

PROJECT ID: 1020-02-90, 1050-00-92, 7200-00-90
WITH: N/A

COUNTY: VARIOUS

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 =



DESIGN DESIGNATION

A.A.D.T.	=	N/A
A.A.D.T.	=	N/A
D.H.V.	=	N/A
D.D.	=	N/A
T.	=	N/A
DESIGN SPEED	=	N/A
ESALS	=	N/A

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	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
OVERHEAD UTILITY	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

ROCK	
LABEL	
95.36	
E	
OH	
FO	
G	
SAN	
SS	
T	
W	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

HUDSON TO BLACK RIVER FALLS

HUDSON TO BLACK RIVER FALLS

IH 94

VARIOUS COUNTIES

STATE PROJECT NUMBER
1020-02-90

RIVER FALLS TO HUDSON

STH 65 TO COULLE RD

STH 35

ST CROIX COUNTY

STATE PROJECT NUMBER
7200-00-90

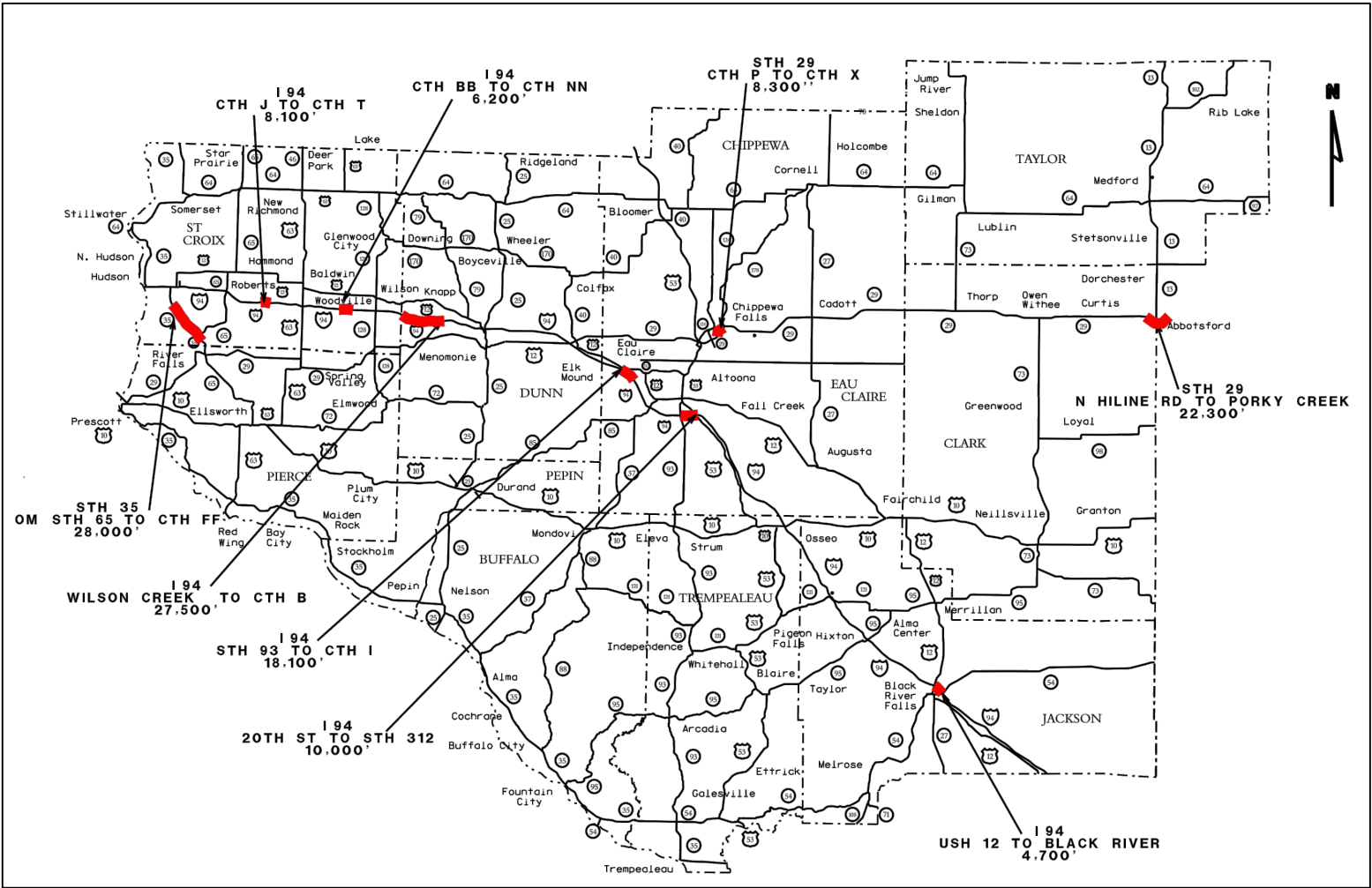
CHIPPEWA FALLS TO ABBOTSFORD

CHIPPEWA FALLS TO ABBOTSFORD

STH 29

CHIPPEWA, CLARK, MARATHON COUNTIES

STATE PROJECT NUMBER
1050-00-92



LAYOUT
SCALE 0 SCALE

TOTAL NET LENGTH OF CENTERLINE = NETLENGTH



(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	SEH
Designer	SEH
Project Manager	ADAM SARAUER
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	RICHARD SHERMO

APPROVED FOR THE DEPARTMENT

DATE: (Signature)

E

UTILITIES 1020-02-90 IH 94

COMMUNICATION LINE

24-7 TELECOM
BRAD SCHMIDTKNECHT
5808 OLD MILL PLAZA
EAU CLAIRE, WI 54703
715-231-0504 (OFFICE)
715-308-1914 (MOBILE)
BRADS@WWT.NET

AT&T LEGACY
BRAD KEMPH
715-254-5238

COPY ALL CORRESPONDENCE TO:

BILL KOENIG (ENGINEER)
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128 W SUNSET AVENUE
APPLETON, WI 54911
WEKOENIG@ATT.NET

AT&T WISCONSIN
RICK PODOLAK
304 SOUTH DEWEY STREET, 4TH FLOOR
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105 GARFIELD AVENUE
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CENTURYTEL OF CENTRAL WI
D/B/A CENTURYLINK
DONNA SMOTHERS
835 RED IRON ROAD
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DONNA.SMOTHERS@CENTURYLINK.COM

CENTURYTEL OF NORTHWEST WI
D/B/A CENTURYLINK
MICHAEL VANDENBOS
2426 75TH AVENUE
OSCEOLA, WI 54020
715-294-2463
MIKE.VANDENBOS@CENTURYLINK.COM

CHARTER COMMUNICATION
SHANE YODER
1201 MCCANN DRIVE
ALTOONA, WI 54720
715-831-8940 EXT 619 (OFFICE)
715-370-7870 (MOBILE)
SHANE.YODER@CHARTER.COM

LEVEL 3 COMMUNICATIONS
BRADLEY J. MORSETH
715 NORTH 2ND STREET
MINNEAPOLIS, MN 55401
612-343-3257 (OFFICE)
612-805-9479 (MOBILE)
BRAD.MORSETH@LEVEL3.COM
COPY ALL CORRESPONDENCE TO:
LEVEL3.NETWORKRELOCATIONS
@LEVEL3.COM

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BRAD SCHMIDTKNECHT
5808 OLD MILL PLAZA
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715-231-0504 (OFFICE)
715-308-1914 (MOBILE)
BRADS@WWT.NET

WINDSTREAM KDL
DENNIS RUESS
8531 CTH FF
WISCONSIN RAPIDS, WI 54494
812-456-1249 (OFFICE)
608-512-5587 (MOBILE)
DENNIS.RUESS@KDLINC.COM

WINDSTREAM NTI
DENNIS RUESS
8531 CTH FF
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812-456-1249 (OFFICE)
608-512-5587 (MOBILE)
DENNIS.RUESS@KDLINC.COM

ELECTRICITY - DISTRIBUTION

BLACK RIVER FALLS, CITY OF
JERRY EWERT, DPW
119 N. WATER ST.
BLACK RIVER FALLS, WI 54615
715-284-9463
715-284-9464
JEWERT@WPPIENERGY.ORG

DAIRYLAND POWER COOPERATIVE
KURT D CHILDS
3200 EAST AVENUE SOUTH
PO BOX 817
LA CROSSE, WI 54602-0817
608-787-1367
KDC@DAIRYNET.COM

DUNN ENERGY COOPERATIVE
MIKE ANDRASCHKO
N5725 600TH STREET
PO BOX 220
MENOMONIE, WI 54751-0220
715-232-6240 (OFFICE)
715-308-1553 (MOBILE)
MANDRA@DUNNENERGY.COM

EAU CLAIRE ENERGY COOPERATIVE
DONALD DRAEGER
8214 USH 12
PO BOX 368
FALL CREEK, WI 54742-0368
715-836-6479 (OFFICE)
715-210-4983 (MOBILE)
DDRAEGER@ECEC.COM

ST CROIX ELECTRIC COOPERATIVE
ROB DOOLEY
1925 RIDGEWAY STREET
PO BOX 160
HAMMOND, WI 54015-0160
715-796-7000 (OFFICE)
800-924-3407 (OFFICE)
ROBDOO@SCECNET.NET

XCEL ENERGY
FIELD CONTACT TBD

COPY ALL CORRESPONDENCE TO:
DAWN SCHULTZ
1414 W HAMILTON AVE
PO BOX 8
EAU CLAIRE, WI 54702-0008
715-737-2482 (OFFICE)
DAWN.SCHULTZ@XCELENERGY.COM

ELECTRICITY - TRANSMISSION

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1414 W HAMILTON AVE
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EAU CLAIRE, WI 54702-0008
715-737-2482 (OFFICE)
DAWN.SCHULTZ@XCELENERGY.COM

GAS/PETROLEUM

NORTHERN NATURAL GAS
JOHN DELASKE
4685 212TH STREET WEST
FARMINGTON MN 55024
402-530-3420 (OFFICE)
612-581-3386 (MOBILE)
JOHN.DELASKE@NNGCO.COM

WE ENERGIES
24-HOUR EMERGENCY (GAS)
800-261-5325
FIELD CONTACT TBD

XCEL ENERGY
FIELD CONTACT TBD

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1414 W HAMILTON AVE
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DAWN.SCHULTZ@XCELENERGY.COM

SEWER

BLACK RIVER FALLS, CITY OF
TODD GOMER
101 S SECOND STREET
BLACK RIVER FALLS, WI 54615
715-284-5612
CITY.ADMIN@BLACKRIVERFALLS.US

EAU CLAIRE, CITY OF
JEFFREY PIPPENGER
UTILITIES ADMINISTRATOR
910 FOREST ST.
EAU CLAIRE, WI 54703
715-839-4920 (OFFICE)
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JEFF.PIPPENGER@EAUCLAIREWI.GOV

MENOMONIE, CITY OF
RANDY EIDE, P.E.
DIRECTOR OF PUBLIC WORKS
800 WILSON AVENUE
MENOMONIE, WI 54751
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715-308-0664 (MOBILE)
715-235-0888 (FAX)
REIDE@MENOMONIE-WI.GOV

WATER

BLACK RIVER FALLS, CITY OF
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REIDE@MENOMONIE-WI.GOV

1050-00-92 STH 29

COMMUNICATION LINE

AT&T WISCONSIN
RICK PODOLAK
304 SOUTH DEWEY STREET, 4TH FLOOR
EAU CLAIRE, WI 54701
715-839-5565 (OFFICE)
715-410-0656 (MOBILE)
RP4514@ATT.COM

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715-836-5286
BAUERDP@UWEC.EDU

CHARTER COMMUNICATION
SHANE YODER
1201 MCCANN DRIVE
ALTOONA, WI 54720
715-831-8940 EXT 619 (OFFICE)
715-370-7870 (MOBILE)
SHANE.YODER@CHARTER.COM

FRONTIER COMMUNICATIONS OF WI
STUART NORMAN
521 4TH STREET
WAUSAU, WI 54406
715-847-1320 (OFFICE)
715-848-3110 (FAX)
STUART.NORMAN@FTR.COM

ELECTRICITY - DISTRIBUTION

ATC MANAGEMENT
MIKE OLSEN
801 O'KEEFE ROAD
PO BOX 6113
DE PERE, WI 54115-6113
920-338-6582 (OFFICE)
920-660-2390 (MOBILE)
MOLSEN@ATCLLC.COM

CLARK ELECTRIC COOPERATIVE
RICK SUDA
124 NORTH MAIN ST.
PO BOX 190
GREENWOOD, WI 54437-0190
715-267-6188, EXT. 234
RSUDA@CECOOP.COM

XCEL ENERGY
FIELD CONTACT TBD

COPY ALL CORRESPONDENCE TO:
DAWN SCHULTZ
1414 W HAMILTON AVE
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EAU CLAIRE, WI 54702-0008
715-737-2482 (OFFICE)
DAWN.SCHULTZ@XCELENERGY.COM

ELECTRICITY - TRANSMISSION

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DAWN.SCHULTZ@XCELENERGY.COM

GAS/PETROLEUM

WE ENERGIES
24-HOUR EMERGENCY (GAS)
800-261-5325
FIELD CONTACT TBD

SEWER

CHIPPEWA FALLS, CITY OF
RICHARD J. RUBENZER, DPW
30 WEST CENTRAL STREET
CHIPPEWA FALLS, WI 54729
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715 726-2741 (WATER DEPT)
RRUBENZER@CHIPPEWAFALLS-WI.GOV

WATER

ABBOTSFORD, CITY OF
CRAIG STUTTGEN, PUBLIC WORKS MANAGER
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PO BOX 589
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715-223-3444 (OFFICE)
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CHIPPEWA FALLS, WI 54729
715 726-2736 (ENGINEERING)
715 726-2741 (WATER DEPT)
RRUBENZER@CHIPPEWAFALLS-WI.GOV

NOTE: THE LOCATIONS OF EXISITNG AND PROPOSED
UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE
APPROXIMATE AND HAVE NOT BEEN FIELD LOCATED.
THERE MAYBE OTHER UTILITY INSTALLATIONS WITHIN
THE PROJECT AREA THAT ARE NOT SHOWN.

7200-00-90 STH 35

COMMUNICATION LINE

AT&T WISCONSIN
RICK PODOLAK
304 SOUTH DEWEY STREET, 4TH FLOOR
EAU CLAIRE, WI 54701
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715-410-0656 (MOBILE)
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BALDWIN TELECOM
KEN CARLSRUD
930 MAPLE STREET
BALDWIN, WI 54002
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715-760-0966 (MOBILE)
KCARLSRUD@LSWI.NET

COMCAST
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2611 FAIRVIEW AVENUE
ROSEVILLE, MN 55113
651-493-5303
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WISCONSIN INDEPENDENT NETWORK
DICK HAMMETTER
SUITE 219
800 WISCONSIN AVE
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HAMMETTER@WINS.NET

ELECTRICITY - DISTRIBUTION

RIVER FALLS, CITY OF
KEVIN WESTHUIS
222 LEWIS STREET
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RIVER FALLS, WI 54022
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715-425-0906 (MAIN)
KWESTHUIS@RFCITY.ORG

ST CROIX ELECTRIC COOPERATIVE
ROB DOOLEY
1925 RIDGEWAY STREET
PO BOX 160
HAMMOND, WI 54015-0160
715-796-7000 (OFFICE)
ROBDOO@SCECNET.NET

XCEL ENERGY
FIELD CONTACT TBD

COPY ALL CORRESPONDENCE TO:
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1414 W HAMILTON AVE
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EAU CLAIRE, WI 54702-0008
715-737-2482 (OFFICE)
DAWN.SCHULTZ@XCELENERGY.COM

ELECTRICITY - TRANSMISSION

XCEL ENERGY
FIELD CONTACT TBD

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1414 W HAMILTON AVE
PO BOX 8
EAU CLAIRE, WI 54702-0008
715-737-2482 (OFFICE)
DAWN.SCHULTZ@XCELENERGY.COM

GAS/PETROLEUM

MAGELLAN PIPELINE
CLAIRE MADSEN
2451 WEST CTY RD C
ROSEVILLE, MN 55113
651-633-1519 (OFFICE)
612-750-1806 (MOBILE)
CLAIR.MADSEN@MAGELLANLP.COM

ST CROIX GAS
GREG LEE
415 SOUTH SECOND STREET
RIVER FALLS, WI 54022
715-425-6177 (OFFICE)
715 760-5038 (MOBILE)
DIRECTOR OF OPERATIONS
GREG@STCROIXGAS.COM

SEWER

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TERRY KUSILEK
222 LEWIS STREET
SUITE 228
RIVER FALLS, WI 54022
715-425-0906 (OFFICE)
TKUSILEK@RFCITY.ORG

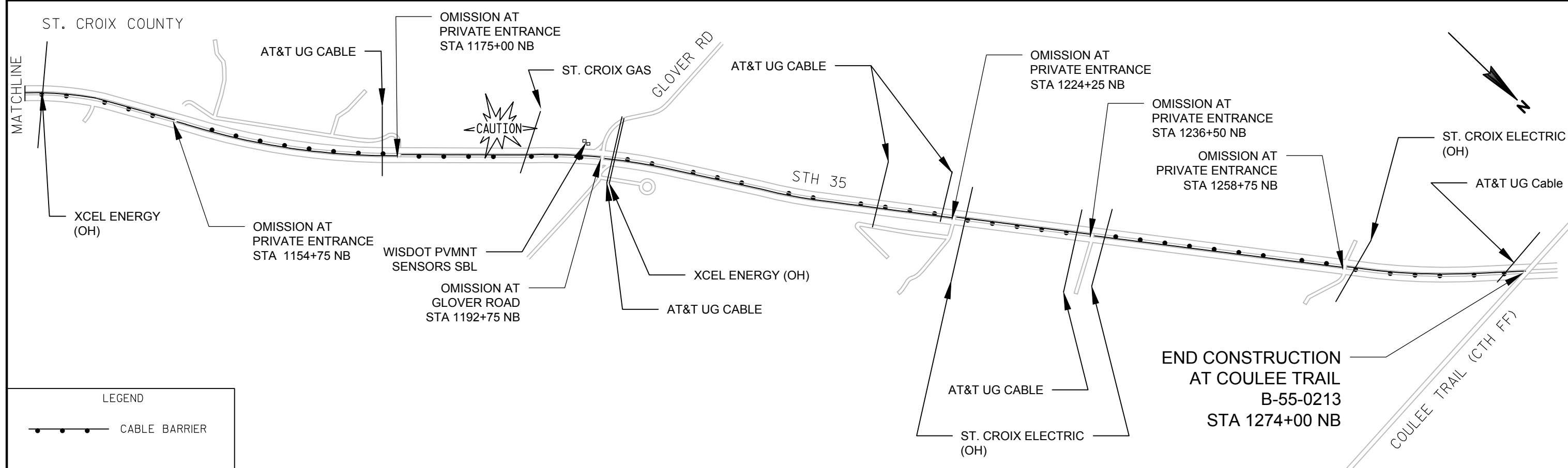
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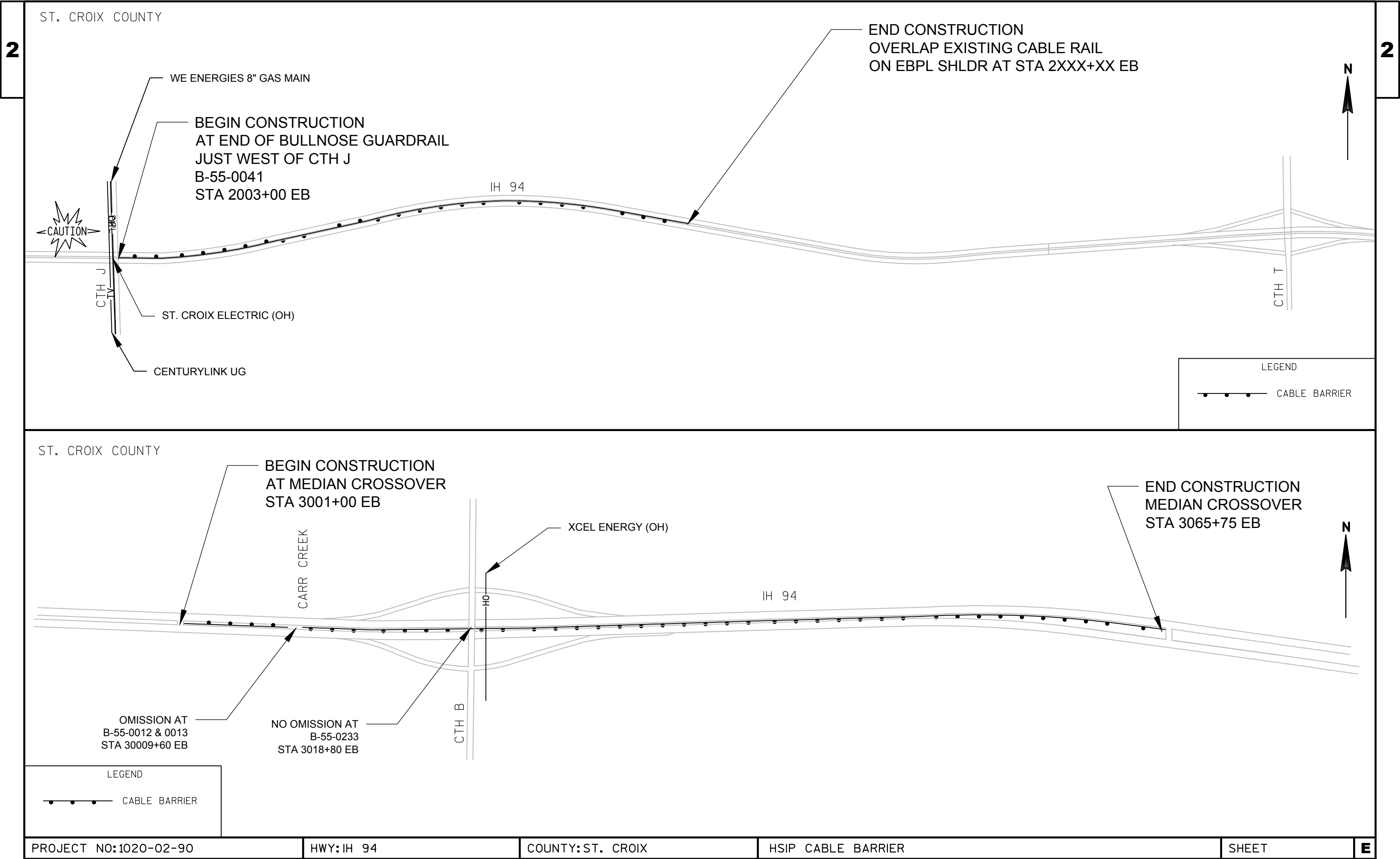
RIVER FALLS, CITY OF
TERRY KUSILEK
222 LEWIS STREET
SUITE 228
RIVER FALLS, WI 54022
715-425-0906 (OFFICE)
TKUSILEK@RFCITY.

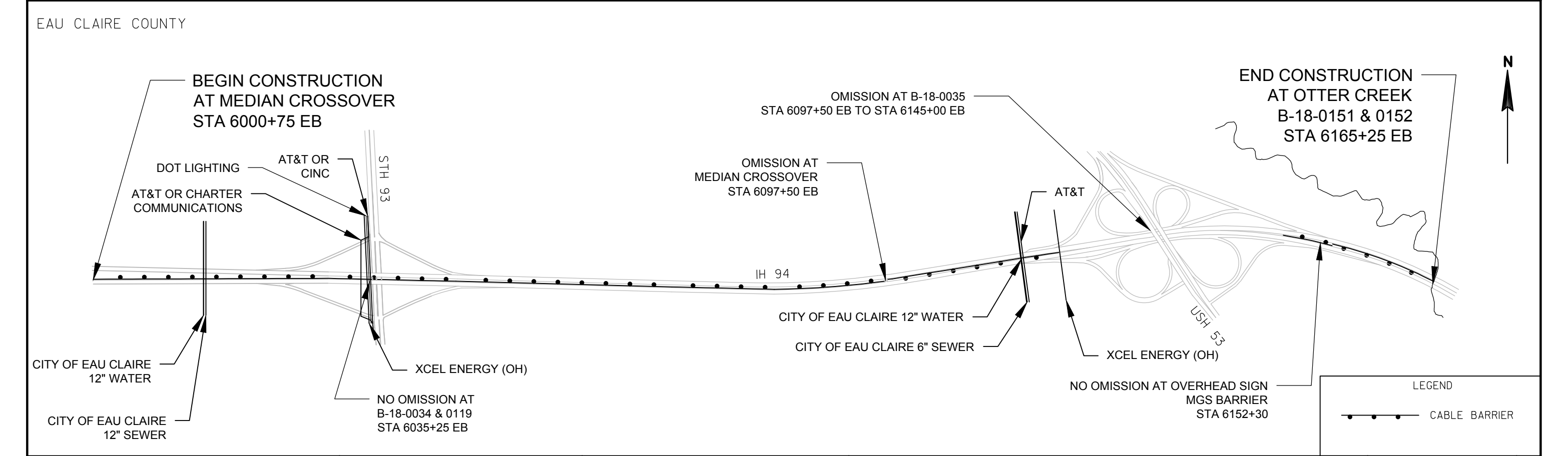
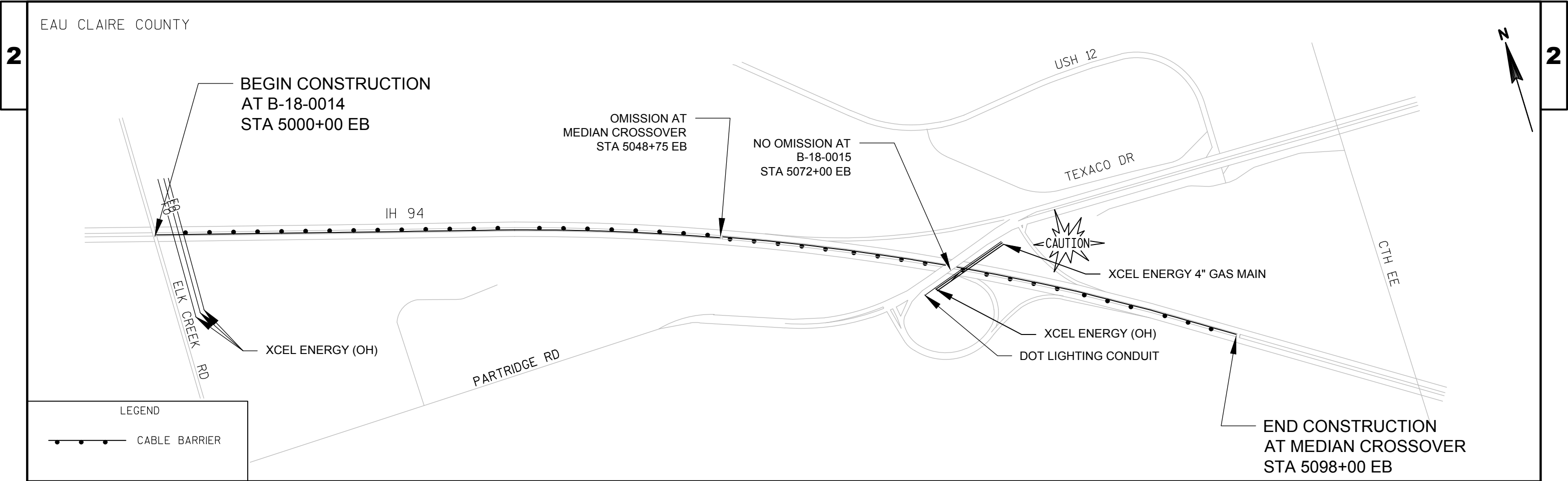
DIGGERSHOTLINE

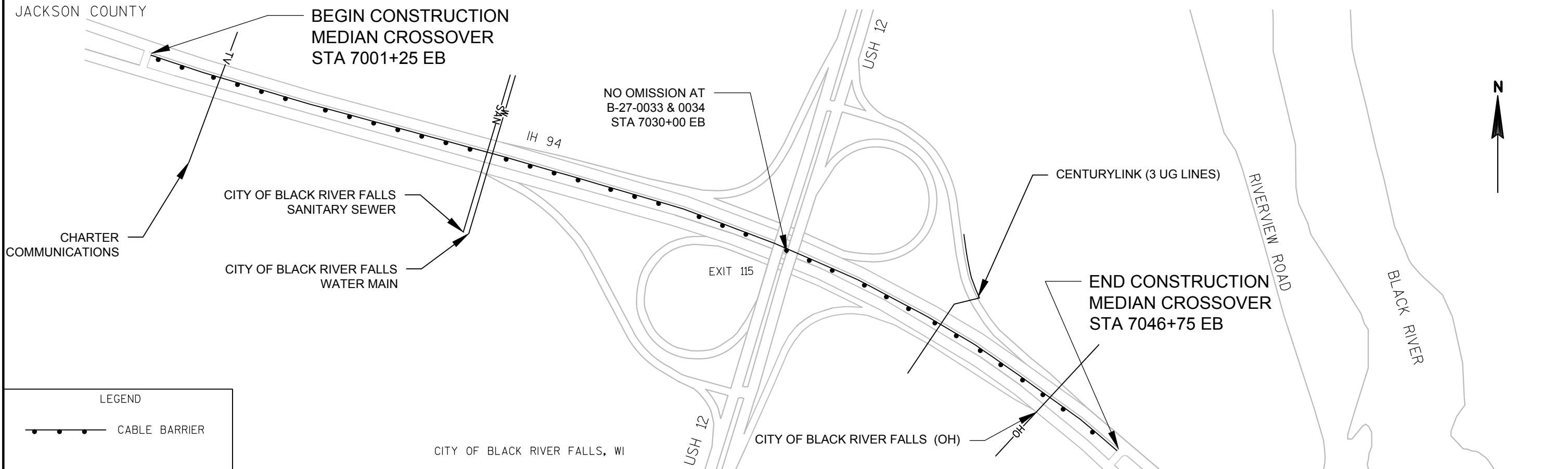
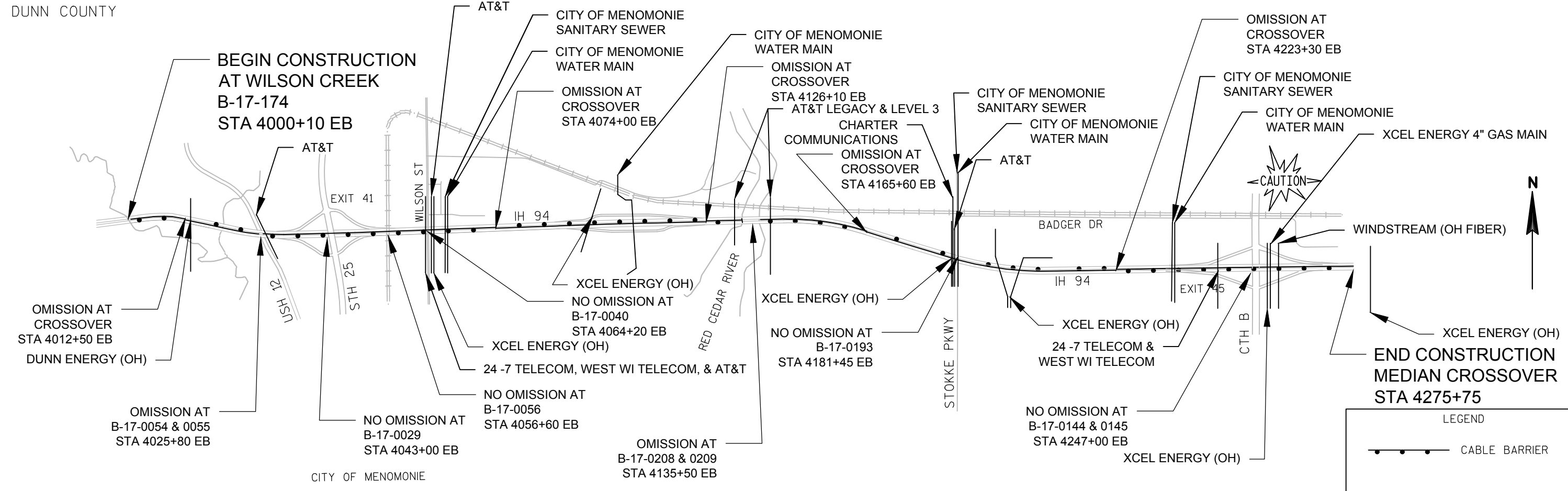
Dial 811 or (800)242-8511

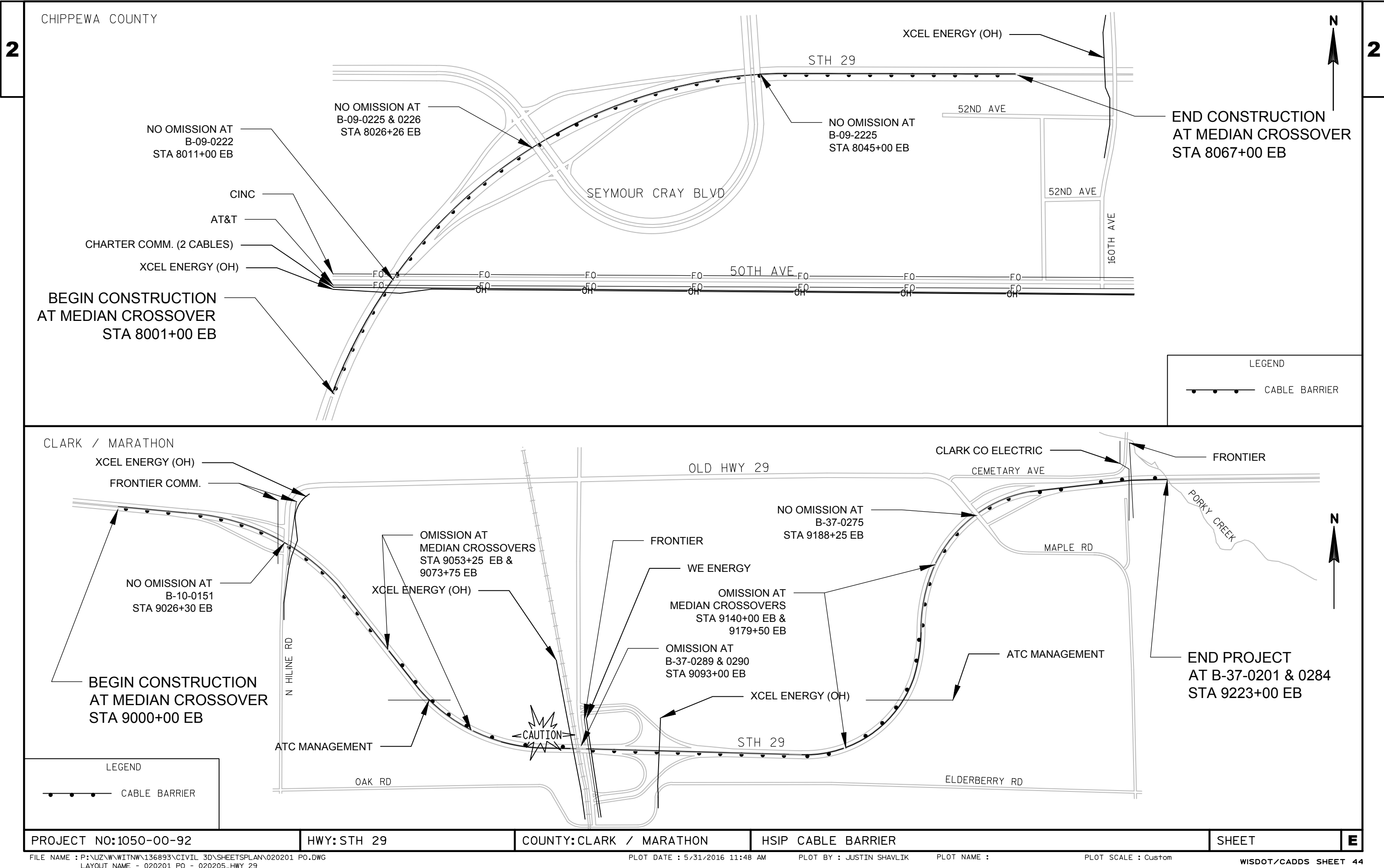
www.DiggersHotline.com

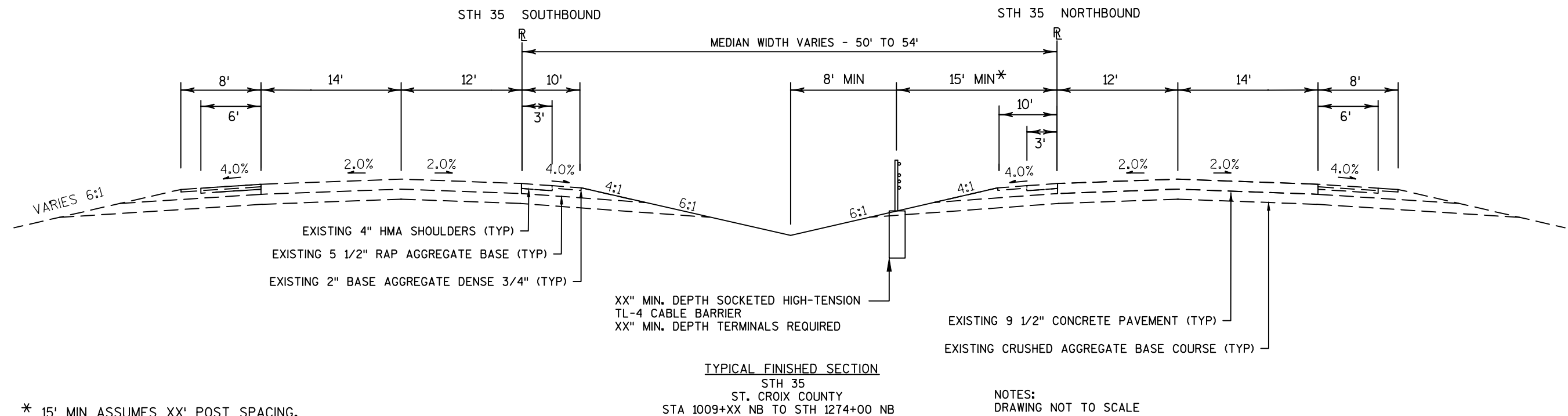
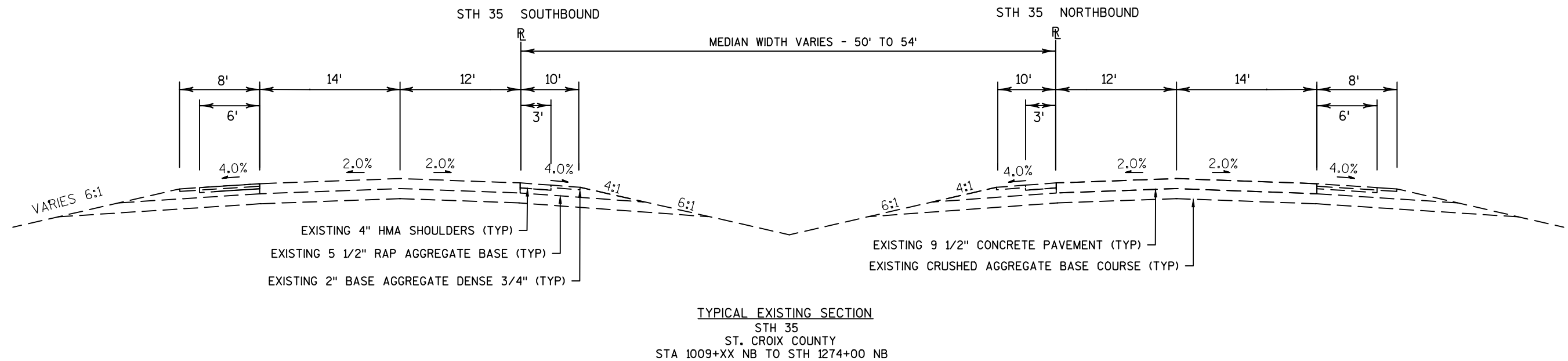








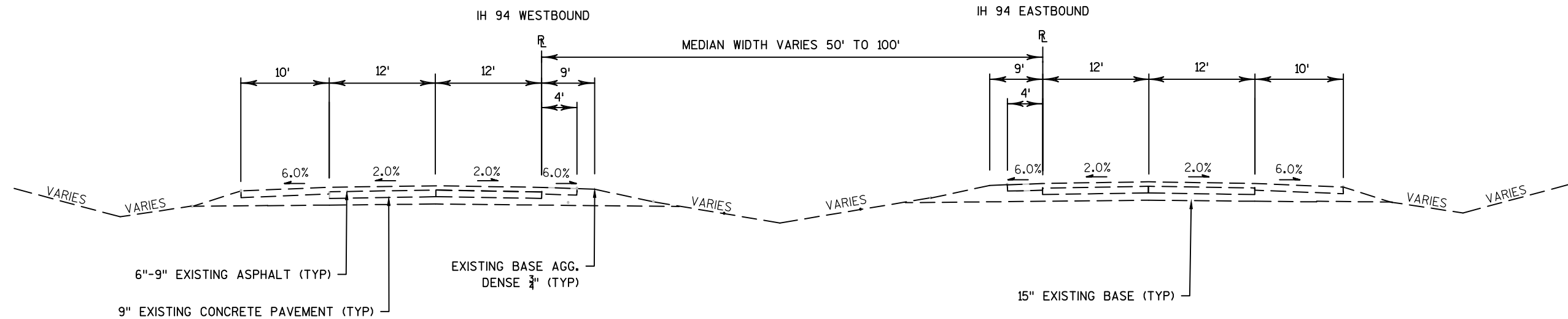




NOTES:
DRAWING NOT TO SCALE

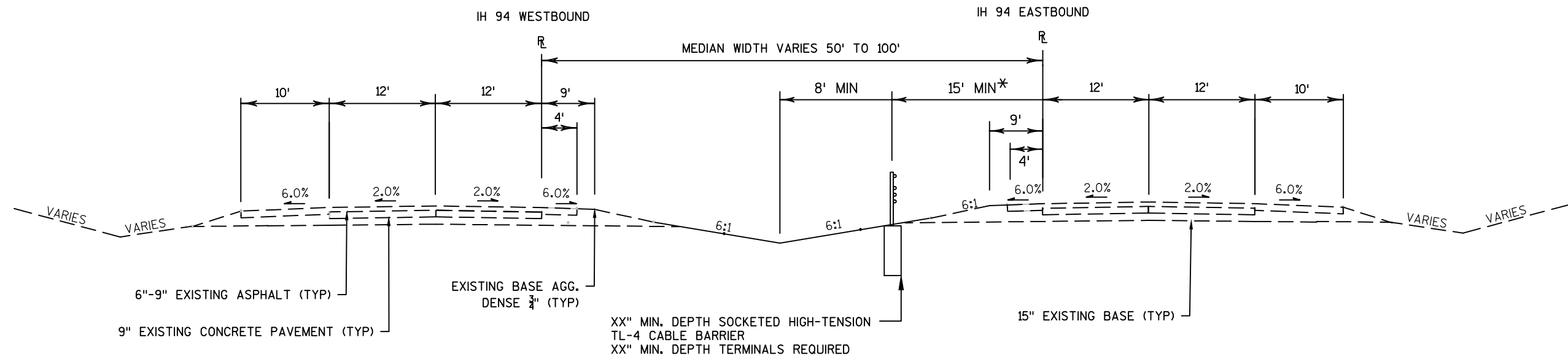
CABLE BARRIER PLACEMENT COULD OCCUR ON EITHER SIDE OF THE MEDIAN OR BOTH SIDES OF THE MEDIAN BASED ON THE SYSTEM DESIGN

ADJUST BARRIER POST SPACING AS ALLOWED PER STANDARD DETAIL DRAWINGS, DETAIL DRAWINGS, AND BARRIER SYSTEM SPECIAL PROVISIONS TO AVOID ALL UNDERGROUND UTILITIES AS REQUIRED BY STATUTE. ADJUST BARRIER SYSTEM ANCHOR LOCATIONS TO AVOID ALL UNDERGROUND UTILITIES AS REQUIRED BY STATURE. PROVIDE GAPS IN THE BARRIER SYSTEM WHEN POST SPACING VARIATION DOES NOT PROVIDE ENOUGH ADJUSTMENT. NO UNDERGROUND UTILITIES WILL BE REQUIRED TO BE RELOCATED TO AVOID BARRIER SYSTEM CONFLICTS. IN ADDITION, ALL OVERHEAD UTILITIES WILL REMAIN IN SERVICE THROUGHOUT CONSTRUCTION



TYPICAL EXISTING SECTION
 IH 94
 ST. CROIX COUNTY
 STA 2000+00 EB TO STA 2XXX+XX EB
 STA 3000+00 EB TO STA 3XXX+XX EB

EXISTING CABLE GUARD IS AT 10' O/S FROM EB RL.



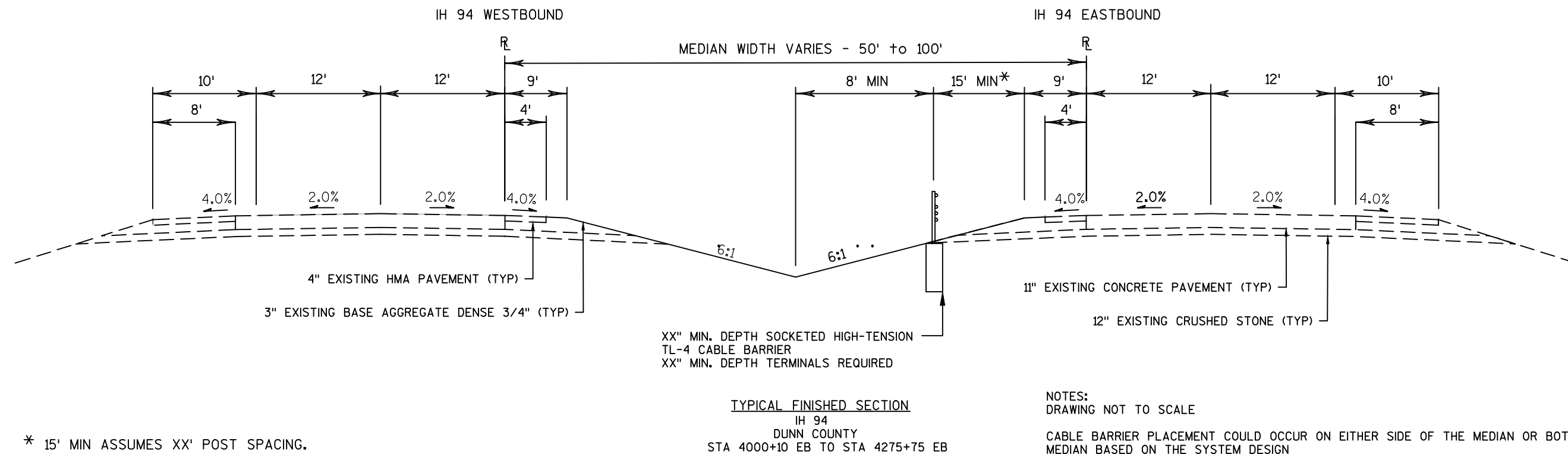
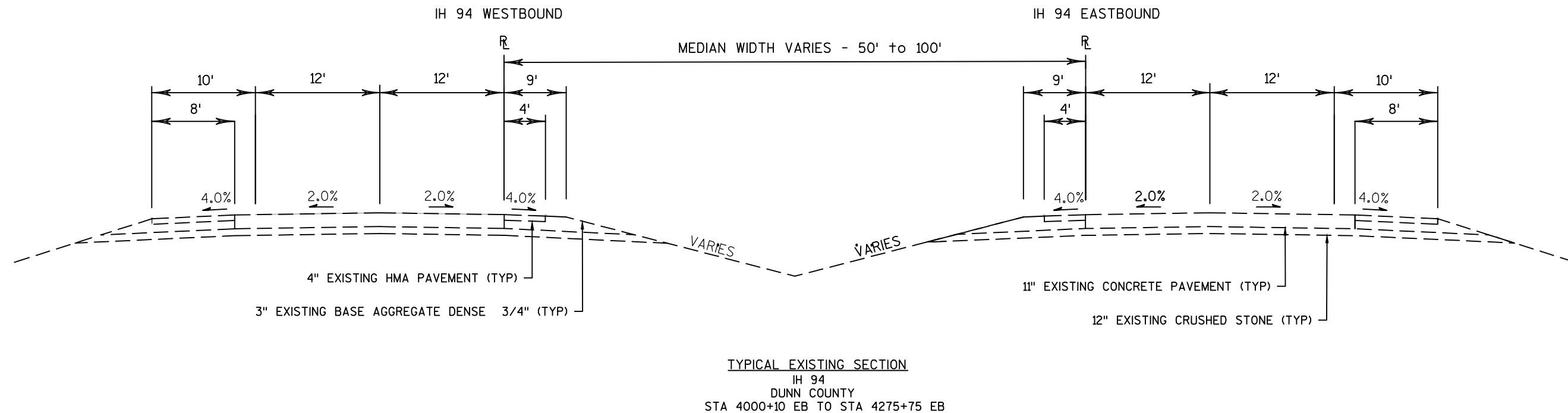
TYPICAL FINISHED SECTION
 IH 94
 ST. CROIX COUNTY
 STA 2000+00 EB TO STA 2XXX+XX EB
 STA 3000+00 EB TO STA 3XXX+XX EB

NOTES:
 DRAWING NOT TO SCALE

CABLE BARRIER PLACEMENT COULD OCCUR ON EITHER SIDE OF THE MEDIAN OR BOTH SIDES OF THE MEDIAN BASED ON THE SYSTEM DESIGN

ADJUST BARRIER POST SPACING AS ALLOWED PER STANDARD DETAIL DRAWINGS, DETAIL DRAWINGS, AND BARRIER SYSTEM SPECIAL PROVISIONS TO AVOID ALL UNDERGROUND UTILITIES AS REQUIRED BY STATUTE. ADJUST BARRIER SYSTEM ANCHOR LOCATIONS TO AVOID ALL UNDERGROUND UTILITIES AS REQUIRED BY STATUTE. PROVIDE GAPS IN THE BARRIER SYSTEM WHEN POST SPACING VARIATION DOES NOT PROVIDE ENOUGH ADJUSTMENT. NO UNDERGROUND UTILITIES WILL BE REQUIRED TO BE RELOCATED TO AVOID BARRIER SYSTEM CONFLICTS. IN ADDITION, ALL OVERHEAD UTILITIES WILL REMAIN IN SERVICE THROUGHOUT CONSTRUCTION

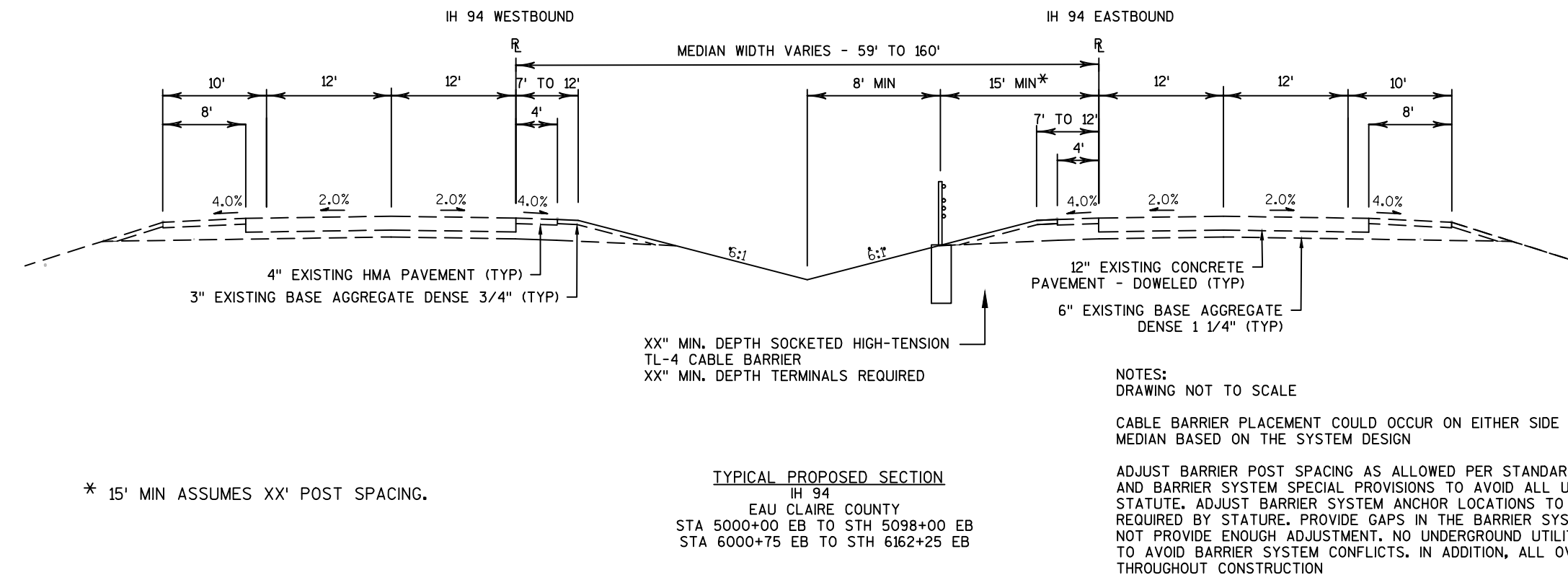
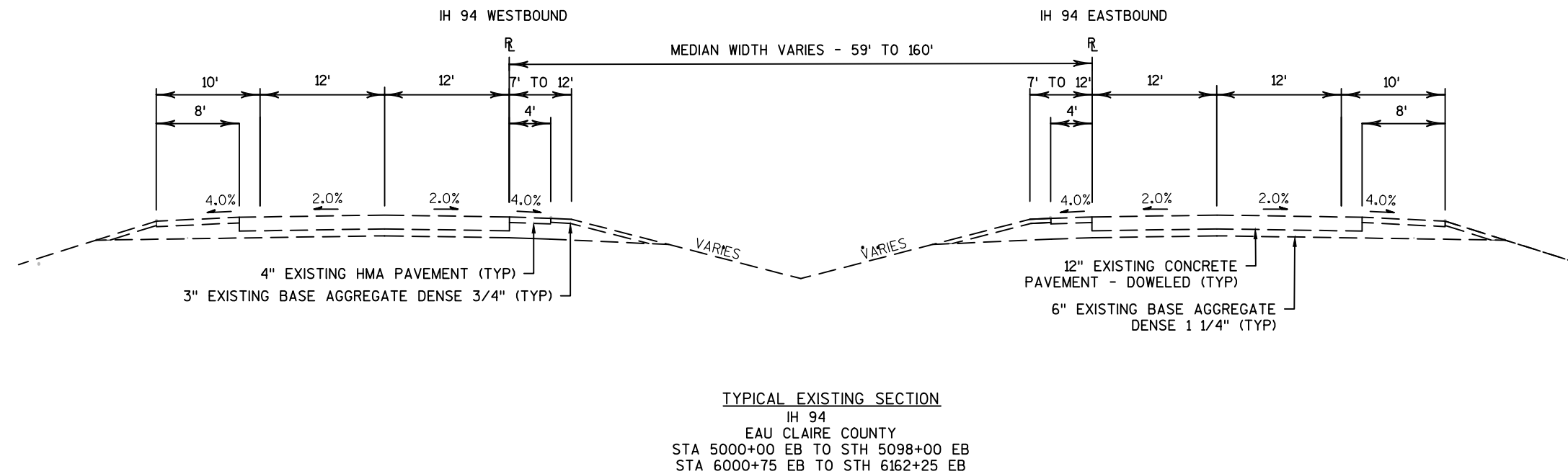
* 15' MIN ASSUMES XX' POST SPACING.

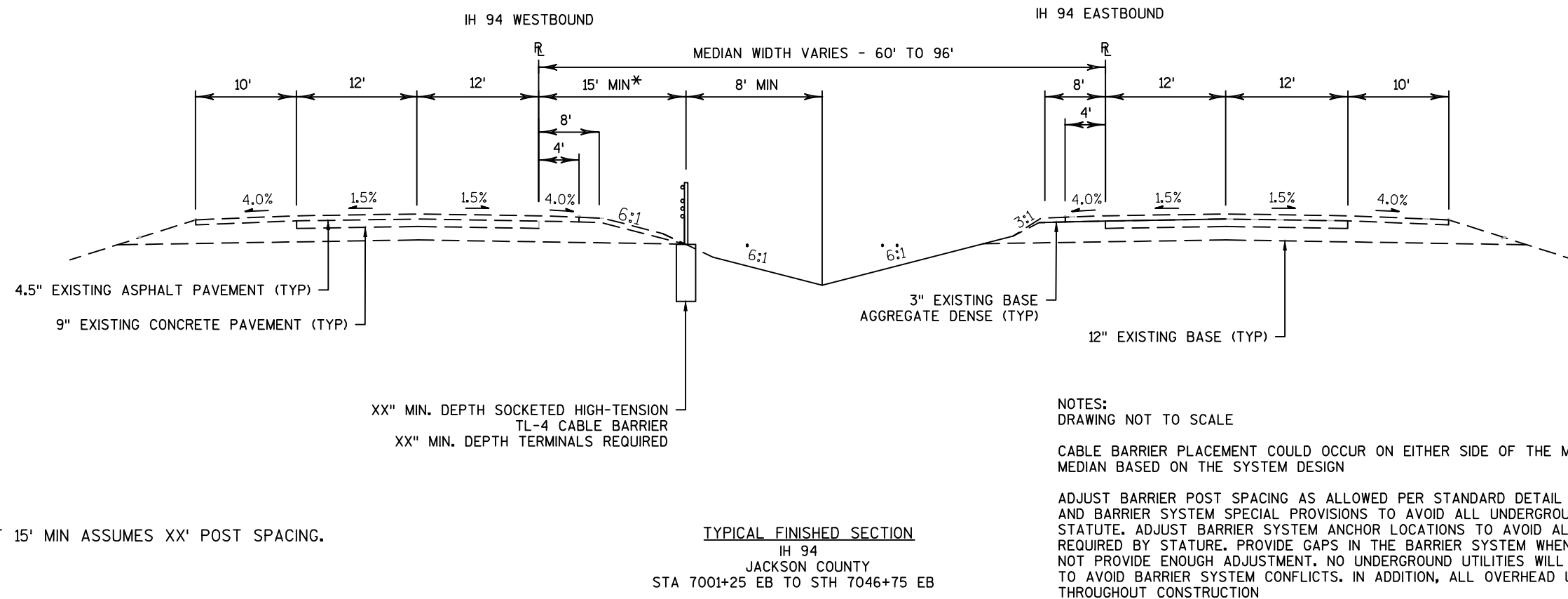
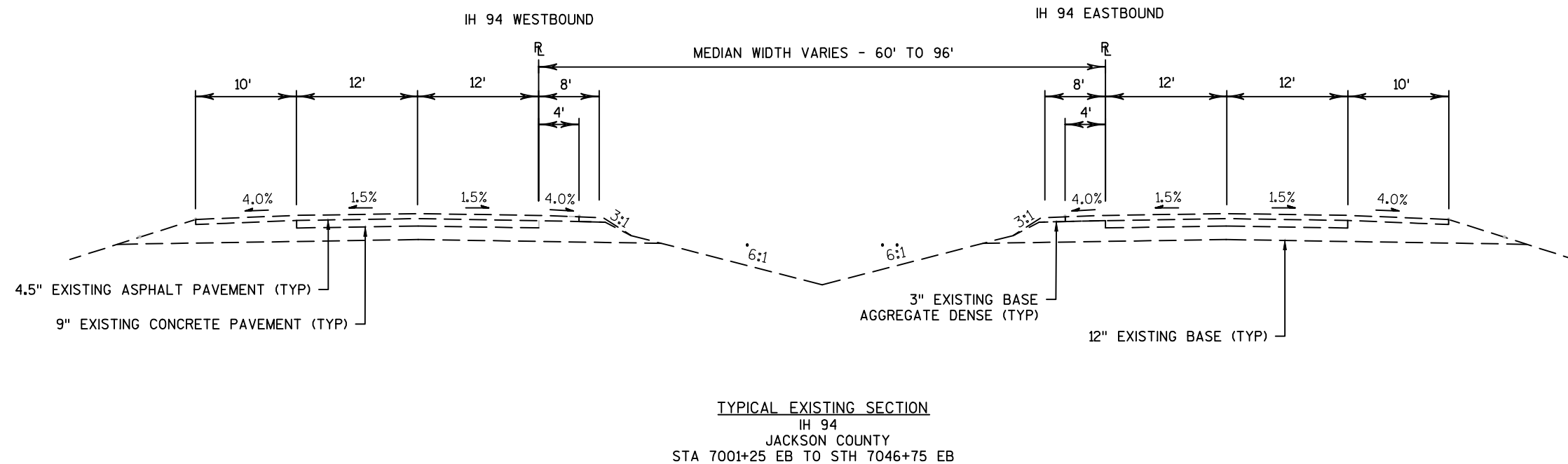


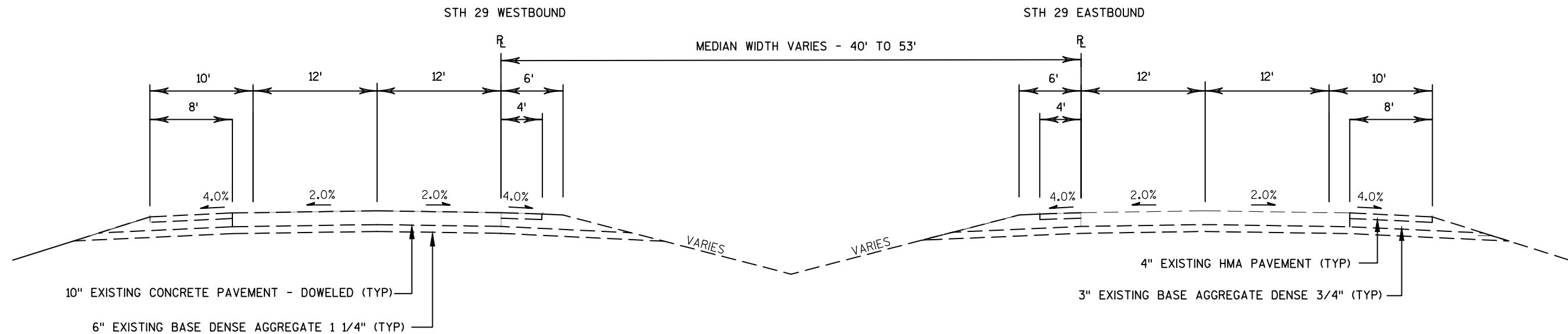
NOTES:
DRAWING NOT TO SCALE

CABLE BARRIER PLACEMENT COULD OCCUR ON EITHER SIDE OF THE MEDIAN OR BOTH SIDES OF THE MEDIAN BASED ON THE SYSTEM DESIGN

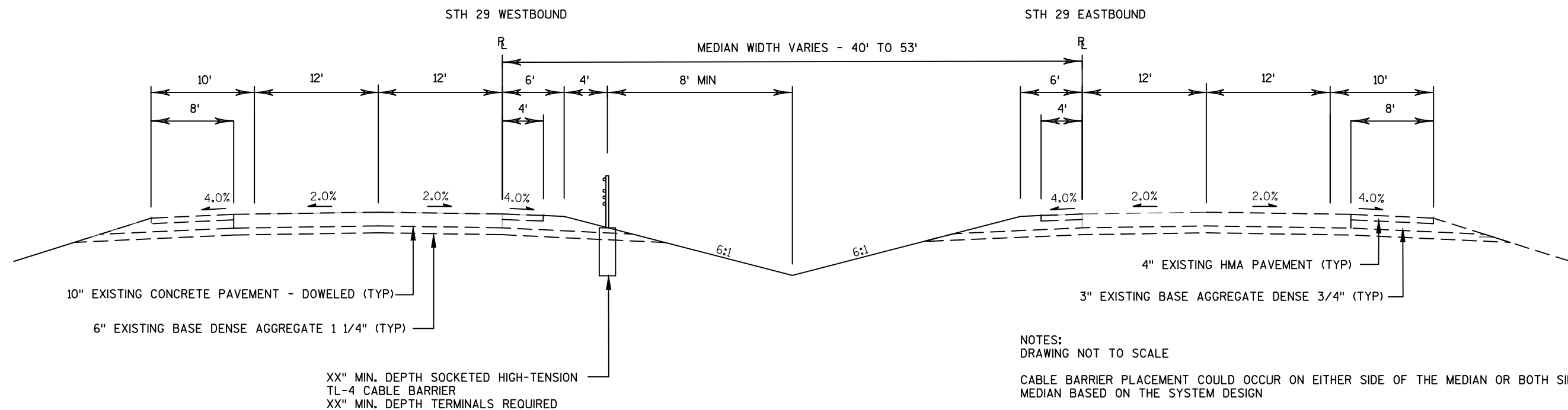
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TYPICAL EXISTING SECTION
 STH 29
 CHIPPEWA COUNTY
 STA 8000+50 EB TO STH 8068+00 EB

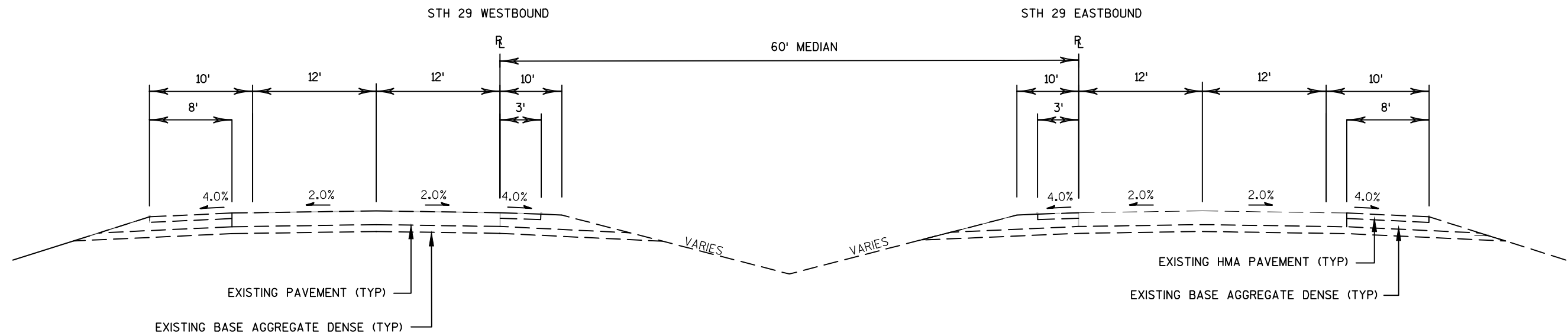


TYPICAL FINISHED SECTION
 STH 29
 CHIPPEWA COUNTY
 STA 8000+50 EB TO STH 8068+00 EB

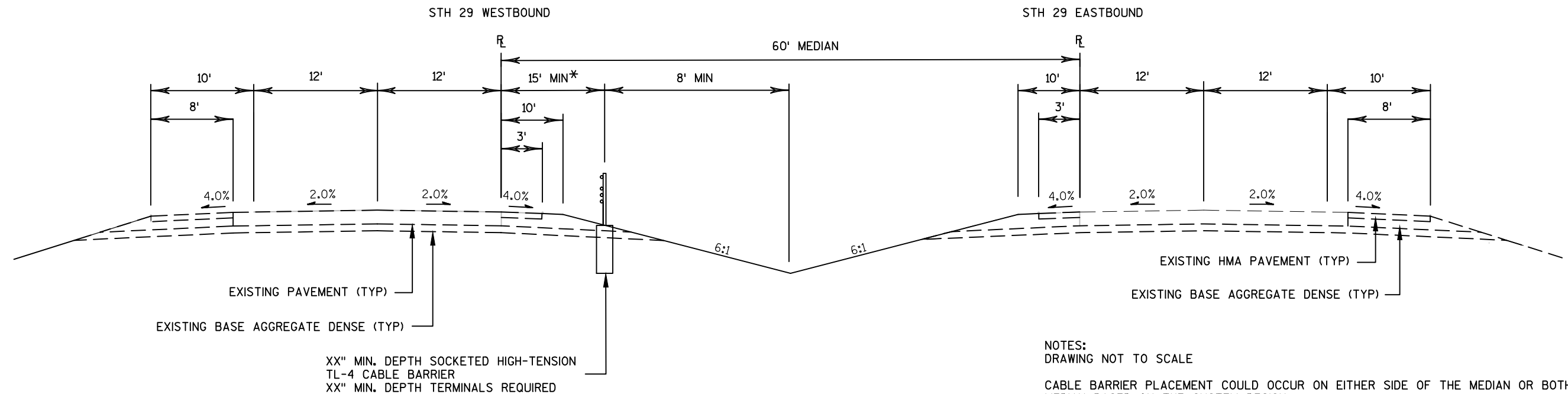
NOTES:
 DRAWING NOT TO SCALE

CABLE BARRIER PLACEMENT COULD OCCUR ON EITHER SIDE OF THE MEDIAN OR BOTH SIDES OF THE MEDIAN BASED ON THE SYSTEM DESIGN

ADJUST BARRIER POST SPACING AS ALLOWED PER STANDARD DETAIL DRAWINGS, DETAIL DRAWINGS, AND BARRIER SYSTEM SPECIAL PROVISIONS TO AVOID ALL UNDERGROUND UTILITIES AS REQUIRED BY STATUTE. ADJUST BARRIER SYSTEM ANCHOR LOCATIONS TO AVOID ALL UNDERGROUND UTILITIES AS REQUIRED BY STATUTE. PROVIDE GAPS IN THE BARRIER SYSTEM WHEN POST SPACING VARIATION DOES NOT PROVIDE ENOUGH ADJUSTMENT. NO UNDERGROUND UTILITIES WILL BE REQUIRED TO BE RELOCATED TO AVOID BARRIER SYSTEM CONFLICTS. IN ADDITION, ALL OVERHEAD UTILITIES WILL REMAIN IN SERVICE THROUGHOUT CONSTRUCTION



TYPICAL EXISTING SECTION
 STH 29
 CLARK/MARATHON COUNTY
 STA 9000+00 WB TO STH 9223+00 EB



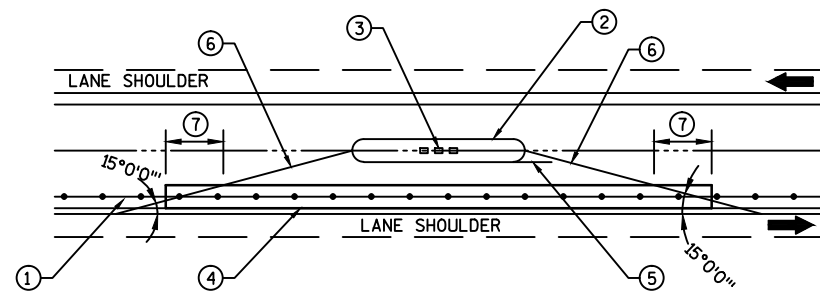
* 15' MIN ASSUMES XX' POST SPACING.

TYPICAL FINISHED SECTION
 STH 29
 CLARK/MARATHON COUNTY
 STA 9000+00 EB TO STH 9223+00 EB

NOTES:
 DRAWING NOT TO SCALE

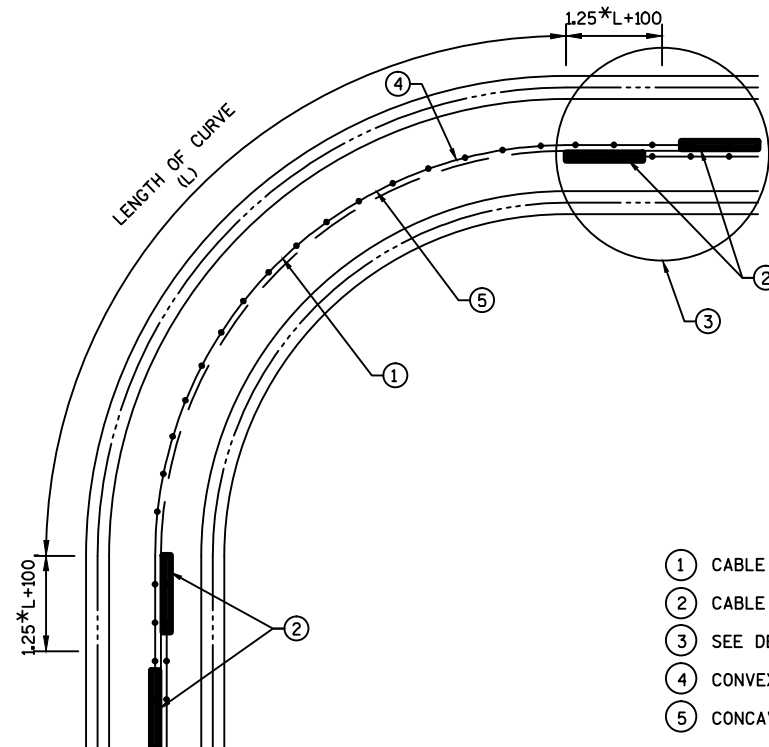
CABLE BARRIER PLACEMENT COULD OCCUR ON EITHER SIDE OF THE MEDIAN OR BOTH SIDES OF THE MEDIAN BASED ON THE SYSTEM DESIGN

ADJUST BARRIER POST SPACING AS ALLOWED PER STANDARD DETAIL DRAWINGS, DETAIL DRAWINGS, AND BARRIER SYSTEM SPECIAL PROVISIONS TO AVOID ALL UNDERGROUND UTILITIES AS REQUIRED BY STATUTE. ADJUST BARRIER SYSTEM ANCHOR LOCATIONS TO AVOID ALL UNDERGROUND UTILITIES AS REQUIRED BY STATUTE. PROVIDE GAPS IN THE BARRIER SYSTEM WHEN POST SPACING VARIATION DOES NOT PROVIDE ENOUGH ADJUSTMENT. NO UNDERGROUND UTILITIES WILL BE REQUIRED TO BE RELOCATED TO AVOID BARRIER SYSTEM CONFLICTS. IN ADDITION, ALL OVERHEAD UTILITIES WILL REMAIN IN SERVICE THROUGHOUT CONSTRUCTION



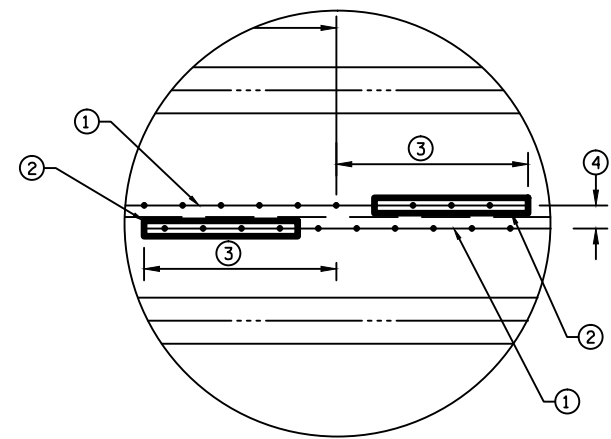
- ① CABLE BARRIER
- ② THREE BEAM BULLNOSE
- ③ PIER OR OTHER FIXED OBJECT
- ④ AREA WITH CABLE BARRIER WITH REDUCED POST SPACING (SHOW WORKING WIDTH IN PLAN)
- ⑤ WORKING WIDTH OF CABLE IS REDUCED TO MINIMIZE CABLE BARRIER AND THREE BEAM BULLNOSE INTERACTION. SEE MANUFACTURE'S INFORMATION FOR MINIMUM WORKING WIDTH INFORMATION
- ⑥ REDUCED POST SPACING LAYOUT LINE
- ⑦ PROVIDE REDUCED POST SPACING AT LEAST 1 SPACE BEYOND LAYOUT LINE

REDUCED CABLE BARRIER POST SPACING BY PIERS
BULLNOSE IS PROVIDING VEHICLE PROTECTION
FOR PIER FOR ONE DIRECTION OF TRAVEL



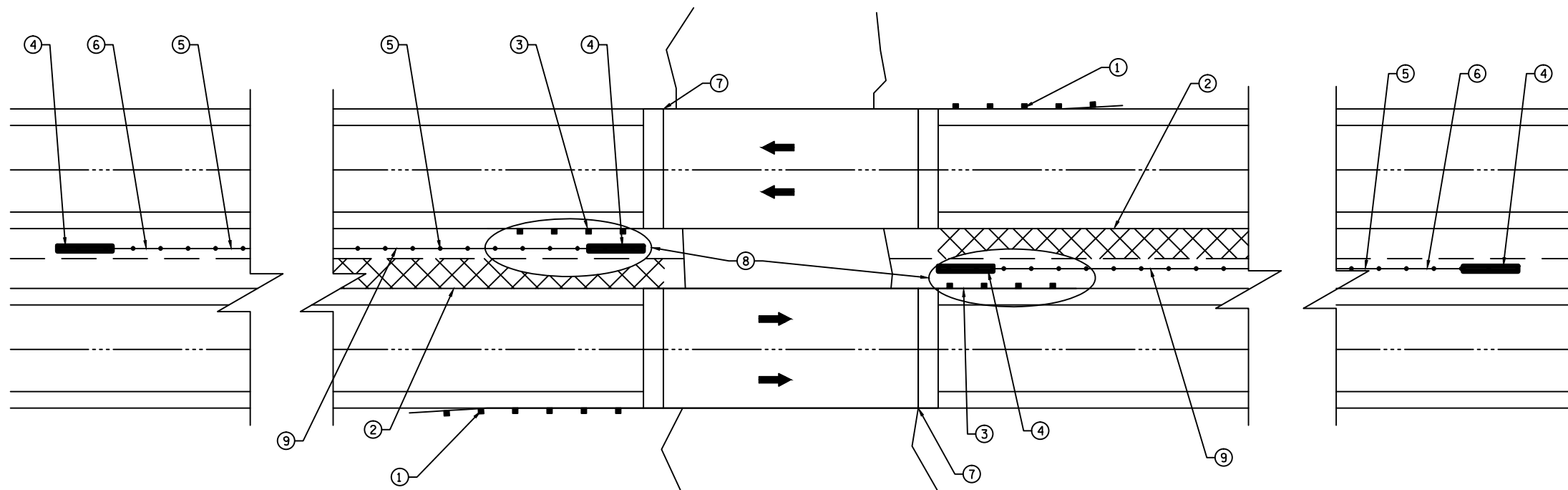
- ① CABLE BARRIER
- ② CABLE BARRIER END TERMINAL
- ③ SEE DETAIL B
- ④ CONVEX SIDE IMPACT SIDE
- ⑤ CONCAVE SIDE IMPACT SIDE

CONTINUOUS INSTALLATION OF CABLE BARRIER ON CURVE



- ① CABLE BARRIER
- ② CABLE BARRIER END TERMINAL
- ③ LENGTH OF NEED POINT OF CABLE BARRIER END TERMINAL
- ④ ADEQUATE WORKING WIDTH BETWEEN CABLE BARRIERS

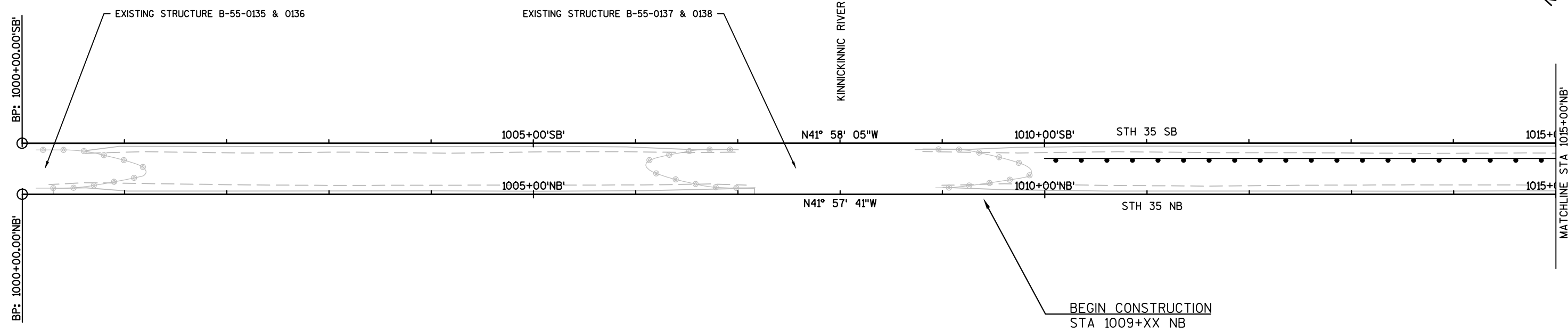
DETAIL B



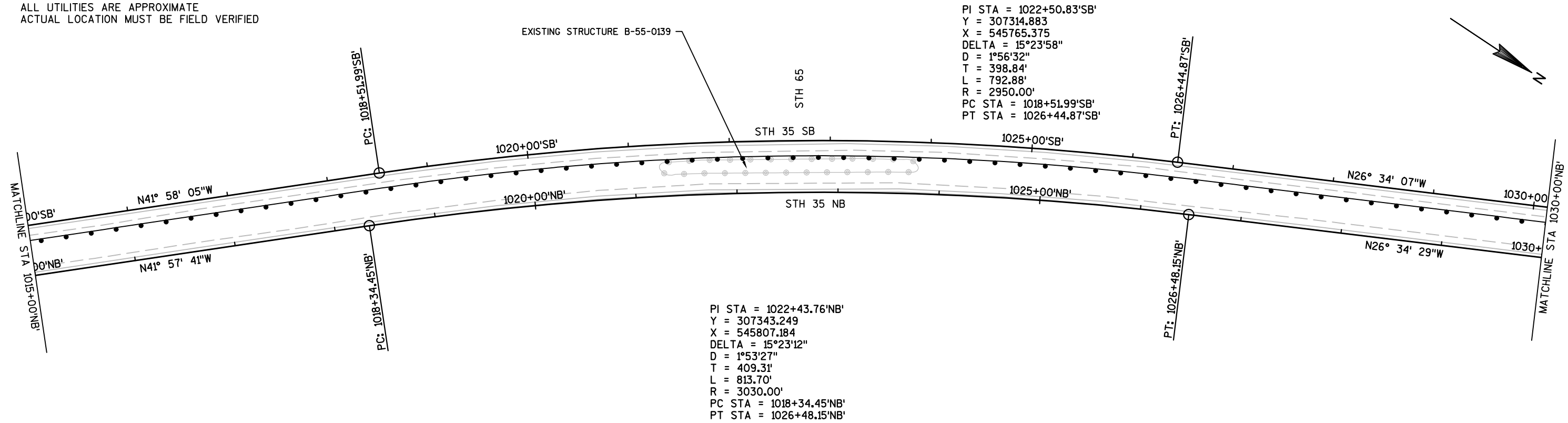
- ① EAT, BEAM GUARD AND THREE BEAM APPROACH TRANSITION WITH APPROPRIATE LON FOR HAZARDS PRESENT
- ② EAT, BEAM GUARD AND THREE BEAM APPROACH TRANSITION WITH APPROPRIATE LON TO SHIELD CABLE BARRIER END TERMINAL AND OTHER HAZARDS PRESENT
- ③ THREE BEAM DOWNSTREAM TRANSITION, BEAM GUARD AND TYPE 2 END TREATMENT WITH APPROPRIATE LENGTH TO PREVENT VEHICLE INTERACTION WITH CABLE BARRIER END TERMINAL
- ④ CABLE END TERMINAL
- ⑤ CABLE BARRIER
- ⑥ LENGTH OF NEED POINT OF CABLE BARRIER END TERMINAL
- ⑦ EDGE OF BRIDGE DECK
- ⑧ SEE DETAIL C
- ⑨ CABLE BARRIER IS PLACED TO MINIMIZE VEHICLE REBOUNDING OFF OF CABLE BARRIER INTO BACK SIDE OF BEAM GUARD. ADDITIONAL BEAM GUARD IS INSTALLED DOWNSTREAM OF THE BRIDGE TO SHIELD CABLE BARRIER END TERMINAL FROM BEING STRUCK

CABLE BARRIER INSTALLATION WHEN MAINLINE GOES OVER ROADWAY OR STREAM

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



PROJECT NO: 7200-00-90

HWY: STH 35

COUNTY: ST. CROIX

HSIP CABLE BARRIER

SHEET

E

FILE NAME : P:\JUZ\W\WITNW\136893\CIVIL 3D\SHEETS\PLAN\050201_PN.DWG
LAYOUT NAME - 050201_PN - 050201_PN 1

PLOT DATE : 5/31/2016 11:01 AM

PLOT BY : JUSTIN SHAVLIK

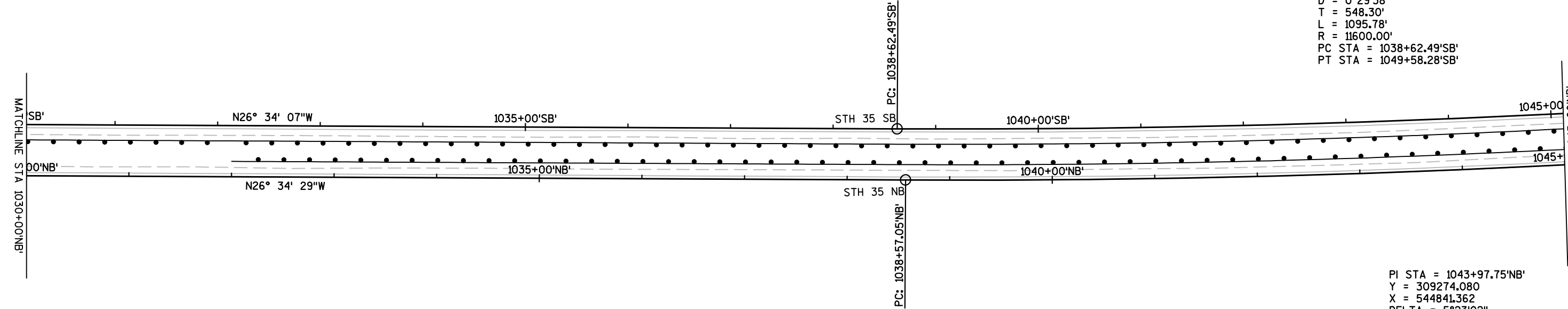
PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDs SHEET 44

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

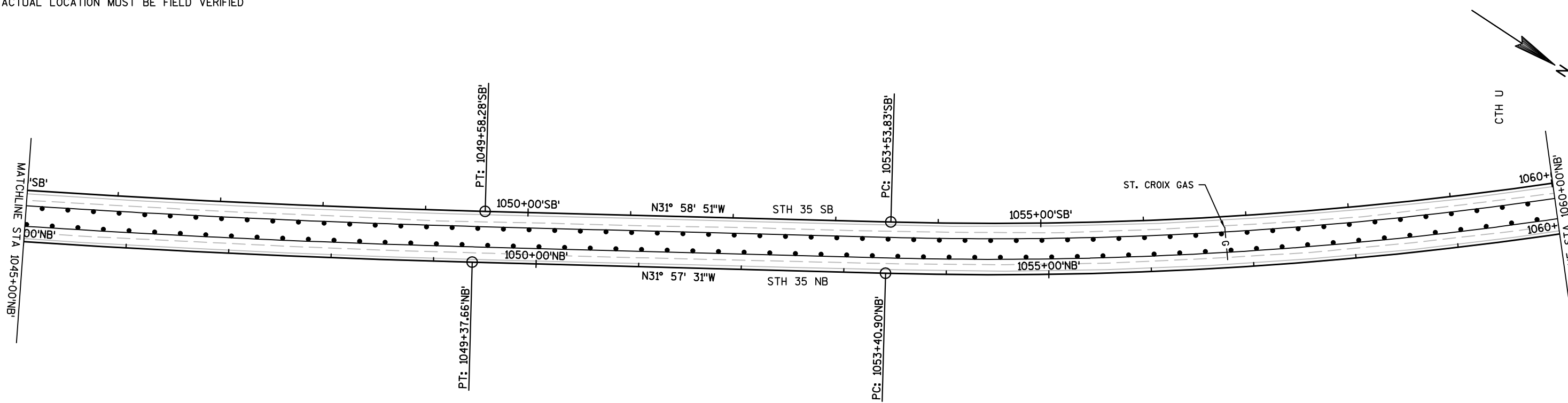
PI STA = 1044+10.79'SB'
Y = 309251.048
X = 544797.145
DELTA = 5°24'45"
D = 0°29'38"
T = 548.30'
L = 1095.78'
R = 11600.00'
PC STA = 1038+62.49'SB'
PT STA = 1049+58.28'SB'



5

5

ALL UTILITIES ARE APPROXIMATE
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PROJECT NO: 7200-00-90

HWY: STH 35

COUNTY: ST. CROIX

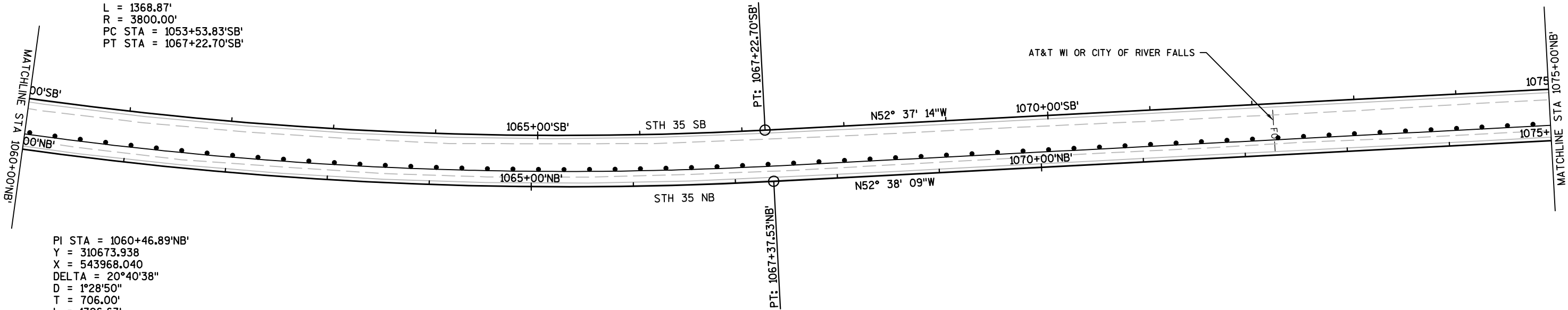
HSIP CABLE BARRIER

SHEET

E

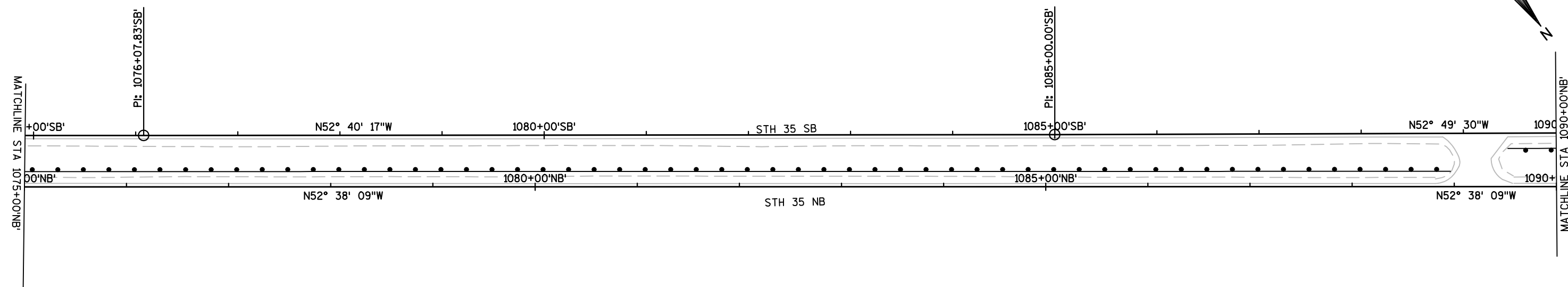
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

PI STA = 1060+45.76'SB'
Y = 310638.563
X = 543930.771
DELTA = 20°38'23"
D = 1°30'28"
T = 691.94'
L = 1368.87'
R = 3800.00'
PC STA = 1053+53.83'SB'
PT STA = 1067+22.70'SB'

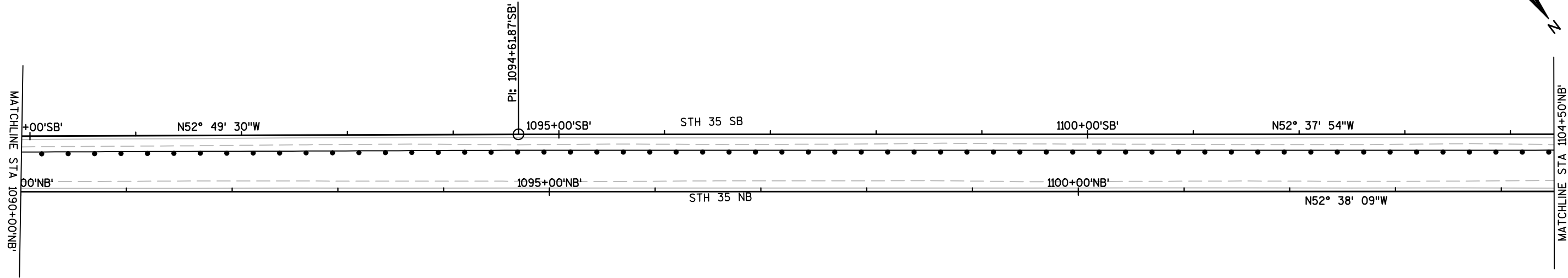


PI STA = 1060+46.89'NB'
Y = 310673.938
X = 543968.040
DELTA = 20°40'38"
D = 1°28'50"
T = 706.00'
L = 1396.63'
R = 3870.00'
PC STA = 1053+40.90'NB'
PT STA = 1067+37.53'NB'

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



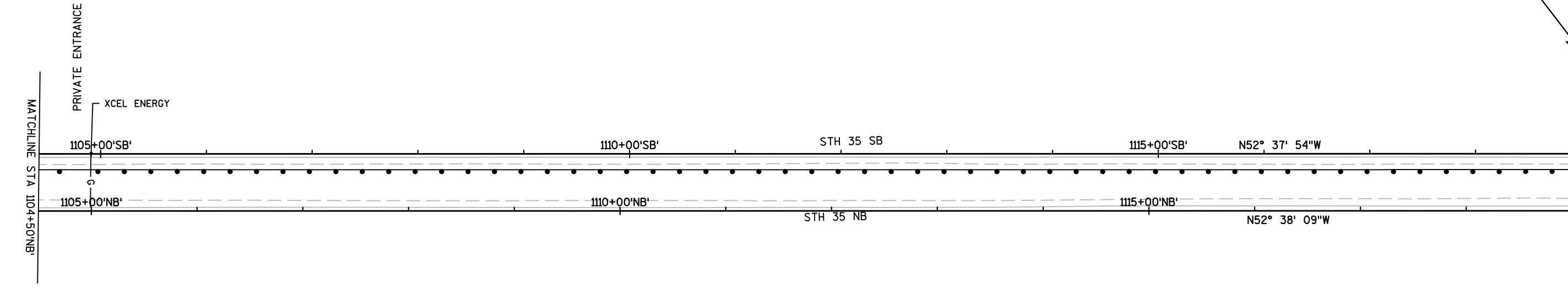
ALL UTILITIES ARE APPROXIMATE
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PROJECT NO: 7200-00-90

HWY: STH 35

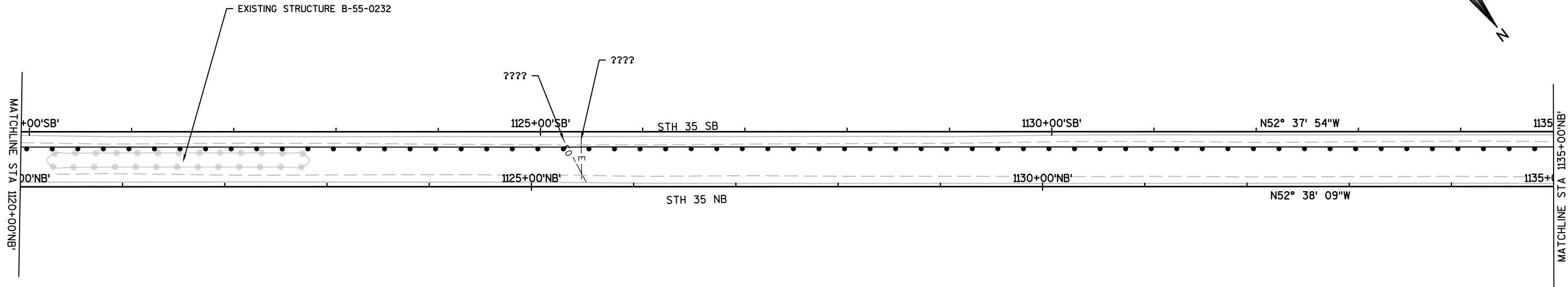
COUNTY: ST. CROIX

HSIP CABLE BARRIER

SHEET

E

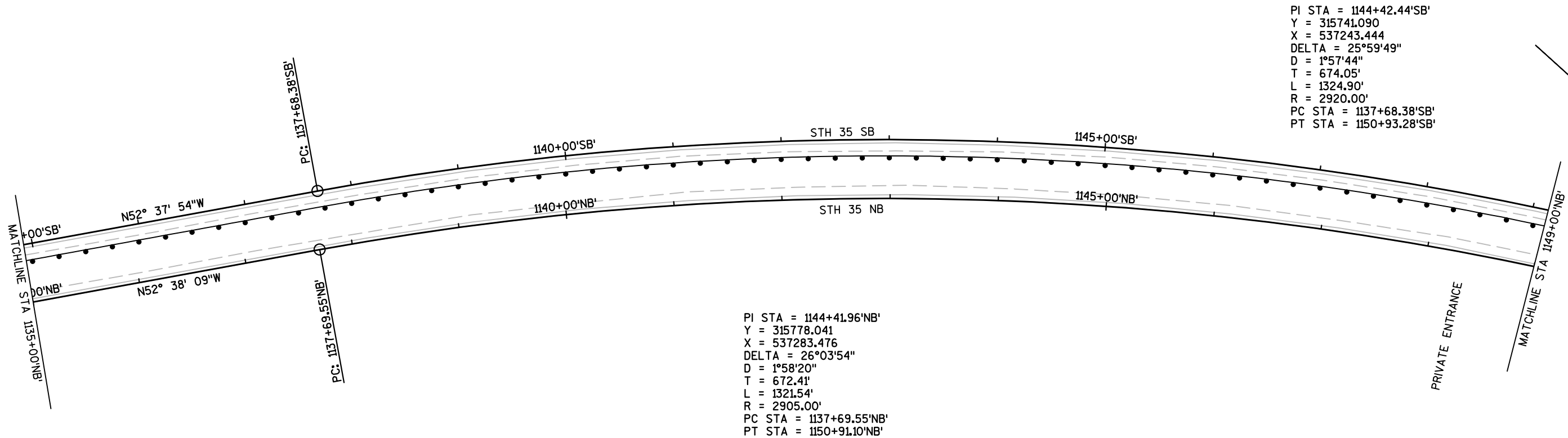
ALL UTILITIES ARE APPROXIMATE
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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



PROJECT NO: 7200-00-90

HWY: STH 35

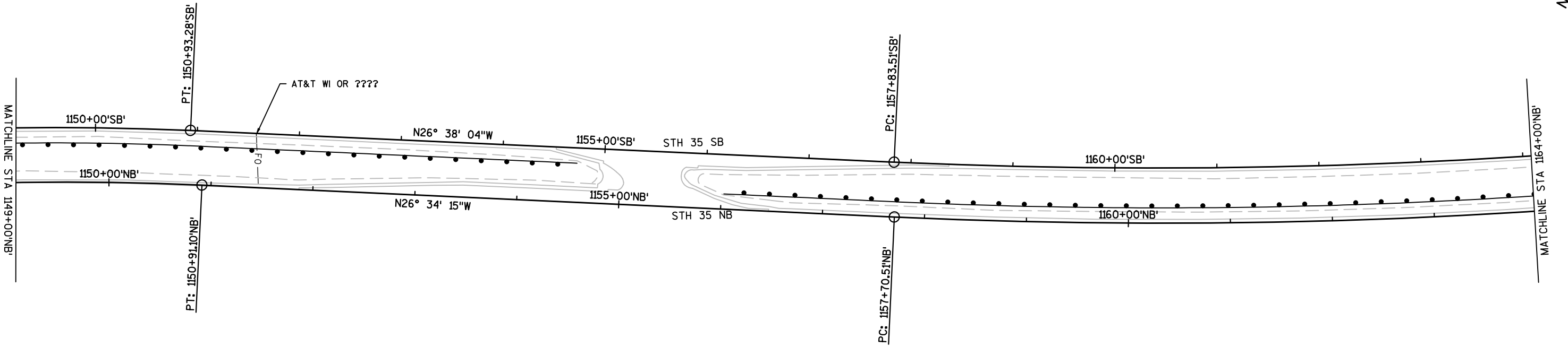
COUNTY: ST. CROIX

HSIP CABLE BARRIER

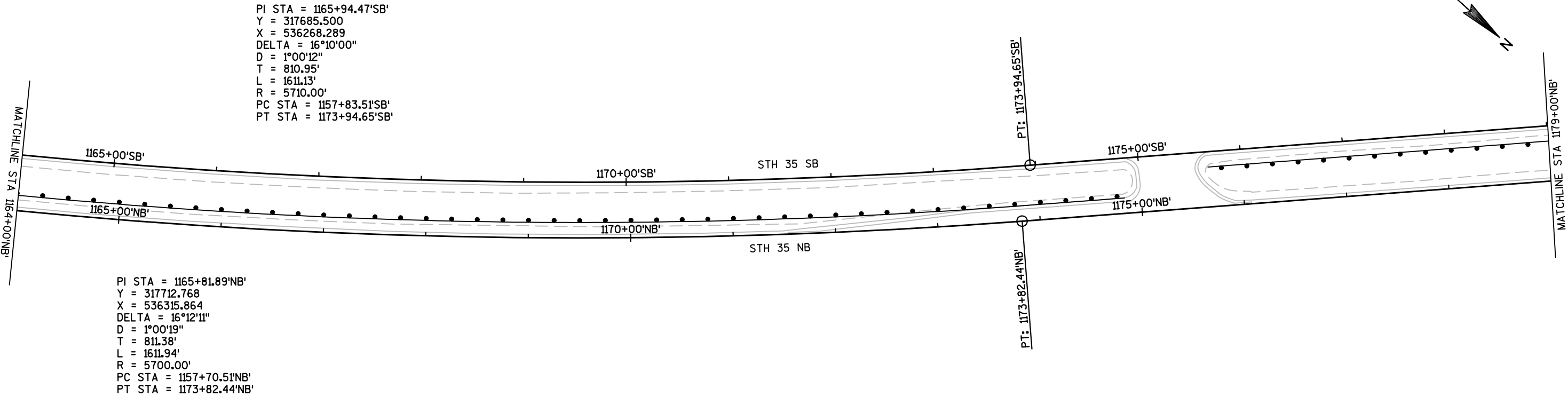
SHEET

E

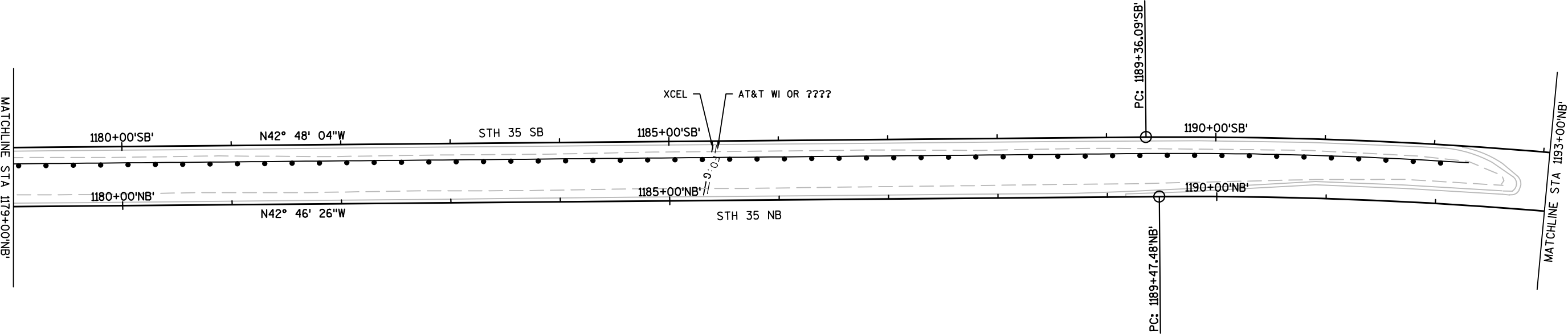
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

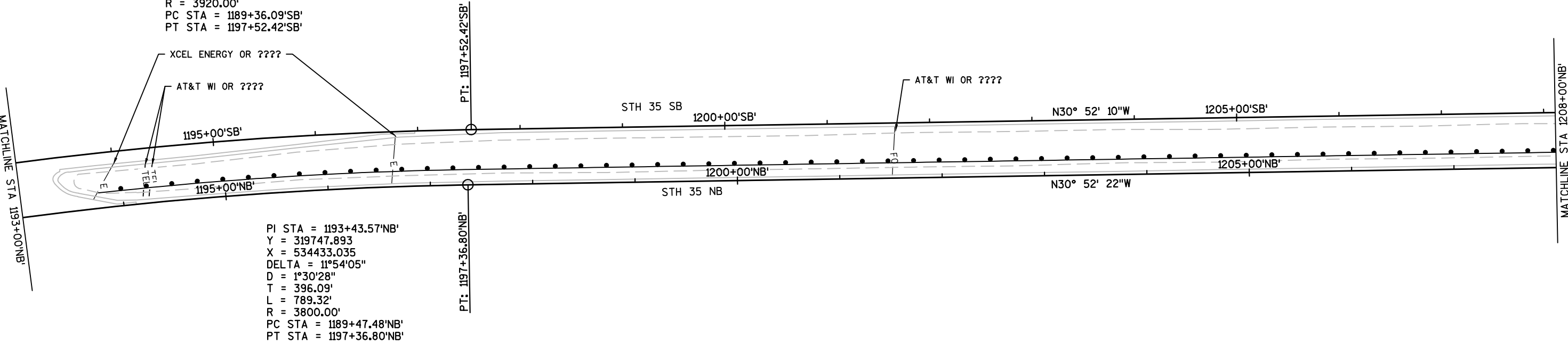


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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

PI STA = 1193+45.74'SB'
Y = 319712.060
X = 534391.599
DELTA = 11°55'54"
D = 1°27'42"
T = 409.65'
L = 816.33'
R = 3920.00'
PC STA = 1189+36.09'SB'
PT STA = 1197+52.42'SB'



PI STA = 1193+43.57'NB'
Y = 319747.893
X = 534433.035
DELTA = 11°54'05"
D = 1°30'28"
T = 396.09'
L = 789.32'
R = 3800.00'
PC STA = 1189+47.48'NB'
PT STA = 1197+36.80'NB'

PROJECT NO: 7200-00-90

HWY: STH 35

COUNTY: ST. CROIX

HSIP CABLE BARRIER

SHEET

5

FILE NAME : P:\J\W\WITNW\136893\CIVIL 3D\SHEETS\PLAN\050201_PN.DWG
LAYOUT NAME - 050201_PN - 050207_PN 1

PLOT DATE : 5/31/2016 11:02 AM

PLOT BY : JUSTIN SHAVLIK

PLOT NAME :

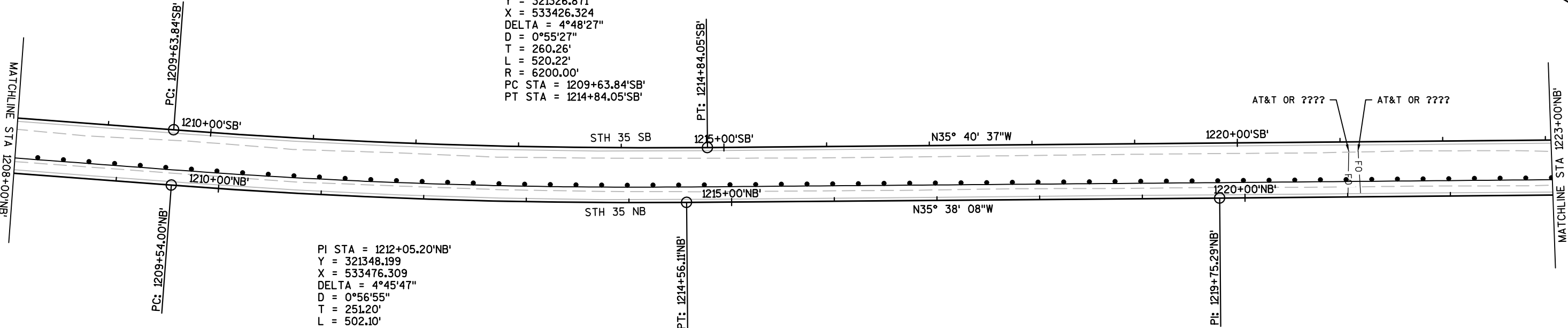
PLOT SCALE : 1 IN:100 FT

WISDOT/CADDs SHEET 44

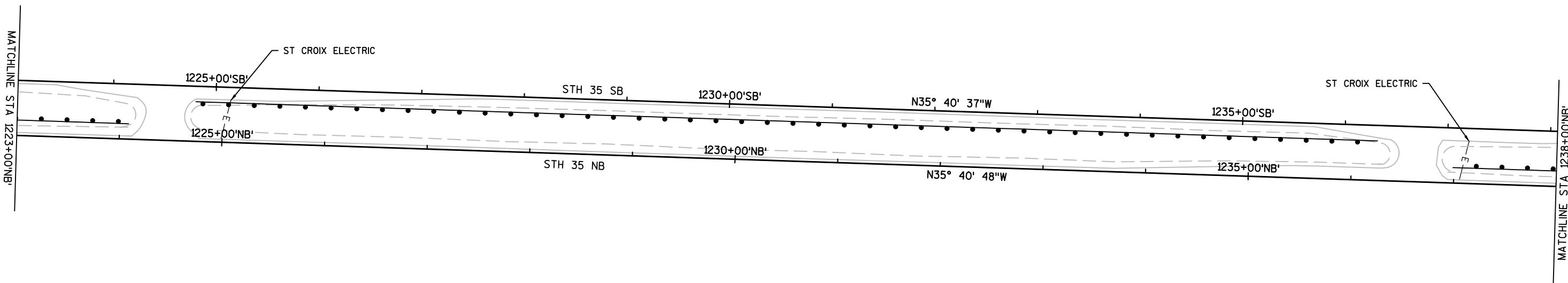
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

PI STA = 1212+24.10'SB'
Y = 321326.871
X = 533426.324
DELTA = 4°48'27"
D = 0°55'27"
T = 260.26'
L = 520.22'
R = 6200.00'
PC STA = 1209+63.84'SB'
PT STA = 1214+84.05'SB'

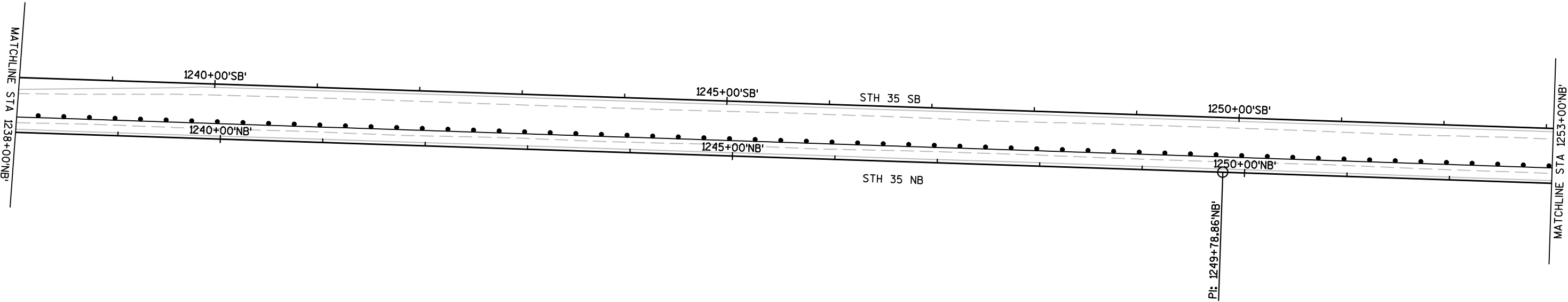
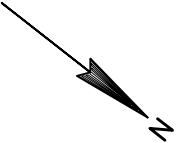
PI STA = 1212+05.20'NB'
Y = 321348.199
X = 533476.309
DELTA = 4°45'47"
D = 0°56'55"
T = 251.20'
L = 502.10'
R = 6040.00'
PC STA = 1209+54.00'NB'
PT STA = 1214+56.11'NB'



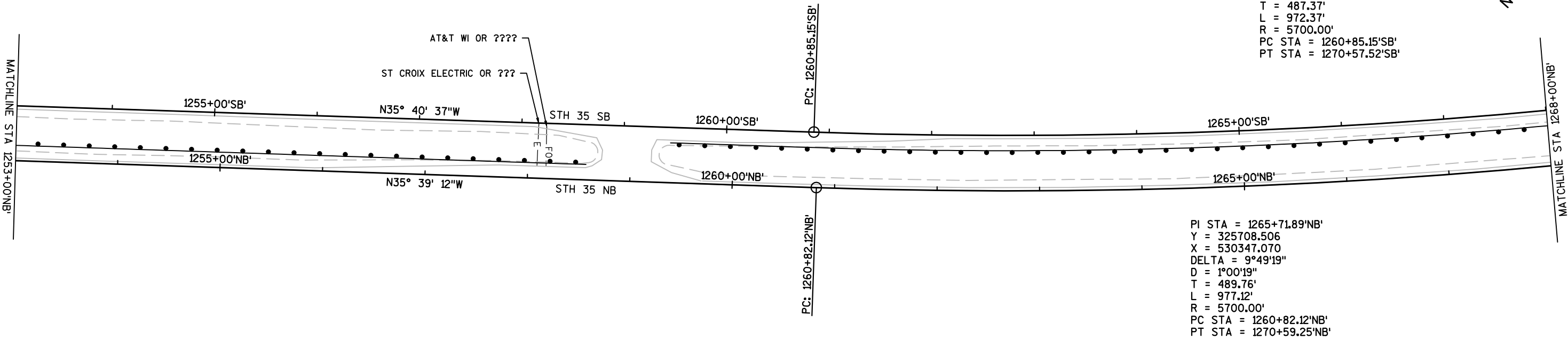
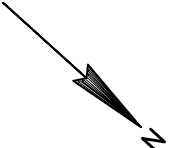
ALL UTILITIES ARE APPROXIMATE
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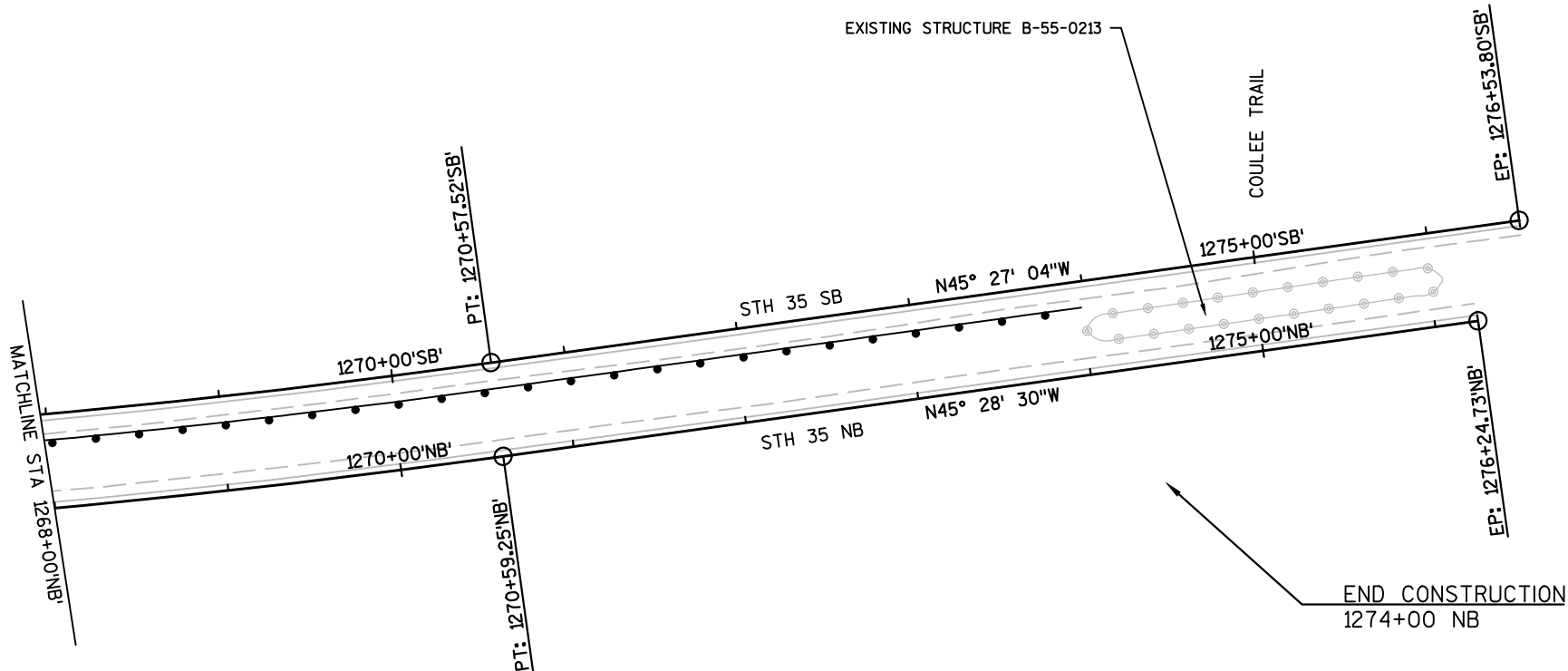
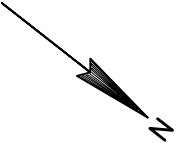
ALL UTILITIES ARE APPROXIMATE
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PI STA = 1265+72.52'SB'
Y = 325671.740
X = 530306.873
DELTA = 9°46'27"
D = 1°00'19"
T = 487.37'
L = 972.37'
R = 5700.00'
PC STA = 1260+85.15'SB'
PT STA = 1270+57.52'SB'

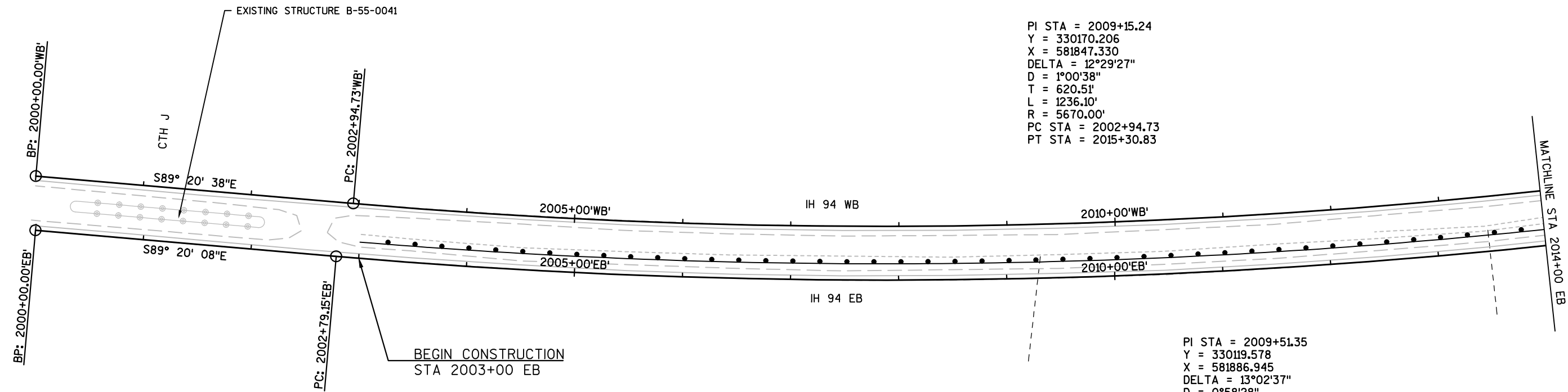
PI STA = 1265+71.89'NB'
Y = 325708.506
X = 530347.070
DELTA = 9°49'19"
D = 1°00'19"
T = 489.76'
L = 977.12'
R = 5700.00'
PC STA = 1260+82.12'NB'
PT STA = 1270+59.25'NB'

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

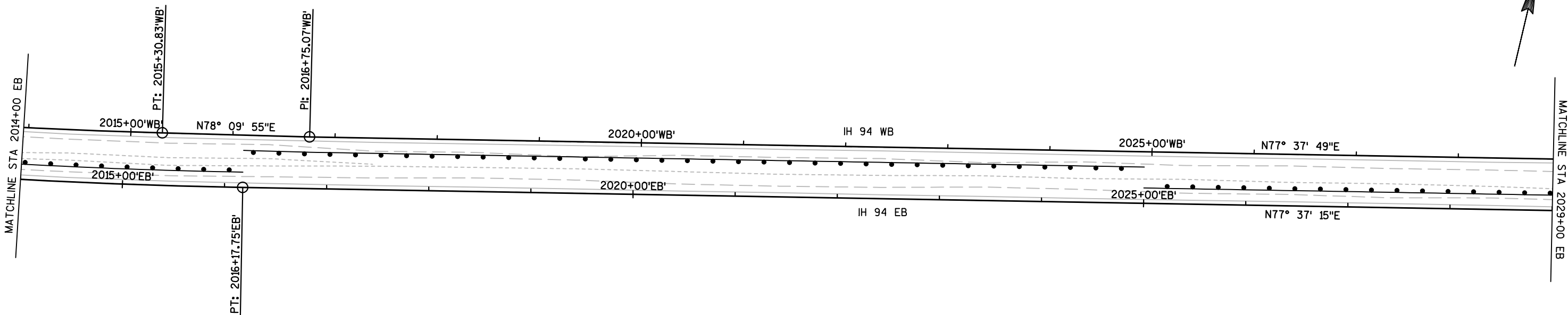
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



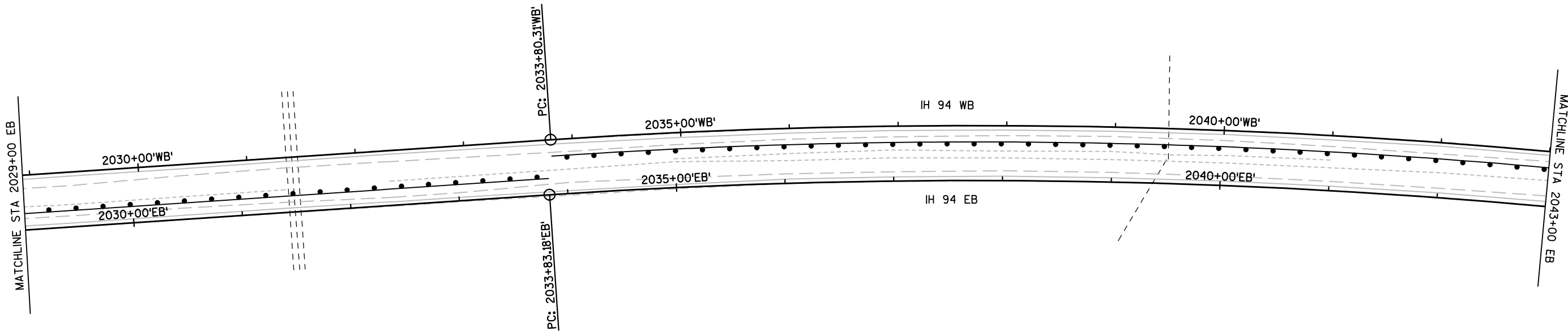
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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

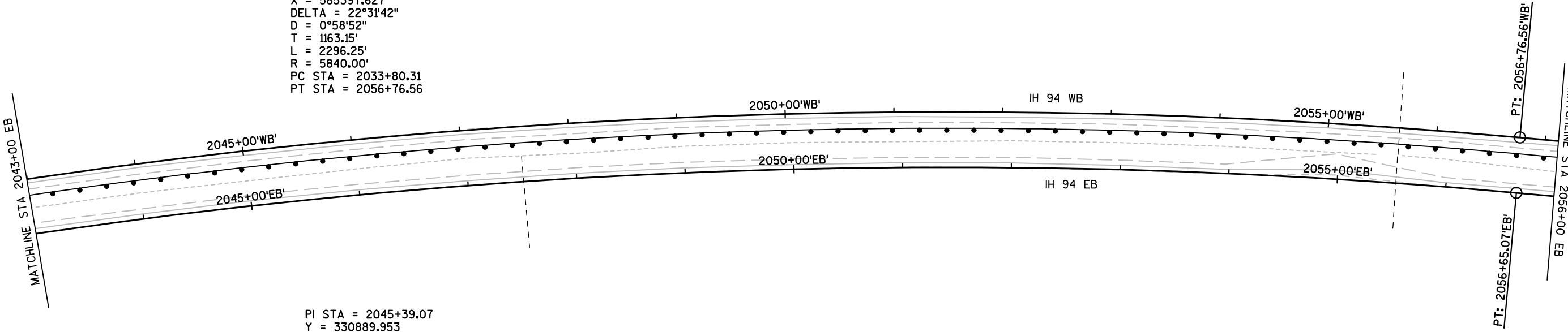


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ALL UTILITIES ARE APPROXIMATE
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PI STA = 2045+43.46
Y = 330941.510
X = 585397.627
DELTA = 22°31'42"
D = 0°58'52"
T = 1163.15'
L = 2296.25'
R = 5840.00'
PC STA = 2033+80.31
PT STA = 2056+76.56



PI STA = 2045+39.07
Y = 330889.953
X = 585396.929
DELTA = 22°32'31"
D = 0°59'16"
T = 1155.90'
L = 2281.90'
R = 5800.00'
PC STA = 2033+83.18
PT STA = 2056+65.07

PROJECT NO:1020-02-90

HWY:IH 94

COUNTY:ST. CROIX

HSIP CABLE BARRIER

SHEET

E

FILE NAME : P:\JUZ\W\WITNW\136893\CIVIL 3D\SHEETSPLAN\050201_PN.DWG
LAYOUT NAME - 050201_PN - 050212-PN 2

PLOT DATE : 5/31/2016 11:03 AM

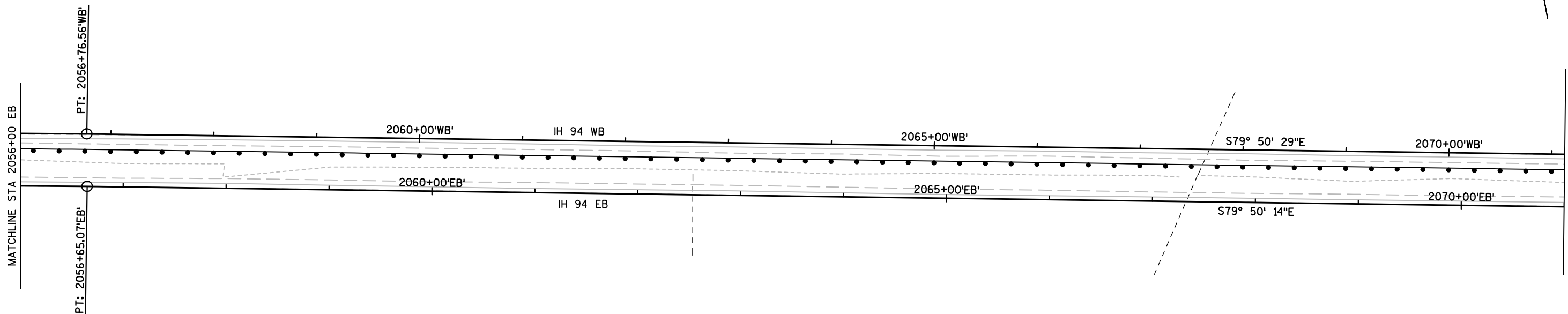
PLOT BY : JUSTIN SHAVLIK

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44

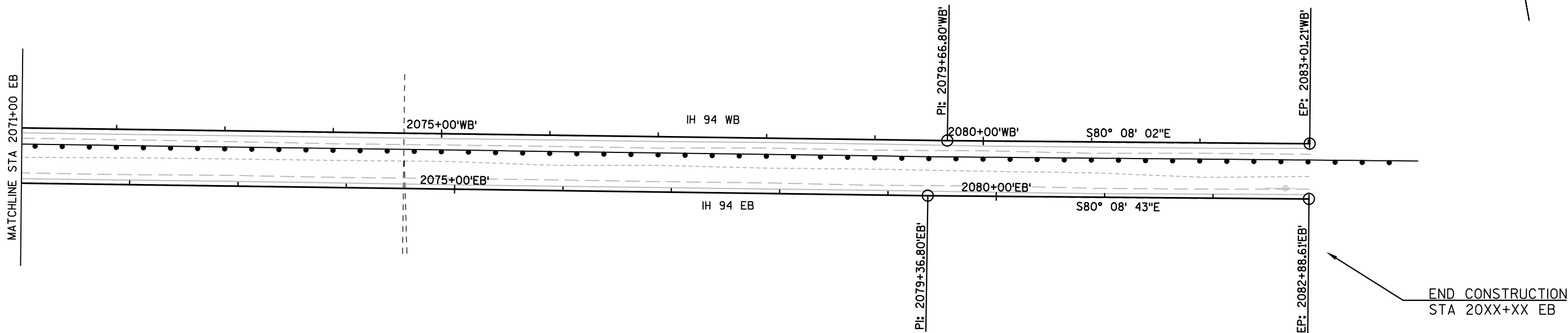
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



5

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ALL UTILITIES ARE APPROXIMATE
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END CONSTRUCTION
STA 20XX+XX EB

PROJECT NO:1020-02-90

HWY: IH 94

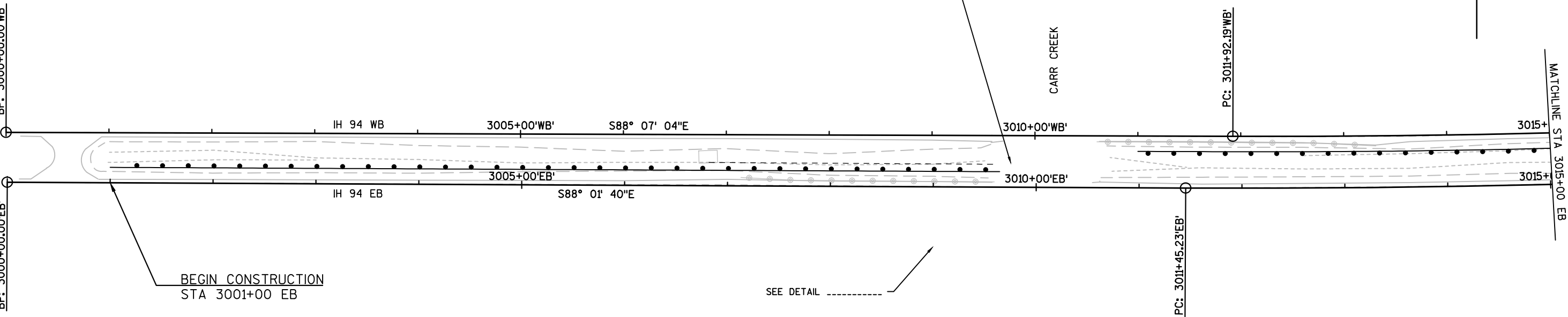
COUNTY: ST. CROIX

HSIP CABLE BARRIER

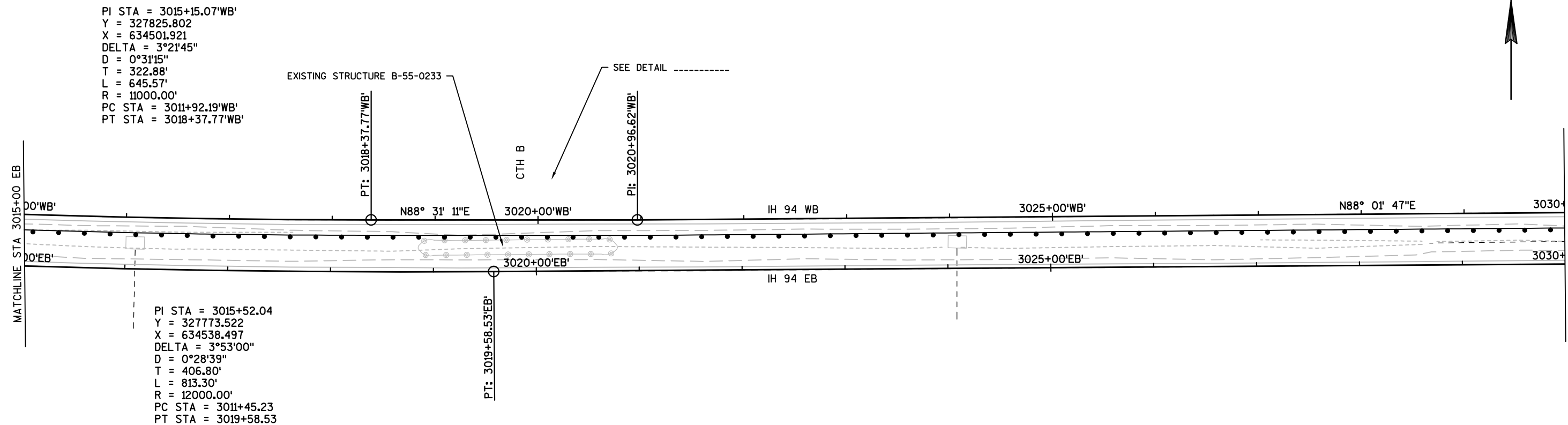
SHEET

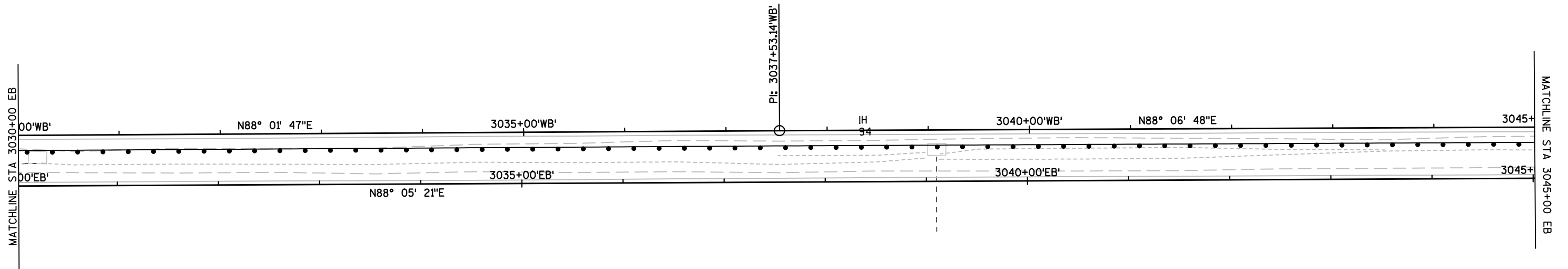
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ALL UTILITIES ARE APPROXIMATE
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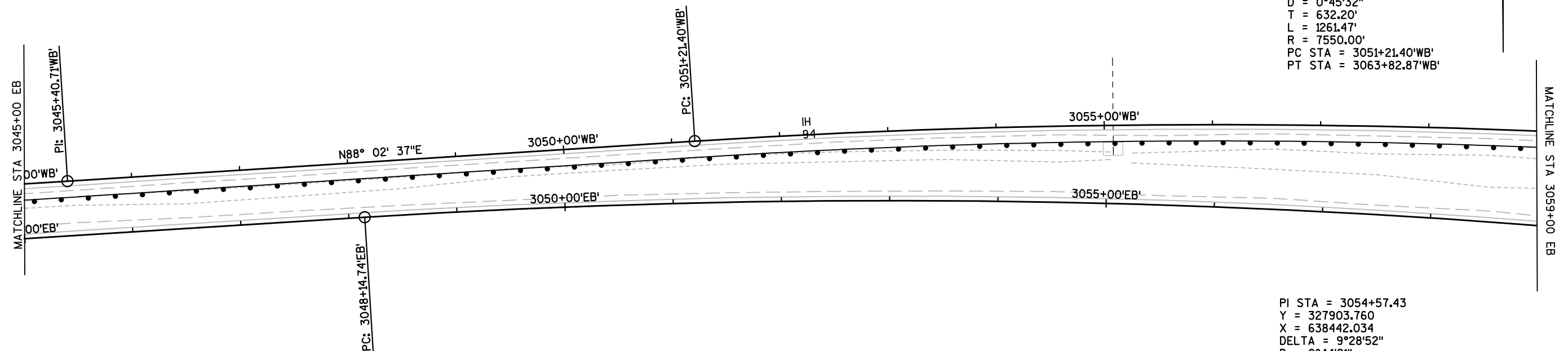
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED





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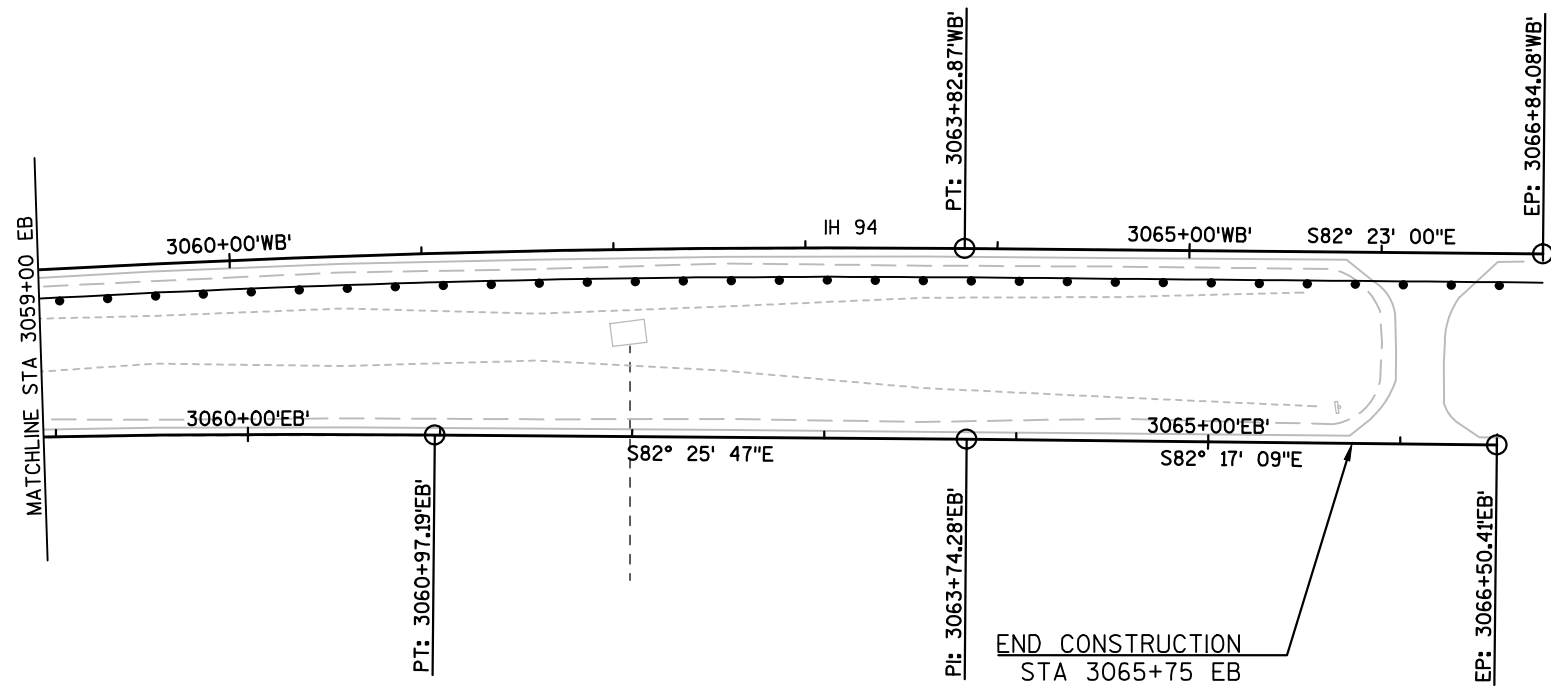


PI STA = 3054+57.43
Y = 327903.760
X = 638442.034
DELTA = 9°28'52"
D = 0°44'21"
T = 642.69'
L = 1282.45'
R = 7750.00'
PC STA = 3048+14.74
PT STA = 3060+97.19

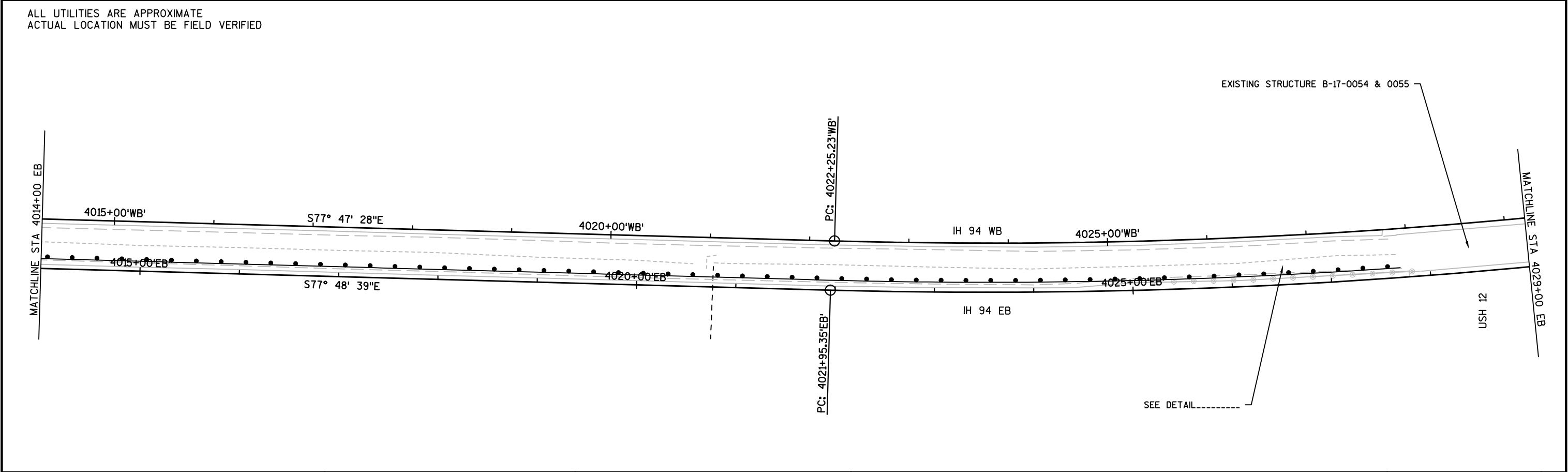
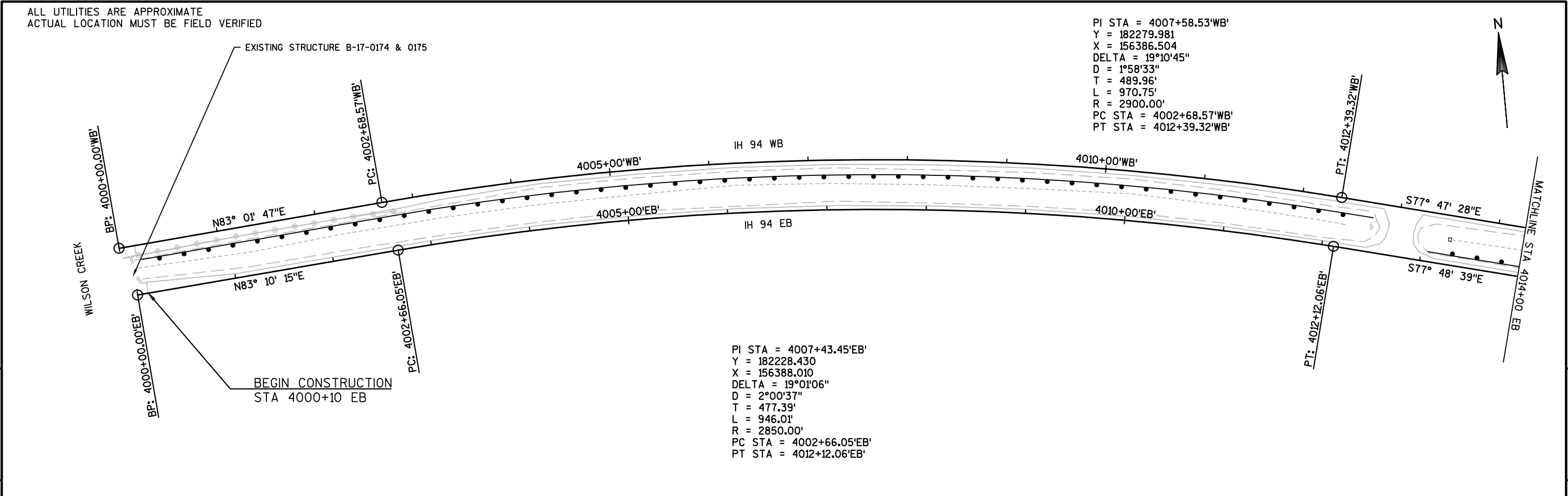
11

WISDOT/CADDS SHEET 44

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

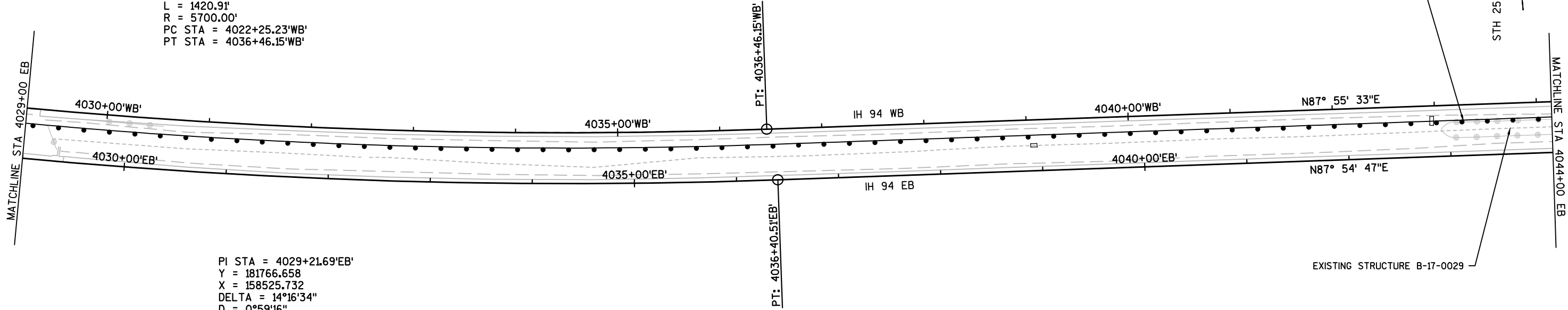


ALL UTILITIES ARE APPROXIMATE
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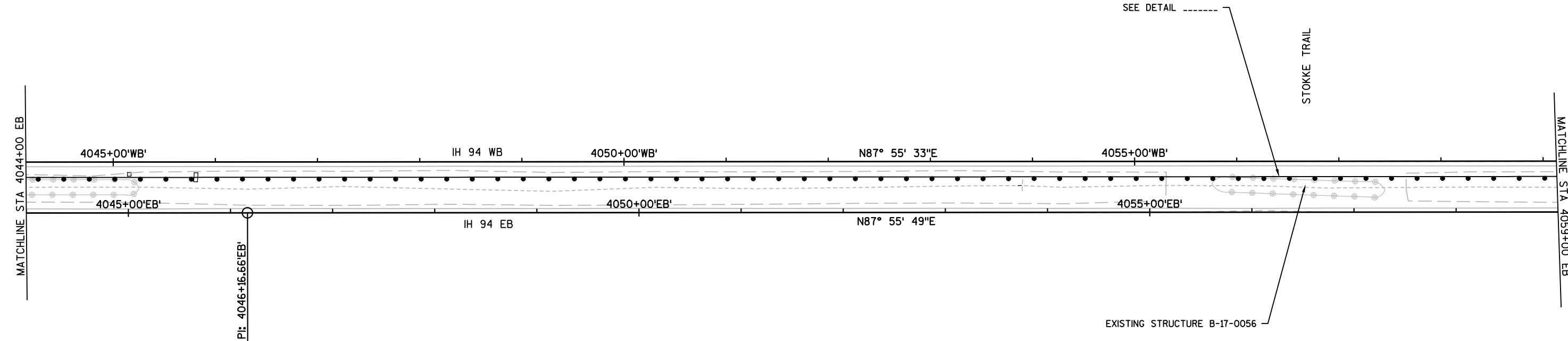
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

PI STA = 4029+39.39'WB'
Y = 181816.843
X = 158527.005
DELTA = 14°16'58"
D = 1°00'19"
T = 714.16'
L = 1420.91'
R = 5700.00'
PC STA = 4022+25.23'WB'
PT STA = 4036+46.15'WB'

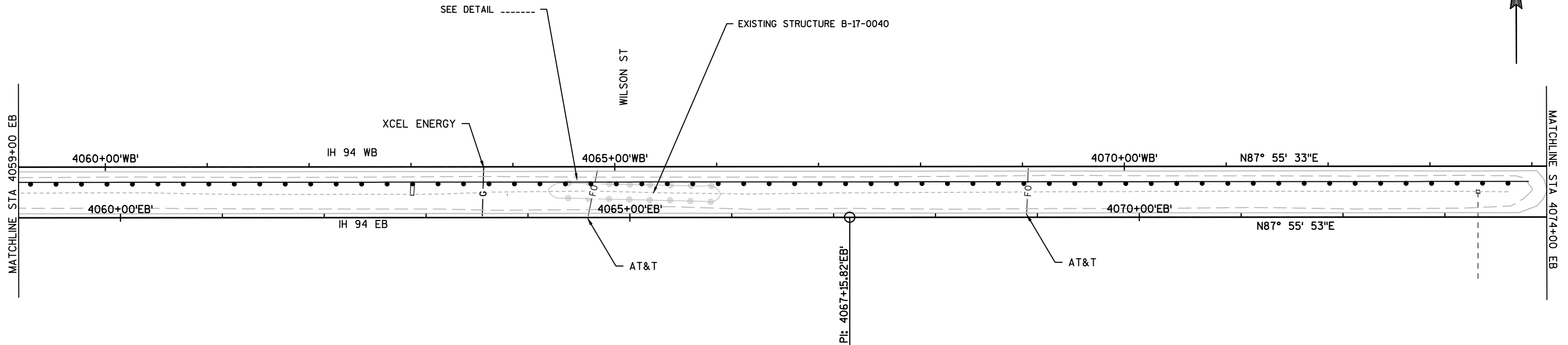


PI STA = 4029+21.69'EB'
Y = 181766.658
X = 158525.732
DELTA = 14°16'34"
D = 0°59'16"
T = 726.34'
L = 1445.16'
R = 5800.00'
PC STA = 4021+95.35'EB'
PT STA = 4036+40.51'EB'

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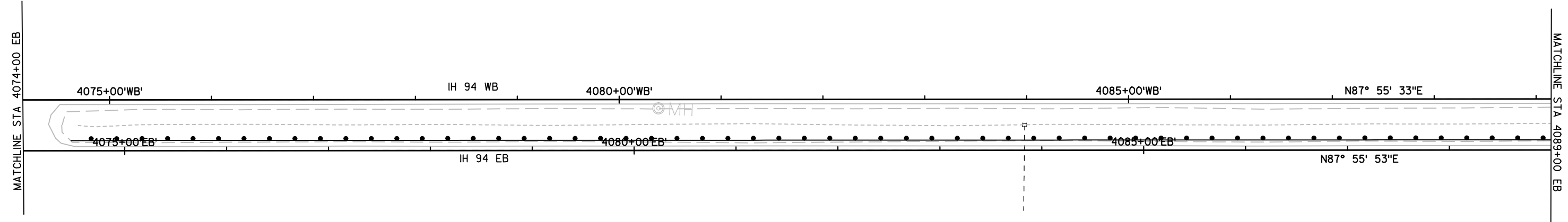
ALL UTILITIES ARE APPROXIMATE
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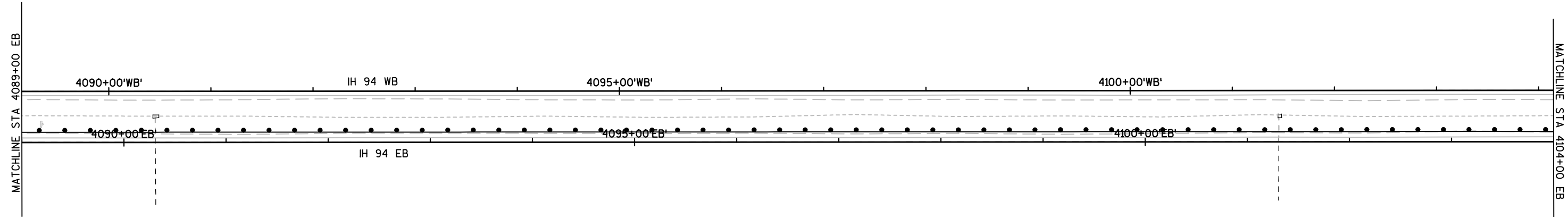
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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



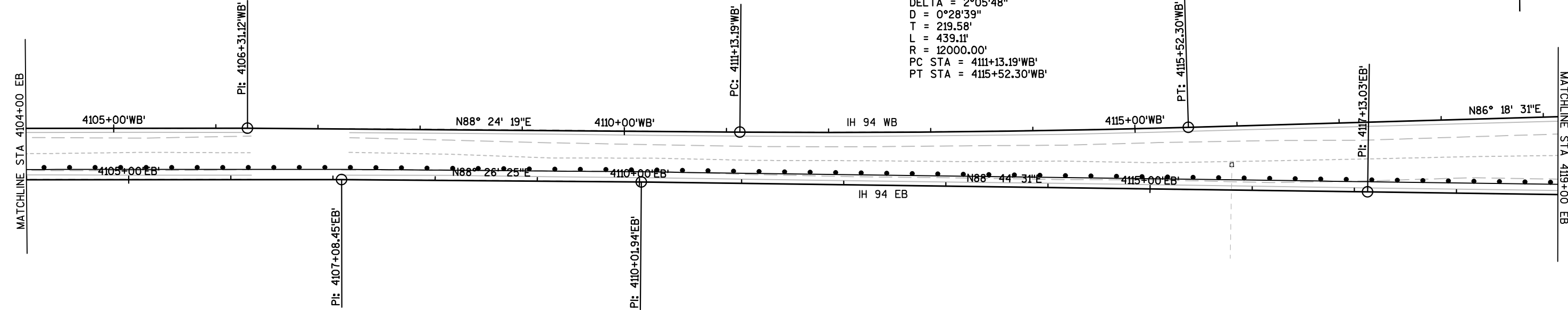
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



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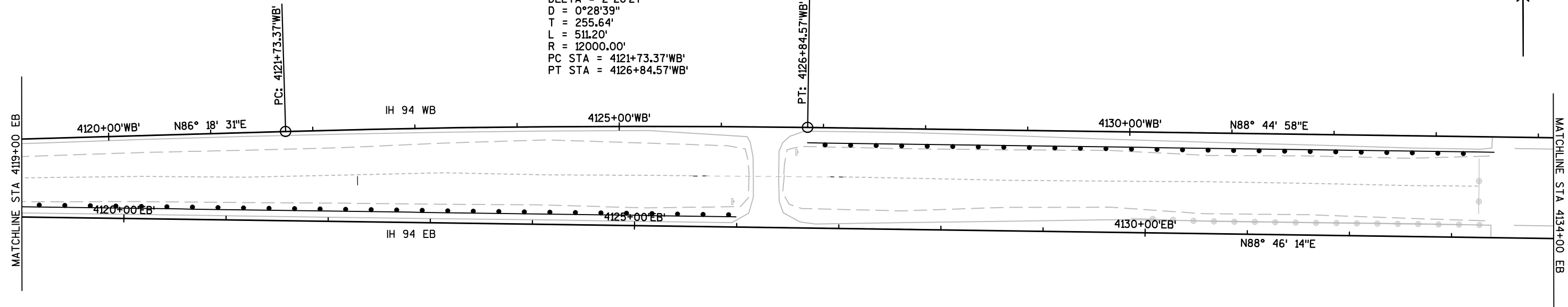
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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

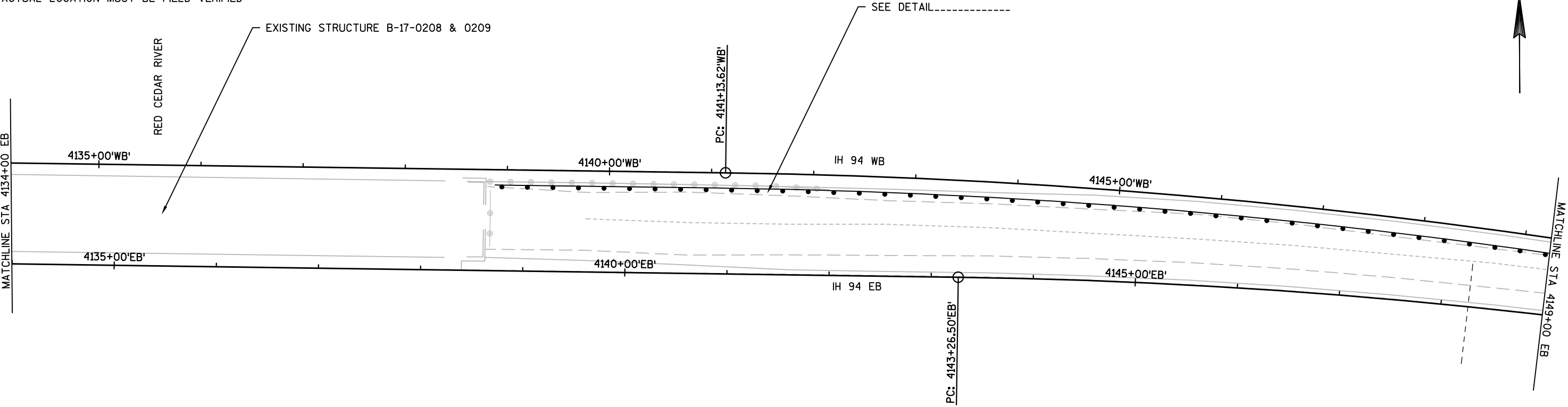
PI STA = 4124+29.01'WB'
Y = 182185.588
X = 168016.483
DELTA = 2°26'27"
D = 0°28'39"
T = 255.64'
L = 511.20'
R = 12000.00'
PC STA = 4121+73.37'WB'
PT STA = 4126+84.57'WB'



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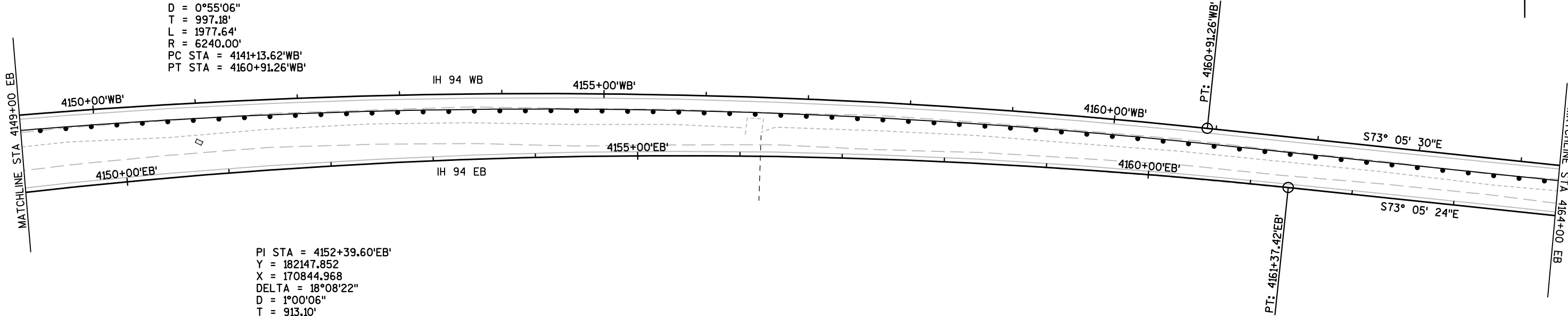
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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

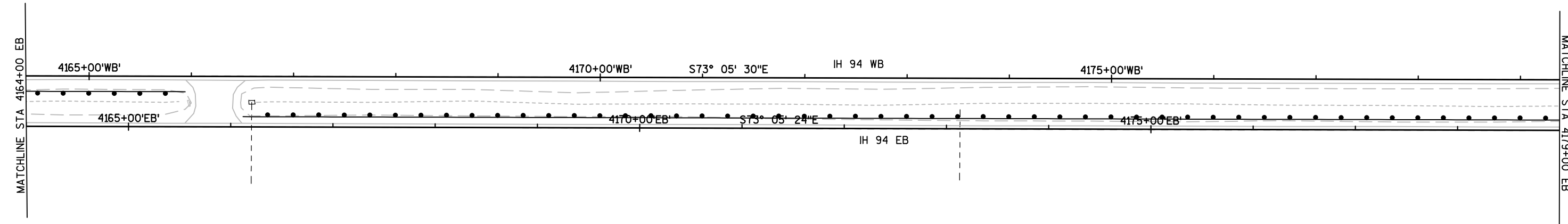
PI STA = 4151+10.80'WB'
Y = 182244.116
X = 170697.718
DELTA = 18°09'31"
D = 0°55'06"
T = 997.18'
L = 1977.64'
R = 6240.00'
PC STA = 4141+13.62'WB'
PT STA = 4160+91.26'WB'



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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



PROJECT NO:1020-02-90

HWY: IH 94

COUNTY: DUNN

HSIP CABLE BARRIER

SHEET

E

FILE NAME : P:\JUZ\W\WITNW\136893\CIVIL 3D\SHEETSPLAN\050201_PN.DWG
LAYOUT NAME - 050201_PN - 050222-PN 4

PLOT DATE : 5/31/2016 11:05 AM

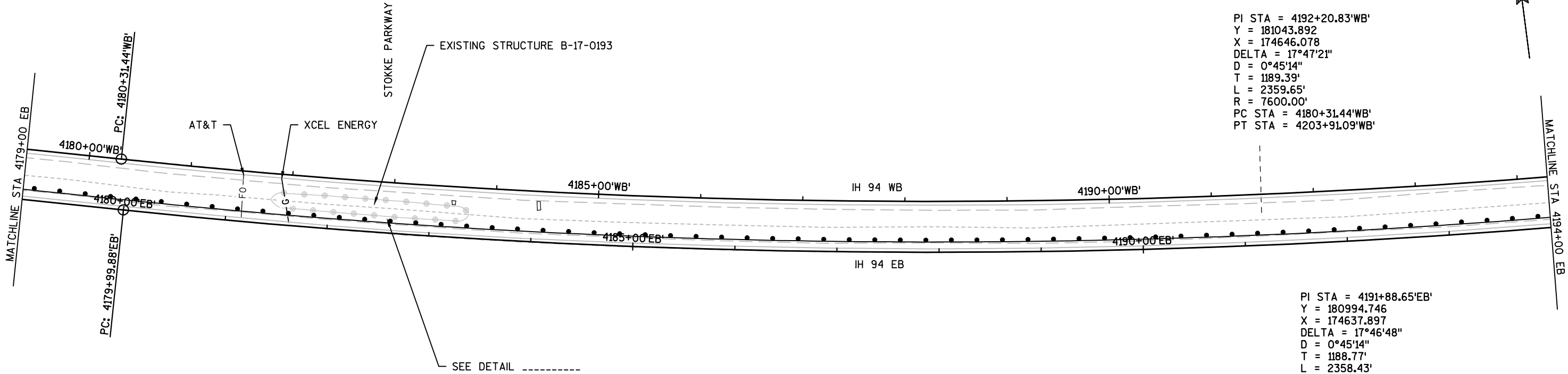
PLOT BY : JUSTIN SHAVLIK

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDs SHEET 44

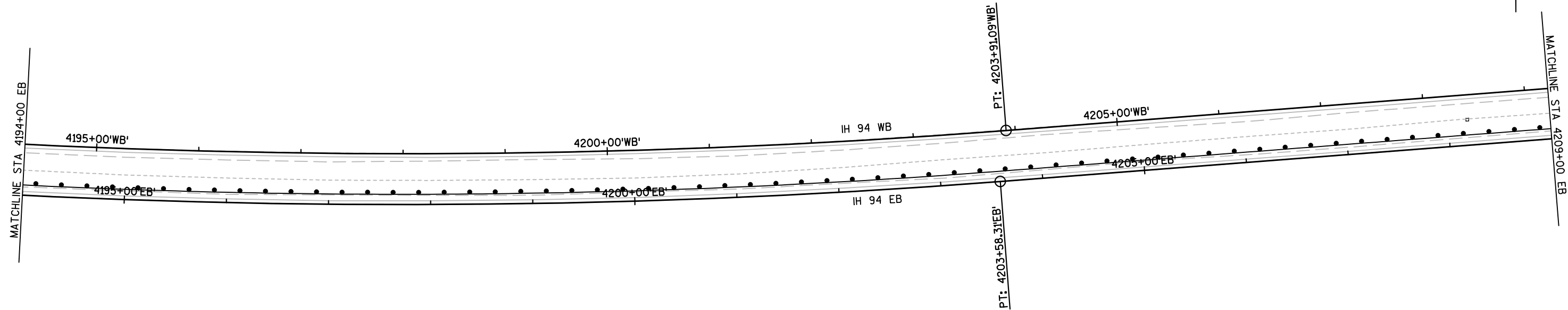
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



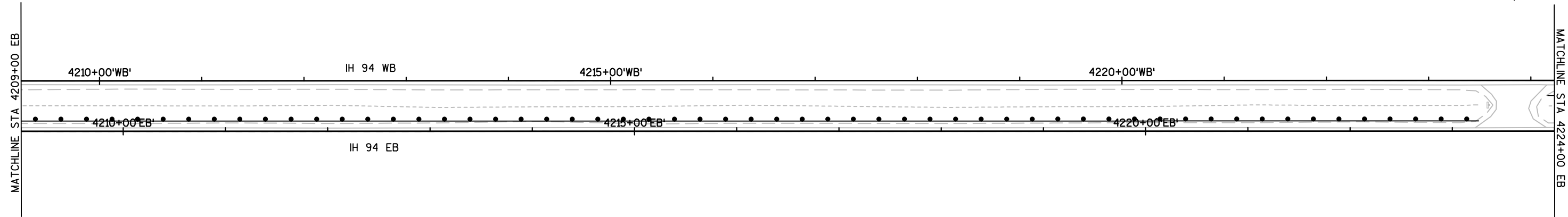
PI STA = 4192+20.83'WB'
Y = 181043.892
X = 174646.078
DELTA = 17°47'21"
D = 0°45'14"
T = 1189.39'
L = 2359.65'
R = 7600.00'
PC STA = 4180+31.44'WB'
PT STA = 4203+91.09'WB'

PI STA = 4191+88.65'EB'
Y = 180994.746
X = 174637.897
DELTA = 17°46'48"
D = 0°45'14"
T = 1188.77'
L = 2358.43'
R = 7600.00'
PC STA = 4179+99.88'EB'
PT STA = 4203+58.31'EB'

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



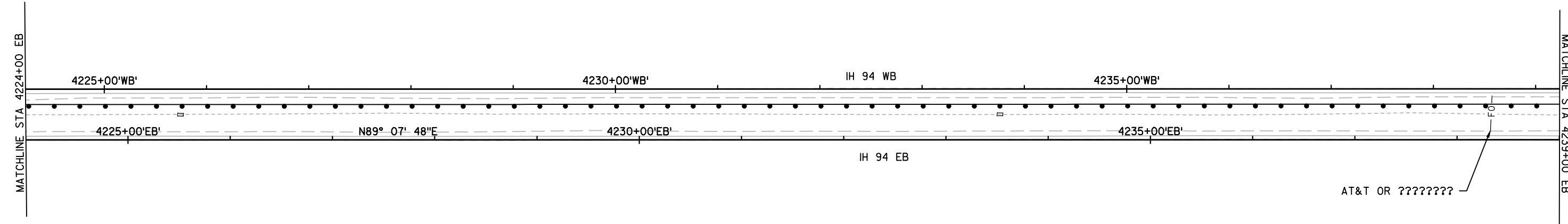
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



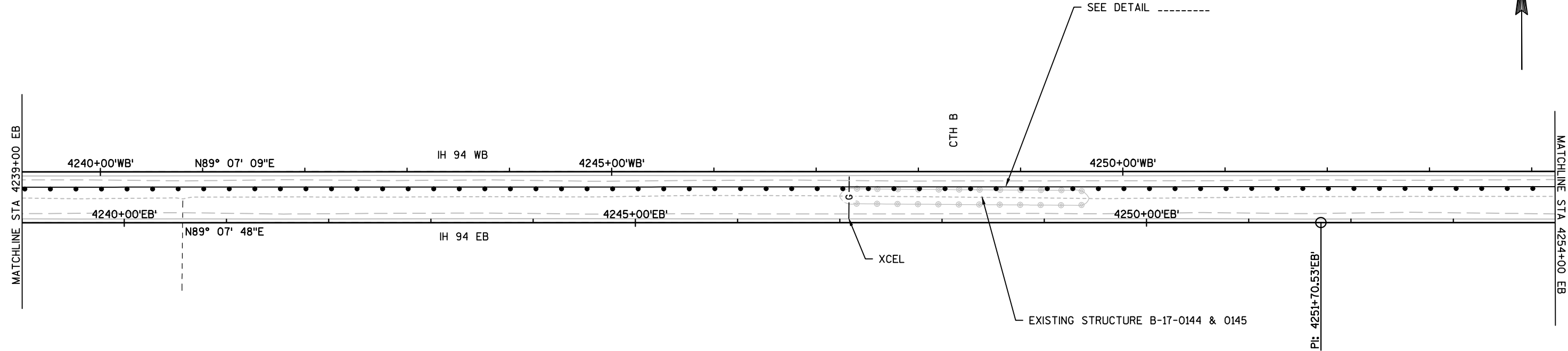
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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



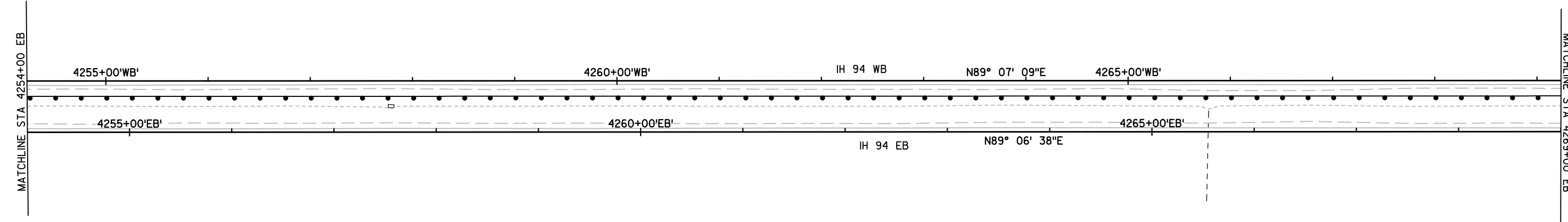
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



PROJECT NO:1020-02-90

HWY: IH 94

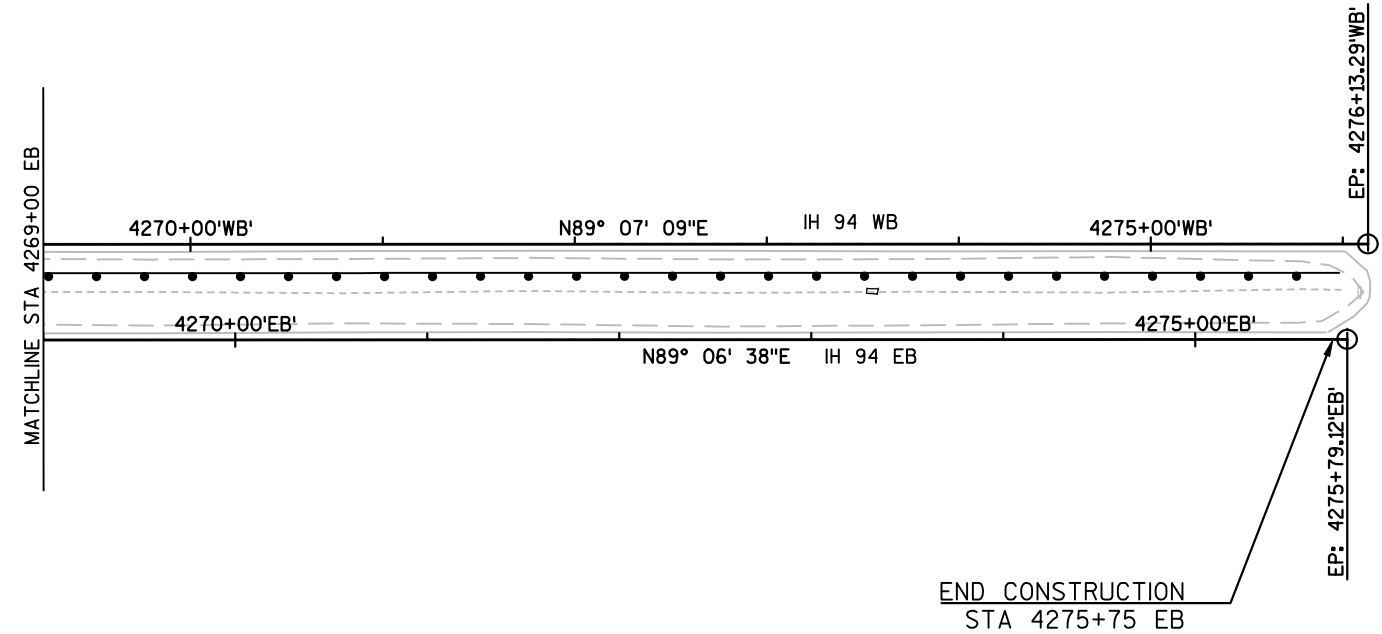
COUNTY: DUNN

HSIP CABLE BARRIER

SHEET

E

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

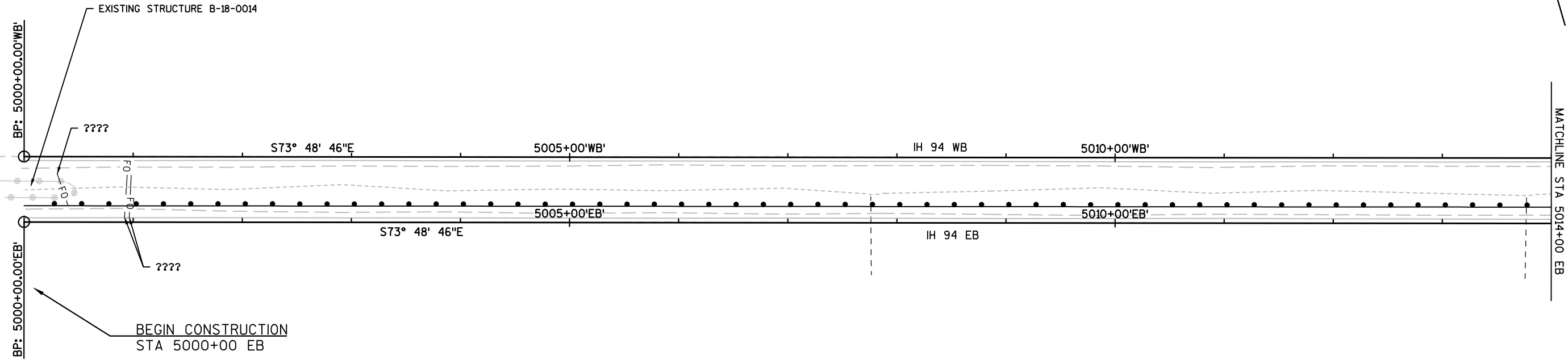


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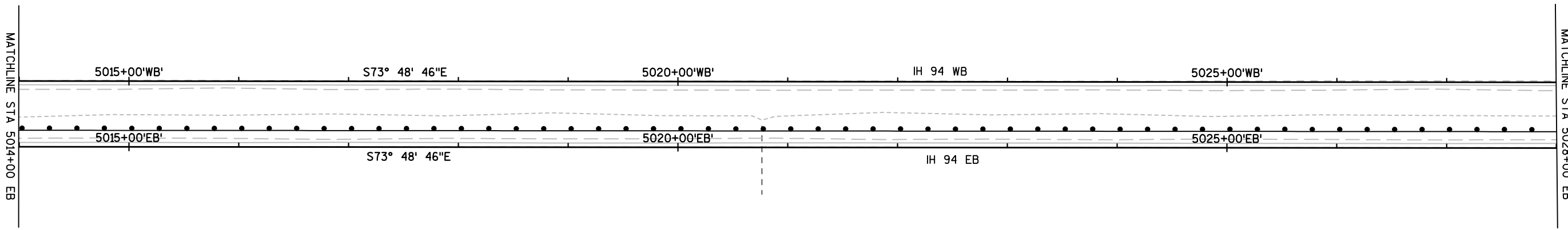
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



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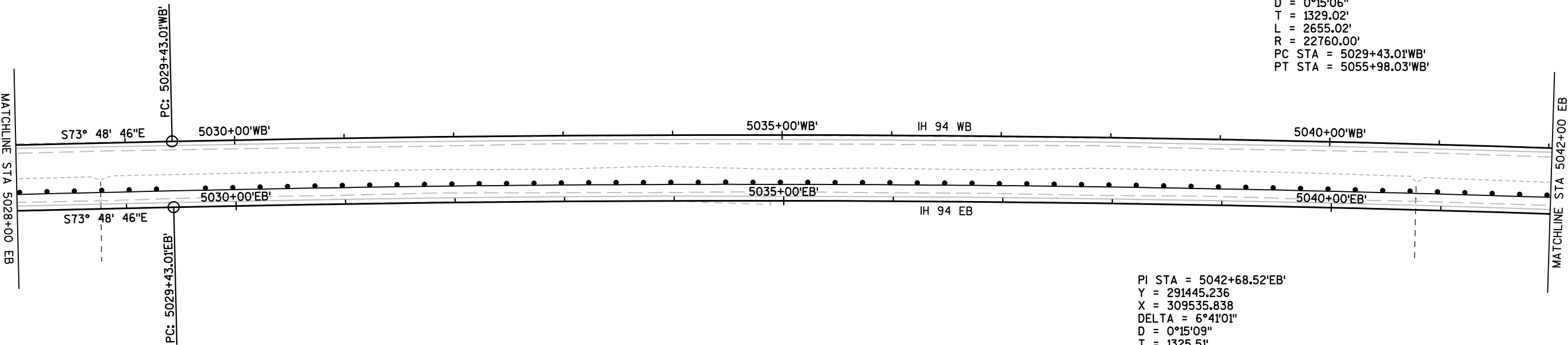
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

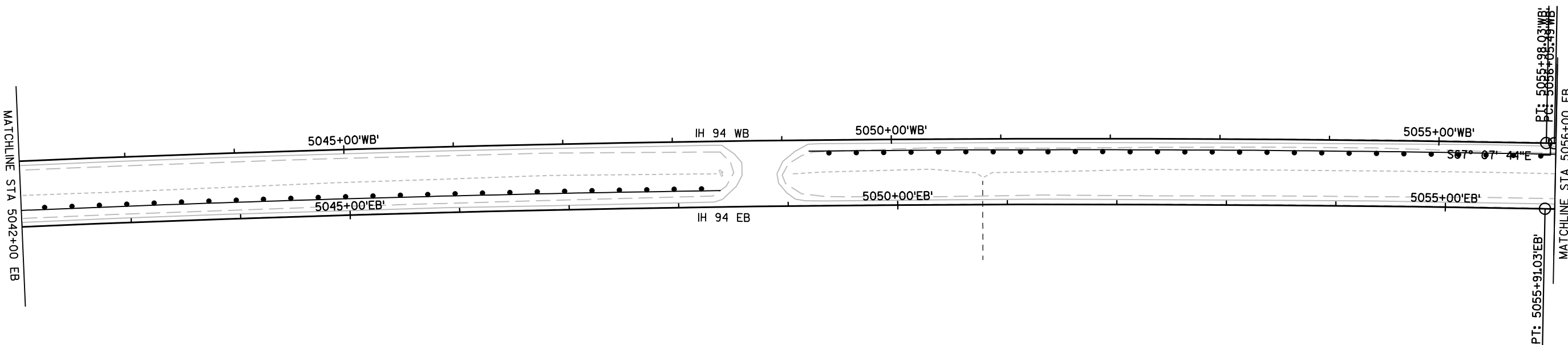


PI STA = 5042+72.03'WB'
Y = 291501.880
X = 309555.929
DELTA = 6°41'01"
D = 0°15'06"
T = 1329.02'
L = 2655.02'
R = 22760.00'
PC STA = 5029+43.01'WB'
PT STA = 5055+98.03'WB'



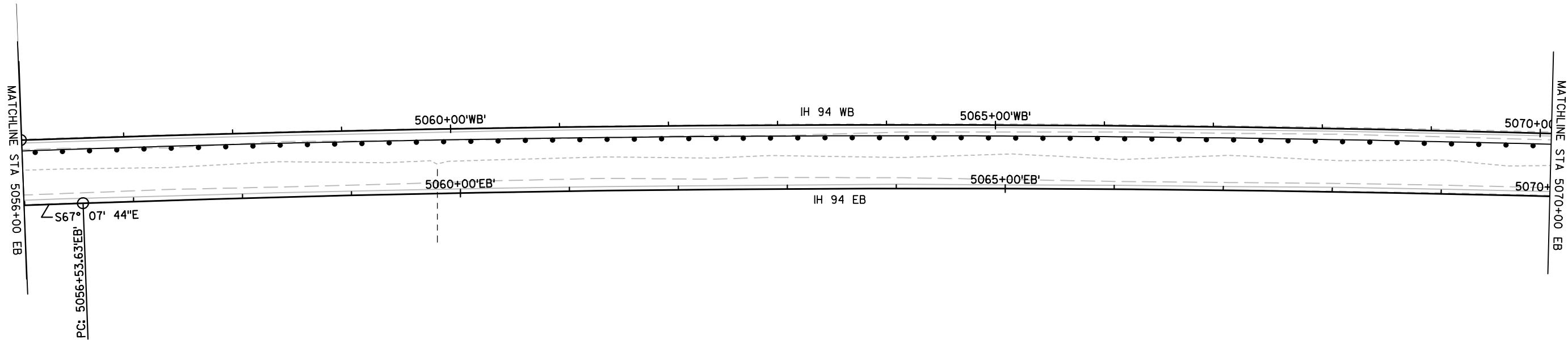
PI STA = 5042+68.52'EB'
Y = 291445.236
X = 309535.838
DELTA = 6°41'01"
D = 0°15'09"
T = 1325.51'
L = 2648.02'
R = 22700.00'
PC STA = 5029+43.01'EB'
PT STA = 5055+91.03'EB'

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



PT: 5055+98.03'WB'
PC: 5055+05.49'WB'
PT: 5055+91.03'EB'

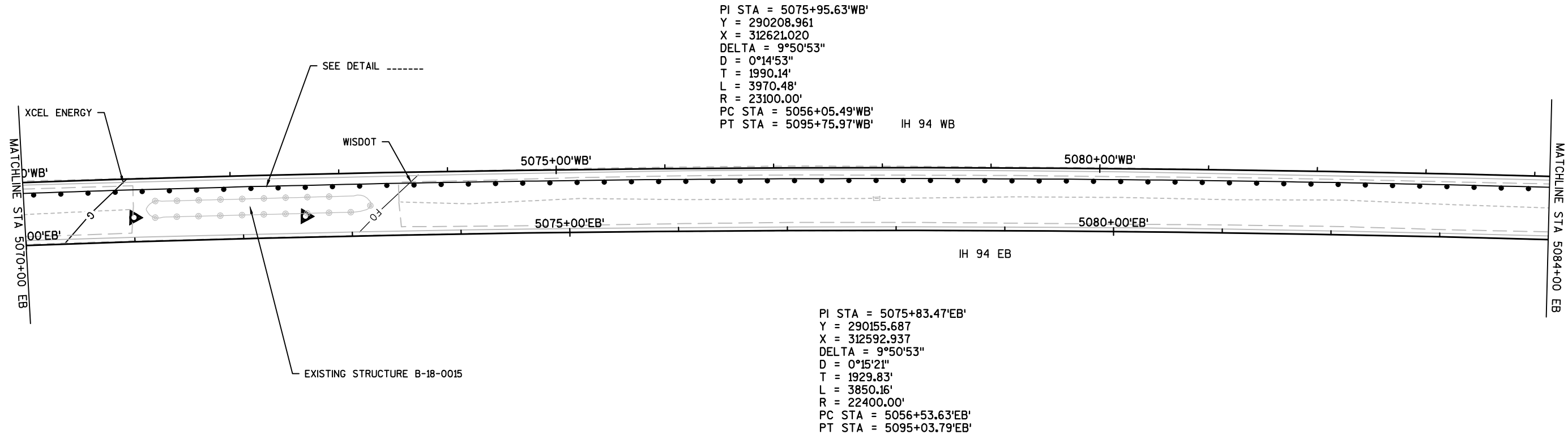
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



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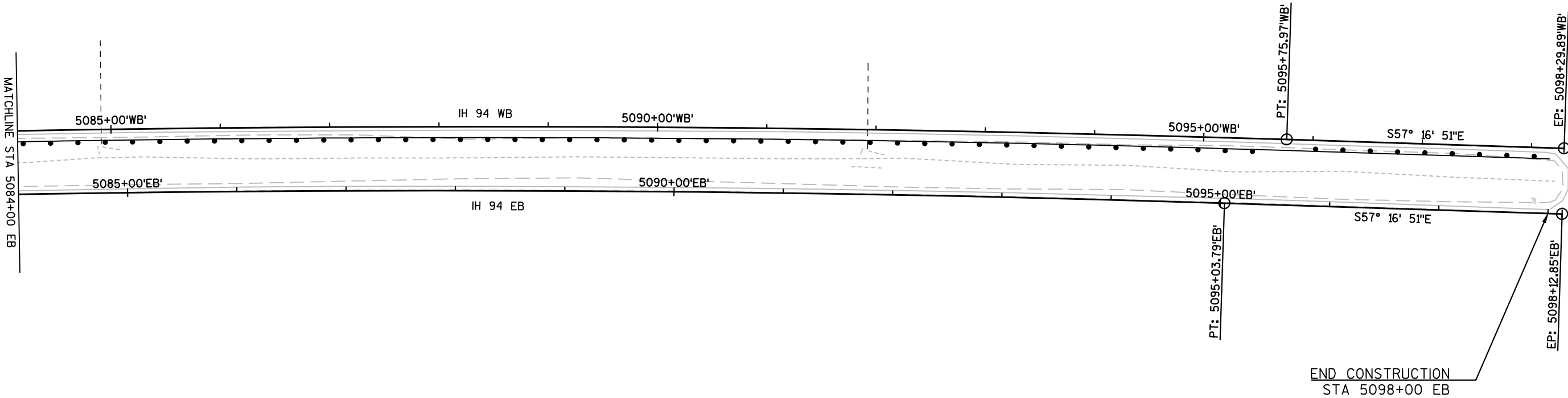
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



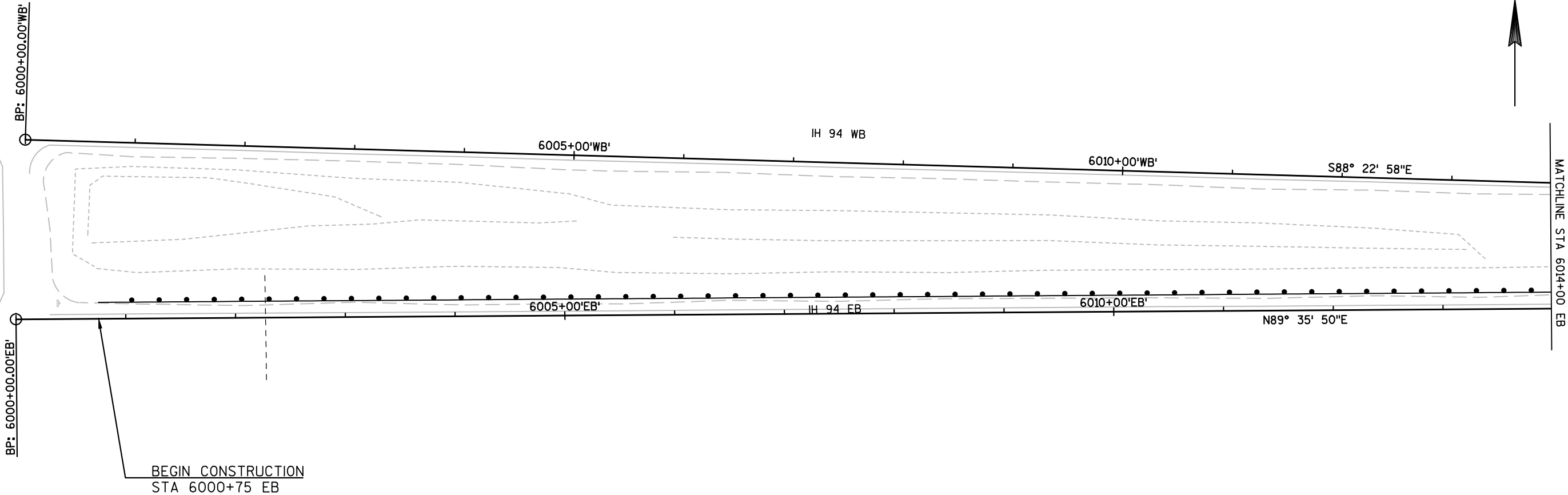
PI STA = 5075+95.63'WB'
Y = 290208.961
X = 312621.020
DELTA = 9°50'53"
D = 0°14'53"
T = 1990.14'
L = 3970.48'
R = 23100.00'
PC STA = 5056+05.49'WB'
PT STA = 5095+75.97'WB'

PI STA = 5075+83.47'EB'
Y = 290155.687
X = 312592.937
DELTA = 9°50'53"
D = 0°15'21"
T = 1929.83'
L = 3850.16'
R = 22400.00'
PC STA = 5056+53.63'EB'
PT STA = 5095+03.79'EB'

ALL UTILITIES ARE APPROXIMATE
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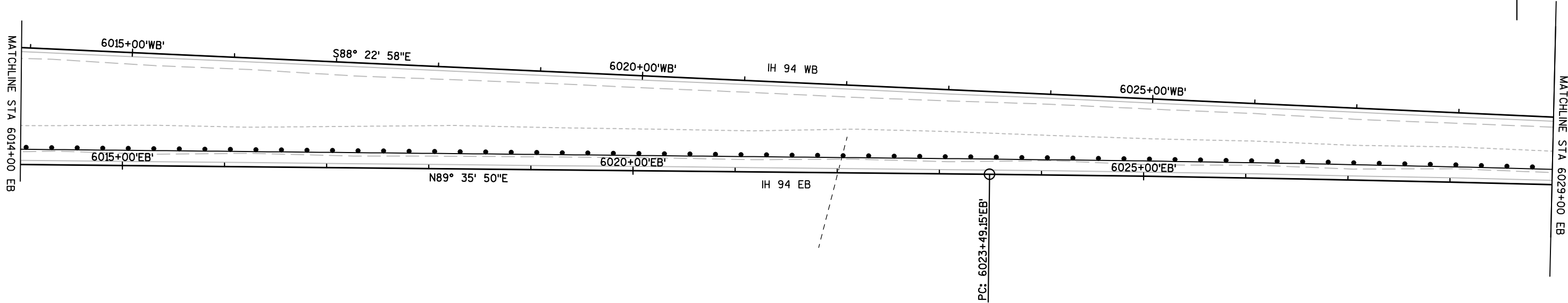
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



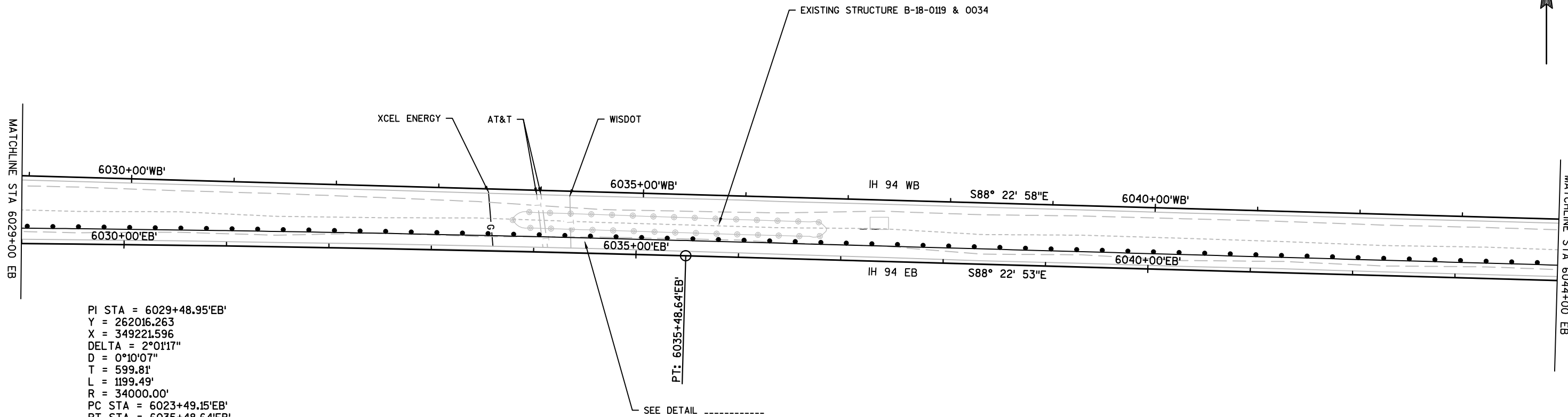
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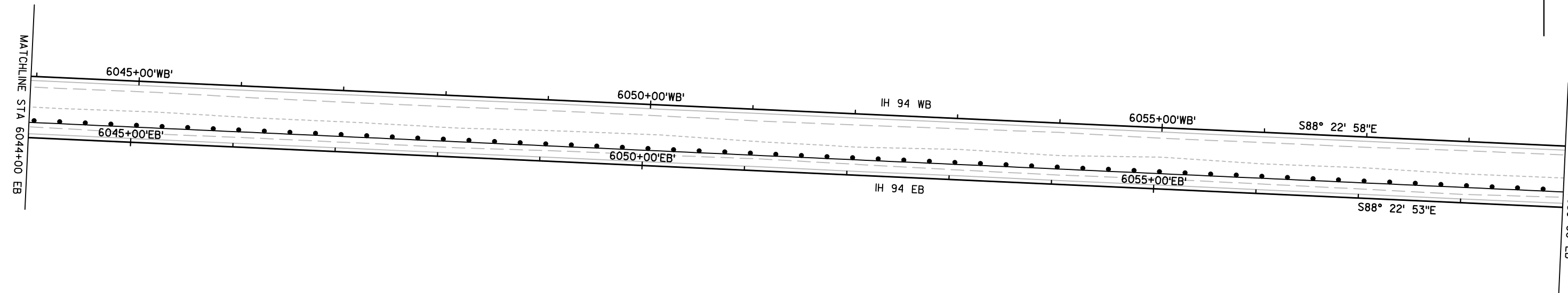
ALL UTILITIES ARE APPROXIMATE
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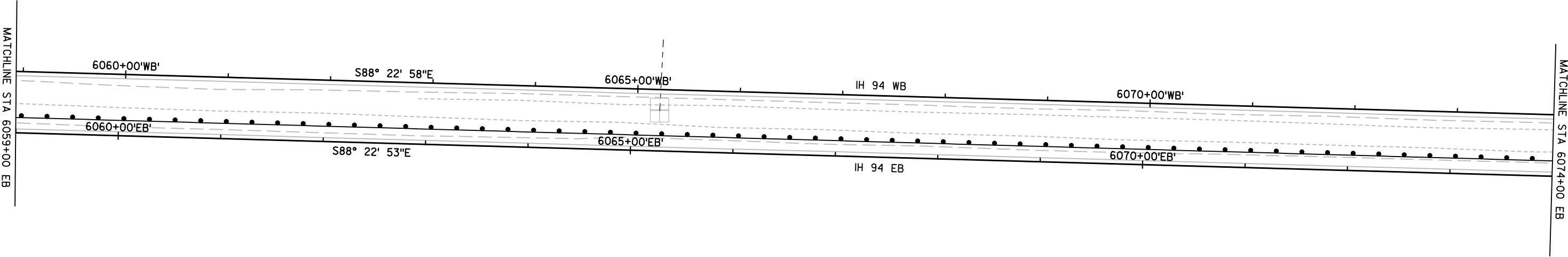
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



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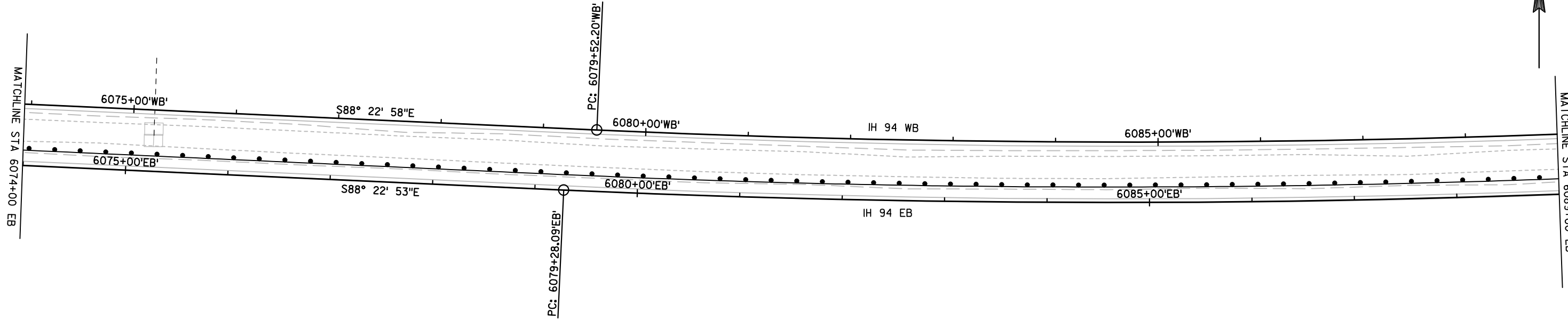
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



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ALL UTILITIES ARE APPROXIMATE
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ALL UTILITIES ARE APPROXIMATE
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PI STA = 6090+13.54'WB'
Y = 261904.797
X = 355291.199
DELTA = 10°34'57"
D = 0°30'00"
T = 1061.34'
L = 2116.64'
R = 11460.00'
PC STA = 6079+52.20'WB'
PT STA = 6100+68.84'WB'

MATCHLINE STA 6089+00 EB

IH 94 WB

6095+00'WB'

6095+00'EB'

IH 94 EB

PI STA = 6090+82.20'EB'
Y = 261843.026
X = 355352.518
DELTA = 11°10'20"
D = 0°29'08"
T = 1154.10'
L = 2300.89'
R = 11800.00'
PC STA = 6079+28.09'EB'
PT STA = 6102+28.99'EB'

PT: 6100+68.84'WB'

N81° 02' 05"E

N80° 26' 47"E

PT: 6102+28.99'EB'

MATCHLINE STA 6104+00 EB

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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

MATCHLINE STA 6104+00 EB

6105+00'WB'

N81° 02' 05"E

6110+00'WB'

IH 94 WB

6115+00'WB'

6105+00'EB'

N80° 26' 47"E

6110+00'EB'

IH 94 EB

6115+00'EB'

MATCHLINE STA 6119+00 EB

PROJECT NO:1020-02-90

HWY:IH 94

COUNTY:EAU CLAIRE

HSIP CABLE BARRIER

SHEET

E

FILE NAME : P:\JUZ\W\WITNW\136893\CIVIL 3D\SHEETS\PLAN\050201_PN.DWG
LAYOUT NAME - 050201_PN - 050234-PN 6

PLOT DATE : 5/31/2016 11:07 AM

PLOT BY : JUSTIN SHAVLIK

PLOT NAME :

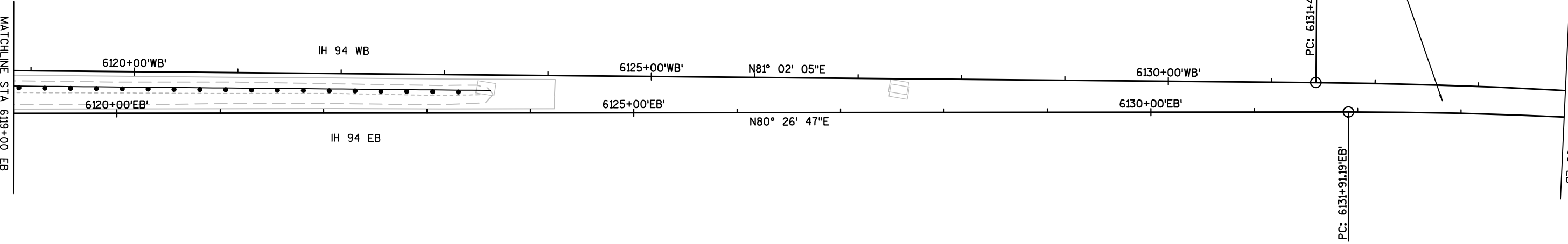
PLOT SCALE : *****

WISDOT/CADDs SHEET 44

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



EXISTING STRUCTURE B-18-0035 & 0036



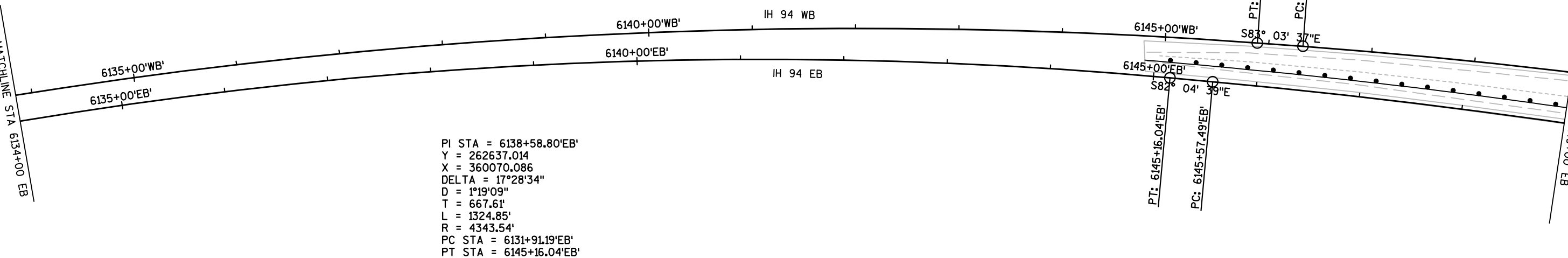
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ALL UTILITIES ARE APPROXIMATE
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PI STA = 6138+70.54'WB'
Y = 262662.630
X = 360094.828
DELTA = 15°54'18"
D = 1°05'59"
T = 727.81'
L = 1446.27'
R = 5210.00'
PC STA = 6131+42.73'WB'
PT STA = 6145+88.99'WB'

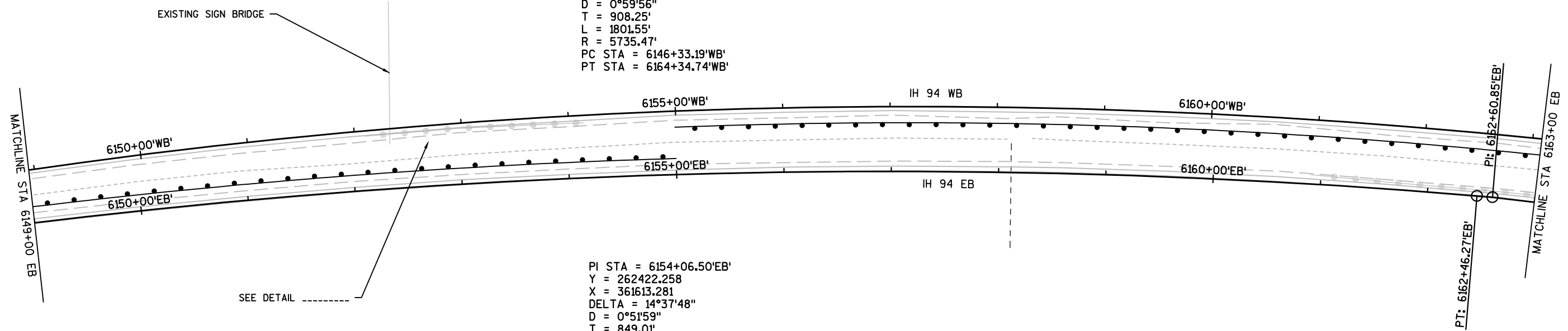


PI STA = 6138+58.80'EB'
Y = 262637.014
X = 360070.086
DELTA = 17°28'34"
D = 1°19'09"
T = 667.61'
L = 1324.85'
R = 4343.54'
PC STA = 6131+91.19'EB'
PT STA = 6145+16.04'EB'

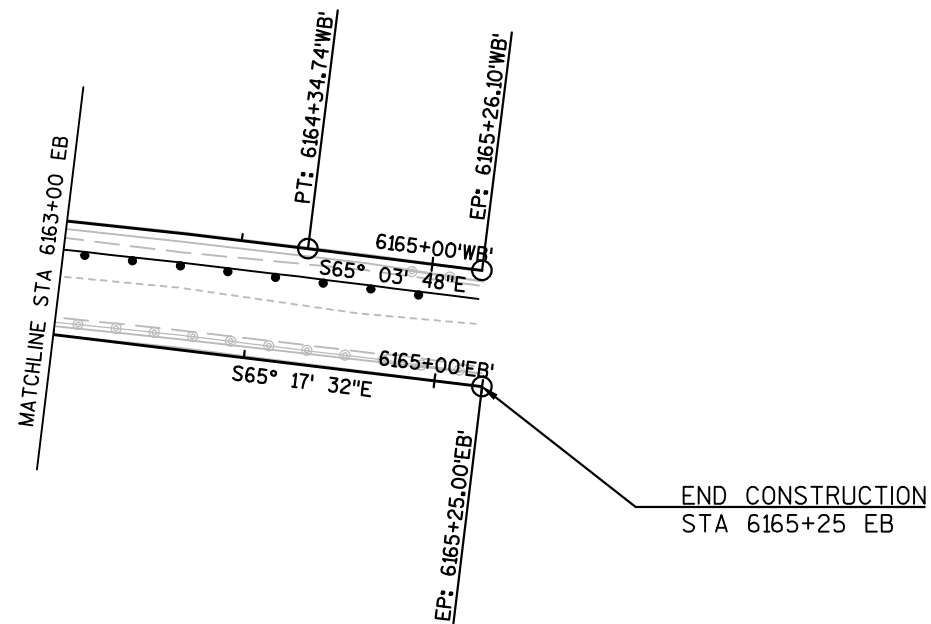
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

PI STA = 6155+41.45'WB'
Y = 262459.612
X = 361762.781
DELTA = 17°59'49"
D = 0°59'56"
T = 908.25'
L = 1801.55'
R = 5735.47'
PC STA = 6146+33.19'WB'
PT STA = 6164+34.74'WB'

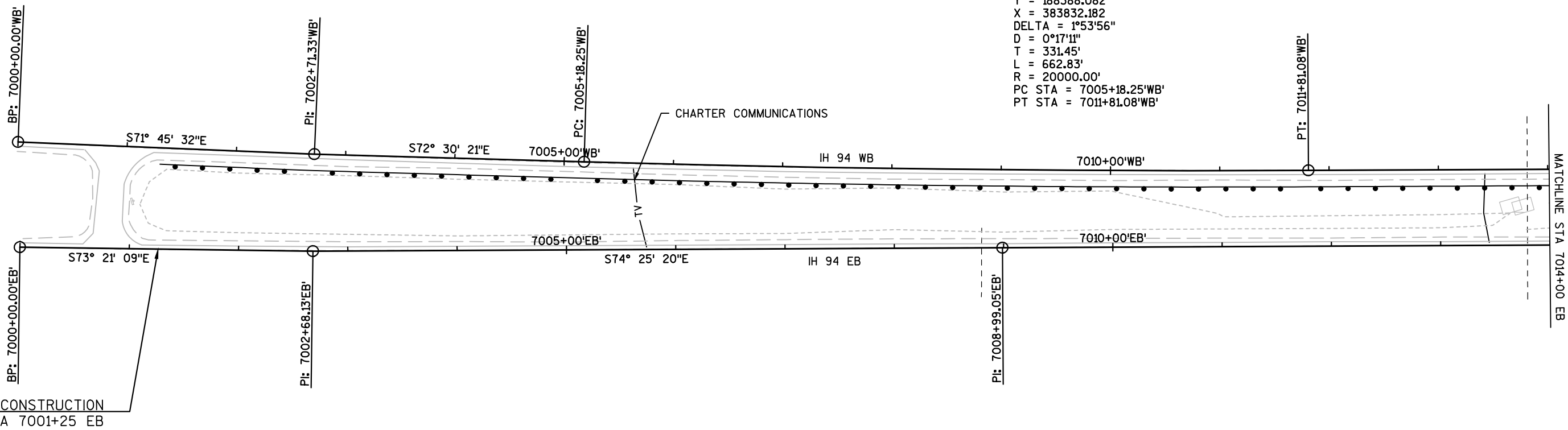
PI STA = 6154+06.50'EB'
Y = 262422.258
X = 361613.281
DELTA = 14°37'48"
D = 0°51'59"
T = 849.01'
L = 1688.79'
R = 6613.77'
PC STA = 6145+57.49'EB'
PT STA = 6162+46.27'EB'



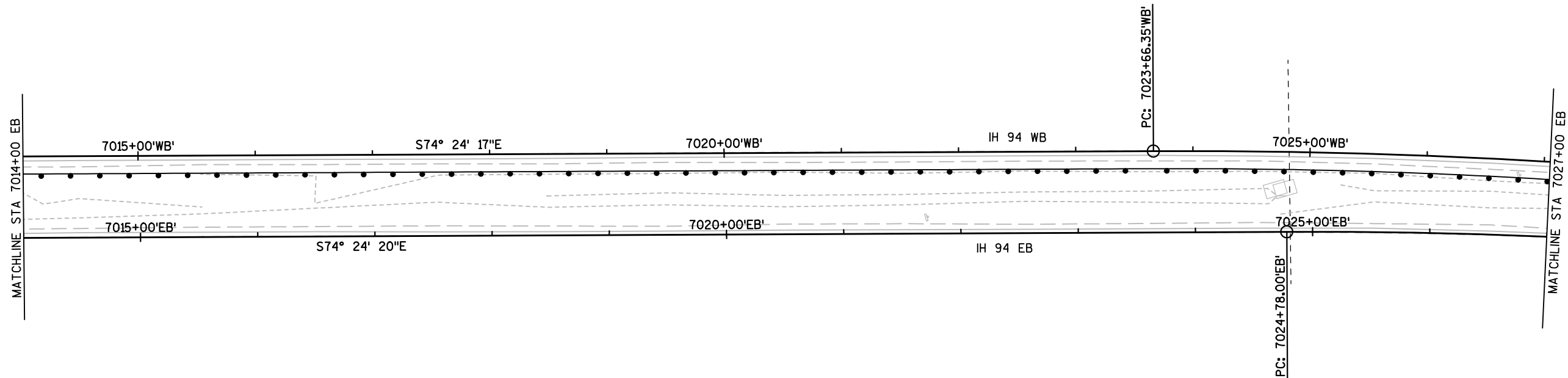
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



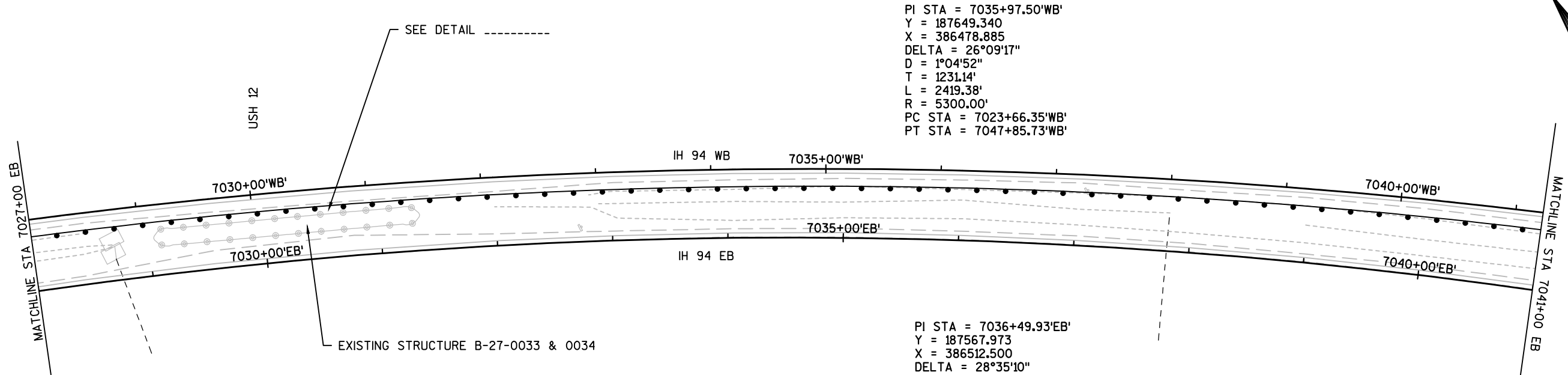
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



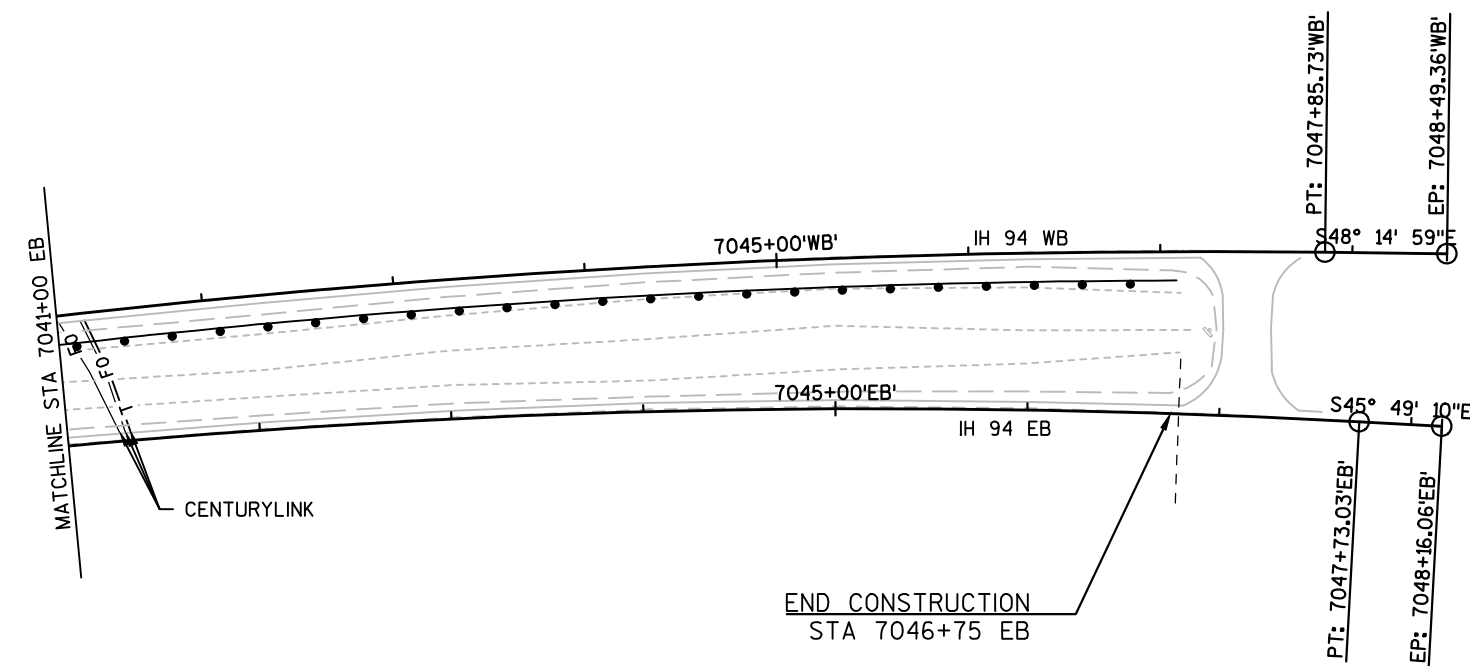
PI STA = 7035+97.50'WB'
Y = 187649.340
X = 386478.885
DELTA = 26°09'17"
D = 1°04'52"
T = 1231.14'
L = 2419.38'
R = 5300.00'
PC STA = 7023+66.35'WB'
PT STA = 7047+85.73'WB'

PI STA = 7036+49.93'EB'
Y = 187567.973
X = 386512.500
DELTA = 28°35'10"
D = 1°14'44"
T = 1171.93'
L = 2295.03'
R = 4600.00'
PC STA = 7024+78.00'EB'
PT STA = 7047+73.03'EB'

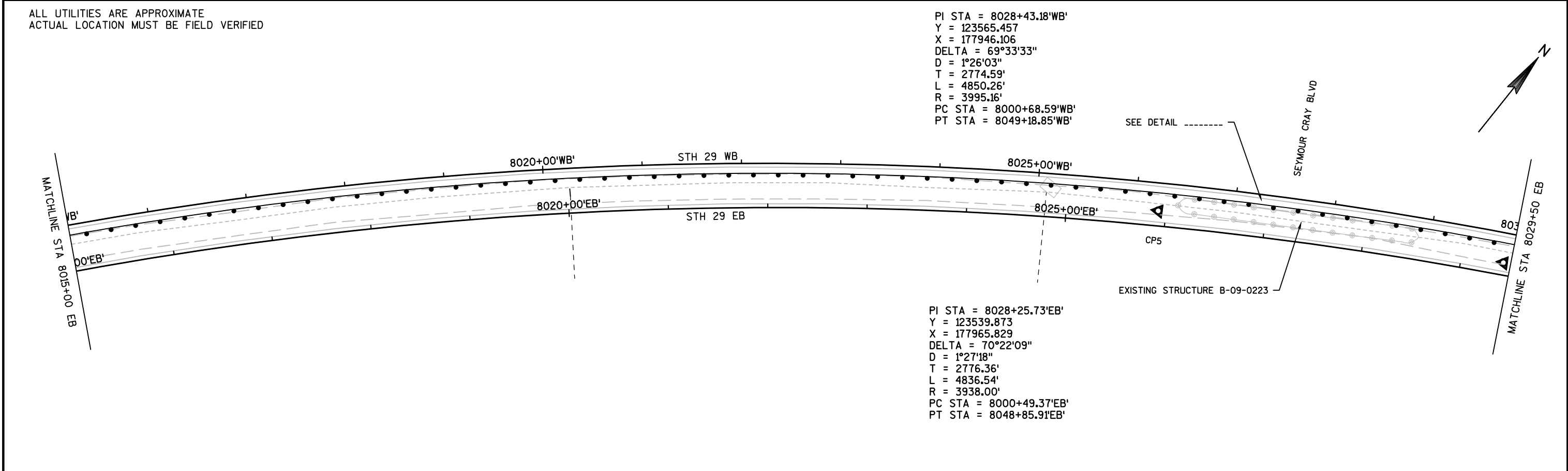
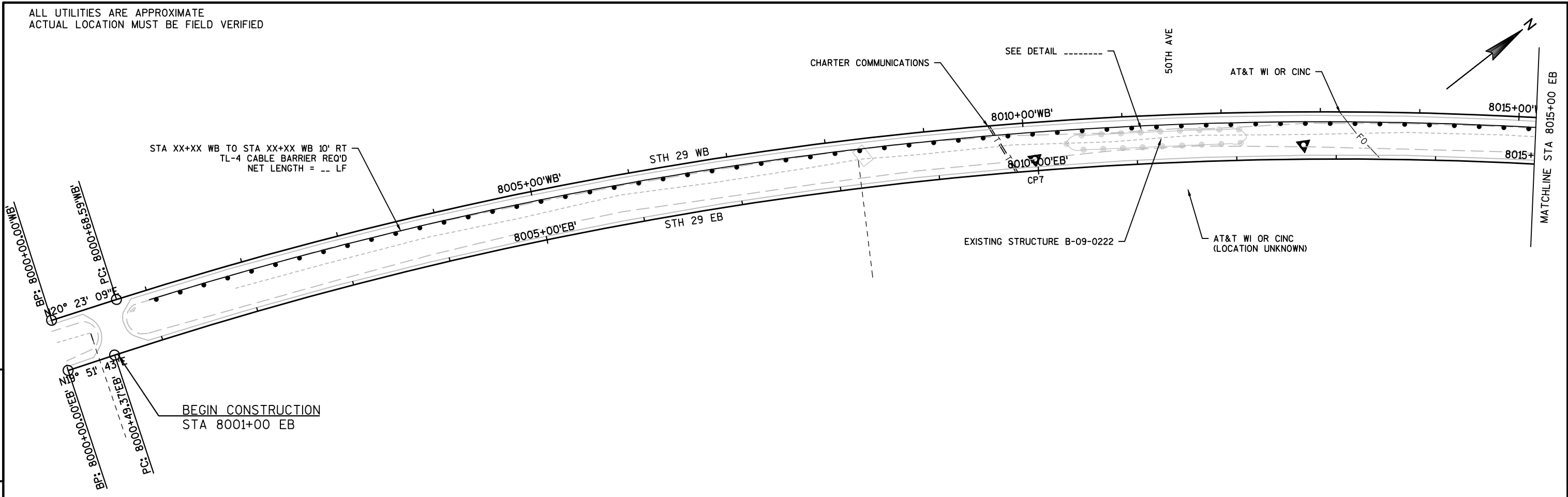
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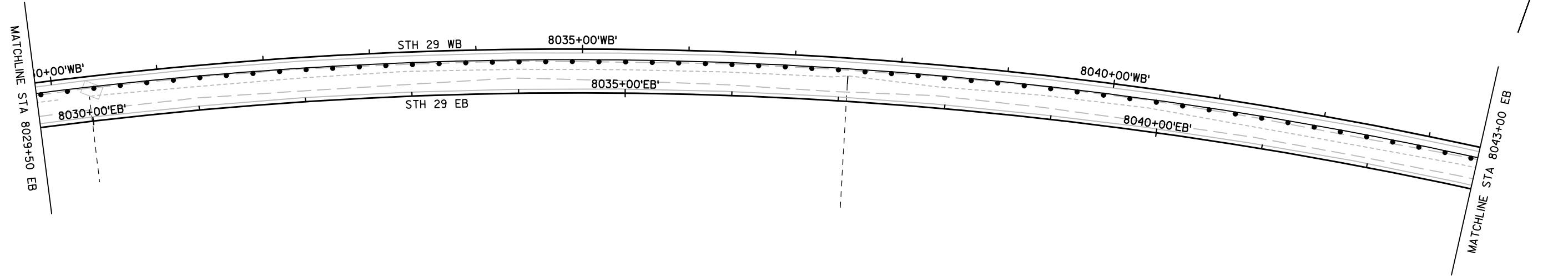
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



PT: 7047+85.73'WB'
EP: 7048+49.36'WB'
S 48° 14' 59" E
PT: 7047+73.03'EB'
EP: 7048+16.06'EB'
S 45° 49' 10" E



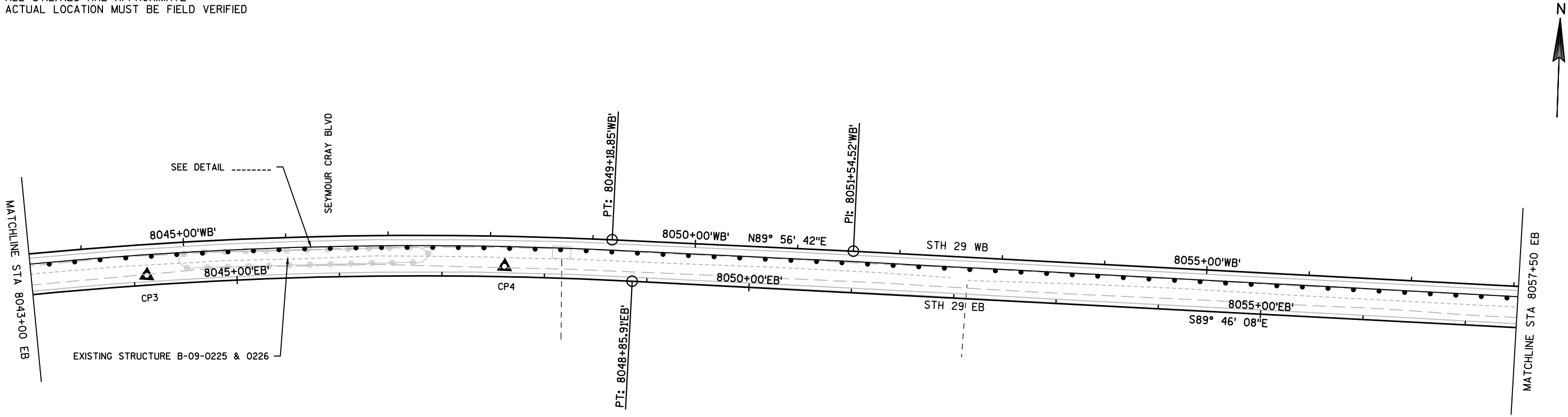
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



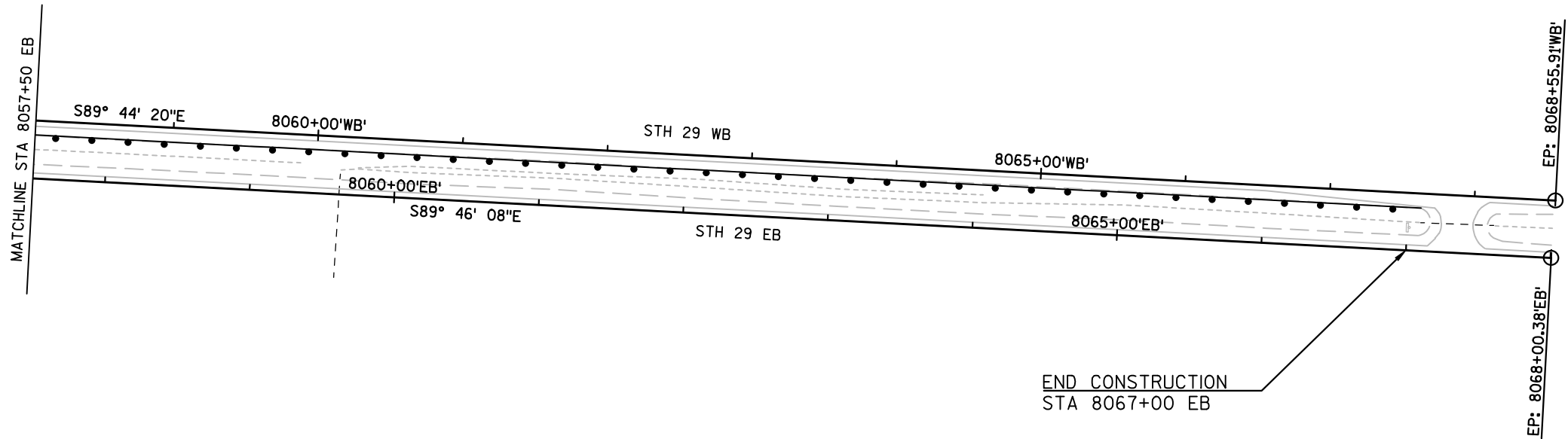
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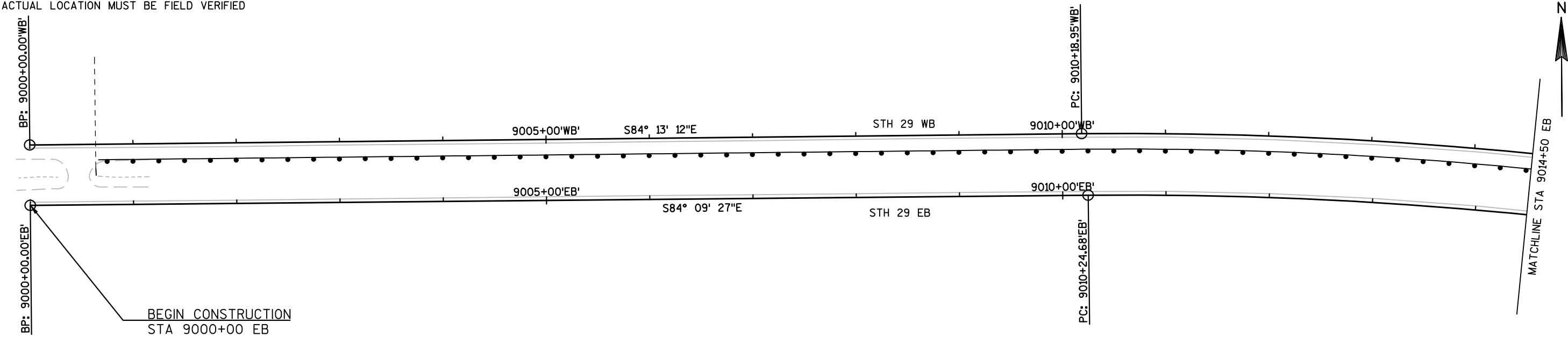
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



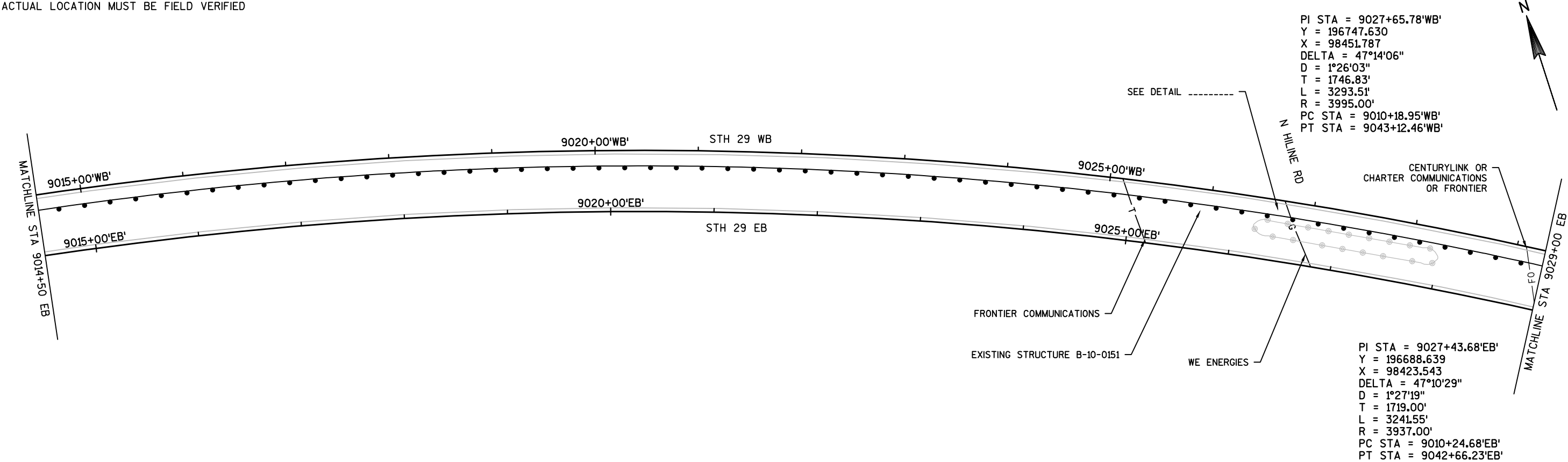
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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



PROJECT NO:1050-00-92

HWY:STH 29

COUNTY:CLARK/MARATHON

HSIP CABLE BARRIER

SHEET

E

FILE NAME : P:\JUZ\W\WITNW\136893\CIVIL 3D\SHEETSPLAN\050201_PN.DWG
LAYOUT NAME - 050201_PN - 050242-PN 9

PLOT DATE : 5/31/2016 11:08 AM

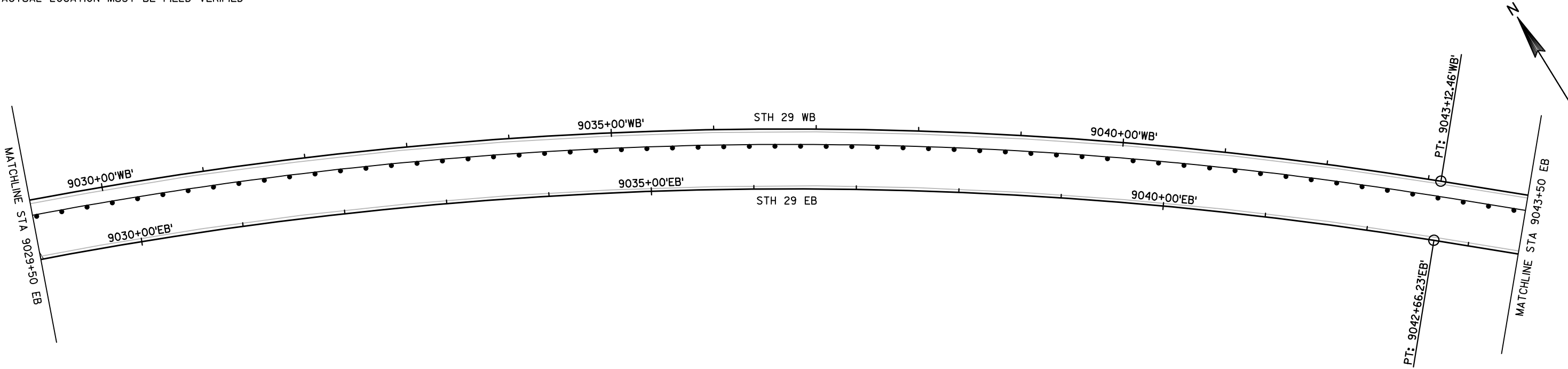
PLOT BY : JUSTIN SHAVLIK

PLOT NAME :

PLOT SCALE : *****

WISDOT/CADDs SHEET 44

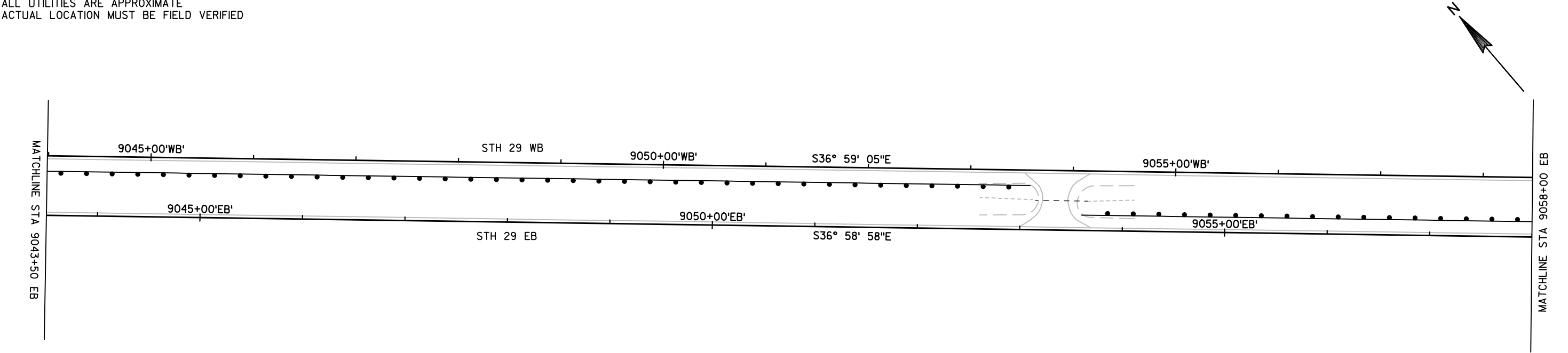
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ACTUAL LOCATION MUST BE FIELD VERIFIED



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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



PROJECT NO:1050-00-92

HWY:STH 29

COUNTY:CLARK/MARATHON

HSIP CABLE BARRIER

SHEET

E

FILE NAME : P:\JUZ\W\WITNW\136893\CIVIL 3D\SHEETSPLAN\050201_PN.DWG
LAYOUT NAME - 050201_PN - 050243-PN 9

PLOT DATE : 5/31/2016 11:08 AM

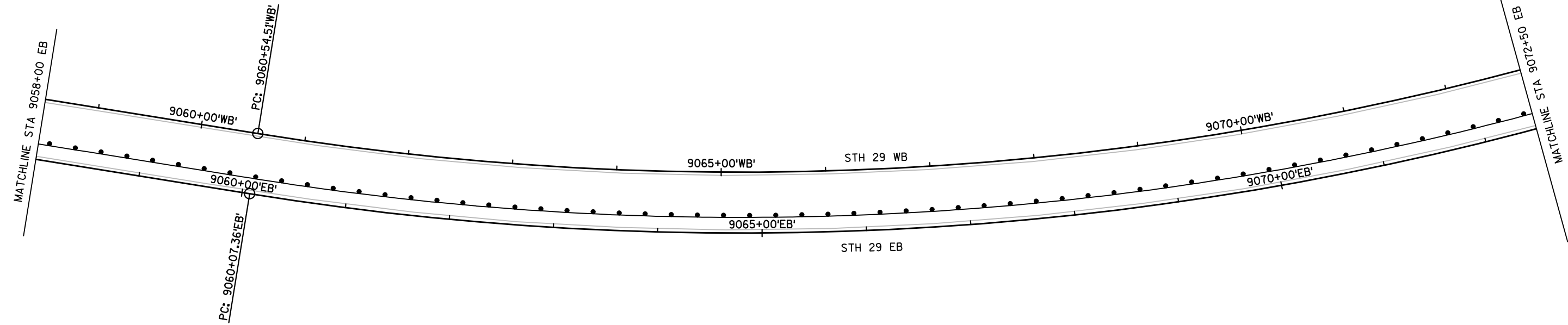
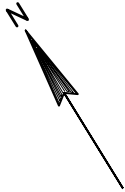
PLOT BY : JUSTIN SHAVLIK

PLOT NAME :

PLOT SCALE : *****

WISDOT/CADDS SHEET 44

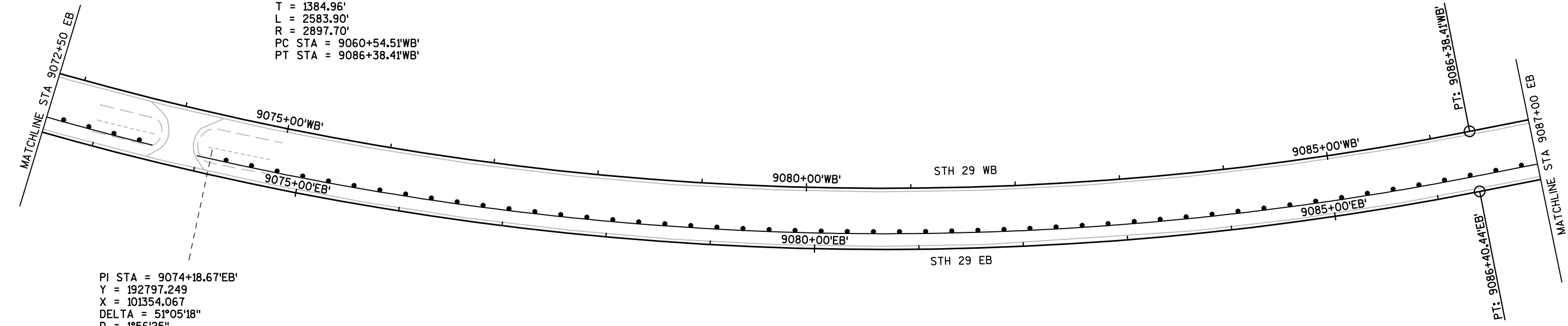
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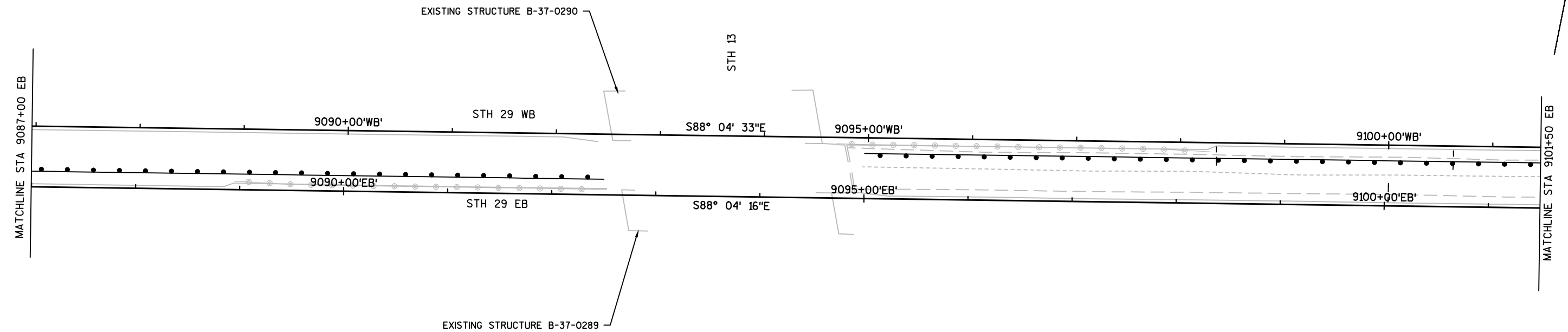
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



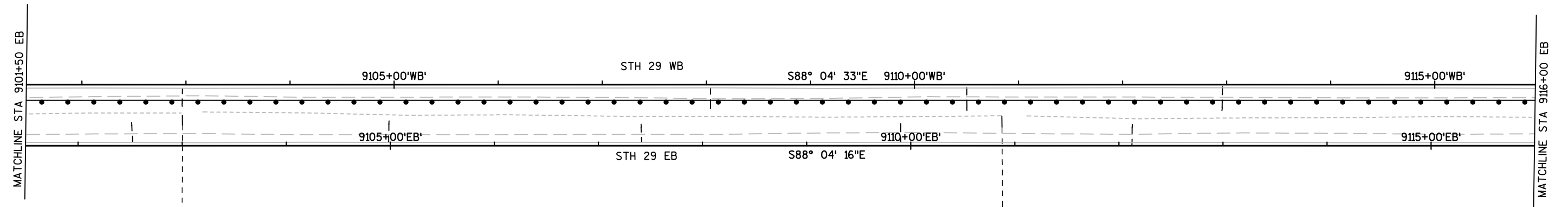
PI STA = 9074+39.47'WB'
Y = 192854.431
X = 101383.910
DELTA = 51°05'27"
D = 1°58'38"
T = 1384.96'
L = 2583.90'
R = 2897.70'
PC STA = 9060+54.51'WB'
PT STA = 9086+38.41'WB'

PI STA = 9074+18.67'EB'
Y = 192797.249
X = 101354.067
DELTA = 51°05'18"
D = 1°56'25"
T = 1411.31'
L = 2633.08'
R = 2953.00'
PC STA = 9060+07.36'EB'
PT STA = 9086+40.44'EB'

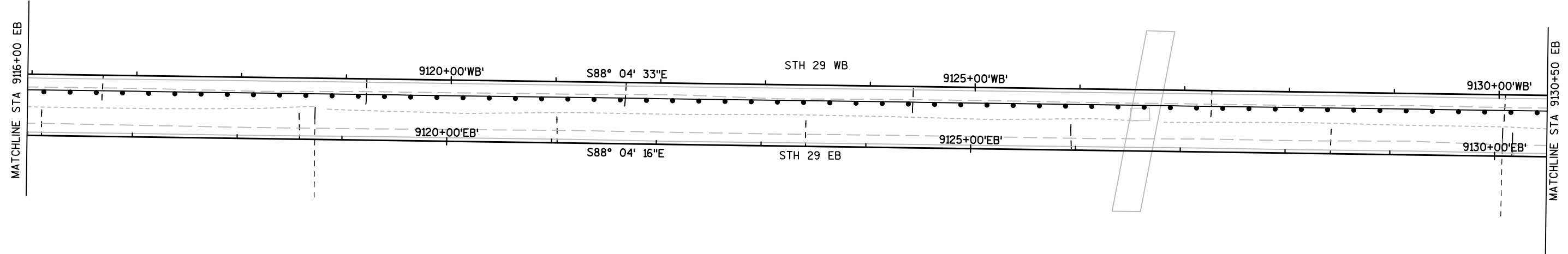
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



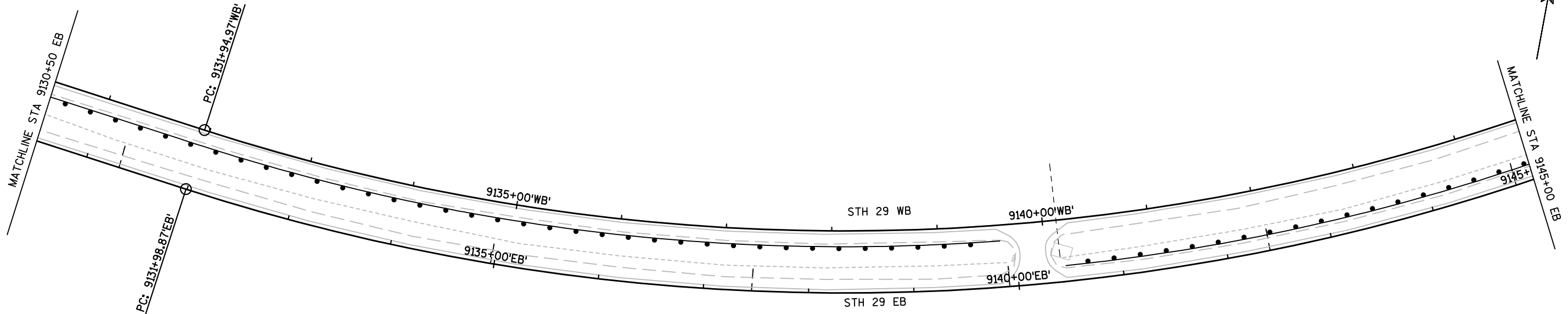
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



5

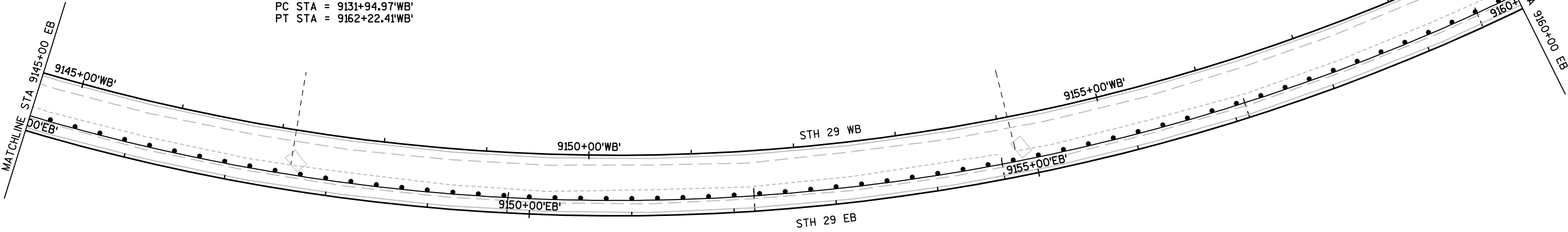
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ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED



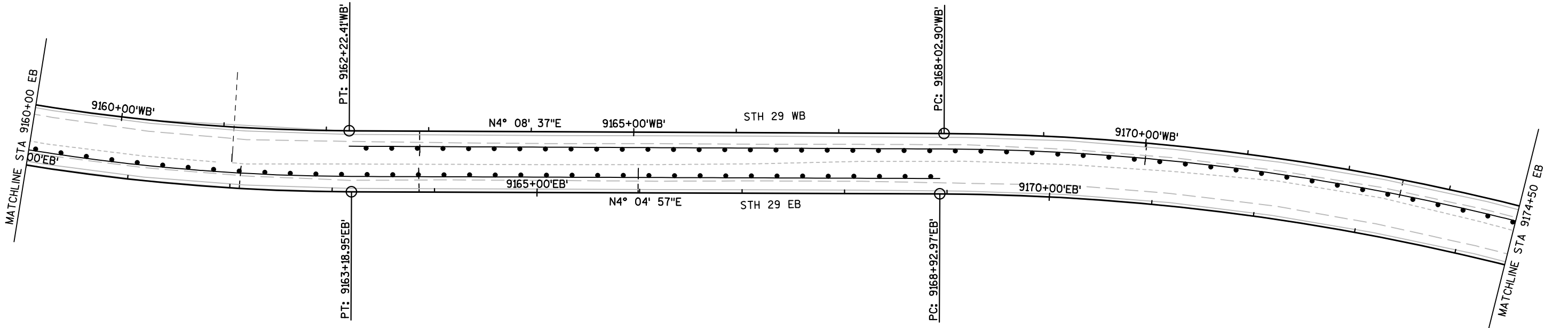
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

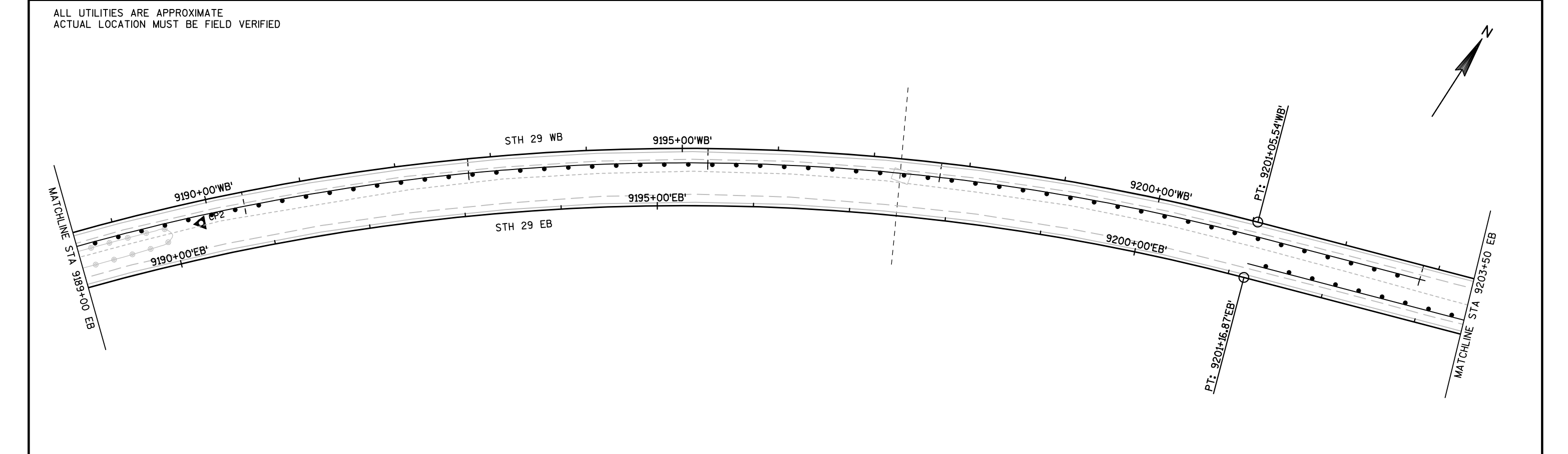
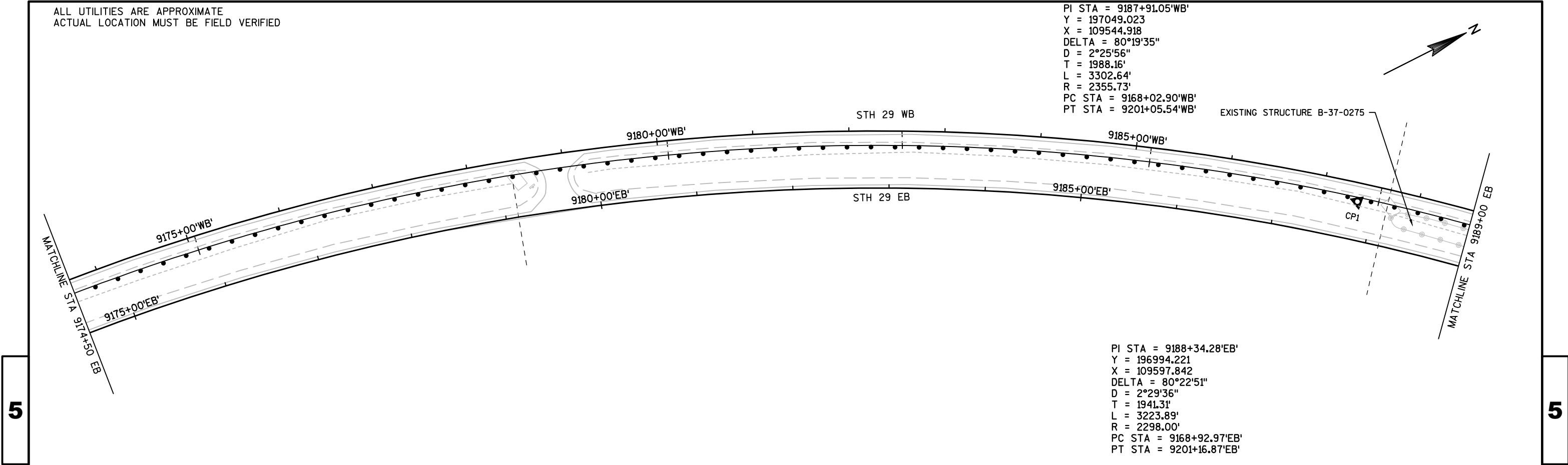
PI STA = 9150+95.93'WB'
Y = 192591.103
X = 109221.963
DELTA = 87°46'50"
D = 2°53'58"
T = 1900.96'
L = 3027.44'
R = 1976.05'
PC STA = 9131+94.97'WB'
PT STA = 9162+22.41'WB'



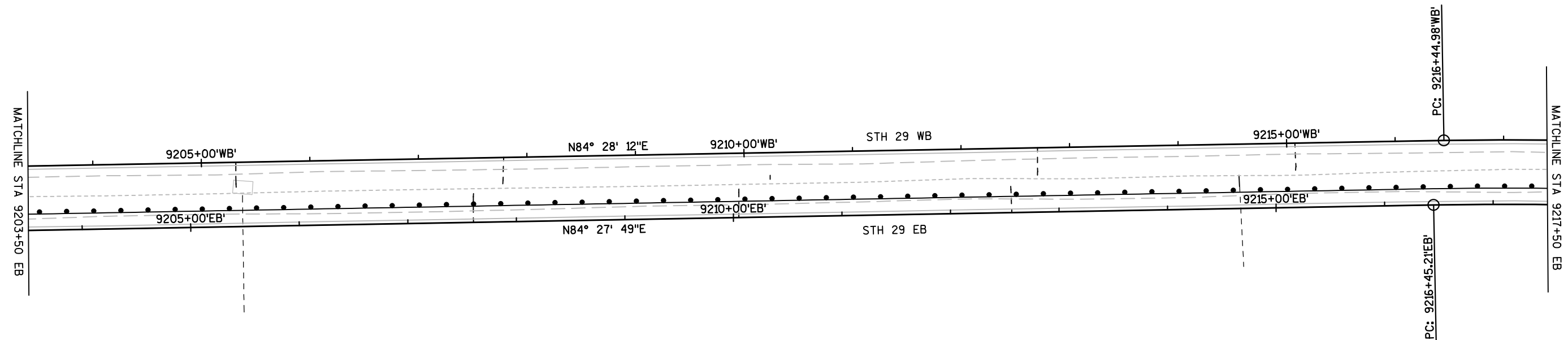
PI STA = 9151+58.78'EB'
Y = 192530.339
X = 109279.228
DELTA = 87°50'47"
D = 2°48'56"
T = 1959.91'
L = 3120.08'
R = 2035.00'
PC STA = 9131+98.87'EB'
PT STA = 9163+18.95'EB'

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED





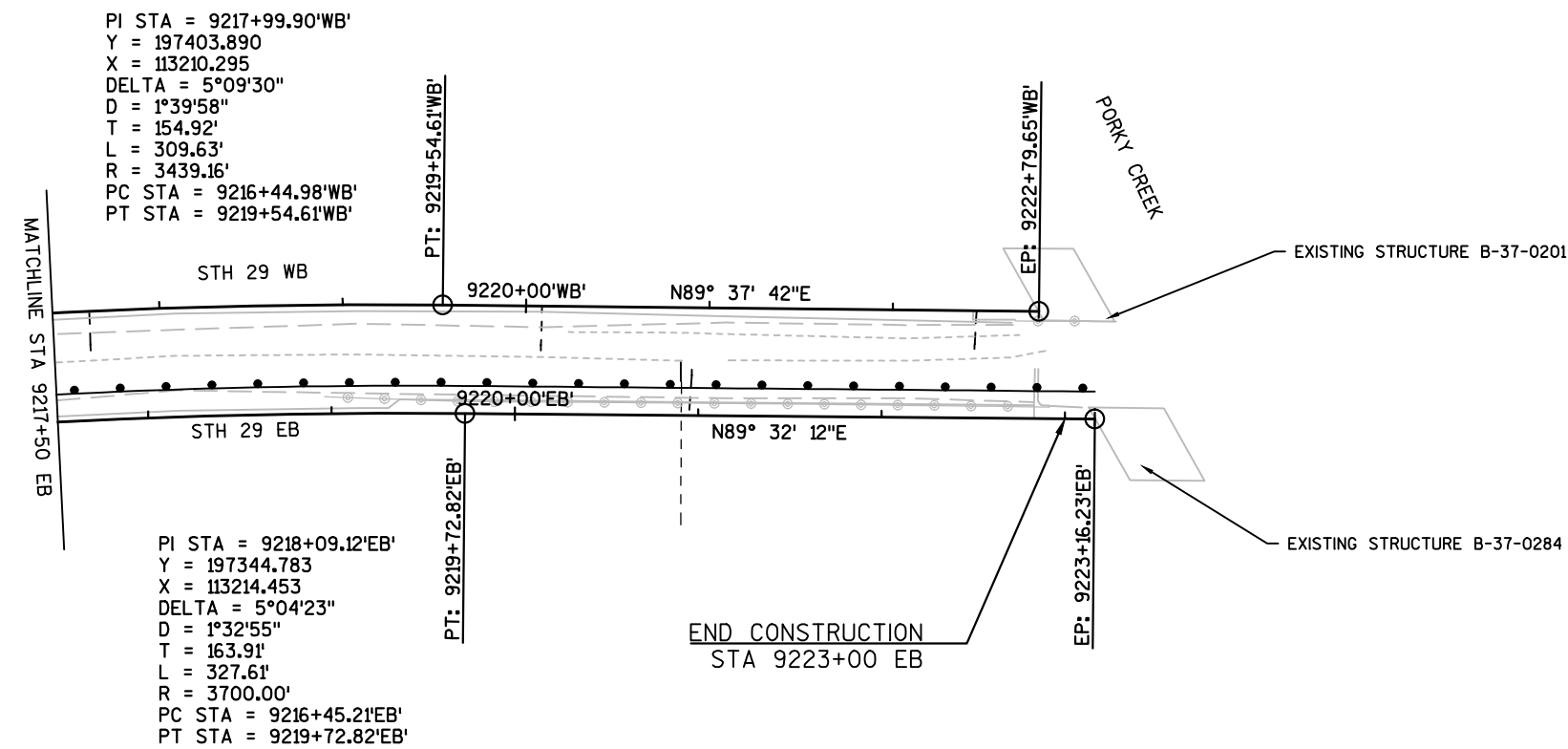
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

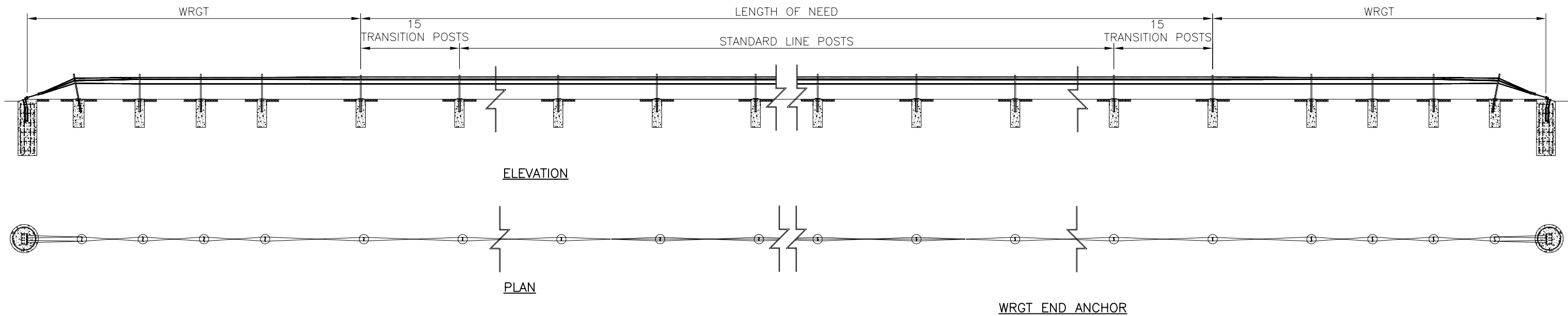


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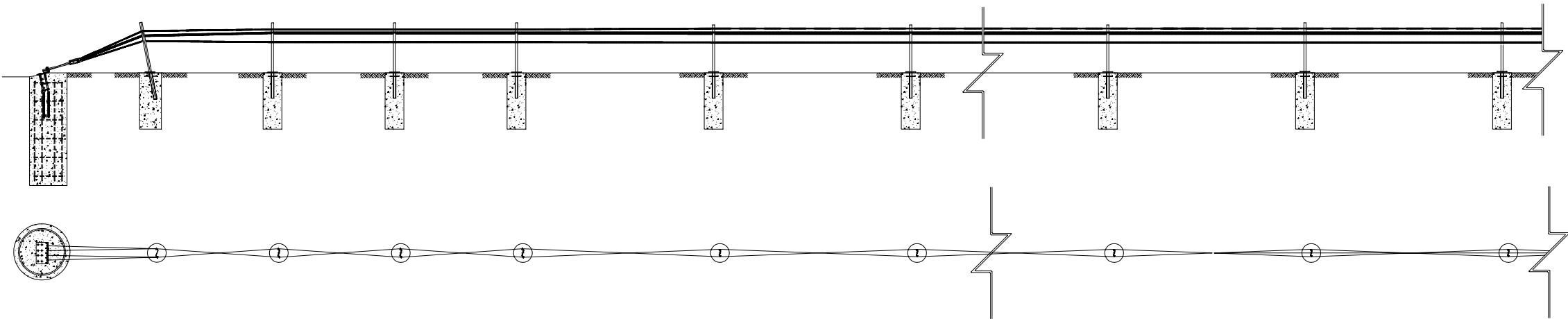
ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED





ROPE TENSION TABLE		
ROPE TEMP. (F°)	TENSION (LBS)	TENSION (kN)
0	5700	25.4
5	5550	24.7
10	5400	24.0
15	5250	23.4
20	5100	22.7
25	4950	22.0
30	4800	21.4
35	4650	20.74
40	4500	20.0
45	4350	19.3
50	4200	18.7
55	4050	18.0
60	3900	17.3
65	3750	16.7
70	3600	16.0
75	3450	15.3
80	3300	14.7
85	3150	14.0
90	3000	13.3
95	2850	12.7
100	2700	12.0
105	2550	11.3
110	2400	10.7
115	2250	10.0
120	2100	9.3
125	1950	8.7
130	1800	8.0
135	1650	7.3
140	1500	6.7

* ROPE TENSION: ±20% AFTER 2–WEEK INTERVAL



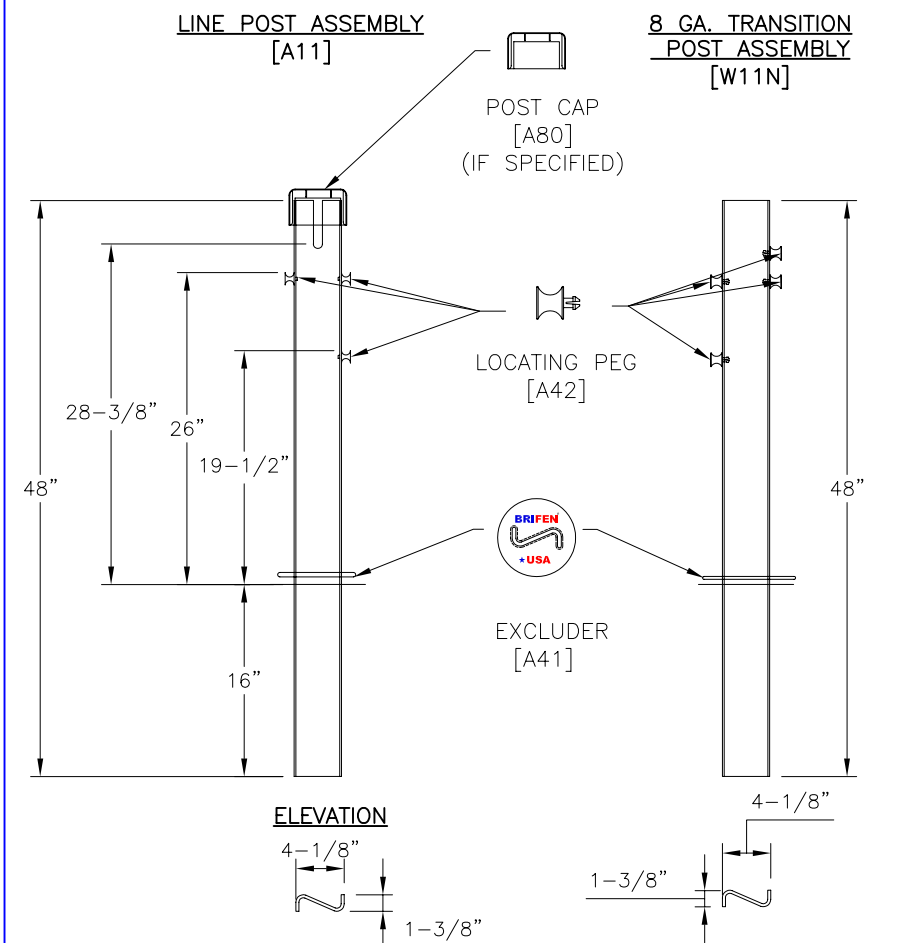
* SEE SHEET 3 OF 3 FOR FURTHER INFORMATION

GENERAL NOTE:

1. BRIFEN DRAWINGS, SPECIFICATION, AND PRODUCT MANUAL SHOULD BE REVIEWED PRIOR TO STARTING AN INSTALLATION. FOR ADDITIONAL INFORMATION OR QUESTIONS, CONTACT BRIFEN USA, INC. AT 1–866–427–4336.
2. THE BRIFEN WRSF HAS BEEN SUCCESSFULLY TESTED TO NCHRP 350 TL–3 CONDITIONS ON SLOPES 6:1 OR FLATTER.
3. BRIFEN WRSF SHALL BE PLACED ON A SMOOTH SURFACE, WITHOUT HUMP, DROP–OFFS, HOLES, ETC THAT WOULD INTERFERE WITH THE STABILITY OF THE ERRANT VEHICLE. GRADING, FILL AND COMPACT MAY BE REQUIRED TO ASSURE THAT ROPES ARE INSTALLED AT THE DESIGN HEIGHT.
4. THE WRGT END ANCHOR HAS BEEN SUCCESSFULLY TESTED TO NCHRP 350 TL–3 CONDITIONS. THE LENGTH OF NEED BEGINS 30’–6” FROM THE END ANCHOR. POST A THROUGH POST B2, SPACED 6’–6” APART, HAVE WEAKENED CUTS AT THE GROUND THAT SHALL FACE THE ANCHOR.
5. THE 4 WRGT END ANCHOR POSTS AND THE 15 TRANSITION LINE POSTS DO NOT HAVE TOP ROPE SLOT. ALL ROPES WEAVE ON EITHER SIDE OF POSTS UNTIL THE FIRST STANDARD LINE POST WITH A SLOT (POST 20). BEYOND POST 20, THE TOP ROPE IS PLACED IN SLOT AT TOP OF POST AND OTHER ROPE WEAVE.
6. ANCHOR AND LINE POST DIMENSIONS AND STEEL REINFORCEMENT WILL BE DETERMINED ON PROJECT SPECIFIC SOIL CLASSIFICATION, PROPERTIES AND TEMPERATURE EXTREMES. CONTACT BRIFEN USA, INC. FOR ADDITIONAL INFORMATION.
7. ALL REINFORCEMENT AND CONCRETE FOR THE ANCHORS AND LINE POSTS PROVIDED BY OTHERS.
8. REINFORCEMENT AND CONCRETE PROPERTIES SHALL MEET AGENCY SPECIFICATIONS
9. FOR PLACEMENT NEAR GUARDRAIL OR OTHER OBSTACLES CONTACT BRIFEN USA, INC. FOR ADDITIONAL DRAWINGS AND SUPPORT.
10. TAPER RATES FOR THE BRIFEN WRSF ARE AS FOLLOWS:
HORIZONTAL: 25:1 MAXIMUM, 50:1 PREFERABLE
VERTICAL: 25:1 MAXIMUM, 50:1 PREFERABLE

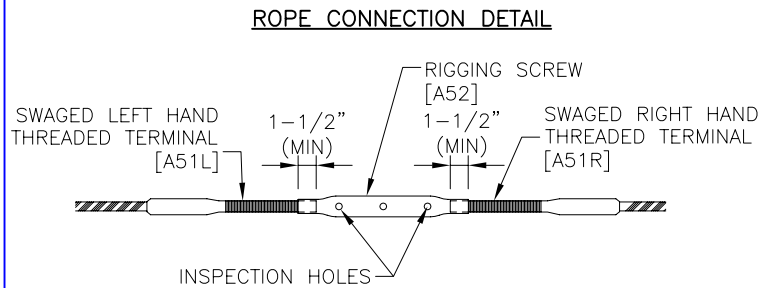
The information herein is proprietary to BRIFEN USA, and shall not be disclosed, duplicated or used otherwise without the express written consent of BRIFEN USA, Inc.

Revision			BRIFEN WRSF NCHRP 350 TL–3 (4–ROPE) INSTALLATION & LAYOUT DETAILS		
No.	Date	By			
1.					
2.			Date 2.8.12	Drawn By Manita Elizondo	Scale None
3.					
4.			VERSION 12.0		
5.			Dwg. No.	WRGT–12–001a	Sheet No 1 OF 3



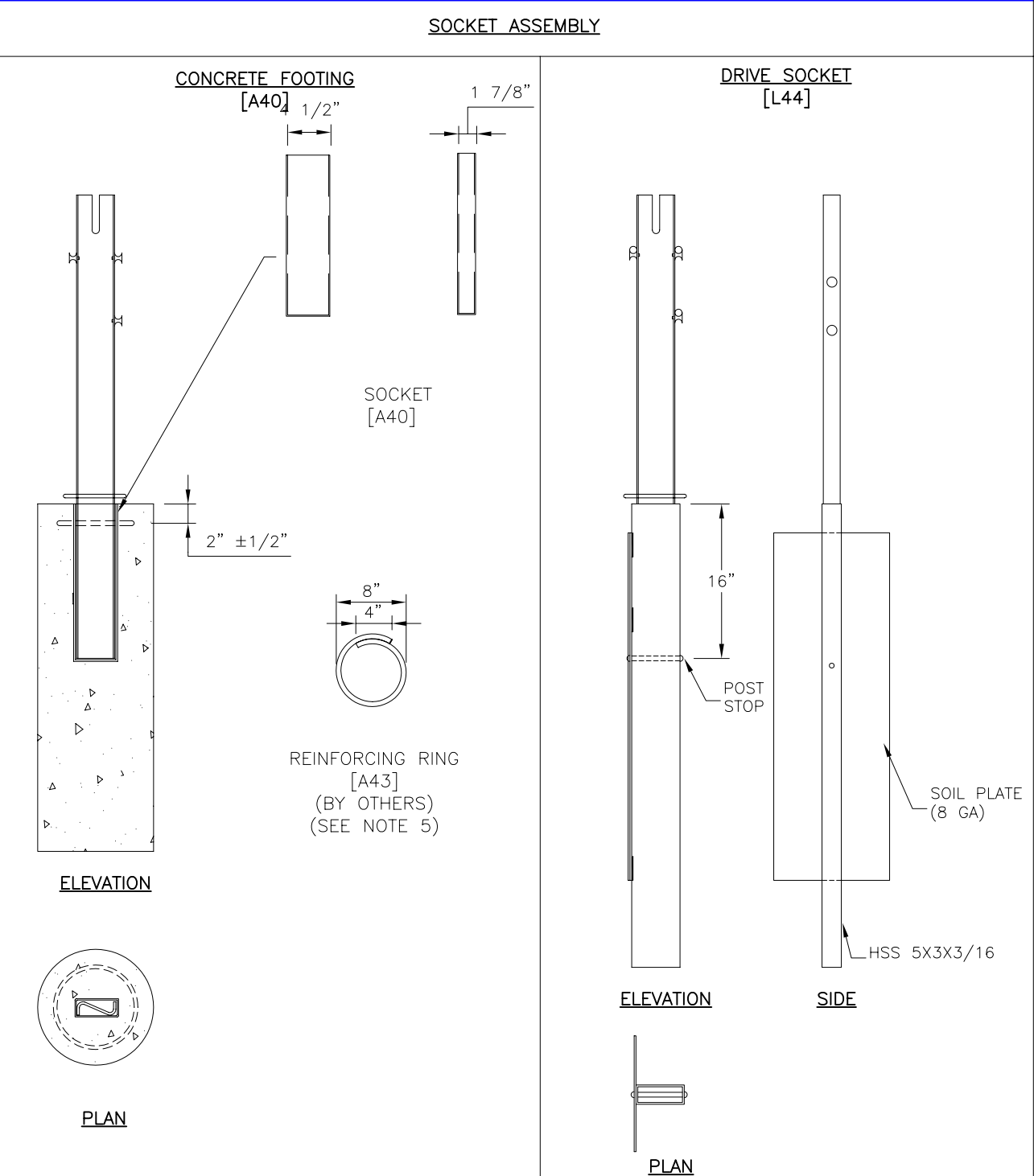
NOTES SPECIFIC TO LINE POST AND TRANSITION POST ASSEMBLY

1. ROPE HEIGHTS FOR BOTH LINE POST AND TRANSITION POST ARE THE SAME.
2. ROPE HEIGHTS SHALL BE $\pm 1"$ TO GROUND LINE.
3. POST SHALL BE $\pm 4"$ FROM VERTICAL PLUMB.
4. POST CAPS SHALL BE USED IF SPECIFIED.
5. REFLECTORS SHALL BE SPACED ACCORDING TO AGENCY SPECIFICATIONS.
6. REFLECTORS CAN BE PLACED ON THE POST CAP OR POST.



NOTES SPECIFIC TO ROPE CONNECTION DETAIL

1. THE WIRE ROPE TERMINALS SHALL BE THREADED A MINIMUM OF 1-1/2" INTO RIGGING SCREW.
2. AFTER FINAL TENSIONING, THE TERMINALS SHALL BE VISIBLE IN THE INSPECTION HOLES.



NOTES SPECIFIC TO CONCRETE FOOTING

1. SIZE OF FOOTING WILL BE DETERMINED BY SOIL CONDITIONS, FOUNDATION TYPE AND PROJECT CONDITIONS.
2. CONCRETE BASED ON AGENCY SPECIFICATIONS.
3. CONCRETE BY OTHERS.
4. REINFORCING RING (BY OTHERS) WILL BE USED ACCORDING TO FOUNDATION SIZE AND TYPE.
5. FOOTING SHALL BE FLUSH WITH THE GROUND LINE, TO A MAXIMUM OF 1 INCH BELOW OR ABOVE GROUND LINE.
6. SOCKET SHALL BE $\pm 2"$ OF VERTICAL PLUMB.

NOTES SPECIFIC TO DRIVE SOCKETS

1. SIZE OF SOIL PLATE WILL BE DETERMINED BY SOIL CONDITIONS AND PROJECT CONDITIONS.
2. THE SOIL PLATE SHALL BE PARALLEL TO ROADWAY AND CAN FACE TOWARD OR AWAY FROM THE TRAVEL LANE.
3. FOOTING SHALL BE FLUSH WITH THE GROUND LINE, TO A MAXIMUM OF 1 INCH BELOW OR ABOVE GROUND LINE.
4. SOCKET SHALL BE $\pm 2"$ OF VERTICAL PLUMB.
5. SOCKETS SHALL BE DRIVEN IN A MANNER TO NOT DISTORT OR DESTROY THE TOP OF SOCKET TO A DEGREE THAT PLACES THE SOCKET OR LINE POST OUT OF CONSTRUCTION TOLERANCES.

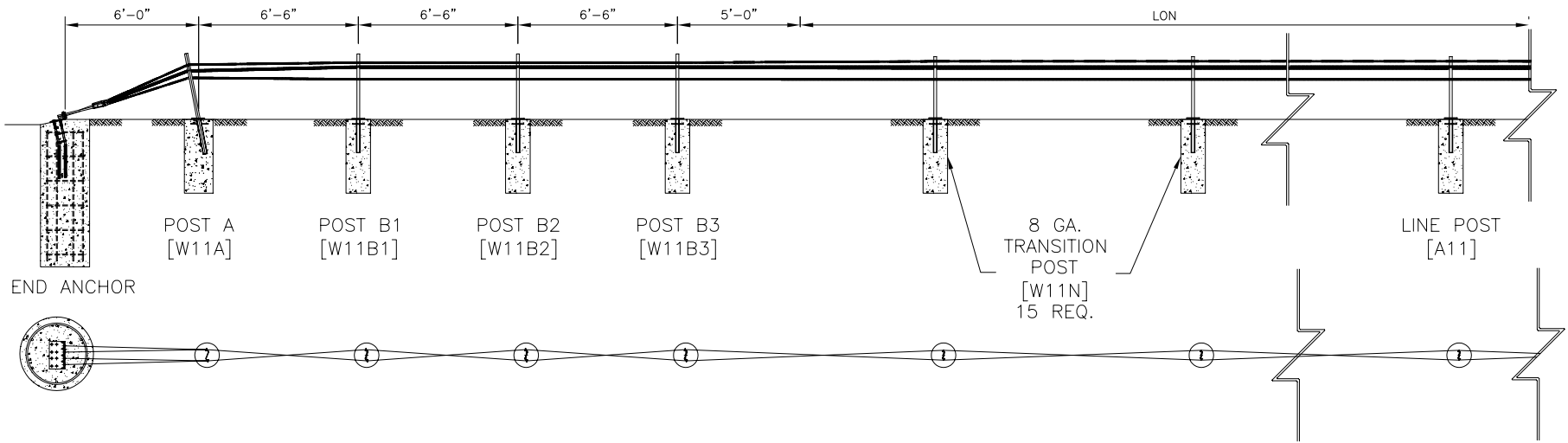
GENERAL NOTES:

1. BRIFEN DRAWINGS, SPECIFICATIONS, AND PRODUCT MANUAL SHOULD BE REVIEWED PRIOR TO STARTING AN INSTALLATION. FOR ADDITIONAL INFORMATION OR QUESTIONS, CONTACT BRIFEN USA, INC. AT 1-866-427-4336.
2. THE BRIFEN WRSF HAS BEEN SUCCESSFULLY TESTED TO NCHRP 350 TL-3 CONDITIONS ON SLOPES 6:1 OR FLATTER.
3. BRIFEN WRSF SHALL BE PLACED ON A SMOOTH SURFACE, WITHOUT HUMPS, DROP-OFFS, HOLES, ETC THAT WOULD INTERFERE WITH THE STABILITY OF THE ERRANT VEHICLE. GRADING, FILL AND COMPACTION MAY BE REQUIRED TO ASSURE THAT ROPES ARE INSTALLED AT THE DESIGN HEIGHT.

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Revision			BRIFEN WRSF NCHRP 350 TL-3 (4-ROPE) LENGTH OF NEED COMPONENTS		
No.	Date	By			
1.					
2.			Date 2.8.12	Drawn By Manita Elizondo	Scale None
3.					
4.			VERSION 12.0		
5.			Dwg. No.	WRGT-12-002a	Sheet No 2 OF 3

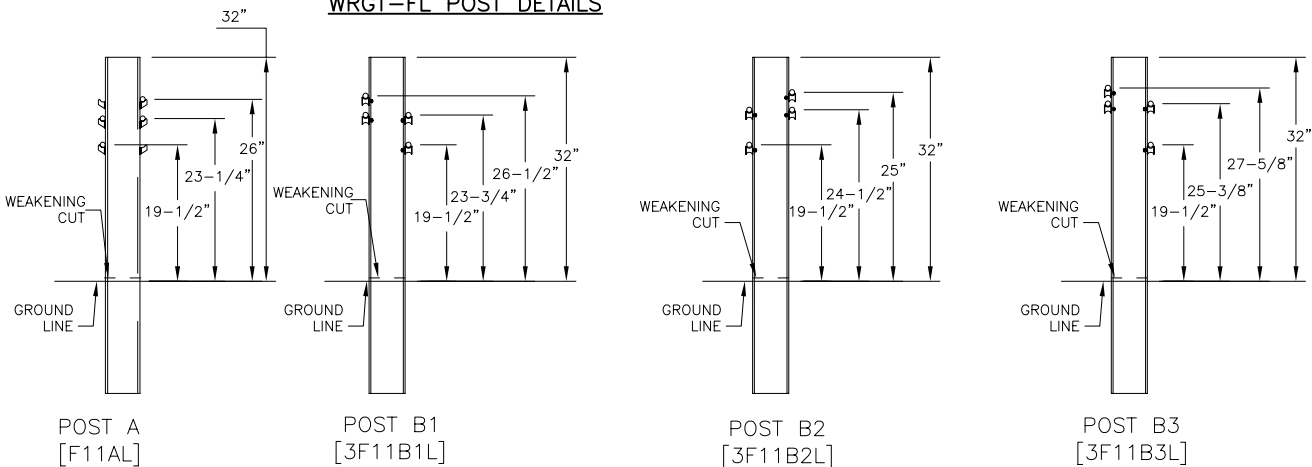
WRGT-FL END ANCHOR LAYOUT



GENERAL NOTES:

1. BRIFEN DRAWINGS, SPECIFICATIONS, AND PRODUCT MANUAL SHOULD BE REVIEWED PRIOR TO STARTING AN INSTALLATION. FOR ADDITIONAL INFORMATION OR QUESTIONS, CONTACT BRIFEN USA, INC. AT 1-866-427-4336.
2. THE WRGT END ANCHOR HAS BEEN SUCCESSFULLY TESTED TO NCHRP 350 TL-3 CONDITIONS. THE LENGTH OF NEED BEGINS 30'-6" FROM THE END ANCHOR. POSTS A THROUGH POST B3, SPACED 6'-6" APART, HAVE WEAKENED CUTS AT THE GROUND THAT SHALL FACE THE ANCHOR.
3. ANCHOR AND LINE POST DIMENSIONS AND STEEL REINFORCEMENT WILL BE DETERMINED ON PROJECT SPECIFIC SOIL CLASSIFICATION, PROPERTIES AND TEMPERATURE EXTREMES. CONTACT BRIFEN USA, INC. FOR ADDITIONAL INFORMATION.
4. ALL REINFORCEMENT AND CONCRETE FOR THE ANCHORS AND LINE POSTS PROVIDED BY OTHERS.
5. REINFORCEMENT AND CONCRETE PROPERTIES SHALL MEET AGENCY SPECIFICATIONS.
6. FOR PLACEMENT NEAR GUARDRAIL OR OTHER OBSTACLES CONTACT BRIFEN USA, INC. FOR ADDITIONAL DRAWINGS AND SUPPORT.

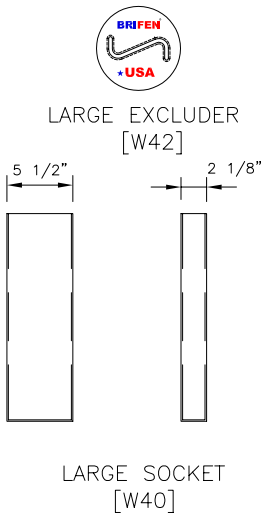
WRGT-FL POST DETAILS



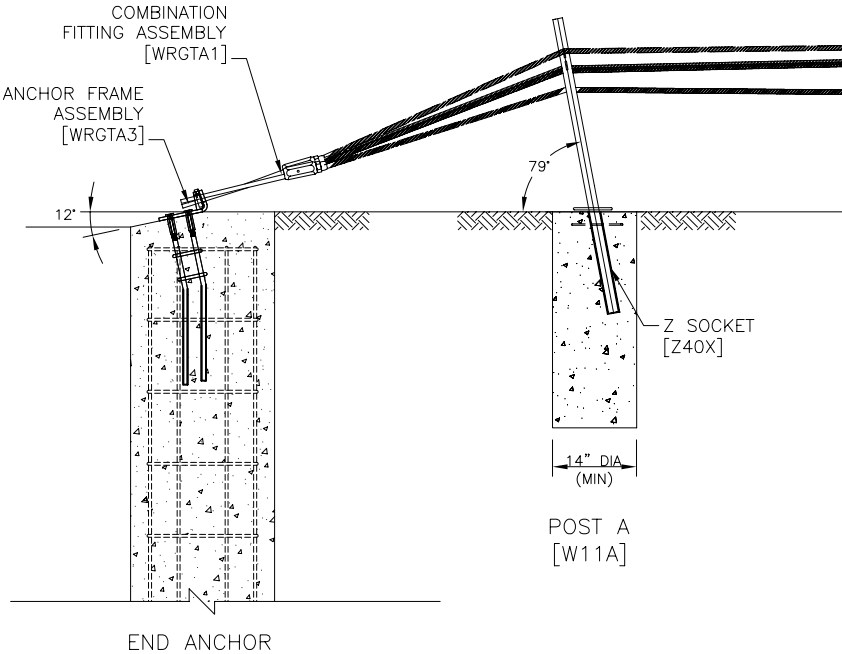
PLAN

NOTES SPECIFIC TO WRGT POST DETAIL

1. ROPE HEIGHTS SHALL BE $\pm 1"$ TO GROUND LINE.
2. POST SHALL BE $\pm 4"$ FROM VERTICAL PLUMB.
3. POST CAPS SHALL BE USED IF SPECIFIED.
4. REFLECTORS SHALL BE SPACED ACCORDING TO AGENCY SPECIFICATIONS.
5. REFLECTORS CAN BE PLACED ON THE POST CAP OR POST.
6. LARGE EXCLUDER (W42) AND LARGE SOCKET (W40) SHALL BE USED FOR POST A TO POST B3.
7. POST A & SOCKET SHALL BE PLACED 79° ($\pm 4^\circ$) TOWARD END ANCHOR FROM THE HORIZONTAL PLANE.
8. POST A SOCKET SHALL BE PLACED IN 14" (MIN) CONCRETE FOUNDATION. DEPTH TO BE DETERMINED FROM SOIL CONDITIONS AND PROJECT CONDITIONS.
9. FOUNDATIONS FOR POST B1 THRU B3 SHALL BE THE SAME AS THE LINE POST ASSEMBLY'S FOR THE PROJECT.
10. WEAKENED CUTS SHALL FACE END ANCHOR.



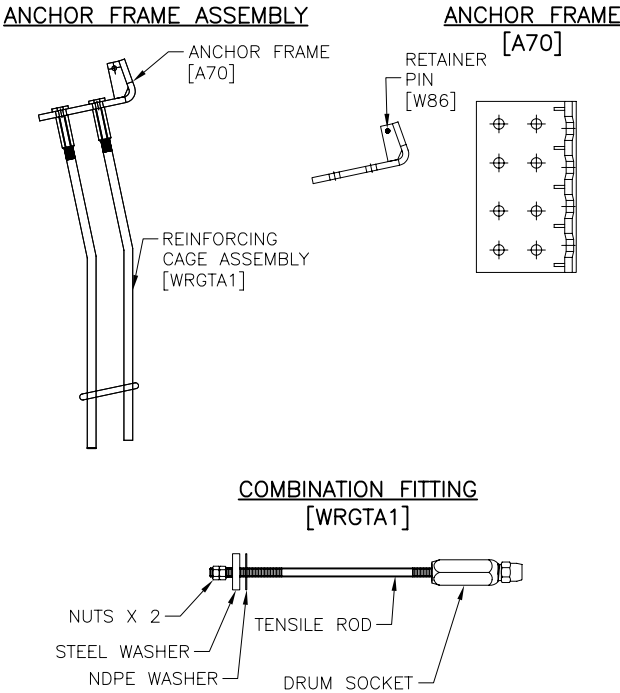
END ANCHOR DETAILS



NOTES SPECIFIC TO END ANCHOR DETAIL

1. THE END ANCHOR ASSEMBLY SHALL BE PLACED 12' (+3', -1') BELOW HORIZONTAL PLANE.
2. POST A & SOCKET SHALL BE PLACED 79° ($\pm 4^\circ$) TOWARD END ANCHOR FROM THE HORIZONTAL PLANE.
3. POST A SOCKET SHALL BE PLACED IN 14" (MIN) CONCRETE FOUNDATION. DEPTH TO BE DETERMINED FROM SOIL CONDITIONS AND PROJECT CONDITIONS.

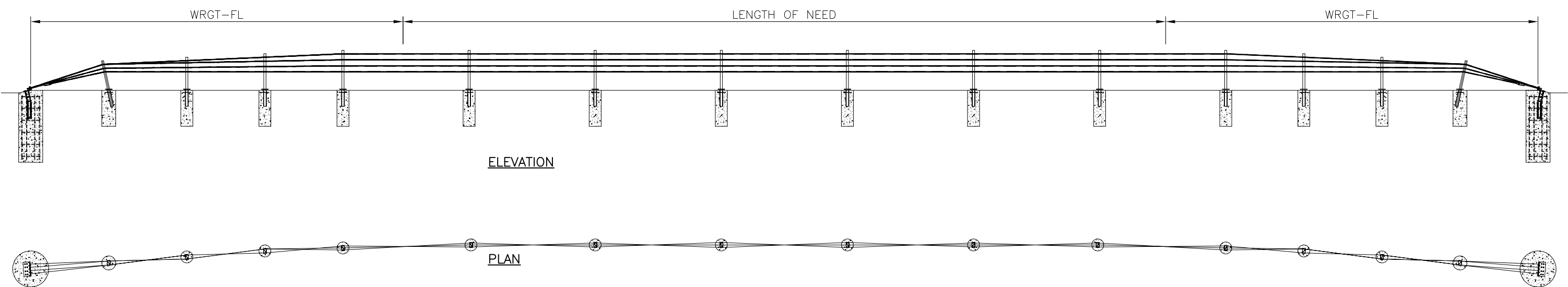
END ANCHOR COMPONENTS



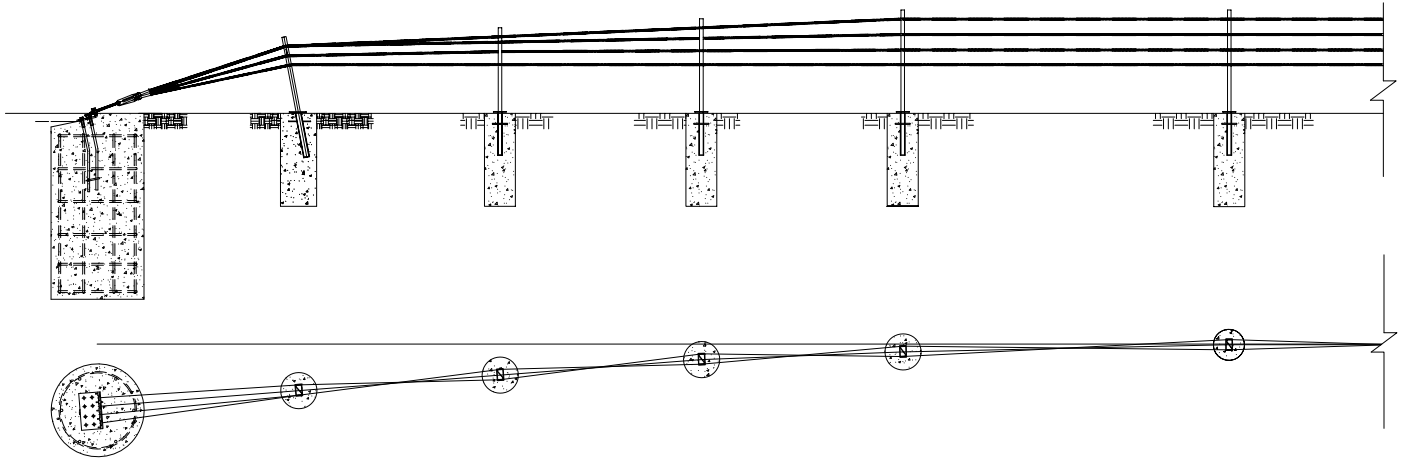
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BRIFEN★USA INC.

Revision			BRIFEN WRGT END TERMINAL INSTALLATION & LAYOUT DETAILS		
No.	Date	By			
1.			Date 2.8.12	Drawn By Manita Elizondo	Scale None
2.					
3.					
4.			VERSION 12.0		
5.			Dwg. No.	WRGT-12-003a	Sheet No 3 OF 3



WRGT-FL END ANCHOR



* SEE SHEET 3 OF 3 FOR FURTHER INFORMATION

ROPE TENSION TABLE		
ROPE TEMP. (F°)	TENSION (LBS)	TENSION (kN)
0	5700	25.4
5	5550	24.7
10	5400	24.0
15	5250	23.4
20	5100	22.7
25	4950	22.0
30	4800	21.4
35	4650	20.74
40	4500	20.0
45	4350	19.3
50	4200	18.7
55	4050	18.0
60	3900	17.3
65	3750	16.7
70	3600	16.0
75	3450	15.3
80	3300	14.7
85	3150	14.0
90	3000	13.3
95	2850	12.7
100	2700	12.0
105	2550	11.3
110	2400	10.7
115	2250	10.0
120	2100	9.3
125	1950	8.7
130	1800	8.0
135	1650	7.3
140	1500	6.7

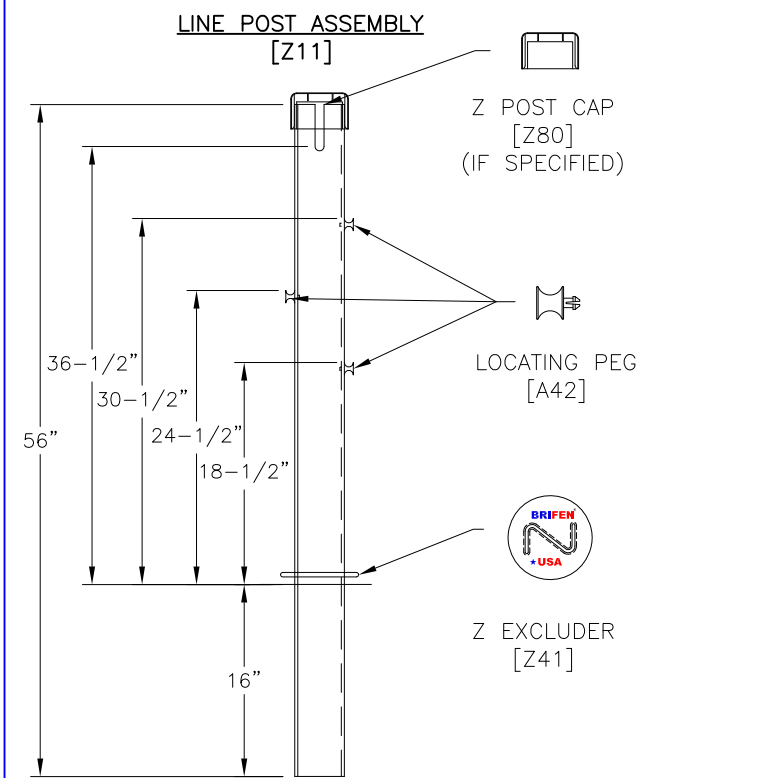
* ROPE TENSION: ±20% AFTER 2-WEEK INTERVAL

GENERAL NOTES:

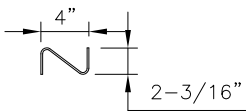
- BRIFEN DRAWINGS, SPECIFICATIONS, AND PRODUCT MANUAL SHOULD BE REVIEWED PRIOR TO STARTING AN INSTALLATION. FOR ADDITIONAL INFORMATION OR QUESTIONS, CONTACT BRIFEN USA, INC. AT 1-866-427-4336.
- THE BRIFEN WRSF HAS BEEN SUCCESSFULLY TESTED TO NCHRP 350 TL-4 CONDITIONS ON SLOPES 6:1 OR FLATTER AND NCHRP 350 TL-3 CONDITIONS ON SLOPES 4:1 TO 6:1.
- THE POST SPACING SHALL BE DETERMINED BY THE SPECIFYING AGENCY. POST SPACING MAY BE DECREASED TO AVOID OBSTRUCTIONS OR UTILITIES. IN NO EVENT SHALL THE POST SPACING EXCEED 21'-0".
- BRIFEN WRSF SHALL BE PLACED ON A SMOOTH SURFACE, WITHOUT HUMPS, DROP-OFFS, HOLES, ETC THAT WOULD INTERFERE WITH THE STABILITY OF THE ERRANT VEHICLE. GRADING, FILL AND COMPACT MAY BE REQUIRED TO ASSURE THAT ROPES ARE INSTALLED AT THE DESIGN HEIGHT.
- THE WRGT-FL END ANCHOR HAS BEEN SUCCESSFULLY TESTED TO NCHRP 350 TL-3 CONDITIONS. THE LENGTH OF NEED BEGINS 31'-0" FROM THE END ANCHOR. POSTS 1 THROUGH POST 4, SPACED 6'-6" APART, HAVE WEAKENED CUTS AT THE GROUND THAT SHALL FACE THE ANCHOR.
- ANCHOR AND LINE POST DIMENSIONS AND STEEL REINFORCEMENT ARE BEST DETERMINED BASED ON PROJECT SPECIFIC SOIL CLASSIFICATION, PROPERTIES AND TEMPERATURE EXTREMES. CONTACT BRIFEN USA, INC. FOR ADDITIONAL INFORMATION.
- ALL REINFORCEMENT AND CONCRETE FOR THE ANCHORS AND LINE POSTS PROVIDED BY OTHERS.
- REINFORCEMENT AND CONCRETE PROPERTIES SHALL MEET AGENCY SPECIFICATIONS.
- FOR PLACEMENT NEAR GUARDRAIL OR OTHER OBSTACLES CONTACT BRIFEN USA, INC. FOR ADDITIONAL DRAWINGS AND SUPPORT.
- TAPER RATES FOR THE BRIFEN WRSF ARE AS FOLLOWS:
HORIZONTAL: 50:1 PREFERABLE, 25:1 MAXIMUM
VERTICAL: 50:1 PREFERABLE, 25:1 MAXIMUM

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BRIFEN★USA INC.					
Revision			BRIFEN WRSF NCHRP 350 TL-4 INSTALLATION & LAYOUT DETAILS		
No.	Date	By			
1.	2.8.13	ME	Date 6.27.12	Drawn By Manita Elizondo	Scale None
2.	11.20.13	ME			
3.					
4.			VERSION 12.2		Sheet No 1 OF 3
5.			Dwg. No.	WRGTFL-11-001b	



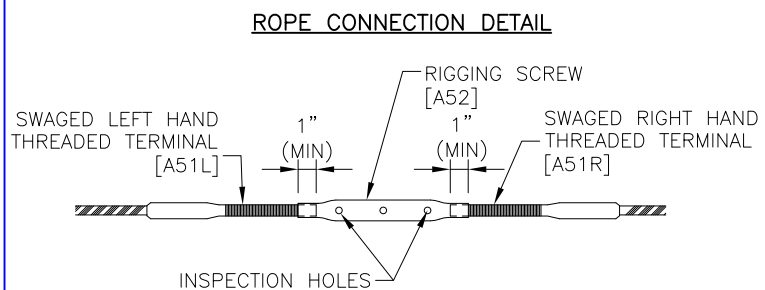
ELEVATION



PLAN

NOTES SPECIFIC TO LINE POST ASSEMBLY

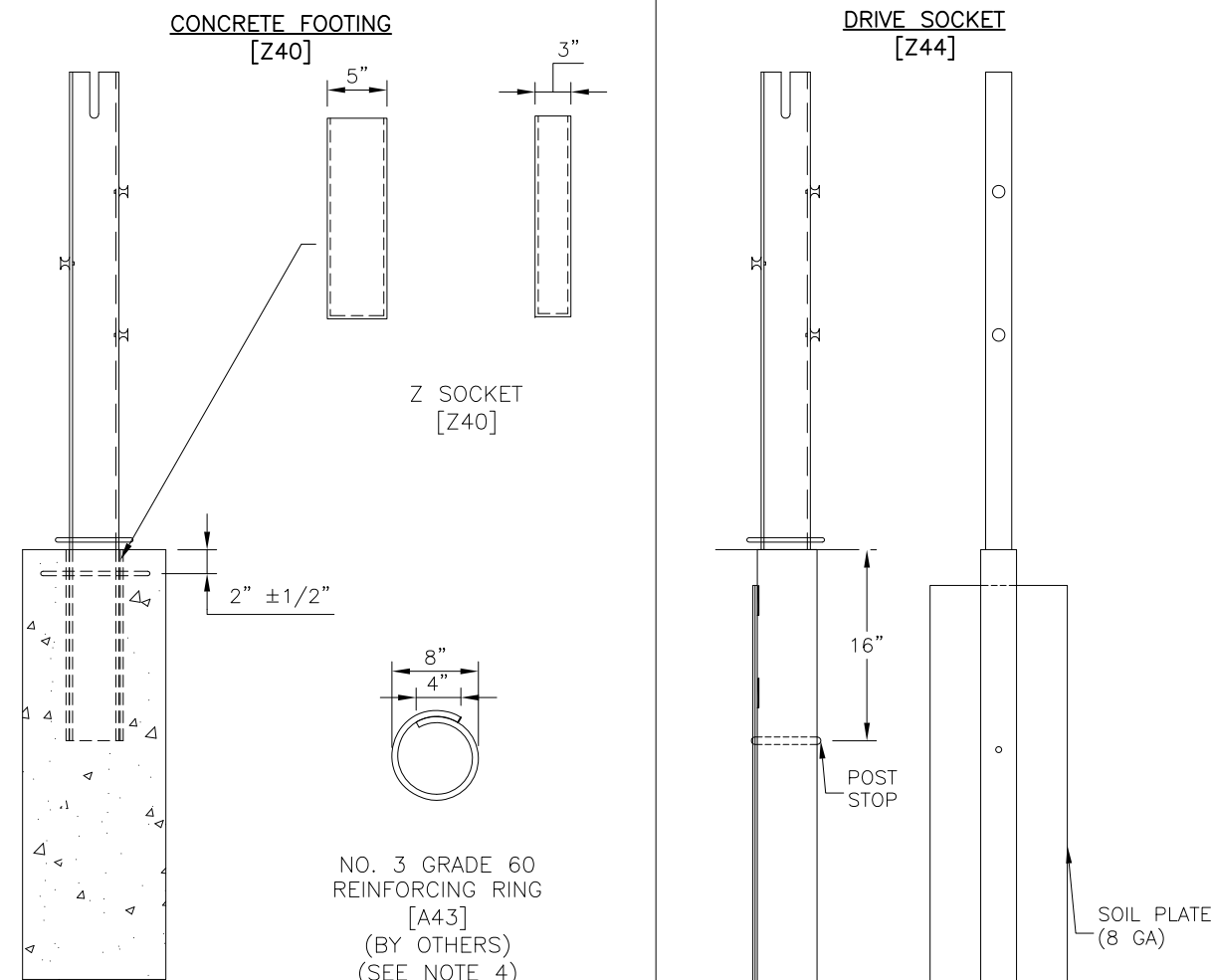
1. ROPE HEIGHTS SHALL BE $\pm 1"$ TO GROUND LINE.
2. POST SHALL BE $\pm 4"$ FROM VERTICAL PLUMB.
3. POST CAPS SHALL BE USED IF SPECIFIED.
4. REFLECTORS SHALL BE SPACED ACCORDING TO AGENCY SPECIFICATIONS.
5. REFLECTORS CAN BE PLACED ON THE POST CAP OR POST.



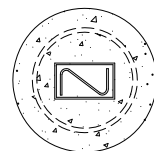
NOTES SPECIFIC TO ROPE CONNECTION DETAIL

1. THE WIRE ROPE TERMINALS SHALL BE THREADED A MINIMUM OF 1" INTO RIGGING SCREW.

SOCKET ASSEMBLY



ELEVATION



PLAN

NOTES SPECIFIC TO CONCRETE FOOTING

1. SIZE OF FOOTING WILL BE DETERMINED BY SOIL CONDITIONS, FOUNDATION TYPE AND PROJECT CONDITIONS.
2. CONCRETE BASED ON AGENCY SPECIFICATIONS.
3. CONCRETE BY OTHERS.
4. REINFORCING RING (BY OTHERS) WILL BE USED ACCORDING TO FOUNDATION SIZE AND TYPE. THE REINFORCING RING MAY BE OMITTED IF THE FOOTING IS PLACED IN A CONTINUOUS CONCRETE MOW STRIP.
5. FOOTING SHALL BE FLUSH WITH THE GROUND LINE, TO A MAXIMUM OF 1 INCH BELOW OR ABOVE GROUND LINE.
6. SOCKET SHALL BE $\pm 2"$ OF VERTICAL PLUMB.

NOTES SPECIFIC TO DRIVE SOCKETS

1. SIZE OF SOIL PLATE WILL BE DETERMINED BY SOIL CONDITIONS AND PROJECT CONDITIONS.
2. THE SOIL PLATE SHALL BE PARALLEL TO ROADWAY AND CAN FACE TOWARD OR AWAY FROM THE TRAVEL LANE.
3. FOOTING SHALL BE FLUSH WITH THE GROUND LINE, TO A MAXIMUM OF 1 INCH BELOW OR ABOVE GROUND LINE.
4. SOCKET SHALL BE $\pm 2"$ OF VERTICAL PLUMB.
5. SOCKETS SHALL BE DRIVEN IN A MANNER TO NOT DISTORT OR DESTROY THE TOP OF SOCKET TO A DEGREE THAT PLACES THE SOCKET OR LINE POST OUT OF CONSTRUCTION TOLERANCES.

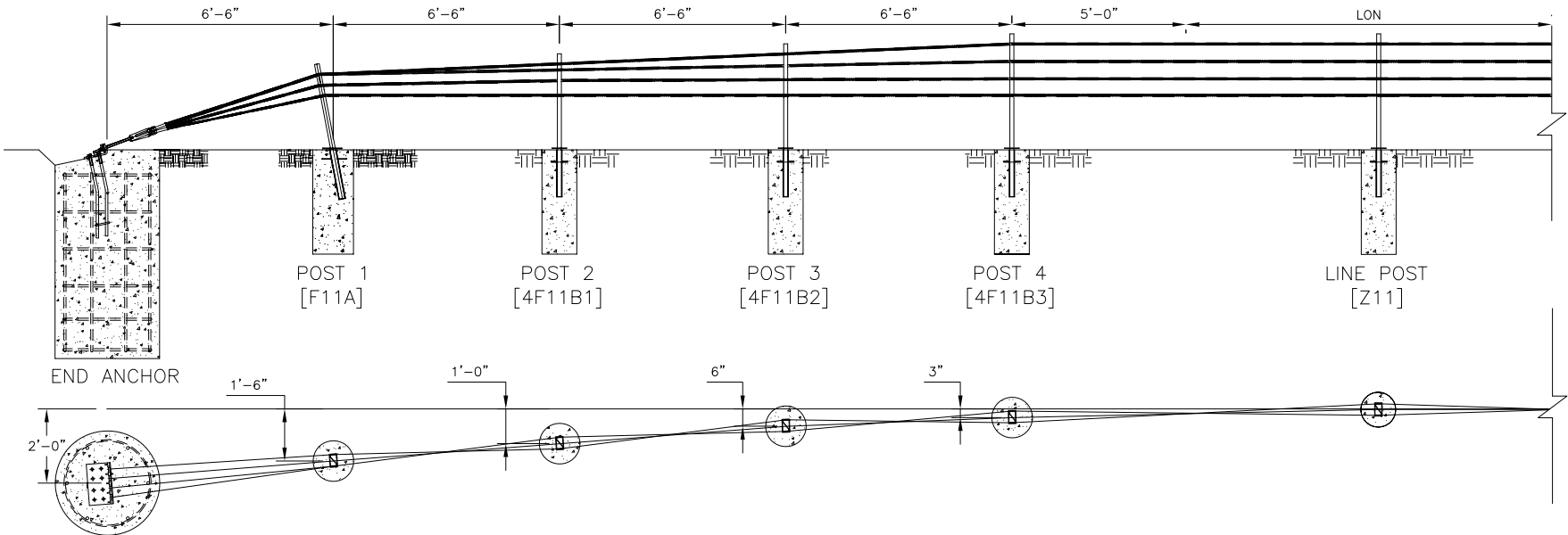
GENERAL NOTES:

1. BRIFEN DRAWINGS, SPECIFICATIONS, AND PRODUCT MANUAL SHOULD BE REVIEWED PRIOR TO STARTING AN INSTALLATION. FOR ADDITIONAL INFORMATION OR QUESTIONS, CONTACT BRIFEN USA, INC. AT 1-866-427-4336.
2. THE BRIFEN WRSF HAS BEEN SUCCESSFULLY TESTED TO NCHRP 350 TL-4 CONDITIONS ON SLOPES 6:1 OR FLATTER AND NCHRP 350 TL-3 CONDITIONS ON SLOPES 4:1 TO 6:1.
3. THE POST SPACING SHALL BE DETERMINED BY THE SPECIFYING AGENCY. POST SPACING MAY BE DECREASED TO AVOID OBSTRUCTIONS OR UTILITIES. IN NO EVENT SHALL THE POST SPACING EXCEED 21'-0".
4. BRIFEN WRSF SHALL BE PLACED ON A SMOOTH SURFACE, WITHOUT HUMPS, DROP-OFFS, HOLES, ETC THAT WOULD INTERFERE WITH THE STABILITY OF THE ERRANT VEHICLE. GRADING, FILL AND COMPACTION MAY BE REQUIRED TO ASSURE THAT ROPES ARE INSTALLED AT THE DESIGN HEIGHT.

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Revision			BRIFEN WRSF NCHRP 350 TL-4 LENGTH OF NEED COMPONENTS		
No.	Date	By			
1.	11.20.13	ME			
2.			Date 6.27.12	Drawn By Manita Elizondo	Scale None
3.					
4.			VERSION 12.2		
5.			Dwg. No.	WRGTFL-11-002b	Sheet No 2 OF 3

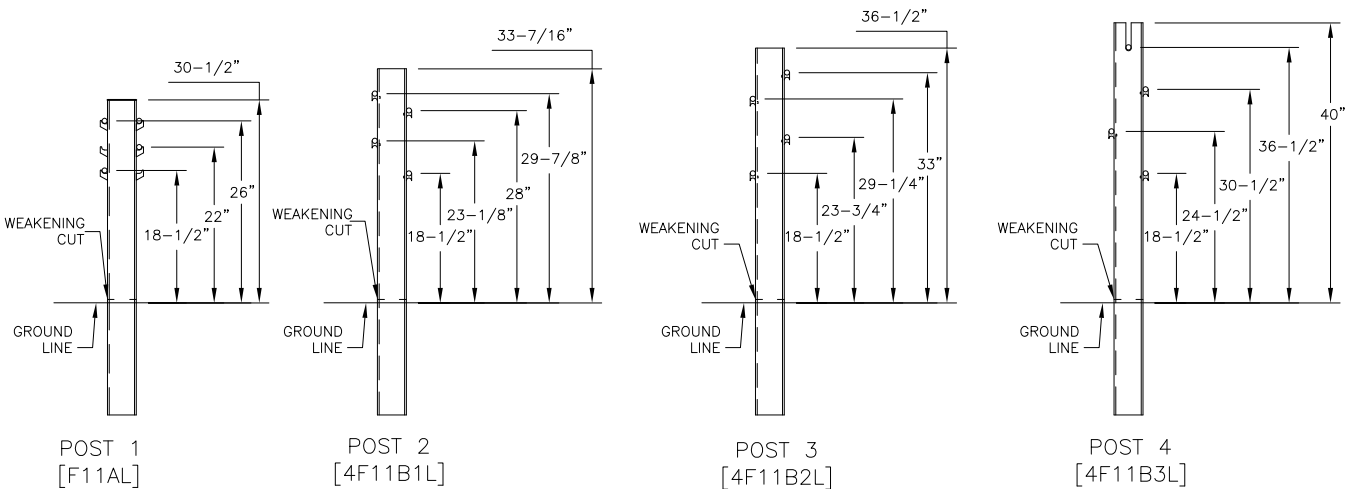
WRGT-FL END ANCHOR LAYOUT



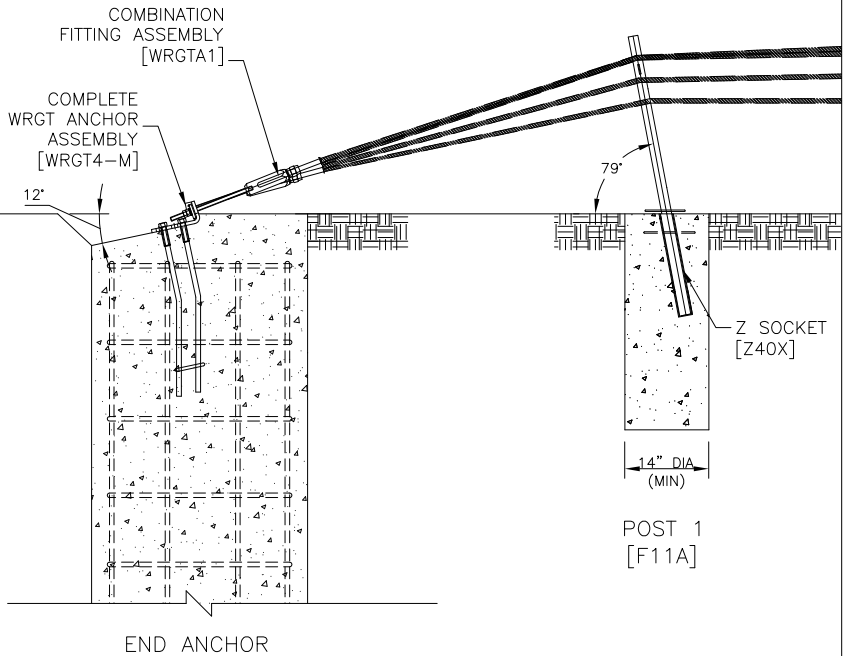
GENERAL NOTES:

1. BRIFEN DRAWINGS, SPECIFICATIONS, AND PRODUCT MANUAL SHOULD BE REVIEWED PRIOR TO STARTING AN INSTALLATION. FOR ADDITIONAL INFORMATION OR QUESTIONS, CONTACT BRIFEN USA, INC. AT 1-866-427-4336.
2. THE WRGT-FL END ANCHOR HAS BEEN SUCCESSFULLY TESTED TO NCHRP 350 TL-3 CONDITIONS. THE LENGTH OF NEED BEGINS 31'-0" FROM THE END ANCHOR. POSTS 1 THROUGH POST 4, SPACED 6'-6" APART, HAVE WEAKENED CUTS AT THE GROUND THAT SHALL FACE THE ANCHOR.
3. ANCHOR AND LINE POST DIMENSIONS AND STEEL REINFORCEMENT ARE BEST DETERMINED BASED ON PROJECT SPECIFIC SOIL CLASSIFICATION, PROPERTIES AND TEMPERATURE EXTREMES. CONTACT BRIFEN USA, INC. FOR ADDITIONAL INFORMATION.
4. ALL REINFORCEMENT AND CONCRETE FOR THE ANCHORS AND LINE POSTS PROVIDED BY OTHERS.
5. REINFORCEMENT AND CONCRETE PROPERTIES SHALL MEET AGENCY SPECIFICATIONS.
6. FOR PLACEMENT NEAR GUARDRAIL OR OTHER OBSTACLES CONTACT BRIFEN USA, INC. FOR ADDITIONAL DRAWINGS AND SUPPORT.

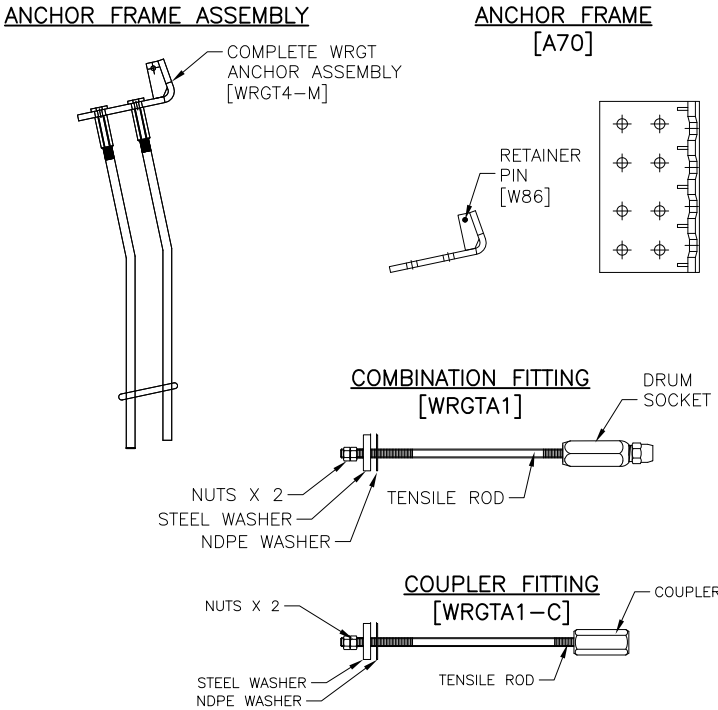
WRGT-FL POST DETAILS



END ANCHOR DETAILS



END ANCHOR COMPONENTS



NOTES SPECIFIC TO WRGT-FL POST DETAIL

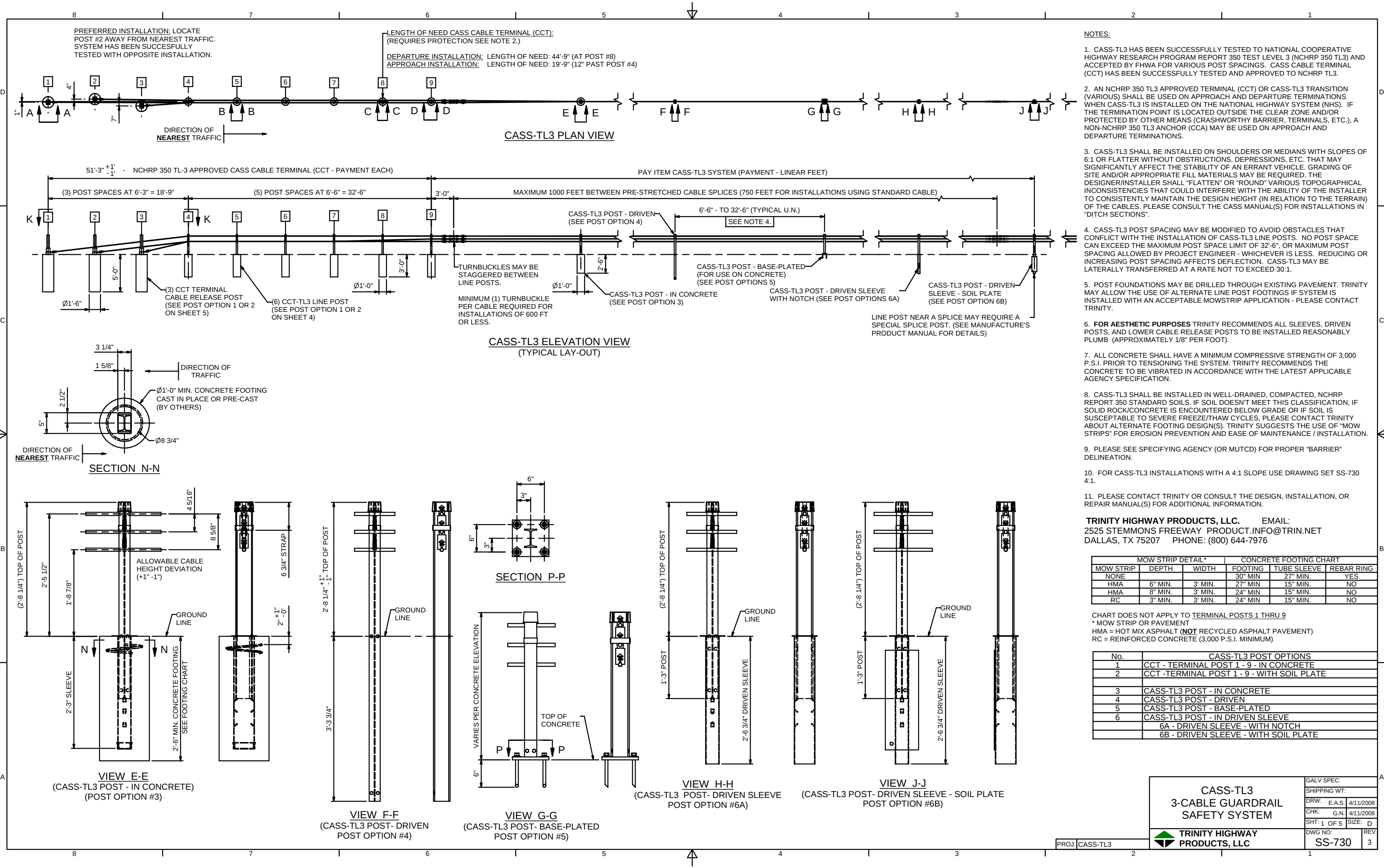
1. ROPE HEIGHTS SHALL BE $\pm 1"$ TO GROUND LINE.
2. POST SHALL BE $\pm 4"$ FROM VERTICAL PLUMB.
3. POST CAPS SHALL BE USED IF SPECIFIED.
4. REFLECTORS SHALL BE SPACED ACCORDING TO AGENCY SPECIFICATIONS.
5. REFLECTORS CAN BE PLACED ON THE POST CAP OR POST.
6. Z EXCLUDER (Z41) SHALL BE USED.
7. POST 1 & SOCKET SHALL BE PLACED $79^\circ (\pm 4^\circ)$ TOWARD END ANCHOR FROM THE HORIZONTAL PLANE.
8. POST 1 SOCKET SHALL BE PLACED IN 14" (MIN) CONCRETE FOUNDATION. DEPTH TO BE DETERMINED FROM SOIL CONDITIONS AND PROJECT CONDITIONS.
9. FOUNDATIONS FOR POST 2 THRU 4 SHALL BE THE SAME AS THE LINE POST ASSEMBLY'S FOR THE PROJECT.
10. WEAKENED CUTS SHALL FACE END ANCHOR.

NOTES SPECIFIC TO END ANCHOR DETAIL

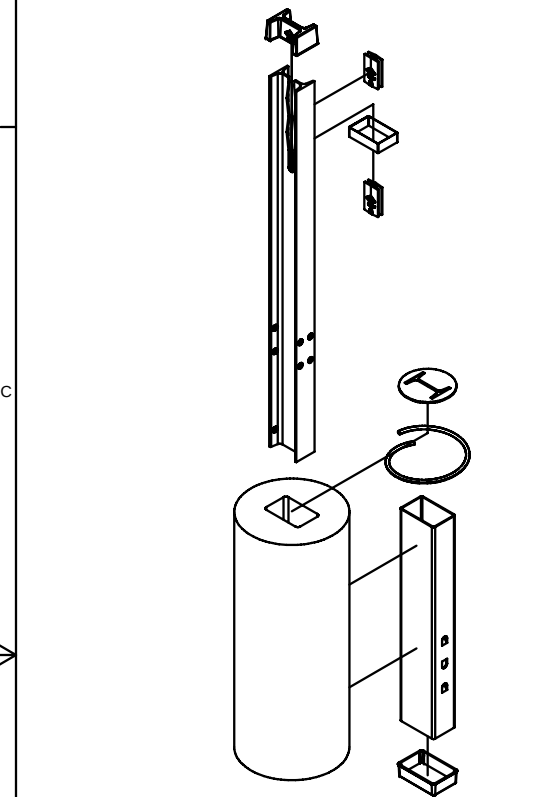
1. THE END ANCHOR ASSEMBLY SHALL BE PLACED $12"$ ($+3"$, $-1"$) BELOW HORIZONTAL PLANE.
2. POST 1 & SOCKET SHALL BE PLACED $79^\circ (\pm 4^\circ)$ TOWARD END ANCHOR FROM THE HORIZONTAL PLANE.
3. POST 1 SOCKET SHALL BE PLACED IN 14" (MIN) CONCRETE FOUNDATION. DEPTH TO BE DETERMINED FROM SOIL CONDITIONS AND PROJECT CONDITIONS.

The information herein is proprietary to BRIFEN USA, and shall not be disclosed, duplicated or used otherwise without the express written consent of BRIFEN USA, Inc.

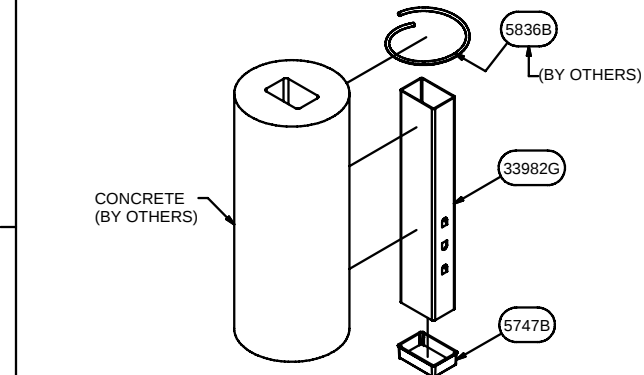
Revision			BRIFEN WRGT-FL END TERMINAL INSTALLATION & LAYOUT DETAILS		
No.	Date	By	Date	Drawn By	Scale
1.	2.8.13	ME	6.27.12	Manita Elizondo	None
2.	11.20.13	ME			
3.					
4.			VERSION 12.2		Sheet No 3 OF 3
5.			Dwg. No.	WRGTFL-11-003b	



PARTS LIST - CASS-TL3 POST - IN CONCRETE - POST OPTION #3				
QTY	PART No	TITLE	Lbs / Each	
2	5700B	CASS & TL3 CABLE SPACER	0.11	
1	5707T	CASS-TL - POST STRAP	0.23	
1	5708B	SLEEVE COVER - CASS-TL POST	0.11	
1	5724B	CASS-TL POST CAP	0.17	
1	5747B	SLEEVE CAP - CASS-TL POST	0.15	
1	5836B	CONCRETE REINFORCING RING	0.88	
1	33953G	CASS-TL3 POST - CONCRETE	29.36	
1	33982G	27" POST SLEEVE - IN CONCRETE	14.48	



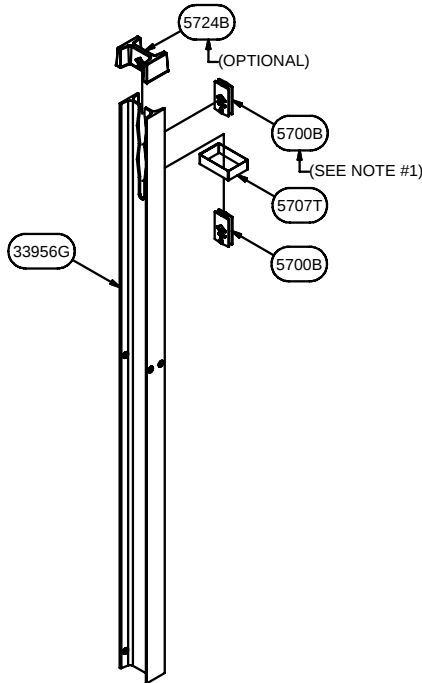
CASS-TL3 POST - IN CONCRETE
(POST OPTION #3 - CAST IN PLACE)



CONCRETE FOOTING ASSEMBLY
(POST OPTION #3 - PRE-CAST OPTION)

PARTS LIST - PRE-CAST CONCRETE FOOTING - OPTION #3			
QTY	PART No	TITLE	Lbs / Each
1	5747B	SLEEVE CAP - CASS-TL POST	0.15
1	5836B	CONCRETE REINFORCING RING	0.88
1	33982G	27" POST SLEEVE - IN CONCRETE	14.48

PARTS LIST - CASS-TL3 POST DRIVEN - OPTION #4			
QTY	PART No	TITLE	Lbs / Each
2	5700B	CASS & TL3 CABLE SPACER	0.11
1	5707T	CASS-TL - POST STRAP	0.23
1	5724B	CASS-TL POST CAP	0.17
1	33956G	CASS-TL3 POST - DRIVEN	45.36

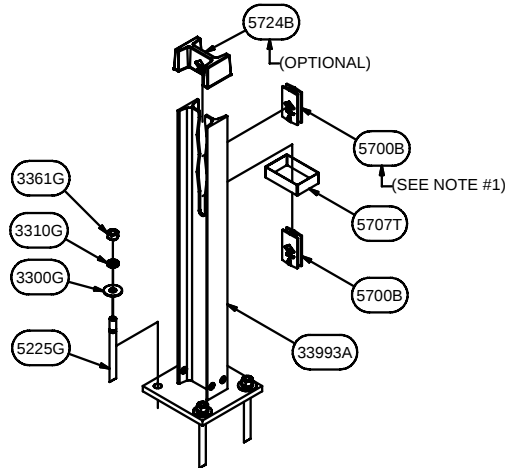


CASS-TL3 POST - DRIVEN
(POST OPTION #4 - DRIVEN)

PARTS LIST - CONCRETE FOOTING IN MOW STRIP OR PAVEMENT			
QTY	PART No	TITLE	Lbs / Each
1	5747B	SLEEVE CAP - CASS-TL POST	0.15
1	33968G	15" POST SLEEVE - CONCRETE POST	8.00

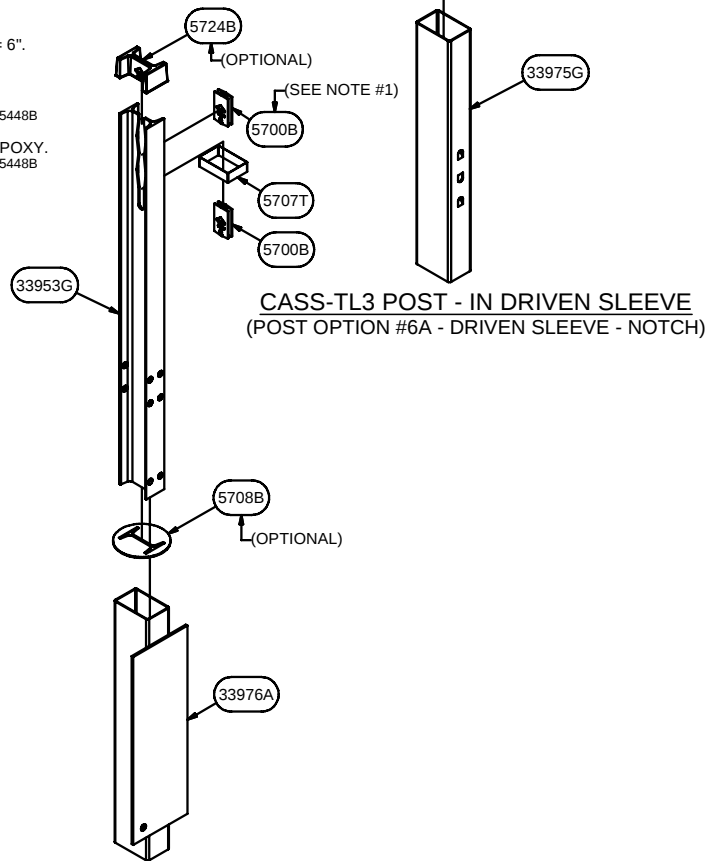
CONCRETE FOOTING ASSEMBLY
(INSTALLED IN QUALIFYING MOW STRIP SEE CHART SHEET 1)

PARTS LIST - CASS-TL3 POST BASE-PLATED - OPTION #5			
QTY	PART No	TITLE	Lbs / Each
4	3300G	5/8" PLAIN WASHER - TYPE B - R - (F844)	0.06
4	3310G	5/8 LOCK WASHER	0.00
4	3361G	5/8" HEX NUT (A563 Gr DH)	0.01
4	5225G	5/8 x 7 1/2" HAS SUPER ROD CHSL PT (A193 B7)	0.62
0.6	5448B	HIT HY 150 MAX EPOXY (HILTI - 00283548)	
2	5700B	CASS & TL3 CABLE SPACER	0.11
1	5707T	CASS-TL - POST STRAP	0.23
1	5724B	CASS-TL POST CAP	0.17
1	33993A	CASS-TL3 POST BASE-PLATED	30.56



CASS-TL3 POST - BASE-PLATED
(POST OPTION #5 - BASE-PLATED)

- ANCHOR OPTIONS:
MIN. EMBEDMENT IN 3,000 P.S.I. CONCRETE = 6".
MIN. PULLOUT STRENGTH = 10,000 lbs.
- 1: 5/8 ADHESIVE ANCHORING SYSTEM.
(4 EACH 3300G, 3310G, 3361G & 5225G) & 0.6 EACH 5448B
- 2: 5/8 x 8" ALL THREADED ROD (A449) WITH EPOXY.
(4 EACH 3300G, 3310G, 3361G & 6722G) & 0.6 EACH 5448B
- 3: 5/8 MECHANICAL ANCHOR. (BY OTHERS)



CASS-TL3 POST - IN DRIVEN SLEEVE
(POST OPTION #6A - DRIVEN SLEEVE - NOTCH)

CASS-TL3 POST - IN DRIVEN SLEEVE
(POST OPTION #6B - DRIVEN SLEEVE - SOIL PLATE)

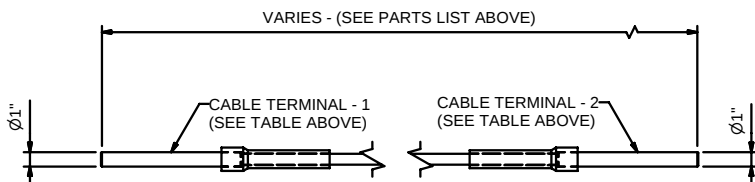
PARTS LIST - CASS-TL3 POST - IN DRIVEN SLEEVE - POST OPTION #6B			
QTY	PART No	TITLE	Lbs / Each
2	5700B	CASS & TL3 CABLE SPACER	0.11
1	5707T	CASS-TL - POST STRAP	0.23
1	5708B	SLEEVE COVER - CASS-TL POST	0.11
1	5724B	CASS-TL POST CAP	0.17
1	33953G	CASS-TL3 POST - CONCRETE	29.36
1	33976A	30.75" CASS-TL3 POST SLEEVE w/ SOIL PLATE	30.09

PARTS LIST - CASS-TL3 POST - IN DRIVEN SLEEVE - POST OPTION #6A			
QTY	PART No	TITLE	Lbs / Each
2	5700B	CASS & TL3 CABLE SPACER	0.11
1	5707T	CASS-TL - POST STRAP	0.23
1	5708B	SLEEVE COVER - CASS-TL POST	0.11
1	5724B	CASS-TL POST CAP	0.17
1	33953G	CASS-TL3 POST - CONCRETE	29.36
1	33975G	30.75" POST SLEEVE - DRIVEN SHORT POST	16.49

PARTS LIST - PRE-STRETCHED CABLE ASSEMBLIES						
QTY	PART No	TITLE	LENGTH	TERM-1	TERM-2	Lbs / Each
1	5817	CCT CABLE ASSEMBLY-TOP	54'-4"	R.H.T.	L.H.T.	58.3
1	5818	CCT CABLE ASSEMBLY-MID	48'-1"	R.H.T.	L.H.T.	52.3
1	5819	CCT CABLE ASSEMBLY-BOT	41'-10"	R.H.T.	L.H.T.	46.3
1	5867	CCA CABLE ASSEMBLY	25'-0"	R.H.T.	L.H.T.	30.9
1	5816	CABLE ASSEMBLY-INTERIOR	1000'	R.H.T.	L.H.T.	967.0
1	5753	CABLE FIELD SPLICE SECTION	1025'	R.H.T.	NONE	989.0
1	5752	CABLE FIELD SPLICE SECTION	1000'	R.H.T.	NONE	965.0
1	5798	CABLE FIELD SPLICE SECTION	975'	R.H.T.	NONE	940.9
1	5797	CABLE FIELD SPLICE SECTION	950'	R.H.T.	NONE	916.9
1	5796	CABLE FIELD SPLICE SECTION	925'	R.H.T.	NONE	892.8
1	5795	CABLE FIELD SPLICE SECTION	900'	R.H.T.	NONE	868.8
1	5794	CABLE FIELD SPLICE SECTION	875'	R.H.T.	NONE	844.7
1	5793	CABLE FIELD SPLICE SECTION	850'	R.H.T.	NONE	820.7
1	5792	CABLE FIELD SPLICE SECTION	825'	R.H.T.	NONE	796.6
1	5791	CABLE FIELD SPLICE SECTION	800'	R.H.T.	NONE	772.6
1	5790	CABLE FIELD SPLICE SECTION	775'	R.H.T.	NONE	748.5
1	5789	CABLE FIELD SPLICE SECTION	750'	R.H.T.	NONE	724.5
1	5788	CABLE FIELD SPLICE SECTION	725'	R.H.T.	NONE	700.4
1	5787	CABLE FIELD SPLICE SECTION	700'	R.H.T.	NONE	676.4
1	5786	CABLE FIELD SPLICE SECTION	675'	R.H.T.	NONE	652.3
1	5785	CABLE FIELD SPLICE SECTION	650'	R.H.T.	NONE	628.3
1	5784	CABLE FIELD SPLICE SECTION	625'	R.H.T.	NONE	604.2
1	5783	CABLE FIELD SPLICE SECTION	600'	R.H.T.	NONE	580.2
1	5782	CABLE FIELD SPLICE SECTION	575'	R.H.T.	NONE	556.1
1	5781	CABLE FIELD SPLICE SECTION	550'	R.H.T.	NONE	532.1
1	5780	CABLE FIELD SPLICE SECTION	525'	R.H.T.	NONE	508.0
1	5779	CABLE FIELD SPLICE SECTION	500'	R.H.T.	NONE	484.0
1	5778	CABLE FIELD SPLICE SECTION	475'	R.H.T.	NONE	459.9
1	5776	CABLE FIELD SPLICE SECTION	450'	R.H.T.	NONE	435.9
1	5775	CABLE FIELD SPLICE SECTION	425'	R.H.T.	NONE	411.8
1	5769	CABLE FIELD SPLICE SECTION	400'	R.H.T.	NONE	387.8
1	5768	CABLE FIELD SPLICE SECTION	375'	R.H.T.	NONE	363.7
1	5767	CABLE FIELD SPLICE SECTION	350'	R.H.T.	NONE	339.7
1	5766	CABLE FIELD SPLICE SECTION	325'	R.H.T.	NONE	315.7
1	5765	CABLE FIELD SPLICE SECTION	300'	R.H.T.	NONE	291.6
1	5764	CABLE FIELD SPLICE SECTION	275'	R.H.T.	NONE	267.6
1	5763	CABLE FIELD SPLICE SECTION	250'	R.H.T.	NONE	243.5
1	5762	CABLE FIELD SPLICE SECTION	225'	R.H.T.	NONE	219.5
1	5761	CABLE FIELD SPLICE SECTION	200'	R.H.T.	NONE	195.4
1	5760	CABLE FIELD SPLICE SECTION	175'	R.H.T.	NONE	171.4
1	5759	CABLE FIELD SPLICE SECTION	150'	R.H.T.	NONE	147.3
1	5758	CABLE FIELD SPLICE SECTION	125'	R.H.T.	NONE	123.3
1	5757	CABLE FIELD SPLICE SECTION	100'	R.H.T.	NONE	99.2
1	5756	CABLE FIELD SPLICE SECTION	75'	R.H.T.	NONE	75.2
1	5755	CABLE FIELD SPLICE SECTION	50'	R.H.T.	NONE	51.1
1	5754	CABLE FIELD SPLICE SECTION	25'	R.H.T.	NONE	27.1
1	5840	CABLE FIELD REPAIR SECTION	5'	R.H.T.	L.H.T.	10.8

NOTE:

FOR THE STANDARD FIELD SPLICE SECTIONS ABOVE,
SUPPLY (1) RIGHT HAND THREADED STUD ASSEMBLY
5910G EACH.



PRE-STRETCHED CABLE ASSEMBLY

NOTES:

- IN LIEU OF BLACK SPACER 5700B SUPPLY YELLOW REFLECTIVE SPACER 5701B OR WHITE REFLECTIVE SPACER 5702B. (AS REQUIRED PER PROJECT PLANS)
- AT CASS-TL3 POST LOCATION NEAREST TO A CABLE SPLICE, SUPPLY A SPLICE INTERFERENCE POST.
LONG SPLICE POST 33983G IN LIEU OF LONG CASS-TL3 POST 33956G
SHORT SPLICE POST 33973G IN LIEU OF SHORT CASS-TL3 POST 33953G
- IF REQUIRED PER PROJECT PLANS SUPPLY:
CABLE PULLING TOOL 5850B
CABLE TENSION METER 5878B
CABLE THERMOMETER 5709B

CASS-TL3 3-CABLE GUARDRAIL SAFETY SYSTEM		GALV SPEC:	
		SHIPPING WT:	
		DRW: E.A.S. 4/11/2008	
		CHK: G.N. 4/11/2008	
TRINITY HIGHWAY PRODUCTS, LLC		SHT: 2 OF 5	
		SIZE: D	
PROJ: CASS-TL3		DWG NO:	
		SS-730	
		REV	
		3	

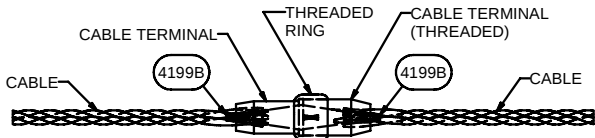
CASS TEMPERATURE & TENSION CHART (NEAREST 100 lb/F)		
FAHRENHEIT DEGREES	STD. CABLE LB/FORCE	PRE-STRETCHED LB/FORCE
<= -15	8800	7500
-10	8600	7300
-5	8400	7100
0	8200	7000
5	8000	6800
10	7800	6600
15	7600	6500
20	7400	6300
25	7200	6100
30	7000	6000
35	6800	5800
40	6600	5600
45	6400	5500
50	6200	5300
55	6000	5100
60	5800	5000
65	5600	4800
70	5400	4600
75	5200	4500
80	5000	4300
85	4800	4100
90	4600	4000
95	4400	3800
100	4200	3600
105	4000	3500
110	3800	3300
115	3600	3100
120	3400	3000
125	3200	2800
130	3000	2700
135	2900	2600
140	2700	2500
145	2500	2400
150	2400	2300
160	2200	2100
170	2000	1900
180	1800	1700
190	1600	1500
200	1400	1300

ALLOWABLE DEVIATION FROM CHART IN TANGENT SECTIONS:
+800, -200 POUNDS/FORCE.

CABLE TENSION READINGS ARE TYPICALLY HIGHER IN CURVED CABLE SECTIONS.

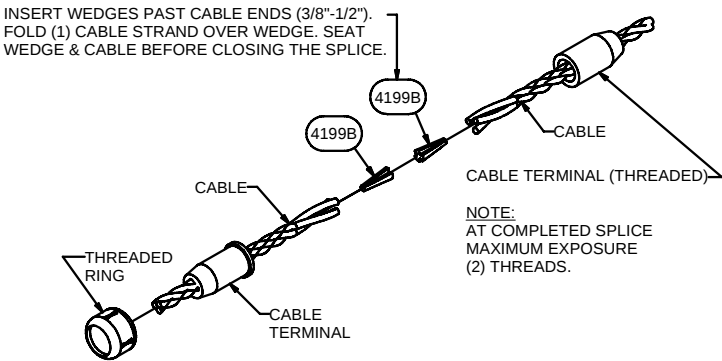
NOTE:

- TURNBUCKLES SHALL BE INSTALLED WITH A MINIMUM OF 1-1/2" THREAD ENGAGEMENT. TO ALLOW FOR MAINTENANCE/REPAIR ADJUSTMENTS AT A LATER DATE, TRINITY SUGGESTS INSTALLER UTILIZE NO MORE THAN 4" THREAD ENGAGEMENT.
- WHEN CUTTING CABLE LENGTHS IN THE FIELD FROM CABLE REELS, IT MAY BE PERMISSIBLE TO UTILIZE A CABLE TORPEDO SPLICE (4099G) BETWEEN TURNBUCKLES. DO NOT USE FOR CABLE LENGTH SHORTER THAN 100'. PLEASE CONTACT TRINITY, CONSULT TRINITY'S MANUAL OR SPECIFYING AGENCY TO DETERMINE IF APPROPRIATE FOR SPECIFIC APPLICATION.

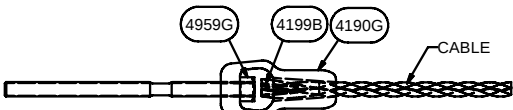


TORPEDO CABLE SPLICE - 4099G

PARTS LIST - 4099G			
QTY	PART No	TITLE	Lbs / Each
1		CABLE TERMINAL - THREADED	1.78
1		CABLE TERMINAL	1.52
1		RING - THREADED	-0.06
2	4199B	3/4" CABLE WEDGE (3 x 7)	0.08

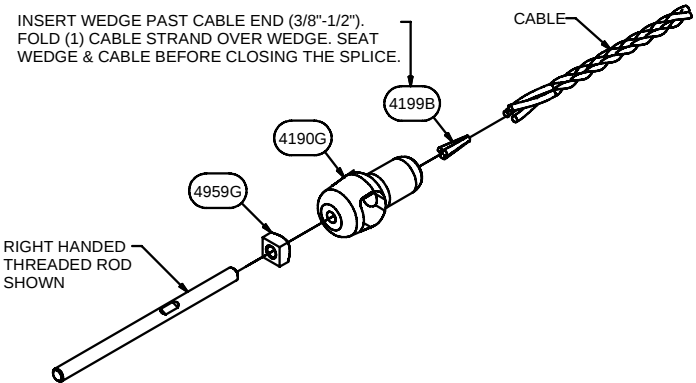


ASSEMBLY - TORPEDO CABLE SPLICE 4099G



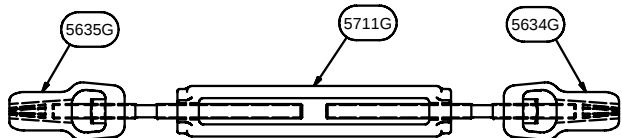
3/4" CABLE FIELD SPLICE - 5634G & 5635G
(5634G SHOWN, 5635G SIMILAR)

PARTS LIST - 5634G			
QTY	PART No	TITLE	Lbs / Each
1		3/4" STUD FLATTENED - L.H.T.	1.62
1	4190G	CABLE END CASTING	3.78
1	4199B	3/4" CABLE WEDGE (3 x 7)	0.08
1	4959G	3/4" HEAVY SQUARE NUT (A563)	0.26



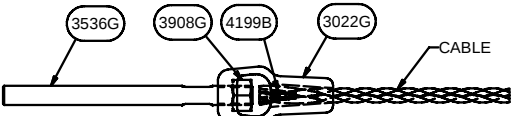
ASSEMBLY - 3/4" CABLE FIELD SPLICE - 5635G
(5635G SHOWN, 5634G SIMILAR)

PARTS LIST - 5635G			
QTY	PART No	TITLE	Lbs / Each
1		3/4" STUD FLATTENED - R.H.T.	1.62
1	4190G	CABLE END CASTING	3.78
1	4199B	3/4" CABLE WEDGE (3 x 7)	0.08
1	4959G	3/4" HEAVY SQUARE NUT (A563)	0.26



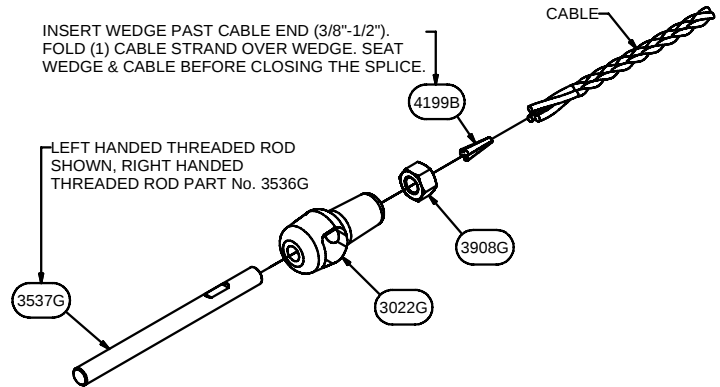
3/4" CABLE SPLICE - 5698G
(OPEN BODY STYLE)

PARTS LIST - 5698G			
QTY	PART No	TITLE	Lbs / Each
1	5634G	3/4" STUD ASSEMBLY L.H.T.	5.74
1	5635G	3/4" STUD ASSEMBLY R.H.T.	5.74
1	5711G	3/4" TURNBUCKLE OPEN BODY STYLE	10.69



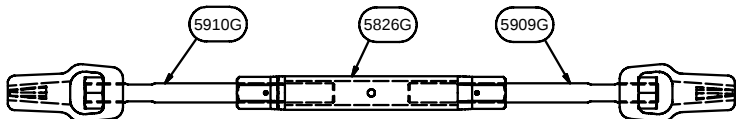
1" CABLE FIELD SPLICE - 5909G & 5910G
(5910G SHOWN, 5909G SIMILAR)

PARTS LIST - 5910G			
QTY	PART No	TITLE	Lbs / Each
1	3022G	1" CABLE END CASTING	0.56
1	3536G	1" STUD FLATTENED - R.H.T.	2.88
1	3908G	1" HEAVY HEX NUT (A563 DH)	0.47
1	4199B	3/4" CABLE WEDGE (3 x 7)	0.08



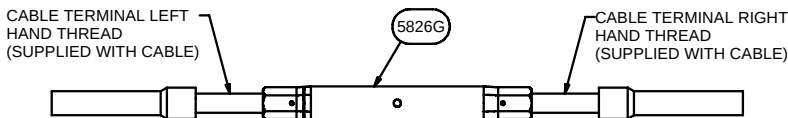
ASSEMBLY - 1" CABLE FIELD SPLICE - 5909G
(5909G SHOWN, 5910G SIMILAR)

PARTS LIST - 5909G			
QTY	PART No	TITLE	Lbs / Each
1	3022G	1" CABLE END CASTING	0.56
1	3537G	1" STUD FLATTENED - L.H.T.	2.88
1	3908G	1" HEAVY HEX NUT (A563 DH)	0.47
1	4199B	3/4" CABLE WEDGE (3 x 7)	0.08



1" CABLE SPLICE - 5633G
(CLOSED BODY STYLE)

PARTS LIST - 5633G			
QTY	PART No	TITLE	Lbs / Each
1	5826G	1" CASS TURNBUCKLE CLOSED BODY STYLE	4.81
1	5909G	1" STUD ASSEMBLY L.H.T.	3.99
1	5910G	1" STUD ASSEMBLY R.H.T.	3.99

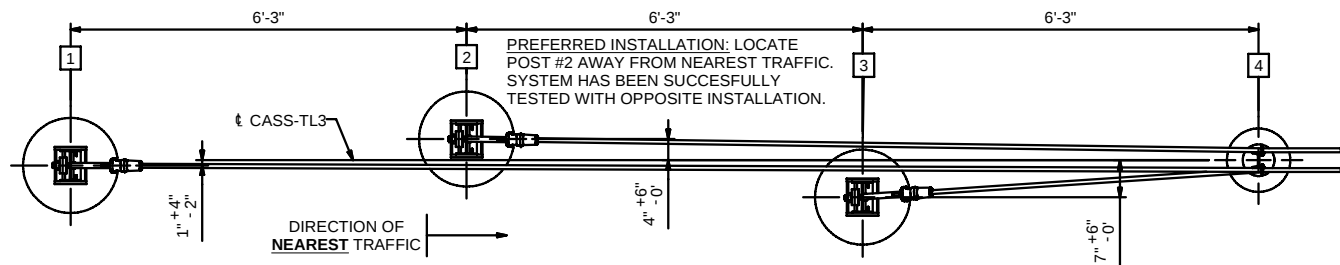


1" TURNBUCKLE - 5826G
(CLOSED BODY STYLE)

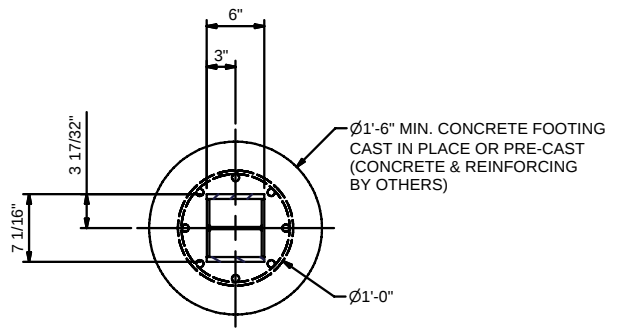
PARTS LIST - 5826G			
QTY	PART No	TITLE	Lbs / Each
1	5826G	1" CASS TURNBUCKLE CLOSED BODY STYLE	4.81

CASS-TL3 3-CABLE GUARDRAIL SAFETY SYSTEM		GALV SPEC:	
		SHIPPING WT:	
		DRW:	E.A.S. 4/11/2008
		CHK:	G.N. 4/11/2008
 TRINITY HIGHWAY PRODUCTS, LLC		DWG NO:	SS-730
		REV	3

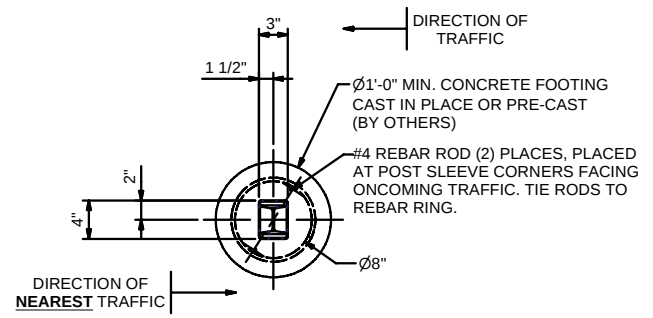
PROJ. CASS-TL3



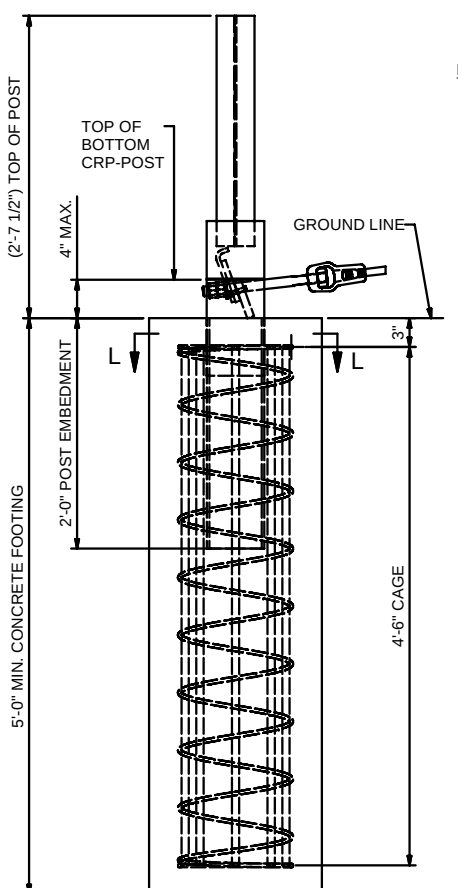
VIEW K-K
(OFFSETS FROM CASS-TL3 CENTERLINE)



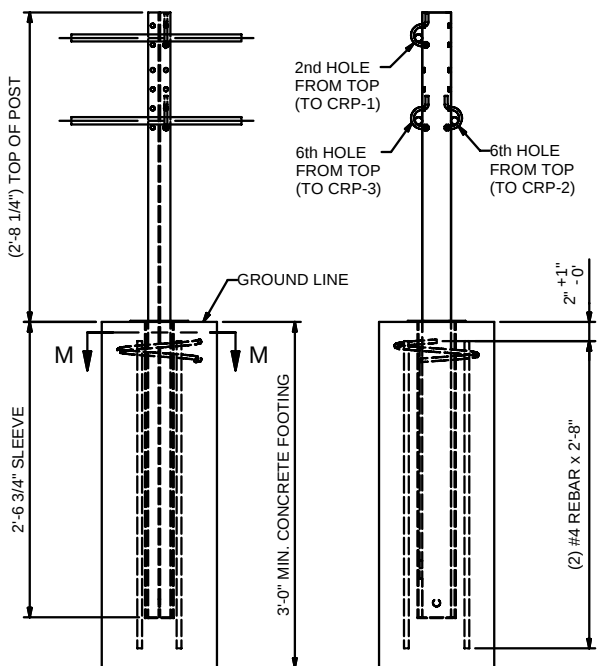
SECTION L-L



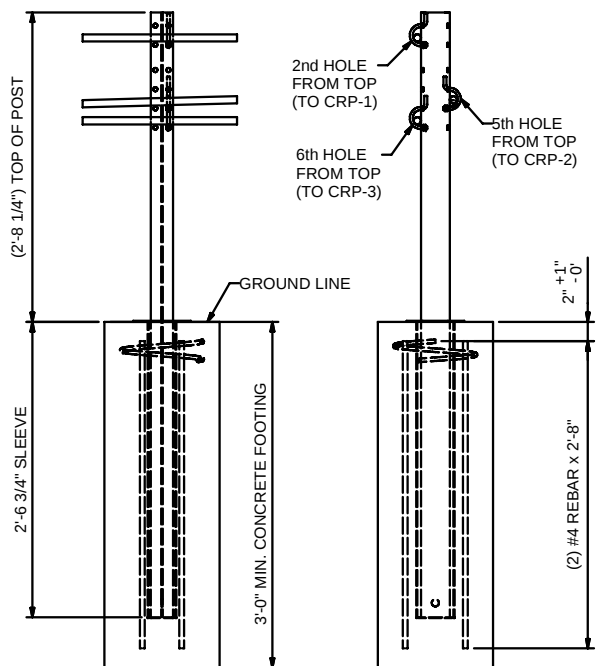
SECTION M-M



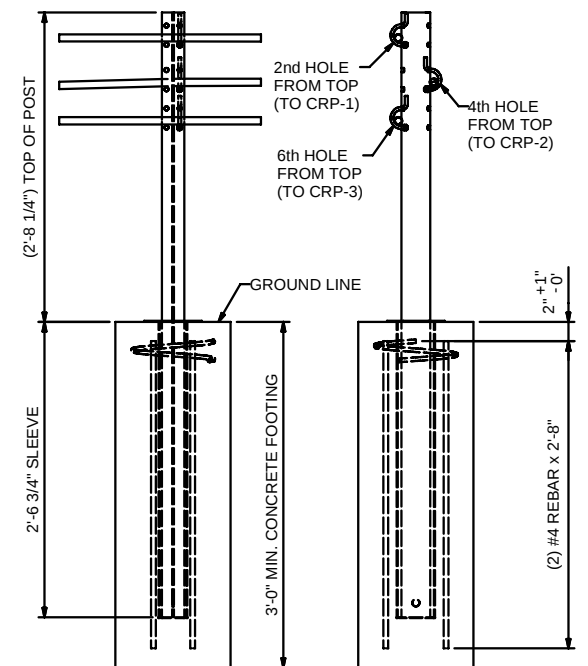
VIEW A-A
(CABLE RELEASE POST 1-3)



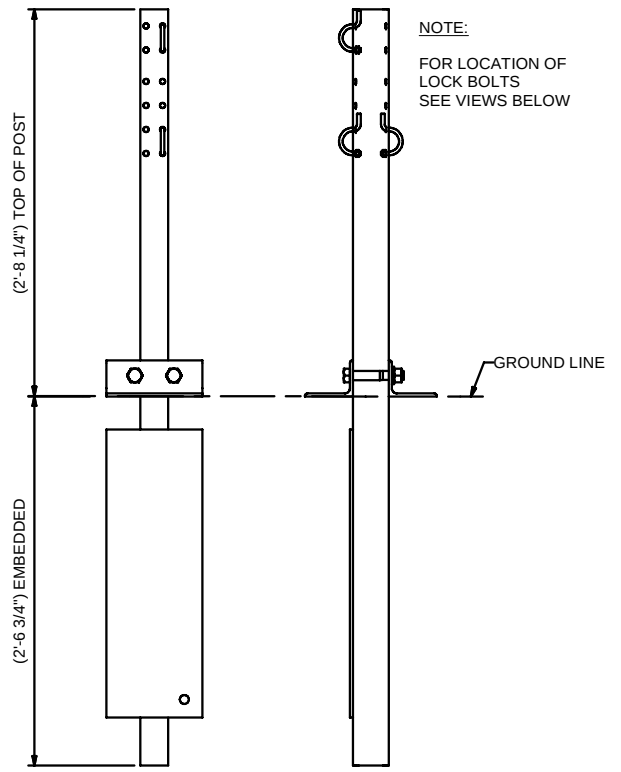
VIEW B-B
(POST 4-7)
(POST OPTION #1 SHOWN)



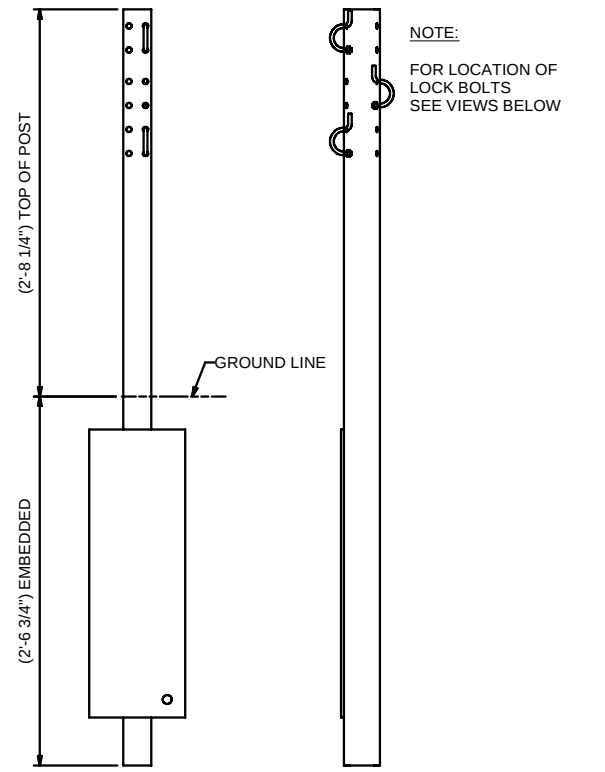
VIEW C-C
(POST 8)
(POST OPTION #1 SHOWN)



VIEW D-D
(POST 9)
(POST OPTION #1 SHOWN)



CCT TERMINAL POST
(CCT POST 4)
(POST OPTION 2 SHOWN)



CCT TERMINAL POST
(CCT - POST 5 - 9)
(POST OPTION #2 SHOWN)

CASS-TL3 3-CABLE GUARDRAIL SAFETY SYSTEM		GALV SPEC:	
		SHIPPING WT:	
		DRW: E.A.S.	4/11/2008
		CHK: G.N.	4/11/2008
SHT: 4 OF 5		SIZE: D	REV: 3
DWG NO: SS-730		REV: 3	
TRINITY HIGHWAY PRODUCTS, LLC			

PROJ: CASS-TL3

PARTS LIST - CCT CABLE RELEASE POST No. 1-3 - IN CONCRETE			
QTY	PART No	TITLE	Lbs / Each
2	3240G	5/16 FLAT WASHER (F844)	0.00
2	3245G	5/16 HEX NUT (A563)	0.01
2	4211G	5/16 HEX BOLT x 1 3/4" (A307)	0.05
1	5851B	REFLECTOR - MEDIAN - YELLOW	0.10
1	33909G	CASS CABLE BRACKET	1.92
1	33916B	REINFORCING CAGE - CRP POST	68.07
1	33934A	CRP - LOWER POST	51.80
1	33935A	CRP - UPPER POST	31.57

PARTS LIST - CCT TERMINAL POST No. 4-9 - IN CONCRETE			
QTY	PART No	TITLE	Lbs / Each
3	3245G	5/16 DIA. HEX NUT (A563)	0.01
3	5825G	CABLE LOCK BOLT (A307)	0.12
1	5836B	CONCRETE REINFORCING RING	0.88
1	5839B	SLEEVE COVER - S3 ANCHOR POST	0.11
2	5919B	#4 REBAR - TERMINAL POST	1.78
1	33908G	SLEEVE - TERMINAL LINE POST	13.80
1	33910G	350-TL3 TERMINAL POST	28.63

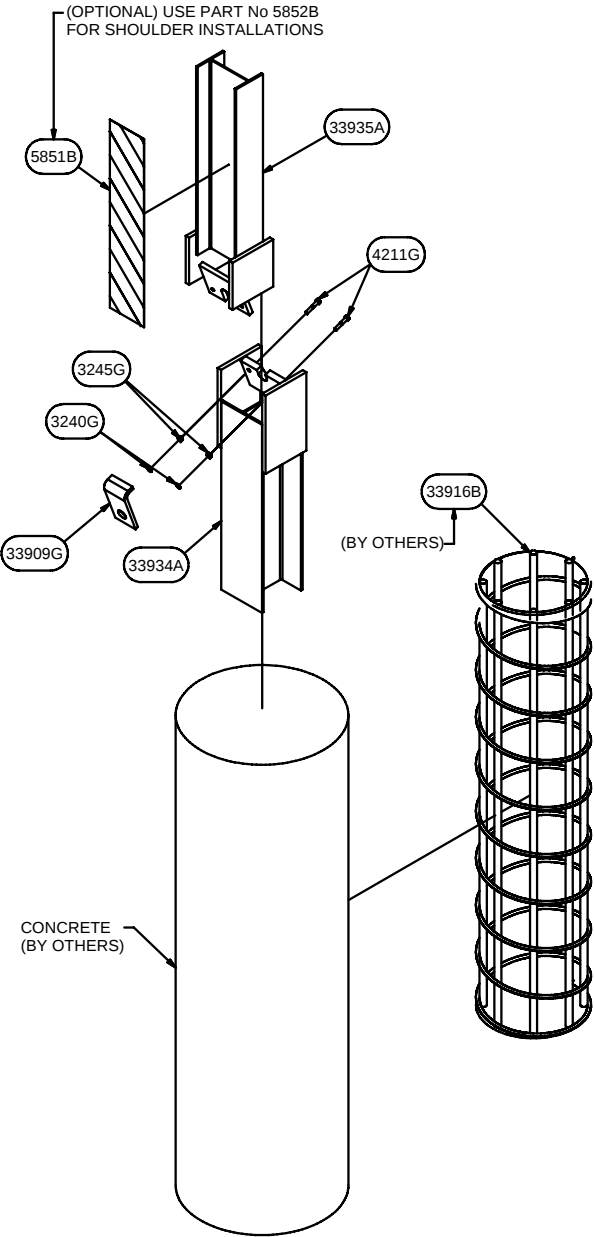
PARTS LIST - CCT CABLE RELEASE POST No. 1-3 - DRIVEN			
QTY	PART No	TITLE	Lbs / Each
2	3240G	5/16 FLAT WASHER (F844)	0.00
2	3245G	5/16 HEX NUT (A563)	0.01
2	4211G	5/16 HEX BOLT x 1 3/4" (A307)	0.05
1	5851B	REFLECTOR - MEDIAN - YELLOW	0.10
1	33909G	CASS CABLE BRACKET	1.92
1	33935A	CRP - UPPER POST	31.57
1	33936A	CRP - LOWER POST	178.57

PARTS LIST - CCT TERMINAL POST No. 4 - WITH SOIL PLATE			
QTY	PART No	TITLE	Lbs / Each
3	3245G	5/16 DIA. HEX NUT (A563)	0.01
2	3701G	3/4 FLAT WASHER (F436)	0.01
2	3711G	3/4 HEX NUT (A194 2H)	0.02
2	4779G	3/4 HEX BOLT x 4 1/2" (A325)	0.09
3	5825G	CABLE LOCK BOLT (A307)	0.12
2	9021G	BEARING ANGLE (A36)	3.81
1	33903A	350-TL3 TERMINAL POST w/ SOIL PLATE	42.25

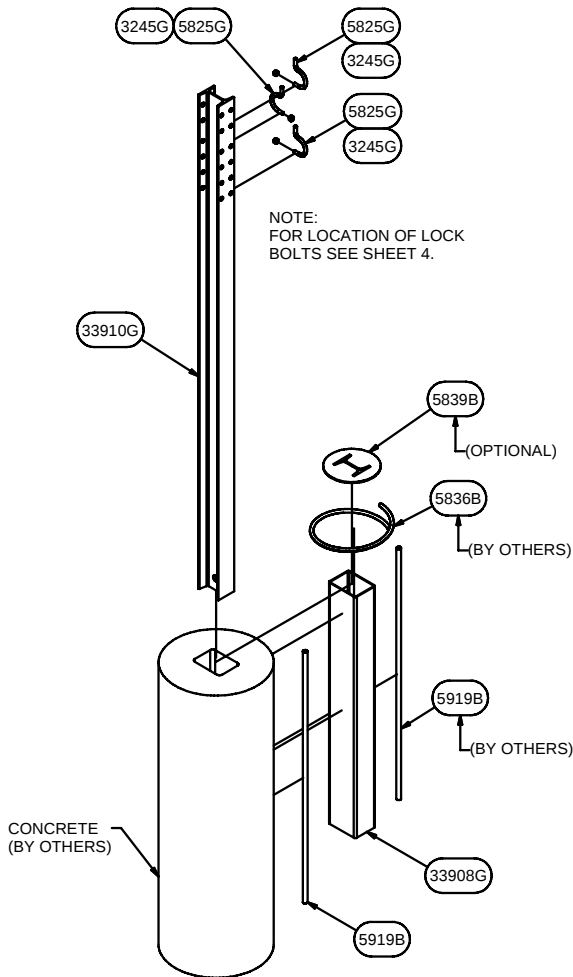
PARTS LIST - CCT TERMINAL POST No. 5-9 - WITH SOIL PLATE			
QTY	PART No	TITLE	Lbs / Each
3	3245G	5/16 DIA. HEX NUT (A563)	0.01
3	5825G	CABLE LOCK BOLT (A307)	0.12
1	33903A	350-TL3 TERMINAL POST w/ SOIL PLATE	42.25

ALL HARDWARE FOR THE CCT CAN BE ORDERED AS ONE PACKAGE:

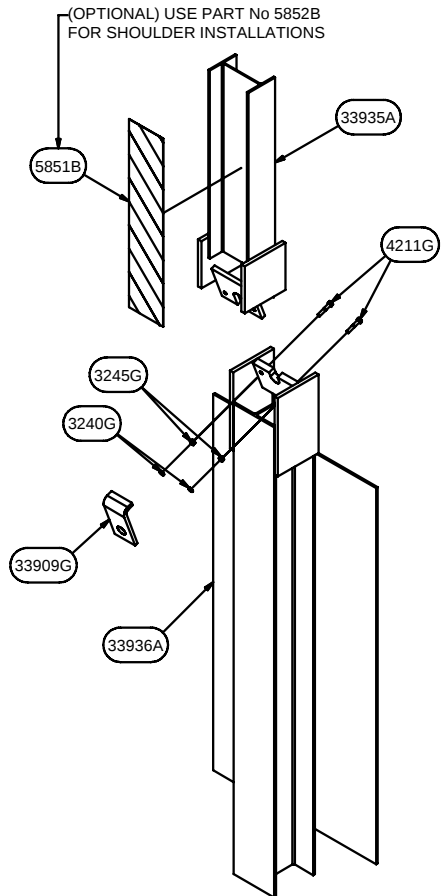
PART No. 33570G: (1) SET OF TERMINAL HARDWARE FOR 1" CABLE FITTINGS.
PART No. 33566G: (2) SETS OF TERMINAL HARDWARE FOR 1" CABLE FITTINGS.
PART No. 33567G: (1) SET OF TERMINAL HARDWARE FOR 3/4" CABLE FITTINGS.
PART No. 33568G: (2) SETS OF TERMINAL HARDWARE FOR 3/4" CABLE FITTINGS.



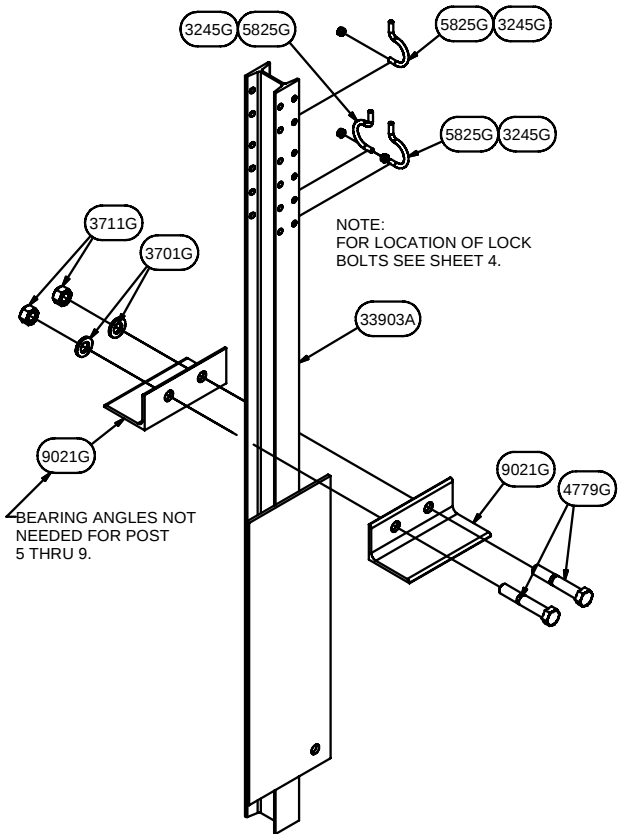
CRP TERMINAL POST - IN CONCRETE
(CCT TERMINAL POST 1 - 3)
(POST OPTION #1 SHOWN)



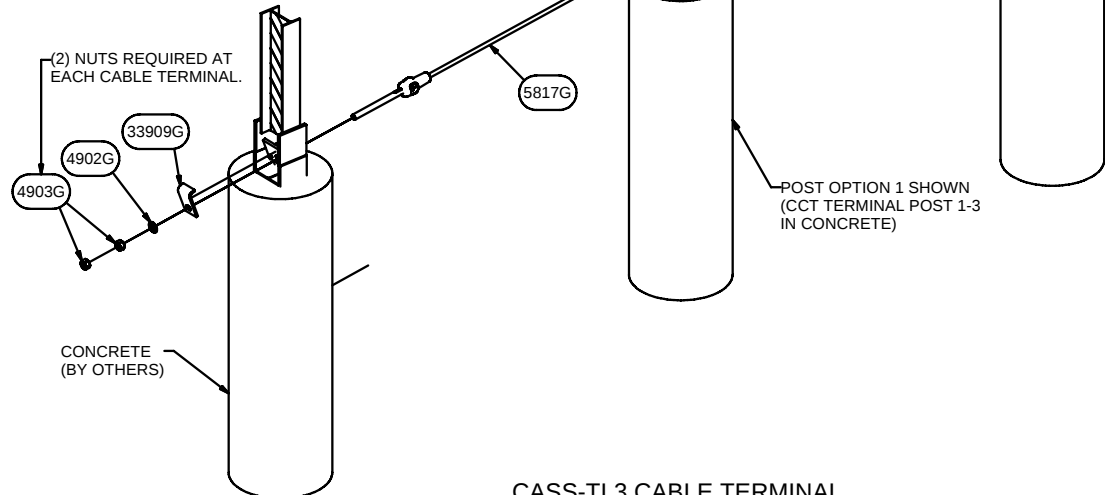
TERMINAL LINE POST - IN CONCRETE
(CCT TERMINAL POST 4 - 9)
(POST OPTION #1 SHOWN)



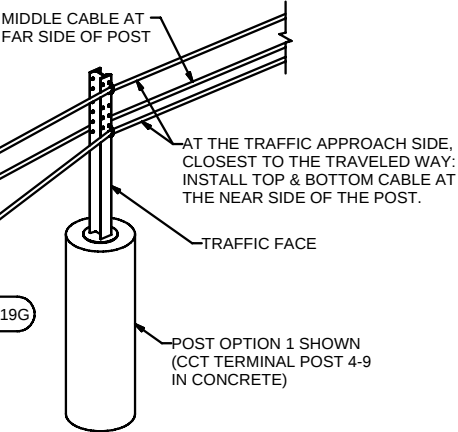
CRP TERMINAL POST - DRIVEN
(CCT TERMINAL POST 1 - 3)
(POST OPTION #2 SHOWN)



TERMINAL LINE POST - WITH SOIL PLATE
(CCT TERMINAL POST - 4)
(POST OPTION #2 SHOWN)



CASS-TL3 CABLE TERMINAL
(SHOWN WITH POST OPTION 1)



HARDWARE CASS CABLE TERMINAL - CCT			
QTY	PART No	TITLE	Lbs / Each
3	4902G	1" FLAT WASHER (F436)	0.11
6	4903G	1" HEX NUT (A194 2H)	0.33
1	5817G	CRP - TOP CABLE ASSEMBLY [54'-3"]	101.78
1	5818G	CRP - MIDDLE CABLE ASSEMBLY [48'-0"]	92.32
1	5819G	CRP - BOTTOM CABLE ASSEMBLY [41'-9"]	83.05
3	33909G	CASS CABLE BRACKET	1.92

CASS-TL3
3-CABLE GUARDRAIL
SAFETY SYSTEM

TRINITY HIGHWAY
PRODUCTS, LLC

GALV SPEC:

SHIPPING WT:

DRW: E.A.S. 4/11/2008

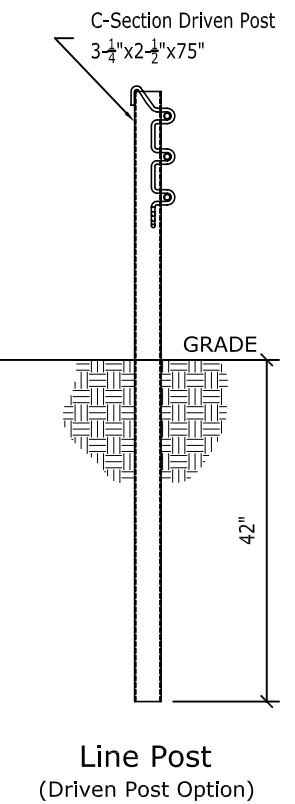
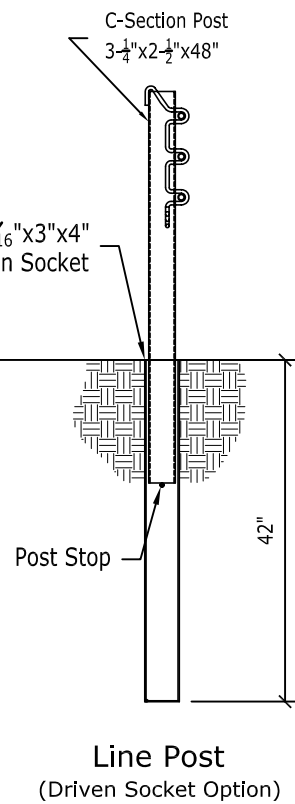
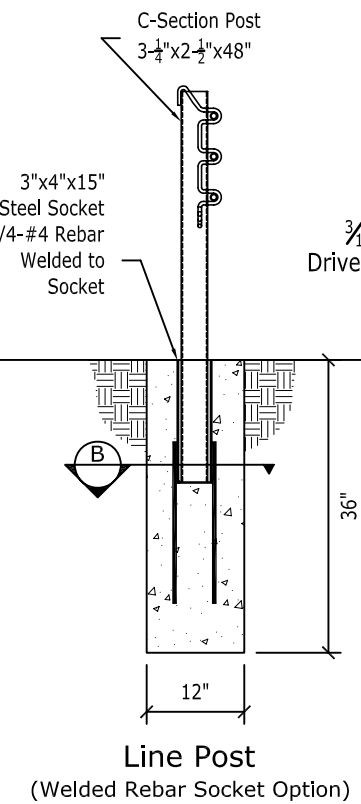
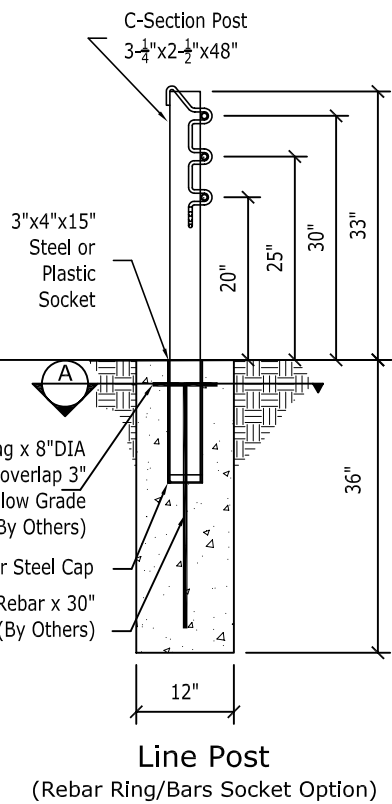
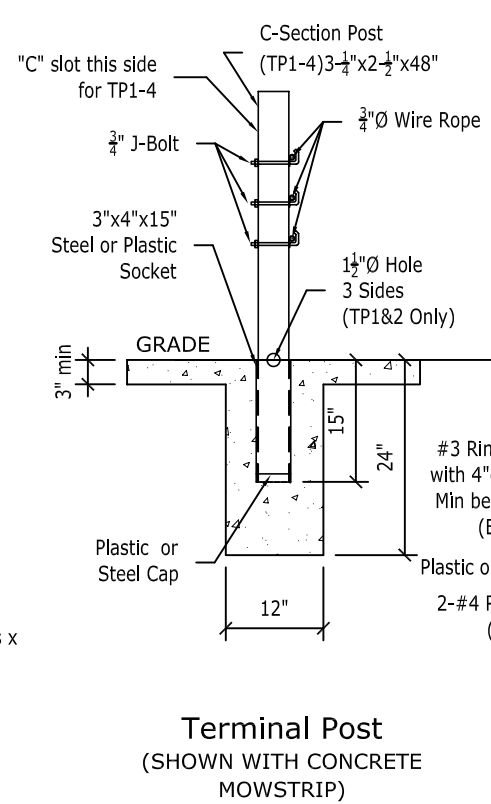
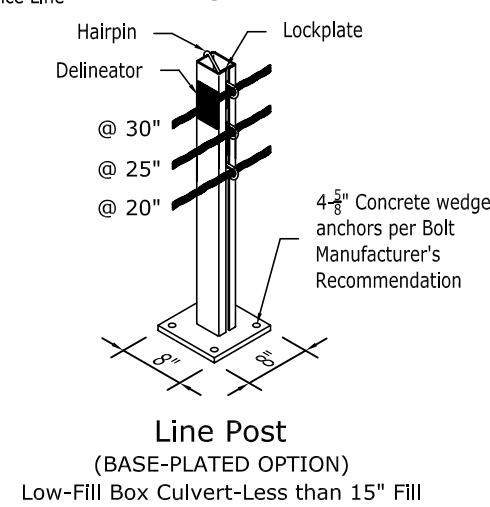
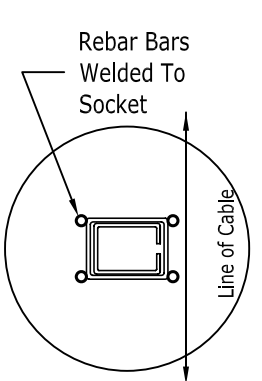
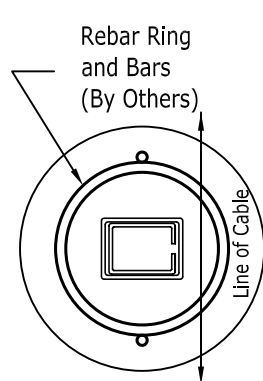
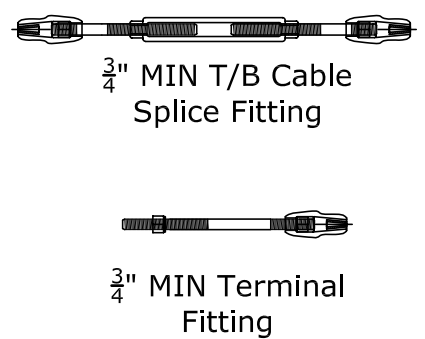
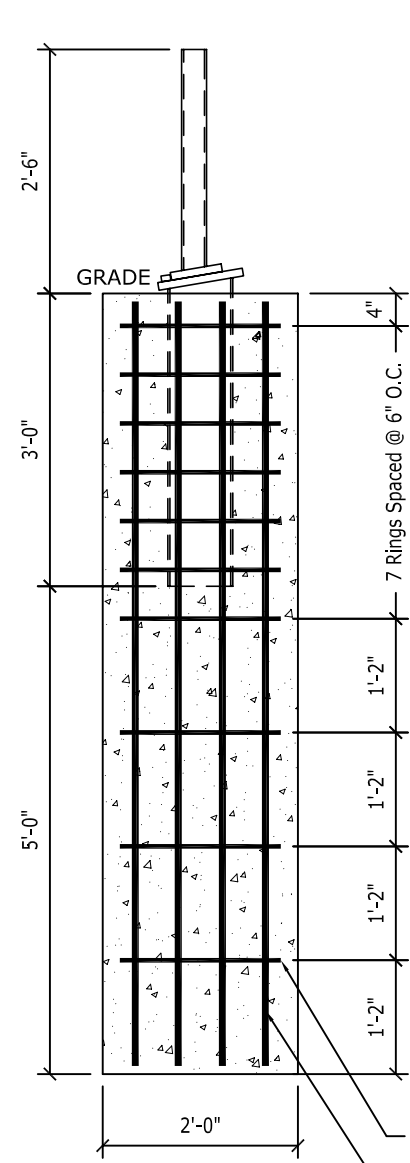
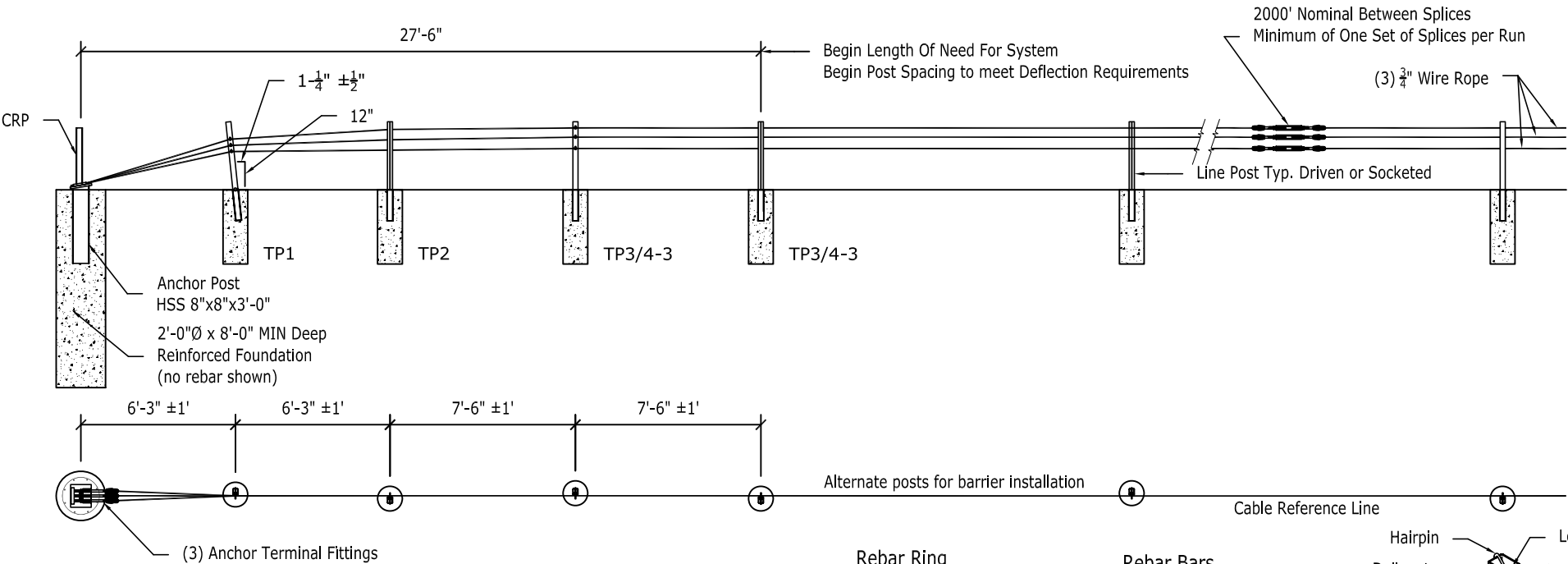
CHK: G.N. 4/11/2008

SHT: 5 OF 5

SIZE: D

DWG NO: SS-730

REV: 3



Cable Tension Chart*

-10 °F	8000
0 °F	7600
10 °F	7200
20 °F	6800
30 °F	6400
40 °F	6000
50 °F	5600
60 °F	5200
70 °F	4800
80 °F	4400
90 °F	4000
100 °F	3600
110 °F	3200

*Allowable Deviation from Chart +/- 10%

C-Section Post

Deflection	
Deflection	Post Spacing
9'-3"	30 FT
9'-0"	28FT
8'-0"	20 FT
7'-0"	12 FT
6'-8"	10 FT

PROPRIETARY TO GIBALTAR
TL-3 Cable System Layout
Gibraltar Cable Barrier Systems

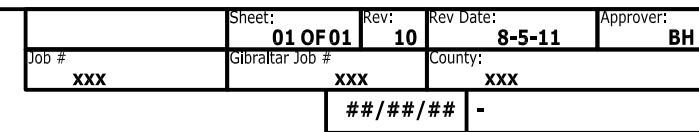
Scale:
NTS

Date:
8-5-11

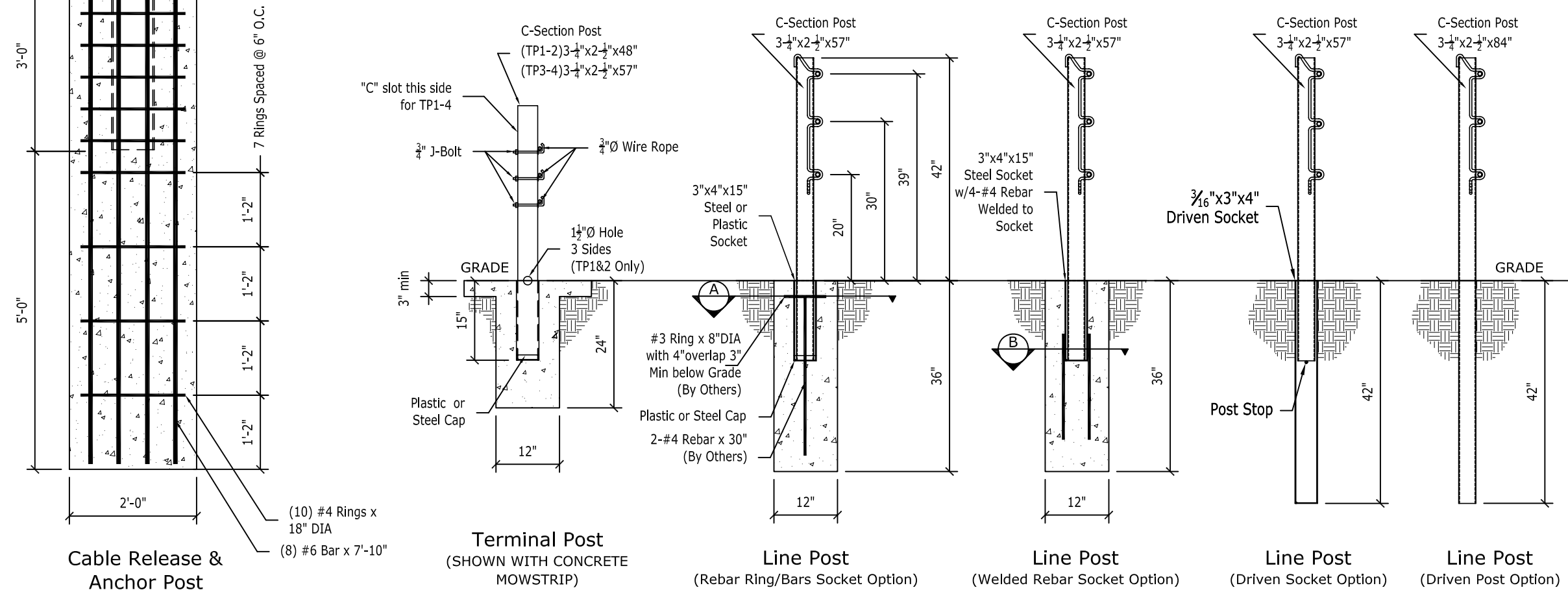
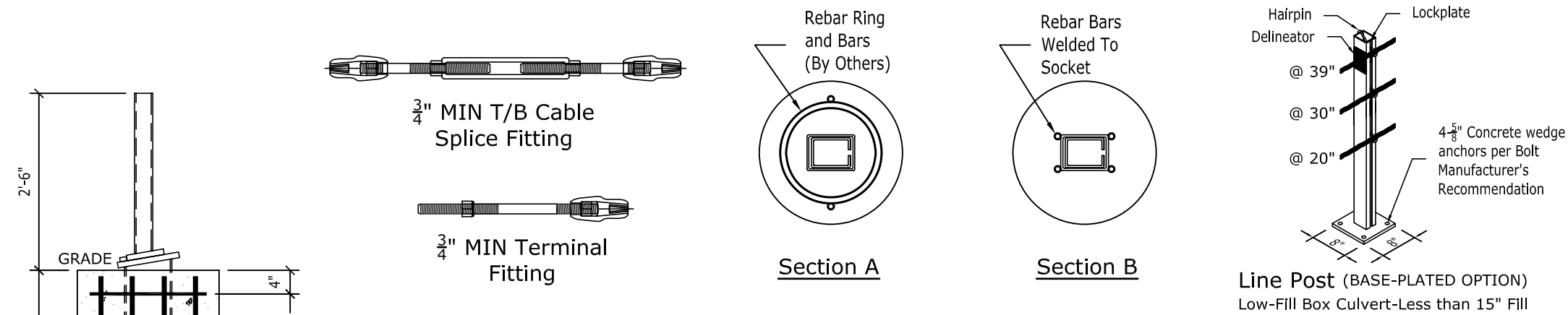
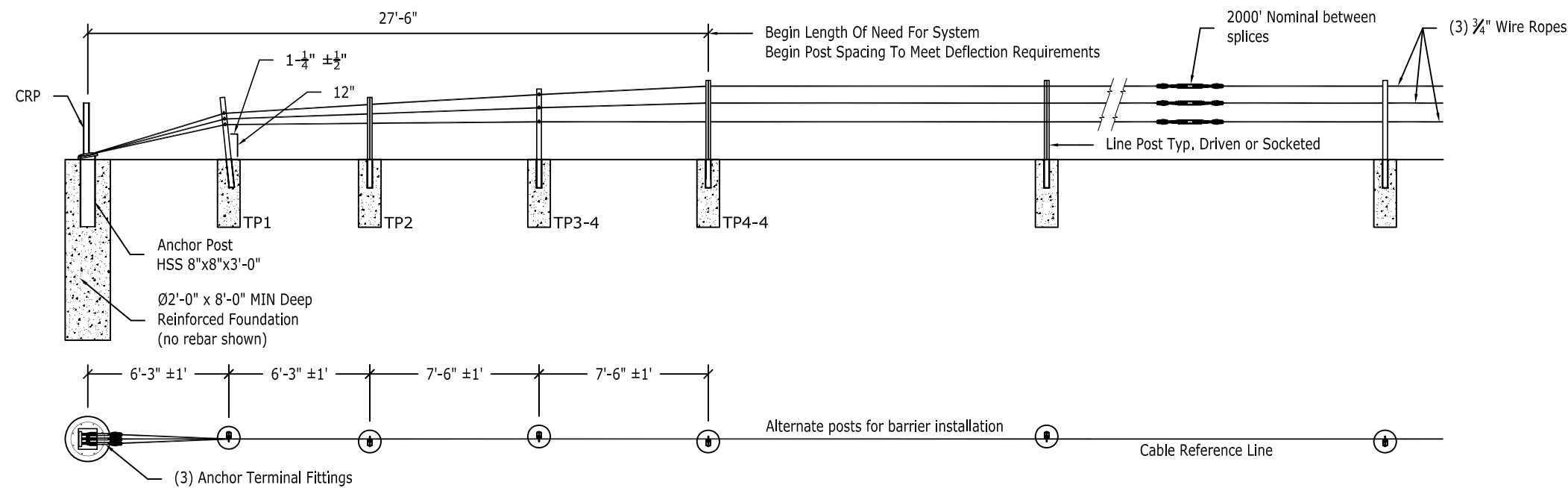
Layout:
ANSI B

Drafter:
BH

- ### GENERAL NOTES
- For additional information contact Gibraltar, Inc. at 1-800-495-8957, 830-798-5444, or see the manufacturer's product manual.
 - All concrete shall be per specification; minimum 2,500psi.
 - The Cable Barrier System shall be installed on shoulders or on medians with slopes of 6:1 or flatter.
 - The Cable Barrier System is accepted by the FHWA Test Level - 3.
 - See specification for delineation requirements.
 - Rock Clause: Where solid rock is encountered:
 - For socketed post, continue digging 12" diameter, 15" deep into rock or the required plan depth, whichever comes first.
 - For driven post and driven socket, core drill a 4" diameter hole 18" deep into rock or the required plan depth, whichever comes first.
 - For Anchor post, continue digging 24" diameter, 30" deep into rock or the required plan depth, whichever comes first.
 - Tolerances:
 - LP= 3"(max) out of plumb, at top
 - Cable height= ±1"
 - Anchor Post ± 5" off of Cable Reference Line
 - The Gibraltar cable barrier system shall be installed in NCHRP Report 350 standard compacted soil. Soil must be well drained.
 - All non-welded rebar by others.
 - Minimum recommended line post foundation.
 - Without mowstrip, 36" Deep x 12" diameter foundations with #3 rebar ring x 8" diameter with two #4 rebar vertical bars 30" long or 30" welded rebar socket.
 - With 4" minimum depth hot mix asphalt, 30" deep x 12" diameter foundations with #3 rebar ring x 8" diameter with two #4 rebar vertical bars 30" long or 30" welded rebar socket.
 - With 3" minimum depth concrete mowstrip, 24" deep x 12" diameter foundations. (No rebar required).
 - Direct drive driven post and driven socket 42" deep.



Layout:	Drafter:
ANST B	BH



- GENERAL NOTES:**
- For additional information contact Gibraltar, Inc. at 1-800-495-8957, 830-798-5444, or see the manufacturer's product manual.
 - All concrete shall be per specification; minimum 2500 PSI.
 - The Cable Barrier System shall be installed on shoulders or on medians with slopes of 6:1 or flatter. If installed on slopes steeper than 6:1 up to 4:1 the TL-4 system performs as a TL-3 and Gibraltar must be contacted for various guidelines related to placement.
 - The Cable Barrier System is accepted by the FHWA Test Level - 4.
 - See the specification for delineation.
 - Rock Clause: Where solid rock is encountered:
 - For socketed post, continue digging 12" diameter, 15" deep into rock or the required plan depth, whichever comes first.
 - For driven post, core drill a 4" diameter hole 18" deep into rock or the required plan depth, whichever comes first.
 - For Anchor post, continue digging 24" diameter, 30" deep into rock or the required plan depth, whichever comes first.
 - Tolerances:
 - LP= 3"(max) out of plumb, at top
 - Cable height= ±1"
 - Anchor Post ± 5" off of Cable Reference Line
 - The Gibraltar cable barrier system shall be installed in NCHRP Report 350 standard compacted soil. Soil must be well drained.
 - All non-welded rebar by others.
 - Minimum recommended line post foundation.
 - Without mowstrip, 36" Deep x 12" diameter foundations with #3 rebar ring x 8" diameter with two #4 rebar vertical bars 30" long or 30" welded rebar socket.
 - With 4" minimum depth hot mix asphalt, 30" deep x 12" diameter foundations with #3 rebar ring x 8" diameter with two #4 rebar vertical bars 30" long or 30" welded rebar socket.
 - With 3" minimum depth concrete mowstrip, 24" deep x 12" diameter foundations. (No rebar required).
 - Direct drive driven post and driven socket 42" deep.

Cable Tension Chart*	
-10 °F	8000
0 °F	7600
10 °F	7200
20 °F	6800
30 °F	6400
40 °F	6000
50 °F	5600
60 °F	5200
70 °F	4800
80 °F	4400
90 °F	4000
100 °F	3600
110 °F	3200

Deflection	
Deflection	Post Spacing
9'-3"	30 FT
9'-0"	28FT
8'-0"	20 FT
7'-0"	12 FT
6'-8"	10 FT

PROPRIETARY TO GIBALTAR

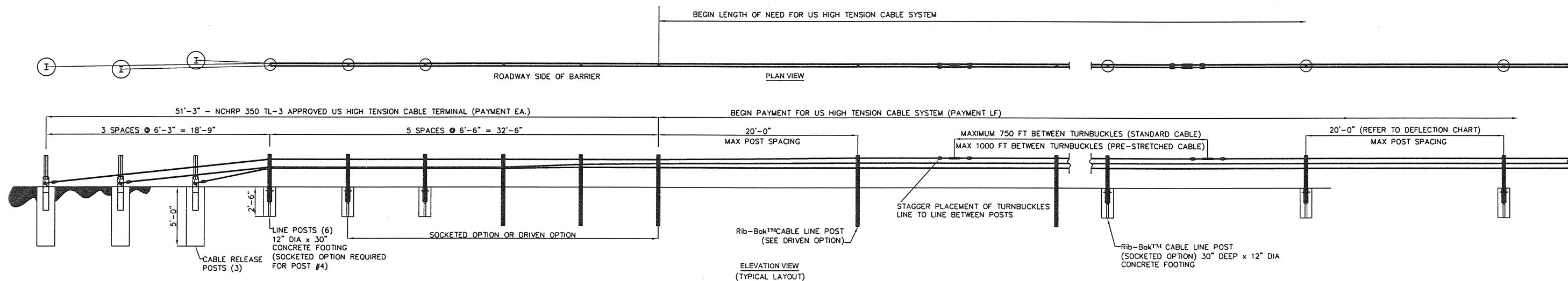
GIBALTAR
Cable Barrier System

TL-4 Cable System Layout

Gibraltar Cable Barrier Systems

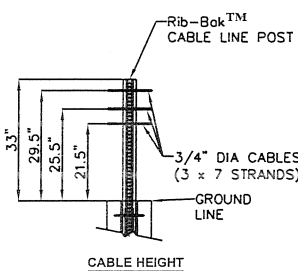
Scale: NTS Date: 8-5-11

Layout: ANSI B Drafter: BH

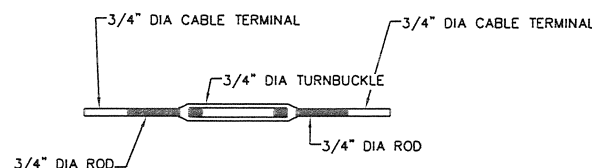


GENERAL NOTES

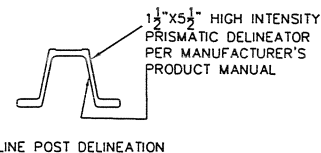
1. For additional information, contact your distributor or Nucor Steel Marion, Inc. at (603)430-9350.
2. For payment see special specification "Cable Barrier System".
3. For additional information see the manufacturer's product manual.
4. The US High Tension Cable System is designed for bi-directional traffic flows. See the manufacturer's product manual for placement adjacent to guardrail end treatments.
5. The US High Tension Cable System shall be installed on shoulders or medians with slopes of 6:1 or flatter without obstructions, depressions, etc. that may significantly affect the stability of an errant vehicle.
6. The US High Tension Cable System may be installed on either side of the roadway. Rib-Bak™ Cable Line Posts may be socketed or driven design.
7. All foundation designs are based on NCHRP 350 strong (S1) soil. Consult the manufacturer for specific foundation designs if soil types differ.
8. Line post spacing should be based upon desired deflection. Contact Nucor for specific post spacing/deflection information.



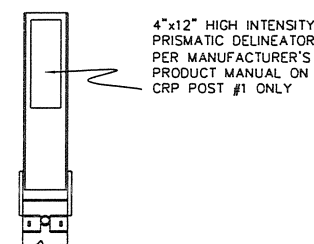
HEIGHT TOLERANCES:
TOP & MIDDLE CABLE: ±1"
BOTTOM CABLE: +0", -2"



TURNBUCKLE DETAIL

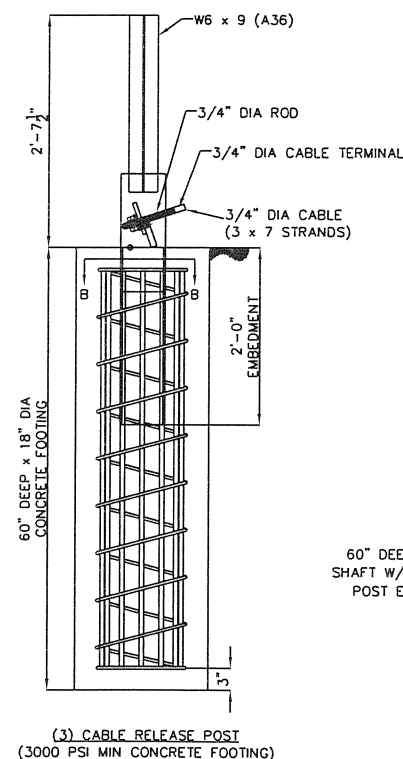


LINE POST DELINEATION

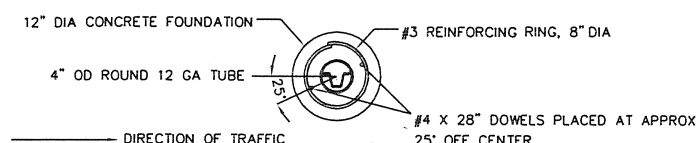


CRP DELINEATION

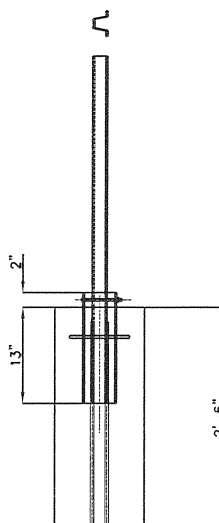
DELINEATION DETAILS



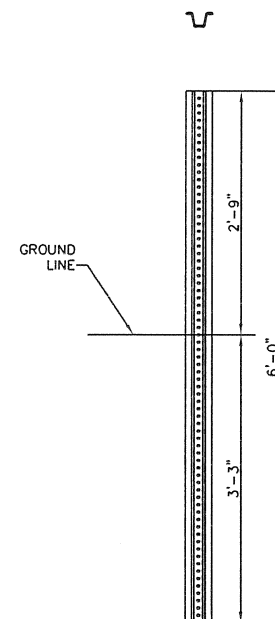
SECTION B-B
(CABLE RELEASE POST)



SOCKETED POST OPTION
(TYPE S POST)

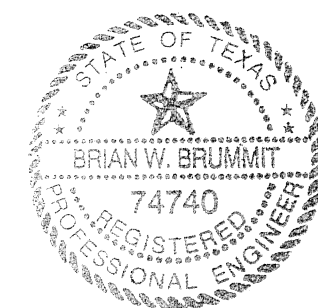


ALTERNATE SOCKET PLACEMENT
SEE MANUFACTURER'S PRODUCT
MANUAL FOR DETAILS



DRIVEN POST OPTION
(TYPE D POST)

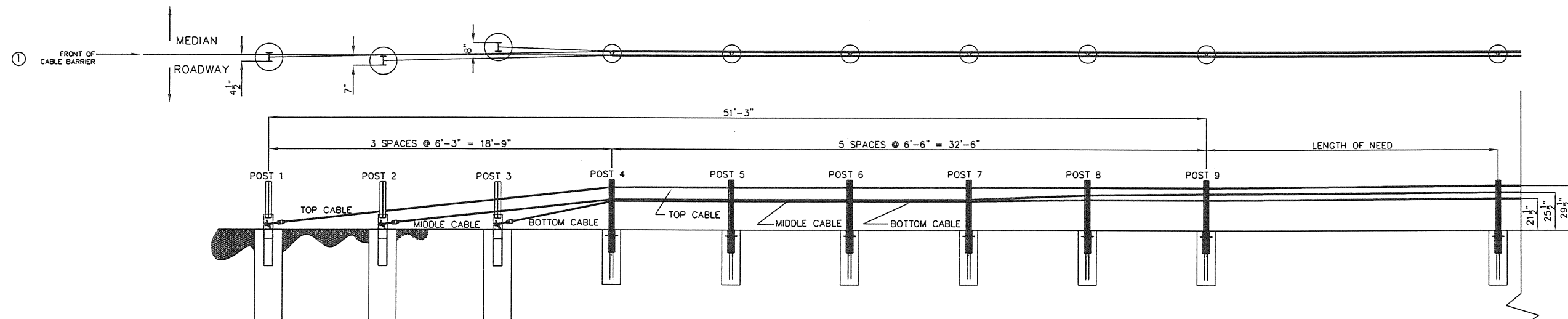
CABLE TENSION CHART	
F	LBF
120	4021
110	4336
100	4652
90	4968
80	5284
70	5600
60	6232
50	6864
40	7495
30	8127
20	8759
10	9391
0	10022
-10	10654
-20	11286
-30	11918



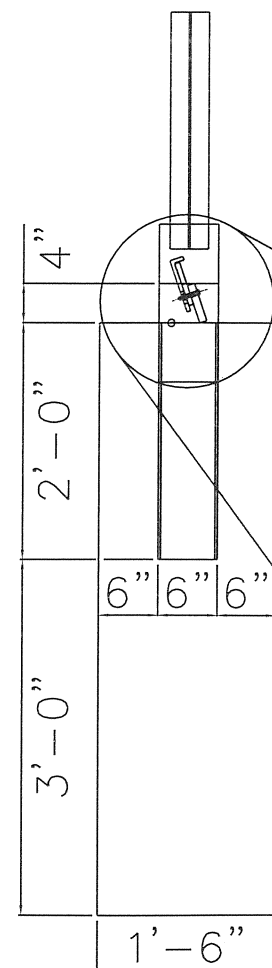
THE SEAL ON THIS DRAWING IS TO ACKNOWLEDGE THE REVIEW OF THIS STANDARD DRAWING AGAINST THE AS-TESTED INSTALLATION AS DOCUMENTED BY THE TTI REPORT 400001-SFR4 AS AMENDED BY THE EMBEDMENT OPINION FROM TTI DATED DECEMBER 20, 2005 AND REVISED TEMP/TENSION INFORMATION FROM NUCOR STEEL MARION, INC. DATED APRIL 7, 2006. REV 3 INCORPORATES THE POST SPACING CHANGE AS DOCUMENTED BY TTI REPORT 400001-NSM4 DATED APRIL 2006.

US HIGH TENSION TL3 CABLE SYSTEM

FILE:	DN:	CK:	DW:	CK:
	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS △△△	COUNTY	CONTROL	SECT	JOB
				HIGHWAY



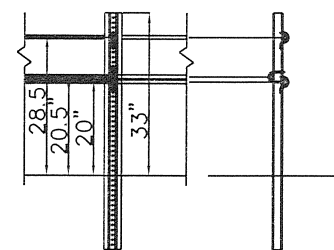
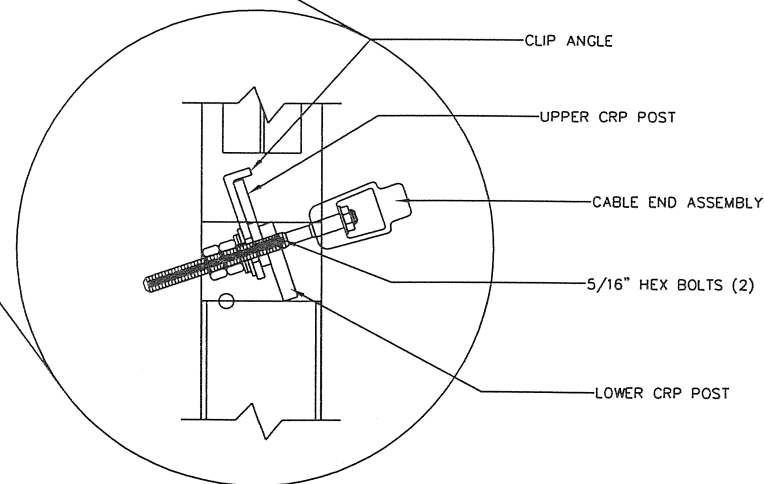
① THE OPPOSING END TREATMENTS ON A PARTICULAR RUN ARE MIRRORED IN THEIR LAYOUT.



CRP IN CONCRETE FOOTING

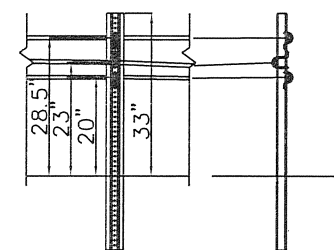
REINFORCEMENT NOT SHOWN FOR CLARITY
(3000 PSI MIN CONCRETE)

GROUND LINE
(CENTER OF HOLE)



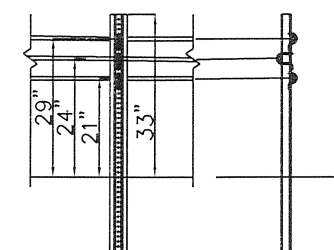
POSTS 4-7

HEIGHT TOLERANCES:
TOP & MIDDLE CABLE: $\pm 1"$
BOTTOM CABLE $+0, -2"$



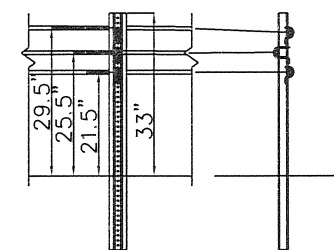
POST 8

HEIGHT TOLERANCES:
TOP & MIDDLE CABLE: $\pm 1"$
BOTTOM CABLE $+0, -2"$



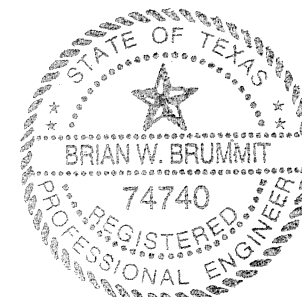
POST 9

HEIGHT TOLERANCES:
TOP & MIDDLE CABLE: $\pm 1"$
BOTTOM CABLE $+0, -2"$



LINE POSTS

HEIGHT TOLERANCES:
TOP & MIDDLE CABLE: $\pm 1"$
BOTTOM CABLE $+0, -2"$



THE SEAL ON THIS DRAWING IS TO ACKNOWLEDGE THE REVIEW OF THIS STANDARD DRAWING AGAINST THE AS-TESTED INSTALLATION AS DOCUMENTED BY THE TTI REPORT 400001-NSM4 DATED APRIL 2006.

G.S.I. HIGH TENSION CABLE, LP

720 W. WINTERGREEN RD., HUTCHINS, TEXAS 75141 (972) 225-1660

CONTRACTOR:

SCALE: NONE

GSI#:

DATE: 09/27/05

REVISED: 05/26/06

CHECKED:

DRAWN: DUGAN

CABLE END TERMINAL INSTALLATION

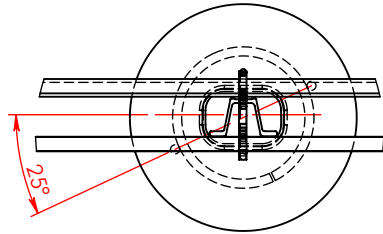
MEDIAN APPLICATIONS

U.S. HIGH TENSION CABLE BARRIER

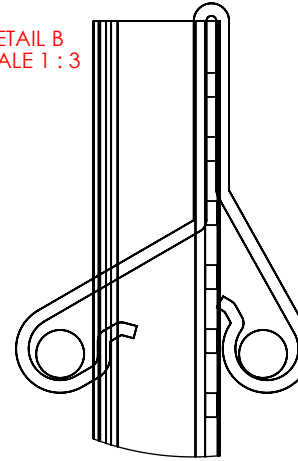
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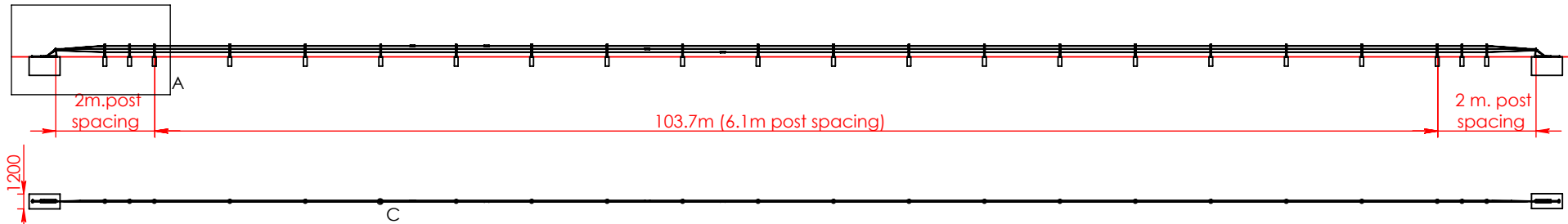
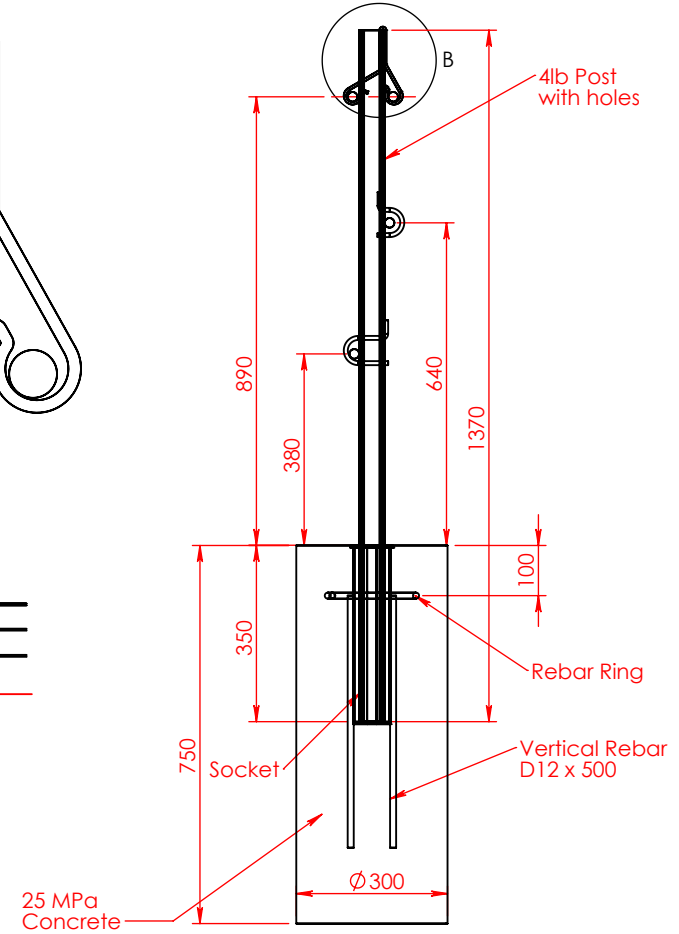
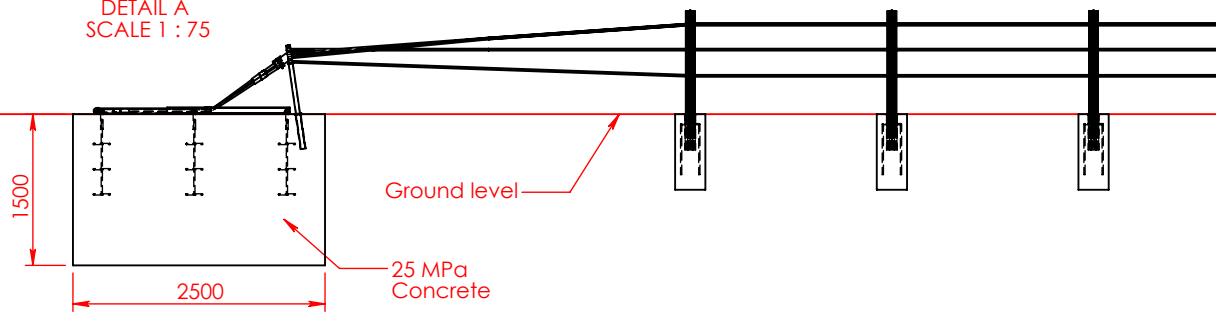
DETAIL C
SCALE 1 : 10



DETAIL B
SCALE 1 : 3



DETAIL A
SCALE 1 : 75



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REV.	CHANGES	DATE

SCALE: 1:500

Standard Tolerance

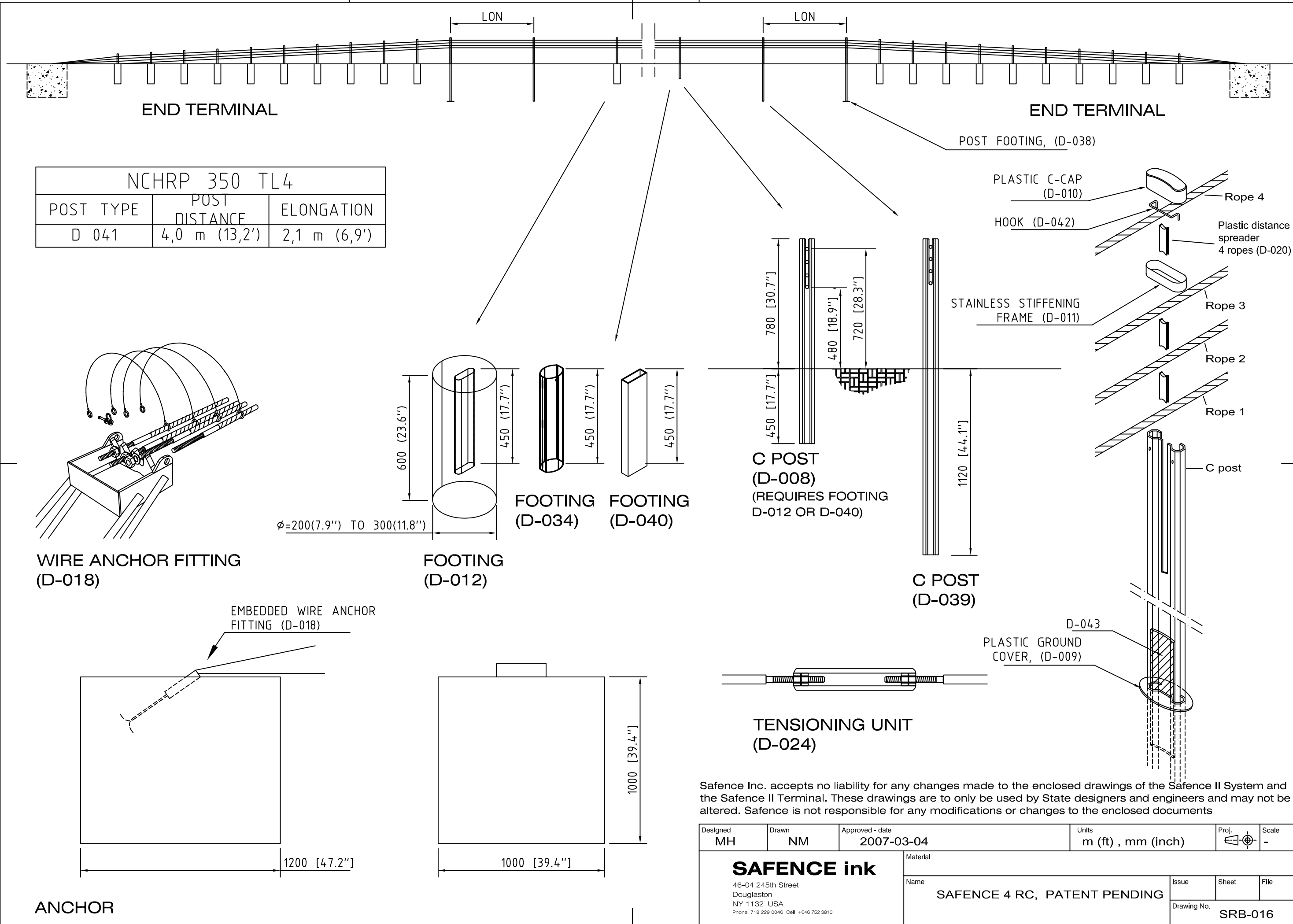
DRAWN BY	DATE	INIT.
APPR'D BY	AD	DJ

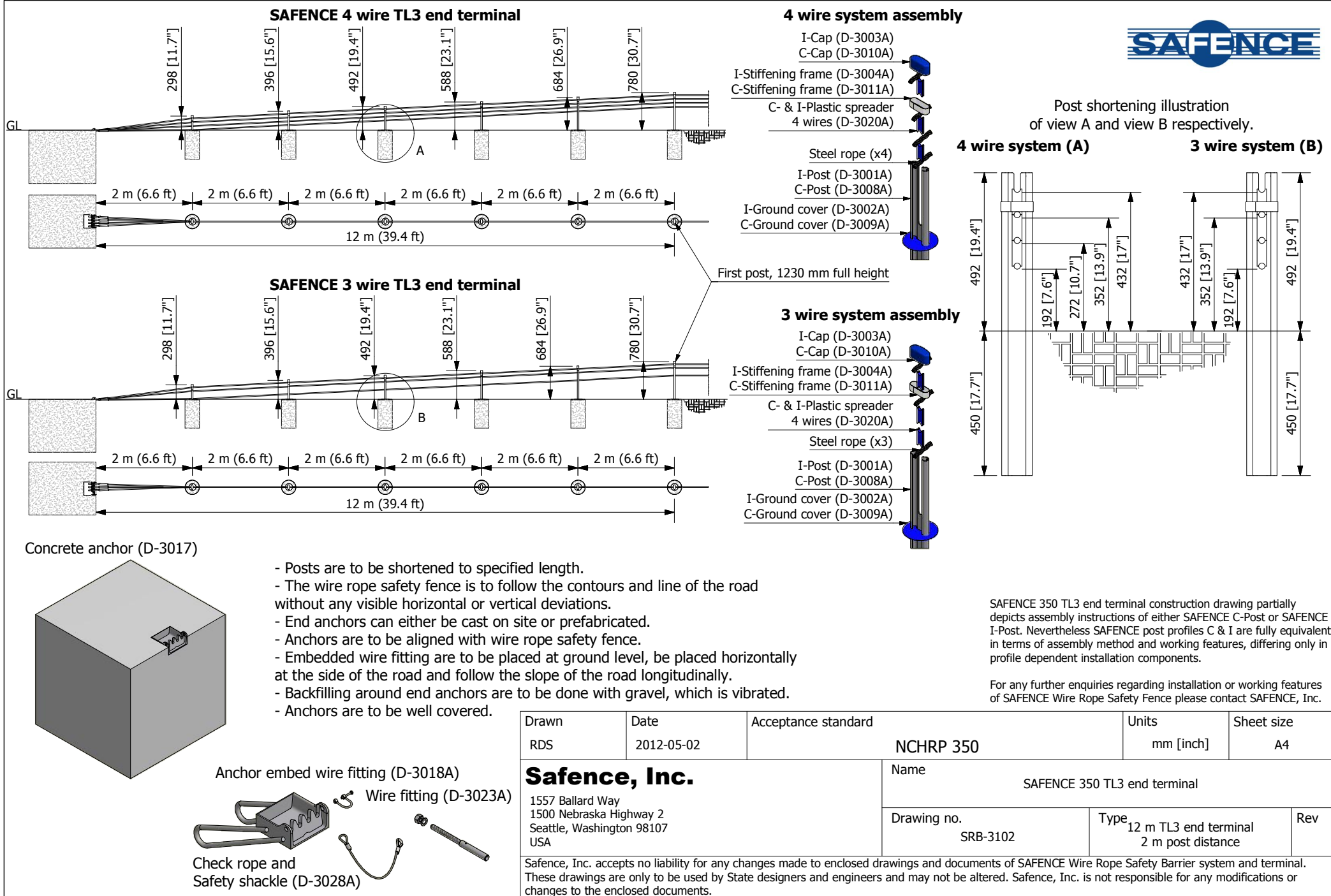
Nucor Wire

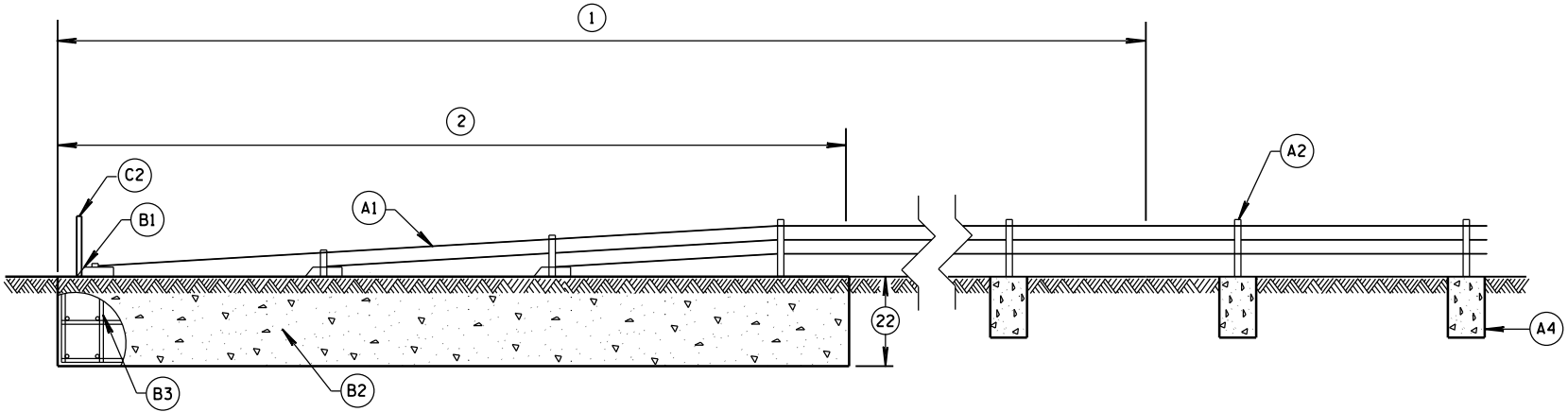


8 Paul Matthews Rd.
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tel. 64 9 415 2991
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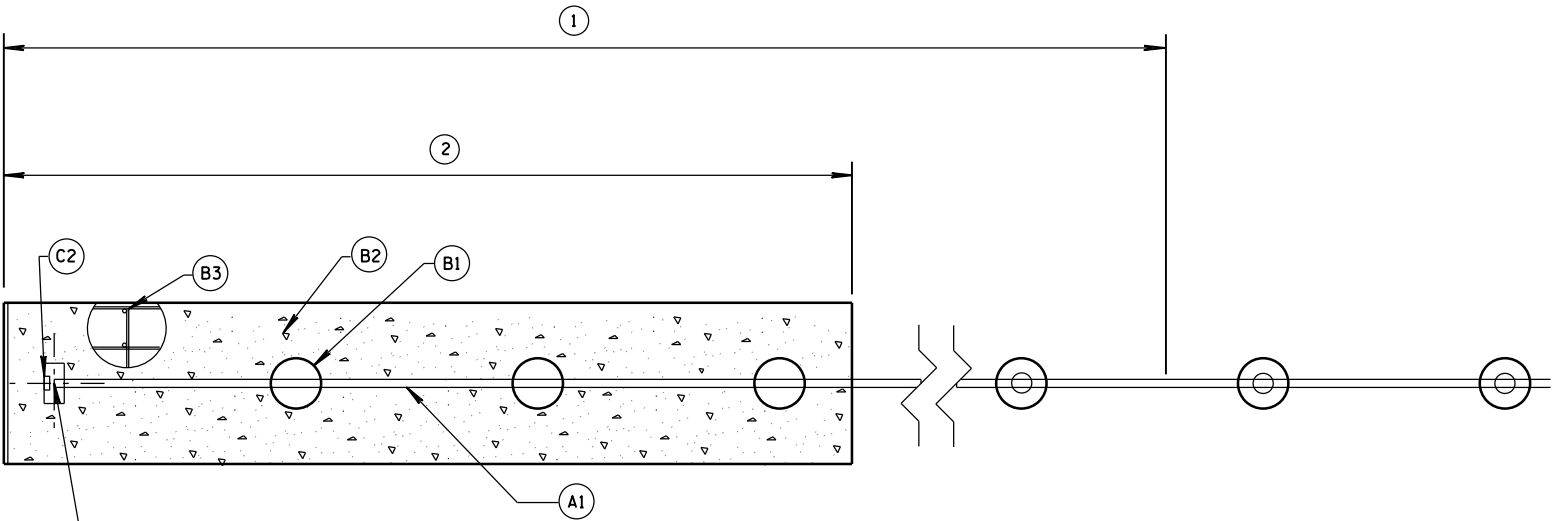
SHEET	DRAWING NUMBER	REV.
1 OF 1		







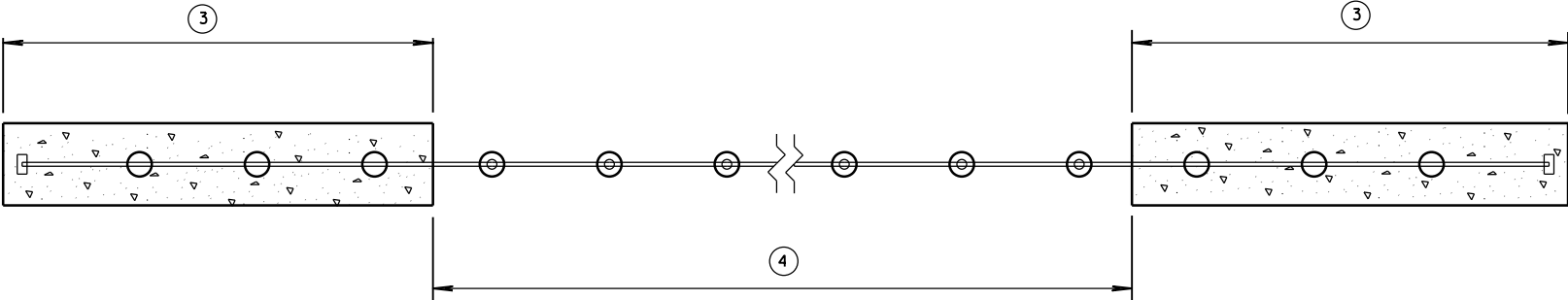
PROFILE VIEW



LOCATION OF STATION
OFFSET FOR CABLE
BARRIER END TERMINAL

PLAN VIEW

TRANSITION FROM CABLE BARRIER
TERMINAL TO CABLE BARRIER LINE POSTS



TYPICAL PLAN VIEW

GENERAL NOTES

DRAWINGS ARE GENERAL IN NATURE. SEE MANUFACTURER'S INFORMATION FOR MORE DETAIL.

PROVIDE 2 INCH CLEAR COVER FROM OUTER EDGE OF CONCRETE FOOTINGS TO REINFORCEMENT.

INSTALL LINE POST PLUMB. LINE POSTS ARE TO BE EASILY REMOVED BY HAND AND HOLD CABLES AT THE PROPER ELEVATION.

PROVIDE CABLE BARRIER SYSTEM FROM APPROVED PRODUCT LIST.

PROVIDE A SYSTEM TO HAVE THE WORKING WIDTH INDICTED IN PLAN.

PROVIDE DOCUMENTATION HOW POST SPACING, RADIUS OF CURVE AND ANCHOR SPACING INFLUENCES WORKING WIDTH TO CONSTRUCTION STAFF.

PROVIDE A WISCONSIN PROFESSIONAL ENGINEERS STAMPED ANALYSIS THAT THE LINE POST AND CABLE BARRIER END TERMINAL FOOTINGS ARE DESIGNED FOR THE SOIL CONDITIONS PRESENT. THE WISCONSIN P.E. STAMP ANALYSIS IS TO INCLUDE, BUT IS NOT LIMITED TO: DESIGN IMPACT LOADS, FOUNDATION DESIGN METHODOLOGY USED, FACTORS OF SAFETY, SOIL TYPE, SOIL CONDITIONS, AND TEMPERATURE RANGES.

DESIGN LINE POST FOOTINGS SO THAT LINE POST FOOTING MOVE LESS THAN 1 INCH WHEN LINE POST IS IMPACTED BY A TL-3 SMALL CAR.

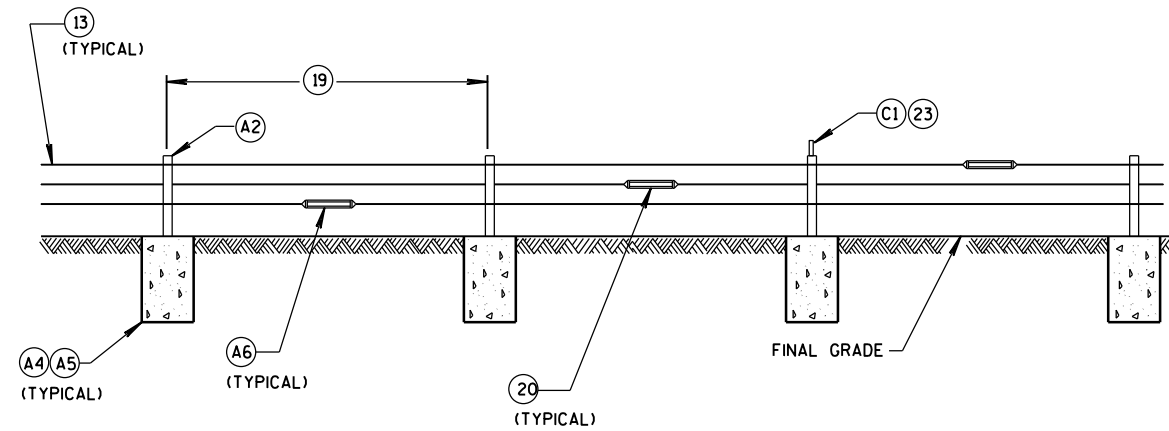
BILL OF MATERIALS

PART NUMBER	QTY.	DESCRIPTION	MATERIALS SPECIFICATIONS
A1	3 OR 4	3/4" 3x7 PRESTRESSED GALVANIZED STEEL WIRE ROPE	ASTM A741 MIN. BREAKING STRENGTH 39,000 LBS.
			AASHTO M30 TYPE 1 CLASS A (GALVANIZATION).
A2	1 PER LINE POST	GALVANIZED REMOVABLE STEEL LINE POST	MINIMUM WIRE ROPE MODULUS OF ELASTICITY OF 19,000 PSI ACCORDING TO ISO 12067-202 WIRE ROPE MODULUS OF ELASTICITY "INITIAL" (AS MANUFACTURED), WITH NO BEDDING OR PRESTRECHING OF THE ROPE PERMITTED DURING TESTING.
			SEE MANUFACTURER'S INFORMATION ON DIMENSIONS AND MATERIAL REQUIREMENTS.
A3	1 PER LINE POST	GALVANIZED METAL SLEEVE	ASTM A123 (GALVANIZATION).
			SEE MANUFACTURER'S INFORMATION ON DIMENSIONS AND MATERIAL REQUIREMENTS.
A4	VARIES	CONCRETE FOR LINE POST FOOTING	A, A-FA, A-T, OR A-IP OF STANDARD SPECIFICATION 501.2 OR AS MANUFACTURER SPECIFIES.
			STANDARD SPECIFICATION 716 OMP FOR CLASS II ANCILLARY CONCRETE.
A5	VARIES	EPOXY COATED STEEL REINFORCEMENT	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS.
			STANDARD SPECIFICATION 505.
A6	VARIES	TURNBUCKLES AND OTHER CABLE CONNECTING HARDWARE	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS.
			MINIMUM BREAKING STRENGTH OF TURNBUCKLES AND CONNECTION HARDWARE IS EQUAL TO CABLE.
B1	VARIES	CABLE CONNECTION TO CABLE BARRIER END TERMINAL	TURNBUCKLES AND OTHER CABLE CONNECTION HARDWARE IS FIELD SWAGED PER MANUFACTURER'S RECOMMENDATIONS AND DETAILS.
			SEE MANUFACTURER'S INFORMATION ON DIMENSIONS AND MATERIAL REQUIREMENTS.
B2	VARIES	CONCRETE FOR CABLE BARRIER END TERMINAL	A, A-FA, A-T, OR A-IP OF STANDARD SPECIFICATION 501.2.
			STANDARD SPECIFICATION 716 OMP FOR CLASS II ANCILLARY CONCRETE.
B3	VARIES	EPOXY COATED STEEL REINFORCEMENT	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS.
			STANDARD SPECIFICATION 505.
C1	VARIES	LINE POST DELINEATOR	REFLECTIVE SHEETING TYPE SH.
			SEE APPROVE PRODUCT LIST YELLOW.
C2	VARIES	CABLE BARRIER END TERMINAL DELINEATOR	REFLECTIVE SHEETING TYPE SH.
			SEE APPROVE PRODUCT LIST OBJECT MARKER TYPE 3 PATTERN.

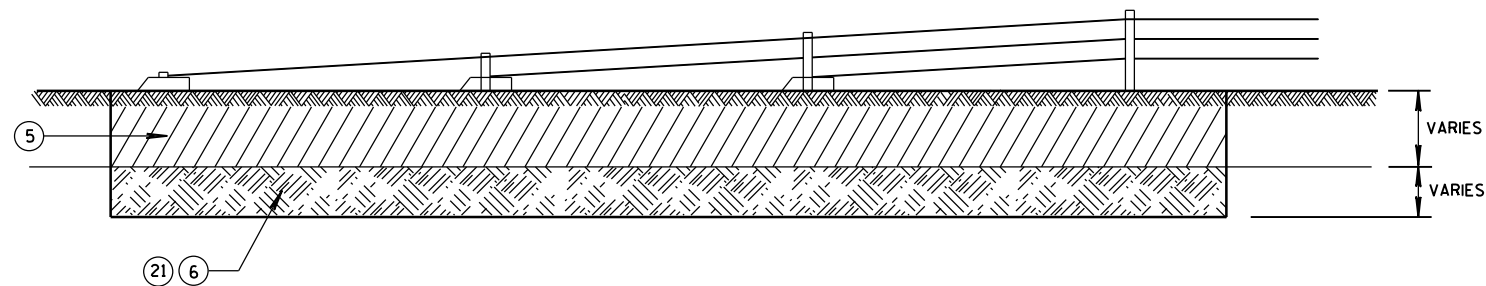
- 1 LOCATION OF LENGTH OF NEED POINT FOR CABLE BARRIER END TERMINAL VARIES. (SEE MANUFACTURER'S INFORMATION)
- 2 PAY LIMIT FOR CABLE BARRIER END TERMINAL. LENGTH OF CABLE BARRIER END TERMINAL VARIES. (SEE MANUFACTURER'S INFORMATION)
- 3 CABLE BARRIER END TERMINAL
- 4 CABLE BARRIER AND LINE POSTS

CABLE BARRIER TYPE 1
LAYOUT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

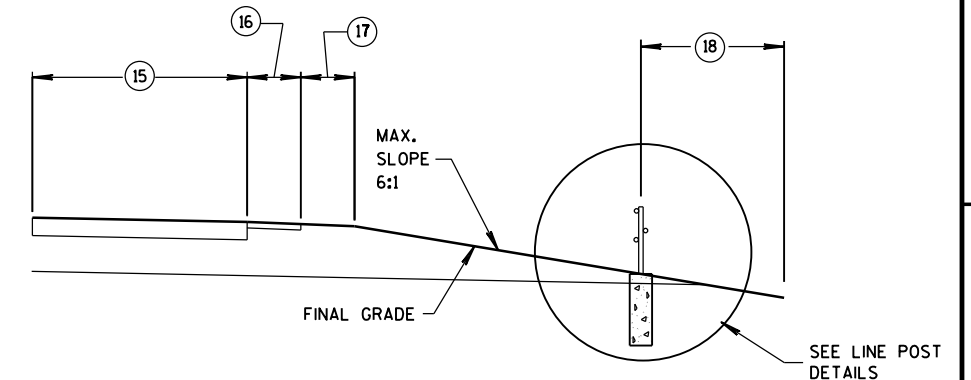


PROFILE VIEW
LINE POST INSTALLATION

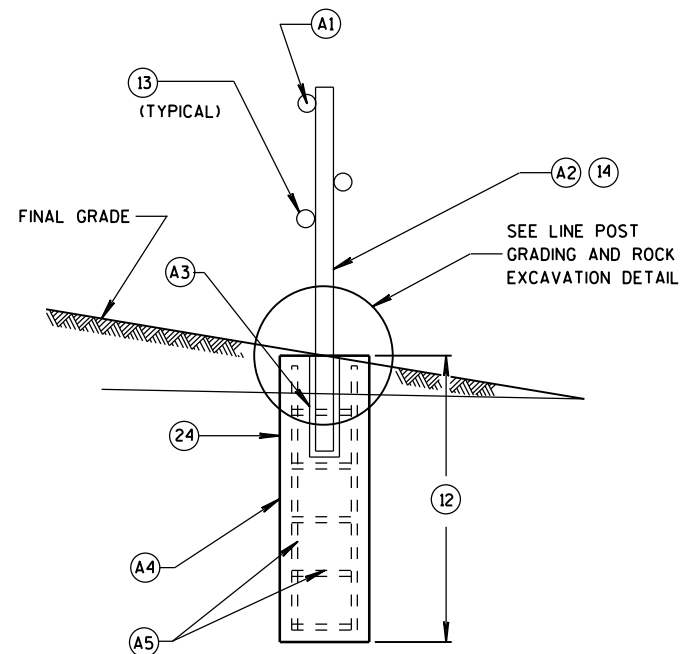


CABLE BARRIER END
TERMINAL ROCK EXCAVATION DETAIL

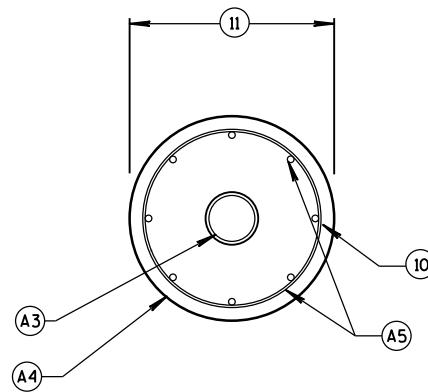
- (5) SOIL TO BE EXCAVATED FOR CABLE BARRIER END TERMINAL (VARIES).
- (6) ROCK TO BE EXCAVATED FOR CABLE BARRIER END TERMINAL (VARIES).
- (7) SOIL TO BE EXCAVATED FOR LINE POST (VARIES).
- (8) ROCK TO BE EXCAVATED FOR LINE POST (VARIES).
- (9) EXCAVATE AND GRADE LINE FOR LINE POST FOOTINGS. INSTALL LINE POST FOOTING TO MINIMIZE 4 INCH TALL OBJECT ON 5 FOOT CHORD.
- (10) 2 INCHES OF CLEAR COVER FROM EDGE OF CONCRETE TO REINFORCEMENT.
- (11) DIAMETER OF LINE POST FOOTING VARIES. SEE MANUFACTURER'S INFORMATION.
- (12) MINIMUM DEPTH OF LINE POST FOOTING IS 48 INCHES IN SOIL. DEEPER FOOTINGS PER MANUFACTURER'S RECOMMENDATION ARE ACCEPTABLE.
- (13) NUMBER AND LOCATION OF CABLES VARY. SEE MANUFACTURER'S INFORMATION.
- (14) LINE POST DIMENSIONS AND CONNECTION HARDWARE VARY. SEE MANUFACTURER'S INFORMATION.
- (15) LANE OF ROADWAY (VARIES). SEE PLAN FOR MORE INFORMATION.
- (16) PAVED SHOULDER (VARIES). SEE PLAN FOR MORE INFORMATION.
- (17) GRAVEL SHOULDER (VARIES). SEE PLAN FOR MORE INFORMATION.
- (18) CABLE BARRIER OFFSET FROM CENTERLINE OF MEDIAN DITCH (8 FOOT MINIMUM). SEE PLAN FOR MORE INFORMATION.
- (19) MAXIMUM POST SPACING IS 15 FEET.
- (20) STAGGER TURNBUCKLES (TYPICAL).
- (21) SEE MANUFACTURER'S DESIGN WHEN ROCK IS ENCOUNTERED.
- (22) IN SOIL MINIMUM DEPTH OF CABLE BARRIER END TERMINAL FOOTING IS 60 INCHES. DEEPER FOOTINGS PER MANUFACTURER'S RECOMMENDATION ARE ACCEPTABLE.
- (23) LINE POST DELINEATOR SPACING IS 100 FEET.
- (24) LINE POST FOOTINGS ARE REQUIRED TO HAVE LESS THAN 1 INCH OF MOVEMENT WHEN LINE POST IS IMPACTED BY A NCHRP 350 SMALL CAR UNDER TL-3 TEST CONDITIONS.



CABLE BARRIER OFFSET FROM DITCH LINE

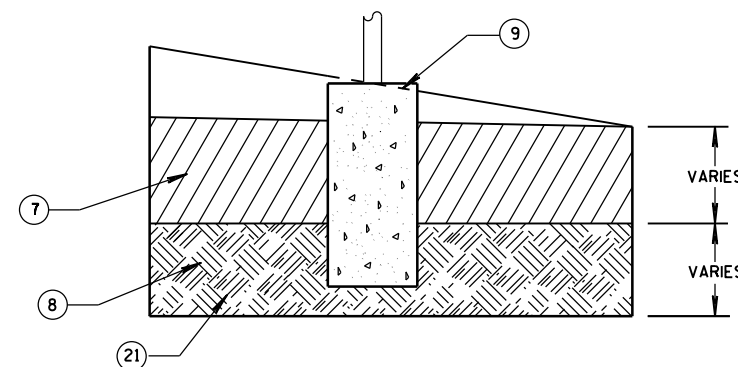


CROSS SECTION



PLAN VIEW
(LINE POST AND CABLES NOT SHOWN)

LINE POST DETAILS



LINE POST GRADING
AND ROCK EXCAVATION DETAIL

CABLE BARRIER TYPE 1
LAYOUT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA