DNR/DOT PROJECT REVIEW

State of Wisconsin – Department of Natural Resources (DNR) and Department of Transportation (WisDOT)
DTNR0002 6/2018

DNR Internet: http://dnr.wi.gov/	WisDOT Internet: http://wisconsindot.gov/
ANDY BARTA SW REGION 3911 FISH HATCHERY ROAD FITCHBURG, WI 53711	**Wisconsin Department of Transportation** **Division of Transportation Systems Development** 944 Vanderperren Way Green Bay, WI 54304

Inform WisDOT Regional Environmental Coordinator, if more than 45 days is needed.

Design Project ID	Project Highway	Review Submittal Date (m/d/yy)
5630-06-02	STH 78	7/30/2019
Construction Project ID	**Estimated Project Cost (range)**	**Construction Year (yyyy)**
5630-06-72	$9,000,000.00 to $11,000,000.00	2023

Project Name	Project Limits
Sauk City - IH 39	Eagle View Court - Weynand Road
County	**Project on Tribal Land**
Sauk	☐ Yes ☒ No
Contact Name	**Contact (Area Code) Phone Number**
Kelsey Lorenz	920-492-0142
Section/Township/Range	**Estimated Area of Ground Disturbance (acres)**
Sections 2-5, 7-8, 17-19, 24-25, 36, T10, R6-7	44 acres

Type of Review Requested

- ☐ Initial Review
- ☒ Final Concurrence
- ☐ Scope Change
- ☐ Other:

Document Type

- ☐ Environmental Assessment (EA)
- ☐ Environmental Report (ER)
- ☒ Programmatic Categorical Exclusion (PCE)
- ☐ Categorical Exclusion Checklist (CEC)

WisDOT Project Classification

- ☐ Bridge Rehabilitation, FDM 3-5-2
- ☐ Bridge Replacement, FDM 3-5-2
- ☐ Expansion, FDM 3-5-2
- ☒ Pavement Replacement, FDM 3-5-2
- ☐ Preventive Maintenance, FDM 3-1-5
- ☐ SHRM (State Hwy Rehab/Maint), Maintenance Manual 13.08
- ☐ Recondition, FDM 3-5-2
- ☐ Reconstruction, FDM 3-5-2
- ☐ Resurface, FDM 3-5-2
- ☐ Safety (HSIP), PMM 4-1-10
- ☐ Other:

Work Involved

- ☒ Beam Guard Replacement
- ☒ Borrow and/or Waste Site Required
- ☐ Channel Change/Stream Relocation
- ☐ Clearing and Grubbing
- ☐ Culvert Replacement or Extensions
- ☐ Dredging
- ☒ Grading
- ☐ Fill Outside Toe of Slope
- ☐ Intersection Improvement
- ☐ Right of Way Acquisition
- ☐ Shoulder Work
- ☐ Storm Sewer
- ☐ Other:

Storm Water Management (check all that apply)

- ☐ Trans 401 post construction requirements
- ☐ NPDES MS4/Urbanized Area
- ☐ TMDL Implementation Area
- ☒ Transportation Construction General Permit (TCGP)

For more information, please see the back of this form.

Project Description and Reason for Project:
(include project location map with limits and necessary attachments; attach additional sheets if needed)

The reason for this project is the recycled crushed aggregate used during the 2009 reconstruction of STH 78 is retaining and trapping moisture causing extensive heaving during freeze-thaw conditions. The ride quality of this segment is extremely poor and the extensive heaving conditions will continue to reoccur until the base material is removed. The concept of this project is to replace the roadway structure from the existing pavement surface down to the existing subgrade and then an additional 7-9 inches of material will be removed below the subgrade. Beam guard and curb and gutter will be removed and replaced in the same location with the exception of two section of beamguard near Walleye Lane. The sections of beamguard will be extended, but there will be no additional grading behind the beamguard. The existing foreslopes, ditch line, and intersection alignments will be maintained.

See exhibit 2 for project plan set and exhibit 3 for special provisions.

List of Exhibits

1: Project Location Map

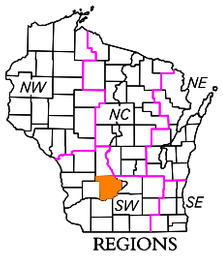
2: Final Plan Set

3: Special Provisions

Exhibit 1

SAUK 56-SW

SAUK 56-SW

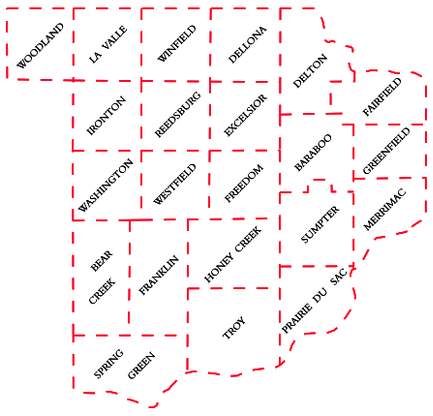


REGIONS

SECTION NUMBERING OF A TOWNSHIP

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

CIVIL TOWNS



LEGEND

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

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

R-2-E R-3-E R-4-E 90° 00' R-5-E R-6-E R-7-E

JUNEAU CO. JUNEAU CO.

Town of Wonewoc Town of Summit Town of Seven Mile Creek Town of Lyndon

89° 45'

VERNON CO.

T-13-N

Town of Greenwood

Town of Newport

Wisconsin Dells

COLUMBIA CO.

Lake Delton

Town of Lewiston

Wisconsin R.

LA VALLE

WOODLAND

WINFIELD

DELLONA

DELTON

FAIRFIELD

La Valle

Reedsburg

Ironton

Cazenovia

IRONTON

REEDSBURG

EXCELSIOR

7 Rock Springs

Lime Ridge

W Baraboo

Baraboo

GREENFIELD

North Freedom

BARABOO

Town of Westford

RICHLAND CO.

R-2-E

90° 15'

T-12-N

43° 30'

Town of Westford

Town of Caledonia

COLUMBIA CO.

T-11-N

Town of Willow

WASHINGTON

Hill Point

Loganville

WESTFIELD

FREEDOM

SUMPTER

MERRIMAC

Merrimac

Bluff View

Devils L.

DEVILS LAKE

Sandusky

Town of Ithaca

T-10-N

Denzer

Leland

HONEY CREEK

FRANKLIN

BEAR CREEK

PRAIRIE DU SAC

Prairie du Sac

Sauk City

Witwen

Plain

Black Hawk

Town of Westport

COLUMBIA CO.

DANE CO.

Town of Roxbury

T-9-N

43° 15'

TROY

Town of Buena Vista

RICHLAND CO.

Town of Mazomanie

89° 45'

SPRING GREEN

Spring Green

Wisconsin River

Town of Arena

IOWA CO.

DANE CO.

T-8-N

90° 00'

Town of Wyoming

IOWA CO.

R-2-E R-3-E R-4-E R-5-E R-6-E R-7-E

MILES OF HIGHWAY
as of Dec. 31, 2016

STATE	219
COUNTY	307
LOCAL ROADS	1293
OTHER ROADS	79
TOTAL FOR COUNTY	1898

Land Area (2010 Census) ..... 831 sq mi
Population (2010 Census) 61976
County Seat ..... Baraboo

5630-06-02 Project Limits

SAUK CO.

DEPARTMENT OF TRANSPORTATION
STATE OFFICE BUILDING
Madison, Wisconsin

SCALE 0 1 2 MILES

Corrected for
JAN. 2018

Base compiled from U.S.G.S. Quadrangles
1:100,000 Series

Exhibit 2

PROJECT ID: **5630-06-72**

WITH:

COUNTY: **SAUK**

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS =

N

DESIGN DESIGNATION

A.A.D.T.	2014	=	5022
A.A.D.T.	2045	=	6310
D.H.V.		=	688
D.D.		=	60/40
T.		=	8.9%
DESIGN SPEED		=	60 MPH
ESALS		=	720,000

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE (300'EB')
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES

- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5630-06-72		

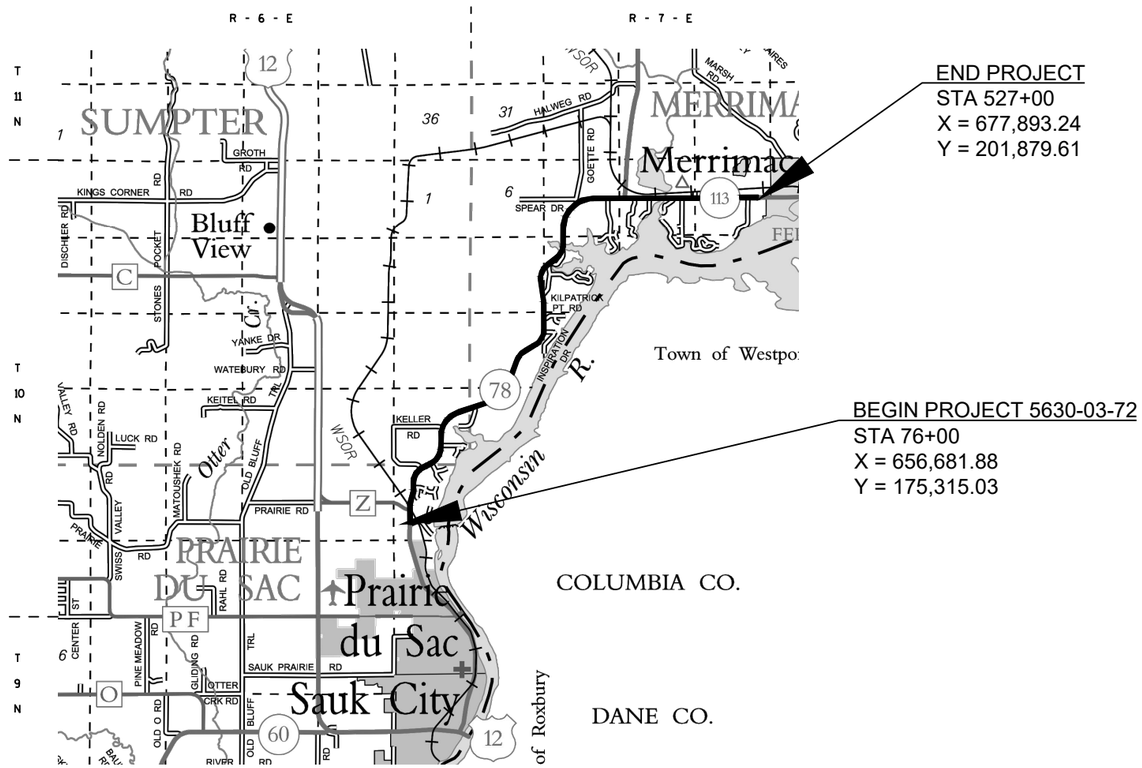
SAUK CITY - IH 39

EAGLE VIEW COURT TO WEYNAND ROAD

STH 78

SAUK COUNTY

STATE PROJECT NUMBER
5630-06-72



LAYOUT

SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE = 8.542 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, SAUK COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCE MAY BE USED AS GROUND DISTANCES.

ELEVATION SHOWN ON THIS PLAN ARE REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, (NAVD 2012).

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WISDOT SW REGION
Designer	K. LORENZ
Project Manager	A. FULCER
Regional Examiner	A. ROMMEL
Regional Supervisor	D. SEGERSTROM

APPROVED FOR THE DEPARTMENT

DATE: _____ _____ (Signature)

PRE_1

E

2

STANDARD ABBREVIATIONS

AEW	APRON END WALL
AGG	AGGREGATE
ASPH	ASPHALTIC
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
BMP	BEST MANAGEMENT PRACTICES
C&G	CURB AND GUTTER
C/L	CENTER OR CONSTRUCTION LINE
CMCP	CULVERT PIPE CORRUGATED METAL
CONC	CONCRETE
CP	CULVERT PIPE
CPRC	CULVERT PIPE REINFORCED CONCRETE
CSD	CONCRETE SURFACE DRAIN
CY	CUBIC YARD
D	DEGREE OF CURVE
Δ	DELTA
DISCH	DISCHARGE
EB	EASTBOUND
FE	FIELD ENTERANCE
FL	FLOW LINE
HE	HIGH EASEMENT
HMA	HOT MIX ASPHALT
INV	INVERT
L	LENGTH OF CURVE
LHF	LEFT HAND FORWARD
LP	LOW POINT
LT	LEFT
M/L	MATCHLINE
MIN	MINIMUM
NB	NORTHBOUND
NC	NORMAL CROWN
NOR	NORMAL
PAVT	PAVEMENT
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PE	PRIVATE ENTERANCE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PLE	PERMANENT LIMITED EASEMENT
PRC	POINT OF REVERSE CURVE
PRW	PROPOSED RIGHT OF WAY
PT	POINT OF TANGENT
R	RADIUS OF CURVE
R/L	REFERENCE LINE
R/W	RIGHT OF WAY
RC	REVERSE CROWN
RCAEW	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE
REQD	REQUIRED
RHF	RIGHT HAND FORWARD
RO	RUN OFF LENGTH
RRSP	RAILROAD SPIKE
RT	RIGHT
SALV	SALVAGE
SB	SOUTHBOUND
SDD	STANDARD DETAIL DRAWING
SE	SUPER ELEVATION
SF	SQUARE FOOT
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
STA	STATION
SY	SQUARE YARD
T	TANGENT LENGTH
TLE	TEMPORARY LIMITED EASEMENT
VCL	VERTICAL CURVE LENGTH
VPC	POINT OF VERTICAL CURVE
VPI	POINT OF VERTICAL INTERSECTION
VPT	POINT OF VERTICAL TANGENT
WB	WESTBOUND

UTILITIES

ATC MANAGEMENT, INC. - ELECTRICITY
801 O'KEEFE ROAD
P.O. BOX 6113
DE PERE, WI 54115-6113
ATTN: MIKE OLSEN
PHONE: 920-338-6582
E-MAIL: MOLSEN@ATCLLC.COM

ALLIANT ENERGY - ELECTRICITY/GAS
4902 NORTH BILTMORE LANE
MADISON, WI 53713
ATTN: MICHAEL BROLIN
PHONE: 608-458-4871
E-MAIL: MICHAELBROLIN@ALLIANTENERGY.COM

BLUFFVIEW SANITARY DISTRICT - SEWER
S8398 US HWY 12
PRAIRIE DU SAC, WI 53578
ATTN: ROBIN MEIER
PHONE: 608-643-4759
E-MAIL: BLUFFSD@MERR.COM

CHARTER COMMUNICATIONS - COMMUNICATION LINE
2701 DANIELS ST.
MADISON, WI 53718
ATTN: BRANDON STORM
PHONE: 608-274-3822
E-MAIL: BRANDON.STORM@CHARTER.COM

FRONTIER COMMUNICATIONS OF WI LLC - COMMUNICATION LINE
107 PLEASANTVIEW DR
PLYMOUTH, WI 53073
ATTN: RUSS RYAN
PHONE: 920-583-3275
E-MAIL: RUSSELL.W.RYAN@FTR.COM

MADISON GAS AND ELECTRIC COMPANY - ELECTRICITY/GAS
P.O. BOX 1231
MADISON, WI 53701-1231
ATTN: JANE ROSSING
PHONE: 608-252-7099
E-MAIL: GROSSING@MGE.COM

MERRIMAC MUNICIPAL WATER UTILITY - WATER
P.O. BOX 26
MERRIMAC, WI 53561-0026

PRAIRIE DU SAC MUN ELECTRIC & WTR - SEWER/WATER/ELECTRICITY
335 GALENA ST
PRAIRIE DU SAC, WI 53578
ATTN: ALAN WILDMAN
PHONE: 608-643-2421
E-MAIL: AWILDMAN@WPPIENERGY.ORG

ROXBURY SANITARY DISTRICT #1 - SEWER
7216 ST DOMINIC RD
SAUK CITY, WI 53583
ATTN: GAIL LAMBERTY
PHONE: 608-643-8017
E-MAIL: GAIL@SHOPSTOP.NET

SAUK COUNTY BUILDING SERVICES - COMMUNICATION LINE
510 BROADWAY
BARABOO, WI 53913
ATTN: IAN CRAMMOND
PHONE: 608-355-4415
E-MAIL: ICRAMMOND@CO.SAUK.WI.US

SPRINT COMMUNICATIONS CO LP - COMMUNICATION LINE
1901 N. ROSELLE RD., SUITE 500
SCHAUMBURG, IL 60195
ATTN: JAMES BURTON
PHONE: 708-955-6659
E-MAIL: JAMES.M.BURTON@SPRINT.COM

TDS METROCOM LLC - COMMUNICATION LINE
SUITE 218A
10 COLLEGE AVE
APPLETON, WI 54911
ATTN: STEVE JAKUBIEC
PHONE: 920-882-4166
E-MAIL: STEVE.JAKUBIEC@TDSTELECOM.COM

SW REGION SURVEY CONTACT PERSON

PATRICK STANKIEWICZ
WISCONSIN DEPARTMENT OF TRANSPORTATION
SOUTHWEST REGION
2101 WRIGHT STREET
MADISON, WI 53704
PHONE: 608-246-7918
E-MAIL: PATRICK.STANKIEWICZ@DOT.WI.GOV

SW REGION DESIGN CONTACT PERSON

GREGORY BRECKA
WISCONSIN DEPARTMENT OF TRANSPORTATION
SOUTHWEST REGION
2101 WRIGHT STREET
MADISON, WI 53704
PHONE: 608-516-6524
E-MAIL: GREGORY.BRECKA@DOT.WI.GOV

ORDER OF SECTION 2 SHEETS

DNR AREA LIAISON

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
ATTN: ANDY BARTA
PHONE: 608-235-2955
E-MAIL: ANDREW.BARTA@WISCONSIN.GOV

GENERAL NOTES

1. THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE.
2. HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112LB/SY/IN.
3. THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, PASSING, OR PARKING LANE.
4. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
5. EXISTING PERMANENT SIGNS ARE TO REMAIN IN PLACE UNLESS SPECIALLY CALLED FOR REMOVAL ON MISCELLANEOUS QUANTITY TABLE.
6. ANY MESH MATERIAL THAT IS FOUND IN THE EXISTING CONCRETE PAVEMENT SHALL BE INCIDENTAL TO THE REMOVAL OF THE PAVEMENT ITEM IN THAT SECTION.
7. CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING, SEEDING AND MULCHING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY HIS OPERATION OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.
8. THE CONTRACTOR IS TO WORK WITH UTMOST CARE AND PROTECT ALL SURVEY MARKERS. REMOVAL OF ANY SURVEY MARKER IS TO BE WITH THE APPROVAL OF THE ENGINEER. DETAILS OF CONSTRUCTION NOT SHOWN ON THE PLAN SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
9. NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.
10. ALL DISTURBED AREAS, NOT OTHERWISE SURFACED, ARE TO BE TOPSOILED, FERTILIZED, SEEDED AND COVERED WITH MULCH OR EROSION MAT, AS SHOWN ON THE PLANS.
11. THE EXACT LOCATIONS OF ALL EROSION CONTROL ITEMS SHALL BE DETERMINED BY THE ENGINEER.
12. THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND ALL UTILITIES IN THE VICINITY OF THE PROJECT TO LOCATE THEIR FACILITIES AT LEAST THREE WORKING DAYS PRIOR TO BEGINNING WORK. ALL DIMENSIONS TO FLANGE LINE OF CURB UNLESS OTHERWISE NOTED IN PLANS.
13. ALL DIMENSIONS TO FLANGE LINE OF CURB UNLESS OTHERWISE NOTED IN PLANS.

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

EMERGENCY CONTACT NUMBERS FOR WISCONSIN POWER AND LIGHT COMPANY

ELECTRIC 24 HOUR EMERGENCY SERVICE: 1-800-862-6261
GAS 24 HOUR EMERGENCY SERVICE: 1-800-862-6263

EMERGENCY CONTACT NUMBERS FOR WISCONSIN PUBLIC SERVICE

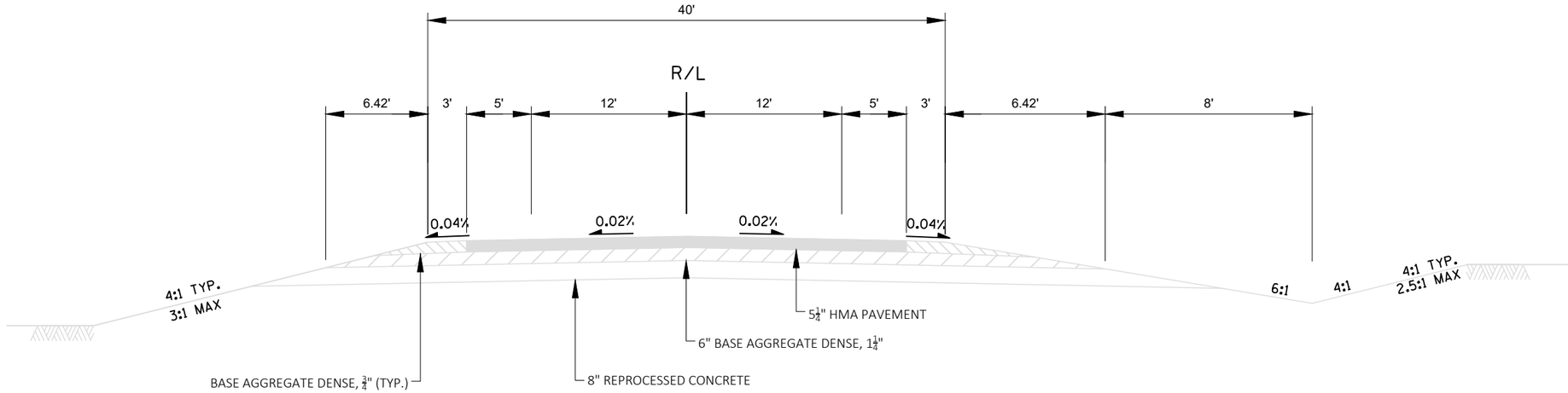
ELECTRIC 24 HOUR EMERGENCY SERVICE: 1-800-450-7240
GAS 24 HOUR EMERGENCY SERVICE: 1-800-450-7280

EMERGENCY CONTACT NUMBERS FOR WE ENERGIES

ELECTRIC 24 HOUR EMERGENCY SERVICE: 1-800-662-4797
GAS 24 HOUR EMERGENCY SERVICE: 1-800-261-5325

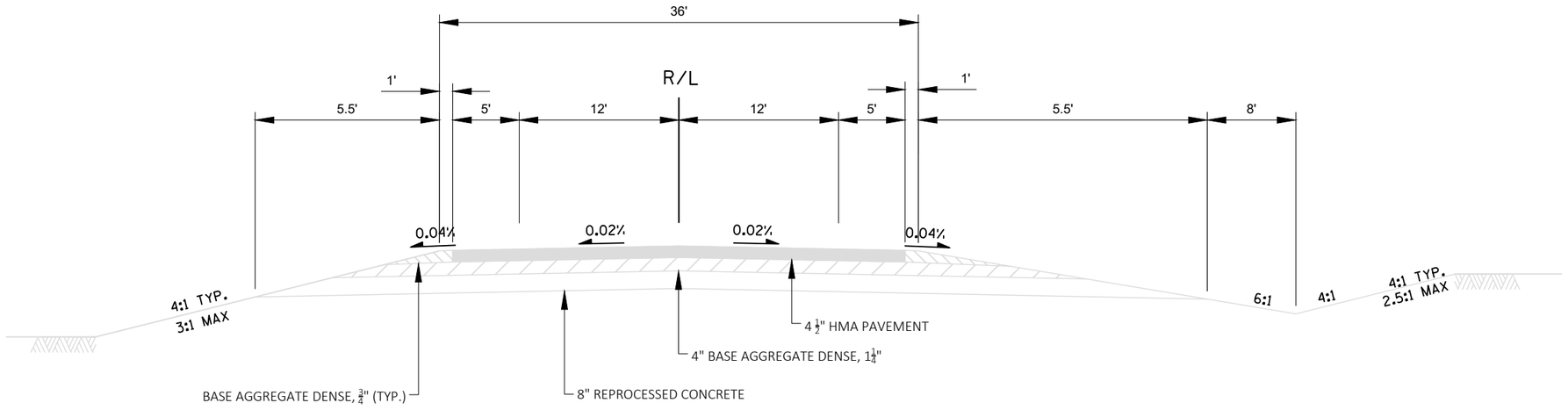
2

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PROJECT OVERVIEW	SHEET E



EXISTING TYPICAL SECTION STH 78

STA 76+00 TO STA 125+00



EXISTING TYPICAL SECTION STH 78

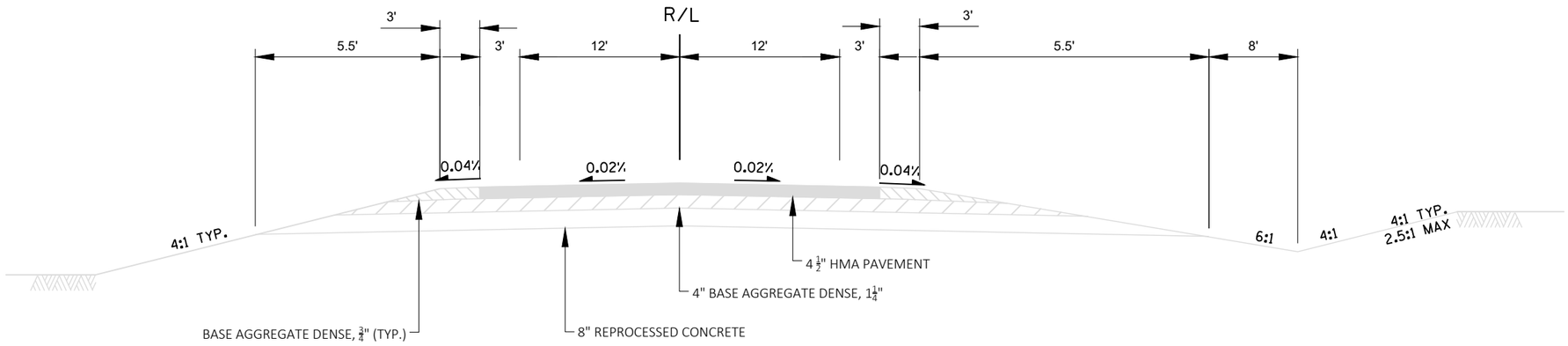
STA 125+00 TO STA 527+00

PROJECT NO:5630-06-72	HWY: STH 78	COUNTY: SAUK	EXISTING TYPICAL SECTIONS	SHEET E

PRE_4

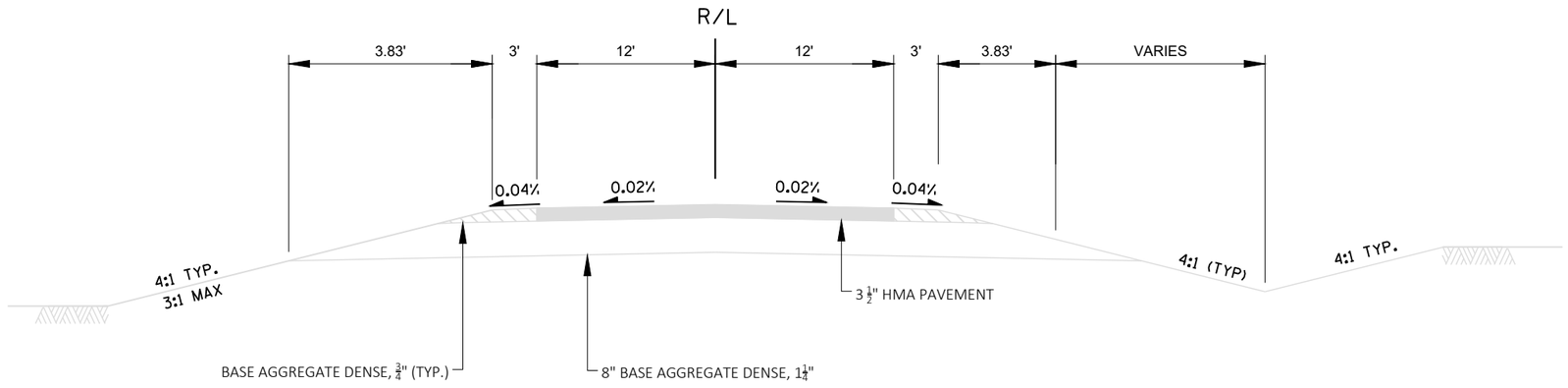
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\020301-TS.DWG
5630-06-02 - STH 78 PLANSET - 020301-TS

PLOT DATE : 7/19/2019 9:36 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:10 FT



EXISTING TYPICAL SECTION CTH Z AND STH 113

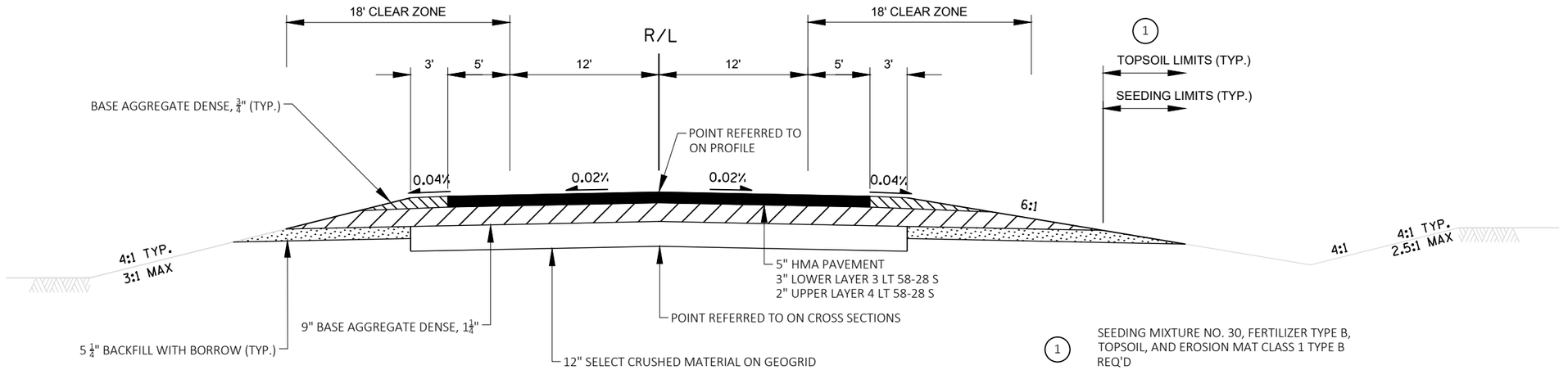
STA 9'Z'+00 TO STA 25'Z'+00



EXISTING TYPICAL SECTION RURAL SIDEROADS

PROJECT NO:5630-06-72	HWY: STH 78	COUNTY: SAUK	EXISTING TYPICAL SECTIONS	SHEET E

PRE_5

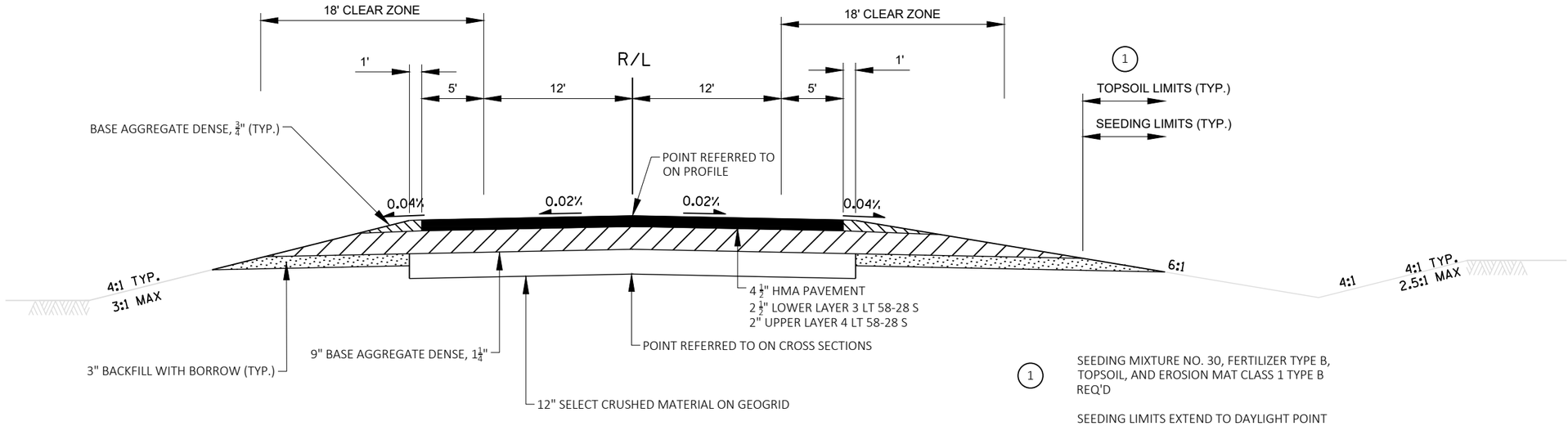


1 SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, TOPSOIL, AND EROSION MAT CLASS 1 TYPE B REQ'D

SEEDING LIMITS EXTEND TO DAYLIGHT POINT OF 5 ¼" BORROW LIFT

PROPOSED TYPICAL SECTION STH 78

STA 76+00 TO STA 125+00



1 SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, TOPSOIL, AND EROSION MAT CLASS 1 TYPE B REQ'D

SEEDING LIMITS EXTEND TO DAYLIGHT POINT OF 3" BORROW LIFT

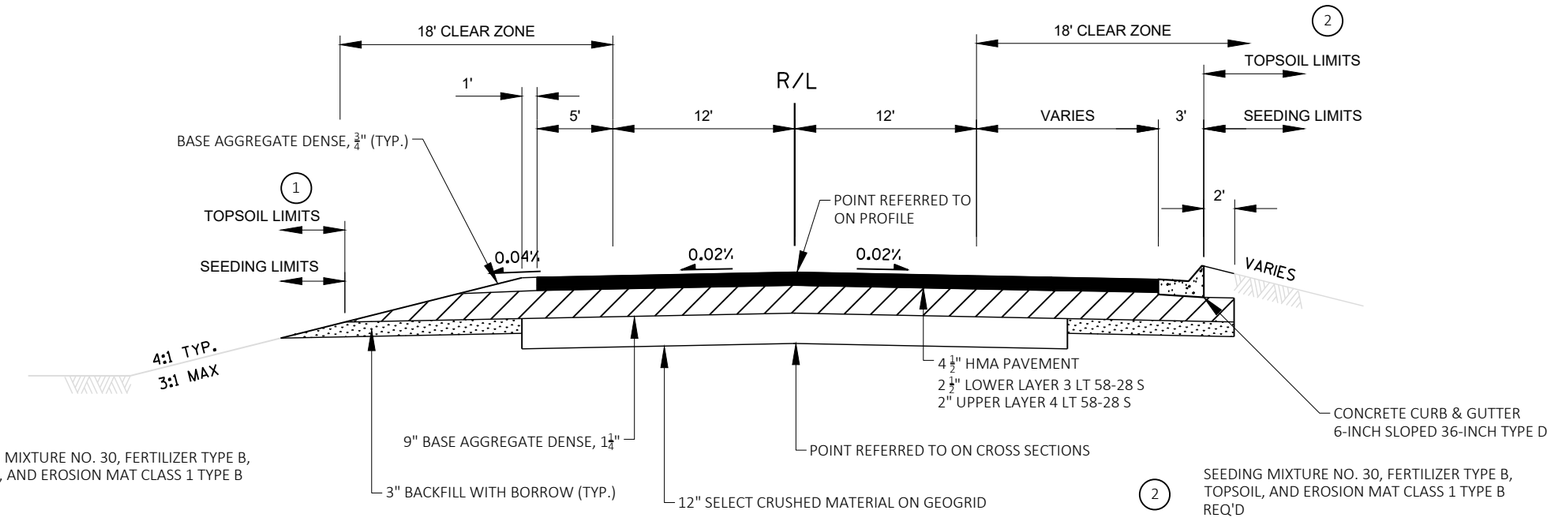
PROPOSED TYPICAL SECTION STH 78

STA 125+00 TO STA 125+40
STA 131+81 TO STA 182+64
STA 186+01 TO STA 219+42
STA 229+14 TO STA 293+00
STA 296+00 TO STA 301+16
STA 302+00 TO STA 354+29
STA 355+32 TO STA 362+00
STA 363+00 TO STA 413+00
STA 414+29 TO STA 444+70
STA 448+01 TO STA 456+00
STA 459+52 TO STA 519+49
STA 524+00 TO STA 527+00

PROJECT NO:5630-06-72	HWY:STH 78	COUNTY:SAUK	PROPOSED TYPICAL SECTIONS	SHEET E

PRE_6

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\020301-TS.DWG
5630-06-02 - STH 78 PLANSET - 020303-TS
PLOT DATE : 7/19/2019 9:36 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42



1 SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, TOPSOIL, AND EROSION MAT CLASS 1 TYPE B REQ'D

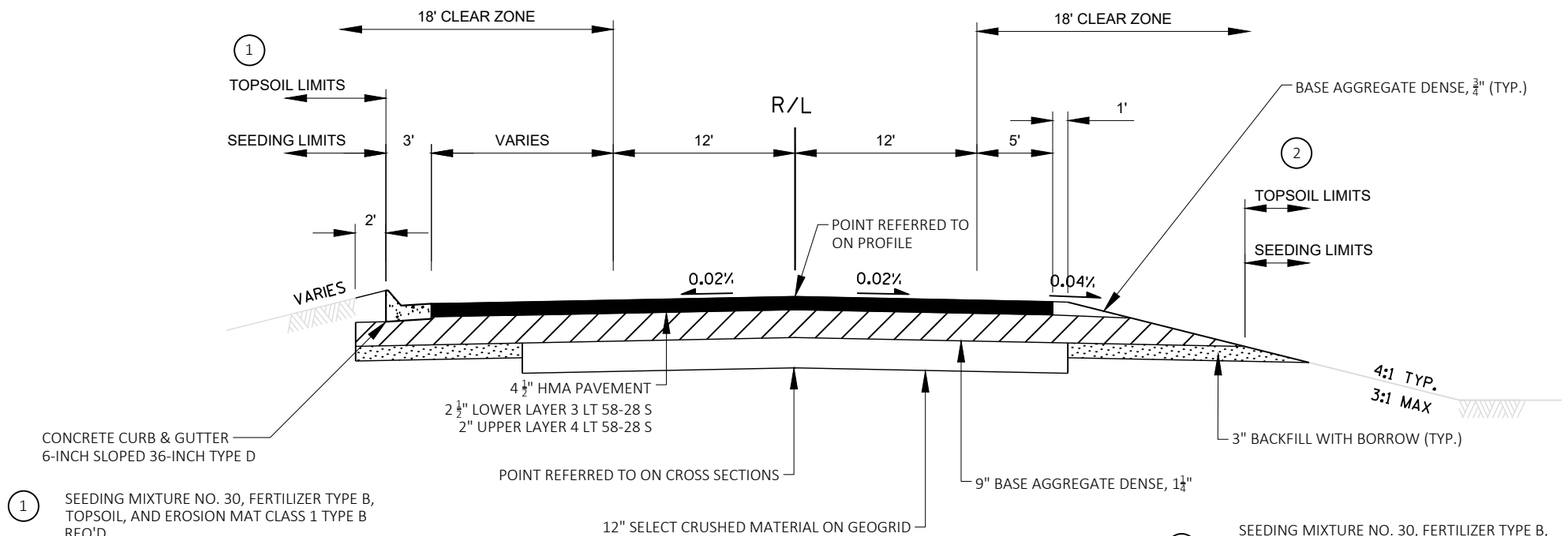
SEEDING LIMITS EXTEND TO DAYLIGHT POINT OF 3 ¼" BORROW LIFT

2 SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, TOPSOIL, AND EROSION MAT CLASS 1 TYPE B REQ'D

SEEDING LIMITS EXTEND TO 5' BEHIND BACK OF CURB AND GUTTER

PROPOSED TYPICAL SECTION STH 78

STA 125+40 TO STA 131+81
STA 182+64 TO STA 186+01
STA 219+42 TO STA 229+14
STA 295+50 TO STA 296+00
STA 301+16 TO STA 302+00
STA 354+29 TO STA 355+32
STA 413+00 TO STA 414+29
STA 444+70 TO STA 448+01
STA 456+00 TO STA 459+52
STA 522+20 TO STA 524+00



1 SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, TOPSOIL, AND EROSION MAT CLASS 1 TYPE B REQ'D

SEEDING LIMITS EXTEND TO 5' BEHIND BACK OF CURB AND GUTTER

PROPOSED TYPICAL SECTION STH 78

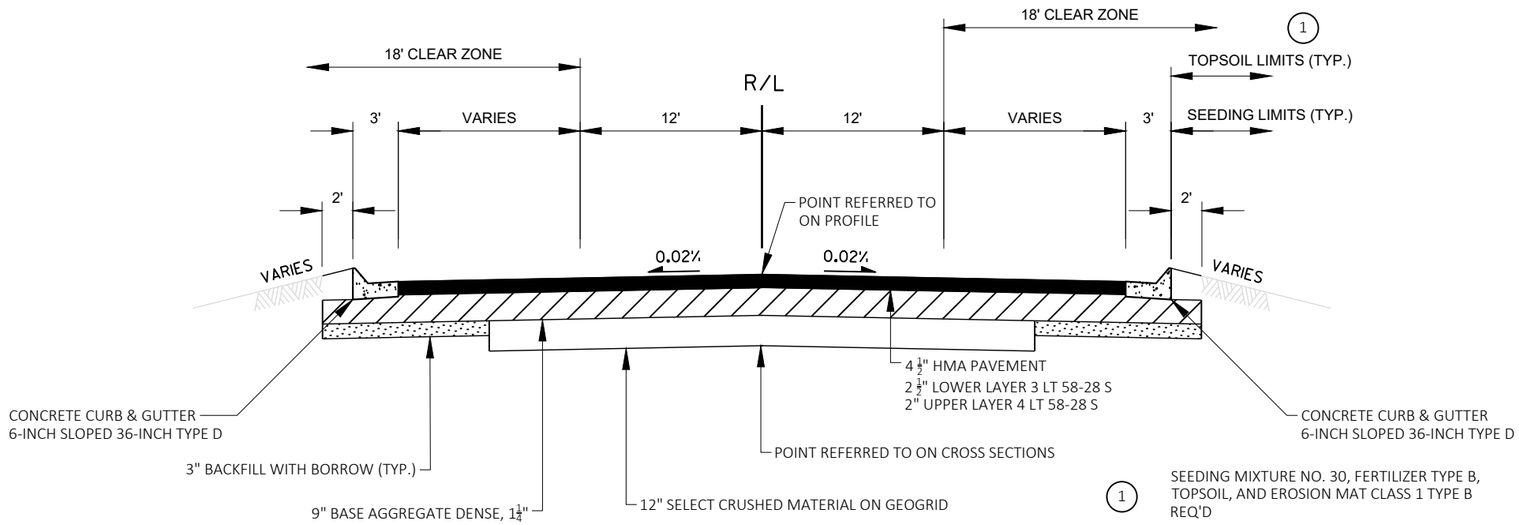
STA 293+00 TO STA 293+73
STA 362+00 TO STA 363+00
STA 519+49 TO STA 520+47

2 SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, TOPSOIL, AND EROSION MAT CLASS 1 TYPE B REQ'D

SEEDING LIMITS EXTEND TO DAYLIGHT POINT OF 3" BORROW LIFT

PROJECT NO:5630-06-72	HWY:STH 78	COUNTY:SAUK	PROPOSED TYPICAL SECTIONS	SHEET E

PRE_7

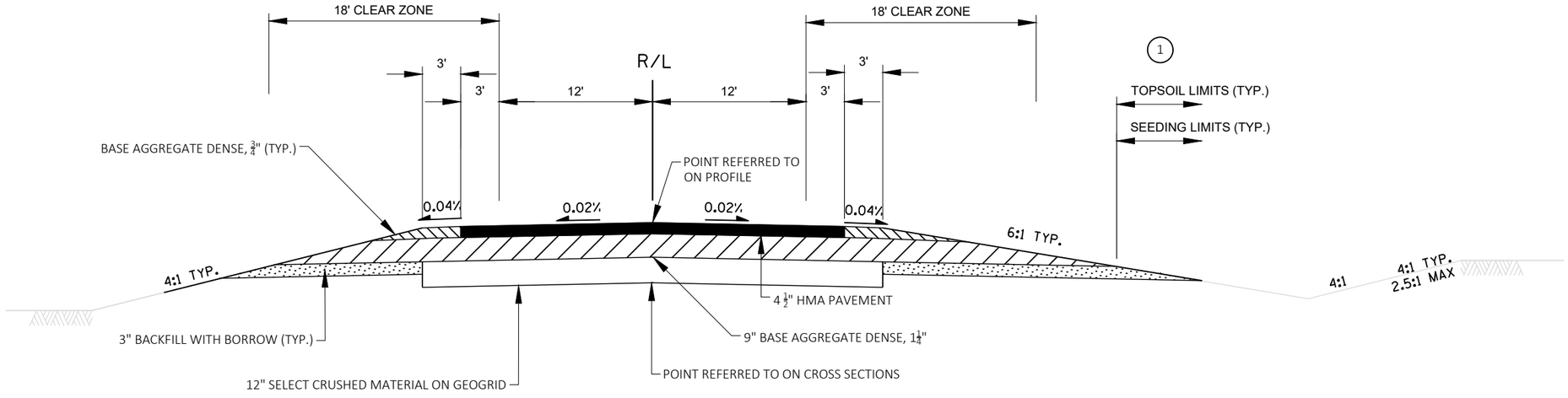


PROPOSED TYPICAL SECTION STH 78

STA 293+73 TO STA 295+50
STA 520+47 TO STA 522+20

(1) SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, TOPSOIL, AND EROSION MAT CLASS 1 TYPE B REQ'D

SEEDING LIMITS EXTEND TO 5' BEHIND BACK OF CURB AND GUTTER



PROPOSED TYPICAL SECTION CTH Z

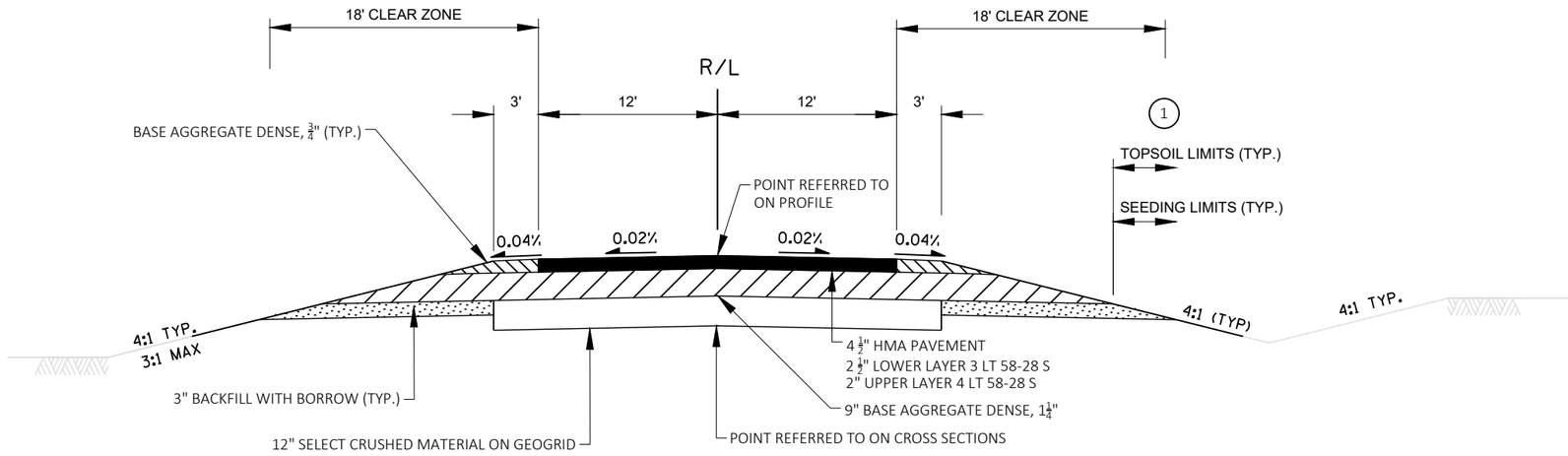
STA 9'Z'+00 TO STA 25'Z'+00

(1) SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, TOPSOIL, AND EROSION MAT CLASS 1 TYPE B REQ'D

SEEDING LIMITS EXTEND TO DAYLIGHT POINT OF 3" BORROW LIFT

PROJECT NO:5630-06-72	HWY:STH 78	COUNTY:SAUK	PROPOSED TYPICAL SECTIONS	SHEET E

PRE_8



PROPOSED TYPICAL SECTION RURAL SIDEROADS

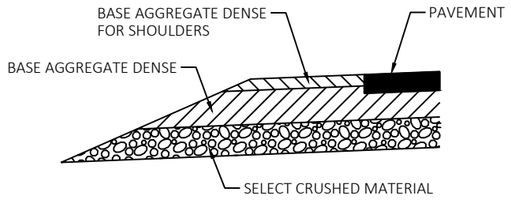
1 SEEDING MIXTURE NO. 30, FERTILIZER TYPE B, TOPSOIL, AND EROSION MAT CLASS 1 TYPE B REQ'D

SEEDING LIMITS EXTEND TO DAYLIGHT POINT OF 3" BORROW LIFT

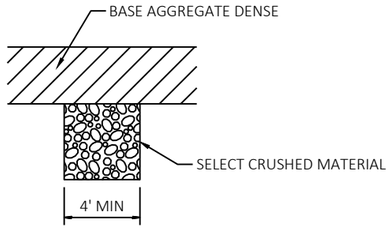
PROJECT NO:5630-06-72	HWY:STH 78	COUNTY:SAUK	PROPOSED TYPICAL SECTIONS	SHEET E

PRE_9

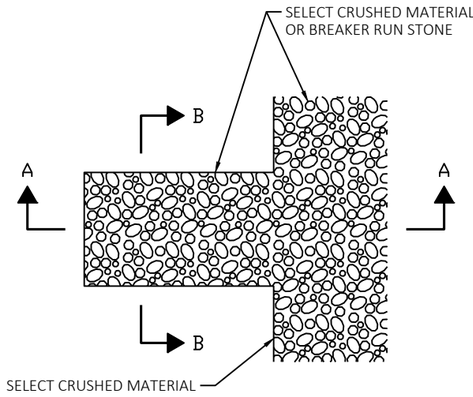
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\020301-TS.DWG
5630-06-02 - STH 78 PLANSET - 020406-TS
PLOT DATE : 7/19/2019 9:36 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42



SECTION A-A



SECTION B-B

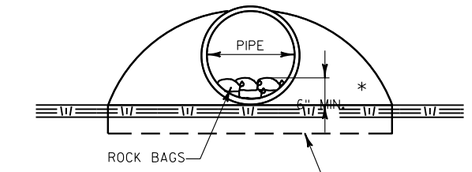


DETAIL FOR FRENCH DRAINS

DRAINS ARE TO BE CONSTRUCTED AT LEAST EVERY 250'
AND AT EACH SAG VERTICAL CURVE IN THE PROFILE.

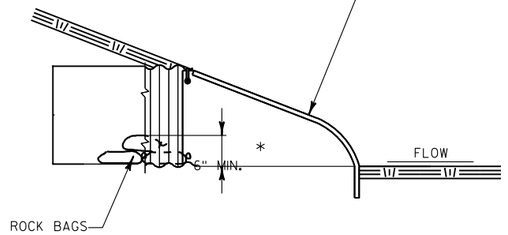
LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

EXCAVATION REQUIRED TO CONSTRUCT FRENCH DRAINS SHALL
BE CONSIDERED INCIDENTAL TO THE ITEM BREAKER RUN STONE.



END VIEW

* OR AS DIRECTED BY THE ENGINEER

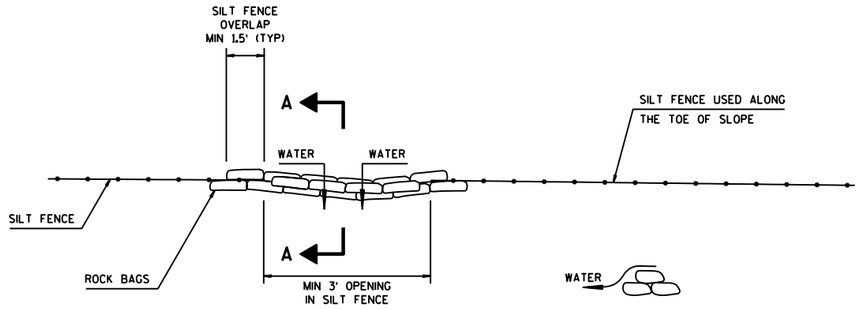


SIDE VIEW

ESTIMATED BAG SIZE = 24" X 12" X 6"	
PIPE SIZE	ESTIMATED NO. OF BAGS
12"	1
15"	2
18"	2
24"	3
30"	5
36"	7
42"	7
48"	10
54"	10
60"	13
72"	16
30"X19"	5
38"X24"	7
53"X34"	10
60"X38"	13
76"X48"	18

ROCK BAG AT CULVERT INVERT DETAIL

AT INLET LOCATIONS

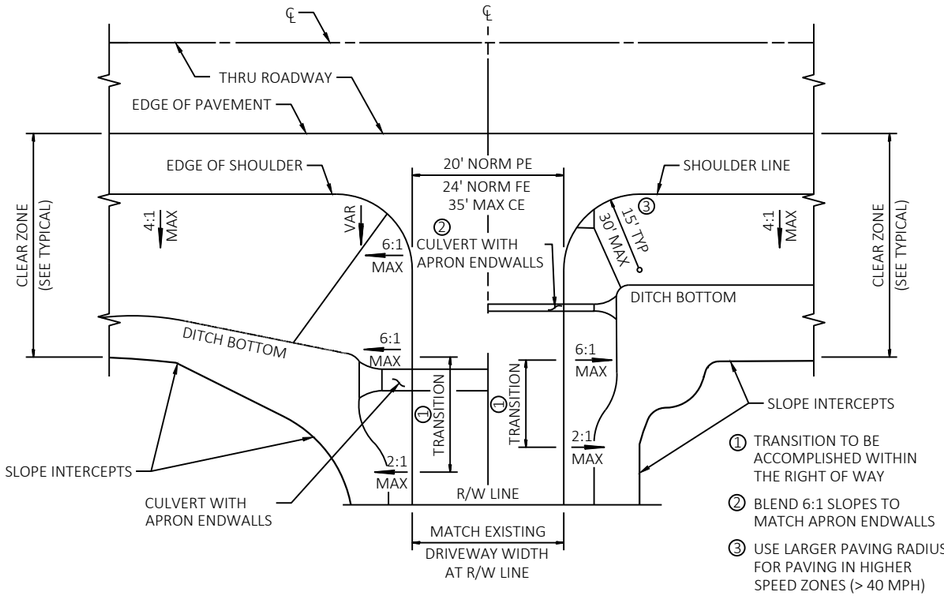


SECTION A-A

TOP VIEW

ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL

PAID AS ROCK BAGS

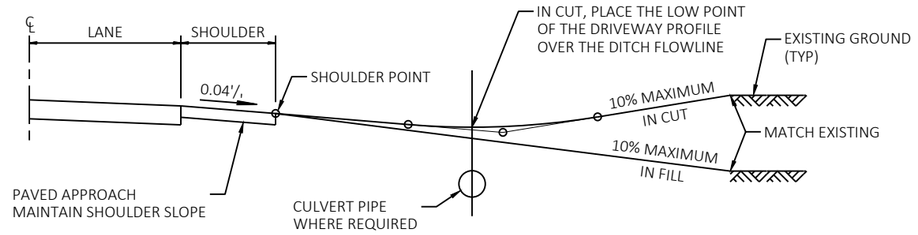


FOR CULVERTS OVER 24" DIAMETER

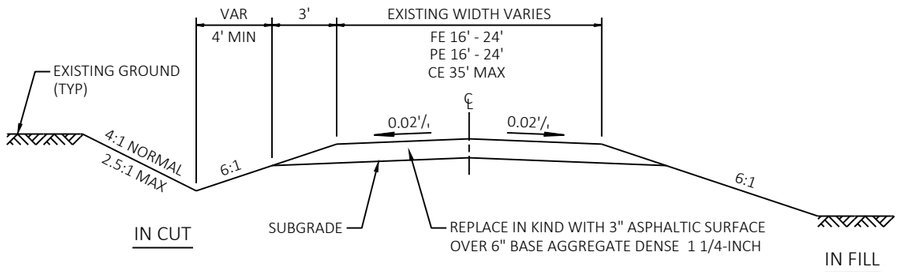
FOR CULVERTS 24" DIAMETER & LESS

PLAN VIEW

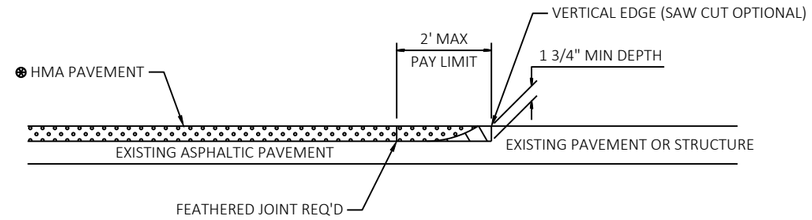
RURAL DRIVEWAY GRADING AND/OR PAVING DETAIL



TYPICAL DRIVEWAY PROFILES

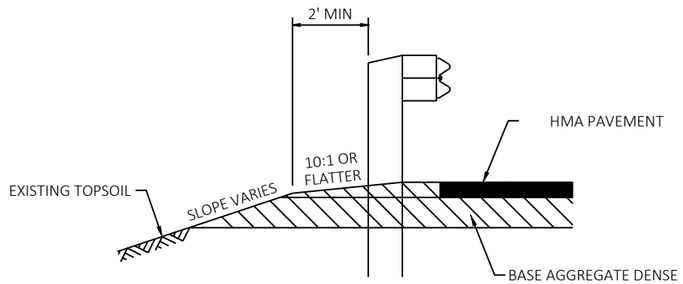


TYPICAL CROSS SECTION FOR DRIVEWAYS

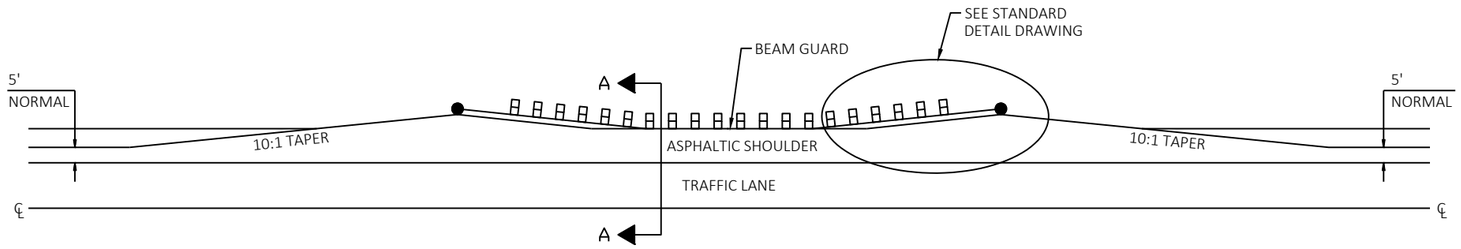


⊛ SEE TYPICAL CROSS SECTION FOR PAVEMENT TYPE AND THICKNESS OF INDIVIDUAL LAYERS

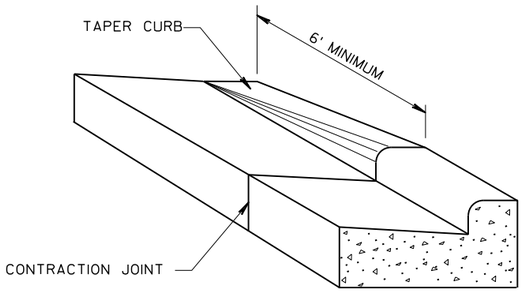
BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (NO PROFILE CHANGE)



SECTION A-A



DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD



DETAIL OF CURB & GUTTER TERMINI

2

2

N

EXIST R/W

MGS GUARDRAIL 3

REMOVING GUARDRAIL

REMOVING GUARDRAIL

MGS GUARDRAIL 3

STH 78

195

200

205

EAT POST #1
191+69.12
28.00' LT

EAT POST #1
192+02.49
20.00' LT

EAT POST #1
192+02.47
22.00' LT

EAT POST #1
192+03.66
27.73' LT

EAT POST #5
192+27.15
20.86' LT

EAT POST #5
192+33.33
25.21' LT

EAT POST #9
192+51.86
20.07' LT

EAT POST #9
203+97.96
19.36' LT

EAT POST #5
203+96.68
19.95' LT

EAT POST #1
204+21.38
20.95' LT

204+21.08
26.83' LT

204+22.11
20.10' LT

205+58.00
17.00' LT

205+58.00
18.00' LT

202+96.78
23.93' RT

203+18.69
24.94' RT

203+50.02
27.61' RT

203+87.47
20.22' RT

204+13.39
22.38' RT

204+18.03
17.29' RT

EAT POST #9
203+69.99
20.03' RT

EAT POST #5
203+82.25
21.22' RT

EAT POST #1
203+95.55
22.00' RT

191+90.77
20.25' RT

192+33.21
17.00' RT

192+63.65
20.00' RT

192+64.17
27.83' RT

192+95.88
25.30' RT

193+24.16
23.81' RT

EAT POST #1
192+63.69
22.00' RT

EAT POST #5
192+88.98
21.36' RT

EAT POST #9
193+14.26
20.36' RT

EXIST R/W

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN DETAILS	SHEET E

PRE_13

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\020501_ID.DWG
LAYOUT NAME - 020501-pd

PLOT DATE : 7/18/2019 9:42 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2

2

N

EXIST R/W

355+05.68
18.00' LT

355+70.54
17.00' LT

EAT POST #1
355+70.75
20.00' LT

355+70.85
25.85' LT

EAT POST #5
355+97.58
19.26' LT

356+02.40
23.01' LT

356+24.47
21.93' LT

EAT POST #9
356+24.58
18.00' LT

355

357+57.81
21.93' LT

REMOVING GUARDRAIL

MGS GUARDRAIL 3

STH 78

RUTHE BADGER LANE (NORTH)

360+60.24
21.91' LT

EAT POST #9
360+60.48
17.98' LT

360+82.50
23.16' LT

EAT POST #5
360+87.39
19.26' LT

361+14.17
25.85' LT

EAT POST #1
361+14.34
20.00' LT

361+14.37
17.00' LT

PT: 361+46.79

361+98.23
19.72' LT

362+00.00
17.00' LT

360

EXIST R/W

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN DETAILS	SHEET E

PRE_14

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\020501_ID.DWG
LAYOUT NAME - 020502-pd

PLOT DATE : 7/18/2019 9:42 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:50 FT

WISDOT/CADDS SHEET 42

2

2

N

REMOVING GUARDRAIL

MGS GUARDRAIL 3

452+11.47
17.00' LT

452+11.47
18.00' LT

EAT POST #1
452+51.46
21.00' LT

452+51.44
24.93' LT

EAT POST #5
452+76.46
21.11' LT

EAT POST #9
453+07.46
21.00' LT

453+58.36
24.98' LT

453+58.80
21.00' LT

454+47.66
24.92' LT

454+51.30
20.99' LT

450

STH 78

455

450+12.21
17.00' RT

450+13.04
18.00' RT

451+09.89
21.00' RT

451+09.99
28.85' RT

EAT POST #1
451+09.96
23.00' RT

EAT POST #5
451+36.50
22.00' RT

451+63.06
24.93' RT

EAT POST #9
451+63.04
21.00' RT

REMOVING GUARDRAIL

MGS GUARDRAIL 3

453+58.70
21.04' RT

453+58.67
24.93' RT

454+44.86
24.93' RT

454+51.30
21.00' RT

455+07.45
21.00' RT

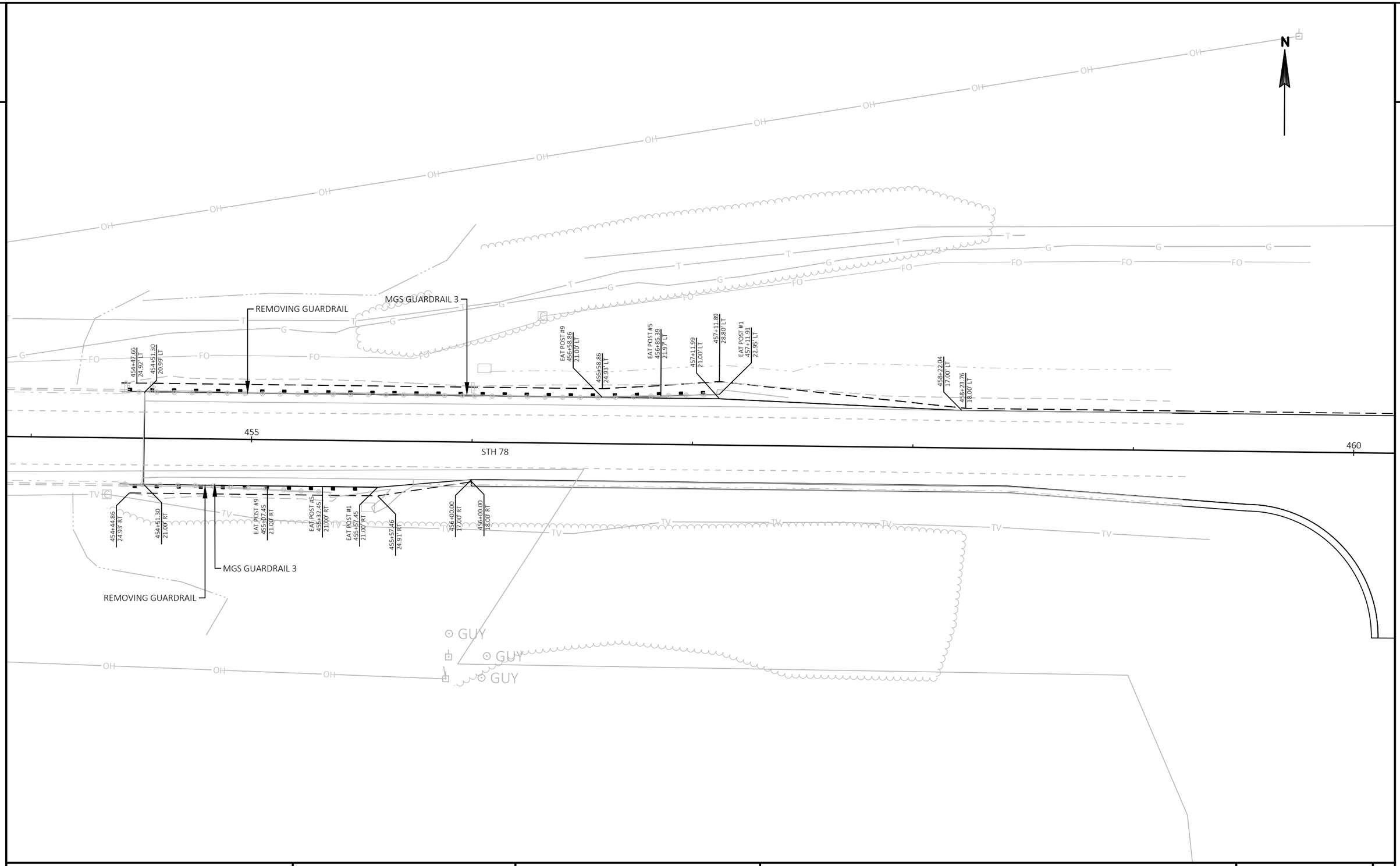
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN DETAILS	SHEET E

PRE_15

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\020501_ID.DWG
LAYOUT NAME - 020503-pd

PLOT DATE : 7/18/2019 9:42 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

2



PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN DETAILS	SHEET E

PRE_16

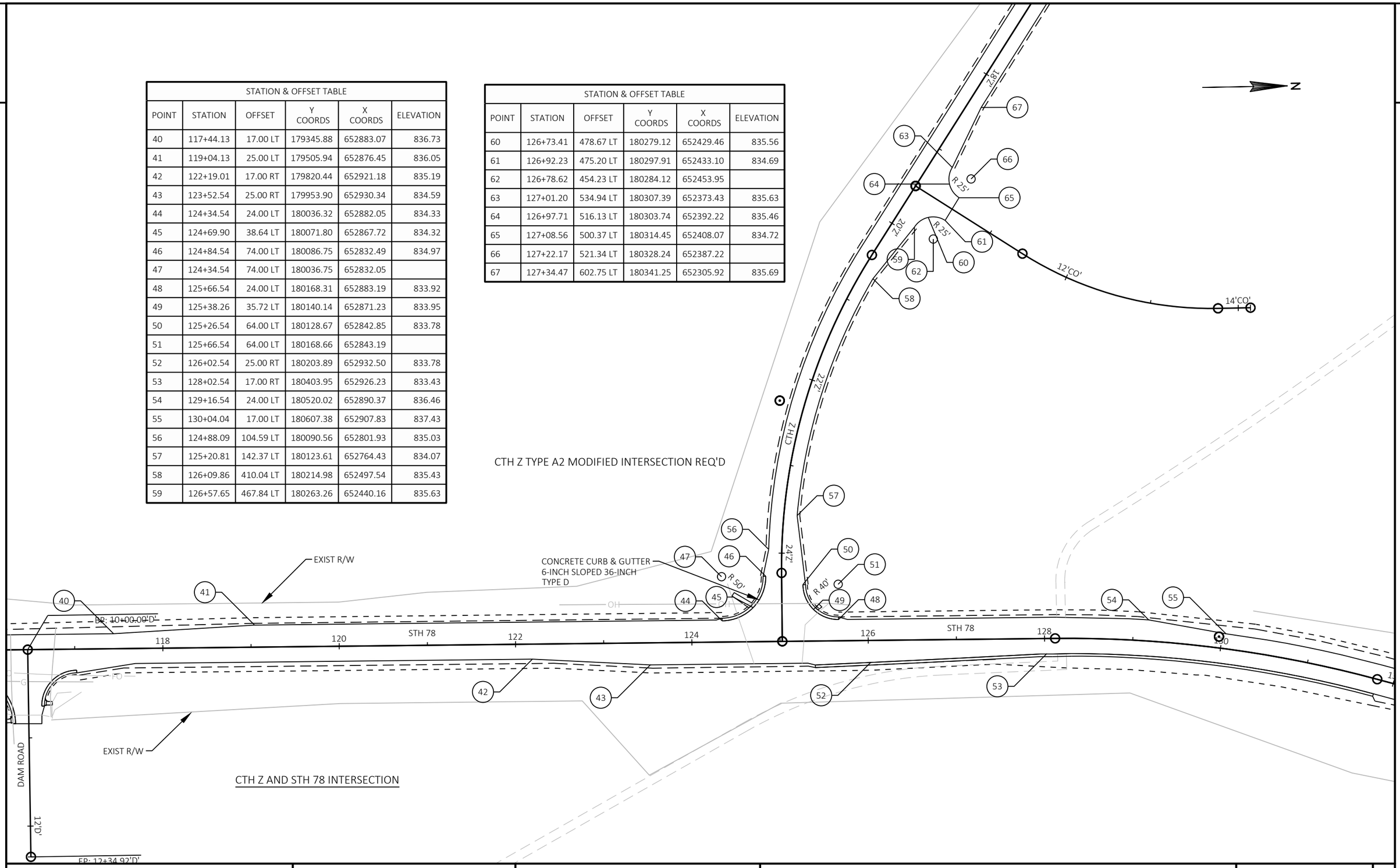
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\020501_ID.DWG
LAYOUT NAME - 020504-pd

PLOT DATE : 7/18/2019 9:42 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
40	117+44.13	17.00 LT	179345.88	652883.07	836.73
41	119+04.13	25.00 LT	179505.94	652876.45	836.05
42	122+19.01	17.00 RT	179820.44	652921.18	835.19
43	123+52.54	25.00 RT	179953.90	652930.34	834.59
44	124+34.54	24.00 LT	180036.32	652882.05	834.33
45	124+69.90	38.64 LT	180071.80	652867.72	834.32
46	124+84.54	74.00 LT	180086.75	652832.49	834.97
47	124+34.54	74.00 LT	180036.75	652832.05	
48	125+66.54	24.00 LT	180168.31	652883.19	833.92
49	125+38.26	35.72 LT	180140.14	652871.23	833.95
50	125+26.54	64.00 LT	180128.67	652842.85	833.78
51	125+66.54	64.00 LT	180168.66	652843.19	
52	126+02.54	25.00 RT	180203.89	652932.50	833.78
53	128+02.54	17.00 RT	180403.95	652926.23	833.43
54	129+16.54	24.00 LT	180520.02	652890.37	836.46
55	130+04.04	17.00 LT	180607.38	652907.83	837.43
56	124+88.09	104.59 LT	180090.56	652801.93	835.03
57	125+20.81	142.37 LT	180123.61	652764.43	834.07
58	126+09.86	410.04 LT	180214.98	652497.54	835.43
59	126+57.65	467.84 LT	180263.26	652440.16	835.63

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
60	126+73.41	478.67 LT	180279.12	652429.46	835.56
61	126+92.23	475.20 LT	180297.91	652433.10	834.69
62	126+78.62	454.23 LT	180284.12	652453.95	
63	127+01.20	534.94 LT	180307.39	652373.43	835.63
64	126+97.71	516.13 LT	180303.74	652392.22	835.46
65	127+08.56	500.37 LT	180314.45	652408.07	834.72
66	127+22.17	521.34 LT	180328.24	652387.22	
67	127+34.47	602.75 LT	180341.25	652305.92	835.69

CTH Z TYPE A2 MODIFIED INTERSECTION REQ'D



CTH Z AND STH 78 INTERSECTION

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

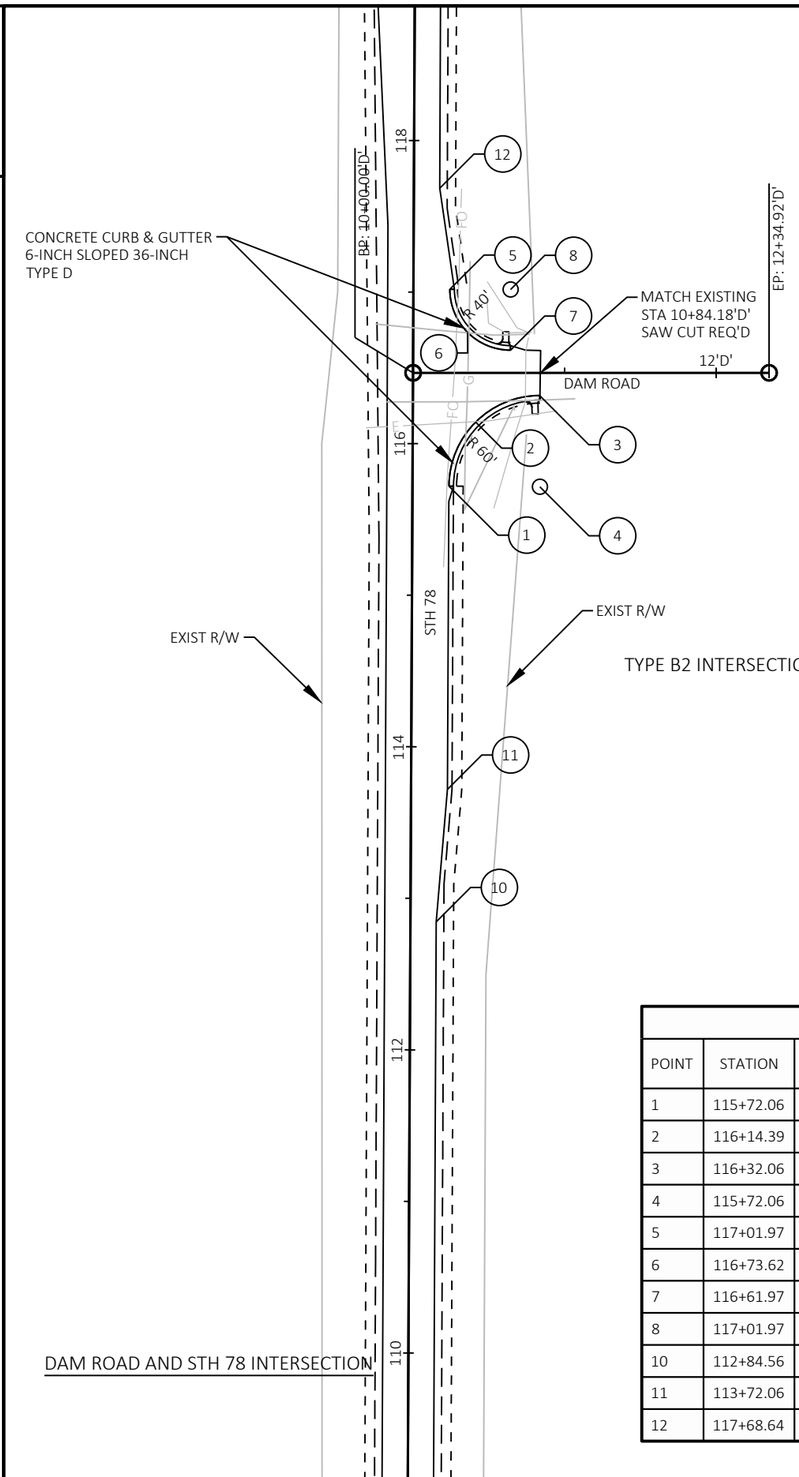
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021101-id

PLOT DATE : 7/18/2019 8:29 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:100 FT

PRE_17

WISDOT/CADDS SHEET 44

2

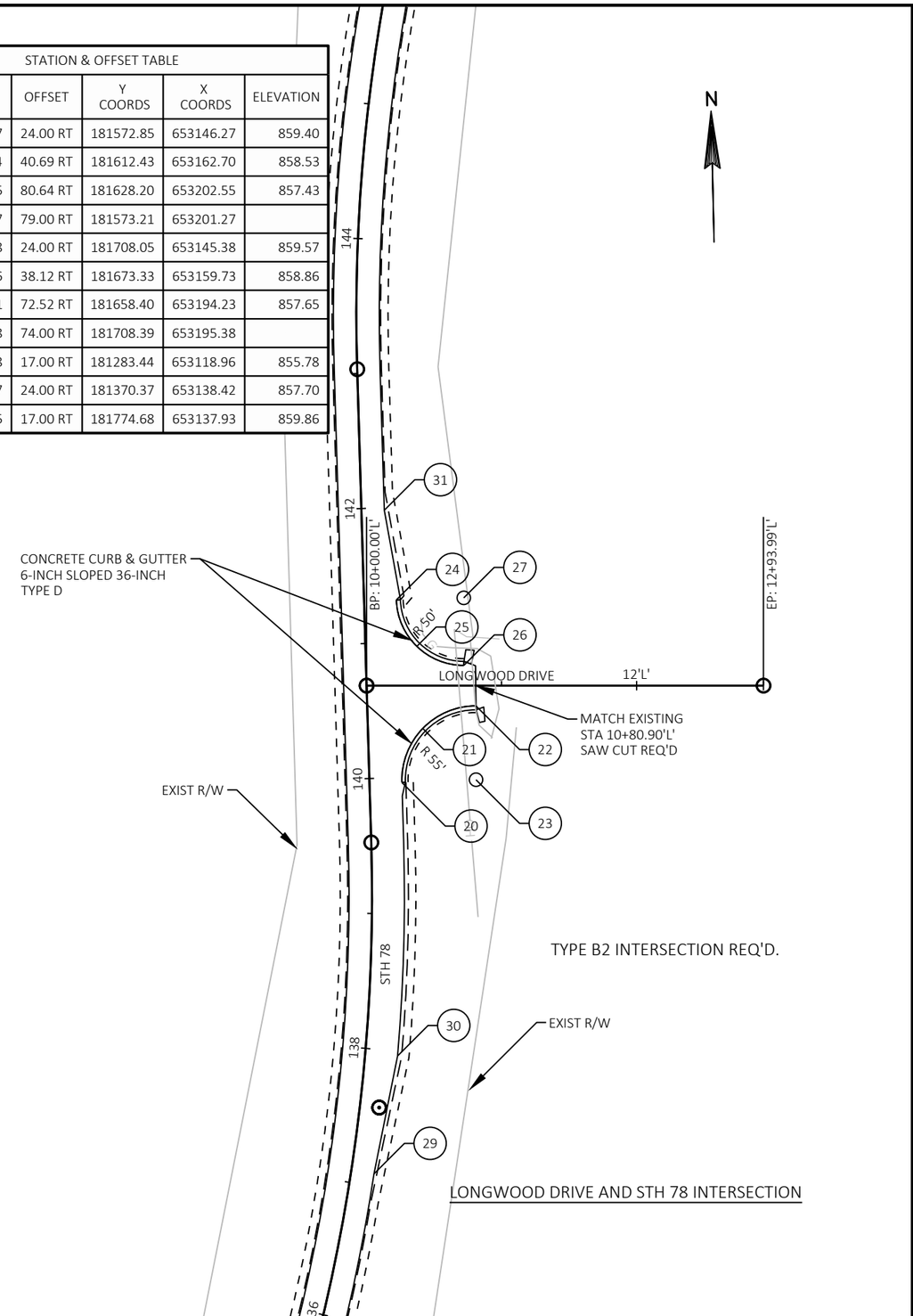


TYPE B2 INTERSECTION REQ'D.

DAM ROAD AND STH 78 INTERSECTION

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
1	115+72.06	24.00 RT	179173.46	652922.58	836.80
2	116+14.39	41.47 RT	179215.63	652940.41	836.04
3	116+32.06	83.72 RT	179232.94	652982.82	834.37
4	115+72.06	84.00 RT	179172.94	652982.57	
5	117+01.97	24.00 RT	179303.36	652923.70	836.72
6	116+73.62	35.78 RT	179274.91	652935.24	836.38
7	116+61.97	64.19 RT	179263.02	652963.55	835.04
8	117+01.97	64.00 RT	179303.01	652963.70	
10	112+84.56	17.00 RT	178886.03	652913.09	835.51
11	113+72.06	24.00 RT	178973.46	652920.84	835.97
12	117+68.64	17.00 RT	179370.09	652917.28	836.65

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
20	139+96.37	24.00 RT	181572.85	653146.27	859.40
21	140+35.84	40.69 RT	181612.43	653162.70	858.53
22	140+51.35	80.64 RT	181628.20	653202.55	857.43
23	139+96.37	79.00 RT	181573.21	653201.27	
24	141+31.58	24.00 RT	181708.05	653145.38	859.57
25	140+96.76	38.12 RT	181673.33	653159.73	858.86
26	140+81.61	72.52 RT	181658.40	653194.23	857.65
27	141+31.58	74.00 RT	181708.39	653195.38	
29	137+08.88	17.00 RT	181283.44	653118.96	855.78
30	137+96.37	24.00 RT	181370.37	653138.42	857.70
31	141+98.25	17.00 RT	181774.68	653137.93	859.86



TYPE B2 INTERSECTION REQ'D.

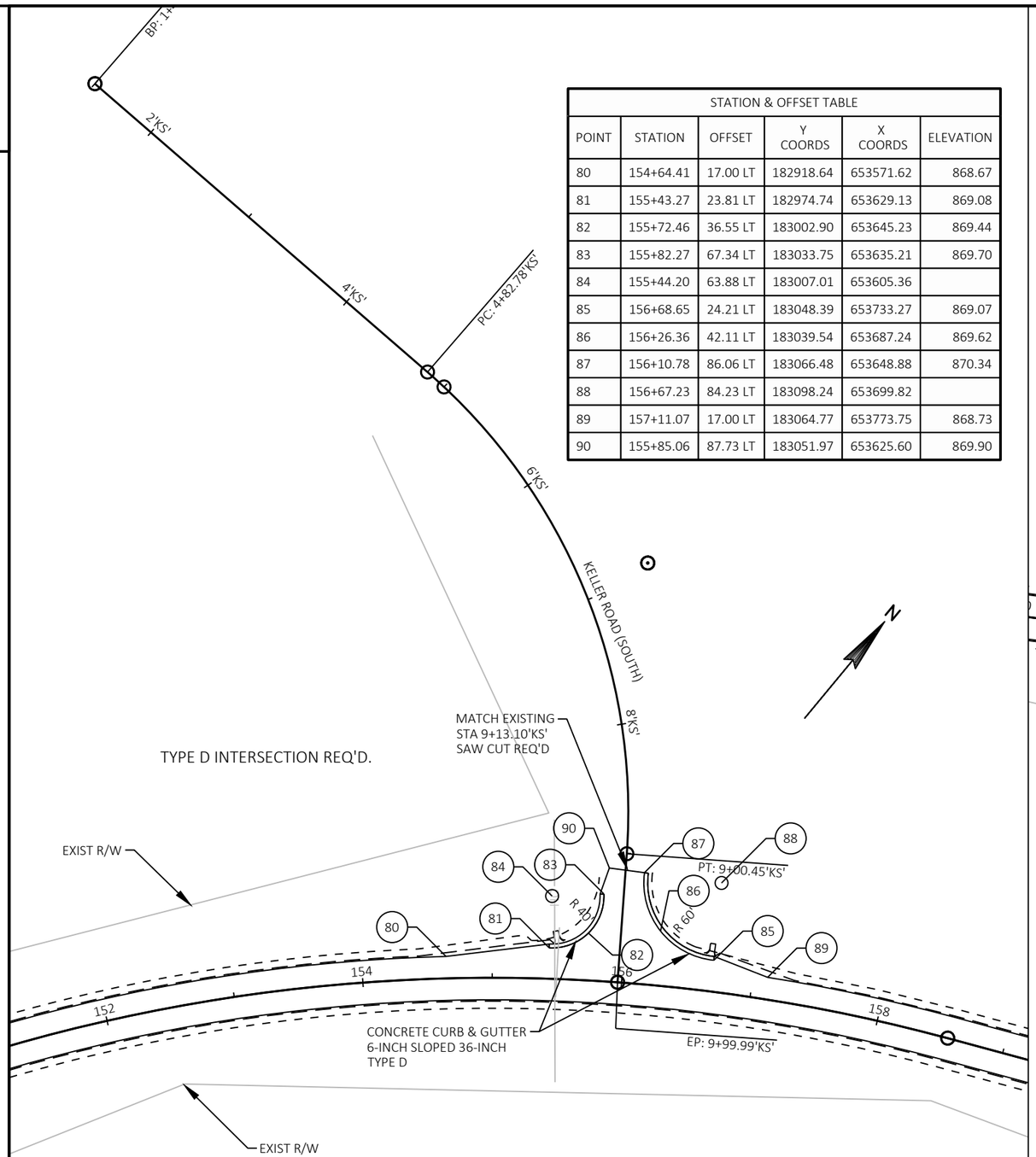
LONGWOOD DRIVE AND STH 78 INTERSECTION

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

PRE_18

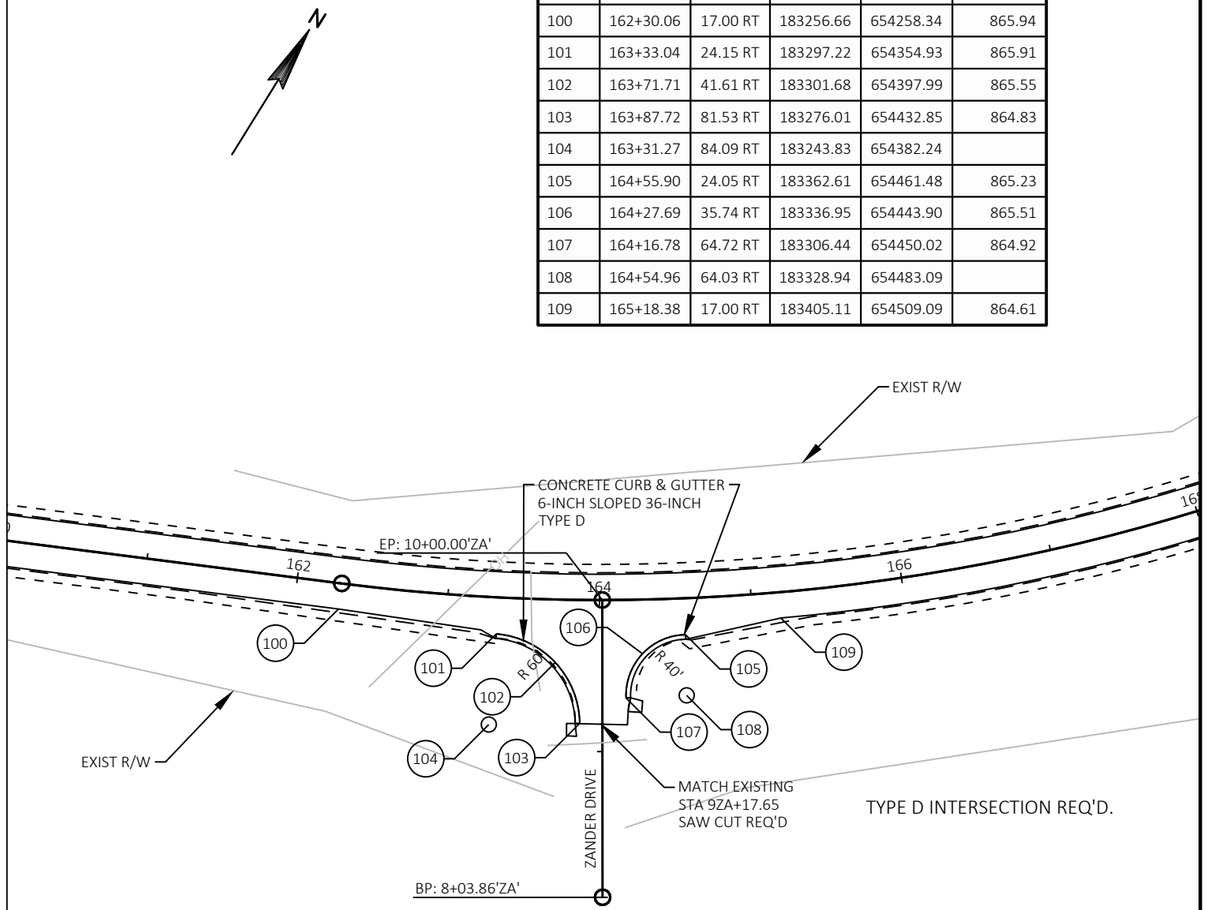
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021102-id
PLOT DATE : 7/18/2019 8:29 AM
PLOT BY : DUMS, ALEXANDER T
PLOT NAME :
PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 44

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
80	154+64.41	17.00 LT	182918.64	653571.62	868.67
81	155+43.27	23.81 LT	182974.74	653629.13	869.08
82	155+72.46	36.55 LT	183002.90	653645.23	869.44
83	155+82.27	67.34 LT	183033.75	653635.21	869.70
84	155+44.20	63.88 LT	183007.01	653605.36	
85	156+68.65	24.21 LT	183048.39	653733.27	869.07
86	156+26.36	42.11 LT	183039.54	653687.24	869.62
87	156+10.78	86.06 LT	183066.48	653648.88	870.34
88	156+67.23	84.23 LT	183098.24	653699.82	
89	157+11.07	17.00 LT	183064.77	653773.75	868.73
90	155+85.06	87.73 LT	183051.97	653625.60	869.90



KELLER ROAD (SOUTH) AND STH 78 INTERSECTION

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
100	162+30.06	17.00 RT	183256.66	654258.34	865.94
101	163+33.04	24.15 RT	183297.22	654354.93	865.91
102	163+71.71	41.61 RT	183301.68	654397.99	865.55
103	163+87.72	81.53 RT	183276.01	654432.85	864.83
104	163+31.27	84.09 RT	183243.83	654382.24	
105	164+55.90	24.05 RT	183362.61	654461.48	865.23
106	164+27.69	35.74 RT	183336.95	654443.90	865.51
107	164+16.78	64.72 RT	183306.44	654450.02	864.92
108	164+54.96	64.03 RT	183328.94	654483.09	
109	165+18.38	17.00 RT	183405.11	654509.09	864.61

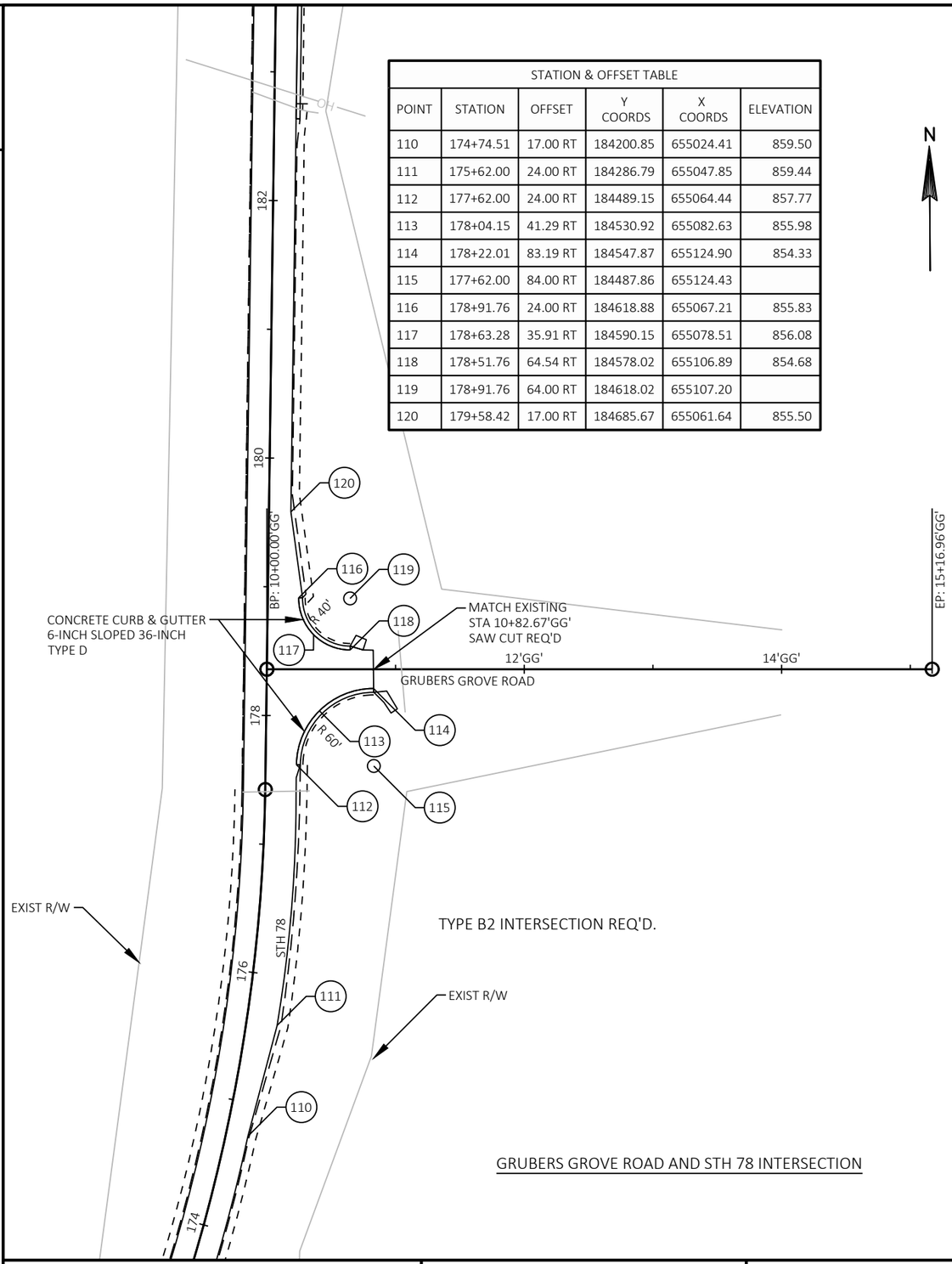


ZANDER DRIVE AND STH 78 INTERSECTION

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021103-id
PLOT DATE : 7/18/2019 8:29 AM
PLOT BY : DUMS, ALEXANDER T
PLOT NAME :
PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 44

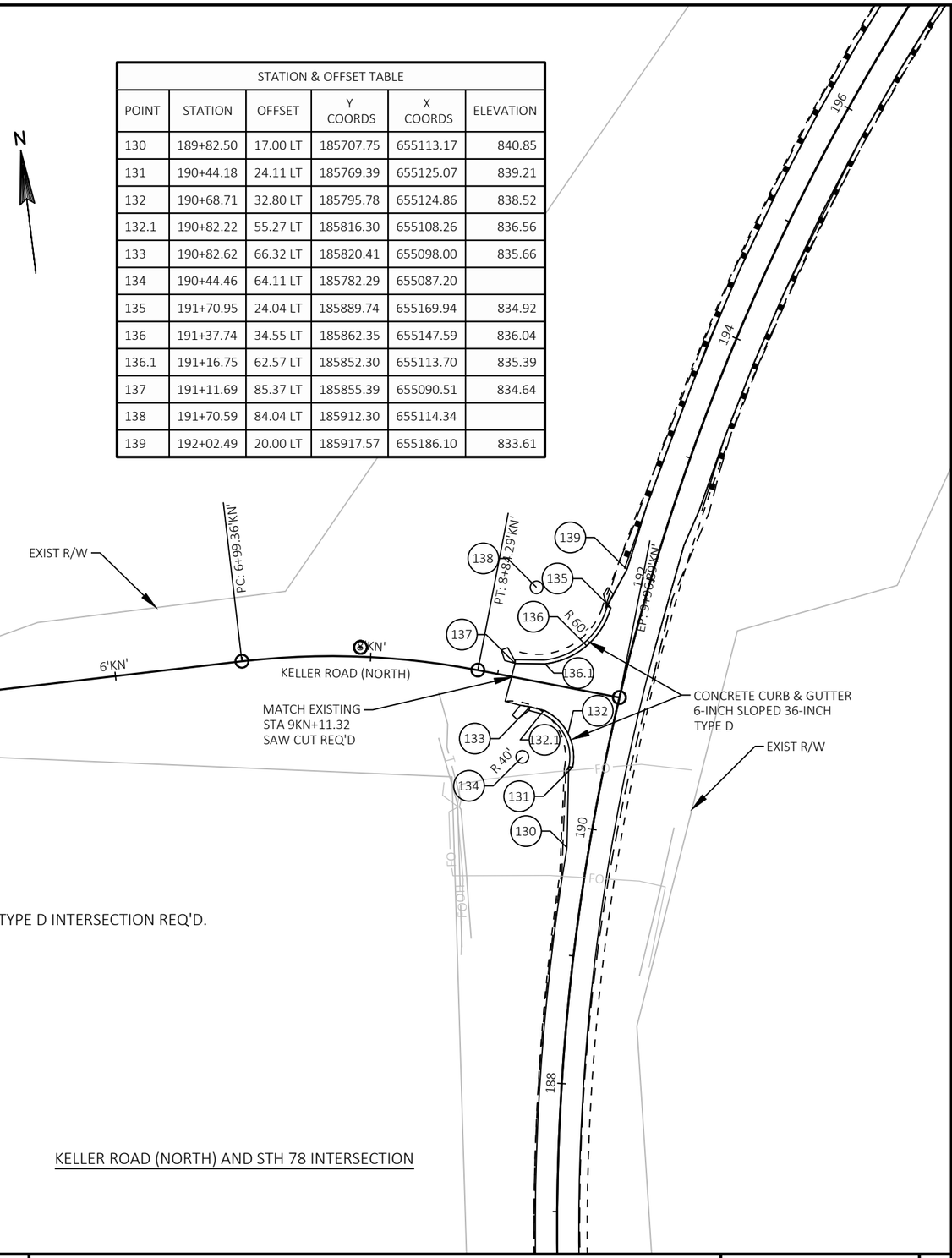
STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
110	174+74.51	17.00 RT	184200.85	655024.41	859.50
111	175+62.00	24.00 RT	184286.79	655047.85	859.44
112	177+62.00	24.00 RT	184489.15	655064.44	857.77
113	178+04.15	41.29 RT	184530.92	655082.63	855.98
114	178+22.01	83.19 RT	184547.87	655124.90	854.33
115	177+62.00	84.00 RT	184487.86	655124.43	
116	178+91.76	24.00 RT	184618.88	655067.21	855.83
117	178+63.28	35.91 RT	184590.15	655078.51	856.08
118	178+51.76	64.54 RT	184578.02	655106.89	854.68
119	178+91.76	64.00 RT	184618.02	655107.20	
120	179+58.42	17.00 RT	184685.67	655061.64	855.50



TYPE B2 INTERSECTION REQ'D.

GRUBERS GROVE ROAD AND STH 78 INTERSECTION

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
130	189+82.50	17.00 LT	185707.75	655113.17	840.85
131	190+44.18	24.11 LT	185769.39	655125.07	839.21
132	190+68.71	32.80 LT	185795.78	655124.86	838.52
132.1	190+82.22	55.27 LT	185816.30	655108.26	836.56
133	190+82.62	66.32 LT	185820.41	655098.00	835.66
134	190+44.46	64.11 LT	185782.29	655087.20	
135	191+70.95	24.04 LT	185889.74	655169.94	834.92
136	191+37.74	34.55 LT	185862.35	655147.59	836.04
136.1	191+16.75	62.57 LT	185852.30	655113.70	835.39
137	191+11.69	85.37 LT	185855.39	655090.51	834.64
138	191+70.59	84.04 LT	185912.30	655114.34	
139	192+02.49	20.00 LT	185917.57	655186.10	833.61



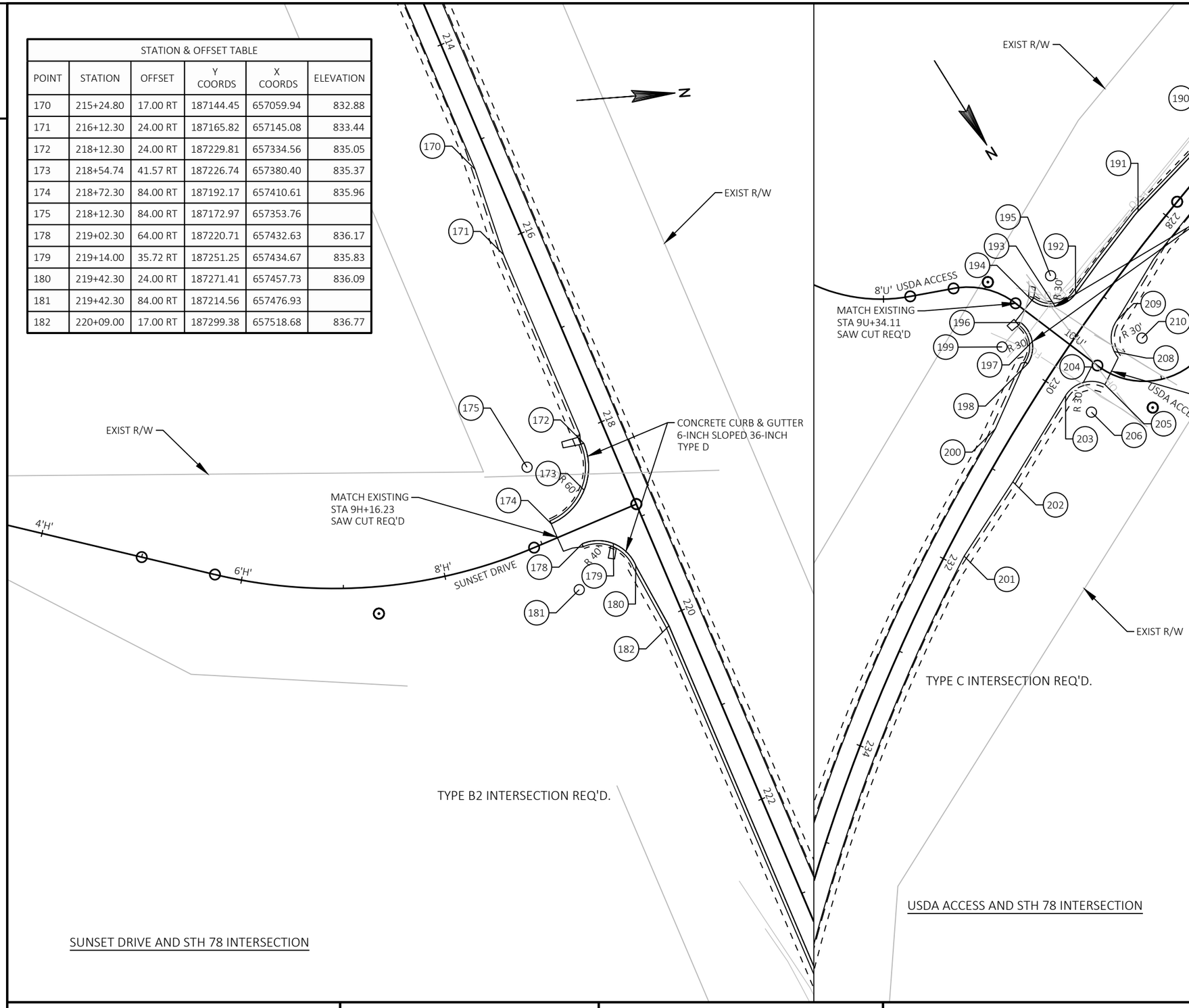
TYPE D INTERSECTION REQ'D.

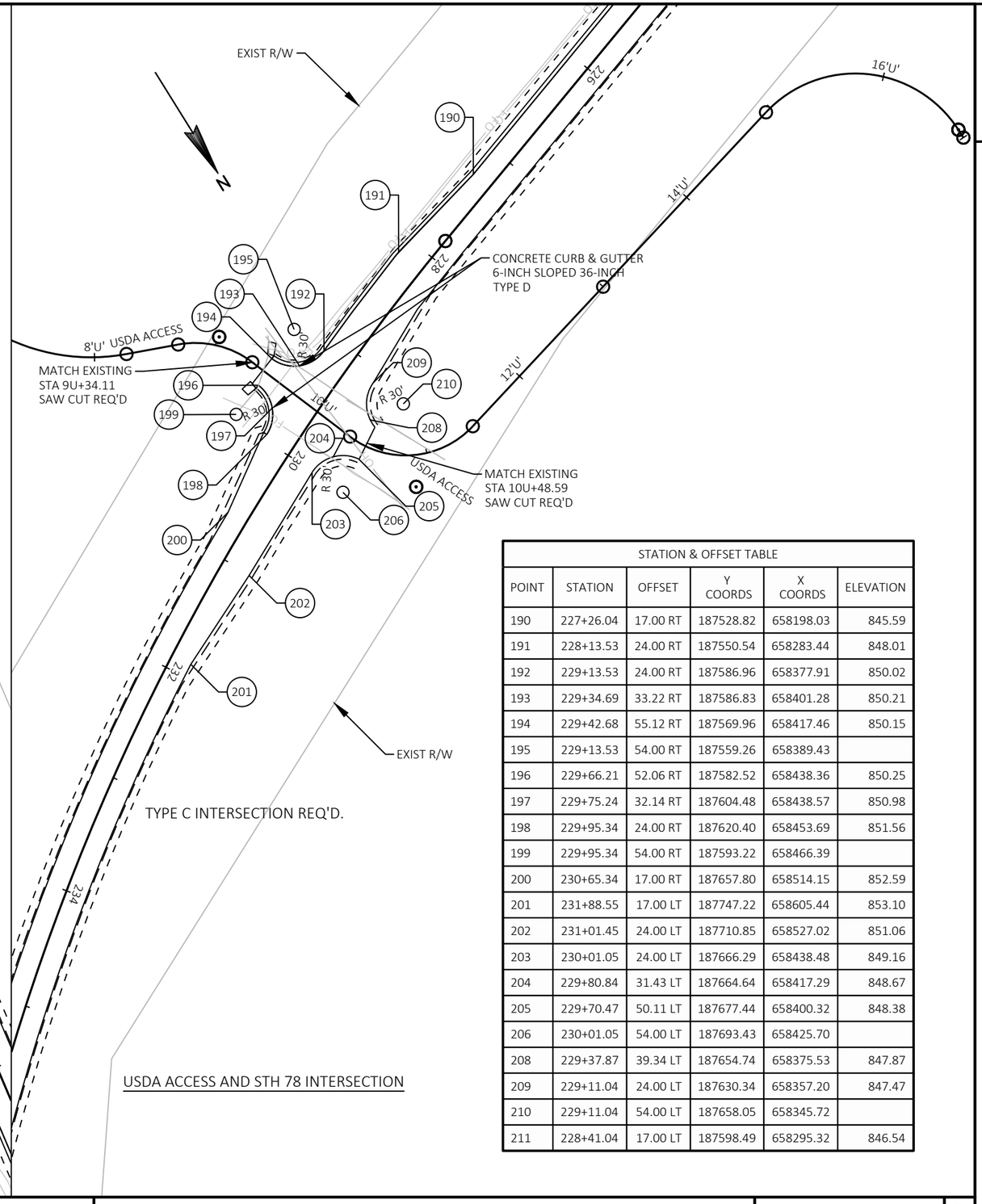
KELLER ROAD (NORTH) AND STH 78 INTERSECTION

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

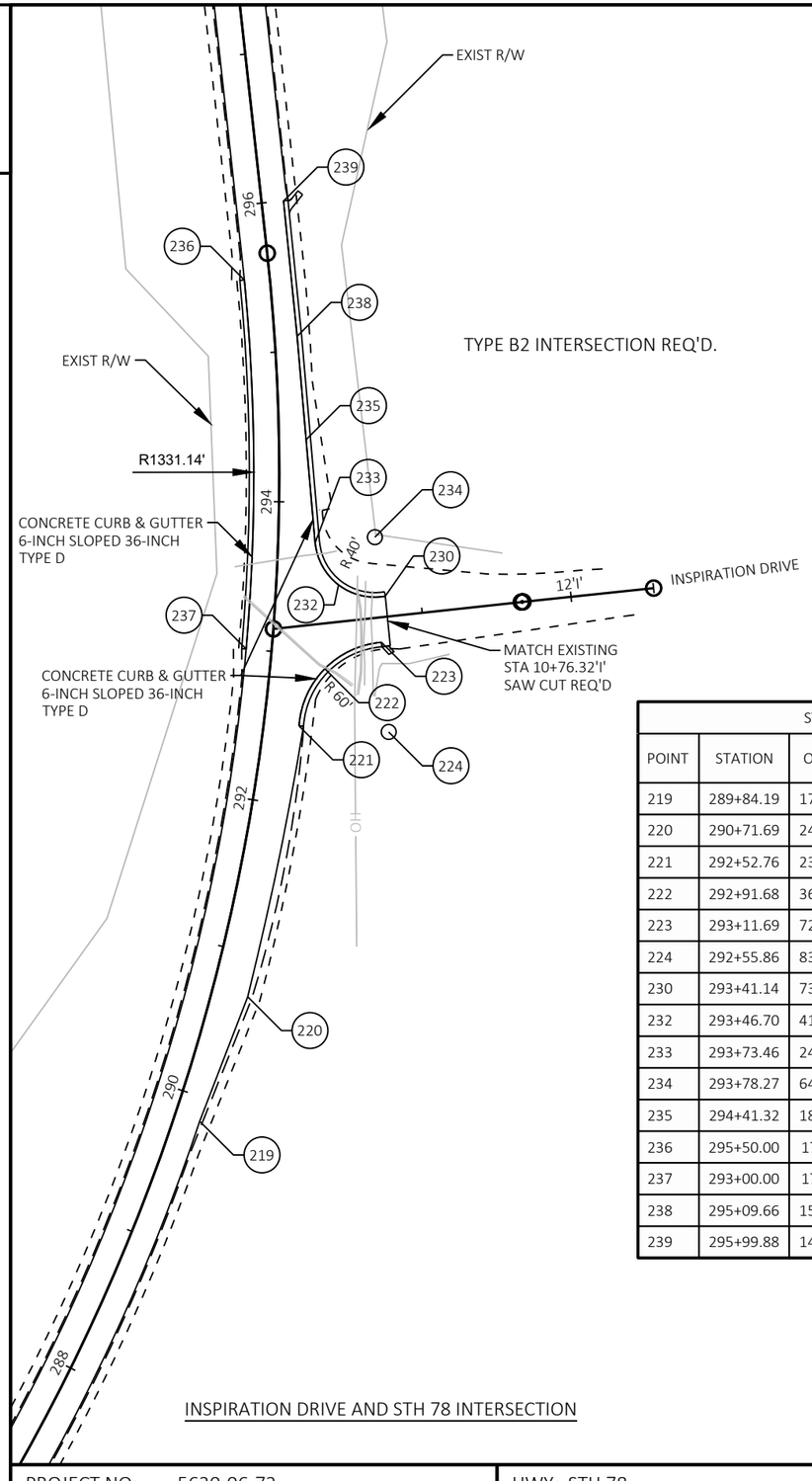
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021104-id
PLOT DATE : 7/18/2019 8:29 AM
PLOT BY : DUMS, ALEXANDER T
PLOT NAME :
PLOT SCALE : 1 IN:100 FT

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
170	215+24.80	17.00 RT	187144.45	657059.94	832.88
171	216+12.30	24.00 RT	187165.82	657145.08	833.44
172	218+12.30	24.00 RT	187229.81	657334.56	835.05
173	218+54.74	41.57 RT	187226.74	657380.40	835.37
174	218+72.30	84.00 RT	187192.17	657410.61	835.96
175	218+12.30	84.00 RT	187172.97	657353.76	
178	219+02.30	64.00 RT	187220.71	657432.63	836.17
179	219+14.00	35.72 RT	187251.25	657434.67	835.83
180	219+42.30	24.00 RT	187271.41	657457.73	836.09
181	219+42.30	84.00 RT	187214.56	657476.93	
182	220+09.00	17.00 RT	187299.38	657518.68	836.77





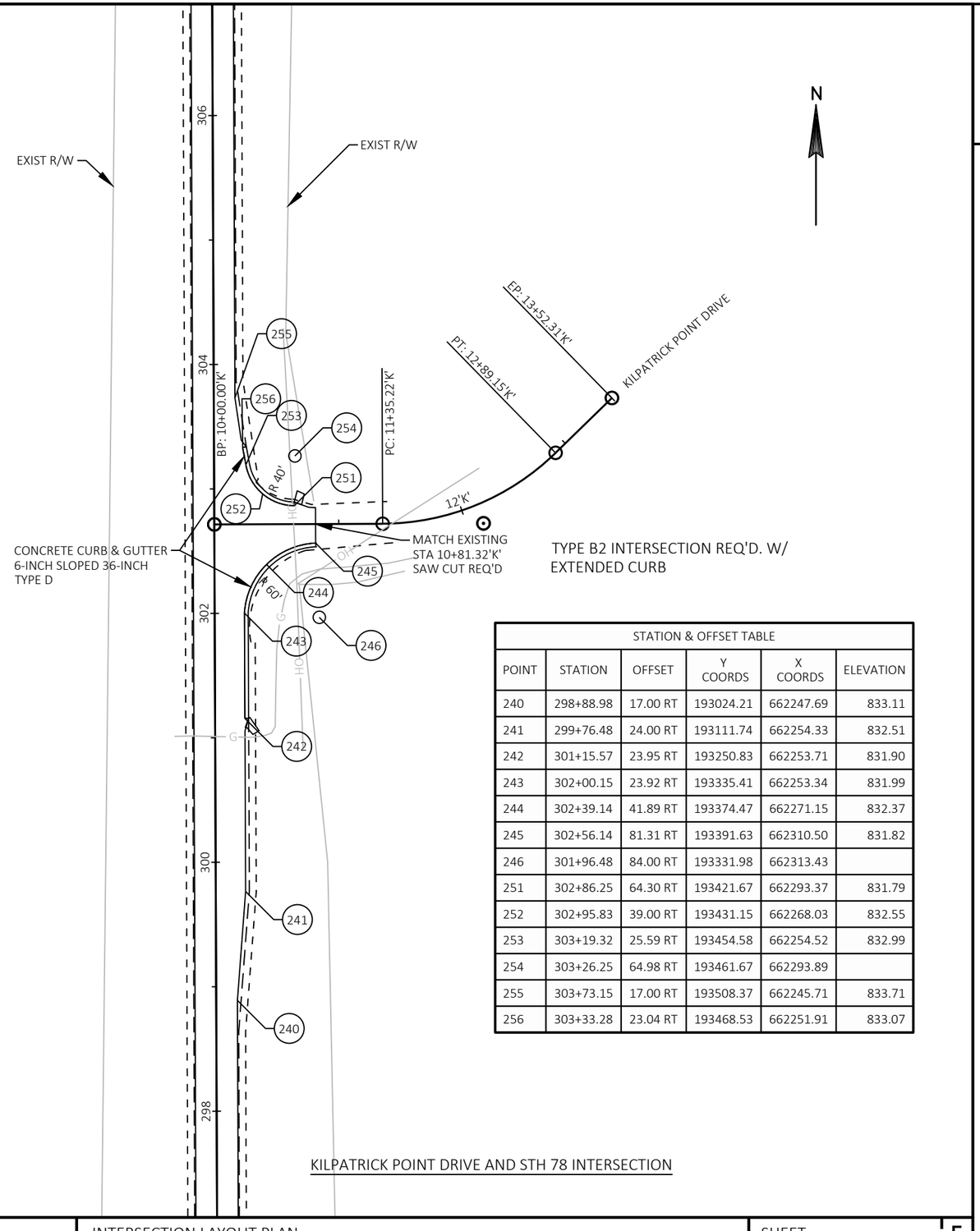
STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
190	227+26.04	17.00 RT	187528.82	658198.03	845.59
191	228+13.53	24.00 RT	187550.54	658283.44	848.01
192	229+13.53	24.00 RT	187586.96	658377.91	850.02
193	229+34.69	33.22 RT	187586.83	658401.28	850.21
194	229+42.68	55.12 RT	187569.96	658417.46	850.15
195	229+13.53	54.00 RT	187559.26	658389.43	
196	229+66.21	52.06 RT	187582.52	658438.36	850.25
197	229+75.24	32.14 RT	187604.48	658438.57	850.98
198	229+95.34	24.00 RT	187620.40	658453.69	851.56
199	229+95.34	54.00 RT	187593.22	658466.39	
200	230+65.34	17.00 RT	187657.80	658514.15	852.59
201	231+88.55	17.00 LT	187747.22	658605.44	853.10
202	231+01.45	24.00 LT	187710.85	658527.02	851.06
203	230+01.05	24.00 LT	187666.29	658438.48	849.16
204	229+80.84	31.43 LT	187664.64	658417.29	848.67
205	229+70.47	50.11 LT	187677.44	658400.32	848.38
206	230+01.05	54.00 LT	187693.43	658425.70	
208	229+37.87	39.34 LT	187654.74	658375.53	847.87
209	229+11.04	24.00 LT	187630.34	658357.20	847.47
210	229+11.04	54.00 LT	187658.05	658345.72	
211	228+41.04	17.00 LT	187598.49	658295.32	846.54



TYPE B2 INTERSECTION REQ'D.

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
219	289+84.19	17.00 RT	192129.72	662126.05	835.17
220	290+71.69	24.00 RT	192208.99	662166.70	835.94
221	292+52.76	23.53 RT	192385.26	662219.90	836.77
222	292+91.68	36.53 RT	192421.38	662241.05	837.02
223	293+11.69	72.84 RT	192434.88	662280.66	835.71
224	292+55.86	83.45 RT	192374.91	662279.00	
230	293+41.14	73.14 RT	192465.41	662286.33	835.77
232	293+46.70	41.50 RT	192476.20	662256.03	837.17
233	293+73.46	24.69 RT	192505.81	662243.47	837.00
234	293+78.27	64.37 RT	192505.30	662283.46	
235	294+41.32	18.12 RT	192575.04	662244.77	836.64
236	295+50.00	17.00 LT	192685.30	662214.97	834.47
237	293+00.00	17.00 LT	192440.06	662190.18	834.73
238	295+09.66	15.05 RT	192644.27	662246.08	836.29
239	295+99.88	14.70 RT	192735.11	662246.56	835.39

INSPIRATION DRIVE AND STH 78 INTERSECTION



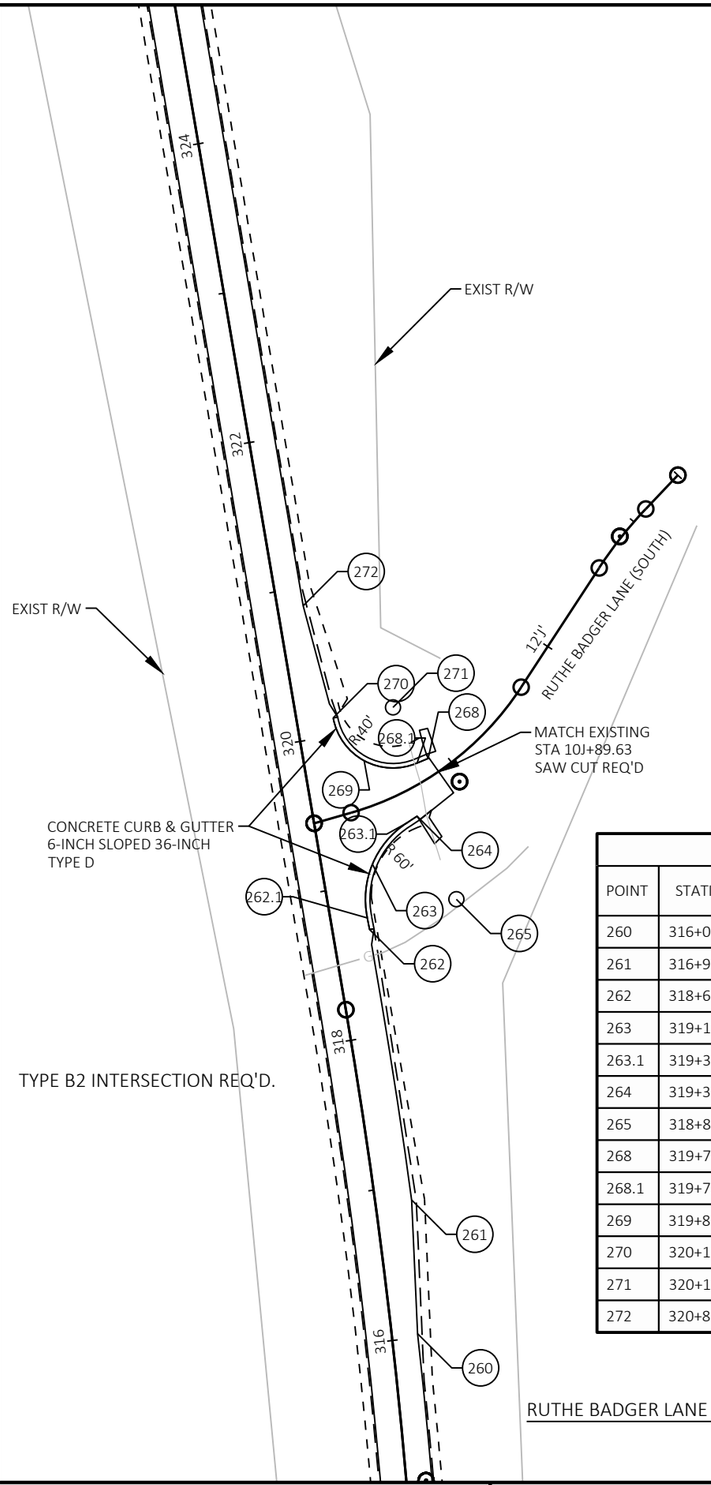
TYPE B2 INTERSECTION REQ'D. W/ EXTENDED CURB

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
240	298+88.98	17.00 RT	193024.21	662247.69	833.11
241	299+76.48	24.00 RT	193111.74	662254.33	832.51
242	301+15.57	23.95 RT	193250.83	662253.71	831.90
243	302+00.15	23.92 RT	193335.41	662253.34	831.99
244	302+39.14	41.89 RT	193374.47	662271.15	832.37
245	302+56.14	81.31 RT	193391.63	662310.50	831.82
246	301+96.48	84.00 RT	193331.98	662313.43	
251	302+86.25	64.30 RT	193421.67	662293.37	831.79
252	302+95.83	39.00 RT	193431.15	662268.03	832.55
253	303+19.32	25.59 RT	193454.58	662254.52	832.99
254	303+26.25	64.98 RT	193461.67	662293.89	
255	303+73.15	17.00 RT	193508.37	662245.71	833.71
256	303+33.28	23.04 RT	193468.53	662251.91	833.07

KILPATRICK POINT DRIVE AND STH 78 INTERSECTION

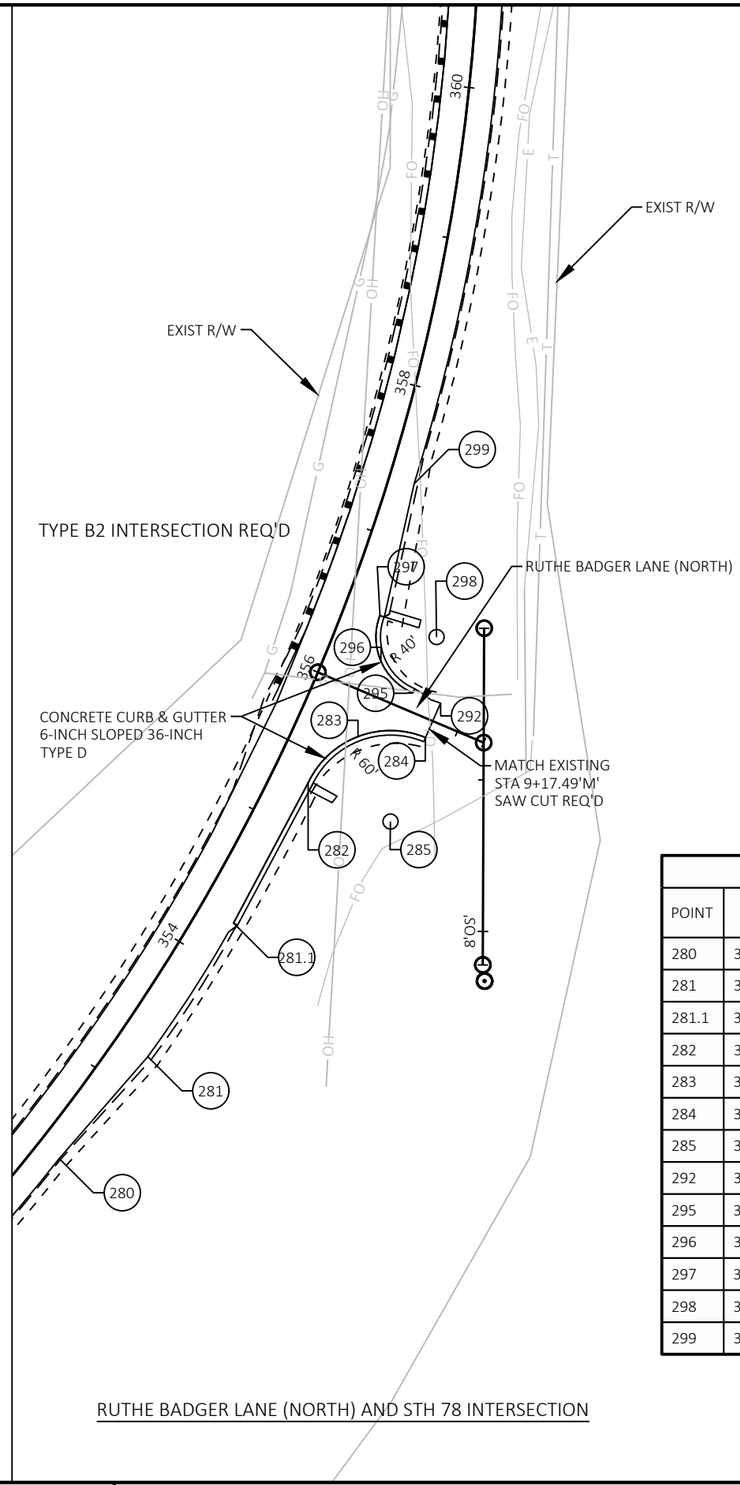
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

PRE_22



STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
260	316+02.57	17.00 RT	194738.73	662218.51	850.63
261	316+90.07	24.00 RT	194826.89	662214.66	851.72
262	318+69.91	24.31 RT	195005.39	662186.84	851.93
263	319+12.12	33.39 RT	195048.52	662188.70	851.65
263.1	319+35.22	60.51 RT	195075.85	662211.57	851.31
264	319+38.47	67.76 RT	195080.27	662218.16	850.86
265	318+80.05	84.10 RT	195025.42	662244.08	
268	319+74.73	81.37 RT	195118.30	662225.50	850.86
268.1	319+72.97	73.60 RT	195115.26	662218.13	851.03
269	319+80.30	39.53 RT	195116.77	662183.31	851.49
270	320+11.58	24.14 RT	195145.02	662162.89	851.26
271	320+11.83	64.14 RT	195151.98	662202.28	
272	320+87.96	17.00 RT	195219.11	662143.02	851.16

RUTHE BADGER LANE (SOUTH) AND STH 78 INTERSECTION



STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
280	352+38.12	17.00 RT	197796.94	663291.08	784.25
281	353+25.62	24.00 RT	197864.18	663349.52	783.59
281.1	354+28.58	24.49 RT	197952.34	663406.16	782.51
282	355+32.23	24.37 RT	198045.49	663455.70	781.48
283	355+72.21	41.38 RT	198075.40	663488.44	782.79
284	355+88.69	82.24 RT	198074.66	663532.78	786.18
285	355+32.21	84.37 RT	198019.29	663509.68	
292	356+12.18	82.58 RT	198097.48	663542.82	785.20
295	356+11.46	63.09 RT	198104.24	663524.52	783.77
296	356+22.61	35.48 RT	198125.39	663503.35	781.78
297	356+49.66	24.00 RT	198155.32	663502.78	781.04
298	356+49.66	64.00 RT	198141.06	663540.15	
299	357+37.89	17.00 RT	198242.27	663525.34	780.74

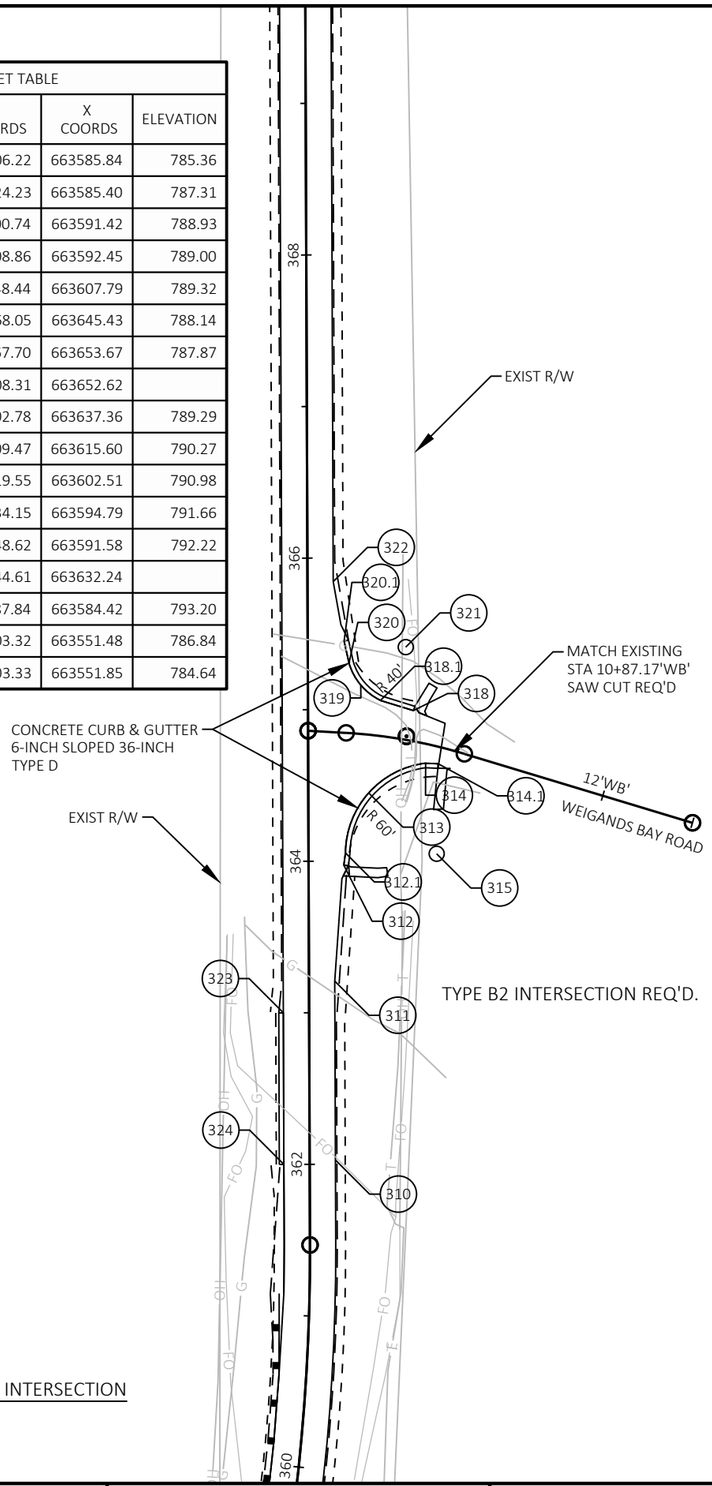
RUTHE BADGER LANE (NORTH) AND STH 78 INTERSECTION

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

PRE_23

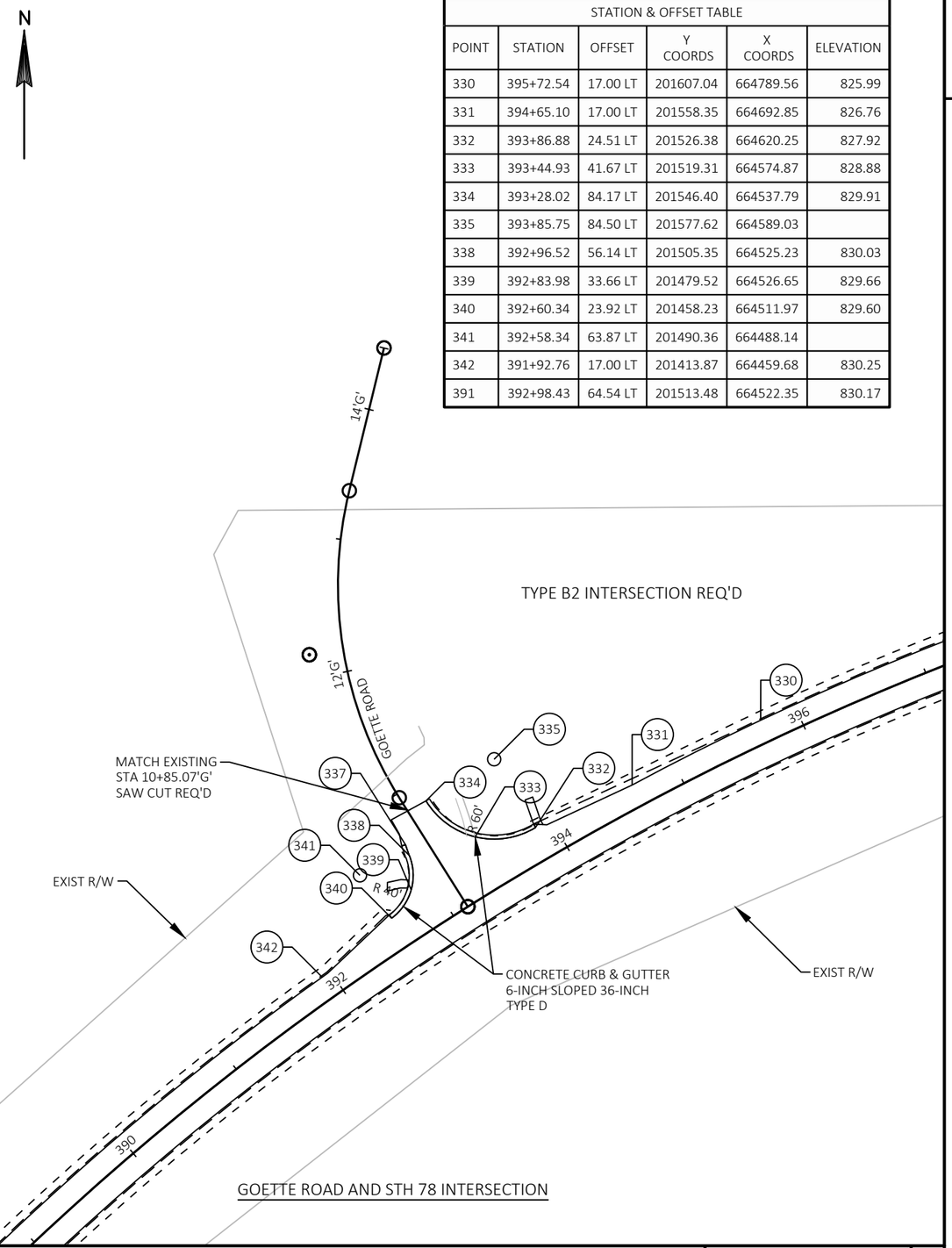
2

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
310	362+02.77	17.00 RT	198706.22	663585.84	785.36
311	363+20.78	17.00 RT	198824.23	663585.40	787.31
312	363+97.27	23.30 RT	198900.74	663591.42	788.93
312.1	364+05.39	24.36 RT	198908.86	663592.45	789.00
313	364+44.91	39.85 RT	198948.44	663607.79	789.32
314	364+64.38	77.57 RT	198968.05	663645.43	788.14
314.1	364+63.99	85.80 RT	198967.70	663653.67	787.87
315	364+04.60	84.53 RT	198908.31	663652.62	
318	364+99.13	69.62 RT	199002.78	663637.36	789.29
318.1	365+05.90	47.89 RT	199009.47	663615.60	790.27
319	365+16.03	34.84 RT	199019.55	663602.51	790.98
320	365+30.66	27.17 RT	199034.15	663594.79	791.66
320.1	365+45.14	24.01 RT	199048.62	663591.58	792.22
321	365+40.98	64.65 RT	199044.61	663632.24	
322	365+84.39	17.00 RT	199087.84	663584.42	793.20
323	363+00.00	17.00 LT	198803.32	663551.48	786.84
324	362+00.00	17.00 LT	198703.33	663551.85	784.64



WEIGANDS BAY ROAD AND STH 78 INTERSECTION

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
330	395+72.54	17.00 LT	201607.04	664789.56	825.99
331	394+65.10	17.00 LT	201558.35	664692.85	826.76
332	393+86.88	24.51 LT	201526.38	664620.25	827.92
333	393+44.93	41.67 LT	201519.31	664574.87	828.88
334	393+28.02	84.17 LT	201546.40	664537.79	829.91
335	393+85.75	84.50 LT	201577.62	664589.03	
338	392+96.52	56.14 LT	201505.35	664525.23	830.03
339	392+83.98	33.66 LT	201479.52	664526.65	829.66
340	392+60.34	23.92 LT	201458.23	664511.97	829.60
341	392+58.34	63.87 LT	201490.36	664488.14	
342	391+92.76	17.00 LT	201413.87	664459.68	830.25
391	392+98.43	64.54 LT	201513.48	664522.35	830.17



GOETTE ROAD AND STH 78 INTERSECTION

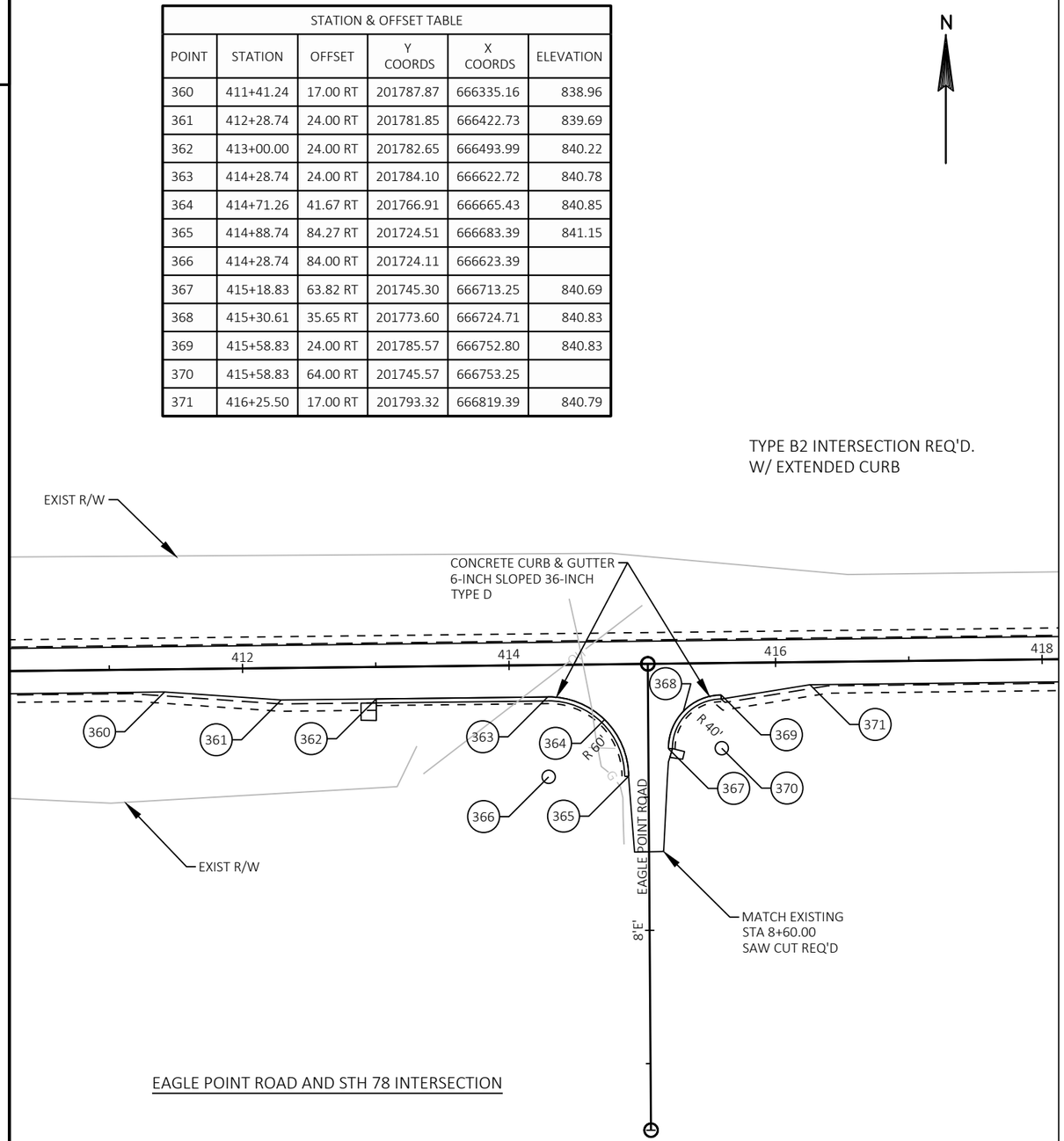
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021108-id
PLOT DATE : 7/18/2019 8:29 AM
PLOT BY : DUMS, ALEXANDER T
PLOT NAME :
PLOT SCALE : 1 IN:100 FT

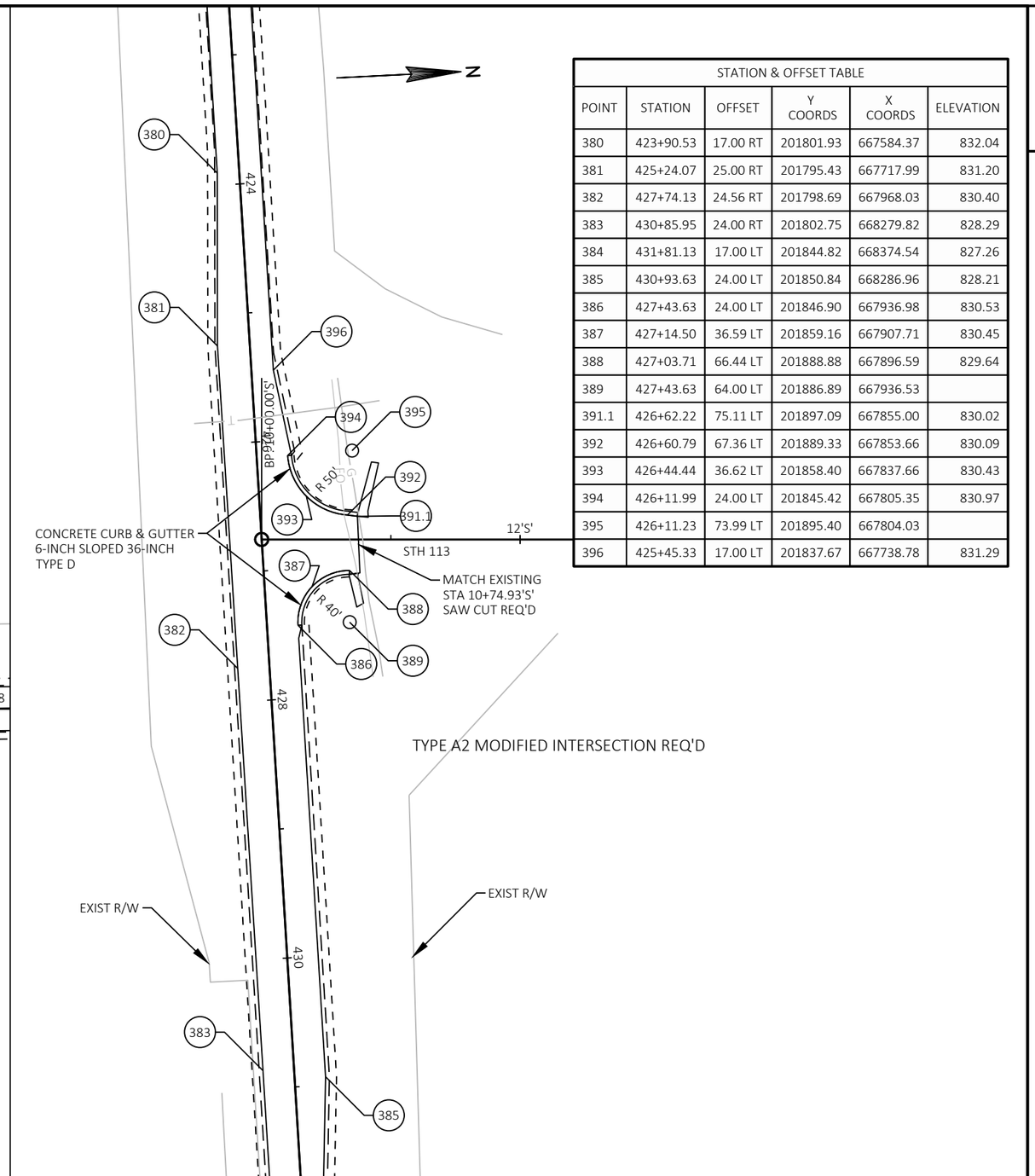
PRE_24

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
360	411+41.24	17.00 RT	201787.87	666335.16	838.96
361	412+28.74	24.00 RT	201781.85	666422.73	839.69
362	413+00.00	24.00 RT	201782.65	666493.99	840.22
363	414+28.74	24.00 RT	201784.10	666622.72	840.78
364	414+71.26	41.67 RT	201766.91	666665.43	840.85
365	414+88.74	84.27 RT	201724.51	666683.39	841.15
366	414+28.74	84.00 RT	201724.11	666623.39	
367	415+18.83	63.82 RT	201745.30	666713.25	840.69
368	415+30.61	35.65 RT	201773.60	666724.71	840.83
369	415+58.83	24.00 RT	201785.57	666752.80	840.83
370	415+58.83	64.00 RT	201745.57	666753.25	
371	416+25.50	17.00 RT	201793.32	666819.39	840.79

TYPE B2 INTERSECTION REQ'D.
W/ EXTENDED CURB



EAGLE POINT ROAD AND STH 78 INTERSECTION



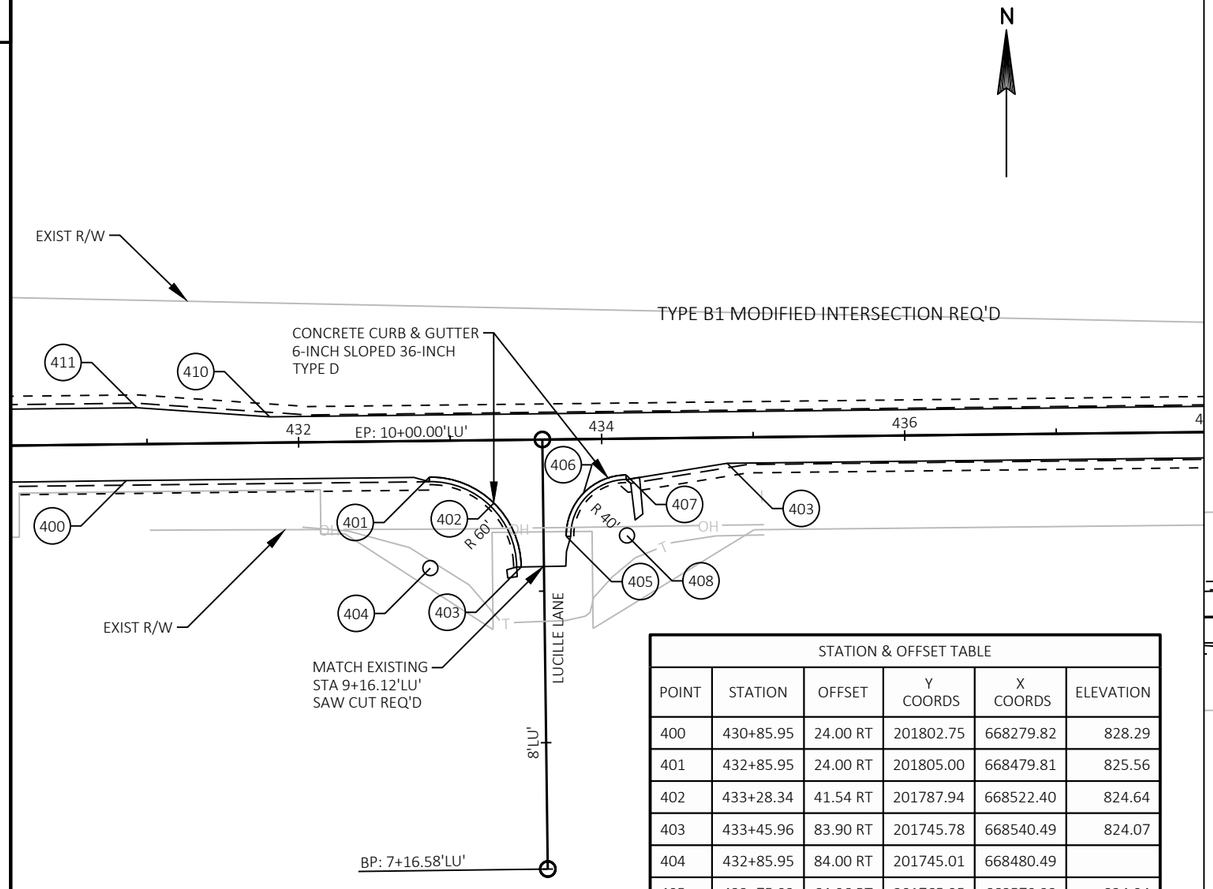
STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
380	423+90.53	17.00 RT	201801.93	667584.37	832.04
381	425+24.07	25.00 RT	201795.43	667717.99	831.20
382	427+74.13	24.56 RT	201798.69	667968.03	830.40
383	430+85.95	24.00 RT	201802.75	668279.82	828.29
384	431+81.13	17.00 LT	201844.82	668374.54	827.26
385	430+93.63	24.00 LT	201850.84	668286.96	828.21
386	427+43.63	24.00 LT	201846.90	667936.98	830.53
387	427+14.50	36.59 LT	201859.16	667907.71	830.45
388	427+03.71	66.44 LT	201888.88	667896.59	829.64
389	427+43.63	64.00 LT	201886.89	667936.53	
391.1	426+62.22	75.11 LT	201897.09	667855.00	830.02
392	426+60.79	67.36 LT	201889.33	667853.66	830.09
393	426+44.44	36.62 LT	201858.40	667837.66	830.43
394	426+11.99	24.00 LT	201845.42	667805.35	830.97
395	426+11.23	73.99 LT	201895.40	667804.03	
396	425+45.33	17.00 LT	201837.67	667738.78	831.29

STH 113 AND STH 78 INTERSECTION

2

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021109-id
PLOT DATE : 7/18/2019 8:29 AM
PLOT BY : DUMS, ALEXANDER T
PLOT NAME :
PLOT SCALE : 1 IN:100 FT
PRE_25
WISDOT/CADDS SHEET 44



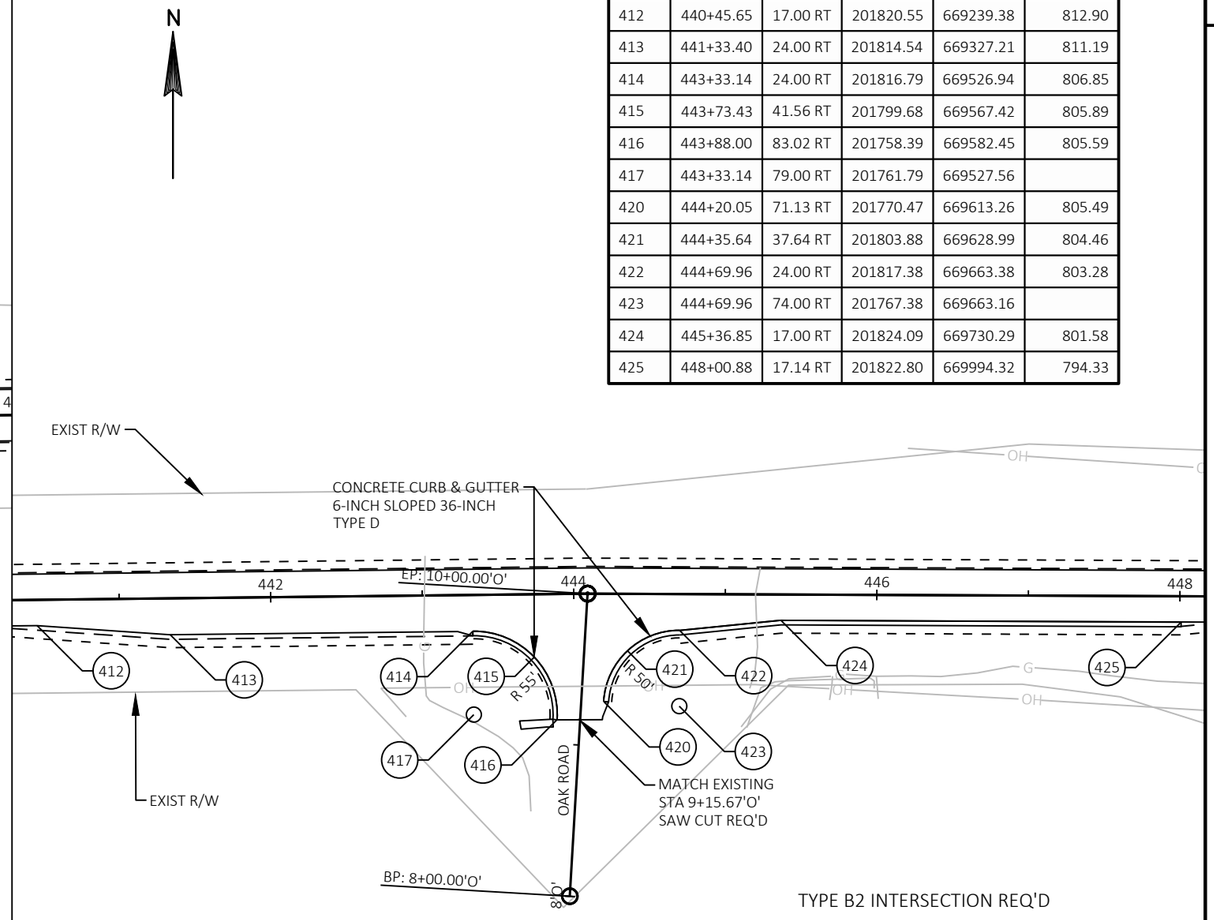
STATION & OFFSET TABLE

POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
400	430+85.95	24.00 RT	201802.75	668279.82	828.29
401	432+85.95	24.00 RT	201805.00	668479.81	825.56
402	433+28.34	41.54 RT	201787.94	668522.40	824.64
403	433+45.96	83.90 RT	201745.78	668540.49	824.07
404	432+85.95	84.00 RT	201745.01	668480.49	
405	433+75.92	64.06 RT	201765.95	668570.23	824.04
406	433+87.61	35.74 RT	201794.41	668581.60	823.91
407	434+15.92	24.00 RT	201806.47	668609.77	823.36
408	434+15.92	64.00 RT	201766.47	668610.22	
409	434+82.59	17.00 RT	201814.21	668676.36	822.38
410	431+81.13	17.00 LT	201844.82	668374.54	827.26
411	430+93.63	24.00 LT	201850.83	668286.96	828.21

LUCILLE LANE AND STH 78 INTERSECTION

STATION & OFFSET TABLE

POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
412	440+45.65	17.00 RT	201820.55	669239.38	812.90
413	441+33.40	24.00 RT	201814.54	669327.21	811.19
414	443+33.14	24.00 RT	201816.79	669526.94	806.85
415	443+73.43	41.56 RT	201799.68	669567.42	805.89
416	443+88.00	83.02 RT	201758.39	669582.45	805.59
417	443+33.14	79.00 RT	201761.79	669527.56	
420	444+20.05	71.13 RT	201770.47	669613.26	805.49
421	444+35.64	37.64 RT	201803.88	669628.99	804.46
422	444+69.96	24.00 RT	201817.38	669663.38	803.28
423	444+69.96	74.00 RT	201767.38	669663.16	
424	445+36.85	17.00 RT	201824.09	669730.29	801.58
425	448+00.88	17.14 RT	201822.80	669994.32	794.33



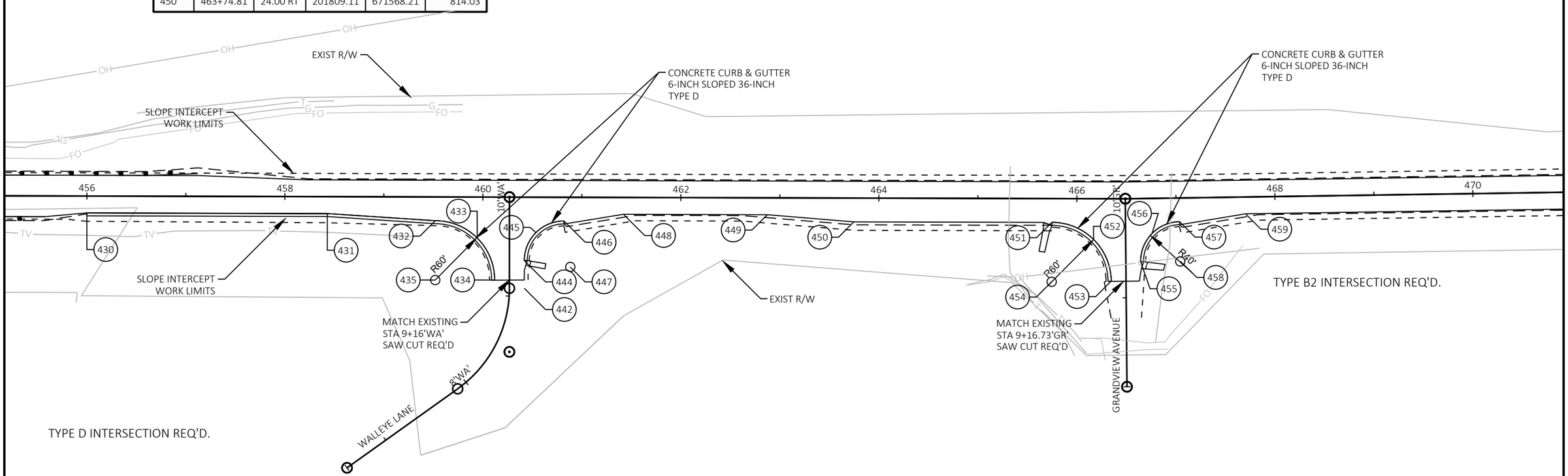
TYPE B2 INTERSECTION REQ'D

OAK ROAD AND STH 78 INTERSECTION

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
430	456+00.00	17.00 RT	201819.47	670793.43	789.75
431	458+42.84	17.00 RT	201818.42	671036.27	797.14
432	459+52.01	24.00 RT	201810.94	671145.41	800.96
433	459+94.39	41.53 RT	201793.23	671187.71	802.53
434	460+12.01	83.89 RT	201750.79	671205.15	803.01
435	459+52.01	84.00 RT	201750.94	671145.15	
442	460+42.02	92.05 RT	201742.50	671235.13	
444	460+41.97	64.08 RT	201770.47	671235.20	804.17
445	460+53.66	35.74 RT	201798.76	671247.01	804.67
446	460+81.97	24.00 RT	201810.38	671275.37	805.73
447	460+81.97	64.00 RT	201770.38	671275.20	
448	461+41.97	17.00 RT	201817.12	671335.40	807.62
449	462+87.31	17.00 RT	201816.49	671480.74	811.90
450	463+74.81	24.00 RT	201809.11	671568.21	814.03

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
449	462+87.31	17.00 RT	201816.49	671480.74	811.90
450	463+74.81	24.00 RT	201809.11	671568.21	814.03
451	465+74.81	24.00 RT	201808.24	671768.20	818.36
452	466+16.99	41.33 RT	201790.72	671810.31	819.11
453	466+34.80	83.30 RT	201748.67	671827.94	819.58
454	465+74.81	84.00 RT	201748.24	671767.94	
455	466+63.45	63.76 RT	201768.35	671857.80	819.80
456	466+75.25	35.63 RT	201796.64	671869.22	820.15
457	467+03.50	24.00 RT	201808.65	671897.31	820.50
458	467+03.50	64.00 RT	201768.65	671897.85	
459	467+70.12	17.00 RT	201816.54	671963.83	821.56



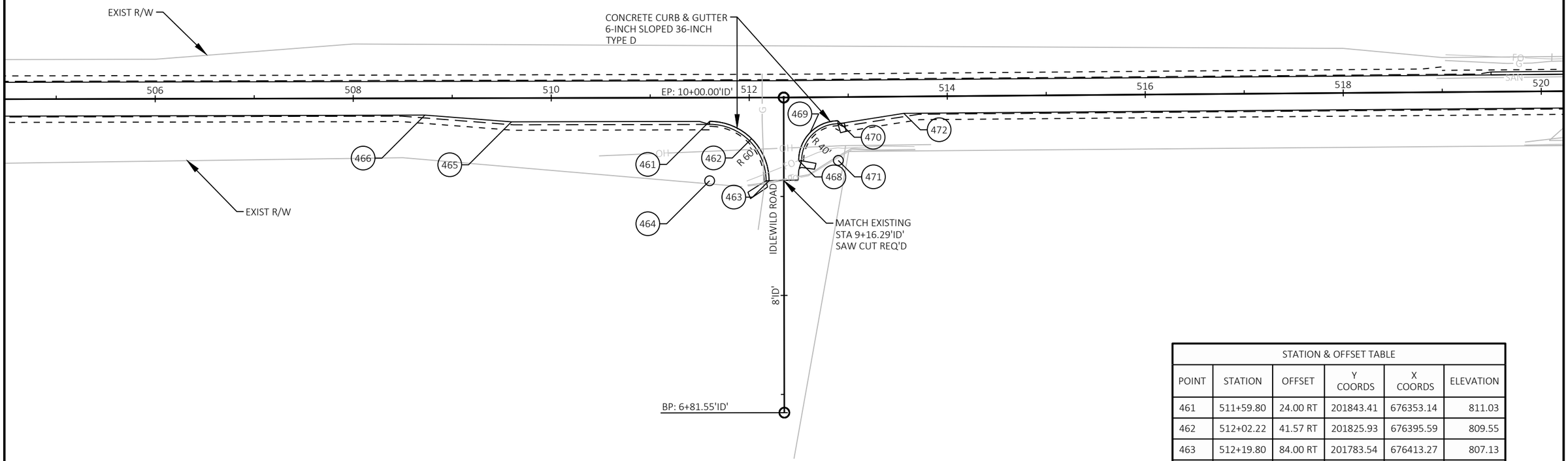
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021111-id
PLOT DATE : 7/18/2019 8:29 AM
PLOT BY : DUMS, ALEXANDER T
PLOT NAME :
PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 44

2

N

TYPE B2 INTERSECTION REQ'D.



STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
461	511+59.80	24.00 RT	201843.41	676353.14	811.03
462	512+02.22	41.57 RT	201825.93	676395.59	809.55
463	512+19.80	84.00 RT	201783.54	676413.27	807.13
464	511+59.80	84.00 RT	201783.41	676353.26	
465	509+59.80	24.00 RT	201842.99	676153.14	816.96
466	508+72.30	17.00 RT	201849.81	676065.62	819.98
468	512+49.41	63.77 RT	201803.93	676443.22	807.69
469	512+61.21	35.64 RT	201832.15	676454.79	808.49
470	512+89.41	24.00 RT	201844.02	676482.89	808.13
471	512+89.41	64.00 RT	201804.02	676483.22	
472	513+56.07	17.00 RT	201851.57	676549.49	807.11

IDLEWILD ROAD AND STH 78 INTERSECTION

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	INTERSECTION LAYOUT PLAN	SHEET E

2

2

N

N. RIDGE DRIVE

DAM HEIGHTS ROAD

LEGEND

- EROSION MAT CLASS I, TYPE B
- SILT FENCE
- SLOPE INTERCEPT
- ASPH — ASPHALTIC FLUME
- TEMPORARY DITCH CHECK
- CULVERT PIPE DITCH CHECK
- SURFACE WATER FLOW

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	EROSION CONTROL	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 022001-ec

PLOT DATE : 7/19/2019 1:40 PM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

PRE_29

WISDOT/CADDS SHEET 44

2

2

LONGWOOD DRIVE

KELLER ROAD (SOUTH)

ZANDER DRIVE

169+50.00

N

LEGEND

- EROSION MAT CLASS I, TYPE B
- SILT FENCE
- SLOPE INTERCEPT
- ASPH — ASPHALTIC FLUME
- TEMPORARY DITCH CHECK
- CULVERT PIPE DITCH CHECK
- SURFACE WATER FLOW

N

KELLER ROAD NORTH

169+50.00

GRUBERS GROVE ROAD

WETLAND DELINEATION

201+00.00

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	EROSION CONTROL	SHEET PRE_30 E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 022002-ec

PLOT DATE : 7/19/2019 1:40 PM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : ##########

2

2

201+00.00

232+50.00

SUNSET DRIVE

USDA ACCESS

264+00

LEGEND

- EROSION MAT CLASS I, TYPE B
- SILT FENCE
- SLOPE INTERCEPT
- ASPH — ASPHALTIC FLUME
- TEMPORARY DITCH CHECK
- CULVERT PIPE DITCH CHECK
- SURFACE WATER FLOW

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	EROSION CONTROL	SHEET E

PRE_31

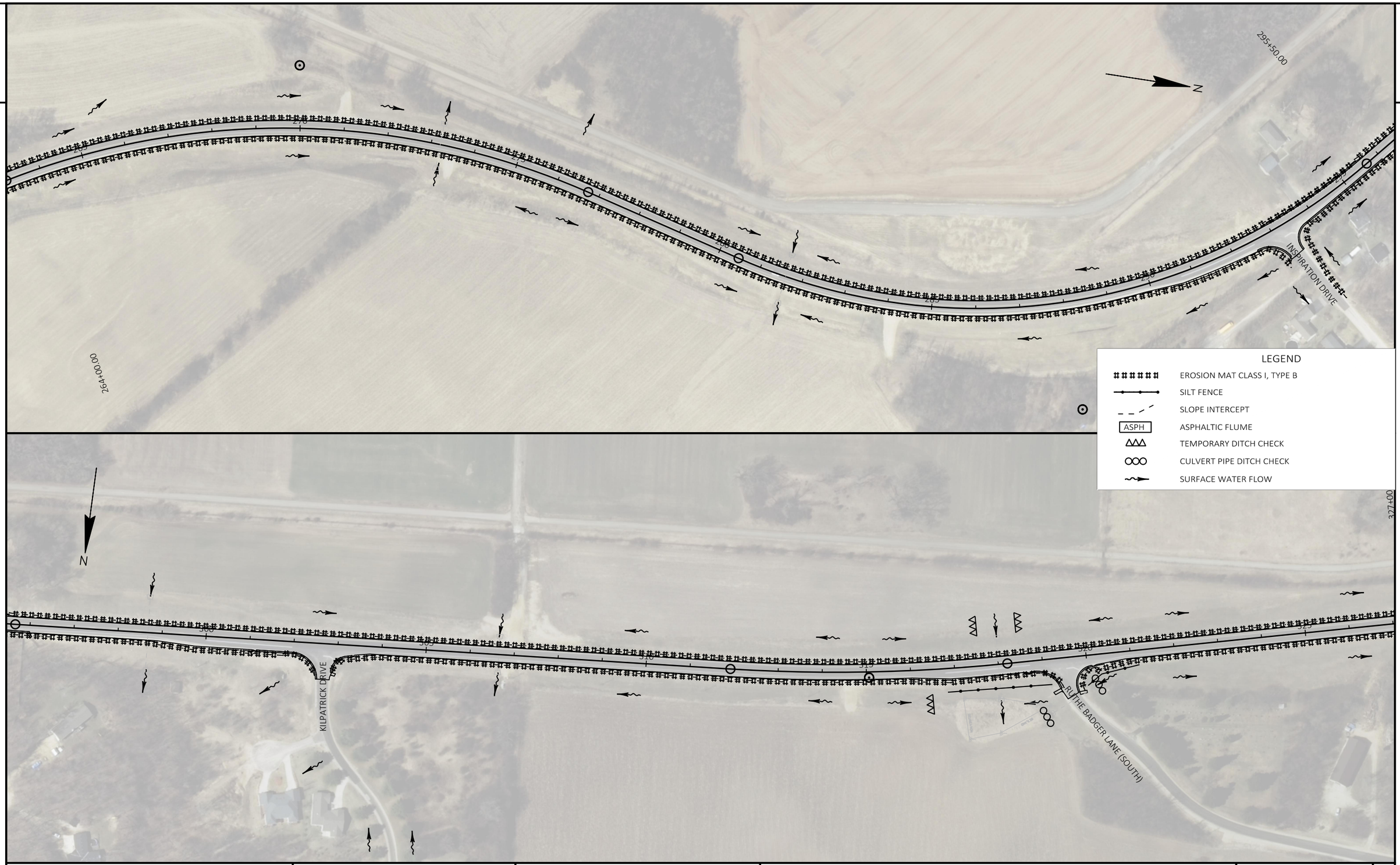
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 022003-ec

PLOT DATE : 7/19/2019 1:40 PM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : ##########

WISDOT/CADDS SHEET 44

2

2



PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	EROSION CONTROL	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 022004-ec

PLOT DATE : 7/19/2019 1:40 PM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : ##########

PRE_32

WISDOT/CADDS SHEET 44

2

2

RUSTY PATCH BUMBLE BEE
HIGH POTENTIAL ZONE

327+00.00

358+50.00

WEIGANDS BAY ROAD

390+00.00

LEGEND

- EROSION MAT CLASS I, TYPE B
- SILT FENCE
- SLOPE INTERCEPT
- ASPH — ASPHALTIC FLUME
- TEMPORARY DITCH CHECK
- CULVERT PIPE DITCH CHECK
- SURFACE WATER FLOW

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	EROSION CONTROL	SHEET E

PRE_33

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 022005-ec

PLOT DATE : 7/19/2019 1:40 PM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : ##########

2

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	EROSION CONTROL	SHEET E

PRE_34

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 022006-ec
PLOT DATE : 7/19/2019 1:40 PM
PLOT BY : DUMS, ALEXANDER T
PLOT NAME :
PLOT SCALE : ##########
WISDOT/CADDS SHEET 44

2

2

N

WALLEYE LANE

GRANDVIEW AVENUE

LEGEND

- EROSION MAT CLASS I, TYPE B
- SILT FENCE
- SLOPE INTERCEPT
- ASPH — ASPHALTIC FLUME
- TEMPORARY DITCH CHECK
- CULVERT PIPE DITCH CHECK
- SURFACE WATER FLOW

N

IDLEWILD ROAD

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	EROSION CONTROL	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 022007-ec

PLOT DATE : 7/19/2019 1:41 PM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : ##########

PRE_35

WISDOT/CADDS SHEET 44

2

2

N

IDLEWILD ROAD

516+00.00

LEGEND

- EROSION MAT CLASS I, TYPE B
- SILT FENCE
- SLOPE INTERCEPT
- ASPH — ASPHALTIC FLUME
- TEMPORARY DITCH CHECK
- CULVERT PIPE DITCH CHECK
- SURFACE WATER FLOW

N

CTH Z

STH 78

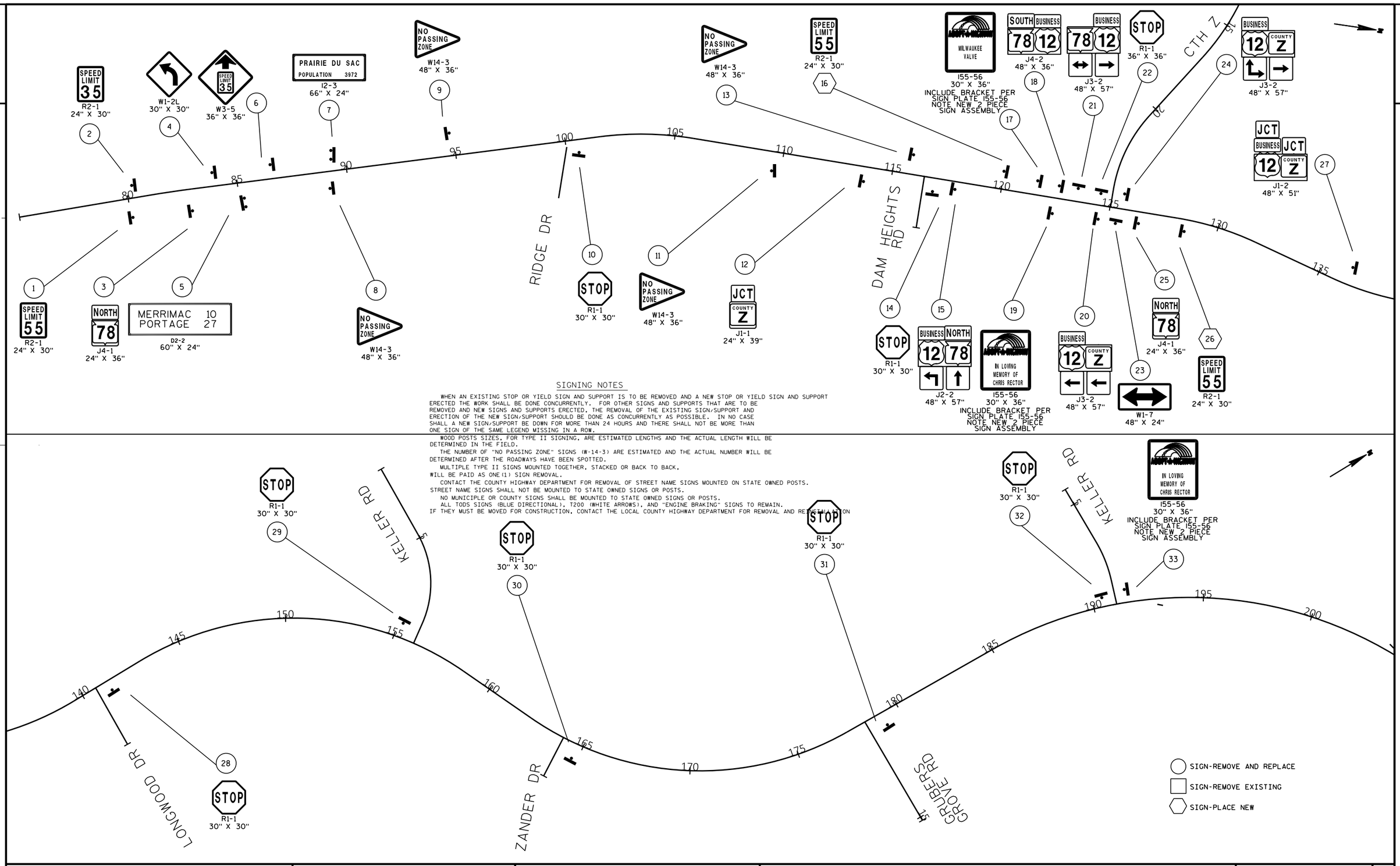
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	EROSION CONTROL	SHEET E

PRE_36

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 022008-ec

PLOT DATE : 7/19/2019 1:41 PM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : ##########

2



SIGNING NOTES

WHEN AN EXISTING STOP OR YIELD SIGN AND SUPPORT IS TO BE REMOVED AND A NEW STOP OR YIELD SIGN AND SUPPORT ERECTED THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

WOOD POSTS SIZES, FOR TYPE II SIGNING, ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

THE NUMBER OF "NO PASSING ZONE" SIGNS (W-14-3) ARE ESTIMATED AND THE ACTUAL NUMBER WILL BE DETERMINED AFTER THE ROADWAYS HAVE BEEN SPOTTED.

MULTIPLE TYPE II SIGNS MOUNTED TOGETHER, STACKED OR BACK TO BACK, WILL BE PAID AS ONE(1) SIGN REMOVAL.

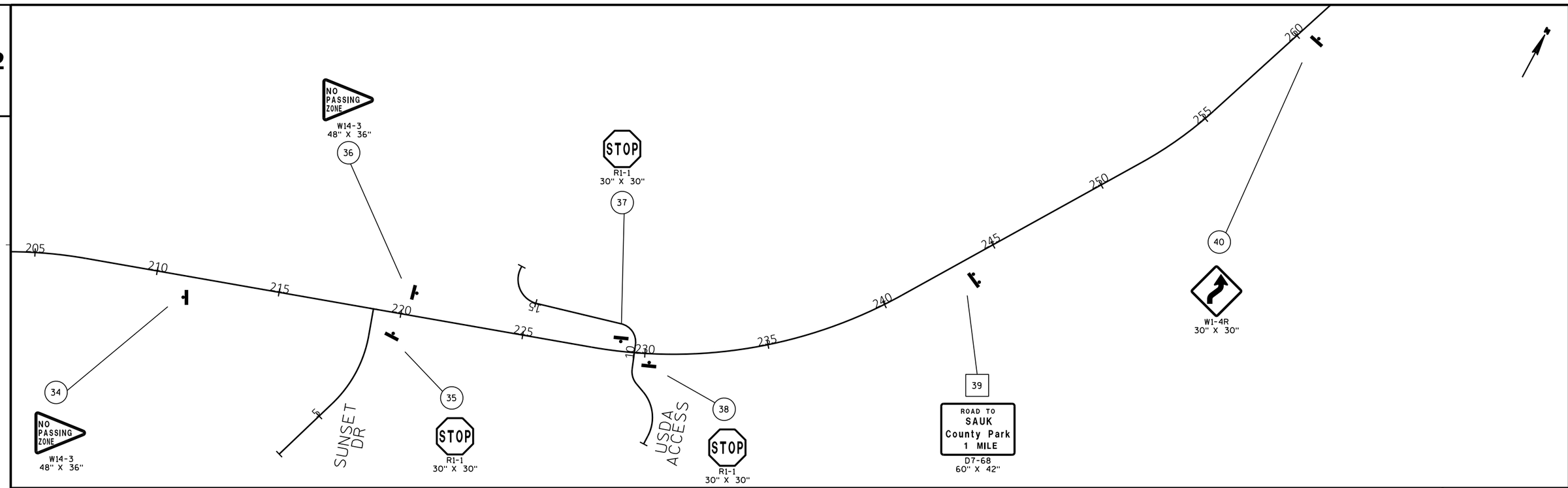
CONTACT THE COUNTY HIGHWAY DEPARTMENT FOR REMOVAL OF STREET NAME SIGNS MOUNTED ON STATE OWNED POSTS. STREET NAME SIGNS SHALL NOT BE MOUNTED TO STATE OWNED SIGNS OR POSTS.

NO MUNICIPLE OR COUNTY SIGNS SHALL BE MOUNTED TO STATE OWNED SIGNS OR POSTS.

ALL TODS SIGNS (BLUE DIRECTIONAL), T200 (WHITE ARROWS), AND "ENGINE BRAKING" SIGNS TO REMAIN. IF THEY MUST BE MOVED FOR CONSTRUCTION, CONTACT THE LOCAL COUNTY HIGHWAY DEPARTMENT FOR REMOVAL AND REINSTALLATION

PROJECT NO: 5360-06-72	HWY: STH 78	COUNTY: SAUK	PERMANENT SIGNING	SHEET E

2



SIGNING NOTES

WHEN AN EXISTING STOP OR YIELD SIGN AND SUPPORT IS TO BE REMOVED AND A NEW STOP OR YIELD SIGN AND SUPPORT ERECTED THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

WOOD POSTS SIZES, FOR TYPE II SIGNING, ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

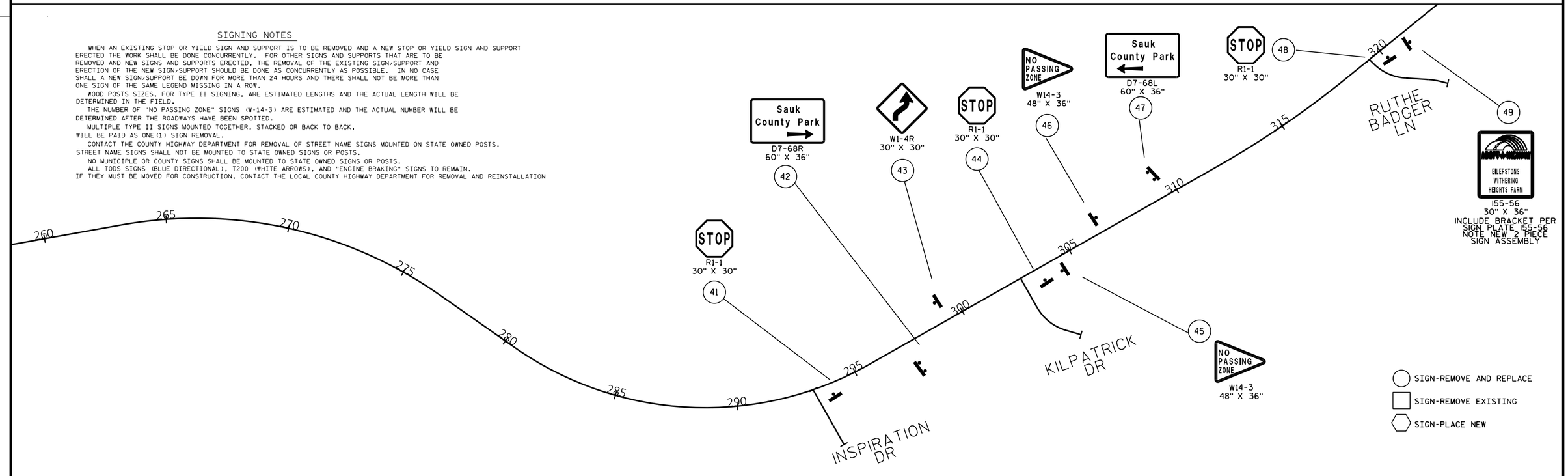
THE NUMBER OF "NO PASSING ZONE" SIGNS (W-14-3) ARE ESTIMATED AND THE ACTUAL NUMBER WILL BE DETERMINED AFTER THE ROADWAYS HAVE BEEN SPOTTED.

MULTIPLE TYPE II SIGNS MOUNTED TOGETHER, STACKED OR BACK TO BACK, WILL BE PAID AS ONE (1) SIGN REMOVAL.

CONTACT THE COUNTY HIGHWAY DEPARTMENT FOR REMOVAL OF STREET NAME SIGNS MOUNTED ON STATE OWNED POSTS. STREET NAME SIGNS SHALL NOT BE MOUNTED TO STATE OWNED SIGNS OR POSTS.

NO MUNICIPLE OR COUNTY SIGNS SHALL BE MOUNTED TO STATE OWNED SIGNS OR POSTS.

ALL TODS SIGNS (BLUE DIRECTIONAL), T200 (WHITE ARROWS), AND "ENGINE BRAKING" SIGNS TO REMAIN. IF THEY MUST BE MOVED FOR CONSTRUCTION, CONTACT THE LOCAL COUNTY HIGHWAY DEPARTMENT FOR REMOVAL AND REINSTALLATION



PROJECT NO: 5360-06-72	HWY: STH 78	COUNTY: SAUK	PERMANENT SIGNING	SHEET E

SIGNING NOTES

WHEN AN EXISTING STOP OR YIELD SIGN AND SUPPORT IS TO BE REMOVED AND A NEW STOP OR YIELD SIGN AND SUPPORT ERECTED THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

WOOD POSTS SIZES, FOR TYPE II SIGNING, ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

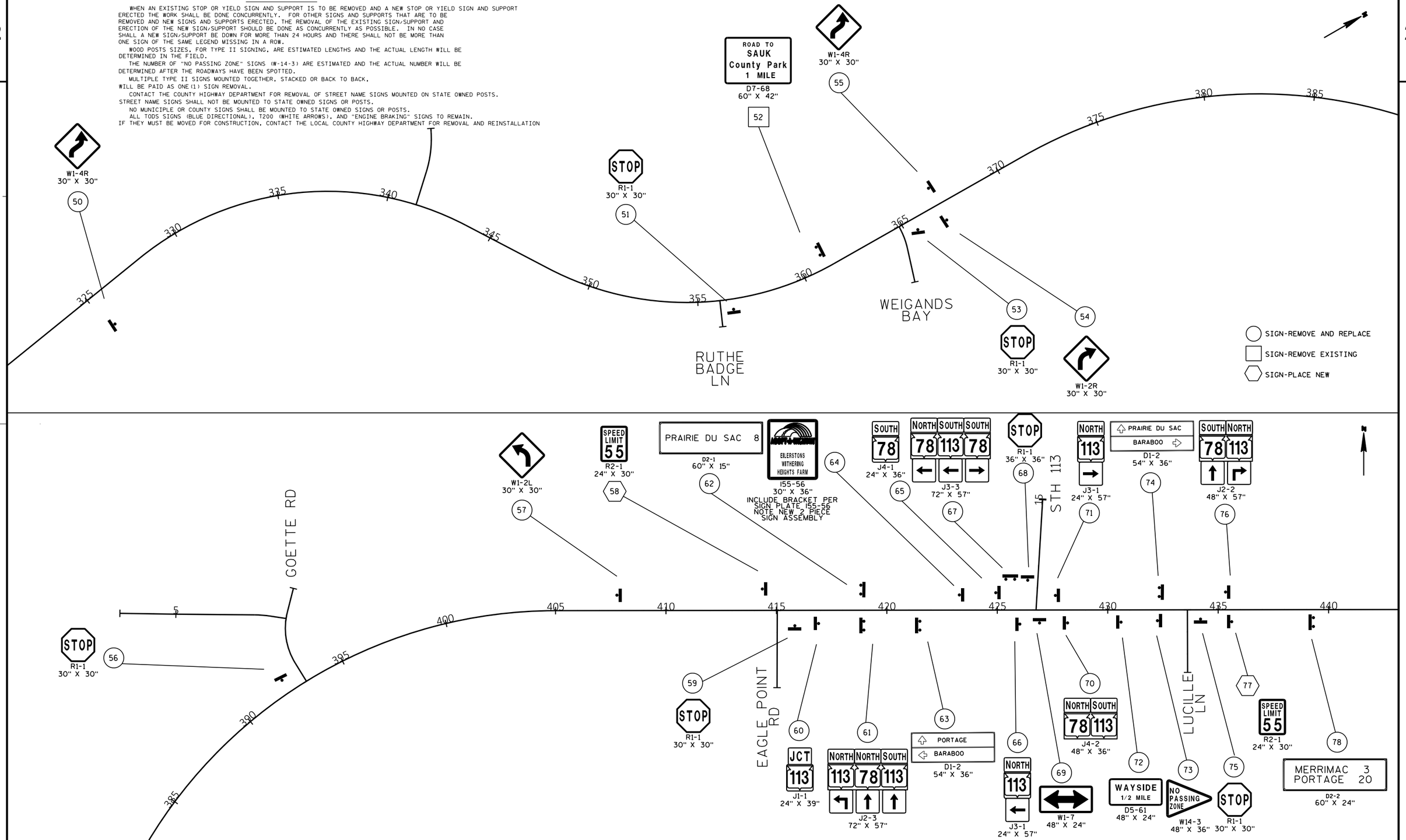
THE NUMBER OF "NO PASSING ZONE" SIGNS (W-14-3) ARE ESTIMATED AND THE ACTUAL NUMBER WILL BE DETERMINED AFTER THE ROADWAYS HAVE BEEN SPOTTED.

MULTIPLE TYPE II SIGNS MOUNTED TOGETHER, STACKED OR BACK TO BACK, WILL BE PAID AS ONE (1) SIGN REMOVAL.

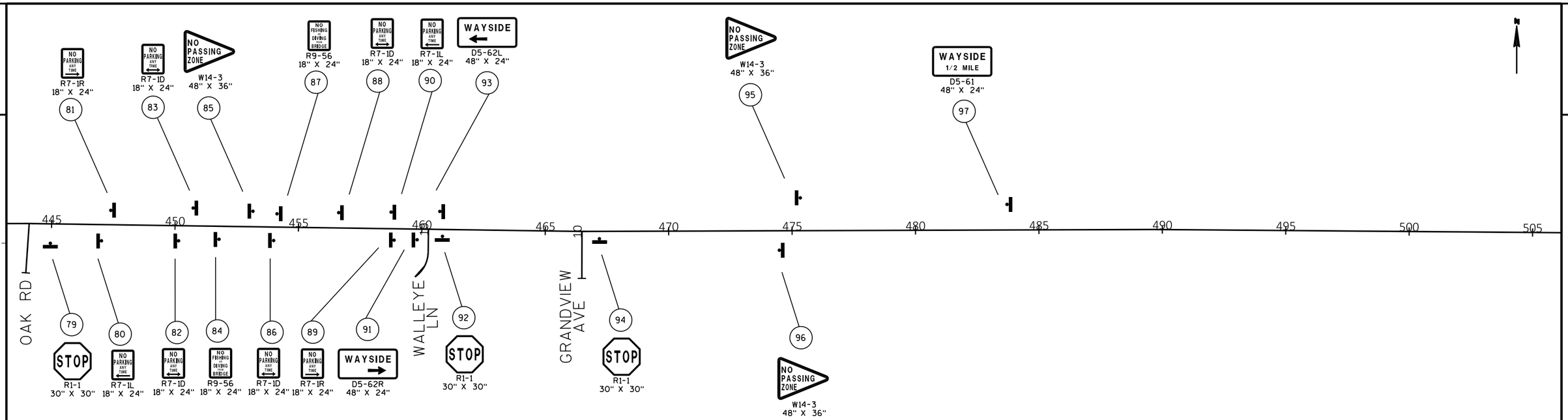
CONTACT THE COUNTY HIGHWAY DEPARTMENT FOR REMOVAL OF STREET NAME SIGNS MOUNTED ON STATE OWNED POSTS. STREET NAME SIGNS SHALL NOT BE MOUNTED TO STATE OWNED SIGNS OR POSTS.

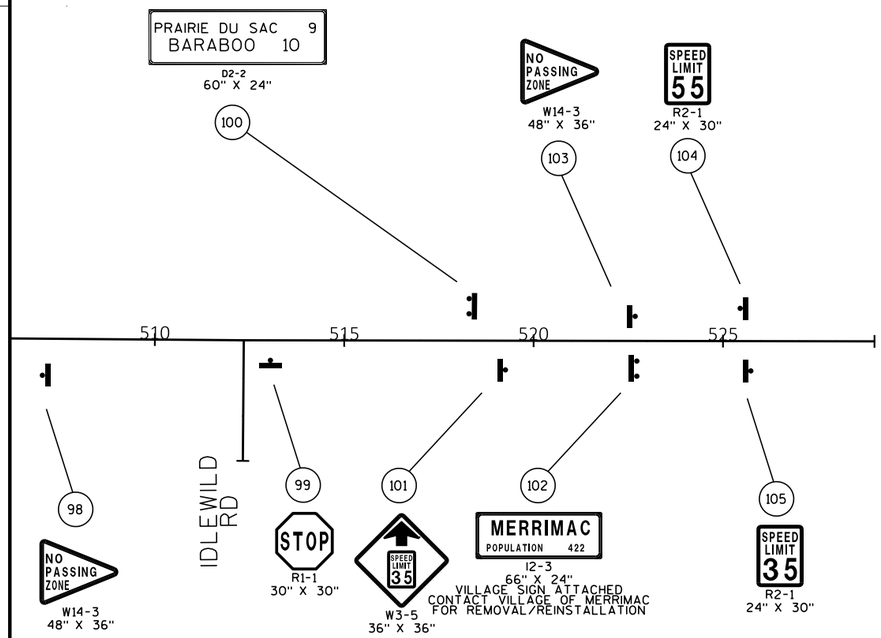
NO MUNICIPLE OR COUNTY SIGNS SHALL BE MOUNTED TO STATE OWNED SIGNS OR POSTS.

ALL TODS SIGNS (BLUE DIRECTIONAL), T200 (WHITE ARROWS), AND "ENGINE BRAKING" SIGNS TO REMAIN. IF THEY MUST BE MOVED FOR CONSTRUCTION, CONTACT THE LOCAL COUNTY HIGHWAY DEPARTMENT FOR REMOVAL AND REINSTALLATION



PROJECT NO: 5360-06-72	HWY: STH 78	COUNTY: SAUK	PERMANENT SIGNING	SHEET E





SIGNING NOTES

WHEN AN EXISTING STOP OR YIELD SIGN AND SUPPORT IS TO BE REMOVED AND A NEW STOP OR YIELD SIGN AND SUPPORT ERECTED THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

WOOD POSTS SIZES, FOR TYPE II SIGNING, ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

THE NUMBER OF "NO PASSING ZONE" SIGNS (W-14-3) ARE ESTIMATED AND THE ACTUAL NUMBER WILL BE DETERMINED AFTER THE ROADWAYS HAVE BEEN SPOTTED.

MULTIPLE TYPE II SIGNS MOUNTED TOGETHER, STACKED OR BACK TO BACK, WILL BE PAID AS ONE (1) SIGN REMOVAL.

CONTACT THE COUNTY HIGHWAY DEPARTMENT FOR REMOVAL OF STREET NAME SIGNS MOUNTED ON STATE OWNED POSTS. STREET NAME SIGNS SHALL NOT BE MOUNTED TO STATE OWNED SIGNS OR POSTS.

NO MUNICIPLE OR COUNTY SIGNS SHALL BE MOUNTED TO STATE OWNED SIGNS OR POSTS.

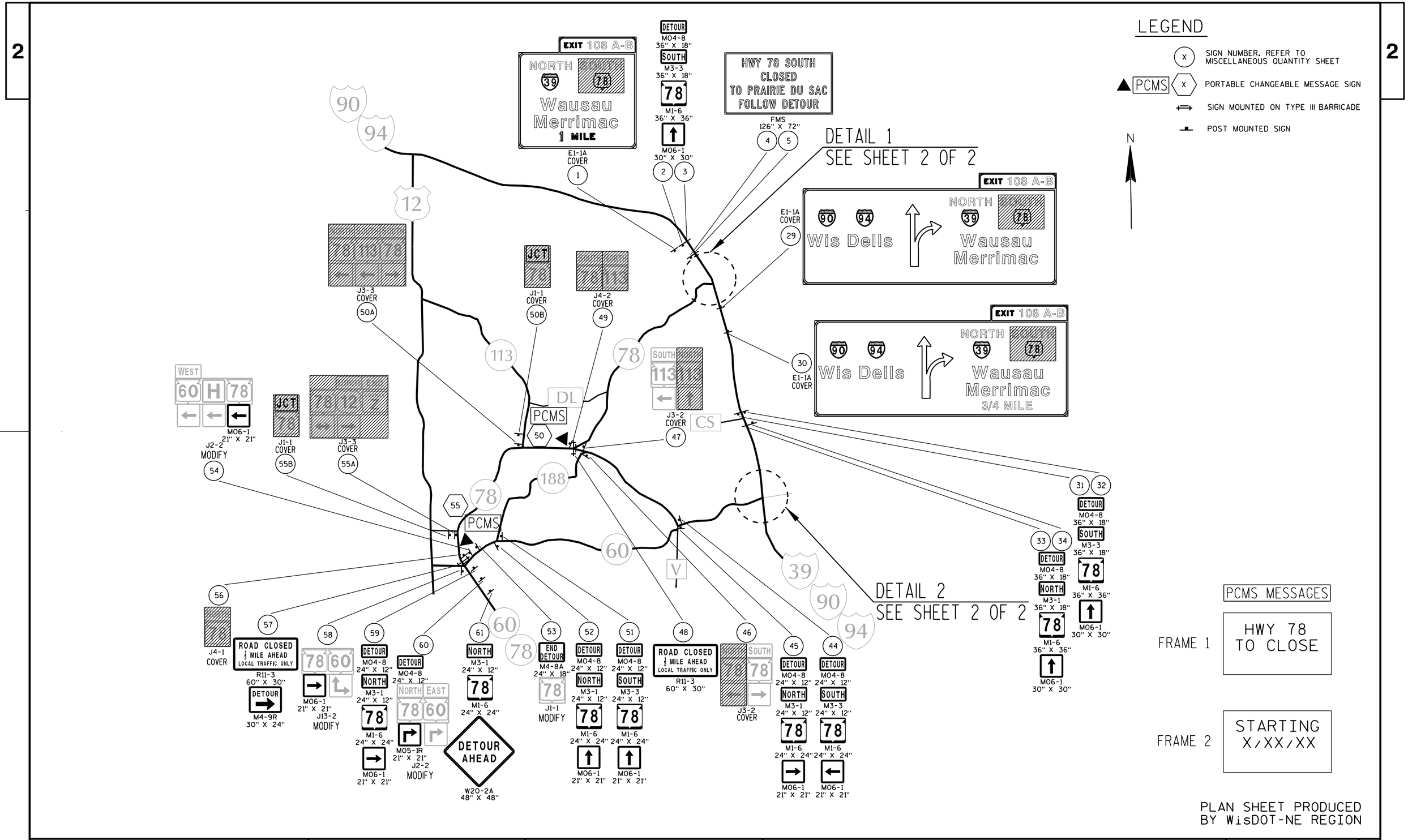
ALL TODS SIGNS (BLUE DIRECTIONAL), T200 (WHITE ARROWS), AND "ENGINE BRAKING" SIGNS TO REMAIN. IF THEY MUST BE MOVED FOR CONSTRUCTION, CONTACT THE LOCAL COUNTY HIGHWAY DEPARTMENT FOR REMOVAL AND REINSTALLATION

SIGN-REMOVE AND REPLACE

SIGN-REMOVE EXISTING

SIGN-PLACE NEW

PROJECT NO: 5360-06-72	HWY: STH 78	COUNTY: SAUK	PERMANENT SIGNING	SHEET E

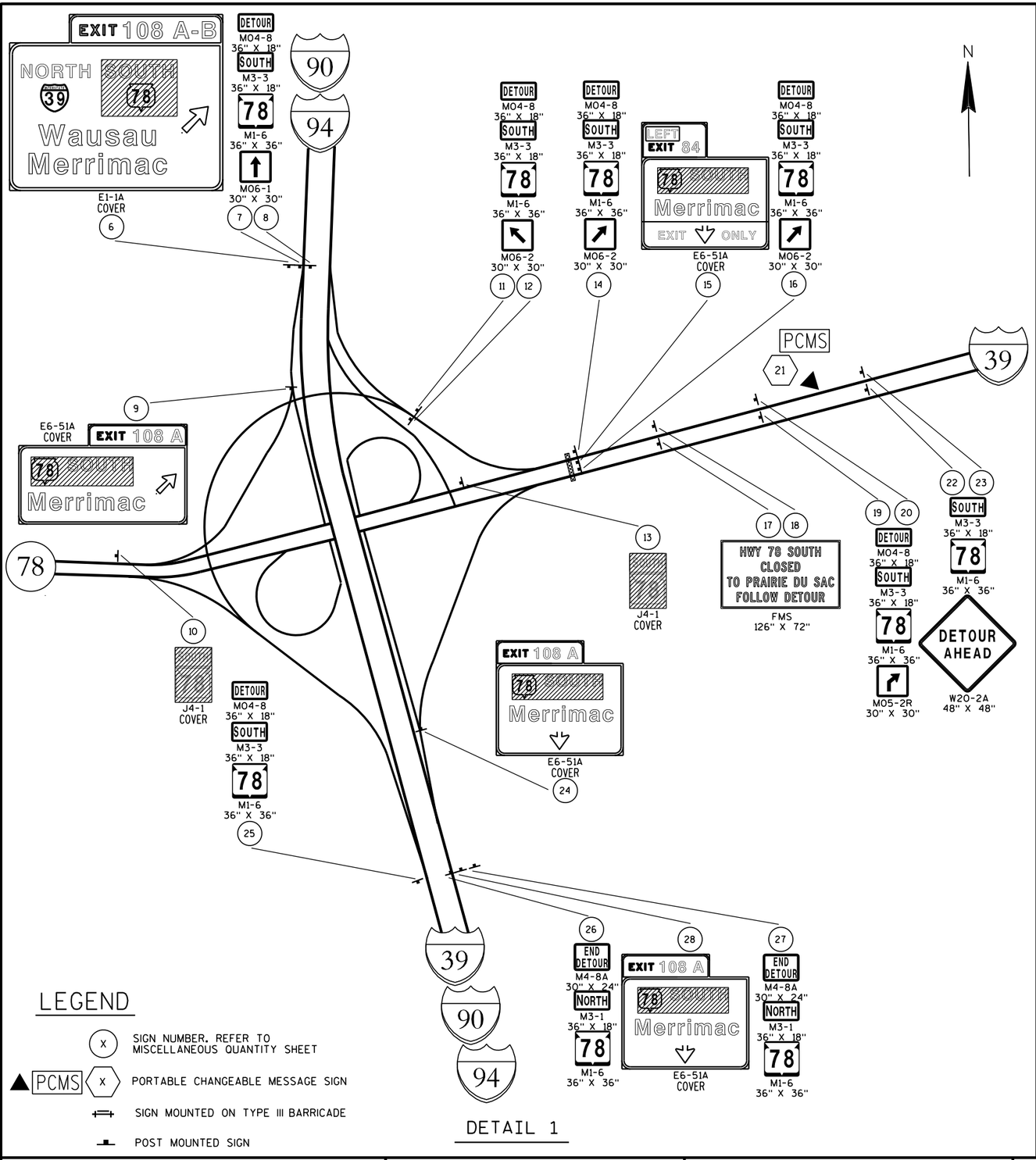


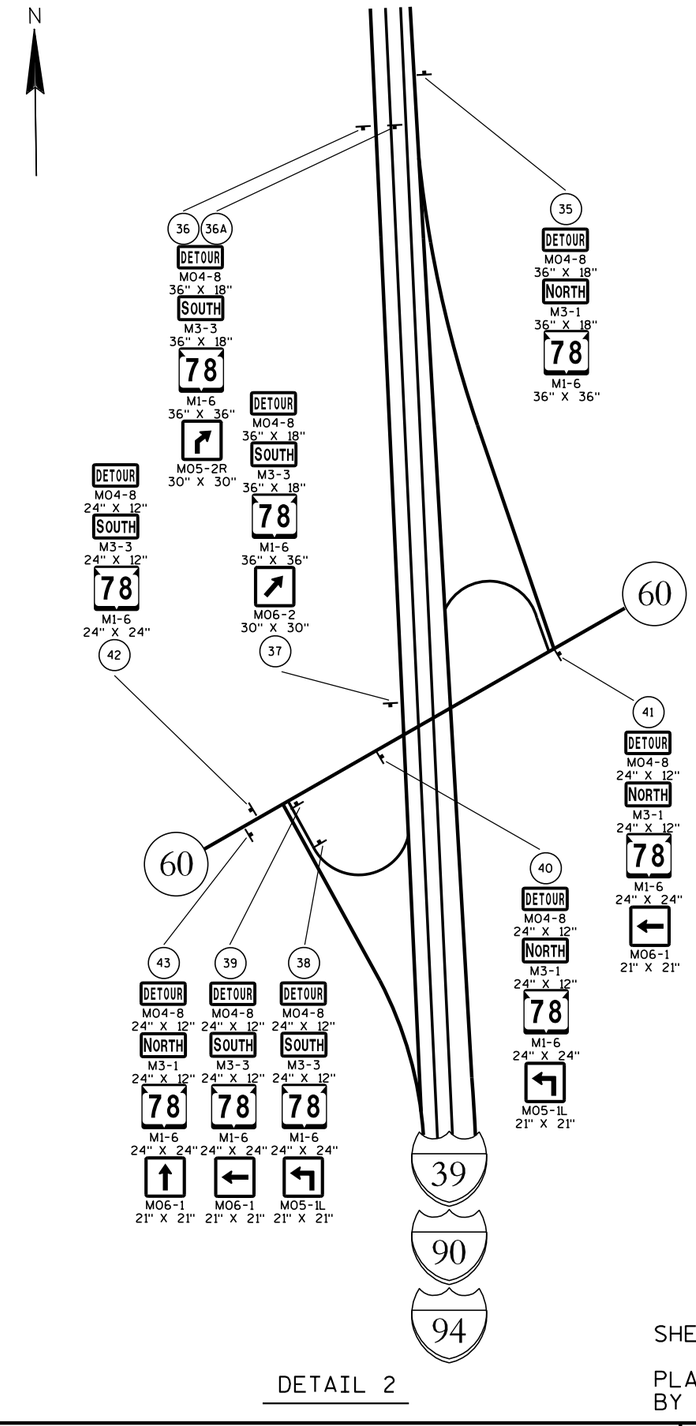
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	DETOUR SIGNING DETAIL	SHEET E

PRE_41

FILE NAME : N:\spo\traffic\A Work Zone\Detours\Workshare Projects\Sauk County - STH 78\027001_dt.dgn PLOT DATE : 27-JUN-2019 13:23 PLOT BY : dotj1f PLOT NAME : PLOT SCALE : 400:1

WISDOT/CADDS SHEET 42





SHEET 2 OF 2

PLAN SHEET PRODUCED
BY WisDOT-NE REGION

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	DETOUR SIGNING DETAIL	SHEET E

PRE_42

FILE NAME : N:\spo\traffic\A Work Zone\Detours\Workshare Projects\Sauk County - STH 78\027002_dt.dgn PLOT DATE : 20-DEC-2018 14:34 PLOT BY : dotj1f PLOT NAME : PLOT SCALE : 200:1

WISDOT/CADDS SHEET 42

CURVE 1
PI STA = 81+94.37
Y = 175878.926
X = 653494.016
DELTA = 2°16'38"
D = 1°12'01"
T = 94.86'
L = 189.70'
R = 4773.00'
PC STA = 80+99.50
PT STA = 82+89.20
S.E. = N.C.

BP: 75+00.00
PC: 80+99.50
PT: 82+89.20
PC: 101+58.87

EXIST R/W
EXIST R/W

N18° 25' 32"W
599.50'
N16° 08' 55"W
1869.67'

+32.91 17.00' RT
+43.18 23.18' RT
+40.46 24.33' RT
+78.36 23.80' RT
+60.32 17.00' RT
+81.14 17.00' LT
+72.09 29.87' LT
+89.28 29.46' LT
+58.87 17.00' LT
+70.44 17.00' RT
+08.36 28.96' RT
+29.99 29.92' RT
+70.09 29.50' RT
+84.71 17.28' RT

N RIDGE DRIVE

CURVE 2
PI STA = 103+72.67
Y = 177971.303
X = 652888.163
DELTA = 16°38'41"
D = 3°55'13"
T = 213.79'
L = 424.57'
R = 1461.50'
PC STA = 101+58.87
PT STA = 105+83.45
S.E. = 6.0%

BEGIN PROJECT
STA 76+00
MATCH EXISTING - SAW CUT REQUIRED

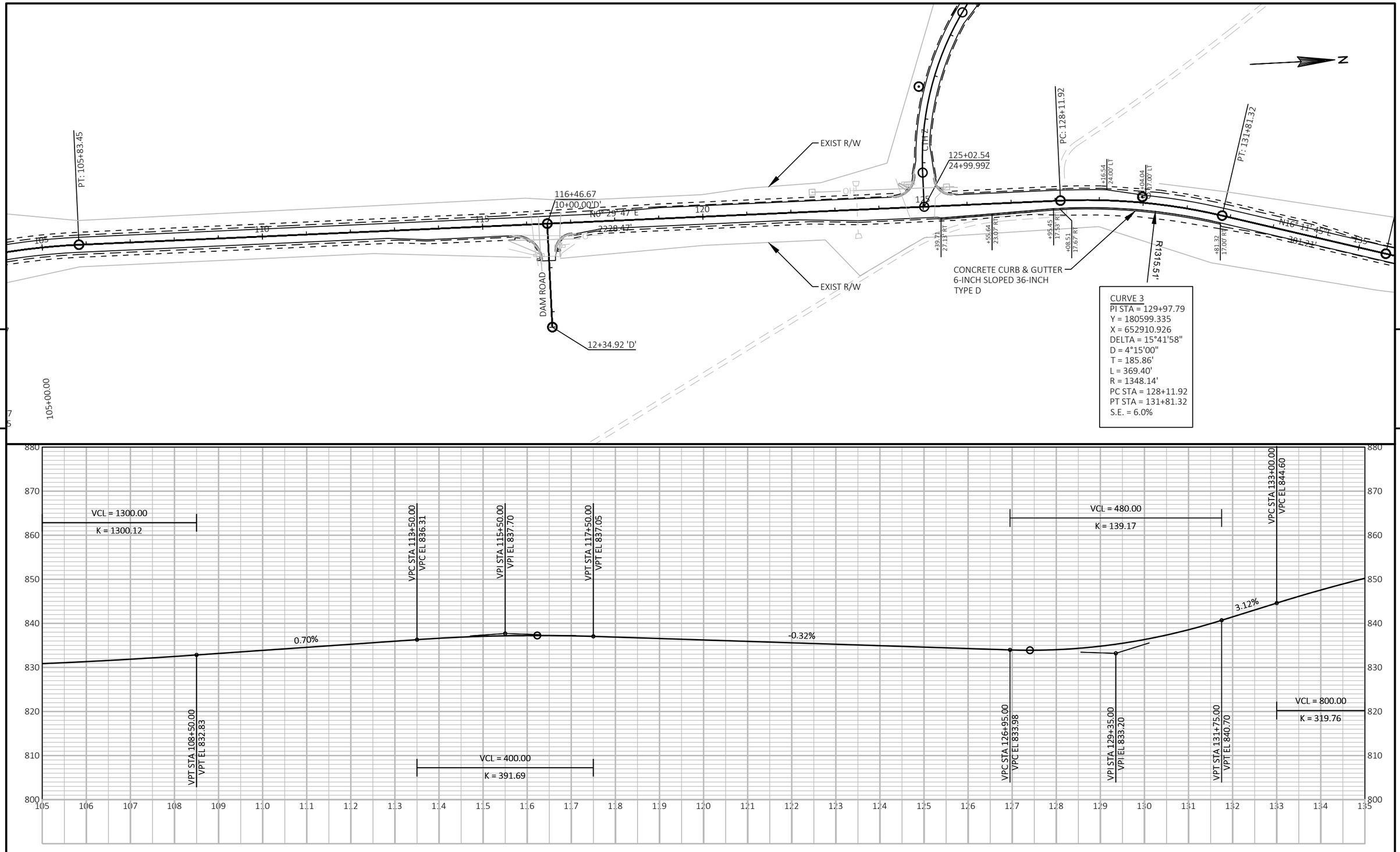
STA 75+99.99
EL 828.73
VPC STA 78+25.00
VPC EL 831.25
VPI STA 81+25.00
VPI EL 834.60
VPT STA 84+25.00
VPT EL 833.69
1.12%
-0.30%
VCL = 600.00
K = 422.03
VCL = 1300.00
K = 1300.12
VPC STA 95+50.00
VPC EL 830.27
VPI STA 102+00.00
VPI EL 828.30

PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

PRE_43

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050101-pp
PLOT DATE : 7/19/2019 10:09 AM
PLOT BY : DUMS, ALEXANDER T
PLOT NAME :
PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44



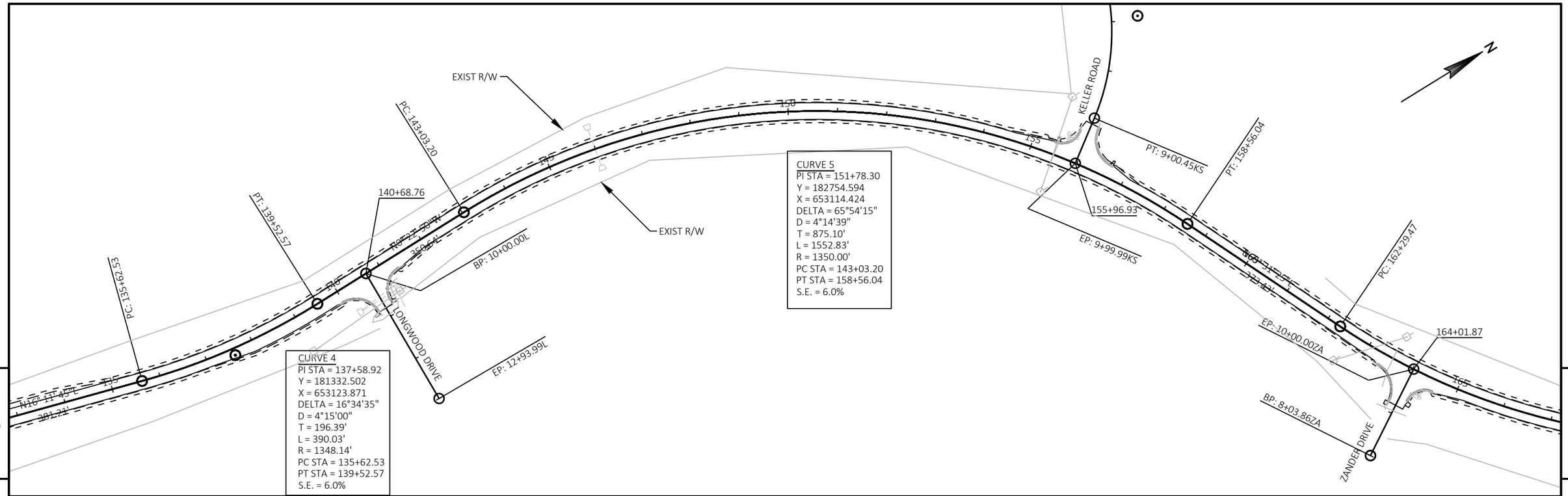
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

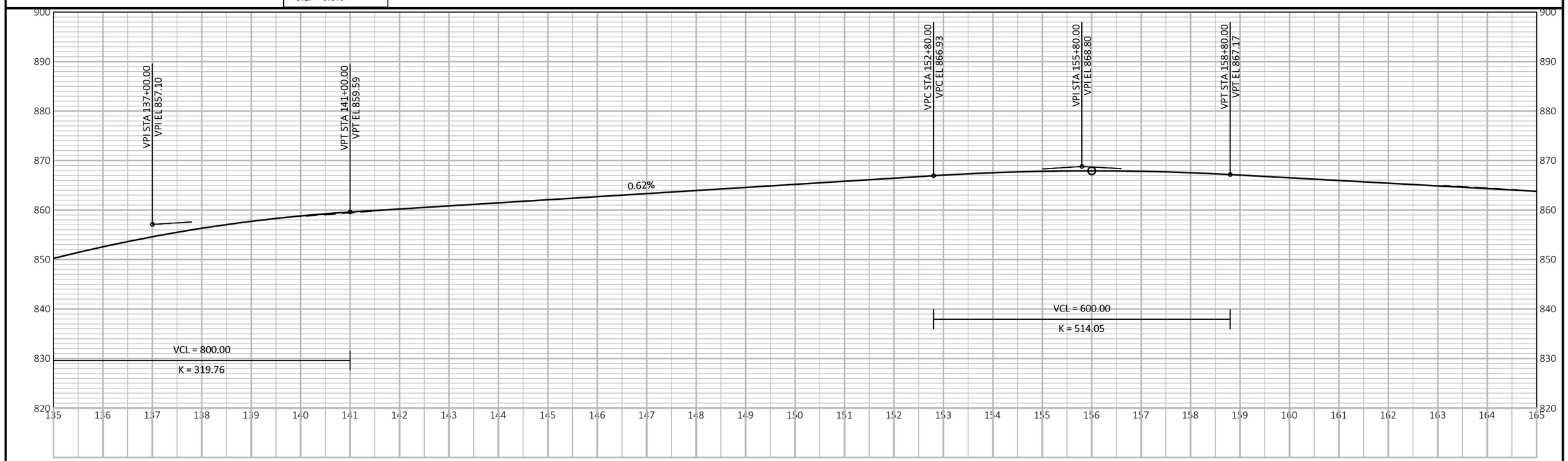
PRE_44

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050102-pp

PLOT DATE : 7/19/2019 10:09 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44





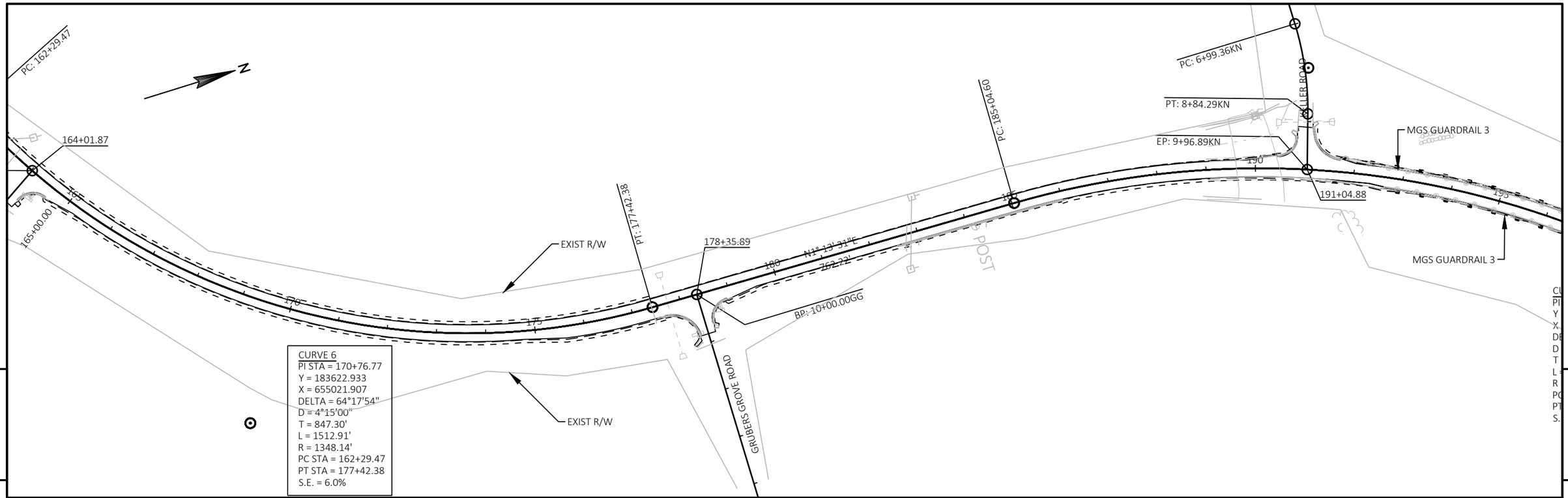
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

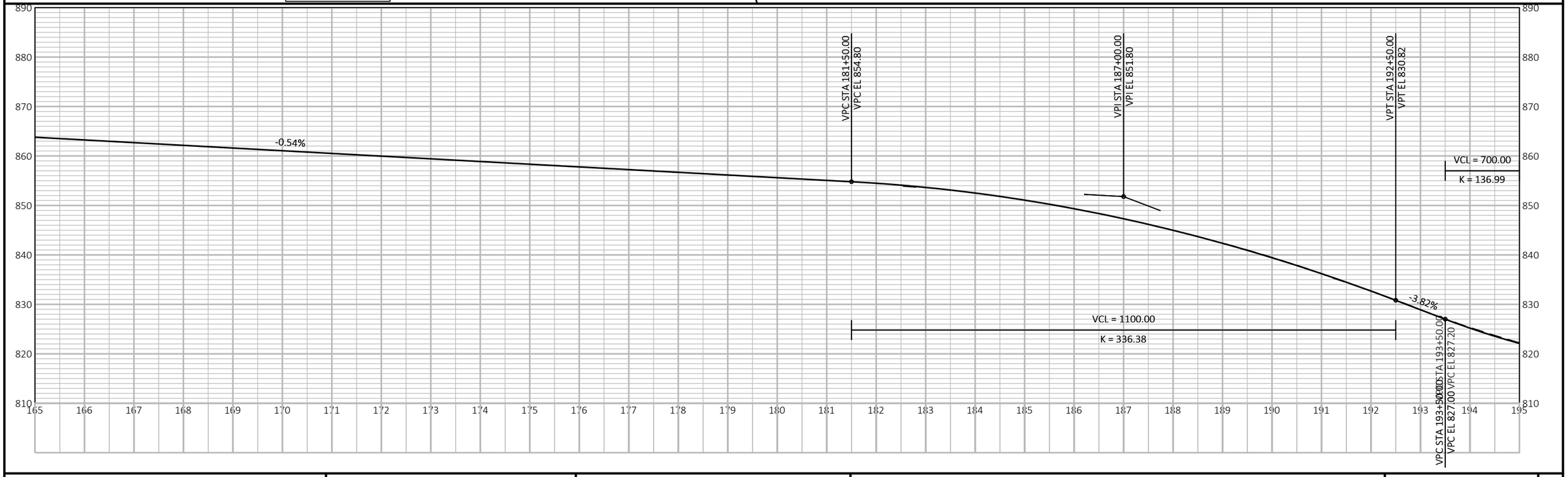
PRE_45

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050103-pp

PLOT DATE : 7/19/2019 10:09 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44





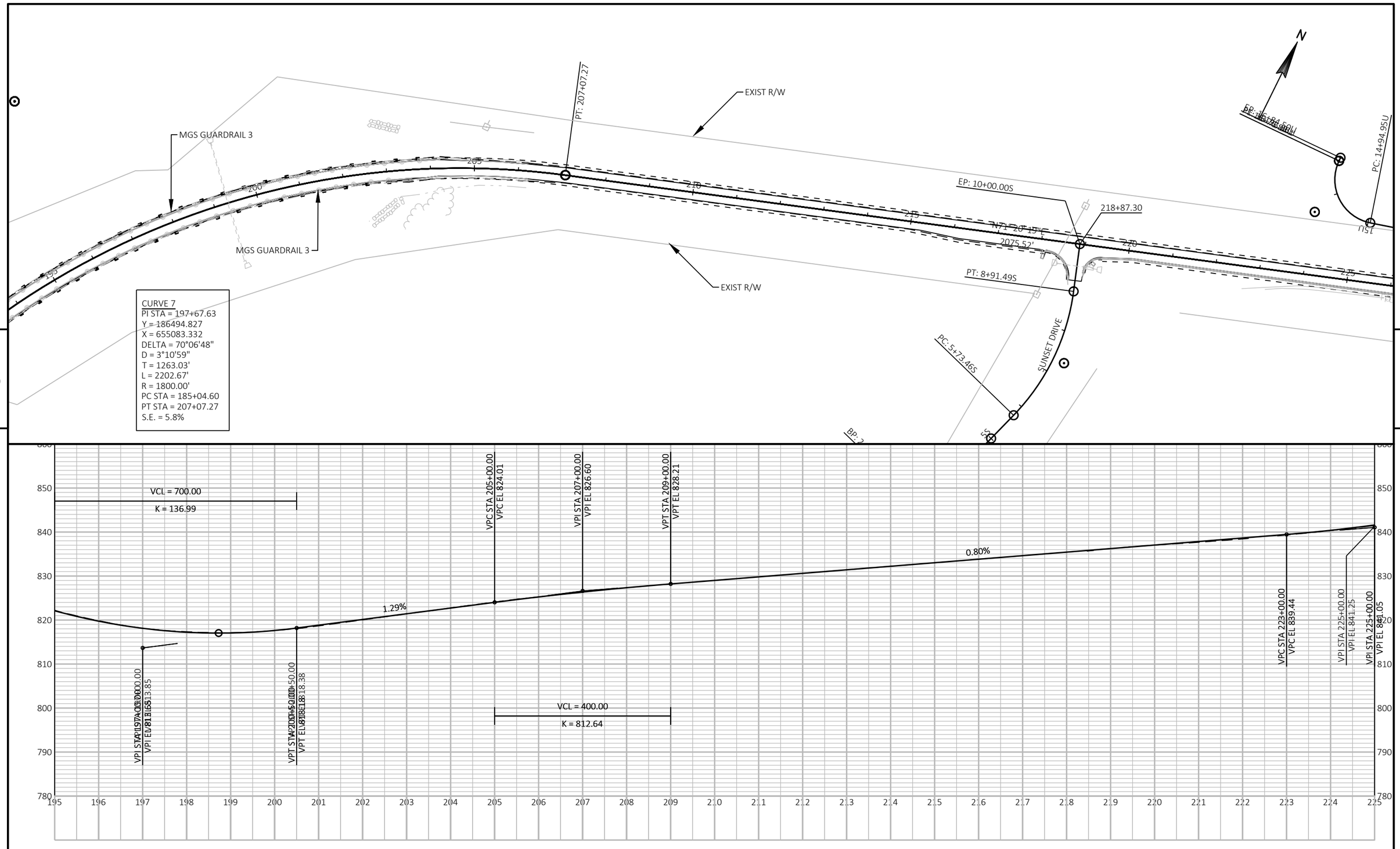
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050104-pp

PLOT DATE : 7/19/2019 10:09 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

PRE_46

WISDOT/CADDS SHEET 44



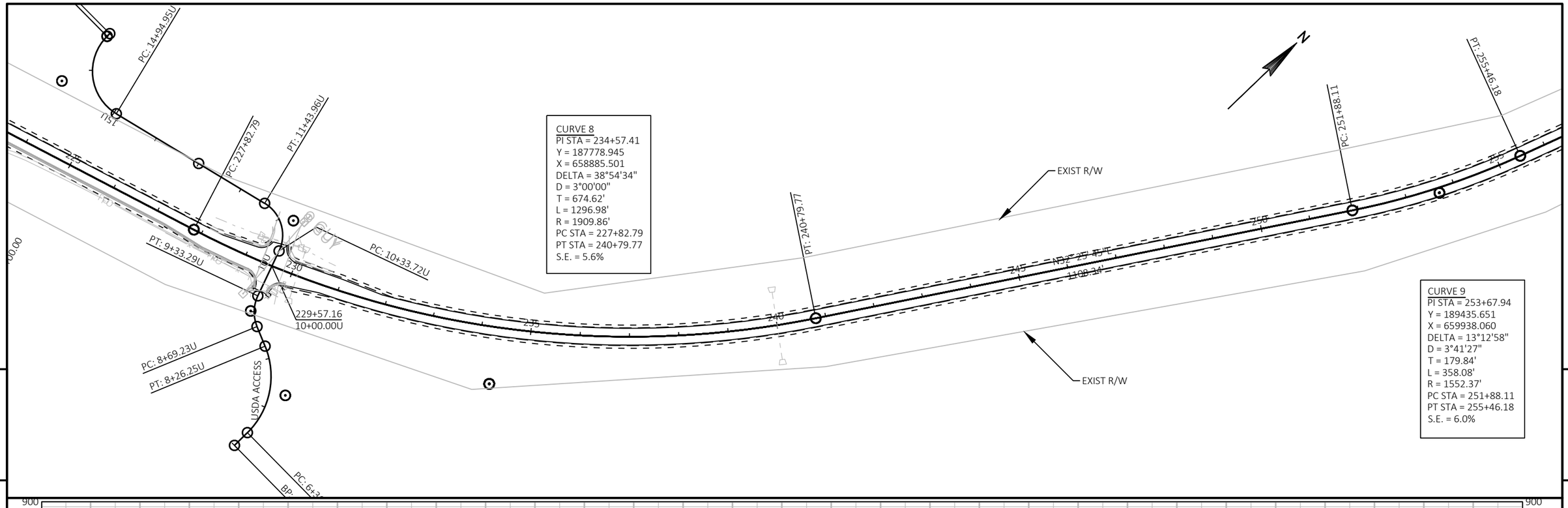
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

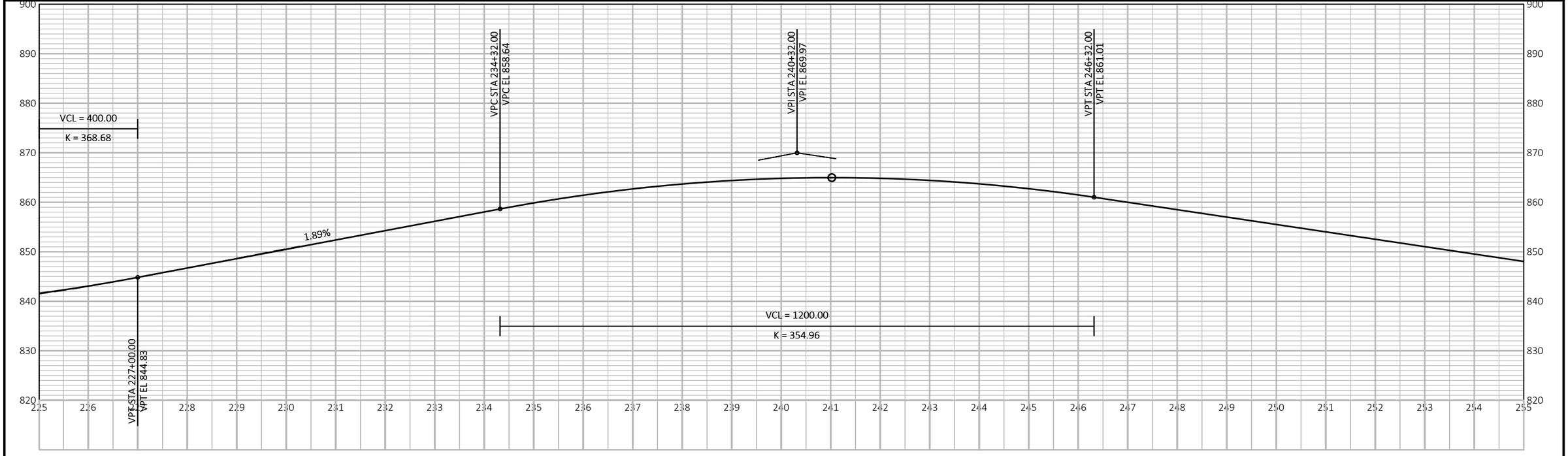
PRE_47

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050105-pp

PLOT DATE : 7/19/2019 10:09 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44





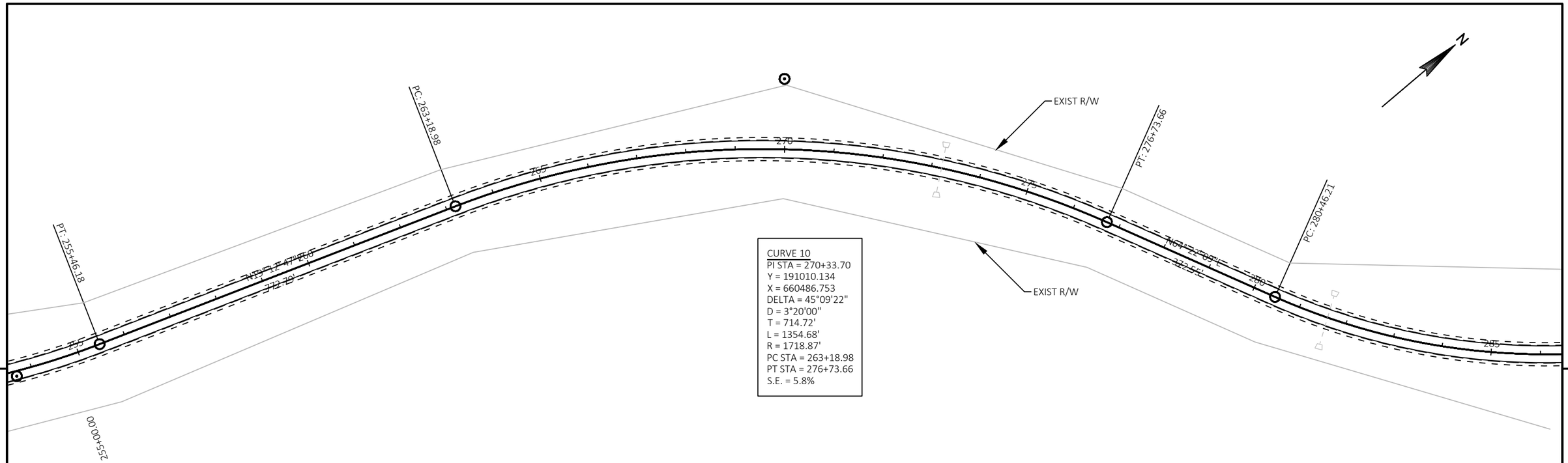
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

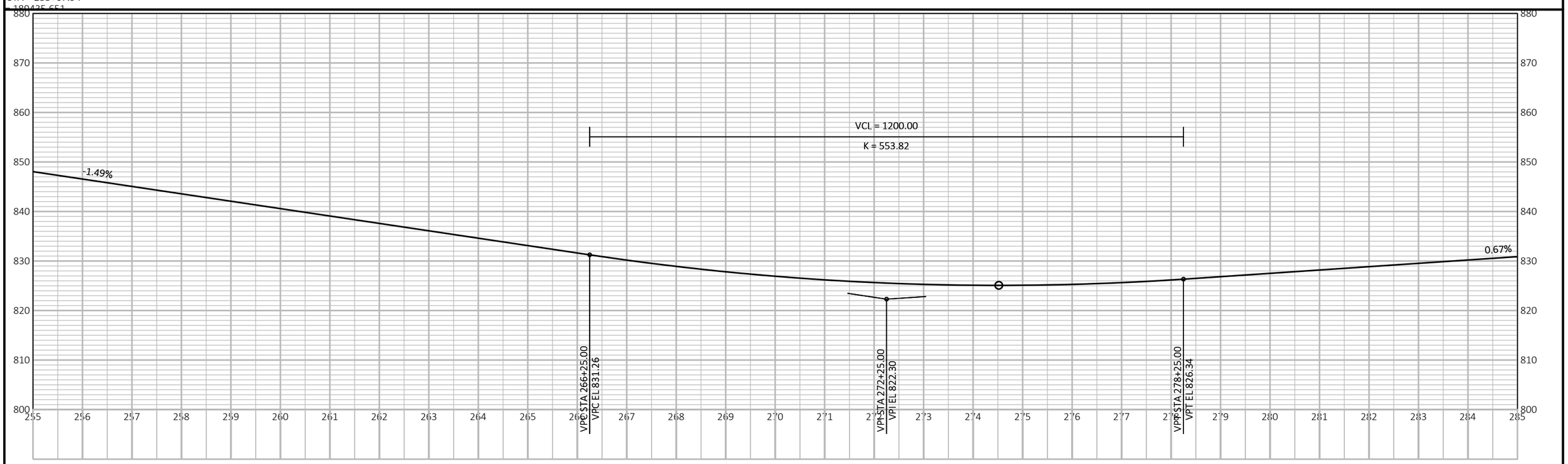
PRE_48

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050106-pp

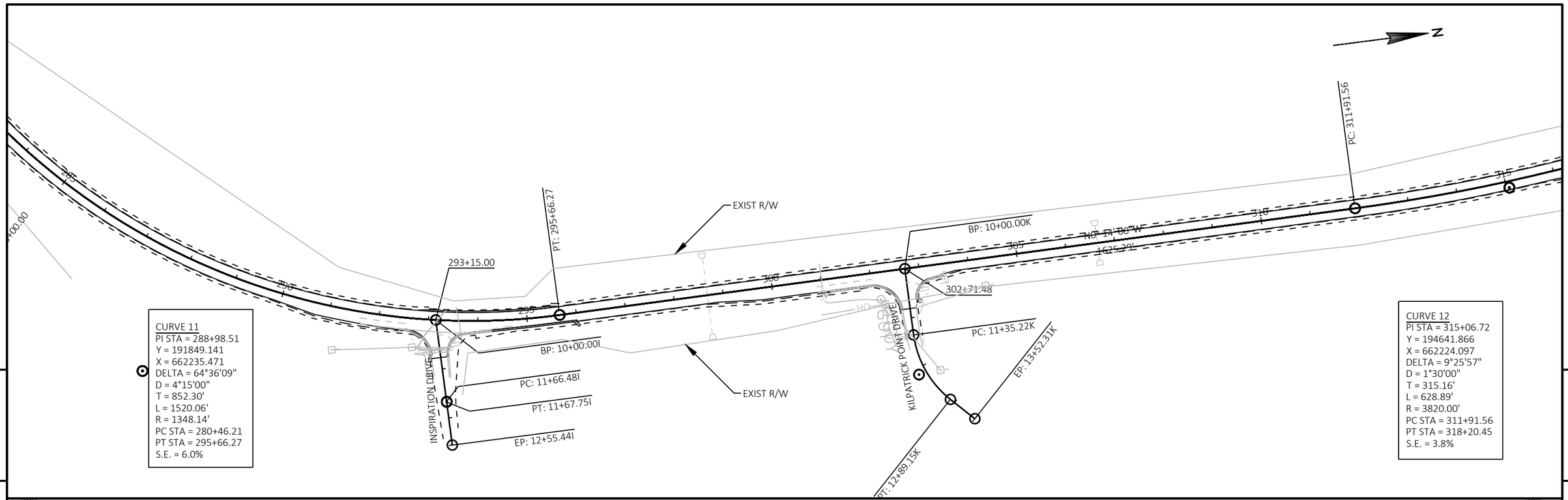
PLOT DATE : 7/19/2019 10:09 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44





PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E



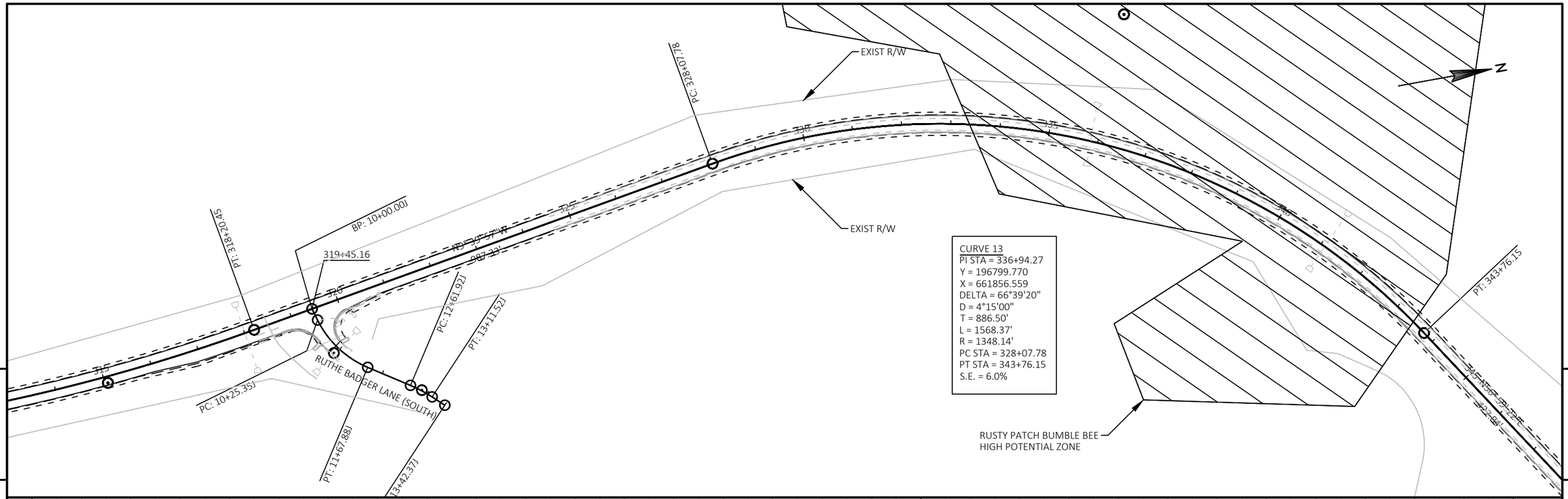
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

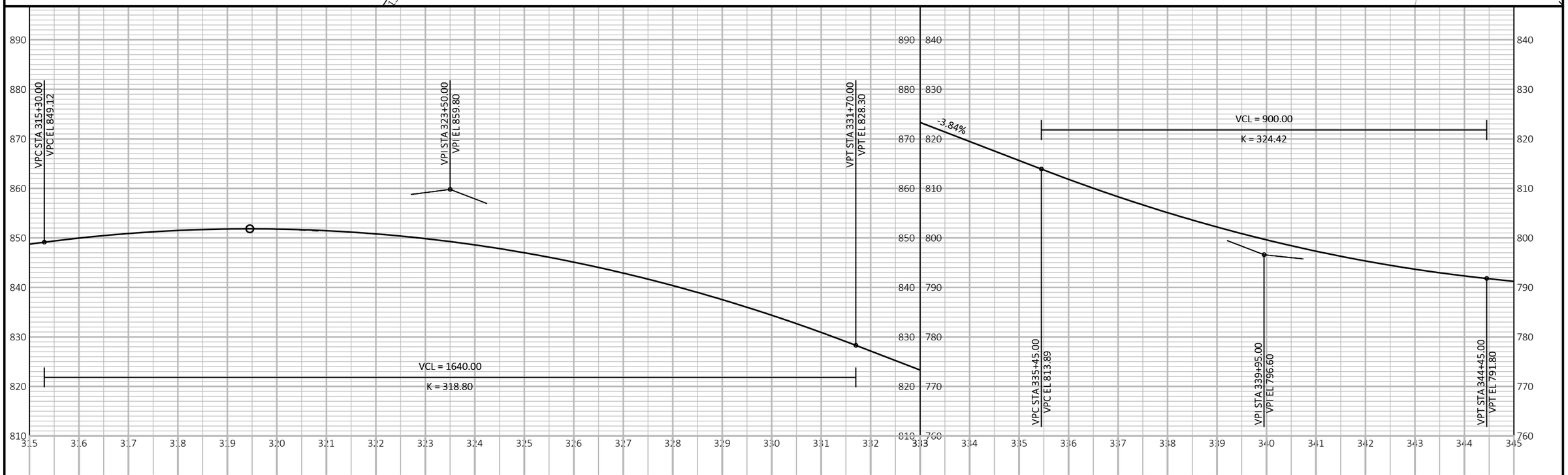
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050108-pp

PLOT DATE : 7/19/2019 10:10 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

PRE_50

WISDOT/CADDS SHEET 44





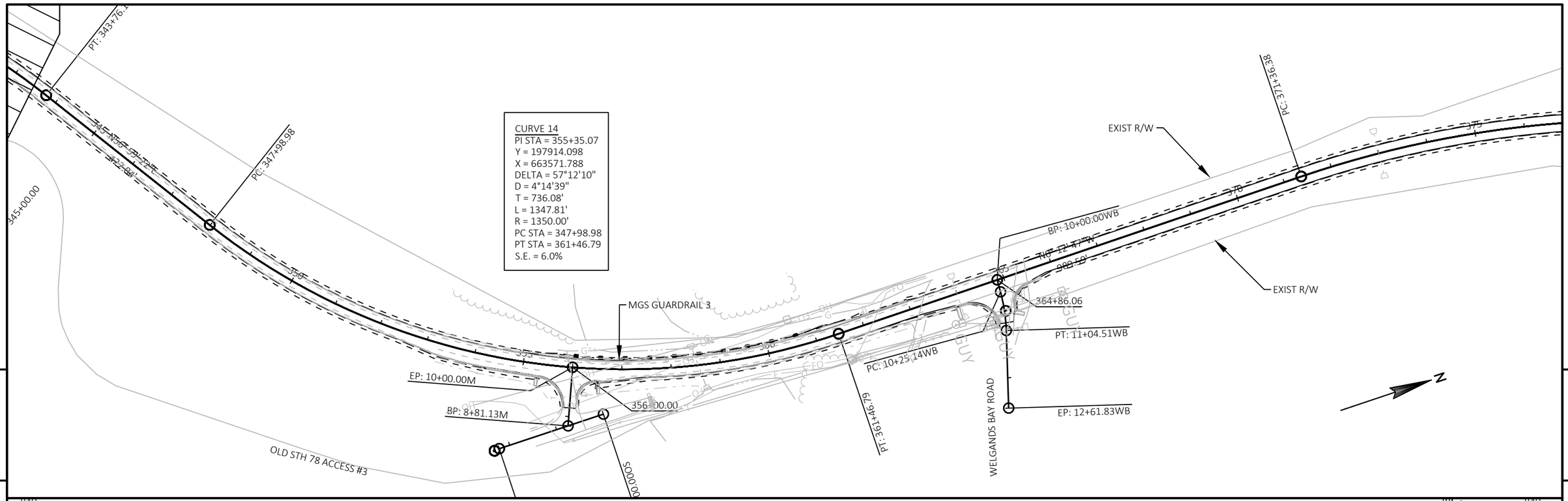
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050109-pp

PLOT DATE : 7/19/2019 10:10 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

PRE_51

WISDOT/CADDS SHEET 44

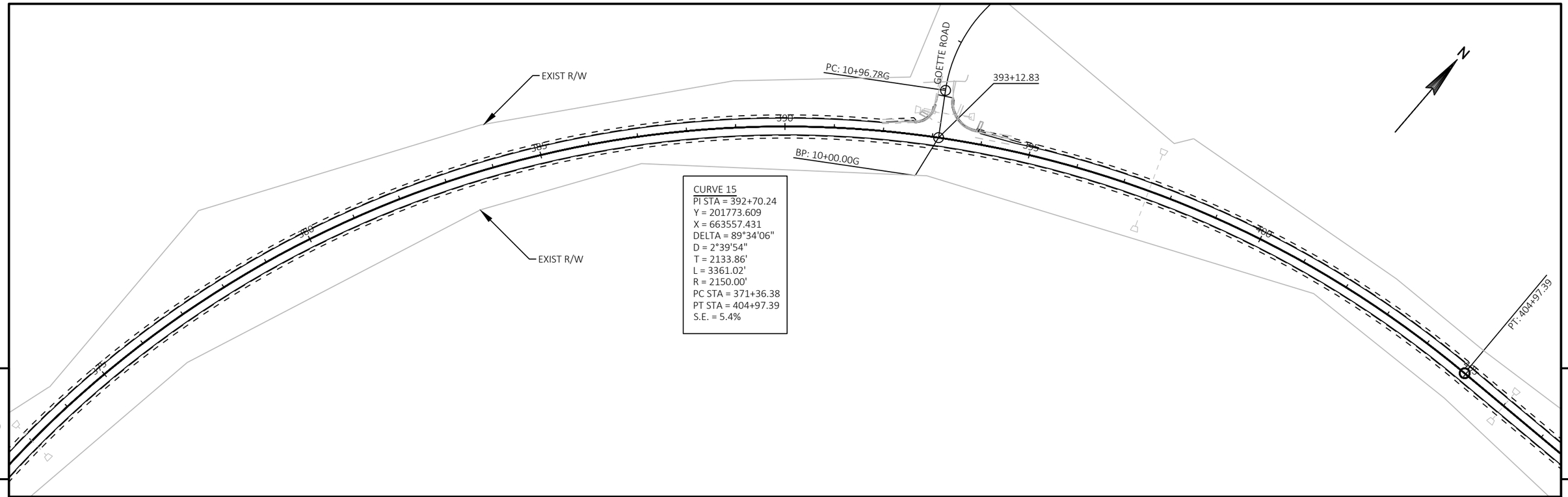


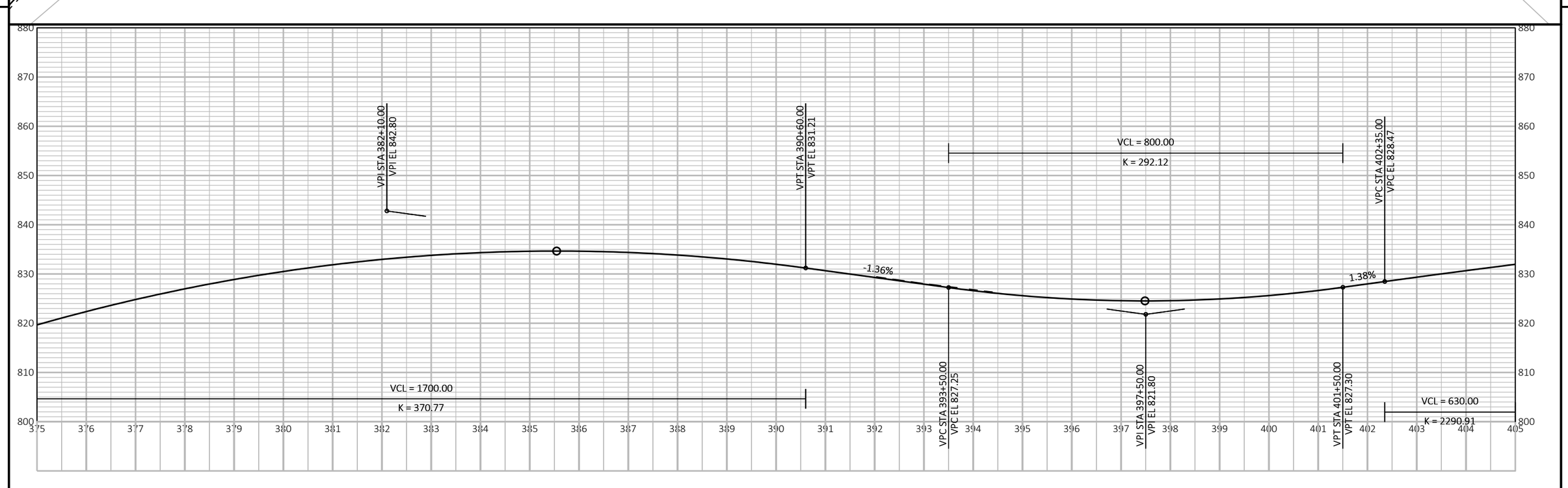
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

PRE_52

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050110-pp

PLOT DATE : 7/19/2019 10:10 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT





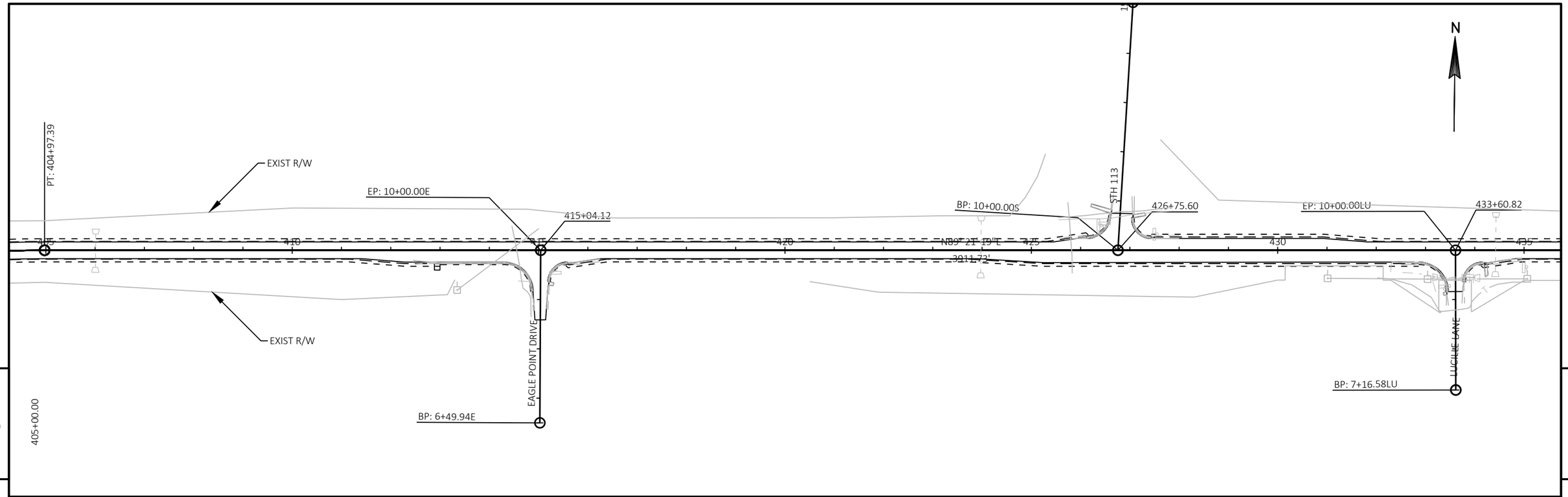
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

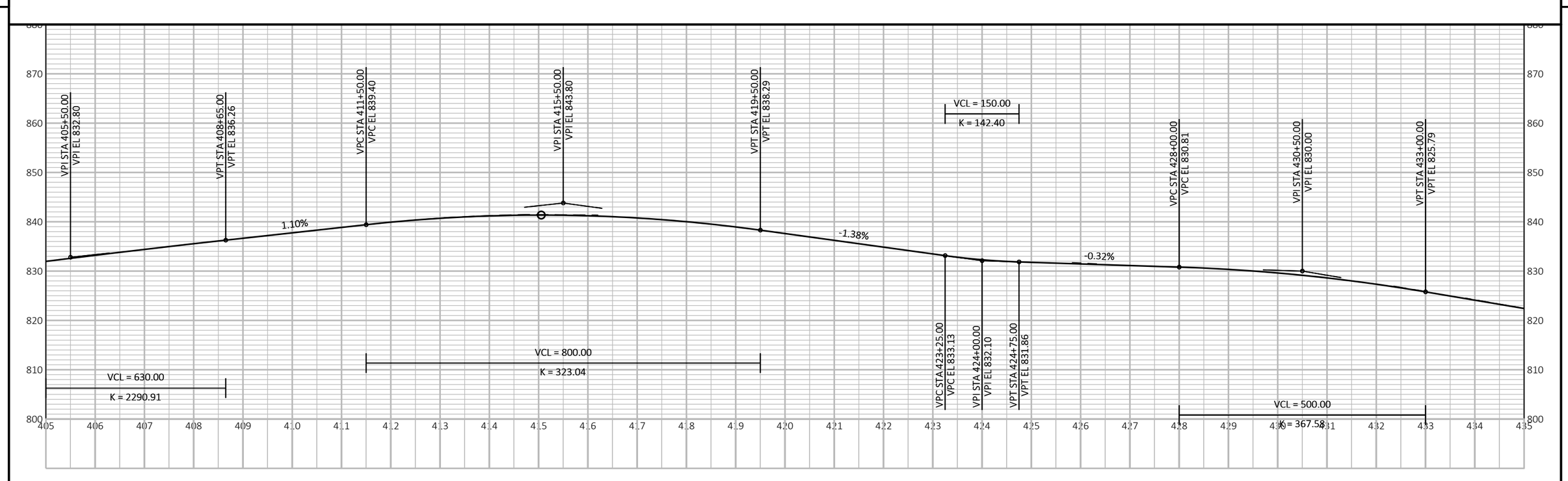
PRE_53

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050111-pp

PLOT DATE : 7/19/2019 10:10 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44



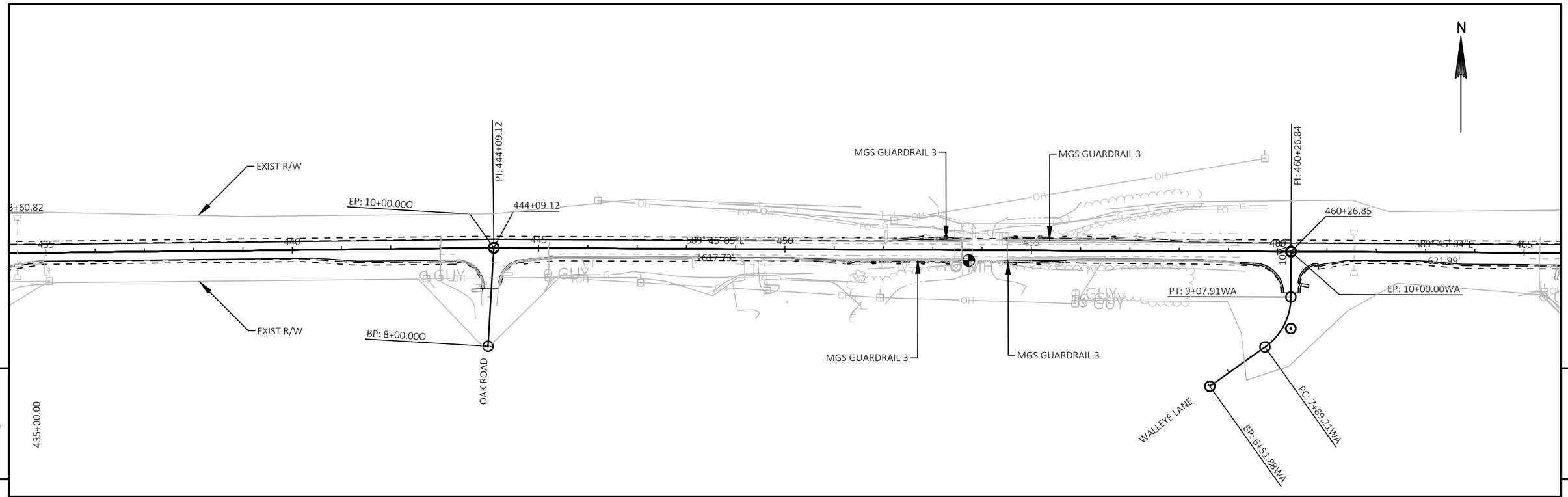


PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

PRE_54

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050112-pp

PLOT DATE : 7/19/2019 10:10 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT



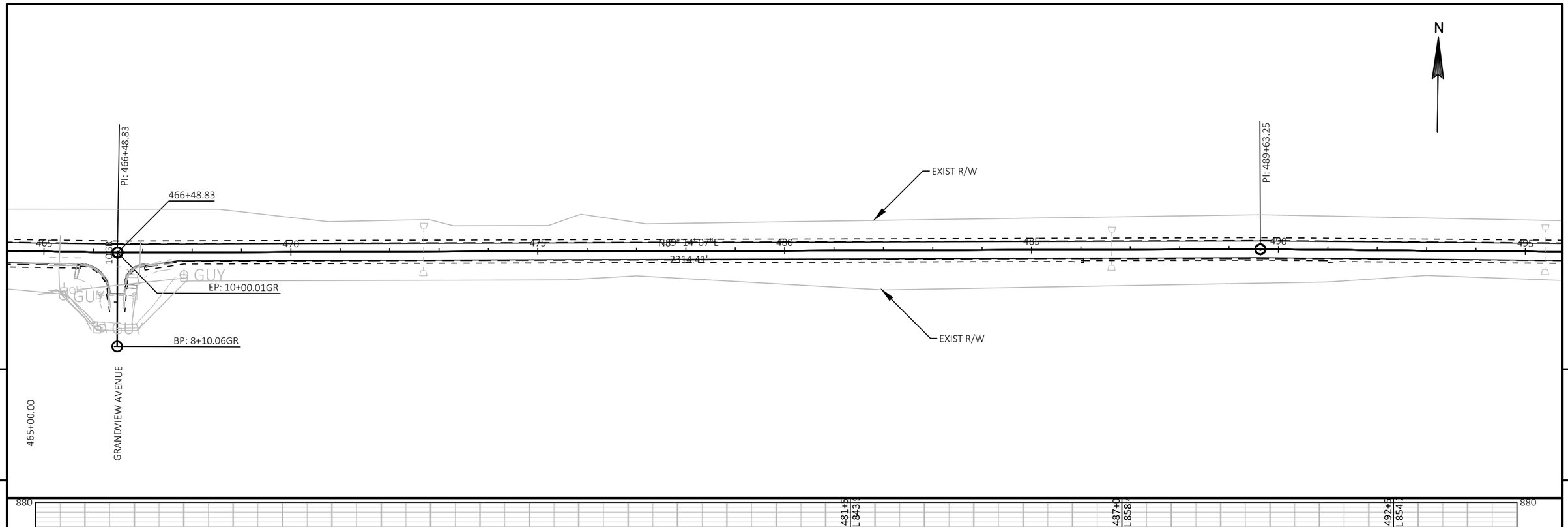
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

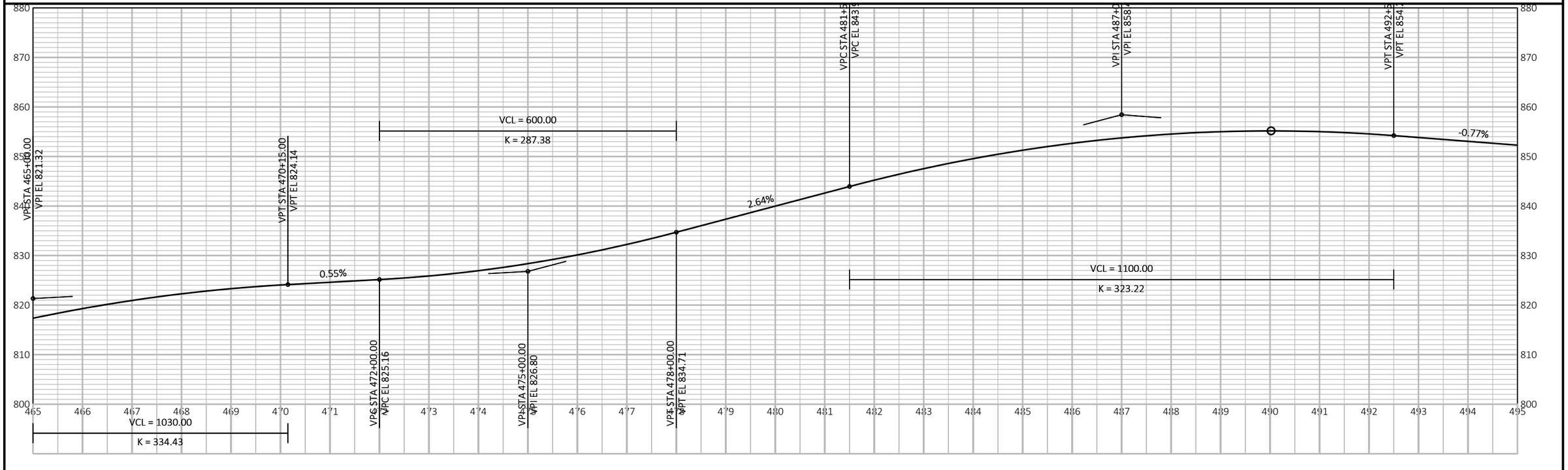
PRE_55

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050113-pp

PLOT DATE : 7/19/2019 10:10 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44





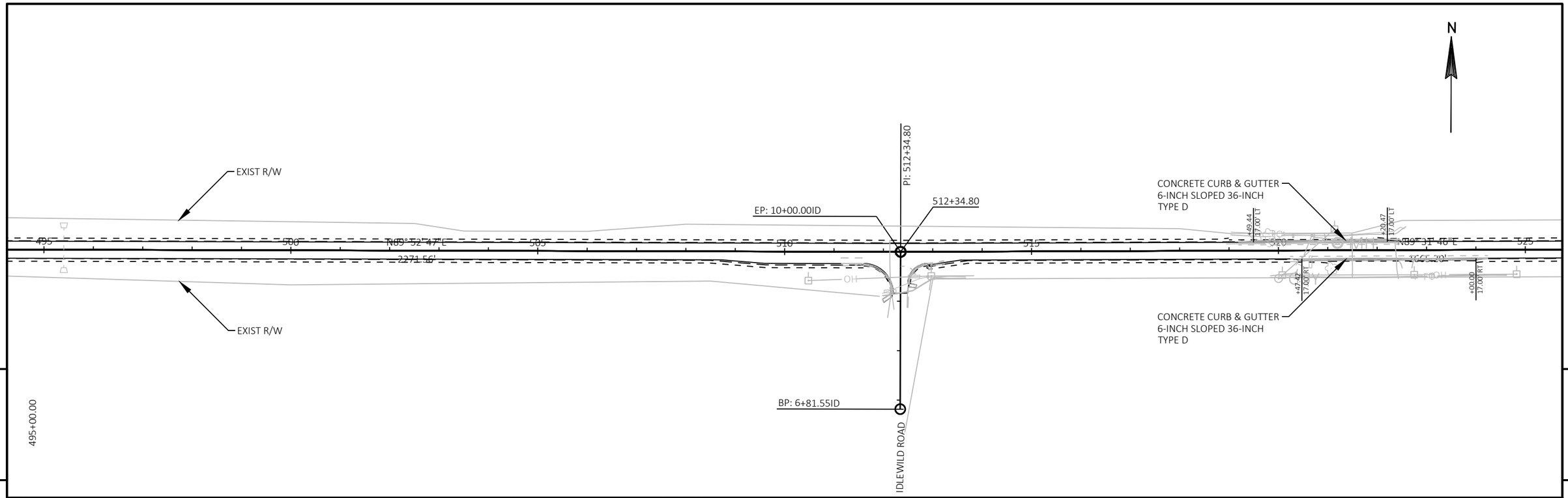
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

PRE_56

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050114-pp

PLOT DATE : 7/19/2019 10:10 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44



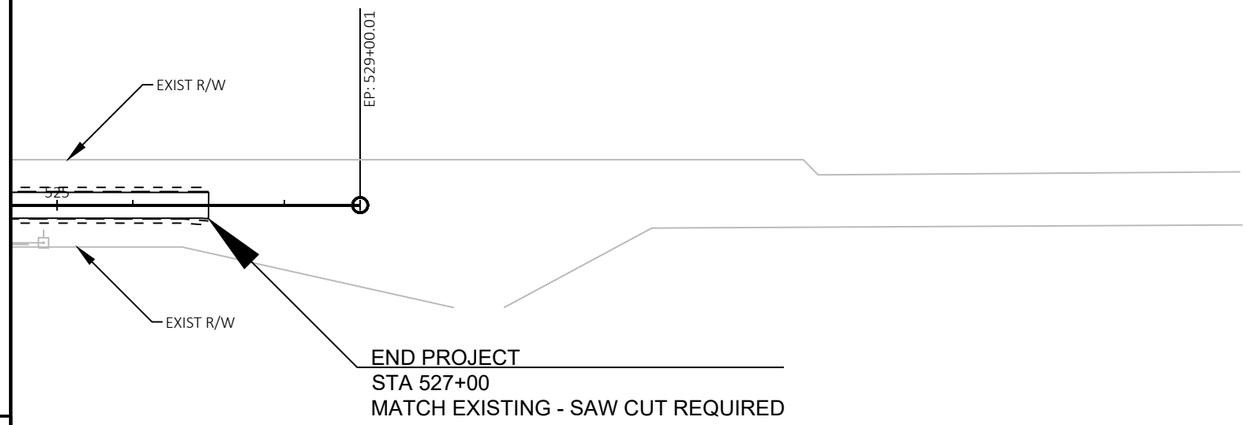
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

PRE_57

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050115-pp

PLOT DATE : 7/19/2019 10:10 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

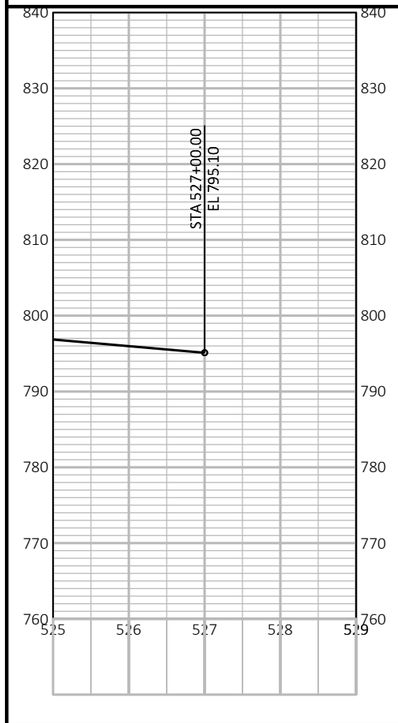
WISDOT/CADDS SHEET 44



525+00.00

5

5



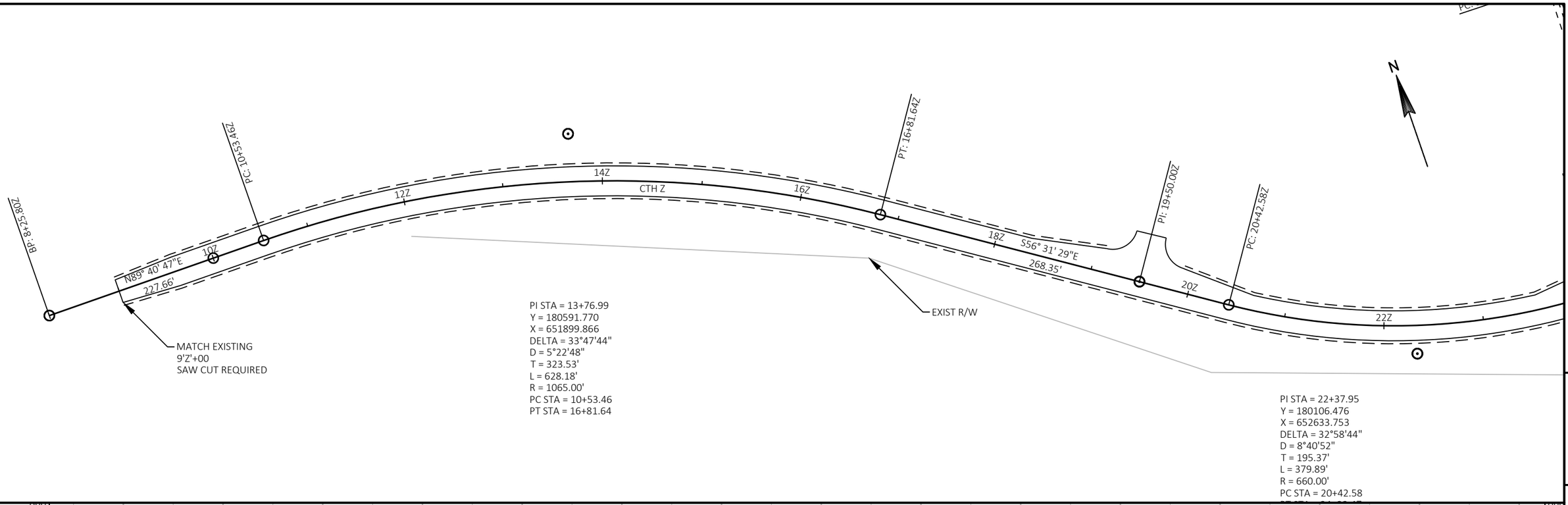
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 78	SHEET E

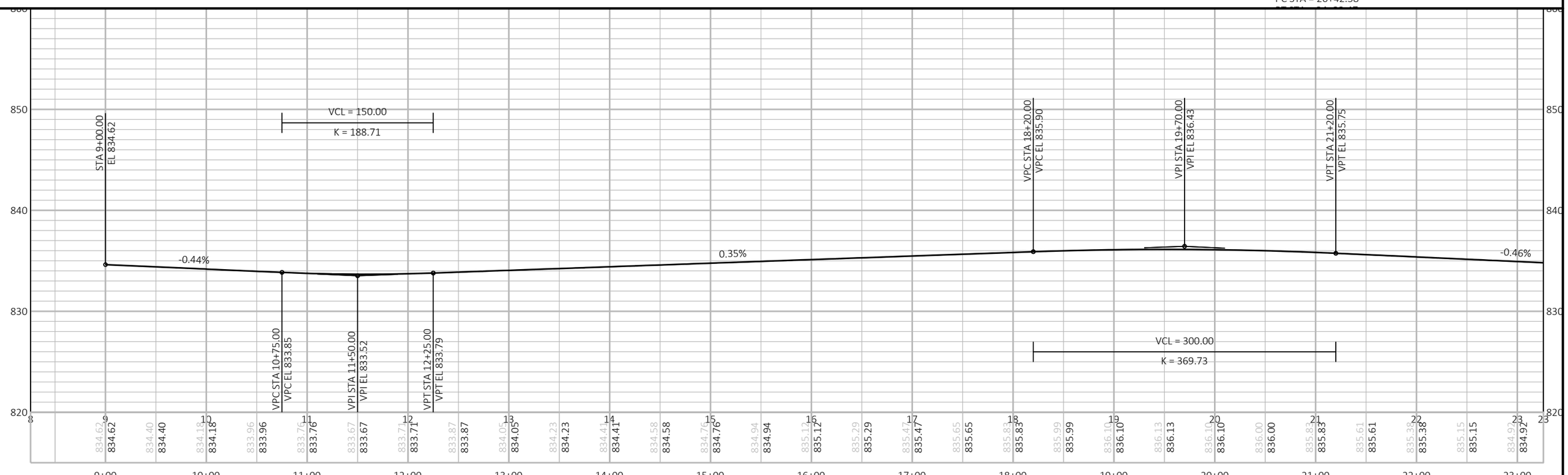
PRE_58

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050116-pp

PLOT DATE : 7/19/2019 10:10 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:200 FT

WISDOT/CADDS SHEET 44





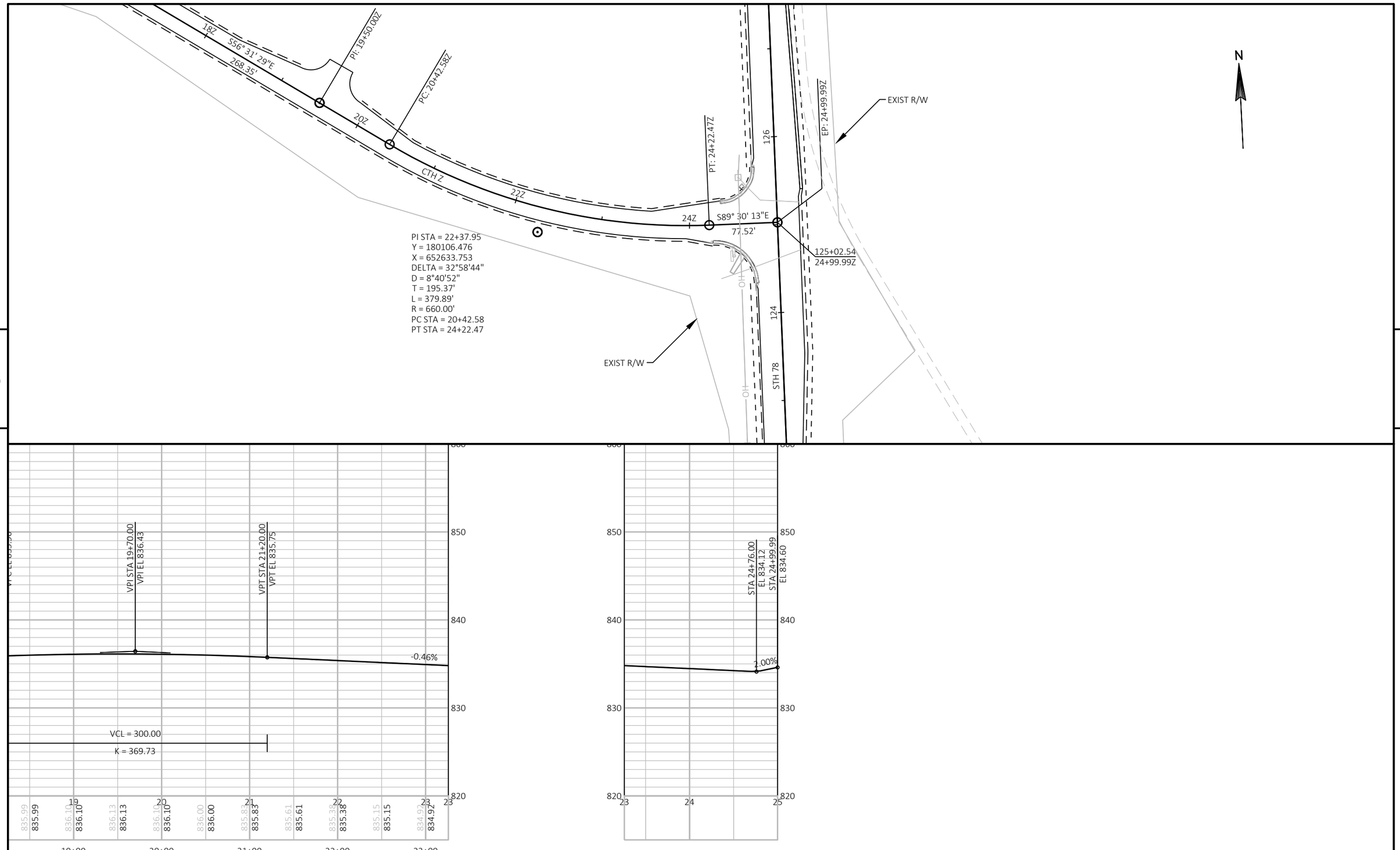
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: CTH Z PLAN AND PROFILE	SHEET E

PRE_59

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050201-pp

PLOT DATE : 7/18/2019 8:35 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



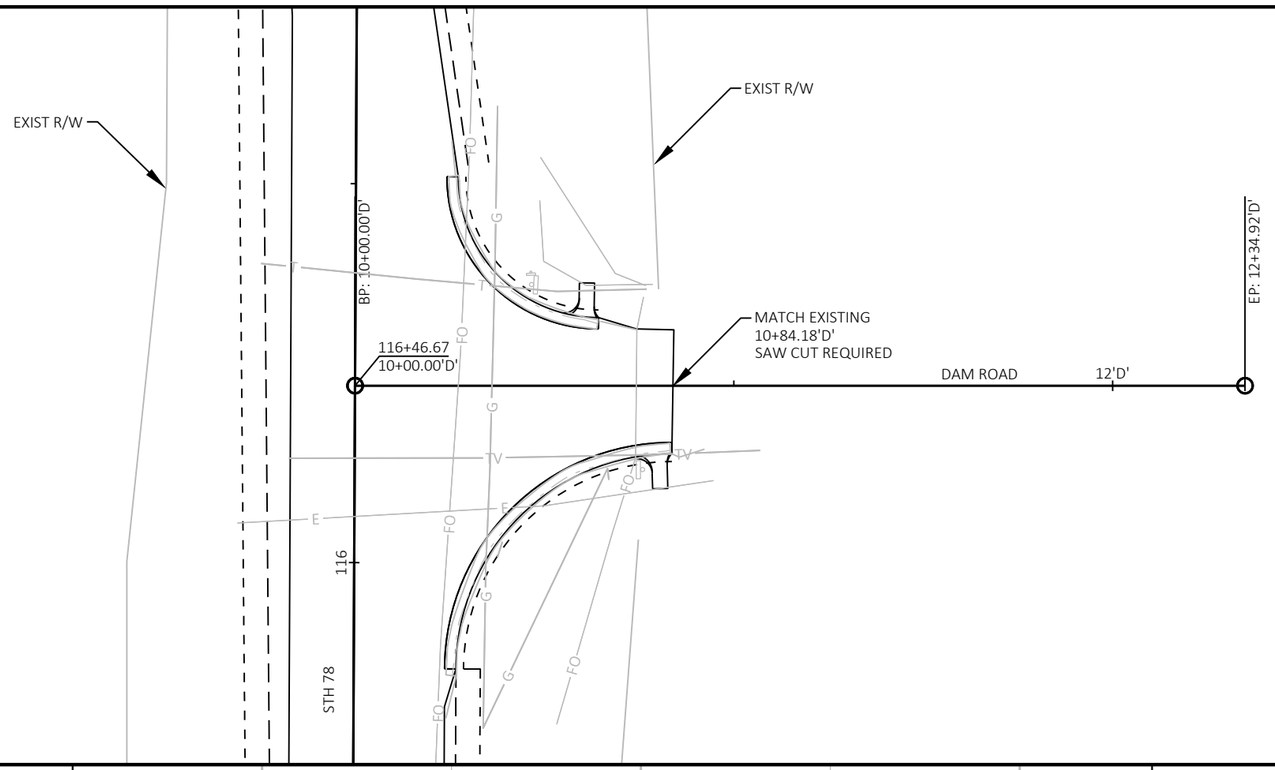
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: CTH Z PLAN AND PROFILE	SHEET E

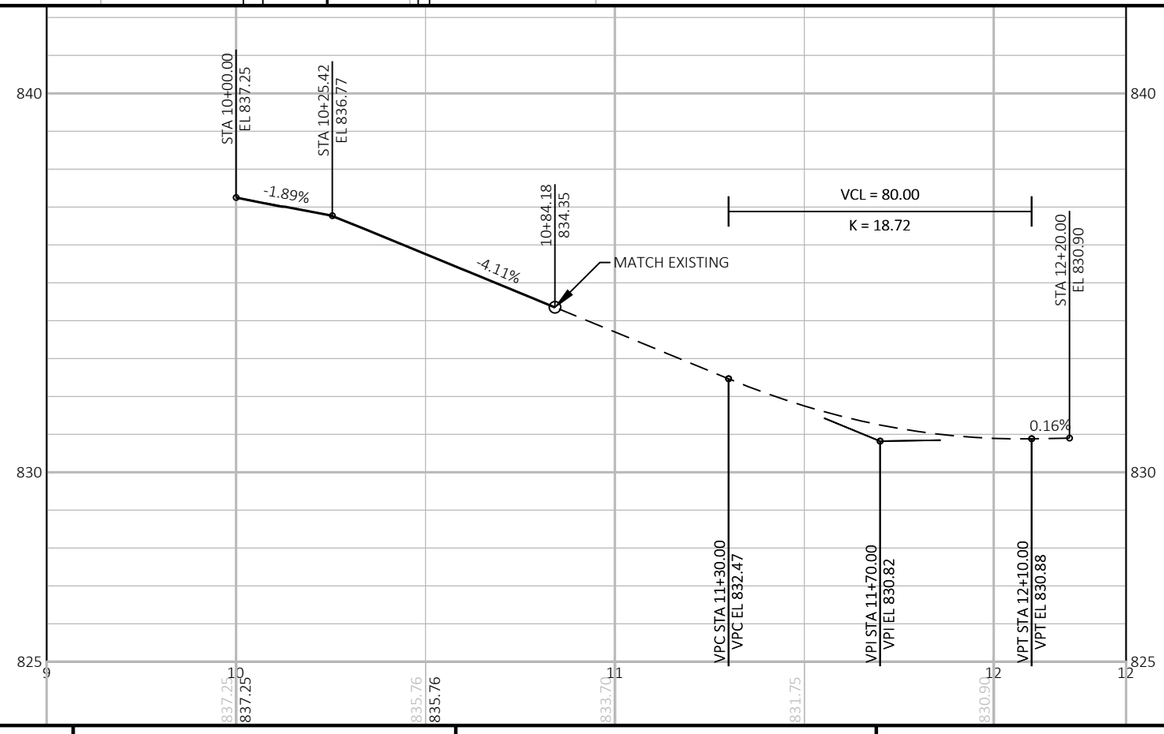
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050202-pp

PLOT DATE : 7/18/2019 8:36 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:100 FT

PRE_60

WISDOT/CADDS SHEET 44





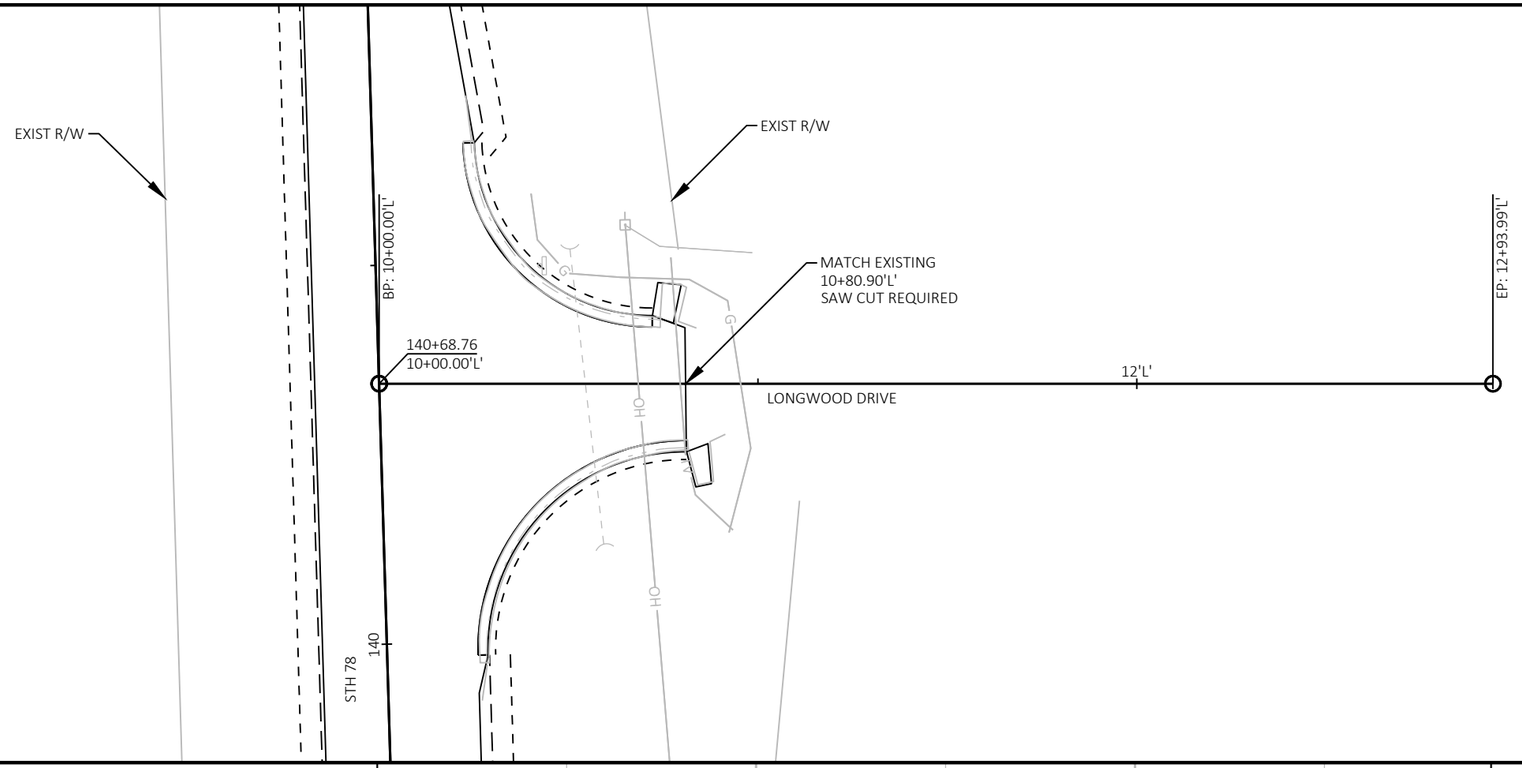
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: DAM ROAD	SHEET E

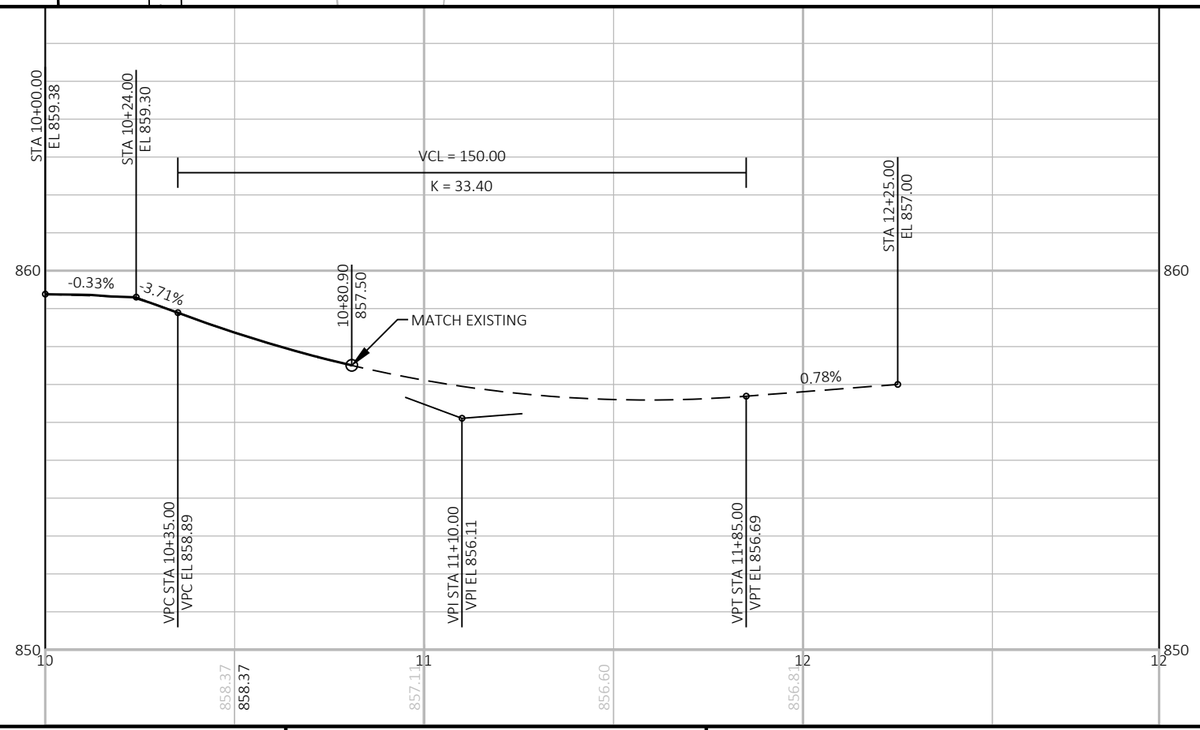
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050301-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_61

WISDOT/CADDS SHEET 44





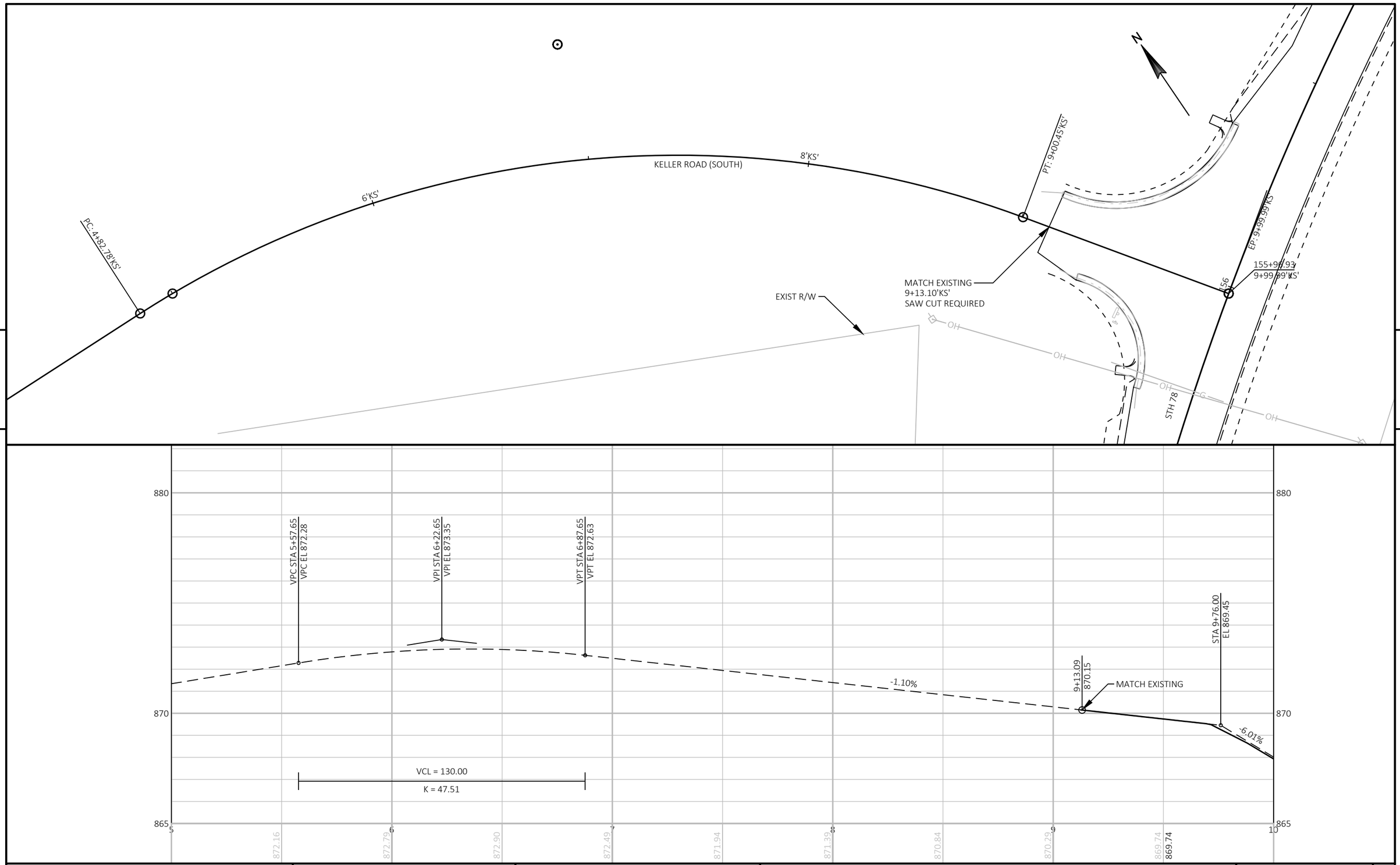
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: LONGWOOD DRIVE	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050302-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_62

WISDOT/CADDS SHEET 44



5 5

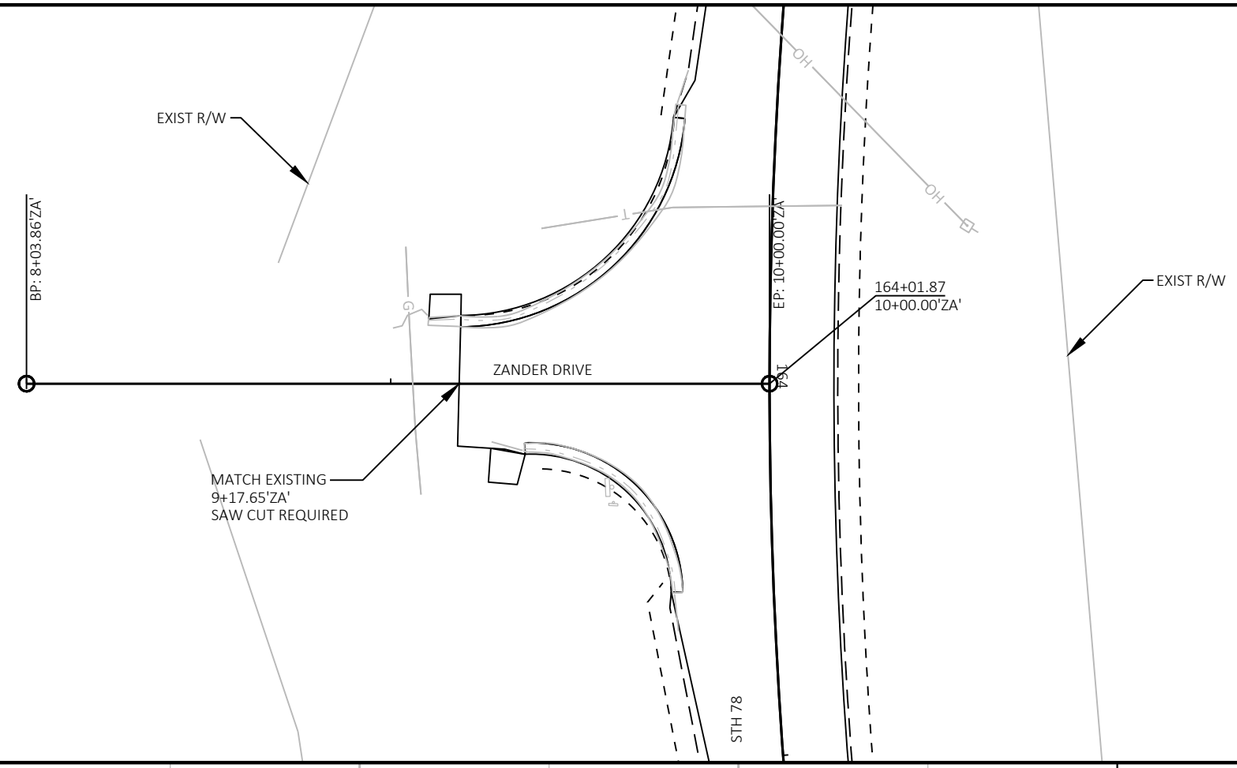
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: KELLER ROAD (SOUTH)	SHEET E

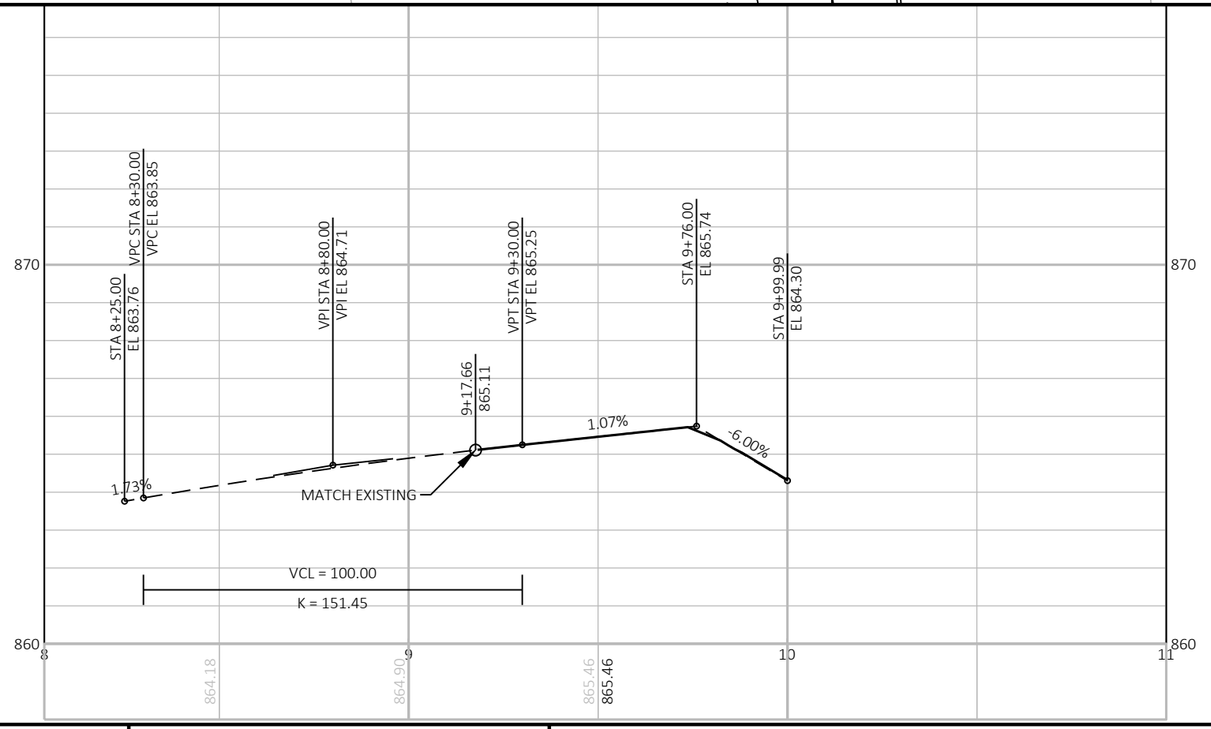
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050303-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_63

WISDOT/CADDS SHEET 44





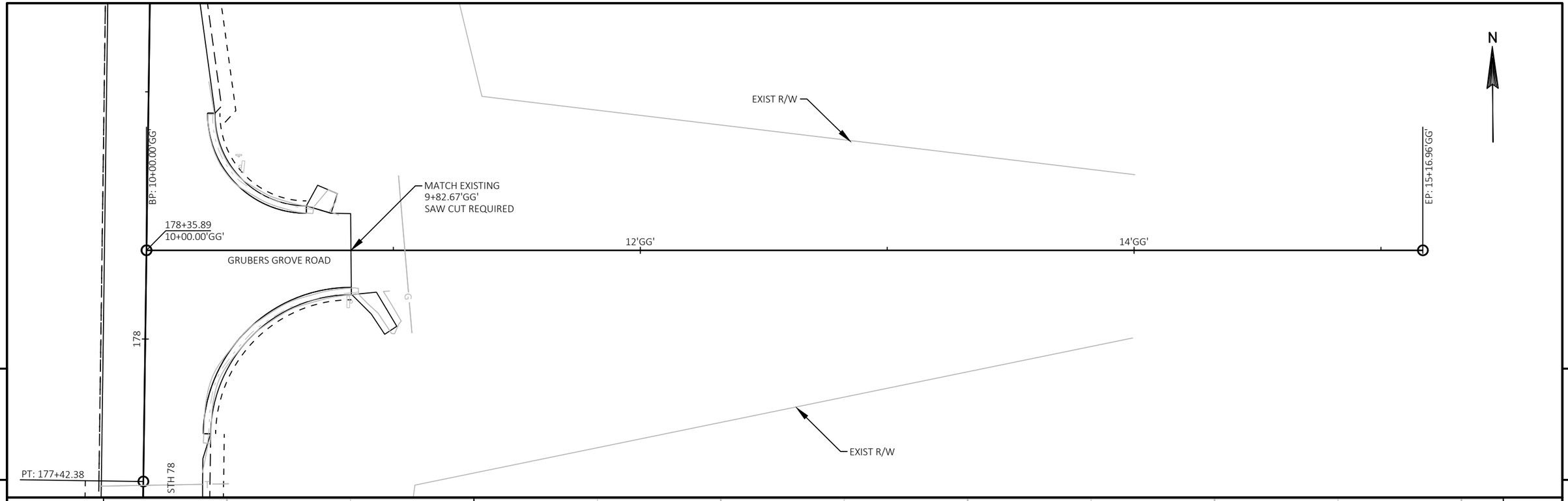
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: ZANDER DRIVE	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050304-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_64

WISDOT/CADDS SHEET 44



PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: GRUBERS GROVE ROAD	SHEET E

PRE_65

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LAYOUT NAME - 050305-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

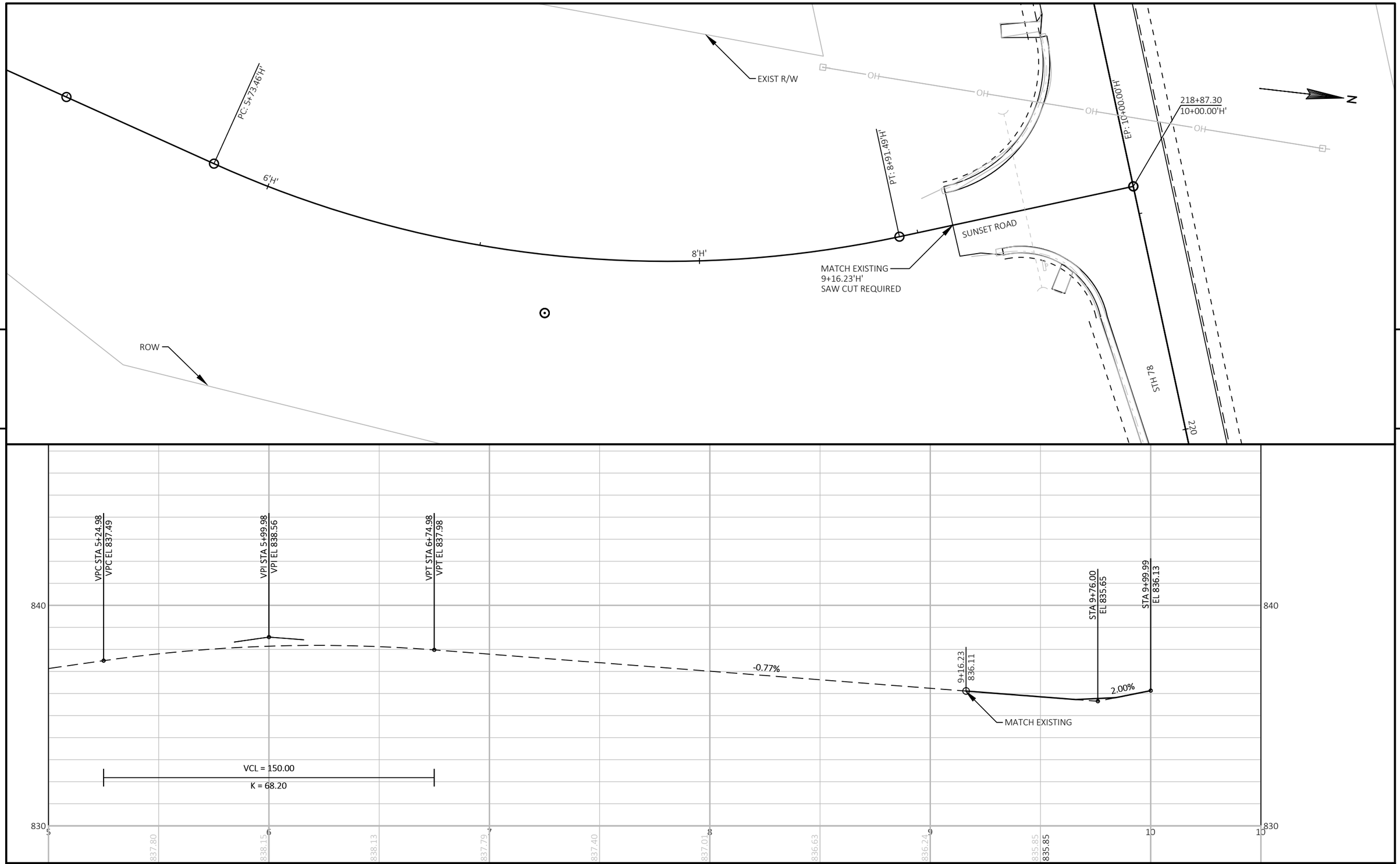
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: KELLER ROAD (NORTH)	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050306-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_66

WISDOT/CADDS SHEET 44



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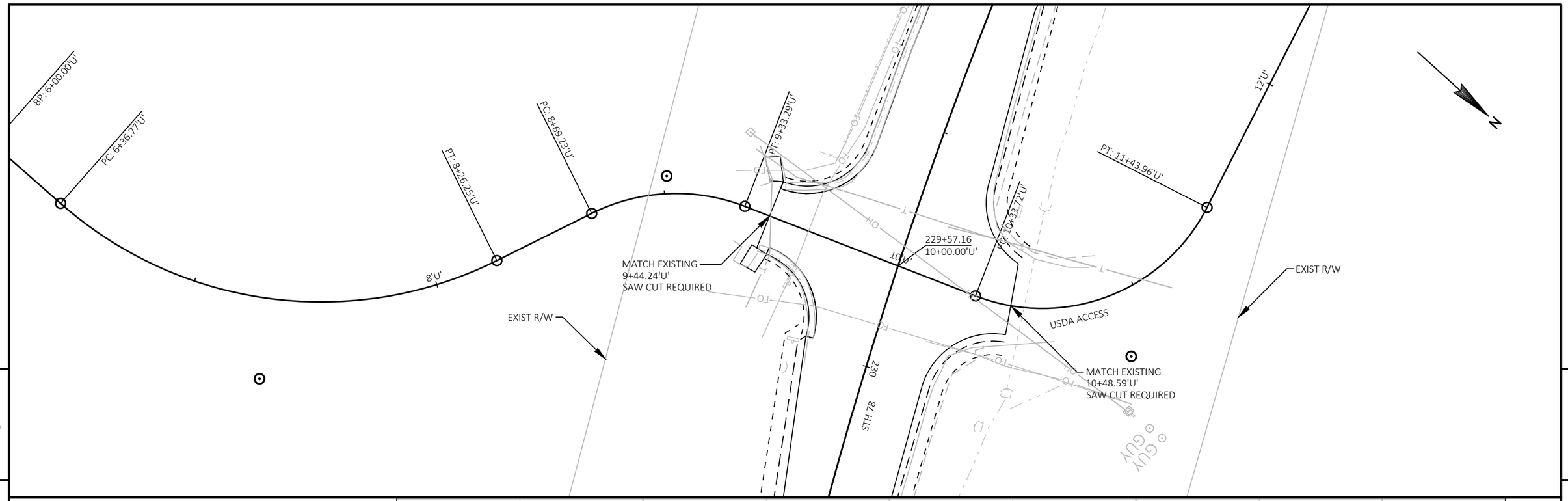

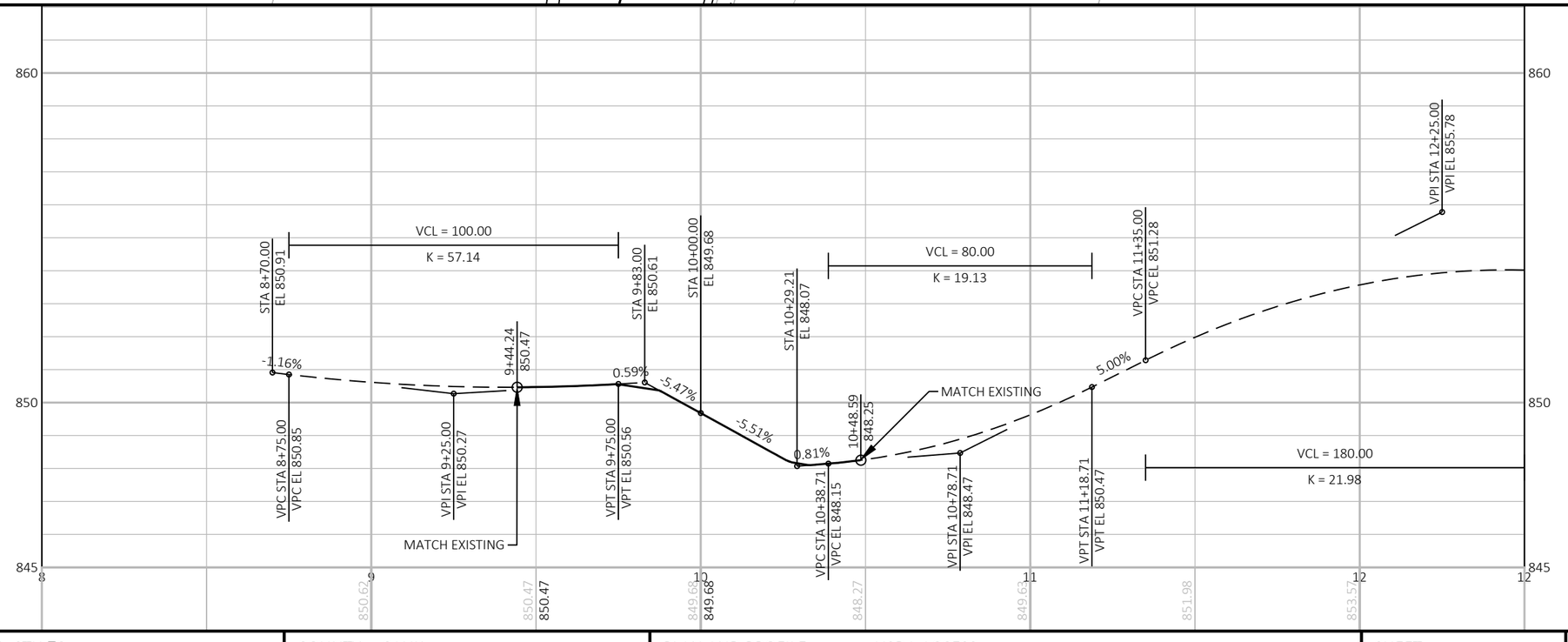

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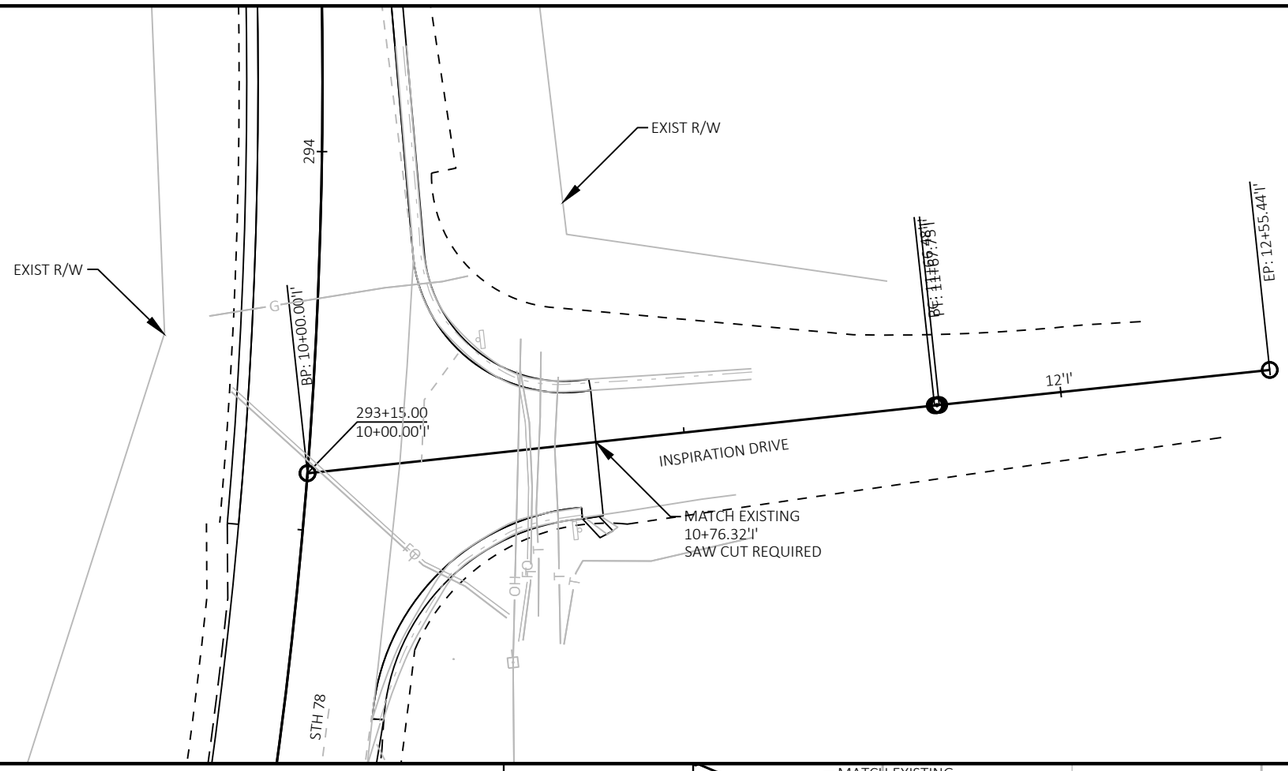
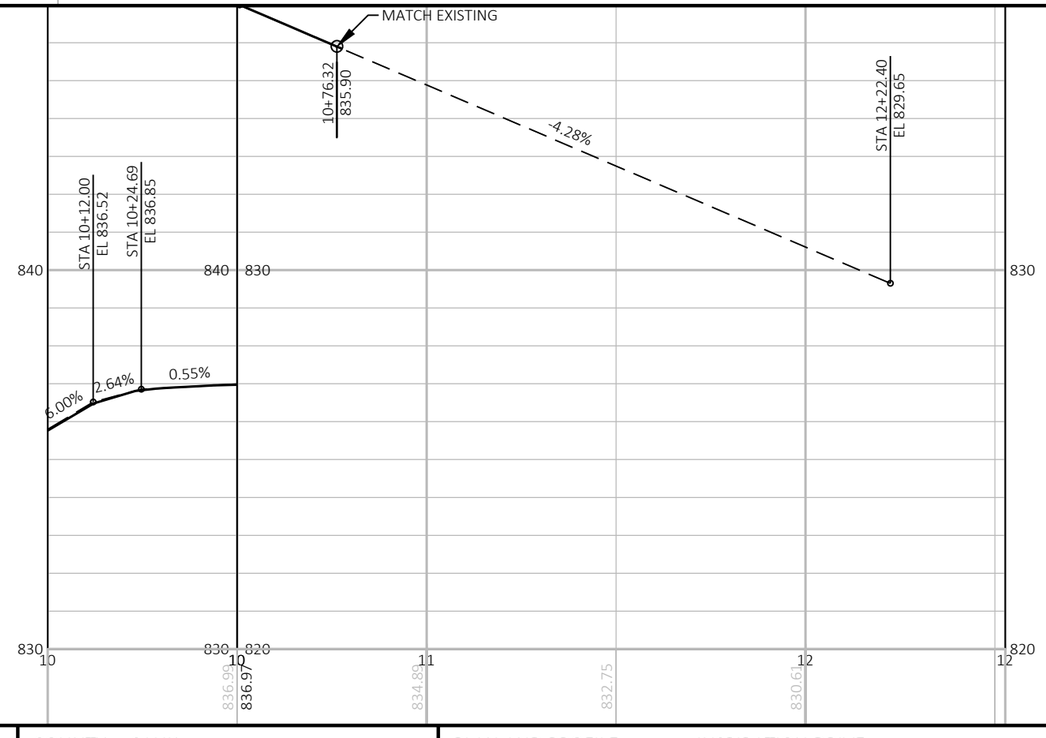




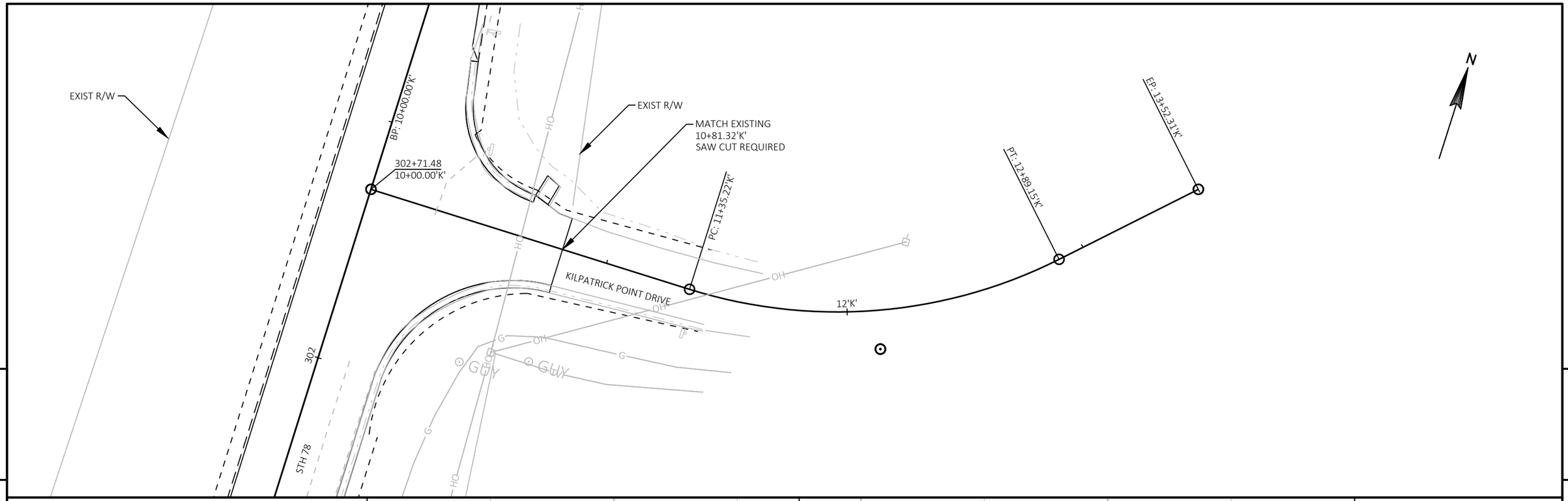
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: INSPIRATION DRIVE	SHEET E

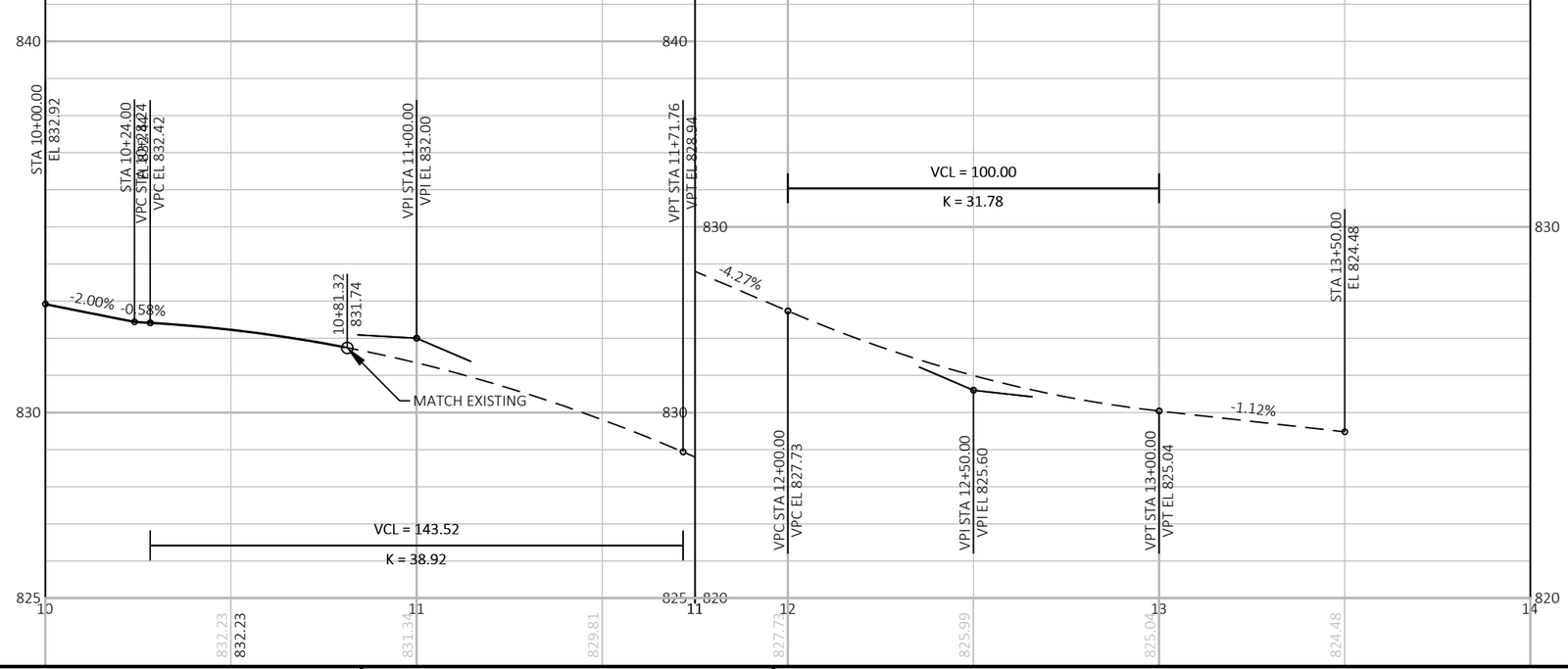
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050309-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_69

WISDOT/CADDS SHEET 44





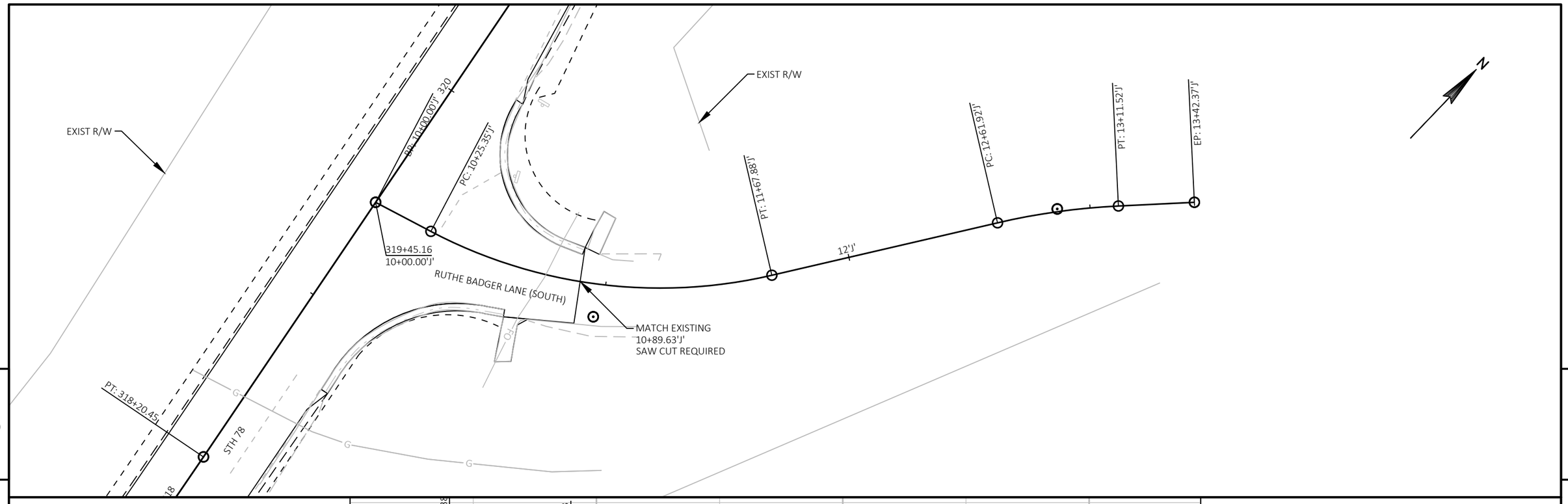
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: KILPATRICK POINT DRIVE	SHEET E

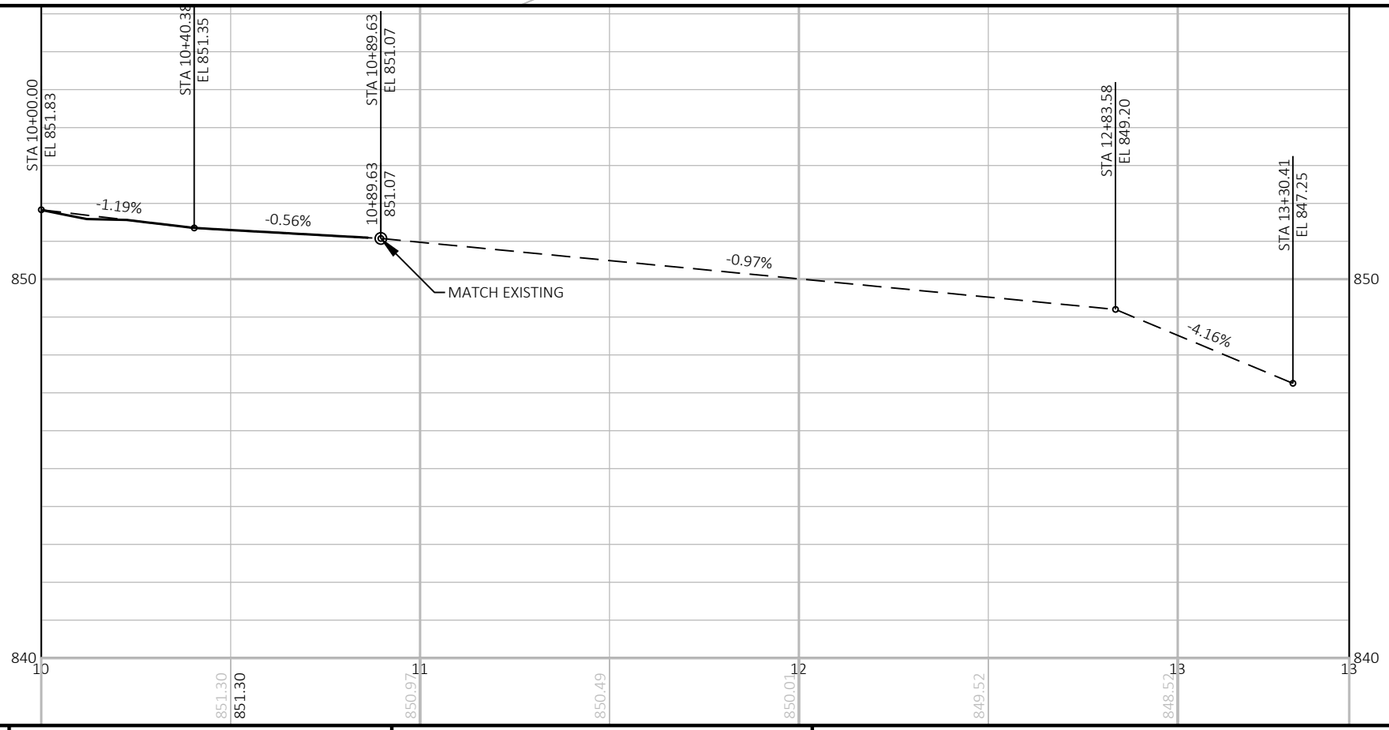
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050310-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_70

WISDOT/CADDS SHEET 44





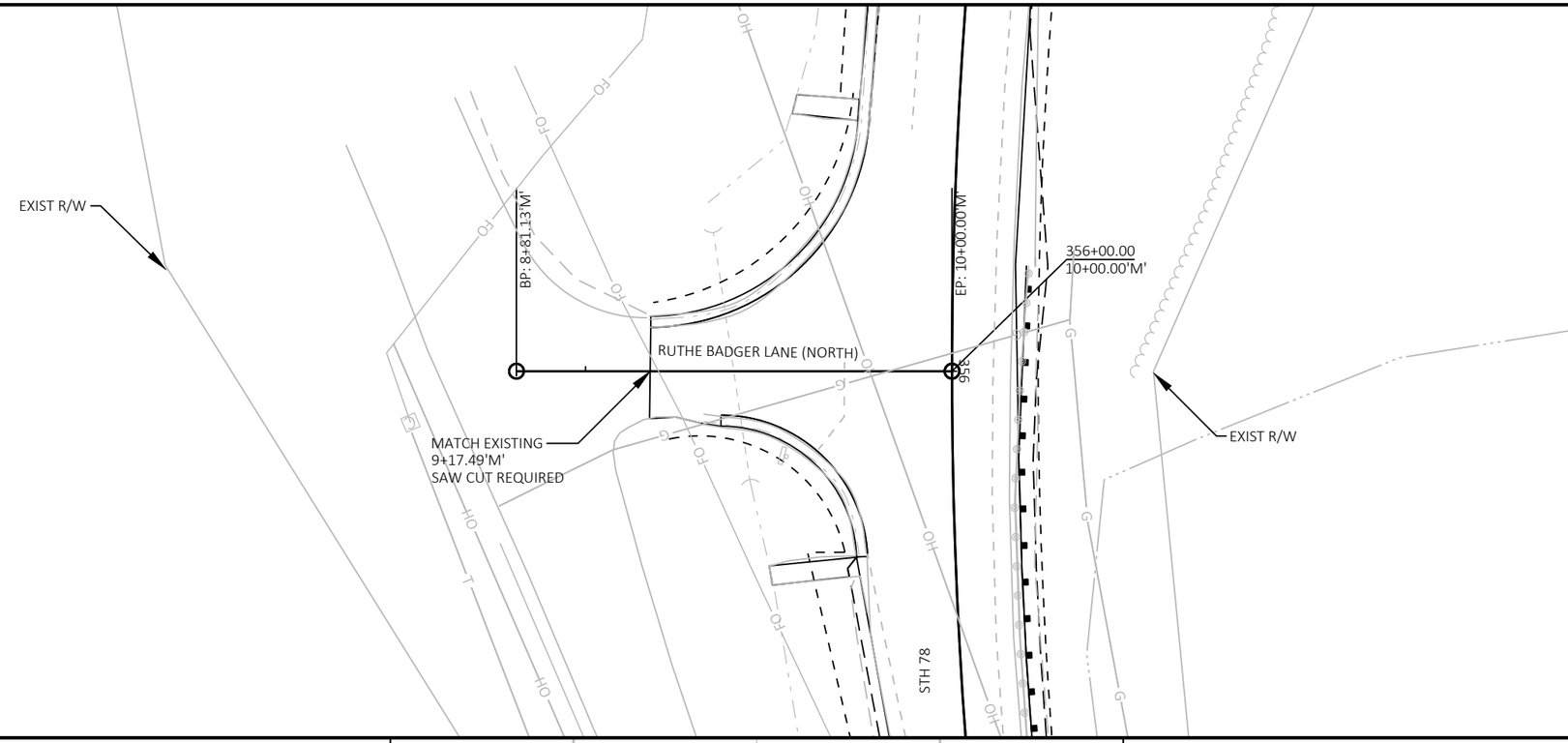
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: RUTHE BADGER LANE (SOUTH)	SHEET E

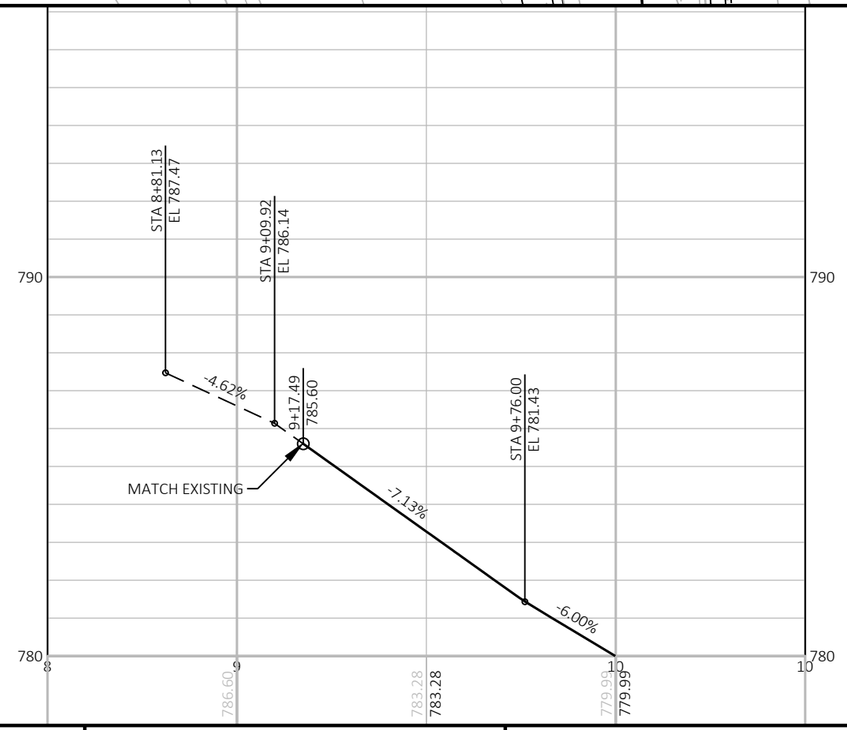
PRE_71

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050311-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44





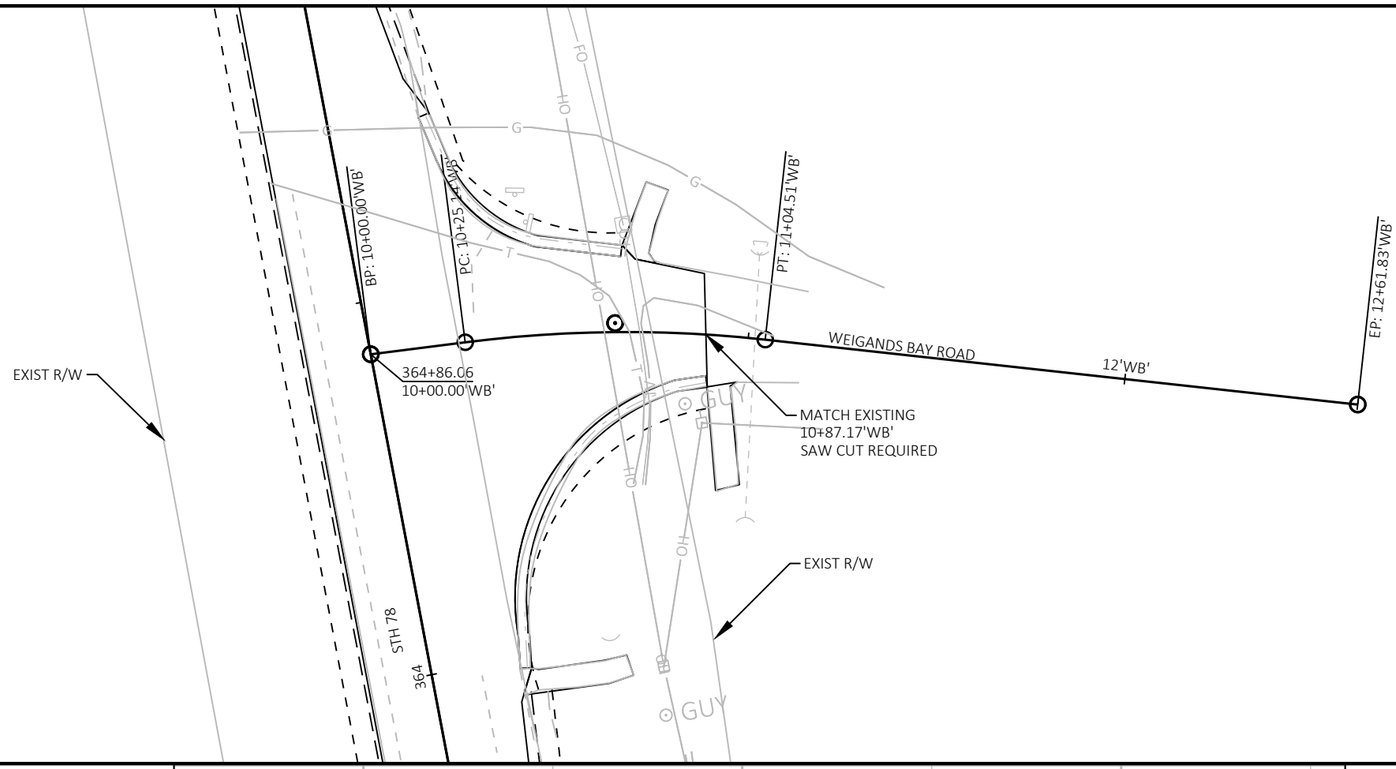
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: RUTHE BADGER LANE (NORTH)	SHEET E

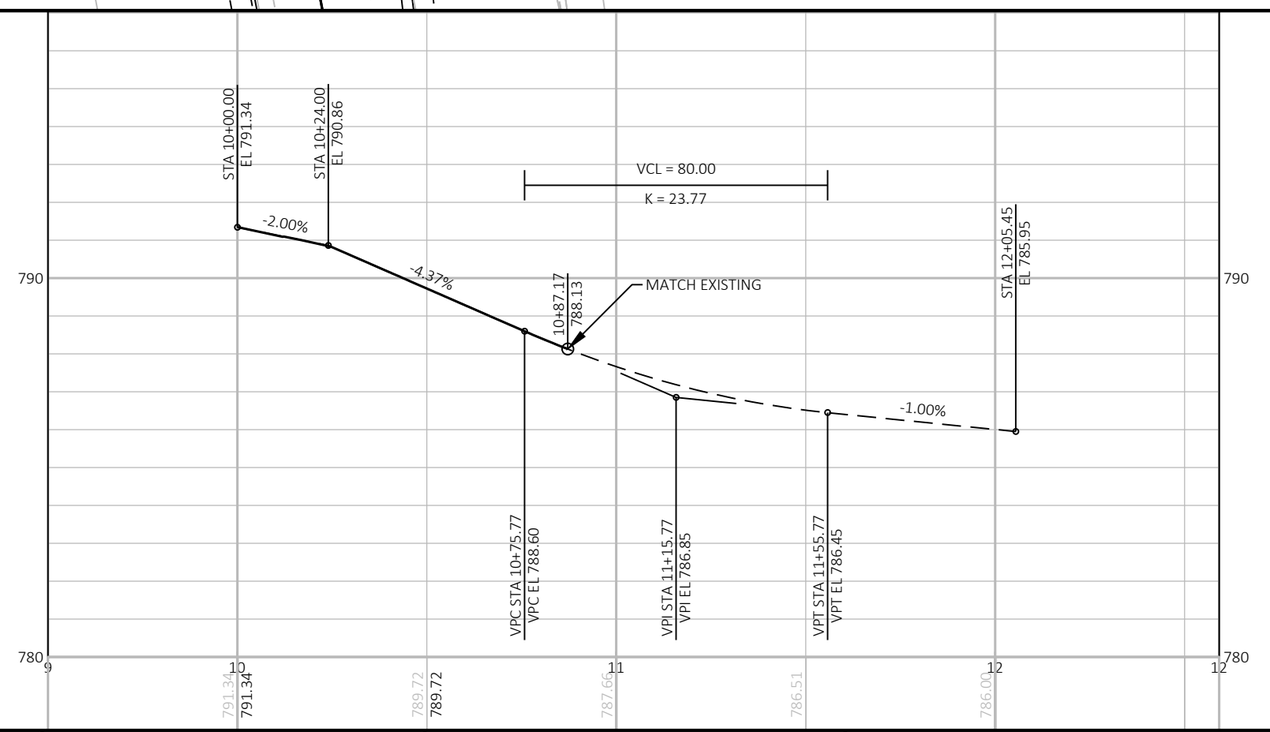
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050312-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_72

WISDOT/CADDS SHEET 44





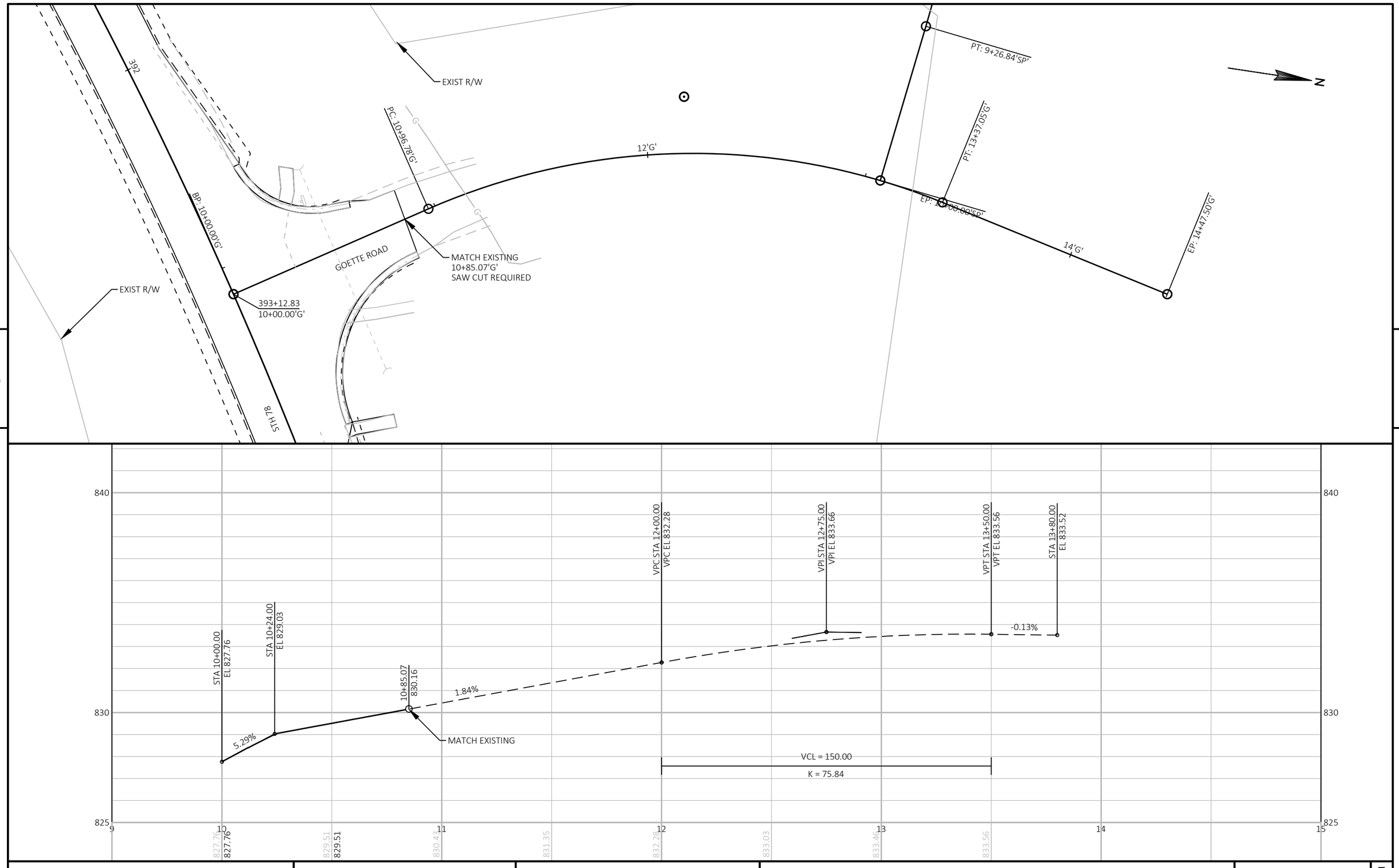
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: WELGANDS BAY ROAD	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050313-pp

PLOT DATE : 7/18/2019 8:37 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_73

WISDOT/CADDS SHEET 44



PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: GOETTE ROAD	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050314-pp

PLOT DATE : 7/18/2019 8:38 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_74

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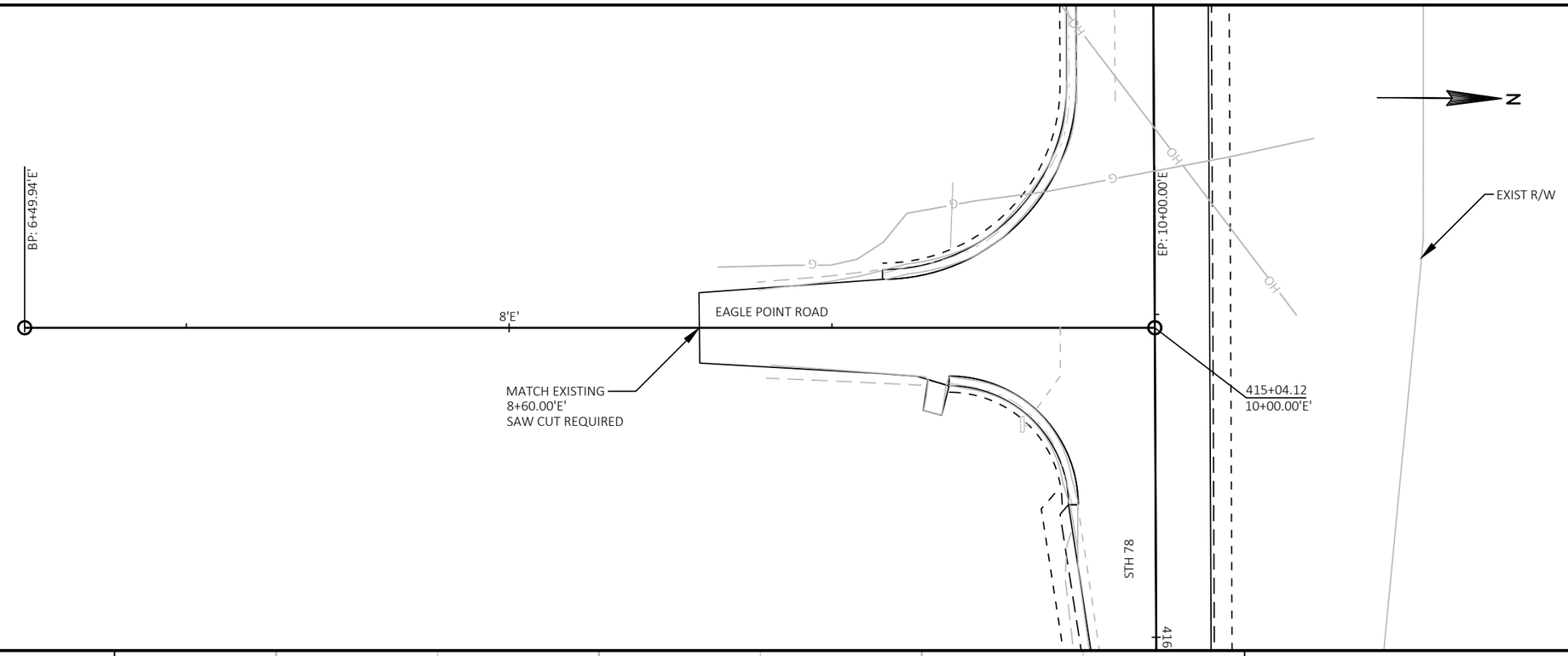
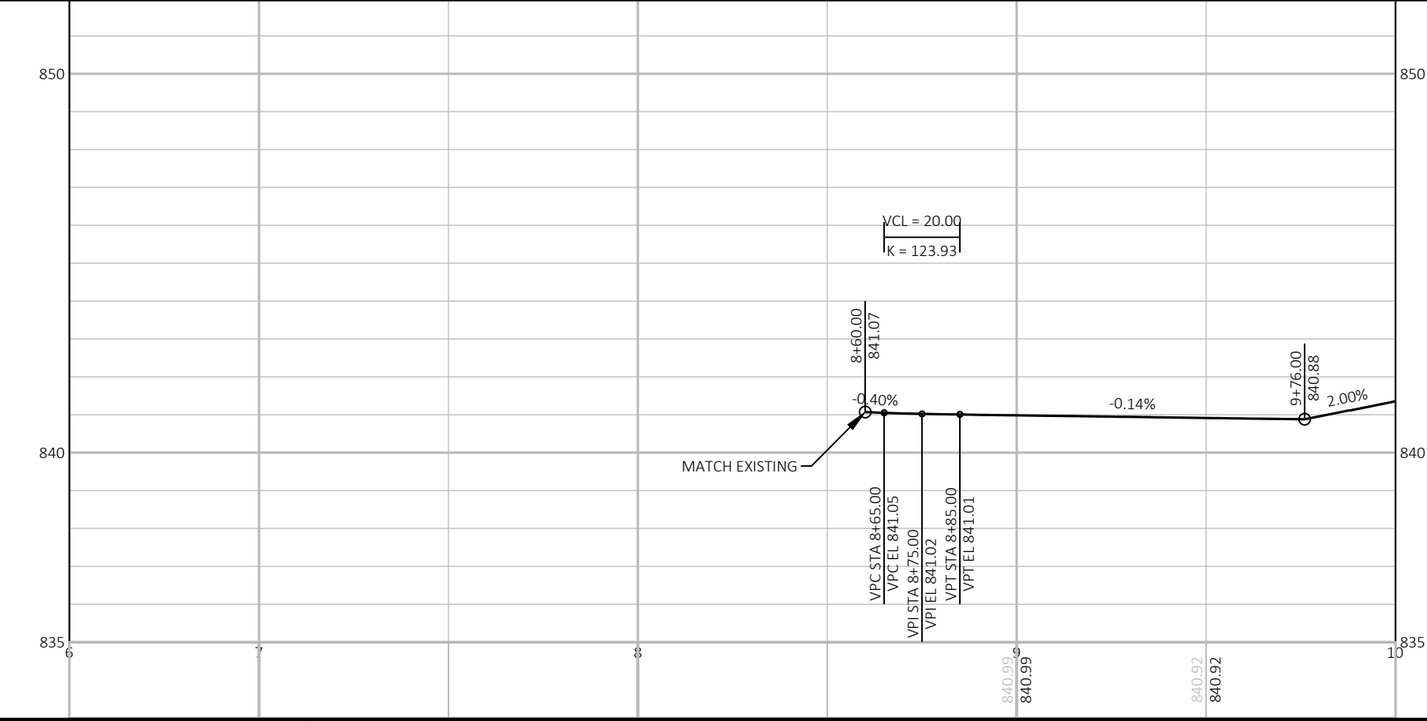




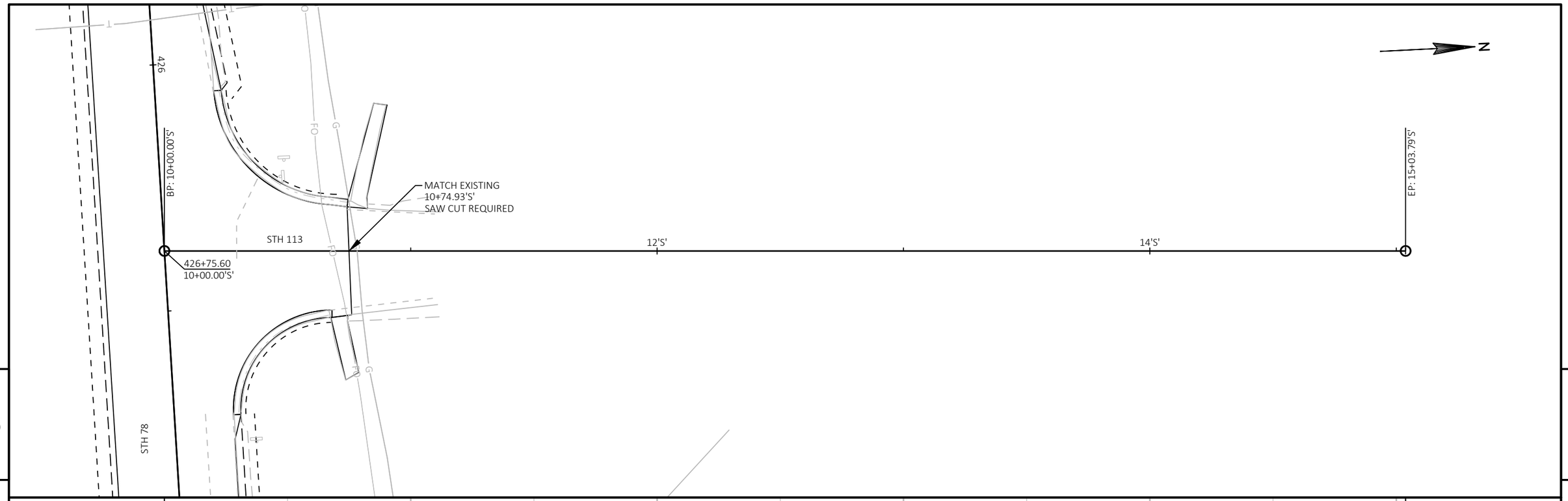
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: EAGLE POINT DRIVE	SHEET E

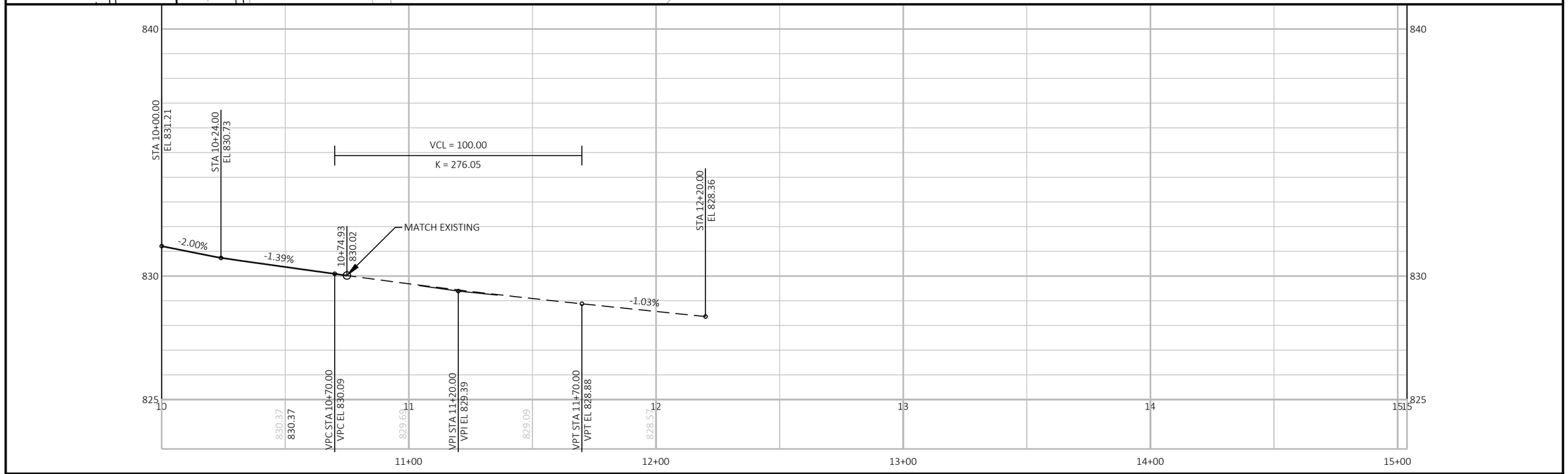
PRE_75

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050315-pp

PLOT DATE : 7/18/2019 8:38 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44





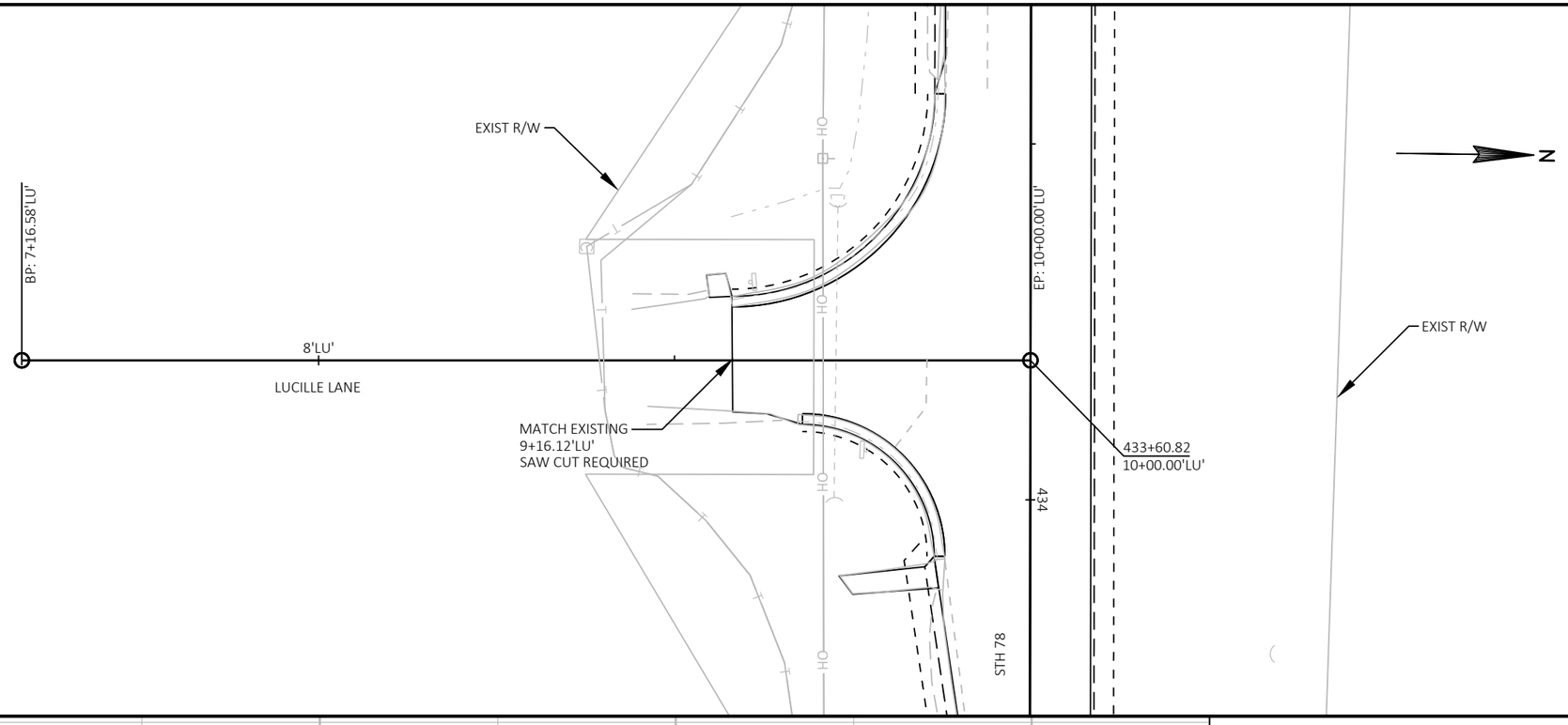
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: STH 113	SHEET E

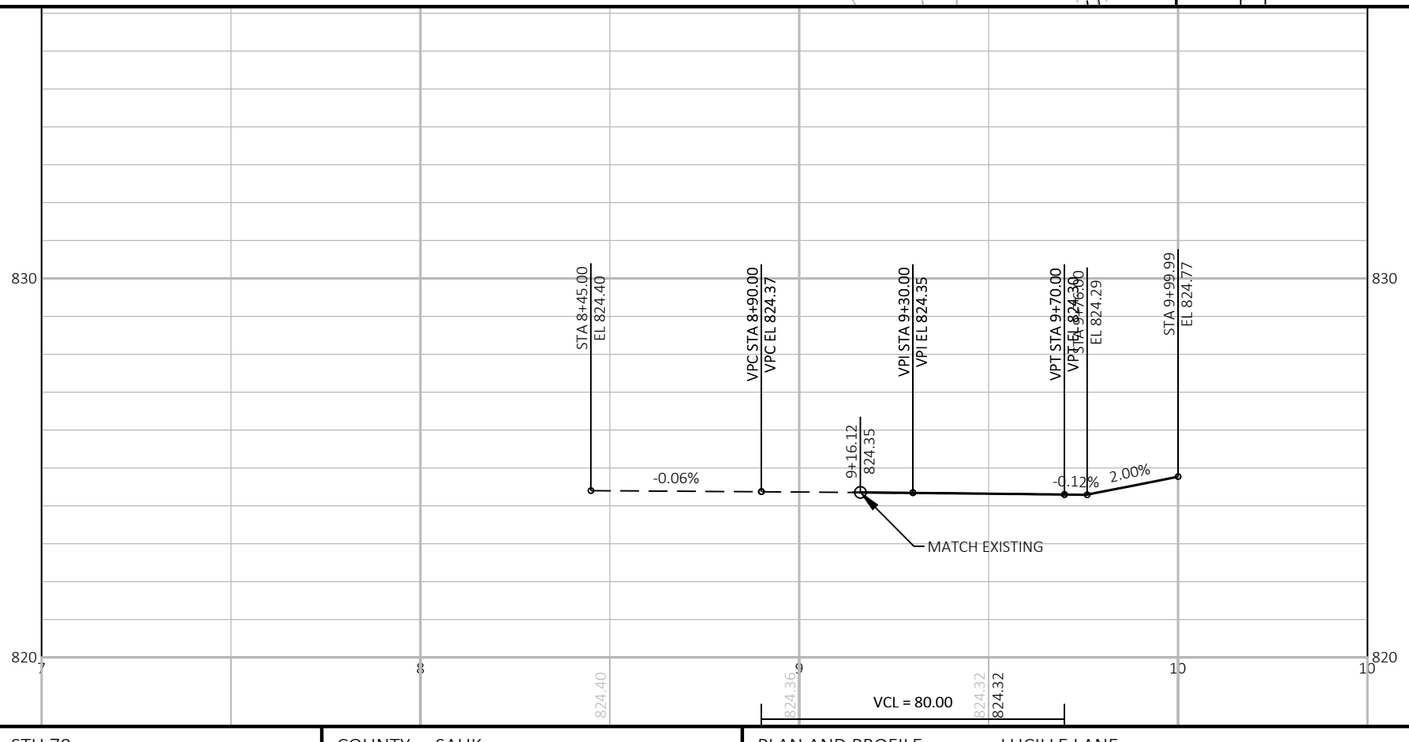
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050316-pp

PLOT DATE : 7/18/2019 8:38 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

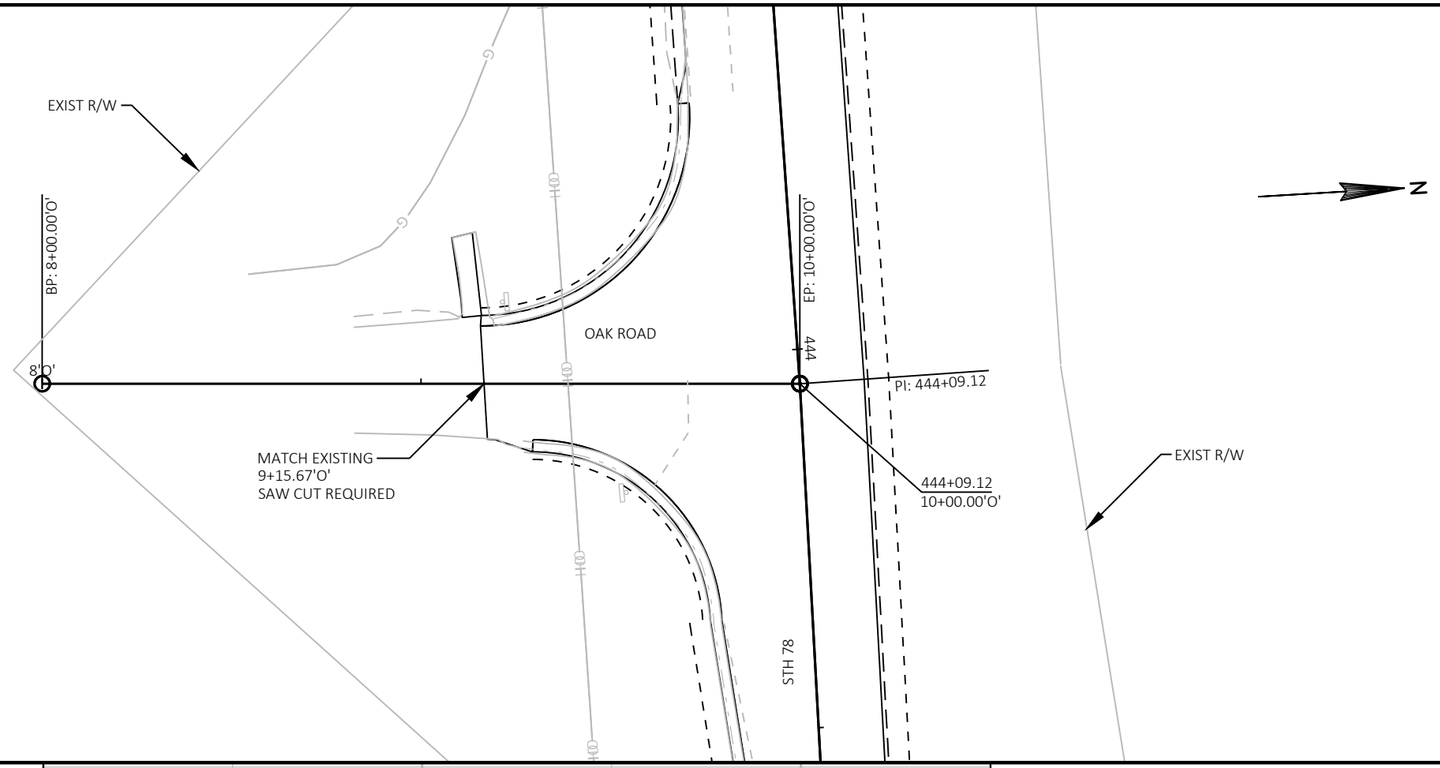
PRE_76

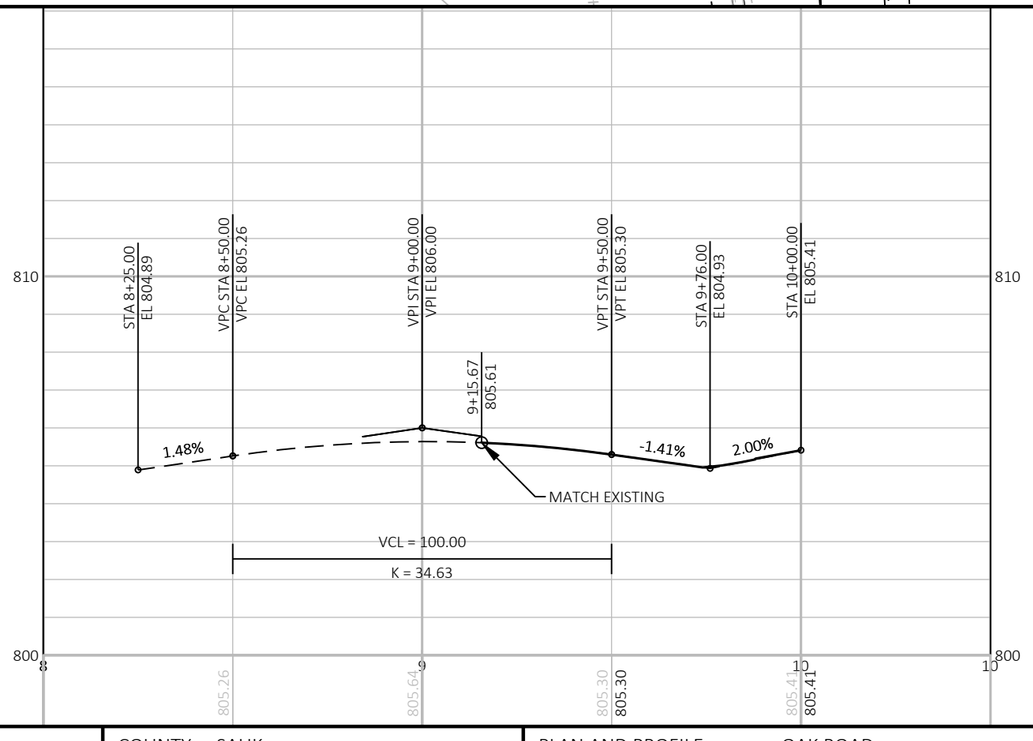
WISDOT/CADDS SHEET 44





PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: LUCILLE LANE	SHEET E





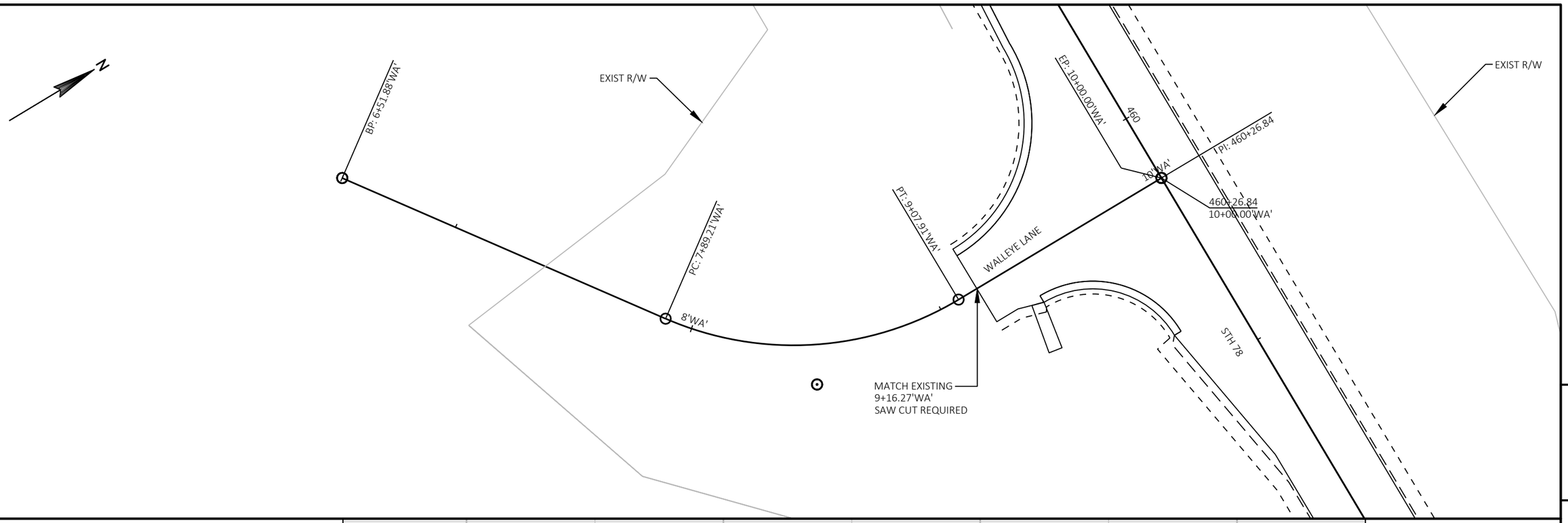
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: OAK ROAD	SHEET E

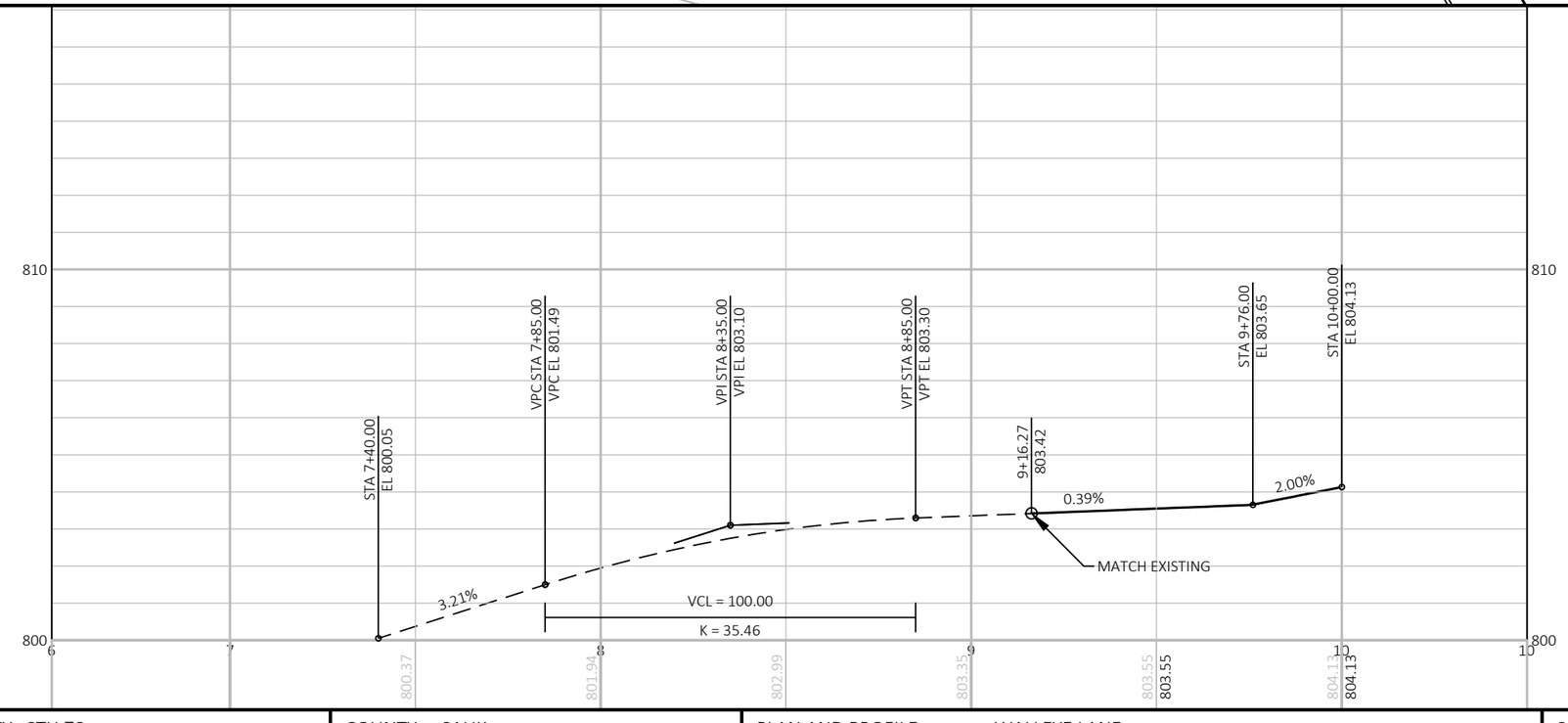
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050318-pp

PLOT DATE : 7/18/2019 8:38 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_78

WISDOT/CADDS SHEET 44





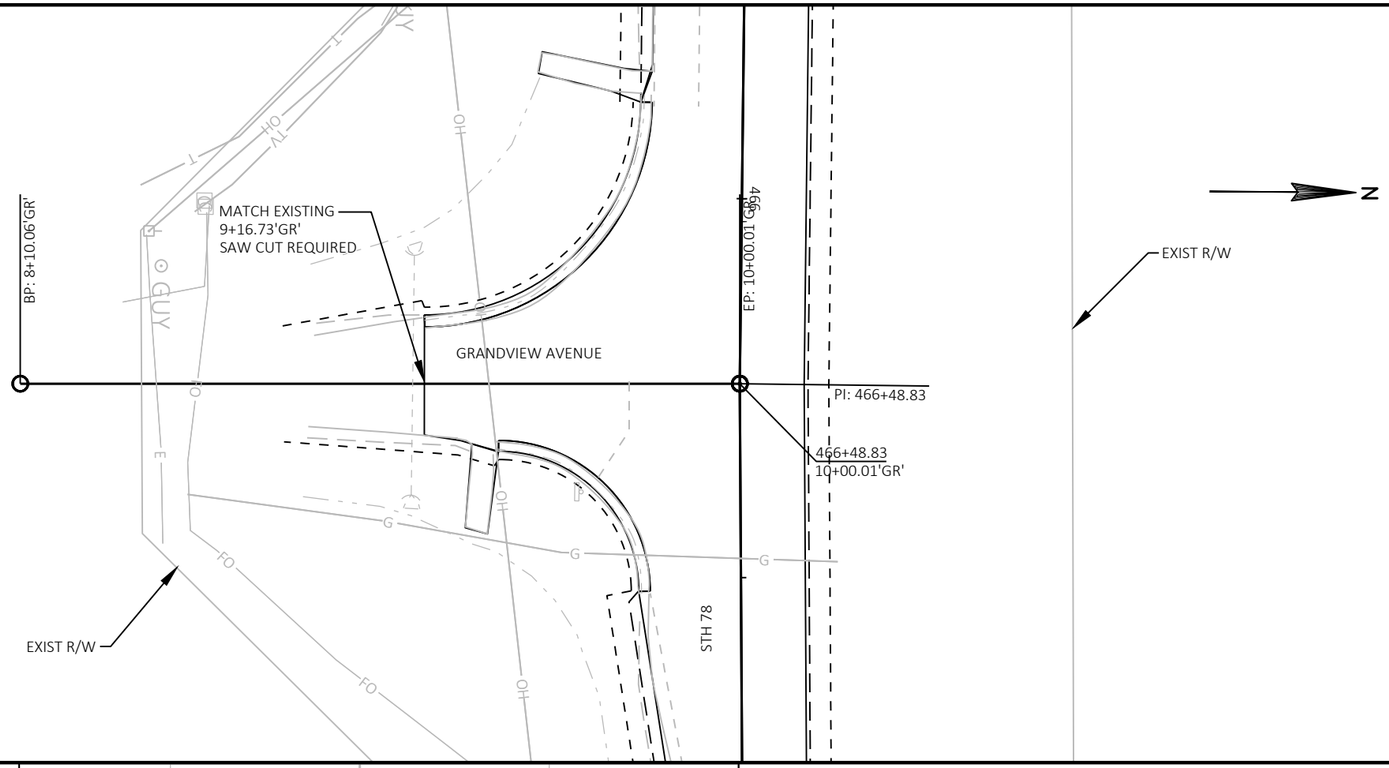
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: WALLEYE LANE	SHEET E

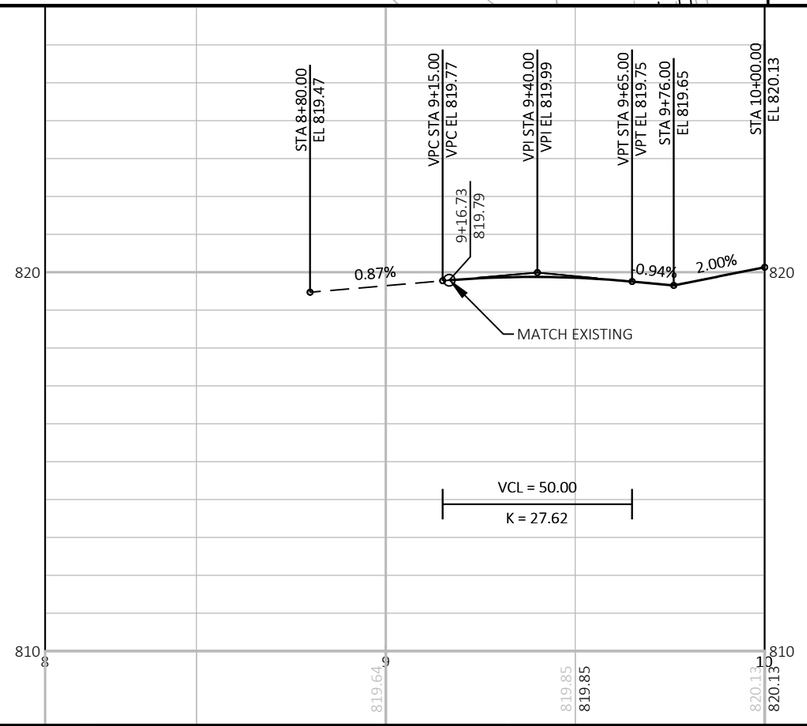
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050319-pp

PLOT DATE : 7/18/2019 8:38 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_79

WISDOT/CADDS SHEET 44





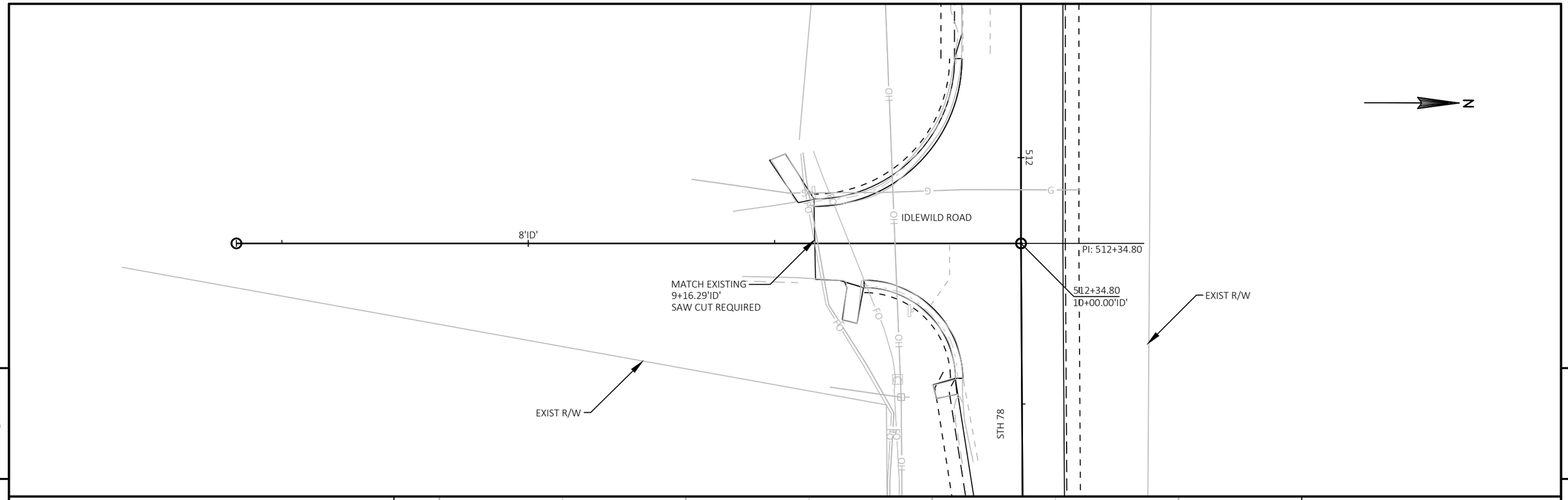
PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: GRANDVIEW AVENUE	SHEET E

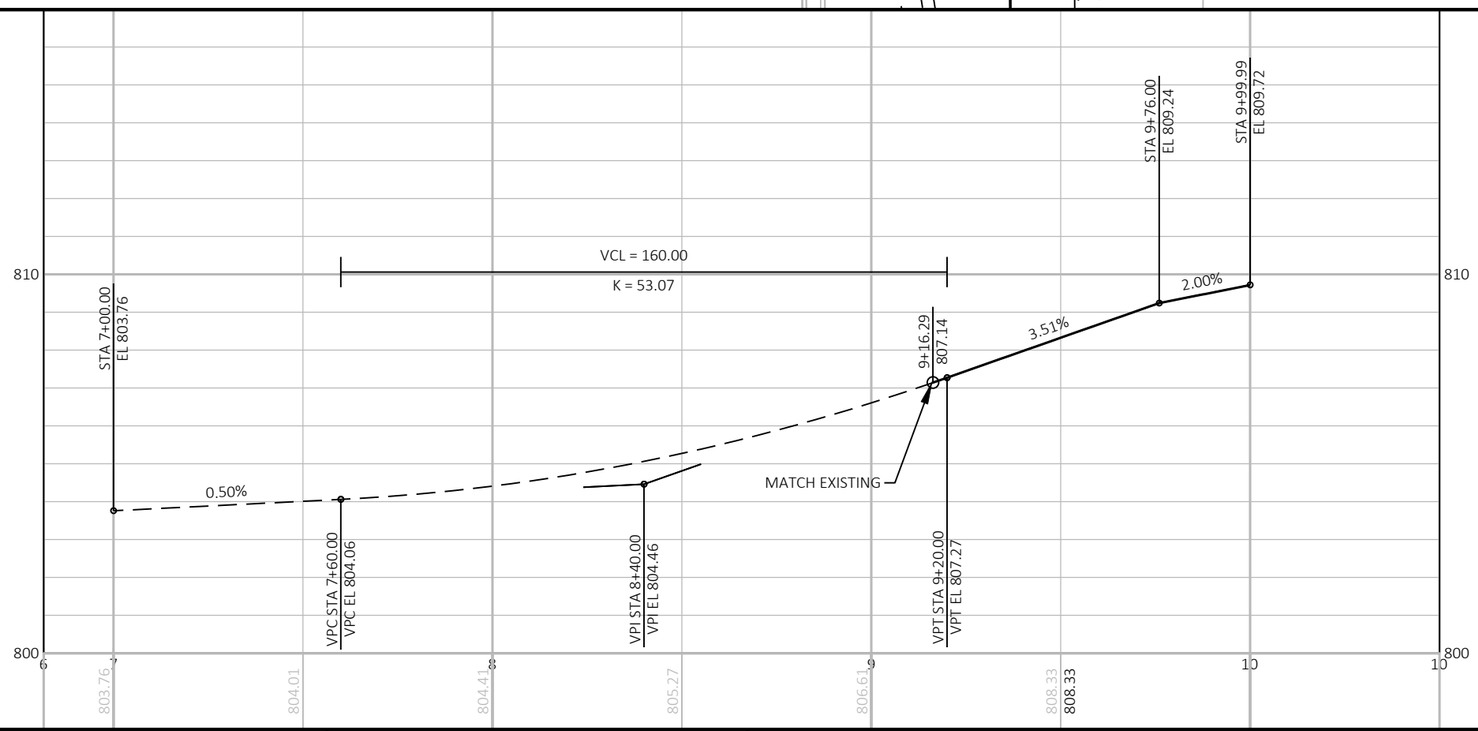
FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050320-pp

PLOT DATE : 7/18/2019 8:38 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_80

WISDOT/CADDS SHEET 44





PROJECT NO: 5630-06-72	HWY: STH 78	COUNTY: SAUK	PLAN AND PROFILE: IDLEWILD ROAD	SHEET E

FILE NAME : N:\PDS\C3D\56300602\SHEETSPLAN\050201-PP.DWG
LAYOUT NAME - 050321-pp

PLOT DATE : 7/18/2019 8:38 AM PLOT BY : DUMS, ALEXANDER T PLOT NAME : PLOT SCALE : 1 IN:40 FT

PRE_81

WISDOT/CADDS SHEET 44

WISCONSIN DEPARTMENT OF TRANSPORTATION

EPlans Preliminary Sheet Numbering Tool

Notes

- Acrobat 5 or higher is required to Insert Preliminary Sheet Numbers.
- The Bureau of Highway Construction Plan Examiner places sheet numbers in the final plan.
- This sheet is for placing preliminary sheet numbers with a “PRE_" prefix.
- If a plan contains multiple projects, number each plan individually.
- Leave this sheet in the plan.

TO ADD PRELIMINARY SHEET NUMBERS

1. Insert this sheet at the end of the plan

a. With the plan open in Acrobat, select Document > Insert Pages.
b. In the Select File to Insert dialog box, select this file (Preliminary_Sheet_Numbers.pdf)
c. In the Insert dialog box, choose After for Location and Last page for Page.
d. Click OK.

2. Click the Place Preliminary Sheet Numbers button

a. Go to the last sheet of the plan.
b. Click the Place Preliminary Sheet Numbers button once.
(The preliminary sheet number appears in the bottom right corner of the sheets.
The number should match the page number in the Acrobat Status bar).

3. Re-Save the PDF

a. Select File > Save As and save the PDF.

Place Preliminary Sheet Numbers

TO REMOVE PRELIMINARY SHEET NUMBERS

Remove

Exhibit 3

Special Provisions

Table of Contents

STSP'S Revised June 18, 2019

SPECIAL PROVISIONS

1. General.

Perform the work under this construction contract for Project 5630-06-72, Sauk City – IH-39, Eagle View Court – Weynand Road, STH 78, Sauk County Wisconsin as the plans show and execute the work as specified in the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, 2020 Edition, as published by the department, and these special provisions.

If all or a portion of the plans and special provisions are developed in the SI metric system and the schedule of prices is developed in the US standard measure system, the department will pay for the work as bid in the US standard system.

100-005 (20190618)

2. Scope of Work.

The work under this contract shall consist of HMA pavement, excavation common, base aggregate dense, select crushed material, beam guard, concrete curb and gutter, permanent signing, pavement marking, rumble strips and all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.

104-005 (20090901)

3. Prosecution and Progress.

Begin work within ten calendar days after the engineer issues a written notice to do so.

Provide the time frame for construction of the project within the 2023 construction season to the engineer in writing within a month after executing the contract but at least 14 calendar days before the preconstruction conference. Assure that the time frame is consistent with the contract completion time. Upon approval, the engineer will issue the notice to proceed within ten calendar days before the beginning of the approved time frame.

To revise the time frame, submit a written request to the engineer at least two weeks before the beginning of the intended time frame. The engineer will approve or deny that request based on the conditions cited in the request and its effect on the department's scheduled resources.

Complete all asphalt paving between May 15, 2023 and October 1, 2023.

4. Traffic

STH 78 shall be closed with local traffic access maintained at all times. The closure shall begin at Eagle View Court and end at Weynand Road. STH 78 traffic will be detoured via STH 78, STH 60 and IH-39.

Maintain school bus access while school is in progress.

Private Access Maintenance

Maintain local and emergency access to adjacent properties to and from the work zone at all times unless otherwise approved by the engineer.

Notify property owners 48 hours in advance of work performed adjacent to their property that will temporarily restrict access. Examples of these times would be curb and gutter installation and HMA paving.

Wisconsin Lane Closure System Advance Notification

Provide the following advance notification to the engineer for incorporation into the Wisconsin Lane Closure System (LCS).

TABLE 108-1 CLOSURE TYPE AND REQUIRED MINIMUM ADVANCE NOTIFICATION

Closure type with height, weight, or width restrictions (available width, all lanes in one direction < 16')	**MINIMUM NOTIFICATION**
Lane and shoulder closures	7 calendar days
Full roadway closures	7 calendar days
Ramp closures	7 calendar days
Detours	7 calendar days
Closure type without height, weight, or width restrictions (available width, all lanes in one direction ≥16')	**MINIMUM NOTIFICATION**
Lane and shoulder closures	3 business days
Ramp closures	3 business days
Modifying all closure types	3 business days

Discuss LCS completion dates and provide changes in the schedule to the engineer at weekly project meetings in order to manage closures nearing their completion date.

5. Holiday Work Restrictions.

Do not perform work on, nor haul materials of any kind along or across any portion of the highway carrying STH 78 traffic, and entirely clear the traveled way and shoulders of such portions of the highway of equipment, barricades, signs, lights, and any other material that might impede the free flow of traffic during the following holiday periods:

- From noon Friday, May 26 to 6:00 AM Tuesday, May 30 for Memorial Day;
- From noon Friday, June 30 to 6:00 AM Wednesday, July 5 for Independence Day;
- From noon Friday, September 1 to 6:00 AM Tuesday, September 5 for Labor Day.

stp-107-005 (20181119)

6. Utilities.

This contract comes under the provision of Administrative Rule Trans 220.

stp-107-065 (20080501)

7. Information to Bidders, WPDES General Construction Storm Water Discharge Permit.

The department has obtained coverage through the Wisconsin Department of Natural Resources to discharge storm water associated with land disturbing construction activities of this contract under the Wisconsin Pollutant Discharge Elimination System General Construction Storm Water Discharge Permit (WPDES Permit No. WI-S066796-1). A certificate of permit coverage is available from the regional office by contacting Greg Brecka at 608-516-6524. Post the permit in a conspicuous place at the construction site.

stp-107-056 (20180628)

8. Environmental Protection, Rusty Patch Bumble Bee (*Bombus affinis)*

The rusty patched bumble bee (RPBB), a species protected by the Federal Endangered Species Act, has the potential to inhabit the project limits. Suitable habitat for the RPBB is present beyond the gravel shoulder from approximately Station 332+00 to Station 345+00 LT and RT. Constrain work to the roadway and gravel shoulder. Do not use area beyond the gravel shoulder for borrow or waste disposal or for staging of personnel, equipment and/or supplies.

9. Archaeological Site Protection.

Archaeologically significant sites exist within the project area located at approximately STA 366+00 – STA 378+35, LT (47SK71/BSK128 – Siebecker Mound Group site), STA 333+50 – 345+00, RT and LT (47SK308/BSK294 – Wiegand Bay Mounds site), STA 392+15 – 394+80, LT (47SK681/BSK368 – Quarter Line site), and STA 353+23 – 366+00, RT (47SK682/BSK369 - Monitor site) .

Do not use these sites for borrow, waste disposal, or for the staging of personnel, equipment and/or supplies. If ground disturbance becomes necessary, provide two weeks' notice to the Bureau of Technical Services, Environmental Services Section (ESS) before doing any work in the areas of these sites. ESS will provide a qualified archaeologist to be on site at all times when work occurs near these areas.

The contact at ESS is Lynn Cloud, (608) 266-0099.

If a potentially significant archaeological feature or material is discovered during construction operations, the qualified archeologist will promptly coordinate with the WIDOT engineer and with ESS to determine an appropriate course of action.

swr-107-002 (20141016)

10. Coordination with Businesses and Residents.

The department will arrange and conduct a meeting between the contractor, the department, affected residents, local officials and business people to discuss the project schedule of operations including vehicular and pedestrian access during construction operations. Hold the first meeting at least one week before the start of work under this contract and hold one meeting per month thereafter. The department will arrange for a suitable location for meetings that provides reasonable accommodation for public involvement. The department will prepare and coordinate publication of the meeting notices and mailings for meetings. The contractor shall schedule meetings with at least 2 weeks prior notice to the engineer to allow for these notifications.

stp-108-060 (20141107)

11. Base Aggregate Dense 3/4-Inch, Item 305.0110.

Add the following to standard spec 301.2.4.3:

Furnish only aggregate classified as crushed stone for Dense 3/4-Inch when used in the top 3 inches of the unpaved portion of the shoulder or for unpaved driveways and field entrances.

swr-305-001 (20170711)

12. Base Aggregate Dense 1 1/4-Inch, Item 305.0120.

Add the following to standard spec 305.2.2.1:

When 1 1/4-Inch base aggregate is >/= 50 percent crushed gravel, conform to the following gradation requirements:

SIEVE	PERCENT PASSING BY WEIGHT
1 1/4 inch	95 - 100
1 inch	---
3/4 inch	70 - 90
3/8 inch	45 - 75
No. 4	30 - 60
No. 10	20 - 40
No. 40	7 - 25
No. 200	3 - 10[1]

[1] Limited to a maximum of 8.0 percent for base placed between old and new pavement.

swr-305-002 (20170711)

13. HMA Pavement Percent Within Limits (PWL) QMP.

A Description

This special provision describes percent within limits (PWL) pay determination, providing and maintaining a contractor Quality Control (QC) Program, department Quality Verification (QV) Program, required sampling and testing, dispute resolution, corrective action, pavement density, and payment for HMA pavements. Pay is determined by statistical analysis performed on contractor and department test results conducted according to the Quality Management Program (QMP) as specified in standard spec 460, except as modified below.

B Materials

Conform to the requirements of standard spec 450, 455, and 460 except where superseded by this special provision. The department will allow only one mix design for each HMA mixture type per layer required for the contract, unless approved by the engineer. The use of more than one mix design for each HMA pavement layer will require the contractor to construct a new test strip in accordance with HMA Pavement Percent Within Limits (PWL) QMP Test Strip Volumetrics and HMA Pavement Percent Within Limits (PWL) QMP Test Strip Density articles at no additional cost to the department.

Replace standard spec 460.2.8.2.1.3.1 Contracts with 5000 Tons of Mixture or Greater with the following:

460.2.8.2.1.3.1 Contracts under Percent within Limits

(1) Furnish and maintain a laboratory at the plant site fully equipped for performing contractor QC testing. Have the laboratory on-site and operational before beginning mixture production.

(2) Obtain random samples and perform tests according to this special provision and further defined in Appendix A: *Test Methods & Sampling for HMA PWL QMP Projects*. Obtain HMA mixture samples from trucks at the plant. For the sublot in which a QV sample is collected, discard the QC sample and test a split of the QV sample.

(3) Perform sampling from the truck box and three-part splitting of HMA samples according to CMM 8-36. Sample size must be adequate to run the appropriate required tests in addition to one set of duplicate tests that may be required for dispute resolution (i.e., retained). This requires sample sizes which yield three splits for all random sampling per sublot. All QC samples shall provide the following: QC, QV, and Retained. The contractor shall take possession and test the QC portions. The department will observe the splitting and take possession of the samples intended for QV testing (i.e., QV portion from each sample) and the Retained portions. Additional sampling details are found in Appendix A. Label samples according to CMM 8-36. Additional handling instructions for retained samples are found in CMM 8-36.

(4) Use the test methods identified below to perform the following tests at a frequency greater than or equal to that indicated:

- Blended aggregate gradations in accordance with AASHTO T 30
- Asphalt content (AC) in percent determined by ignition oven method according to AASHTO T 308 as modified in CMM 8-36.6.3.6, chemical extraction according to AASHTO T 164 Method A or B, or automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1.
- Bulk specific gravity (Gmb) of the compacted mixture according to AASHTO T 166.
- Maximum specific gravity (Gmm) according to AASHTO T 209.
- Air voids (V_a) by calculation according to AASHTO T 269.
- Voids in Mineral Aggregate (VMA) by calculation according to AASHTO R35.

(5) Lot size shall consist of 3750 tons with sublots of 750 tons. Test each design mixture at a frequency of 1 test per 750 tons of mixture type produced and placed as part of the contract. Add a random sample for any fraction of 750 tons at the end of production for a specific mixture design. Partial lots with less than three sublot tests will be included into the previous lot for data analysis and pay adjustment. Volumetric lots will include all tonnage of mixture type under specified bid item unless otherwise specified in the plan.

(6) Conduct field tensile strength ratio tests according to AASHTO T283, without freeze-thaw conditioning cycles, on each qualifying mixture in accordance with CMM 8-36.6.14. Test each full 50,000 ton production increment, or fraction of an increment, after the first 5,000 tons of production. Perform required increment testing in the first week of production of that increment. If field tensile strength ratio values are below the spec limit, notify the engineer. The engineer and contractor will jointly determine a corrective action.

Delete standard spec 460.2.8.2.1.5 and 460.2.8.2.1.6.

Replace standard spec 460.2.8.2.1.7 Corrective Action with the following:

460.2.8.2.1.7 Corrective Action

(1) Material must conform to the following action and acceptance limits based on individual QC and QV test results (tolerances relative to the JMF used on the PWL Test Strip):

ITEM	ACTION LIMITS	ACCEPTANCE LIMITS
Percent passing given sieve:		
37.5-mm	+/- 8.0	
25.0-mm	+/- 8.0	
19.0-mm	+/- 7.5	
12.5-mm	+/- 7.5	
9.5-mm	+/- 7.5	
2.36-mm	+/- 7.0	
75-µm	+/- 3.0	
AC in percent[1]	-0.3	-0.5
Va		- 1.5 & +2.0
VMA in percent[2]	- 0.5	-1.0

[1] The department will not adjust pay based on QC AC in percent test results; however corrective action will be applied to nonconforming material according to 460.2.8.2.1.7(3) as modified herein.

[2] VMA limits based on minimum requirement for mix design nominal maximum aggregate size in table 460-1.

(2) QV samples will be tested for Gmm, Gmb, and AC. Air voids and VMA will then be calculated using these test results.

(3) Notify the engineer if any individual test result falls outside the action limits, investigate the cause and take corrective action to return to within action limits. If two consecutive test results fall outside the action limits, stop production. Production may not resume until approved by the engineer. Additional QV samples may be collected upon resuming production, at the discretion of the engineer.

(4) For any additional tests outside the random number testing conducted for volumetrics, the data collected will not be entered into PWL calculations. Additional QV tests must meet acceptance limits or be subject to production stop and/or remove and replace.

(5) Remove and replace unacceptable material at no additional expense to the department. Unacceptable material is defined as any individual QC or QV tests results outside the acceptance limits or a PWL value < 50. The engineer may allow such material to remain in place with a price reduction. The department will pay for such HMA Pavement allowed to remain in place at 50 percent of the contract unit price.

Replace standard spec 460.2.8.3.1.2 Personnel Requirements with the following:

460.2.8.3.1.2 Personnel Requirements

(1) The department will provide at least one HTCP-certified Transportation Materials Sampling (TMS) Technician, to observe QV sampling of HMA mixtures.

(2) Under departmental observation, a contractor TMS technician shall collect and split samples.

(3) A department HTCP-certified Hot Mix Asphalt, Technician I, Production Tester (HMA-IPT) technician will ensure that all sampling is performed correctly and conduct testing, analyze test results, and report resulting data.

(4) The department will make an organizational chart available to the contractor before mixture production begins. The organizational chart will include names, telephone numbers, and current certifications of all QV testing personnel. The department will update the chart with appropriate changes, as they become effective.

Replace standard spec 460.2.8.3.1.4 Department Verification Testing Requirements with the following:

460.2.8.3.1.4 Department Verification Testing Requirements

(1) HTCP-certified department personnel will obtain QV random samples by directly supervising HTCP-certified contractor personnel sampling from trucks at the plant. Sample size must be adequate to run the appropriate required tests in addition to one set of duplicate tests that may be required for dispute resolution (i.e., retained). This requires sample sizes which yield three splits for all random sampling per sublot. All QV samples shall furnish the following: QC, QV, and Retained. The department will observe the splitting and take possession of the samples intended for QV testing (i.e., QV portion from each sample) and the Retained portions. The department will take possession of retained samples accumulated to date each day QV samples are collected. The department will retain samples until surpassing the analysis window of up to 5 lots, as defined in 460.2.8.3.1.7(2) of this special provision. Additional sampling details are found in Appendix A.

(2) The department will verify product quality using the test methods specified here in 460.2.8.3.1.4(3). The department will identify test methods before construction starts and use only those methods during production of that material unless the engineer and contractor mutually agree otherwise.

(3) The department will perform all testing conforming to the following standards:

- Bulk specific gravity (Gmb) of the compacted mixture according to AASHTO T 166.
- Maximum specific gravity (Gmm) according to AASHTO T 209.

- Air voids (Va) by calculation according to AASHTO T 269.
- Voids in Mineral Aggregate (VMA) by calculation according to AASHTO R 35.
- Asphalt Content (AC) in percent determined by ignition oven method according to AASHTO T 308 as modified in CMM 8-36.6.3.6, chemical extraction according to AASHTO T 164 Method A or B, or automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1.

(4) The department will randomly test each design mixture at the minimum frequency of one test for each lot.

Delete standard spec 460.2.8.3.1.6.

Replace standard spec 460.2.8.3.1.7 Dispute Resolution with the following:

460.2.8.3.1.7 Data Analysis for Volumetrics

(1) Analysis of test data for pay determination will be contingent upon QC and QV test results. Statistical analysis will be conducted on Gmm and Gmb test results for calculation of Va. If either Gmm or Gmb analysis results in non-comparable data as described in 460.2.8.3.1.7(2), subsequent testing will be performed for both parameters as detailed in the following paragraph.

(2) The engineer, upon completion of the first 3 lots, will compare the variances (F-test) and the means (t-test) of the QV test results with the QC test results. Additional comparisons incorporating the first 3 lots of data will be performed following completion of the 4th and 5th lots (i.e., lots 1-3, 1-4, and 1-5). A rolling window of 5 lots will be used to conduct F & t comparison for the remainder of the contract (i.e., lots 2-6, then lots 3-7, etc.), reporting comparison results for each individual lot. Analysis will use a set alpha value of 0.025. If the F- and t-tests report comparable data, the QC and QV data sets are determined to be statistically similar and QC data will be used to calculate the Va used in PWL and pay adjustment calculations. If the F- and t-tests result in non-comparable data, proceed to the *dispute resolution* steps found below. Note: if both QC and QV Va PWL result in a pay adjustment of 102% or greater, dispute resolution testing will not be conducted. Dispute resolution via further investigation is as follows:

[1] The Retained portion of the split from the most recent lot in the analysis window (specifically the sublot identifying that variances or means do not compare) will be referee tested by the bureau's AASHTO accredited laboratory and certified personnel. If the non-comparison occurs following Lot 3, 4, or 5, all previous lots are subject to referee testing. Referee test results will replace the QV data of the sublot(s).

[2] Statistical analysis will be conducted with referee test results replacing QV results.

i. If the F- and t-tests indicate variances and means compare, no further testing is required for the lot and QC data will be used for PWL and pay factor/adjustment calculations.

ii. If the F- and t-tests indicate non-comparable variances or means, the Retained portion of the random QC sample will be tested by the department's regional lab for the remaining 4 sublots of the lot which the F- and t- tests indicate non-comparable datasets. The department's regional lab and the referee test results will be used for PWL and pay factor/adjustment calculations. Upon the second instance of non-comparable variance or means and for every instance thereafter, the department will assess a pay reduction for the additional testing of the remaining 4 sublots at $2,000/lot under the HMA Regional Lab Testing administrative item.

[3] The contractor may choose to dispute the regional test results on a lot basis. In this event, the retained portion of each sublot will be referee tested by the department's AASHTO accredited laboratory and certified personnel. The referee Gmm and Gmb test results will supersede the regional lab results for the disputed lot.

i. If referee testing results in an increased calculated pay factor, the department will pay for the cost of the additional referee testing.

ii. If referee testing of a disputed lot results in an equal or lower calculated pay factor, the department will assess a pay reduction for the additional referee testing at $2,000/lot under the Referee Testing administrative item.

(3) The department will notify the contractor of the referee test results within 3 working days after receipt of the samples by the department's AASHTO accredited laboratory. The intent is to provide referee test results within 7 calendar days from completion of the lot.

(4) The department will determine mixture conformance and acceptability by analyzing referee test results, reviewing mixture data, and inspecting the completed pavement according to the standard spec, this special provision, and accompanying Appendix A.

(5) Unacceptable material (i.e., resulting in a PWL value less than 50 or individual QC or QV test results not meeting the Acceptance Requirements of 460.2.8.2.1.7 as modified herein) will be referee tested by the bureau's AASHTO accredited laboratory and certified personnel. Such material may be subject to remove and replace, at the discretion of the engineer. If the engineer allows the material to remain in place, it will be paid at 50% of the HMA Pavement contract unit price. Replacement or pay adjustment will be conducted on a sublot basis. If an entire PWL sublot is removed and replaced, the test results of the newly placed material will replace the original data for the sublot. Any remove and replace shall be performed at no additional cost to the department. Testing of replaced material must include a minimum of one QV result. [Note: If the removed and replaced material does not result in replacement of original QV data, an additional QV test will be conducted and under such circumstances will be entered into the HMA PWL Production Spreadsheet for data analysis and pay determination.] The quantity of material paid at 50% the contract unit price will be deducted from PWL pay adjustments, along with accompanying data of this material.

Delete standard spec 460.2.8.3.1.8 Corrective Action.

C Construction

Replace standard spec 460.3.3.2 Pavement Density Determination with the following:

460.3.3.2 Pavement Density Determination

(1) The engineer will determine the target maximum density using department procedures described in CMM 8-15. The engineer will determine density as soon as practicable after compaction and before placement of subsequent layers or before opening to traffic.

(2) Do not re-roll compacted mixtures with deficient density test results. Do not operate continuously below the specified minimum density. Stop production, identify the source of the problem, and make corrections to produce work meeting the specification requirements.

(3) A lot is defined as 7500 lane feet with sublots of 1500 lane feet (excluding shoulder, even if paved integrally) and placed within a single layer for each location and target maximum density category indicated in table 460-3. The contractor is required to complete three tests randomly per sublot and the department will randomly conduct one QV test per sublot. A partial quantity less than 750 lane feet will be included with the previous sublot. Partial lots with less than three sublots will be included in the previous lot for data analysis/acceptance and pay, by the engineer. If density lots/sublots are determined prior to construction of the test strip, any random locations within the test strip shall be omitted. Exclusions such as shoulders and appurtenances shall be tested and recorded in accordance with CMM 8-15. However, all acceptance testing of shoulders and appurtenances will be conducted by the department, and average lot (daily) densities must conform to standard spec Table 460-3. No density incentive or disincentive will be applied to shoulders or appurtenances. Offsets will not be applied to nuclear density gauge readings for shoulders or appurtenances. Unacceptable shoulder material will be handled according to standard spec 460.3.3.1 and CMM 8-15.11.

(4) The three QC locations per sublot represent the outside, middle, and inside of the paving lane. The QC density testing procedures are detailed in Appendix A.

(5) QV nuclear testing will consist of one randomly selected location per sublot. The QV density testing procedures will be the same as the QC procedure at each testing location and are also detailed in Appendix A.

(6) An HTCP-certified nuclear density technician (NUCDENSITYTEC-I) shall identify random locations and perform the testing for both the contractor and department. The responsible certified technician shall ensure that sample location and testing is performed correctly, analyze test results, and provide density results to the contractor weekly, or at the completion of each lot.

(7) For any additional tests outside the random number testing conducted for density, the data collected will not be entered into PWL calculations. However, additional QV testing must meet the tolerances for material conformance as specified in the standard specification and this special provision. If additional density data identifies unacceptable material, proceed as specified in CMM 8-15.11.

Replace standard spec 460.3.3.3 Waiving Density Testing with Acceptance of Density Data with the following:

460.3.3.3 Analysis of Density Data

(1) Analysis of test data for pay determination will be contingent upon test results from both the contractor (QC) and the department (QV).

(2) As random density locations are paved, the data will be recorded in the HMA PWL Production Spreadsheet for analysis in chronological order. The engineer, upon completion of the analysis lot, will compare the variances (F-test) and the means (t-test) of the QV test results with the QC test results. Analysis will use a set alpha value of 0.025.

i. If the F- and t-tests indicate variances and means compare, the QC and QV data sets are determined to be statistically similar and QC data will be used for PWL and pay adjustment calculations.
ii. If the F- and t-tests indicate variances or means do not compare, the QV data will be used for subsequent calculations.

(3) The department will determine mixture density conformance and acceptability by analyzing test results, reviewing mixture data, and inspecting the completed pavement according to standard spec, this special provision, and accompanying Appendix A.

(4) Density resulting in a PWL value less than 50 or not meeting the requirements of 460.3.3.1 (any individual density test result falling more than 3.0 percent below the minimum required target maximum density as specified in standard spec Table 460-3) is unacceptable and may be subject to remove and replace at no additional cost to the department, at the discretion of the engineer.

i. Replacement may be conducted on a sublot basis. If an entire PWL sublot is removed and replaced, the test results of the newly placed material will replace the original data for the sublot.
ii. Testing of replaced material must include a minimum of one QV result. [Note: If the removed and replaced material does not result in replacement of original QV data, an additional QV test must be conducted and under such circumstances will be entered into the data analysis and pay determination.]
iii. If the engineer allows such material to remain in place, it will be paid for at 50% of the HMA Pavement contract unit price. The extent of unacceptable material will be addressed as specified in CMM 8-15.11. The quantity of material paid at 50% the contract unit price will be deducted from PWL pay adjustments, along with accompanying data of this material.

D Measurement

The department will measure the HMA Pavement bid items acceptably completed by the ton as specified in standard spec 450.4 and as follows in standard spec 460.5 as modified in this special provision.

E Payment

Replace standard spec 460.5.2 HMA Pavement with the following:

460.5.2 HMA Pavement

460.5.2.1 General

(1) Payment for HMA Pavement Type LT, MT, and HT mixes is full compensation for providing HMA mixture designs; for preparing foundation; for furnishing, preparing, hauling, mixing, placing, and

compacting mixture; for HMA PWL QMP testing and aggregate source testing; for warm mix asphalt additives or processes; for stabilizer, hydrated lime and liquid antistripping agent, if required; and for all materials including asphaltic materials.

(2) If provided for in the plan quantities, the department will pay for a leveling layer, placed to correct irregularities in an existing paved surface before overlaying, under the pertinent paving bid item. Absent a plan quantity, the department will pay for a leveling layer as extra work.

460.5.2.2 Calculation of Pay Adjustment for HMA Pavement using PWL

(1) Pay adjustments will be calculated using 65 dollars per ton of HMA pavement. The HMA PWL Production Spreadsheet, including data, will be made available to the contractor by the department as soon as practicable upon completion of each lot. The department will pay for measured quantities of mix based on this price multiplied by the following pay adjustment calculated in accordance with the HMA PWL Production Spreadsheet:

PAY FACTOR FOR HMA PAVEMENT AIR VOIDS & DENSITY

PERCENT WITHIN LIMITS *(PWL)*	*PAYMENT FACTOR, PF* *(percent of $65/ton)*
≥ 90 to 100	PF = ((PWL – 90) * 0.4) + 100
≥ 50 to < 90	(PWL * 0.5) + 55
<50	50%[1]

where PF is calculated per air voids and density, denoted $PF_{air\ voids}$ & $PF_{density}$

[1] Any material resulting in PWL value less than 50 shall be removed and replaced unless the engineer allows such material to remain in place. In the event the material remains in place, it will be paid at 50% of the contract unit price of HMA pavement.

For air voids, PWL values will be calculated using lower and upper specification limits of 2.0 and 4.3 percent, respectively. Lower specification limits for density shall be in accordance with standard spec Table 460-3. Pay adjustment will be determined on a lot basis and will be computed as shown in the following equation.

Pay Adjustment = (PF-100)/100 x (WP) x (tonnage) x ($65/ton)*

*Note: If Pay Factor <50, the contract unit price will be used in lieu of $65/ton

The following weighted percentage (WP) values will be used for the corresponding parameter:

Parameter	WP
Air Voids	0.5

Density	0.5

Individual Pay Factors for each air voids ($PF_{air\ voids}$) and density ($PF_{density}$) will be determined. $PF_{air\ voids}$ will be multiplied by the total tonnage placed (i.e., from truck tickets), and $PF_{density}$ will be multiplied by the calculated tonnage used to pave the mainline only (i.e., travel lane excluding shoulder) as determined in accordance with Appendix A.

The department will pay incentive for air voids and density under the following bid items:

ITEM NUMBER	DESCRIPTION	UNIT
460.2005	Incentive Density PWL HMA Pavement	DOL
460.2010	Incentive Air Voids HMA Pavement	DOL

The department will administer disincentives under the Disincentive Density HMA Pavement and the Disincentive Air Voids HMA Pavement administrative items.

The department will administer a disincentive under the Disincentive HMA Binder Content administrative item for each individual QV test result indicating asphalt binder content below the Action Limit in 460.2.8.2.1.7 presented herein. The department will adjust pay per sublot of mix at 65 dollars per ton of HMA pavement multiplied by the following pay adjustment calculated according to the HMA PWL Production Spreadsheet:

AC Binder Relative to JMF	Pay Adjustment / Sublot
-0.4% to -0.5%	75%
More than -0.5%	50%[1]

[1] Any material resulting in an asphalt binder content more than 0.5% below the JMF AC content shall be removed and replaced unless the engineer allows such material to remain in place. In the event the material remains in place, it will be paid at 50% of the contract unit price of HMA pavement. Such material will be referee tested by the department's AASHTO accredited laboratory and HTCP certified personnel using automated extraction according to automated extraction according to ASTM D8159 as modified in CMM 8-36.6.3.1.

Note: PWL value determination is further detailed in the *Calculations* worksheet of the HMA PWL Production Spreadsheet.

stp-460-050 (20190618)

14. Removing Signs Type II, Item 638.2602.

Replace standard spec 638.3.4(2) with the following:

(2) Signs shall remain property of the department. Deliver signs to pick one depending on project location: 3609 Pierstorff Street, Madison or 3550 Mormon Coulee Road, La Crosse. Contact pick one depending on project location: Iver Peterson at (608) 785-9060 or Jeff Holloway at (608) 246-3268 to coordinate the

delivery. Separate the signs by plywood and aluminum and palletize them so they can be unloaded using a forklift. This work will be considered incidental to the bid item "Removing Signs Type II".

swr-638-001 (20141114)

15. Locating No-Passing Zones, Item 648.0100.

For this project, the spotting sight distance in areas with a 55 mph posted speed limit is 0.21 miles (1108 feet).

stp-648-005 (20060512)

16. QMP Base Aggregate Dense 1 1/4-Inch Compaction, Item 371.1000.S.

A Description

(1) This special provision describes modifying the compaction and density testing and documentation requirements of work done under the Base Aggregate Dense 1 1/4-Inch bid items. Conform to standard spec 305 as modified in this special provision and to the contract QMP Base Aggregate article.

(2) Provide and maintain a quality management program. A quality management program is defined as all activities, including process control, inspection, sampling and testing, and necessary adjustments in the process related to construction of dense graded base which meets all the requirements of this provision.

(3) Chapter 8 of the department's construction and materials manual (CMM) provides additional detailed guidance for QMP work and describes sampling and testing procedures.

http://wisconsindot.gov/rdwy/cmm/cm-08-00toc.pdf

(4) This special provision applies to Base Aggregate Dense 1 1/4-Inch material placed: above at least 16 inches of subgrade improvement, 12 inches of subgrade improvement and geogrid or QMP subgrade provisions, between shoulder hinge points and lower than mainline pavement. Unless otherwise specified by the contract, all Base Aggregate Dense 1 1/4-Inch material placed on side roads, private and public entrances, individual ramps less than 1500 feet, passing lanes less than 1500 feet, tapers, turn lanes, and other undefined locations are exempt from the compaction and density requirement modifications and testing contained within this special provision.

B (Vacant)

C Construction

C.1 General

(1) The engineer shall approve the grade before placement of the base. Approval of the grade shall be in accordance with applicable provisions of the standard specifications.

Add the following to standard spec 305.3.2.2:

(3) For 1 1/4-Inch dense graded base composed of ≤20% reclaimed asphaltic pavement (RAP) or crushed concrete (RCA), as determined by classification of material (aggregate or RAP and/or RCA) and percentage by weight of each material type retained on the No. 4 Sieve, the contractor must determine the material target density in accordance with:

Method 1: Maximum dry density in accordance with AASHTO T-180, Method D, with correction for coarse particles and modified to require determination of Bulk Specific Gravity (Gm) in accordance with AASHTO T 85. Bulk Specific Gravities determined in accordance with standard spec 106.3.4.2.2 for aggregate source approval may be utilized.

(4) For 1 1/4-Inch dense graded base composed of >20% RAP or RCA, as determined by classification of material (aggregate or RAP and/or RCA) and percentage by weight of each material type retained on the No. 4 Sieve, the contractor may choose from the following options to determine the material target density:

Method 2: Maximum dry density as determined by AASHTO T-180, Method D, with correction for coarse particles, and modified to require determination of Bulk Specific Gravity (G_m) in accordance with AASHTO T 85.

Method 3: Maximum wet density as determined by AASHTO T-180, Method D, modified to define *Maximum Density* as the wet density in pounds per cubic foot of soil at optimum moisture content using Method D specified compaction, with correction for coarse particles, and modified to require determination of Bulk Specific Gravity (G_m) in accordance with AASHTO T 85.

Method 4: Average of 10 random control strip wet density measurements as described in section C.2.5.1.

(5) Compact the 1 1/4-Inch dense graded base to a minimum of 93.0% of the material target density for methods 1, 2 and 3. Compact 1 ¼-inch dense graded base to a minimum of 96% of the material target density for method 4. Ensure that adequate moisture is present during placement and compaction operations to prevent segregation and to help achieve compaction.

(6) Base Aggregate Dense 1 1/4-Inch will be accepted for compaction on a lot basis.

(7) Field density tests on materials using contractor elected target density methods 3 or 4 will not be considered for lot acceptance on the basis of compaction under the requirements of this provision until the moisture content of the in-place material is less than 2.0 percentage points above the maximum wet density optimum moisture or 2.0 percentage points of the average moisture content of the 10 density tests representing a control strip, respectively. Determine moisture content using AASHTO T255 as modified in CMM chapter 8 or a nuclear density gauge. If conducting AASHTO T255, sample materials after watering but before compaction.

C.2 Quality Management Program

C.2.1 Quality Control Plan

(1) Submit a comprehensive written quality control plan to the engineer no later than 10 business days before placement of material. Do not place any dense graded base before the engineer reviews and accepts the plan. Construct the project as the plan provides.

(2) Do not change the quality control plan without the engineer's review and acceptance. Update the plan with changes as they become effective. Provide a current copy of the plan to the engineer and post in the contractor's laboratory as changes are adopted. Ensure that the plan provides the following elements:

1. An organizational chart with names, telephone numbers, current certifications and/or titles, and roles and responsibilities of QC personnel.
2. The process used to disseminate QC information and corrective action efforts to the appropriate persons. Include a list of recipients, the communication process that will be used, and action time frames.
3. A list of source locations, section and quarter descriptions, for all aggregate materials requiring QC testing.
4. Descriptions of stockpiling and hauling methods.
5. An outline for resolving a process control problem. Include responsible personnel, required documentation, and appropriate communication steps.
6. Location of the QC laboratory, retained sample storage, and other documentation.
7. Lot layout and random test location plan.
8. A description of placement methods and operations. Including, but not limited to: staging, construction of an initial working platform, lift thicknesses, and equipment.

C.2.1 Pre-Placement Meeting

A minimum of two weeks before placement of Base Aggregate Dense 1 1/4-Inch material, hold a pre-placement meeting at a mutually agreed upon time and location. Present the Quality Control Plan at the meeting. Attendance at the pre-placement meeting is mandatory for the project superintendent, quality control manager, project inspection and testing staff, all appropriate contractor personnel involved in the sampling, testing, and quality control including subcontractors, and the engineer or designated representatives.

C.2.2 Personnel

(1) Perform the quality control sampling, testing, and documentation required under this provision using technicians certified by the Department's Highway Technician Certification Program (HTCP). Have a HTCP Nuclear Density Technician I, or ACT certified technician, perform field density and field moisture content testing. Adhere to the minimum required certifications for aggregate testing per part 7 of the standard specification. AASHTO T180 proctor testing requires a minimum certification level of AGGTEC-1.

(2) If an ACT is performing sampling or testing, a certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that all sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

C.2.3 Equipment

(1) Furnish the necessary equipment and supplies for performing quality control testing. Ensure that all testing equipment conforms to the equipment specifications applicable to the required testing methods. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate all testing equipment according to the CMM and maintain a calibration record at the laboratory.

(2) Furnish nuclear gauges from the department's approved product list at:

http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx

(3) Ensure that the nuclear gauge manufacturer or an approved calibration service calibrates the gauge the same calendar year it is used on the project. Retain a copy of the calibration certificate with the gauge.

(4) For all target density methods, conform to AASHTO T310 and CMM 8-15 for wet density testing and gauge monitoring methods.

(5) For the specified target density determined using method 1 in section C.1, compute the dry densities for the compacted dense graded base, composed of ≤20% RAP or RCA, according to AASHTO T310.

(6) For contractor elected target density method 2 in section C.1, compute dry densities of dense graded base composed of >20% RAP or RCA using a moisture correction factor and the nuclear wet density value. Determine the moisture correction value, for each Proctor produced under the requirements of C.2.5, using the moisture bias as shown in CMM 8.15.12.1 and 8.15.12.2, except the one-point Proctor tests of the 5 random tests is not required. Conduct a moisture bias test for every 7500 feet of Base Aggregate Dense 1 1/4-Inch placed. Determine natural moistures in the laboratory.

(7) Perform nuclear gauge measurements using gamma radiation in the backscatter or direct transmission position. Backscatter may be used only if the material being tested cannot reliably maintain an undistorted direct transmission test hole. Direct transmission tests must be performed at the greatest possible probe depth of 2 inches, 4 inches, or 6 inches, but not to exceed the depth of the compacted layer being tested. Perform each test for at least one minute of nuclear gauge count time.

C.2.5 Contractor Testing

(1) Perform compaction testing on the mainline dense graded base material, as defined by A.(4). Perform the quality control sampling, testing, and documentation required under this provision using HTCP certified technicians as required in C.2.3. Conform to CMM 8-15 for testing and gauge monitoring methods.

(2) Select test sites randomly using ASTM Method D3665. Random numbers may be determined using an electronic random number generator. Guidance for determining test locations can be found in section 8-30.9 of the Construction and Materials Manual (CMM). Test locations must be kept a minimum of 3 feet from the unsupported edge of dense graded base layers.

(3) When a density target is determined in accordance methods 3 or 4 in section C.1, conduct density testing on same date of final compaction.

C.2.5.1 Contractor Required Quality Control (QC) Testing

(1) Conduct testing at a minimum frequency of one test per lot. A lot is 1500 feet for each layer with a maximum width of 18 feet and minimum lift thickness of 2" of Base Aggregate Dense 1 1/4-Inch material placed. Layer widths exceeding 18 feet are divided into equal lots. Each lot of compacted Base

Aggregate Dense 1 1/4-Inch material, as defined by A.(4), will be accepted when the lot field density meets the required minimum density. Lots that don't achieve density requirements must be addressed and approved in accordance with C.2.7.

(2) Add separate lots for passing lanes and individual ramps greater than 1500 feet.

(3) Combine partial lots less than 750 feet with the previous lot. Partial lots greater than or equal to 750 feet are standalone lots.

(4) Notify the engineer, if a lot field density test falls below the required minimum value. Document and perform corrective actions in accordance with C.2.7. Deliver documentation of all compaction testing results to the engineer at the time of testing.

C.2.5.1.1 Target Density Determination

C.2.4.1.1.1 Maximum Wet and/or Dry Density Methods

(1) For contractor elected target density methods 2 and 3 in section C.1, and contractually specified target density method 1 in section C.1; perform one gradation and 5-point Proctor test before placement of 1 ¼-Inch dense graded base. Perform additional gradations every 3000 tons in accordance with standard spec 305 and 730. If sampling requirements are identical, samples/testing performed for the QMP Base Aggregate specification may be used to fulfill the gradation testing requirements of this specification.

(2) Perform additional 5-point Proctor tests, at a minimum, when:

1. The four point moving average gradation on any one sieve differs from the original gradation test result for that sieve, by more than 10 percentage points. The original gradation test is defined as the gradation of the material used to create a 5-point Proctor. Each 5-point Proctor test will remain valid for any material with gradation for all sieves within 10.0 percentage points of that Proctor's original gradation test.
2. The source of base aggregate changes.
3. Percent target density exceeds 103.0% on two consecutive density tests.

(3) Provide Proctor test results to the engineer within two business days of sampling. Provide gradation test results to the engineer within one business day of sampling.

(4) Split each contractor QC Proctor sample and identify it according to CMM 8-30. Deliver the split to the engineer within one business day for department QV Proctor testing.

(5) Split each non-Proctor contractor QC sample and identify it according to CMM 8-30. Retain the split for 7 calendar days in a dry, protected location. If requested for department comparison testing, deliver the split to the engineer within one business day.

C.2.5.1.1.2 Density Control Strip Method

(1) For contractor elected target density method 4 in section C.1, construct a control strip for each layer of placement to identify the target wet density for the base aggregate dense material. The control strip construction and density testing will occur under the direct observation and/or assistance of the department QV personnel. For blended material, reprocessed material and crushed concrete, perform additional gradations every 3000 tons in accordance with standard spec 305 and 730. If sampling frequencies are identical, samples/testing performed for the QMP Base Aggregate specification may be used to fulfill the gradation testing requirements of this specification.

(2) Unless the engineer approves otherwise, construct control strips to a minimum dimension of 300 feet long and one full lane width.

(3) Completed control strips may remain in-place to be incorporated into the final roadway cross-section.

(4) Construct additional control strips, at a minimum, when:

1. The source of base aggregate changes.
2. The four point moving average percentage of blended recycled materials, from classification of material retained on the No. 4 sieve in the original gradation test, differs by more than 10 percentage points. The original gradation test is defined as the gradation of the material used to construct the control strip.
3. The layer thickness changes more than 2.0 inches.

4. The percent target density exceeds 103.0% on two consecutive density measurements.

(5) Construct control strips using equipment and methods representative of the operations to be used to place and compact the remaining 1 1/4–Inch Base Aggregate Dense material. Wet the base, as mutually agreed upon by the contractor and engineer, to obtain and/or maintain adequate moisture content to ensure proper compaction. Discontinue water placement if the base begins to exhibit signs of saturation or instability.

(6) After compacting the control strip with a minimum of 2 passes, mark and take density measurements at 3 random locations. Subsequent density measurements will be taken at the same 3 locations. Test locations must be kept a minimum of 3 feet from the unsupported edge of dense graded base layers.

(7) After each subsequent pass of compaction equipment over the entirety of the control strip, take wet density measurements at the 3 marked locations. Continue compacting and testing until the increase in wet density measurements are less than 2.0 lb/ft^3, or the density measurements begin to decrease.

(8) Upon completion of control strip compaction, take 10 randomly located wet density measurements within the limits of the control strip. The final measurements recorded at the 3 locations under article C.2.4.1.1.2 may be included as 3 of the 10 measurements. Average the ten measurements to obtain the control strip target density and target moisture for use in contractor elected method 4 in section C.1. Test locations must be kept a minimum of 3 feet from the unsupported edge of dense graded base layers.

C.2.6 Department Testing

C.2.6.1 General

(1) The department will conduct verification testing to validate the quality of the product and independent assurance testing to evaluate the sampling and testing. The department will provide the contractor with a listing of names and telephone numbers of all QV and IA personnel for the project, and provide test results to the contractor within two business days after the department obtains the sample.

(2) When a density target is determined in accordance methods 3 and 4 in section C.1, conduct density testing on same date of final compaction.

C.2.6.2 Quality Verification (QV) Testing

(1) The department will have an HTCP technician, or ACT working under a certified technician, perform QV sampling and testing. Department verification testing personnel must meet the same certification level requirements specified in C.2.3 for contractor testing personnel for each test result being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will conduct QV tests at the minimum frequency of 20% of the required gradation, density and Proctor contractor tests.

(3) The department will utilize contractor's QC Proctor results for determination of the material target density. The department will verify QC Proctor values by testing QC Proctor split sample. The department will use QC Proctor value as a target density if the QC and QV Proctor test results meet the tolerance requirements specified in section C.2.6.2(7).

(4) The department will locate gradation and nuclear density test samples, at locations independent of the contractor's QC work, collecting one sample at each QV location. Sampling for gradation may be done independently of nuclear density tests, before watering and before compacting. The department will split each QV sample, test half for QV, and retain the remaining half for 10 calendar days.

(5) The department will conduct QV tests in a separate laboratory and with separate equipment from the contractor's QC tests. The department will use the same methods specified for QC testing.

(6) The department will utilize control strip target density testing results in lieu of QV Proctor sampling and testing when the contractor elected target density method 4 in section C.1 is used.

(7) The department will assess QV results by comparing to the appropriate specification limits. If QV test results conform to this special provision, the department will take no further action. If QV test results are nonconforming, take corrective actions in accordance with C.2.7 until the requirements of this special

provision are met. Differing QC and QV nuclear density values of more than 2.0 pcf will be investigated and resolved. Differing QC and QV Proctor values of more than 3.0 pcf will be investigated and resolved.

C.2.6.3 Independent Assurance (IA)

(1) Independent assurance is unbiased testing the department performs to evaluate the department's QV and the contractor's QC sampling and testing, including personnel qualifications, procedures, and equipment. The department will perform an IA review according to the department's independent assurance program. That review may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.
4. Test equipment calibration checks.
5. Requesting that testing personnel perform additional sampling and testing.

(2) If the department identifies a deficiency, and after further investigation confirms it, correct that deficiency. If the contractor does not correct or fails to cooperate in resolving identified deficiencies, the engineer may suspend placement until action is taken. Resolve disputes as specified in C.2.6.4.

C.2.6.4 Dispute Resolution

(1) The engineer and contractor should make every effort to avoid conflict. If a dispute between some aspect of the contractor's and the engineer's testing program does occur, seek a solution mutually agreeable to the project personnel. The department and contractor shall review the data, examine data reduction and analysis methods, evaluate sampling and testing methods/procedures, and perform additional testing. Use ASTM E 178 to evaluate potential statistically outlying data.

(2) Production test results, and results from other process control testing, may be considered when resolving a dispute.

(3) If project personnel cannot resolve a dispute, and the dispute affects payment or could result in incorporating non-conforming product or work, the department will use third party testing to resolve the dispute. The department's central office laboratory, or a mutually agreed on independent testing laboratory, will provide this testing. The engineer and contractor will abide by the results of the third party tests. The party in error will pay service charges incurred for testing by an independent laboratory. The department may use third party test results to evaluate the quality of questionable materials and determine the appropriate payment. The department may reject material or otherwise determine the final disposition of nonconforming material as specified in standard spec 106.5.

C.2.7 Corrective Action

(1) Lots not achieving the minimum density requirements may be addressed and accepted for compaction in accordance with the requirements of this section. Unless directed by the engineer, corrective actions taken to address an unacceptable lot must be applied to the entire lot corresponding to the non-conforming test.

(2) Investigate the moisture content of material in an unacceptable lot. Moisture content testing/samples collected under the QC and/or QV testing articles of this specification may be used to complete this investigation. Obtain moisture content readings in accordance with ASTM D 6938. For material composed of >20% RAP or RCA, correct the moisture content with the moisture correction value using the moisture bias, as shown in CMM 8.15.12.1 and 8.15.12.2, except the one-point Proctor tests of the 5 random tests is not required.

(3) Lots with moisture contents within 2.0 percentage points of optimum moisture for target density methods 1, 2 and 3 in section C.1, or within 2.0 percentage points of the target moisture content for target density method 4 in section C.1, and exhibiting no signs of deflection when subjected to loading by the heaviest roller used in the placement and compaction operations, shall be compacted a minimum of one more pass using equipment and methods representative of the operations used to place and compact the Base Aggregate Dense 1 1/4–Inch, and density tested at the same location (station and offset) as the failing QC and/or QV density tests. If the change in density exceeds 2.0 lb/ft^3 continue subsequent compactive

efforts and density testing on that lot, at no additional cost to the department. If the change in density is less than or equal to 2.0 lb/ft^3, the lot is accepted as satisfying the compaction requirements of this provision.

(4) Lots with moisture contents within 2.0 percentage points of optimum moisture for target density methods 1, 2, or 3 in section C.1, or within 2.0 percentage points of the target moisture content for target density method 4 in section C.1, and exhibiting signs of deflection when subjected to loading by the heaviest roller used in the placement and compaction operations, will be reviewed by the engineer. The engineer may request subgrade improvement methods, such as excavation below subgrade (EBS), installation of geotextile fabrics, installation of breaker run material, or others to be completed, or may request an additional pass of compactive effort using equipment and methods representative of the operations used to place and compact the base aggregate dense and density test.

1. If, after an additional pass, the change in density at the same location (station and offset) as the failing QC and/or QV density tests exceeds 2.0 lb/ft^3 in a lot continue subsequent compactive efforts and density testing on that lot. If the change in density at the same location (station and offset) as the failing QC and/or QV density tests is less than or equal to 2.0 lb/ft^3, and subgrade improvement methods are not requested by the engineer, the lot is accepted as satisfying the compaction requirements of this provision.
2. If subgrade improvement methods are requested by the engineer, upon completion, including compaction of the restored base material, conduct a density test within the improved subgrade limits. This density test result will replace the prior field density value. If the lot field density equals or exceeds the minimum density requirement defined in section C.1, the lot is accepted as satisfying the compaction requirements of this provision. If the lot field density fails to achieve the minimum density requirement defined in section C.1, compact the lot a minimum of one more pass using equipment and methods representative of the operations used to place and compact the base aggregate dense; and density test at the same location (station and offset) as the failing QC and/or QV density tests. If the change in density exceeds 2.0 lb/ft^3 continue subsequent compactive efforts and density testing on that lot, at no additional cost to the department. If the change in density is less than or equal to 2.0 lb/ft^3, the lot is accepted as satisfying the compaction requirements of this provision.

(5) Unacceptable lots, with moisture contents in excess of 2.0 percentage points above or below optimum moisture for target density methods 1, 2 or 3 in section C.1 ; or in excess of 2.0 percentage points above or below the target moisture content for target density method 4 in section C.1; shall receive contractor performed and documented corrective action; including additional density testing.

(6) Density tests completed subsequent to any corrective action will replace previous field density test results for that lot. Continue corrective actions until the minimum density requirement is achieved or an alternate compaction acceptance criteria is met in accordance with this section.

(7) Field moisture contents of materials tested using contractor elected target density methods 3 or 4 in section C.1 cannot exceed 2.0 percentage points of the optimum moisture content or 2.0 percentage points of the target moisture content, respectively. Density tests on materials using contractor elected target density methods 3 or 4 in section C.1 will not be considered for lot compaction acceptance until the moisture content of the corresponding density test of the in-place material is less than 2.0 percentage points above of the optimum moisture content or 2.0 percentage points of the target moisture content, respectively.

D Measurement

(1) The department will measure the QMP Base Aggregate Dense 1 1/4-Inch Compaction bid item by each lot, acceptably completed per C.2.5.1.

E Payment

(1) The department will pay for the measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
371.1000.S	QMP Base Aggregate Dense 1 1/4-Inch Compaction	EACH

(2) Payment is full compensation for performing compaction testing; for sampling and laboratory testing; and for developing, completing, and documenting the compaction quality management program. The

department will pay separately for providing aggregate under the Base Aggregate Dense 1 1/4-Inch bid item.

(3) The department will pay for additional tests directed by the engineer. One engineer directed test is equal to one acceptably completed lot of the QMP Base Aggregate Dense 1 1/4 -Inch Compaction bid item. The department will not pay for additional corrective action tests required due to unacceptable material.

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17. HMA Percent Within Limits (PWL) Test Strip Volumetrics, Item 460.0105.S; HMA Percent Within Limits (PWL) Test Strip Density Item 460.0110.S.

A Description

This special provision describes the Hot Mix Asphalt (HMA) density and volumetric testing tolerances required for an HMA test strip. An HMA test strip is required for contracts constructed under HMA Percent Within Limits (PWL) QMP. A density test strip is required for each pavement layer placed over a specific, uniform underlying material, unless specified otherwise in the plans. Each contract is restricted to a single mix design per mix type per layer (e.g., upper layer and lower layer may have different mix type specified or may have the same mix type with different mix designs). Each mix design requires a separate test strip. Density and volumetrics testing will be conducted on the same test strip whenever possible.

Perform work according to standard spec 460 and as follows.

B Materials

Use materials conforming to HMA Pavement Percent Within Limits (PWL) QMP special provision.

C Construction

C.1 Test Strip

Submit the test strip start time and date to the department in writing at least 5 calendar days in advance of construction of the test strip. If the contractor fails to begin paving within 2 hours of the submitted start time, the test strip is delayed and the department will assess the contractor $2,000 for each instance according to Section E of this document. Alterations to the start time and date must be submitted to the department in writing a minimum of 24 hours prior to the start time. The contractor will not be liable for changes in start time related to adverse weather days as defined by standard spec 101.3 or equipment breakdown verified by the department.

On the first day of production for a test strip, produce approximately 750 tons of HMA. (Note: adjust tonnage to accommodate natural break points in the project.) Locate test strips in a section of the roadway to allow a representative rolling pattern (i.e. not a ramp or shoulder, etc.).

C.1.1 Sampling and Testing Intervals

C.1.1.1 Volumetrics

Laboratory testing will be conducted from a split sample yielding three components, with portions designated for QC (quality control), QV (quality verification), and retained.

During production for the test strip, obtain sufficient HMA mixture for three-part split samples from trucks prior to departure from the plant. Collect three split samples during the production of test strip material. Perform sampling from the truck box and three-part splitting of HMA according to CMM 8-36. These three

samples will be randomly selected by the engineer from each *third* of the test strip tonnage (T), excluding the first 50 tons:

Sample Number	Production Interval (tons)
1	50 to $\frac{T}{3}$
2	$\frac{T}{3}$ to $\frac{2T}{3}$
3	$\frac{2T}{3}$ to T

C.1.1.2 Density

Required field tests include contractor QC and department QV nuclear density gauge tests and pavement coring at ten individual locations (five in each half of the test strip length) in accordance with Appendix A: *Test Methods and Sampling for HMA PWL QMP Projects*. Both QV and QC teams shall have two nuclear density gauges present for correlation at the time the test strip is constructed. QC and QV teams may wish to scan with additional gauges at the locations detailed in Appendix A, as only gauges used during the test strip correlation phase will be allowed.

C.1.2 Field Tests

C.1.2.1 Density

A gauge comparison according to CMM 8-15.7 shall be completed prior to the day of test strip construction. Daily standardization of gauges on reference blocks and a project reference site shall be performed according to CMM 8-15.8. A standard count shall be performed for each gauge on the material placed for the test strip, prior to any additional data collection. Nuclear gauge readings and pavement cores shall be used to determine nuclear gauge correlation in accordance with Appendix A. The two to three readings for the five locations across the mat for each of two zones shall be provided to the engineer. The engineer will analyze the readings of each gauge relative to the densities of the cores taken at each location. The engineer will determine the average difference between the nuclear gauge density readings and the measured core densities to be used as a constant offset value. This offset will be used to adjust raw density readings of the specific gauge and shall appear on the density data sheet along with gauge and project identification. An offset is specific to the mix and layer, therefore a separate value shall be determined for each layer of each mix placed over a differing underlying material for the contract. This constitutes correlation of that individual gauge for the given layer. Two gauges per team are not required to be onsite daily after completion of the test strip. Any data collected without a correlated gauge will not be accepted.

The contractor is responsible for coring the pavement from the footprint of the density tests and filling core holes according to Appendix A. Coring and filling of pavement core holes must be approved by the engineer. The QV team is responsible for the labeling and safe transport of the cores from the field to the QC laboratory. Testing of cores shall be conducted by the contractor and witnessed by department personnel. The contractor is responsible for drying the cores following testing. The department will take possession of cores following laboratory testing and will be responsible for any verification testing at the discretion of the engineer.

The target maximum density to be used in determining core density is the average of the three volumetric/mix Gmm values from the test strip multiplied by 62.24 lb/ft^3. In the event mix and density portions of the test strip procedure are separated, or if an additional density test strip is required, the mix portion must be conducted prior to density determination. The target maximum density to determine

core densities shall then be the Gmm four-test running average (or three-test average from a PWL volumetric-only test strip) from the end of the previous day's production multiplied by 62.24 lb/ft^3. If no PWL production volumetric test is to be taken in a density-only test strip, a non-random three-part split mix sample will be taken and tested for Gmm by the department representative. The department Gmm test results from this non-random test will be entered in the HMA PWL Test Strip Spreadsheet and must conform to the Acceptance Limits presented in C.2.1.

Exclusions such as shoulders and appurtenances shall be tested and reported according to CMM 8-15. However, all acceptance testing of shoulders and appurtenances will be conducted by the department, and average lot (daily) densities must conform to standard spec Table 460-3. No density incentive or disincentive will be applied to shoulders or appurtenances. However, unacceptable shoulder material will be handled according to standard spec 460.3.3.1 and CMM 8-15.11.

C.1.3 Laboratory Tests

C.1.3.1 Volumetrics

Obtain random samples according to C.1.1.1 and Appendix A. Perform tests the same day as taking the sample.

Theoretical maximum specific gravities of each mixture sample will be obtained according to AASHTO T 209. Bulk specific gravities of both gyratory compacted samples and field cores shall be determined according to AASHTO T 166. The bulk specific gravity values determined from field cores shall be used to calculate a correction factor (i.e., offset) for each QC and QV nuclear density gauge. The correction factor will be used throughout the remainder of the layer.

C.2 Acceptance

C.2.1 Volumetrics

Produce mix conforming to the following limits based on individual QC and QV test results (tolerances based on most recent JMF):

ITEM	ACCEPTANCE LIMITS
Percent passing given sieve:	
37.5-mm	+/- 8.0
25.0-mm	+/- 8.0
19.0-mm	+/- 7.5
12.5-mm	+/- 7.5
9.5-mm	+/- 7.5
2.36-mm	+/- 7.0
75-µm	+/- 3.0
Asphaltic content in percent[1]	- 0.5
Air Voids	-1.5 & +2.0
VMA in percent[2]	- 1.0
Maximum specific gravity	+/- 0.024

[1] Asphalt content more than -0.5% below the JMF will be referee tested by the department's AASHTO accredited laboratory and HTCP certified personnel using automated extraction according to WisDOT Modified ASTM D8159.

[2] VMA limits based on minimum requirement for mix design nominal maximum aggregate size in table 460-1.

QV samples will be tested for Gmm, Gmb, and AC. Air voids and VMA will then be calculated using these test results.

Calculation of air voids shall use either the QC, QV, or retained split sample test results, as identified by conducting the paired t-test with the WisDOT PWL Test Strip Spreadsheet.

If QC and QV test results do not correlate as determined by the split sample comparison, the retained split sample will be tested by the department's AASHTO accredited laboratory and HTCP certified personnel as a referee test. Additional investigation shall be conducted to identify the source of the difference between QC and QV data. Referee data will be used to determine material conformance and pay.

C.2.2 Density

Compact all layers of test strip HMA mixture to the applicable density shown in the following table:

TABLE 460-3 MINIMUM REQUIRED DENSITY[1]

	MIXTURE TYPE	
LAYER	LT & MT	HT
LOWER	93.0[2]	93.0[3]
UPPER	93.0	93.0

[1] If any individual core density test result falls more than 3.0 percent below the minimum required target maximum density, the engineer will investigate the acceptability of that material per CMM 8-15.11.

[2] Minimum reduced by 2.0 percent for a lower layer constructed directly on crushed aggregate or recycled base courses.

[3] Minimum reduced by 1.0 percent for lower layer constructed directly on crushed aggregate or recycled base courses.

Nuclear density gauges are acceptable for use on the project only if correlation is completed for that gauge during the time of the test strip and the department issues documentation of acceptance stating the correlation offset value specific to the gauge and mix design. The offset is not to be entered into any nuclear density gauge as it will be applied by the department-furnished Field Density Worksheet.

C.2.3 Test Strip Approval and Material Conformance

All applicable laboratory and field testing associated with a test strip shall be completed prior to any additional mainline placement of the mix. All test reports shall be submitted to the department upon completion, and approved before paving resumes. The department will notify the contractor within 24 hours from start of test strip regarding approval to proceed with paving, unless an alternate time frame is agreed upon in writing with the department. The 24-hour approval time includes only working days as defined in standard spec 101.3.

The department will evaluate material conformance and make pay adjustments based on the PWL value of air voids and density for the test strip. The QC core densities and QC and QV mix results will be used to determine the PWL values as calculated in accordance with Appendix A.

The PWL values for air voids and density shall be calculated after determining core densities. An approved test strip is defined as the individual PWL values for air voids and density both being equal to or greater than 75, mixture volumetric properties conforming to the limits specified in C.2.1, and an acceptable gauge-to-core correlation. Further clarification on PWL test strip approval and appropriate post-test strip actions are shown in the following table:

PWL Test Strip Approval and Material Conformance Criteria

PWL Value for Air Voids and Density	Test Strip Approval	Material Conformance	Post-Test Strip Action
Both PWL ≥ 75	Approved[1]	Material paid for according to Section E.	Proceed with Production
50 ≤ Either PWL < 75	Not Approved	Material paid for according to Section E.	Consult BTS to determine need for additional test strip.
Either PWL < 50	Not Approved	Unacceptable material removed and replaced or paid for at 50% of the contract unit price according to Section E.	Construct additional Volumetrics or Density test strip as necessary.

[1] In addition to these PWL criteria, mixture volumetric properties must conform to the limits specified in C.2.1, split sample comparison must have a passing result and an acceptable gauge-to-core correlation must be completed.

A maximum of two test strips will be allowed to remain in place per pavement layer per contract. If material is removed, a new test strip shall replace the previous one at no additional cost to the department. If the contractor changes the mix design for a given mix type during a contract, no additional compensation will be paid by the department for the required additional test strip and the department will assess the contractor $2,000 for the additional test strip according to Section E of this special provision. For simultaneously conducted density and volumetric test strip components, the following must be achieved:

i. Passing/Resolution of Split Sample Comparison
ii. Volumetrics/mix PWL value ≥ 75
iii. Density PWL value ≥ 75
iv. Acceptable correlation

-

If not conducted simultaneously, the mix portion of a test strip must accomplish (i) & (ii), while density must accomplish (iii) & (iv). If any applicable criteria are not achieved for a given test strip, the engineer, with authorization from the department's Bureau of Technical Services, will direct an additional test strip (or alternate plan approved by the department) be conducted to prove the criteria can be met prior to

additional paving of that mix. For a density-only test strip, determination of mix conformance will be according to main production, i.e., HMA Pavement Percent Within Limits (PWL) QMP special provision.

D Measurement

The department will measure HMA Percent Within Limits (PWL) Test Strip as each unit of work, acceptably completed as passing the required air void, VMA, asphalt content, gradation, and density correlation for a Test Strip. Material quantities shall be determined according to standard spec 450.4 and detailed here within.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH
460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH

These items are intended to compensate the contractor for the construction of the test strip for contracts paved under the HMA Pavement Percent Within Limits QMP article.

Payment for HMA Percent Within Limits (PWL) Test Strip Volumetrics is full compensation for volumetric sampling, splitting, and testing; for proper labeling, handling, and retention of split samples.

Payment for HMA Percent Within Limits (PWL) Test Strip Density is full compensation for collecting and measuring of pavement cores, acceptably filling core holes, providing of nuclear gauges and operator(s), and all other work associated with completion of a core-to-gauge correlation, as directed by the engineer.

Acceptable HMA mixture placed on the project as part of a volumetric or density test strip will be compensated by the appropriate HMA Pavement bid item with any applicable pay adjustments. If a test strip is delayed as defined in C.1 of this document, the department will assess the contractor $2,000 for each instance, under the HMA Delayed Test Strip administrative item. If an additional test strip is required because the initial test strip is not approved by the department or the mix design is changed by the contractor, the department will assess the contractor $2,000 for each additional test strip (i.e. $2,000 for each individual volumetrics or density test strip) under the HMA Additional Test Strip administrative item.

Pay adjustment will be calculated using 65 dollars per ton of HMA pavement. The department will pay for measured quantities of mix based on $65/ton multiplied by the following pay adjustment:

PAY ADJUSTMENT FOR HMA PAVEMENT AIR VOIDS & DENSITY

PERCENT WITHIN LIMITS (PWL)	*PAYMENT FACTOR, PF (percent of $65/ton)*
≥ 90 to 100	PF = ((PWL – 90) * 0.4) + 100
$\underline{>}$ 50 to < 90	(PWL * 0.5) + 55
<50	50%[1]

where, PF is calculated per air voids and density, denoted $PF_{air\ voids}$ & $PF_{density}$

[1] Material resulting in PWL value less than 50 shall be removed and replaced, unless the engineer allows for such material to remain in place. In the event the material remains in place, it will be paid at 50% of the contract unit price of HMA pavement.

For air voids, PWL values will be calculated using lower and upper specification limits of 2.0 and 4.3 percent, respectively. Lower specification limits for density will be according to Table 460-3 as modified herein. Pay adjustment will be determined for an acceptably completed test strip and will be computed as shown in the following equation:

Pay Adjustment = (PF-100)/100 x (WP) x (tonnage) x ($65/ton)*

*Note: If Pay Factor <50, the contract unit price will be used in lieu of $65/ton

The following weighted percentage (WP) values will be used for the corresponding parameter:

Parameter	WP
Air Voids	0.5
Density	0.5

Individual Pay Factors for each air voids ($PF_{air\ voids}$) and density ($PF_{density}$) will be determined. $PF_{air\ voids}$ will be multiplied by the total tonnage produced (i.e., from truck tickets), and $PF_{density}$ will be multiplied by the calculated tonnage used to pave the mainline only (i.e., traffic lane excluding shoulder) as determined in accordance with Appendix A.

The department will pay incentive for air voids under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
460.2005	Incentive Density PWL HMA Pavement	DOL
460.2010	Incentive Air Voids HMA Pavement	DOL

The department will administer disincentives under the Disincentive Density HMA Pavement and the Disincentive Air Voids HMA Pavement administrative items.

stp-460-040 (20181119)

18. Reheating HMA Pavement Longitudinal Joints, Item 460.4110.S.

A Description

This special provision describes reheating the abutting edge of the previously compacted layer in the adjacent lane while paving mainline asphalt pavements.

B (Vacant)

C Construction

C.1 Equipment

Provide a self-contained heating unit that heats by convection only. Do not use forced air to enhance the flame. Provide a fireproof barrier between the flame and the heater's fuel source. The heater must produce a uniform distribution of heat within the heat box. Provide automatic controls to regulate the heater output and shutoff the heater when the paver stops or the heater control system loses power.

Mount the heater on the paver inside the paver's automatic leveling device.

C.2 Reheating Joints

Evenly reheat at least an 8 inch (200 mm) wide strip of the previously compacted layer in the adjacent lane as follows:

- Reheat the joint to within 60 degrees F (15 degrees C) of the mix temperature at the paver auger. Measure joint temperature immediately behind the heater.

The engineer may allow the required joint reheat temperatures to be cooler than specified to adjust for weather, wind, and other field conditions. Coordinate the heater output and paver speed to achieve the required joint reheat temperature without visible smoke emission.

D Measurement

The department will measure Reheating HMA Pavement Longitudinal Joints by the linear foot acceptably completed as measured along each joint for each layer of asphalt placed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
460.4110.S	Reheating HMA Pavement Longitudinal Joints	LF

Payment is full compensation for all the work required under this bid item.

stp-460-015 (20140630)

19. Removing HMA Pavement Notched Wedge Longitudinal Joint Milling, Item SPV.0090.01.

A Description

This special provision describes removing the notched wedge longitudinal joint before paving the adjacent lane in order to create a vertical longitudinal joint.

B (Vacant)

C Construction

Remove the notched wedge longitudinal joint constructed according to standard spec 450.3.2.8 before paving the adjacent lane. Provide a uniform milled surface that is reasonably plane, free of excessively large scarification marks, and has the grade and transverse slope the plans show or the engineer directs. Do not damage the remaining pavement.

Use a self-propelled milling machine with depth, grade, and slope controls. Shroud the drum to prevent discharging loosened material onto adjacent work areas or live traffic lanes. Provide an engineer-approved dust control system.

Maintain one lane of the roadway for traffic at all times during working hours. Do not windrow or store material on the roadway. Clear the roadway of all materials and equipment during non-working hours.

D Measurement

The department will measure Removing HMA Pavement Notched Wedge Longitudinal Joint Milling by the linear foot, acceptably completed.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0090.01	Removing HMA Pavement Notched Wedge Longitudinal Joint Milling	LF

Payment is full compensation for removing HMA pavement; and for hauling and disposing of materials.

swr-204-001 (20160601)

20. Appendix A

Test Methods & Sampling for HMA PWL QMP Projects.

The following procedures are included with the HMA Pavement Percent Within Limits (PWL) Quality Management Program (QMP) special provision:

- WisDOT Procedure for Nuclear Gauge/Core Correlation – Test Strip
    - WisDOT Test Method for HMA PWL QMP Density Measurements for Main Production
    - Sampling for WisDOT HMA PWL QMP
    - Calculation of PWL Mainline Tonnage Example
    -

WisDOT Procedure for Nuclear Gauge/Core Correlation – Test Strip

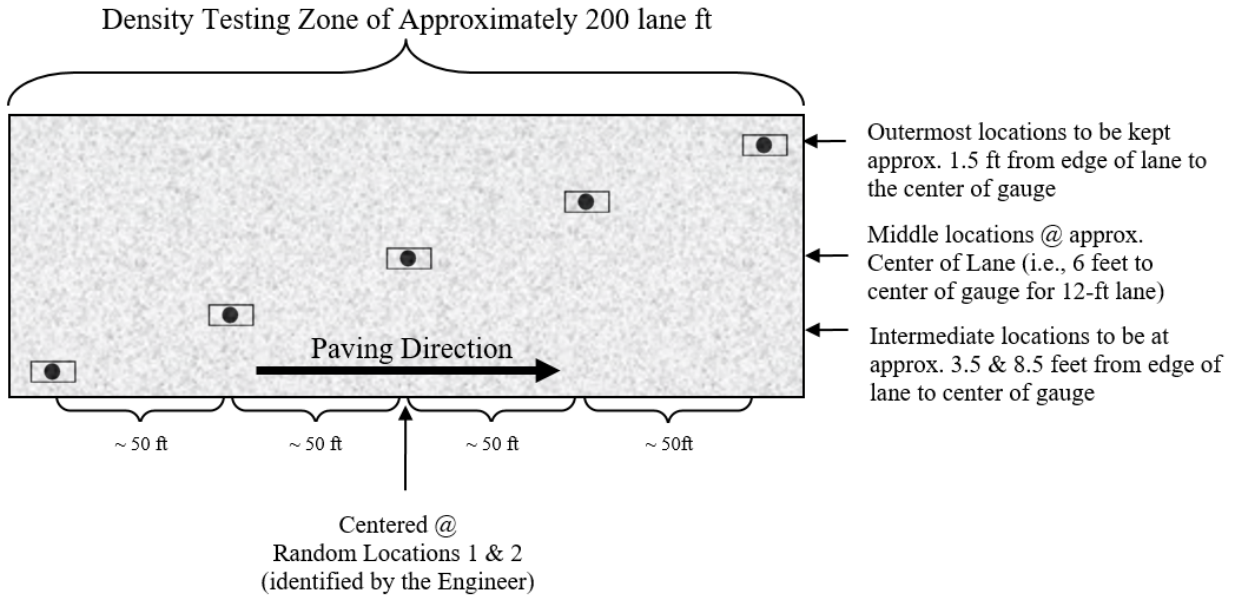

Figure 1: Nuclear/Core Correlation Location Layout

The engineer will identify two zones in which gauge/core correlation is to be performed. These two zones will be randomly selected within each *half* of the test strip length. (Note: Density zones shall not overlap and must have a minimum of 100 feet between the two zones; therefore, random numbers may be shifted (evenly) in order to meet these criteria.) Each zone shall consist of five locations across the mat as identified in Figure 1. The following shall be determined at each of the five locations within both zones:

- two one-minute nuclear density gauge readings for QC team*

- two one-minute nuclear density gauge readings for QV team*

- pavement core sample

*If the two readings exceed 1.0 pcf of one another, a third reading is conducted in the same orientation as the first reading. In this event, all three readings are averaged, the individual test reading of the three which falls farthest from the average value is discarded, and the average of the remaining two values is used to represent the location for the gauge.

The zones are supposed to be undisclosed to the contractor/roller operators. The engineer will not lay out density/core test sites until rolling is completed and the cold/finish roller is beyond the entirety of the zone. Sites are staggered across the 12-foot travel lane, and do not include shoulders. The outermost locations should be 1.5-feet from the center of the gauge to the edge of lane. [NOTE: This staggered layout is only applicable to the test strip. All mainline density locations after test strip should have a longitudinal- as well as transverse-random number to determine location as detailed in the *WisDOT Test Method for HMA PWL QMP Density Measurements for Main Production* section of this document.]

Individual locations are represented by the  symbol as seen in Figure 1 above. The symbol is two-part, comprised of the nuclear test locations and the location for coring the pavement, as distinguished here:

The nuclear site is the same for QC and QV readings for the test strip, i.e., the QC and QV teams are to take nuclear density gauge readings in the same footprint. Each of the QC and QV teams are to take a minimum of two one-minute readings per nuclear site, with the gauge rotated 180 degrees between readings, as seen here:

(a) (b)

Figure 2: Nuclear gauge orientation for (a) 1st one-minute reading and (b) 2nd one-minute reading

Photos should be taken of each of the 10 core/gauge locations of the test strip. This should include gauge readings (pcf) and a labelled core within the gauge footprint. If a third reading is needed, all three readings should be recorded and documented. Only raw readings in pcf should be written on the pavement during the test strip, with a corresponding gauge ID/SN (generalized as QC-1 through QV-2 in the following Figure) in the following format:

Figure 3: Layout of raw gauge readings as recorded on pavement

Each core will then be taken from the center of the gauge footprint, and will be used to correlate each gauge with laboratory-measured bulk specific gravities of the pavement cores. One core in good condition must be obtained from each of the 10 locations. If a core is damaged at the time of extracting from the pavement, a replacement core should be taken immediately adjacent to the damaged core, i.e., from the same footprint. If a core is damaged during transport, it should be recorded as damaged and excluded from the correlation. Coring after traffic is on the pavement should be avoided. The contractor is responsible for coring of the pavement. Coring and filling of core holes must be approved by the engineer. The QV team is responsible for the labeling and safe transport of the cores from the field to the QC laboratory. Core density testing will be conducted by the contractor and witnessed by department personnel. The contractor is responsible for drying the cores following testing. The department will take possession of cores following initial testing and is responsible for any verification testing.

Each core 150 mm (6 inches) in diameter will be taken at locations as identified in Figure 1. Each random core will be full thickness of the layer being placed. The contractor is responsible for thoroughly drying cores obtained from the mat in accordance with ASTM D 7227 prior to using specimens for in-place density determination in accordance with AASHTO T 166.

Cores must be taken before the pavement is open to traffic. Cores are cut under Department/project staff observation. Relabel each core immediately after extruding, or ensure that labels applied to pavement prior to cutting remain legible. The layer interface should also be marked immediately following extrusion. Cores should be cut at this interface, using a wet saw, to allow for density measurement of only the most recently placed layer. Cores should be protected from excessive temperatures such as direct sunlight. Also, there should be department custody (both in transport and storage) for the cores until they are tested, whether that be immediately after the test strip or subsequent day if agreed upon between Department and Contractor. Use of concrete cylinder molds works well to transport cores. Cores should be placed upside down (flat surface to bottom of cylinder mold) in the molds, one core per mold, cylinder molds stored upright, and ideally transported in a cooler. Avoid any stacking of pavement cores.

Fill all core holes with non-shrink rapid-hardening grout, mortar or concrete, or with HMA. When using grout, mortar or concrete, remove all water from the core holes prior to filling. Mix the mortar or concrete in a separate container prior to placement in the hole. If HMA is used, fill all core holes with hot-mix matching the same day's production mix type at same day compaction temperature +/- 20 F. The core holes shall be dry and coated with tack before filling, filled with a top layer no thicker than 2.25 inches, lower layers not to exceed 4 inches, and compacted with a Marshall hammer or similar tamping device using approximately 50 blows per layer. The finished surface shall be flush with the pavement surface. Any deviation in the surface of the filled core holes greater than 1/4 inch at the time of final inspection will require removal of the fill material to the depth of the layer thickness and replacement.

WisDOT Test Method for HMA PWL QMP Density Measurements for Main Production

For nuclear density testing of the pavement beyond the test strip, QC tests will be completed at three locations per sublot, with a sublot defined as 1500 lane feet. The three locations will represent the outside, middle, and inside of the paving lane (i.e., the lane width will be divided into thirds as shown by the dashed longitudinal lines in Figure 3 and random numbers will be used to identify the specific transverse location within each third in accordance with CMM 8-15). Longitudinal locations within each sublot shall be determined with 3 independent random numbers. The PWL Density measurements do not include the shoulder and other appurtenances. Such areas are tested by the department and are not eligible for density incentive or disincentive. Each location will be measured with two one-minute gauge readings oriented 180 degrees from one another, in the same footprint as detailed in Figure 2 above. Each location requires a minimum of two readings per gauge. The density gauge orientation for the first test will be with the source rod towards the direction of paving. QV nuclear testing will consist of one randomly selected location per sublot. The QV is also comprised of two one-minute readings oriented 180 degrees from one another. For both QC and QV test locations, if the two readings exceed 1.0 pcf of one another, a third reading is conducted in the same orientation as the first reading. In this event, all three readings are averaged, the individual test reading of the three which falls farthest from the average value is discarded, and the average of the remaining two values is used to represent the location for the gauge. The sublot density testing layout is depicted in Figure 4, with QC test locations shown as solid lines and QV as dashed.

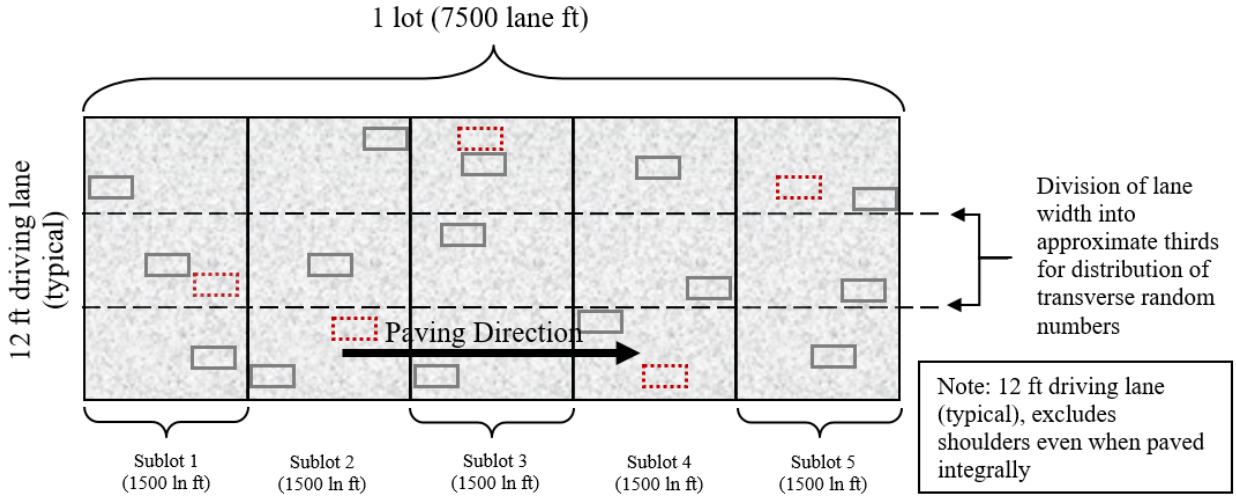

Figure 4: Locations of main lane HMA density testing (QC=solid lines, QV=dashed)

QC and QV nuclear density gauge readings will be statistically analyzed in accordance with Section 460.3.3.3 of the HMA PWL QMP SPV. (Note: For density data, if F- and t-tests compare, QC data will be used for the subsequent calculations of PWL value and pay determination. However, if an F- or t-test does not compare, the QV data will be used in subsequent calculations.)

Sampling for WisDOT HMA PWL QMP Production

Sampling of HMA mix for QC, QV and Retained samples shall conform to CMM 8-36 except as modified here.

Delete CMM 8-36.4 Sampling Hot Mix Asphalt and replace with the following to update sublot tonnages:

Sampling Hot Mix Asphalt

At the beginning of the contract, the contractor determines the anticipated tonnage to be produced. The frequency of sampling is 1 per 750 tons (sublot) for QC and Retained Samples and 1 per 3750 tons (lot or 5 sublots) for QV as defined by the HMA PWL QMP SPV. A test sample is obtained randomly from each sublot. Each random sample shall be collected at the plant according to CMM 8-36.4.1 and 8-36.4.2. The contractor must submit the random numbers for all mix sampling to the department before production begins.

Example 1

Expected production for a contract is 12,400 tons. The number of required samples is determined based on this expected production (per HMA PWL QMP SPV) and is determined by the random sample calculation.

Sample 1 – from 50 to 750 tons
Sample 2 – from 751 to 1500 tons
Sample 3 – from 1501 to 2250 tons
Sample 4 – from 2251 to 3000 tons
Sample X – .....
Sample 16 – from 11,251 to 12,000 tons
Sample 17 – from 12,001 to 12,400 tons

The approximate location of each sample within the prescribed sublots is determined by selecting random numbers using ASTM Method D-3665 or by using a calculator or computerized spreadsheet that has a random number generator. The random numbers selected are used in determining when a sample is to be taken and will be multiplied by the sublot tonnage. This number will then be added to the final tonnage of the previous sublot to yield the approximate cumulative tonnage of when each sample is to be taken.

To allow for plant start-up variability, the procedure calls for the first random sample to be taken at 50 tons or greater per production day (not intended to be taken in the first two truckloads). Random samples calculated for 0-50 ton should be taken in the next truck (51-75 ton).

This procedure is to be used for any number of samples per contract.

If the production is less than the final randomly generated sample tonnage, then the random sample is to be collected from the remaining portion of that sublot of production. If the randomly generated sample is calculated to be within the first 0-50 tons of the subsequent day of production, it should be taken in the next truck. Add a random sample for any fraction of 750 tons at the end of the contract. Lot size will consist of 3750 tons with sublots of 750 tons. Partial lots with less than three sublot tests will be included into the previous lot, by the engineer.

It's intended that the plant operator not be advised ahead of time when samples are to be taken. If the plant operator is involved in recording a Pb (%AC) to match up with the mix sample tonnage, then notification need not be earlier than 60 minutes before the mix sample being taken.

If belt samples are used during troubleshooting, the blended aggregate will be obtained when the mixture production tonnage reaches approximately the sample tonnage. For plants with storage silos, this could be up to 60 minutes in advance of the mixture sample that's taken when the required tonnage is shipped from the plant.

QC, QV and retained samples shall be collected for all test strip and production mixture testing using a three-part splitting procedure according to CMM 8-36.5.2.

Calculation of PWL Mainline Tonnage Example

A mill and overlay project in being constructed with a 12-foot travel lane and an integrally paved 3-foot shoulder. The layer thickness is 2 inches for the full width of paving. Calculate the tonnage in each sublot eligible for density incentive or disincentive.

Solution:

$$\frac{1500\ ft\ \times\ 12\ ft}{9\ sf/sy} \times \frac{2\ in\ \times 112\ lb/sy/in}{2000\ lb/ton} = 224\ tons$$

stp-460-055 (20181119)