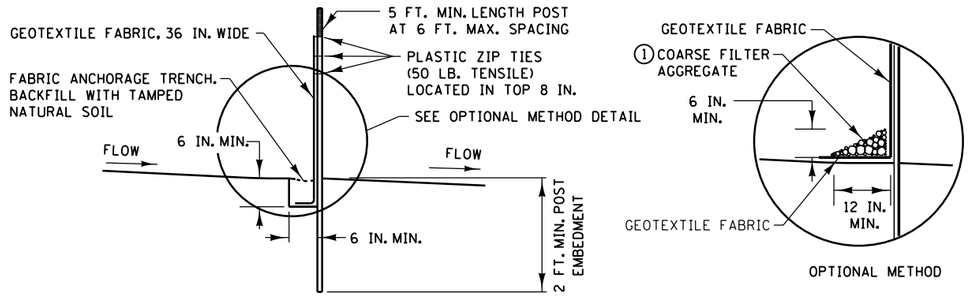
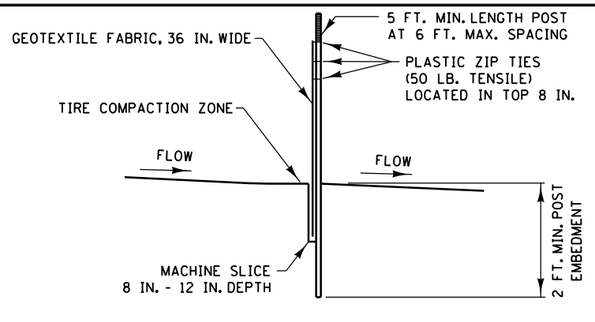
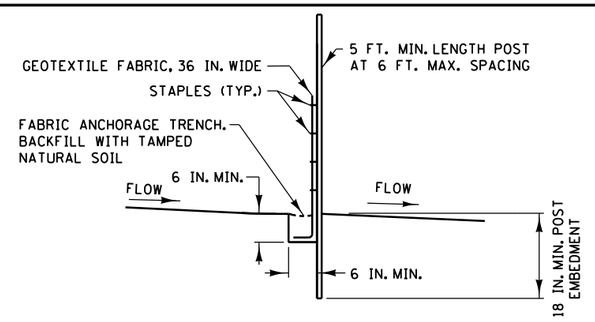


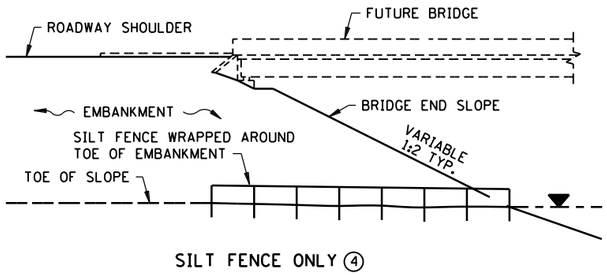
SILT FENCE TYPE HI ②
(HAND INSTALLED)



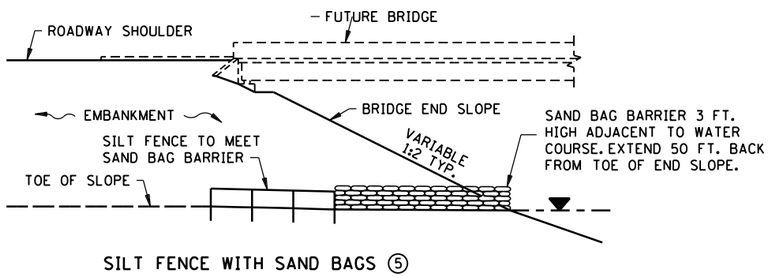
SILT FENCE TYPE MS ②
(MACHINE SLICED)



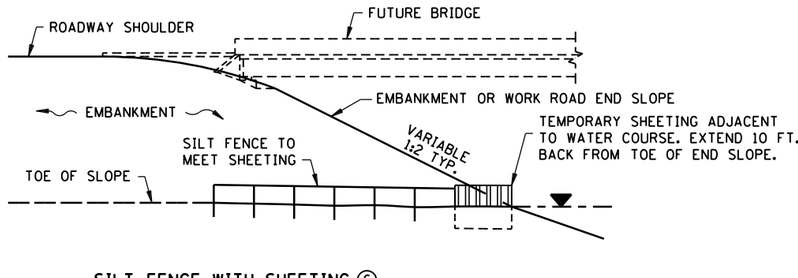
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

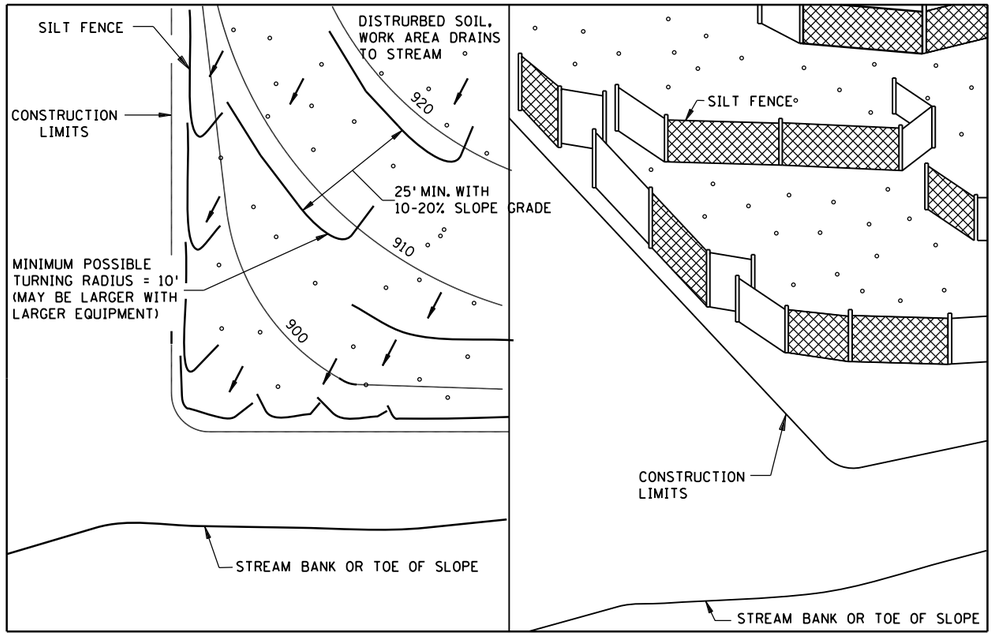


SILT FENCE WITH SAND BAGS ⑤



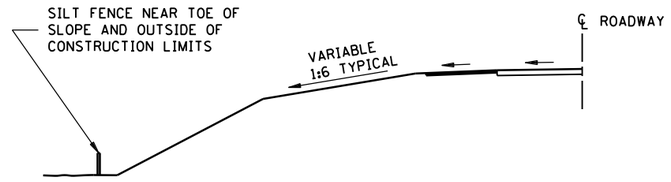
SILT FENCE WITH SHEETING ⑥

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING.
CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 6 OF 8

APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
SILT FENCE

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 20 OF 95 SHEETS

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DISTRICT #:
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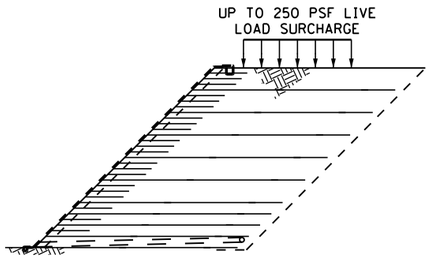
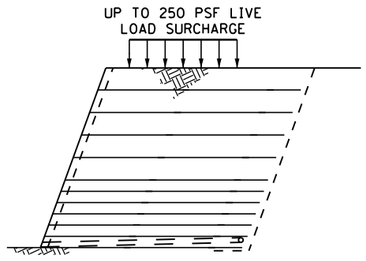
LOADING CASES



REINFORCED SOIL SLOPE (45° MAX.)
250 PSF - LL SURCHARGE
CASE 1A & 1B



REINFORCED SOIL SLOPE (70° MAX.)
250 PSF - LL SURCHARGE
CASE 2

NOTES TO CONTRACTOR:

APPROVED SOIL REINFORCEMENT PRODUCTS LIST, WITH TYPE NOTED, IS HELD AND MAINTAINED BY THE FOUNDATIONS UNIT, AND CURRENTLY POSTED AT http://www.mrr.dot.state.mn.us, GEOTECHNICAL ENGINEERING SECTION, FOUNDATIONS UNIT. ONLY APPROVED PRODUCTS MAY BE USED IN STANDARD DESIGNS.

PROVIDE DETAILED DRAWINGS FOR CONSTRUCTION CONTAINING:

- ELEVATION VIEW WITH REINFORCEMENT PLACEMENT REQUIREMENTS, SOIL SLOPE LAYOUT, AND GEOMETRIC INFORMATION.
- CROSS SECTIONS DETAILING SLOPE FACE ANGLE, REINFORCEMENT, VERTICAL SPACING, REINFORCEMENT LENGTHS, SUBSURFACE DRAINAGE, SURFACE DRAINAGE, AND SLOPE FACE EROSION PROTECTION.
- DETAIL ALL REINFORCED FILL PENETRATIONS AND FACE PENETRATIONS. DETAIL REINFORCEMENT AND EROSION PROTECTION PLACEMENT AROUND PENETRATIONS.
- LIST INFORMATION ON APPROVED GEOSYNTHETIC REINFORCEMENT, INCLUDING Mn/DOT CLASSIFICATION CODE, PROPERTIES FOR FIELD IDENTIFICATION, AND INSTALLATION INSTRUCTIONS. LIST PRODUCT AND INSTALLATION INFORMATION ON WELDED WIRE MESH FACING FORMS IF UTILIZED.
- CERTIFICATION BY PROFESSIONAL ENGINEER THAT THE CONSTRUCTION LAYOUT MEETS THE REQUIREMENTS OF PLANS AND Mn/DOT RSS STANDARDS. DEVIATION FROM STANDARD DESIGN TABLES BY VALUE ENGINEERING SUBMITTAL ONLY ON SLOPES OVER 5000 SQUARE FEET.

DEFINITION OF TERMS

RSS	=	REINFORCED SOIL SLOPE
LL	=	LIVE LOAD
WWM	=	WELDED WIRE MESH
H	=	SLOPE HEIGHT
S	=	VERTICAL REINFORCEMENT SPACING
PRIMARY REINFORCEMENT	=	REINFORCEMENT USED ACROSS WIDTH OF REINFORCED FILL
SECONDARY REINFORCEMENT	=	REINFORCEMENT AT FACE PLACED BETWEEN PRIMARY LAYERS
REINFORCEMENT COVERAGE RATIO	=	WIDTH OF SOIL REINFORCEMENTS TO HORIZONTAL SPACING (100% COVERAGE RATIO REQUIRED)
W.I.N.	=	WATER INSOLUBLE NITROGEN

DESIGN CRITERIA

THESE SHEETS ARE A GUIDE TO BE USED ON A CASE-BY-CASE BASIS BY Mn/DOT FOUNDATIONS UNIT. THE DESIGNS ARE BASED UPON THE FHWA MSEW AND RSS DESIGN AND CONSTRUCTION GUIDELINES (FHWA-NHI-00-043) WITHOUT ANY DEVIATIONS.

MINIMUM FACTORS OF SAFETY
SLIDING: 1.3
INTERNAL: 1.3
COMPOUND: 1.3
EXTERNAL: 1.3

REINFORCED SLOPE FILL CHARACTERISTICS
A. GRANULAR MATERIAL:
   1. GRANULAR MATERIAL PER SPEC. 3149.2B1.
   2. INTERNAL ANGLE OF FRICTION (Φ_r) = 30°
   3. COHESION (C) = 0
   4. MOIST UNIT WEIGHT (γ_r) = 120 PCF
B. SELECT GRANULAR MATERIAL MODIFIED:
   1. SELECT GRANULAR MATERIAL MODIFIED FOLLOWING SPEC. 3149.2B.2. MODIFICATION: SELECT GRANULAR MATERIAL MODIFIED, FOR SPECIAL USE IN EMBANKMENT OR BACKFILL CONSTRUCTION OR OTHER SPECIFIED PURPOSES, MAY BE ANY PIT-RUN OR CRUSHER-RUN MATERIAL THAT IS GRADED FROM COARSE TO FINE THAT 100% OF THE MATERIAL MUST PASS THE 2" SIEVE, AND THAT THE RATIO OF THE PORTION PASSING THE #200 SIEVE DIVIDED BY THE PORTION PASSING THE 1" SIEVE MAY NOT EXCEED 10% BY MASS (THAT IS: "#200/1" RATIO).
   2. INTERNAL ANGLE OF FRICTION (Φ_r) = 35°
   3. COHESION (C) = 0
   4. MOIST UNIT WEIGHT (γ_r) = 125 PCF

RETAINED BACKFILL CHARACTERISTICS:
A. INTERNAL ANGLE OF FRICTION (Φ_b) = 30°
B. COHESION (C) = 0
C. MOIST UNIT WEIGHT (γ_b) = 120 PCF

FOUNDATION SOIL CHARACTERISTICS:
A. INTERNAL ANGLE OF FRICTION (Φ_f) = 30°
B. COHESION (C) = 0
C. UNIT WEIGHT (γ_f) = 120 PCF

SOIL REINFORCEMENT CHARACTERISTICS:
A. SPACING AND STRENGTH SHALL CONFORM TO MINIMUMS IN DESIGN TABLES, FOR APPLICABLE REINFORCED SOIL FILL TYPE AND MAXIMUM SLOPE ANGLE.
B. REINFORCEMENT COVERAGE SHALL BE 100%.

NOTES TO DESIGNER:

REVIEW BY TURF AND EROSION PREVENTION UNIT AND THE OFFICE OF ENVIRONMENTAL SERVICES, SHALL BE PERFORMED FOR ALL RSS APPLICATIONS. TURF ESTABLISHMENT AND MAINTENANCE ITEMS, HYDROSEEDING OVER EROSION CONTROL BLANKET, USE OF TURF REINFORCEMENT MAT IN CHANNELIZED FLOW AREAS, MODIFICATION OF SEED MIX, TURF MAINTENANCE CONTRACT ITEMS, IN ADDITION TO THE DETAILS CONTAINED ON THESE DRAWINGS, SHOULD BE EVALUATED ON A PROJECT BASIS.

IN ADDITION TO THE STANDARD SHEETS, TYPICAL CROSS SECTIONS OF THE SOIL SLOPES SHALL BE INCLUDED IN THE PLANS AS WELL AS INCLUDING SOIL SLOPES ON THE PROJECT CROSS SECTIONS.

DETAIL TRANSITION OF RSS TO ADJACENT SLOPES OR STRUCTURES.

REFERENCE STANDARD PLATES AND PROVIDE DETAILS FOR TRAFFIC BARRIERS, CURB AND GUTTER, HANDRAILS AND FENCING AS REQUIRED BY PROJECT CONDITIONS. SEE AASHTO AND Mn/DOT DESIGN MANUALS, STANDARD PLATES, AND DETAILS FOR REQUIREMENTS.

DETAIL LINES AND GRADES OF THE INTERNAL DRAINAGE COLLECTION PIPE. DETAIL OR NOTE THE DESTINATION OF INTERNAL DRAINS AS WELL AS THE METHOD OF TERMINATION (DAYLIGHT END OF PIPE OR CONNECTION INTO ADJACENT HYDRAULIC STRUCTURE).

SURFACE DRAINAGE PATTERNS SHALL BE SHOWN IN THE PLAN VIEW. SURFACE WATER RUNOFF SHOULD BE COLLECTED ABOVE AND DIVERTED AROUND SLOPE FACE.

DEFINE REINFORCED SOIL SLOPE ANGLE AND DEFINE CONSTRUCTION LIMITS ON THE PLAN VIEW BASED ON THIS ANGLE. STANDARD SLOPE ANGLES ARE 45° AND 70°.

SOFT SOILS AND/OR HIGH WATER CONDITIONS (DEFINED AS GROUNDWATER WITHIN A DEPTH EQUAL TO THE SLOPE HEIGHT H) MAY NOT BE SUITABLE FOR APPLICATION OF STANDARD DESIGNS AND REQUIRES SPECIAL CONSIDERATION BY THE FOUNDATIONS UNIT.

STANDARD DESIGNS NOT APPLICABLE FOR PROJECTS WITH LARGE QUANTITY OF VERTICAL FACE AREA WHERE PROJECT SPECIFIC DESIGNS ARE RECOMMENDED, AS DEFINED IN Mn/DOT ROAD DESIGN MANUAL.

DESIGNS BASED ON LEVEL BACKFILL, ZERO TOE SLOPE AND TRAFFIC SURCHARGE. SLOPES ABOVE OR BELOW THE OVERSTEEPENED REINFORCED SLOPE ARE NOT SUITABLE FOR APPLICATION OF STANDARD DESIGNS AND REQUIRE SPECIAL CONSIDERATION BY THE FOUNDATIONS UNIT.

REFER TO CASE 1A AND 1B FOR SOIL SLOPES BETWEEN 1:2 (26.5°) AND 1:1 (45°) MAXIMUM. USE CASE 2 FOR SOIL SLOPES GREATER THAN 1:1 (45°) AND UP TO 2.75:1 (70°) MAXIMUM.

IF USING CONCRETE RAILING, INCLUDE STANDARD BRIDGE DETAIL "CONCRETE RAILING (TYPE F)" IN PLAN SET.

GEOTECHNICAL INVESTIGATION SHALL BE PERFORMED FOR ALL RSS APPLICATIONS.

SAMPLE ESTIMATED QUANTITIES FOR REINFORCED SOIL SLOPES (2)

		UNIT	QUANTITY
	STRUCTURE EXCAVATION CLASS ---	CU. YD.	
	GRANULAR MATERIAL (CV)	CU. YD.	
	SELECT GRANULAR MATERIAL MODIFIED (CV)	CU. YD.	
	TYPE F RAILING CONCRETE (3Y46)	LIN. FT.	
	STRUCTURAL CONCRETE (3Y46)	CU. YD.	
(1)	REINFORCED SOIL SLOPE	SQ. YD.	

(1) VERTICAL FACE AREA OF SLOPE AS MEASURED FROM PLAN BOTTOM TO PLAN TOP OF SLOPE ELEVATION.

(2) REFER TO TABULATIONS / ESTIMATE SHEETS FOR QUANTITIES.

GENERAL NOTES:

UTILITIES:

EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FACILITIES AND SHALL EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND EARTHWORK:

ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO MnDOT 2451.

CONSTRUCTION:

CONSTRUCTION SHALL BE IN ACCORDANCE WITH MnDOT 2411, EXCEPT AS NOTED.

COMPACTION REQUIREMENTS:

COMPACT GRANULAR MATERIAL IN ACCORDANCE WITH Mn/DOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

COMPACT MODIFIED SELECT GRANULAR MATERIAL IN ACCORDANCE WITH MnDOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

REVISION:

APPROVED: DECEMBER 1, 2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.646 | 1 OF 1

APPROVED: 12-1-2014
REVISED:

STATE DESIGN ENGINEER

REINFORCED SOIL SLOPE
GENERAL NOTES

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

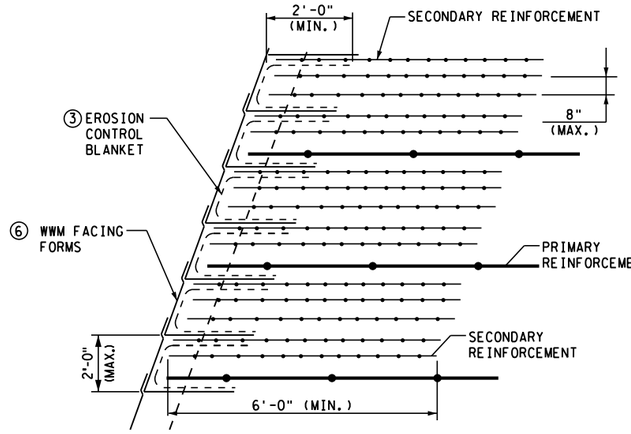
STATE PROJ. NO. XXXX-XX (TH XX) SHEET NO. 21 OF 95 SHEETS

REINFORCED SOIL SLOPE

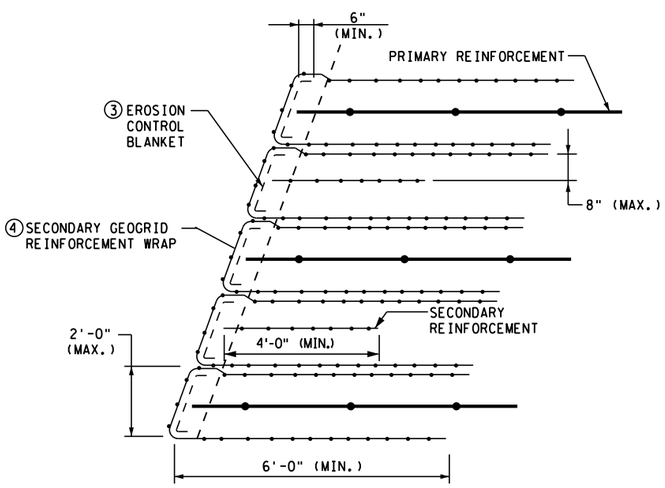
CASE 2 - 70° MAXIMUM SLOPE ANGLE, MODIFIED SELECT GRANULAR BORROW REINFORCED SOIL FILL

MAX. SLOPE ANGLE (DEGREES)	REINFORCED SOIL FILL FRICTION ANGLE (DEGREES)	MINIMUM REINFORCEMENT LENGTH, L (FT)	PRIMARY SOIL REINFORCEMENT ⑦		MAXIMUM SLOPE HEIGHT H (FT)	ZONE 1		ZONE 2	
			TYPE	LONG TERM STRENGTH (T_{al}) (PLF)		H1 (FT)	$S1_{MAX}$ (IN)	H2 (FT)	$S2_{MAX}$ (IN)
70	35	1.0 H	TYPE II	1050	21.3	13.1	40	8.2	20
					23.6	23.6	24	-	-
			TYPE III	1400	26.2	18.0	40	8.2	20
					26.2	13.8	48	12.4	24

NOTES:
SECONDARY REINFORCEMENT SHALL HAVE A MINIMUM LONG TERM STRENGTH OF 400 PLF.

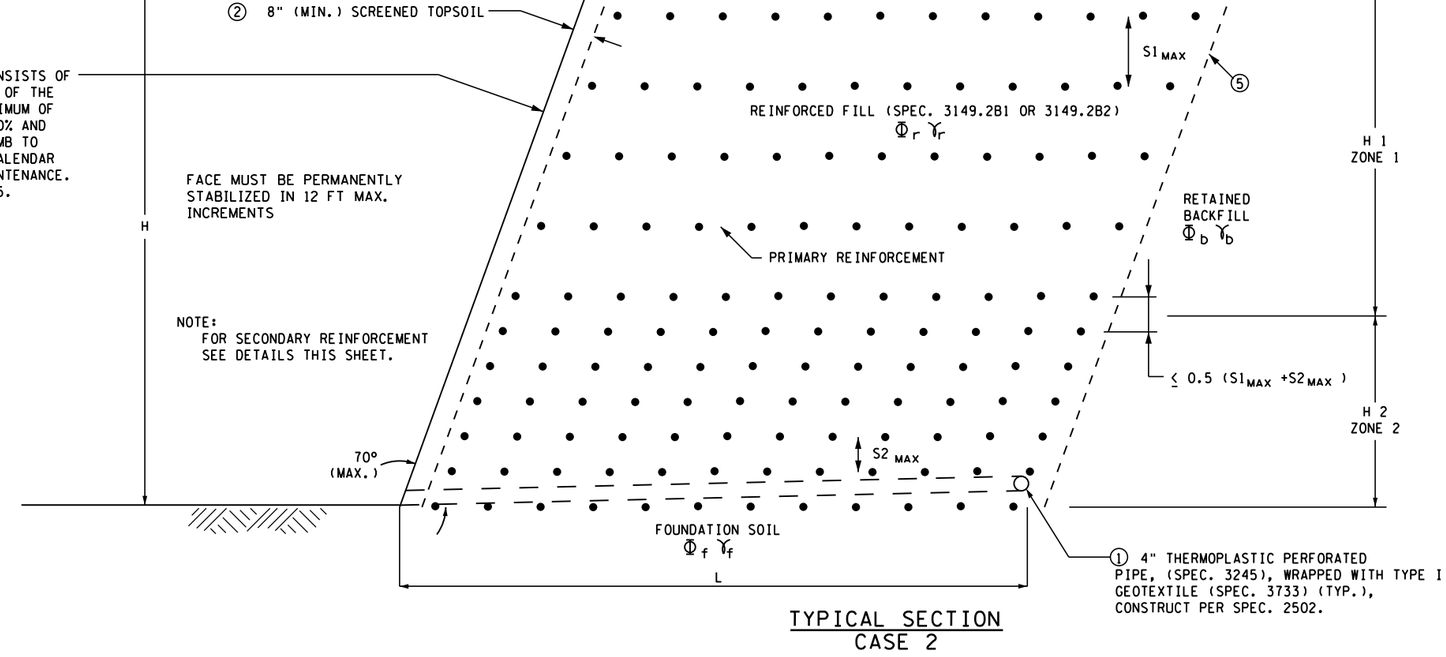


70° SLOPE - WELDED WIRE MESH FACE FORM



70° SLOPE - WRAPPED FACE

MAINTENANCE IS REQUIRED AND IS INCIDENTAL. MAINTENANCE CONSISTS OF WATERING AND EROSION REPAIR RESTORATION SUCH THAT THE FACE OF THE SLOPE WILL BE FULLY VEGETATED. MAINTENANCE INCLUDES A MINIMUM OF 45 GROWING DAYS AND TERMINATES WHEN A VEGETAL DENSITY OF 80% AND A PLANT GROWTH HEIGHT OF 6" IS ACHIEVED. AREAS THAT SUCCUMB TO EROSION OR SEEDING FAILURE WILL BE RESTORED WITHIN THREE CALENDAR DAYS AND WILL REQUIRE AN ADDITIONAL 20 GROWING DAYS OF MAINTENANCE. GROWING DAYS ARE DEFINED AS PER STANDARD SPECIFICATION 2575.



TYPICAL SECTION
CASE 2

NOTES:

① INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS AS DIRECTED BY THE ENGINEER.

② SCREENED TOPSOIL, WITH SEED AND FERTILIZER AS SPECIFIED IN PLANS. DEVELOP SITE SPECIFIC RECOMMENDATIONS FOR HIGHLY SHADED AREAS, HIGHLY VISIBLE URBAN APPLICATIONS OR IN SENSITIVE AREAS.

③ SPEC. 3885.2, CATEGORY 4, STRAW-COCONUT EROSION CONTROL BLANKET.

④ GEOSYNTHETIC WRAP SHALL BE A GEOGRID STABILIZED FOR LONG-TERM ULTRAVIOLET LIGHT EXPOSURE.

⑤ PAY LIMITS OF STRUCTURAL EXCAVATION. EQUAL TO ANGLE OF SLOPE FACE, 70° MAXIMUM ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS: EXCAVATION BEYOND "LIMITS OF STRUCTURAL EXCAVATION" AT CONTRACTOR'S EXPENSE.

⑥ WELDED WIRE MESH FACE FORM DESIGN BY CONTRACTOR. GALVANIZED STEEL NOT REQUIRED.

⑦ PRIMARY SOIL REINFORCEMENT TYPES I, II, AND III ARE FOUND ON MnDOT'S APPROVED/QUALIFIED PRODUCTS LIST.

REVISION:

APPROVED: 8-6-2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.648 | 1 OF 1

APPROVED: 8-6-2014
REVISED:
STATE DESIGN ENGINEER

REINFORCED SOIL SLOPE
(70° MAXIMUM SLOPE)

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 22 OF 95 SHEETS

DISTRICT #:
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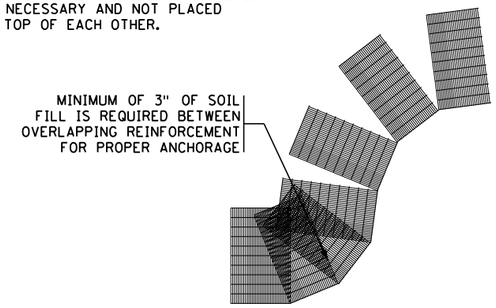
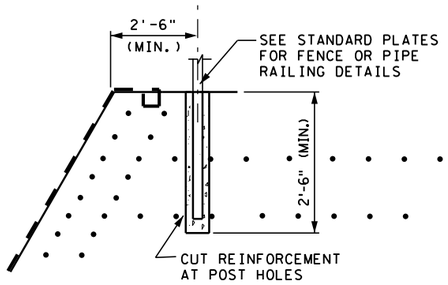
NOTES:

CORRECT ORIENTATION OF GEOSYNTHETIC TO OBTAIN PROPER STRENGTH SHALL BE DETAILED ON CONTRACTOR DRAWINGS.

ADJACENT WIDTHS OF REINFORCEMENT SHALL BE EXTENDED AS NECESSARY AND NOT PLACED DIRECTLY ON TOP OF EACH OTHER.

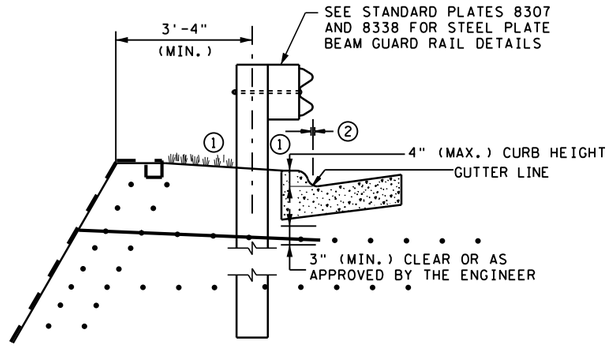


REINFORCEMENT PLACEMENT AROUND CURVES AND CORNERS

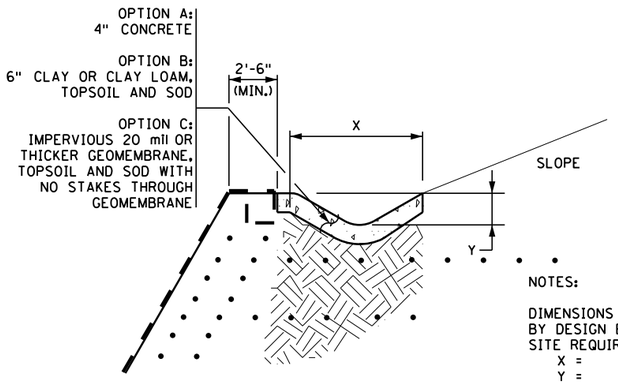


POST DETAIL

TYPICAL HANDRAIL AND/OR FENCE POST



STEEL PLATE BEAM GUARDRAIL DETAIL

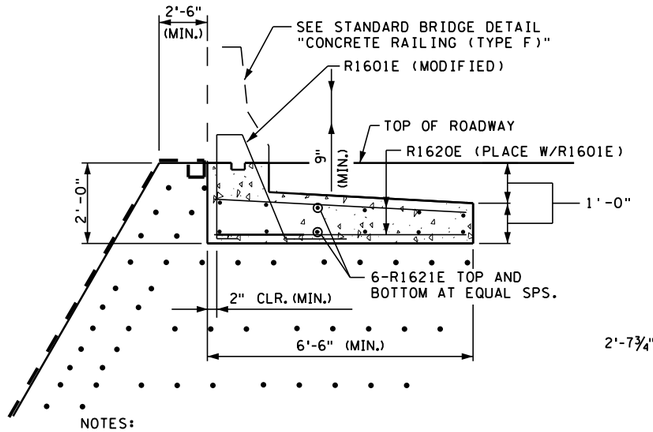


NOTES:

DIMENSIONS TO BE DETERMINED BY DESIGN ENGINEER BASED ON SITE REQUIREMENTS.
X =
Y =

SEE PLAN VIEW FOR SURFACE DRAINAGE PATTERNS.

TYPICAL DRAIN SWALE DETAIL

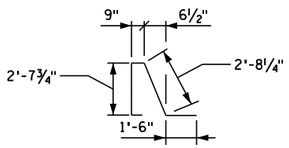


NOTES:

NOMINAL SPACING OF CONCRETE CONTRACTION JOINTS SHALL BE 200 FT.

WORK REINFORCEMENT SHOWN WITH CONCRETE RAILING DETAILS. ALL CONCRETE REINFORCEMENT SHALL BE EPOXY COATED.

BARRIER FOOTING DETAIL



R1601E (MODIFIED) AT 12" (MAX.) (SEE STANDARD BRIDGE DETAIL)

NOTES:

1. ONCE RSS (REINFORCED SOIL SLOPE) BUILT TO GRADE, IMMEDIATELY SEED AND FERTILIZE. SEE PLANS FOR TOPSOIL, SEED AND FERTILIZER.
2. USE CAUTION WHEN PLACING CURB WITH GUARDRAIL. CURBS ADVERSELY AFFECT THE PERFORMANCE OF THE GUARDRAIL. GENERALLY PLACE CURB DIRECTLY BELOW GUARDRAIL. SEE PLANS OR REFER TO STANDARD PLAN 5-297.601 (2). FOR CURB LOCATIONS ON NCHRP REPORT NO. 350 APPROVED BRIDGE TRANSITIONS, SEE STANDARD PLANS 5-297.603, 5-297.605, 5-297.606 ETC..

REVISION:

APPROVED: 8-6-2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.649 | 1 OF 1

APPROVED: 8-6-2014
REVISED:
STATE DESIGN ENGINEER

REINFORCED SOIL SLOPE

DETAILS

STATE PROJ. NO. XXXX-XX (TH XX)

SHEET NO. 23 OF 95 SHEETS

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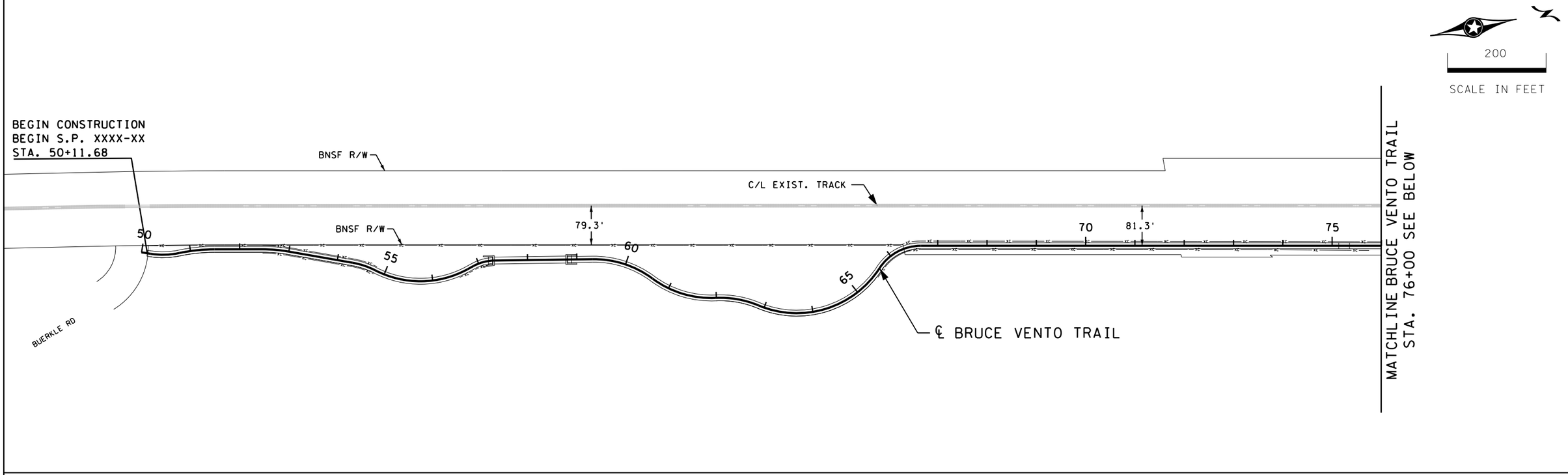

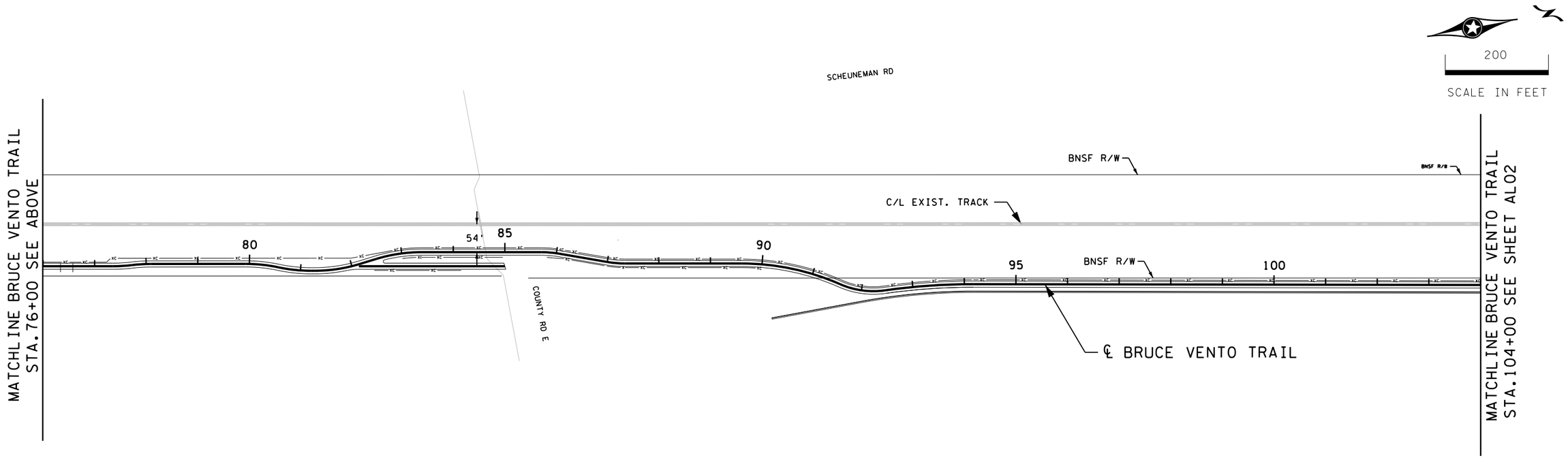

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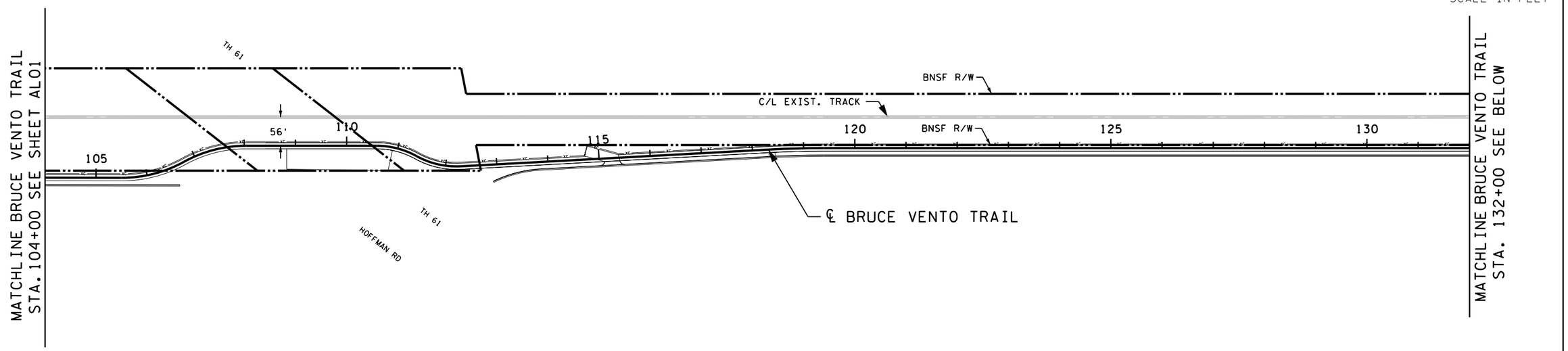
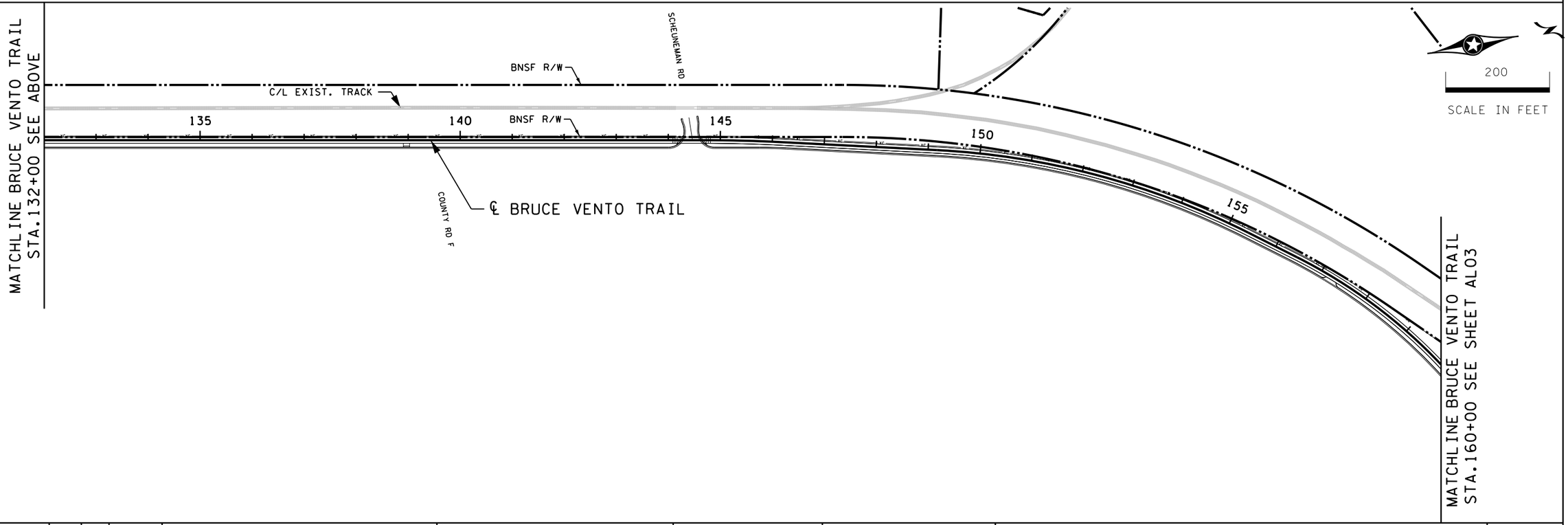
DESIGNED BY:	RKM					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn	RAMSEY COUNTY, MINNESOTA
DRAWN BY:	KJC					Certified By: _____ Lic. No. _____	767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	BRUCE VENTO TRAIL
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	Licensed Professional Engineer Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

ALIGNMENT PLAN
STA 50+00 TO STA 104+00

AL01
OF AL05

24 / 95





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$MODELNAME$

DESIGNED BY: RKM
DRAWN BY: KJC
CHECKED BY: GSB

NO.	BY	DATE	REVISIONS

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer
Printed Name: _____ Date: 9/23/2021

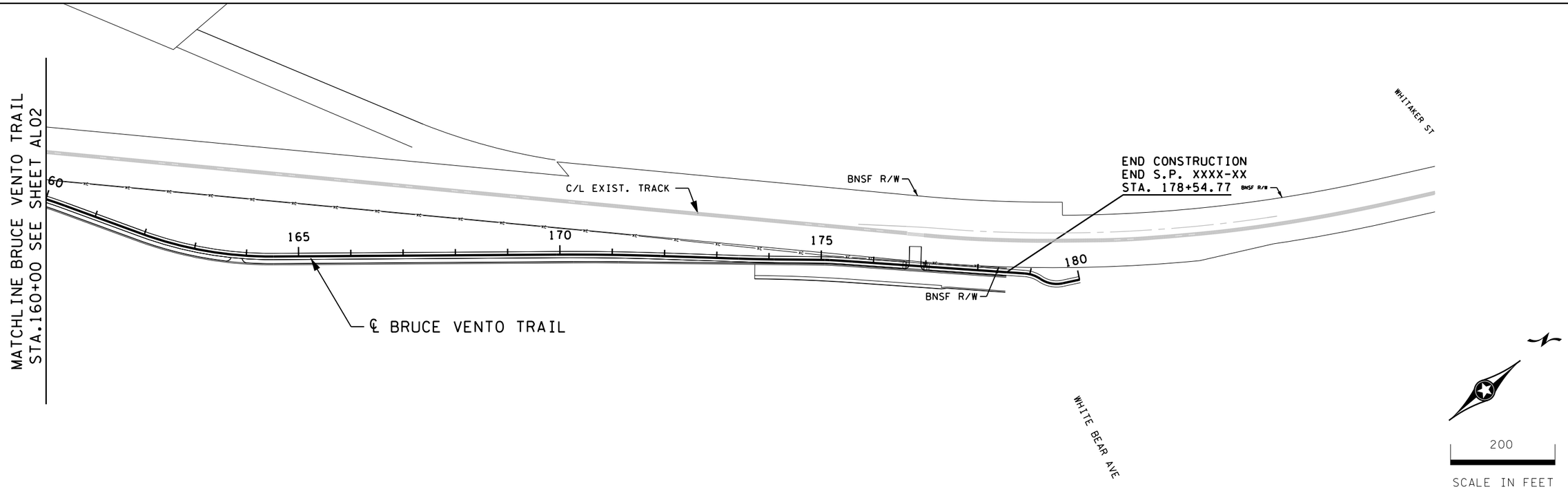
Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
PH: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

ALIGNMENT PLAN
STA 104+00 TO STA 160+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

AL02
OF AL05
25 / 95



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$MODELNAME$

DESIGNED BY: RKM					
DRAWN BY: KJC					
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

ALIGNMENT PLAN
STA 160+00 TO STA 191+50

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

AL03
OF AL05

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
			SPIRAL CURVE DATA					X	Y	
			ANGLE (Θs)	DEGREE	ST	LT	LS			
1400	POT	49+99.503						590,075.5515	191,305.9697	
1402	PC	50+19.006						590,082.0748	191,324.3494	19° 32' 26.76"
1403	PI	50+48.212	20° 41' 22.71" LT	35° 48' 35.50"	160.000'	29.206'	57.776'	590,091.8437	191,351.8735	PI
1404	CC							589,931.2902	191,377.8658	
1405	PRC	50+76.783						590,091.2581	191,381.0739	358° 51' 04.05"
1406	PRC	50+76.783						590,091.2581	191,381.0739	358° 51' 04.05"
1407	PI	51+13.140	11° 51' 39.72" RT	16° 22' 12.80"	350.000'	36.357'	72.455'	590,090.5291	191,417.4239	PI
1408	CC							590,441.1877	191,388.0915	
1409	PT	51+49.237						590,097.2870	191,453.1477	10° 42' 43.77"
1410	PC	52+46.506						590,115.3669	191,548.7215	10° 42' 43.77"
1411	PI	52+72.623	9° 57' 02.93" RT	19° 05' 54.94"	300.000'	26.117'	52.102'	590,120.2214	191,574.3832	PI
1412	CC							590,410.1389	191,492.9590	
1413	PT	52+98.609						590,129.4372	191,598.8200	20° 39' 46.70"
1414	PC	54+31.743						590,176.4164	191,723.3901	20° 39' 46.70"
1415	PI	54+56.096	17° 18' 30.38" RT	35° 48' 35.50"	160.000'	24.353'	48.334'	590,185.0097	191,746.1762	PI
1416	CC							590,326.1239	191,666.9309	
1417	PRC	54+80.077						590,199.9931	191,765.3738	37° 58' 17.08"
1418	PRC	54+80.077						590,199.9931	191,765.3738	37° 58' 17.08"
1419	PI	55+85.993	55° 48' 34.73" LT	28° 38' 52.40"	200.000'	105.916'	194.812'	590,265.1599	191,848.8693	PI
1420	CC							590,042.3295	191,888.4274	
1421	PT	56+74.890						590,232.7145	191,949.6936	342° 09' 42.35"
1422	PC	56+88.669						590,228.4936	191,962.8102	342° 09' 42.35"
1423	PI	57+10.941	27° 47' 59.63" RT	63° 39' 43.12"	90.000'	22.273'	43.668'	590,221.6708	191,984.0121	PI
1424	CC							590,314.1669	191,990.3799	
1425	PT	57+32.337						590,225.5237	192,005.9490	9° 57' 41.98"
1426	PC	59+31.666						590,260.0056	192,202.2733	9° 57' 41.98"
1427	PI	59+98.926	37° 10' 31.49" RT	28° 38' 52.40"	200.000'	67.260'	129.767'	590,271.6408	192,268.5190	PI
1428	CC							590,456.9903	192,167.6755	
1429	PT	60+61.433						590,320.9410	192,314.2722	47° 08' 13.47"
1430	PC	60+62.609						590,321.8032	192,315.0724	47° 08' 13.47"
1431	PI	61+33.557	39° 03' 46.56" LT	28° 38' 52.40"	200.000'	70.947'	136.355'	590,373.8064	192,363.3341	PI
1432	CC							590,185.7539	192,461.6690	
1433	PRC	61+98.965						590,383.7713	192,433.5781	8° 04' 26.92"
1434	PRC	61+98.965						590,383.7713	192,433.5781	8° 04' 26.92"
1435	PI	62+44.157	25° 27' 57.35" RT	28° 38' 52.40"	200.000'	45.193'	88.893'	590,390.1188	192,478.3230	PI
1436	CC							590,581.7887	192,405.4872	
1437	PRC	62+87.857						590,415.0888	192,515.9913	33° 32' 24.27"
1438	PRC	62+87.857						590,415.0888	192,515.9913	33° 32' 24.27"
1439	PI	64+54.987	79° 46' 02.56" LT	28° 38' 52.40"	200.000'	167.129'	278.441'	590,507.4311	192,655.2934	PI
1440	CC							590,248.3889	192,626.4953	
1441	PRC	65+66.298						590,386.7487	192,770.9133	313° 46' 21.71"
1442	PRC	65+66.298						590,386.7487	192,770.9133	313° 46' 21.71"
1443	PI	66+20.580	56° 59' 16.51" RT	57° 17' 44.81"	100.000'	54.282'	99.463'	590,347.5523	192,808.4655	PI
1444	CC							590,455.9287	192,843.1223	
1445	PT	66+65.761						590,357.6871	192,861.7929	10° 45' 38.22"
1446	PC	77+35.876						590,557.4841	193,913.0912	10° 45' 38.22"
1447	PI	77+54.152	6° 58' 19.87" LT	19° 05' 54.94"	300.000'	18.276'	36.506'	590,560.8963	193,931.0455	PI
1448	CC							590,262.7594	193,969.1030	
1449	PRC	77+72.382						590,562.1038	193,949.2812	3° 47' 18.36"
1450	PRC	77+72.382						590,562.1038	193,949.2812	3° 47' 18.36"

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
			SPIRAL CURVE DATA					X	Y	
			ANGLE (Os)	DEGREE	ST	LT	LS			
1451	PI	77+90.559	6° 56' 04.25" RT	19° 05' 54.94"	300.000'	18.177'	36.309'	590,563.3048	193,967.4182	PI
1452	CC							590,861.4483	193,929.4595	
1453	PT	78+08.691						590,566.6868	193,985.2775	10° 43' 22.60"
1454	PC	79+93.296						590,601.0343	194,166.6583	10° 43' 22.60"
1455	PI	80+25.225	12° 09' 01.85" RT	19° 05' 54.94"	300.000'	31.930'	63.620'	590,606.9751	194,198.0305	PI
1456	CC							590,895.7958	194,110.8403	
1457	PRC	80+56.916						590,619.3861	194,227.4495	22° 52' 24.45"
1458	PRC	80+56.916						590,619.3861	194,227.4495	22° 52' 24.45"
1459	PI	80+88.845	12° 09' 01.85" LT	19° 05' 54.94"	300.000'	31.930'	63.620'	590,631.7971	194,256.8684	PI
1460	CC							590,342.9764	194,344.0586	
1461	PT	81+20.536						590,637.7379	194,288.2406	10° 43' 22.60"
1462	PC	81+27.120						590,638.9631	194,294.7102	10° 43' 22.60"
1463	PI	81+71.953	16° 59' 56.00" LT	19° 05' 54.94"	300.000'	44.832'	89.006'	590,647.3046	194,338.7597	PI
1464	CC							590,344.2016	194,350.5282	
1465	PT	82+16.126						590,642.4036	194,383.3233	353° 43' 26.60"
1466	PC	82+49.306						590,638.7765	194,416.3041	353° 43' 26.60"
1467	PI	82+94.239	17° 02' 11.62" RT	19° 05' 54.94"	300.000'	44.933'	89.203'	590,633.8646	194,460.9680	PI
1468	CC							590,936.9786	194,449.0992	
1469	PT	83+38.509						590,642.2539	194,505.1111	10° 45' 38.22"
1470	PC	85+71.039						590,685.6687	194,733.5525	10° 45' 38.22"
1471	PI	85+88.116	9° 45' 37.32" RT	28° 38' 52.40"	200.000'	17.076'	34.070'	590,688.8570	194,750.3286	PI
1472	CC							590,882.1519	194,696.2113	
1473	PT	86+05.110						590,694.8431	194,766.3214	20° 31' 15.54"
1474	PC	87+00.376						590,728.2386	194,855.5422	20° 31' 15.54"
1475	PI	87+17.452	9° 45' 37.32" LT	28° 38' 52.40"	200.000'	17.076'	34.070'	590,734.2248	194,871.5350	PI
1476	CC							590,540.9299	194,925.6523	
1477	PT	87+34.446						590,737.4130	194,888.3111	10° 45' 38.22"
1478	PC	89+60.274						590,779.5765	195,110.1683	10° 45' 38.22"
1479	PI	90+60.017	23° 43' 04.65" RT	12° 03' 44.17"	475.000'	99.743'	196.629'	590,798.1992	195,208.1575	PI
1480	CC							591,246.2241	195,021.4829	
1481	PRC	91+56.903						590,854.6635	195,290.3795	34° 28' 42.88"
1482	PRC	91+56.903						590,854.6635	195,290.3795	34° 28' 42.88"
1483	PI	92+02.532	31° 50' 02.48" LT	35° 48' 35.50"	160.000'	45.629'	88.897'	590,880.4938	195,327.9928	PI
1484	CC							590,722.7695	195,380.9552	
1485	PRC	92+45.801						590,882.5991	195,373.5728	2° 38' 40.40"
1486	PRC	92+45.801						590,882.5991	195,373.5728	2° 38' 40.40"
1487	PI	93+31.771	8° 12' 32.96" RT	4° 46' 57.43"	1,198.000'	85.970'	171.646'	590,886.5657	195,459.4512	PI
1488	CC							592,079.3232	195,318.2973	
1489	PT	94+17.446						590,902.7540	195,543.8832	10° 51' 13.36"
1490	PC	105+50.324						591,116.0772	196,656.4950	10° 51' 13.36"
1491	PI	106+15.094	29° 02' 58.49" LT	22° 55' 05.92"	250.000'	64.770'	126.753'	591,128.2735	196,720.1062	PI
1492	CC							590,870.5494	196,703.5706	
1493	PRC	106+77.077						591,108.0481	196,781.6372	341° 48' 14.87"
1494	PRC	106+77.077						591,108.0481	196,781.6372	341° 48' 14.87"
1495	PI	107+41.630	28° 57' 23.35" RT	22° 55' 05.92"	250.000'	64.553'	126.347'	591,087.8903	196,842.9623	PI
1496	CC							591,345.5467	196,859.7038	
1497	PT	108+03.423						591,099.9428	196,906.3803	10° 45' 38.22"
1498	PC	110+58.676						591,147.6000	197,157.1448	10° 45' 38.22"
1499	PI	111+00.153	29° 03' 55.83" RT	35° 48' 35.50"	160.000'	41.476'	81.166'	591,155.3439	197,197.8919	PI
1500	CC							591,304.7866	197,127.2719	

		NO.	BY	DATE	REVISIONS
DESIGNED BY:	RKM				
DRAWN BY:	KJC				
CHECKED BY:	GSB				

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
Ph: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

ALIGNMENT TABULATION

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

AL04
OF AL05

27 / 95

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$MODELNAME$

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
			SPIRAL CURVE DATA					X	Y	
			ANGLE (θs)	DEGREE	ST	LT	LS			
1501	PRC	111+39.842						591,181.9079	197,229.7454	39° 49' 34.05"
1502	PRC	111+39.842						591,181.9079	197,229.7454	39° 49' 34.05"
1503	PI	111+85.984	32° 10' 25.56" LT	35° 48' 35.50"	160.000'	46.142'	89.846'	591,211.4600	197,265.1821	PI
1504	CC							591,059.0293	197,332.2190	
1505	PT	112+29.688						591,217.6044	197,310.9131	7° 39' 08.49"
1506	PC	118+31.127						591,297.6932	197,906.9956	7° 39' 08.49"
1507	PI	118+85.390	3° 06' 29.73" RT	2° 51' 53.24"	2,000.000'	54.263'	108.499'	591,304.9190	197,960.7750	PI
1508	CC							593,279.8818	197,640.6713	
1509	PT	119+39.626						591,315.0501	198,014.0834	10° 45' 38.22"
1510	PC	144+66.686						591,786.8677	200,496.7078	10° 45' 38.22"
1511	PI	145+43.417	2° 55' 48.86" RT	1° 54' 35.49"	3,000.000'	76.730'	153.427'	591,801.1937	200,572.0887	PI
1512	CC							594,734.1152	199,936.5895	
1513	PT	146+20.113						591,819.3545	200,646.6388	13° 41' 27.08"
1514	PC	149+16.896						591,889.5980	200,934.9893	13° 41' 27.08"
1515	PI	152+33.189	23° 48' 50.70" RT	3° 49' 10.99"	1,500.000'	316.292'	623.451'	591,964.4590	201,242.2946	PI
1516	CC							593,346.9783	200,579.9647	
1517	PT	155+40.348						592,157.0271	201,493.2094	37° 30' 17.78"
1518	PC	156+45.597						592,221.1062	201,576.7040	37° 30' 17.78"
1519	PI	158+44.551	22° 30' 16.24" RT	5° 43' 46.48"	1,000.000'	198.953'	392.778'	592,342.2349	201,734.5338	PI
1520	CC							593,014.4070	200,967.8742	
1521	PT	160+38.375						592,514.5499	201,833.9821	60° 00' 34.02"
1522	PC	161+93.634						592,649.0204	201,911.5891	60° 00' 34.02"
1523	PI	163+24.274	20° 25' 45.90" LT	7° 54' 10.32"	725.000'	130.640'	258.506'	592,762.1690	201,976.8906	PI
1524	CC							592,286.6240	202,539.5173	
1525	PT	164+52.140						592,845.4071	202,077.5796	39° 34' 48.12"
1526	PC	169+93.957						593,190.6290	202,495.1774	39° 34' 48.12"
1527	PI	170+93.572	2° 16' 57.71" RT	1° 08' 45.30"	5,000.000'	99.615'	199.203'	593,254.0990	202,571.9539	PI
1528	CC							597,044.3057	199,309.4003	
1529	PT	171+93.160						593,320.5766	202,646.1415	41° 51' 45.82"
1530	PC	173+42.003						593,419.9066	202,756.9915	41° 51' 45.82"
1531	PI	173+76.091	1° 18' 07.17" LT	1° 54' 35.49"	3,000.000'	34.087'	68.172'	593,442.6548	202,782.3780	PI
1532	CC							591,185.6691	204,759.0362	
1533	PT	174+10.175						593,464.8203	202,808.2749	40° 33' 38.66"
1534	PC	175+06.769						593,527.6306	202,881.6586	40° 33' 38.66"
1535	PI	175+11.437	2° 32' 49.15" RT	27° 17' 01.34"	210.000'	4.668'	9.335'	593,530.6662	202,885.2053	PI
1536	CC							593,687.1712	202,745.1053	
1537	PCC	175+16.104						593,533.8565	202,888.6135	43° 06' 27.81"
1538	PCC	175+16.104						593,533.8565	202,888.6135	43° 06' 27.81"
1539	PI	175+37.759	0° 49' 16.13" RT	1° 53' 45.44"	3,022.000'	21.656'	43.310'	593,548.6553	202,904.4236	PI
1540	CC							595,740.1285	200,823.4627	
1541	PT	175+59.414						593,563.6791	202,920.0199	43° 55' 43.93"
1542	POT	178+55.504						593,769.0962	203,133.2647	
1543	PC	178+90.514						593,793.3976	203,158.4665	43° 57' 28.75"
1544	PI	179+06.822	30° 24' 36.33" RT	95° 29' 34.68"	60.000'	16.307'	31.845'	593,804.7170	203,170.2053	PI
1545	CC							593,836.5886	203,116.8187	
1546	PRC	179+22.360						593,820.4212	203,174.5994	74° 22' 05.07"
1547	PRC	179+22.360						593,820.4212	203,174.5994	74° 22' 05.07"
1548	PI	179+46.157	46° 47' 42.05" LT	104° 10' 26.92"	55.000'	23.798'	44.920'	593,843.3387	203,181.0119	PI
1549	CC							593,805.6011	203,227.5651	
1550	PRC	179+67.280						593,854.3542	203,202.1067	27° 34' 23.02"

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH			
			SPIRAL CURVE DATA					X	Y	
			ANGLE (Os)	DEGREE	ST	LT	LS			
1551	PRC	179+67.280						593,854.3542	203,202.1067	27° 34' 23.02"
1552	PI	179+83.867	0° 35' 15.22" RT	1° 46' 16.04"	3,235.000'	16.587'	33.175'	593,862.0322	203,216.8102	PI
1553	CC							596,721.9272	201,704.6921	
1554	PT	180+00.454						593,869.8606	203,231.4341	28° 09' 38.24"

DESIGNED BY:	RKM			
DRAWN BY:	KJC			
CHECKED BY:	GSB			

NO.	BY	DATE	REVISIONS

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
Ph: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

ALIGNMENT TABULATION

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

AL05
OF AL05

28 / 95

NOTE:

1. THE RIGHT OF WAY SHOWN IN THIS PLAN GIVES A GRAPHICAL LOCATION WITH RESPECT TO THE GEOMETRIC DESIGN AND MAP DATA. THE EXACT RIGHT OF WAY, EASEMENTS, AND BOUNDARY CORNERS ARE LOCATED BY REFERENCE TO THE RIGHT OF WAY PLATS AND ARE IDENTIFIED ON THE RIGHT OF WAY MAP.

2. THE EXACT LOCATION OF UNDERGROUND UTILITIES SUCH AS GAS, TELEPHONE, FIBER OPTIC, PIPE-LINES, ELECTRIC, AND CABLE TV ARE UNKNOWN. THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL (1-800-252-1166) BEFORE COMMENCING EXCAVATION.

LEGEND

- EXISTING ROADWAY
- NEW CONSTRUCTION
- EXISTING R/W
- PROPERTY LINE
- CONSTRUCTION LIMITS
- EXISTING WETLAND BOUNDARY (AREAS OF ENVIRONMENTAL SENSITIVITY)

100

SCALE IN FEET

BEGIN CONSTRUCTION
BEGIN S.P. XXXX-XX
STA. 50+11.68

BNSF R/W

C/L EXIST. TRACK

℄ BRUCE VENTO TRAIL

XCEL OVERHEAD TRANSMISSION

BNSF R/W

TEMP EASEMENT

PERM EASEMENT

METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES (ABANDONED SEWER FACILITY)

TEMP EASEMENT

CONST LIM

WETLAND BOUNDARY

PROPOSED BRIDGE

CONST LIM

BUERKLE RD

MATCHLINE BRUCE VENTO TRAIL
STA. 62+00 SEE BELOW

100

SCALE IN FEET

BNSF R/W

MATCHLINE BRUCE VENTO TRAIL
STA. 62+00 SEE ABOVE

C/L EXIST. TRACK

℄ BRUCE VENTO TRAIL

XCEL OVERHEAD TRANSMISSION

BNSF R/W

CONST LIM

CONST LIM

BNSF R/W

MATCHLINE BRUCE VENTO TRAIL
STA. 76+00 SEE SHEET UT02

DESIGNED BY: KJC					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA	INPLACE UTILITY PLAN AND TOPOGRAPHY	UT01
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer		BRUCE VENTO TRAIL	STA 50+00 TO STA 76+00	OF UT05
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)		29 / 95

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9/23/2021
K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\CD553009_ut01.dgn
$MODELNAME$

LEGEND
- EXISTING ROADWAY
- NEW CONSTRUCTION
- EXISTING R/W
- PROPERTY LINE
- CONSTRUCTION LIMITS
- EXISTING WETLAND BOUNDARY (AREAS OF ENVIRONMENTAL SENSITIVITY)

MATCHLINE BRUCE VENTO TRAIL STA.76+00 SEE SHEET UT01

BNSF R/W

CONST LIM

XCEL OVERHEAD TRANSMISSION

C/L EXIST. TRACK

INPLACE BRIDGE NO. 62079

℄ BRUCE VENTO TRAIL

EXISTING 12" DIP WATERMAIN TO BE RELOCATED

COUNTY RD E

HOFFMAN RD

INP R/W

MATCHLINE BRUCE VENTO TRAIL STA.90+00 SEE BELOW

100

SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL STA.90+00 SEE ABOVE

MATCHLINE BRUCE VENTO TRAIL STA.104+00 SEE SHEET UT03

EXISTING STORM SEWER CROSSING

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DRAWN BY: KJC					Certified By: _____ Lic. No. _____ (Licensed Professional Engineer)	RAMSEY COUNTY, MINNESOTA
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021	BRUCE VENTO TRAIL

INPLACE UTILITY PLAN AND TOPOGRAPHY
STA 76+00 TO STA 104+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

UT02 OF UT05

30 / 95

LEGEND
- EXISTING ROADWAY
- NEW CONSTRUCTION
- EXISTING R/W
- PROPERTY LINE
- CONSTRUCTION LIMITS
- EXISTING WETLAND BOUNDARY (AREAS OF ENVIRONMENTAL SENSITIVITY)

100
SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL STA.104+00 SEE SHEET UT02

TH 61

BNSF R/W

INPLACE BRIDGE NO. 62092

BRIDGE PIER

℄ BRUCE VENTO TRAIL

CONST LIM

C/L EXIST. TRACK

EXISTING CULVERT AND WALLS TO BE REMOVED

XCEL OVERHEAD TRANSMISSION

OVERHEAD POWER CROSSING

HOFFMAN RD

INP R/W

CEDAR AVE

MATCHLINE BRUCE VENTO TRAIL STA.118+00 SEE BELOW

MATCHLINE BRUCE VENTO TRAIL STA.118+00 SEE ABOVE

100
SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL STA.132+00 SEE SHEET UT04

BNSF R/W
C/L EXIST. TRACK
℄ BRUCE VENTO TRAIL
XCEL OVERHEAD TRANSMISSION
HOFFMAN RD
INP R/W
CEDAR AVE

DESIGNED BY:	KJC				
DRAWN BY:	KJC				
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS

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Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

INPLACE UTILITY PLAN AND TOPOGRAPHY
STA 104+00 TO STA 132+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

UT03 OF UT05

3:46:12 PM

9/23/2021

LEGEND

- EXISTING ROADWAY
- NEW CONSTRUCTION
- EXISTING R/W
- PROPERTY LINE
- CONSTRUCTION LIMITS
- EXISTING WETLAND BOUNDARY (AREAS OF ENVIRONMENTAL SENSITIVITY)

MATCHLINE BRUCE VENTO TRAIL STA.132+00 SEE SHEET UT03

C/L EXIST. TRACK

℄ BRUCE VENTO TRAIL

BNSF R/W

XCEL OVERHEAD TRANSMISSION

HOFFMAN RD

SCHEUNEMAN RD

OVERHEAD POWER CROSSING

INP R/W

MATCHLINE BRUCE VENTO TRAIL STA.146+00 SEE BELOW

100

SCALE IN FEET

℄ BRUCE VENTO TRAIL

BNSF R/W

XCEL OVERHEAD TRANSMISSION

OVERHEAD POWER CROSSING

HOFFMAN RD

INP R/W

MATCHLINE BRUCE VENTO TRAIL STA.146+00 SEE ABOVE

MATCHLINE BRUCE VENTO TRAIL STA.160+00 SEE SHEET UT05

GOOSE LAKE

100

SCALE IN FEET

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$MODELNAME$

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CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021	

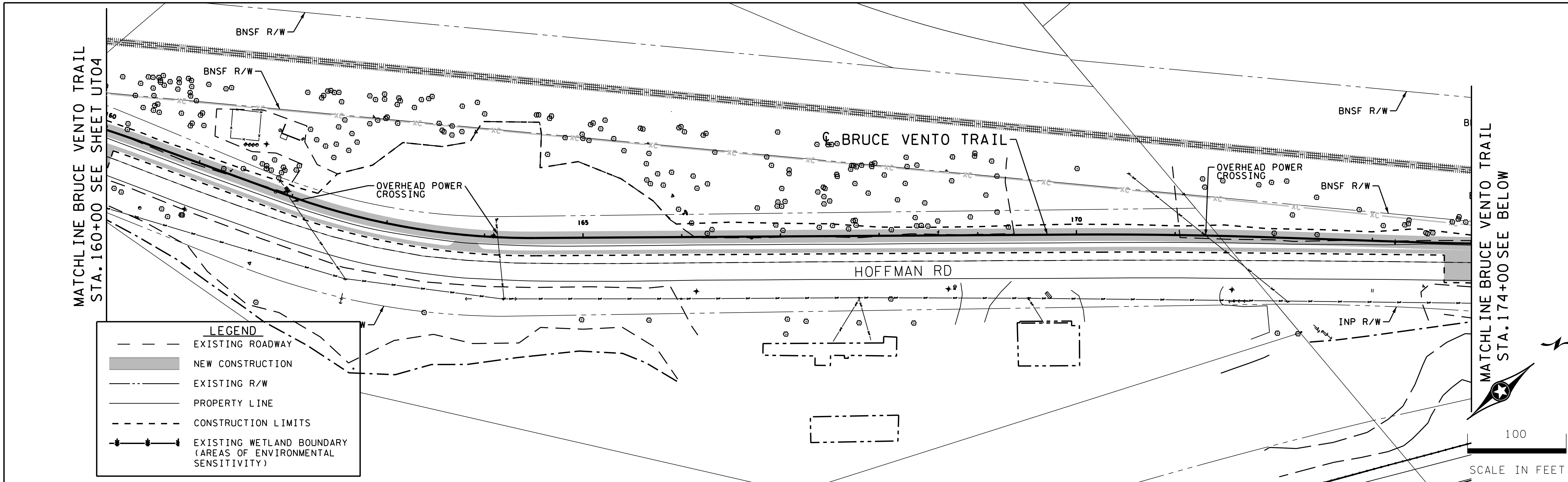
RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

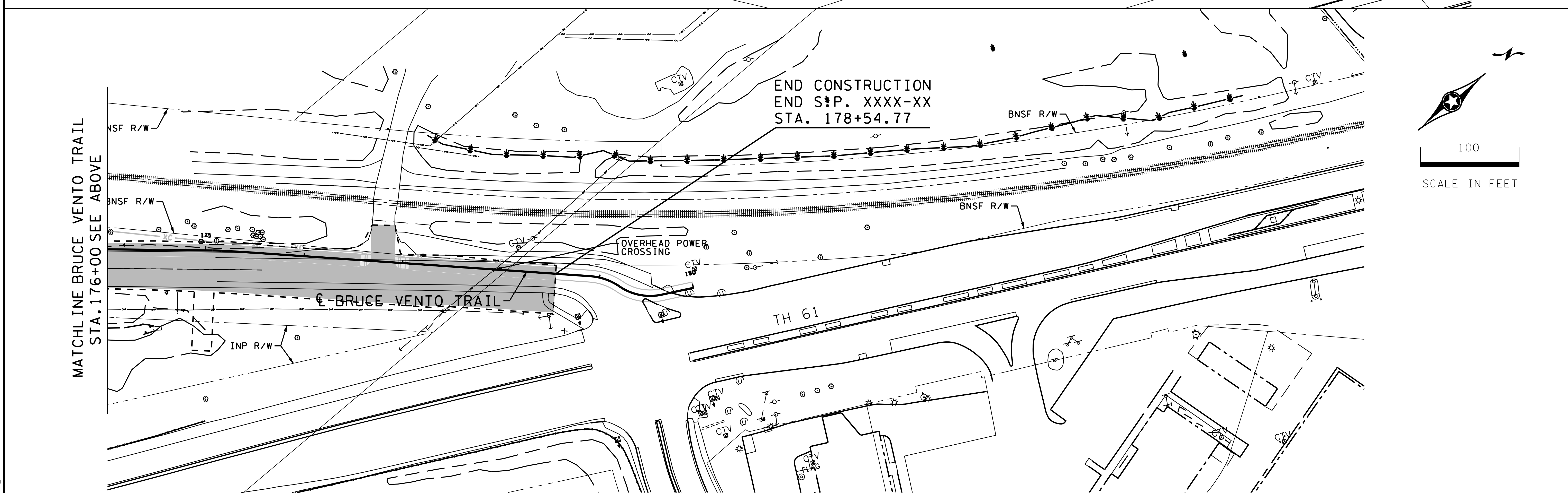
INPLACE UTILITY PLAN AND TOPOGRAPHY
STA 132+00 TO STA 160+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

UT04 OF UT05

32 / 95





DESIGNED BY:	KJC
DRAWN BY:	KJC
CHECKED BY:	GSB

NO.	BY	DATE	REVISIONS

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Certified By: ____ Licensed Professional Engineer Lic. No. ____

Printed Name: ____ Date: 9/23/2021

Kimley»Horn
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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

INPLACE UTILITY PLAN AND TOPOGRAPHY
STA 160+00 TO STA

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

UT05 OF UT05

33 / 95

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9/23/2021
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$MODELNAME$

LEGEND

- CLEAR AND GRUB ACRE
- REMOVE CONCRETE PAVEMENT
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CHAIN LINK FENCE
- SAWING PAVEMENT FULL DEPTH
- CLEAR AND GRUB TREE

100

SCALE IN FEET

BEGIN CONSTRUCTION
BEGIN S.P. XXXX-XX
STA. 50+11.68

℄ BRUCE VENTO TRAIL

50

55

60

TEMP EASEMENT

PERM EASEMENT

TEMP EASEMENT

BUERKLE RD

MATCHLINE BRUCE VENTO TRAIL
STA. 62+00 SEE BELOW

100

SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL
STA. 62+00 SEE ABOVE

℄ BRUCE VENTO TRAIL

65

70

75

SEE DRAINAGE PLANS FOR MODIFICATION TO EXISTING STORM SEWER

PROTECT TREE

PROTECT TREE

PROTECT PRIVATE FENCES

PROTECT TREE

PROTECT CONCRETE APRON. SAWCUT AS NECESSARY TO FACILITATE TRAIL CONSTRUCTION.

MATCHLINE BRUCE VENTO TRAIL
STA. 76+00 SEE SHEET REM02

DESIGNED BY:	KJC						
DRAWN BY:	KJC						
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS		

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Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA

BRUCE VENTO TRAIL

REMOVAL PLAN
STA 50+00 TO STA 76+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

REM01
OF REM05

34 / 95

LEGEND

- CLEAR AND GRUB ACRE
- REMOVE CONCRETE PAVEMENT
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CHAIN LINK FENCE
- SAWING PAVEMENT FULL DEPTH
- CLEAR AND GRUB TREE

100

SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL
STA.76+00 SEE SHEET REM01

℄ BRUCE VENTO TRAIL

80

10

12

85

PROTECT CONCRETE APRON. SAWCUT AS NECESSARY TO FACILITATE TRAIL CONSTRUCTION.

PROTECT EXISTING STORM SEWER

REMOVE WATERMAIN. COORDINATE WITH GEM LAKE FOR SHUT-OFF WINDOW

COUNTY RD E

HOFFMAN RD

MATCHLINE BRUCE VENTO TRAIL
STA.90+00 SEE BELOW

100

SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL
STA.90+00 SEE ABOVE

℄ BRUCE VENTO TRAIL

0

SALVAGE SIGN TYPE C

95

100

HOFFMAN RD

SEE DRAINAGE PLANS FOR MODIFICATION TO EXISTING STORM SEWER

REMOVE 3 FEET OF EXISTING CURB AND GUTTER TRANSITION SECTION AT MATCH POINT.

MATCHLINE BRUCE VENTO TRAIL
STA.104+00 SEE SHEET REM03

DESIGNED BY:	KJC
DRAWN BY:	KJC
CHECKED BY:	GSB

NO.	BY	DATE	REVISIONS

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Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

REMOVAL PLAN
STA 76+00 TO STA 104+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

REM02
OF REM05

35 / 95

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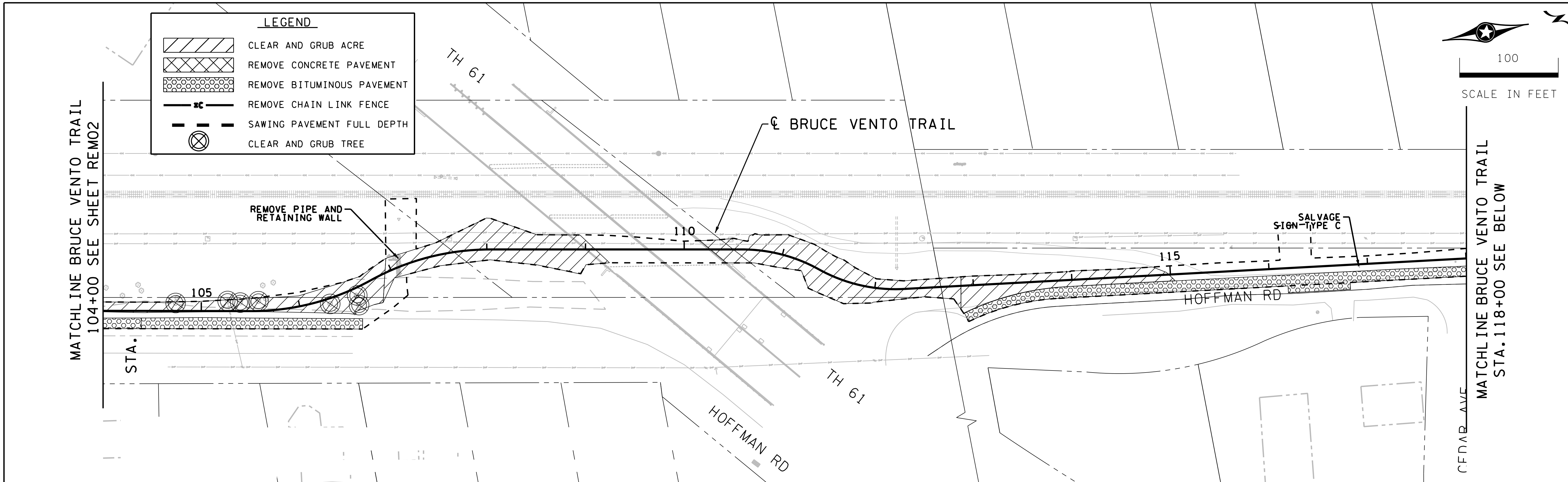

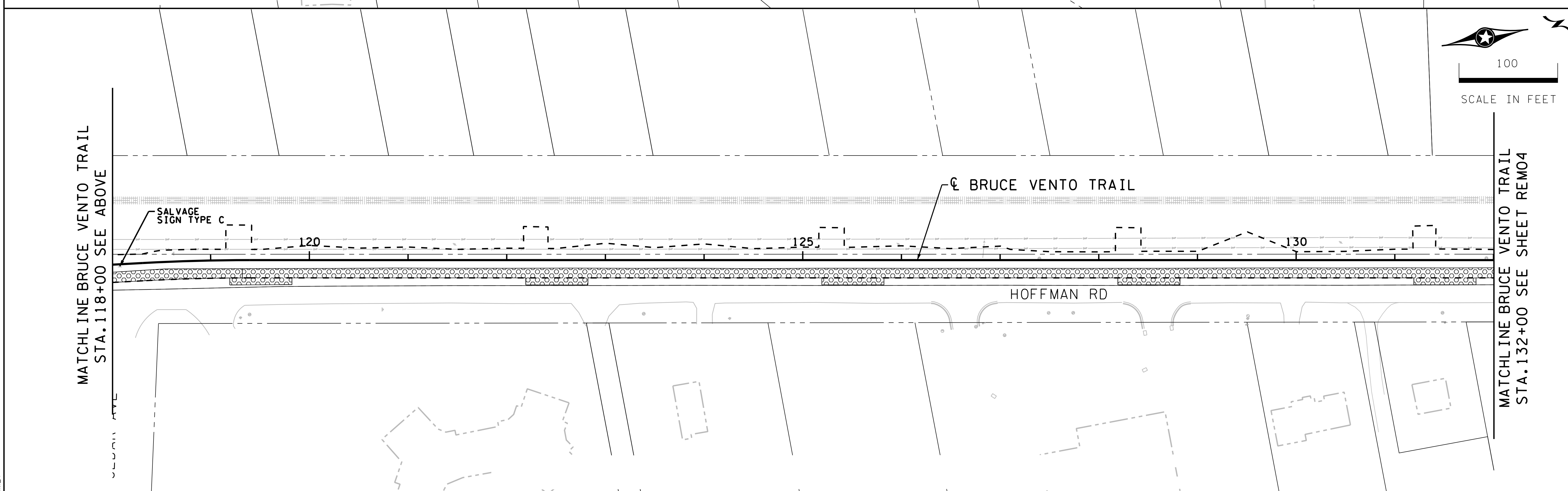

DESIGNED BY:	KJC				
DRAWN BY:	KJC				
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS

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Printed Name: ______________ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

REMOVAL PLAN
STA 104+00 TO STA 132+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

REM03
OF REM05

LEGEND

- CLEAR AND GRUB ACRE
- REMOVE CONCRETE PAVEMENT
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CHAIN LINK FENCE
- SAWING PAVEMENT FULL DEPTH
- CLEAR AND GRUB TREE

100
SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL
STA.132+00 SEE SHEET REM03

℄ BRUCE VENTO TRAIL

SCHEUNEMAN RD

SALVAGE SIGN TYPE C

SALVAGE SIGN TYPE C

SALVAGE SIGN TYPE C

135

140

145

HOFFMAN RD

MATCHLINE BRUCE VENTO TRAIL
STA.146+00 SEE BELOW

℄ BRUCE VENTO TRAIL

155

150

SALVAGE SIGN TYPE C

SALVAGE SIGN TYPE C

HOFFMAN RD

MATCHLINE BRUCE VENTO TRAIL
STA.146+00 SEE ABOVE

MATCHLINE BRUCE VENTO TRAIL
STA.160+00 SEE SHEET REM05

GOOSE LAKE

100
SCALE IN FEET

DESIGNED BY:	KJC					RAMSEY COUNTY, MINNESOTA	REMOVAL PLAN
DRAWN BY:	KJC					BRUCE VENTO TRAIL	STA 132+00 TO STA 160+00
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)	

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Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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REM04
OF REM05

37 / 95

MATCHLINE BRUCE VENTO TRAIL
STA.160+00 SEE SHEET REM04

MATCHLINE BRUCE VENTO TRAIL
STA.174+00 SEE BELOW

℄ BRUCE VENTO TRAIL

HOFFMAN RD

60

165

170

LEGEND

- CLEAR AND GRUB ACRE
- REMOVE CONCRETE PAVEMENT
- REMOVE BITUMINOUS PAVEMENT
- REMOVE CHAIN LINK FENCE
- SAWING PAVEMENT FULL DEPTH
- CLEAR AND GRUB TREE

100

SCALE IN FEET

END CONSTRUCTION
END S.P. XXXX-XX
STA. 178+54.77

MATCHLINE BRUCE VENTO TRAIL
STA.174+00 SEE ABOVE

175

180

℄ BRUCE VENTO TRAIL

TH 61

WHITE BE

100

SCALE IN FEET

DESIGNED BY: KJC					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA BRUCE VENTO TRAIL	REMOVAL PLAN STA 160+00 TO STA	REM05 OF REM05
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)		38 / 95
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021				

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9/23/2021

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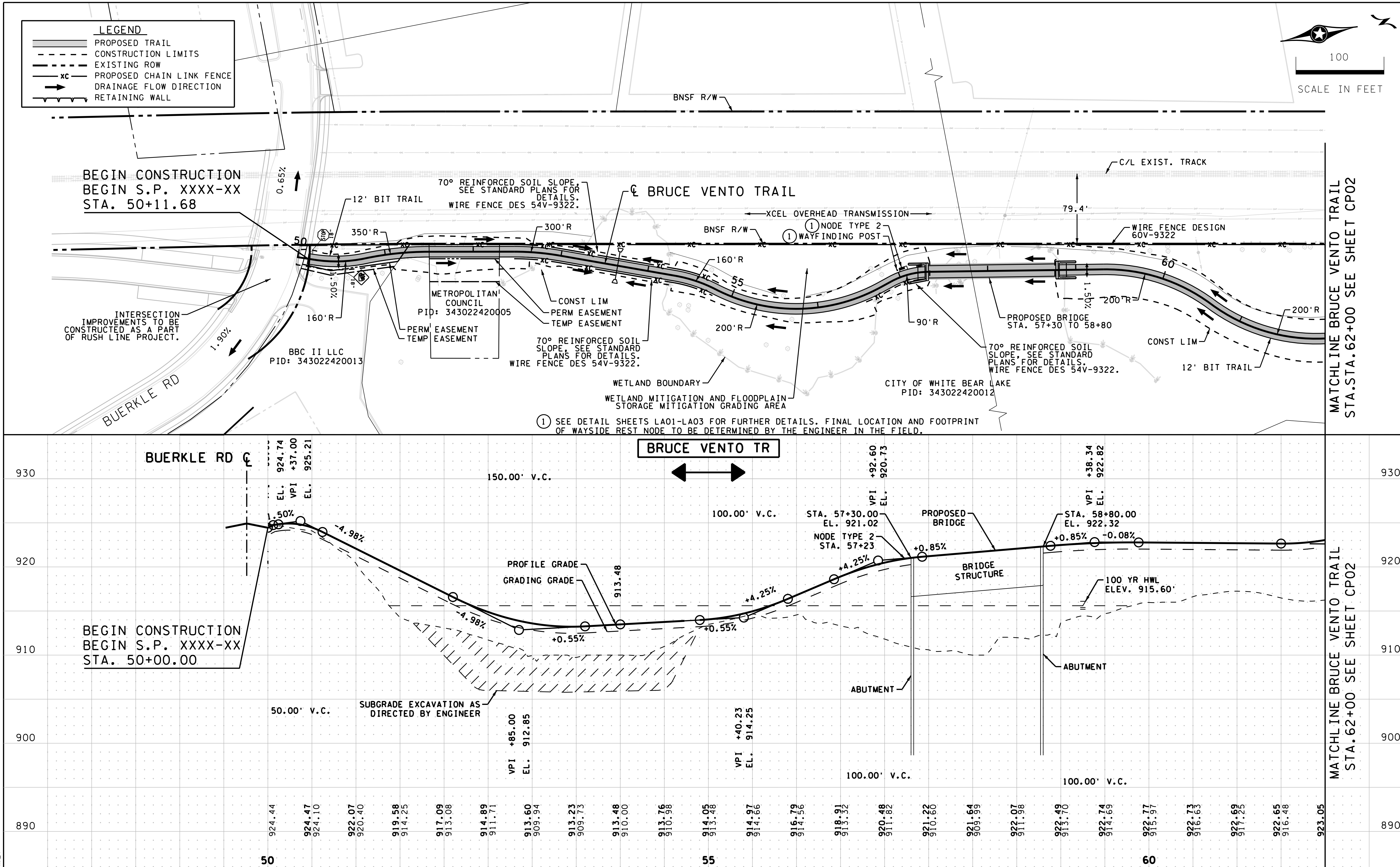
LEGEND
PROPOSED TRAIL
CONSTRUCTION LIMITS
EXISTING ROW
PROPOSED CHAIN LINK FENCE
DRAINAGE FLOW DIRECTION
RETAINING WALL
100
SCALE IN FEET
BNSF R/W
C/L EXIST. TRACK
BEGIN CONSTRUCTION
BEGIN S.P. XXXX-XX
STA. 50+11.68
12' BIT TRAIL
70° REINFORCED SOIL SLOPE, SEE STANDARD PLANS FOR DETAILS. WIRE FENCE DES 54V-9322.
℄ BRUCE VENTO TRAIL
XCEL OVERHEAD TRANSMISSION
79.4'
NODE TYPE 2
WAYFINDING POST
WIRE FENCE DESIGN 60V-9322
350'R
300'R
160'R
200'R
90'R
CONST LIM
PERM EASEMENT
TEMP EASEMENT
METROPOLITAN COUNCIL PID: 343022420005
INTERSECTION IMPROVEMENTS TO BE CONSTRUCTED AS A PART OF RUSH LINE PROJECT.
BBC II LLC PID: 343022420013
70° REINFORCED SOIL SLOPE, SEE STANDARD PLANS FOR DETAILS. WIRE FENCE DES 54V-9322.
WETLAND BOUNDARY
WETLAND MITIGATION AND FLOODPLAIN STORAGE MITIGATION GRADING AREA
PROPOSED BRIDGE STA. 57+30 TO 58+80
CITY OF WHITE BEAR LAKE PID: 343022420012
BUERKLE RD
1 SEE DETAIL SHEETS LA01-LA03 FOR FURTHER DETAILS. FINAL LOCATION AND FOOTPRINT OF WAYSIDE REST NODE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.
MATCHLINE BRUCE VENTO TRAIL STA.STA.62+00 SEE SHEET CP02
BUERKLE RD ℄
BRUCE VENTO TR
150.00' V.C.
100.00' V.C.
50.00' V.C.
PROFILE GRADE
GRADING GRADE
SUBGRADE EXCAVATION AS DIRECTED BY ENGINEER
BEGIN CONSTRUCTION
BEGIN S.P. XXXX-XX
STA. 50+00.00
STA. 57+30.00 EL. 921.02
NODE TYPE 2 STA. 57+23
PROPOSED BRIDGE
BRIDGE STRUCTURE
STA. 58+80.00 EL. 922.32
100 YR HWL ELEV. 915.60'
ABUTMENT
ABUTMENT
VPI +37.00 EL. 925.21
VPI +85.00 EL. 912.85
VPI +40.23 EL. 914.25
VPI +92.60 EL. 920.73
VPI +38.34 EL. 922.82
MATCHLINE BRUCE VENTO TRAIL STA.62+00 SEE SHEET CP02
50
55
60

DESIGNED BY: RKM					
DRAWN BY: KJC					
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	

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Certified By: ____________ Lic. No. ________
Licensed Professional Engineer
Printed Name: ____________ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

CONSTRUCTION PLAN AND PROFILE
STA 50+00 TO STA 62+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

CP01 OF CP10

3:46:31 PM 9/23/2021 K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\CD553009_cp01.dgn $MODELNAME$

LEGEND
- PROPOSED TRAIL
- CONSTRUCTION LIMITS
- EXISTING ROW
- xc PROPOSED CHAIN LINK FENCE
- DRAINAGE FLOW DIRECTION
- RETAINING WALL

100
SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL STA.62+00 SEE SHEET CP01

MATCHLINE BRUCE VENTO TRAIL STA. 76+00 SEE SHEET CP03

BNSF R/W

C/L EXIST. TRACK

℄ BRUCE VENTO TRAIL

BNSF TRAIL USE AGREEMENT LIMIT

74.6'

XCEL OVERHEAD TRANSMISSION

WIRE FENCE DESIGN 60V-9322

CITY OF WHITE BEAR LAKE PID: 343022130023

100'R

CONST LIM

12' BIT TRAIL

200'R

1.50%

STA. 65+50 OFF. 8.0'

NODE TYPE 2 (1) SEE INSET

WAYFINDING POST (1)

R_WALL_1

ANDREW J FANBERG PID: 343022130061

MICHAEL J WIDMER PID: 343022130060

WIRE FENCE DES 36V-9322

DEBRA PETERSON PID: 343022130086

STA. 71+00 OFF. 8.0'

MARGARET SCHILLING PID: 343022130092

RECONSTRUCT EXISTING CULVERT APRON

8" CONCRETE WALK SPECIAL - BLACK ICE

LTSB LLC PID: 343022120034

WATER QUALITY TREATMENT ZONE A

BLST LLC PID: 343022120048

(1) SEE DETAIL SHEETS LA01-LA03 FOR FURTHER DETAILS. FINAL LOCATION AND FOOTPRINT OF WAYSIDE REST NODE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

INSET A
5'
12' TRAIL
4'
4" CONC WALK
8'
9' X 4' CONCRETE PAD

BRUCE VENTO TR

960 / 950 / 940 / 930 / 920

200.00' V.C.

150.00' V.C.

90.00' V.C.

140.00' V.C.

VPI +35.00 EL. 942.52

VPI +50.00 EL. 922.57

VPI +24.50 EL. 942.52

VPI +37.90 EL. 948.92

PROFILE GRADE

GRADING GRADE

NODE TYPE 2 STA. 64+50

939.70

-0.08%

-0.00%

+7.00%

+3.00%

-1.00%

924.34 926.51 929.57 933.07 936.57 939.70 941.68 942.50 942.52 942.52 942.52 942.52 942.52 942.52 942.52 942.52 942.52 942.59 943.35 944.78 946.28 947.64 948.32 948.29 947.80 947.30 946.80 946.30

65 70 75

DESIGNED BY:	RKM					
DRAWN BY:	KJC					
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	

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Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

CONSTRUCTION PLAN AND PROFILE
STA 62+00 TO STA 76+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

CP02 OF CP10

40 / 95

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9/23/2021
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$MODELNAME$

LEGEND

▬	PROPOSED TRAIL
- - -	CONSTRUCTION LIMITS
— — —	EXISTING ROW
—XC—	PROPOSED CHAIN LINK FENCE
→	DRAINAGE FLOW DIRECTION
˅˅˅	RETAINING WALL
······	SOIL NAIL RETAINING WALL

① SEE DETAIL SHEETS LA01-LA03 FOR FURTHER DETAILS. FINAL LOCATION AND FOOTPRINT OF WAYSIDE REST NODE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\CD553009_cp03.dgn
$MODELNAME$

DESIGNED BY:	RKM				
DRAWN BY:	KJC				
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS

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Licensed Professional Engineer
Printed Name: ____________ Date: 9/23/2021

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Ph: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

CONSTRUCTION PLAN AND PROFILE
STA 76+00 TO STA 90+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

LEGEND
- PROPOSED TRAIL
- CONSTRUCTION LIMITS
- EXISTING ROW
- xc PROPOSED CHAIN LINK FENCE
- DRAINAGE FLOW DIRECTION
- RETAINING WALL

100
SCALE IN FEET

BNSF R/W

MATCHLINE BRUCE VENTO TRAIL STA. 90+00 SEE SHEET CP03

MATCHLINE BRUCE VENTO TRAIL STA.104+00 SEE SHEET CP05

C/L EXIST. TRACK

℄ BRUCE VENTO TRAIL

XCEL OVERHEAD TRANSMISSION

104.4'

XCEL TOWER

CONST LIM

475'R

4.50%

12' BIT TRAIL

NODE TYPE 3 (1)

160'R

1198'R

WIRE FENCE DESIGN 60V-9322

95

100

1.50%

1.75%

2.20%

8'

12'

B624 C&G

HIGH PT. +25.77

HOFFMAN RD

HOFFMAN ROAD MILL AND OVERLAY

WAYFINDING KIOSK (1)

INP R/W

36"

BEGIN B624 C&G
STA. 90+34.9
MATCH EXISTING C&G

(1) SEE DETAIL SHEETS LA01-LA03 FOR FURTHER DETAILS. FINAL LOCATION AND FOOTPRINT OF WAYSIDE REST NODE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

BRUCE VENTO TR

VPI +51.42
EL. 966.72

VPI +42.36
EL. 980.30

NODE TYPE 3
STA. 91+50

+4.18%

+1.97%

-2.20%

PROFILE GRADE

GRADING GRADE

250.00' V.C.

400.00' V.C.

990
980
970
960
950

962.46 964.33 965.98 967.42 968.63 969.64 970.62 971.60 972.59 973.57 974.55 975.54 976.51 977.33 977.88 978.17 978.20 977.97 977.49 976.74 975.73 974.63 973.53 972.43 971.33 970.23 969.13 968.01

90 95 100

NOTE:
TRAIL PROFILE GRADES ALONG HOFFMAN ROAD HAVE BEEN DESIGNED TO PROVIDE A BALANCE BETWEEN EXISTING ROADWAY GRADES, EXISTING GRADE AT BNSF ROW LINE AND A UNIFORM TRAIL PROFILE. THE PROPOSED BOULEVARD SLOPE BETWEEN THE TRAIL AND HOFFMAN ROAD VARIES FROM -10% TO +10% TO ASSIST WITH THIS BALANCE. CONTRACTORS SHALL CONSTRUCT PROPOSED ROADWAY CURB TO FIT EXISTING ROADWAY GRADES AND AS DIRECTED BY THE ENGINEER TO IMPROVE AREAS OF SUBSTANDARD DRAINAGE IN CONJUCTION WITH THE PROPOSED MILL AND OVERLAY. THE ENGINEER MAY MODIFY TRAIL PROFILES AND CORRESPONDING BOULEVARD SLOPES BASED ON CONSTRUCTED CURB.

3:46:36 PM
9/23/2021
K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\CD553009_cp04.dgn
$MODELNAME$

DESIGNED BY:	RKM					
DRAWN BY:	KJC					
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Certified By: _____ Lic. No. _____
Licensed Professional Engineer
Printed Name: _____ Date: 9/23/2021

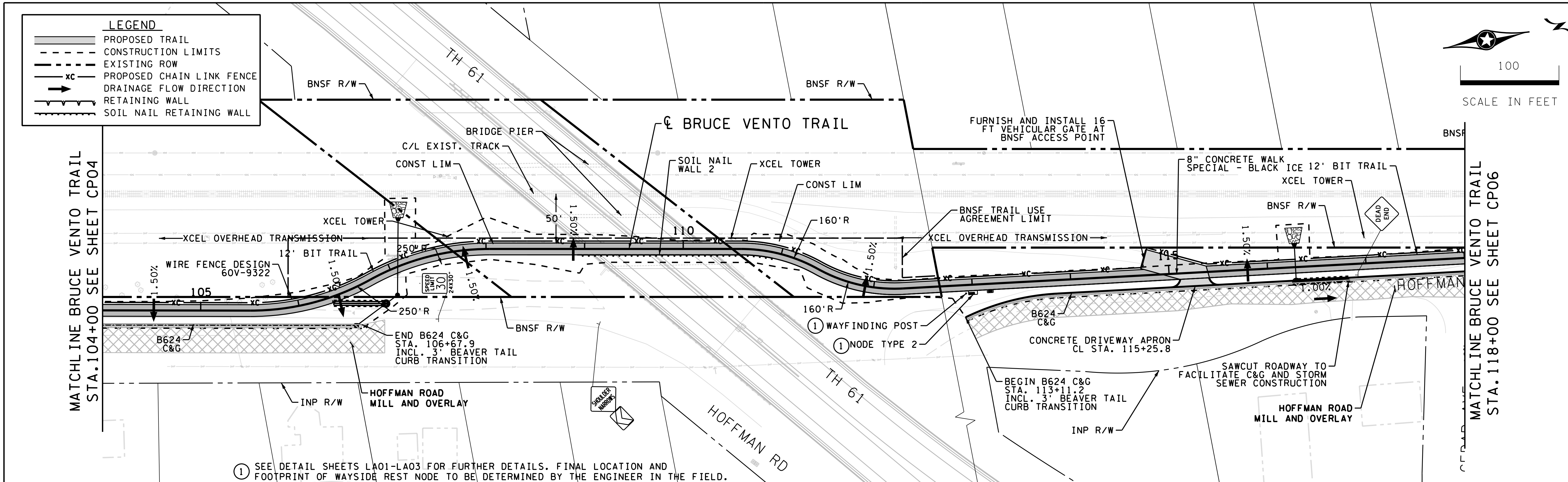
Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
Ph: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

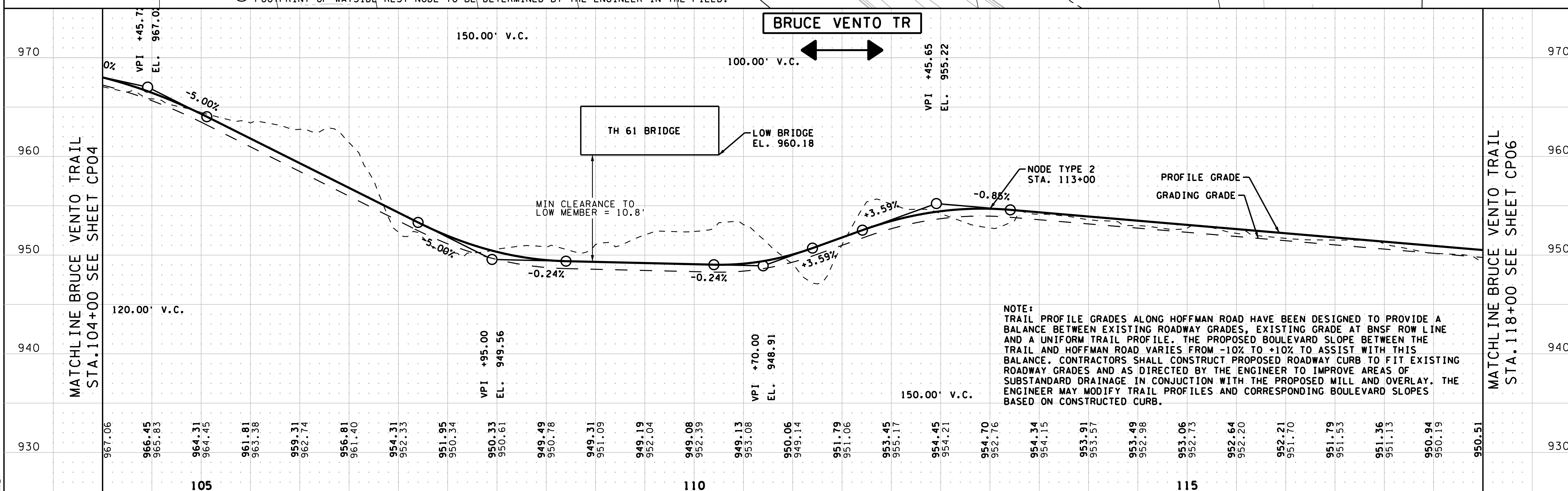
CONSTRUCTION PLAN AND PROFILE
STA 90+00 TO STA 104+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

CP04 OF CP10



LEGEND
PROPOSED TRAIL
CONSTRUCTION LIMITS
EXISTING ROW
PROPOSED CHAIN LINK FENCE
DRAINAGE FLOW DIRECTION
RETAINING WALL
SOIL NAIL RETAINING WALL
100
SCALE IN FEET
TH 61
BNSF R/W
℄ BRUCE VENTO TRAIL
BRIDGE PIER
C/L EXIST. TRACK
CONST LIM
SOIL NAIL WALL 2
XCEL TOWER
FURNISH AND INSTALL 16 FT VEHICULAR GATE AT BNSF ACCESS POINT
8" CONCRETE WALK SPECIAL - BLACK ICE
12' BIT TRAIL
BNSF TRAIL USE AGREEMENT LIMIT
160'R
250'R
XCEL OVERHEAD TRANSMISSION
WIRE FENCE DESIGN 60V-9322
1.50%
1.00%
50'
105
110
115
B624 C&G
END B624 C&G STA. 106+67.9 INCL. 3' BEAVER TAIL CURB TRANSITION
1 WAYFINDING POST
1 NODE TYPE 2
CONCRETE DRIVEWAY APRON CL STA. 115+25.8
SAWCUT ROADWAY TO FACILITATE C&G AND STORM SEWER CONSTRUCTION
BEGIN B624 C&G STA. 113+11.2 INCL. 3' BEAVER TAIL CURB TRANSITION
INP R/W
HOFFMAN ROAD MILL AND OVERLAY
HOFFMAN RD
HOFFMAN
DEAD END
SPEED LIMIT 30
MATCHLINE BRUCE VENTO TRAIL STA.104+00 SEE SHEET CP04
MATCHLINE BRUCE VENTO TRAIL STA.118+00 SEE SHEET CP06
1 SEE DETAIL SHEETS LA01-LA03 FOR FURTHER DETAILS. FINAL LOCATION AND FOOTPRINT OF WAYSIDE REST NODE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.



BRUCE VENTO TR
970
960
950
940
930
150.00' V.C.
100.00' V.C.
120.00' V.C.
VPI +45.72 EL. 967.02
VPI +45.65 EL. 955.22
VPI +95.00 EL. 949.56
VPI +70.00 EL. 948.91
-5.00%
-0.24%
+3.59%
-0.85%
TH 61 BRIDGE
LOW BRIDGE EL. 960.18
MIN CLEARANCE TO LOW MEMBER = 10.8'
NODE TYPE 2 STA. 113+00
PROFILE GRADE
GRADING GRADE
NOTE:
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967.06 966.45 965.83 964.31 964.45 961.81 963.38 959.31 962.74 956.81 961.40 954.31 952.33 951.95 950.34 950.33 950.61 949.49 950.78 949.31 951.09 949.19 952.04 949.08 952.39 949.13 953.08 950.06 949.14 951.79 951.06 953.45 955.17 954.45 954.21 954.70 952.76 954.34 954.15 953.91 953.57 953.49 952.98 953.06 952.73 952.64 952.20 952.21 951.70 951.79 951.53 951.36 951.13 950.94 950.19 950.51
105
110
115
MATCHLINE BRUCE VENTO TRAIL STA.104+00 SEE SHEET CP04
MATCHLINE BRUCE VENTO TRAIL STA.118+00 SEE SHEET CP06

DESIGNED BY:	RKM		
DRAWN BY:	KJC		
CHECKED BY:	GSB	NO. BY DATE	REVISIONS

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

Certified By: ______ Licensed Professional Engineer Lic. No. ______

Printed Name: ______ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

CONSTRUCTION PLAN AND PROFILE
STA 104+00 TO STA 118+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

CP05 OF CP10

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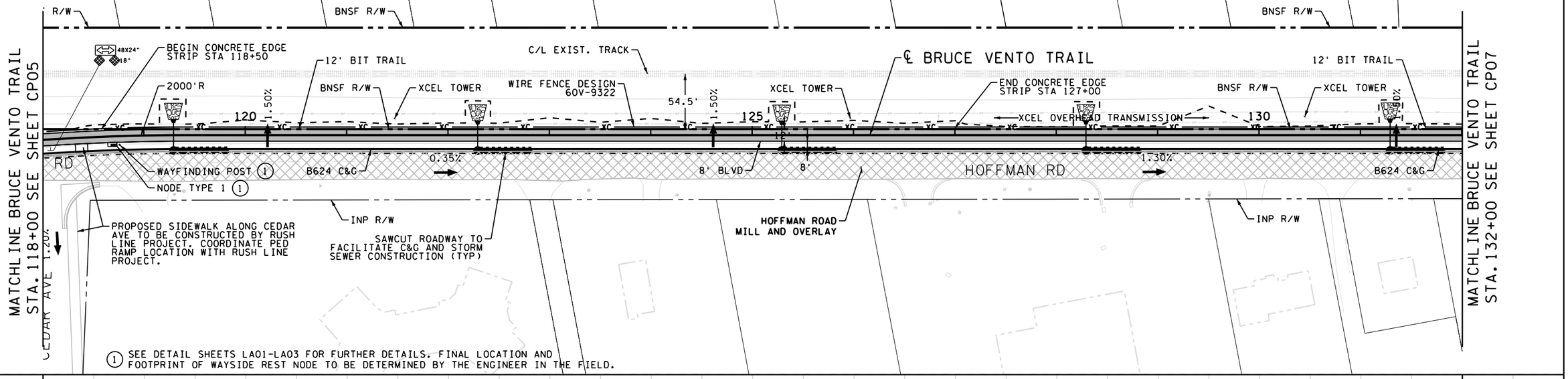
9/23/2021

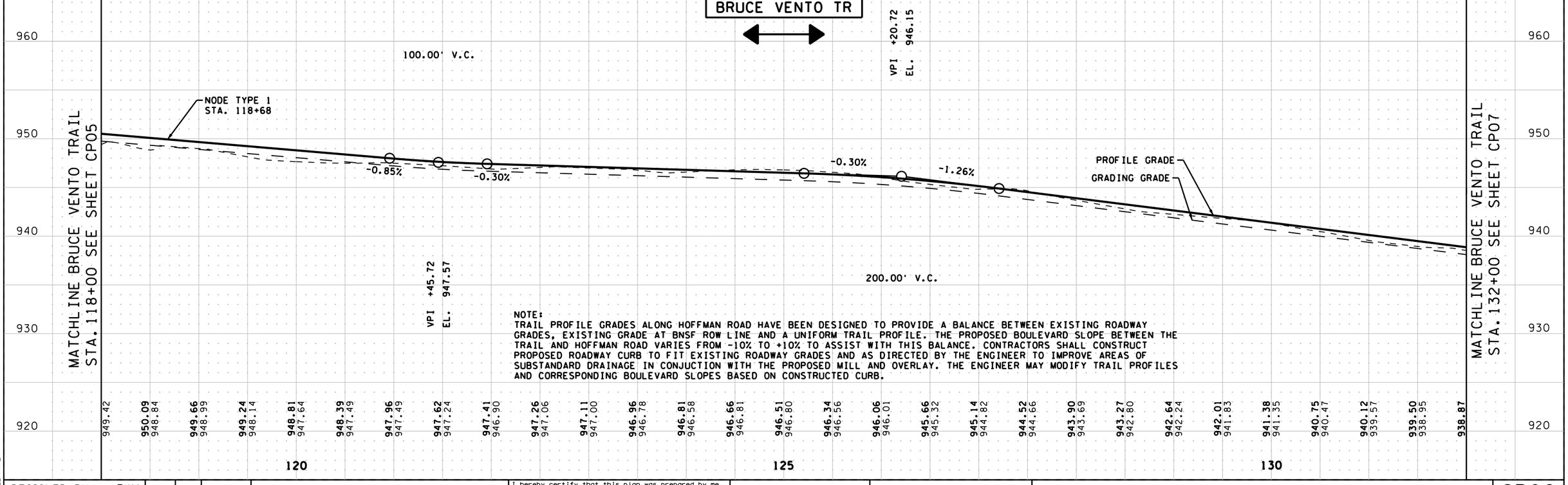
LEGEND
- PROPOSED TRAIL
- CONSTRUCTION LIMITS
- EXISTING ROW
- PROPOSED CHAIN LINK FENCE (xc)
- DRAINAGE FLOW DIRECTION
- RETAINING WALL

100

SCALE IN FEET



(1) SEE DETAIL SHEETS LA01-LA03 FOR FURTHER DETAILS. FINAL LOCATION AND FOOTPRINT OF WAYSIDE REST NODE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.



NOTE:
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DESIGNED BY:	RKM						
DRAWN BY:	KJC						
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS		

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Licensed Professional Engineer
Printed Name: _____ Date: 9/23/2021

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PH: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

CONSTRUCTION PLAN AND PROFILE
STA 118+00 TO STA 132+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

CP06 OF CP10

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9/23/2021

LEGEND
- PROPOSED TRAIL
- CONSTRUCTION LIMITS
- EXISTING ROW
- xc PROPOSED CHAIN LINK FENCE
- DRAINAGE FLOW DIRECTION
- RETAINING WALL

100

SCALE IN FEET

SCHEUNEMAN RD

BNSF R/W

MATCHLINE BRUCE VENTO TRAIL STA.132+00 SEE SHEET CP06

CONST LIM

12' BIT TRAIL

XCEL TOWER

1.50%

135

XCEL OVERHEAD TRANSMISSION

C/L EXIST. TRACK

SPEED LIMIT 40 24X30"

PED RAMP

54.5'

℄ BRUCE VENTO TRAIL

48X24" 18"

XCEL TOWER

140

WIRE FENCE DESIGN 60V-9322

END B624 C&G. FLOWLINES TO MATCH EXISTING BIT PAVEMENT EDGE. INCL. 3' BEAVER TAIL TRANSITION

PED RAMP

XCEL TOWER

12' BIT TRAIL

1.50%

0.55%

STOP 18"

PED RAMP

3000'R

145

B624 C&G

HOFFMAN RD

1.05%

8' BLVD

0.30%

NODE TYPE 2 (1)

WAYFINDING POST (1)

R 30'

R 30'

B624 C&G

END 8' BLVD

INP R/W

HOFFMAN ROAD MILL AND OVERLAY

COUNTY RD F

INP R/W

MATCHLINE BRUCE VENTO TRAIL STA.148+00 SEE SHEET CP08

(1) SEE DETAIL SHEETS LA01-LA03 FOR FURTHER DETAILS. FINAL LOCATION AND FOOTPRINT OF WAYSIDE REST NODE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

BRUCE VENTO TR

100.00' V.C.

350.00' V.C.

VPI +00.00 EL. 933.84

VPI +67.38 EL. 932.00

VPI +24.66 EL. 931.28

VPI +48.66 EL. 931.09

VPI +68.66 EL. 931.44

VPI +24.66 EL. 932.28

PROFILE GRADE

GRADING GRADE

-1.26%

-1.18%

NODE TYPE 2 STA. 139+27

LOW POINT STA. 140+54.85 ELEV. 929.56

-1.18%

+1.06%

+1.06%

-1.25%

-1.25%

+1.50%

+1.50%

-0.55%

VPI +45.72 EL. 928.58

VPI +30.66 EL. 931.00

VPI +62.66 EL. 931.15

100.00' V.C.

100.00' V.C.

950 940 930 920 910

938.54 | 938.24 937.76 | 937.61 937.07 | 936.98 936.24 | 936.35 935.58 | 935.73 934.72 | 935.10 933.87 | 934.47 933.15 | 933.85 932.58 | 933.25 931.98 | 932.66 931.59 | 932.07 930.97 | 931.48 930.50 | 930.89 929.99 | 930.33 929.57 | 929.91 929.07 | 929.66 929.01 | 929.56 928.96 | 929.62 928.96 | 929.85 929.11 | 930.23 929.33 | 930.75 929.48 | 931.28 929.89 | 931.69 930.18 | 931.56 930.40 | 931.09 931.08 | 931.85 931.44 | 932.08 931.38 | 931.87

135 140 145

NOTE:
TRAIL PROFILE GRADES ALONG HOFFMAN ROAD HAVE BEEN DESIGNED TO PROVIDE A BALANCE BETWEEN EXISTING ROADWAY GRADES, EXISTING GRADE AT BNSF ROW LINE AND A UNIFORM TRAIL PROFILE. THE PROPOSED BOULEVARD SLOPE BETWEEN THE TRAIL AND HOFFMAN ROAD VARIES FROM -10% TO +10% TO ASSIST WITH THIS BALANCE. CONTRACTORS SHALL CONSTRUCT PROPOSED ROADWAY CURB TO FIT EXISTING ROADWAY GRADES AND AS DIRECTED BY THE ENGINEER TO IMPROVE AREAS OF SUBSTANDARD DRAINAGE IN CONJUCTION WITH THE PROPOSED MILL AND OVERLAY. THE ENGINEER MAY MODIFY TRAIL PROFILES AND CORRESPONDING BOULEVARD SLOPES BASED ON CONSTRUCTED CURB.

K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\C0553009_cp07.dgn
$MODELNAME$

DESIGNED BY:	RKM
DRAWN BY:	KJC
CHECKED BY:	GSB

NO.	BY	DATE	REVISIONS

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
PH: 651-645-4197 www.kimley-horn.com

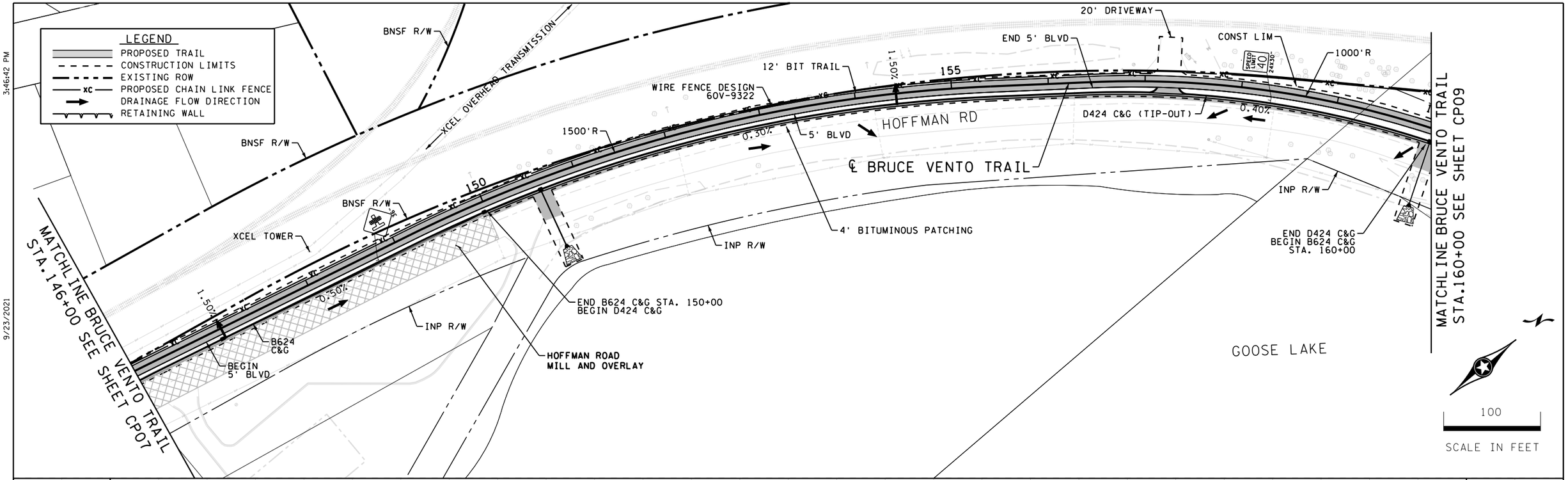
RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

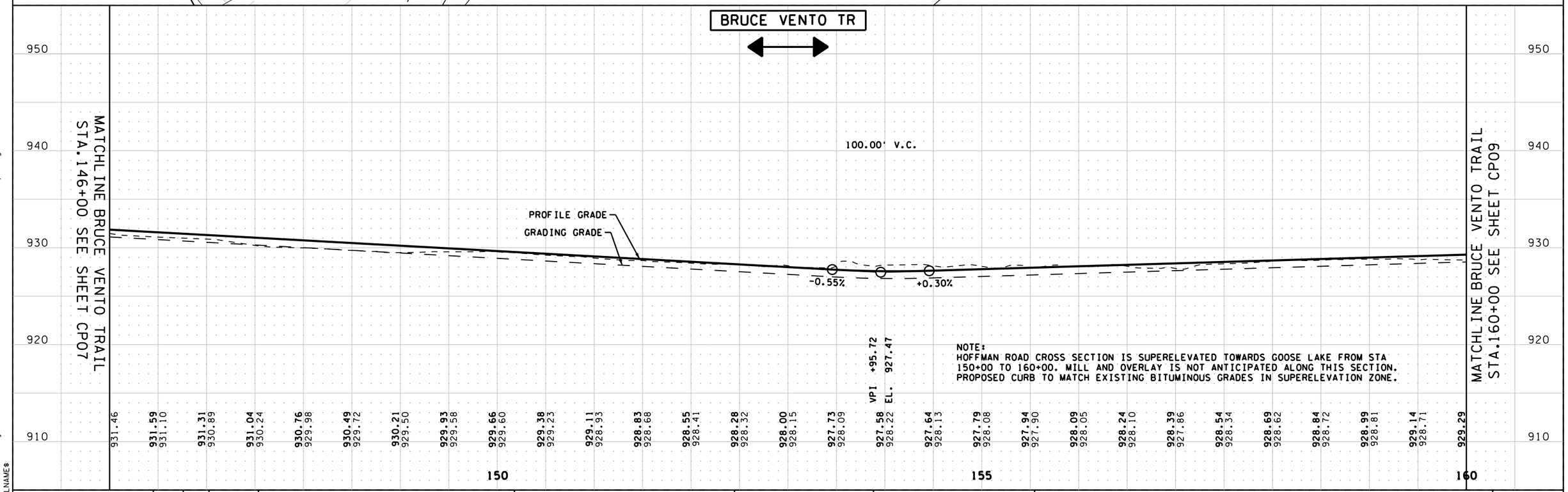
CONSTRUCTION PLAN AND PROFILE
STA 132+00 TO STA 146+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

CP07 OF CP10

45 / 95





DESIGNED BY:	RKM						
DRAWN BY:	KJC						
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS		

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Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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SAINT PAUL, MINNESOTA 55114
PH: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

CONSTRUCTION PLAN AND PROFILE
STA 146+00 TO STA 160+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

CP08
OF CP10

46 / 95

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9/23/2021
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$MODELNAME$

MATCHLINE BRUCE VENTO TRAIL
STA. 160+00 SEE SHEET CP08

BNSF R/W

BNSF R/W

60

BEGIN 8' BLVD

WIRE FENCE DESIGN
60V-9322

PLACE AGGREGATE SURFACING IN PARKING LOT AS NECESSARY TO BLEND WITH PROPOSED TRAIL GRADING.

℄ BRUCE VENTO TRAIL

TOWN OF WHITE BEAR
PID: 233022320002

B624
C&G

725'R

12' BIT TRAIL

165

① NODE TYPE 2

WAYFINDING POST ①

CONST LIM

5000'R

170

BNSF R/W

3000'R

BNSF R/W

8' BLVD

END 8' BLVD

B624 C&G

INP R/W

HOFFMAN ROAD
MILL AND OVERLAY

INP R/W

BEGIN RECONSTRUCTION
STA. 173+73.05

MATCHLINE BRUCE VENTO TRAIL
STA. 174+00 SEE SHEET CP10

① SEE DETAIL SHEETS LA01-LA03 FOR FURTHER DETAILS. FINAL LOCATION AND FOOTPRINT OF WAYSIDE REST NODE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

LEGEND
- PROPOSED TRAIL
- CONSTRUCTION LIMITS
- EXISTING ROW
- xc PROPOSED CHAIN LINK FENCE
- DRAINAGE FLOW DIRECTION
- RETAINING WALL

100
SCALE IN FEET

BRUCE VENTO TR

950
940
930
920
910

MATCHLINE BRUCE VENTO TRAIL
STA. 160+00 SEE SHEET CP08

VPI +45.72
EL. 931.22

PROFILE GRADE
GRADING GRADE

+0.30%

NODE TYPE 2
STA. 166+72

-0.30%

MATCHLINE BRUCE VENTO TRAIL
STA. 174+00 SEE SHEET CP10

NOTE:
TRAIL PROFILE GRADES ALONG HOFFMAN ROAD HAVE BEEN DESIGNED TO PROVIDE A BALANCE BETWEEN EXISTING ROADWAY GRADES, EXISTING GRADE AT BNSF ROW LINE AND A UNIFORM TRAIL PROFILE. THE PROPOSED BOULEVARD SLOPE BETWEEN THE TRAIL AND HOFFMAN ROAD VARIES FROM -10% TO +10% TO ASSIST WITH THIS BALANCE. CONTRACTORS SHALL CONSTRUCT PROPOSED ROADWAY CURB TO FIT EXISTING ROADWAY GRADES AND AS DIRECTED BY THE ENGINEER TO IMPROVE AREAS OF SUBSTANDARD DRAINAGE IN CONJUCTION WITH THE PROPOSED MILL AND OVERLAY. THE ENGINEER WAY MODIFY TRAIL PROFILES AND CORRESPONDING BOULEVARD SLOPES BASED ON CONSTRUCTED CURB.

200.00' V.C.

928.70
929.44 929.03
929.59 928.87
929.74 928.96
929.89 929.30
930.04 928.90
930.19 929.04
930.34 929.06
930.49 929.05
930.64 929.23
930.79 929.57
930.94 929.66
931.04 929.61
931.07 930.81
931.03 930.15
930.91 930.50
930.76 930.62
930.61 930.79
930.46 930.61
930.31 930.55
930.16 930.20
930.01 929.95
929.86 929.89
929.71 929.64
929.56 929.52
929.41 929.69
929.26 929.30
929.11 928.21
928.96

160 165 170

DESIGNED BY: RKM					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA BRUCE VENTO TRAIL	CONSTRUCTION PLAN AND PROFILE STA 160+00 TO STA 174+00	CP09 OF CP10
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)		47 / 95
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021				

K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\CD553009_cp09.dgn
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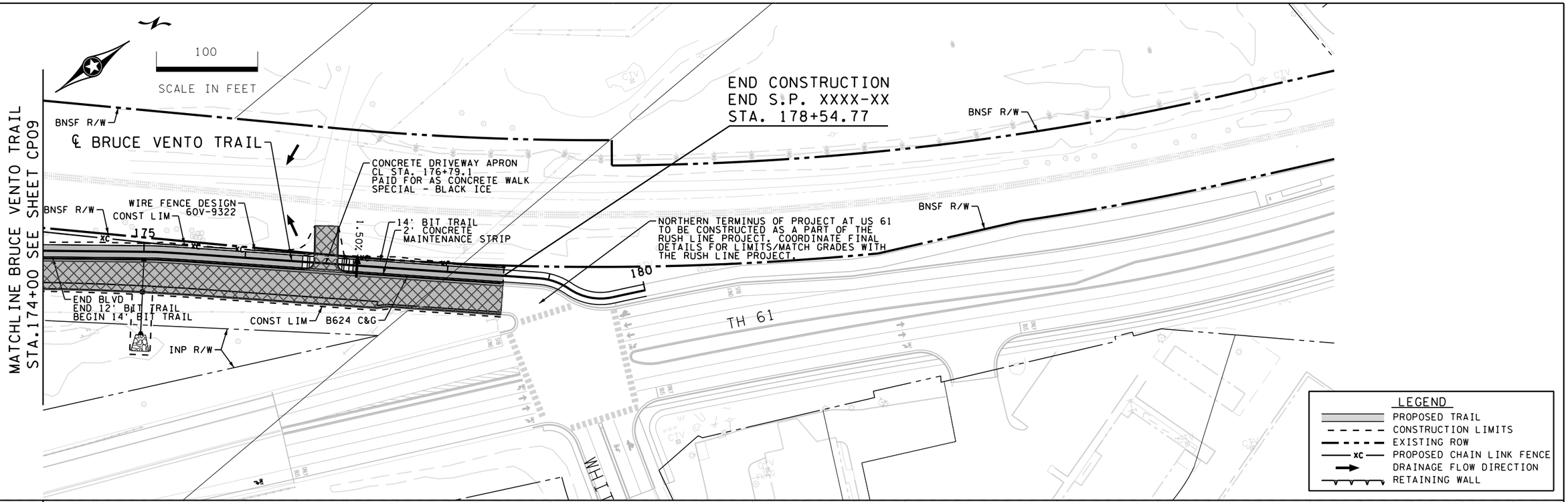

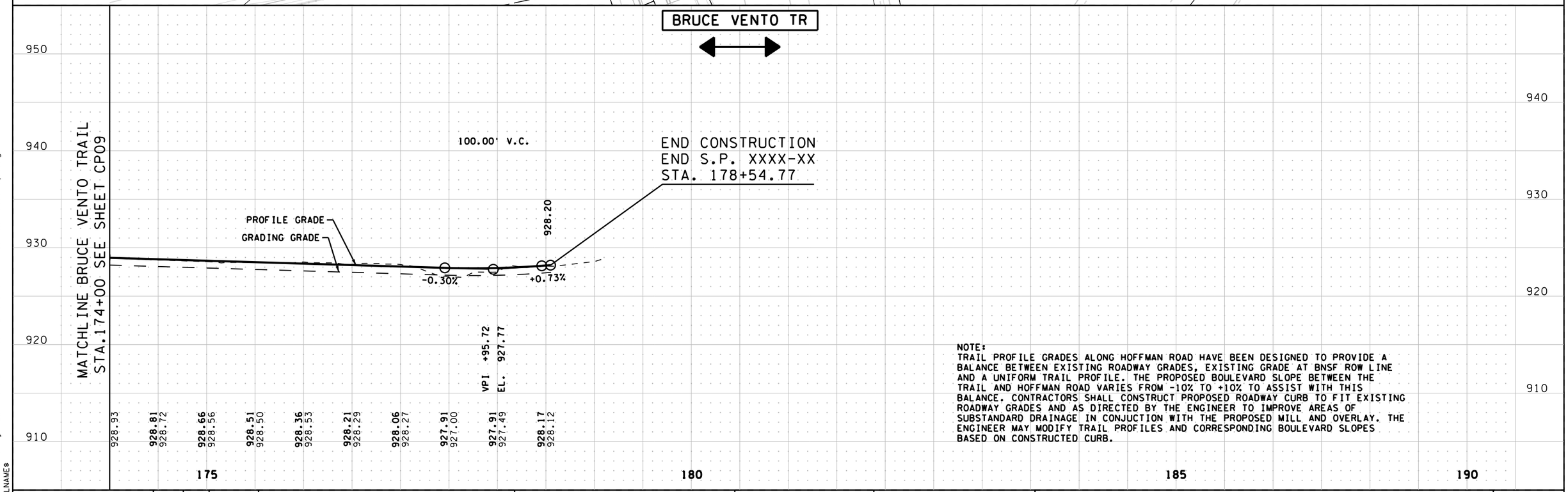

NOTE:
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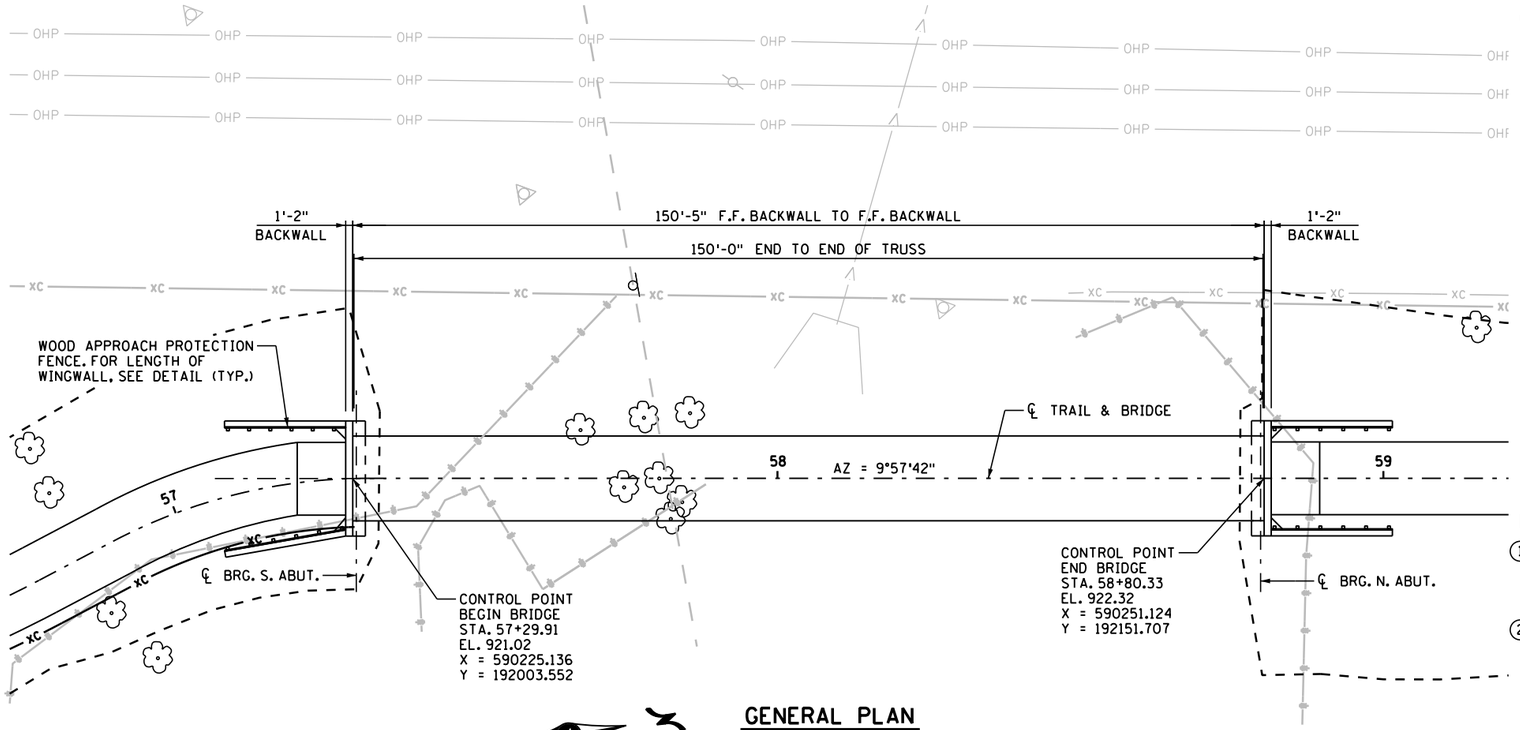
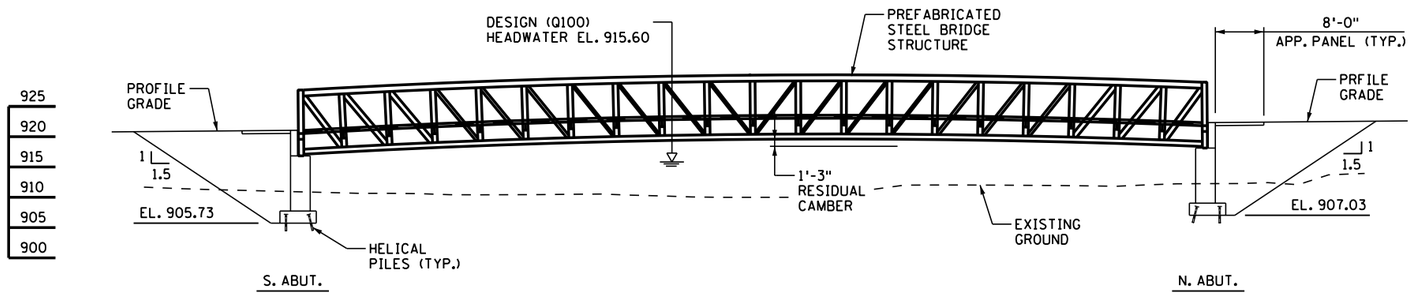
DESIGNED BY:	RKM					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA BRUCE VENTO TRAIL	CONSTRUCTION PLAN AND PROFILE STA 174+00 TO STA	CP10 OF CP10
DRAWN BY:	KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer				
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)		48 / 95



GENERAL PLAN



GENERAL ELEVATION

CONSTRUCTION NOTES:

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

THE BAR SIZES SHOWN IN THIS PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

THE SURVEY USED IN DEVELOPING THIS BRIDGE PLAN MUST BE VERIFIED WITH THE ACTUAL STREAM LOCATION AT THE TIME OF CONSTRUCTION STAKING. IF THE BRIDGE POSITION IS NOT COMPATIBLE WITH THE STREAM, THE ENGINEER SIGNING THESE PLANS SHALL BE NOTIFIED. IF STATIONING IS CHANGED, THE REVISED PLANS SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.

BACKFILL FRONT AND BACK SIDE OF ABUTMENTS AND WINGWALLS IN EQUAL LIFTS.

NOTES:

1. BACKFILL BEHIND ABUTMENTS SHALL BE STRUCTURAL BACKFILL PER SPEC. 3149.2.D.2. BACKFILL DENSITY SHALL BE ATTAINED BY THE QUALITY COMPACTION METHOD IN ACCORDANCE WITH SPEC. 2106.3.F.2.

2. ALL RAILS BELOW RUB RAIL SHALL BE SPACED TO RETAIN A 4" SPHERE. ALL RAILS ABOVE RUB RAIL SHALL BE SPACED TO RETAIN A 6" SPHERE.

DESIGN DATA

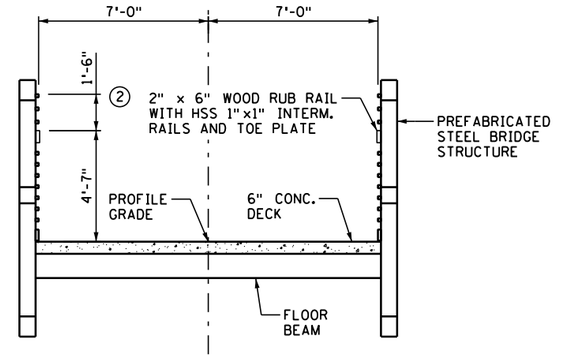
DESIGNED IN ACCORDANCE WITH 9TH EDITION, 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED IN ACCORDANCE WITH 2009 AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES AND THE CURRENT INTERIM

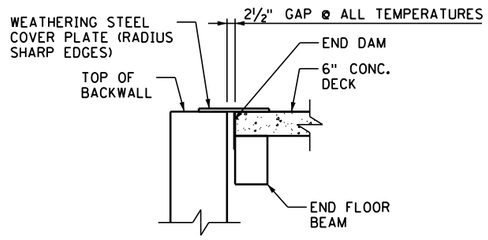
LOAD RESISTANCE FACTOR DESIGN METHOD
PEDESTRIAN LIVE LOAD = 90 PSF
H-10 TRUCK VEHICULAR LIVE LOAD
(WITHOUT IMPACT)

MAXIMUM ALLOWABLE DESIGN STRESSES:
REINFORCED CONCRETE:
f'c = 4 K.S.I. n = 8
fy = 60 K.S.I. FOR REINFORCEMENT
GRADE 60 (EPOXY COATED)
STRUCTURAL STEEL:
WEATHERING STEEL, PER MNDOT 3309 & 3361
TYPE C (UNPAINTED)
fy = 50 K.S.I. MINIMUM

LIST OF SHEETS



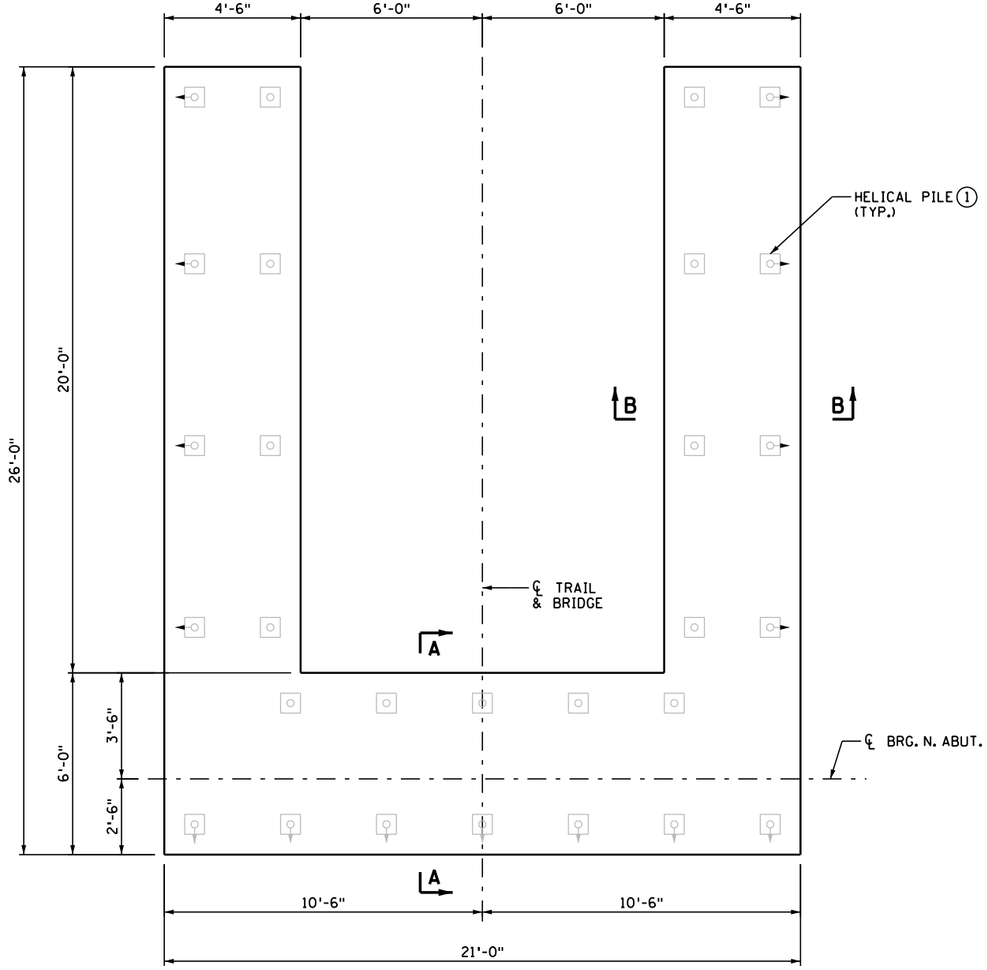
TYPICAL SECTION



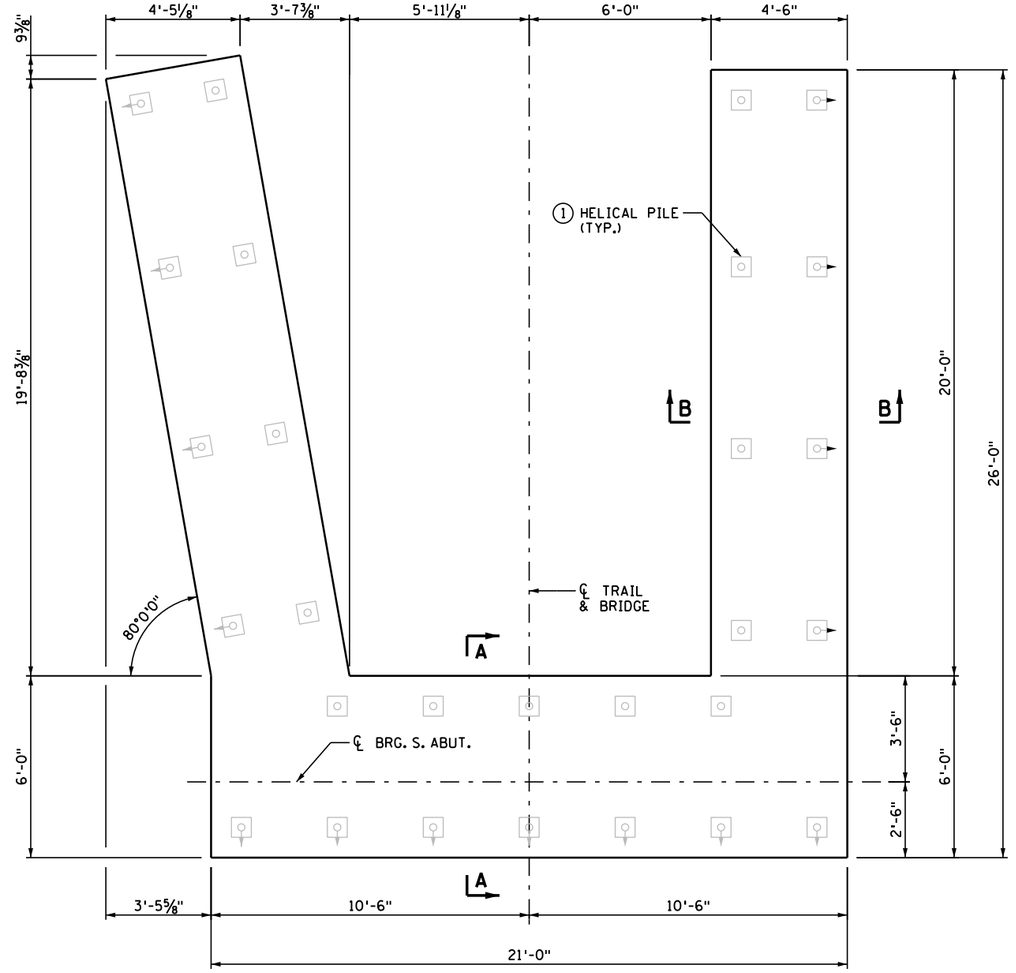
COVER PLATE DETAIL

APPROVED _____
STATE BRIDGE ENGINEER
DATE _____

DESIGNED BY: JCB					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA	BRIDGE GENERAL PLAN & ELEVATION	BRD01
DRAWN BY: PHH					Certified By: _____ Lic. No. 44587		BRUCE VENTO TRAIL		OF BRD05
CHECKED BY: MDJ	NO.	BY	DATE	REVISIONS	Licensed Professional Engineer Printed Name: MATTHEW D. JENSEN Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)		49 / 95



NORTH ABUTMENT FOOTING PLAN



SOUTH ABUTMENT FOOTING PLAN

NOTES:

(1) LOCATION OF HELICAL PILES SHALL BE DETERMINED BY HELICAL PILE DESIGN AND SHOWN IN HELICAL PILE SHOP DRAWINGS.

F.F. DENOTES FRONT FACE
B.F. DENOTES BACK FACE
E.F. DEONOTES EACH FACE

DESIGNED BY: JCB					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA
DRAWN BY: PHH					Certified By: _____ Licensed Professional Engineer Lic. No. 44587		BRUCE VENTO TRAIL
CHECKED BY: MDJ	NO.	BY	DATE	REVISIONS	Printed Name: MATTHEW D. JENSEN Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

BRIDGE ABUTMENT DETAILS 1

BRD02 OF BRD05

50 / 95

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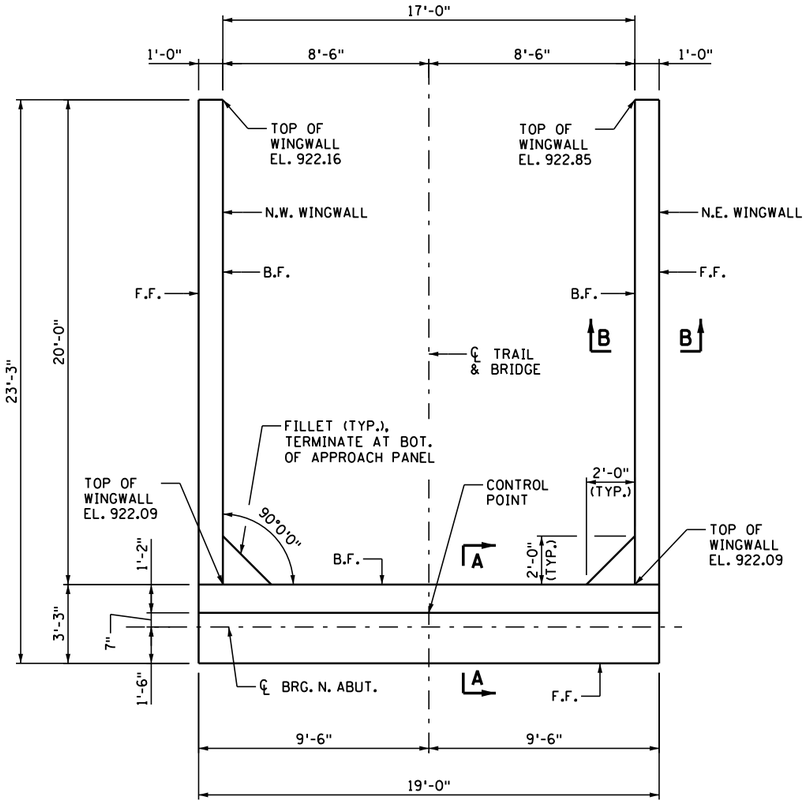
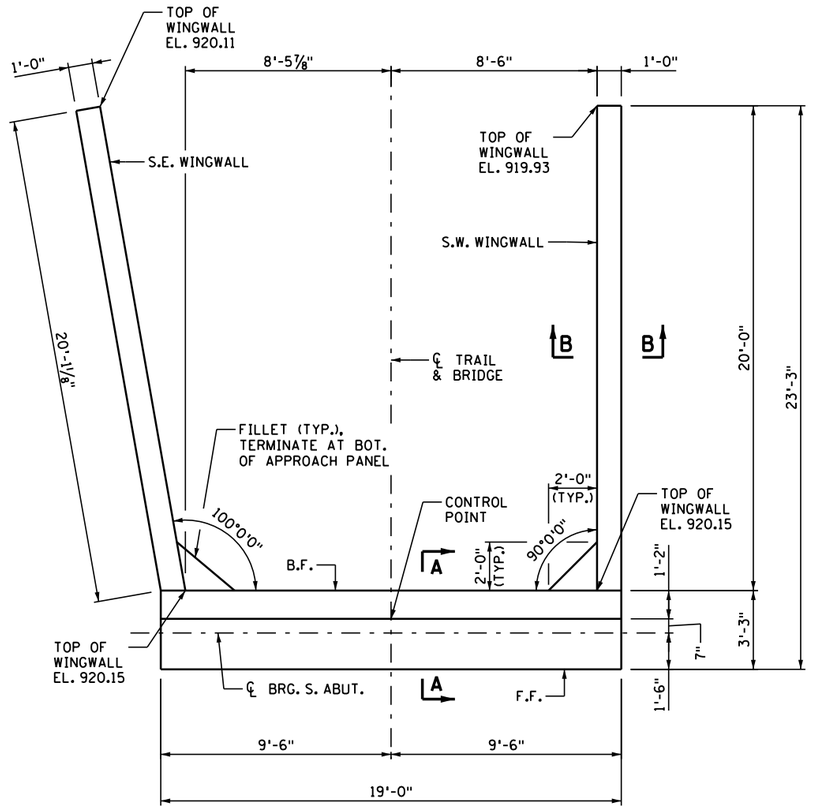


NORTH ABUTMENT PLAN



SOUTH ABUTMENT PLAN

COMPUTED HELICAL PILE DESIGN LOAD Ⓐ		
WORKING VERTICAL LOAD	ABUTMENT	WINGWALL
WORKING DEAD LOAD (COMPRESSION)	27.5 TON	1.3 TON
WORKING LIVE LOAD (COMPRESSION)	7.4 TON	1.1 TON
* TOTAL WORKING LOAD	34.9 TON	2.4 TON
WORKING LATERAL LOAD		
WORKING EARTH LOAD	4.8 TON	7.3 TON

* SERVICE LOADING, NO F.S. APPLIED

** F.S. = 3.0 APPLIED

Ⓐ BASE DESIGN ASSUMED A MINIMUM OF 12 PILES PER ABUTMENT AND 8 PILES PER WINGWALL.

HELICAL PILE NOTES:

CONTRACTOR'S BASE BID FOR HELICAL PILE SYSTEM TO INCLUDE:

*20 - PRODUCTION HELICAL PILES: INCLUDING DESIGN, SHOP DRAWINGS, LEAD AND EXTENSION SECTIONS, HELIX PLATES AND HARDWARE

*20 - STEEL PILE CAP BRACKETS INCLUDING HARDWARE

CONTRACTOR'S BASE BID FOR HELICAL PILE SYSTEM SHALL NOT CHANGE IF QUANTITIES CHANGE BASED ON CONTRACTOR'S DESIGN.

HELICAL MANUFACTURER TO HAVE AN INDUSTRY RECOGNIZED WRITTEN QUALITY CONTROL PLAN FOR ALL MATERIALS AND MANUFACTURING.

HELICAL PILE ULTIMATE CAPACITY SHALL BE DETERMINED ACCORDING TO AC358, CURRENT EDITION.

HELICAL PILES SHALL BE DESIGNED TO MEET THE MINIMUM ULTIMATE CAPACTIY PROVIDED ON THIS SHEET, WHICH INCLUDES A FACTOR OF SAFETY OF 3.0.

HELICAL PILE SYSTEMS SHALL BE HOT-DIPPED GALVANIZED PER ASTM A153 AFTER FABRICATION.

CONNECTION HARDWARE SHALL BE TIGHTENED TO SNUG-TIGHT CONDITION, AT A MINIMUM ONE QUARTER TURN BEYOND HAND-TIGHT CONDITION.

ALL PROVIDED PILE LOADS ACT THROUGH THE CENTERLINE OF THE ABUTMENT.

FOUNDATION NOTES:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING, FURNISHING AND INSTALLING HELICAL PILES AND ALL PILE CONNECTIONS THAT MEET THE REQUIREMENTS WITHIN THE PLANS AND SPECIAL PROVISIONS. CALCULATIONS SHALL BE PROVIDED PER THE SPECIAL DESIGN.

THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS THAT INCLUDE LONGITUDINAL AND TRANSVERSE PILE SPACING FOR THE ENTIRE LENGTH OF ABUTMENT AND WINGWALLS.

PILES ARE SHOWN BATTERED IN THIS PLAN. PILE INCLINATION ANGLES TO BE SHOWN IN SHOP DRAWINGS. SEE SHOP DRAWINGS PRIOR TO PILE INSTALLATION.

CUT OFF TOP OF PILE SHAFT A MINIMUM OF 1'-6" ABOVE BOTTOM OF FOOTING. FINAL PILE EMBEDMENT INTO FOOTING SHALL BE BASED ON REQUIRED CAPACITY OF THE PILES. ADDITIONAL REINFORCEMENT OR EMBEDMENT DEPTH REQUIRED TO DEVELOP REQUIRED DESIGN LOADS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE SHOP DRAWINGS FOR ADDITIONAL DETAILS.

A MINIMUM OF 20 HELICAL PILES REQUIRED FOR EACH ABUTMENT. FINAL ORIENTATION, NUMBER OF HELICAL PILES, SIZES OF HELICAL PILES, AND NEED FOR BATTER SHALL BE DETERMINED IN DESIGN BY THE CONTRACTOR AND INCLUDE IN PRICE BID OF PROJECT.

CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO INSTALLATION ROTATIONAL SPEED AND RATE OF PENETRATION INTO THE EARTH. HELICAL PILES THAT "SPIN OUT" IN HARD OR DENSE FOUNDATION MATERIAL WILL NOT BE ACCEPTED. THESE PILES SHALL BE REMOVED AND INSTALLED TO THE MINIMUM PROJECT REQUIREMENTS WITH NO ADDITIONAL COMPENSATION.

THE MINIMUM EFFECTIVE TORSIONAL RESISTANCE FOR EACH PRODUCTION PILE SHALL BE CALCULATED AS THE AVERAGE OF THE LAST THREE TORSIONAL RESISTANCE READINGS TAKEN AT 1-FT INTERVALS, STARTING 2' ABOVE FINAL TIP EMBEDMENT.

PRODUCTION HELICAL PILES SHALL BE INSTALLED TO A MINIMUM TIP EMBEDMENT OF 16' BELOW BOTTOM OF ABUTMENT AND THE MINIMUM EFFECTIVE TORSIONAL RESISTANCE AS SHOWN ON IN THE SHOP DRAWING.

CONTRACTOR TO SUBMIT RECORD OF INSTALLATION TORQUES, HELICAL PILE LENGTH, AND EMBEDMENT DEPTH TO THE ENGINEER.

SUPERSTRUCTURE REACTIONS USED FOR SUBSTRUCTURE DESIGN				
COMBINE REACTIONS PER 2017 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND 2015 LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES.				
REACTIONS ARE NOT TO BE EXCEEDED WITHOUT INFORMING THE ENGINEER SEALING THE SUBSTRUCTURE PLANS. LOADS SHOWN ARE UNFACTORED.				
LOAD TYPE		P (LBS.)	H (LBS.)	L (LBS.)
DEAD LOAD		54,675	-	-
UNIFORM LIVE LOAD		47,250	-	-
VEHICLE LIVE LOAD		10,000	-	-
WIND UPLIFT (20 PSF)	WINDWARD	-17,625	-	-
	LEEWARD	-5,875	-	-
WIND		±12,385	27,765	-
THERMAL		-	-	8,205

\+ DOWNWARD LOAD
\- UPWARD LOAD

"P" - VERTICAL LOAD EACH BASE PLATE (4 PER BRIDGE)
"H" - HORIZONTAL LOAD EACH FOOTING (2 PER BRIDGE)
"L" - LONGITUDINAL LOAD EACH BASE PLATE (4 PER BRIDGE)

ALL LOADS IN TABLE ABOVE ARE UNFACTORED, SERVICE LOADS.

NOTES:

SEE SHEET BRD06 FOR SECTION A-A.

1. LOCATION OF HELICAL PILES SHALL BE DETERMINED BY HELICAL PILE DESIGN AND SHOWN IN HELICAL PILE SHOP DRAWINGS.
2. VERIFY ANCHOR BOLT LOCATION WITH TRUSS MANUFACTURER PRIOR TO ABUTMENT CONSTRUCTION. TRUSS MANUFACTURER SHALL DETERMINE THE CAPACITY, NUMBER, DIAMETER, GRADE, INSTALLATION DETAILS AND FINISH OF ANCHOR BOLTS.
3. THESE ELEVATION AND DIMENSIONS MAY BE ADJUSTED ACCORDINGLY TO MATCH DIMENSIONS AND/OR ELEVATIONS SUPPLIED BY BRIDGE MANUFACTURER.
4. FURNISH AND INSTALL 4" DIA. PERFORATED PIPE AT ⅛" PER FT. MINIMUM SLOPE BEHIND FULL LENGTH OF ABUTMENT. CAST SLEEVE THROUGH DOWNSTREAM WINGWALL TO ACCOMMODATE 4" DIA. UNPERFORATED PIPE TO PENETRATE WINGWALL AND DAYLIGHT IN DOWNSTREAM SLOPE. PLACE A STAINLESS STEEL MESH RODENT SCREEN AT OUTLET (LOW END) AND END CAP AT (HIGH END). PIPE, ELBOWS, END CAPS, COUPLINGS, SLEEVES AND RODENT SCREENS ARE INCLUDED IN PRICE BID.

DESIGNED BY:	JCB			
DRAWN BY:	PHH			
CHECKED BY:	MDJ			
NO.	BY	DATE	REVISIONS	

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

Certified By: _____ Lic. No. 44587
Licensed Professional Engineer

Printed Name: MATTHEW D. JENSEN Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
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PH: 651-645-4197 www.kimley-horn.com

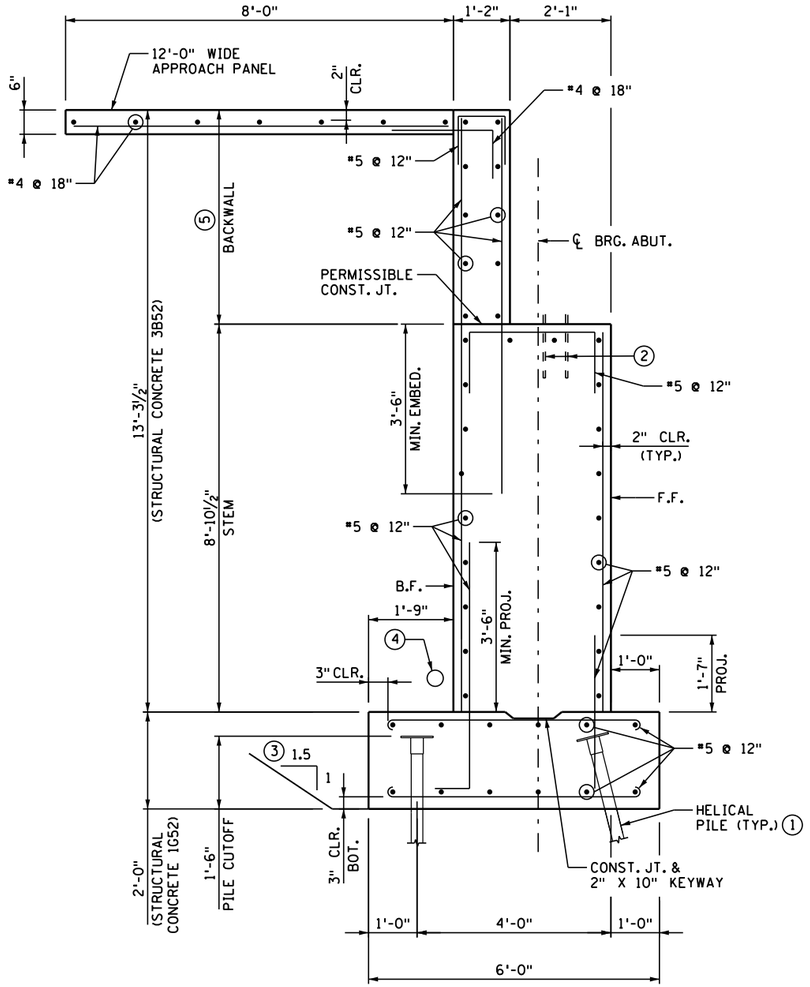
RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

BRIDGE ABUTMENT DETAILS 2

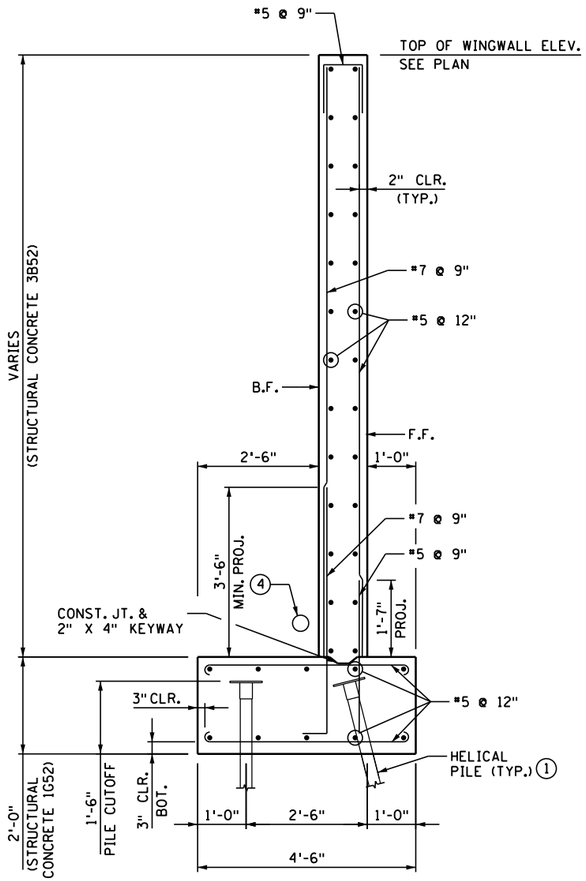
STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

BRD03
OF BRD05

51 / 95



SECTION A-A



SECTION B-B

NOTES:

SEE SHEET BRD02-BRD04 FOR LOCATION OF SECTION A-A AND B-B.

COAT TOP OF BEARING SEATS AND BACKWALL WITH SIKA HI-BUILD EPOXY OR APPROVED EQUAL.

VERIFY ALL DIMENSIONS WITH BRIDGE MANUFACTURER PRIOR TO CONSTRUCTION.

BEVEL ALL EXPOSED CORNERS OF CONCRETE WITH ½" X ½" CHAMFER.

SHOP DRAWING SUBMITTAL FOR REINFORCEMENT REQUIRED FOR ALL LOCATIONS. SUBMITTAL SHALL BE SUBMITTED TO THE ENGINEER A MINIMUM OF 3 WEEKS BEFORE FABRICATION. SHOP DRAWINGS SHALL INCLUDE BAR BENDS, LAYOUTS AND QUANTITIES.

EPOXY COATED GRADE 60 REINFORCEMENT BARS PER SPEC. 3301.

REINFORCING MAY BE ADJUSTED MINIMAL AMOUNT NECESSARY TO PROVIDE 2 INCHES CLEAR TO HELICAL PILES AND ANCHOR BOLTS.

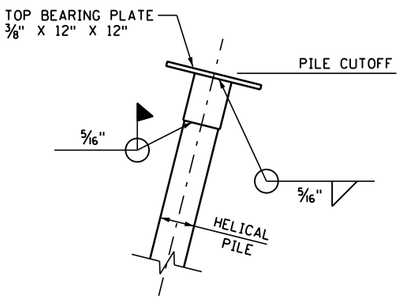
(1) LOCATION OF HELICAL PILES SHALL BE DETERMINED BY HELICAL PILE DESIGN AND SHOWN IN HELICAL PILE SHOP DRAWINGS.

(2) VERIFY ANCHOR BOLT LOCATION WITH BRIDGE MANUFACTURER PRIOR TO ABUTMENT CONSTRUCTION. BRIDGE MANUFACTURER SHALL DETERMINE THE CAPACITY, NUMBER, DIAMETER, GRADE, INSTALLATION DETAILS AND FINISH OF ANCHOR BOLTS. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR AND EQUIPMENT FOR THE BRIDGE FOUNDATION, INCLUDING ANCHOR BOLTS. THE CONTRACTOR SHALL INSTALL THE ANCHOR BOLTS IN ACCORDANCE WITH THE BRIDGE MANUFACTURER'S ANCHOR BOLT REQUIREMENTS AND THE ANCHOR BOLT SUPPLIER'S SPECIFICATIONS.

(3) ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-PLACE SOILS.

(4) FURNISH AND INSTALL 4" DIA. PERFORATED PIPE AT ⅛" PER FT. MINIMUM SLOPE BEHIND FULL LENGTH OF ABUTMENT AND WINGWALLS. CAST SLEEVE THROUGH DOWNSTREAM WINGWALL TO ACCOMMODATE 4" DIA. UNPERFORATED PIPE TO PENETRATE WINGWALL AND DAYLIGHT IN DOWNSTREAM SLOPE. PLACE A STAINLESS STEEL MESH RODENT SCREEN AT OUTLET (LOW END) AND END CAP AT (HIGH END). PIPE, ELBOWS, END CAPS, COUPLINGS, SLEEVES AND RODEN SCREENS ARE INCLUDED IN PRICE BID.

(5) ASSUMED BACKWALL HEIGHT OF 4'-5". BACKWALL HEIGHT TO BE DETERMINED BY PREFABRICATED STEEL BRIDGE MANUFACTURER.



HELICAL PILE PLATE DETAIL

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DESIGNED BY:	JCB						
DRAWN BY:	PHH						
CHECKED BY:	MDJ	NO.	BY	DATE	REVISIONS		

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

Certified By: _____ (Licensed Professional Engineer) Lic. No. 44587

Printed Name: MATTHEW D. JENSEN Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
Ph: 651-645-4197 www.kimley-horn.com

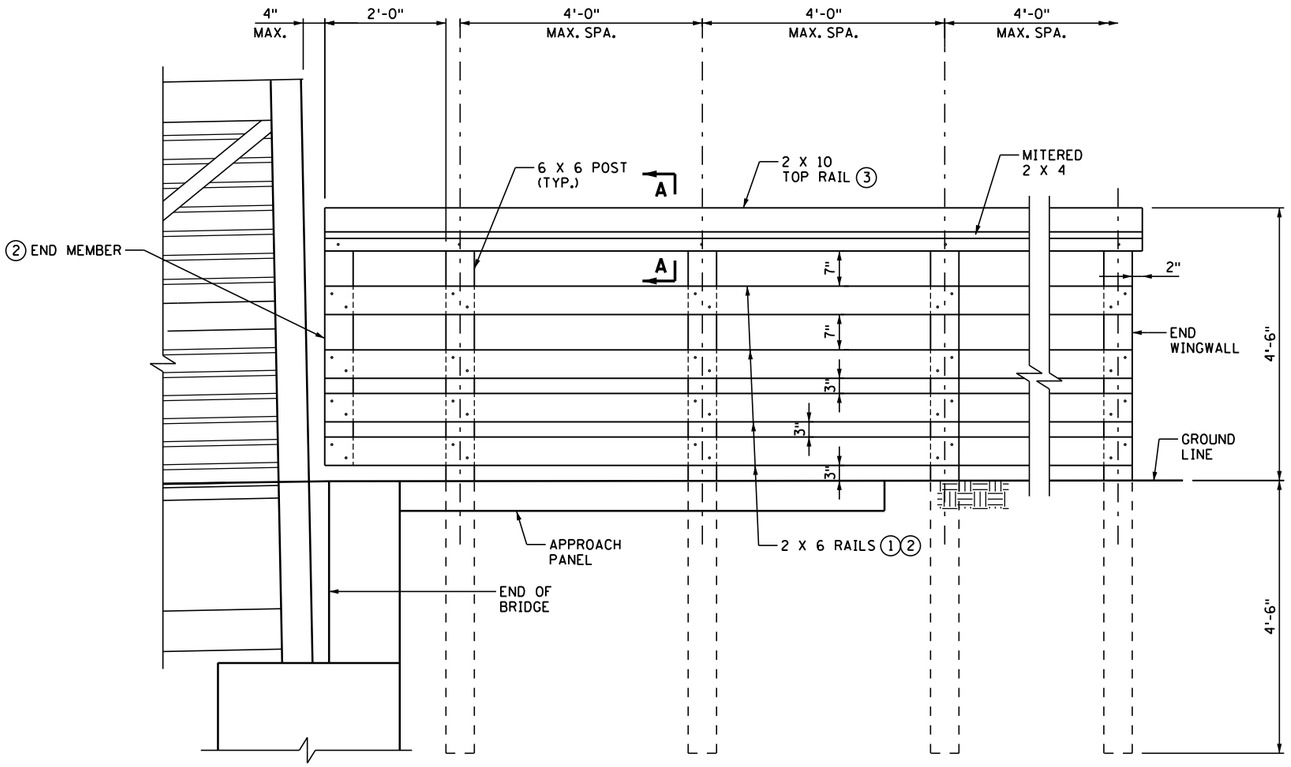
RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

BRIDGE ABUTMENT DETAILS 3

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

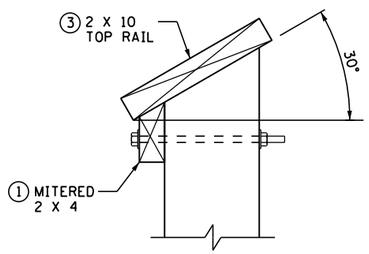
BRD04 OF BRD05

52 / 95



ELEVATION - APPROACH PROTECTION FENCE

(INSIDE FACE TO TRAIL SHOWN)



SECTION A-A

NOTES

(1) PROVIDE (2)-3/8" ⌀ S.S. CARRIAGE BOLTS, WASHERS AND NUT AT EACH RAIL AND POST INTERSECTION.

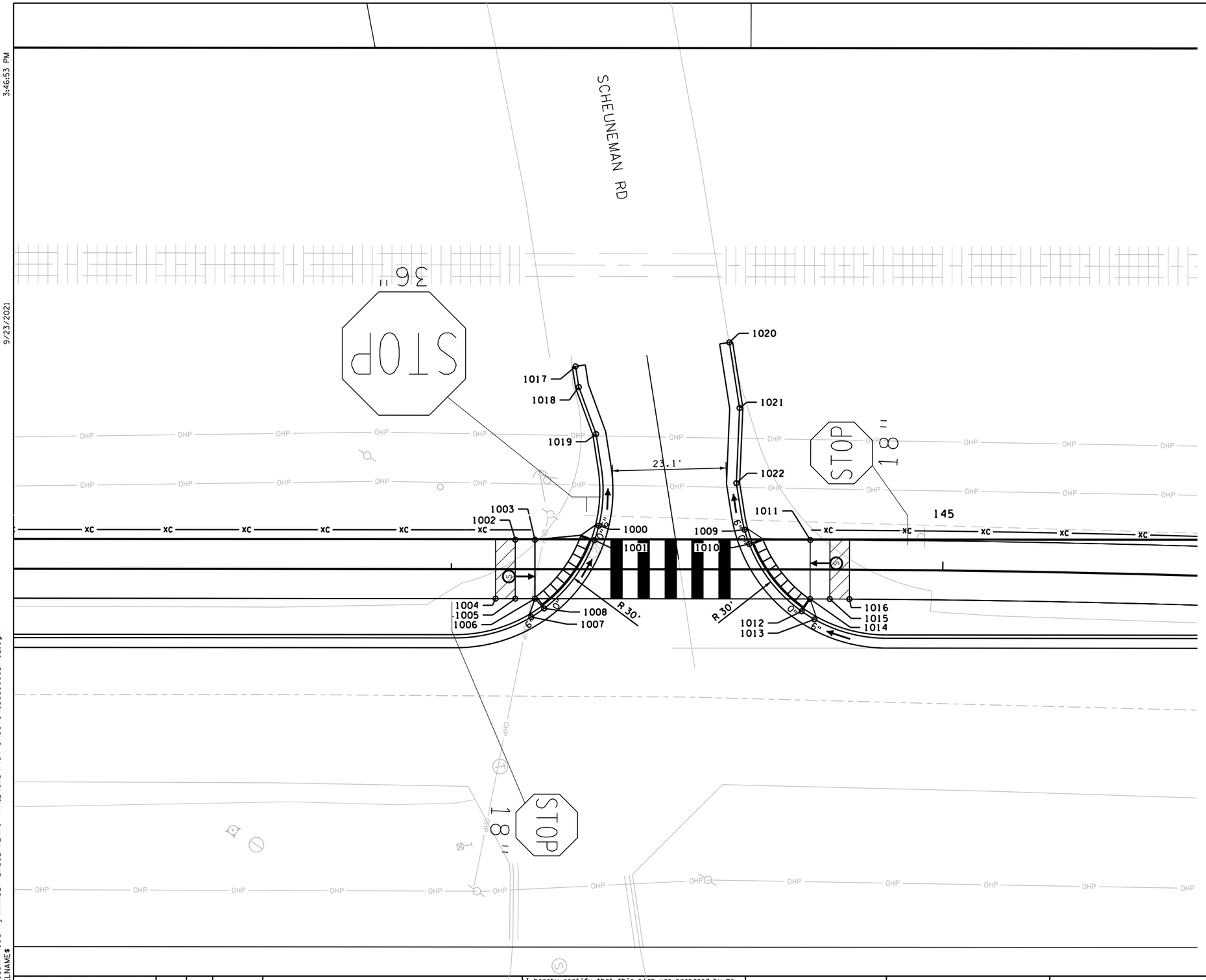
(2) PROVIDE 2 X 6 END CAP. PROVIDE (2)-3/8⌀ S.S. CARRIAGE BOLTS, WASHERS AND NUT AT EACH RAIL AND END PIECE INTERSECTION.

(3) PROVIDE 2 X 10 TOP RAIL. NAIL TO TOP OF POST WITH (2)-30d S.S. RING SHANK NAILS OR EQUIVALENT SCREWS TO RAIL EVERY 2 FT. O.C. (PREDRILL PILOT HOLES PRIOR TO FASTENER INSTALLATION).

ALL LUMBER SHALL BE SOUTHERN PINE NO 2 GRADE MINIMUM (SYP) GRADED UNDER THE SOUTHERN PINE INSPECTION BUREAU (S.P.I.B.) RULES. ALL LUMBER SHALL BE S4S (SURFACED 4 SIDES).

ALL ITEMS SHOWN SHALL BE INCIDENTAL TO PREFABRICATED STEEL TRUSS BRIDGE.

DESIGNED BY: JCB					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA BRUCE VENTO TRAIL — BRIDGE APPROACH PROTECTION FENCE — BRD05 OF BRD05
DRAWN BY: PHH					Certified By: _____ Licensed Professional Engineer Lic. No. 44587		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL) — 53 / 95
CHECKED BY: MDJ	NO.	BY	DATE	REVISIONS	Printed Name: MATTHEW D. JENSEN Date: 9/23/2021		



LEGEND

- PROPOSED SIGNAL POLE
- PEDESTRIAN PUSH BUTTON STATION
- PEDESTRIAN PUSH BUTTON
- XXX — CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- BITUMINOUS TREATMENT-SEE TABULATIONS
- X" — CURB HEIGHT
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- (S) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW

NOTE:
1. ALL STATION AND OFFSETS ARE WITH RESPECT TO ℄ BRUCE VENTO TRAIL UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
3. ALL INITIAL LANDINGS SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR.
4. THE OUTSIDE EDGE OF CROSSWALK MARKINGS SHALL LINE UP WITH THE OUTSIDE EDGE OF TRUNCATED DOMES.
5. THE CONTRACTOR SHALL VERIFY ALL GRADES WITH THE ENGINEER PRIOR TO PLACEMENT OF CONCRETE WALK.

POINTS - SCHEUNEMAN RD				
POINT NO.	DESCRIPTION	STATION	OFFSET	ELEV
1000	F/L	144+29.54	8.86	931.084
1001	F/L	144+28.66	5.92	931.225
1002	RAMP	144+12.54	6.00	931.390
1003	RAMP	144+16.991	6.00	931.350
1004	RAMP	144+08.54	6.00	931.612
1005	RAMP	144+12.55	6.00	931.570
1006	RAMP	144+17.001	6.00	931.530
1007	F/L	144+15.81	9.74	931.289
1008	F/L	144+18.42	7.98	931.378
1009	F/L	144+59.19	8.07	931.110
1010	F/L	144+60.16	5.15	931.161
1011	RAMP	144+72.56	6.00	931.388
1012	F/L	144+70.86	8.52	931.589
1013	F/L	144+73.47	10.15	931.650
1014	RAMP	144+73.013	6.00	931.570
1015	RAMP	144+76.57	6.00	931.628
1016	RAMP	144+80.57	6.00	931.689
1017	TIE	144+24.78	41.29	-
1018	F/L	144+25.44	37.08	931.238
1019	F/L	144+28.97	27.51	930.997
1020	TIE	144+56.07	46.19	-
1021	F/L	144+58.16	32.84	931.175
1022	F/L	144+57.52	17.55	931.124

20

SCALE IN FEET

DESIGNED BY:	RKM				
DRAWN BY:	KJC				
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
Ph: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

INTERSECTION PLAN

IN02 OF IN02

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

54 / 95

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9/23/2021

C/L EXIST. TRACK

℄ BRUCE VENTO TRAIL

40

SCALE IN FEET

XCEL OVERHEAD TRANSMITION

BNSF R/W

CONST LIM

1.50%

BNSF R/W

℄ RWALL 1

CONST LIM

END RETAINING WALL
STA. 5+44.52
BRUCE VENTO TRAIL
STA. 65+50.00

ANDREW J FANBERG
PID: 343022130061

MICHAEL J WIDMER
PID: 343022130060

DEBRA PETERSON
PID: 343022130086

DEBRA PETERSON
PID: 343022130086

BEGIN RETAINING WALL
STA. 0+00.00
BRUCE VENTO TRAIL
STA. 71+00.00

MARGARET SCHILLING
PID: 343022130092

BRUCE VENTO TR

RWALL _1
TOP OF WALL

APPROXIMATE SLOPE GRADE AT TOP OF WALL ALIGNMENT - ADJUST IN FIELD TO FIT TOPOGRAPHY AND WALL

950.22

EL. 948.24

EL. 946.91

EL. 945.58

INPLACE GROUND

8' MAX EXPOSED WALL HEIGHT

ASSUMED BOTTOM OF WALL BLOCK (FINAL ELEVATION BASED ON CONTRACTOR DESIGN)

RWALL _1
BOTTOM OF WALL EXPOSED FACE

RWALL _1

954 950 946 942 938

0+00 1+00 2+00 3+00 4+00 5+00

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$MODELNAME$

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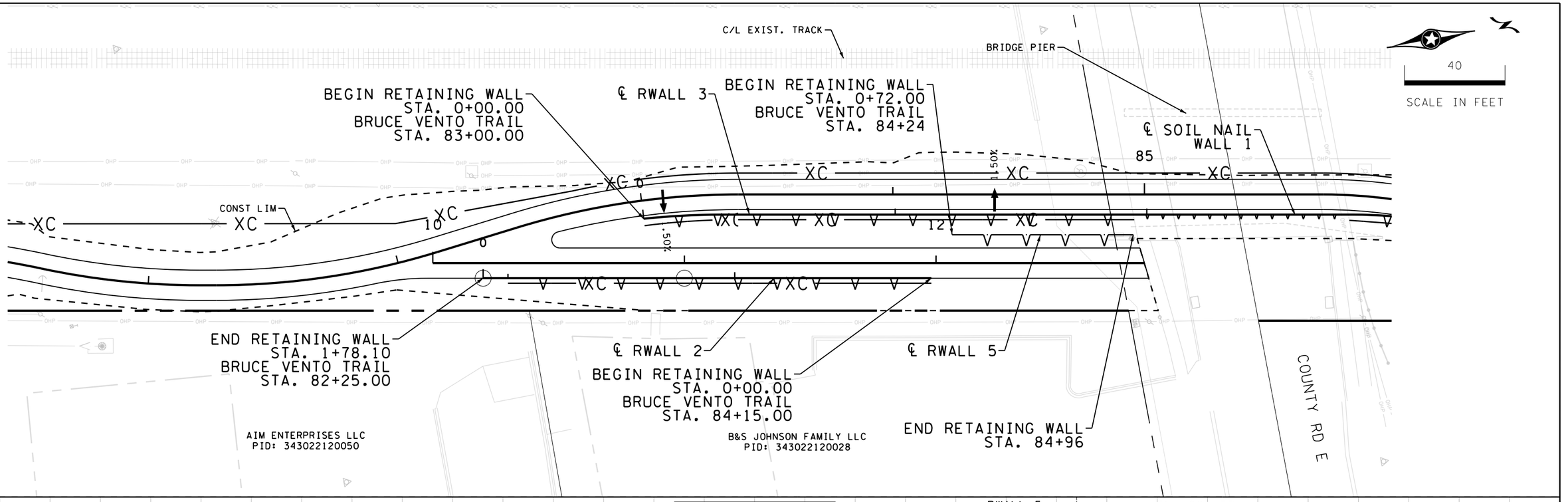
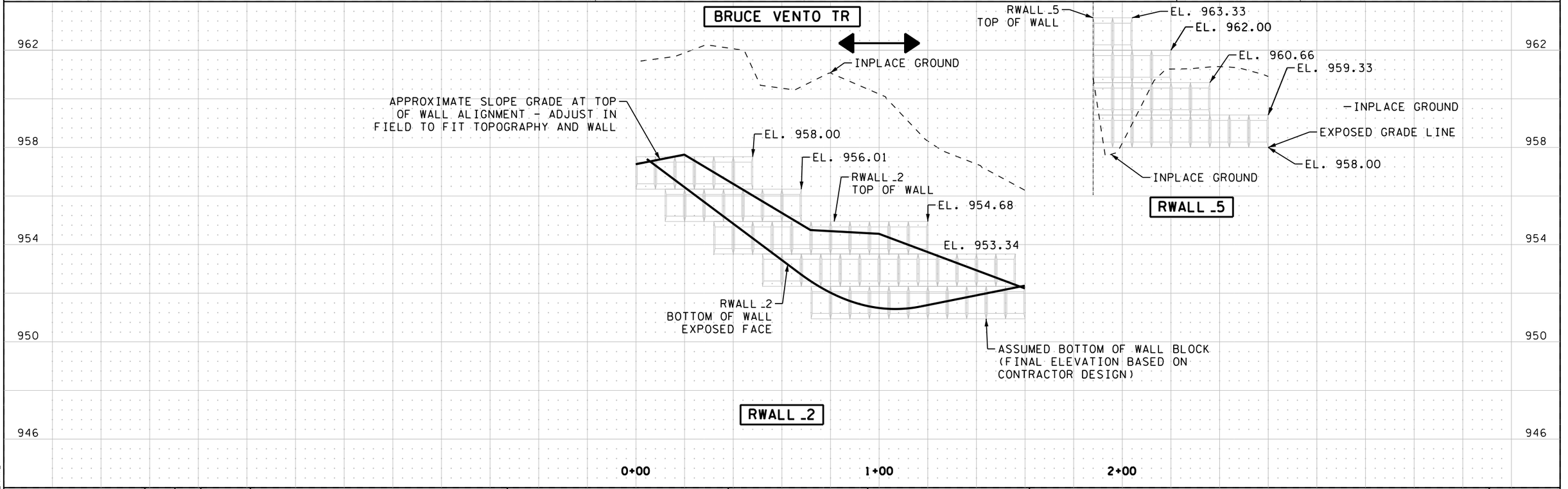
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer				
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)		55 / 95





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DRAWN BY: KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer		BRUCE VENTO TRAIL
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

RETAINING WALL PLAN & PROFILE

WR02 OF WR05

56 / 95

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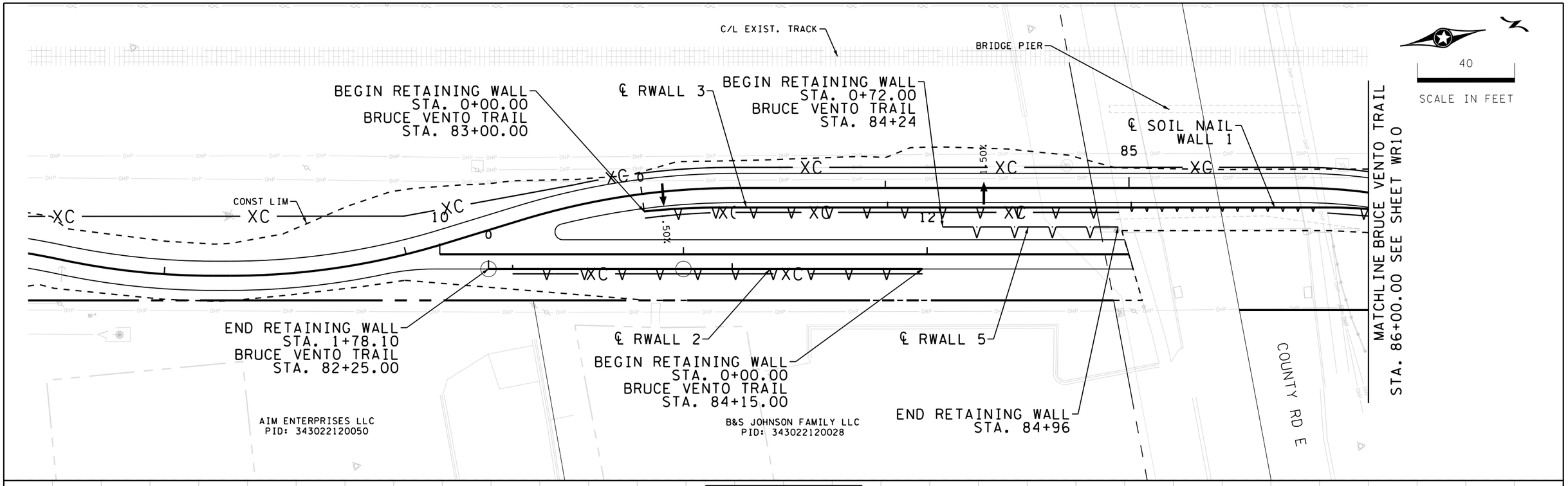

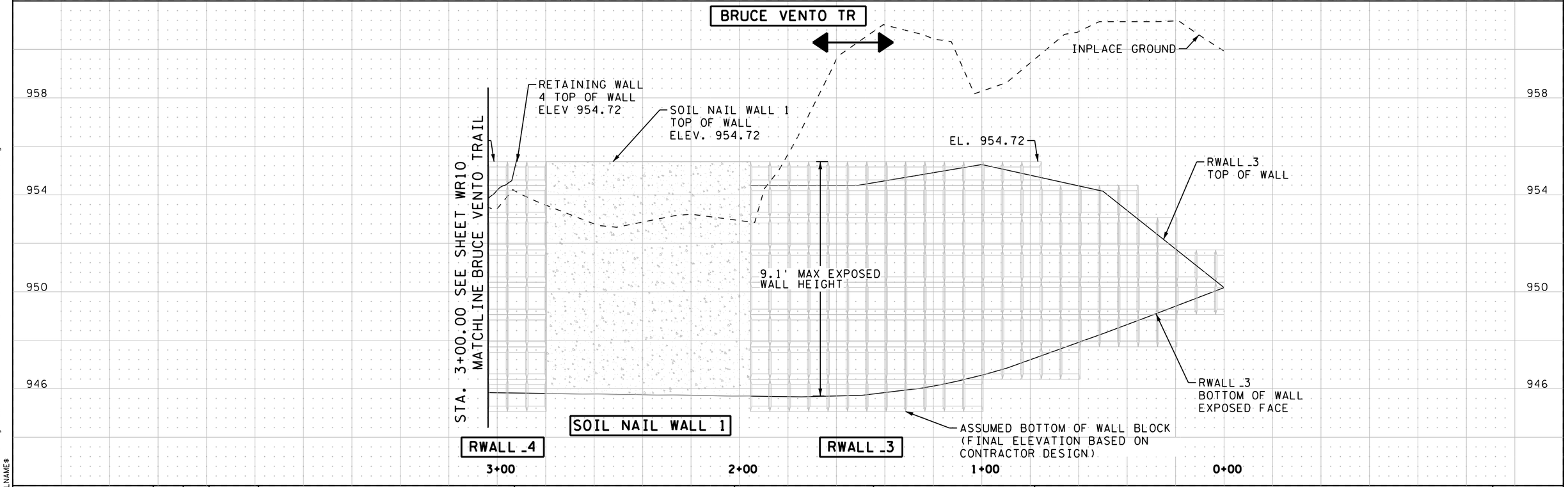

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Licensed Professional Engineer

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

RETAINING WALL PLAN & PROFILE

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

WR03
OF WR05

40

SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL
STA. 86+00.00 SEE SHEET WR09

C/L EXIST. TRACK

CONST LIM

11.50%

℄ BRUCE VENTO TRAIL

90

CONST LIM

℄ RWALL 4

CONST LIM

END RETAINING WALL
STA. 6+98.88
BRUCE VENTO TRAIL ENT
STA. 90+00.00

BNSF R/W

1.50%

PID: 273022440209

INP R/W

BRUCE VENTO TR

EL. 961.74

EL. 960.41

INPLACE GROUND

EL. 959.08

RWALL_4
TOP OF WALL

EL. 956.41

EL. 954.72

APPROXIMATE SLOPE GRADE AT TOP
OF WALL ALIGNMENT - ADJUST IN
FIELD TO FIT TOPOGRAPHY AND WALL

RWALL_4
BOTTOM OF WALL
EXPOSED FACE

ASSUMED BOTTOM OF WALL BLOCK
(FINAL ELEVATION BASED ON
CONTRACTOR DESIGN)

RWALL_4

STA. 3+00.00 SEE SHEET WR09
MATCHLINE BRUCE VENTO TRAIL

962
958
954
950
946

7+00 6+00 5+00 4+00 3+00

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DRAWN BY: KJC				Certified By: _____ Lic. No. _____	BRUCE VENTO TRAIL	WR04 OF WR05
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021	STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)	58 / 95

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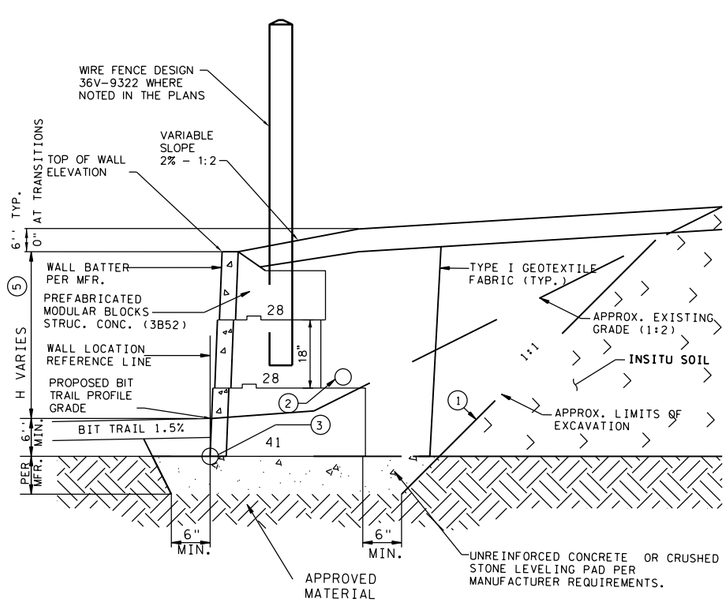

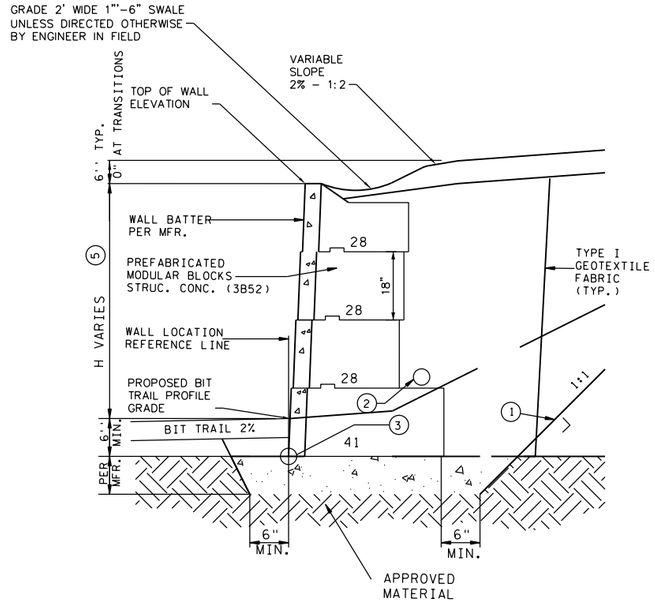

PRECAST MODULAR BLOCK RETAINING WALL
TYPICAL SECTION LARGE BLOCK (WETCAST) RETAINING WALL

TYPICAL SECTION NOTES:

1. EXCAVATION, LEVELING PAD, AND BACKFILL INCIDENTAL TO 2411 PRECAST MODULAR BLOCK WALL.
2. 4" THERMOPLASTIC PERFORATED PIPE, SPEC. 3245. WRAP WITH TYPE 1 GEOTEXTILE, SPEC. 3733 (TYP.), INSTALLATION AS PER SPEC. 2502 (INCIDENTAL). CONNECT TO DRAINAGE SYSTEM OR OUTLET TO PRECAST CONCRETE HEADWALL (INCIDENTAL).
3. RETAINING WALL ALIGNMENTS LOCATED ALONG REFERENCE LINE WHICH IS ALONG FRONT FACE OF WALL AT BASE OF BOTTOM BLOCK
4. 3/4" COARSE AGGREGATE PER MANUFACTURER'S RECOMMENDATION.
5. EXPOSED FACES OF MODULAR BLOCKS SHALL BE TEXTURED. SEE SPECIAL PROVISIONS.
6. BLOCK SIZES SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY. ACTUAL BLOCK SIZES TO BE PER MANUFACTURER'S DESIGN.
7. CONTRACTOR TO DESIGN CABLE HARDWARE AND TENSIONING SYSTEM. CONTRACTOR TO DESIGN BRACING/ANCHORING SYSTEM FOR FENCE.

DESIGNED BY: RKM
DRAWN BY: KJC
CHECKED BY: GSB

NO.	BY	DATE	REVISIONS

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL
STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

RETAINING WALL DETAILS

WR05
OF WR05
59 / 95

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9/23/2021

GENERAL NOTES AND SOIL NAIL WALL DESIGN PARAMETERS:

1. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIAL PROVISIONS.

2. CONCRETE MINIMUM COMPRESSIVE STRENGTHS.

   SHOTCRETE: F'c = 4 KSI

   NAIL GROUT: F'c = 3 KSI

3. UNLESS NOTED OTHERWISE ON THE PLANS, MINIMUM CONCRETE OR SHOTCRETE COVER MEASURED FROM THE FACE OF CONCRETE OR SHOTCRETE TO THE FACE OF ANY REINFORCING BAR OR METALLIC ELEMENT SHALL BE AS FOLLOWS:
   FRONT SIDE OF FINAL FACING EXPOSED TO WEATHER:.....2 IN.
   FINAL SHOTCRETE FACING EXPOSED TO SOIL:.....2 IN.
   FINAL CAST-IN-PLACE CONCRETE CAST AGAINST INITIAL SHOTCRETE:....1.5 IN.

4. UNLESS OTHERWISE SHOWN ON THE PLANS, ALL EXTERIOR CORNERS AND EDGES SHALL HAVE A 0.75 INCH CHAMFER AND ALL INTERIOR CORNERS SHALL HAVE A 0.75 INCH FILLET.

5. PROVIDE GEOTECHNICAL INVESTIGATION REPORT, APPROVED BY THE ENGINEER, THAT INCLUDES REPRESENTATIVE SOIL VALUES TO BE USED IN THE DESIGN OF THE SOIL NAIL WALL. SEE SPECIAL PROVISIONS.

6. ALL DRILLED NAIL LENGTHS (L) AND NAIL SIZES SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

7. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES.

8. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING STABLE SLOPES ABOVE AND BELOW THE SOIL NAIL WALL.

9. NO GENERAL EXCAVATION OPEN CUTS STEEPER THAN 1H:1V SHALL BE MADE WITHIN 15 FEET IN FRONT OF THE WALLS WITHOUT APPROVAL OF THE ENGINEER.

10. UNLESS SPECIFIED OTHERWISE, THE ENGINEER WILL PROVIDE SURVEY CONTROL POINTS FOR TOP OF WALL ALIGNMENT. THE CONTRACTOR IS RESPONSIBLE FOR SURVEY CONTROL DURING EXCAVATION .

11. AT THE CONTRACTOR'S OPTION, NAILS MAY BE DRILLED AND PLACED THROUGH A TEMPORARY STABILIZING BERM.

12. EXCAVATION IN THE VICINITY OF THE WALL FACE SHALL REQUIRE SPECIAL CARE AND EFFORT COMPARED TO GENERAL ROADWAY EXCAVATION. SEE SPECIAL PROVISIONS.

TYPICAL CONSTRUCTION SEQUENCE:

1. WALLS SHALL BE BUILT FROM THE TOP DOWN IN ACCORDANCE WITH THE STAGED EXCAVATION LIFTS SHOWN ON SHEET SNW04 AND SPECIAL PROVISIONS.

2. THE FOLLOWING WALL CONSTRUCTION SEQUENCE FOR EACH EXCAVATION LIFT SHALL BE COMPLETE PRIOR TO INITIATING WORK ON THE NEXT EXCAVATION LIFT UNLESS OTHERWISE APPROVED BY THE ENGINEER.

   2.1. FURNISH & INSTALL PRE-PRODUCTION VERIFICATION TEST NAILS.

   2.2. FURNISH & INSTALL INCLINOMETER(S) AS SHOWN.

   2.3. EXCAVATE TO STAGE 1 ROUGH GRADE.

   2.4. TRIM TO FINAL WALL FACE EXCAVATION LINE OR TO STABILIZING BERM (IF USED).

   2.5. FURNISH & INSTALL AND GROUT SOIL NAILS. TRIM STABILIZATION BERM (IF USED) TO FINAL WALL FACE EXCAVATION LINE.

   2.6. FURNISH & INSTALL GEOCOMPOSITE DRAINAGE STRIP.

   2.7. PERFORM NAIL PULLOUT TESTS PER SPECIFICATIONS BEFORE SHOTCRETE IS APPLIED AND AFTER NAIL GROUT HAS ATTAINED ITS SPECIFIED STRENGTH.

   2.8. PLACE REINFORCING AND APPLY SHOTCRETE. NO EXPOSED EXCAVATION SHALL BE LEFT UNSTABILIZED BY SHOTCRETE AT THE END OF THE WORK DAY UNLESS ENGINEER APPROVES OTHERWISE.

   2.9. CONDUCT VERIFICATION AND PROOF LOAD TESTS PER SPECIFICATIONS. PROTECT PROOF TEST LOCATIONS FROM SHOTCRETE. GROUT PROOF TEST SOIL NAILS.

   2.10. CONDUCT QUALITY CONTROL OF MATERIALS, INCLUDING GROUT AND SHOTCRETE PER SPECIFICATIONS.

   2.11. CONSTRUCT FOOTING DRAIN. FURNISH & INSTALL PVC CONNECTOR PIPES DURING CONSTRUCTION OF THE FINAL SHOTCRETE LIFT TO PROVIDE DRAINAGE OF THE GEOCOMPOSITE DRAINAGE STRIPS INTO THE FOOTING DRAIN OR WALL BASE AS SHOWN ON SHEET SNW05.

   2.12. FURNISH & INSTALL CAST-IN-PLACE FINAL FACING.

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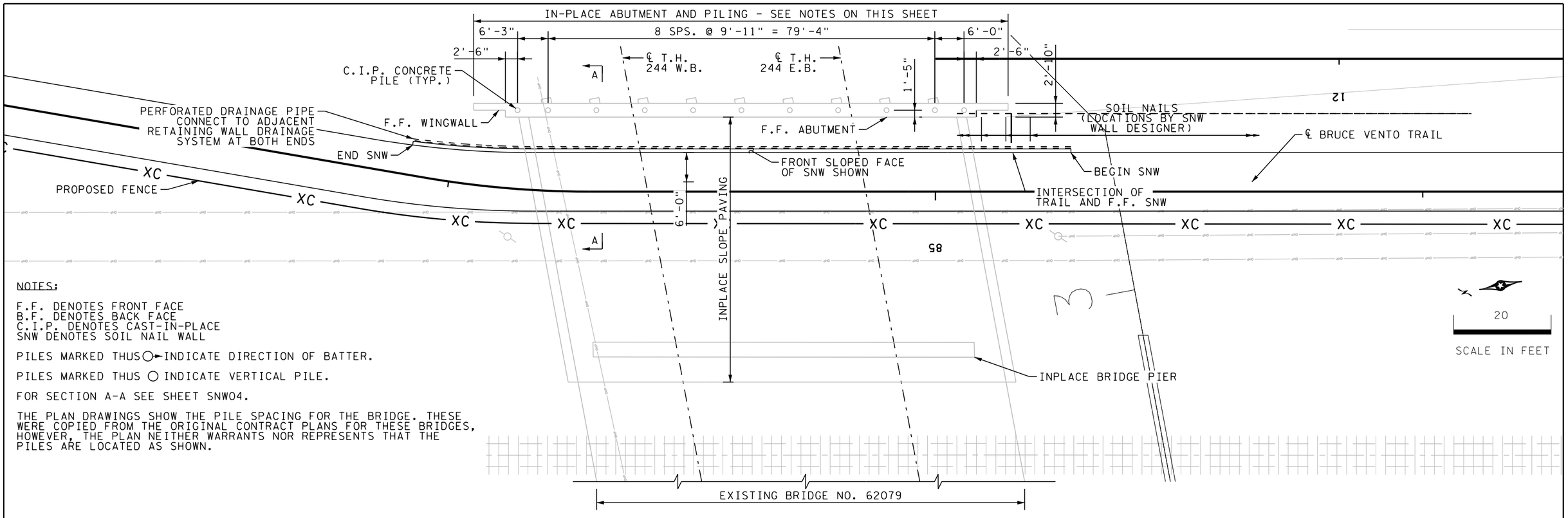
DESIGNED BY: KJC					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn	RAMSEY COUNTY, MINNESOTA	SOIL NAIL WALL	SNW01
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ (Licensed Professional Engineer)	767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com	BRUCE VENTO TRAIL		OF SNW05
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)		60 / 95



NOTES:

F.F. DENOTES FRONT FACE
B.F. DENOTES BACK FACE
C.I.P. DENOTES CAST-IN-PLACE
SNW DENOTES SOIL NAIL WALL

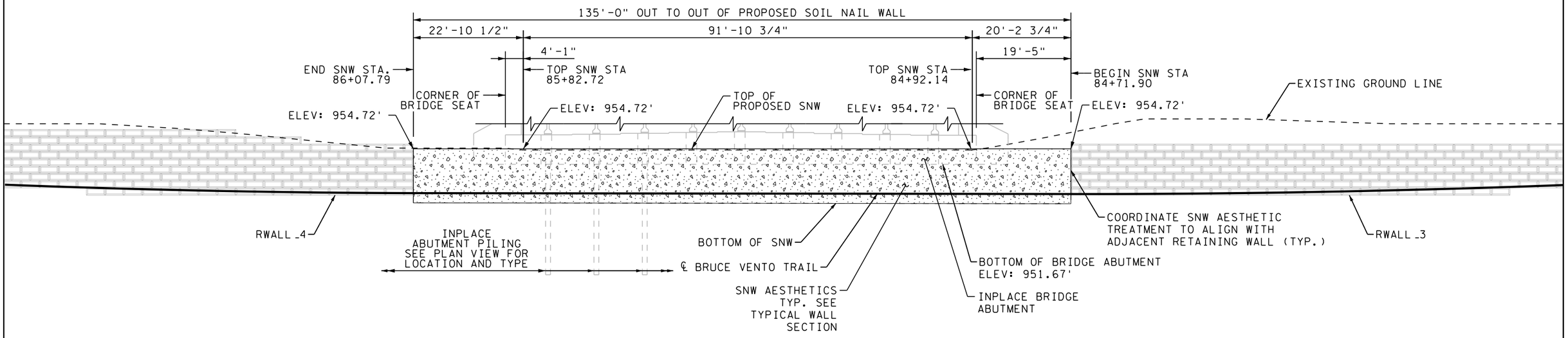
PILES MARKED THUS ○← INDICATE DIRECTION OF BATTER.

PILES MARKED THUS ○ INDICATE VERTICAL PILE.

FOR SECTION A-A SEE SHEET SNW04.

THE PLAN DRAWINGS SHOW THE PILE SPACING FOR THE BRIDGE. THESE WERE COPIED FROM THE ORIGINAL CONTRACT PLANS FOR THESE BRIDGES, HOWEVER, THE PLAN NEITHER WARRANTS NOR REPRESENTS THAT THE PILES ARE LOCATED AS SHOWN.

SOIL NAIL WALL 1 PLAN



SOIL NAIL WALL 1 ELEVATION

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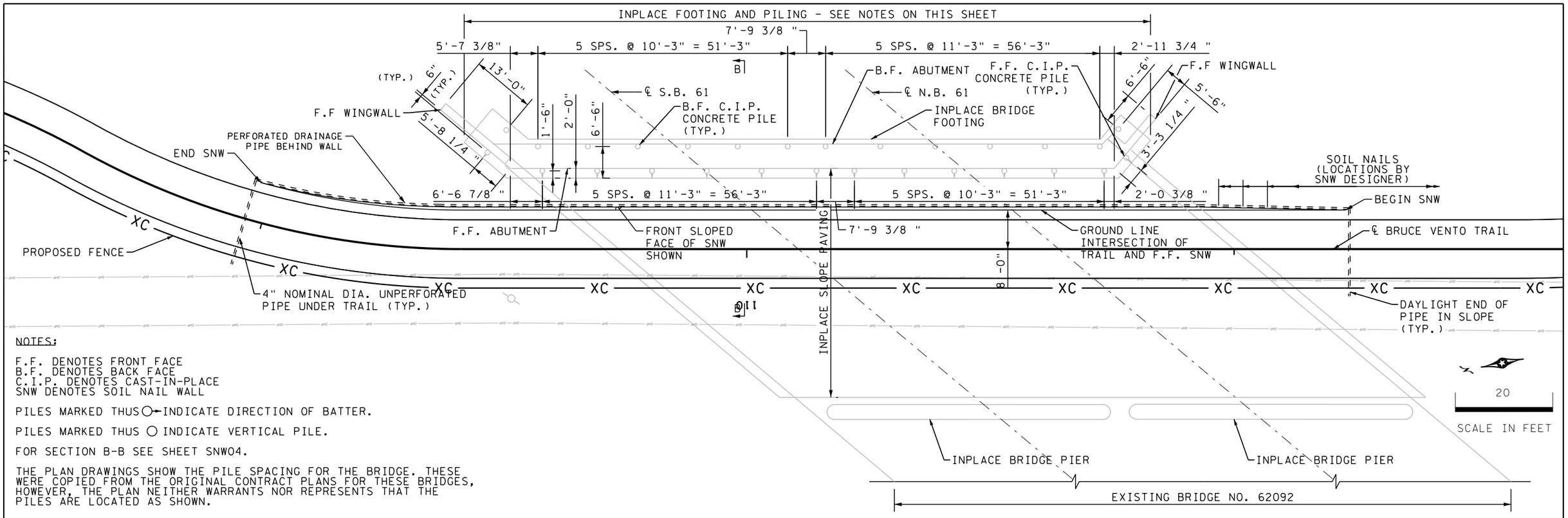


NOTES:

F.F. DENOTES FRONT FACE
B.F. DENOTES BACK FACE
C.I.P. DENOTES CAST-IN-PLACE
SNW DENOTES SOIL NAIL WALL

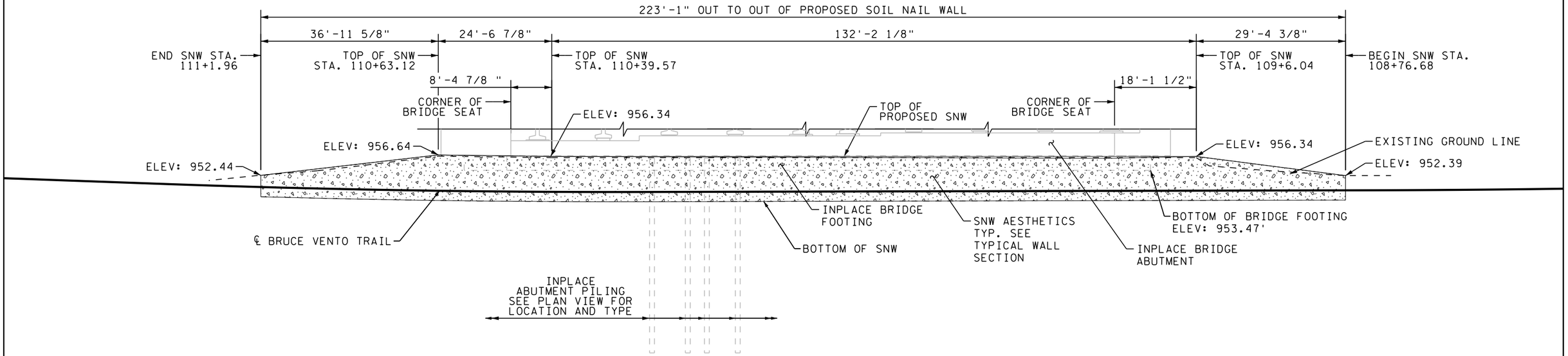
PILES MARKED THUS ○← INDICATE DIRECTION OF BATTER.

PILES MARKED THUS ○ INDICATE VERTICAL PILE.

FOR SECTION B-B SEE SHEET SNW04.

THE PLAN DRAWINGS SHOW THE PILE SPACING FOR THE BRIDGE. THESE WERE COPIED FROM THE ORIGINAL CONTRACT PLANS FOR THESE BRIDGES, HOWEVER, THE PLAN NEITHER WARRANTS NOR REPRESENTS THAT THE PILES ARE LOCATED AS SHOWN.

SOIL NAIL WALL 2 PLAN



SOIL NAIL WALL 2 ELEVATION

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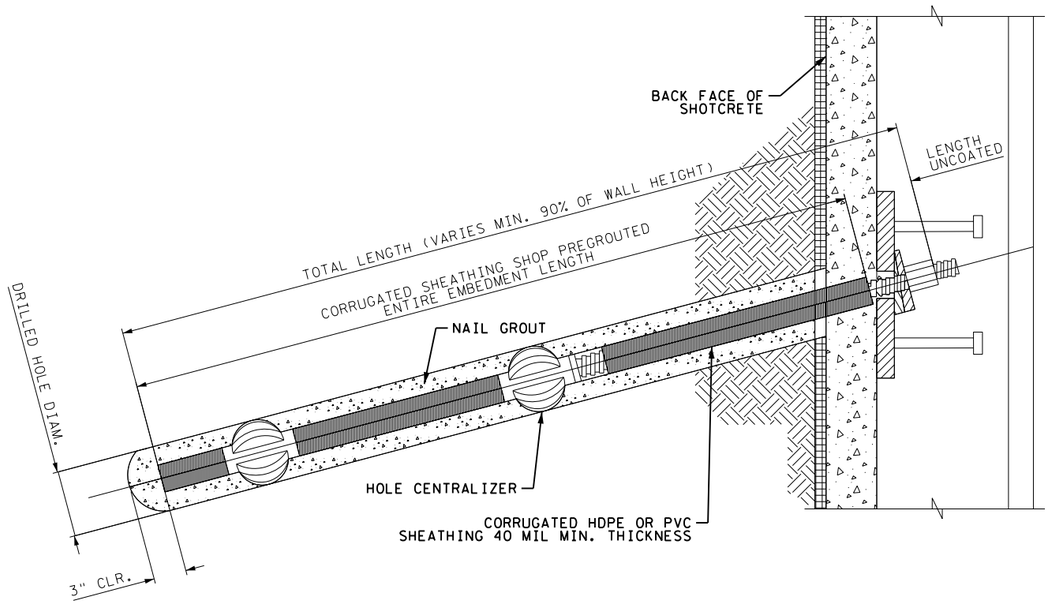
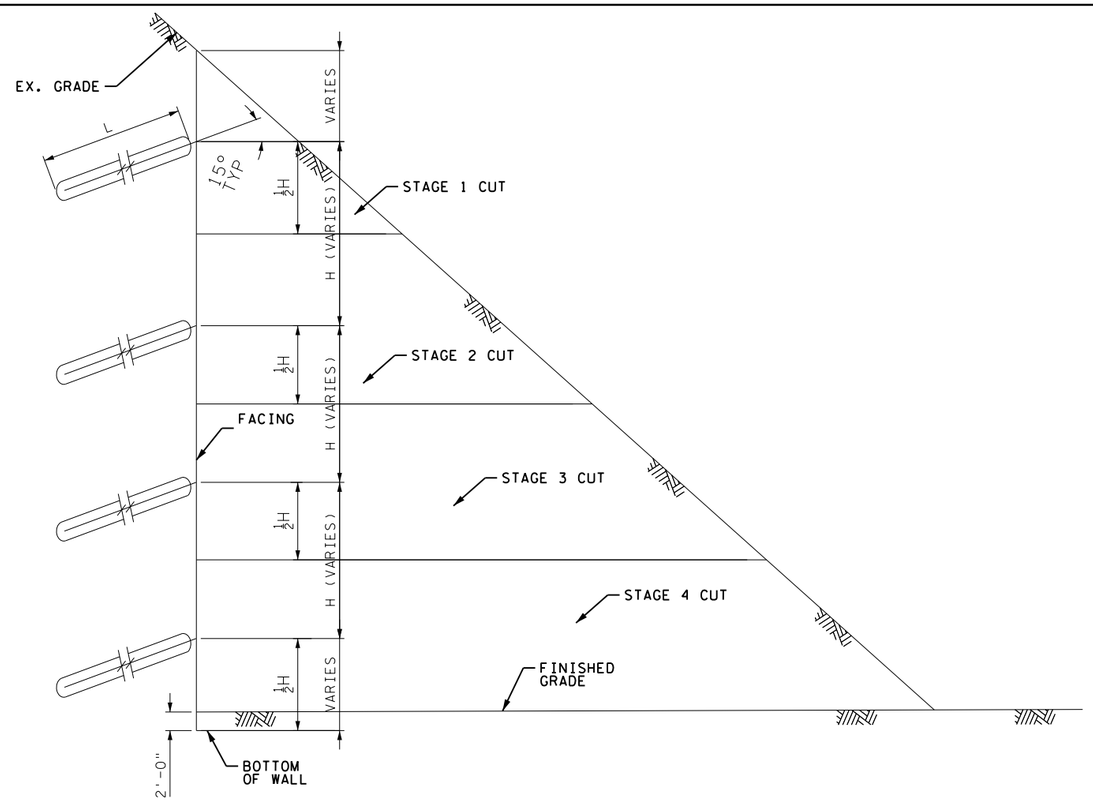


SOIL NAIL DETAIL

NOT TO SCALE



WALL STAGING SECTION (TYP.)

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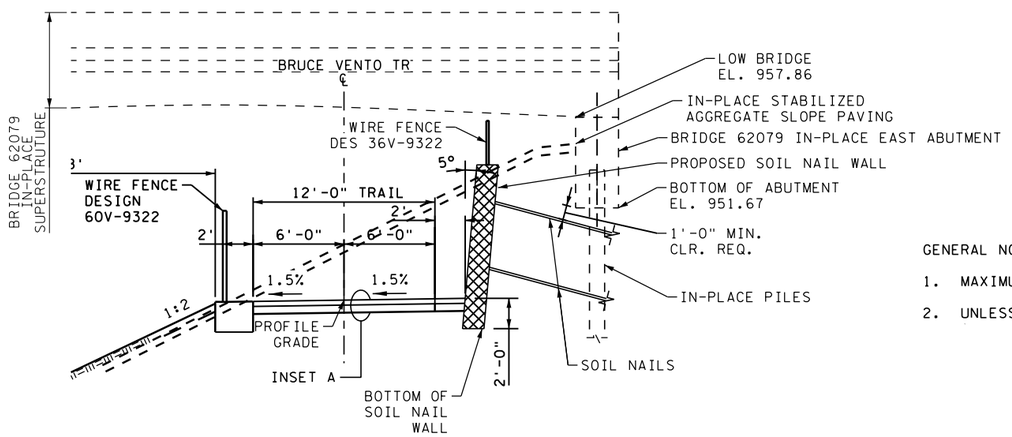
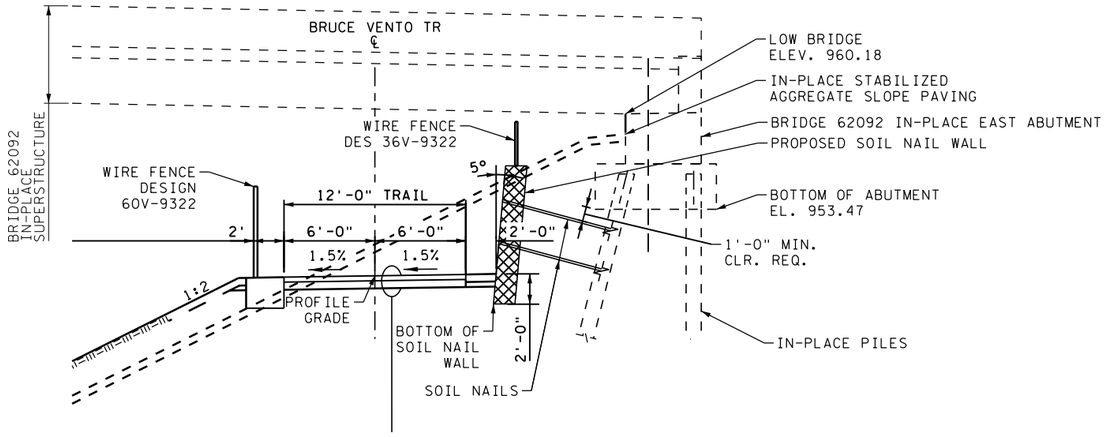


SECTION A-A

SOIL NAIL WALL 1

GENERAL NOTES:

1. MAXIMUM SLOPE OF 0.01
2. UNLESS OTHERWISE



SECTION B-B

SOIL NAIL WALL 2

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DRAWN BY: WRS					Certified By: _____ Lic. No. _____ (Licensed Professional Engineer)		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL) — 63 / 95
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		

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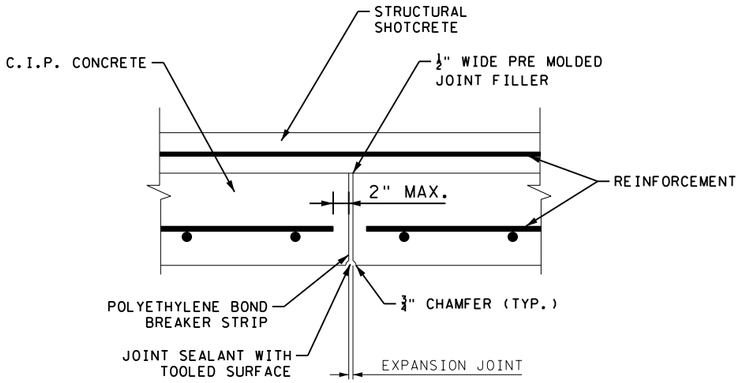
NOTE:

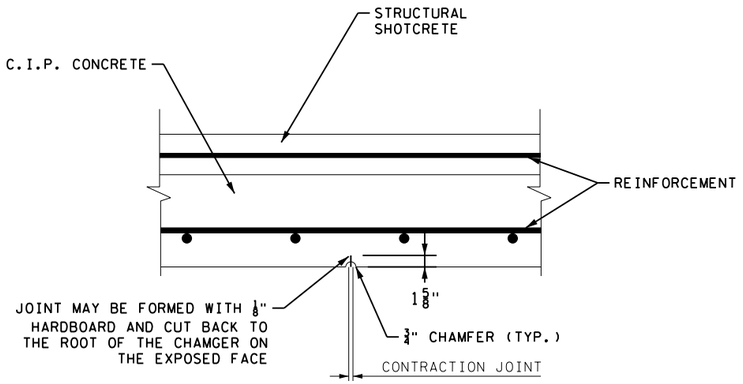
EXPANSION AND CONTRACTION JOINTS NOT REQUIRED THROUGH SHOTCRETE. PLACE EXPANSION JOINTS AT 60'-0" MAX SPACING. PLACE CONTRACTION JOINTS AT 30'-0" MAX SPACING FROM ADJACENT EXPANSION JOINT OR CONTRACTION JOINT. COORDINATE JOINT LOCATIONS WITH AESTHETIC TREATMENT. SUBMIT PROPOSED EXPANSION AND CONTRACTION JOINTS TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

PROVIDE CONCRETE SURFACE TEXTURE AND COLOR TO MATCH RECON WEATHERED EDGE BLOCK. SUBMIT PROPOSED TEXTURE AND COLOR TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. COORDINATE AESTHETICS TO ALIGN WITH ADJACENT RETAINING WALLS AT SOIL NAIL WALL 1.

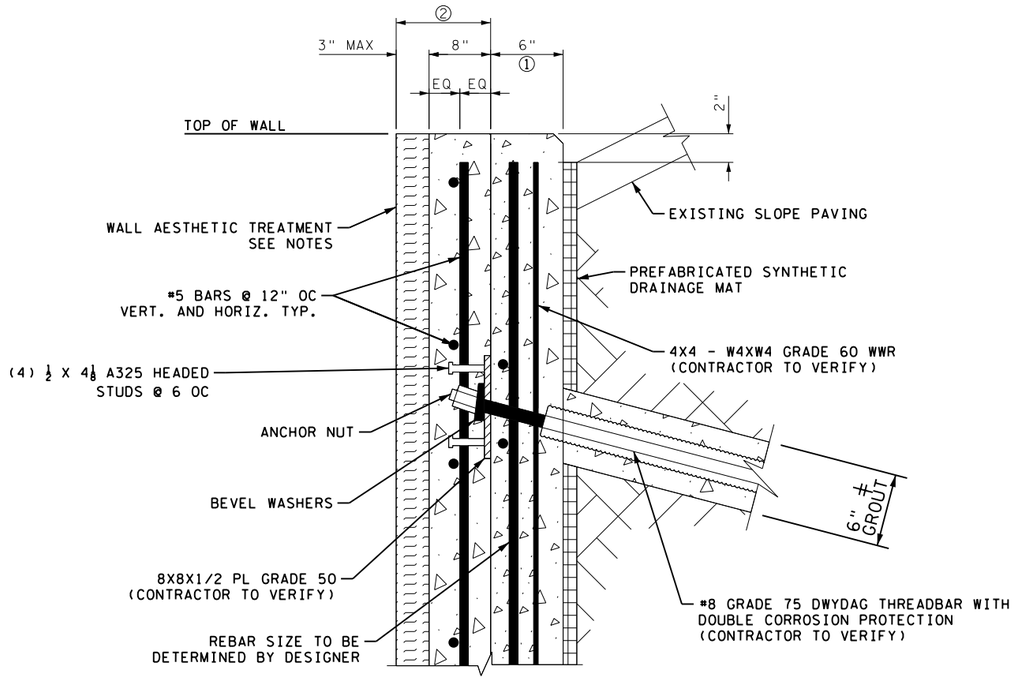
① STRUCTURAL SHOTCRETE FACING

② CONSTRUCT C.I.P. CONCRETE FACING IN ACCORDANCE WITH AESTHETIC REQUIREMENTS. C.I.P. CONCRETE FACING SHALL BE MnDOT MIX 3B52. SEE SPECIAL PROVISIONS.



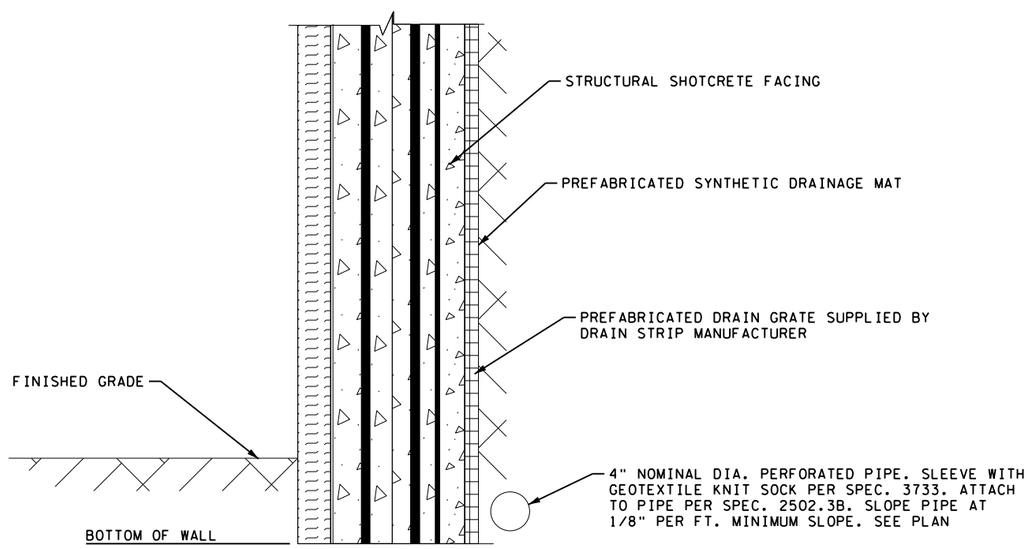


EXPANSION AND CONTRACTION JOINT DETAILS



TYPICAL WALL SECTION DETAIL

NOT TO SCALE



BASE DRAIN DETAIL

NOT TO SCALE

DESIGNED BY:	WRS						
DRAWN BY:	WRS						
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS		

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Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

SOIL NAIL WALL

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

SNW05
OF SNW05
64 / 95

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9/23/2021

LEGEND

- PROPOSED STORM SEWER
- DRAINAGE FLOW DIRECTION
- XXXX — STORM STRUCTURE NUMBER
- RANDOM RIPRAP WITH GEOTEXTILE FILTER
- EXISTING BNSF DITCH FLOW
- PROPOSED DITCH FLOW
- PROPOSED CATCHMENT AREA
- WETLAND

100

SCALE IN FEET

℄ BRUCE VENTO TRAIL

BNSF TRACK

0.65%

50

BEGIN CONSTRUCTION
BEGIN S.P. XXXX-XX
STA. 50+11.68

1.90%

BUERKLE ROAD

1.50%

101

100

CONSTRUCTION LIMITS

WETLAND BOUNDARY

55

1.50%

EXISTING 48" CULVERT

1.50%

PROPOSED BRIDGE

60

1.50%

1.50%

CONSTRUCTION LIMITS

MATCHLINE BRUCE VENTO TRAIL
STA.STA.62+00 SEE SHEET DR02

BRUCE VENTO TR

930

920

910

900

101 TOC:911.97

100 TOC:911.97

39.92 LF
18" RCP
@ 0.40%

IE:911.97

IE:911.81

K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\CD553009_dr01.dgn
$MODELNAME$

DESIGNED BY:	KJC					
DRAWN BY:	KJC					
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
PH: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

DRAINAGE PLAN AND PROFILE
STA 50+00 TO STA 62+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

DR01
OF DR10

65 / 95

3:47:07 PM

9/23/2021

LEGEND

- PROPOSED STORM SEWER
- DRAINAGE FLOW DIRECTION
- XXXX — STORM STRUCTURE NUMBER
- RANDOM RIPRAP WITH GEOTEXTILE FILTER
- EXISTING BNSF DITCH FLOW
- PROPOSED DITCH FLOW
- PROPOSED CATCHMENT AREA
- WETLAND

100

SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL STA.62+00 SEE SHEET DR01

MATCHLINE BRUCE VENTO TRAIL STA.76+00 SEE SHEET DR03

BNSF TRACK

BNSF DITCH 30' FROM ℄ TRACK

℄ BRUCE VENTO TRAIL

BNSF DITCH 15' FROM ℄ TRACK

CONSTRUCTION LIMITS

CONSTRUCTION LIMITS

CONNECT TO EXISTING STORM SEWER

65

70

75

1.50%

200

201

202

203

BRUCE VENTO TR

950

940

930

920

203 TOC:942.85

202 TOC:942.27

201 TOC:944.27

200 TOC:938.65

IE:940.10

25.00 LF 15" RCP @ 2.29%

IE:939.52

186.86 LF 15" RCP @ 0.40%

IE:938.78

11.27 LF 15" RCP @ 1.11%

IE:938.65

K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\CD553009_dr02.dgn

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RAMSEY COUNTY, MINNESOTA

BRUCE VENTO TRAIL

DRAINAGE PLAN AND PROFILE

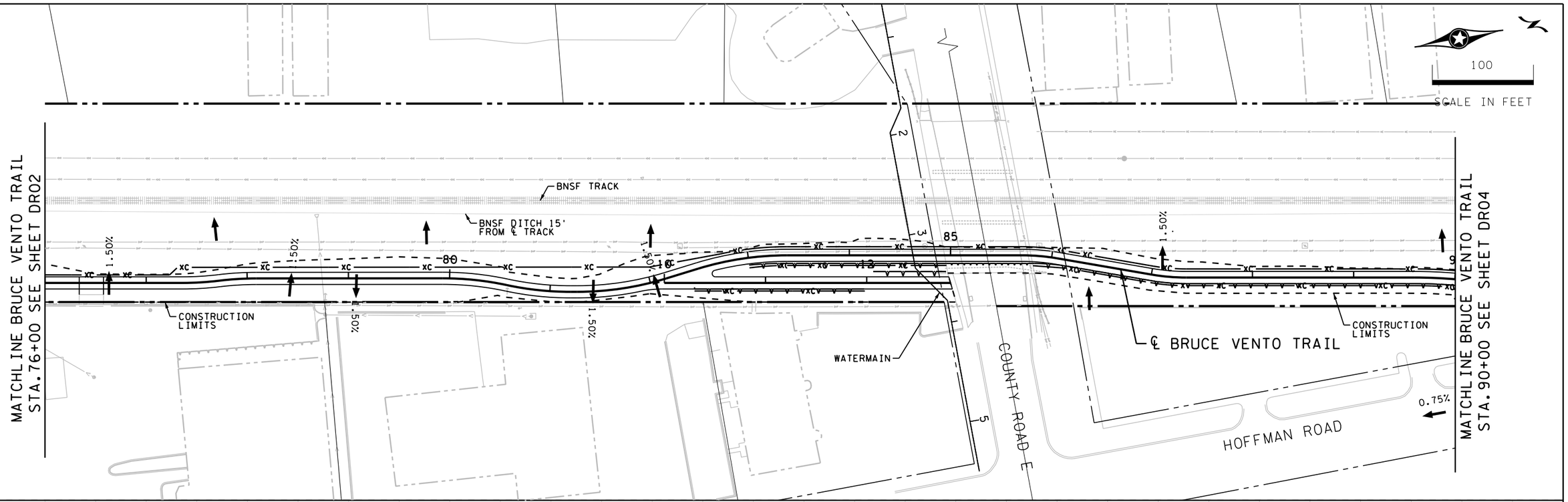
STA 62+00 TO STA 76+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

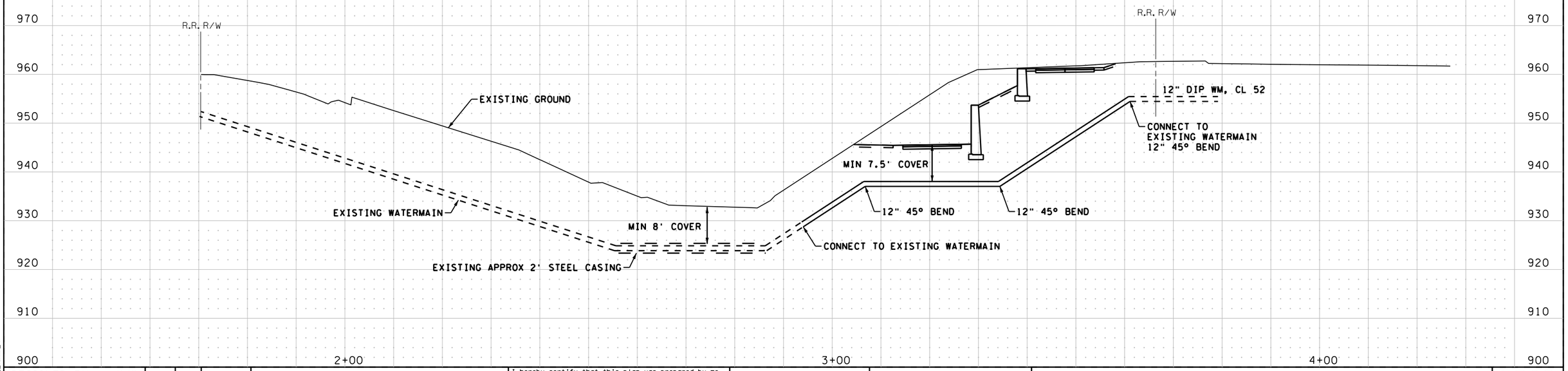
DR02

OF DR10

66 / 95



COUNTY ROAD E WATERMAIN



DESIGNED BY: KJC					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA BRUCE VENTO TRAIL
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer		DRAINAGE PLAN AND PROFILE STA 76+00 TO STA 90+00
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

DR03
OF DR10
67 / 95

LEGEND

- PROPOSED STORM SEWER
- DRAINAGE FLOW DIRECTION
- XXXX STORM STRUCTURE NUMBER
- RANDOM RIPRAP WITH GEOTEXTILE FILTER
- EXISTING BNSF DITCH FLOW
- PROPOSED DITCH FLOW
- PROPOSED CATCHMENT AREA
- WETLAND

100
SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL STA. 90+00 SEE SHEET DR03

BNSF TRACK

BNSF DITCH 20' FROM ℄ TRACK

CONNECT INTO EXISTING STORM SEWER

CONSTRUCTION LIMITS

400 — 1.50% — 401 — 1.50% — 402 — 1.75% — 504 — 2.20% — 503

HOFFMAN ROAD

℄ BRUCE VENTO TRAIL

MATCHLINE BRUCE VENTO TRAIL STA. 104+00 SEE SHEET DR05

BRUCE VENTO TR

980 / 970 / 960 / 950

400 TOC:955.48 IE:955.48

58.63 LF INP 24" RCP @ 3.50%

401 TOC:969.40 IE:965.79 IE:957.54

CONNECT TO EXISTING STORM SEWER SYSTEM (2)

248.62 LF 15" RCP @ 2.00%

402 TOC:974.26 IE:970.76

504 TOC:974.67 IE:971.17

300.00 LF 15" RCP @ 2.18%

503 TOC:968.13 IE:964.63 IE:964.63

MATCHLINE BRUCE VENTO TRAIL STA. 104+00 SEE SHEET DR05

K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\C0553009_dr04.dgn
$MODELNAME$

DESIGNED BY:	KJC
DRAWN BY:	KJC
CHECKED BY:	GSB

NO.	BY	DATE	REVISIONS

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Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

DRAINAGE PLAN AND PROFILE
STA 90+00 TO STA 104+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

DR04 OF DR10

68 / 95

3:47:10 PM

9/23/2021

LEGEND

- PROPOSED STORM SEWER
- DRAINAGE FLOW DIRECTION
- XXXX STORM STRUCTURE NUMBER
- RANDOM RIPRAP WITH GEOTEXTILE FILTER
- EXISTING BNSF DITCH FLOW
- PROPOSED DITCH FLOW
- PROPOSED CATCHMENT AREA
- WETLAND

100

SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL STA.104+00 SEE SHEET DR04

MATCHLINE BRUCE VENTO TRAIL STA.118+00 SEE SHEET DR06

TH 61

℄ BRUCE VENTO TRAIL

BNSF TRACK

BNSF DITCH 20' FROM ℄ TRACK

HOFFMAN ROAD

CONSTRUCTION LIMITS

UNDERGROUND STORAGE BMP

500 501 501A 502 600 601

105 110 115

1.50% 1.00%

BRUCE VENTO TR

970 960 950 940

299.98 LF 15" RCP @ 2.12%

502 TOC:961.78 IE:958.27

501A TOC:956.72 IE:953.65

501 TOC:954.84 IE:952.09

37.40 LF 15" RCP @ 3.00%

14.42 LF 15" RCP @ 3.00%

500 TOC:938.21 IE:940.56 IE:938.21

78.39 LF 15" RCP @ 3.00%

601 TOC:951.24 IE:948.49

600 TOC:948.09 IE:948.09

39.04 LF 15" RCP @ 1.00%

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Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA

BRUCE VENTO TRAIL

DRAINAGE PLAN AND PROFILE

STA 104+00 TO STA 118+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

DR05 OF DR10

69 / 95

LEGEND

- PROPOSED STORM SEWER
- DRAINAGE FLOW DIRECTION
- XXXX STORM STRUCTURE NUMBER
- RANDOM RIPRAP WITH GEOTEXTILE FILTER
- EXISTING BNSF DITCH FLOW
- PROPOSED DITCH FLOW
- PROPOSED CATCHMENT AREA
- WETLAND

100
SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL STA. 118+00 SEE SHEET DR05

MATCHLINE BRUCE VENTO TRAIL STA. 132+00 SEE SHEET DR07

CONSTRUCTION LIMITS

BNSF TRACK

℄ BRUCE VENTO TRAIL

BNSF DITCH 25' FROM ℄ TRACK

CONSTRUCTION LIMITS

610 — 120 — 1.50% — 620 — 125 — 630 — 640 — 130 — 1.50% — 650

611 — 0.35% — 621 — 631 — 641 — 1.30% — 651

HOFFMAN ROAD

UNDERGROUND STORAGE BMP (611)
UNDERGROUND STORAGE BMP (621)
UNDERGROUND STORAGE BMP (631)
UNDERGROUND STORAGE BMP (641)
UNDERGROUND STORAGE BMP (651)

BRUCE VENTO TR

960
950
940
930

611 TOC:948.60 — 610 TOC:945.54
IE:945.85 — IE:945.54
30.44 LF 15" RCP @ 1.01%

621 TOC:947.21 — 620 TOC:944.16
IE:944.46 — IE:944.16
29.08 LF 15" RCP @ 1.00%

631 TOC:946.79 — 630 TOC:943.75
IE:944.04 — IE:943.75
28.64 LF 15" RCP @ 1.00%

641 TOC:943.84 — 640 TOC:940.80
IE:941.09 — IE:940.80
29.18 LF 15" RCP @ 1.01%

651 TOC:939.84 — 650 TOC:936.78
IE:937.09 — IE:936.78
30.82 LF 15" RCP @ 1.00%

DESIGNED BY: KJC				I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA BRUCE VENTO TRAIL
DRAWN BY: KJC				Certified By: _____ Lic. No. _____ Licensed Professional Engineer		DRAINAGE PLAN AND PROFILE STA 118+00 TO STA 132+00
CHECKED BY: GSB	NO.	BY	DATE	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

REVISIONS

DR06 OF DR10

70 / 95

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$MODELNAME$

LEGEND

- PROPOSED STORM SEWER
- DRAINAGE FLOW DIRECTION
- XXXX STORM STRUCTURE NUMBER
- RANDOM RIPRAP WITH GEOTEXTILE FILTER
- EXISTING BNSF DITCH FLOW
- PROPOSED DITCH FLOW
- PROPOSED CATCHMENT AREA
- WETLAND

100
SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL STA.132+00 SEE SHEET DR06

MATCHLINE BRUCE VENTO TRAIL STA.146+00 SEE SHEET DR08

SCHEUNEMAN ROAD

℄ BRUCE VENTO TRAIL

BNSF TRACK

CONSTRUCTION LIMITS

BNSF DITCH 25' FROM ℄ TRACK

BNSF DITCH 35' FROM ℄ TRACK

660 670 680 690

661 671 682 681 691

1.50% 1.05% 0.30% 1.50% 0.95%

135 140 145

HOFFMAN ROAD

UNDERGROUND STORAGE BMP

COUNTY ROAD F

BRUCE VENTO TR

950 940 930 920

661 TOC:935.44
660 TOC:932.30
IE:932.69
39.49 LF
15" RCP
@ 1.01%
IE:932.30

671 TOC:931.52
670 TOC:928.43
IE:928.77
34.48 LF
15" RCP
@ 1.00%
IE:928.43

682 TOC:929.46
681 TOC:929.46
680 TOC:926.98
IE:926.71
IE:926.67
IE:926.67
IE:926.54
10.00 LF
15" RCP
@ 0.40%
32.50 LF
15" RCP
@ 0.40%

691 TOC:930.16
690 TOC:928.06
IE:927.41
33.00 LF
15" RCP
@ 0.40%
IE:927.28

DESIGNED BY:	KJC					
DRAWN BY:	KJC					
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	

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Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

DRAINAGE PLAN AND PROFILE
STA 132+00 TO STA 146+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

DR07
OF DR10
71 / 95

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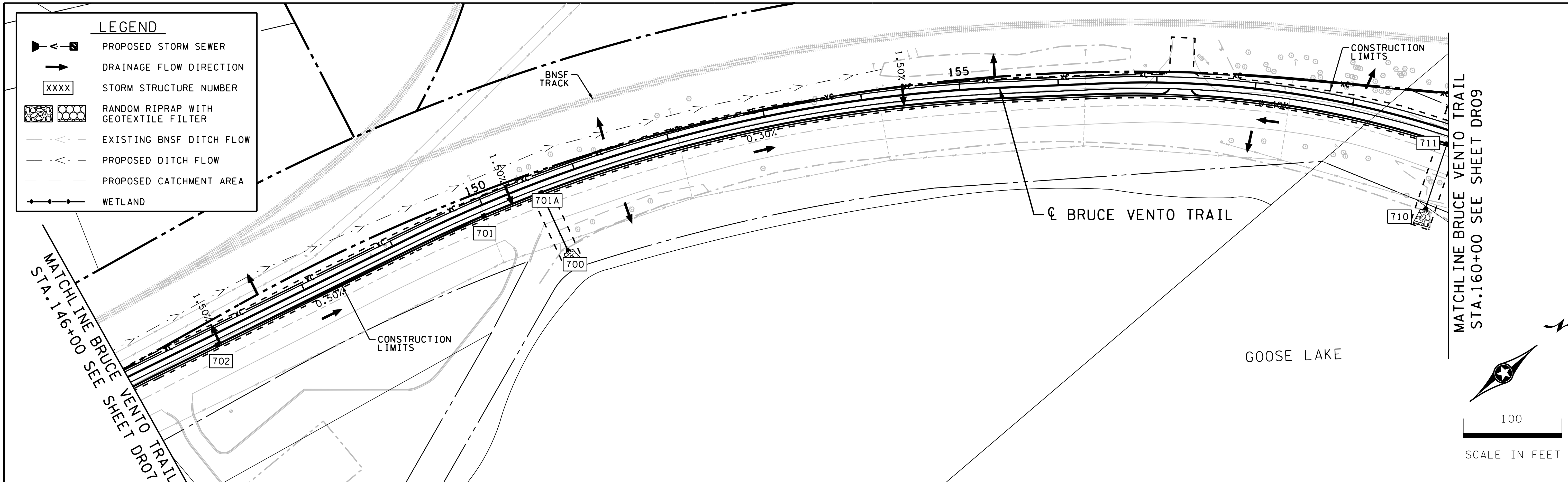
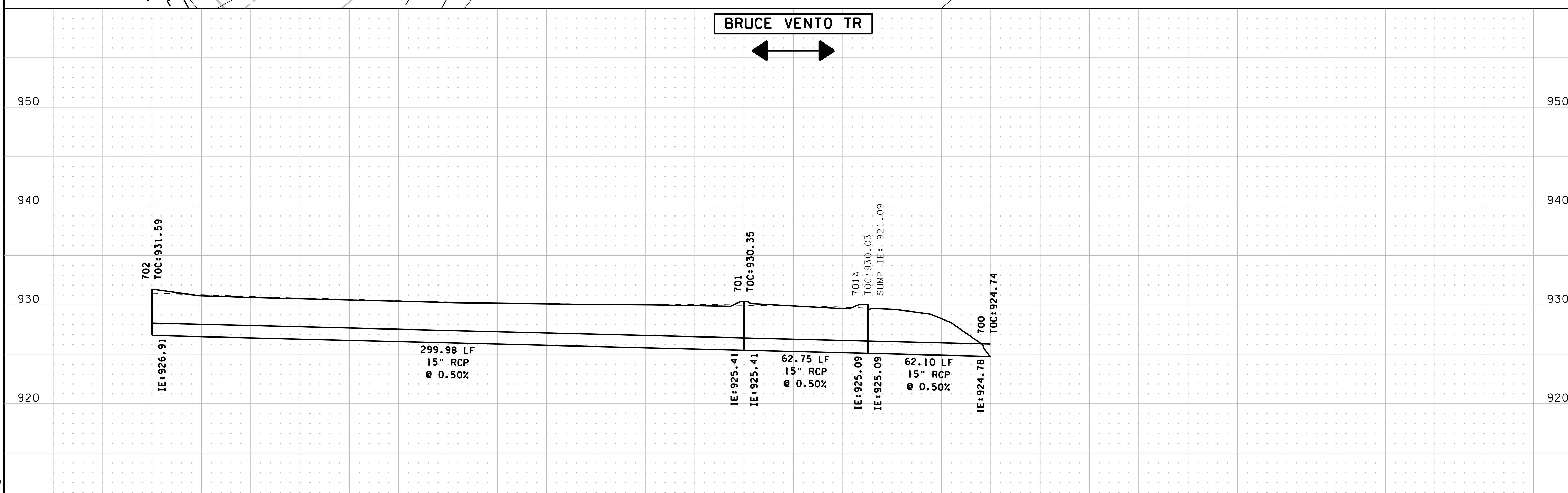
$MODELNAME$





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Printed Name: ____________ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

DRAINAGE PLAN AND PROFILE
STA 146+00 TO STA 160+00

DR08 OF DR10

K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\CD553009_dr08.dgn
$MODELNAME$
9/23/2021
3:47:13 PM

MATCHLINE BRUCE VENTO TRAIL
STA. 160+00 SEE SHEET DR08

MATCHLINE BRUCE VENTO TRAIL
STA. 174+00 SEE SHEET DR10

BNSF TRACK

CONSTRUCTION LIMITS

PLACE AGGREGATE BASE CLASS V OVER EXISTING PARKING AREA. GRADE TO DRAIN TO ACCOMODATE PROPOSED TRAIL GRADES.

℄ BRUCE VENTO TRAIL

CONSTRUCTION LIMITS

160

165

170

712

0.40%

722

HOFFMAN ROAD

0.35%

721

LEGEND

PROPOSED STORM SEWER		EXISTING BNSF DITCH FLOW	
DRAINAGE FLOW DIRECTION		PROPOSED DITCH FLOW	
XXXX	STORM STRUCTURE NUMBER	PROPOSED CATCHMENT AREA	
	RANDOM RIPRAP WITH GEOTEXTILE FILTER	WETLAND	

100

SCALE IN FEET

BRUCE VENTO TR

950
940
930
920

712
TOC:929.75
IE:926.43

297.89 LF
15" RCP
@ 0.30%

711
TOC:928.98
SUMP IE:921.54
IE:925.54

IE:925.54

66.79 LF
15" RCP
@ 0.30%

710
TOC:925.09
IE:925.34

710

722
TOC:931.54
IE:927.78

299.88 LF
15" RCP
@ 0.30%

721
TOC:929.85
IE:926.88

IE:926.88

730

MATCHLINE BRUCE VENTO TRAIL
STA. 174+00 SEE SHEET DR10

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$MODELNAME$

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DRAWN BY:	KJC
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NO.	BY	DATE	REVISIONS

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

DRAINAGE PLAN AND PROFILE
STA 160+00 TO STA 174+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

DR09
OF DR10

MATCHLINE BRUCE VENTO TRAIL
STA.174+00 SEE SHEET DR09

℄ BRUCE VENTO TRAIL

CONSTRUCTION LIMITS

175

723

724

730

CONSTRUCTION LIMITS

BNSF TRACK

180

100
SCALE IN FEET

LEGEND

- PROPOSED STORM SEWER
- DRAINAGE FLOW DIRECTION
- XXXX STORM STRUCTURE NUMBER
- RANDOM RIPRAP WITH GEOTEXTILE FILTER
- EXISTING BNSF DITCH FLOW
- PROPOSED DITCH FLOW
- PROPOSED CATCHMENT AREA
- WETLAND

BRUCE VENTO TR

MATCHLINE BRUCE VENTO TRAIL
STA.174+00 SEE SHEET DR09

940
930
920
910

721 TOC:929.85
IE:926.88
IE:926.88

249.82 LF
15" RCP
@ 0.30%

723 TOC:929.16
IE:926.13
IE:926.13

31.52 LF
15" RCP
@ 0.30%

724 TOC:928.66
SUMP IE:921.03
IE:926.03
IE:926.03

38.85 LF
15" RCP
@ 0.30%

730 TOC:926.99
IE:925.92

DESIGNED BY:	KJC					
DRAWN BY:	KJC					
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	

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Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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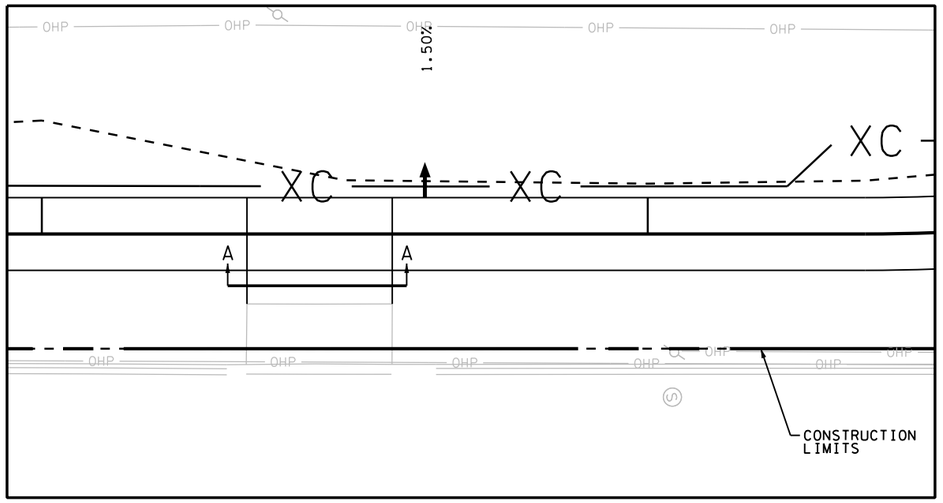
RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

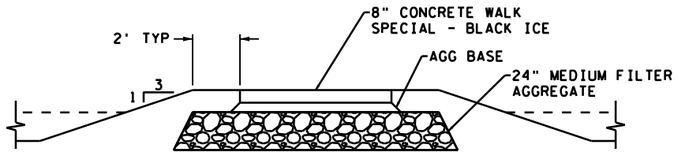
DRAINAGE PLAN AND PROFILE
STA 174+00 TO STA

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

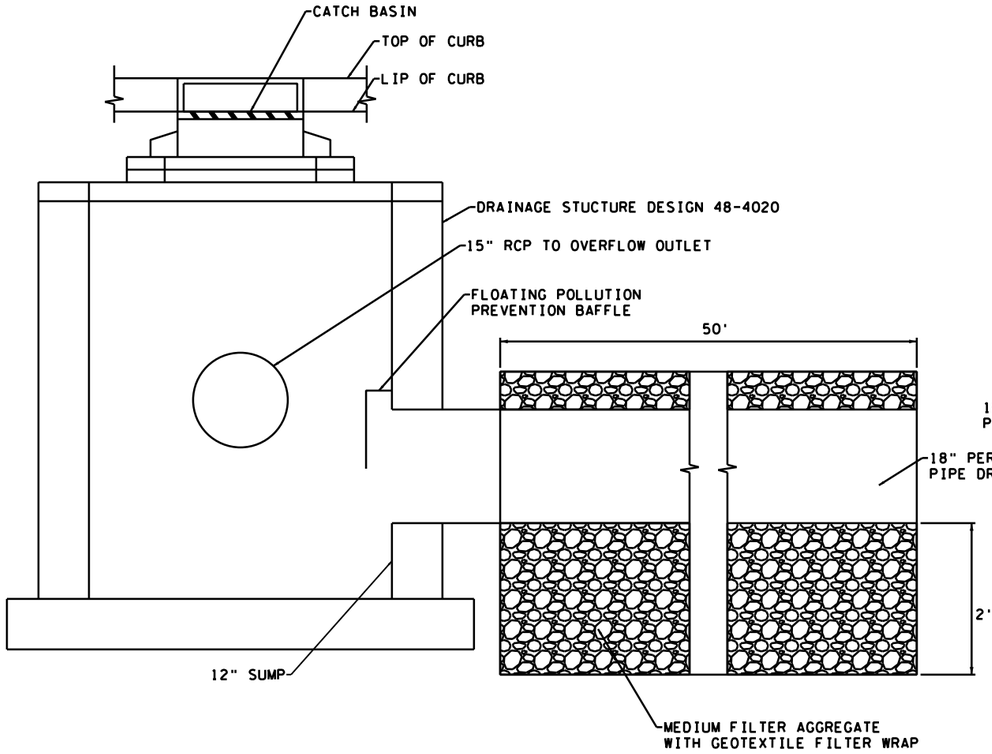
DR10
OF DR10



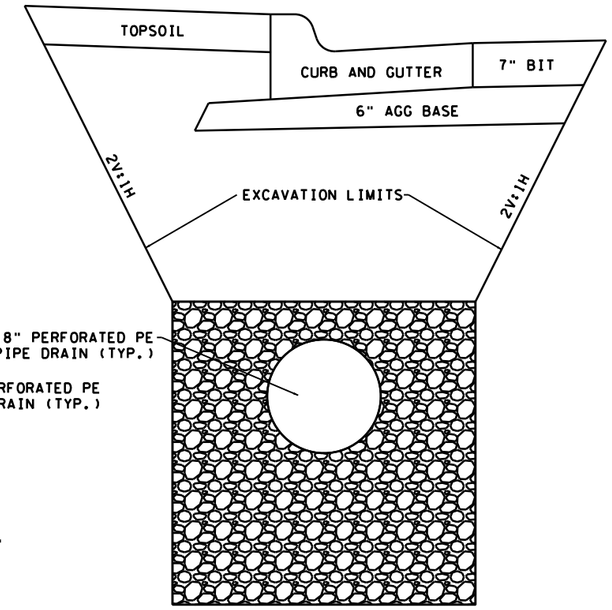
BMP SWALE DETAIL - PLAN VIEW



SECTION A-A



PIPE STORAGE AND TRENCH DRAIN - TYPICAL SECTION



PIPE STORAGE AND TRENCH DRAIN
TRANSVERSE SECTION

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DRAWN BY: KJC					Certified By: _____ Lic. No. _____ (Licensed Professional Engineer)
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021

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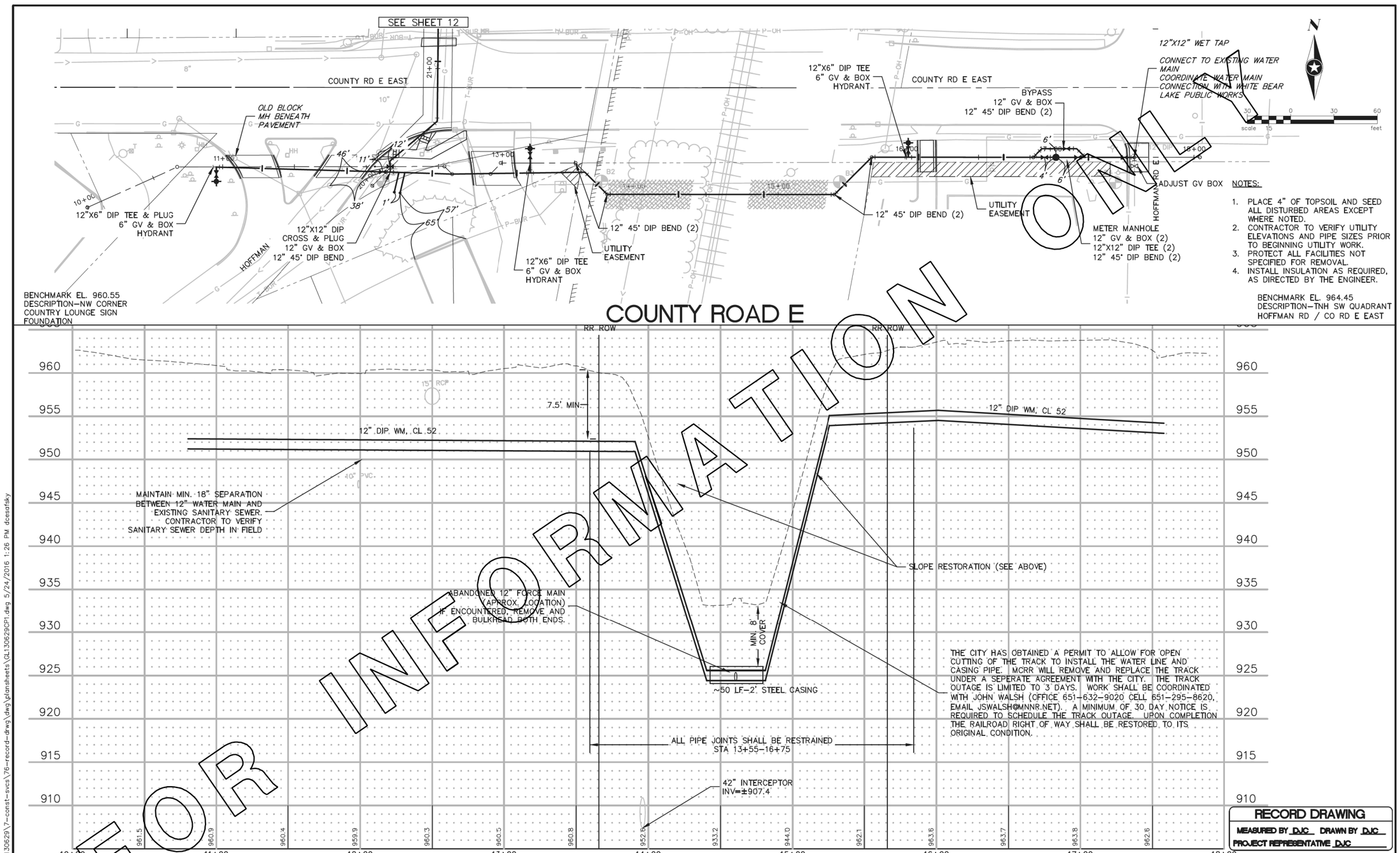
RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

DRAINAGE DETAILS

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

DRD01 OF DRD02

75 / 95



RECORD DRAWING
MEASURED BY DJC DRAWN BY DJC
PROJECT REPRESENTATIVE DJC

DRAWN BY: SDS					
DESIGNER: DJC					
CHECKED BY: GFA					
DESIGN TEAM	NO.	BY	DATE	REVISIONS	

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
GREGORY F. ANDERSON, PE
Date: 9.10.15 Lic. No. 26859

SEH
PHONE: 651.490.2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110–5196
www.sehinc.com

GEM LAKE, MINNESOTA

CONSTRUCTION PLAN
WATER MAIN EXTENSION

FILE NO. 130629

11 / 12

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$MODELNAME$

DESIGNED BY: KJC					
DRAWN BY: KJC					
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	

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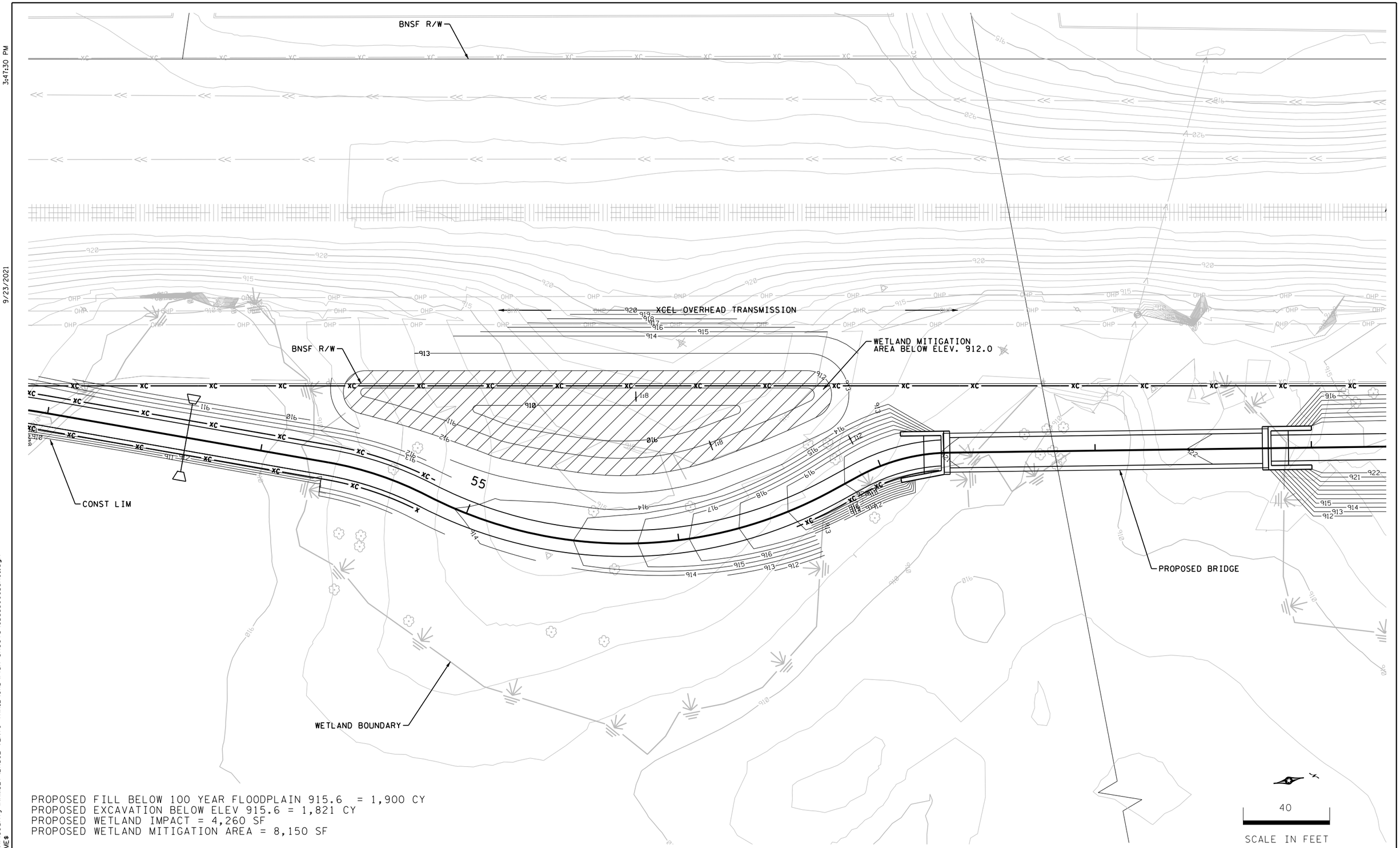
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
Ph: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

DRAINAGE DETAILS

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

DRD02
OF DRD02
76 / 95



PROPOSED FILL BELOW 100 YEAR FLOODPLAIN 915.6 = 1,900 CY
PROPOSED EXCAVATION BELOW ELEV 915.6 = 1,821 CY
PROPOSED WETLAND IMPACT = 4,260 SF
PROPOSED WETLAND MITIGATION AREA = 8,150 SF

DESIGNED BY:	RKM					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn	RAMSEY COUNTY, MINNESOTA
DRAWN BY:	KJC					Certified By: _____ Lic. No. _____	767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	BRUCE VENTO TRAIL
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	Licensed Professional Engineer		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)
						Printed Name: _____ Date: 9/23/2021		

CONTOUR PLAN

CN01 OF CN01

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STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

PROJECT DESCRIPTION/LOCATION

SP XXXX-XX IS LOCATED ON TH XX FROM XXX TO XXX IN THE CITIES OF XXXX IN XXXX COUNTY.

THE PLANNED SCOPE OF THE PROJECT INCLUDES:

(INCLUDE A DETAILED LIST OF ITEMS TO BE COMPLETED. IF IT INCLUDES BRIDGE
REHAB INCLUDE WHAT REHAB WORK IS GETTING
DONE I.E. REDECK, PIER REPAIRS, GIRDER REPAIR, ETC.)

SPECIAL AND IMPAIRED WATERS

THESE SPECIAL AND IMPAIRED WATERS ARE LOCATED WITHIN ONE MILE (AERIAL RADIUS) OF THE PROJECT LIMITS AND RECEIVE RUNOFF FROM THE PROJECT SITE. DUE TO THE PROXIMITY OF THESE SPECIAL AND IMPAIRED WATERS. THE BMPS DESCRIBED IN APPENDIX A OF THE NPDES PERMIT WILL APPLY TO ALL AREAS OF THE SITE.

WATERBODY	IMPAIRMENT(S)
LIST IMPAIRED OR SPECIAL	PHOSPHOROUS (NUTRIENT EUTROPHICATION BIOLOGICAL INDICATORS), TURBIDITY,
WATERS	DISSOLVED OXYGEN OR AQUATIC BIOTA (FISH BIOASSESSMENT, AQUATIC PLANT
	BIOASSESSMENT AND AQUATIC MACROINVERTEBRATE BIOASSESSMENT)

AREAS OF ENVIRONMENTAL SENSITIVITY (AES) AND INFESTED WATERS

IN ADDITION TO THE LIST OF SPECIAL AND IMPAIRED WATERS THE CONTRACTOR SHALL BE AWARE THAT THERE ARE WETLANDS AND EXISTING STORMWATER FACILITIES WITHIN AND NEAR THE PROJECT BOUNDARY.

THE FOLLOWING WATER BODIES HAVE BEEN LISTED BY THE DNR AS BEING INFESTED BY INVASIVE SPECIES: LIST WATERBODIES HERE.

SOIL TYPES

SOIL TYPES TYPICALLY FOUND ON THIS PROJECT ARE XXXXXX

LONG TERM MAINTENANCE AND OPERATION

MNDOT DISTRICT 2 MAINTENANCE STAFF ARE RESPONSIBLE FOR THE LONG TERM MAINTENANCE AND OPERATION OF THE PERMANENT STORMWATER SYSTEM.

PROJECT PERSONNEL AND TRAINING

THIS SWPPP WAS PREPARED BY PERSONNEL THAT ARE CERTIFIED IN THE DESIGN OF CONSTRUCTION SWPPPS. COPIES OF THE CERTIFICATIONS ARE ON FILE WITH MNDOT AND ARE AVAILABLE UPON REQUEST.

PROVIDE A CERTIFIED EROSION CONTROL SUPERVISOR IN GOOD STANDING WHO IS KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES. THE EROSION CONTROL SUPERVISOR WILL WORK WITH THE PROJECT ENGINEER TO OVERSEE THE IMPLEMENTATION OF THE SWPPP AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. PROVIDE PROOF OF CERTIFICATION AT THE PRECONSTRUCTION MEETING. WORK WILL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

THE EROSION CONTROL SUPERVISOR IS INCIDENTAL.

PROVIDE AT LEAST ONE CERTIFIED INSTALLER FOR EACH CONTRACTOR OR SUBCONTRACTOR THAT INSTALLS THE PRODUCTS LISTED IN SPECIFICATION SECTION 2573.3.A.2. PROVIDE PROOF OF CERTIFICATION AT THE PRECONSTRUCTION MEETING. WORK WILL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

CHAIN OF RESPONSIBILITY

MNDOT AND THE CONTRACTOR ARE COPERMITEES FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION PERMIT. THE CONTRACTOR IS RESPONSIBLE TO COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION PERMIT AT ALL TIMES UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. THE CONTRACTOR WILL DEVELOP A CHAIN OF COMMAND WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE, THE ENTIRE SITE HAS UNDERGONE FINAL STABILIZATION, AND A NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

PROJECT CONTACTS

THE PROJECT ENGINEER AND CONTRACTOR ARE RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP AND INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION HAS BEEN FILED.

ORGANIZATION	CONTACT NAME	PHONE
MNDOT METRO WATER RESOURCES (WRE) DESIGN	NAME	651-234-XXXX
MNDOT METRO CONSTRUCTION RESIDENT ENGINEER	NAME	651-XXX-XXXX
METRO DISTRICT MAINTENANCE CONTACT	NAME	651-XXX-XXXX
MNDOT METRO DESIGN	NAME	651-234-XXXX
MNDOT METRO WRE (EROSION CONTROL/MS4)	CAROLYN ADAMSON	651-775-0921
MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	DAN SULLIVAN	651-757-2768
MINNESOTA DEPARTMENT OF NATURAL RESOURCES	PETER LEETE	651-366-3634
WATERSHED DISTRICT	NAME	XXX-XXX-XXXX
ARMY CORPS OF ENGINEERS	NAME	XXX-XXX-XXXX
COUNTY AGRICULTURE INSPECTOR	NAME	XXX-XXX-XXXX

MPCA DUTY OFFICER 24 HOUR EMERGENCY NOTIFICATION:
651-649-5451 OR 800-422-0798

LOCATION OF SWPPP REQUIREMENTS

THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET AS WELL AS IN THE SPECIAL PROVISIONS, MNDOT SPEC BOOK (2016 EDITION), OR ON FILE WITH MNDOT. THE NOTES AND TABLE BELOW ARE INTENDED TO BE A QUICK REFERENCE FOR THE CONTRACTOR AND PROJECT ENGINEER TO USE IN THE FIELD. THERE MAY BE ADDITIONAL REQUIRED SWPPP ELEMENTS INCLUDED ON THE PROJECT THAT ARE NOT LISTED ON THIS SHEET.

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	LOCATION
TEMPORARY EROSION CONTROL MEASURES	SHEETS NO. 87-92
PERMANENT EROSION CONTROL MEASURES	SHEETS NO. 87-92
DIRECTION OF FLOW	SHEETS NO. 87-92
FINAL STABILIZATION	SHEETS NO. 87-92
SOILS AND CONSTRUCTION NOTES	SHEETS NO. 4
DRAINAGE STRUCTURES	SHEETS NO. 60-69
DRAINAGE TABULATION	
STORM SEWER PROFILE SHEETS	SHEETS NO. 60-69
STORM SEWER TABULATION	
EROSION AND SEDIMENT CONTROL DETAILS	SHEETS NO. 87-92
EROSION CONTROL TABULATION	SHEETS NO. 87-92
TURF ESTABLISHMENT TABULATION	SHEETS NO. 87-92
SITE MAP	SHEETS NO. 1
WATER RESOURCES NOTES	SHEET NO. 78

SITE INSPECTION AND MAINTENANCE

INSPECT THE ENTIRE CONSTRUCTION SITE A MINIMUM OF ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. INSPECT ALL TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT, EROSION PREVENTION AND SEDIMENT CONTROL BMPS UNTIL THE SITE HAS UNDERGONE FINAL STABILIZATION AND THE NOT HAS BEEN SUBMITTED. INSPECT SURFACE WATER INCLUDING DRAINAGE DITCHES FOR SIGNS OF EROSION AND SEDIMENT DEPOSITION. INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF TRACKING ONTO PAVED SURFACES. INSPECT SURROUNDING PROPERTIES FOR EVIDENCE OF OFF SITE SEDIMENT ACCUMULATION. INSPECT INFILTRATION AREAS FOR SIGNS OF SEDIMENT DEPOSITION AND COMPACTION (TO ENSURE THAT EQUIPMENT IS NOT BEING DRIVEN ACROSS THE AREA).

RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES IN WRITING WITHIN 24 HOURS. SUBMIT INSPECTION REPORTS IN A FORMAT THAT IS ACCEPTABLE TO THE PROJECT ENGINEER. INCLUDE THE FOLLOWING IN THE RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY:

A. DATE AND TIME OF INSPECTIONS
B. NAME OF PERSONS CONDUCTING INSPECTIONS
C. FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS
D. CORRECTIVE ACTIONS TAKEN, INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES
E. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCH IN 24 HOURS
F. DOCUMENTS AND CHANGES MADE TO THE SWPPP

REPLACE, REPAIR OR SUPPLEMENT ALL NONFUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY UNLESS LISTED DIFFERENTLY BELOW:

A. REPAIR, REPLACE, OR SUPPLEMENT PERIMETER CONTROL DEVICES WHEN IT BECOMES NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT OF THE DEVICE. COMPLETE REPAIRS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY.
B. REPAIR OR REPLACE INLET PROTECTION DEVICES WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT AND/OR DEPTH OF THE DEVICE.
C. DRAIN AND REMOVE SEDIMENT FROM TEMPORARY AND PERMANENT SEDIMENT BASINS ONCE THE SEDIMENT HAS REACHED 1/2 THE STORAGE VOLUME. COMPLETE WORK WITHIN 72 HOURS OF DISCOVERY.
D. REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS. RESTABILIZE ANY AREAS THAT ARE DISTURBED BY SEDIMENT REMOVAL OPERATIONS. SEDIMENT REMOVAL AND STABILIZATION MUST BE COMPLETED WITHIN 7 DAYS OF DISCOVERY. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR WORKING IN SURFACE WATERS. CONTACT ALL APPROPRIATE AUTHORITIES PRIOR TO WORKING IN SURFACE WATERS.
E. REMOVE TRACKED SEDIMENT FROM PAVED SURFACES BOTH ON AND OFF SITE WITHIN 24 HOURS OF DISCOVERY. STREET SWEEPING MAY HAVE TO OCCUR MORE OFTEN TO MINIMIZE OFF SITE IMPACTS. LIGHTLY WET THE PAVEMENT PRIOR TO SWEEPING.
F. MAINTAIN ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS UNDERGONE FINAL STABILIZATION, AND THE NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

ENVIRONMENTAL REVIEW

THERE ARE/ARE NO STORMWATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENTAL, ARCHEOLOGICAL OR AGENCY REVIEW. ALL MITIGATION MEASURES HAVE BEEN ADDRESSED IN THIS PLAN SET OR THE SPECIAL PROVISIONS.

THIS PROJECT IS/IS NOT LOCATED IN A WELL HEAD PROTECTION AREA.

THIS PROJECT IS/IS NOT LOCATED IN A DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA). THE DWSMA VULNERABILITY IS CLASSIFIED AS XXXX.

LAND FEATURE CHANGES

TOTAL DISTURBED AREA	9.85 ACRES
TOTAL EXISTING IMPERVIOUS SURFACE AREA	2.17 ACRES
TOTAL PROPOSED IMPERVIOUS SURFACE AREA	4.54 ACRES
TOTAL PROPOSED NET CHANGE IN IMPERVIOUS SURFACE AREA	2.37 ACRES

SHEET 1 OF 3

DESIGNED BY:	KJC				
DRAWN BY:	KJC				
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

STORMWATER POLLUTION PROTECTION PLAN

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

SWP01
OF SWP03

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STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED)

STABILIZATION TIME FRAMES

AREA	TIME FRAME	NOTES
LAST 200 LINEAL FEET OF DRAINAGE DITCH OR SWALE	WITHIN 24 HOURS OF CONNECTION TO SURFACE WATER OR PROPERTY EDGE	1, 2, 3
REMAINING PORTIONS OF DRAINAGE DITCH OR SWALE	14 DAYS/7 DAYS	1, 3
PIPE AND CULVERT OUTLETS	24 HOURS	
EXPOSED SOILS AND STOCKPILES	14 DAYS/7 DAYS	1

1. INITIATE STABILIZATION IMMEDIATELY WHEN CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED ON ANY PORTION OF THE SITE. COMPLETE STABILIZATION WITHIN THE TIME FRAME LISTED. IN MANY INSTANCES THIS WILL REQUIRE STABILIZATION TO OCCUR MORE THAN ONCE DURING THE COURSE OF THE PROJECT. TEMPORARY SOIL STOCKPILES WITHOUT SIGNIFICANT CLAY OR SILT AND STOCKPILED AND CONSTRUCTED ROAD BASE ARE EXEMPT FROM THE STABILIZATION REQUIREMENT.

2. STABILIZE WETTED PERIMETER OF DITCH (I.E. WHERE THE DITCH GETS WET).

3. APPLICATION OF MULCH, HYDROMULCH, TACKIFIER AND POLYACRYLAMIDE ARE NOT ACCEPTABLE STABILIZATION METHODS IN THESE AREAS.

4. STABILIZE ALL AREAS OF THE SITE PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED WILL BE SNOW MULCHED, SEEDED, AND BLANKETED WITHIN THE TIME FRAMES IN THE NPDES PERMIT.

5. TOPSOIL BERMS MUST BE STABILIZED IN ORDER TO BE CONSIDERED PERIMETER CONTROL BMPS. USE RAPID STABILIZATION METHOD 2, 3, OR 4 AS DIRECTED BY THE ENGINEER. THE SEED MIX USED IN THE RAPID STABILIZATION MAY BE SUBSTITUTED AS FOLLOWS:
   A. SINGLE YEAR CONSTRUCTION BETWEEN MAY 1 - AUGUST 1, SEED WITH SEED MIXTURE 21-111
   B. SINGLE YEAR CONSTRUCTION BETWEEN AUGUST 1 AND OCTOBER 31, SEED WITH SEED MIXTURE 21-112
   C. MULTI YEAR CONSTRUCTION 22-111

6. KEEP DITCHES AND EXPOSED SOILS IN AN EVEN ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES, HYDROMULCHES AND BLANKETS.

GENERAL SWPPP NOTES FOR CONSTRUCTION ACTIVITY

1. AMEND THE SWPPP AND DOCUMENT ANY AND ALL CHANGES TO THE SWPPP AND ASSOCIATED PLAN SHEETS IN A TIMELY MANNER. STORE THE SWPPP AND ALL AMENDMENTS ON SITE AT ALL TIMES.

2. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR THE ENGINEER'S ACCEPTANCE FOR CONCRETE MANAGEMENT, CONCRETE SLURRY APPLICATION AREAS, WORK IN AND NEAR AREAS OF ENVIRONMENTAL SENSITIVITY, AREAS IDENTIFIED IN THE PLANS AS "SITE MANAGEMENT PLAN AREA", ANY WORK THAT WILL REQUIRE DEWATERING, AND AS REQUESTED BY THE ENGINEER. SUBMIT ALL SITE MANAGEMENT PLANS TO THE ENGINEER IN WRITING. ALLOW A MINIMUM OF 7 DAYS FOR MNDOT TO REVIEW AND ACCEPT SITE MANAGEMENT PLAN SUBMITTALS. WORK WILL NOT BE ALLOWED TO COMMENCE IF A SITE MANAGEMENT PLAN IS REQUIRED UNTIL ACCEPTANCE HAS BEEN GRANTED BY THE ENGINEER. THERE WILL BE NO EXTRA TIME ADDED TO THE CONTRACT DUE TO THE UNTIMELY SUBMITTAL.

3. IT IS THE DESIGNER'S INTENT THAT THE CONTRACTOR BUILD PONDS AND INSTALL EROSION CONTROL BMPS BEFORE PUTTING THEM INTO ACTIVE SERVICE TO THE MAXIMUM EXTENT PRACTICABLE.

4. BURNING OF ANY MATERIAL IS NOT ALLOWED WITHIN PROJECT BOUNDARY.

5. DO NOT DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS. DELINEATE AREAS NOT TO BE DISTURBED PRIOR TO STARTING GROUND DISTURBING ACTIVITIES. IF IT BECOMES NECESSARY TO DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS OBTAIN WRITTEN PERMISSION FROM THE PROJECT ENGINEER PRIOR TO PROCEEDING. PRESERVE ALL NATURAL BUFFERS SHOWN ON THE PLANS.

6. ROUTE STORMWATER AROUND UNSTABILIZED AREAS OF THE SITE WHENEVER FEASIBLE. PROVIDE EROSION CONTROL AND VELOCITY DISSIPATION DEVICES AS NEEDED TO KEEP CHANNELS FROM ERODING AND TO PREVENT NUISANCE CONDITIONS AT THE OUTLET.

7. DIRECT DISCHARGES FROM BMPS TO VEGETATED AREAS WHENEVER FEASIBLE. PROVIDE VELOCITY DISSIPATION DEVICES AS NEEDED TO PREVENT EROSION.

8. THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS SHALL BE PLACED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND TO CAPTURE SEDIMENT ON SITE. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF ANY REMOVAL WORK AND/OR GROUND DISTURBING ACTIVITIES COMMENCE.

9. ESTABLISH SEDIMENT CONTROL DEVICES ON ALL DOWN GRADIENT PERIMETERS AND UPGRADIENT OF ANY BUFFER ZONES BEFORE ANY UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN. MAINTAIN SEDIMENT CONTROL DEVICES UNTIL CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

10. LOCATE PERIMETER CONTROL ON THE CONTOUR TO CAPTURE OVERLAND, LOW- VELOCITY SHEET FLOWS DOWN GRADIENT OF ALL EXPOSED SOILS AND PRIOR TO DISCHARGING TO SURFACE WATERS. PLACE J-HOOKS AT A MAXIMUM OF 100 FOOT INTERVALS.

11. PROVIDE PERIMETER CONTROL AROUND ALL STOCKPILES. PLACE BMP A MINIMUM 5 FEET FROM THE TOE OF SLOPE WHERE FEASIBLE. DO NOT PLACE STOCKPILES IN NATURAL BUFFER AREAS, SURFACE WATERS OR STORMWATER CONVEYANCES.

12. FLOATING SILT CURTAIN IS ALLOWED AS PERIMETER CONTROL FOR IN WATER WORK ONLY. INSTALL THE FLOATING SILT CURTAIN AS CLOSE TO SHORE AS POSSIBLE. PLACE PERIMETER CONTROL BMP ON LAND IMMEDIATELY AFTER THE IN WATER WORK IS COMPLETED.

13. DITCH CHECKS WILL BE PLACED AS INDICATED ON THE PLANS DURING ALL PHASES OF CONSTRUCTION.

14. PROTECT STORM SEWER INLETS AT ALL TIMES WITH THE APPROPRIATE INLET PROTECTION FOR EACH SPECIFIC PHASE OF CONSTRUCTION. PROVIDE INLET PROTECTION DEVICES WITH EMERGENCY OVERFLOW CAPABILITIES. SILT FENCE PLACED IN THE INLET GRATE IS NOT AN ACCEPTABLE INLET PROTECTION BMP FOR GRADING OPERATIONS. SILT FENCE PLACED IN THE GRATE IS ONLY ALLOWED FOR SHORT INTERVALS DURING MILLING OR PAVING OPERATIONS. INLET PROTECTION DEVICES MAY NEED TO BE PLACED MULTIPLE TIMES IN THE SAME LOCATION OVER THE LIFE OF THE CONTRACT. INLET PROTECTION DEVICES WILL BE PAID FOR ONCE PER INLET REGARDLESS OF THE NUMBER OF TIMES THE BMP IS PLACED. KEEP ALL STORM SEWER INLET PROTECTION DEVICES IN GOOD FUNCTIONAL CONDITION AT ALL TIMES. REPLACE INLET PROTECTION DEVICE WITH A SUITABLE ALTERNATIVE IF THE PROJECT ENGINEER DEEMS AN INLET PROTECTION DEVICE TO BE NONFUNCTIONAL, IN POOR CONDITION, INEFFECTIVE, OR NOT APPROPRIATE FOR THE CURRENT CONSTRUCTION ACTIVITIES. THERE WILL BE NO COST TO MNDOT FOR REPLACEMENT OF INLET PROTECTION DEVICES.

15. PLACE CONSTRUCTION EXITS, AS NECESSARY, TO PREVENT TRACKING OF SEDIMENT ONTO PAVED SURFACES BOTH ON AND OFF THE PROJECT SITE. PROVIDE CONSTRUCTION EXITS OF SUFFICIENT SIZE TO PREVENT TRACK OUT. MAINTAIN CONSTRUCTION EXITS WHEN EVIDENCE OF TRACKING IS DISCOVERED. REGULAR STREET SWEEPING IS NOT AN ACCEPTABLE ALTERNATIVE TO PROPER CONSTRUCTION EXIT INSTALLATION AND MAINTENANCE.

16. DISCHARGE TURBID OR SEDIMENT LADEN WATER TO TEMPORARY SEDIMENT BASINS WHENEVER FEASIBLE. IN THE EVENT THAT IT IS NOT FEASIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN, THE WATER MUST BE TREATED SO THAT IT DOES NOT CAUSE A NUISANCE CONDITION IN THE RECEIVING WATERS OR TO DOWNSTREAM LANDOWNERS. CLEAN OUT ALL PERMANENT STORMWATER BASINS REGARDLESS OF WHETHER USED AS TEMPORARY SEDIMENT BASINS OR TEMPORARY SEDIMENT TRAPS TO THE DESIGN CAPACITY AFTER ALL UPGRADIENT LAND DISTURBING ACTIVITY IS COMPLETED.

17. PROVIDE SCOUR PROTECTION AT ANY OUTFALL OF DEWATERING ACTIVITIES.

18. PROVIDE STABILIZATION IN ANY TRENCHES CUT FOR DEWATERING OR SITE DRAINING PURPOSES.

POLLUTION PREVENTION

1. PROVIDE A SPILL KIT AT EACH WORK LOCATION ON THE SITE.

2. STORE ALL BUILDING MATERIALS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS, PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS UNDER COVER AND WITH SECONDARY CONTAINMENT.

3. PROVIDE A SECURE STORAGE AREA WITH RESTRICTED ACCESS FOR ALL HAZARDOUS MATERIALS AND TOXIC WASTE. RETURN ALL HAZARDOUS MATERIALS AND TOXIC WASTE TO THE DESIGNATED STORAGE AREA AT THE END OF THE BUSINESS DAY UNLESS INFEASIBLE. STORE ALL HAZARDOUS MATERIALS AND TOXIC WASTE (INCLUDING BUT NOT LIMITED TO OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT, PETROLEUM BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) IN SEALED CONTAINERS WITH SECONDARY CONTAINMENT. CLEAN UP SPILLS IMMEDIATELY.

4. STORE, COLLECT AND DISPOSE OF ALL SOLID WASTE.

5. POSITION ALL PORTABLE TOILETS SO THAT THEY ARE SECURE AND CANNOT BE TIPPED OR KNOCKED OVER. PROPERLY DISPOSE OF ALL SANITARY WASTE.

6. FUEL AND MAINTAIN VEHICLES IN A DESIGNATED CONTAINED AREA WHENEVER FEASIBLE. USE DRIP PANS OR ABSORBENT MATERIALS TO PREVENT SPILLS OR LEAKED CHEMICALS FROM DISCHARGING TO SURFACE WATER OR STORMWATER CONVEYANCES. PROVIDE A SPILL KIT AT EACH LOCATION THAT VEHICLES AND EQUIPMENT ARE FUELED OR MAINTAINED AT.

7. LIMIT VEHICLE AND EQUIPMENT WASHING TO A DEFINED AREA OF THE SITE. CONTAIN RUNOFF FROM THE WASHING AREA TO A TEMPORARY SEDIMENT BASIN OR OTHER EFFECTIVE CONTROL. PROPERLY DISPOSE OF ALL WASTE GENERATED BY VEHICLE AND EQUIPMENT WASHING. ENGINE DEGREASING IS NOT ALLOWED ON THE SITE.

8. PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS. LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND. DESIGN THE CONTAINMENT SO THAT IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR CONTAINMENT AREA.

9. CREATE AND FOLLOW A WRITTEN DISPOSAL PLAN FOR ALL WASTE MATERIALS. INCLUDE IN THE PLAN HOW THE MATERIAL WILL BE DISPOSED OF AND THE LOCATION OF THE DISPOSAL SITE. SUBMIT PLAN TO THE ENGINEER.

10. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT DISCHARGE OR PLACEMENT OF BITUMINOUS GRINDINGS, CUTTINGS, MILLINGS, AND OTHER BITUMINOUS WASTES FROM AREAS OF EXISTING OR FUTURE VEGETATED SOILS AND FROM ALL WATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES.

11. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT CONCRETE DUST, PARTICLES, CONCRETE WASH OUT, AND OTHER CONCRETE WASTES FROM LEAVING MNDOT RIGHT OF WAY, DEPOSITING IN EXISTING OR FUTURE VEGETATED AREAS, AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT SAW CUT SLURRY AND PLANING WASTE FROM LEAVING MNDOT RIGHT OF WAY AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS INCLUDING DITCHES AND CULVERTS.

DESIGNED BY: KJC					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA	STORMWATER POLLUTION PROTECTION PLAN	SWP02
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer		BRUCE VENTO TRAIL		OF SWP03
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)		79 / 95

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9/23/2021

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE (CONTINUED)

WATER RESOURCES NOTES

THESE NOTES ALONG WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE ARE INTENDED TO GIVE INFORMATION ON CRITICAL DRAINAGE FEATURES, NATURAL RESOURCES AND CONTRACTOR OPERATIONS THAT MAY IMPACT DRAINAGE AND NATURAL RESOURCES.

1. THE SIZE AND ELEVATION OF CULVERTS, STORM SEWER PIPES, CATCH BASINS, PONDS, INFILTRATION/FILTRATION BASINS, PERMEABLE DITCH BLOCKS AND OVERFLOW DEVICES HAVE BEEN SPECIFICALLY DESIGNED TO CONFORM TO MNDOT DESIGN STANDARDS, MINNESOTA POLLUTION CONTROL AGENCY (MPCA) AND WATERSHED DISTRICT PERMIT REQUIREMENTS. THE DESIGN COMPUTATIONS ARE ON FILE WITH MNDOT METRO WATER RESOURCES. CHANGING THESE ITEMS OR THE DIRECTION OF FLOW FROM WHAT IS SHOWN ON THE PLANS MAY CAUSE PROBLEMS OFF THE PROJECT AND COULD MEAN THE PROJECT IS OUT OF COMPLIANCE WITH APPROVED DRAINAGE PERMITS. ANY CHANGES TO THE SIZE, ELEVATION OR DIRECTION OF FLOW OF THE DRAINAGE SYSTEM MUST BE APPROVED BY THE METRO WATER RESOURCES DESIGNER.

2. SUBSOIL ALL DISTURBED GREEN SPACES EXCEPT AS LISTED IN 2574.3A.2.

3. PERFORM POST INSTALLATION MANDREL TESTING OF ALL PLASTIC PIPE.

4. ANY SUBSURFACE DRAINAGE TILES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED, REPLACED OR REROUTED, AND CONNECTED TO THE EXISTING TILE OR DRAINAGE SYSTEM TO ENSURE THAT EXISTING UPLAND DRAINAGE IS PERPETUATED. THIS SHOULD BE DONE TO THE APPROVAL AND SATISFACTION OF THE ENGINEER.

5. THE FOLLOWING WATER RELATED PERMITS APPLY TO THIS PROJECT:

AGENCY	TYPE OF PERMIT
MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	NPDES CONSTRUCTION PERMIT
WATERSHED DISTRICT	NAME
DEPARTMENT OF NATURAL RESOURCES (DNR)	NAME
ARMY CORPS OF ENGINEERS	NAME

REVIEW ALL PERMITS FOR ANY SPECIAL CONDITIONS THAT WILL EFFECT CONSTRUCTION OF THE PROJECT.

TEMPORARY DEWATERING ACTIVITIES MAY BE REQUIRED FOR ROADWAY CONSTRUCTION AND UTILITY WORK. THEREFORE IT IS POSSIBLE THAT A PERMIT FOR THE TEMPORARY APPROPRIATION OF WATERS OF THE STATE, NON-IRRIGATION FROM MNDNR WILL BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THIS PERMIT PRIOR TO COMMENCING DEWATERING ACTIVITIES. ALL TEMPORARY DEWATERING SHALL BE DISCHARGED TO AN APPROVED LOCATION FOR TREATMENT PRIOR TO DISCHARGE TO THE RECEIVING WATER. SUBMIT A SITE MANAGEMENT PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING WORK.

POND CONSTRUCTION NOTES

1. DO NOT STOCKPILE MATERIALS OR PARK EQUIPMENT OR VEHICLES IN A CONSTRUCTED POND.

2. WET PONDS MAY BE USED AS TEMPORARY SEDIMENT TRAPS OR TEMPORARY SEDIMENT BASINS. CLEAN OUT ALL PERMANENT STORMWATER BASINS TO THE DESIGN CAPACITY AFTER ALL UPGRADIENT LAND DISTURBING ACTIVITY IS COMPLETED REGARDLESS OF WHETHER USED AS TEMPORARY SEDIMENT BASINS OR TEMPORARY SEDIMENT TRAPS.

3. THE CONTRACTOR MAY NOT DRIVE ANY EQUIPMENT ON FINISHED POND BOTTOMS OR POND CORNERS. IF DISTURBED, POND BOTTOM AND POND CORNERS MUST BE RESTORED TO PRE-EXISTING CONDITIONS WITHIN 24 HOURS. ANY RUTS OR DAMAGED TURF THAT COULD CREATE SEDIMENT DISCHARGE TO POND BOTTOMS MUST BE REPAIRED WITHIN 24 HOURS.

INFILTRATION CONSTRUCTION NOTES

1. DO NOT STOCKPILE MATERIALS OR PARK EQUIPMENT OR VEHICLES IN A PROPOSED OR CONSTRUCTED INFILTRATION AREA. STAKE OFF OR OTHERWISE MARK OFF INFILTRATION AREAS TO PREVENT HEAVY CONSTRUCTION VEHICLES AND EQUIPMENT FROM DRIVING THROUGH.

2. DO NOT FULLY EXCAVATE INFILTRATION BASINS UNTIL ALL UPGRADIENT LAND DISTURBANCE ACTIVITY HAS BEEN COMPLETED AND THE DRAINAGE AREA HAS BEEN STABILIZED. PROVIDE RIGOROUS EROSION PREVENTION AND SEDIMENT CONTROL BMPS, INCLUDING MAINTENANCE OF THEM, IF THE INFILTRATION AREA MUST BE COMPLETELY EXCAVATED PRIOR TO COMPLETION OF GROUND DISTURBING ACTIVITIES.

3. INSTALL SEDIMENT CONTROL BMPS AT THE TOE OF THE ADJACENT SLOPE IMMEDIATELY AFTER PLACEMENT OF AMENDED TOPSOIL.

4. SUBMIT A SITE MANAGEMENT PLAN TO THE ENGINEER FOR THE CONSTRUCTION OF INFILTRATION AREAS.

5. STABILIZE SIDE SLOPES PRIOR TO PLACING ANY AMENDED TOPSOIL IN THE BOTTOM OF THE INFILTRATION AREA.

6. DO NOT DRAIN TURBID OR SEDIMENT LADEN WATER TO THE INFILTRATION AREA.

7. USE ONLY LOW IMPACT TRACKED VEHICLES WITHIN INFILTRATION AREAS.

8. THE CONTRACTOR MAY NOT DRIVE ANY EQUIPMENT ON FINISHED INFILTRATION AREAS OR ADJACENT SIDE SLOPES. RESTORE DISTURBED INFILTRATION AREAS AND ADJACENT SIDE SLOPES TO PRE DISTURBANCE CONDITIONS WITHIN 24 HOURS. ANY RUTS OR DAMAGED TURF THAT COULD CREATE SEDIMENT DISCHARGE TO INFILTRATION AREAS MUST BE REPAIRED WITHIN 24 HOURS. SUBSOIL THE INFILTRATION AREA TO REMOVE ANY COMPACTION CAUSED BY VEHICLE TRAFFIC.

9. EXCAVATE ANY SEDIMENT THAT WASHES INTO INFILTRATION AREAS. REMOVE AND REPLACE ANY AMENDED TOPSOIL THAT HAS SEDIMENT DEPOSITS VISIBLE AT THE SURFACE.

10. REPORT ANY SIGNS OF HIGH WATER TABLE OR COMPACTION OF THE IN PLACE SOILS TO THE ENGINEER.

FILTRATION CONSTRUCTION NOTES

1. DO NOT STOCKPILE MATERIALS OR PARK EQUIPMENT OR VEHICLES IN A CONSTRUCTED FILTRATION AREA. STAKE OFF OR OTHERWISE MARK OFF FILTRATION AREAS TO PREVENT HEAVY CONSTRUCTION VEHICLES AND EQUIPMENT FROM DRIVING THROUGH.

2. DO NOT PLACE FILTER MATERIAL IN FILTRATION BASINS UNTIL ALL UPGRADIENT LAND DISTURBANCE ACTIVITY HAS BEEN COMPLETED AND THE DRAINAGE AREA HAS BEEN STABILIZED. PROVIDE RIGOROUS EROSION PREVENTION AND SEDIMENT CONTROL BMPS IF THE FILTRATION AREA MUST BE COMPLETED PRIOR TO COMPLETION OF GROUND DISTURBING ACTIVITIES.

3. INSTALL SEDIMENT CONTROL BMPS AT THE TOE OF THE ADJACENT SLOPE IMMEDIATELY AFTER PLACEMENT OF AMENDED TOPSOIL.

4. SUBMIT A SITE MANAGEMENT PLAN TO THE ENGINEER FOR THE CONSTRUCTION OF FILTRATION AREAS.

5. DO NOT DRAIN TURBID OR SEDIMENT LADEN WATER TO THE FILTRATION AREA AFTER THE FILTER MATERIAL HAS BEEN INSTALLED.

6. THE CONTRACTOR MAY NOT DRIVE ANY EQUIPMENT ON FINISHED FILTRATION AREAS OR ADJACENT SIDE SLOPES. RESTORE DISTURBED FILTRATION AREAS AND ADJACENT SIDE SLOPES TO PRE DISTURBANCE CONDITIONS WITHIN 24 HOURS. ANY RUTS OR DAMAGED TURF THAT COULD CREATE SEDIMENT DISCHARGE TO FILTRATION AREAS MUST BE REPAIRED WITHIN 24 HOURS.

7. EXCAVATE ANY SEDIMENT THAT WASHES INTO FILTRATION AREAS. REMOVE AND REPLACE ANY AMENDED TOPSOIL THAT HAS SEDIMENT DEPOSITS VISIBLE AT THE SURFACE.

8. REPORT ANY SIGNS OF HIGH WATER TABLE OR COMPACTION OF THE IN PLACE SOILS TO THE ENGINEER.

LANDSCAPE NOTES

1. FILTER LOGS SHALL BE PLACED, AS NEEDED, TO TRAP SEDIMENT ON THE LOWER EDGE OF BEDS OR TREE HOLES. FILTER LOGS WILL BE LEFT TO PHOTO DEGRADE.

2. TILLING FOR BEDS OR TREE HOLES MUST BE PLANTED AND MULCHED WITH WOOD CHIP WITHIN 7 DAYS OR STRAW MULCHED UNTIL PLANTING OPERATIONS CAN BE COMPLETED.

3. ANY POND CORNERS OPENED DUE TO TILLING FOR SHRUB BEDS OR TREE HOLES MUST BE PLANTED AND MULCHED WITH WOOD CHIP WITHIN 24 HOURS OR STRAW MULCHED UNTIL PLANTING OPERATIONS CAN BE COMPLETED.

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$MODELNAME$

DESIGNED BY:	KJC					RAMSEY COUNTY, MINNESOTA	STORMWATER POLLUTION PROTECTION PLAN
DRAWN BY:	KJC					BRUCE VENTO TRAIL	
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)	

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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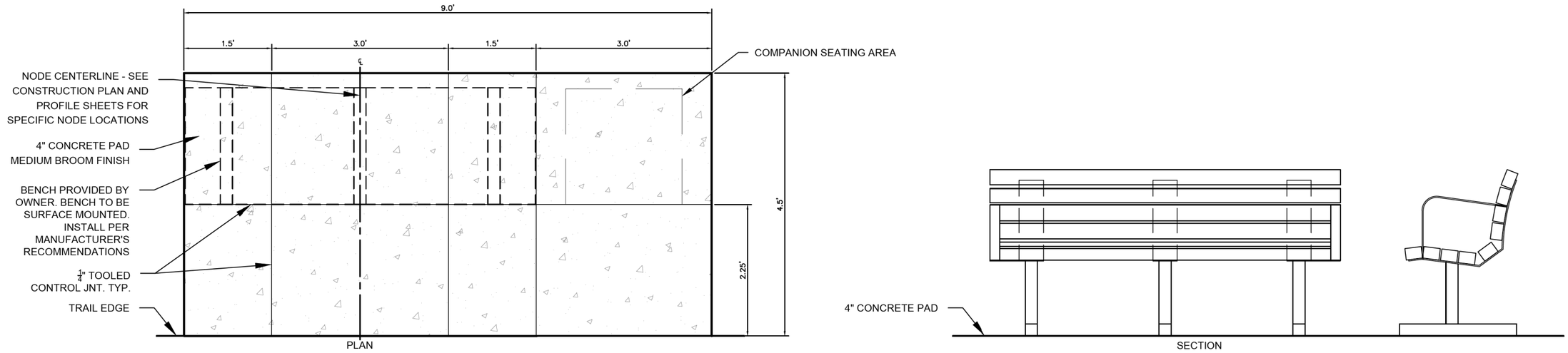

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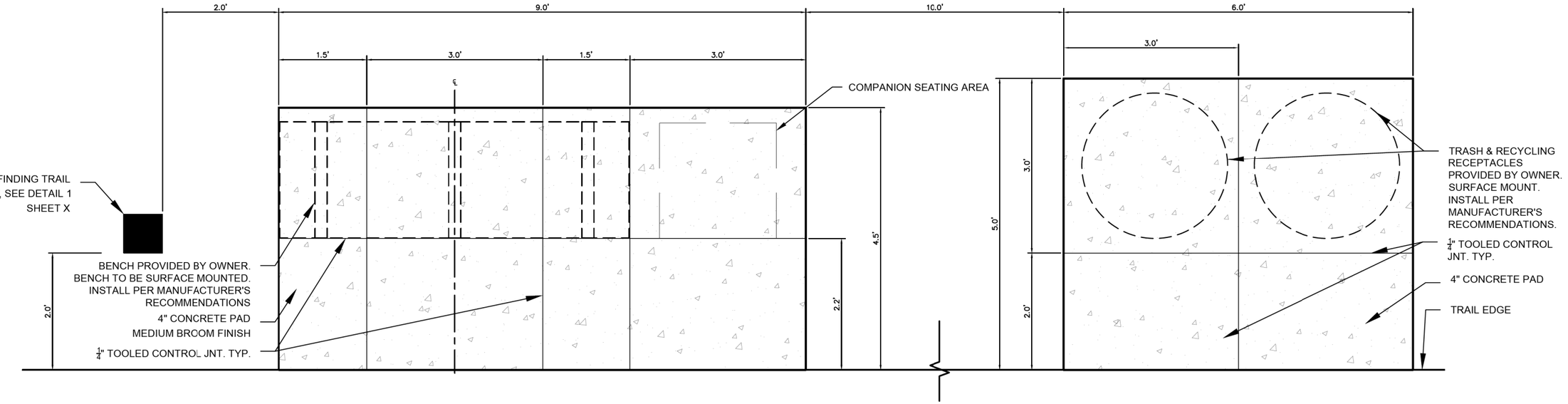
SCALE



2 NODE TYPE 2 (QUANTITY: 5)

SCALE: 1"= 10'–0"

0 5' 10'
SCALE

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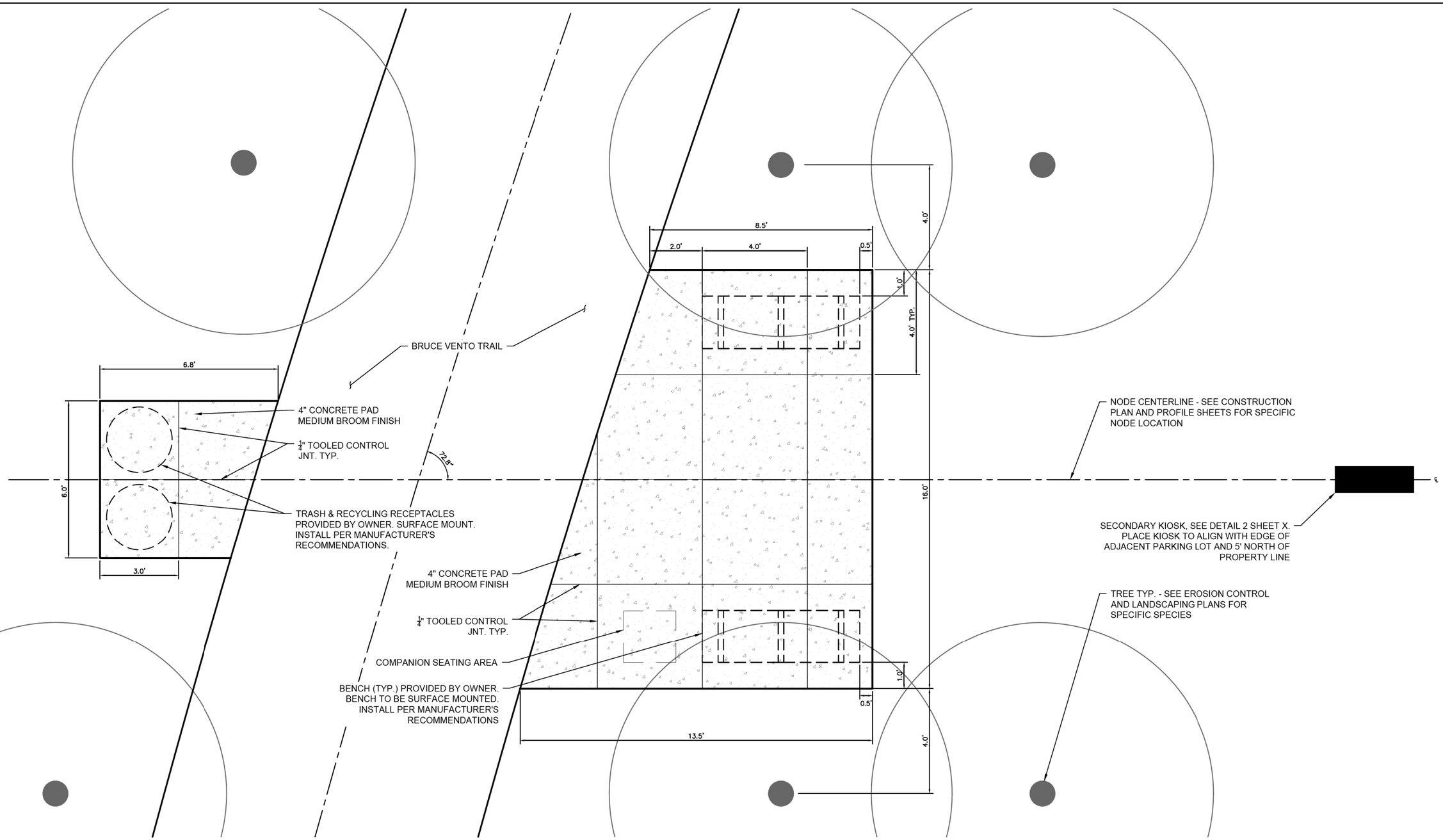
DRAWN BY: KJC							BRUCE VENTO TRAIL
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Certified By: _____ Licensed Professional Engineer Lic. No. _____ Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

TRAIL NODE DETAIL

LA01 OF LA08

81 / 95



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SCALE

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9/23/2021
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$MODELNAME$

DESIGNED BY: KJC					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer		BRUCE VENTO TRAIL
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

TRAIL NODE DETAIL

LA02 OF LA08

82 / 95

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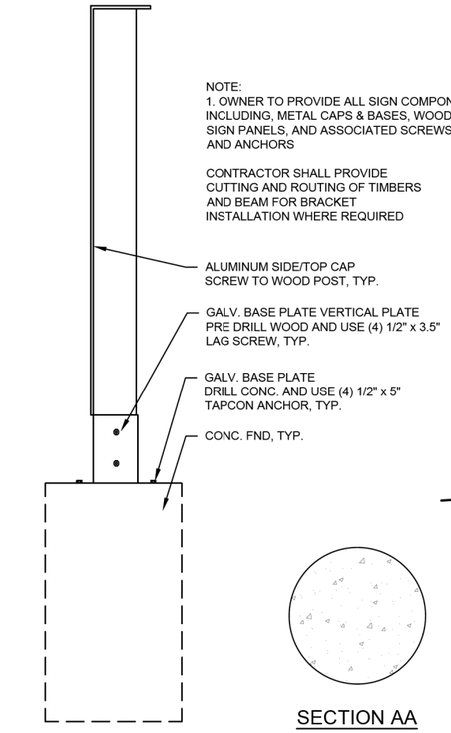
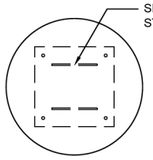
$MODELNAME$

PLAN



GENERAL ELEVATION

SECTION AA



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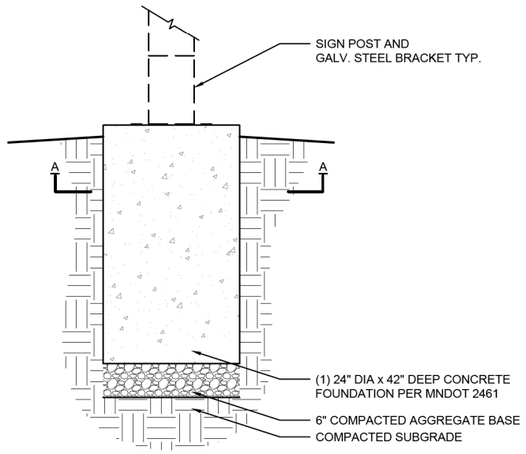

1 SIGN FOUNDATION–WAYFINDING TRAIL POST (1) 24" DIAM.

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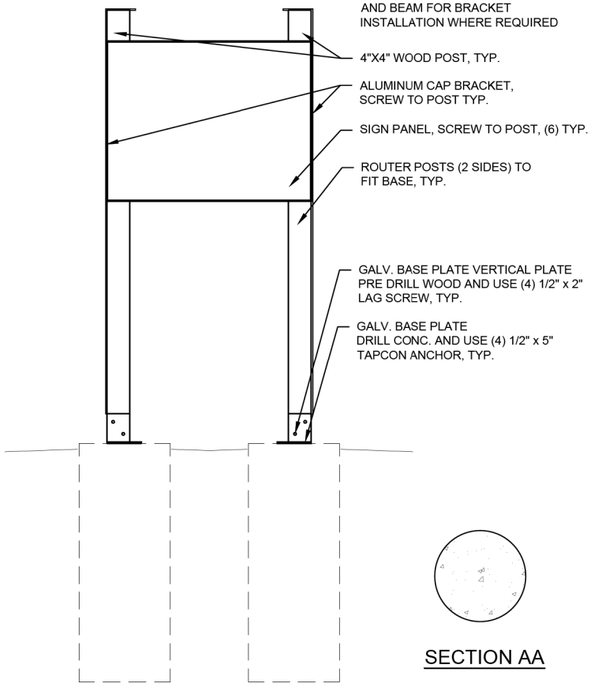
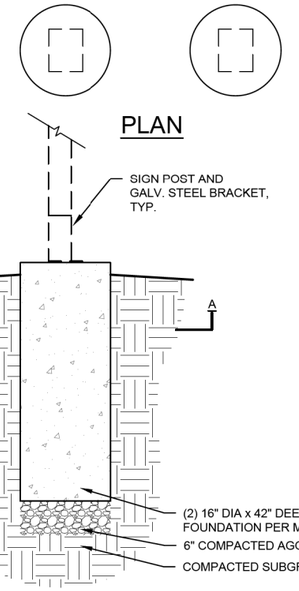
SCALE



SIGN ELEVATION

SECTION AA



2 SIGN FOUNDATION–SECONDARY KIOSK/RULES SIGN (2) 16" DIAM.

SCALE: 1"= 1'–0"

0 0.5' 1'
SCALE

DESIGNED BY:	KJC						
DRAWN BY:	KJC						
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS		

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

TRAIL SIGNS DETAILS

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

LA03
OF LA08

83 / 95

GENERAL NOTES:

1. IN BOULEVARD CONDITIONS, CENTER TREES IN BOULEVARD BETWEEN TRAIL EDGE AND BACK OF CURB
2. WHEN NOT A BOULEVARD CONDITION, PLACE TREES 3' FROM EDGE OF TRAIL
3. SEE DETAILS FOR TREE SPACING AT NODE TYPE 3. REFER TO EROSION CONTROL AND LANDSCAPING PLANS FOR TREES AT OTHER NODE LOCATIONS

PLANT SCHEDULE BOULEVARD TREES

TREES	QTY	BOTANICAL NAME	COMMON NAME	SPECIFICATIONS	CALIPER
FFM	19	Acer x freemanii `AF#1`	Firefall Maple	B & B	2" CAL.
ARM	6	Acer rubrum 'JFS-KW78'	Armstrong Maple	B & B	2" CAL
ABS	6	Amelanchier x grandiflora `Autumn Brilliance`	Autumn Brilliance Serviceberry	B & B	2" CAL.
FSB	4	Carpinus caroliniana `J.N. Upright`	Firespire Beech	B & B	2" CAL.
CHB	19	Celtis occidentalis	Common Hackberry	B & B	2" CAL.
IHL	11	Gleditsia triacanthos inermis `Impcole`	Imperial Honeylocust	B & B	2" CAL.
SKH	8	Gleditsia triacanthos inermis `Skycole` TM	Skyline Honeylocust	B & B	2" CAL.
RRC	4	Malus `JFS-KW5`	Royal Raindrops Crabapple	B & B	2" CAL.
SWO	27	Quercus bicolor	Swamp White Oak	B & B	2" CAL.
JTL	2	Syringa reticulata `Ivory Silk`	Ivory Silk Japanese Tree Lilac	B & B	2" CAL.
NHE	12	Ulmus americana `New Harmony`	New Harmony Elm	B & B	2" CAL.
PRE	11	Ulmus americana `Princeton`	Princeton Elm	B & B	2" CAL.

PLANT SCHEDULE RESIDENTIAL BUFFER AREA

TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT.	SIZE	SPACING
FFM	5	Acer x freemanii `AF#1`	Firefall Maple	B & B	2" CAL.	TO BE DETERMINED IN FIELD - SEE NOTE ON PLANS
CHB	5	Celtis occidentalis	Common Hackberry	B & B	2" CAL.	
WHO	5	Quercus alba	White Oak	B & B	2" CAL.	
REO	5	Quercus rubra	Red Oak	B & B	2" CAL.	
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	CONT.	SIZE	SPACING
CI	23	Cornus sericea `Isanti`	Isanti Red-Twig Dogwood	CONTAINER	#5	VARIES - 5' TO 7' O.C., IRREGULAR, NATURAL SPACING AND ARRANGEMENT AS SHOWN IN PLANS
RA	25	Rhus aromatica	Fragrant Sumac	CONTAINER	#5	
VD	20	Viburnum dentatum `Arrowwood`	Arrowwood Viburnum	CONTAINER	#5	
VA	28	Viburnum dentatum `Christom`	Blue Muffin Viburnum	CONTAINER	#5	

DESIGNED BY: KJC
DRAWN BY: KJC
CHECKED BY: GSB

NO.	BY	DATE	REVISIONS

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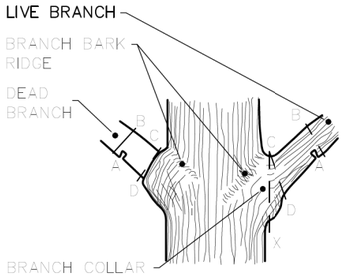
RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

PLANT SCHEDULE

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

LA04
OF LA08

84 / 95



BRANCHES PRUNED AT TRUNK

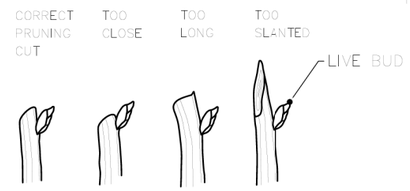
(SHIGO METHOD)

STEPS TO PRUNING WITH PRUNING SAW:

1. CUT PART WAY THROUGH THE BRANCH AT POINT A.
2. CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
3. AT BRANCH COLLAR CUT FROM POINT C TO D.

INCORRECT CUT FROM POINT C TO X (TOO CLOSE) WILL RESULT IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

CORRECT CUT FROM POINT C TO D (LEAVING BRANCH COLLAR BUT NOT THE STUB FROM POINT B TO A) WILL RESULT IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.



BRANCHES PRUNED TO LIVE BUD

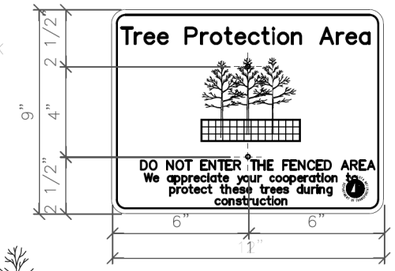
PRUNING NOTES:

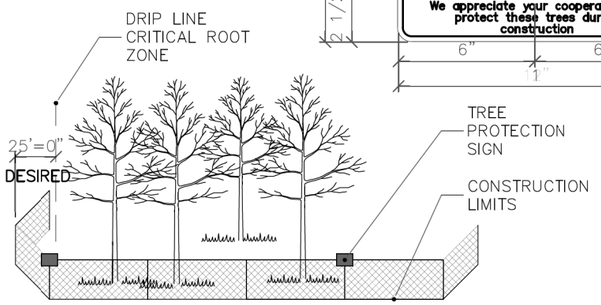
1. PRUNE USING CLEAN AND SHARP SCISSOR-TYPE PRUNER OR PRUNING SAW.
2. THE BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
3. AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
4. IF PRUNING IS NECESSARY OR IF WOUNDS OCCUR TO OAK TREES IN APRIL, MAY, JUNE OR JULY, IMMEDIATELY PAINT CUT SURFACE OR WOUND WITH LATEX PAINT OR SHELLAC.

PRUNING

(MnDOT 2571.3K2a9 and 2571.3E1)

1. FABRICATE 12" X 9" X 3/8" SIGN WITH 0.75" RADIUS CORNERS.
2. SIGN SHALL BE WHITE WITH BLACK LETTERING.
3. ATTACH SIGN TO POST USING 1" LENGTH WOOD SCREWS.

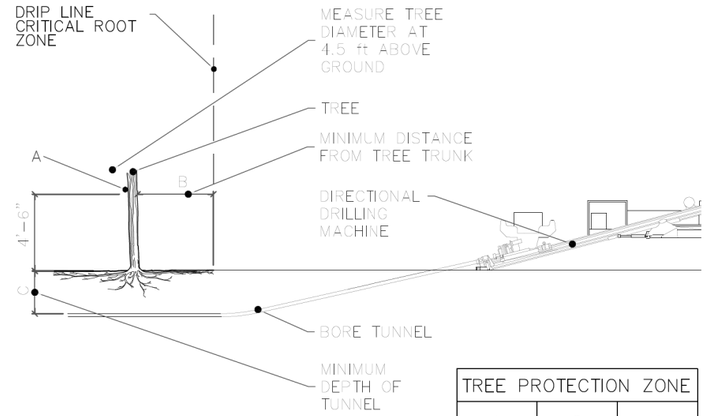




1. FURNISH AND INSTALL TEMPORARY FENCE AT THE TREE'S DRIPLINE OR CONSTRUCTION LIMITS AS SPECIFIED, PRIOR TO ANY CONSTRUCTION.
2. WHEN POSSIBLE PLACE FENCE 25 FEET BEYOND THE DRIP LINE.
3. PLACE TREE PROTECTION SIGNS ALONG FENCE AT 50' INTERVALS.

TEMPORARY FENCE

(MnDOT 2572.3A1)



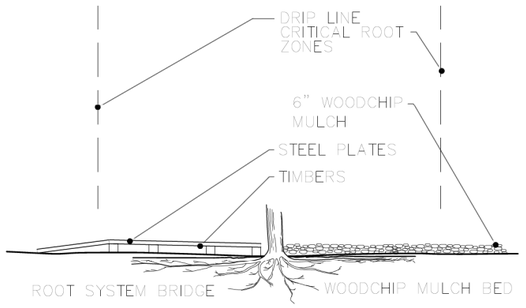
NOTE:

1. (A) IS THE DIAMETER OF TREES MEASURED 4-6 FEET ABOVE THE GROUND AND IS TERMED THE "DIAMETER AT BREAST HEIGHT," (DBH).
2. USING A TREE DIAMETER TAPE, WRAP THE TAPE AROUND THE GIRTH OF THE TREE, AT THE DBH, BEING CAREFUL NOT TO TWIST THE TAPE.

TREE PROTECTION ZONE		
A	B	C
<2"	2'	2'
2-4"	4'	2.5'
>4-9"	6'	2.5'
>9-14"	10'	3'
>14-19"	12'	3.25'
>19"	15'	4'

UTILITY CONSTRUCTION

(MnDOT 2572.3A5)



IF CONSTRUCTION VEHICLES MUST PASS OVER ROOT ZONES, THE CONTRACTOR MUST EITHER:

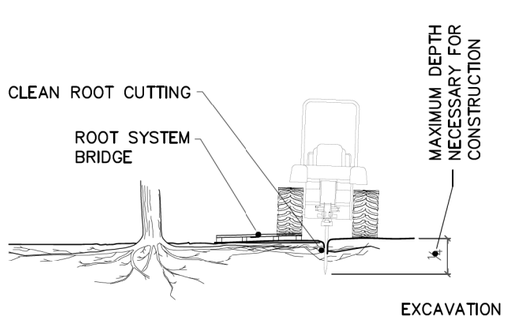
1. CONSTRUCT ROOT SYSTEM BRIDGES WITH STEEL PLATE SUPPORTED ON WOOD TIMBERS PLACED RADIALLY TO THE TREE TRUNK.

OR

2. PLACE A 6 INCH LAYER OF WOODCHIP MULCH OVER A TYPE II GEOTEXTILE (MnDOT 3733)

OTHER VEGETATION PROTECTION MEASURES

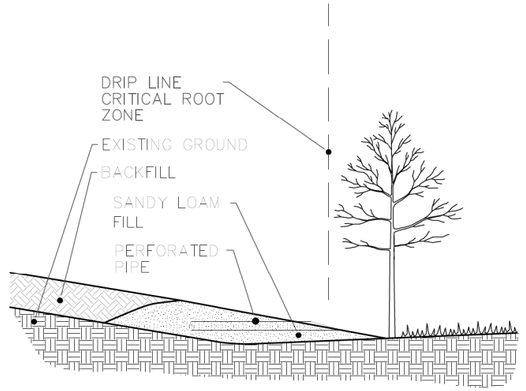
(MnDOT 2572.3A12)



1. WHEN DESIGNATED IN THE PLAN OR DIRECTED BY THE ENGINEER, PRIOR TO EXCAVATION, ALL TREE ROOTS WILL BE CLEANLY CUT BY A VIBRATORY PLOW OR OTHER APPROVED ROOT CUTTER.
2. THE TREE ROOTS WILL BE CUT CLEANLY TO THE MINIMUM DEPTH NECESSARY FOR CONSTRUCTION.
3. IMMEDIALTLY, AND CLEANLY CUT DAMAGED AND EXPOSED ROOTS.
4. ROOT ENDS EXPOSED BY EXCAVATION ACTIVITIES SHALL BE IMMEDIATELY COVERED WITH A 6" LAYER OF ADJACENT SOIL.
5. EXPOSED CUT OAK ROOTS SHALL BE IMMEDIATELY (WITHIN 5 MINUTES) TREATED WITH A WOUND DRESSING MATERIAL CONSISTING OF LATEX PAINT OR SHELLAC.

CLEAN ROOT CUTTING

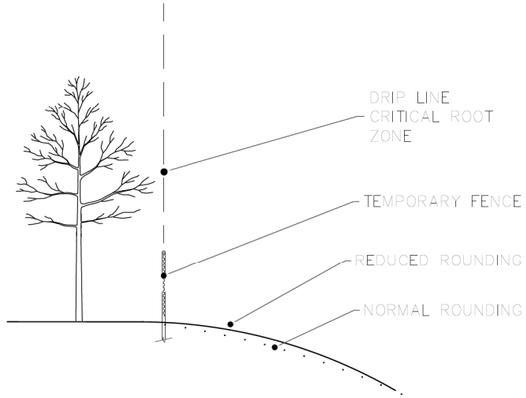
(MnDOT 2572.3A2)



1. ANY FILL REQUIRED WITHIN THE DRIP LINE OF TREES, IS UNCOMPACTED SANDY LOAM TOPSOIL (WITH A COARSE SAND COMPONENT).
2. EXCESSIVE FILL MAY REQUIRE INSTALLING PERFORATED PIPE WITH AT LEAST ONE DAYLIGHTED END OPENING AS AN AERATION SYSTEM.

SANDY LOAM TOPSOIL

(MnDOT 2572.3A4)



SIGNIFICANT TREES NEAR THE PROPOSED CONSTRUCTION LIMITS WILL BE IDENTIFIED IN THE PLAN OR BY THE ENGINEER AND WILL BE PRESERVED BY THE CONTRACTOR.

1. PLACE THE TEMPORARY FENCE.
2. REDUCE SLOPE ROUNDING WHERE ROOT ZONES ARE DISTURBED BY NORMAL SLOPE ROUNDING.
3. VARY BACKSLOPE STEEPNESS TO AVOID TREE LOSS OR UNNECESSARY ROOT DAMAGE.

SLOPE ROUNDING

DESIGNED BY:	KJC
DRAWN BY:	KJC
CHECKED BY:	GSB

NO.	BY	DATE	REVISIONS

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

LANDSCAPING DETAILS

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

LA05
OF LA08

85 / 95

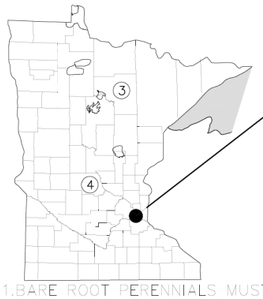
GENERAL NOTES

SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS.	
REFER TO MnDOT SPECIFICATIONS 2571, 3861, AND THE " " INSPECTION AND CONTRACT ADMINISTRATION MANUAL FOR MnDOT LANDSCAPE PROJECTS" FOR GENERAL REQUIREMENTS.	
COMPLETE PREPARATORY WORK BEFORE STARTING INITIAL PLANTING OPERATIONS.	
ACCEPT ALL PLANT STOCK IN ACCORDANCE WITH (MnDOT 3861) PRIOR TO PLANTING.	
THE CONTRACTOR WILL DEMONSTRATE COMPETENCY FOR SOIL CULTIVATION OPERATIONS IN ACCORDANCE WITH (MnDOT 2571.3D2 STEP 4)	
THE CONTRACTOR WILL DEMONSTRATE COMPETENCY FOR ALL PLANT INSTALLATION OPERATIONS IN ACCORDANCE WITH (MnDOT 2571.3F1)	
RODENT PROTECTION	SEE SPECIAL PROVISIONS AND STANDARD PLANTING DETAILS (C)
FERTILIZER	SEE SPECIAL PROVISIONS
COMPOST	MnDOT 3890 GRADE 2 UNLESS OTHERWISE SPECIFIED.
MULCH MATERIAL	MnDOT 3882 TYPE SPECIAL–DOUBLE SHREDDED HARDWOOD MULCH
MASS PLANTING BEDS	PREPARE MASS PLANTING BEDS FOR PLANTS PLACED AT 15' OR LESS, UNLESS OTHERWISE SPECIFIED ON SHEETS. PLANT BEDS IN STAGGERED ROWS ON THE PERIMETER FIRST, THEN UNIFORMLY FILL IN WITH REMAINING PLANTS. USE TRIANGULAR SPACING, UNLESS SPECIFIED OTHERWISE. PROVIDE 5' RADIUS CLEAR OF SHRUBS AROUND EACH DECIDUOUS TREE AND 8' CLEAR RADIUS AROUND EACH CONIFER TREE. RADIUS WILL BE MEASURED FROM THE CENTER OF THE TREE TO THE CENTER OF THE SHRUB. NOTIFY ENGINEER OF GROSS PLANT QUANTITY SURPLUS OR DEFICIENCY IMMEDIATELY. MULCH ENTIRE MASS PLANTING BED. SEE STANDARD PLANTING DETAILS (C)
TREE PAINTING (FROST CRACK PREVENTION)	TREE PAINTING NOT REQUIRED.
PLANTING PLAN DIMENSIONS	STATED DIMENSIONS SUPERCEDE SCALING FROM PLAN.

WATERING GUIDELINES (MnDOT 2571.3G)

PLANT TYPE	AVERAGE GALLONS OF WATER PER APPLICATION
MACHINE TRANSPLANTED TREES	50–100
BALLED AND BURLAPPED TREES	20
BARE ROOT AND CONTAINER TREES	15
BALLED AND BURLAPPED SHRUBS	10
BARE ROOT AND CONTAINER SHRUBS	7
WOODY SEEDLINGS	4
PERENNIALS AND VINES	3

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MONITOR AND MAINTAIN SOIL MOISTURE AT ADEQUATE BUT NOT EXCESSIVE LEVELS. THE AMOUNTS LISTED ABOVE ARE GUIDELINES, NOT REQUIREMENTS.



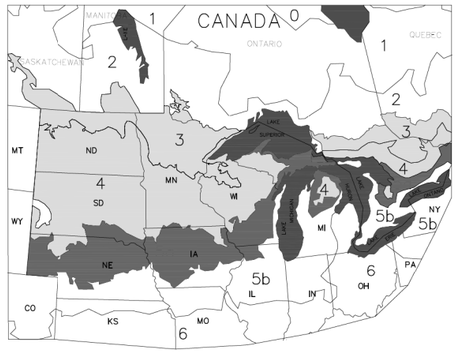
1. BARE ROOT PERENNIALS MUST BE INSTALLED IN THE SPRING NO LATER THAN JUNE 1ST OR FOLLOW THE FALL DECIDUOUS PLANTING DATES.
2. ACTUAL DATES MAY CHANGE DEPENDING UPON SEASONAL CONDITIONS, AS DETERMINED BY THE ENGINEER.
3. FALL PLANTING IS NOT ALLOWED FOR BARE ROOT FORM OF THE FOLLOWING SPECIES: HAWTHORN, DOGWOOD, POPLAR, HACKBERRY, LINDEN, IRONWOOD, HONEYLOCUST, BIRCH, MOUNTAIN ASH, MAPLE, WILLOW, CRABAPPLE, PLUM/CHERRY, OAKS, AND SUMAC.
4. ALL REPLACEMENT PLANTS MUST BE INSTALLED DURING THE MONTH OF MAY (SPRING PLANTING) AND SEPTEMBER (FALL PLANTING) DURING THE FIRST YEAR OF THE PLANT ESTABLISHMENT PERIOD.
5. MACHINED MOVED PLANTING DATES WILL BE SPECIFIED IN THE SPECIAL PROVISIONS.

PLANTING DATES BY ZONE

			①	②
SPRING	DECIDUOUS	BARE ROOT	APRIL 21 TO JUNE 1	APRIL 7 TO JUNE 1
		CONTAINER B&B	APRIL 21 TO JUNE 30	APRIL 7 TO JUNE 30
	CONIFEROUS		APRIL 21 TO JUNE 1	APRIL 7 TO MAY 17
	PERENNIALS		MAY 1 TO JUNE 30	MAY 1 TO JUNE 30
	SEEDLINGS		APRIL 21 TO JUNE 1	APRIL 7 TO JUNE 1
FALL	DECIDUOUS	BARE ROOT	OCT. 1 TO NOV. 1	OCT. 10 TO NOV. 15
		CONTAINER B&B	AUG. 25 TO OCT. 15	AUG. 25 TO NOV. 1
	CONIFEROUS		AUG. 25 TO SEPT. 15	AUG. 25 TO SEPT. 15
	PERENNIALS		AUG. 25 TO SEPT. 15	AUG. 25 TO SEPT. 15

PLANT INSTALLATION PERIOD

(MnDOT 2571.3F2)



ACCEPTABLE ZONES

ZONES	LEGEND	MIN. TEMP.
3		-34.4° TO -40° F
4		-28.9° TO -34.4° F
5a		-26.1° TO -28.9° F

UNACCEPTABLE ZONES

ZONES	LEGEND
0, 1, 2, 5b and 6	

FOR ALL PLANT STOCK, DOCUMENT ACCEPTABILITY FOR HARDINESS IN THE MINNESOTA ZONE WHERE THE PROJECT SITE IS LOCATED, AS FOLLOWS:

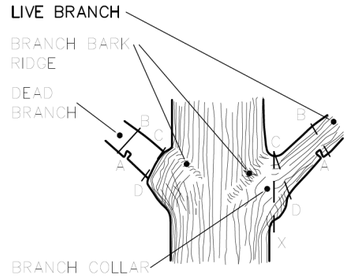
A. PLANT STOCK CONTINUOUSLY GROWN FOR AT LEAST THE LAST TWO YEARS WITHIN THE ACCEPTABLE LIMITS SHOWN.

OR

B. PLANT STOCK, GROWN OUTSIDE THE ACCEPTABLE GROWING RANGE LIMITS, HAVING SEED SOURCE OR ROOT AND GRAFT STOCK ORIGINATING FROM THE ACCEPTABLE LIMITS SHOWN.

ACCEPTABLE PLANT STOCK GROWING RANGE LIMITS

SOURCE: USDA PLANT HARDINESS ZONE MAP (MnDOT 3861.2C)

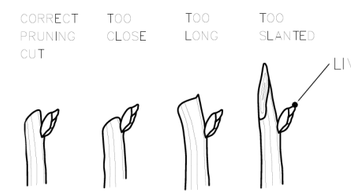


BRANCHES PRUNED AT TRUNK (SHIGO METHOD)

STEPS TO PRUNING WITH PRUNING SAW:
1. CUT PART WAY THROUGH THE BRANCH AT POINT A.
2. CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
3. AT BRANCH COLLAR CUT FROM POINT C TO D.

INCORRECT CUT FROM POINT C TO X (TOO CLOSE) WILL RESULT IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

CORRECT CUT FROM POINT C TO D (LEAVING BRANCH COLLAR BUT NOT THE STUB FROM POINT B TO A) WILL RESULT IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

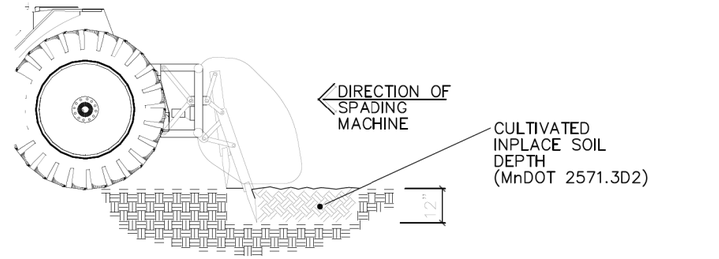


BRANCHES PRUNED TO LIVE BUD

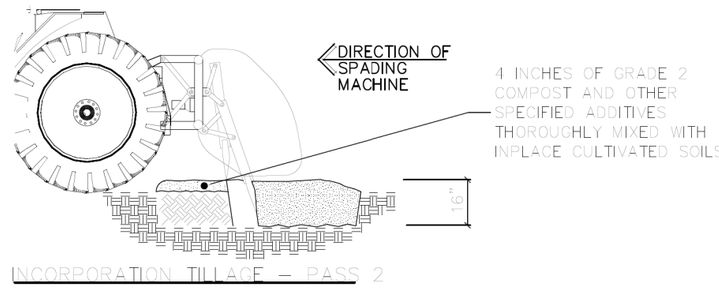
PRUNING NOTES:
1. PRUNE USING CLEAN AND SHARP SCISSOR–TYPE PRUNER OR PRUNING SAW.
2. THE BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
3. AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
4. IF PRUNING IS NECESSARY OR IF WOUNDS OCCUR TO OAK TREES IN APRIL, MAY, JUNE OR JULY, IMMEDIATELY PAINT CUT SURFACE OR WOUND WITH LATEX PAINT OR SHELLAC.

PRUNING

(MnDOT 2571.3K2a9 and 2571.3E1)



PRIMARY TILLAGE – PASS 1



INCORPORATION TILLAGE – PASS 2

PLANTING SOIL

(MnDOT 2571.3D2)

DESIGNED BY: KJC					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com
DRAWN BY: KJC					Certified By: _____ Lic. No. _____ (Licensed Professional Engineer)	RAMSEY COUNTY, MINNESOTA
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021	BRUCE VENTO TRAIL

LANDSCAPING DETAILS

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

LA06 OF LA08

86 / 95

PLANTING HOLE DIMENSIONS

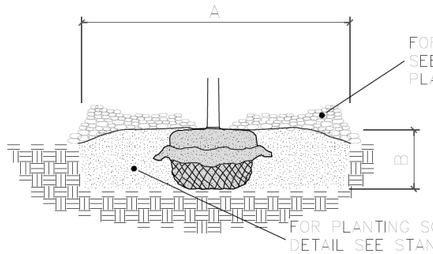
HOLE DEPTH FOR B&B AND CONTAINER PLANTS SHALL NOT EXCEED MEASUREMENT FROM ROOT FLAIR TO BOTTOM OF SOIL BALL

PLANT TYPE	PLANT SIZE UP TO AND INCLUDING	(A) MINIMUM HOLE WIDTH	(B) APPROXIMATE HOLE DEPTH
CONIFEROUS TREES AT LEAST 2/3 OF ALL CONIFER BRANCHES WILL CONTAIN TERMINAL BUDS	2' B.B.	36"	10"
	3' B.B.	42"	11"
	4' B.B.	51"	13"
	5' B.B.	60"	13"
	6' B.B.	66"	15"
	7' B.B.	72"	16"
	8' B.B.	81"	18"
	9' B.B.	90"	20"
	10' B.B.	102"	21"
	12' B.B.	114"	24"
CONIFEROUS SHRUBS (UPRIGHT)	18" B.B.	24"	7"
	3' B.B.	48"	12"
CONIFEROUS SHRUBS (SPREADING)	18" SPR. B.B.	30"	8"
	2' SPR. B.B.	36"	9"
CONTAINER GROWN PLANTS	CELLPACKS / PLUGS	6"	2.5"
	2.25" CONT.	7"	3"
	3.5" CONT.	10"	3"
	4" CONT.	11"	4"
	4.5" CONT.	13"	4"
	6" /1 GT. CONT.	15"	5.5"
	1# CONT.	18"	6"
	2# CONT.	23"	7.5"
	3# CONT.	29"	8.5"
	5# CONT.	30"	11"
	7# CONT.	37"	13"
	15# CONT.	44"	14"
	10# CONT.	45"	15"
	20# CONT.	60"	16"
	25# CONT.	72"	17"
SEEDLINGS	6" SEEDLING	15"	14"
	9" SEEDLING	18"	14"
	12" SEEDLING	23"	16"
	18" SEEDLING	30"	16"
	2' SEEDLING	36"	18"
VINES	1 YR. MED. B.R.	15"	11"
	1 YR. NO. 1 B.R.	17"	14"
	2 YR. MED. B.R.	33"	12"
	2 YR. NO. 1 B.R.	42"	15"

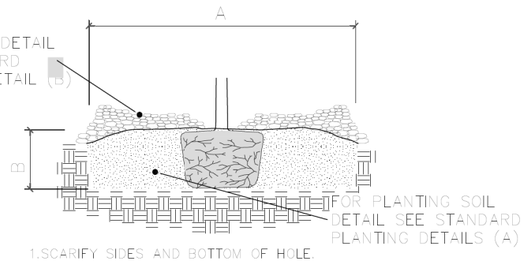
PLANTING HOLE DIMENSIONS

HOLE DEPTH FOR B&B AND CONTAINER PLANTS SHALL NOT EXCEED MEASUREMENT FROM ROOT FLAIR TO BOTTOM OF SOIL BALL

PLANT TYPE	PLANT SIZE UP TO AND INCLUDING	(A) MINIMUM HOLE WIDTH	(B) APPROXIMATE HOLE DEPTH
DECIDUOUS & ORNAMENTAL TREES	3' B.B.	46"	13"
	4' B.B.	46"	14"
	5' B.B.	48"	14"
	6' B.B.	54"	15"
	7' B.B.	60"	16"
	8' B.B.	66"	19"
	0.75" B.R.	48"	12"
	1" B.R.	54"	14"
	1.25" B.R.	60"	14"
	1.5 B.R.	66"	15"
	1.75" B.R.	72"	16"
	2" B.R.	84"	19"
	4" B.B.	42"	11"
	5" B.B.	48"	12"
	6" B.B.	52"	14"
	8" B.B.	66"	16"
	10" B.B.	66"	16"
	12" B.B.	48"	16"
	1" B.B.	54"	14"
	1.25" B.B.	56"	15"
	1.5" B.B.	61"	15"
	1.75" B.B.	66"	16"
	2" B.B.	72"	16"
	2.5" B.B.	84"	19"
	3" B.B.	96"	20"
	3.5" B.B.	114"	23"
	4" B.B.	126"	25"
DECIDUOUS SHRUBS, ROSES AND PERENNIALS PERENNIAL HOLE DEPTH AND WIDTH SHALL BE BASED UPON ON-CENTER SPACING IN A CONTINUOUS TRENCH	12" B.R.	24"	7"
	15" B.R.	28"	8"
	18" B.R.	30"	8"
	2' B.R.	39"	9"
	3' B.R.	42"	11"
	4' B.B.	48"	12"
	5' B.B.	54"	14"
	6' B.B.	60"	14"
	18" B.B.	27"	7"
	2' B.B.	30"	8"
	3' B.B.	36"	9"
	4' B.B.	42"	11"
	5' B.B.	48"	12"
	6' B.B.	54"	14"



1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING.
3. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED PLANTING SOIL. INSTALL PLANT SO THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE. WITH BURLAP AND WIRE BASKET, (IF USED), INTACT.
4. SLIT REMAINING TREATED BURLAP AT 6" INTERVALS.
5. BACKFILL TO WITHIN APPROXIMATELY 12" OF THE TOP OF THE ROOTBALL, THEN WATER PLANT.
6. REMOVE THE TOP 1/3 OF THE BASKET OR THE TOP TWO HORIZONTAL RINGS WHICHEVER IS GREATER. REMOVE ALL BURLAP AND NAILS FROM THE TOP 1/3 OF THE BALL. REMOVE ALL TWINE. REMOVE OR CORRECT STEM GIRDLING ROOTS.
7. PLUMB AND BACKFILL WITH PLANTING SOIL.
8. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANTS AND FILL VOIDS.
9. BACK FILL VOIDS AND WATER A SECOND TIME.
10. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

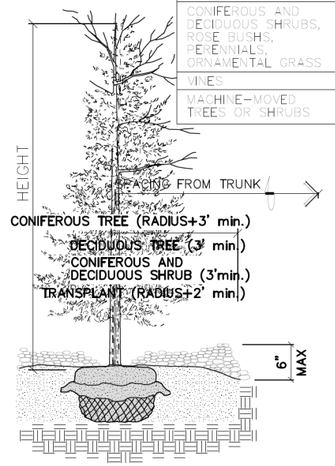


1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING OF TOP AND ROOT.
3. REMOVE CONTAINER AND SCORE OUTSIDE OF SOIL MASS TO REDIRECT AND PREVENT CIRCLING FIBROUS ROOTS. REMOVE OR CORRECT STEM GIRDLING ROOTS.
4. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED PLANTING SOIL. INSTALL PLANT SO THE TOP OF THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE.
5. PLUMB AND BACKFILL WITH PLANTING SOIL.
6. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANT AND FILL VOIDS.
7. BACK FILL VOIDS AND WATER A SECOND TIME.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

MULCH AREA CALCULATOR

TYPE OF PLANT	SQ. FT. PER PLANT
CONIFEROUS TREES	$\left[\left(\frac{3 / 5 \times \text{HT.}}{2}\right)+3\right]^2 \times \pi$
DECIDUOUS AND ORNAMENTAL TREES	$3^2 \times \pi$
CONIFEROUS AND DECIDUOUS SHRUBS, ROSE BUSHS, PERENNIALS, ORNAMENTAL GRASS	SPACING x SPACING
VINES	SPACING x 2
MACHINE-MOVED TREES OR SHRUBS	$\left[\left(\frac{\text{SPADE DIAMETER}}{2}\right)+1\right]^2 \times \pi$

$\pi = 3.1416$



1. PULL MULCH BACK NO LESS THAN 3" AND NO MORE THAN 6" FROM TREES AND SHRUBS AT THE TRUNK OR MAIN STEM.
2. SUBSIDING OR DETERIORATING MULCH IS ACCEPTABLE THROUGHOUT THE ESTABLISHED PERIOD IF THE MULCH DEPTH IS MAINTAINED AT A MINIMUM 3" DEPTH.
3. ADD MULCH WHEN BELOW THE 3" MINIMUM DEPTH, DO NOT EXCEED THE 6" MAXIMUM DEPTH.
4. MULCH CONTAMINATED WITH SOIL MUST BE REMOVED AND REPLACED.

MULCH PLACEMENT

(MnDOT 2571.3H)

DESIGNED BY:	KJC					
DRAWN BY:	KJC					
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

LANDSCAPING DETAILS

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

LA07
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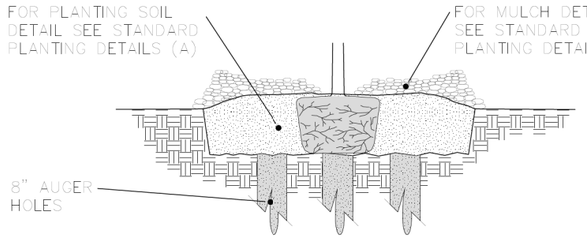
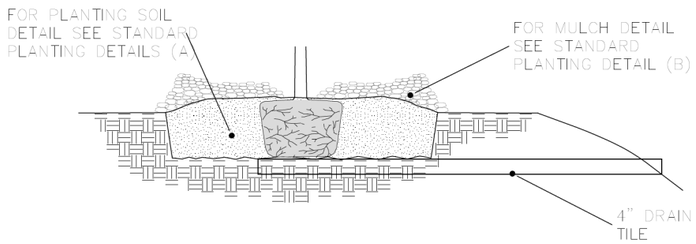


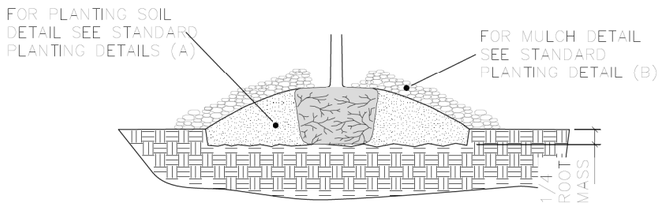
1.EXCAVATE HOLE OR BED TO ALLOW PLACING THE TOP OF ROOT MASS 1"–3" HIGHER THAN FINISHED GRADE.
2.AUGER 8" DIAMETER HOLES ENTIRELY THROUGH IMPERVIOUS OR POORLY DRAINED HARD PAN SOIL LAYER TO ADEQUATELY DRAIN SUBSOIL.
3.TEST FOR POSITIVE DRAINAGE. RE–AUGER AN ADDITIONAL 8" IF NECESSARY FOR POSITIVE DRAINAGE.
4.THOUROUGHLY BACKFILL AUGER HOLES WITH A UNIFORM INCORPORATED MIXTURE OF 50% SAND AND 50% INPLACE SOIL.
5.COMPLETE PLANTING ACCORDING TO ROOT TYPE. SEE STANDARD PLANTING DETAILS (B).

INSTALL GRANULAR FILTER



1.EXCAVATE HOLE OR BED TO ALLOW PLACING THE TOP OF THE ROOT MASS 1"–3" HIGHER THAN FINISHED GRADE.
2.INSTALL 4" MINIMUM DIAMETER DRAIN TILE DAYLIGHTING AT A LOWER GRADE.
3.COMPLETE PLANTING ACCORDING TO ROOT TYPE. SEE STANDARD PLANTING DETAILS (B).

INSTALL TILE DRAINAGE



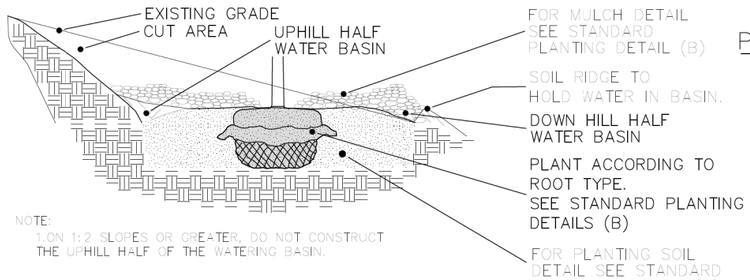
1.EXCAVATE HOLE OR BED 1/4 THE DEPTH OF THE ROOT MASS.
2.SET ROOT MASS IN HOLE.
3.CONSTRUCT BERM WITH PLANTING SOIL. EXTEND THE BERM BASE TO A WIDTH OF 3 TIMES THE BERM HEIGHT.
4.COMPLETE PLANTING ACCORDING ROOT TYPE. SEE STANDARD PLANTING DETAILS (B).

INSTALL MINI–BERM

NOTE:
1. THE NEED FOR USING PLANTING DETAILS FOR POORLY DRAINED SOILS AND WHICH TYPE TO USE ARE DETERMINED BY THE CONTRACTOR, SUBJECT TO ENGINEER APPROVAL.

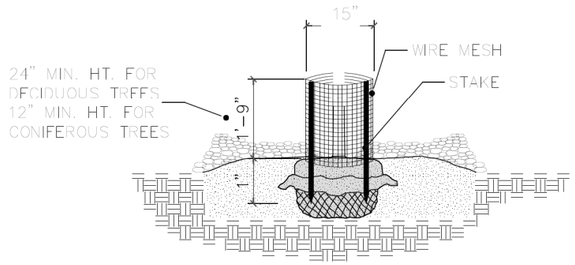
PLANTING DETAIL FOR POORLY DRAINED SOILS

(MnDOT 2571.3D2 (STEP 8)



NOTE:
1.ON 1:2 SLOPES OR GREATER, DO NOT CONSTRUCT THE UPHILL HALF OF THE WATERING BASIN.

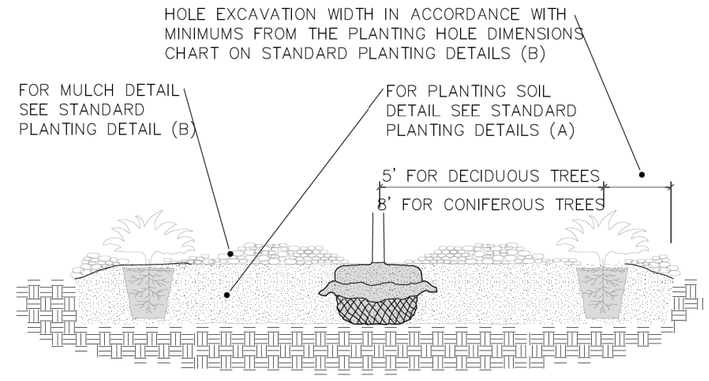
PLANTING ON SLOPES



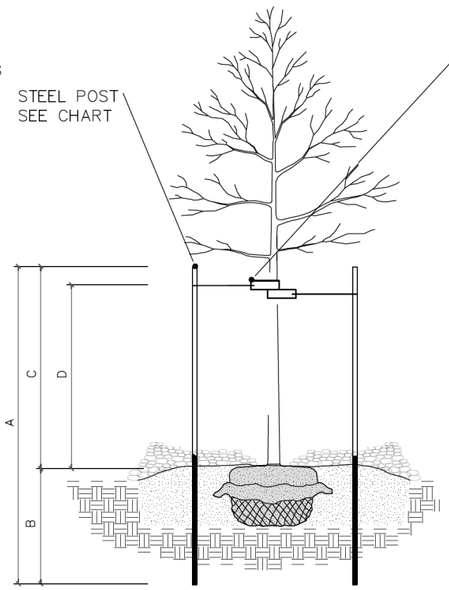
1.FORM A DOUBLE–LAYERED CYLINDER USING 0.25" GRID GALVANIZED WELDED WIRE MESH (HARDWARE CLOTH). OVERLAP THE CUT END 2".
2.DRIVE TWO 1" x 1" OPPOSING HEARTWOOD WHITE OAK STAKES INTO THE GROUND, 7" FROM THE CENTER OF THE TREE STEM.
3.SECURE THE MESH CYLINDER TO THE OUTSIDE OF THE STAKES USING EITHER, SCREWS AND WASHERS OR CABLE–TIES ALONG THE OVERLAP. SPACE APPROXIMATELY 4" ON CENTER ALONG THE OVERLAP.
a.SCREWS SHALL BE ROUND HEAD GALVANIZED 1/8" DIA. x 3/4" LONG WITH WASHERS.
OR
b.CABLE–TIES SHALL BE NYLON, AT LEAST 8" LONG AND BETWEEN 75LB TO 120LB TENSILE STRENGTH.
4.EMBED THE LOWER EDGE OF THE MESH CYLINDER 1" BELOW THE SOIL SURFACE WITHOUT DISTURBING THE TREE ROOTS.
5.CUT EDGES WILL NOT BE PERMITTED AT THE TOP OF THE CYLINDER. STAKE WILL BE FLUSH WITH THE TOP OF THE CYLINDER.
6.MULCH WITHIN THE CYLINDER SHALL NOT EXCEED 3" DEPTH AND SHALL BE PULLED BACK FROM THE TRUNK AS SPECIFIED IN MULCH PLACEMENT DETAIL.
7.THE BOTTOM WHORL OF PINE AND LARCH BRANCHES MAY HAVE TO BE REMOVED TO PERMIT INSTALLATION OF 12" MIN. HEIGHT RODENT GUARDS.
8.INSTALL ON ALL DECIDUOUS, PINE AND LARCH TREES, DO NOT PLACE ON SPRUCE TREES.

RODENT PROTECTION

(MnDOT 2571.3I2)



PLANT SPACING IN MASS BEDS



1.STEEL POSTS TO BE NOTCHED OR DRILLED TO RETAIN GUY WIRES. PLACE OUTSIDE OF ROOT BALL. DRIVE PLUMB REGARDLESS OF GROUND SLOPE.

2.REQUESTS TO SUBSTITUTE RUBBER HOSE AND WIRE GUYING SYSTEMS WILL NOT BE APPROVED.

3. TREE STAKING IS NOT REQUIRED UNLESS SPECIFIED OR NECESSARY TO MAINTAIN TREES IN A PLUMB CONDITION WHERE VANDALISM, SOIL, OR WIND CONDITIONS ARE A PROBLEM, OR AS DIRECTED BY THE ENGINEER.

4.REMOVE WITHIN ONE YEAR.

STEEL POST SIZING					
CALIPER	STEEL POST TYPE	A	B	C	D
LESS THEN 4 INCHES	ROLLED STEEL FENCE POST (MnDOT 3403) OR APPROVED EQUAL	7'–0"	3'–0" MIN.	4'–0"	3'–0"
GREATER THEN 4 INCHES	10', 2.2 LB. FLANGED CHANNEL STEEL SIGN POST (MnDOT 3401) OR APPROVED EQUAL	10'–0"	4'–0" MIN.	6'–0"	5'–0"

STAKING AND GUYING

(MnDOT 2571.3I1)

DESIGNED BY:	KJC					
DRAWN BY:	KJC					
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	

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

Certified By: _____ Lic. No. _____
Licensed Professional Engineer
Printed Name: _____ Date: 9/23/2021

Kimley»Horn
767 EUSTIS STREET, SUITE 100
SAINT PAUL, MINNESOTA 55114
PH: 651-645-4197 www.kimley-horn.com

RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

LANDSCAPING DETAILS

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

LA08
OF LA08
88 / 95

3:49:03 PM

9/23/2021

LEGEND

- DRAINAGE FLOW DIRECTION
- MS — SILT FENCE, TYPE MS
- STORM DRAIN INLET PROTECTION
- CP — CULVERT END PROTECTION
- SEED MIX 34-261, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
- SEED MIX 36-211, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
- SEED MIX 25-121, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
- SODDING TYPE SALT TOLERANT

100

SCALE IN FEET

BNSF R/W

BEGIN CONSTRUCTION
BEGIN S.P. XXXX-XX
STA. 50+11.68

℄ BRUCE VENTO TRAIL

C/L EXIST. TRACK

XCEL OVERHEAD TRANSMITION

BNSF R/W

CONST LIM

WETLAND BOUNDARY

PROPOSED BRIDGE

CONST LIM

MATCHLINE BRUCE VENTO TRAIL
STA. 62+00 SEE BELOW

BUERKLE RD

MODIFY GRADING SLOPE AS DIRECTED BY ENGINEER IN THE FIELD TO CREATE A NATURAL LOOK

TRAIL

LANDSCAPE BOULDERS TO BE PLACED AS DIRECTED BY THE ENGINEER IN THE FIELD

LANDSCAPE BOULDER TO VARY IN SIZE (1.5'-3' DIA.) TYP.

1:2 EMBANKMENT INFLUENCE LINE

TOE OF SLOPE

BNSF R/W

INSET A

RESIDENTIAL BUFFER AREA:

1. LOCATE 20 TREES PER FIELD STAKING IN COORDINATION WITH LANDSCAPE ARCHITECT FROM SPECIES WITHIN RESIDENTIAL BUFFER AREA PLANT SCHEDULE ON SHEET LA04. CONTRACTOR MAY BE DIRECTED TO PLANT ALL, PART, OR NONE OF THE TREES IN THIS LOCATION. TREES NOT PLANTED HERE WILL BE PLANTED ELSEWHERE ALONG TRAIL CORRIDOR NORTH OF BUERKLE ROAD.
2. SEE ENLARGEMENTS ON SHEETS EC06 FOR DETAILED SHRUB PLANTING.

100

SCALE IN FEET

BNSF R/W

MATCHLINE BRUCE VENTO TRAIL
STA. 62+00 SEE ABOVE

C/L EXIST. TRACK

℄ BRUCE VENTO TRAIL

XCEL OVERHEAD TRANSMITION

BNSF R/W

CONST LIM

SEE INSET A FOR GRADING AND LANDSCAPE BOULDER DETAILS.

CONST LIM

BNSF R/W

MATCHLINE BRUCE VENTO TRAIL
STA. 76+00 SEE SHEET EC02

K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\C0553009_ec01.dgn
$MODELNAME$

DESIGNED BY:	KJC					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 PH: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA
DRAWN BY:	KJC					Certified By: _____ Lic. No. _____ Licensed Professional Engineer		BRUCE VENTO TRAIL
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

EROSION CONTROL & LANDSCAPING
STA 50+00 TO STA 76+00

EC01
OF EC06

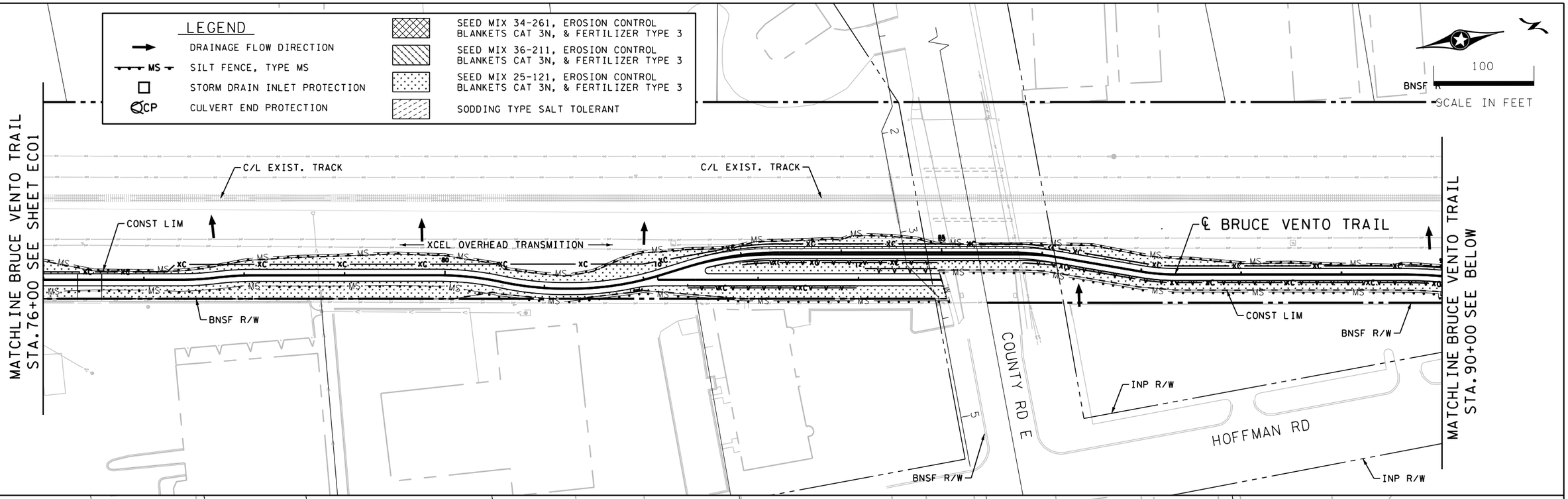
89 / 95

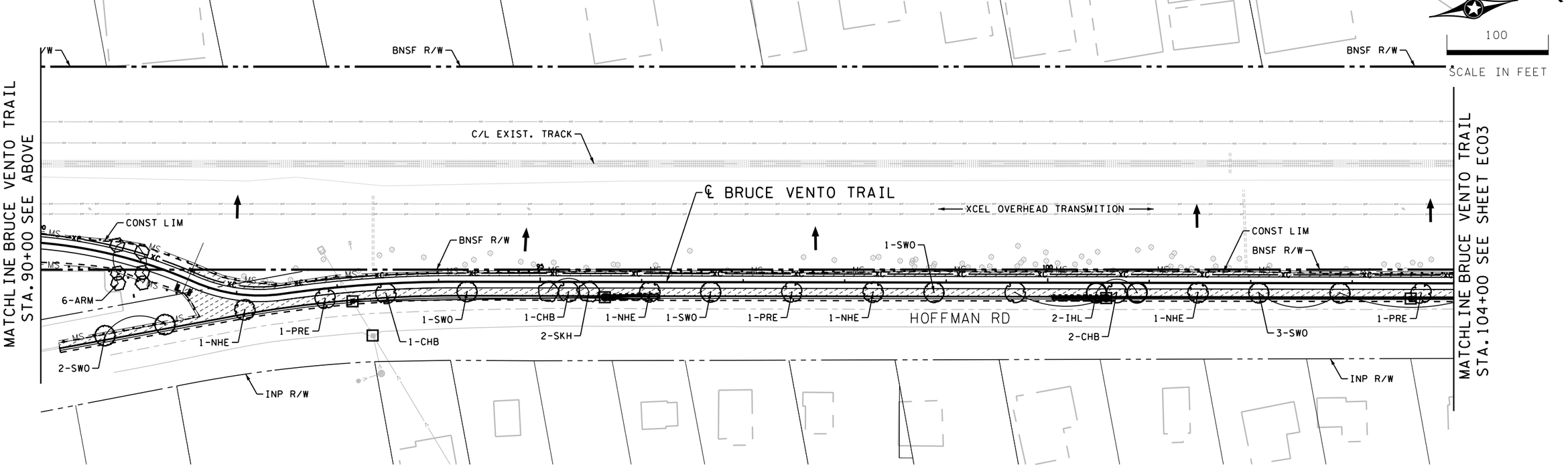
3:49:05 PM

9/23/2021

LEGEND

- DRAINAGE FLOW DIRECTION
- MS — SILT FENCE, TYPE MS
- STORM DRAIN INLET PROTECTION
- CP — CULVERT END PROTECTION
- SEED MIX 34-261, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
- SEED MIX 36-211, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
- SEED MIX 25-121, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
- SODDING TYPE SALT TOLERANT





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$MODELNAME$

DESIGNED BY:	KJC				
DRAWN BY:	KJC				
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS

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Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

EROSION CONTROL & LANDSCAPING
STA 76+00 TO STA 104+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

EC02 OF EC06

LEGEND

- DRAINAGE FLOW DIRECTION
- MS — SILT FENCE, TYPE MS
- STORM DRAIN INLET PROTECTION
- CP — CULVERT END PROTECTION
- SEED MIX 34-261, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
- SEED MIX 36-211, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
- SEED MIX 25-121, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
- SODDING TYPE SALT TOLERANT

100
SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL
STA.104+00 SEE SHEET EC02

BNSF R/W
C/L EXIST. TRACK
BRIDGE PIER
℄ BRUCE VENTO TRAIL
CONST LIM
MS
XC
1-CHB
1-IHL
2-FFM
3-SWO
INP R/W
TH 61
HOFFMAN RD
2-SWO
2-CHB
1-NHE
2-IHL

MATCHLINE BRUCE VENTO TRAIL
STA.118+00 SEE BELOW

MATCHLINE BRUCE VENTO TRAIL
STA.118+00 SEE ABOVE

C/L EXIST. TRACK
℄ BRUCE VENTO TRAIL
2-SKH
1-PRE
1-SWO
2-NHE
3-SWO

MATCHLINE BRUCE VENTO TRAIL
STA.132+00 SEE SHEET EC04

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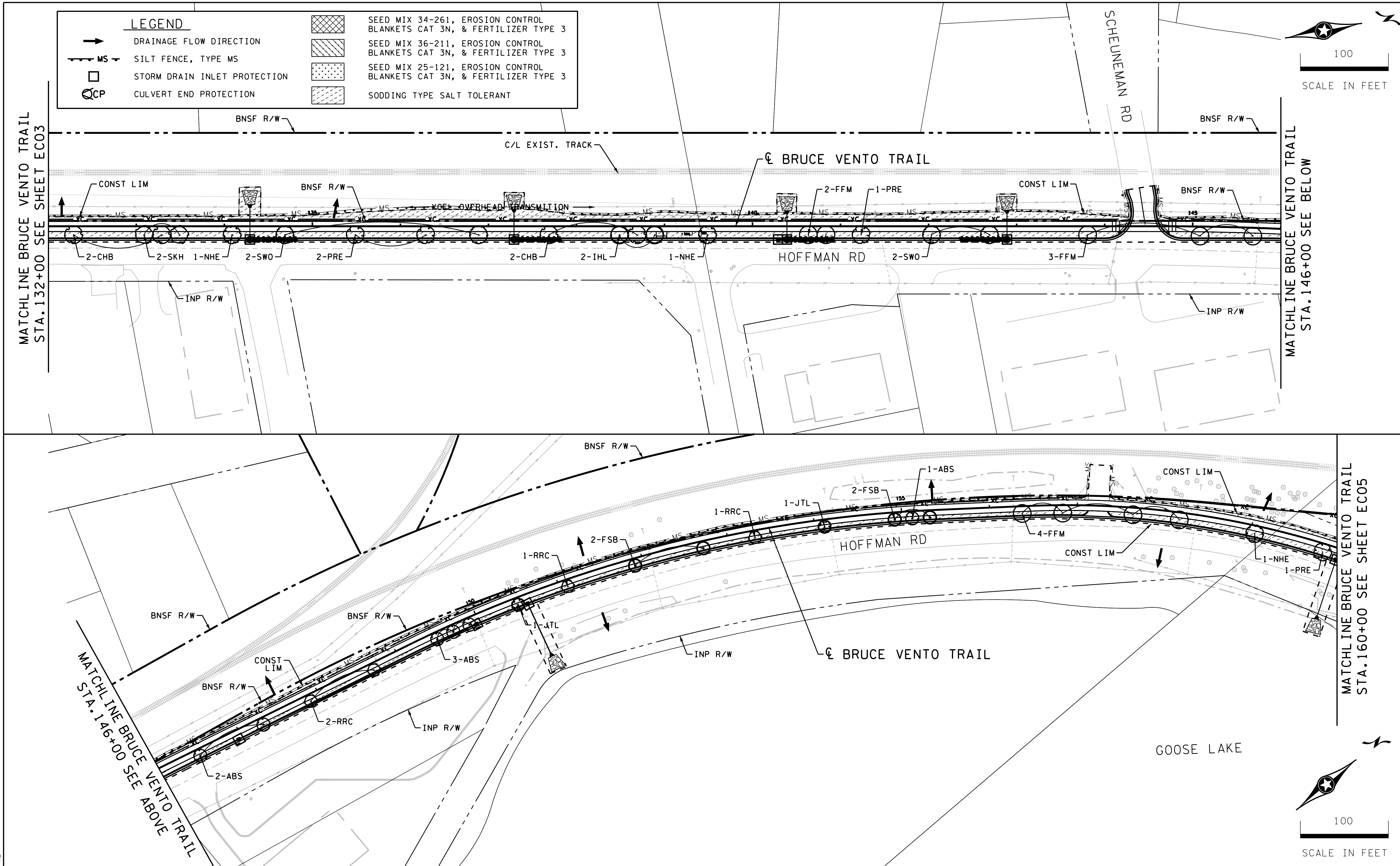
DRAWN BY: KJC				Certified By: _____ Lic. No. _____ (Licensed Professional Engineer)	RAMSEY COUNTY, MINNESOTA BRUCE VENTO TRAIL
CHECKED BY: CSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021

EROSION CONTROL & LANDSCAPING
STA 104+00 TO STA 132+00

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

EC03 OF EC06



DESIGNED BY:	KJC
DRAWN BY:	KJC
CHECKED BY:	GSB

NO.	BY	DATE	REVISIONS

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Certified By: ____________ Licensed Professional Engineer Lic. No. ______

Printed Name: ____________ Date: 9/23/2021

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RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

EROSION CONTROL & LANDSCAPING
STA 132+00 TO STA 160+00

EC04 OF EC06

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

MATCHLINE BRUCE VENTO TRAIL
STA.160+00 SEE SHEET EC04

BNSF R/W

℄ BRUCE VENTO TRAIL

HOFFMAN RD

2-CHB
1-SWO
2SKH
CONST LIM
2-FFM
2-SWO
1-PRE
2-IHL
1-CHB
1-NHE
3-SWO
INP R/W

MATCHLINE BRUCE VENTO TRAIL
STA.174+00 SEE BELOW

LEGEND

→	DRAINAGE FLOW DIRECTION
MS	SILT FENCE, TYPE MS
□	STORM DRAIN INLET PROTECTION
CP	CULVERT END PROTECTION
	SEED MIX 34-261, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
	SEED MIX 36-211, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
	SEED MIX 25-121, EROSION CONTROL BLANKETS CAT 3N, & FERTILIZER TYPE 3
	SODDING TYPE SALT TOLERANT

100
SCALE IN FEET

MATCHLINE BRUCE VENTO TRAIL
STA.174+00 SEE ABOVE

END CONSTRUCTION
END S.P. XXXX-XX
STA. 178+54.77

℄ BRUCE VENTO TRAIL

TH 61

WHITE BE

CONST LIM
INP R/W

100
SCALE IN FEET

K:\TWC_Civil\County\RAMSEY\BRUCE VENTO TRAIL\CAD\Plan Sheets\CD553009_ec05.dgn
$MODELNAME$

DESIGNED BY:	KJC						
DRAWN BY:	KJC						
CHECKED BY:	GSB	NO.	BY	DATE	REVISIONS		

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Certified By: _____ Lic. No. _____
Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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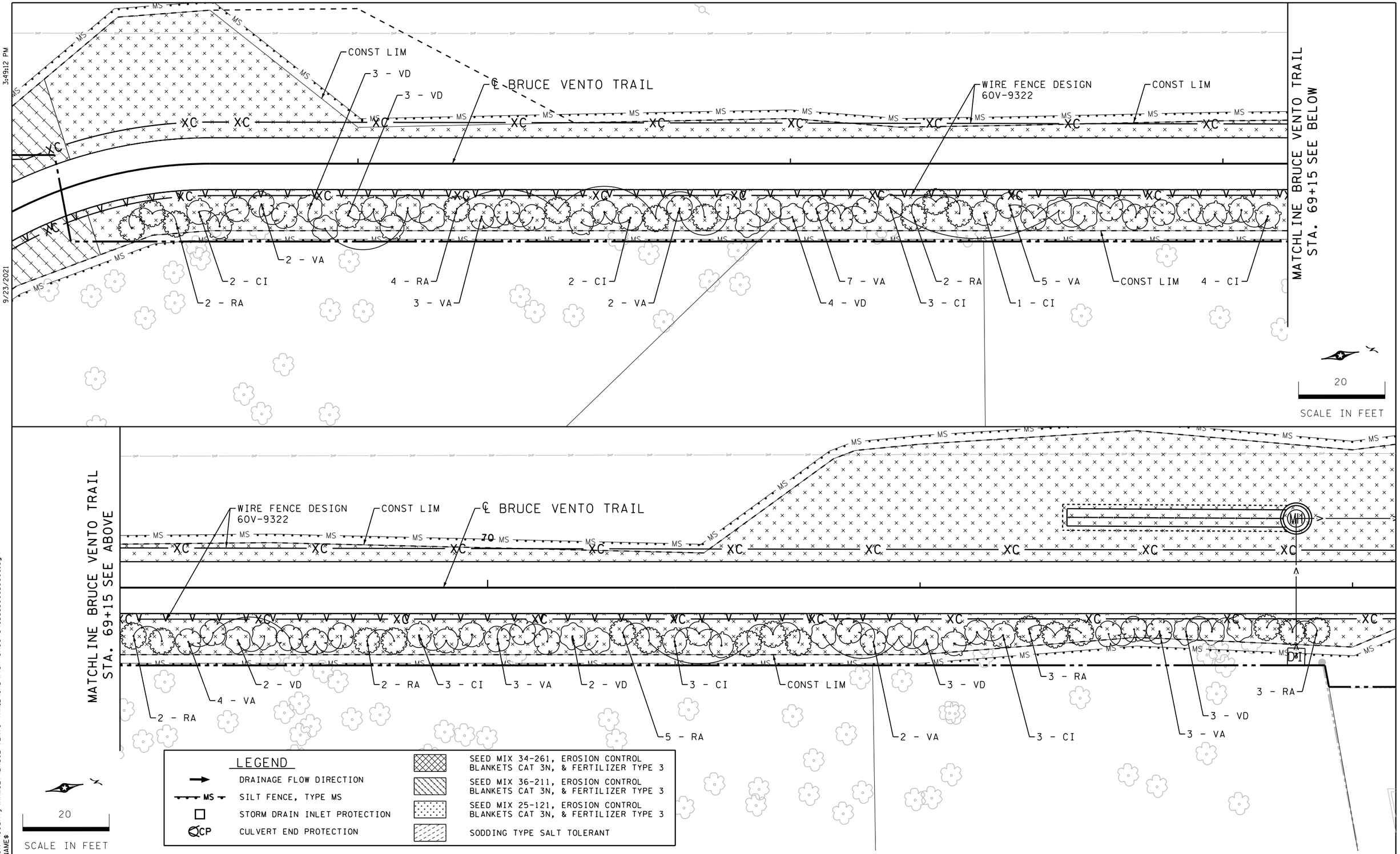
RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

EROSION CONTROL & LANDSCAPING
STA 160+00 TO END OF PROJECT

STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

EC05 OF EC06



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$MODELNAME$

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CHECKED BY:	GSB

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Licensed Professional Engineer

Printed Name: _____ Date: 9/23/2021

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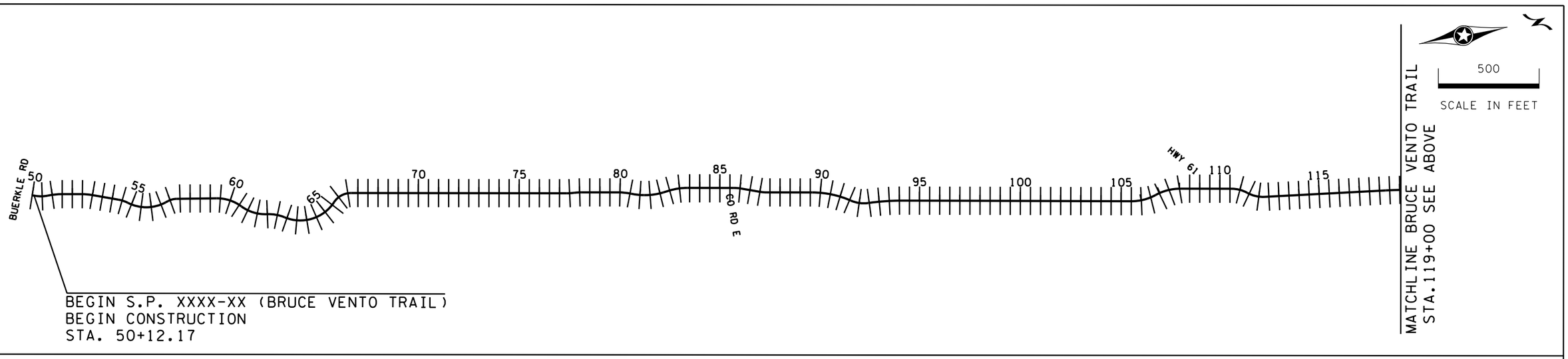
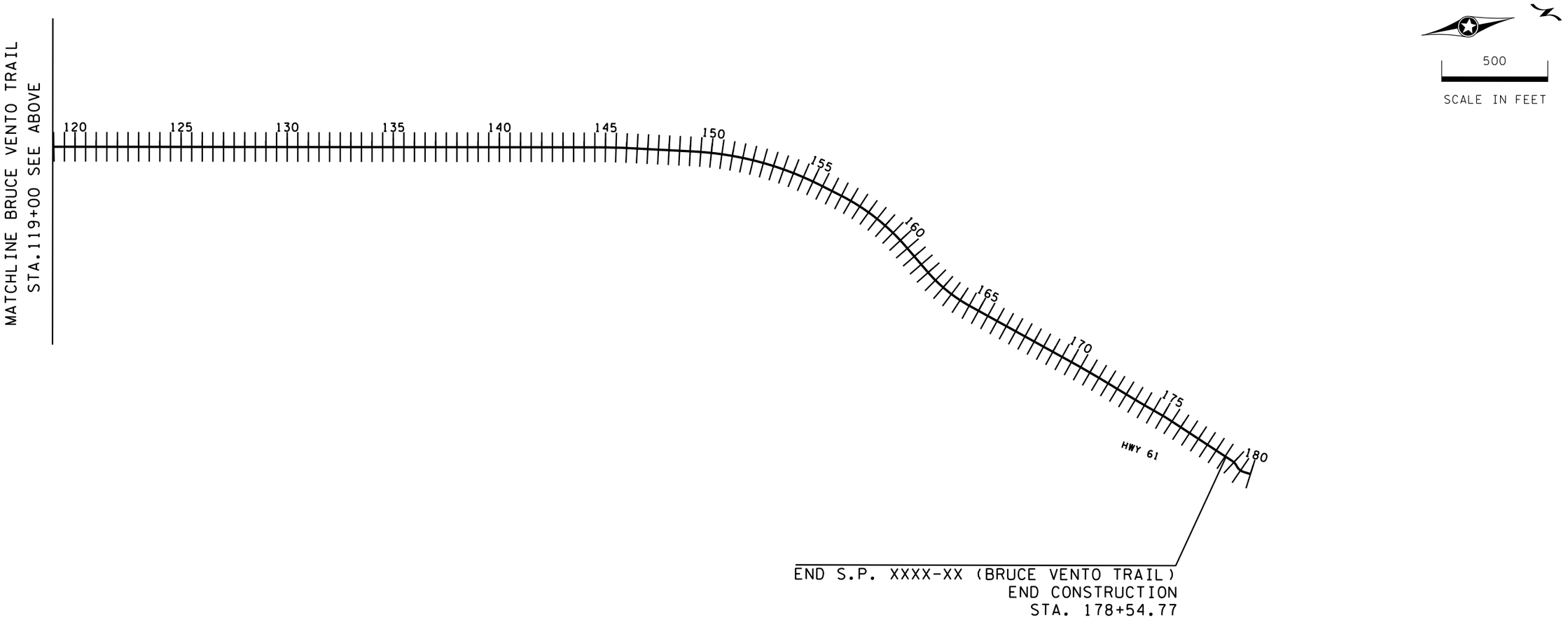
RAMSEY COUNTY, MINNESOTA
BRUCE VENTO TRAIL

EROSION CONTROL & LANDSCAPING
STA 66+20 TO STA 72+10

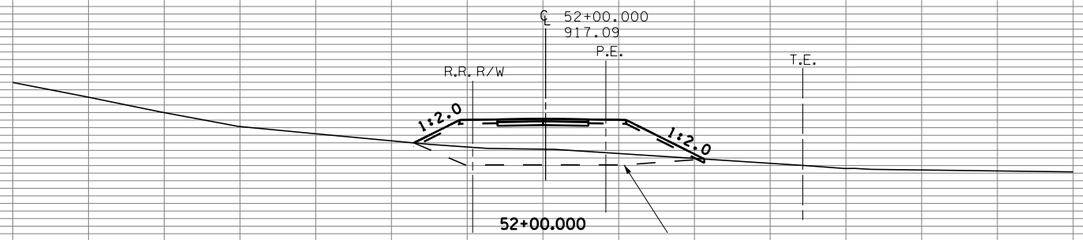
STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)

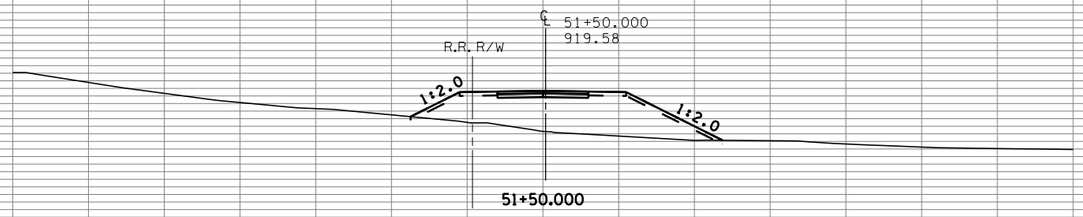
EC06
OF EC06

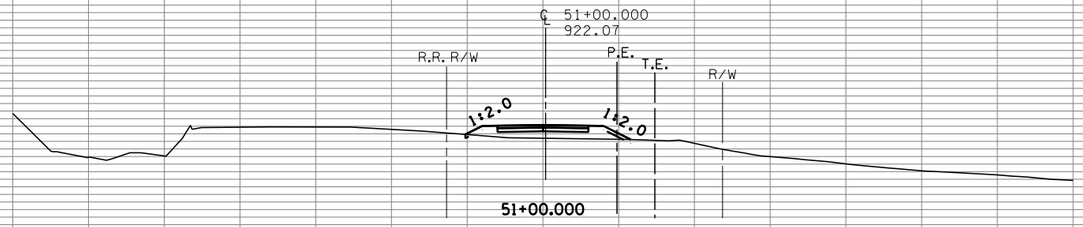


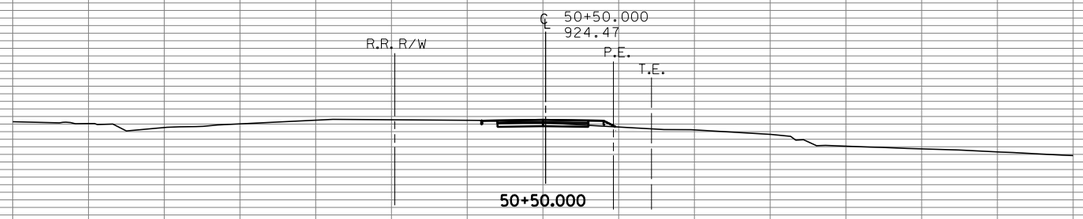


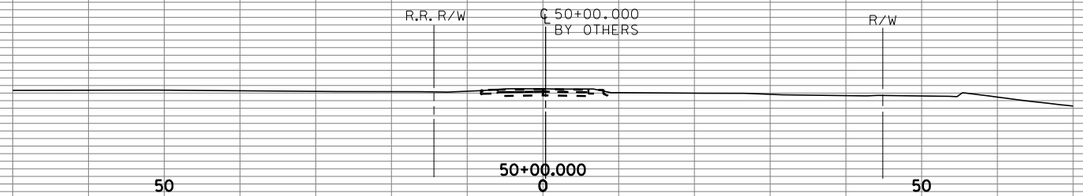
DESIGNED BY: RKM					I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	Kimley»Horn 767 EUSTIS STREET, SUITE 100 SAINT PAUL, MINNESOTA 55114 Ph: 651-645-4197 www.kimley-horn.com	RAMSEY COUNTY, MINNESOTA	CROSS SECTION LAYOUT	XSL
DRAWN BY: RKM					Certified By: _____ Lic. No. _____ (Licensed Professional Engineer)		BRUCE VENTO TRAIL	STA 50+00 TO STA 191+00	OF XSL
CHECKED BY: GSB	NO.	BY	DATE	REVISIONS	Printed Name: _____ Date: 9/23/2021		STATE PROJ. NO. XXXX-XX (BRUCE VENTO TRAIL)		95 / 95

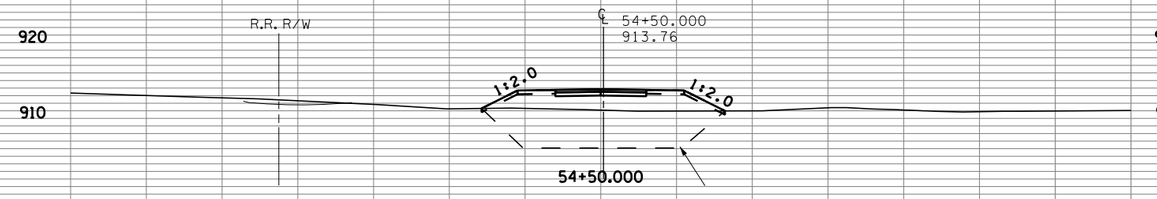


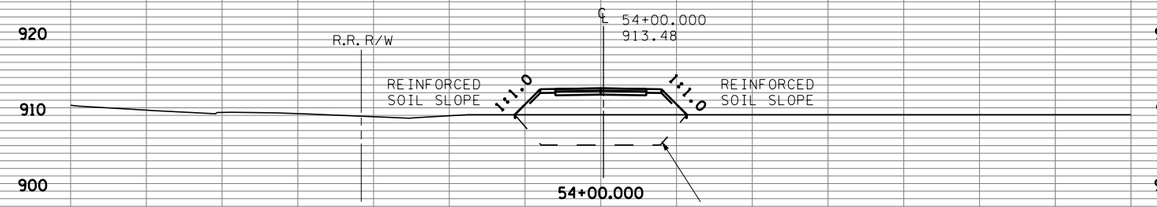


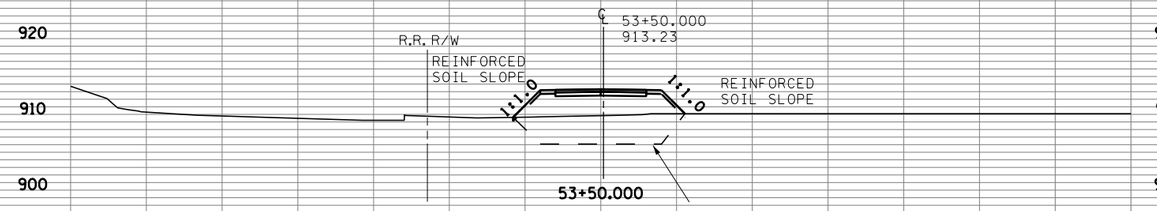


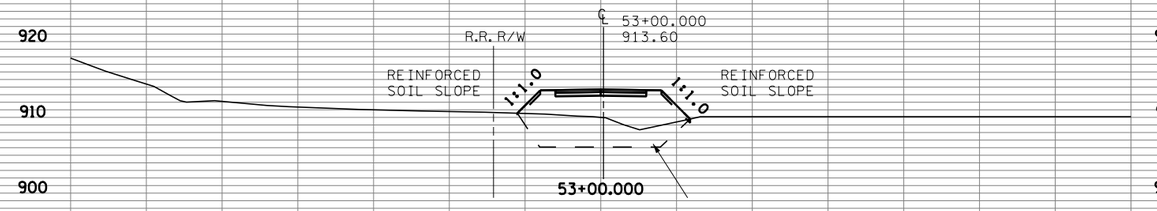


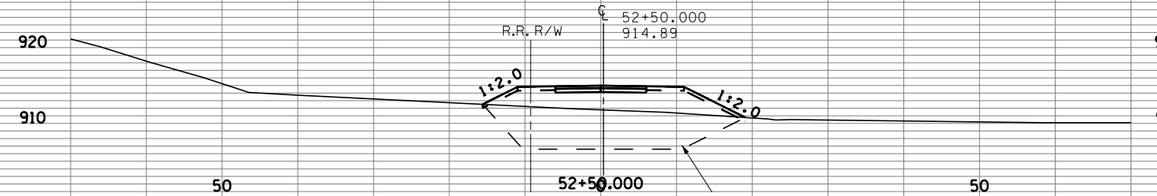












STA.50+00.000 - 54+50.000

BRUCE VENTO TRAIL

Sheet No. X1 of X32 Sheets

Kimley»Horn

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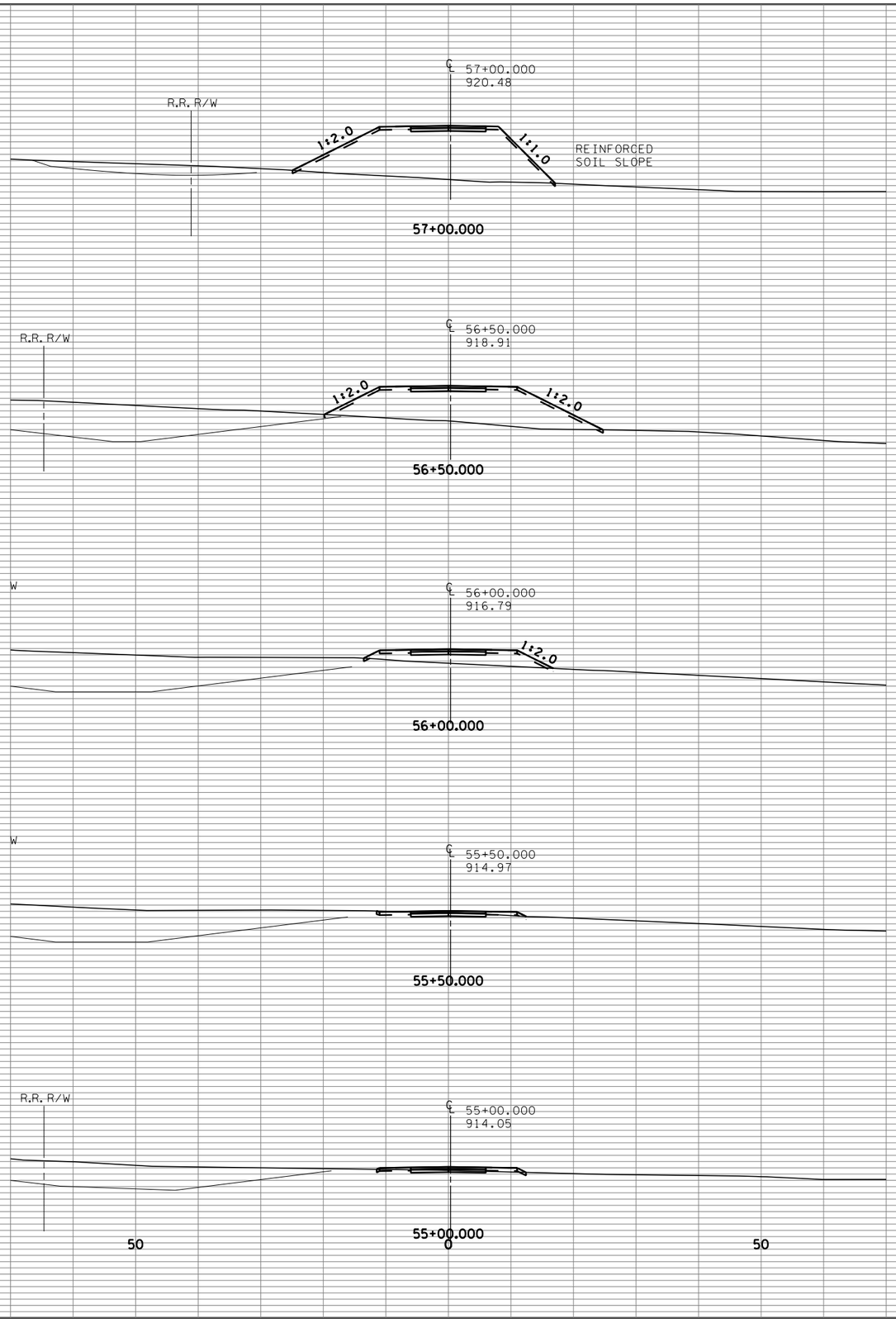
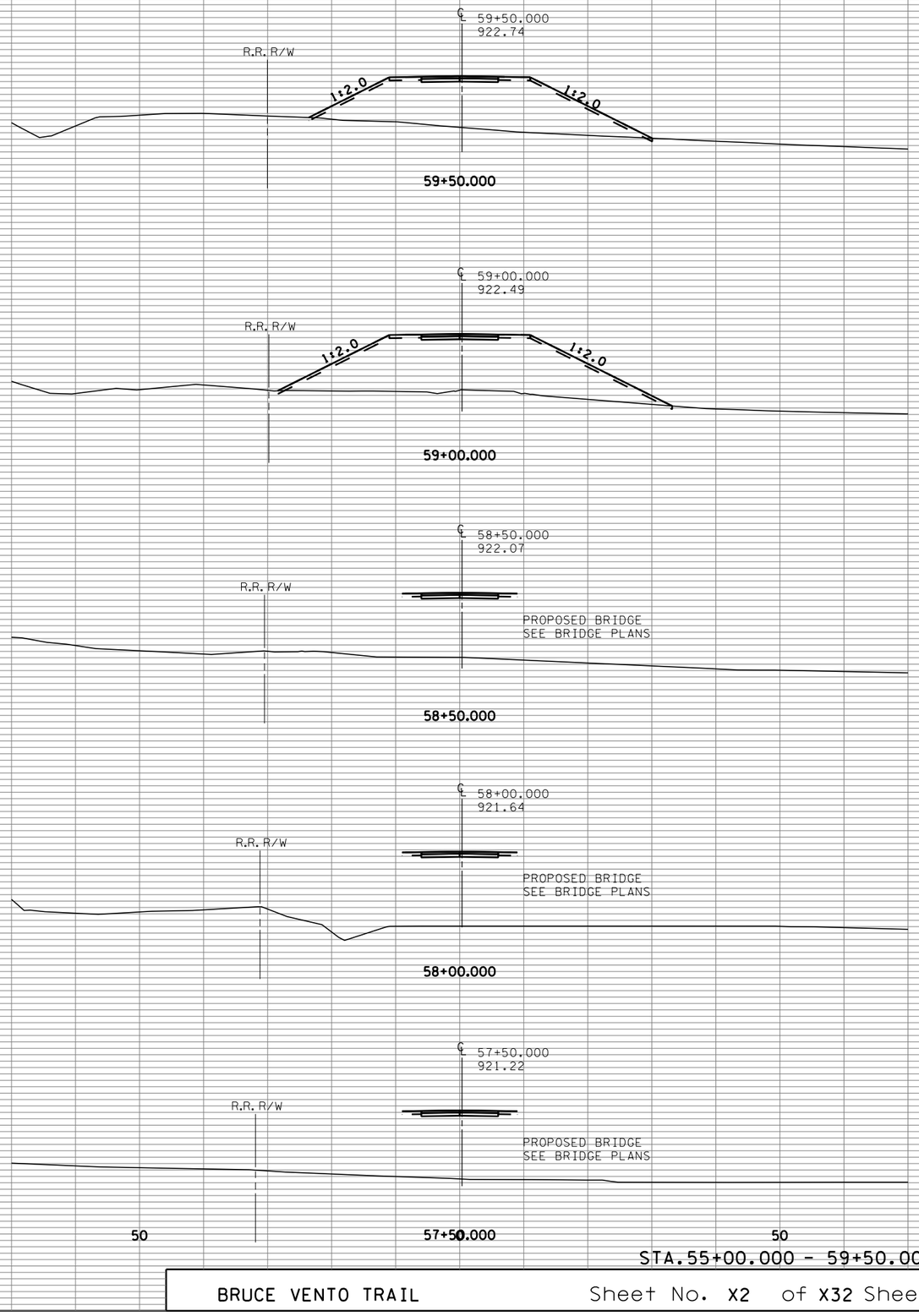
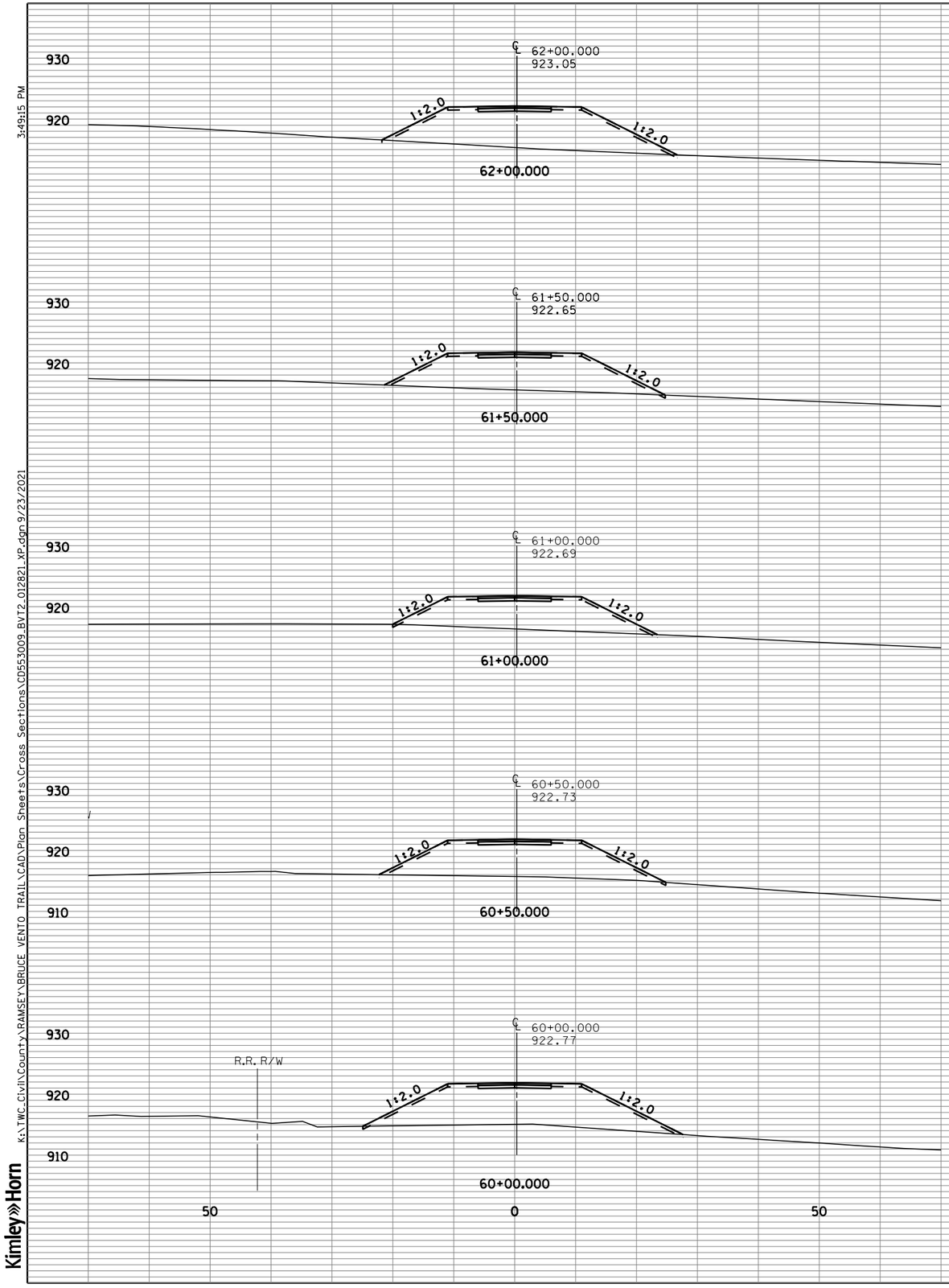


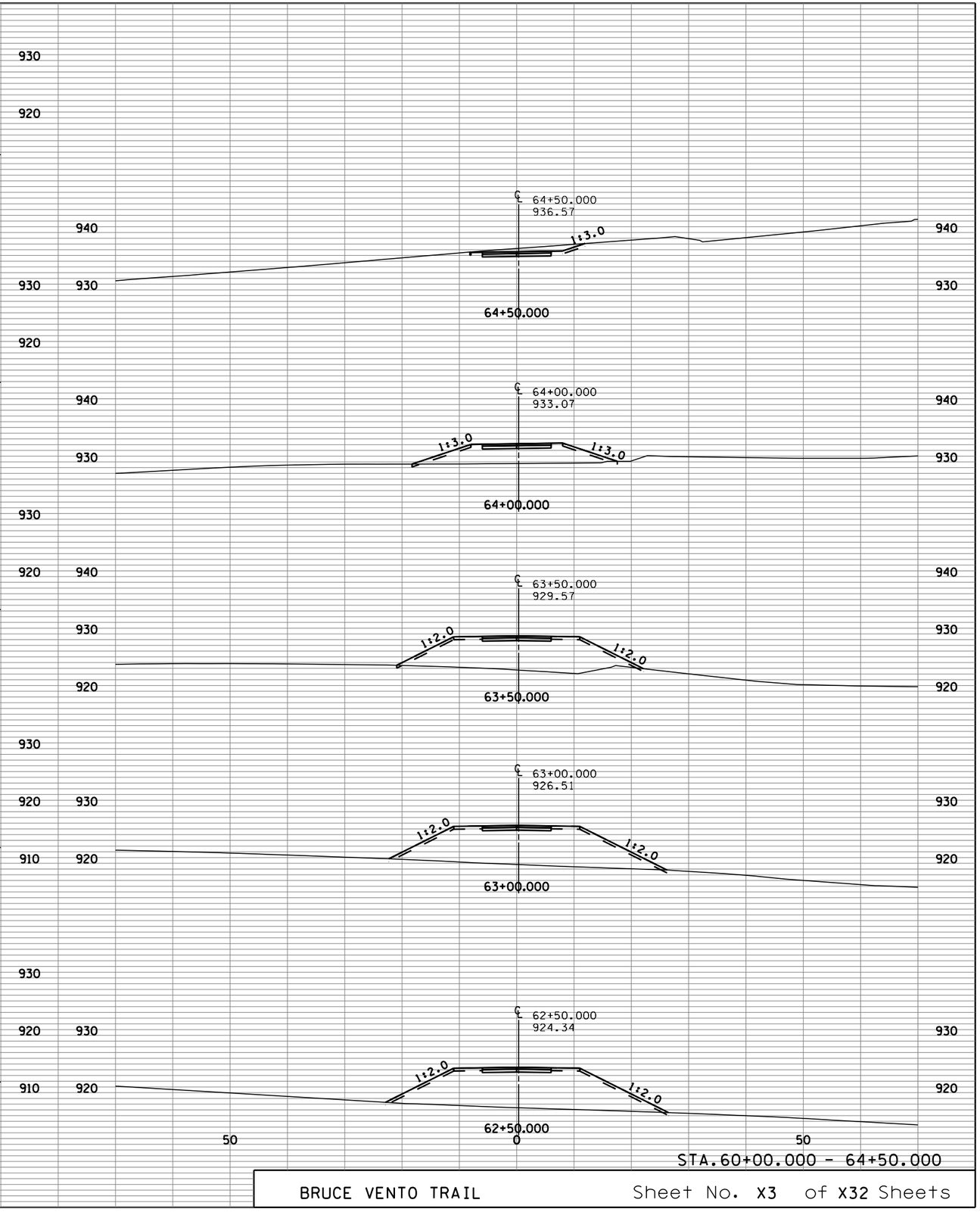


STA.55+00.000 - 59+50.000

BRUCE VENTO TRAIL

Sheet No. X2 of X32 Sheets

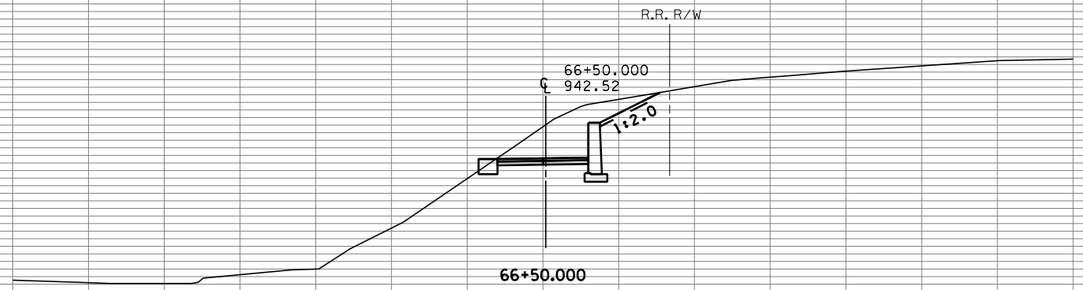


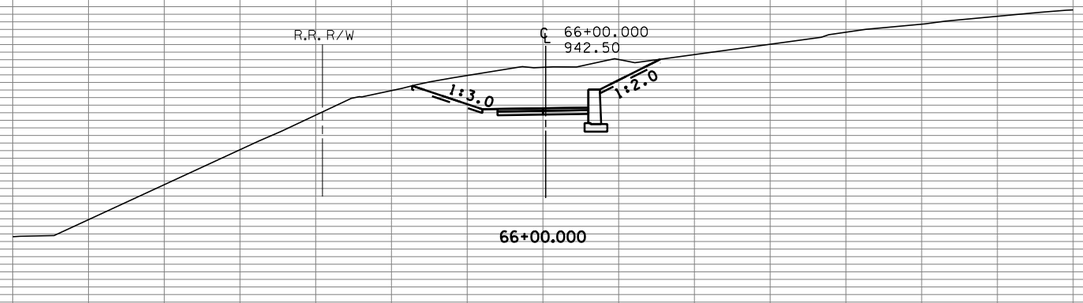


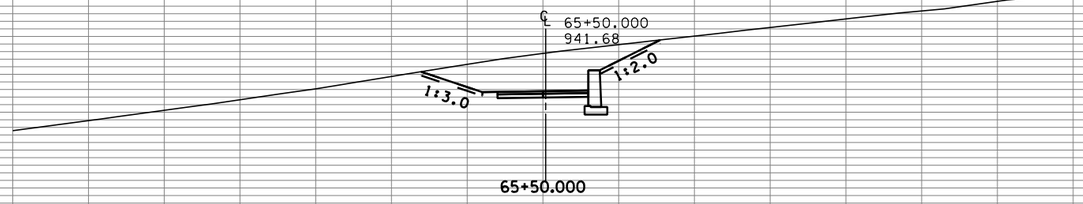
Kimley»Horn

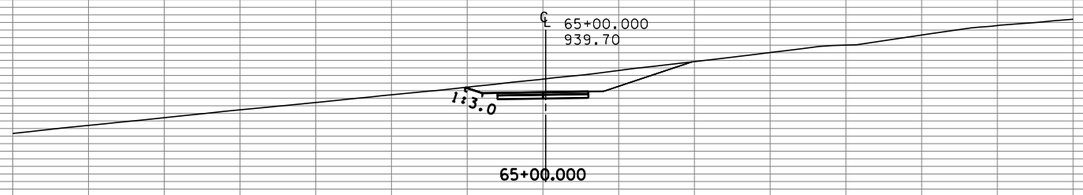
STA.60+00.000 - 64+50.000

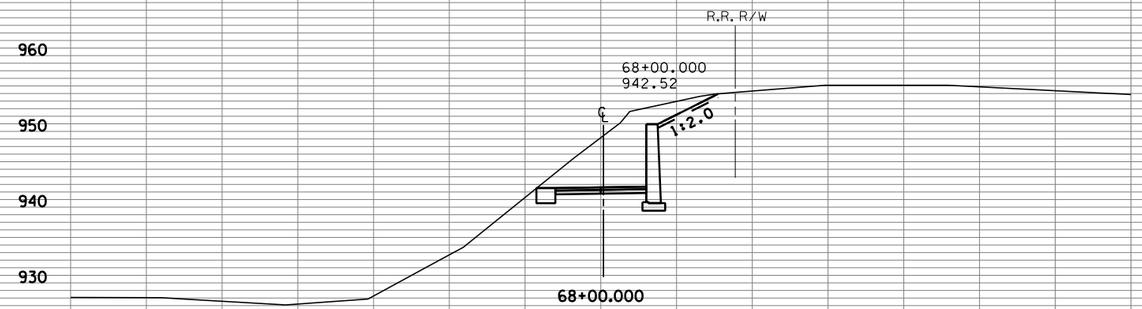
BRUCE VENTO TRAIL

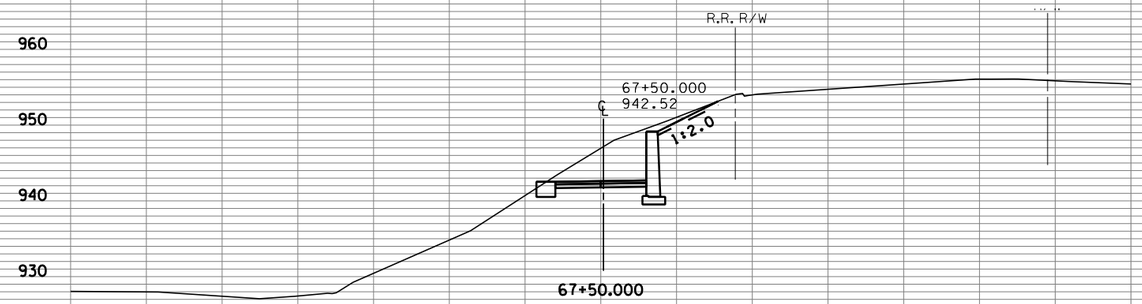


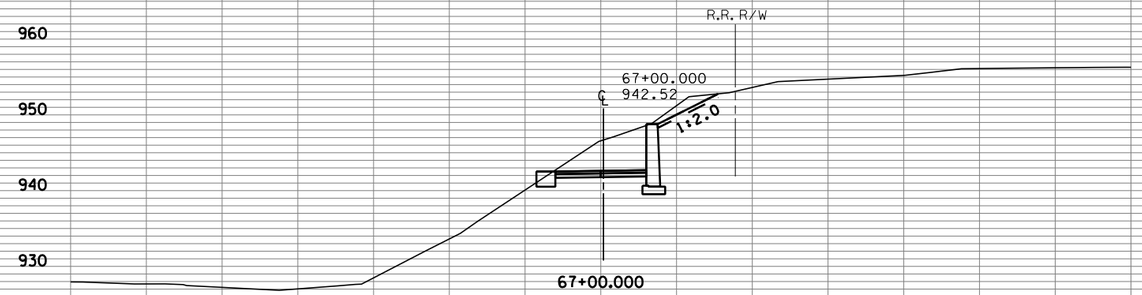












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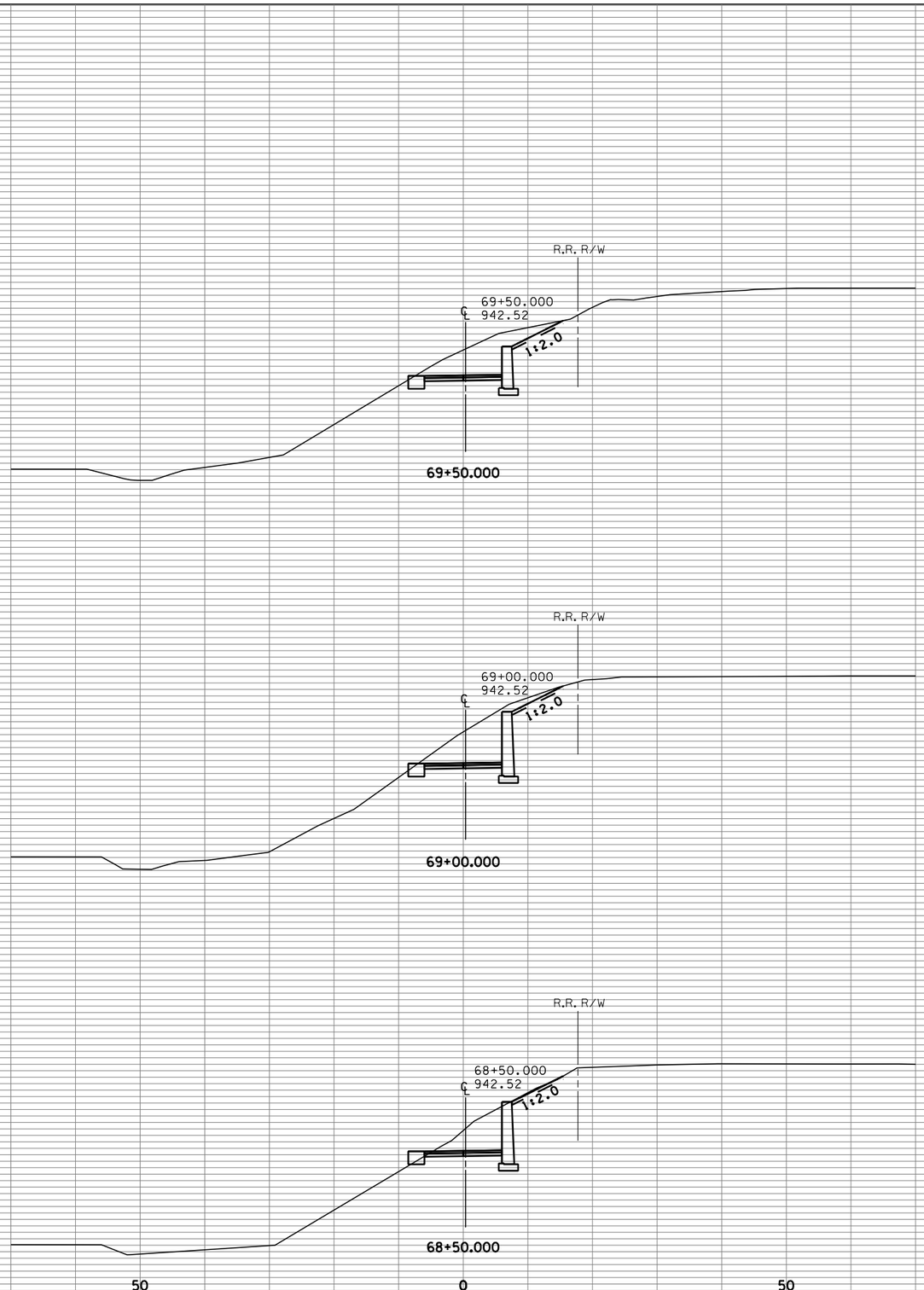
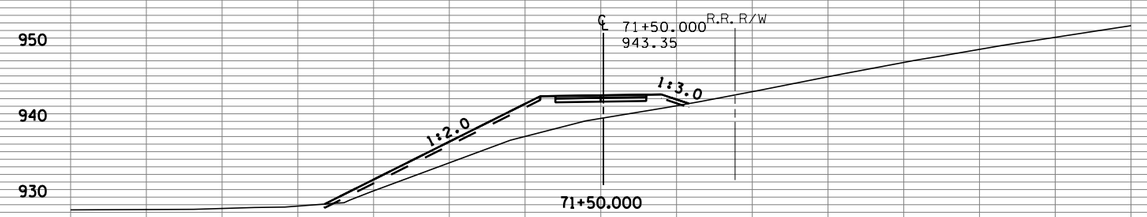
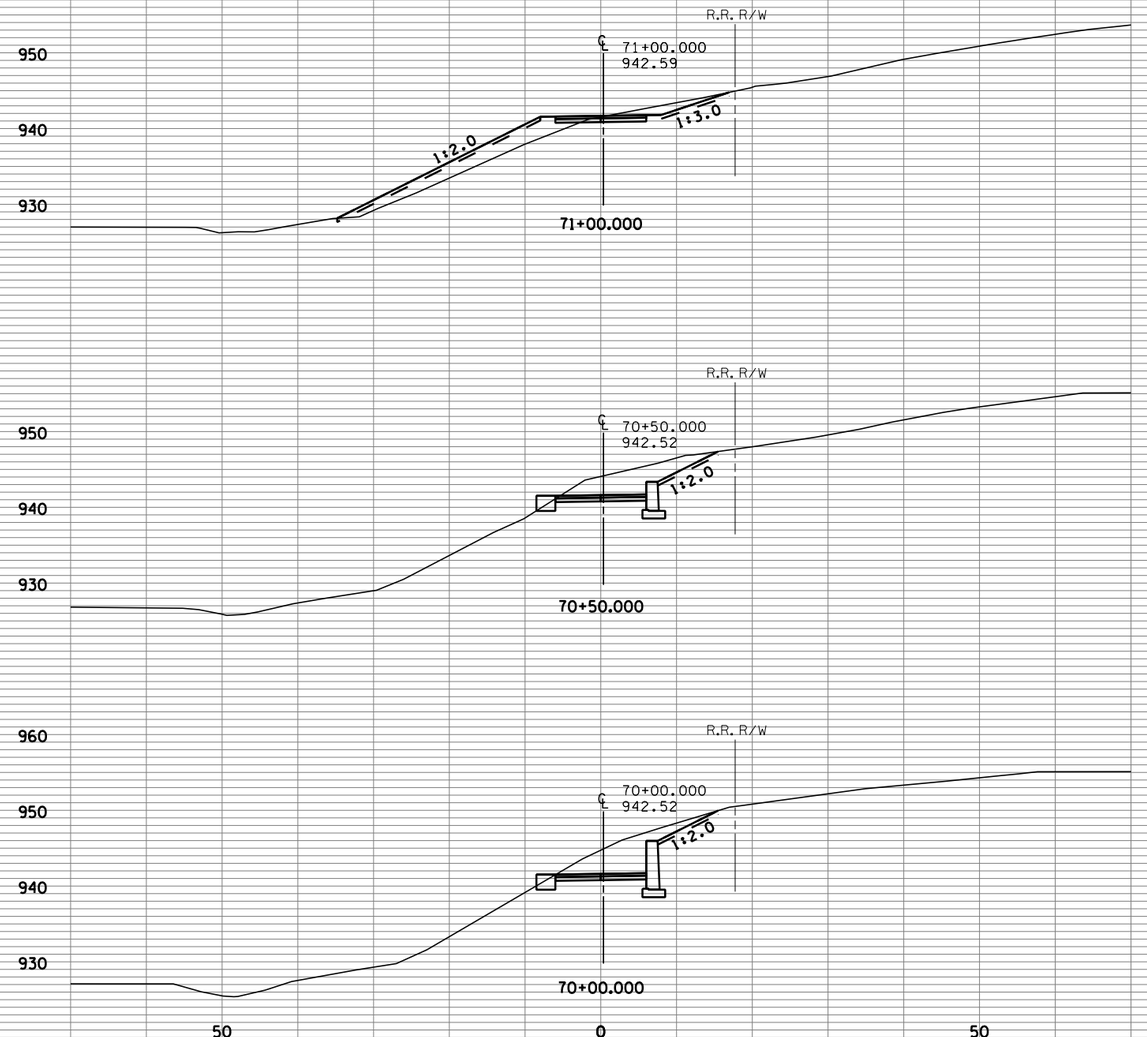
STA.65+00.000 - 68+00.000

BRUCE VENTO TRAIL Sheet No. X4 of X32 Sheets



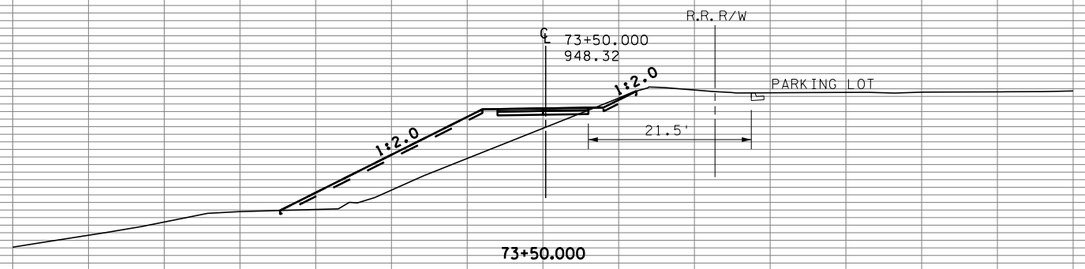


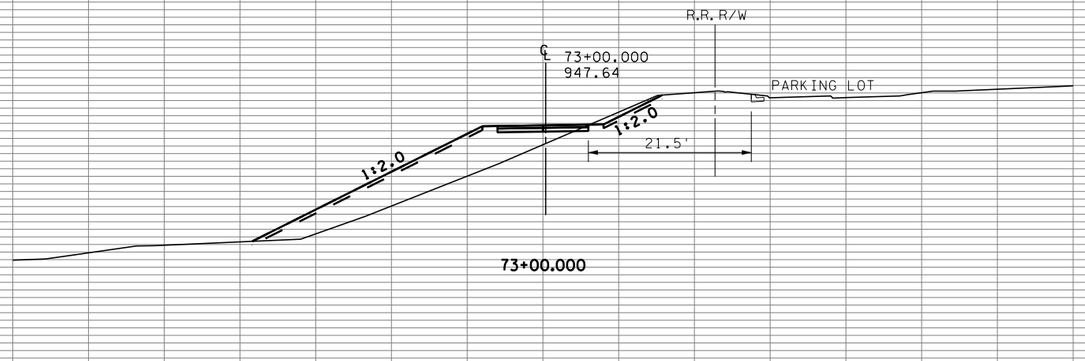


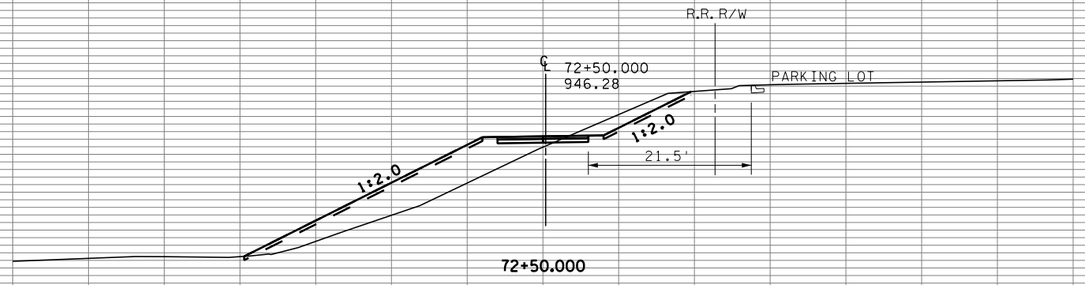
STA. 68+50.000 - 71+50.000

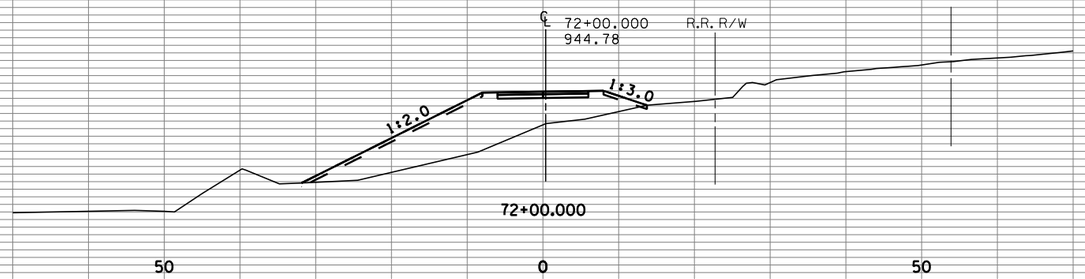
BRUCE VENTO TRAIL

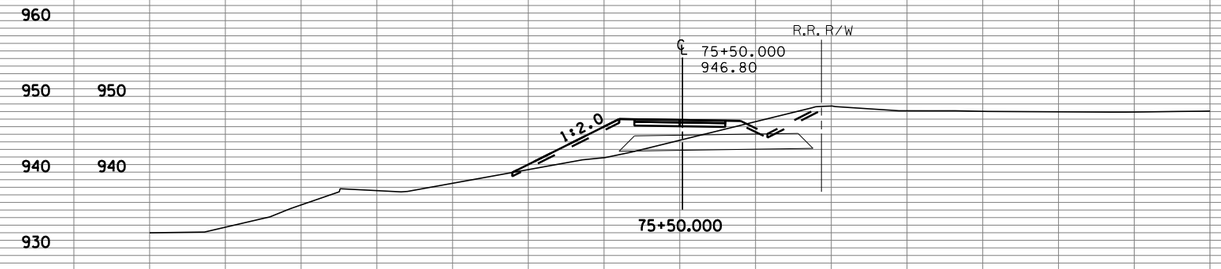
Sheet No. X5 of X32 Sheets

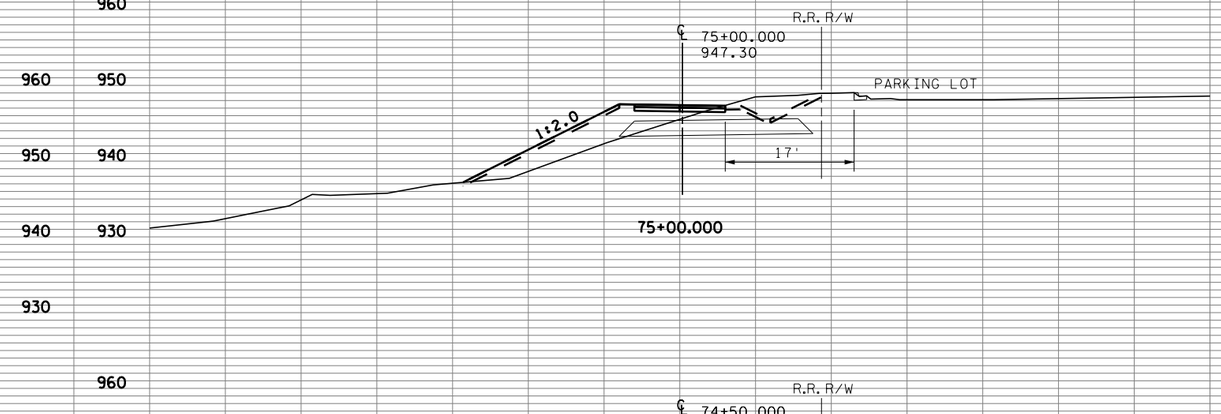


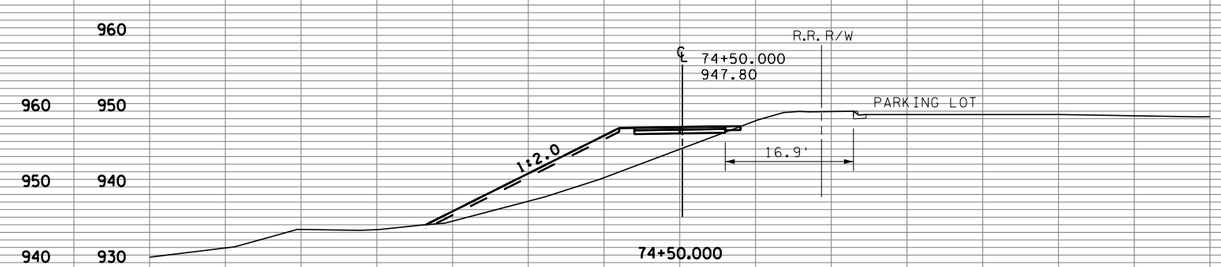


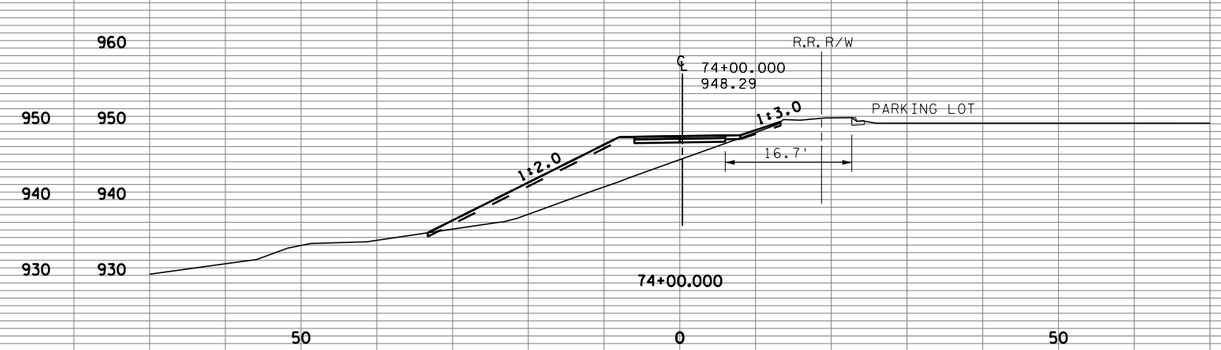












STA.72+00.000 - 75+50.000

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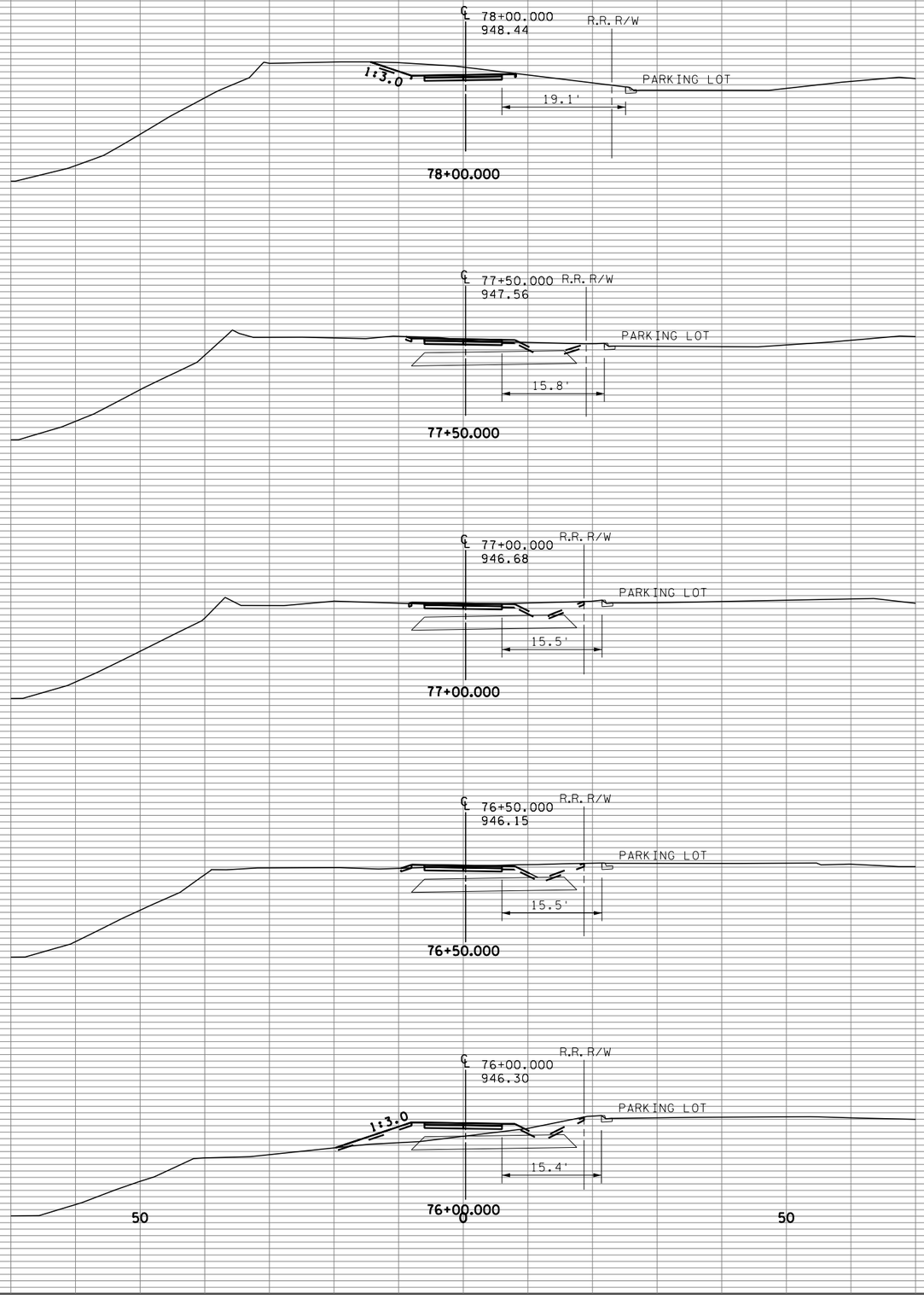
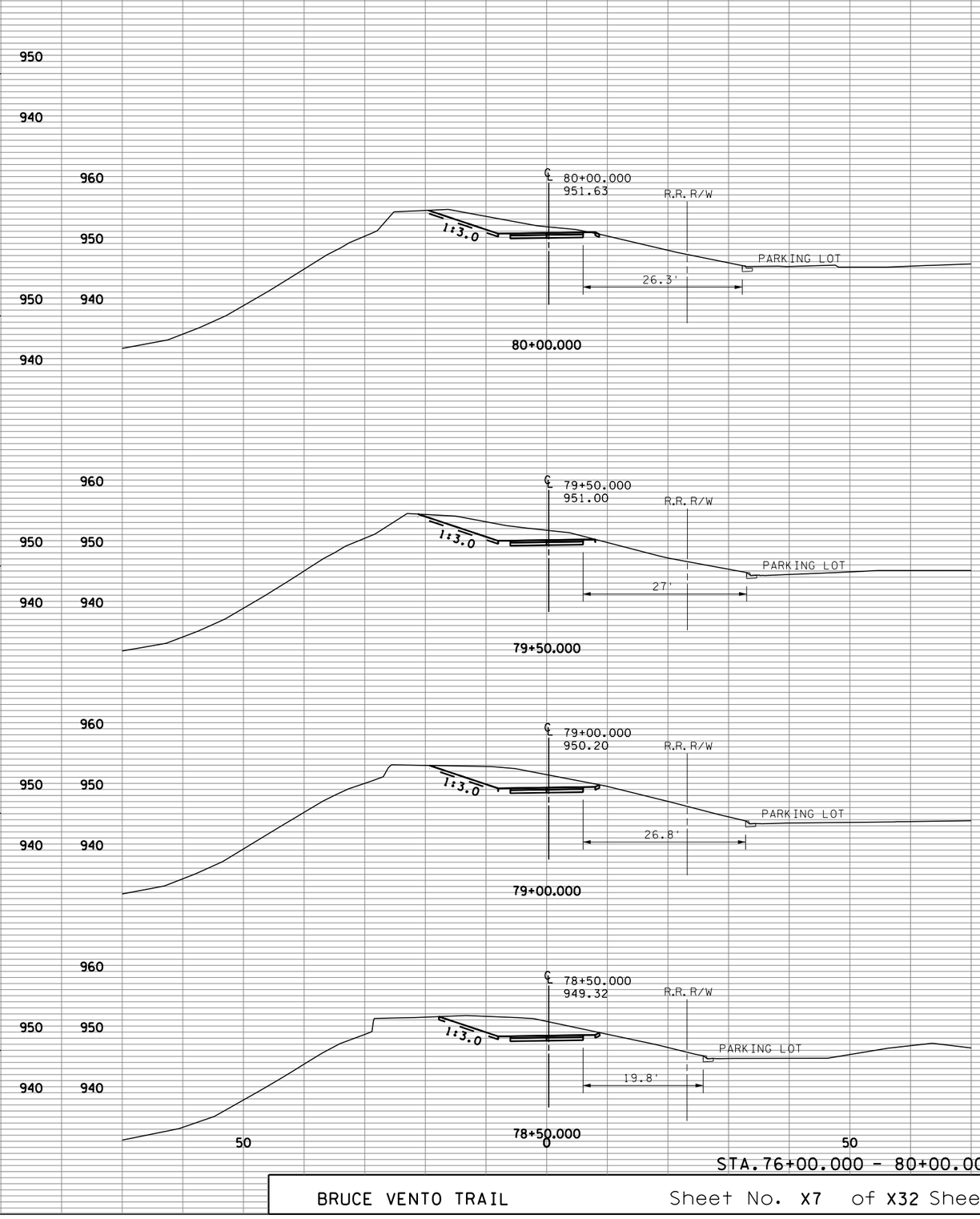
BRUCE VENTO TRAIL





Kimley»Horn

STA.76+00.000 - 80+00.000

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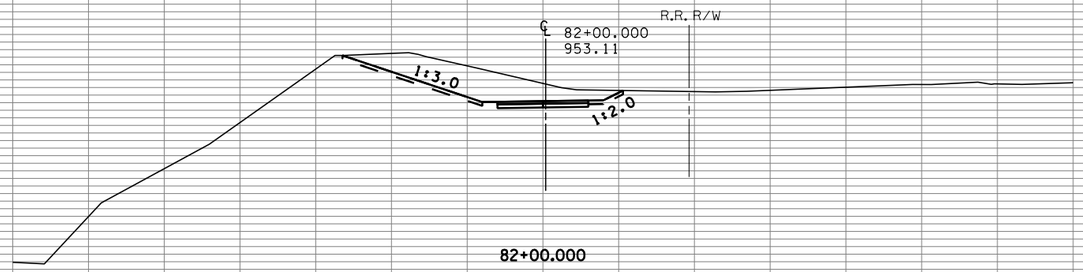

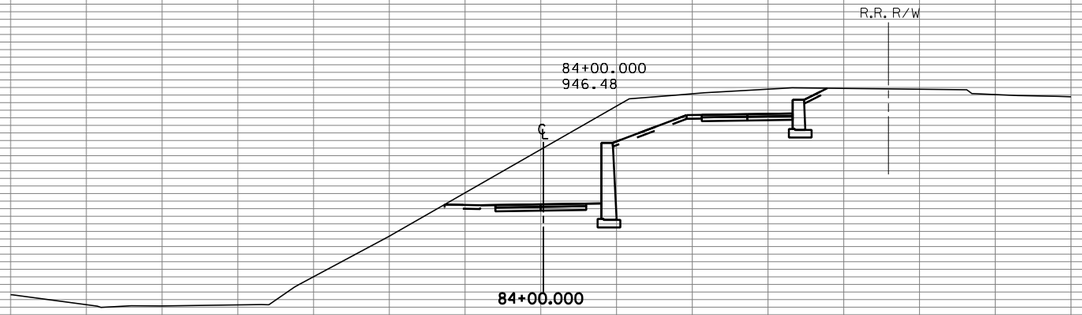

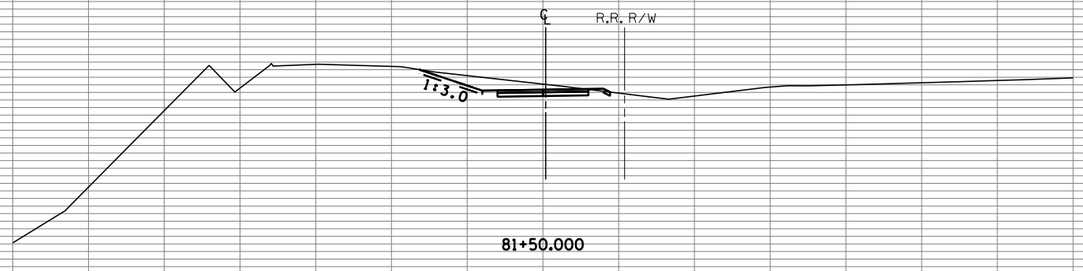

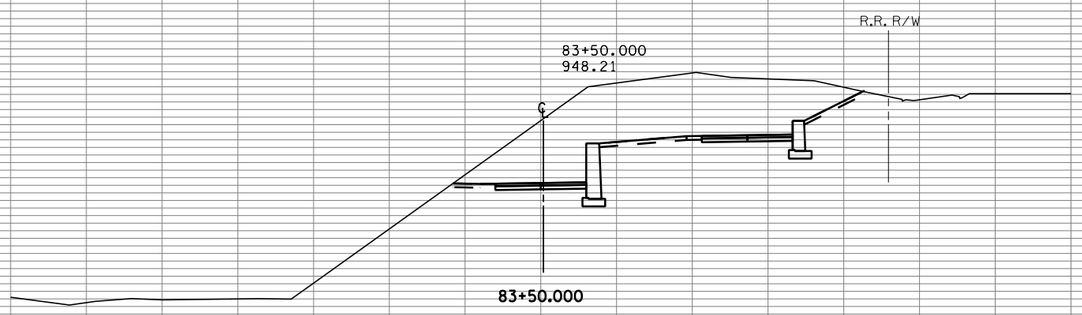

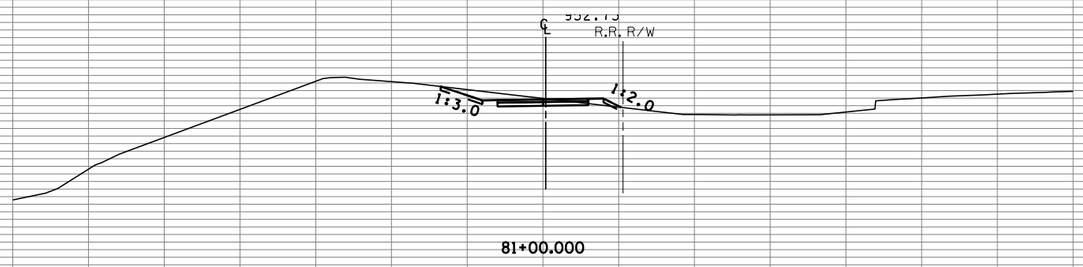

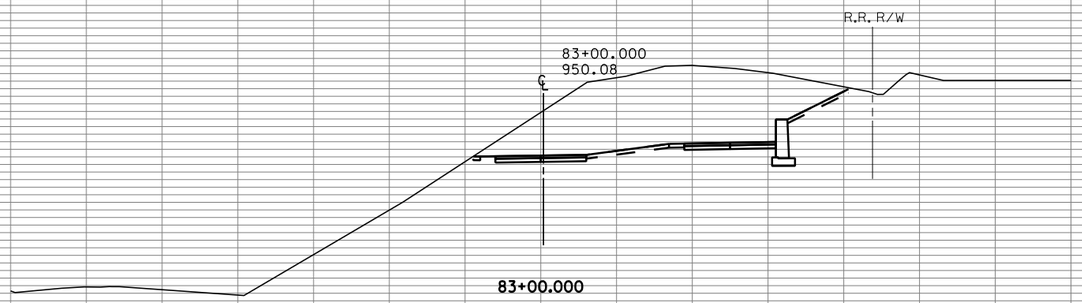

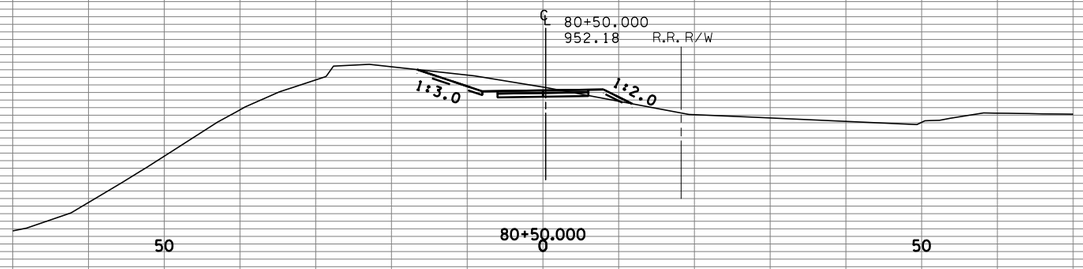

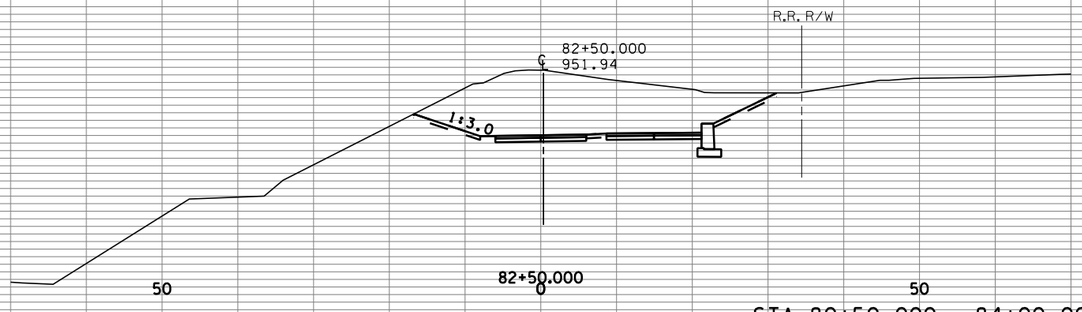

STA.80+50.000 - 84+00.000

BRUCE VENTO TRAIL

Sheet No. X8 of X32 Sheets

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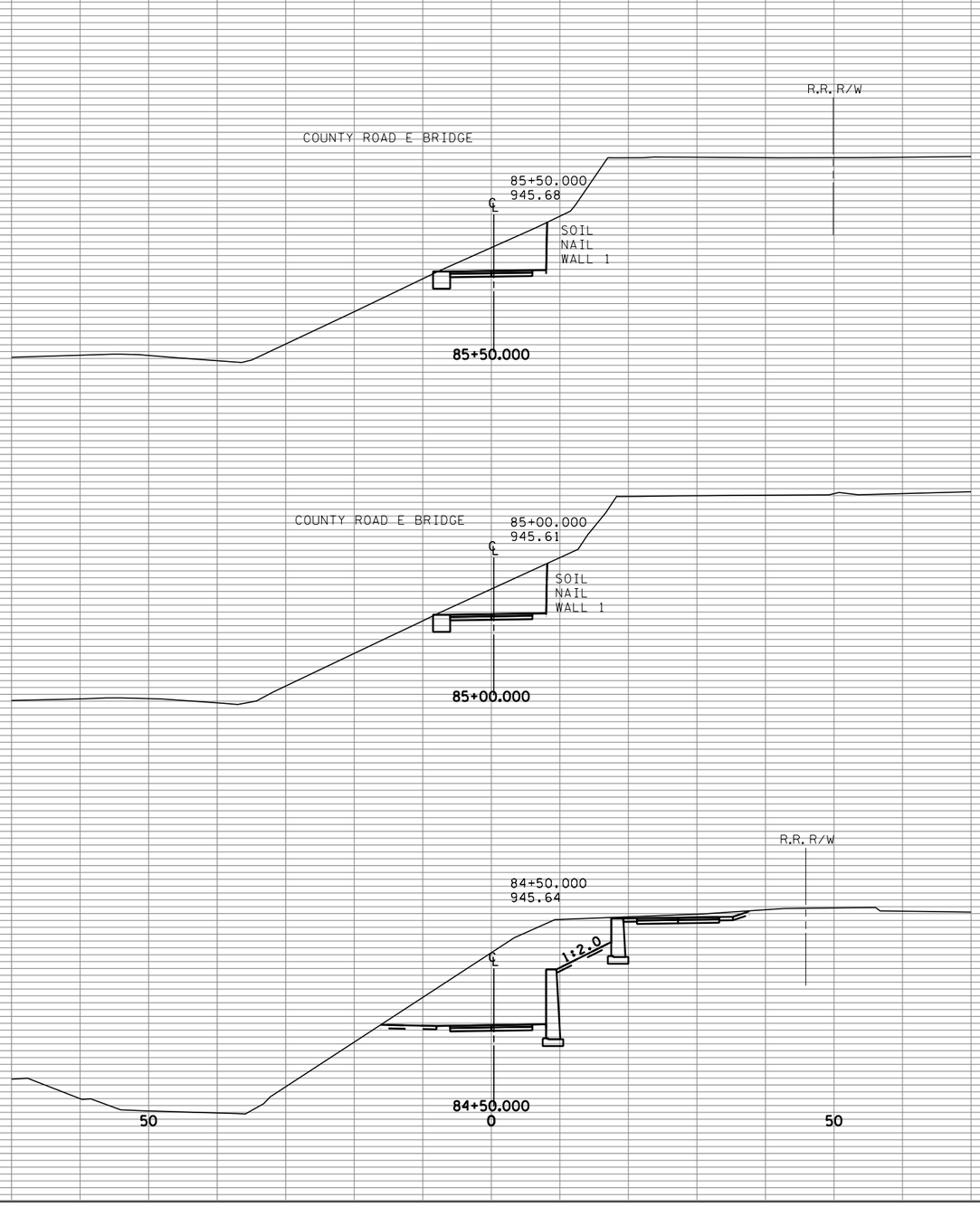

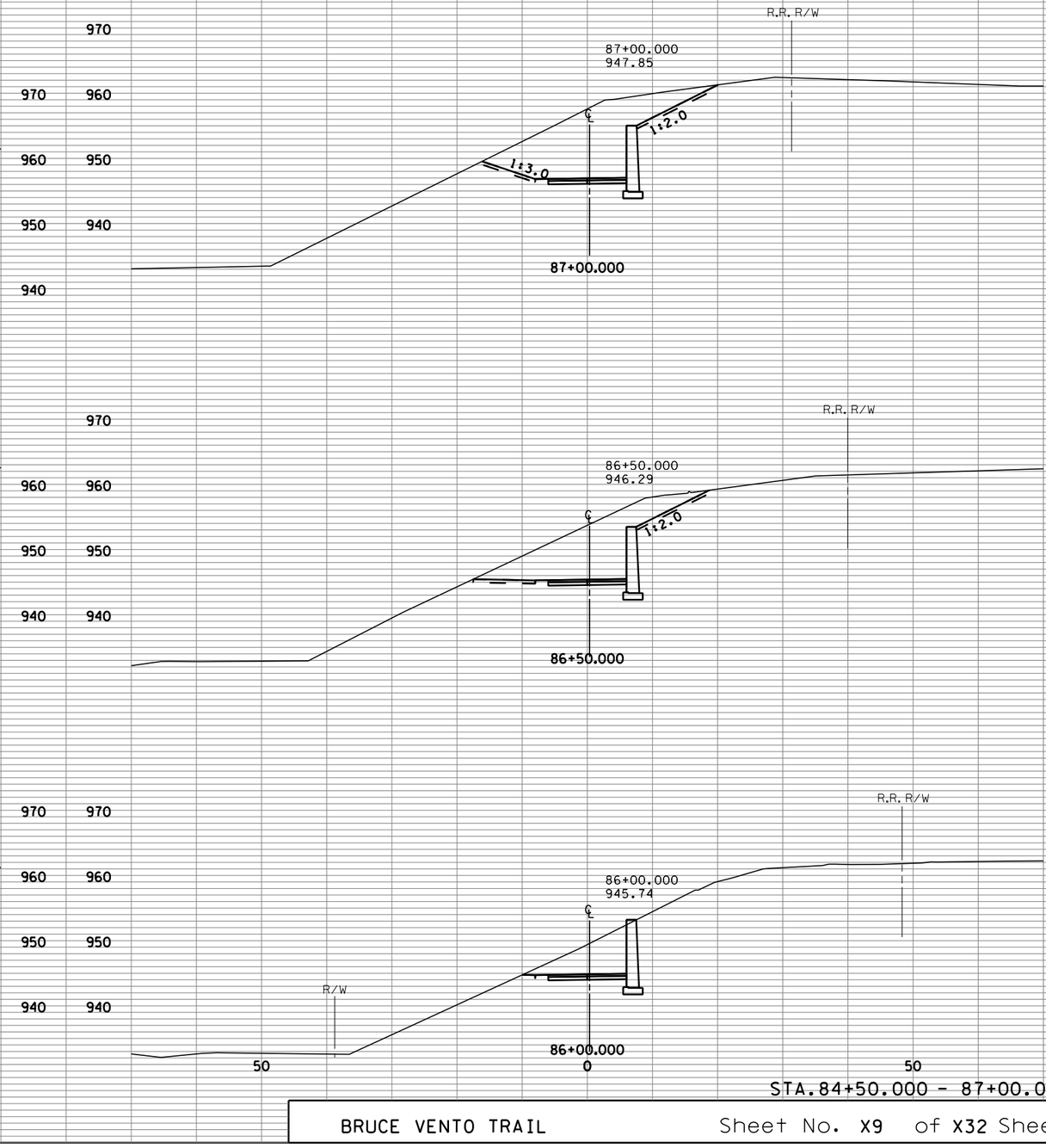

STA.84+50.000 - 87+00.000

BRUCE VENTO TRAIL

Sheet No. X9 of X32 Sheets

Kimley»Horn

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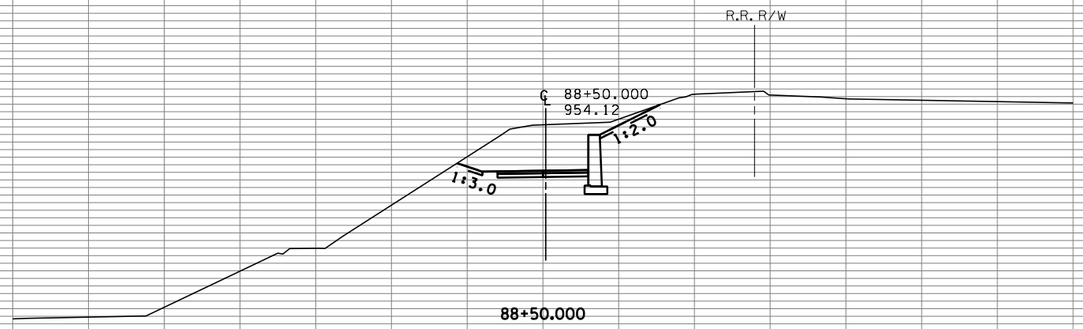

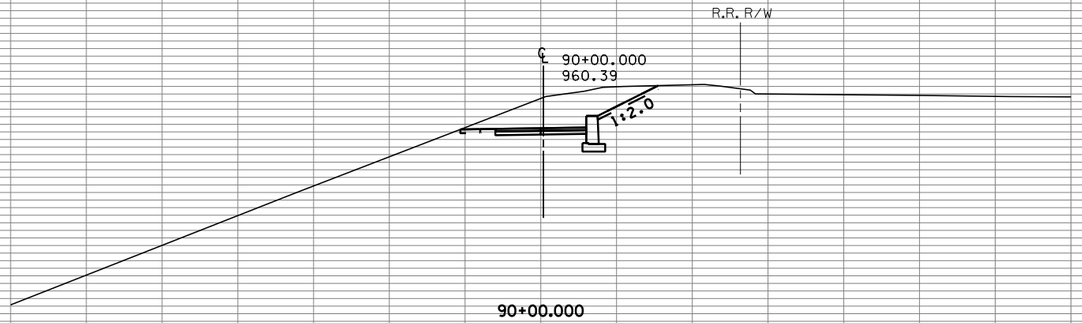

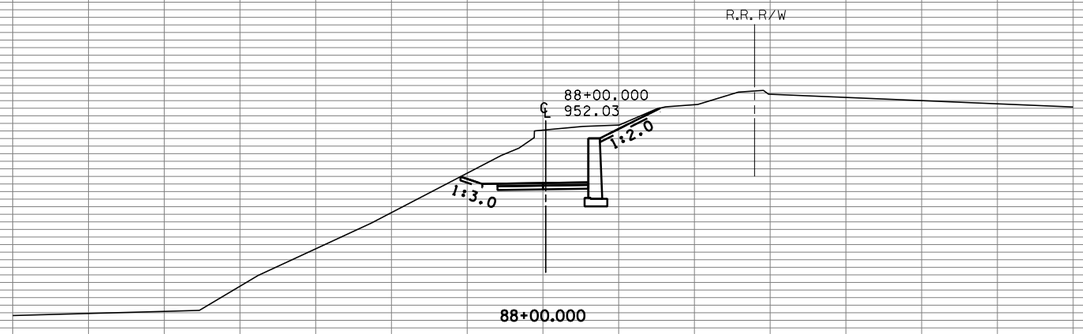

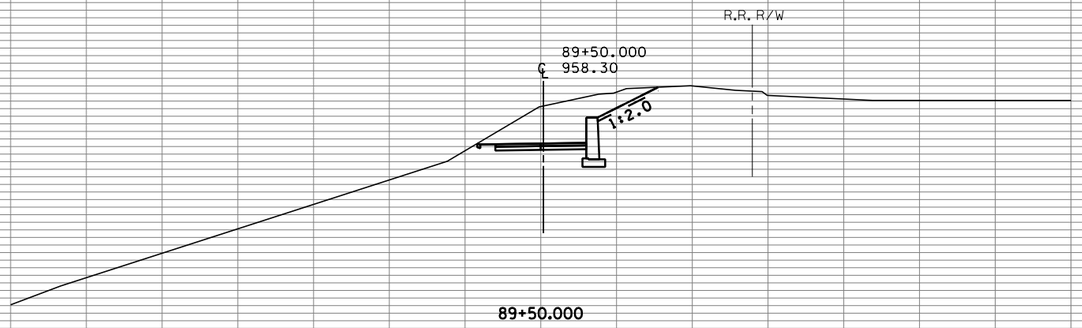

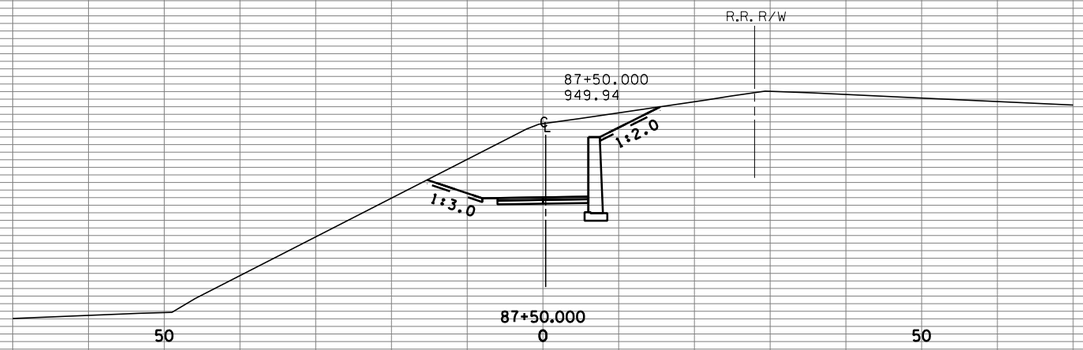

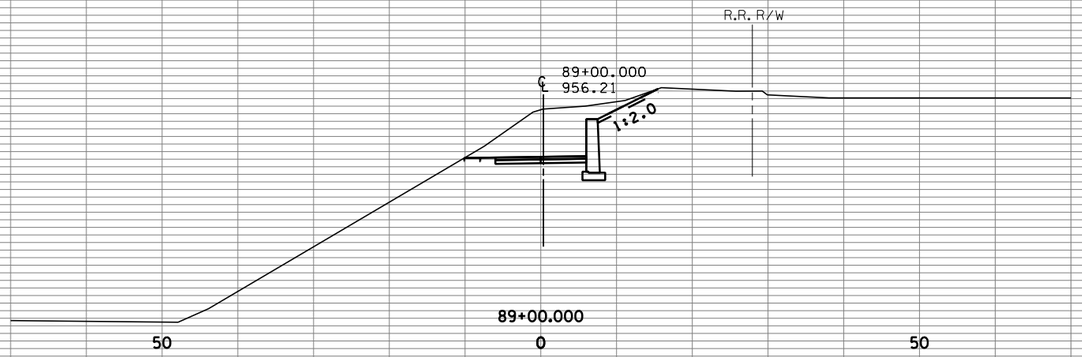

STA. 87+50.000 - 90+00.000

BRUCE VENTO TRAIL

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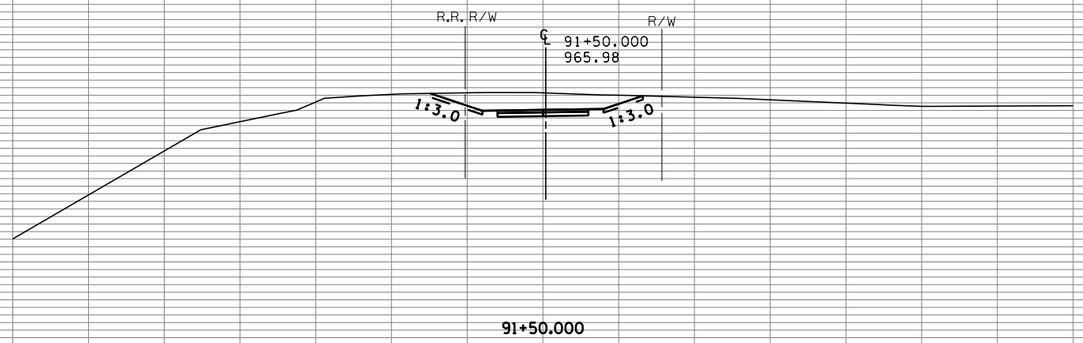
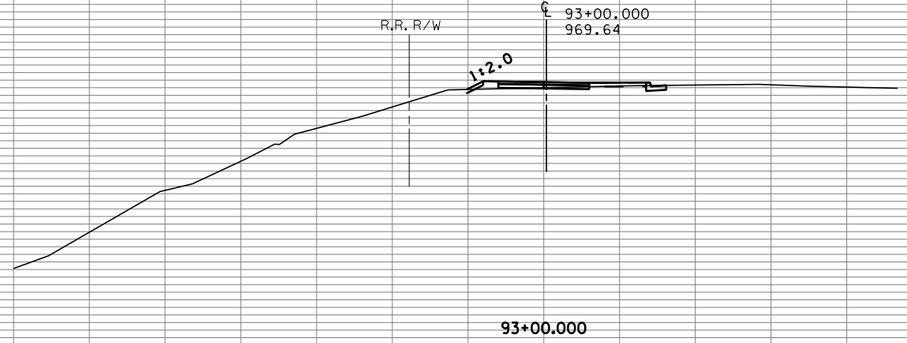
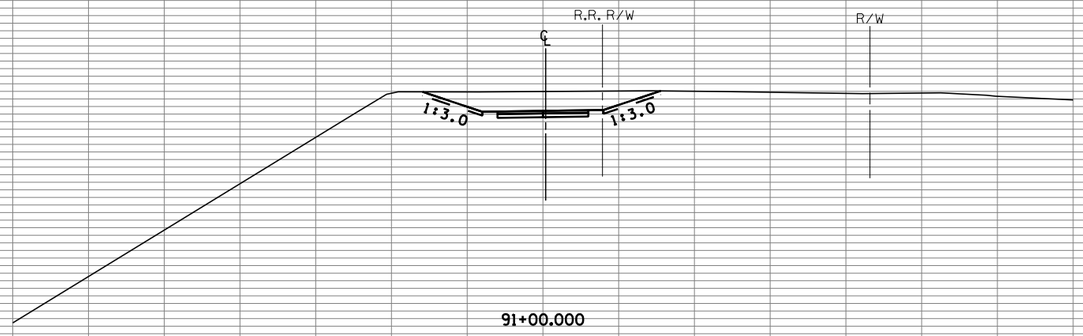


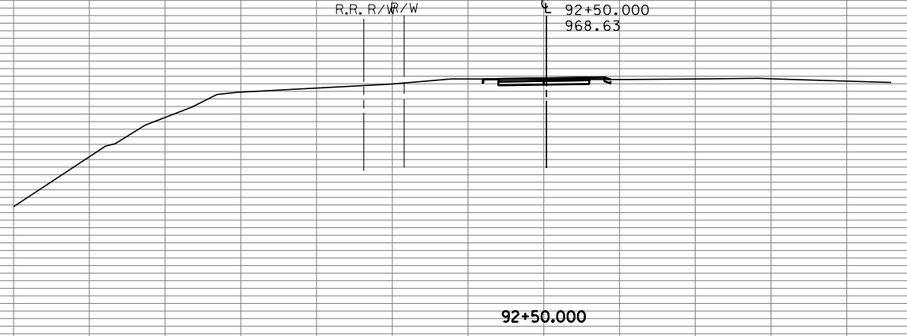
91+50.000



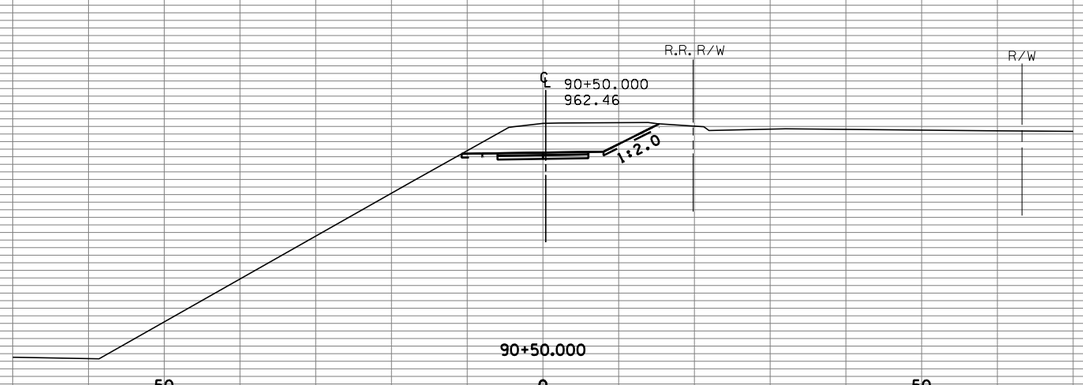
93+00.000



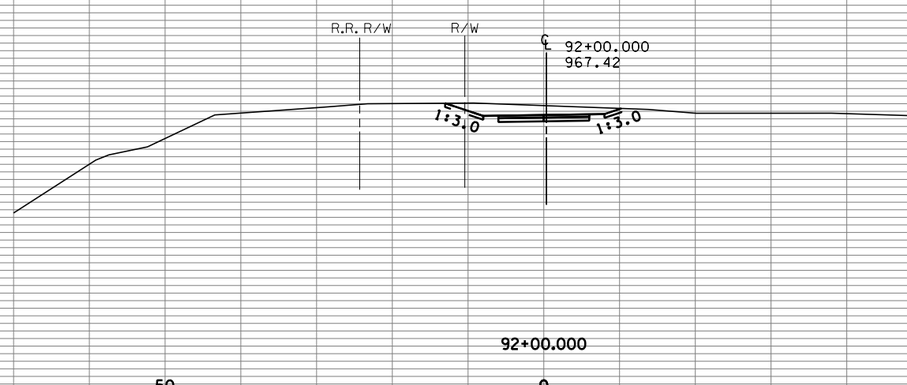
91+00.000



92+50.000



90+50.000



92+00.000

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STA. 90+50.000 - 93+00.000

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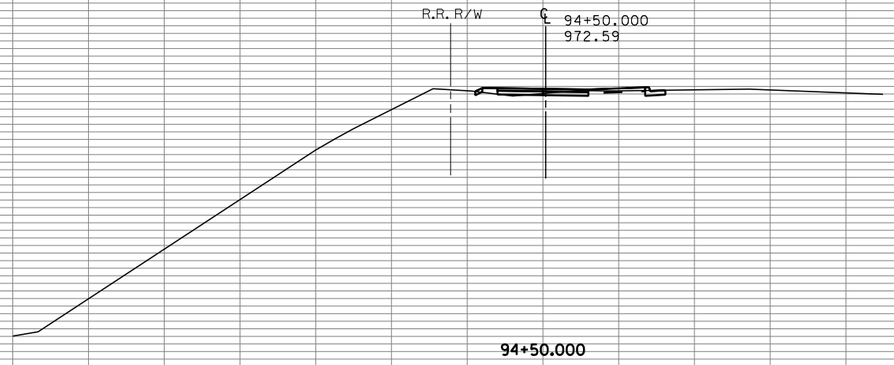

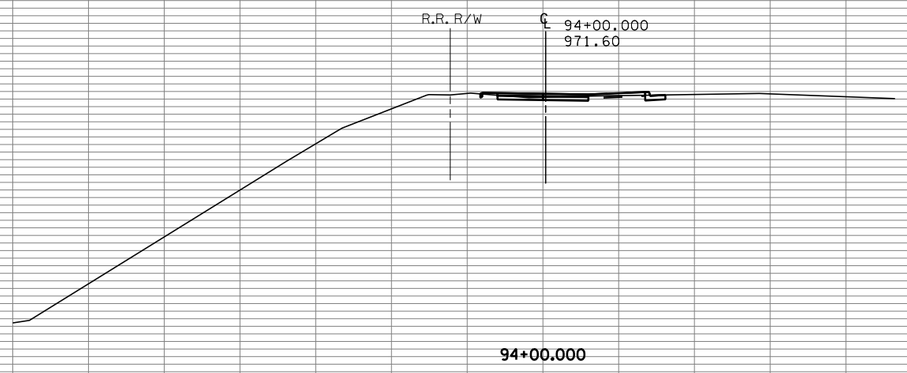

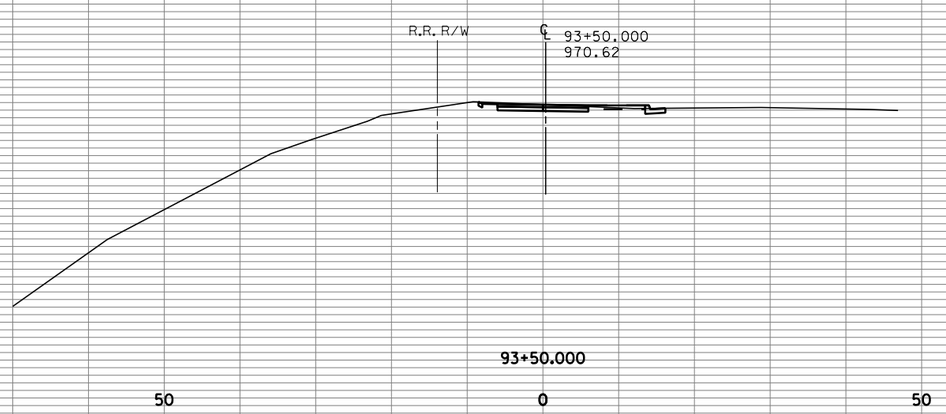

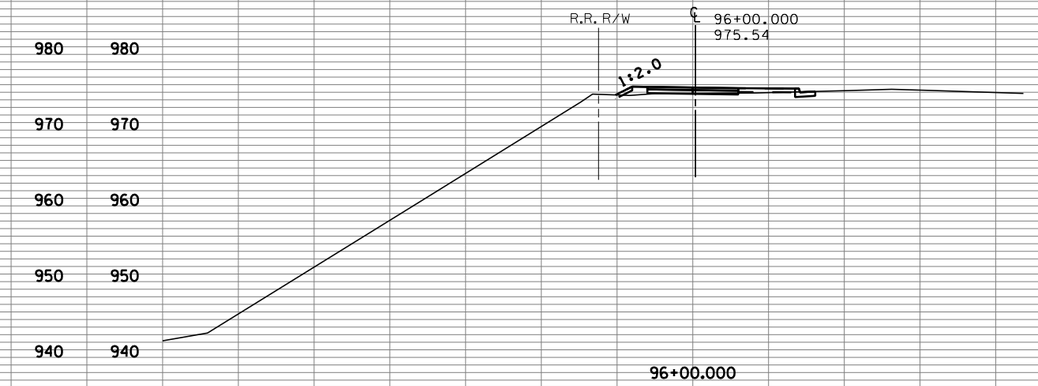

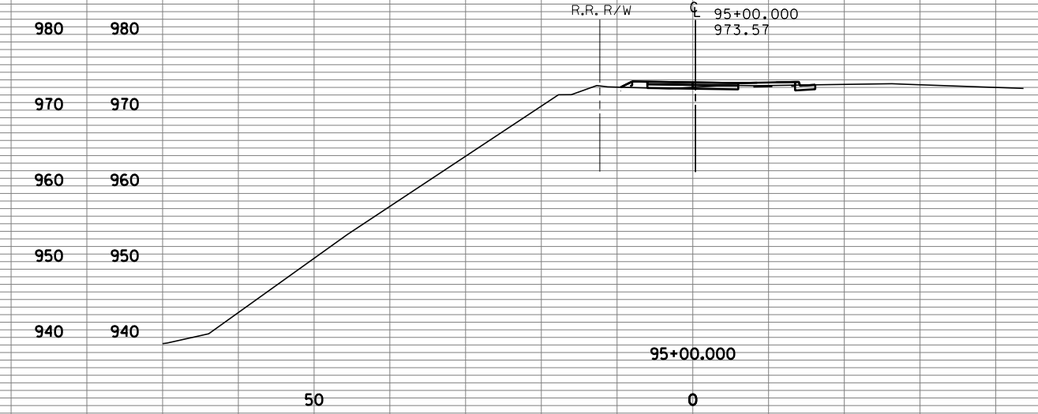

STA.93+50.000 - 96+00.000

BRUCE VENTO TRAIL

Sheet No. X12 of X32 Sheets

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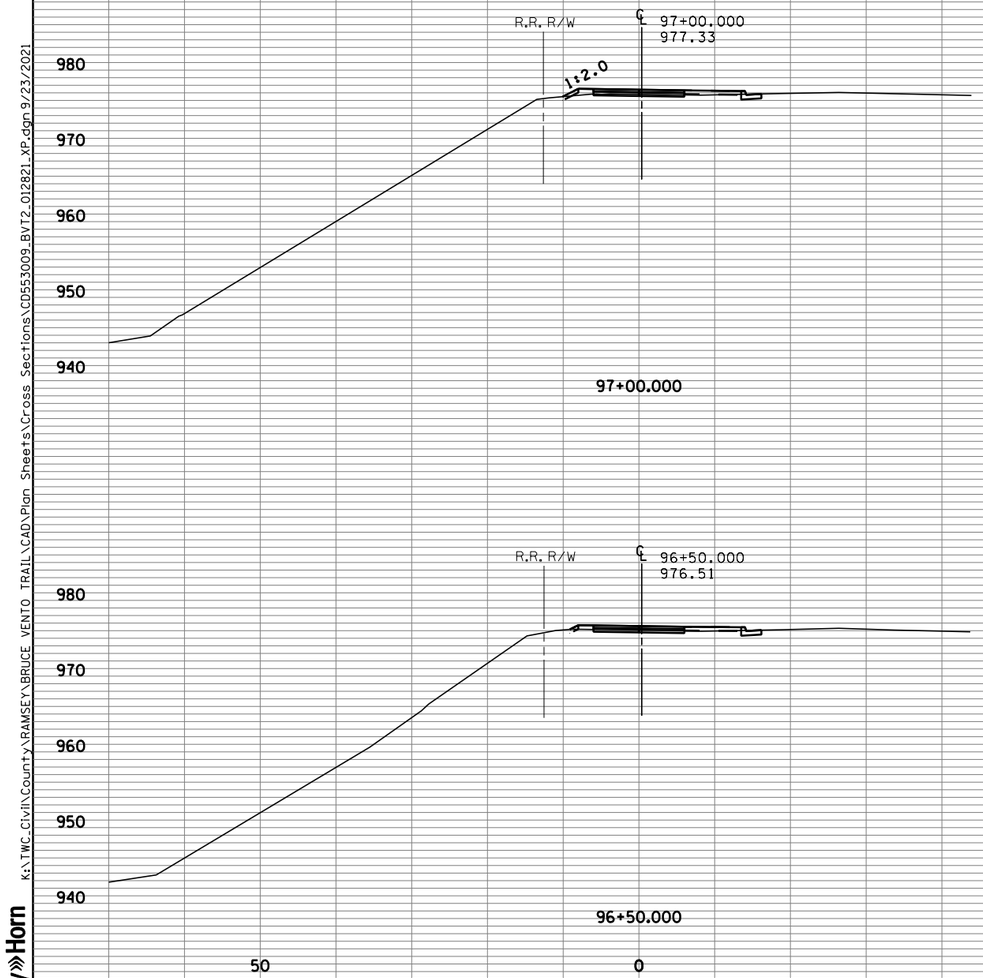
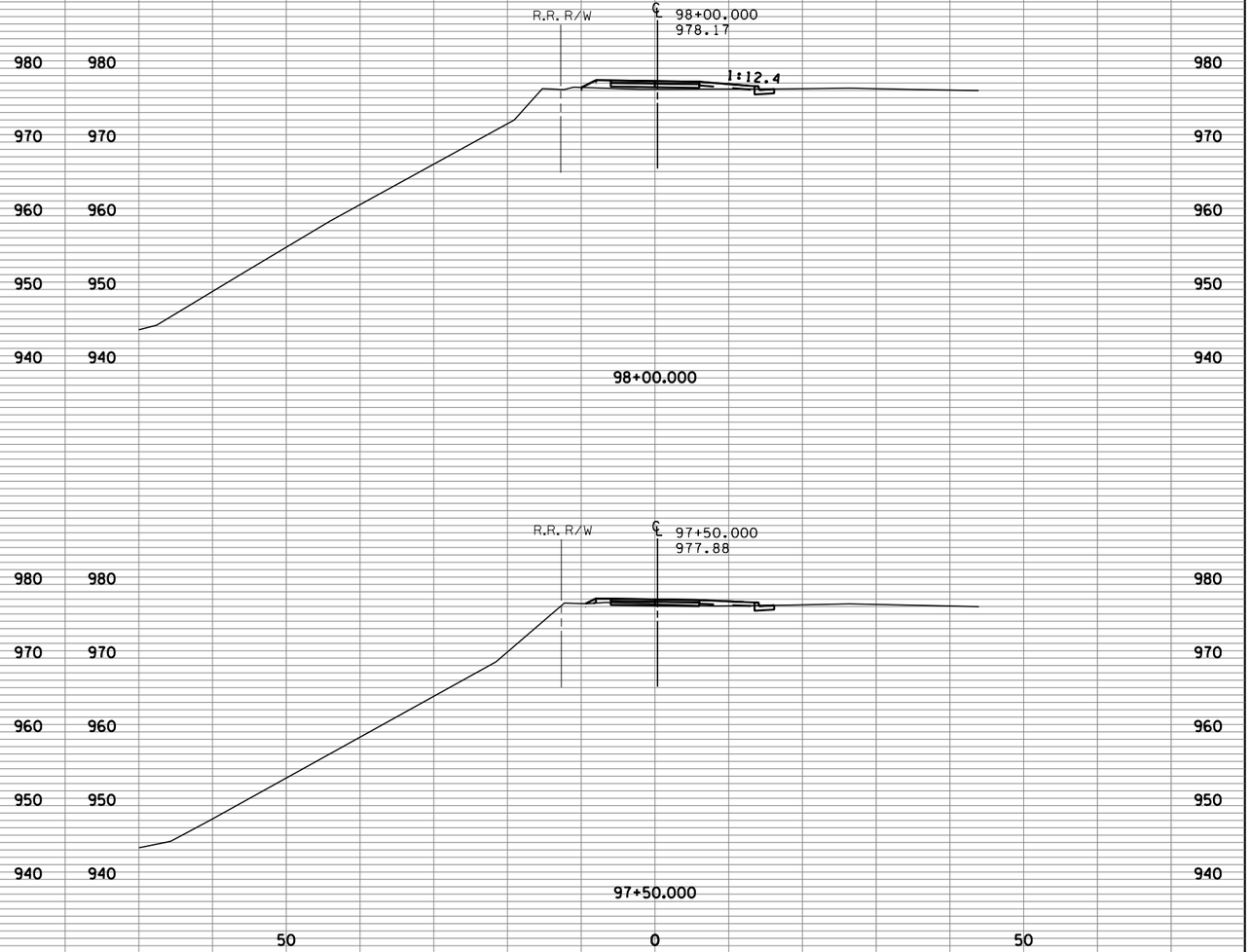
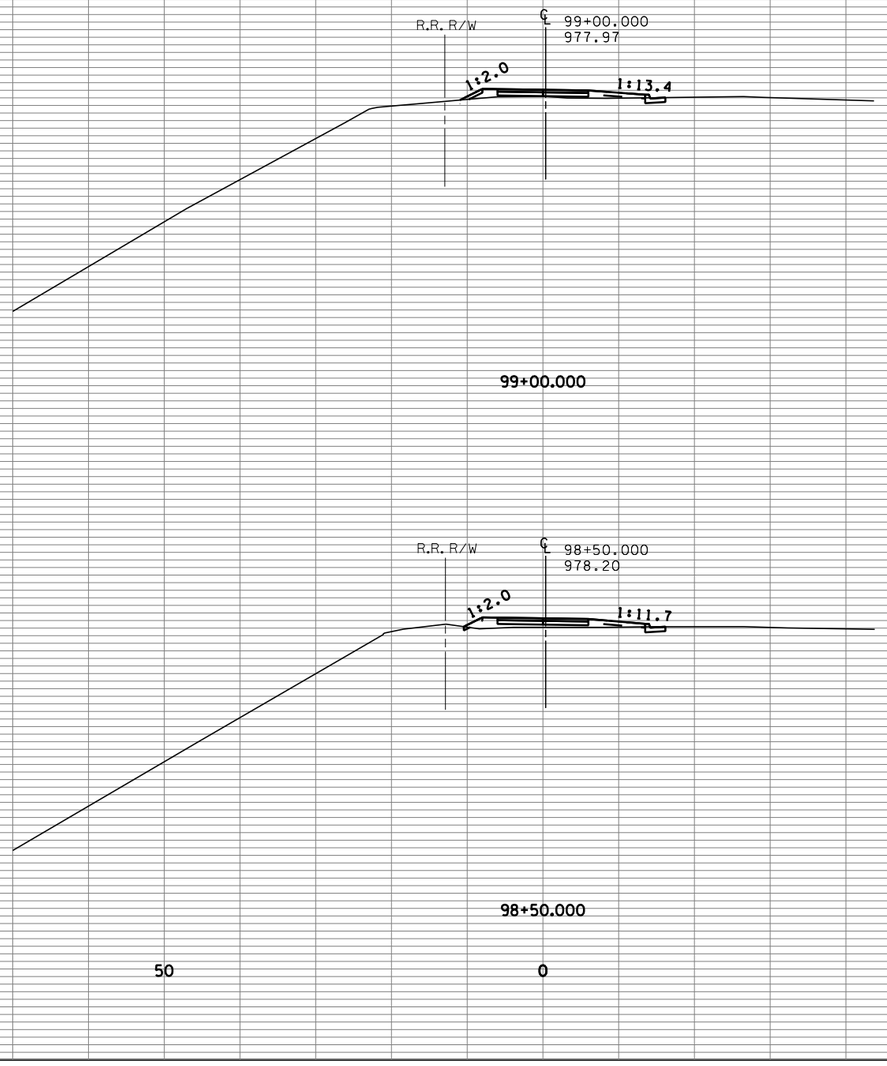
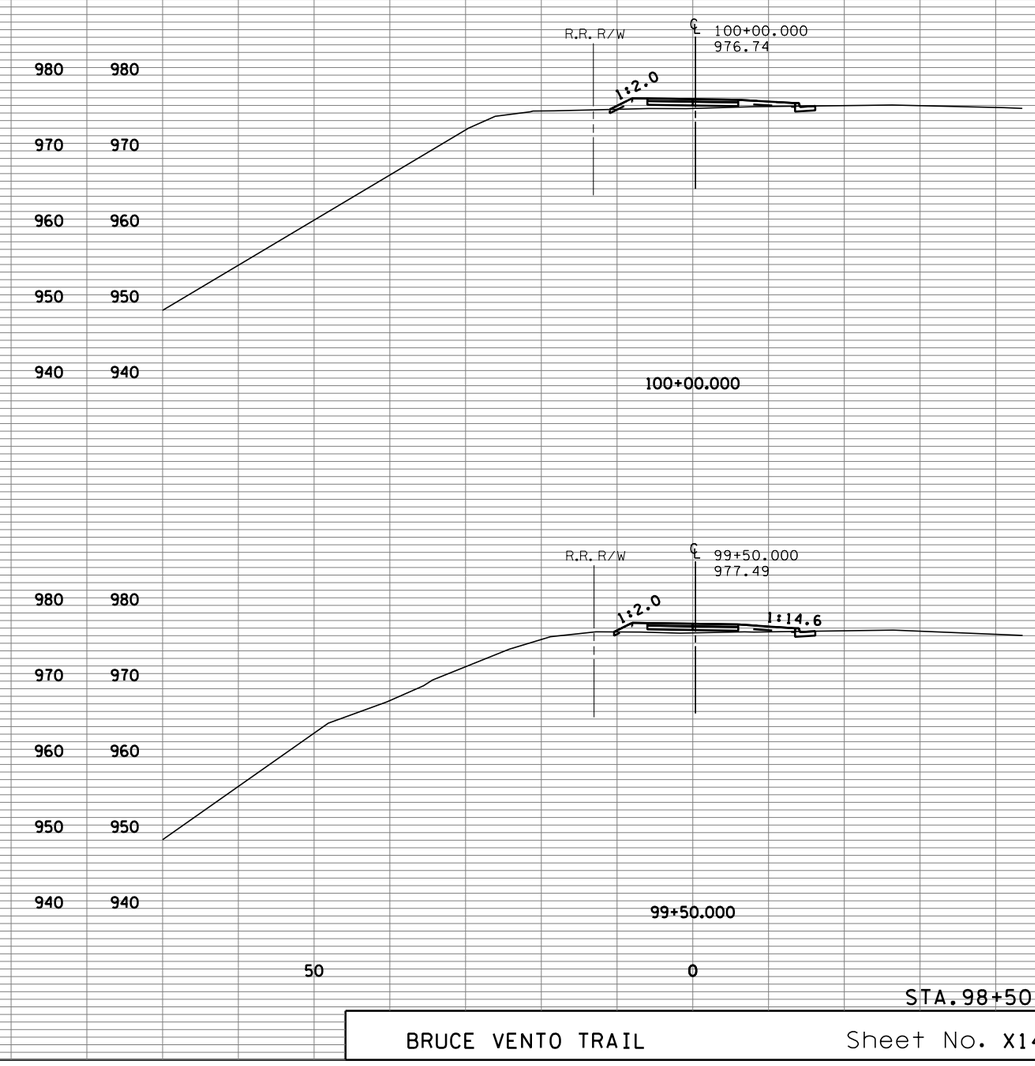




STA.96+50.000 - 98+00.000





STA.98+50.000 - 100+00.000

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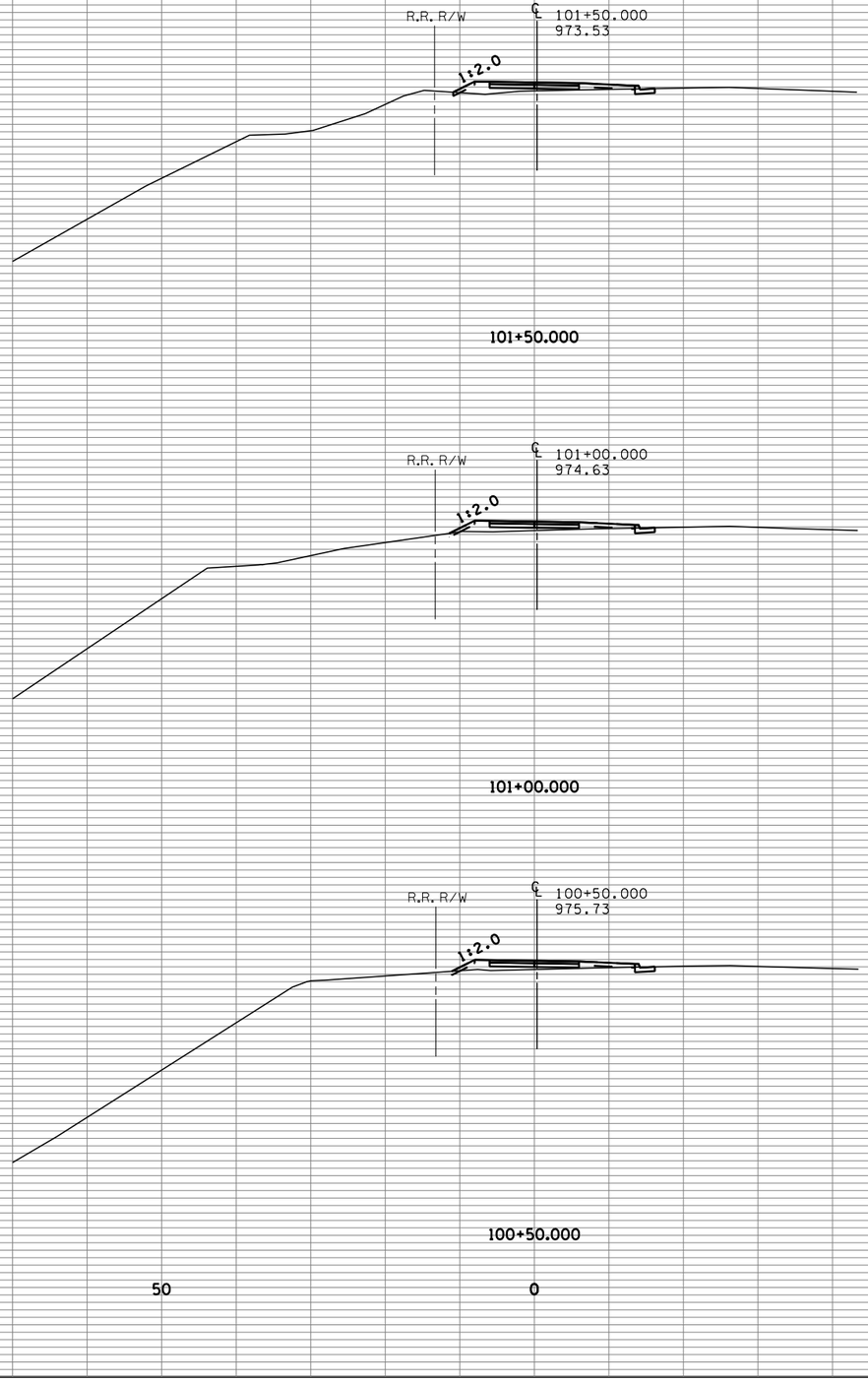

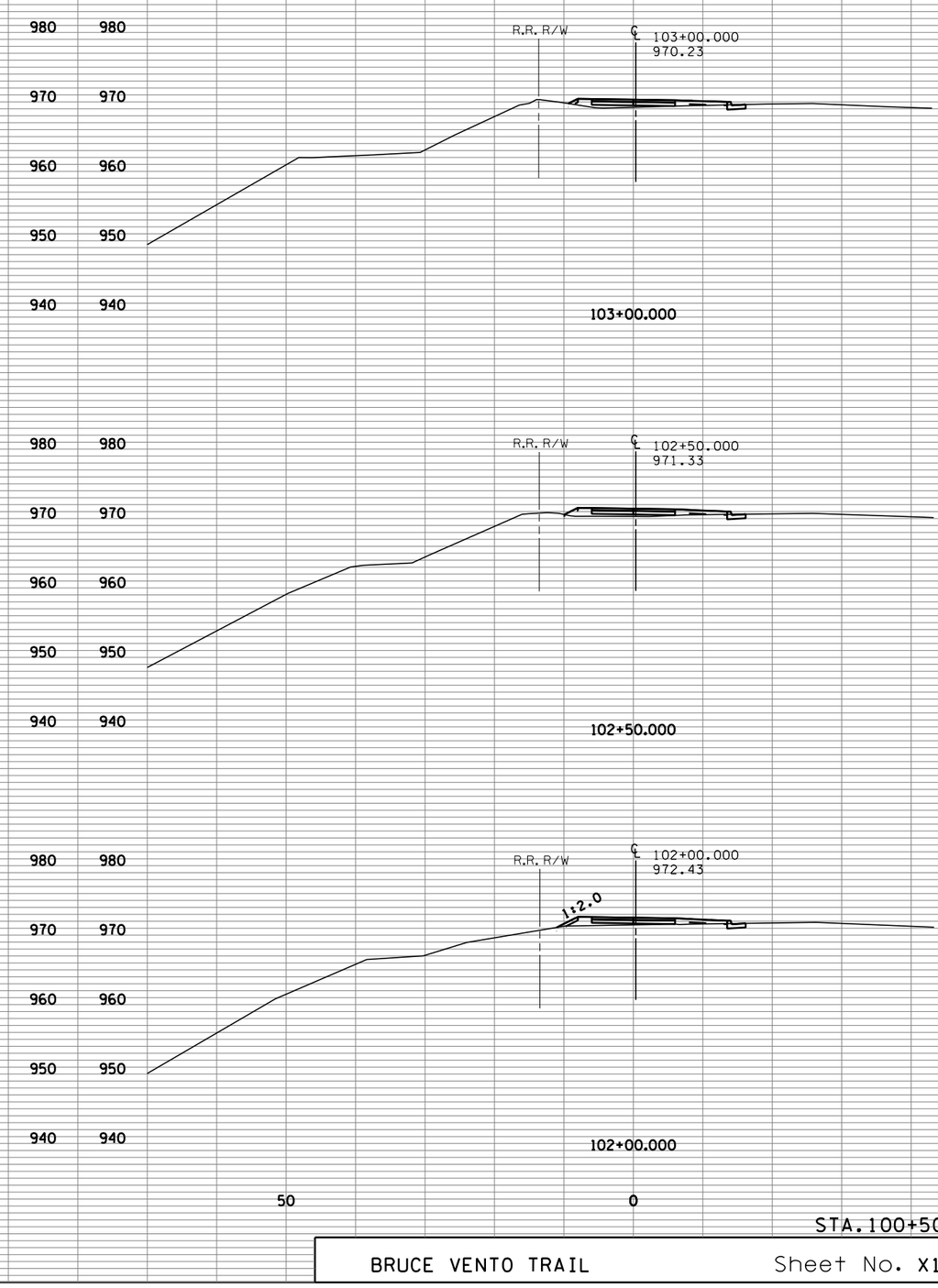

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STA.100+50.000 - 103+00.000

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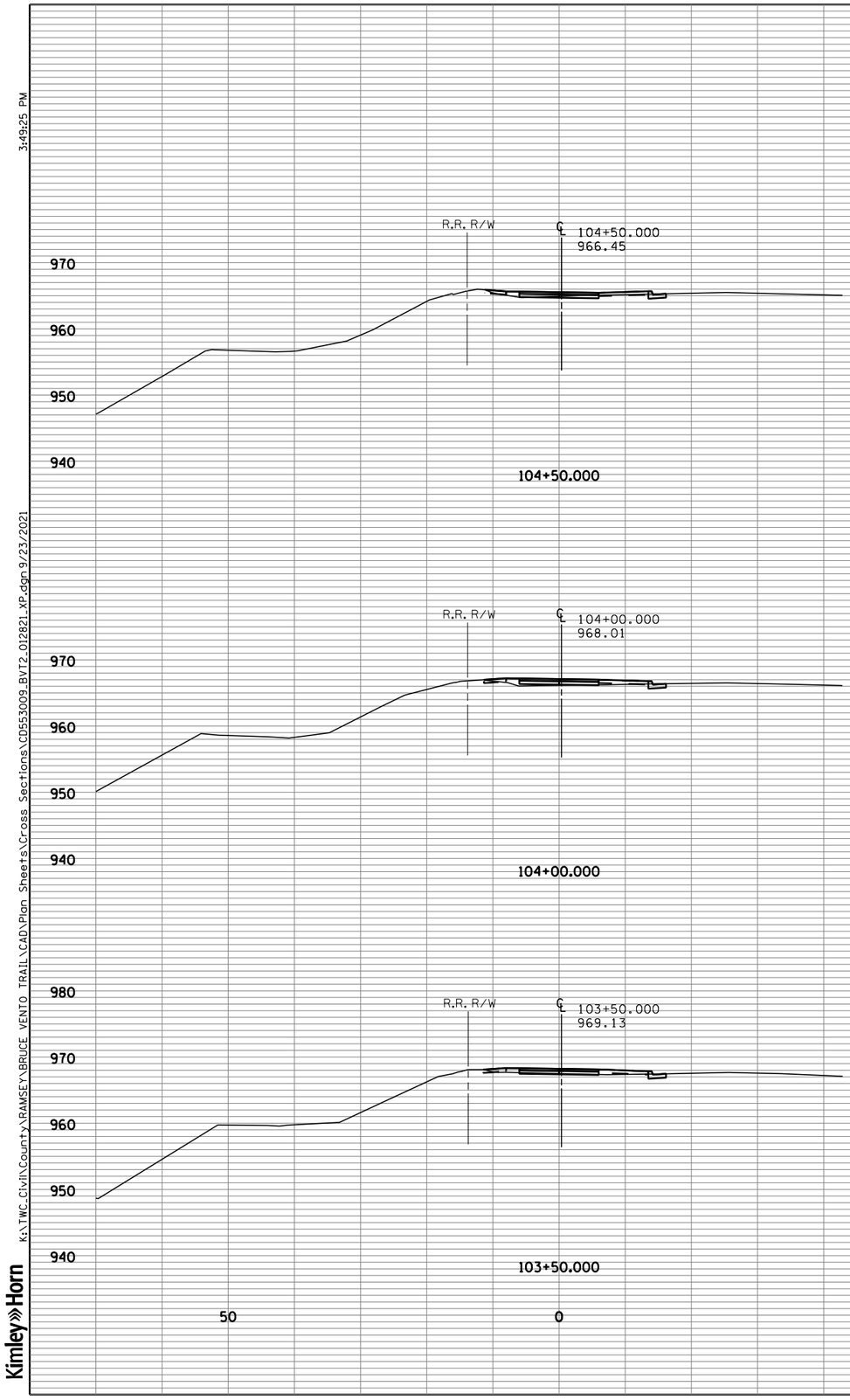

STA. 103+50.000 - 106+50.000

BRUCE VENTO TRAIL

Sheet No. X16 of X32 Sheets

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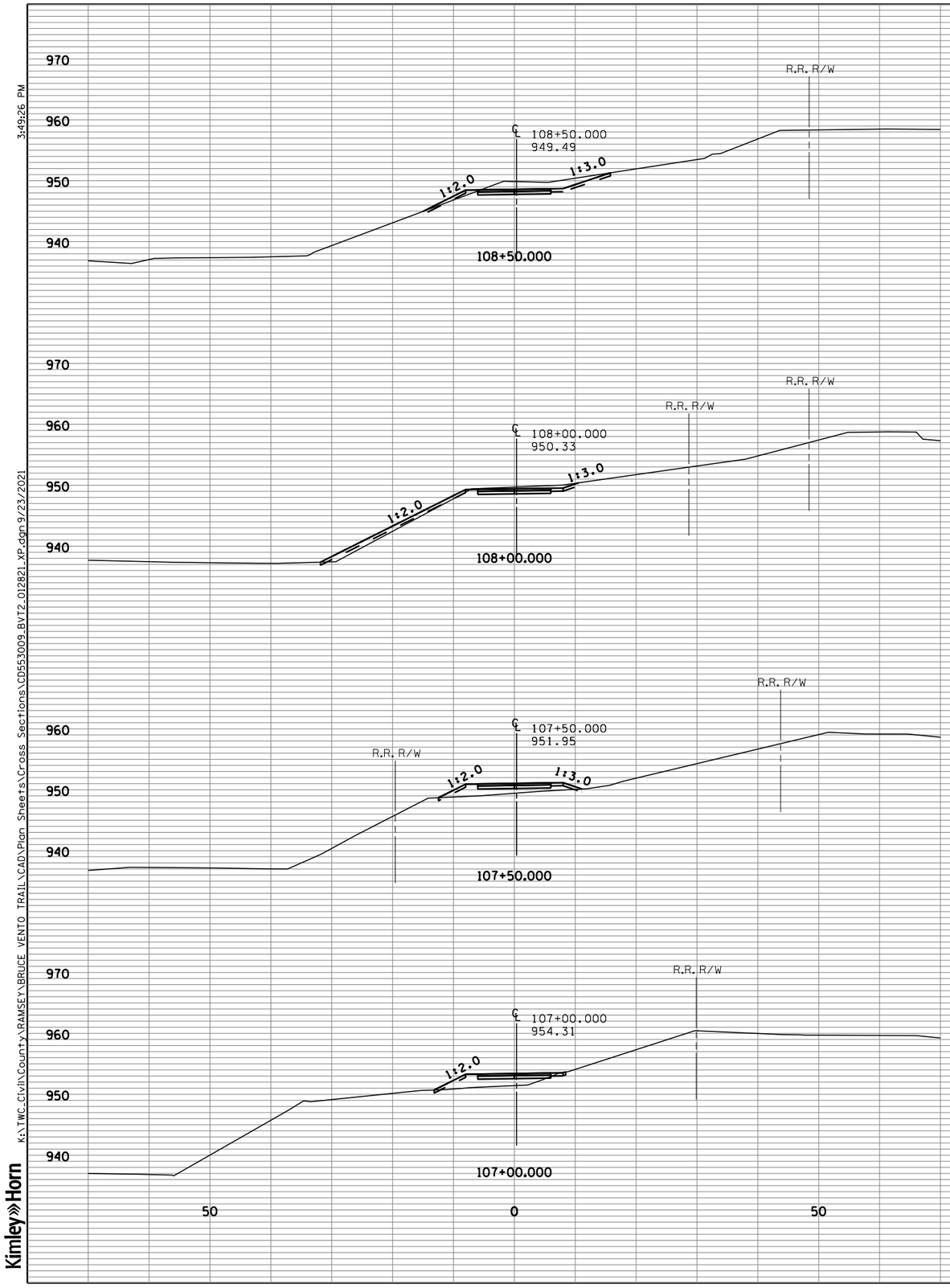

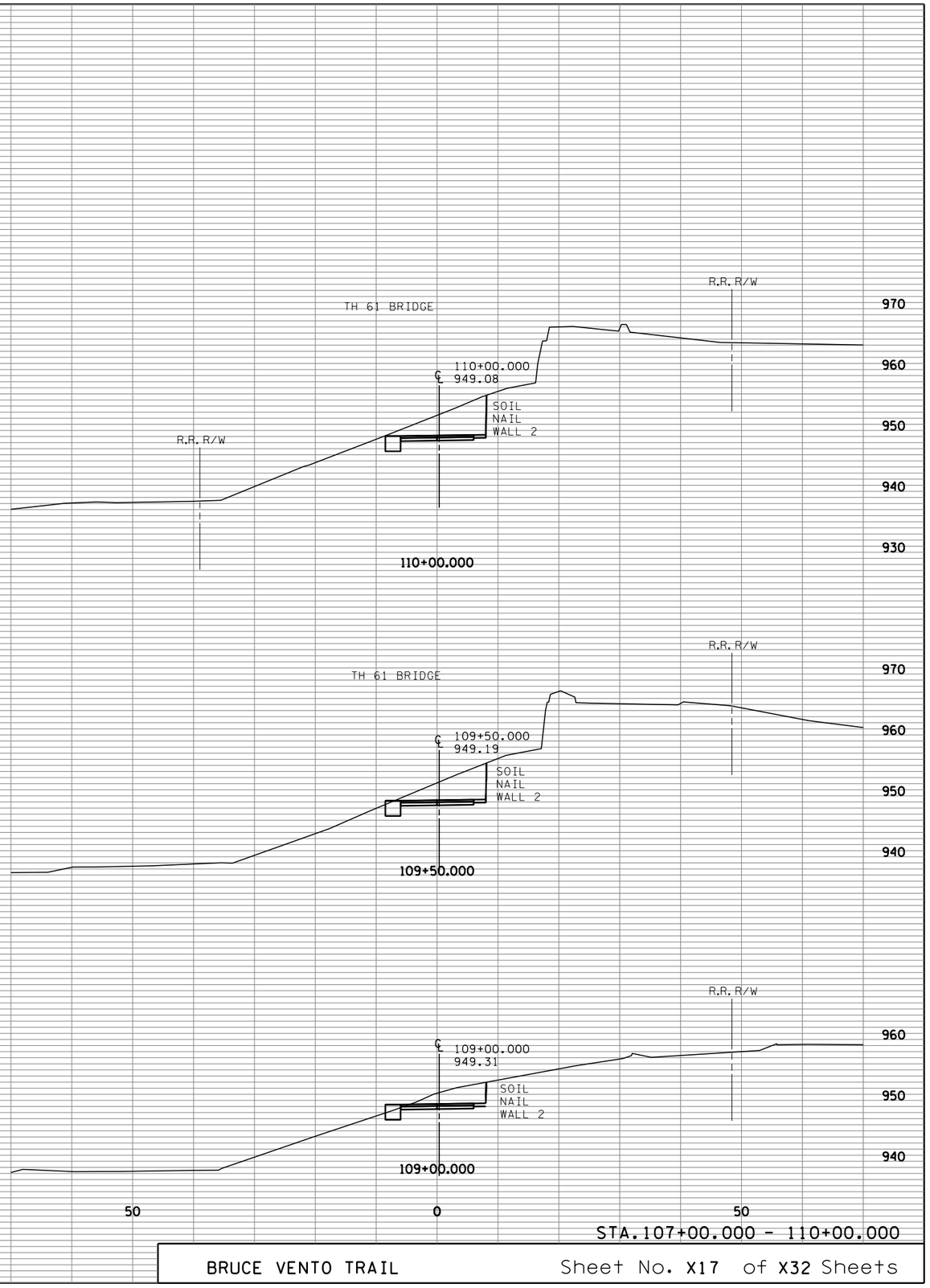

STA. 107+00.000 - 110+00.000

BRUCE VENTO TRAIL

Sheet No. X17 of X32 Sheets

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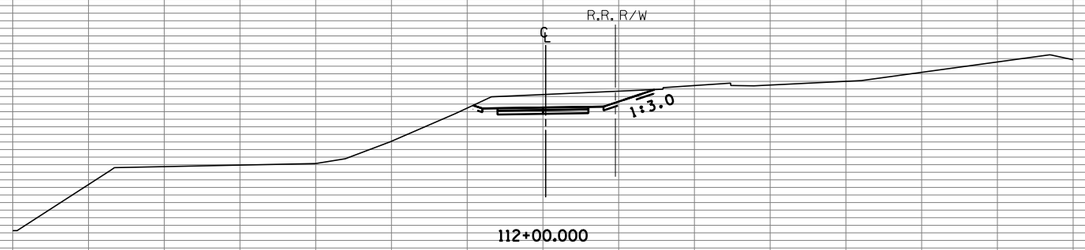

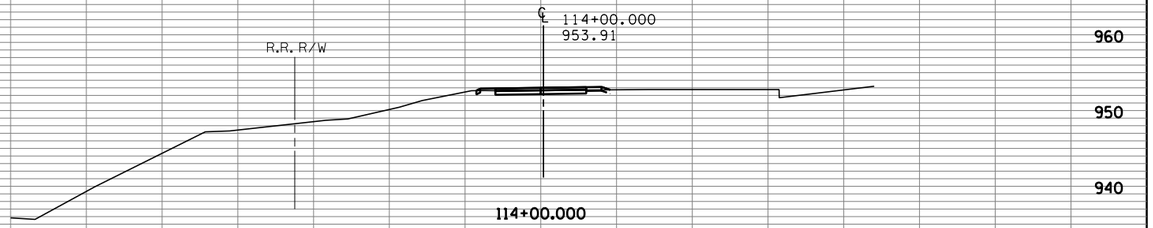

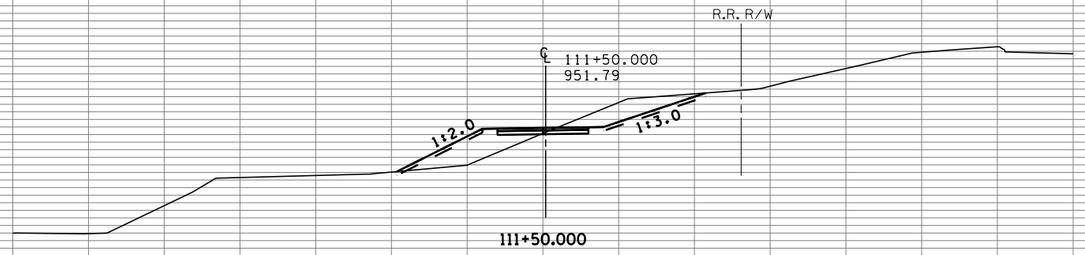

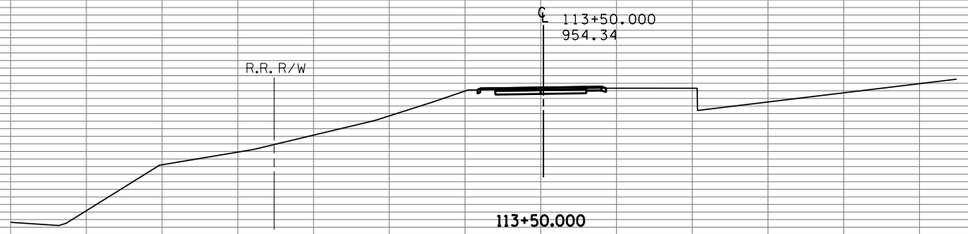

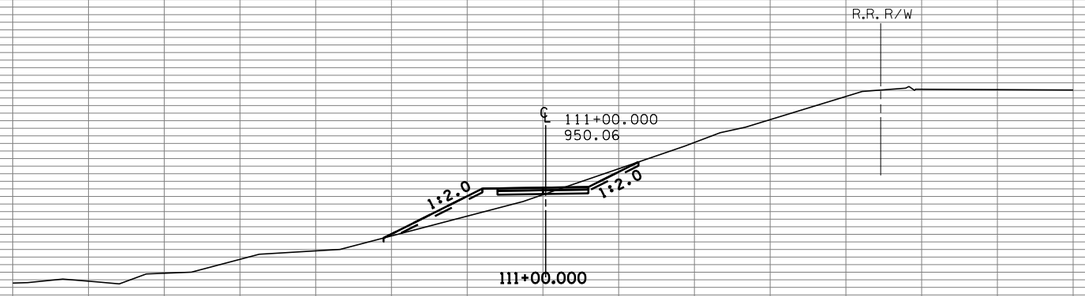

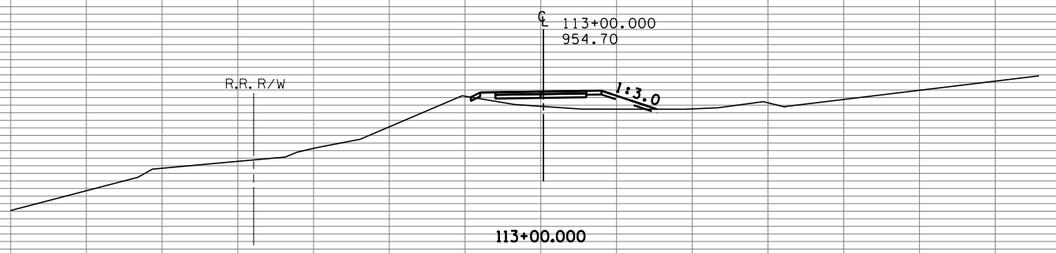

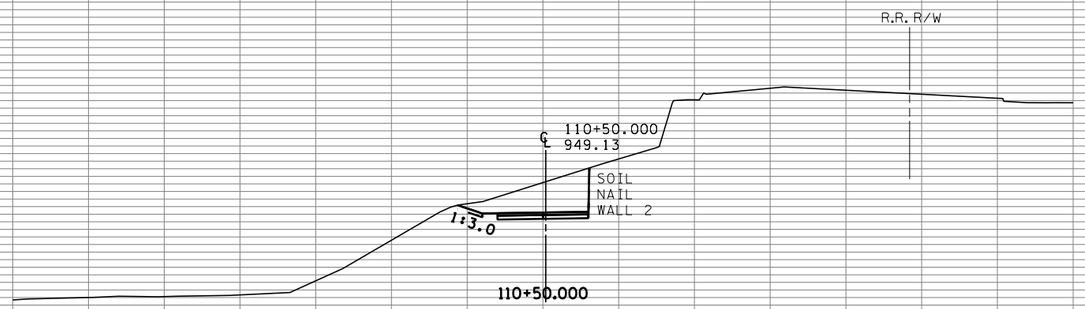

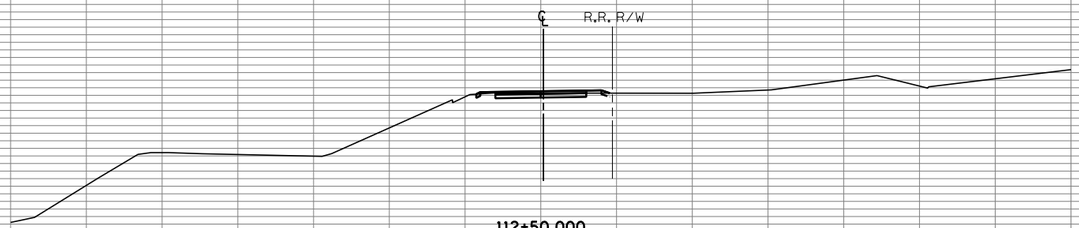

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STA. 110+50.000 - 114+00.000

BRUCE VENTO TRAIL

Sheet No. X18 of X32 Sheets

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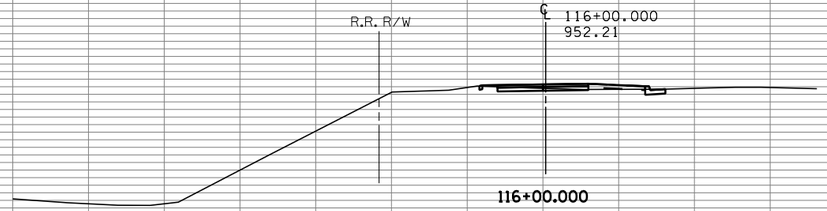

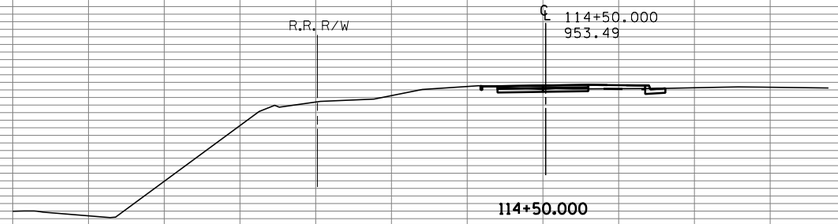

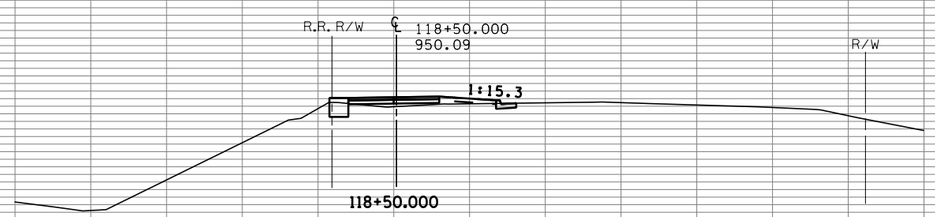

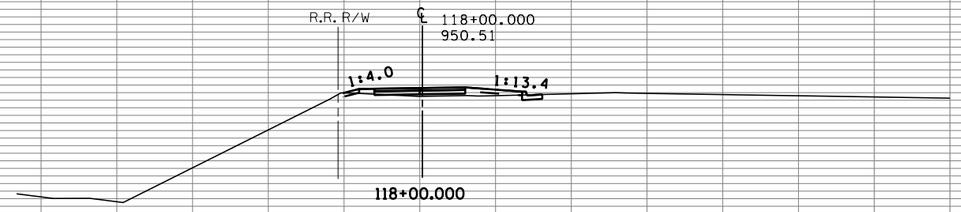

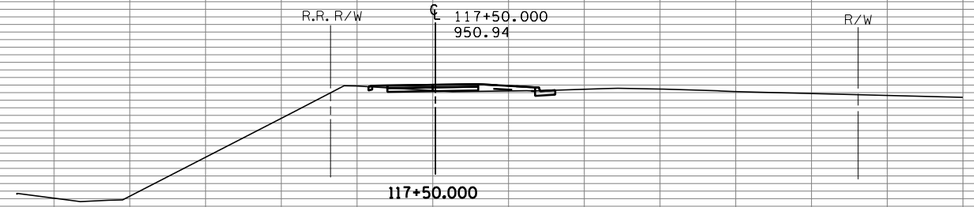

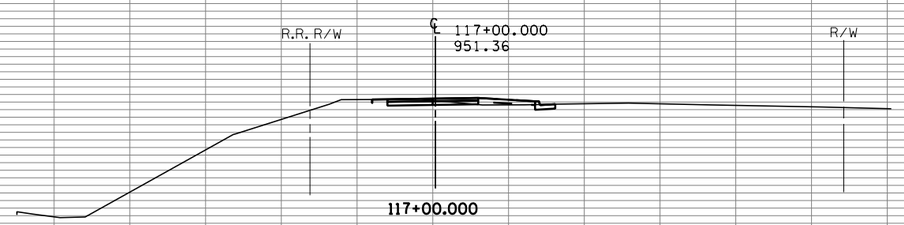

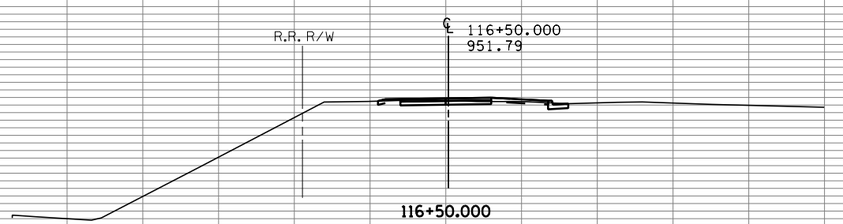

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STA.114+50.000 - 118+50.000

BRUCE VENTO TRAIL

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121+00.000

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123+50.000

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R.R. R/W ℄ 119+00.000
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R.R. R/W ℄ 121+50.000
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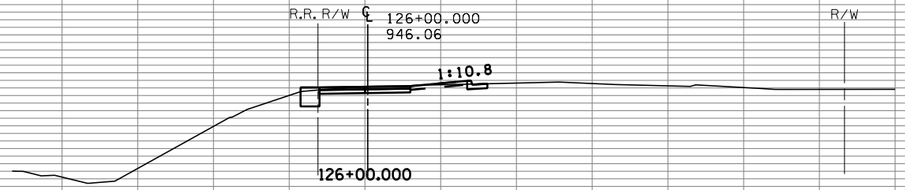
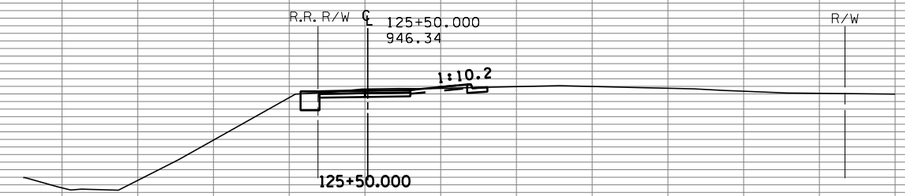
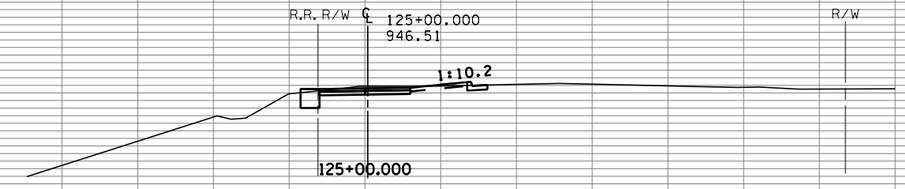
STA.119+00.000 - 123+50.000

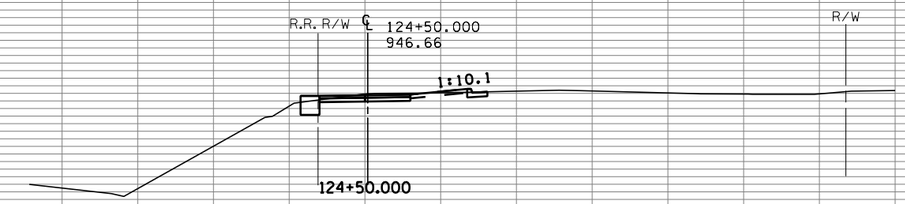
Kimley»Horn

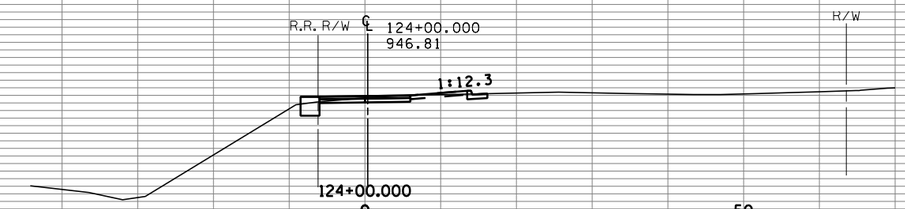
BRUCE VENTO TRAIL

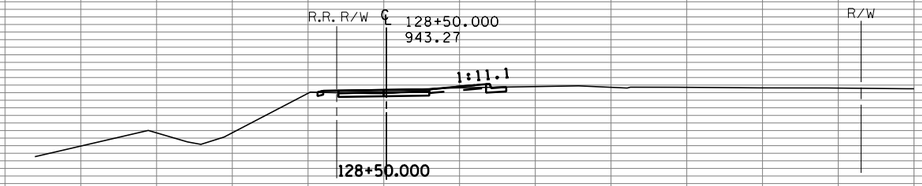


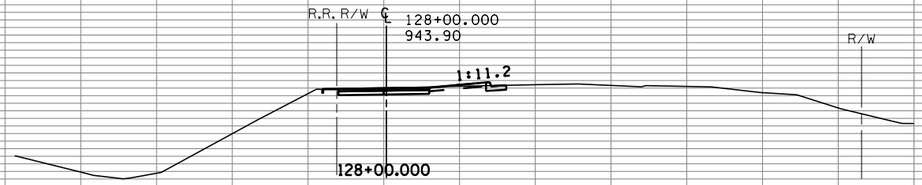


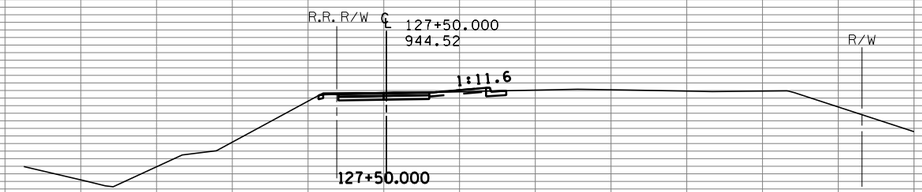


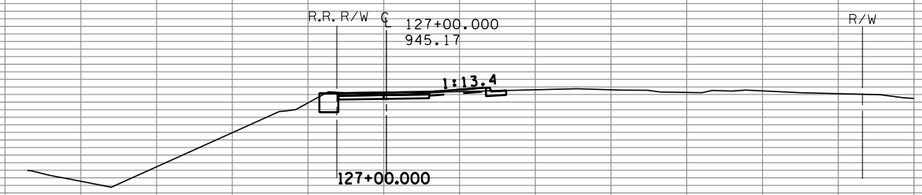


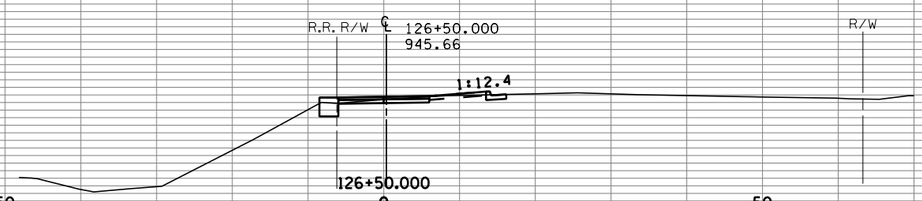












STA.124+00.000 - 128+50.000

BRUCE VENTO TRAIL

Sheet No. X21 of X32 Sheets

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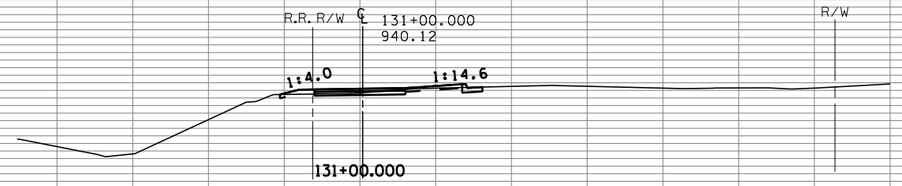

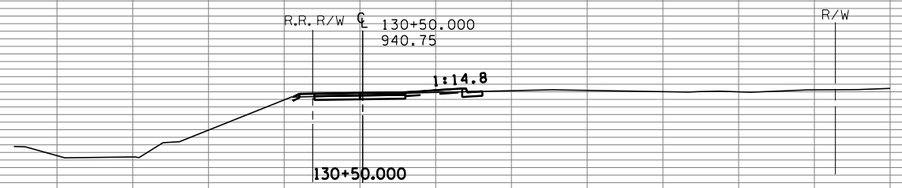

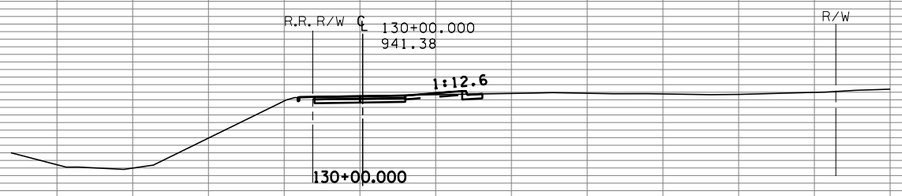

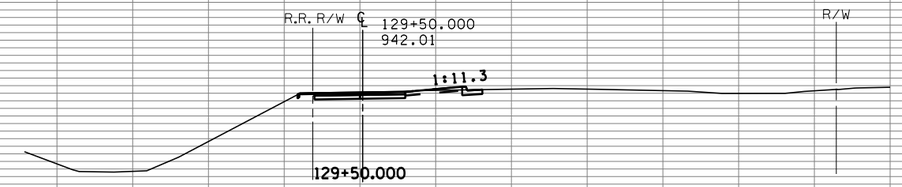

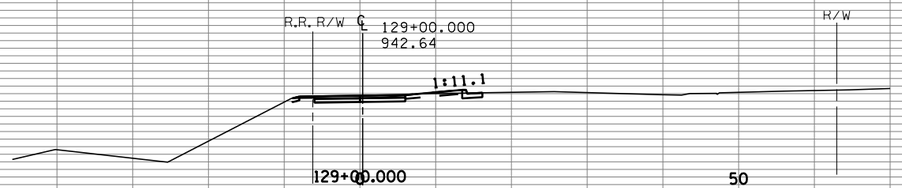

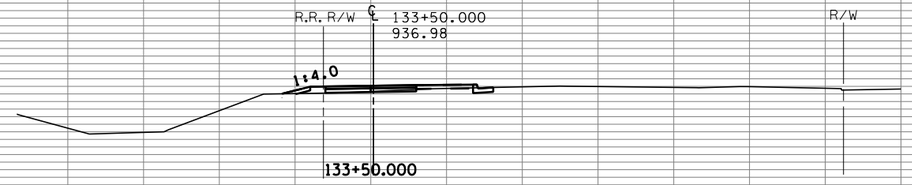

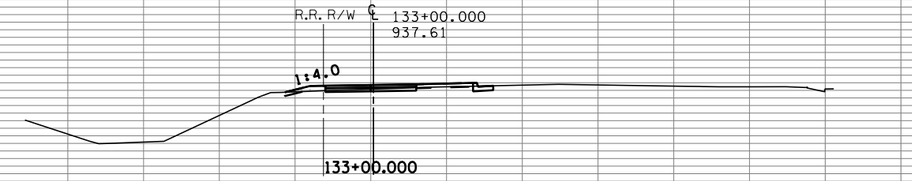

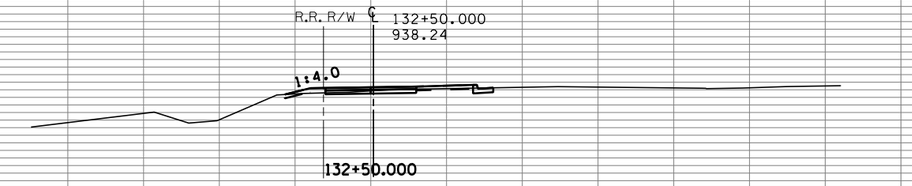

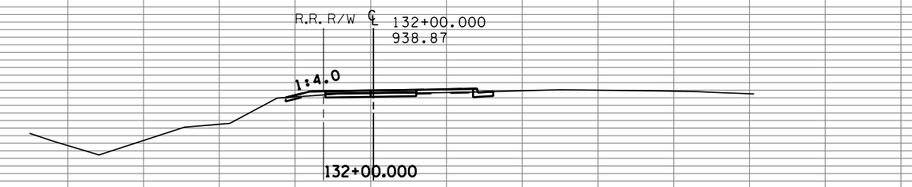

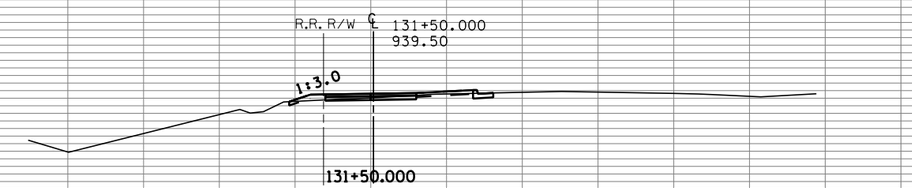

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STA.129+00.000 - 133+50.000

BRUCE VENTO TRAIL Sheet No. X22 of X32 Sheets

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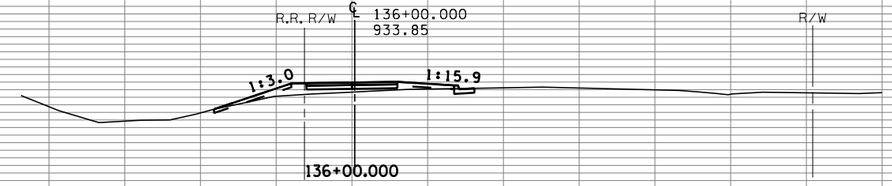

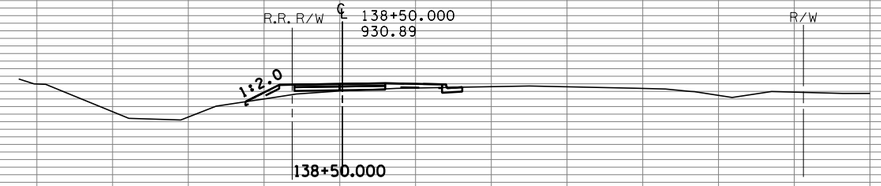

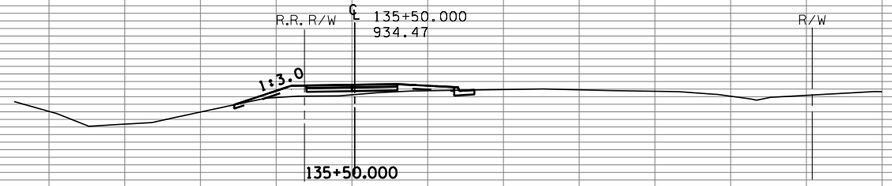

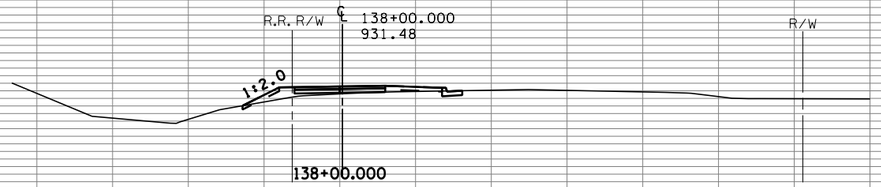

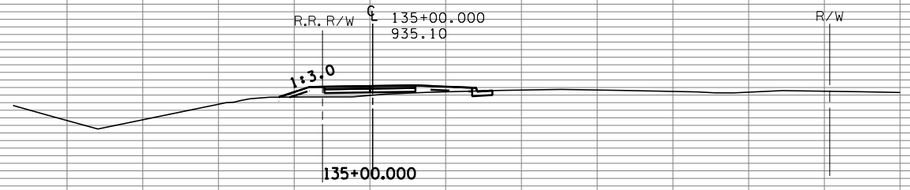

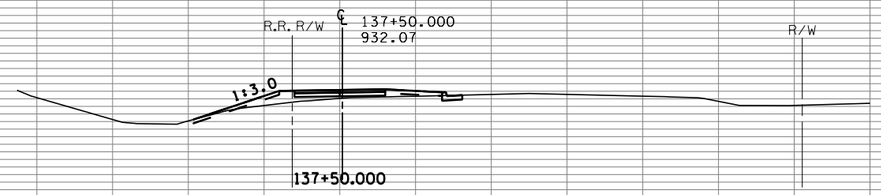

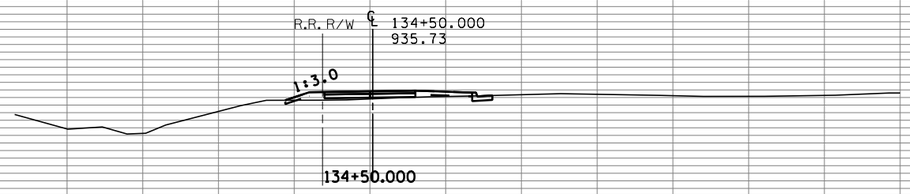

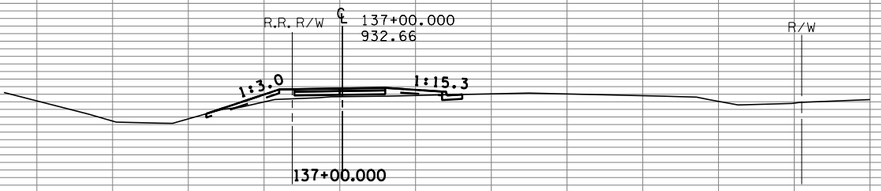

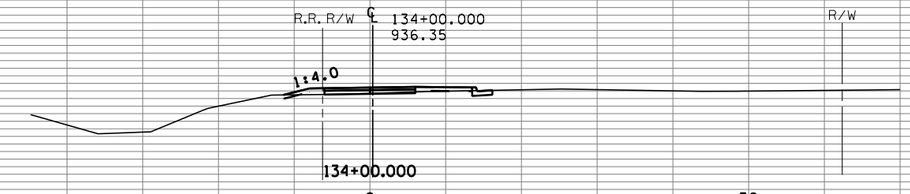

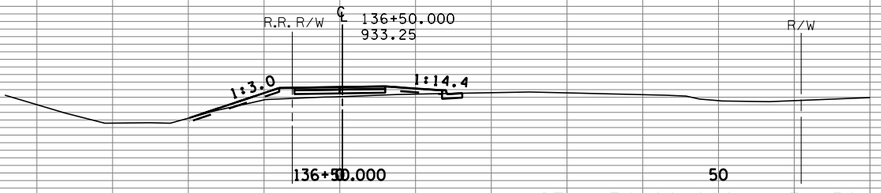

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STA.134+00.000 - 138+50.000

BRUCE VENTO TRAIL Sheet No. X23 of X32 Sheets

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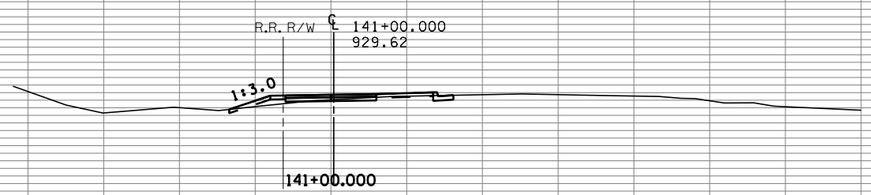
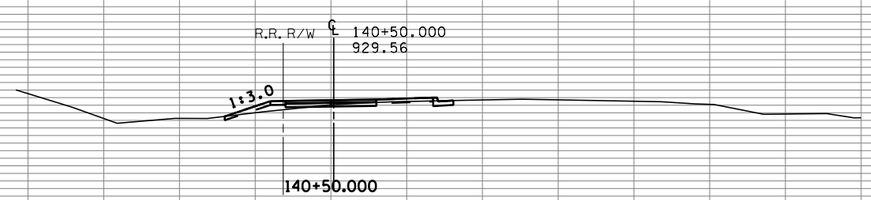
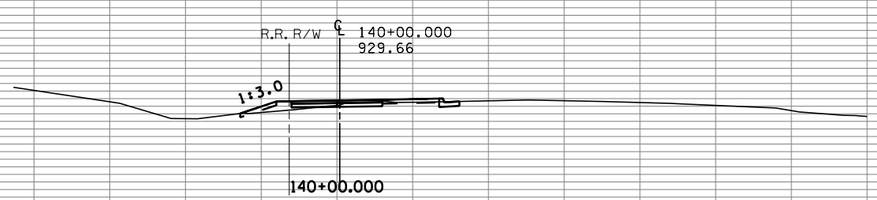
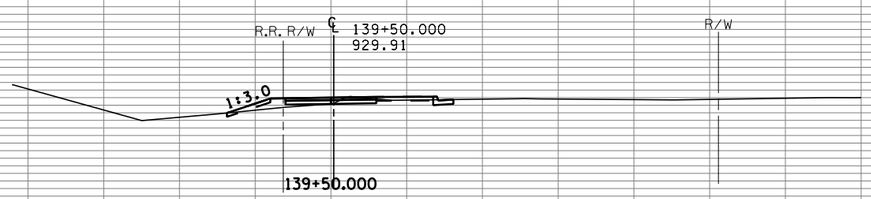
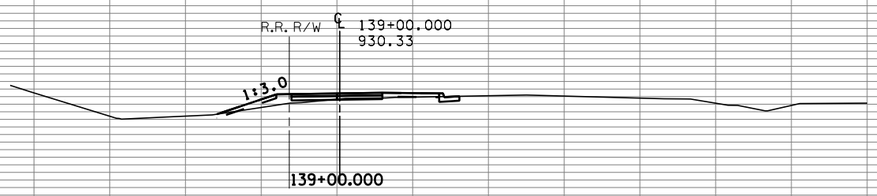
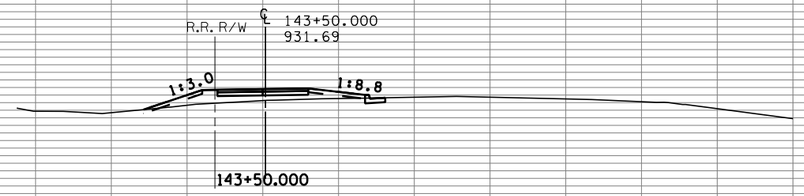


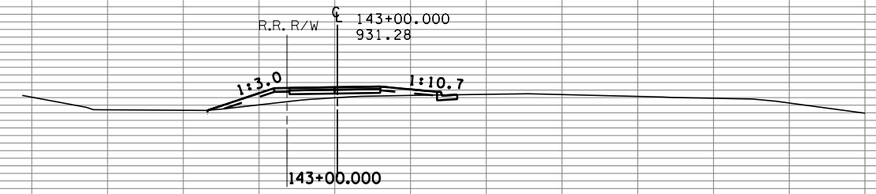


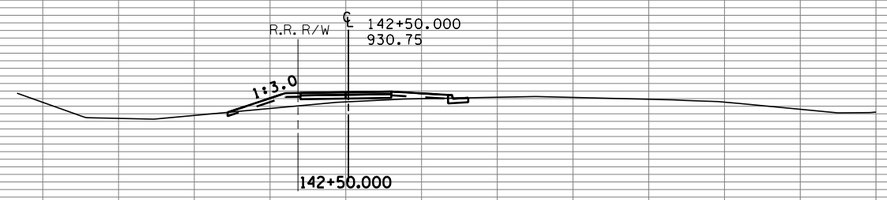


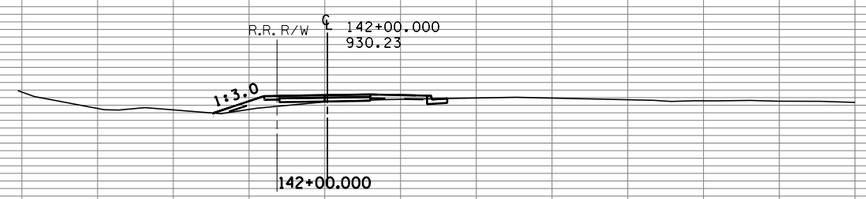


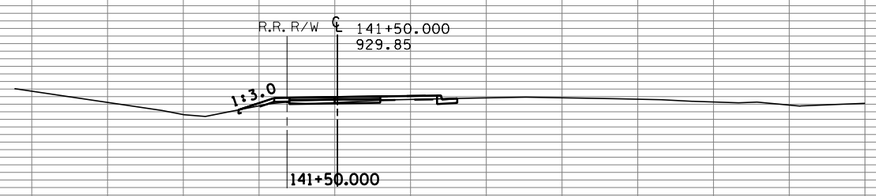






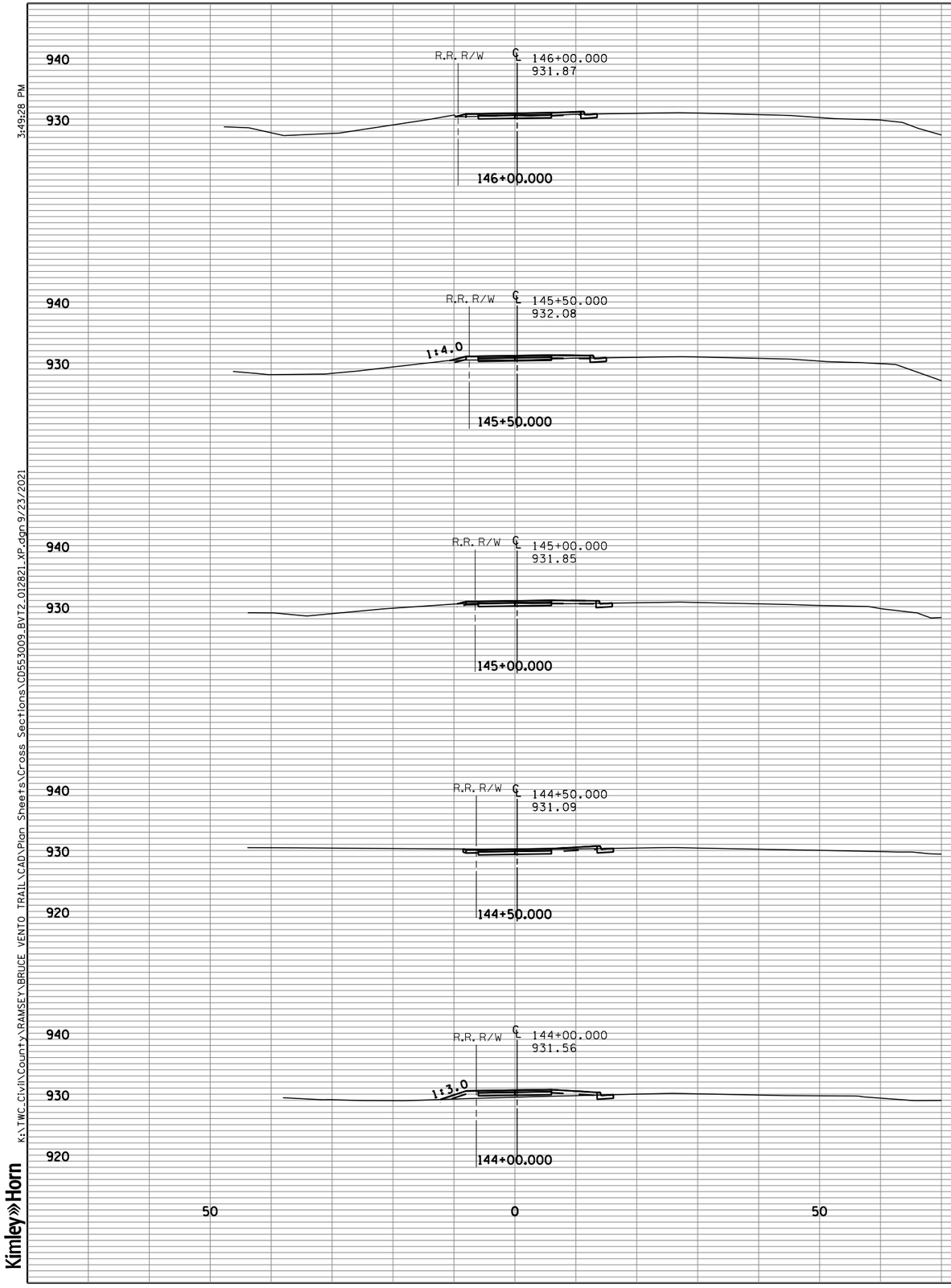


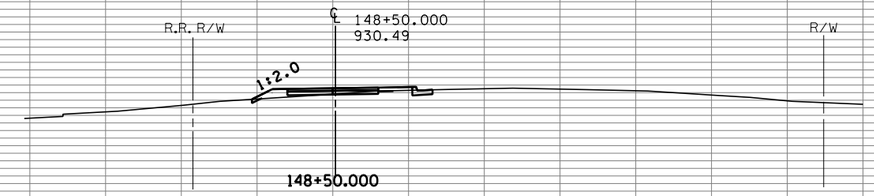


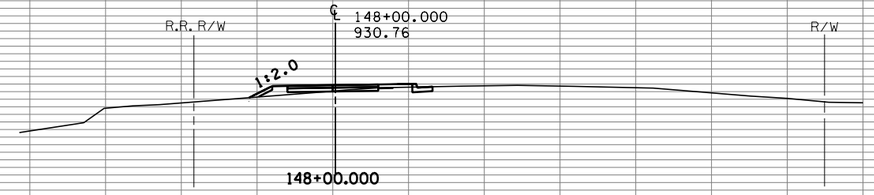


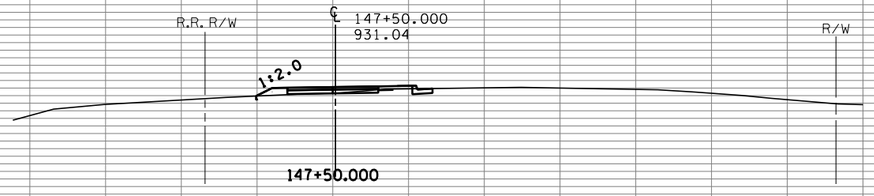
STA.139+00.000 - 143+50.000

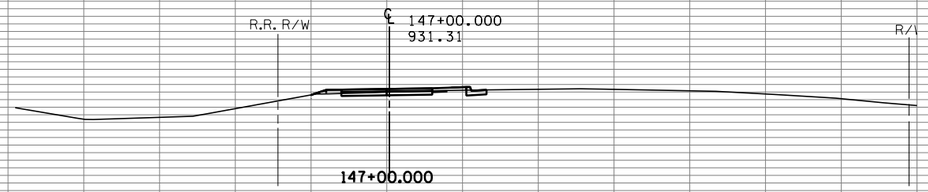
BRUCE VENTO TRAIL

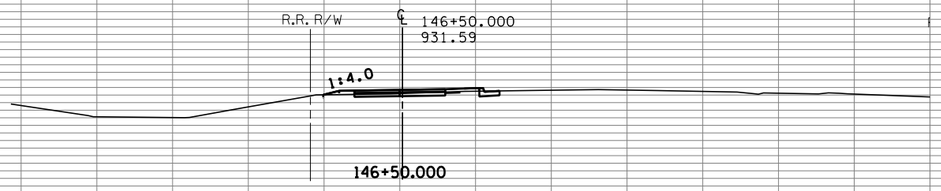












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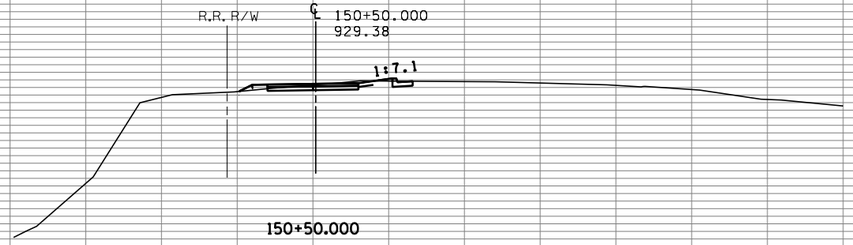
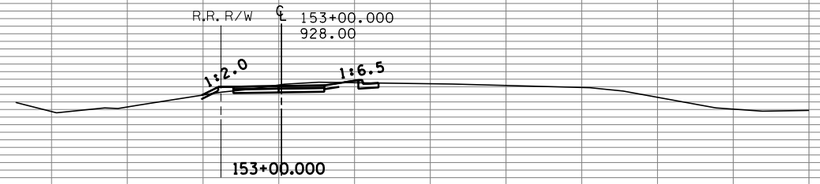
STA.144+00.000 - 148+50.000

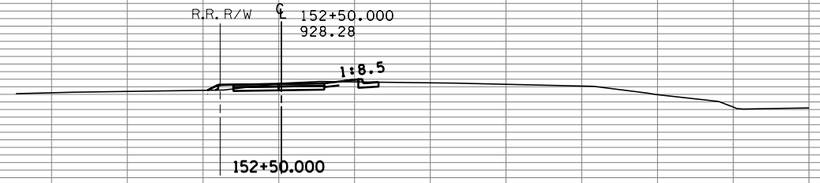
Kimley»Horn

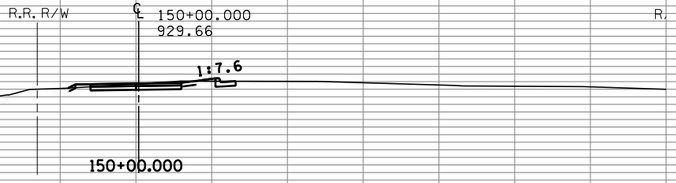
BRUCE VENTO TRAIL

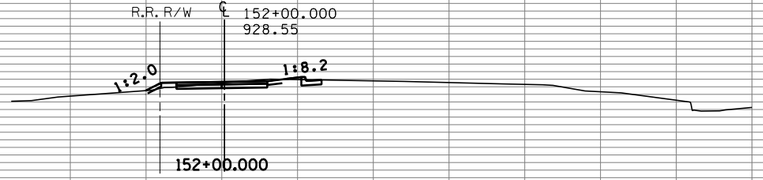
Sheet No. X25 of X32 Sheets

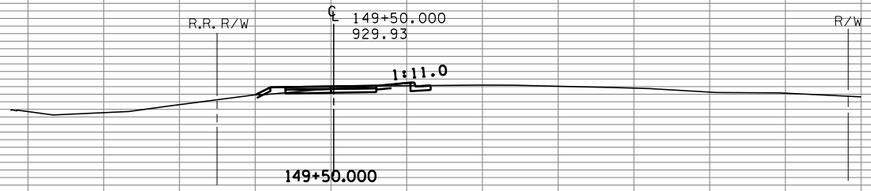


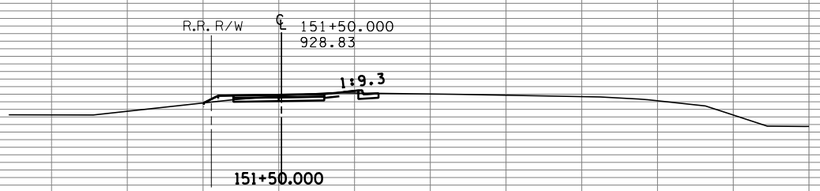


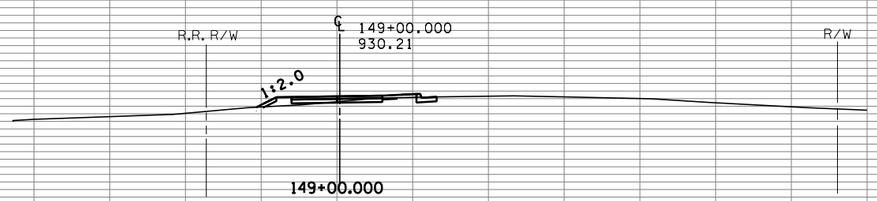


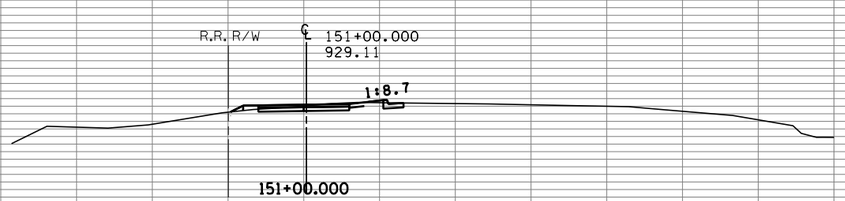












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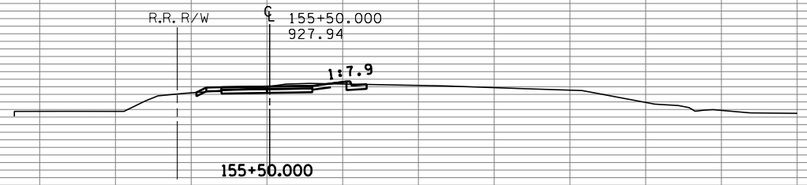
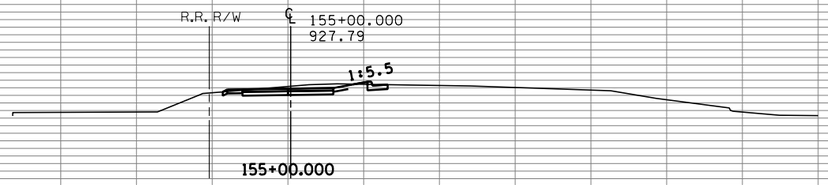
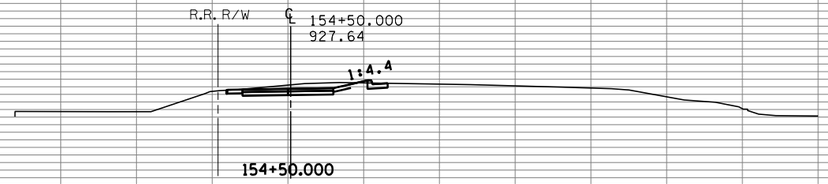
STA. 149+00.000 - 153+00.000

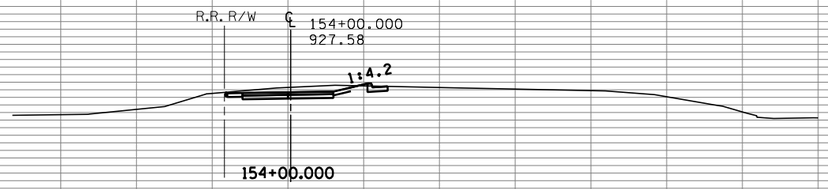
Kimley»Horn

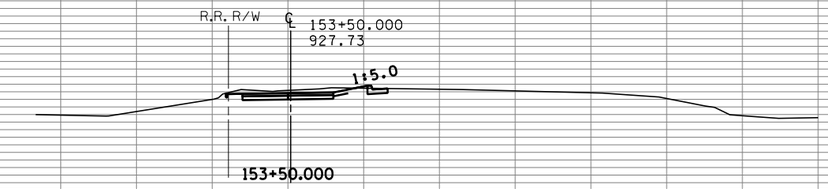
BRUCE VENTO TRAIL

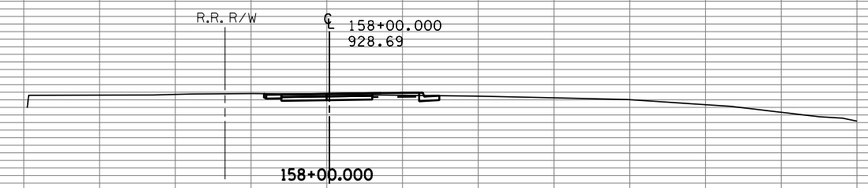


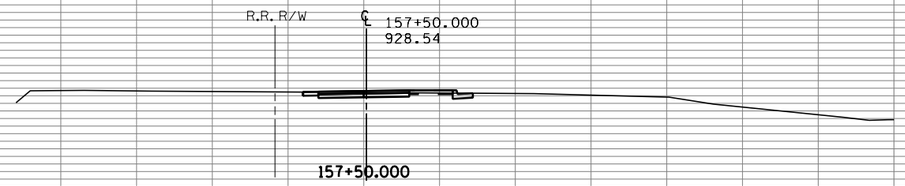


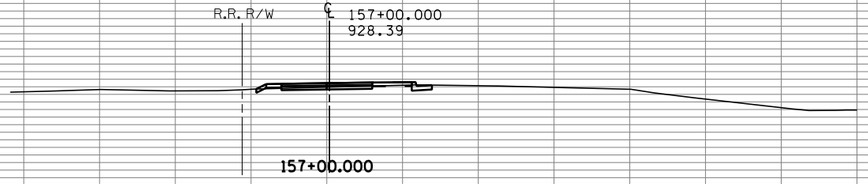


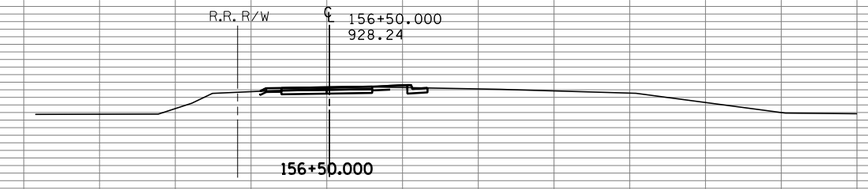


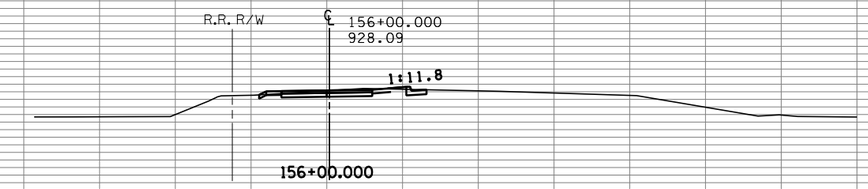












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BRUCE VENTO TRAIL Sheet No. X27 of X32 Sheets

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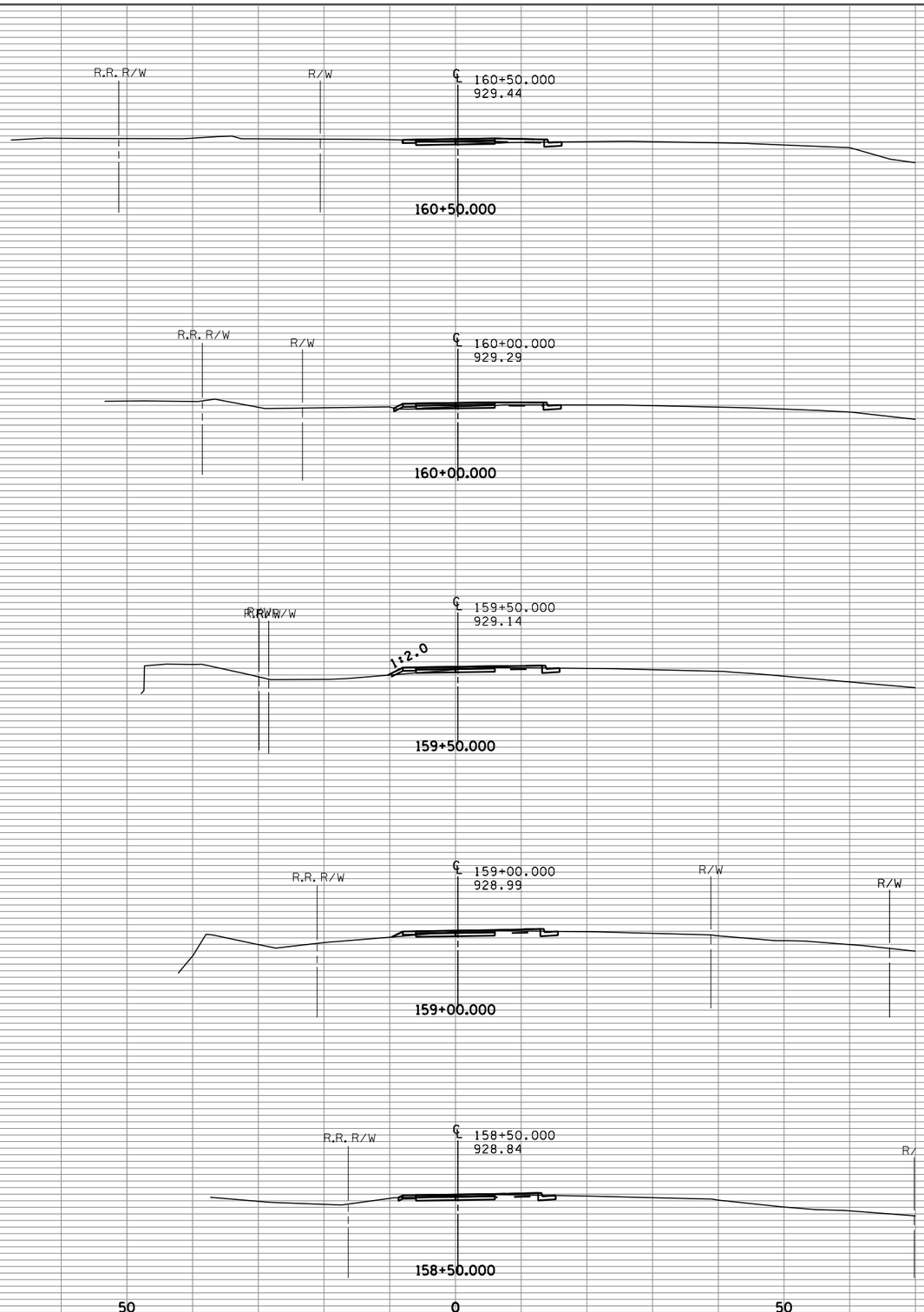

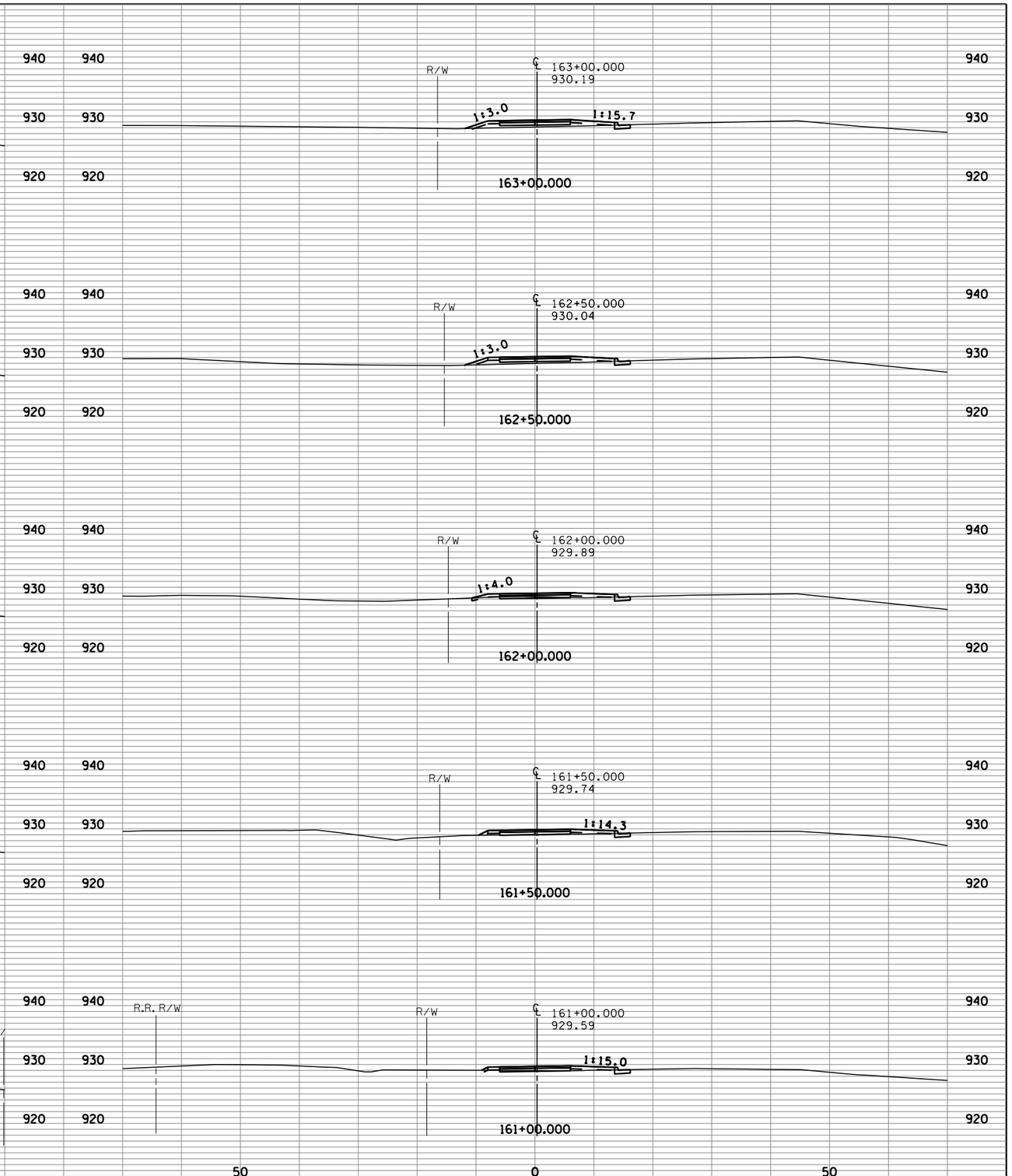

Kimley»Horn

STA. 158+50.000 - 163+00.000

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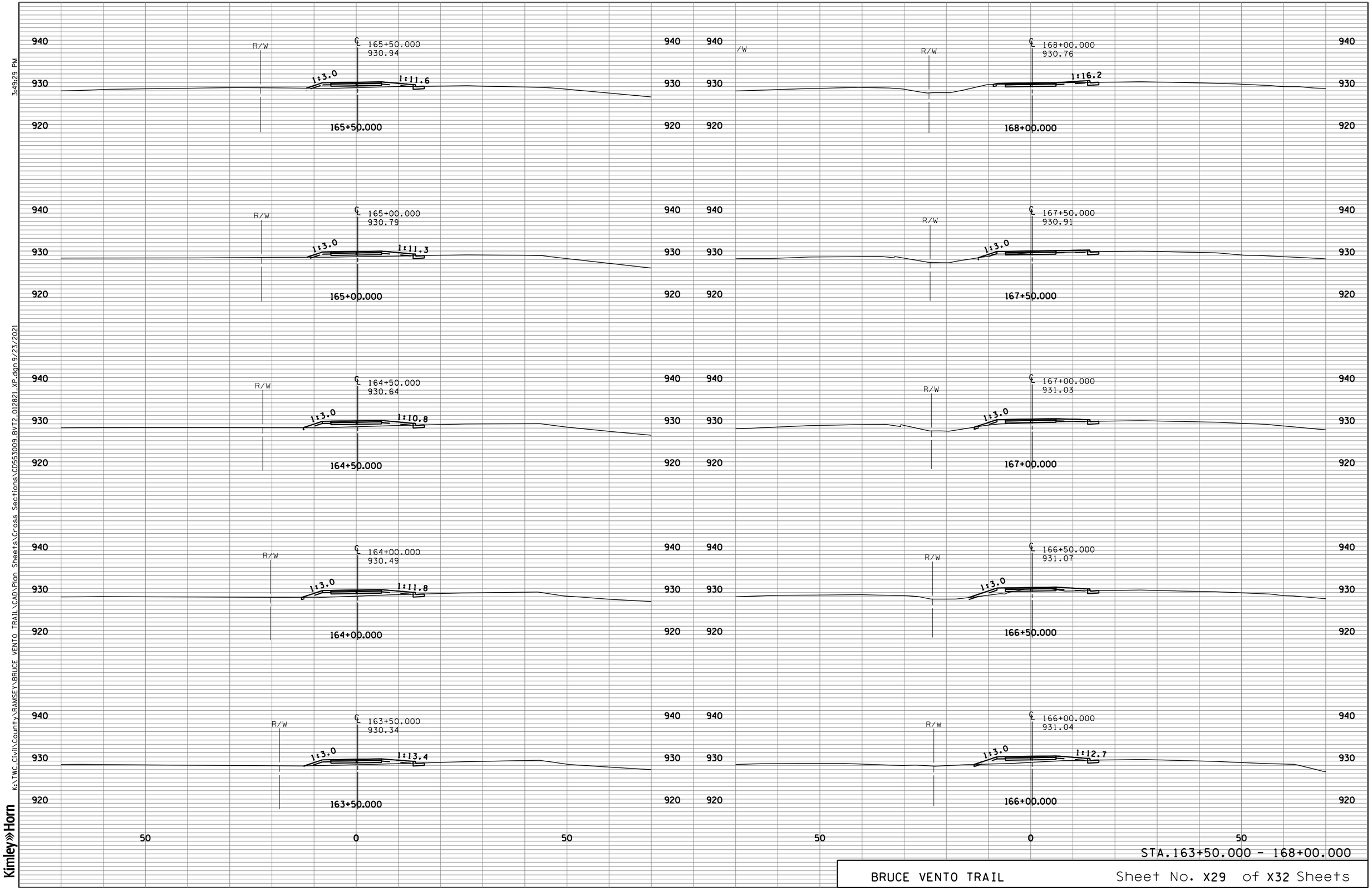

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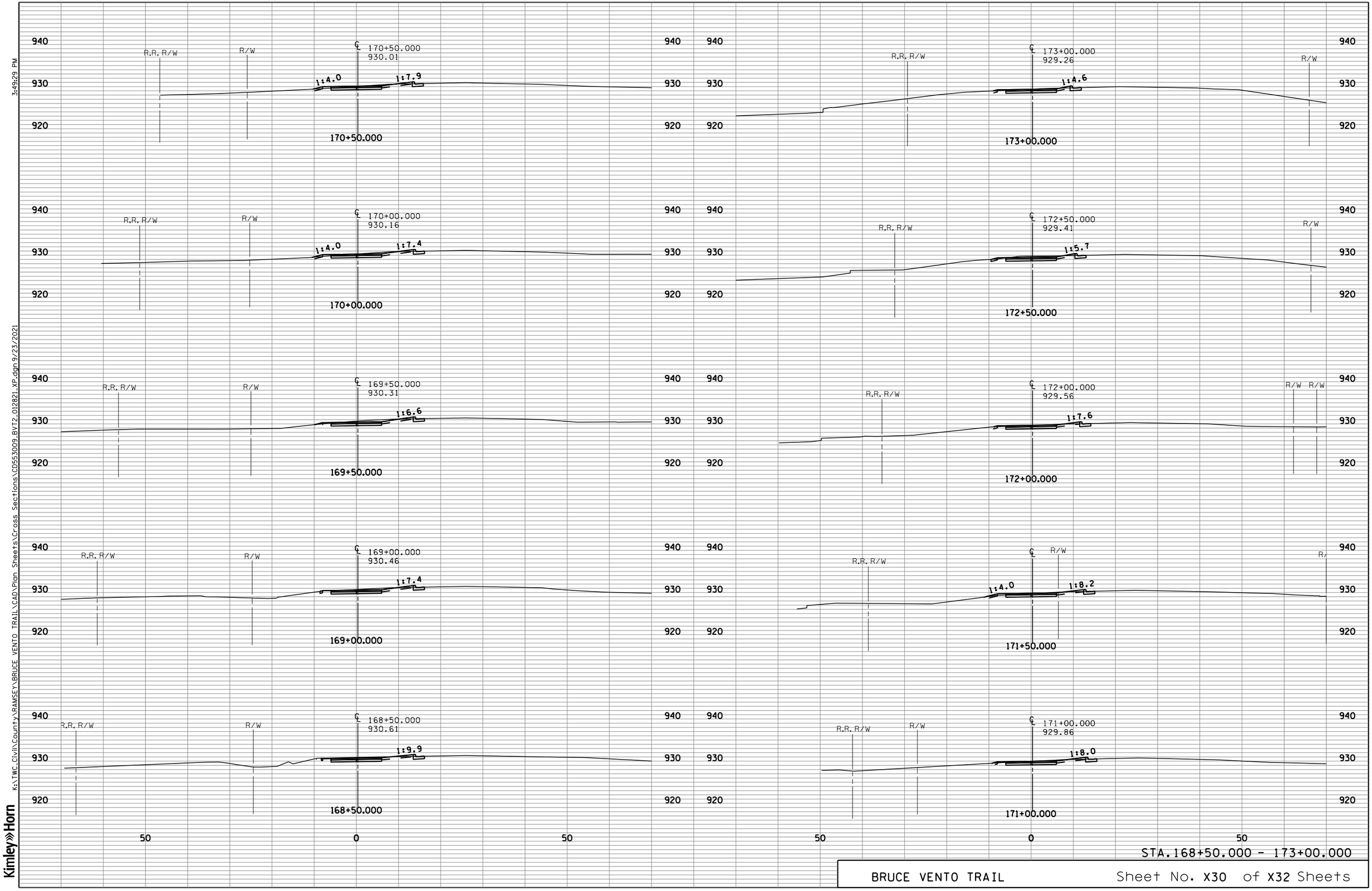
BRUCE VENTO TRAIL



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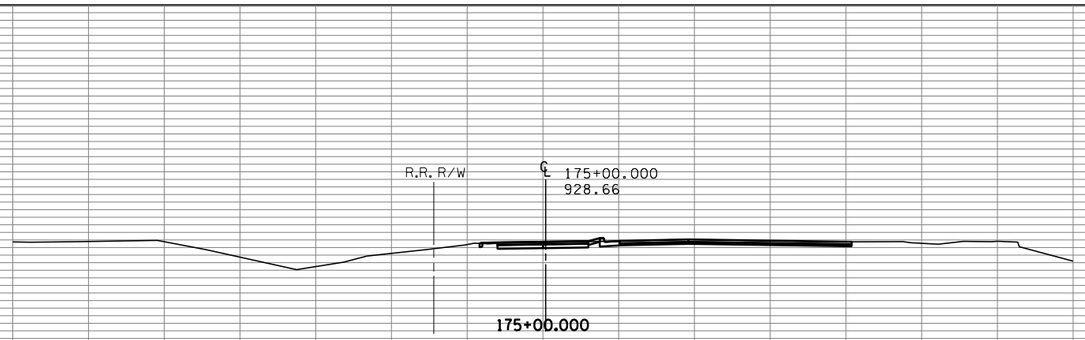
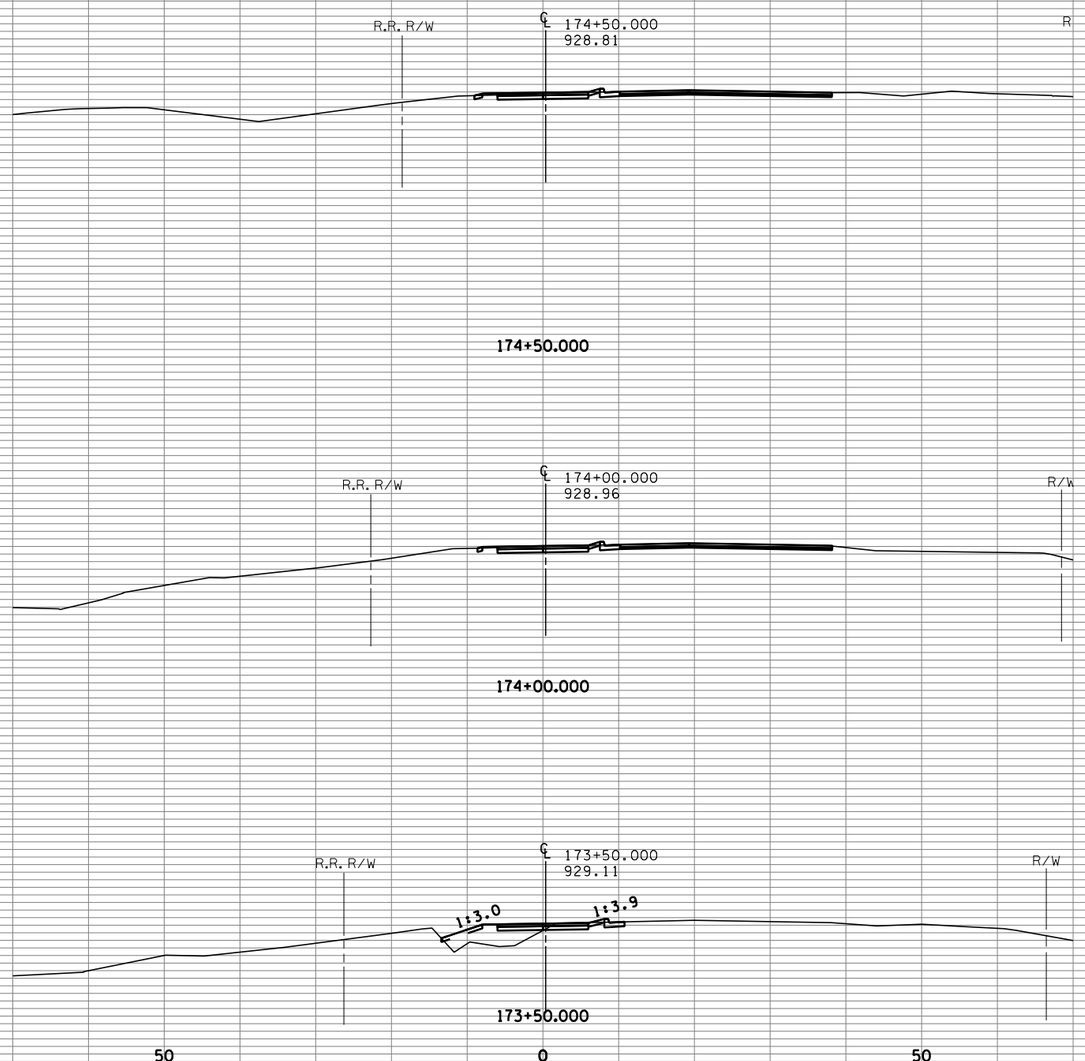
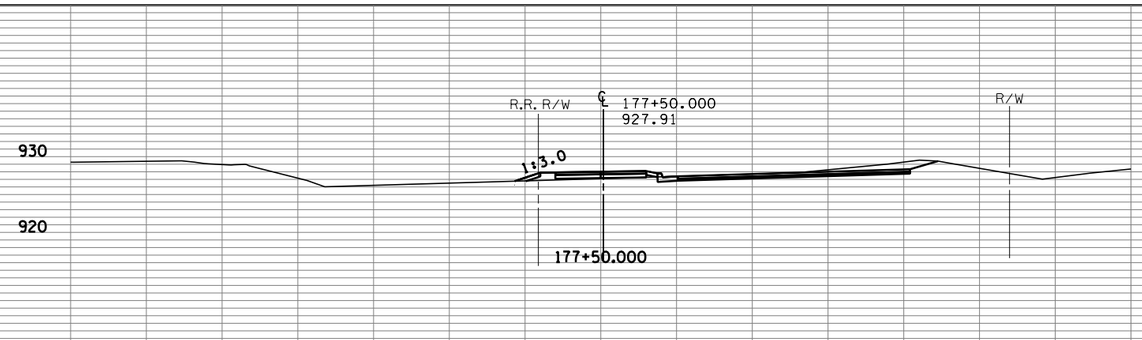
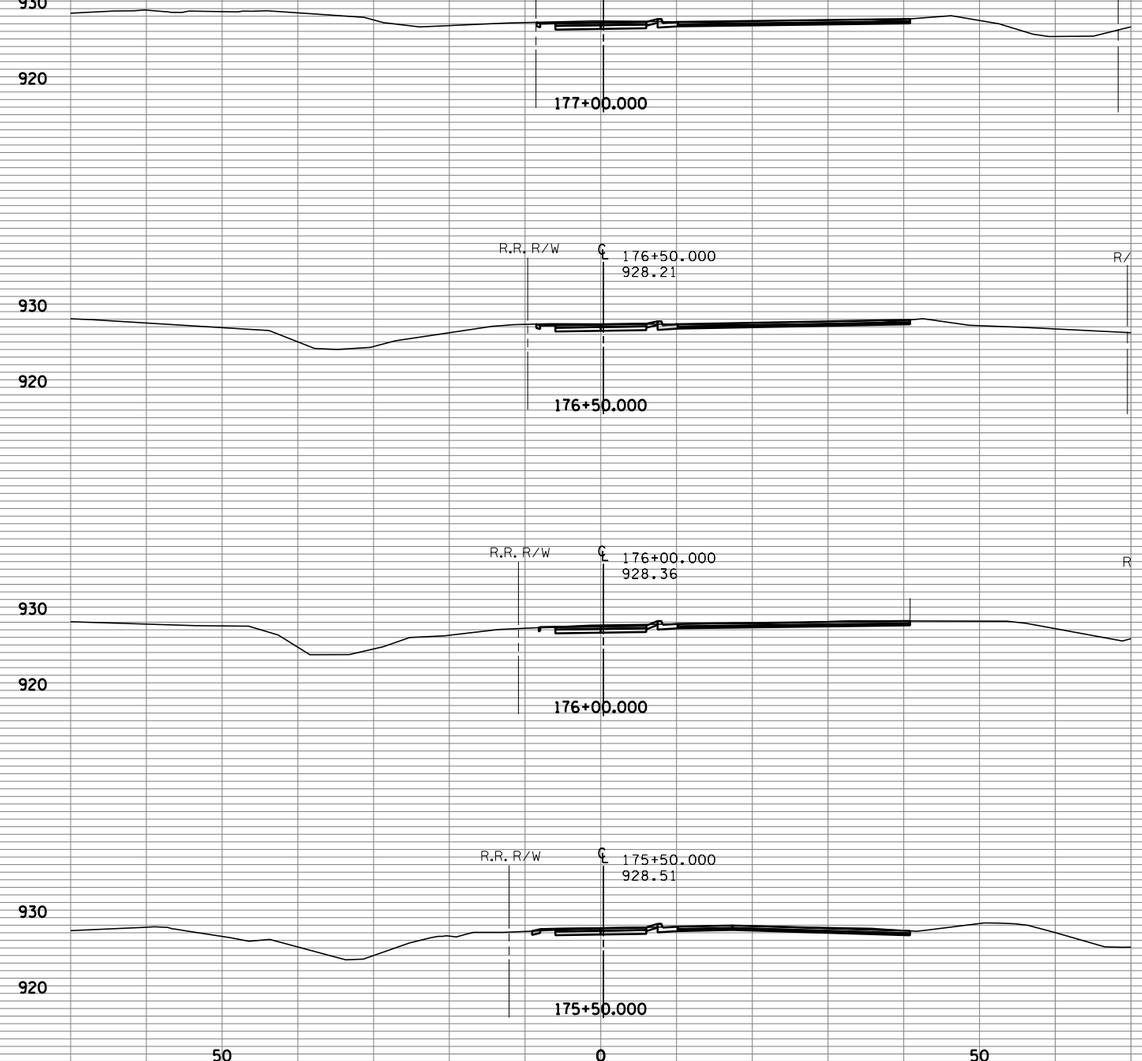
BRUCE VENTO TRAIL

Sheet No. X30 of X32 Sheets









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BRUCE VENTO TRAIL

Sheet No. X31 of X32 Sheets

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STA.178+00.000 - 180+00.450

Kimley»Horn

BRUCE VENTO TRAIL

Sheet No. X32 of X32 Sheets

Alex Fiorini, P.E. (ND)
Manager Public Projects

BNSF Railway Company
80 44th Ave. NE
Minneapolis MN 55421
763-782-3476
alexander.fiorini@bnsf.com

February 28, 2022

Mr. Scott Yonke
Director of Planning and Development
Ramsey County Parks and Recreation Department
2015 Van Dyke Street
Maplewood, MN 55109

Dear Mr. Yonke:

This letter is intended to acknowledge the planning discussions between BNSF, Minnesota Commercial Railway and Ramsey County related to the County's proposed extension of the Bruce Vento Trail north from Buerkle Road to US61 a total of approximately 2.7 miles. Approximately 0.6 miles of the trail is proposed to utilize BNSF right of way including the eastern portals of bridge underpasses at County Road E and US Highway 61.

The County has been working productively with BNSF to produce an acceptable design and we will continue to participate in that effort. It appears that remaining design problems are likely to have feasible solutions that will satisfy both parties.

BNSF will not make any commitment to allowing this use of its right-of-way until final designs have been approved and BNSF and the County have executed agreements covering the terms and conditions of use. However, at the moment BNSF believes that the project can move forward with a reasonable likelihood of a successful agreement.

Please contact me with any questions.

Sincerely,

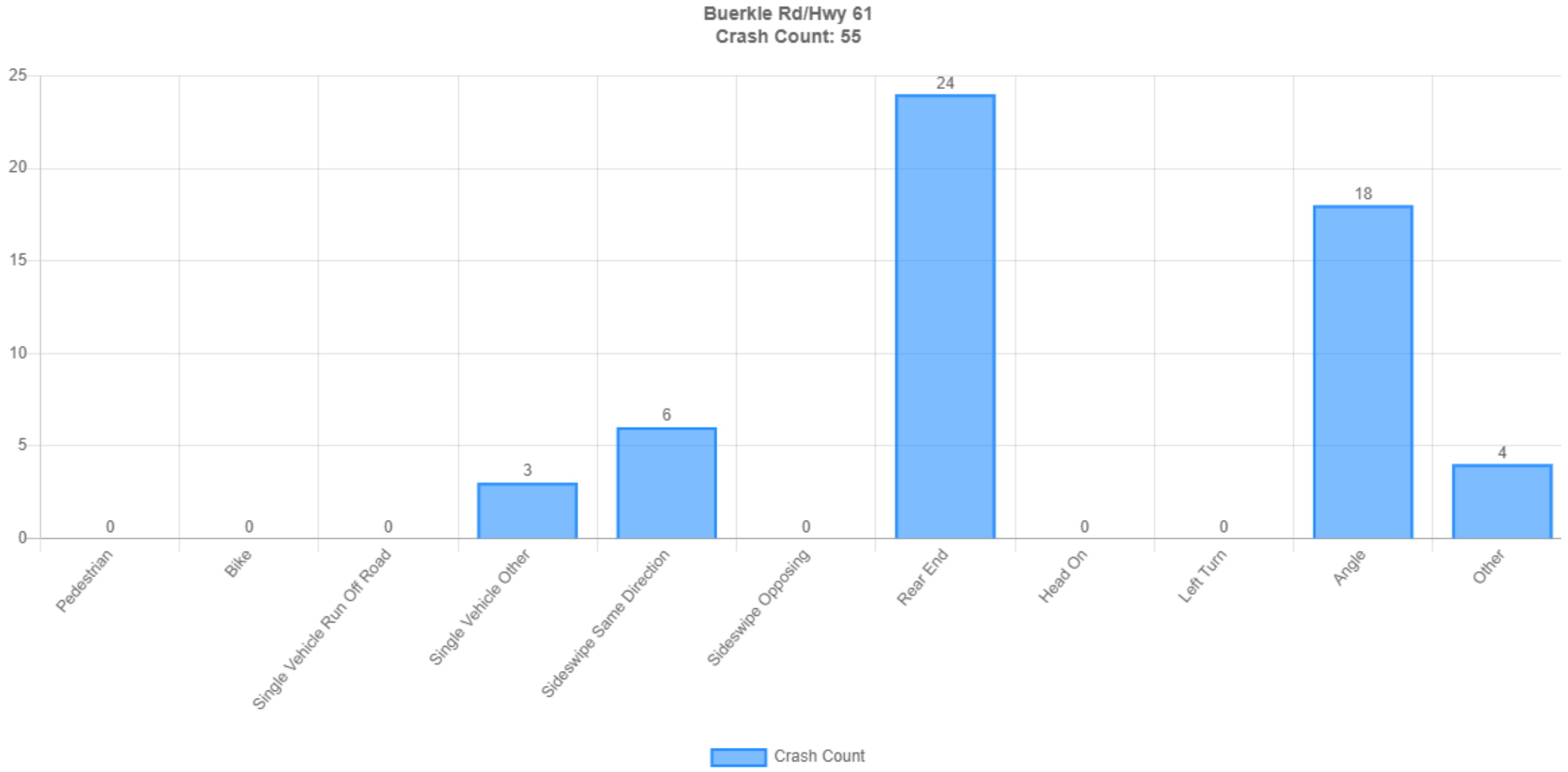
Alex Fiorini
Manager Public Projects

Bruce Vento Regional Trail Extension Area - Buerkle Road

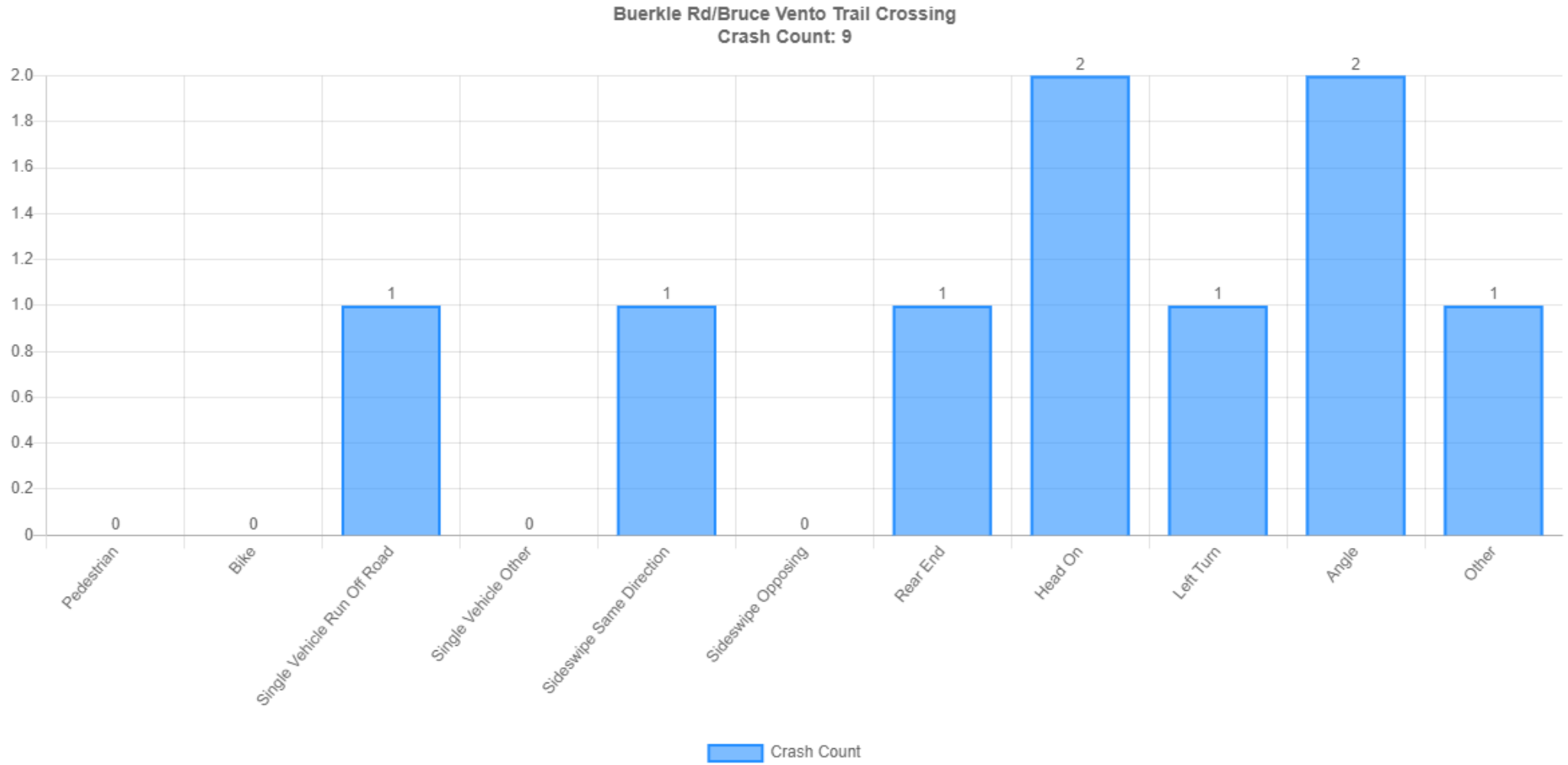
Image capture: Oct 2017 © 2018 Google

Bruce Vento Trail Crash Data

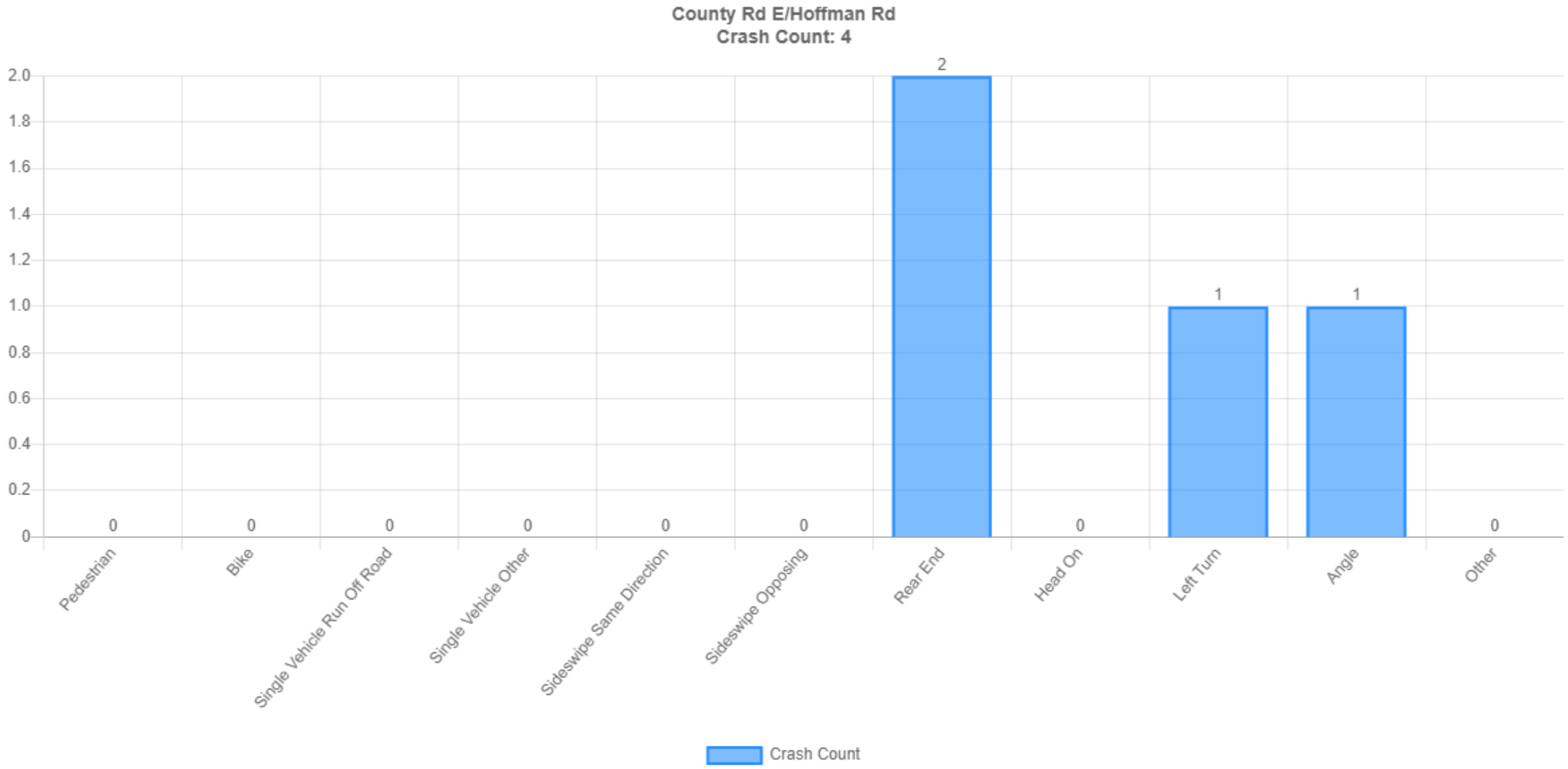
Buerkle Rd/Highway 61



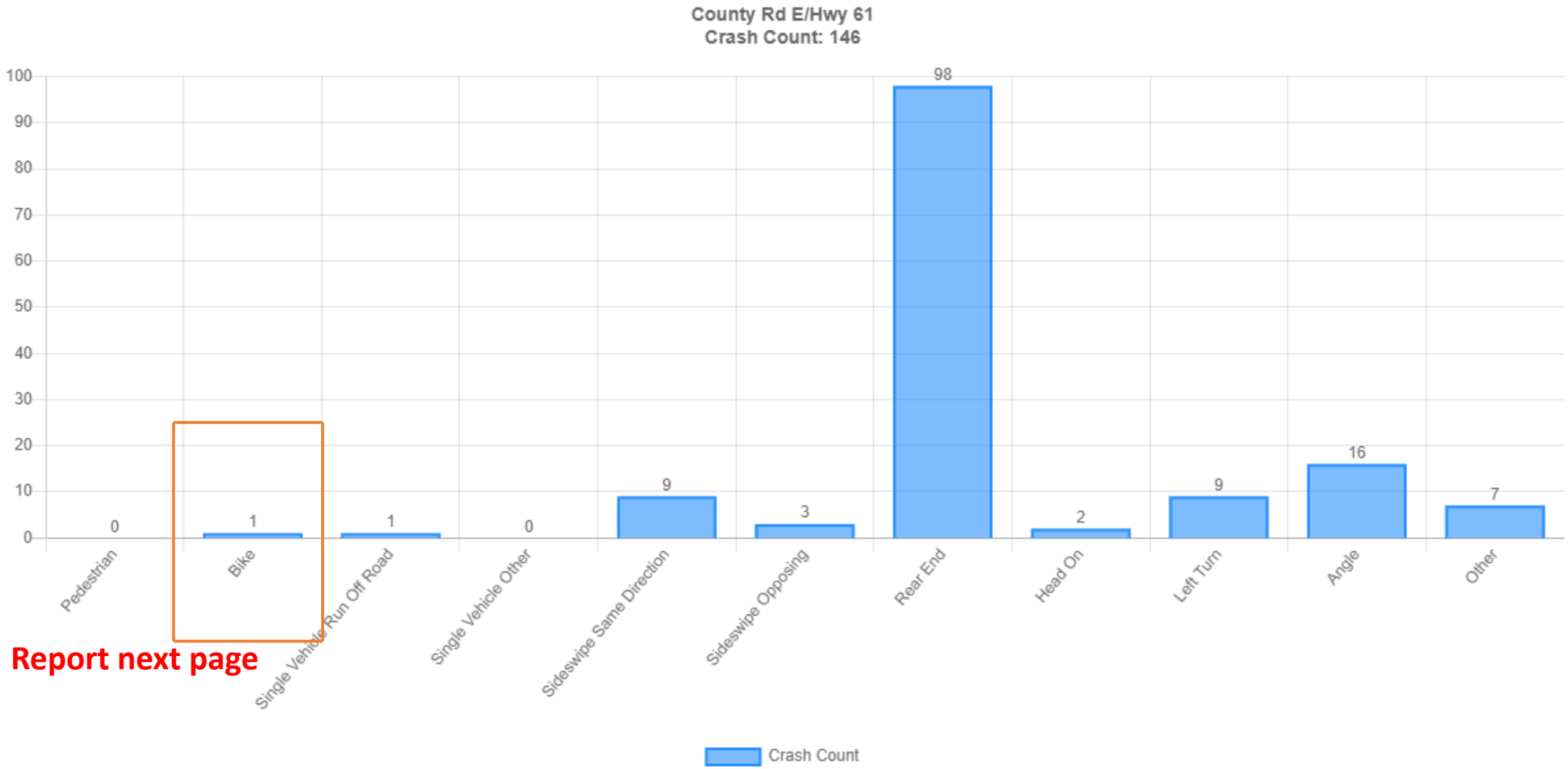
Buerkle Rd/Bruce Vento Trail Crossing



County Rd E/Hoffman Rd



County Rd E/Highway 61



Report next page

County Rd E/Highway 61 Crash Details

Crash Detail Report - Short Form

County Rd E/Highway 61

Report Version 1.0
February 2020

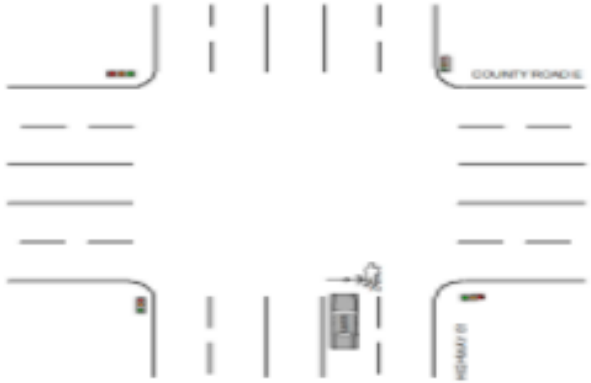
INCIDENT ID	ROUTE SYS	ROUTE NUM	MEASURE	ROUTE NAME	ROUTE ID	COUNTY	CITY
11058469	02-USTH	0061	143.954	HIGHWAY 61	0200000000000061-I	62-Ramsey	Vadnais Heights

INTERSECT WITH	# VEH	# KILL	DATE	TIME	DAY	LAT	LONG	UTM X	UTM Y	WORK ZONE TYPE
	1	0	06/08/15	22:34	Mon	45.050303	-93.035889	497174.4	4988538.2	NOT APPLICABLE

BASIC TYPE	CRASH SEVERITY	FIRST HARMFUL	LIGHT CONDITION	WEATHER PRIMARY
Bike	B - Minor Injury	Pedalcyclist (Bicyclist)	Dark (Str Lights On)	Clear

	Unit 1	Unit 2	Unit 3	Unit 4
Unit Type	Motor Vehicle in Transport	Bicycle		
Vehicle Type	Passenger Car	BICYCLIST		
Direction of Travel	Northbound			
Manuever	Moving Forward	PED XNG AGNT SIG		
Age/Sex	56 F	13 M		
Physical Cond	Apparently Normal	NOT APPLICABLE		
Contributing Factor 1	No Clear Contributing Action	Failure to Yield Right-of-Way		

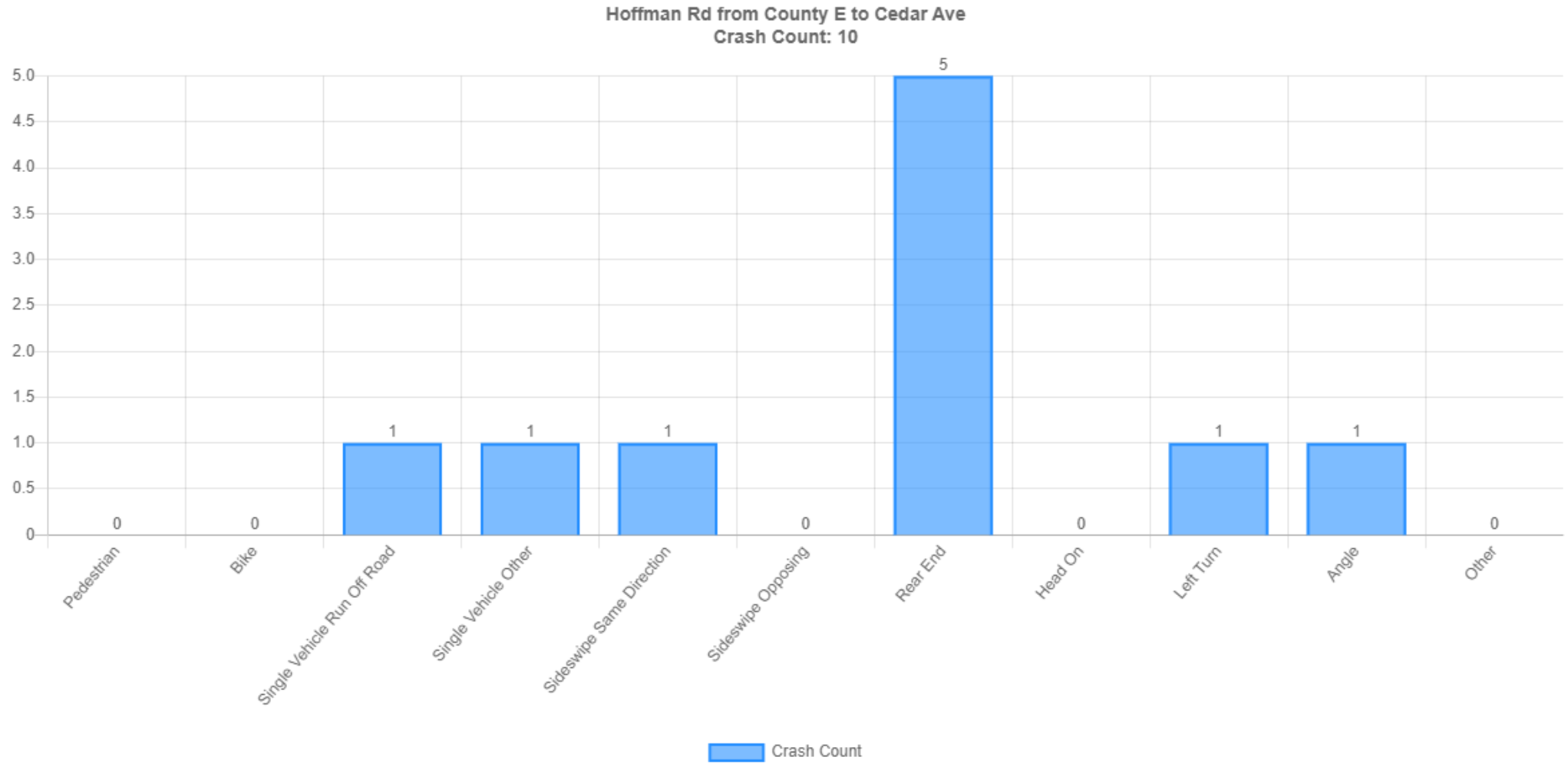
OFFICER SKETCH



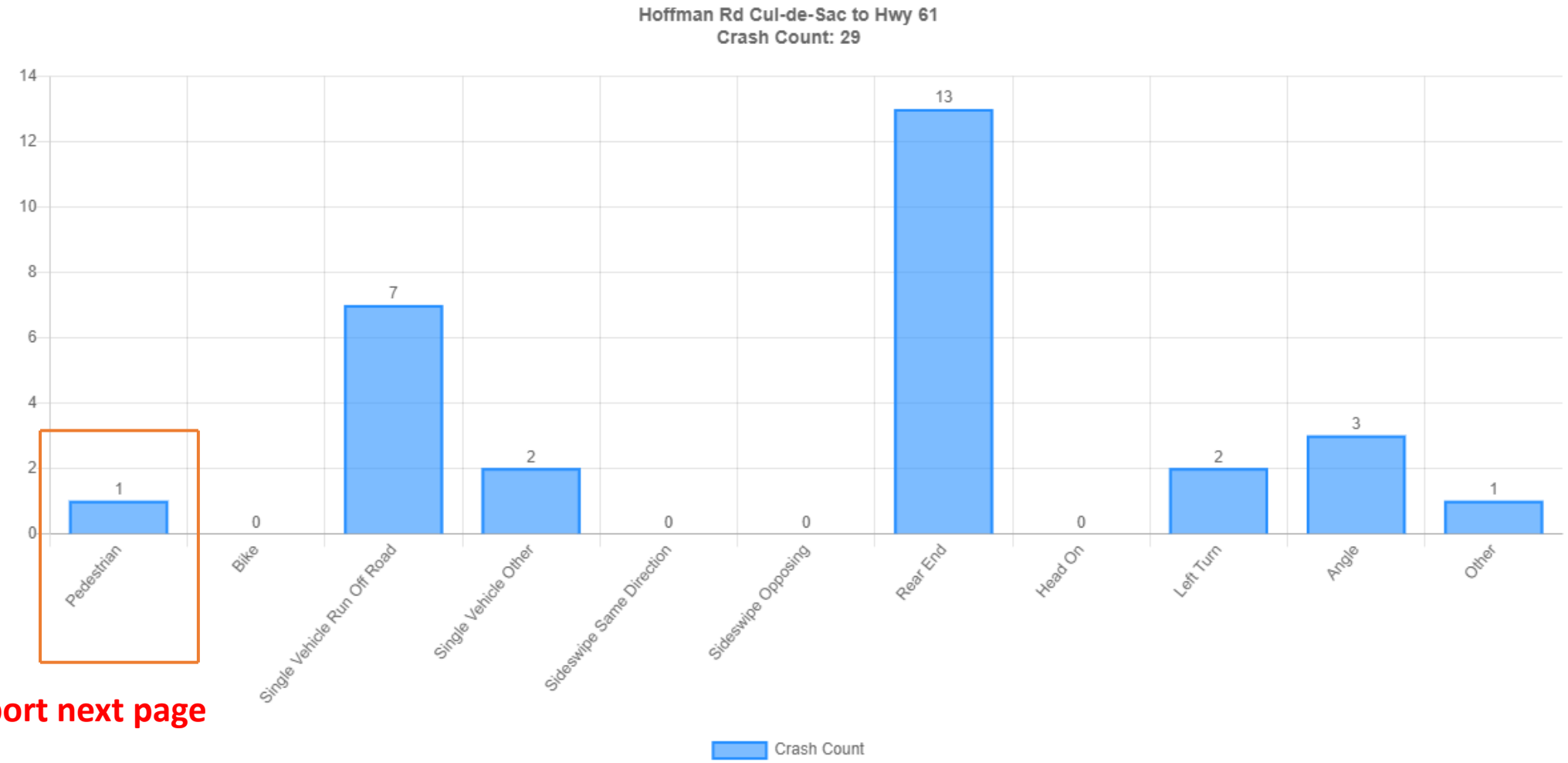
NARRATIVE

UNIT 1 WAS STOPPED AT RED LIGHT NORTHBOUND ON HWY 61/CO RD E. WHEN LIGHT TURNED GREEN UNIT 1 PROCEEDED FORWARD AND DID NOT SEE A BIKE RIDER CROSSING IN FRONT OF HER AGAINST THE LIGHT. SHE ESTIMATES HER SPEED WAS APPROXIMATELY 5 MPH. UNIT 2 STATED THAT HE INTENDED TO CROSS WESTBOUND ON COUNTY RD E ACCROSS HWY 61. HE SAW THAT WESTBOUND TRAFFIC ON COUNTY RD E HAD A GREEN ARROW AND STARTED CROSSING. HE KNEW THAT THE CROSSWALK TRAFFIC HAD A RED, BUT WANTED TO MAKE IT TO THE CENTER ISLAND. HE GOT STRUCK AND SUSTAINED CUTS TO LEGS AND ELBOWS. NONE APPEARED TO REQUIRE STITCHES. UNIT 1 HAD VALID INSURANCE AND NO DAMAGE. UNIT 2 EVALUATED BY MEDICS AND TRANSPORTED AS PRECAUTION.

Hoffman Rd from County Rd E to Cedar Ave



Hoffman Rd Cul-de-Sac to Hwy 61



Report next page

Hoffman Rd Cul-de-Sac to Hwy 61 Crash Details

Crash Detail Report - Short Form

Hoffman cul de sac to hwy 61

Report Version 1.0
February 2020

INCIDENT ID	ROUTE SYS	ROUTE NUM	MEASURE	ROUTE NAME	ROUTE ID	COUNTY	CITY
00455999	07-CR	0095	0.002	COUNTY ROAD F	0700006595070095-I	62-Ramsey	White Bear Lake

INTERSECT WITH	# VEH	# KILL	DATE	TIME	DAY	LAT	LONG	UTM X	UTM Y	WORK ZONE TYPE
	1	0	05/26/17	17:26	Fri	45.064781	-93.028353	497768.5	4990146.3	NOT APPLICABLE

BASIC TYPE	CRASH SEVERITY	FIRST HARMFUL	LIGHT CONDITION	WEATHER PRIMARY
Pedestrian	N - Prop Damage Only	Other - Non Fixed Object	Daylight	Clear

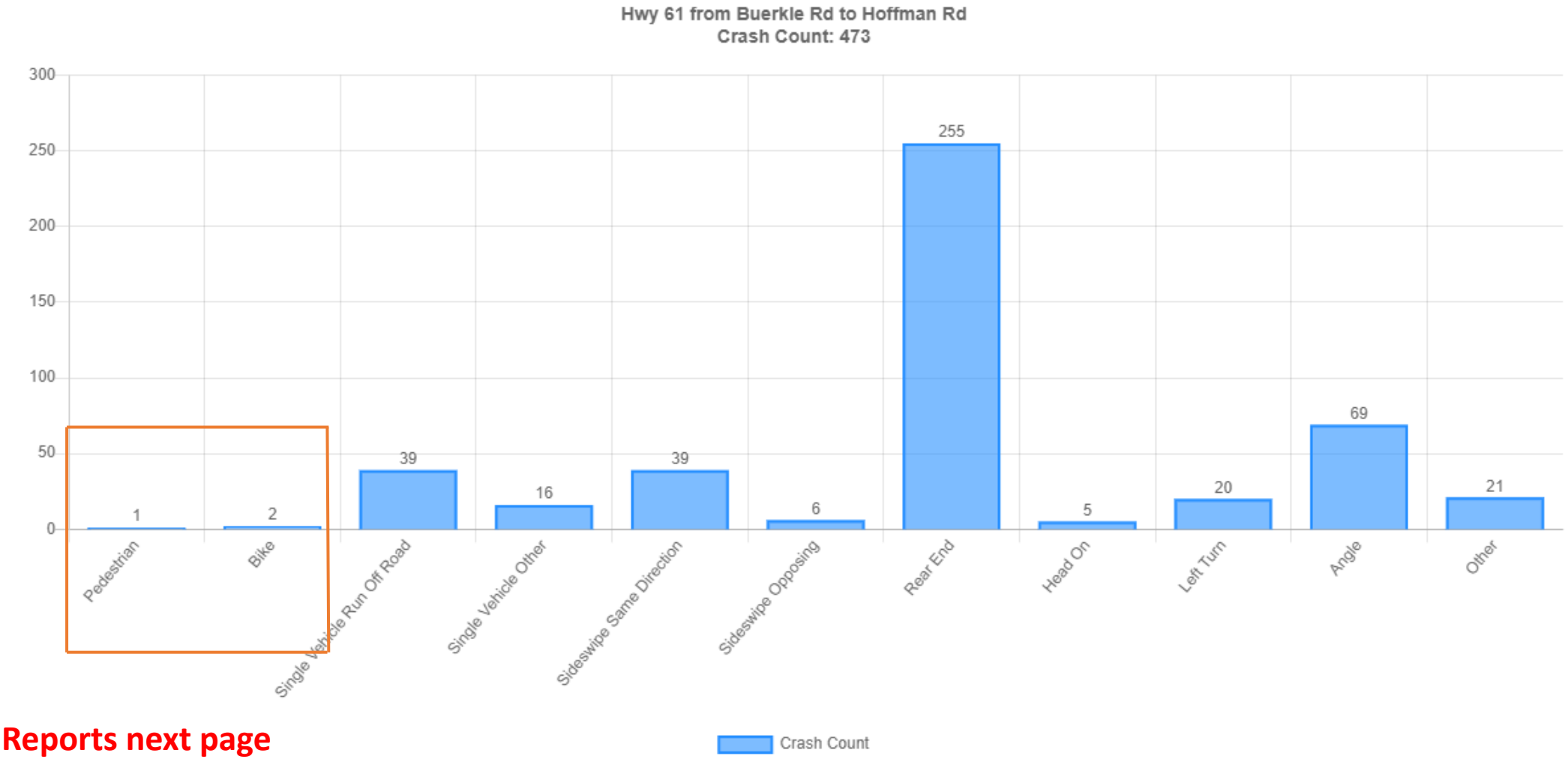
	Unit 1	Unit 2	Unit 3	Unit 4
Unit Type	Motor Vehicle in Transport	Other Personal Conveyance		
Vehicle Type	Sport Utility Vehicle			
Direction of Travel	Westbound			
Manuever	Moving Forward	Other		
Age/Sex	60 M	44 M		
Physical Cond	Apparently Normal	Apparently Normal		
Contributing Factor 1	Operated Motor Vehicle: Care	No Improper Action		

OFFICER SKETCH

NARRATIVE

VEHICLE 1 WAS WESTBOUND ON COUNTY ROAD F WHEN THE DRIVER CLAIMED HE PASSED OUT AT THE WHEEL AFTER A LONG DAYS WORK ON THE ROOF OF HIS HOUSE. DRIVER CLAIMED HE HAD 2 BEERS THROUGHOUT THE DAY. VEHICLE 1 PBT .06 BAC. VEHICLE 1 LEFT THE ROADWAY AND DROVE INTO THE LAWN ON THE NORTH SIDE OF COUNTY ROAD F. VEHICLE 2 WAS MOWING THE LAWN OF HIS BUSINESS WITH A PUSH MOWER. VEHICLE 2 SAW DRIVER 1 LEAVE THE ROADWAY. VEHICLE 2 MOVED OUT OF THE WAY TO AVOID GETTING HIT. VEHICLE 1 RAN OVER THE LAWN MOWER. NO INJURIES OR CITATIONS, 1 TOW.

Highway 61 from Buerkle Rd to Hoffman Rd



Reports next page

Highway 61 from Buerkle Rd to Hoffman Rd Crash Details

Crash Detail Report - Short Form

Hwy 61 from Buerkle to Hoffman

Report Version 1.0
February 2020

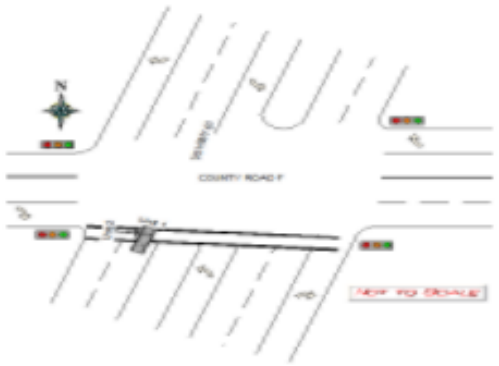
INCIDENT ID	ROUTE SYS	ROUTE NUM	MEASURE	ROUTE NAME	ROUTE ID	COUNTY	CITY
10896119	02-USTH	0061	145.123	HIGHWAY 61	0200000000000061-I	62-Ramsey	White Bear Lake

INTERSECT WITH	# VEH	# KILL	DATE	TIME	DAY	LAT	LONG	UTM X	UTM Y	WORK ZONE TYPE
	1	0	08/17/13	13:35	Sat	45.064771	-93.024663	498059.0	4990145.1	NOT APPLICABLE

BASIC TYPE	CRASH SEVERITY	FIRST HARMFUL	LIGHT CONDITION	WEATHER PRIMARY
Bike	C - Possible Injury	Pedalcyclist (Bicyclist)	Daylight	Clear

	Unit 1	Unit 2	Unit 3	Unit 4
Unit Type	Motor Vehicle in Transport	Bicycle		
Vehicle Type	Passenger Car	BICYCLIST		
Direction of Travel	Southbound	Eastbound		
Manuever	Moving Forward			
Age/Sex	63 M	18 M		
Physical Cond	Apparently Normal	Apparently Normal		
Contributing Factor 1	No Clear Contributing Action			

OFFICER SKETCH



NARRATIVE

VEH #1 S/B US HWY 61 IN LEFT TRAFFIC LANE. LIGHT WAS GREEN FOR NORTH AND SOUTHBOUND TRAFFIC. BICYCLIST (UNIT 2) CROSSED IN CROSSWALK AGAINST RED LIGHT. BICYCLIST RAN INTO RIGHT REAR DOOR OF VEH #1. BICYCLIST SUSTAINED MINOR INJURIES TO HIS ELBOW. CITATION ISSUED TO BICYCLIST FOR FAIL TO STOP AT RED LIGHT.

Highway 61 from Buerkle Rd to Hoffman Rd Crash Details

Crash Detail Report - Short Form

Hwy 61 from Buerkle to Hoffman

Report Version 1.0
February 2020

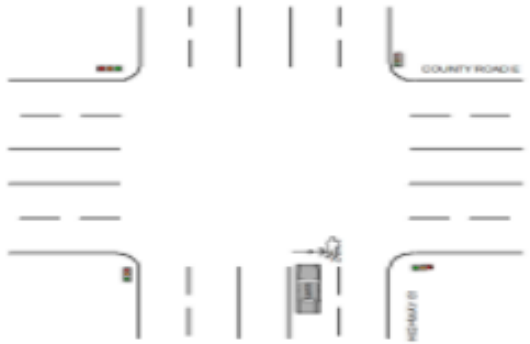
INCIDENT ID	ROUTE SYS	ROUTE NUM	MEASURE	ROUTE NAME	ROUTE ID	COUNTY	CITY
11058469	02-USTH	0061	143.954	HIGHWAY 61	0200000000000061-I	62-Ramsey	Vadnais Heights

INTERSECT WITH	# VEH	# KILL	DATE	TIME	DAY	LAT	LONG	UTM X	UTM Y	WORK ZONE TYPE
	1	0	06/08/15	22:34	Mon	45.050303	-93.035889	497174.4	4988538.2	NOT APPLICABLE

BASIC TYPE	CRASH SEVERITY	FIRST HARMFUL	LIGHT CONDITION	WEATHER PRIMARY
Bike	B - Minor Injury	Pedalcyclist (Bicyclist)	Dark (Str Lights On)	Clear

	Unit 1	Unit 2	Unit 3	Unit 4
Unit Type	Motor Vehicle in Transport	Bicycle		
Vehicle Type	Passenger Car	BICYCLIST		
Direction of Travel	Northbound			
Manuever	Moving Forward	PED XNG AGNT SIG		
Age/Sex	56 F	13 M		
Physical Cond	Apparently Normal	NOT APPLICABLE		
Contributing Factor 1	No Clear Contributing Action	Failure to Yield Right-of-Way		

OFFICER SKETCH



NARRATIVE

UNIT 1 WAS STOPPED AT RED LIGHT NORTHBOUND ON HWY 61/CO RD E. WHEN LIGHT TURNED GREEN UNIT 1 PROCEEDED FORWARD AND DID NOT SEE A BIKE RIDER CROSSING IN FRONT OF HER AGAINST THE LIGHT. SHE ESTIMATES HER SPEED WAS APPROXIMATELY 5 MPH. UNIT 2 STATED THAT HE INTENDED TO CROSS WESTBOUND ON COUNTY RD E ACCROSS HWY 61. HE SAW THAT WESTBOUND TRAFFIC ON COUNTY RD E HAD A GREEN ARROW AND STARTED CROSSING. HE KNEW THAT THE CROSSWALK TRAFFIC HAD A RED, BUT WANTED TO MAKE IT TO THE CENTER ISLAND. HE GOT STRUCK AND SUSTAINED CUTS TO LEGS AND ELBOWS. NONE APPEARED TO REQUIRE STITCHES. UNIT 1 HAD VALID INSURANCE AND NO DAMAGE. UNIT 2 EVALUATED BY MEDICS AND TRANSPORTED AS PRECAUTION.

Highway 61 from Buerkle Rd to Hoffman Rd Crash Details

Crash Detail Report - Short Form

Hwy 61 from Buerkle to Hoffman

Report Version 1.0
February 2020

INCIDENT ID	ROUTE SYS	ROUTE NUM	MEASURE	ROUTE NAME	ROUTE ID	COUNTY	CITY
00938743	02-USTH	0061	143.877	USTH 61	0200000000000061-D	62-Ramsey	Vadnais Heights

INTERSECT WITH	# VEH	# KILL	DATE	TIME	DAY	LAT	LONG	UTM X	UTM Y	WORK ZONE TYPE
	1	0	09/03/21	05:54	Fri	45.048393	-93.036948	497091.0	4988326.1	NOT APPLICABLE

BASIC TYPE	CRASH SEVERITY	FIRST HARMFUL	LIGHT CONDITION	WEATHER PRIMARY
Pedestrian	C - Possible Injury	Pedalcyclist (Bicyclist)	Dark (Str Lights On)	Cloudy

	Unit 1	Unit 2	Unit 3	Unit 4
Unit Type	Motor Vehicle in Transport	Pedestrian		
Vehicle Type	Sport Utility Vehicle			
Direction of Travel	Southbound			
Manuever	Turning Left	Walk/Cycle Across Traffic (X-		
Age/Sex	51 M	25 M		
Physical Cond	Apparently Normal	Apparently Normal		
Contributing Factor 1	Failure to Yield Right-of-Way	Not Visible (Dark Clothing, N		

OFFICER SKETCH

NARRATIVE

DARK, WITH RAIN AND LIMITED VISIBILITY. UNIT 1 MAKING LEFT HAND TURN ONTO SOUTHBOUND HWY61 FROM CR E. PEDESTRIAN CROSSING HWY 61 ON SOUTH SIDE OF CR E IN THE CROSSWALK ON A BICYCLE. UNIT 1 HAD GREEN LIGHT FOR LEFT HAND TURN, BUT PEDESTRIAN ALSO HAD CROSSWALK LIGHT ADVISING THEM TO CROSS. UNIT 1 FAILED TO YIELD THE RIGHT OF WAY TO PEDESTRIAN AS THEY WERE IN THE LANES OF SOUTHBOUND HWY 61. UNIT 1 HIT THE PEDESTRIAN WITH ITS DRIVERS SIDE FRONT QUARTER PANEL. PEDESTRIAN STATED HE WAS SORE, AND DECLINED MEDICS MULTIPLE TIMES ON SCENE. MINOR ROAD RASH OBSERVED. PEDESTRIAN WAS NOT WEARING A HELMET OR REFLECTIVE GEAR, AND HAD DARK CLOTHING ON. NO UNITS TOWED.

Bicycle and Pedestrian Crashes in Project Area (2013 - 2015)

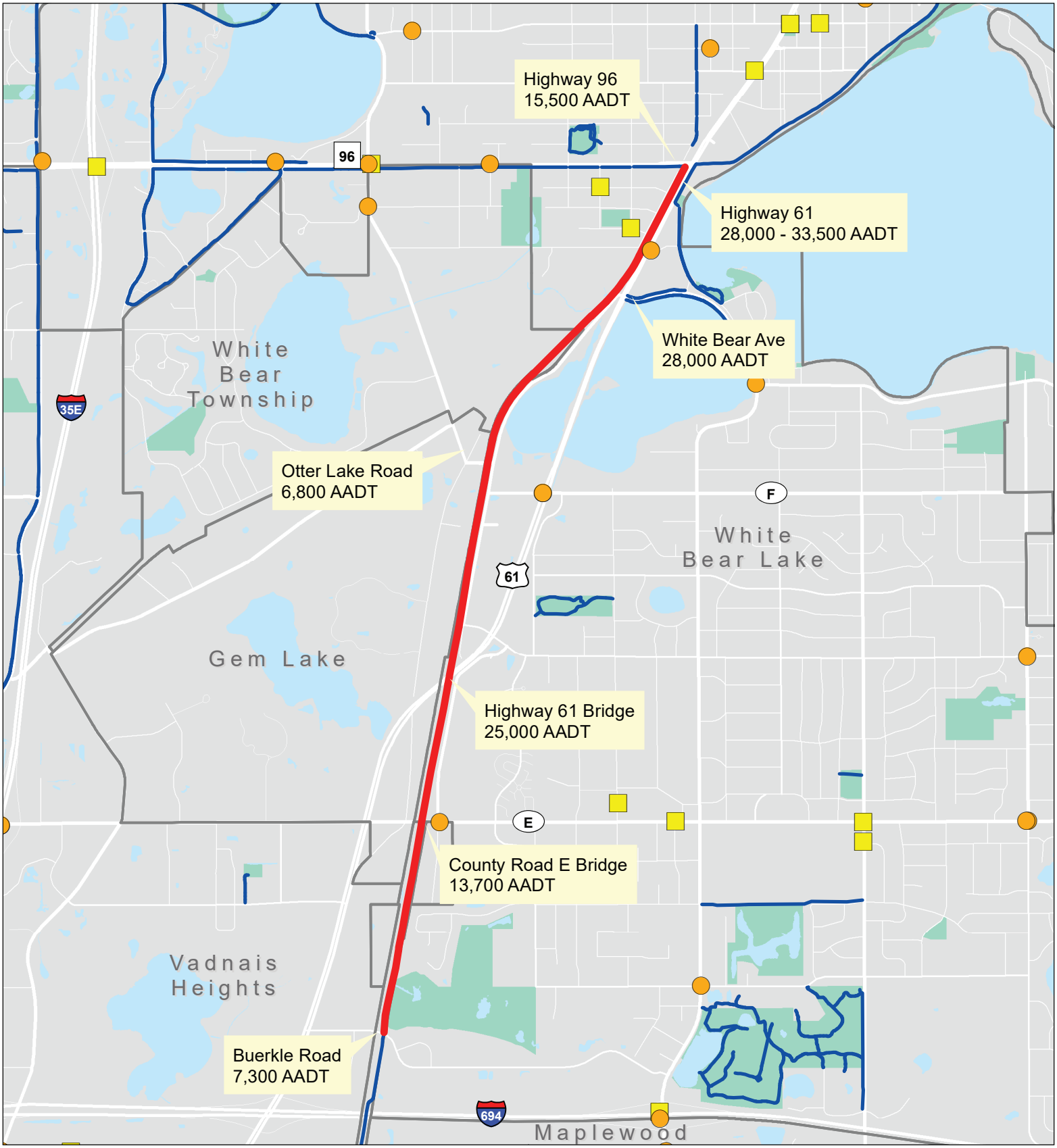
Project
Existing Trail or Bike Lane
Crashes Involving Pedestrians
Crashes Involving Bicyclists

N

0 0.5 1 Miles

Prepared by Active Living Ramsey Communities | ALRC@Co.Ramsey.MN.US
Bruce Vento Trail Extension Bike Ped Crashes 2 7/13/2018

Bicycle and Pedestrian Crashes in Project Area (2010 - 2014)



Project
Existing Trail or Bike Lane
Crashes Involving Pedestrians
Crashes Involving Bicyclists

N

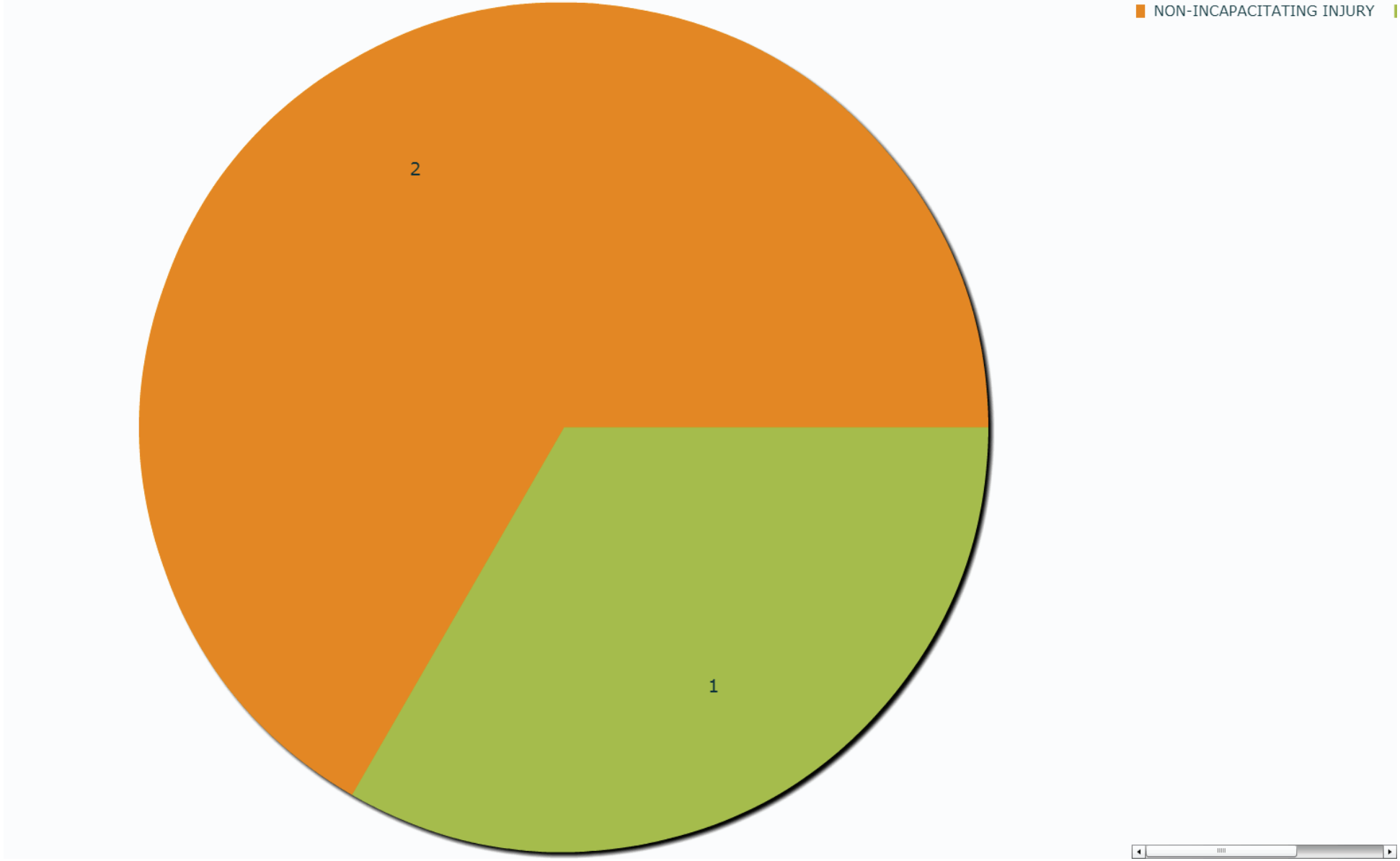
0 0.5 1 Miles

Prepared by Active Living Ramsey Communities | ALRC@Co.Ramsey.MN.US
Bruce Vento Trail Extension Bike Ped Crashes 7/13/2018

100% ▼

Vento Trail Corridor- 2013, 2014, 2015 Bicycle Crash Severity

Layout Version 1.0 May 2010

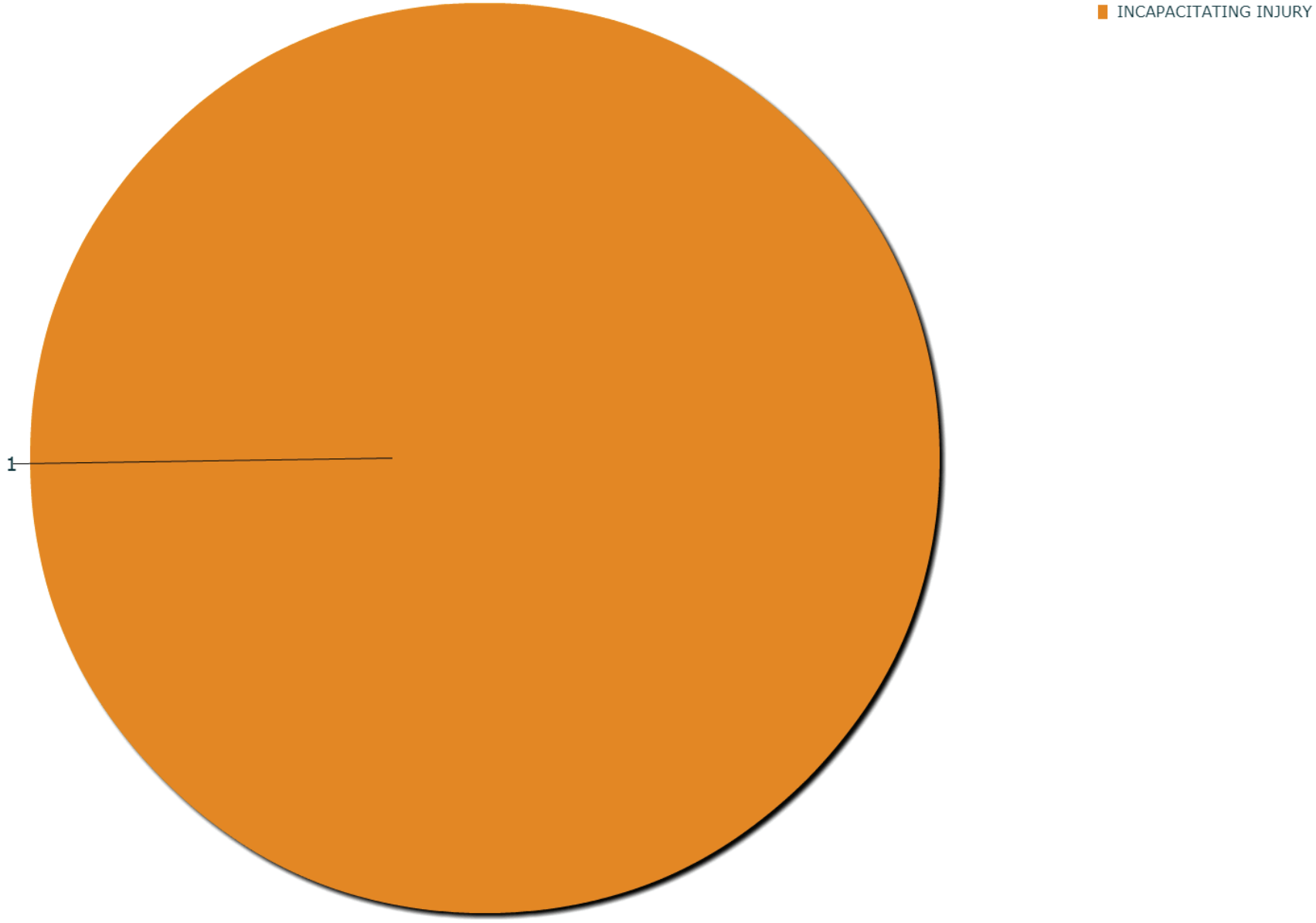


Notes: CRASH COUNT: 3 - WORK AREA: COUNTY_CODE('62') - FILTER: CRASH_YEAR('2013','2014','2015'), CRASH_TYPE_CODE('06') - SPATIAL FILTER APPLIED

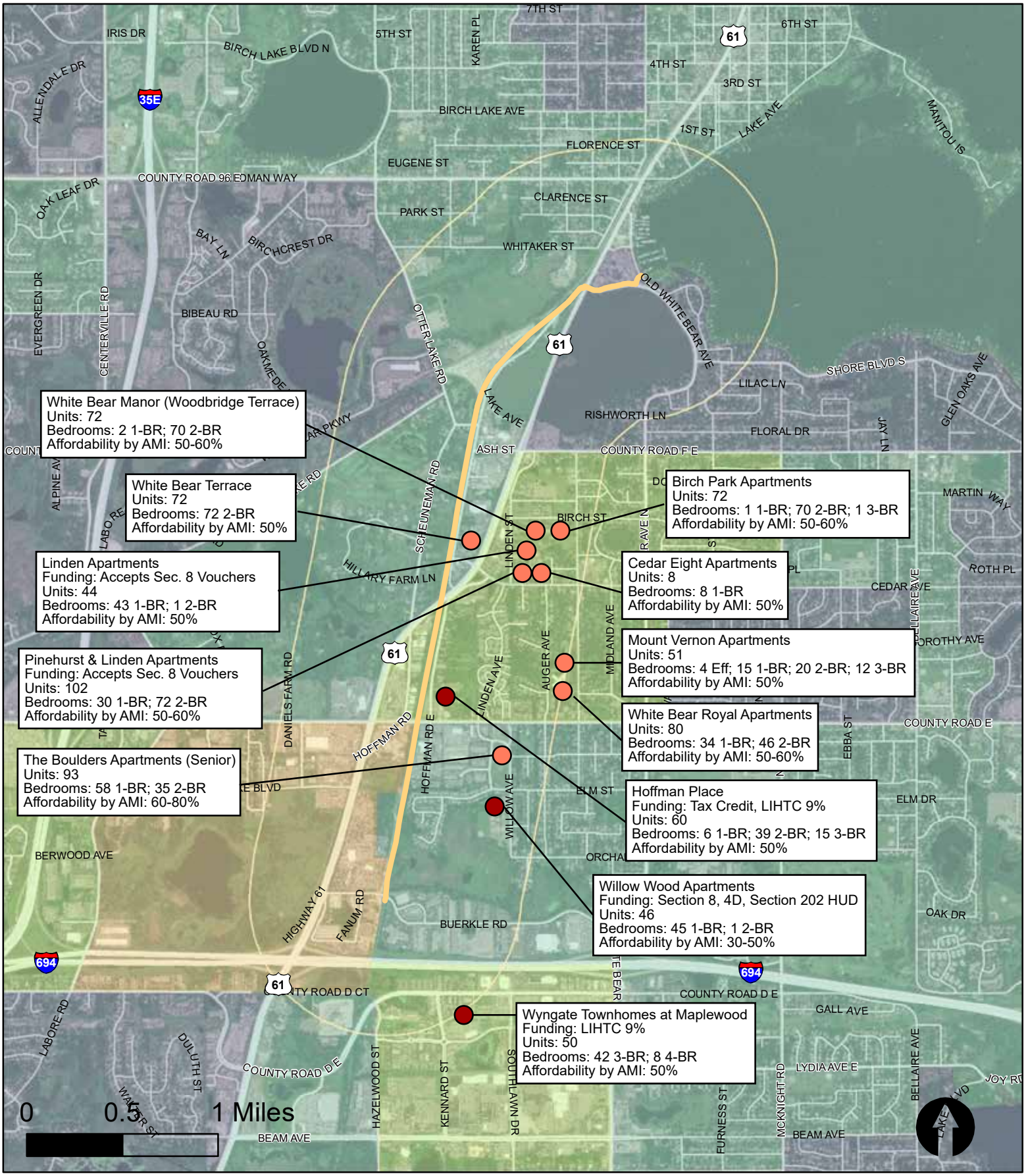
100% ▼

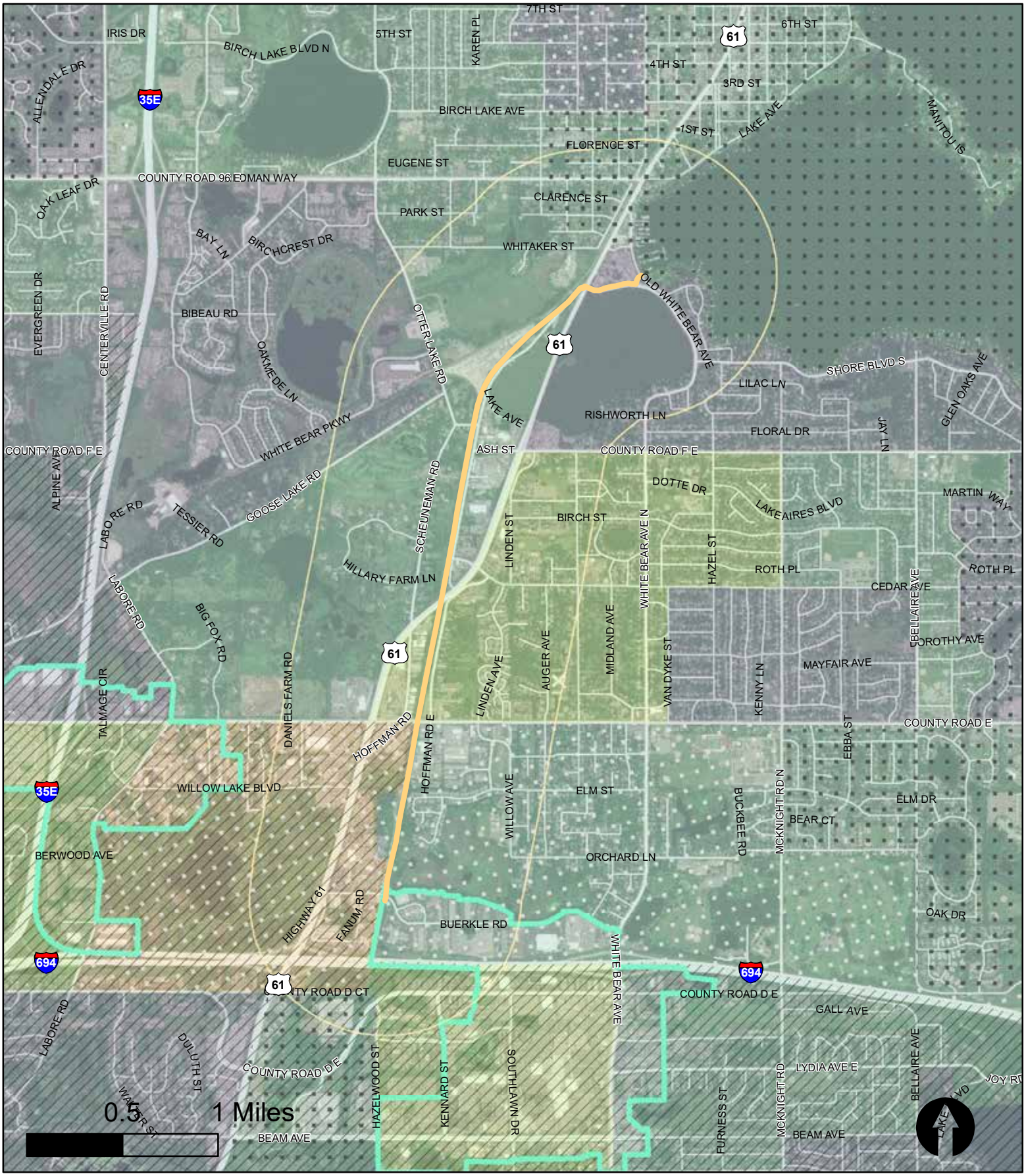
Vento Trail Corridor Pedestrian Crash Severity 2013, 2014, 2015

Layout Version 1.0 May 2010



Notes: CRASH COUNT: 1 - WORK AREA: COUNTY_CODE('62') - FILTER: CRASH_YEAR('2013','2014','2015'), CRASH_TYPE_CODE('07') - SPATIAL FILTER APPLIED


White Bear Manor (Woodbridge Terrace)
Units: 72
Bedrooms: 2 1-BR; 70 2-BR
Affordability by AMI: 50-60%
White Bear Terrace
Units: 72
Bedrooms: 72 2-BR
Affordability by AMI: 50%
Linden Apartments
Funding: Accepts Sec. 8 Vouchers
Units: 44
Bedrooms: 43 1-BR; 1 2-BR
Affordability by AMI: 50%
Pinehurst & Linden Apartments
Funding: Accepts Sec. 8 Vouchers
Units: 102
Bedrooms: 30 1-BR; 72 2-BR
Affordability by AMI: 50-60%
The Boulders Apartments (Senior)
Units: 93
Bedrooms: 58 1-BR; 35 2-BR
Affordability by AMI: 60-80%
Birch Park Apartments
Units: 72
Bedrooms: 1 1-BR; 70 2-BR; 1 3-BR
Affordability by AMI: 50-60%
Cedar Eight Apartments
Units: 8
Bedrooms: 8 1-BR
Affordability by AMI: 50%
Mount Vernon Apartments
Units: 51
Bedrooms: 4 Eff; 15 1-BR; 20 2-BR; 12 3-BR
Affordability by AMI: 50%
White Bear Royal Apartments
Units: 80
Bedrooms: 34 1-BR; 46 2-BR
Affordability by AMI: 50-60%
Hoffman Place
Funding: Tax Credit, LIHTC 9%
Units: 60
Bedrooms: 6 1-BR; 39 2-BR; 15 3-BR
Affordability by AMI: 50%
Willow Wood Apartments
Funding: Section 8, 4D, Section 202 HUD
Units: 46
Bedrooms: 45 1-BR; 1 2-BR
Affordability by AMI: 30-50%
Wyngate Townhomes at Maplewood
Funding: LIHTC 9%
Units: 50
Bedrooms: 42 3-BR; 8 4-BR
Affordability by AMI: 50%
0
0.5
1 Miles
Bruce Vento Trail Extension
.5 Mi Radius
% AMI
<30%
30% - 50%
50% - 60%
60% - 80%
>80%
Affordable Housing Developments within .5 Mi*
Subsidized
Unsubsidized/Naturally Occuring
*All developments shown are built and occupied as of May 2020. No planned developments are within the project area.



Bruce Vento Trail Extension

.5 Mi Radius

Job & Activity Centers

% Youth and Elderly Population

>25% Age 18 or Under

>20% Age 65+

%Minority Population

>20% Minority Population

% Area Median Income

<30%

30% - 50%

50% - 60%

60% - 80%

>80%

Lake Links
ASSOCIATION
P.O. Box 704
Willernie MN 55090

March 1, 2022

Scott Yonke
Director of Planning & Development
Ramsey County Parks and Recreation
2015 Van Dyke Street
Maplewood MN 55109

Dear Scott,

Thanks to you and Ramsey County for your commitment to fund and implement Phase One of the Bruce Vento Regional Trail, advancing it from Buerkle Road to the intersection of Hoffman Road / Hwy 61 on the edge of White Bear Lake's downtown.

With this letter full support for this proejct, I am including for reference the regional trail overview map from the 2001 Lake Links Trail Network Master Plan. These regional trails, many in RBTN corridors, were deemed essential by the region decades ago and their completion brings on-line an expansive non-motorized transportation vision interconnecting large segments of Washington and Ramsey Counties.

On the attached master plan map, the Bruce Vento Trail shows up as a bright orange line in the corridor of Hwy 61. It runs the length of the map as it is quite literally the north-south "spine" to the regional network connecting St. Paul to Hugo, and the trails that extend north. A completed Vento will also provide USBR 41 a safe multi-mile facility in its connection of St. Paul to Grand Portage.

As any planner or planning agency knows first-hand, a completed network has exponentially more value and ROI than an unfulfilled network plan. Lake Links has seen first-hand that the longer a bike/ped network remains uncompleted it can progressively lose funding momentum to newer initiatives who better meet evolving funding criteria.

Partially completed multi-segment bike and ped trails like the Bruce Vento Regional Trail have the same effect as partially completed networks; both keep regional policies and State initiatives to increase active lifestyles and bicycle use from being realized.

Each year the lack of a "spine" trail like the Vento causes untold numbers of would-be active users to "recalculate" their route and consider how best to link-up with established trail segments. Often these alternatives are much less safe and less direct. Uncompleted networks and multi-segment trails, then, have a direct, highly negative influence on people's activity level and the use of a bicycle for

transportation. I can say unequivocally from my interactions as a bicycle safety instructor that a dead-end Vento trail has kept a lot of bikes in the garage from St. Paul to the Greater White Bear Lake Area.

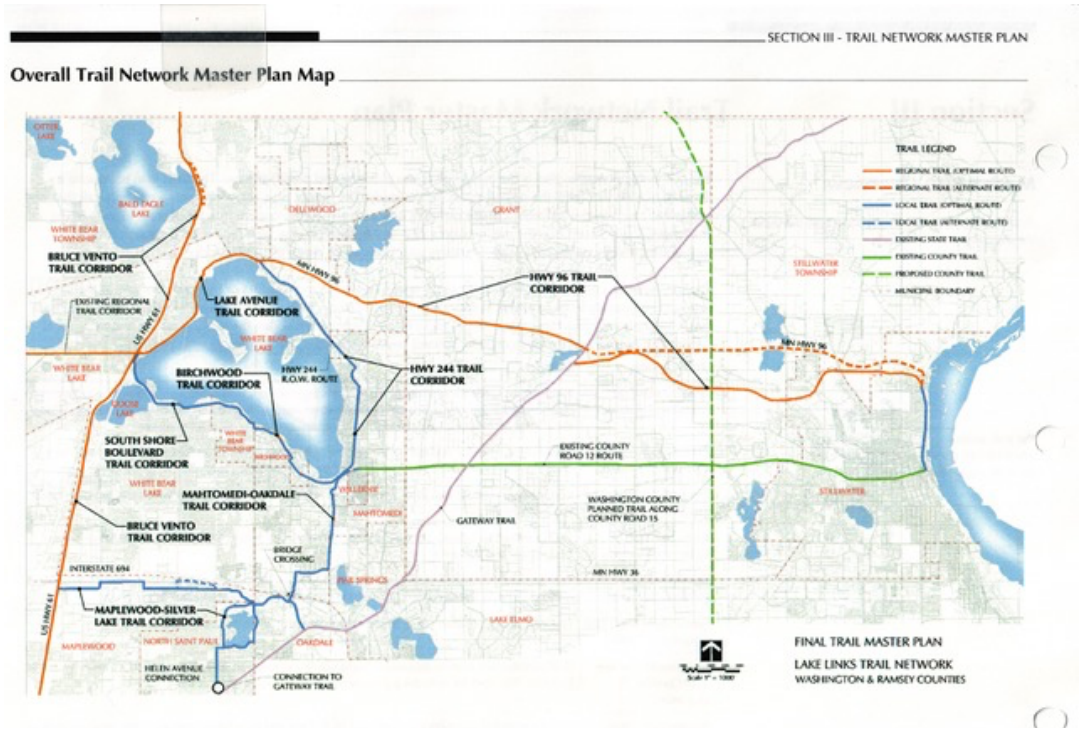
Completing this next segment of the Bruce Vento Trail promises to accelerate diversity by opening up a two-wheel powered cultural exchange of bicyclists from St. Paul to White Bear Lake.

Last summer, Lake Links welcomed Hispanic bicycle club members from the Cathedral Hill area to its annual ride-around-the-lake. They described their uncertainty oin how to get to West Park on the shores of White Bear Lake, where the ride begins, when the Bruce Vento Trail suddenly stopped at Buerkle Road with no signage or clues as to how to get to White Bear Lake. St. Paul and White Bear Lake have wonderful Farmer's Markets. Completion of Phase One offers a way to shop by bicycle at either of these summer-fall markets. Isn't that the regional vision?

Thank you again Scott. All of us at Lake Links Association have our fingers crossed that Phase One gets funded this time around and the region can take a huge step forward in realizing the "network effect. "

Enjoy the day

Michael Brooks
Chair
Lake Links Association



CITY OF GEM LAKE
Heritage Hall
4200 Otter Lake Road | Gem Lake, MN 55110
651-747-2790/92 | 651-747-2795 (fax)
E-mail city@gemlakemn.org

March 15, 2022

Scott Yonke, Director of Planning and Development
Ramsey County Parks and Recreation
2015 Van Dyke Street
Maplewood, MN 55109

Re: **2022 Regional Solicitation—Multi-use Trail and Bicycle Facilities/Phase 1 Bruce Vento Trail Extension Buerkle Road to Hoffman Road**

Dear Mr. Yonke,

This letter is to share our support for Ramsey County to extend Phase 1 Bruce Vento Regional Trail Section from Buerkle Road to the intersection of Hoffman Road/US Highway 61 in the City of White Bear, near the border of Gem Lake.

The Phase 1 Bruce Vento Regional Trail extension project is important and helps create a connected bicycle and pedestrian transportation system throughout Ramsey County.

The City of Gem Lake passed a unanimous resolution of support to the extension project in October of 2020. That resolution is attached to this letter.

Sincerely,

Gretchen Artig-Swomley

Gretchen Artig-Swomley
Mayor, City of Gem Lake

MAR 18 '22 AM 11:22

City of Gem Lake
Ramsey County, Minnesota

RESOLUTION NO. 2020-0013
BRUCE VENTO TRAIL SUPPORT – CITY OF GEM LAKE

WHEREAS, Ramsey County and the City of Saint Paul established a joint master plan for the Bruce Vento Regional Trail in 1989; and

WHEREAS, Ramsey County has submitted a master plan update to update the Bruce Vento Regional Trail master plan section between Larpenteur Avenue and County Road J; and

WHEREAS, the 2020 master plan update incorporates several changes to the regional trail corridor between Larpenteur Avenue and County Road J to address, boundary expansion and acquisition, trail alignment changes, long-term site and infrastructure improvements, recreation improvements, and additional recreational opportunities throughout the Ramsey County section of the Bruce Vento Regional Trail corridor; and

WHEREAS, the City of Gem Lake's City Council have reviewed the plan and supports the master plan update for the Bruce Vento Regional Trail corridor between Larpenteur Avenue and County Road J; and

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Gem Lake, Minnesota, supports the Bruce Vento Regional Trail Master Plan update within the City of Gem Lake.

The foregoing Resolution was offered by Councilor Lindner and was supported by Councilor Kuny and was declared ***adopted*** based upon the following vote:

NAME	ARTIG-SWOMLEY	AMLEE	CACIOPPO	KUNY	LINDNER
Vote	yes	yes	Yes	Yes	yes

Attest

I, Gloria Tessier, the duly qualified Acting City Clerk for the City of Gem Lake, County of Ramsey, State of Minnesota, do hereby certify that the foregoing Resolution is a true and accurate representation of action taken by the City Council of the City of Gem Lake on the date first written.

	October 20, 2020

GLORIA TESSIER, City Clerk

Maplewood

March 23, 2022

Scott Yonke, Director of Planning and Development
Ramsey County Parks and Recreation
2015 Van Dyke Street
Maplewood, MN 55109

RE: 2022 Regional Solicitation – Multiuse Trail and Bicycle Facilities
Phase 1 Bruce Vento Regional Trail Extension – Buerkle Road to Hoffman Road/Highway 61

Dear Mr. Yonke:

This letter is to share our support for Ramsey County to extend the Phase 1 Bruce Vento Regional Trail section from Buerkle Road to the intersection of Hoffman Road/ US Highway 61 in the City of White Bear Lake.

The Bruce Vento Regional Trail corridor is thirteen miles in length and extends from the east side of downtown Saint Paul to the north county line in White Bear Township spanning through the cities of Saint Paul, Maplewood, Vadnais Heights, Gem Lake, White Bear Lake and White Bear Township. The Ramsey County portion of the regional trail between Larpenteur Avenue to County Road J has approximately 6 miles of undeveloped trail north of Buerkle Road.

This project will construct a 2.7-mile extension of the Phase 1 Bruce Vento Regional Trail section and provides an alternate trail alignment in an active railway corridor, completes approximately one-half of a major gap in both the Regional Bike Transportation Network and National US Bike Route 41. Significant access barriers will be eliminated from industrial areas and major vehicular transportation routes, providing a new multi-modal trail and increased access to alternate transportation facilities. Critical connections will be provided to other regional and local trails such as the Highway 96 Regional Trail, Lakes Links Regional Trail, Gateway State Trail, South Shore Boulevard Trail, and future connection to the proposed Hardwood Creek Regional Trail extension in Washington County at County Road J. In addition, the trail will connect racially diverse populations and poverty, with substantial concentrations of youth, elderly, and residents with disabilities.

The Phase 1 Bruce Vento Regional Trail extension project is extremely important and helps create a connected bicycle and pedestrian transportation system throughout Ramsey County.

Sincerely,

Melinda Coleman

Melinda Coleman, City Manager

City of Maplewood
Office of the City Manager
1830 County Road B East
Maplewood, MN 55109

Office 651-249-2055
Fax 651-249-2059
www.maplewoodmn.gov

RAMSEY COUNTY

Board of Commissioners Resolution

B2021-112

15 West Kellogg Blvd.
Saint Paul, MN 55102
651-266-9200

Sponsor: Parks & Recreation

Meeting Date: 5/18/2021

Title: Bruce Vento Regional Trail Master Plan Amendment

File Number: 2021-242

Background and Rationale:
The Parks and Recreation department has prepared a master plan amendment for the Bruce Vento Regional Trail to accurately reflect boundary adjustment, long-term acquisition, natural resource improvements, public participation, equity analysis, trail corridor realignment, long-term regional trail improvements, and coordination with Rush Line Bus Rapid Transit (BRT) improvements. The Bruce Vento Regional Trail corridor extends 13.3 miles from downtown Saint Paul to County Road J at the northern border of Ramsey County. Currently seven miles of regional trail is constructed from Saint Paul to Buerkle Road in Maplewood.

This master plan amendment amends the 1993 Burlington Regional Trail Master Plan for the Ramsey County section of regional trail north of Larpenteur Street to County Road J. It is written to fulfill the Metropolitan Council requirements for regional linking trails as outlined in the 2040 Regional Parks Policy Plan and to meet the expectations set forth in the 2018 Ramsey County Parks and Recreation System Plan.

The Parks and Recreation department worked in coordination with Metropolitan Council staff throughout the master plan amendment development process. If approved by the Ramsey County Board of Commissioners, the master plan amendment will be forwarded to the Metropolitan Council for review and approval. Once the master plan amendment is approved by the Metropolitan Council, costs associated with all improvements identified in the master plan amendment will be eligible for reimbursement through grants administered by the Metropolitan Council for Regional Parks and Trails.

For more information on the Bruce Vento Trail Master Plan, please visit: <https://www.ramseycounty.us/residents/parks-recreation/parks-planning-projects/bruce-vento-regional-trail>.

Recommendation:
The Ramsey County Board of Commissioners resolved to:

1. Approve the Bruce Vento Regional Trail Master Plan Amendment dated April 23, 2021.
2. Authorize submission of the Bruce Vento Regional Trail Master Plan Amendment to the Metropolitan Council.

A motion to approve was made by Commissioner Reinhardt, seconded by Commissioner McDonough.
Motion passed.
Aye: - 7: Carter, Frethem, MatasCastillo, McDonough, McGuire, Ortega, and Reinhardt

By: _____

Abby Goldsmith, Interim Chief Clerk - County Board

May 14, 2020

Elaine Koutsoukos
TAB Coordinator
Transportation Advisory Board
390 North Roberts St
St. Paul, MN 55101

RE: 2020 Regional Solicitation for Multi-Use Trail and Bicycle Facilities - Bruce Vento Regional Trail

Dear Ms. Koutsoukos:
Ramsey County is excited about the opportunity to submit the 2020 Regional Solicitation Application for the extension of the Bruce Vento Regional Trail in the Multi-Use Trails and Bicycle Facilities Category. Ramsey County is committed to providing the local match, and operation/maintenance of the Bruce Vento Regional Trail for this trail project. Local match funds are anticipated to be provided by Ramsey County to start construction in 2024.

This trail project will provide a 2.7-mile extension to the Bruce Vento Regional Trail from Buerkle Road to the intersection of Hoffman Road/U.S. Highway 61/White Bear Avenue in White Bear Lake. This trail project provides an alternate trail alignment in an active railway corridor, complete approximately one-half of a major gap in both the Regional Bike Transportation Network and National US Bike Route 41, and extends through the cities White Bear Lake, White Bear Township, and Vadnais Heights. This project is the first of two steps to provide a multiuse trail facility for pedestrians and bicycles that currently does not exist today, and will also set the stage for future connections north of Highway 96 to County Road J. In addition, the project will provide critical bicycle and pedestrian connection to the proposed Rush Line Bus Rapid Transit (BRT) through the project corridor.

The trail project provides benefits for low-income populations, people of color, people with disabilities and the elderly by providing a safe route to and from shopping, schools, jobs, services, and Rush Line BRT stations. The trail alignment traverses two areas of population with above average race and poverty constituencies in White Bear Lake. The trail will also provide critical connections to other regional and local trails such as the Highway 96 Regional Trail, Lakes Links Regional Trail, Gateway Regional Trail, planned South Shore Trail, and connect populations south of the trail project for the southern St. Paul segment of the existing Bruce Vento Trail which extends through highly urban and concentrated poverty areas making it a regionally important connection that will directly benefit diverse populations more distant than those directly adjacent to the corridor area.

Enclosed are the required materials for the 2020 Regional Solicitation Application. If you have any questions or require additional information, please do not hesitate to call me at 651-266-0370 or email to scott.yonke@co.ramsey.mn.us.

Scott Yonke, PLA | Director of Planning and Development
Ramsey County Parks and Recreation Department
2015 Van Dyke Street
Maplewood, MN 55109-3796
651-363-3786, www.co.ramsey.mn.us

BRUCE VENTO TRAIL

Kimley»Horn | RAMSEY COUNTY | 1 OF 1

Project Summary

Project Name: Phase 1 Bruce Vento Regional Trail Extension – Buerkle Road to Hoffman Road/ Highway 61

Applicant: Ramsey County

Total Project Cost: $7,000,000

Requested 2022 Regional Solicitation Amount: $4,000,000

Project Description:

The Bruce Vento Regional Trail corridor is thirteen miles in length and extends from the east side of downtown Saint Paul to the north county line in White Bear Township. The southern seven-mile segment of the regional trail was completed in 2005 from downtown Saint Paul to Buerkle Road in White Bear Lake on former Burlington Northern Santa Fe (BNSF) railway. The remaining six miles of trail is still undeveloped due to active rail use.

This project will construct a 2.7-mile extension of the Bruce Vento Regional Trail between Buerkle Road and the intersection of Hoffman Road/ Highway 61 in White Bear Lake. This project provides an alternate trail alignment in an active railway corridor, completes approximately one-half of a major gap in both the Regional Bike Transportation Network and National US Bike Route 41, and extends through the cities Gem Lake, White Bear Lake, White Bear Township and Vadnais Heights.

Significant access barriers will be eliminated from industrial areas and major vehicular transportation routes, providing a new multi-modal trail and increased access to multi-modal transportation facilities between Buerkle Road and Highway 96.

The trail will provide connections to other regional and local trails such as the Highway 96 Regional Trail, Lakes Links Regional Trail, Gateway State Trail, South Shore Boulevard Trail, and future connection to the proposed Hardwood Creek Regional Trail extension in Washington County at County Road J. In addition, the trail will connect populations near the southern Saint Paul segment of the existing Bruce Vento Trail which extends through highly urban and concentrated areas of poverty making it a regionally important connection that will directly benefit diverse populations.

Project Benefits:

- Completes approximately three miles of a six-mile gap in the regional and nation trail system.
- Eliminates several barriers and provides north-south multi-use trail and pedestrian facilities in an area that does not have facilities.
- Connects two areas - both with racially diverse populations and poverty, with substantial concentrations of youth, elderly, and residents with disabilities - for increased access to multi-modal transportation facilities.
- Provides connections to other local and regional trail systems.
- Provides connections to the Purple Line BRT.
- Reduces the risk of crashes and conflicts between ped/bikes and vehicles.
- Increased access to multi-modal transportation facilities, schools, places of work, shopping, and local/regional park and trail facilities.

Bruce Vento Regional Trail Extension Area - Buerkle Road

Alex Fiorini, P.E. (ND)
Manager Public Projects

BNSF Railway Company
80 44th Ave. NE
Minneapolis MN 55421
763-782-3476
alexander.fiorini@bnsf.com

February 28, 2022

Mr. Scott Yonke
Director of Planning and Development
Ramsey County Parks and Recreation Department
2015 Van Dyke Street
Maplewood, MN 55109

Dear Mr. Yonke:

This letter is intended to acknowledge the planning discussions between BNSF, Minnesota Commercial Railway and Ramsey County related to the County's proposed extension of the Bruce Vento Trail north from Buerkle Road to US61 a total of approximately 2.7 miles. Approximately 0.6 miles of the trail is proposed to utilize BNSF right of way including the eastern portals of bridge underpasses at County Road E and US Highway 61.

The County has been working productively with BNSF to produce an acceptable design and we will continue to participate in that effort. It appears that remaining design problems are likely to have feasible solutions that will satisfy both parties.

BNSF will not make any commitment to allowing this use of its right-of-way until final designs have been approved and BNSF and the County have executed agreements covering the terms and conditions of use. However, at the moment BNSF believes that the project can move forward with a reasonable likelihood of a successful agreement.

Please contact me with any questions.

Sincerely,

Alex Fiorini
Manager Public Projects

Regional Trails – Standard Maintenance Level of Service

Ramsey County Parks and Recreation strives to provide the highest quality park and recreation amenities. Below is a summary of standard maintenance level of service operations for regional trails.

Standard Regional Trail Maintenance Activities: (Daily or Weekly Maintenance)

Spring maintenance

- *Damaged Areas* – After frost thaw, access trail corridor for damaged pavement and adjacent turf areas along trail. Complete repairs as needed.
- *General Cleanup* - Remove any downed trees or branches. Blow the trails off.

Summer – Fall Maintenance

- *Mowing* – Weekly or as needed if rain lessons during the mowing season.
- *Tree and Brush Trimming* – As needed, cut back vegetation overgrowth adjacent to trails. If further action is needed beyond general trimming, determine if removal is required. All vegetation either removed or cut back will be disposed of offsite.
- Trash / recycling – Conduct trash and recycling by emptying of receptacles weekly or twice a week depending on use
- Site Amenities – Access site amenities such as benches, wayfinding signs, trail crossing infrastructure, fencing, etc. for damage, graffiti, or general repair. Repair or replace site amenities as needed. Remove any graffiti as needed.

Winter Maintenance (Snow Removal) -

- *Snow removal* – Access regional trails weekly for snow buildup. Plow regional trails when snowfall is two inches or greater.
- *Salting* – Access regional trails weekly for ice buildup on trails. Regional trails are typically not salted, but limited salting may be required for freezing rain conditions or ice buildup.

Standard Pavement Schedule for Regional Trails:

Below is a summary of standard pavement maintenance schedule for regional trails. Pavement maintenance conditions are identified in a Park and Trails Bituminous Management Report and is updated every 4-5 years.

Regional Trailhead Parking Lots: Trailhead parking lots are set up on 5-year increments for pavement maintenance. This would start out from new construction and set every 5-years following.

- Parking lot development or redevelopment
- Year 5 – Crack seal joints
- Year 10 – Crack seal joints and chip seal pavement
- Year 15 – Crack seal joints and various chip seal if needed
- Year 20 – Mill/overlay with selective concrete curb replacement, etc.
- Year 25 – Crack seal joints
- Year 30 – Crack seal joints and chip seal pavement
- Year 35 - Crack seal joints and various chip seal if needed
- Year 40 - Assess for either mill/overlay or determine if reconstruct is needed

Regional Trails: Regional trails are set up on 6-year increments for pavement maintenance. This would start out from new construction and set every 6-years following.

- Trail development or redevelopment
- Year 6 – Crack seal joints
- Year 12 – Crack seal joints and seal coat pavement
- Year 18 – Crack seal joints and various seal coat if needed, determine if trail sections need to have replacement where cracks are bad.
- Year 24 – Trail reconstruction

City of White Bear Lake

4701 Highway 61 • White Bear Lake, Minnesota 55110
Phone (651) 429-8526 • Fax (651) 429-8500
www.whitebearlake.org

March 23, 2022

Scott Yonke, Director of Planning and Development
Ramsey County Parks and Recreation
2015 Van Dyke Street
Maplewood, MN 55109

RE: 2022 Regional Solicitation – Multiuse Trail and Bicycle Facilities
Phase 1 Bruce Vento Regional Trail Extension – Buerkle Road to Hoffman Road/Highway 61

Dear Mr. Yonke:

This letter is to share the City of White Bear Lake's support for Ramsey County to extend the Phase 1 Bruce Vento Regional Trail section from Buerkle Road to the intersection of Hoffman Road/ US Highway 61 in the City of White Bear Lake.

The Bruce Vento Regional Trail corridor is thirteen miles in length and extends from the east side of downtown Saint Paul to the north county line in White Bear Township spanning through the cities of Saint Paul, Maplewood, Vadnais Heights, Gem Lake, White Bear Lake and White Bear Township. The Ramsey County portion of the regional trail between Larpenteur Avenue to County Road J has approximately 6 miles of undeveloped trail north of Buerkle Road.

This project will construct a 2.7-mile extension of the Phase 1 Bruce Vento Regional Trail section and provides an alternate trail alignment in an active railway corridor, completes approximately one-half of a major gap in both the Regional Bike Transportation Network and National US Bike Route 41. Significant access barriers will be eliminated from industrial areas and major vehicular transportation routes, providing a new multi-modal trail and increased access to alternate transportation facilities. Critical connections will be provided to other regional and local trails such as the Highway 96 Regional Trail, Lakes Links Regional Trail, Gateway State Trail, South Shore Boulevard Trail, and future connection to the proposed Hardwood Creek Regional Trail extension in Washington County at County Road J. In addition, the trail will connect racially diverse populations and poverty, with substantial concentrations of youth, elderly, and residents with disabilities.

The Phase 1 Bruce Vento Regional Trail extension project is extremely important and helps create a connected bicycle and pedestrian transportation system throughout Ramsey County.

Thank you for your consideration. If you have any questions, please contact me at lcrawford@whitebearlake.orr, or call 651-429-8516.

Sincerely,

Lindy Crawford, City Manager
City of White Bear Lake

RESOLUTION NO. 12952

RESOLUTION AUTHORIZING THE CITY MANAGER TO SUBMIT A LETTER OF SUPPORT FOR RAMSEY COUNTY'S 2022 REGIONAL SOLICITATION FUNDING APPLICATION FOR THE BRUCE VENTO REGIONAL TRAIL EXTENSION

WHEREAS, Ramsey County has requested a letter of support for Ramsey County's 2022 Regional Solicitation Funding application for the Bruce Vento Regional Trail Extension; and

WHEREAS, Ramsey County had submitted it preliminary design study in 2018, and submitted another funding application in 2020, but this project was not selected for funding; and

WHEREAS, the proposed trail improvement project will be of tremendous benefit to the community and will help create a connected and safe regional recreation and bicycle and pedestrian transportation system; and

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of White Bear Lake hereby authorizes the City Manager to submit a letter of support to Ramsey County for its 2022 Regional Solicitation Application to extend the Bruce Vento Regional Trail north from its current terminus at Buerkle Road.

The foregoing resolution, offered by Councilmember **Jones** and supported by Councilmember **Edberg**, was declared carried on the following vote:

Ayes:	Edberg, Hughes, Jones, Walsh
Absent:	Engstran
Nays:	None
Passed:	March 22, 2022

Dan Louismet, Mayor

ATTEST:

Kara Coustry, City Clerk

Transit Connections

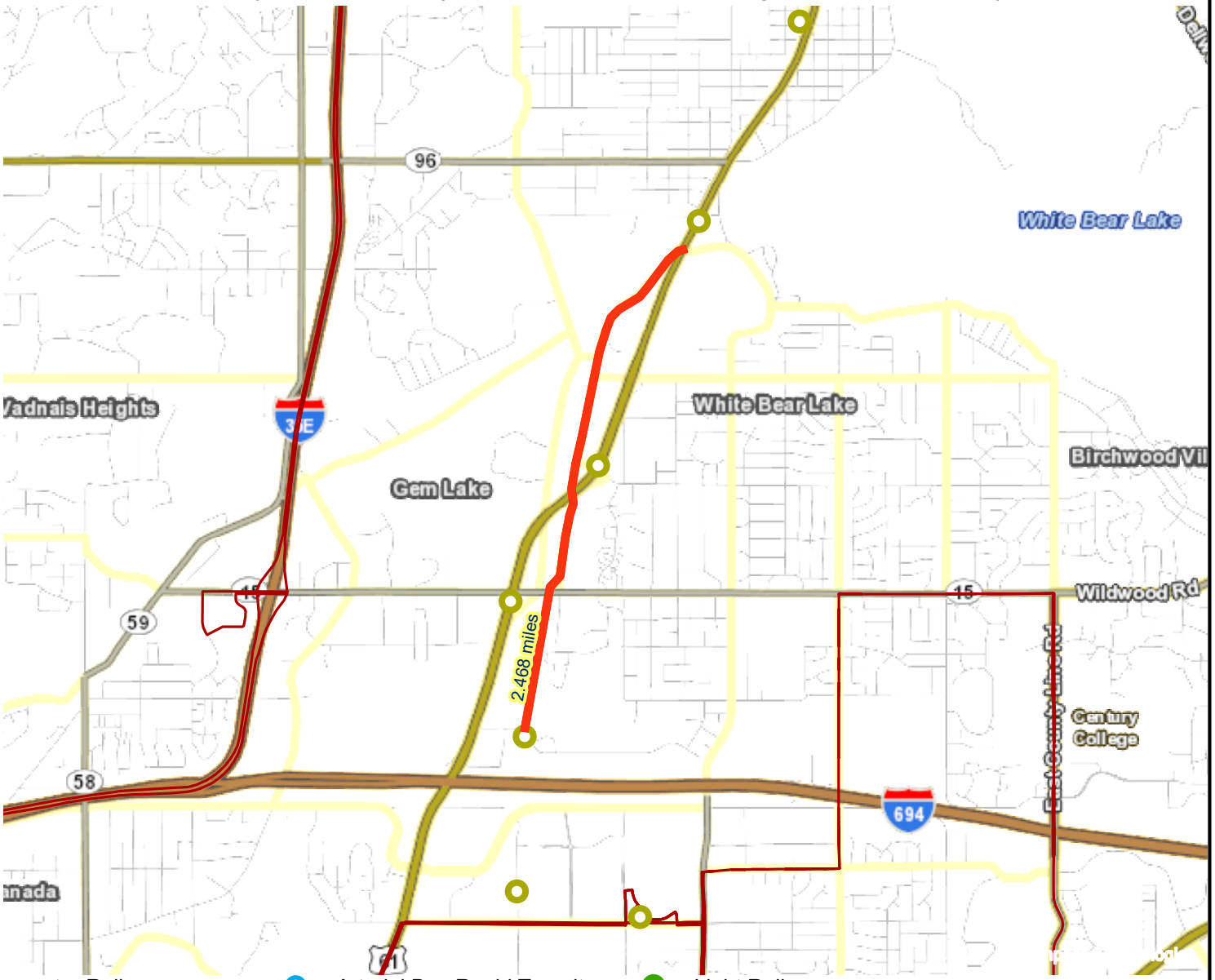
Multiuse Trails and Bicycle Facilities Project: Phase 1 Bruce Vento Regional Trail Extension | Map ID: 16470108563

Results

Transit with a Direct Connection to project:
*Purple Line

**indicates Planned Alignments*

Transit Market areas: 3



Project Points
Project
Project Area
Arterial Bus Rapid Transit
Commuter Rail
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit
Light Rail
Arterial Bus Rapid Transit
Commuter Rail
Dedicated Bus Rapid Transit
Highway Bus Rapid Transit
Light Rail
Transit Routes

0 0.45 0.9 1.8 2.7 3.6 Miles

Created: 3/11/2022
LandscapeRSA3

METROPOLITAN COUNCIL