

BIDDING DOCUMENTS
MIDDLE FORK GREENWAY SECTION 3A
TRAILHEAD AND GREENWAY
WATAUGA COUNTY, NORTH
CAROLINA

ADDENDUM #1

Revised Bridge Plans for pedestrian bridges provided by Arete Engineers, PLLC.

February 11, 2026





ABBREVIATIONS	
A	AREA
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ADH.	ADHESIVE
AGG.	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT.	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPRH.	APPROACH
APPROX.	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
BOT.	BOTTOM
BRG.	BEARING
CTS.	CENTERS
CIPL	CAST IN PLACE
C/L	CENTERLINE
CON.	CONNECTION
CONC.	CONCRETE
COORD.	COORDINATE
DGN.	DESIGN
DIM.	DIMENSION
DWG.	DRAWING
EA.	EACH
EL.	ELEVATION
ENGR.	ENGINEER
EXIST.	EXISTING
F TO F	FACE TO FACE
FDN.	FOUNDATION
FT.	FEET
GALV.	GALVANIZED
GR.	GRADE
HORIZ.	HORIZONTAL
IN.	INCH
LB.	POUND
LONG.	LONGITUDINAL
MAX.	MAXIMUM
MIN.	MINIMUM
O/C	ON CENTER
OD	OUTSIDE DIAMETER
PAR.	PARALLEL
PVC	POLYVINYL CHLORIDE
REINF.	REINFORCEMENT
SCH.	SCHEDULE
STD.	STANDARD
STL.	STEEL
STR.	STRUCTURE
W.W.F.	WELDED WIRE FABRIC

SHEET INDEX	
S1	COVER SHEET / STANDARD NOTES
S2	BRIDGE ELEVATION & PLAN
S3	BRIDGE CROSS SECTION / FOUNDATION LAYOUT
S4	END BENT 1
S5	WINGWALLS –W1– & –W2–
S6	END BENT 2
S7	WINGWALLS –W3– & –W4–
S8	ADDITIONAL DETAILS

ARETÉ ENGINEERS

MIDDLEFORK GREENWAY SECTION 3

DOWNSTREAM BRIDGE ABUTMENT DESIGN

TYPE OF WORK: STRUCTURE

DESIGN DATA:
SPECIFICATIONS

A.A.S.H.T.O. GUIDE SPECIFICATIONS FOR DESIGN
OF PEDESTRIAN BRIDGES, DECEMBER 2009

A.A.S.H.T.O LRFD BRIDGE DESIGN SPECIFICATIONS

LIVE LOAD	90 PSF PEDESTRIAN LOAD
IMPACT ALLOWANCE	N/A
STRESS IN EXTREME FIBER OF STRUCUTRAL STEEL – AASHTO M270 GRADE 36	36,000 LBS. PER SQ. IN.
– AASHTO M270 GRADE 50W	50,000 LBS. PER SQ. IN.
– AASHTO M270 GRADE 50	50,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION – GRADE 60	60,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	3,000 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER – TREATED OR UNTREATED	1,800 LBS. PER SQ. IN.
EXTREME FIBER STRESS	
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	60 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS: AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP. CONCRETE SHALL BE CURED IN COMPLIANCE WITH NCDOT SPECIFICATIONS.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1–1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS, UNLESS OTHERWISE NOTES, SHALL BE EMBEDDED A MINIMUM OF 6" INTO EXISITNG CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

CONSTRUCTION SEQUENCE:

PLACE BACKFILL IN ACCORDANCE WITH NCDOT SPECIFICATIONS. PLACE BACKFILL ABOVE THE BEARING SEAT AFTER THE PREFABRICATED FRP BRIDGE IS SET ON THE END BENTS.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACE IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

LAP SPLICES SHALL BE A MINIMUM LENGTH OF 40 X DIAMETER OF BAR.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HERON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL.

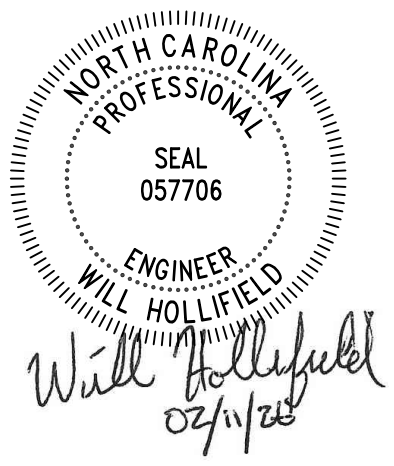
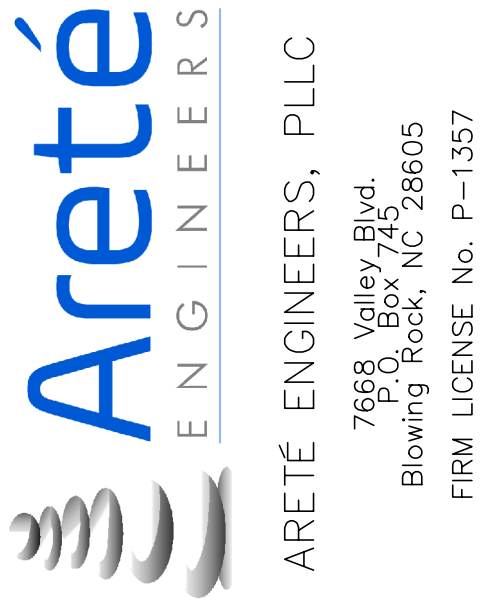
ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON THE PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CHAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CHAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CHAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.



MFG SECTION 3 ABUTMENT DESIGN (DOWNSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.160833, LONG: –81.644166

DATE	2/6/2026
DRAWN BY	WMH
CHECK BY	AGF
EOR	WMH
PROJECT NO.	53999

SHEET CONTENTS

COVER SHEET /
STANDARD NOTES

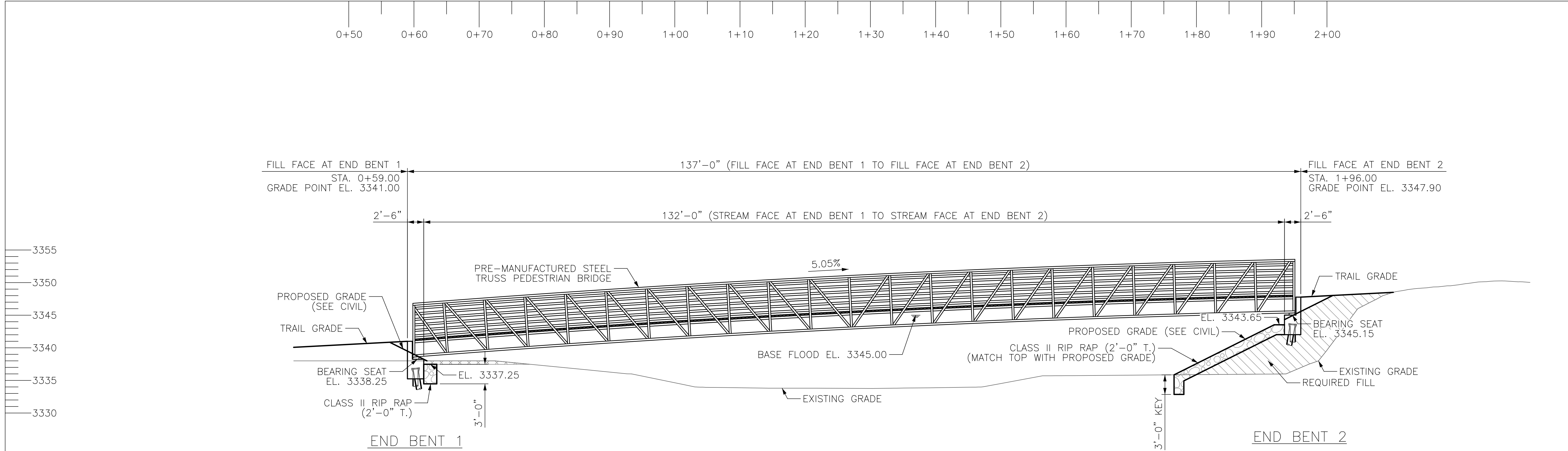
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SHEET NO.

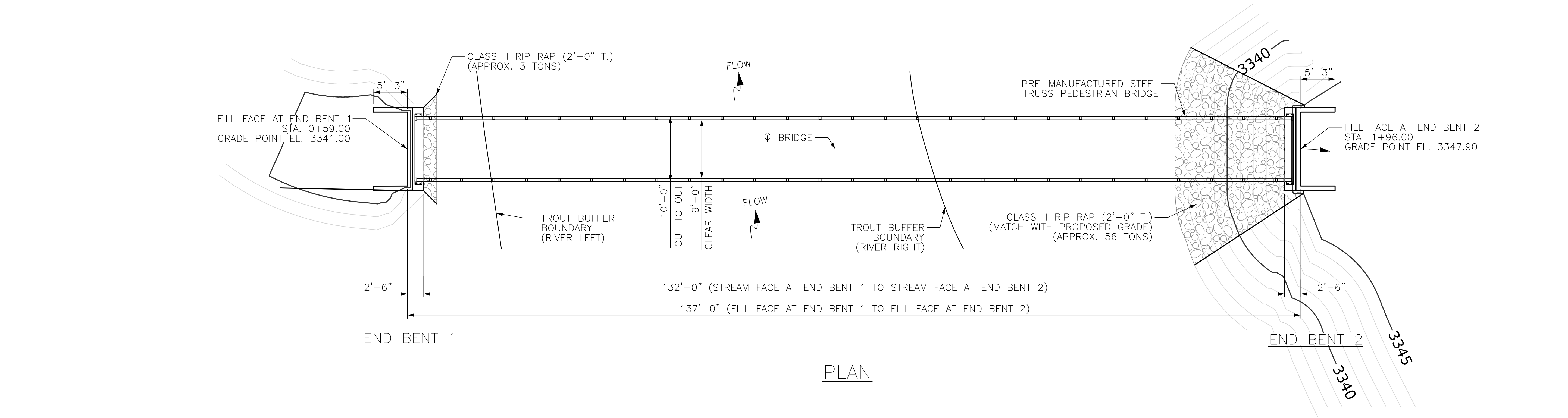
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TOTAL SHEETS

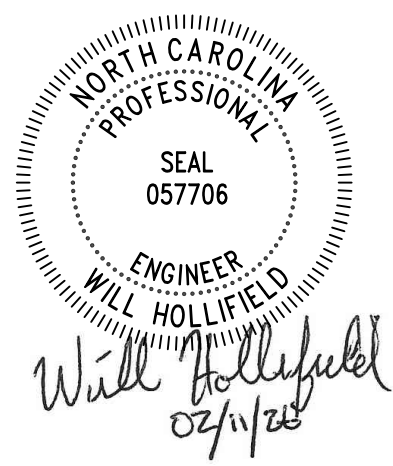
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SECTION ALONG CENTERLINE OF BRIDGE



PLAN



MFG SECTION 3 ABUTMENT DESIGN (DOWNSTREAM BRIDGE)
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DATE	2/6/2026
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SHEET CONTENTS

BRIDGE ELEVATION &
PLAN

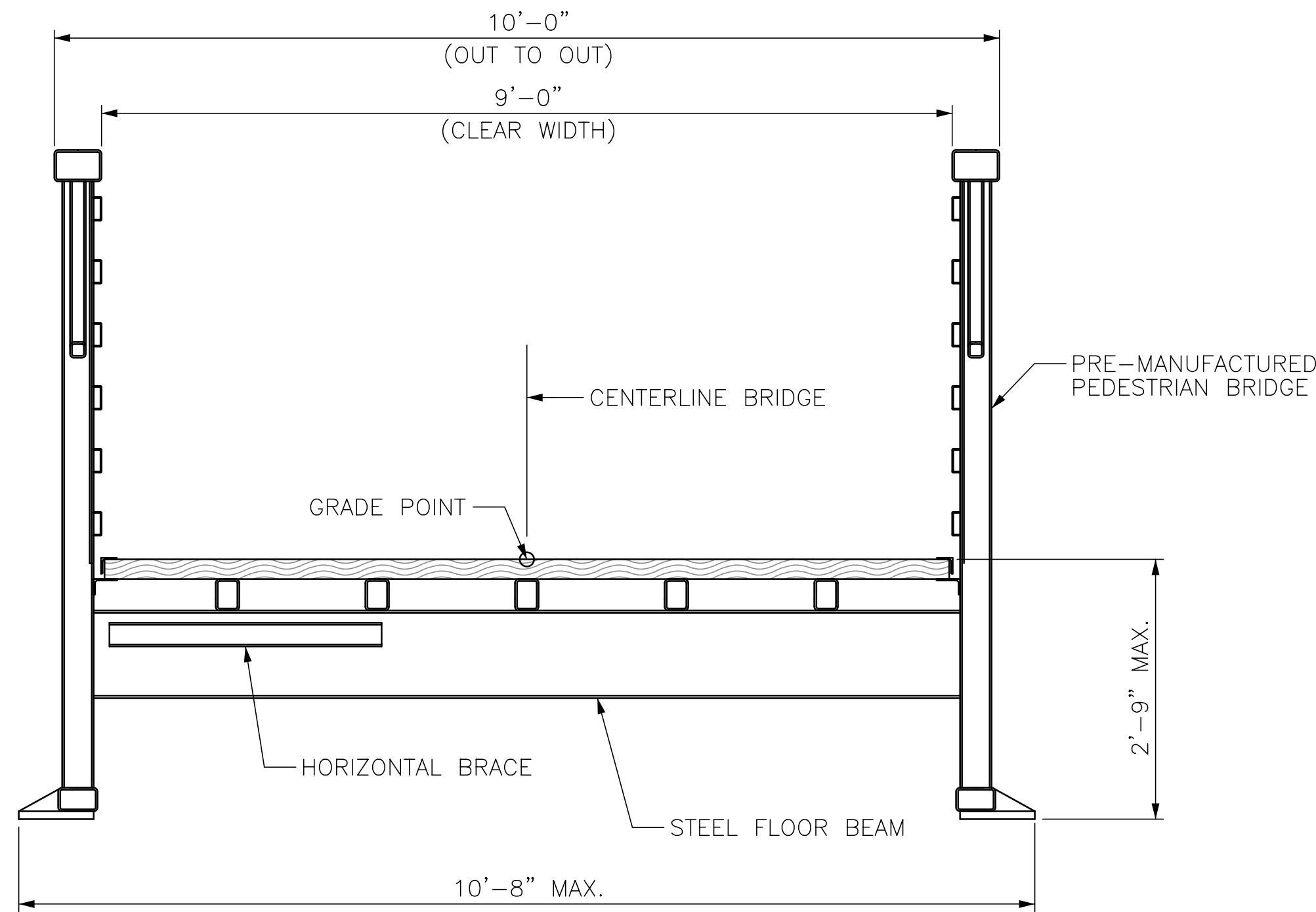
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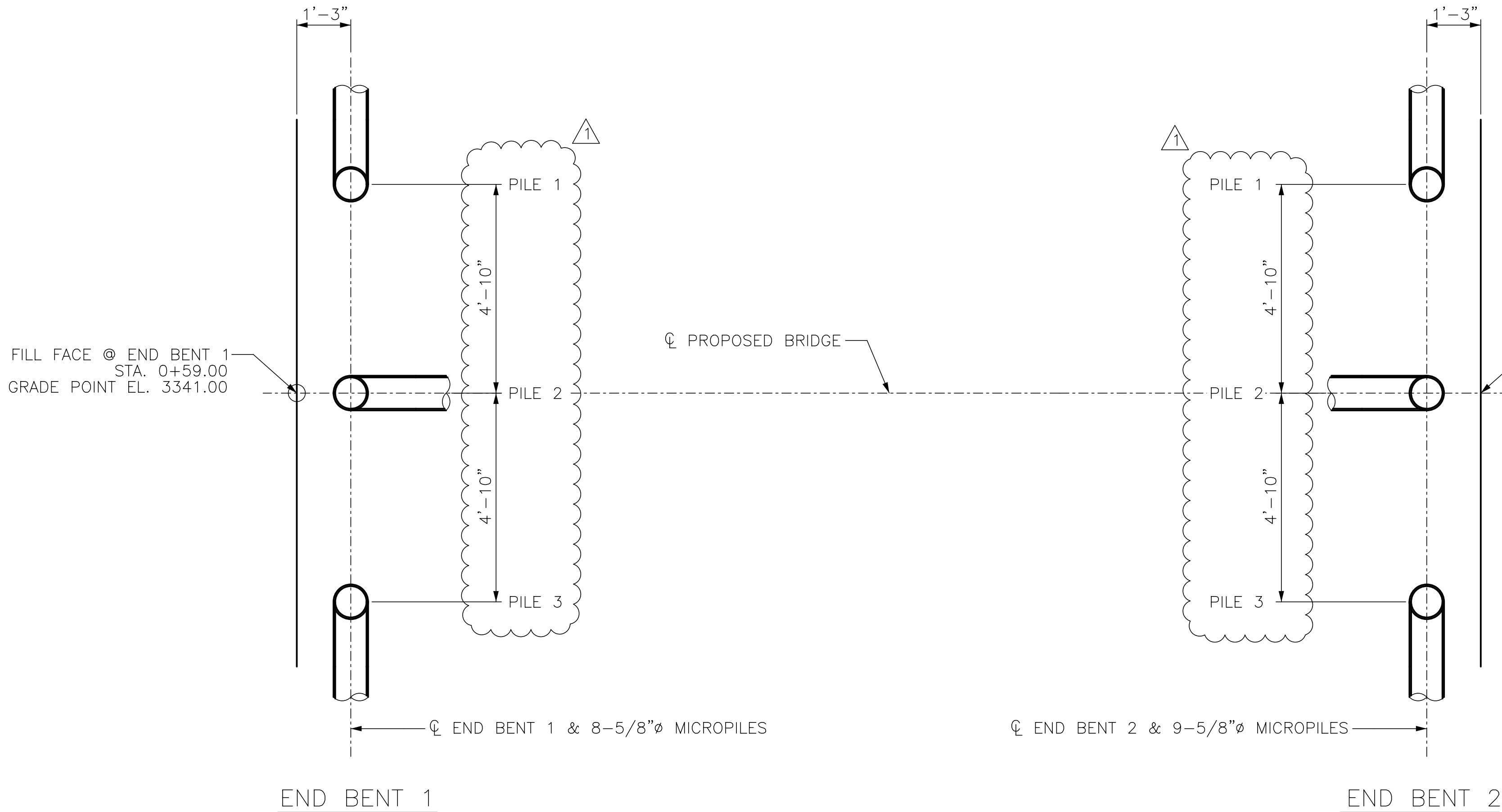
S-2

TOTAL SHEETS

8



TYPICAL SECTION (PRE-MANUFACTURED BRIDGE)



FOUNDATION LAYOUT

BEGIN STATION (FILL FACE)	END STATION (FILL FACE)	BACKWALL WIDTH	END CLEARANCE	GRADE	HORIZONTAL BRIDGE LENGTH (PLAN LENGTH)
0+59.00	1+96.00	9"	2"	+5.05%	135'-2"

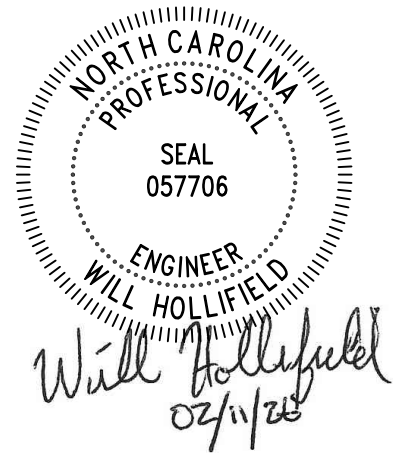
PREMANUFACTURED PEDESTRIAN BRIDGE NOTES

- BRIDGE LOADING & GEOMETRY IS ESTIMATED. AFTER SHOP DRAWINGS FOR THE PREMANUFACTURED PEDESTRIAN BRIDGE ARE SUBMITTED, CONSTRUCTION ADMINISTRATOR SHALL FORWARD SHOP DRAWINGS TO ARETÉ ENGINEERS FOR VERIFICATION THAT THE SUBSTRUCTURE CAN SUPPORT CALCULATED BRIDGE LOADS.
- PREMANUFACTURED PEDESTRIAN BRIDGE DESIGN PER AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES (LATEST EDITION)
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE SHALL INDICATE THE LOCATION OF DRAINAGE HOLES FOR THE BRIDGE TUBULAR MEMBERS IN THE SHOP DRAWINGS.
- FOR ADDITIONAL INFORMATION, SEE SPECIAL PROVISIONS.
- FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE MUST MAINTAIN THE MAX. BACKWALL HEIGHT AS SHOWN IN THE PLANS.
- FABRICATOR OF PREMANUFACTURED PREDESTRIAN BRUDGE INCLUDE BACKWALL COVER PLATE FOR EXPANSION.

MICROPILE NOTES:

- FOR MICROPILE INFORMATION AND OTHER SUBSTRUCTURE DESIGN CONSIDERATIONS, SEE STAMPED GEOTECHNICAL REPORT.
- MINIMUM BOND LENGTH OF 10 FEET IS REQUIRED FOR ALL PILES AT END BENTS 1 AND 2.
- PENETRATION OF AT LEAST 5 FEET INTO WEATHERED ROCK OR CRYSTALLINE ROCK IS REQUIRED FOR REINFORCEMENT CASINGS.
- USE REINFORCEMENT CASINGS WITH YIELD STRENGTHS OF AT LEAST 80 KSI AND A MINIMUM WALL THICKNESS OF 0.5" FOR ALL MICROPILES.
- BATTERED MICROPILES AT ALL LOCATIONS ARE TO BE BATTERED AT 2:12.
- MICROPILES ARE TYPICALLY DESIGNED BY THE MICROPILE DRILLING CONTRACTOR BASED ON THEIR AVAILABLE DRILLING EQUIPMENT AND MATERIAL AVAILABILITY. MICROPILES SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE SECTIONS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, LATEST EDITION AND FHWA NHI-05-039 MICROPILE DESIGN AND CONSTRUCTION REFERENCE MANUAL. A LOAD TESTING PROGRAM THAT INCLUDES BOTH PRE-PRODUCTION VERIFICATION TESTING AND PRODUCTION PROOF TESTING IS REQUIRED. LOAD TESTING CRITERIA SHOULD FOLLOW RECOMMENDATIONS OUTLINES IN FHWA NH-05-039.
- DEVIATION FROM PIPE SIZE AND ROD DIAMETER MUST BE APPROVED BY ENGINEER OF RECORD UPON RECEIPT OF SUBMITTALS.

SUMMARY OF MICROPILE INFORMATION/INSTALLATION					
EB1	CASING O.D. (IN)	MIN. REINFORCEMENT BAR	ANTICIPATED BEDROCK EL. (FT)	FACTORED RESISTANCE PER PILE (KIPS)	UPLIFT RESISTANCE (KIPS)
PILE 1-3	8.625	#11	3321	150	80
EB2	CASING O.D. (IN)	MIN. REINFORCEMENT BAR	ANTICIPATED BEDROCK EL. (FT)	FACTORED RESISTANCE PER PILE (KIPS)	UPLIFT RESISTANCE (KIPS)
PILE 1-3	9.625	#11	3316	150	80



MFG SECTION 3 ABUTMENT DESIGN (DOWNSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.160833, LONG: -81.644166

DATE	2/6/2026
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SHEET CONTENTS

BRIDGE CROSS SECTION
/ FOUNDATION LAYOUT

REVISIONS:	
1	2/10/2026

SHEET NO.

S-3

TOTAL SHEETS

8

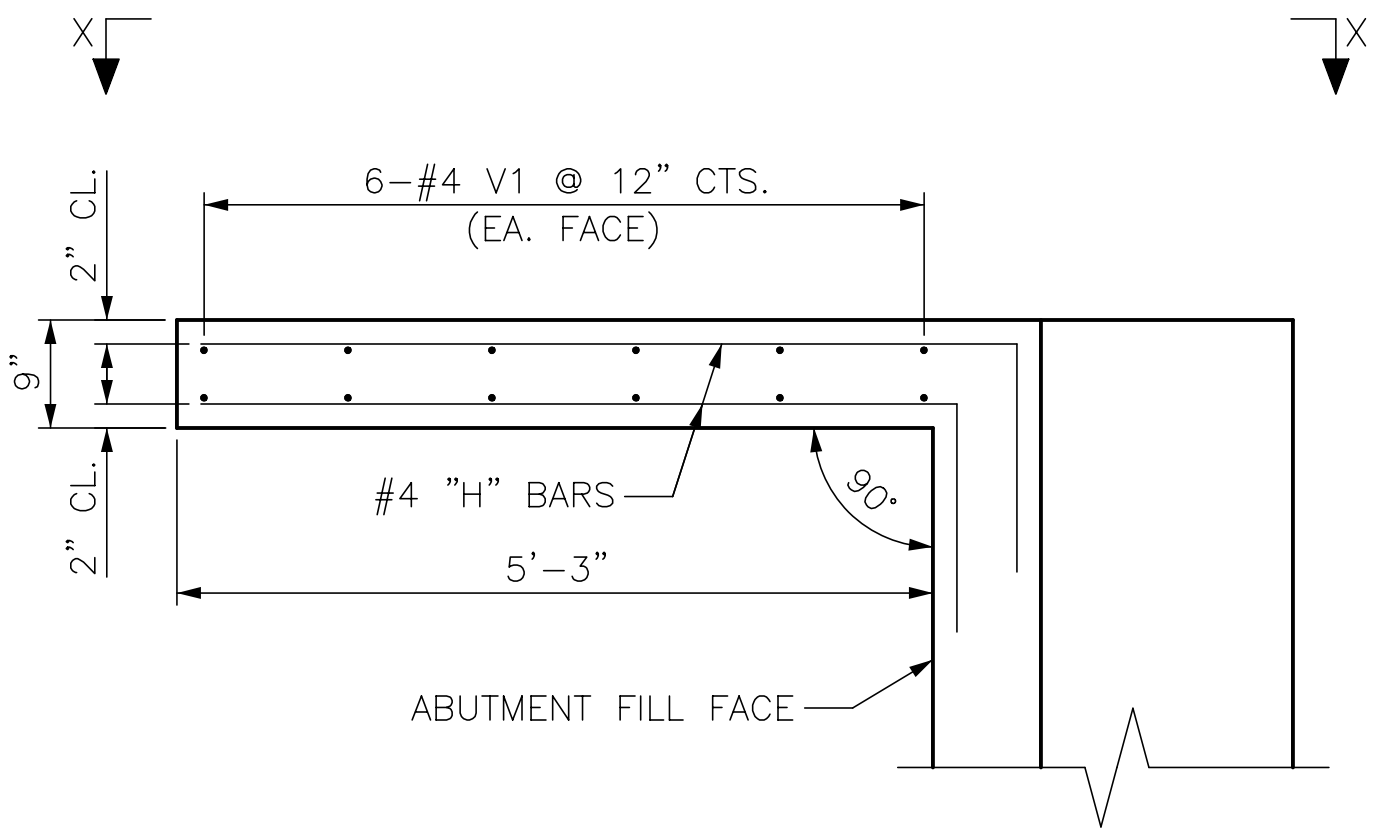


TOTAL CLASS A CONCRETE	5.85 C.Y.
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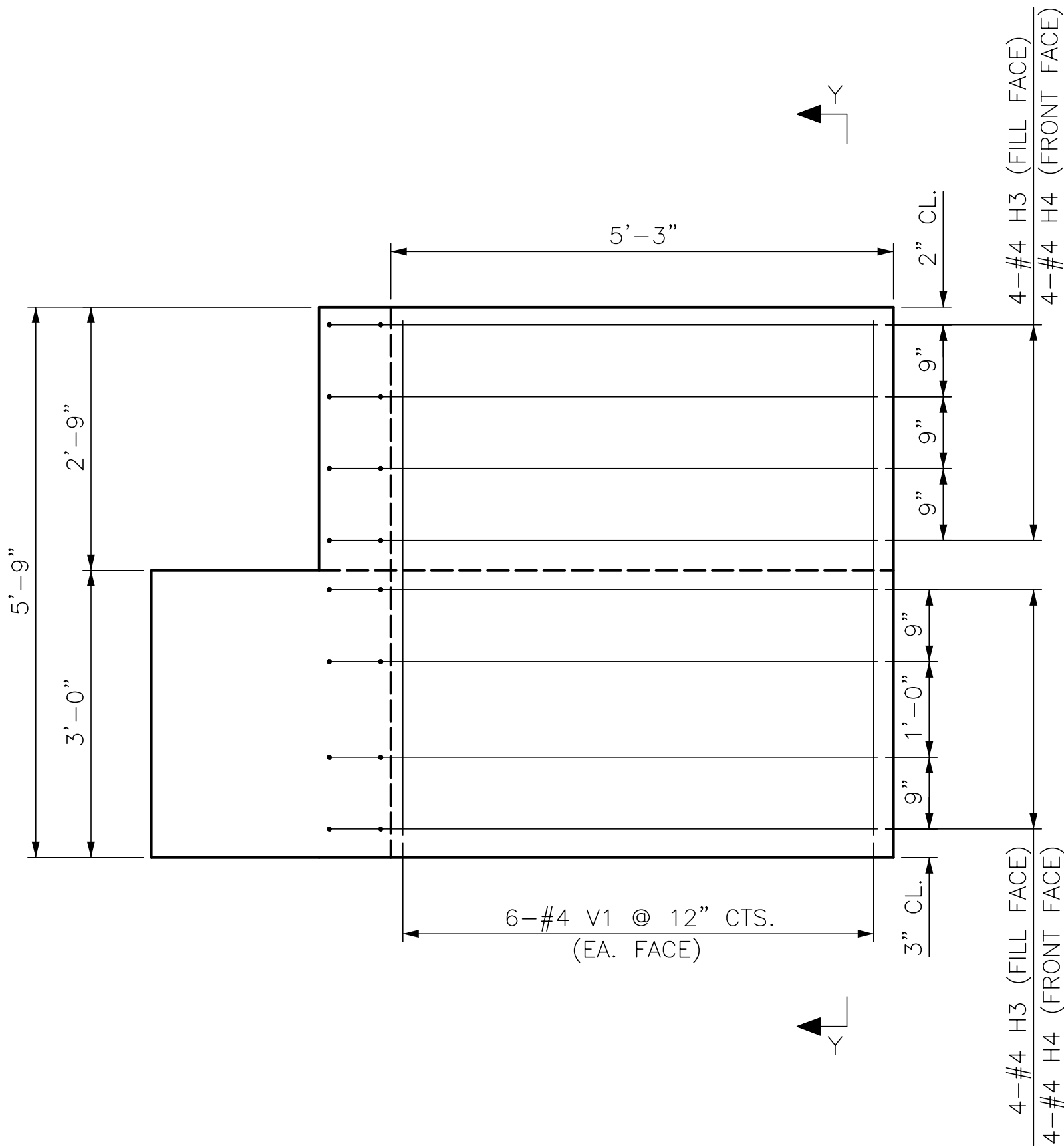


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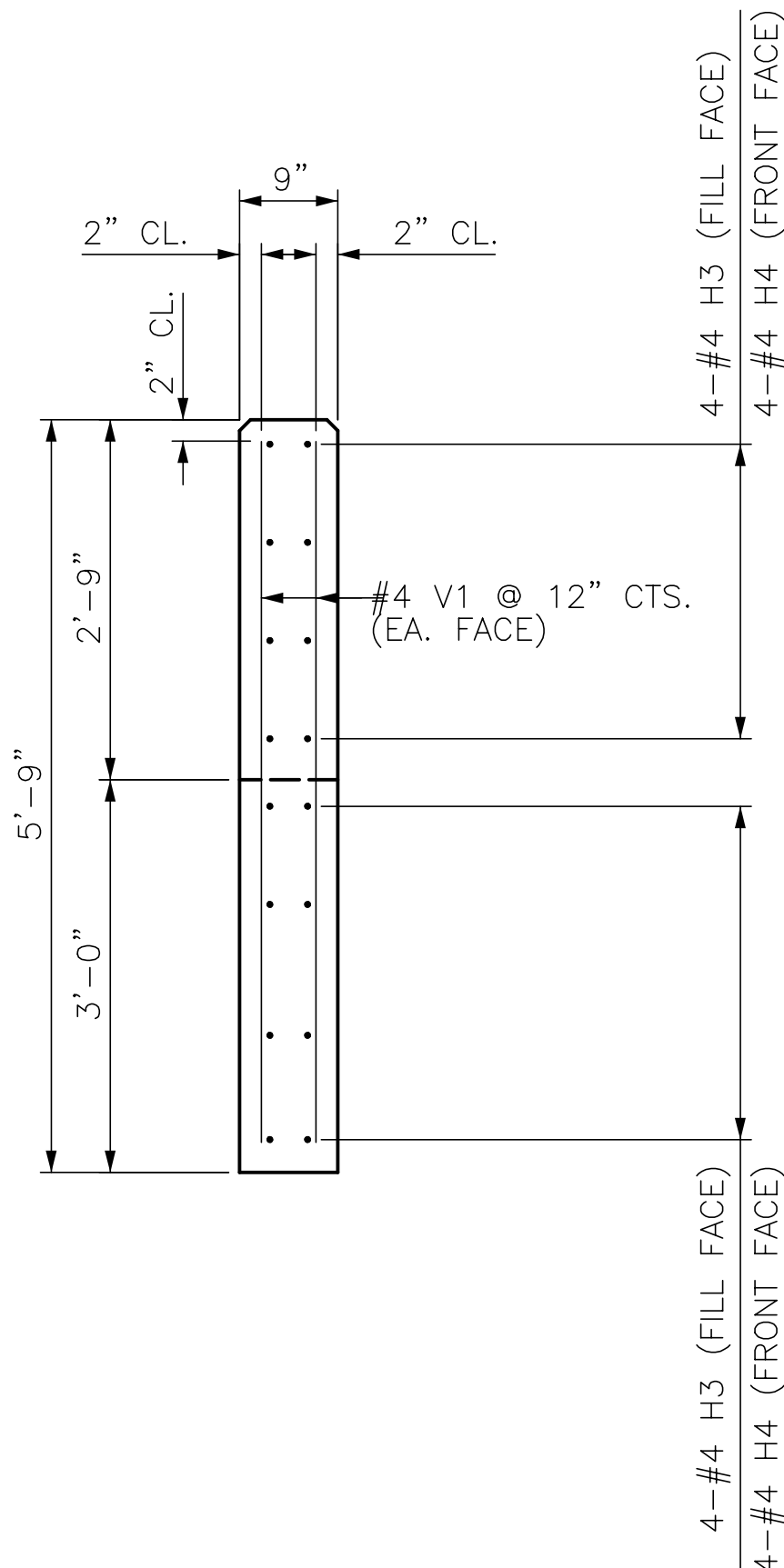
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-W1- PLAN

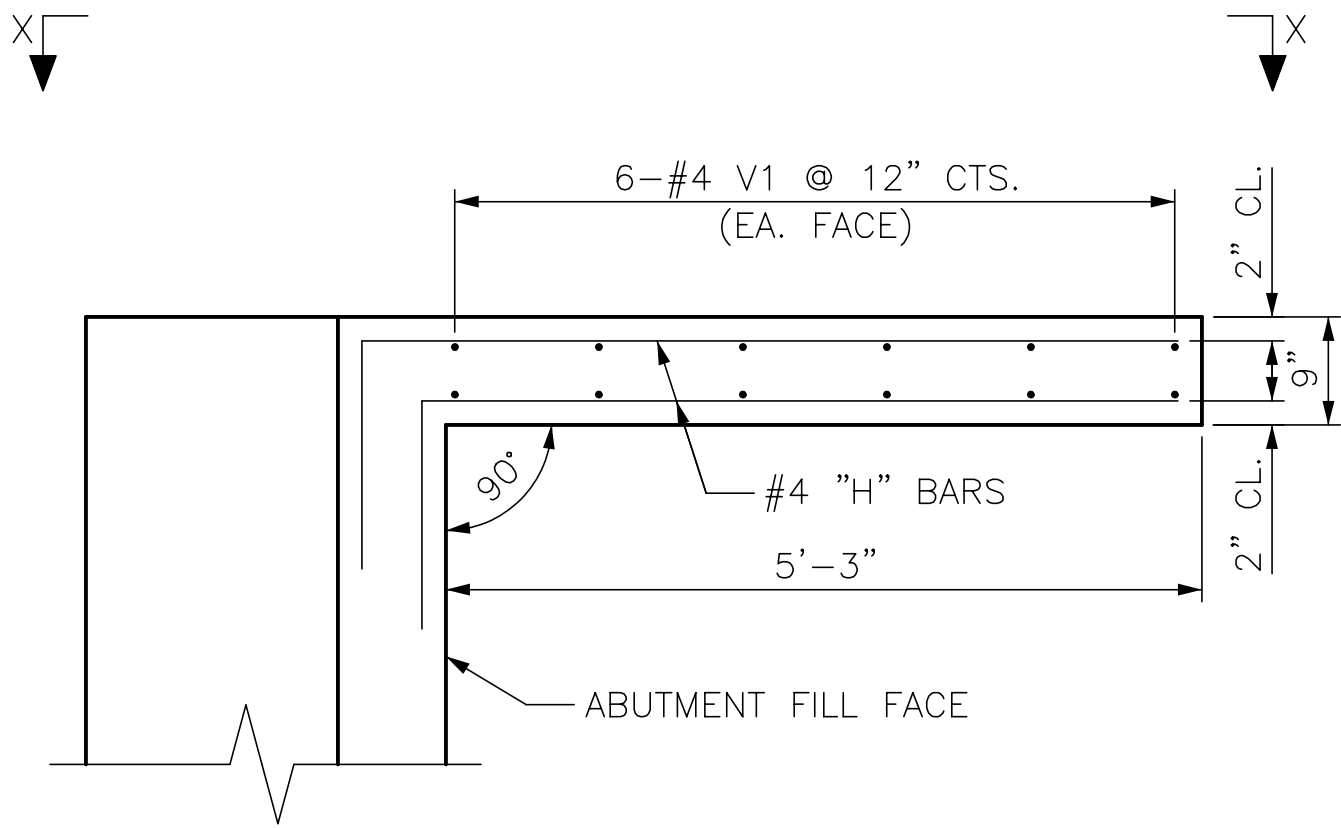


-W1- ELEVATION (X-X)

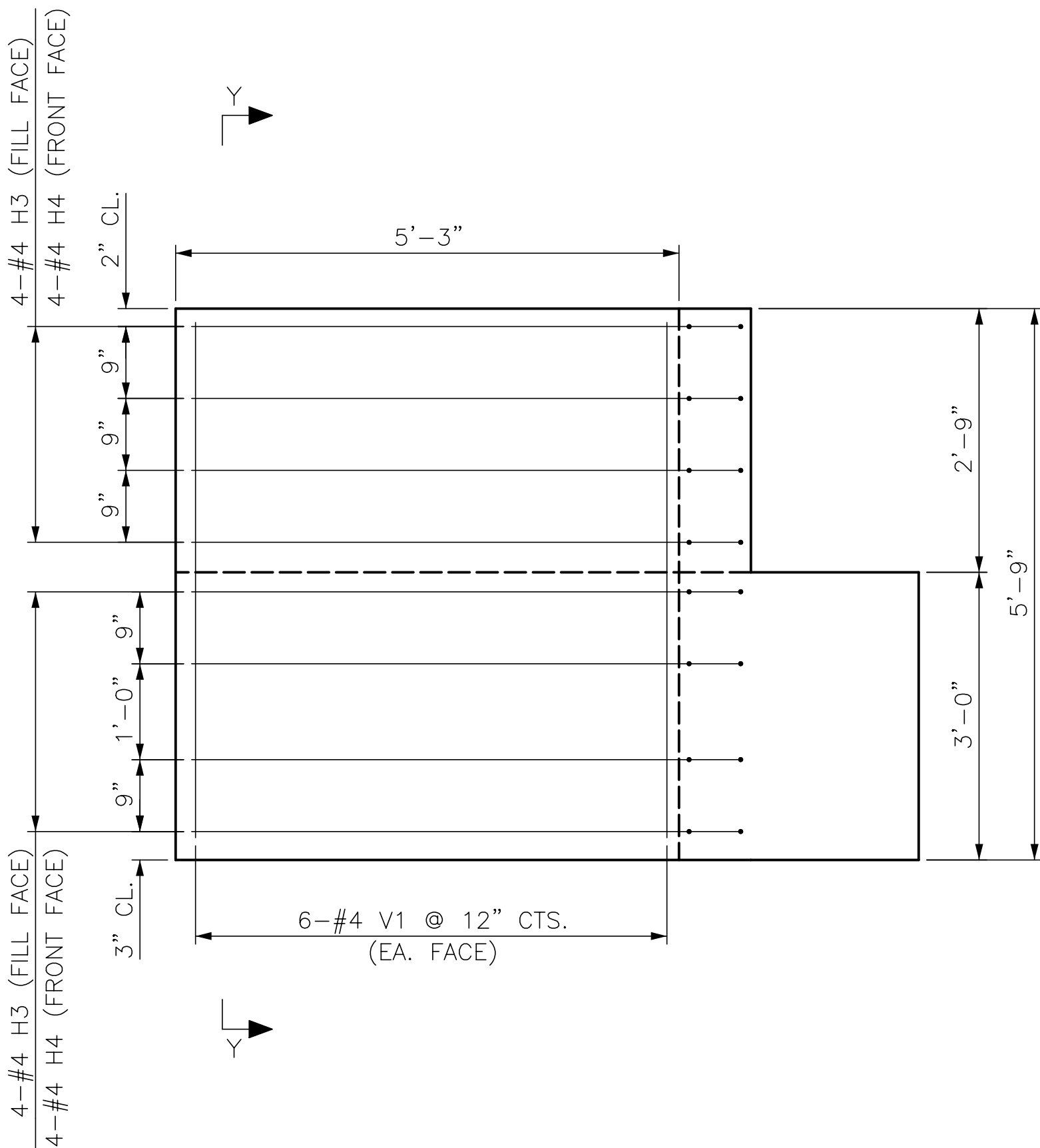


-W1- SECTION Y-Y

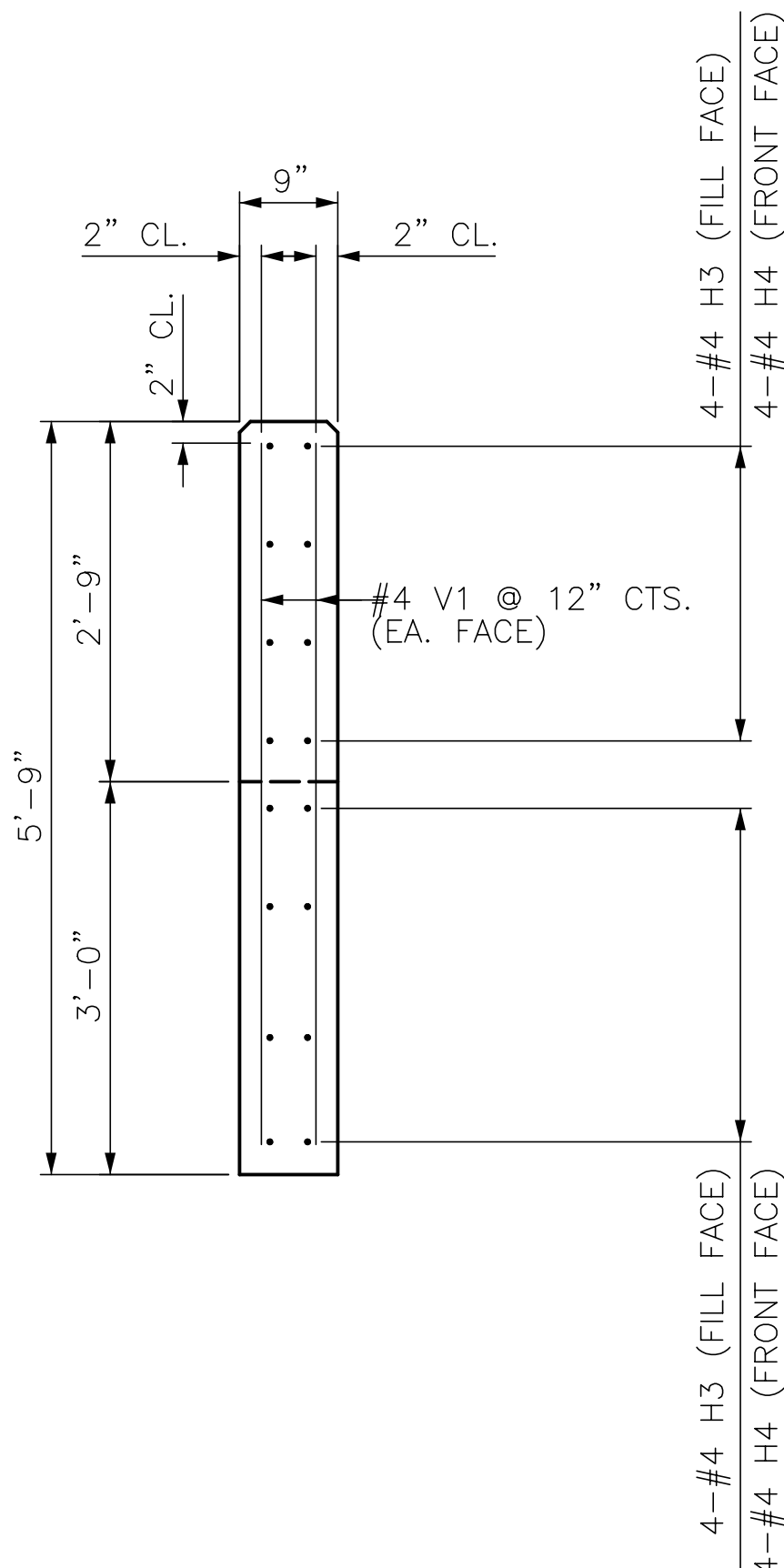
BILL OF MATERIAL (-W4-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W4-)					118 LBS.
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					



-W2- PLAN

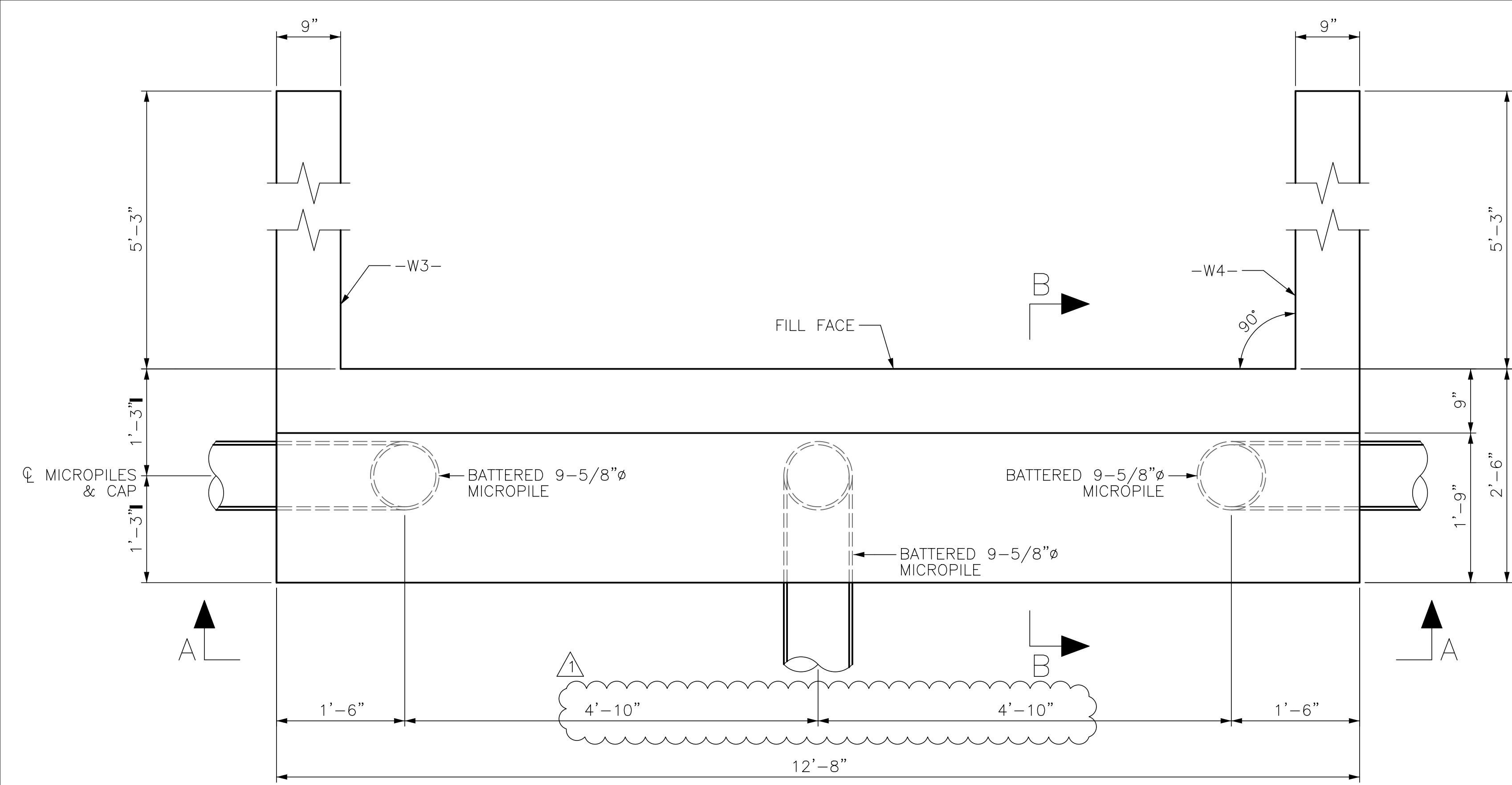


-W2- ELEVATION (X-X)

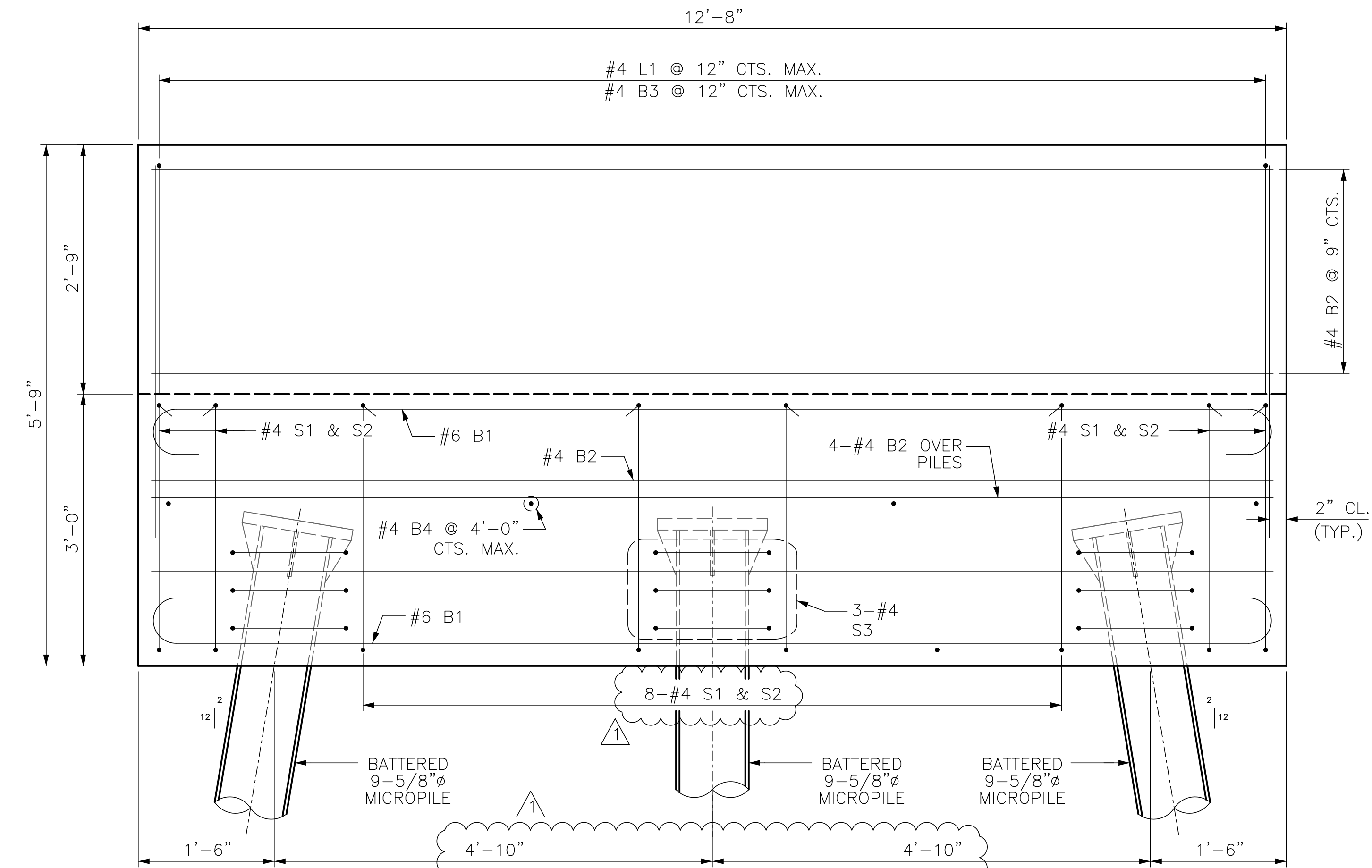


-W2- SECTION Y-Y

BILL OF MATERIAL (-W3-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W3-)					118 LBS.
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					



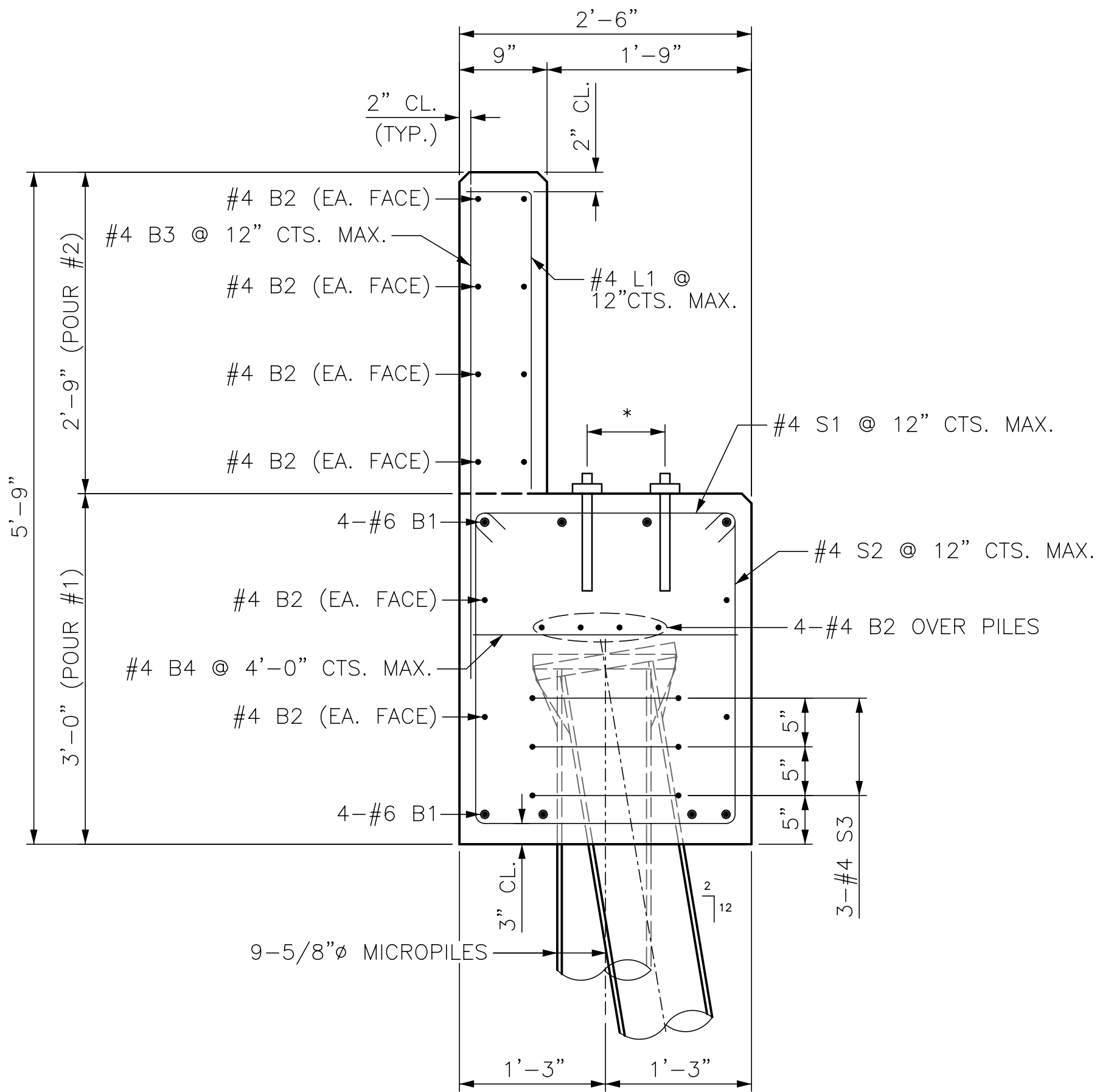
PLAN



ELEVATION (A-A)

BAR TYPES			BILL OF MATERIAL (END BENT 2)				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	8	#6	1	13'-6"	162		
B2	16	#4	STR	12'-4"	132		
B3	14	#4	STR	4'-2"	39		
B4	4	#4	STR	2'-2"	6		
S1	12	#4	2	2'-11"	23		
S2	12	#4	3	8'-1"	65		
S3	9	#4	4	5'-2"	31		
L1	14	#4	5	2'-11"	27		
REINFORCING STEEL (FOR END BENT 2)					485 LBS.		
CLASS A CONCRETE BREAKDOWN (FOR END BENT 2)							
POUR #1 (CAP & LOWER WINGS)					4.39 C.Y.		
POUR #2 (BACKWALL & UPPER WINGS)					1.77 C.Y.		
TOTAL CLASS A CONCRETE					6.16 C.Y.		

"*" DIMENSIONS PROVIDED BY FABRICATOR OR PREMANUFACTURED PREDESTRIAN BRIDGE.



SECTION (B-B)

DATE	2/6/2026
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SHEET CONTENTS

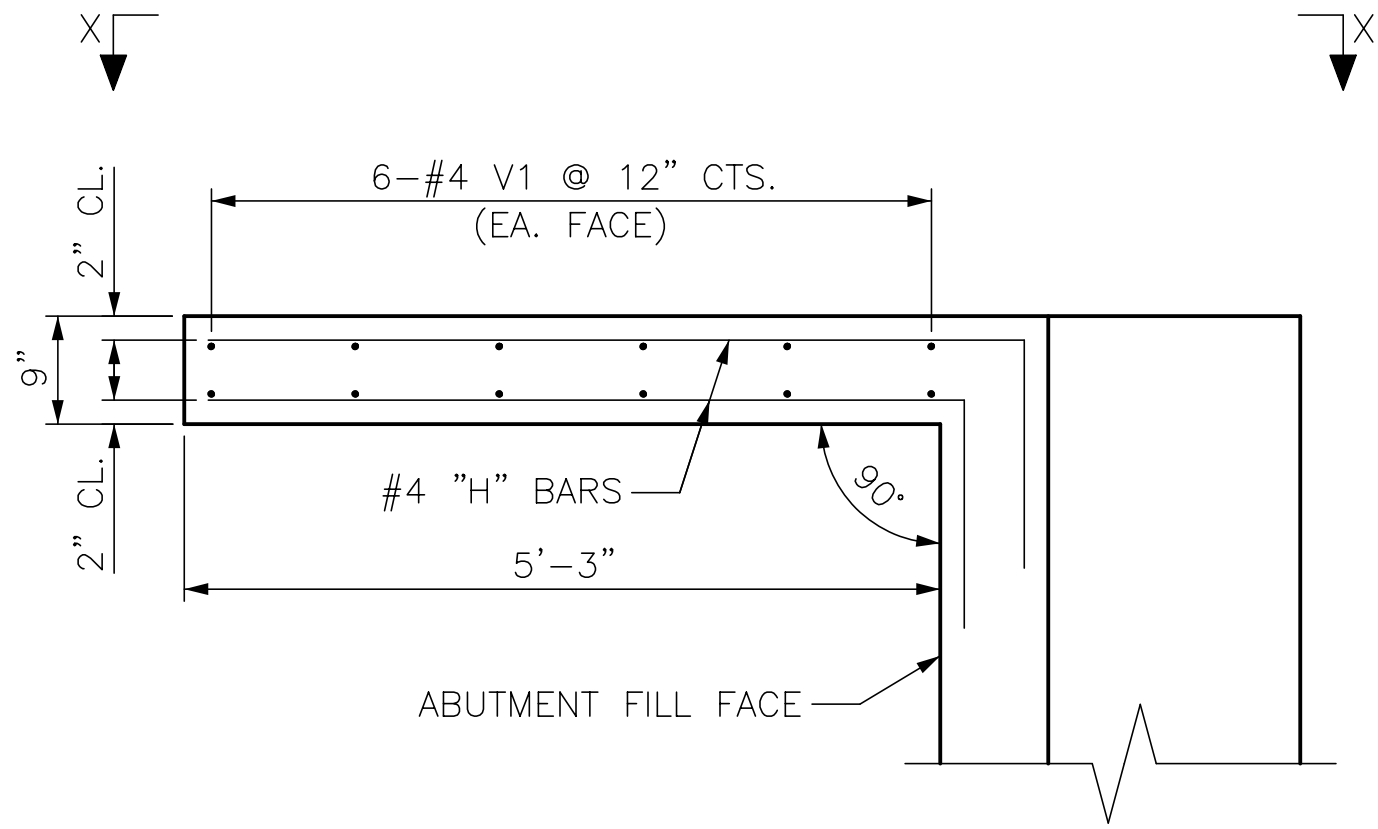
END BENT 2

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1	2/10/2026

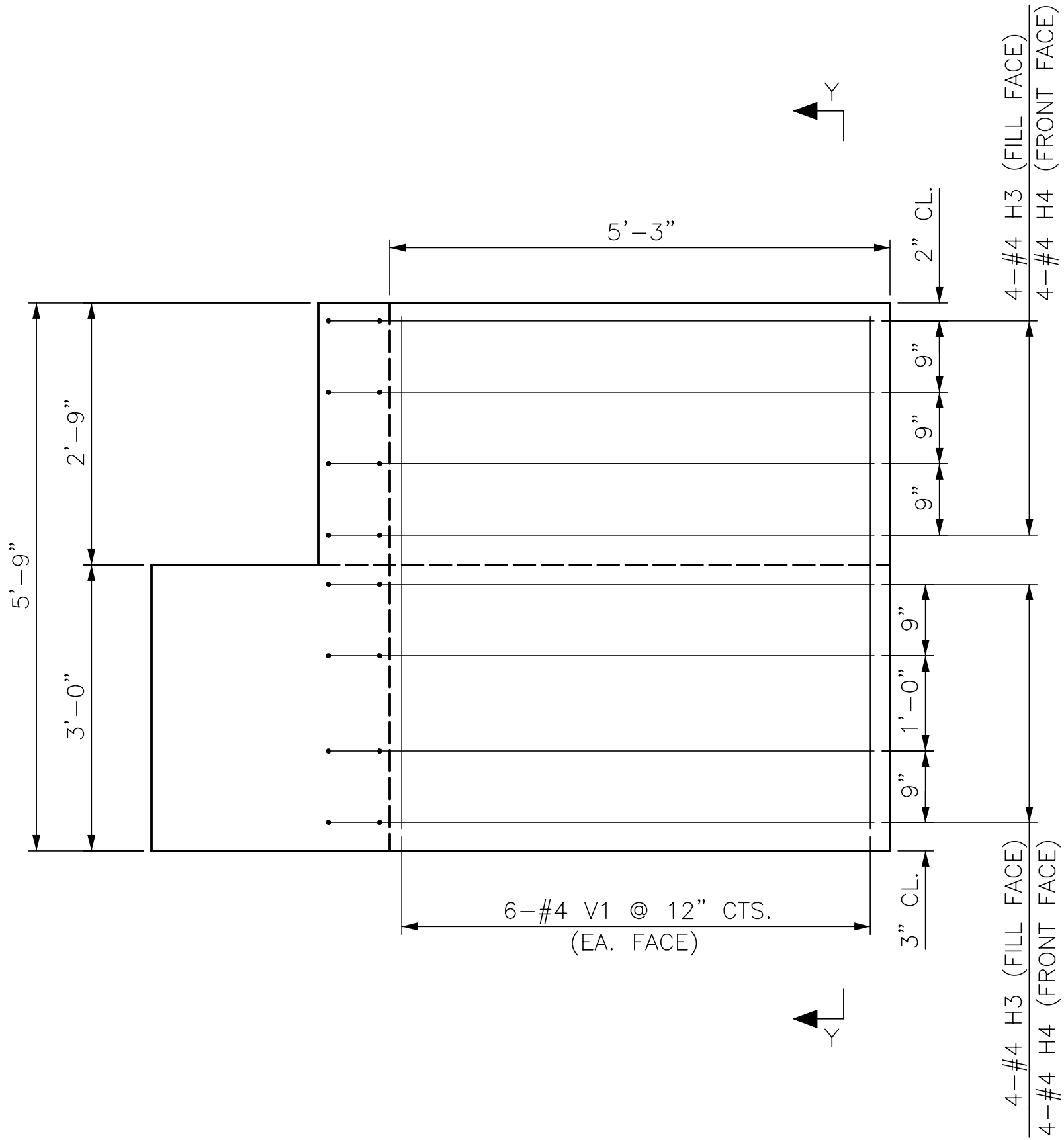
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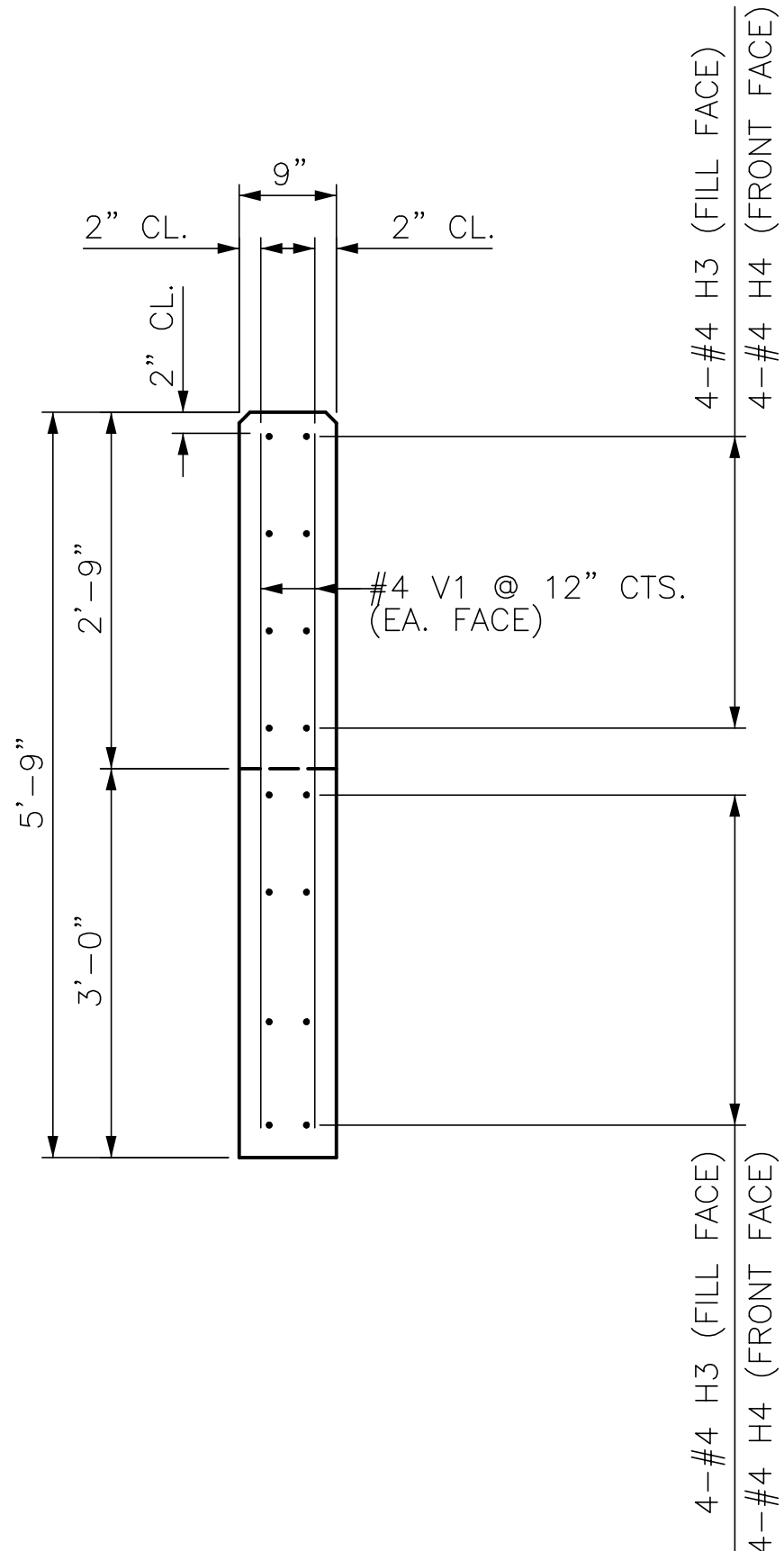
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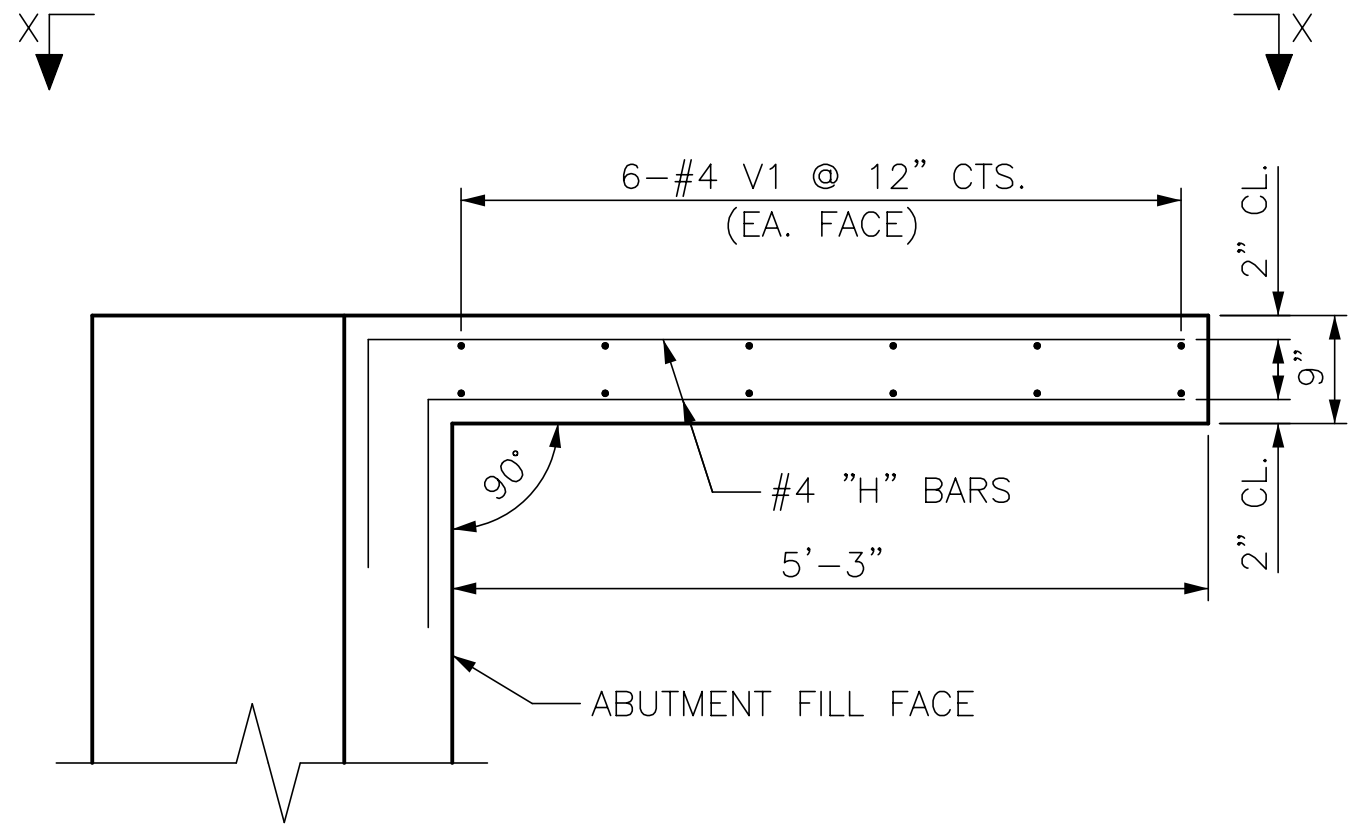
-W4- PLAN



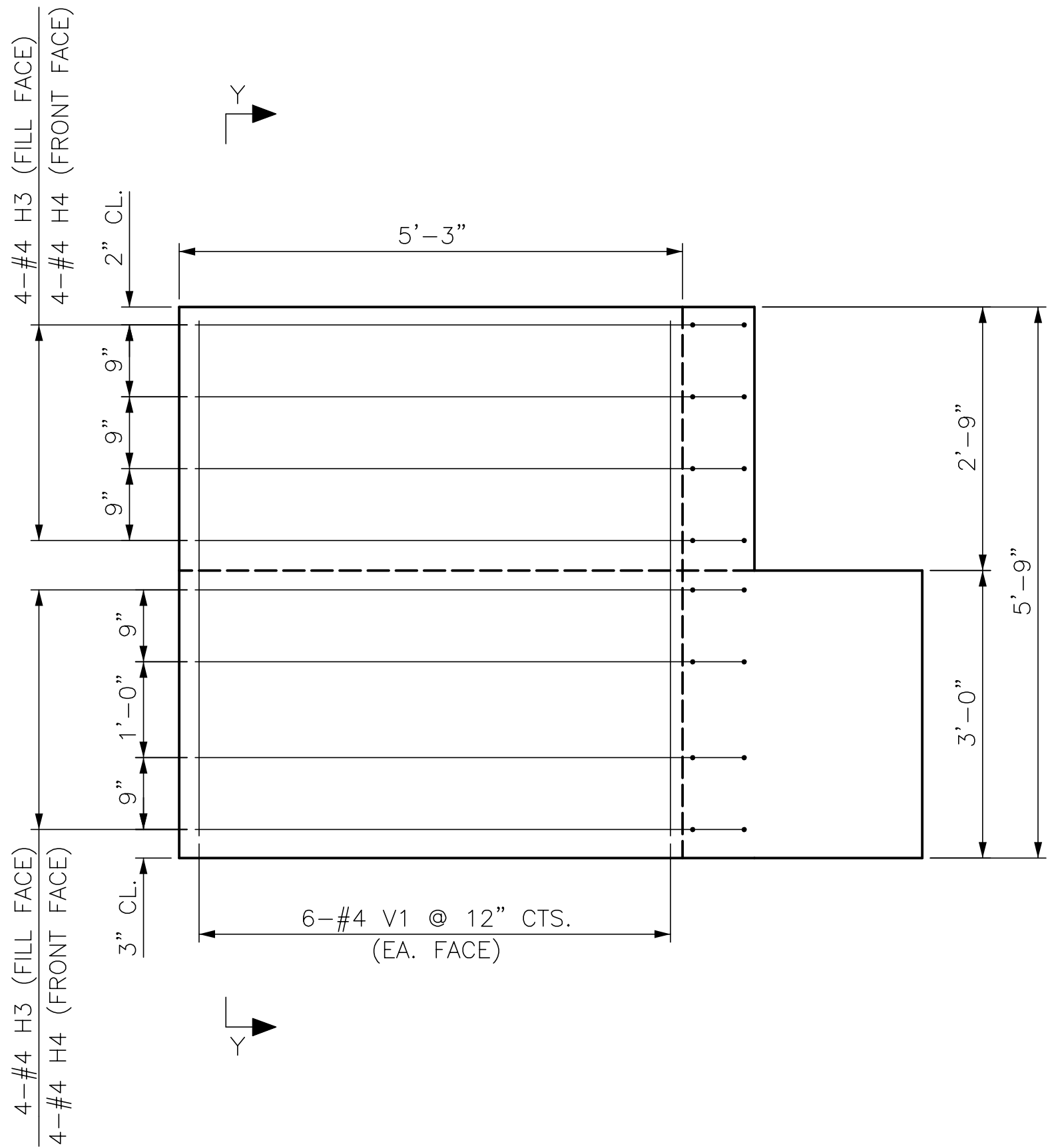
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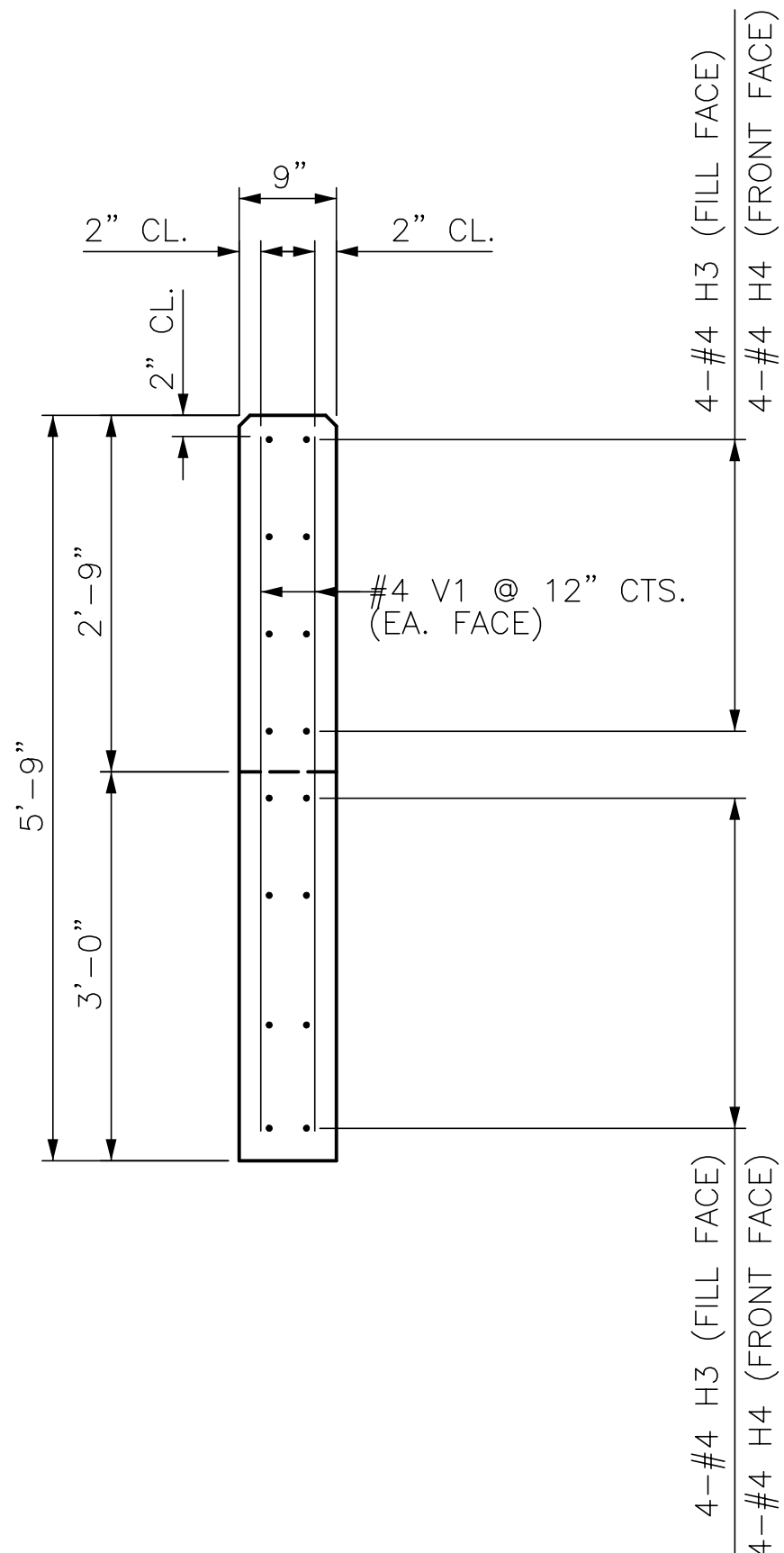
-W4- SECTION Y-Y



-W3- PLAN



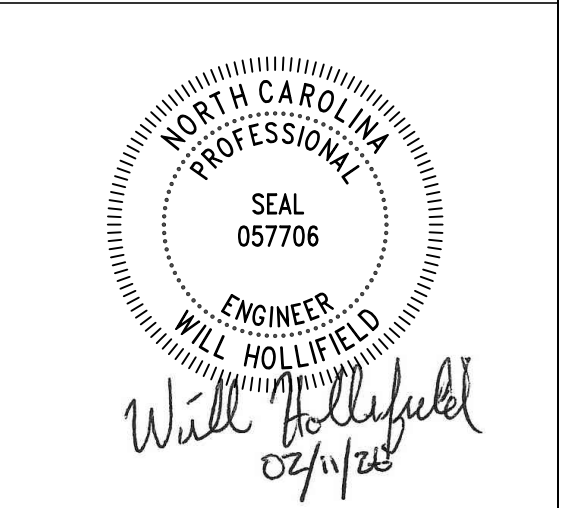
-W3- ELEVATION (X-X)



-W3- SECTION Y-Y

BILL OF MATERIAL (-W4-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W4-)					118 LBS.
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					

BILL OF MATERIAL (-W3-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W3-)					118 LBS.
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					

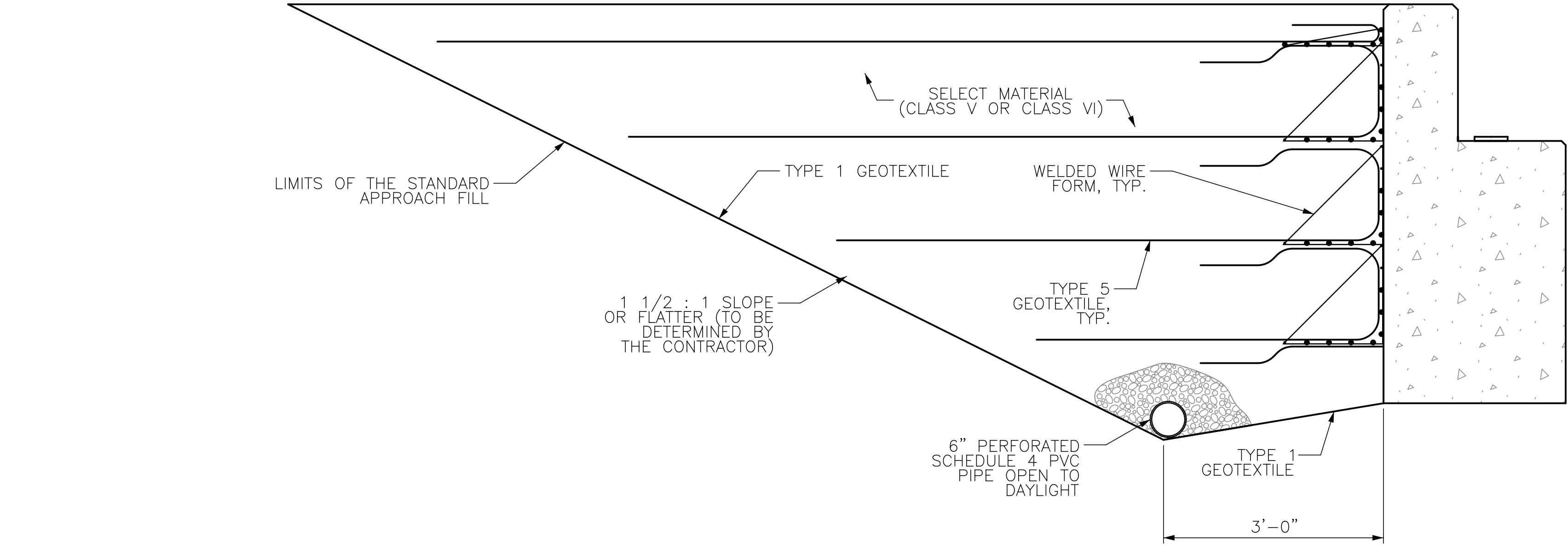


MFG SECTION 3 ABUTMENT DESIGN (DOWNSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.160833, LONG: -81.644166

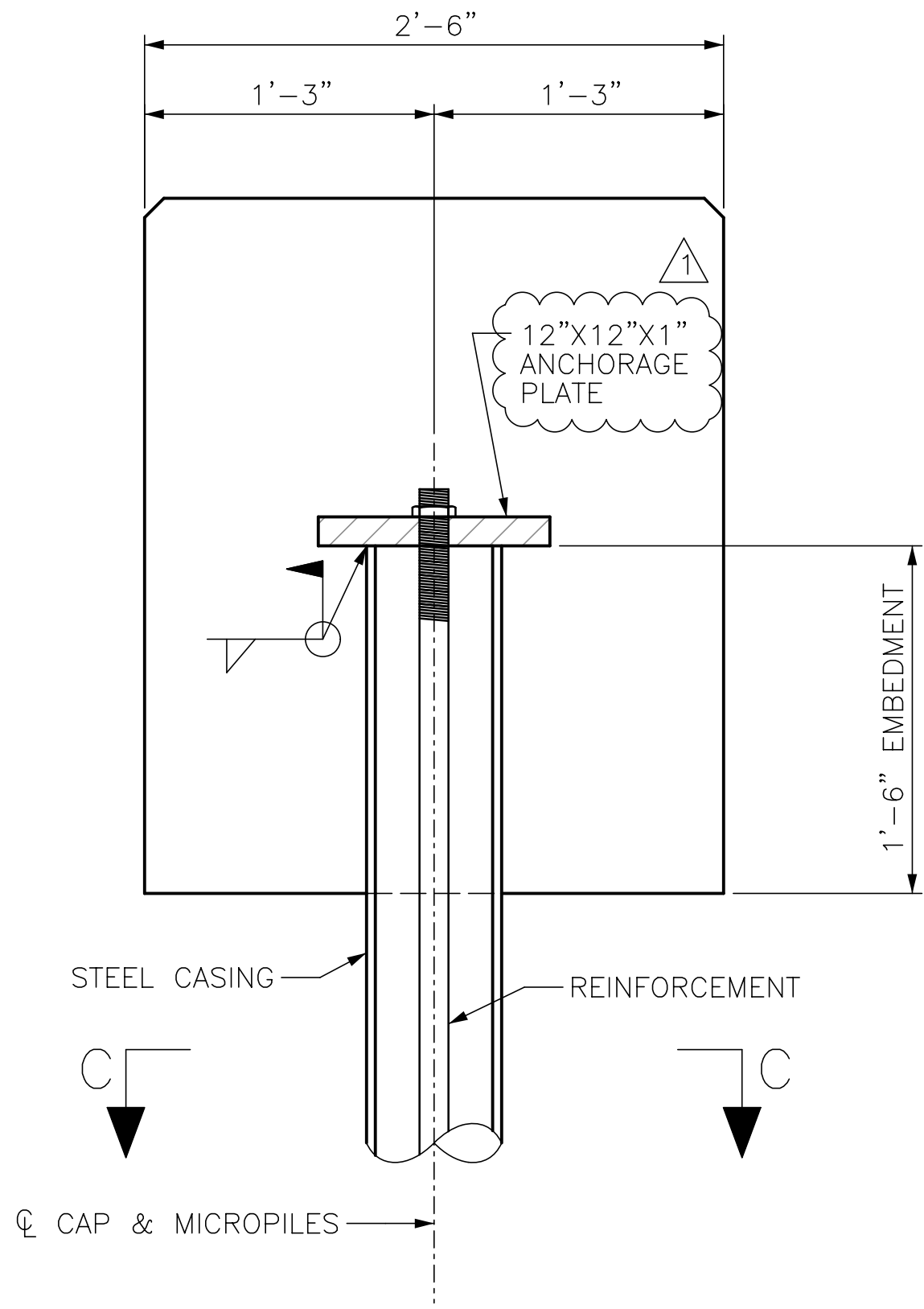
DATE	2/6/2026
DRAWN BY	WMH
CHECK BY	ACF
EOR	WMH
PROJECT NO.	53999
SHEET CONTENTS	
WINGWALLS -W3- & -W4-	
REVISIONS:	
1	2/10/2026

SHEET NO.
S-7
TOTAL SHEETS
8

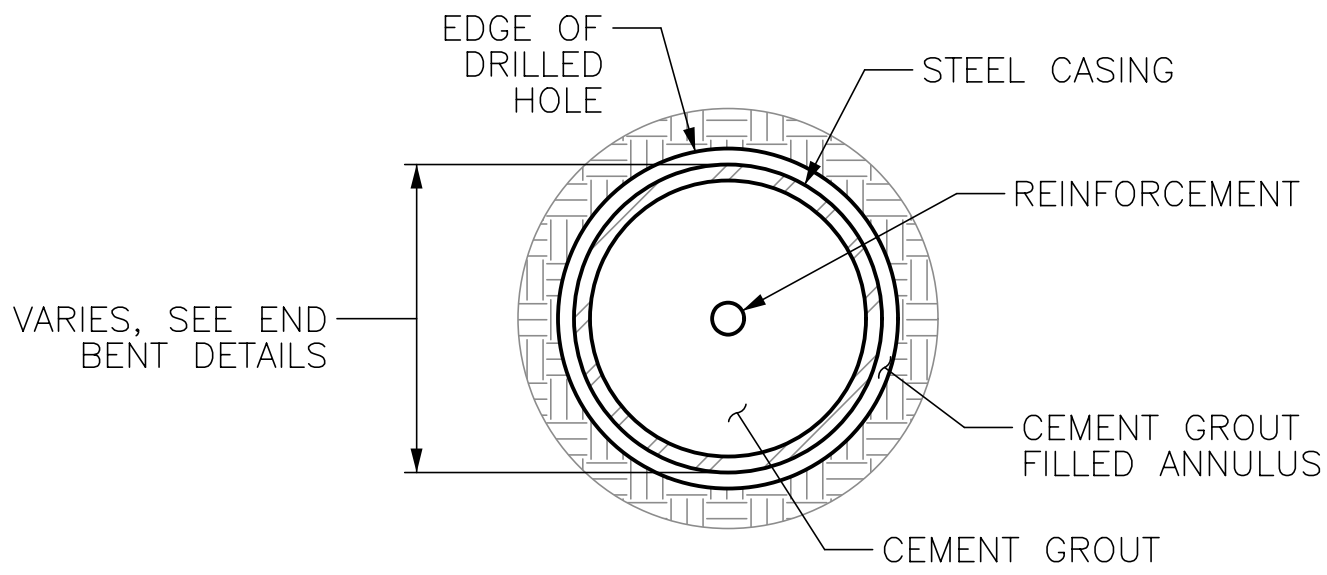
ARETÉ ENGINEERS, PLLC
7668 Valley Blvd.
P.O. Box 745
Blowing Rock, NC 28605
FIRM LICENSE NO. P-1357



APPROACH FILL DETAIL



TYP. MICROPILE ANCHORAGE DETAIL



TYP. MICROPILE DETAIL (SECTION C-C)

DATE	2/6/2026
DRAWN BY	WMH
CHECK BY	AGF
EOR	WMH
PROJECT NO.	53999

SHEET CONTENTS

ADDITIONAL DETAILS

REVISIONS:

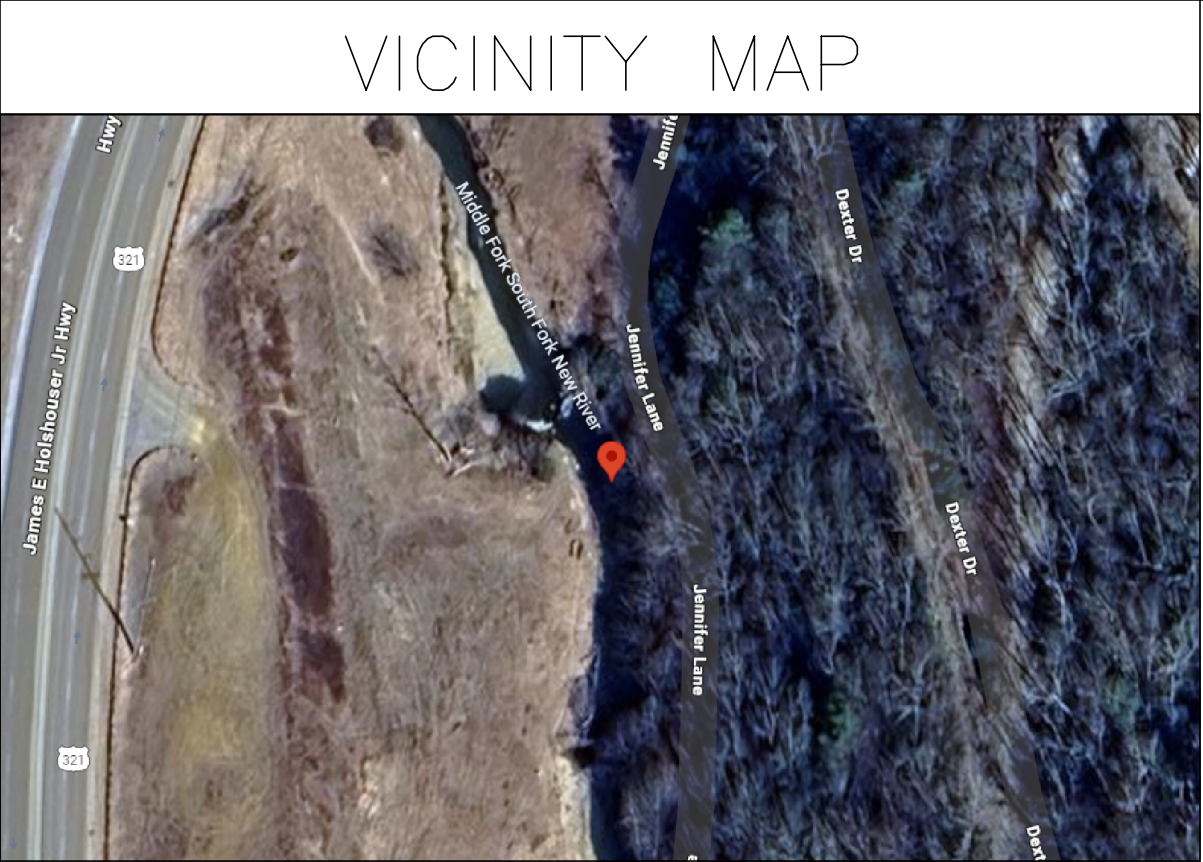
1	2/10/2026
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SHEET NO.

S-8

TOTAL SHEETS

8



ABBREVIATIONS	
A	AREA
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ADH.	ADHESIVE
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AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT.	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPRH.	APPROACH
APPROX.	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
BOT.	BOTTOM
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CTS.	CENTERS
CIPL	CAST IN PLACE
C/L	CENTERLINE
CON.	CONNECTION
CONC.	CONCRETE
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DGN.	DESIGN
DIM.	DIMENSION
DWG.	DRAWING
EA.	EACH
EL.	ELEVATION
ENGR.	ENGINEER
EXIST.	EXISTING
F TO F	FACE TO FACE
FDN.	FOUNDATION
FT.	FEET
GALV.	GALVANIZED
GR.	GRADE
HORIZ.	HORIZONTAL
IN.	INCH
LB.	POUND
LONG.	LONGITUDINAL
MAX.	MAXIMUM
MIN.	MINIMUM
O/C	ON CENTER
OD	OUTSIDE DIAMETER
PAR.	PARALLEL
PVC	POLYVINYL CHLORIDE
REINF.	REINFORCEMENT
SCH.	SCHEDULE
STD.	STANDARD
STL.	STEEL
STR.	STRUCTURE
W.W.F.	WELDED WIRE FABRIC

SHEET INDEX	
S1	COVER SHEET / STANDARD NOTES
S2	BRIDGE ELEVATION & PLAN
S3	BRIDGE CROSS SECTION / FOUNDATION LAYOUT
S4	END BENT 1
S5	WINGWALLS –W1– & –W2–
S6	END BENT 2
S7	WINGWALLS –W3– & –W4–
S8	ADDITIONAL DETAILS

ARETÉ ENGINEERS

MIDDLEFORK GREENWAY SECTION 3

UPSTREAM BRIDGE ABUTMENT DESIGN

TYPE OF WORK: STRUCTURE

DESIGN DATA:
SPECIFICATIONS

A.A.S.H.T.O. GUIDE SPECIFICATIONS FOR DESIGN
OF PEDESTRIAN BRIDGES, DECEMBER 2009

A.A.S.H.T.O LRFD BRIDGE DESIGN SPECIFICATIONS

LIVE LOAD	90 PSF PEDESTRIAN LOAD
IMPACT ALLOWANCE	N/A
STRESS IN EXTREME FIBER OF STRUCUTRAL STEEL – AASHTO M270 GRADE 36	36,000 LBS. PER SQ. IN.
– AASHTO M270 GRADE 50W	50,000 LBS. PER SQ. IN.
– AASHTO M270 GRADE 50	50,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION – GRADE 60	60,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	3,000 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER – TREATED OR UNTREATED	1,800 LBS. PER SQ. IN.
EXTREME FIBER STRESS	
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	60 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS: AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP. CONCRETE SHALL BE CURED IN COMPLIANCE WITH NCDOT SPECIFICATIONS.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1–1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS, UNLESS OTHERWISE NOTES, SHALL BE EMBEDDED A MINIMUM OF 6" INTO EXISITNG CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

CONSTRUCTION SEQUENCE:

PLACE BACKFILL IN ACCORDANCE WITH NCDOT SPECIFICATIONS. PLACE BACKFILL ABOVE THE BEARING SEAT AFTER THE PREFABRICATED FRP BRIDGE IS SET ON THE END BENTS.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACE IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

LAP SPLICES SHALL BE A MINIMUM LENGTH OF 40 X DIAMETER OF BAR.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HERON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL.

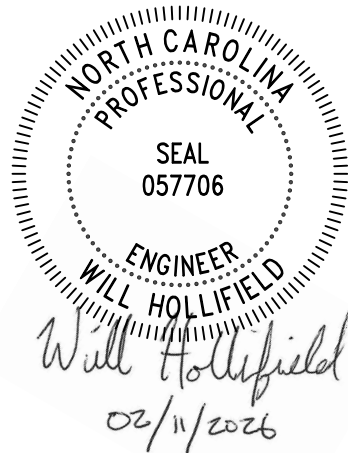
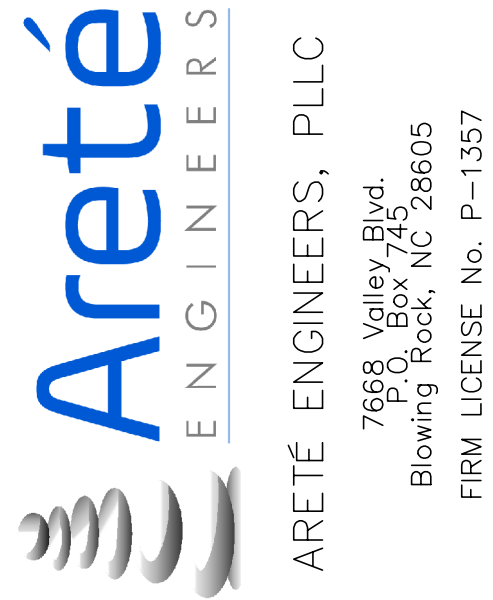
ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON THE PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CHAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CHAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CHAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.



MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.1591667, LONG: –81.645277

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EOR	WMH
PROJECT NO.	53999

SHEET CONTENTS

COVER SHEET /
STANDARD NOTES

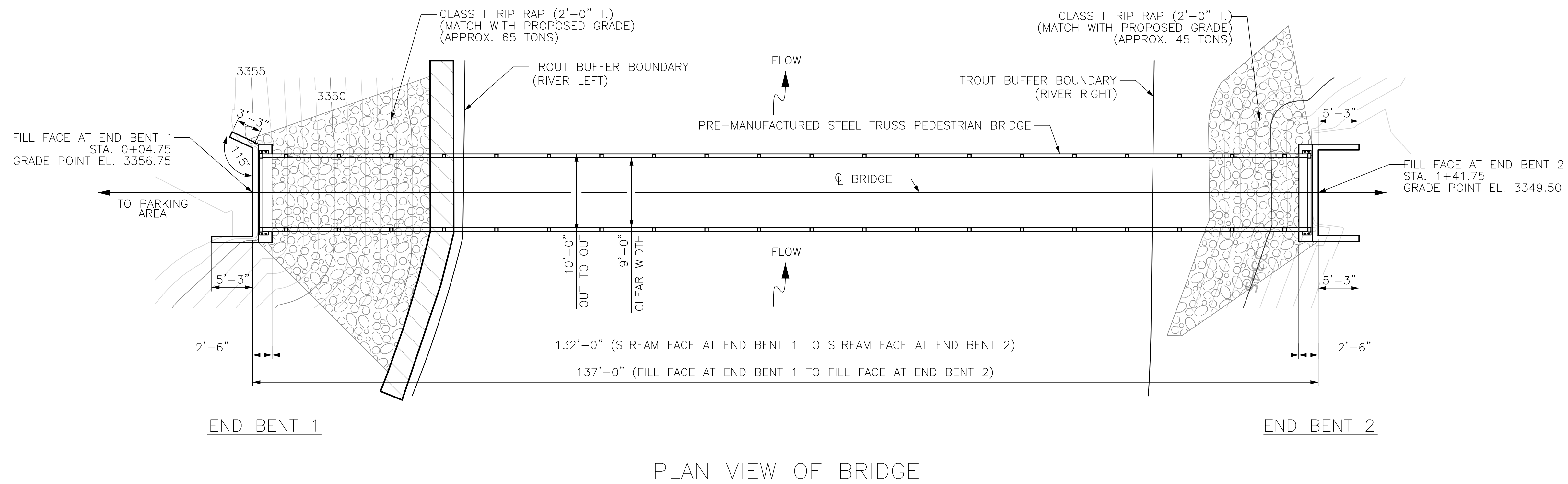
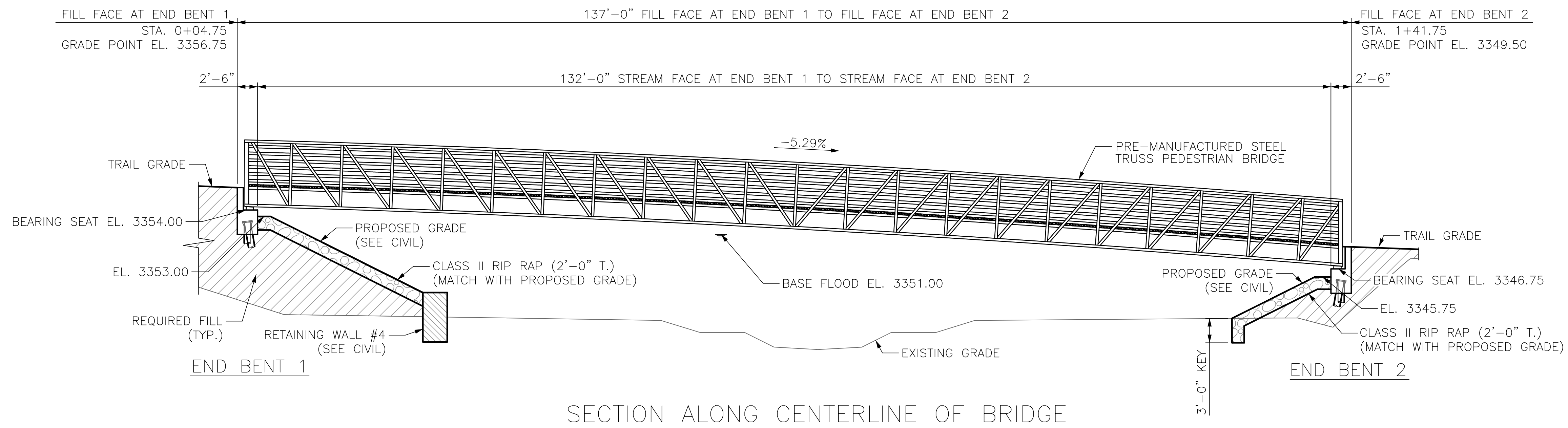
REVISIONS:	
1	2/10/2026

SHEET NO.

S–1

TOTAL SHEETS

8



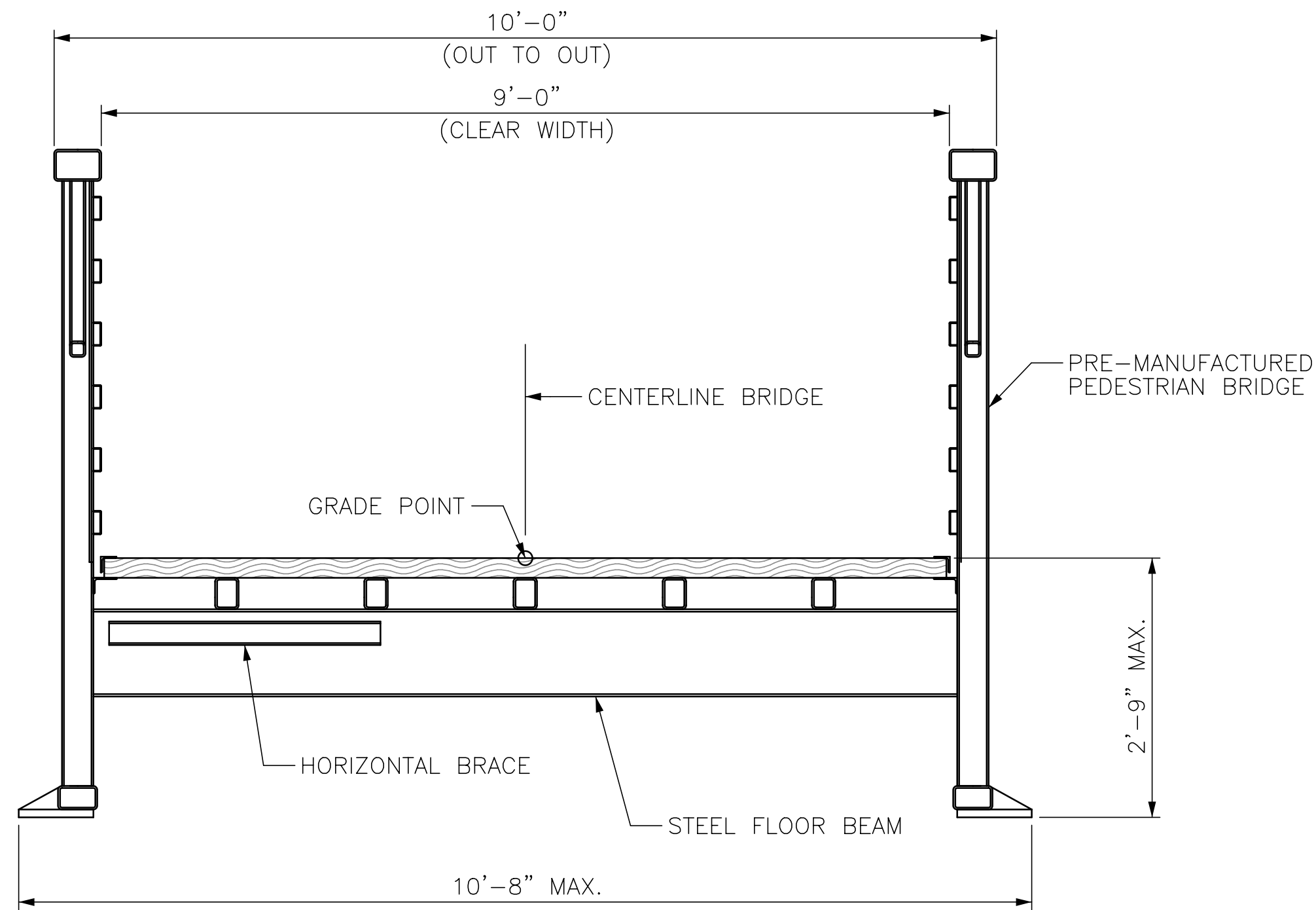
DATE	2/6/2026
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EOR	WMH
PROJECT NO.	53999

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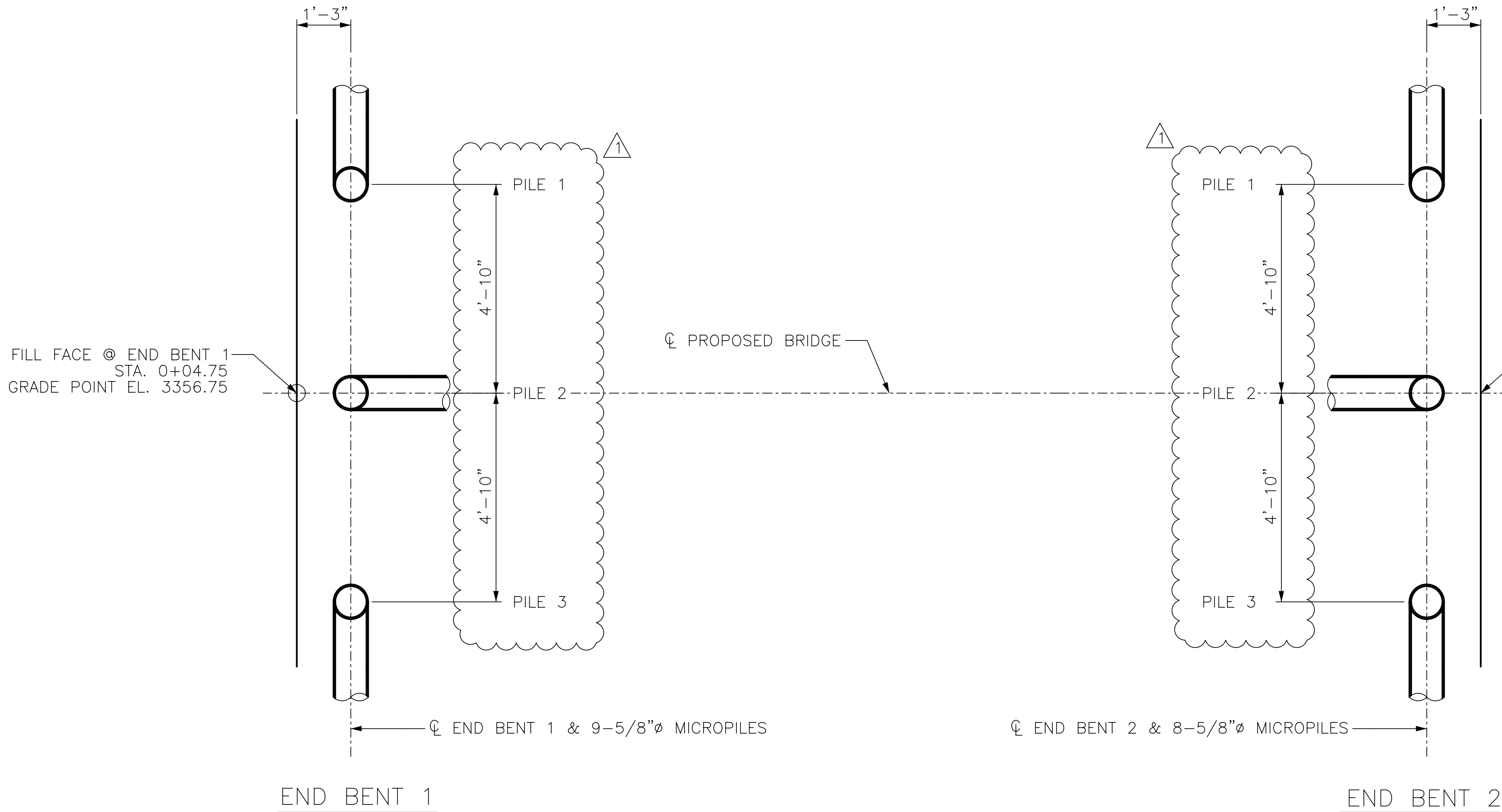
BRIDGE ELEVATION & PLAN

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1	2/10/2026

<u>SHEET NO.</u> S-2
<u>TOTAL SHEETS</u> 8



TYPICAL SECTION (PRE-MANUFACTURED BRIDGE)



FOUNDATION LAYOUT

BEGIN STATION (FILL FACE)	END STATION (FILL FACE)	BACKWALL WIDTH	END CLEARANCE	GRADE	HORIZONTAL BRIDGE LENGTH (PLAN LENGTH)
0+04.75	1+41.75	9"	2"	-5.29%	135'-2"

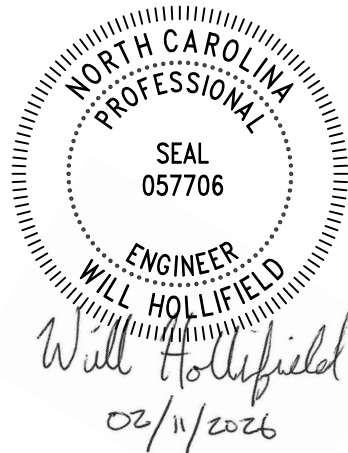
PREMANUFACTURED PEDESTRIAN BRIDGE NOTES

- BRIDGE LOADING & GEOMETRY IS ESTIMATED. AFTER SHOP DRAWINGS FOR THE PREMANUFACTURED PEDESTRIAN BRIDGE ARE SUBMITTED, CONSTRUCTION ADMINISTRATOR SHALL FORWARD SHOP DRAWINGS TO ARETÉ ENGINEERS FOR VERIFICATION THAT THE SUBSTRUCTURE CAN SUPPORT CALCULATED BRIDGE LOADS.
- PREMANUFACTURED PEDESTRIAN BRIDGE DESIGN PER AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES (LATEST EDITION)
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE SHALL INDICATE THE LOCATION OF DRAINAGE HOLES FOR THE BRIDGE TUBULAR MEMBERS IN THE SHOP DRAWINGS.
- FOR ADDITIONAL INFORMATION, SEE SPECIAL PROVISIONS.
- FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE MUST MAINTAIN THE MAX. BACKWALL HEIGHT AS SHOWN IN THE PLANS.
- FABRICATOR OF PREMANUFACTURED PREDESTRIAN BRUDGE INCLUDE BACKWALL COVER PLATE TO FOR EXPANSION.

MICROPILE NOTES:

- FOR MICROPILE INFORMATION AND OTHER SUBSTRUCTURE DESIGN CONSIDERATIONS, SEE STAMPED GEOTECHNICAL REPORT.
- MINIMUM BOND LENGTH OF 10 FEET IS REQUIRED FOR ALL PILES AT END BENTS 1 AND 2.
- PENETRATION OF AT LEAST 5 FEET INTO WEATHERED ROCK OR CRYSTALLINE ROCK IS REQUIRED FOR REINFORCEMENT CASINGS.
- USE REINFORCEMENT CASINGS WITH YIELD STRENGTHS OF AT LEAST 80 KSI AND A MINIMUM WALL THICKNESS OF 0.5" FOR ALL MICROPILES.
- BATTERED MICROPILES AT ALL LOCATIONS ARE TO BE BATTERED AT 2:12.
- MICROPILES ARE TYPICALLY DESIGNED BY THE MICROPILE DRILLING CONTRACTOR BASED ON THEIR AVAILABLE DRILLING EQUIPMENT AND MATERIAL AVAILABILITY. MICROPILES SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE SECTIONS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, LATEST EDITION AND FHWA NHI-05-039 MICROPILE DESIGN AND CONSTRUCTION REFERENCE MANUAL. A LOAD TESTING PROGRAM THAT INCLUDES BOTH PRE-PRODUCTION VERIFICATION TESTING AND PRODUCTION PROOF TESTING IS REQUIRED. LOAD TESTING CRITERIA SHOULD FOLLOW RECOMMENDATIONS OUTLINES IN FHWA NH-05-039.
- DEVIATION FROM PIPE SIZE AND ROD DIAMETER MUST BE APPROVED BY ENGINEER OF RECORD UPON RECEIPT OF SUBMITTALS.

SUMMARY OF MICROPILE INFORMATION/INSTALLATION					
EB1	CASING O.D. (IN)	MIN. REINFORCEMENT BAR	ANTICIPATED BEDROCK EL. (FT)	FACTORED RESISTANCE PER PILE (KIPS)	UPLIFT RESISTANCE (KIPS)
PILE 1-3	9.625	#11	3323	150	80
EB2	CASING O.D. (IN)	MIN. REINFORCEMENT BAR	ANTICIPATED BEDROCK EL. (FT)	FACTORED RESISTANCE PER PILE (KIPS)	UPLIFT RESISTANCE (KIPS)
PILE 1-3	8.625	#11	3333	150	80



MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
FOR
INTERFACE ENVIRONMENTAL CONSULTING, LLC
AT
LAT: 36.1591667, LONG: -81.645277

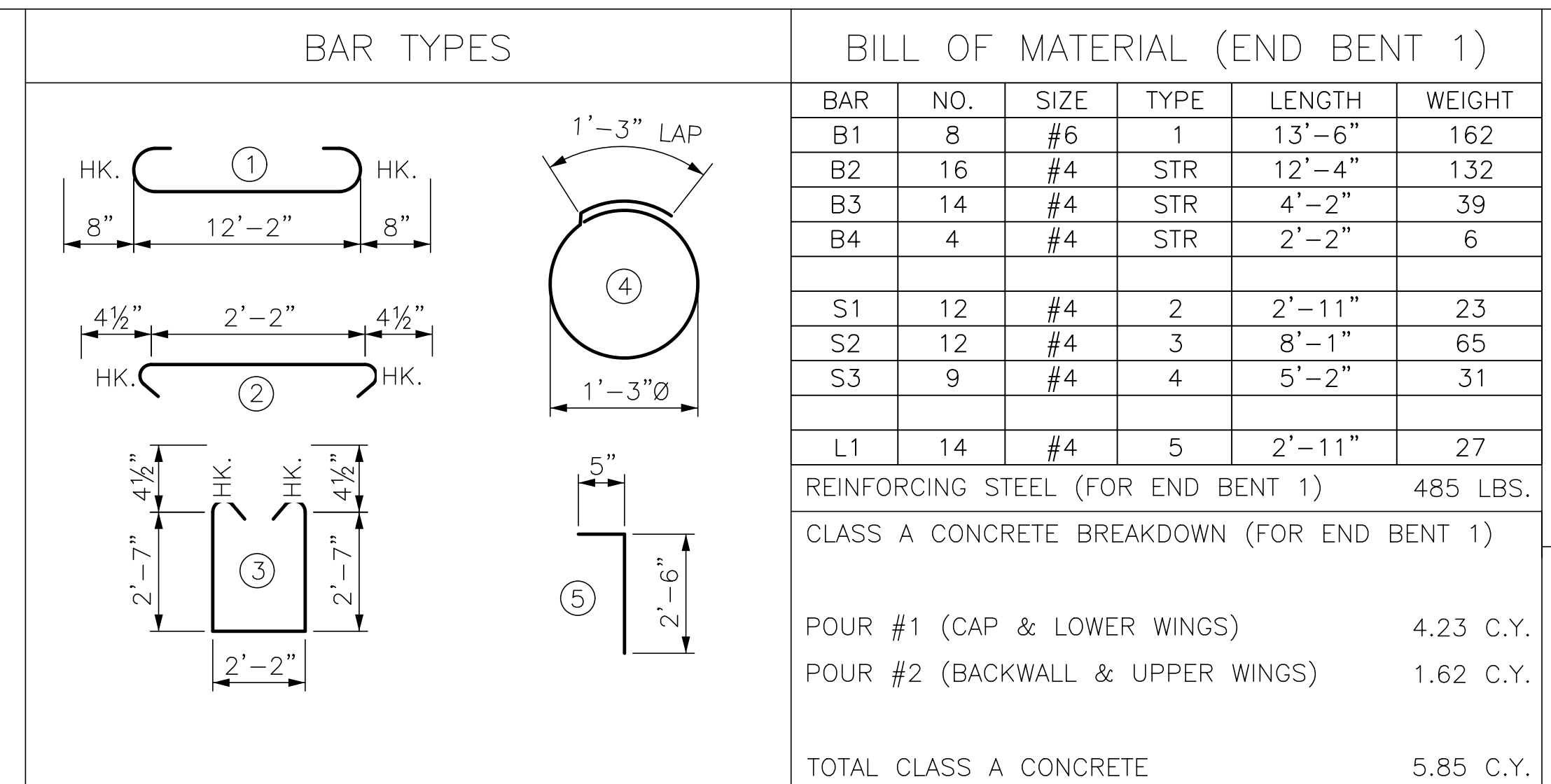
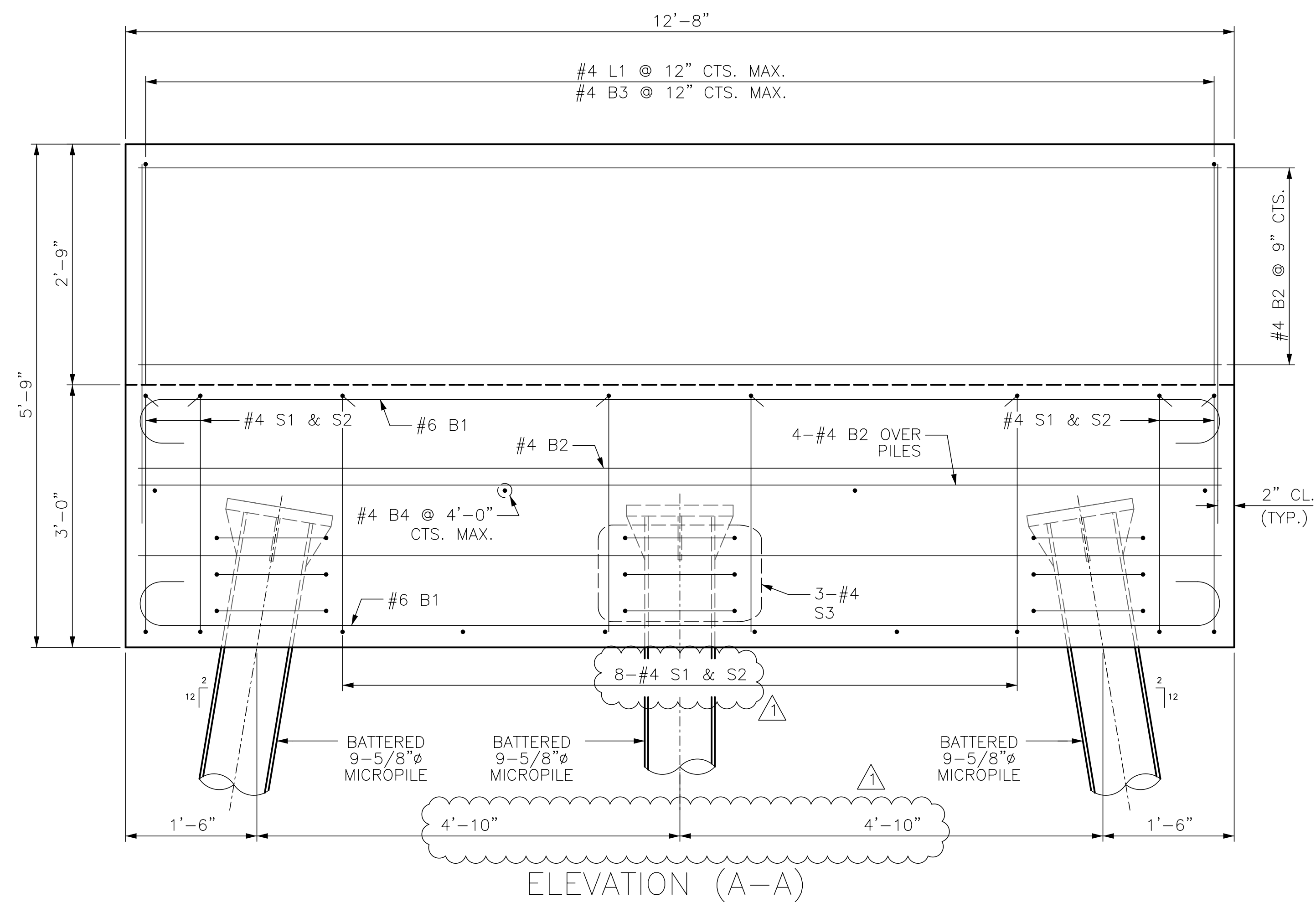
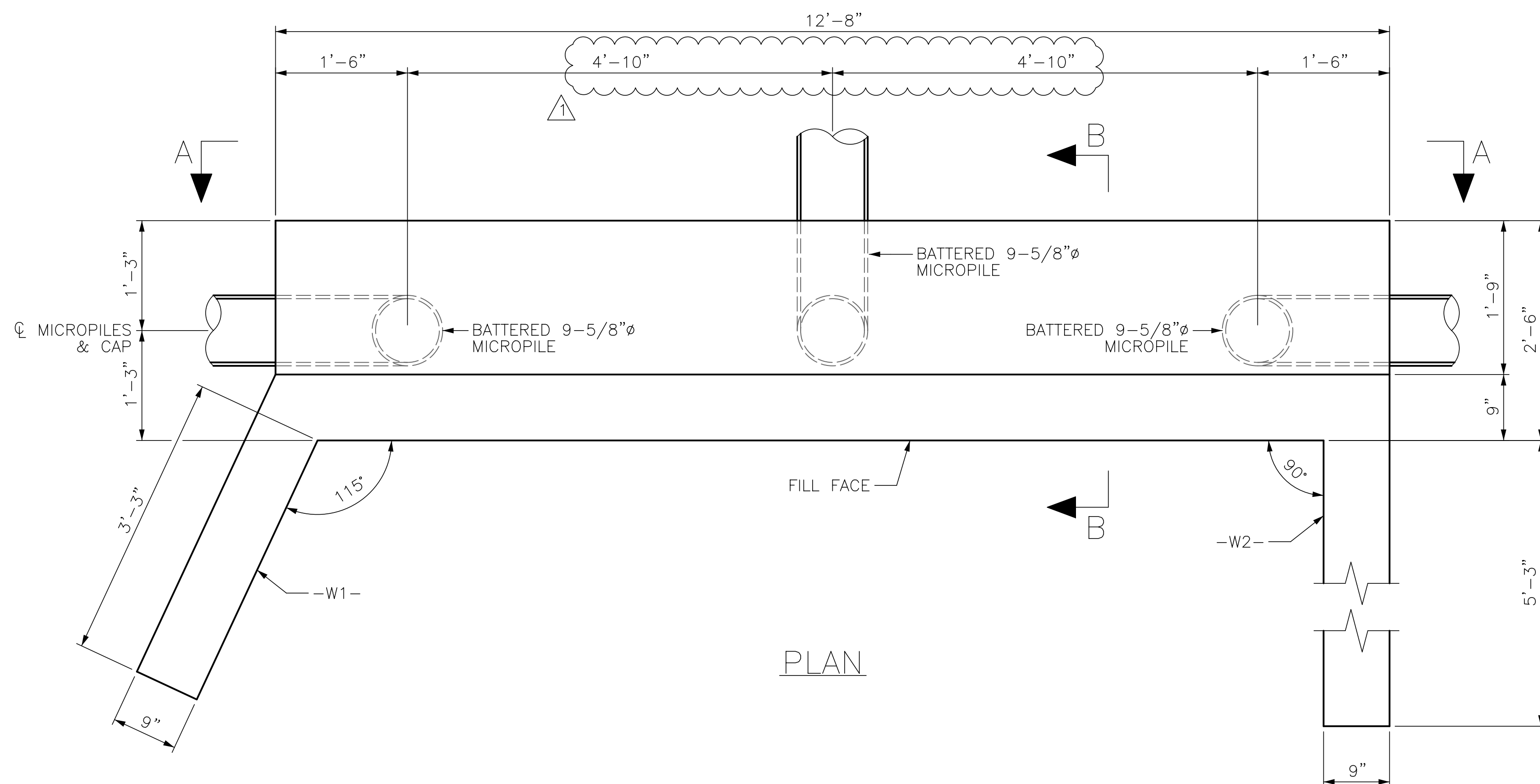
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CHECK BY	AGF
EOR	WMH
PROJECT NO.	53999
SHEET CONTENTS	
BRIDGE CROSS SECTION / FOUNDATION LAYOUT	
REVISIONS:	
1	2/10/2026

SHEET NO.

S-3

TOTAL SHEETS

8



*" DIMENSIONS PROVIDED BY FABRICATOR OR PREMANUFACTURED PREDESTRIAN BRIDGE.

BILL OF MATERIAL (END BENT 1)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#6	1	13'-6"	162
B2	16	#4	STR	12'-4"	132
B3	14	#4	STR	4'-2"	39
B4	4	#4	STR	2'-2"	6

S1	12	#4	2	2'-11"	23
S2	12	#4	3	8'-1"	65
S3	9	#4	4	5'-2"	31

L1	14	#4	5	2'-11"	27
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REINFORCING STEEL (FOR END BENT 1)	485 LBS.
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CLASS A CONCRETE BREAKDOWN (FOR END BENT 1)

POUR #1 (CAP & LOWER WINGS)	4.23 C.Y.
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POUR #2 (BACKWALL & UPPER WINGS)	1.62 C.Y.
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TOTAL CLASS A CONCRETE	5.85 C.Y.
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7668 Valley Blvd.
P.O. Box 745
Blowing Rock, NC 28605
FIRM LICENSE No. P-1357



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LAT:36.1591667, LONG:-81.6452777

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SHEET CONTENTS

END BENT 1

REVISIONS:

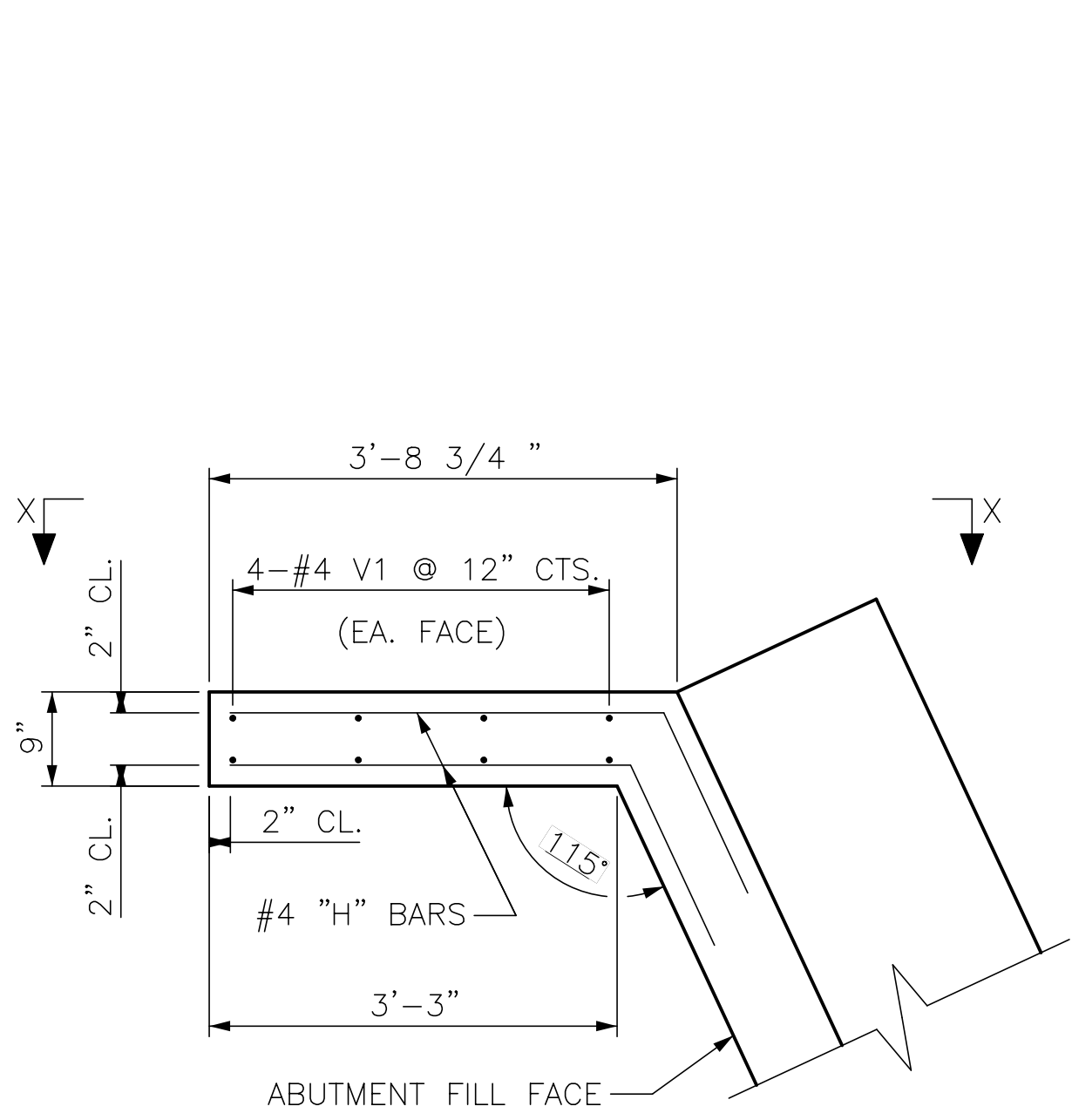
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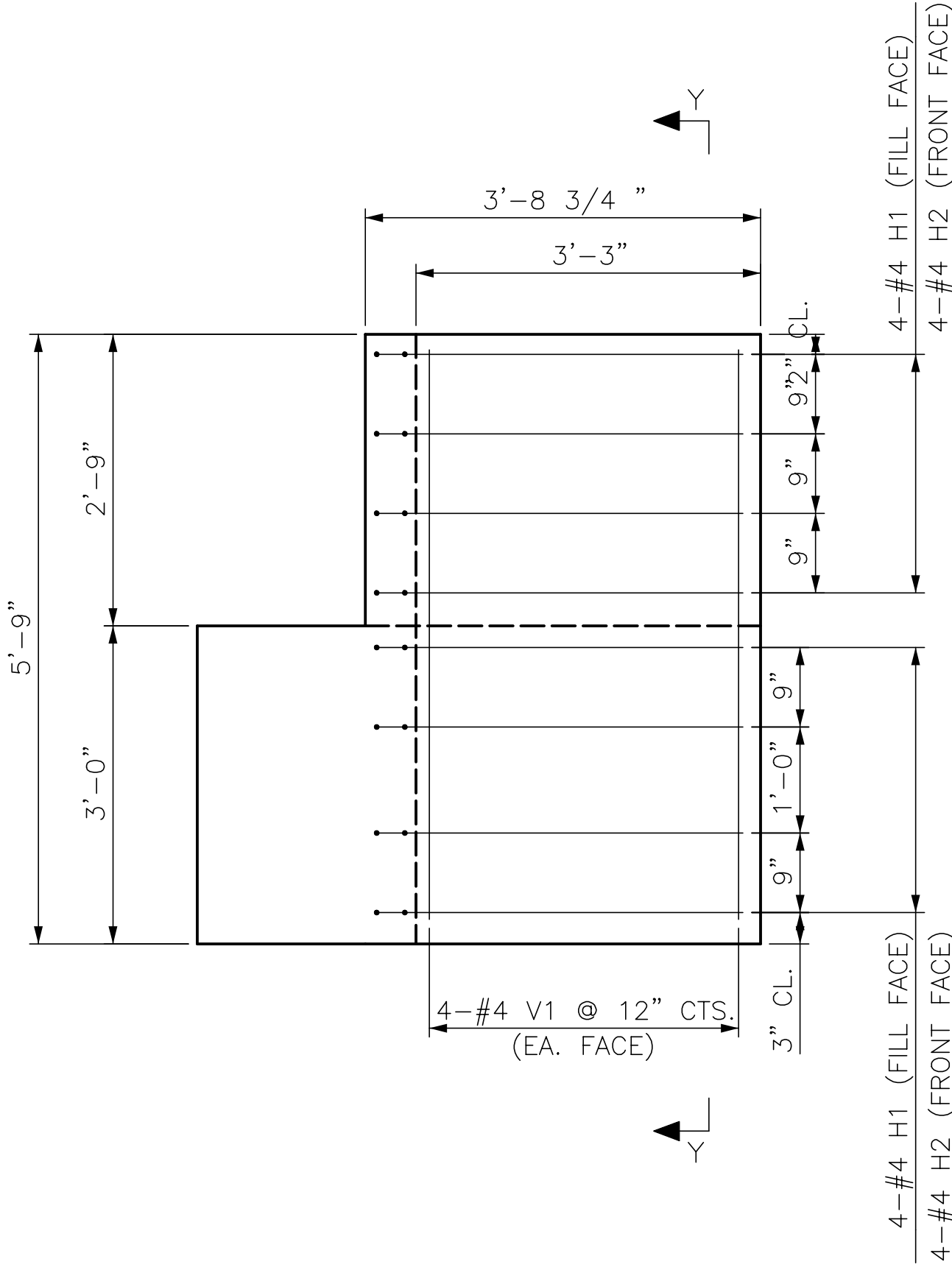
S-4

TOTAL SHEETS

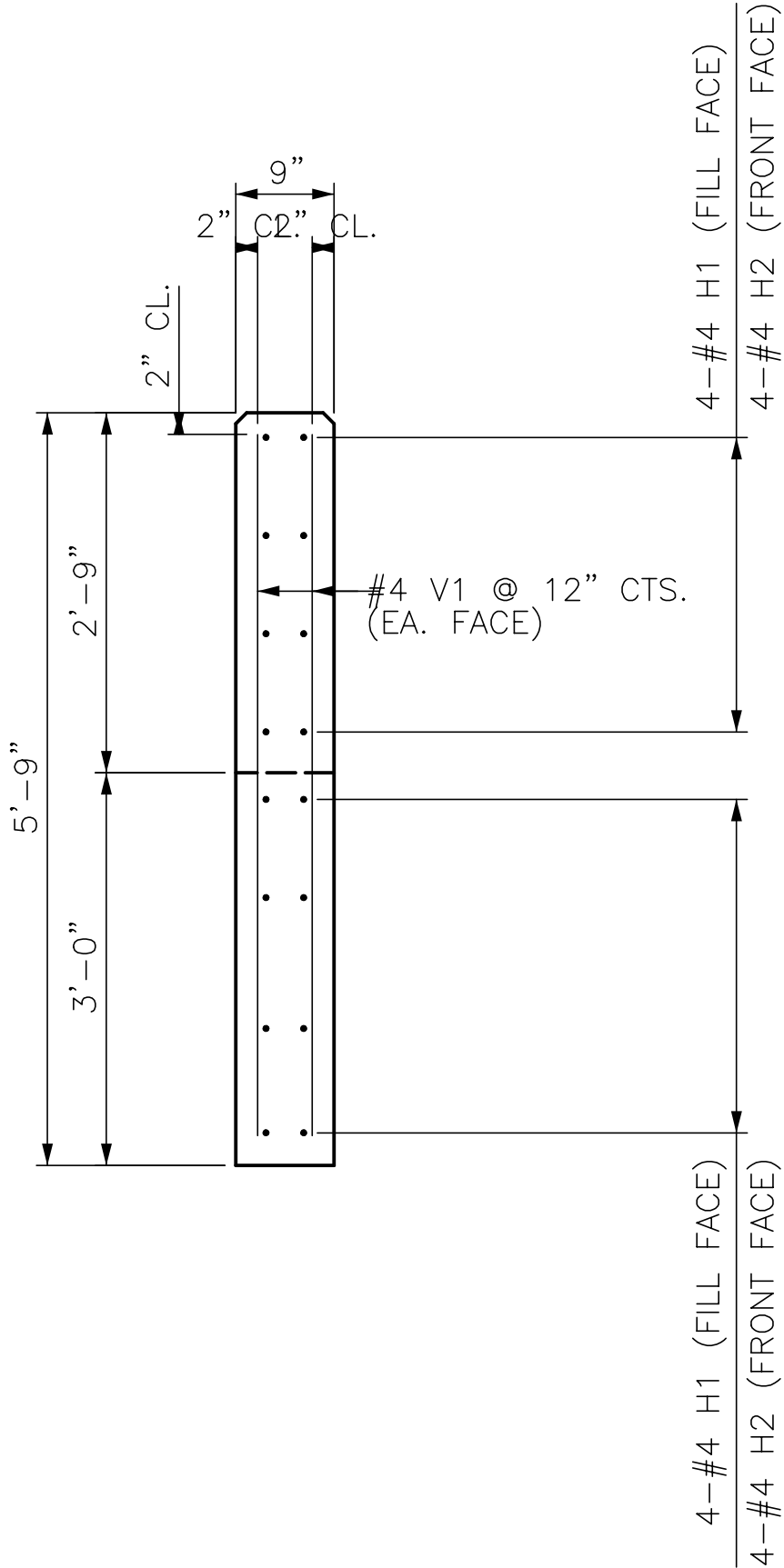
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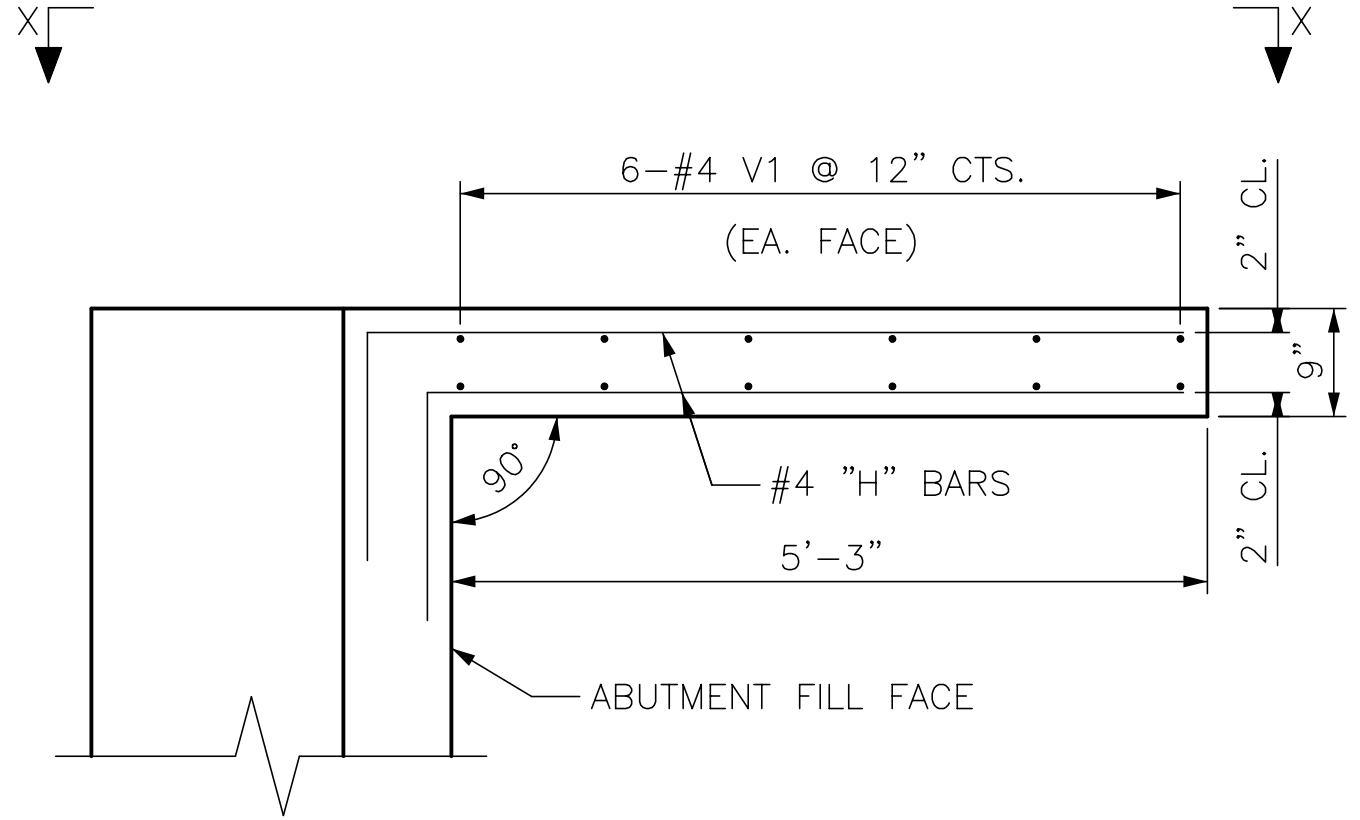
-W1- PLAN



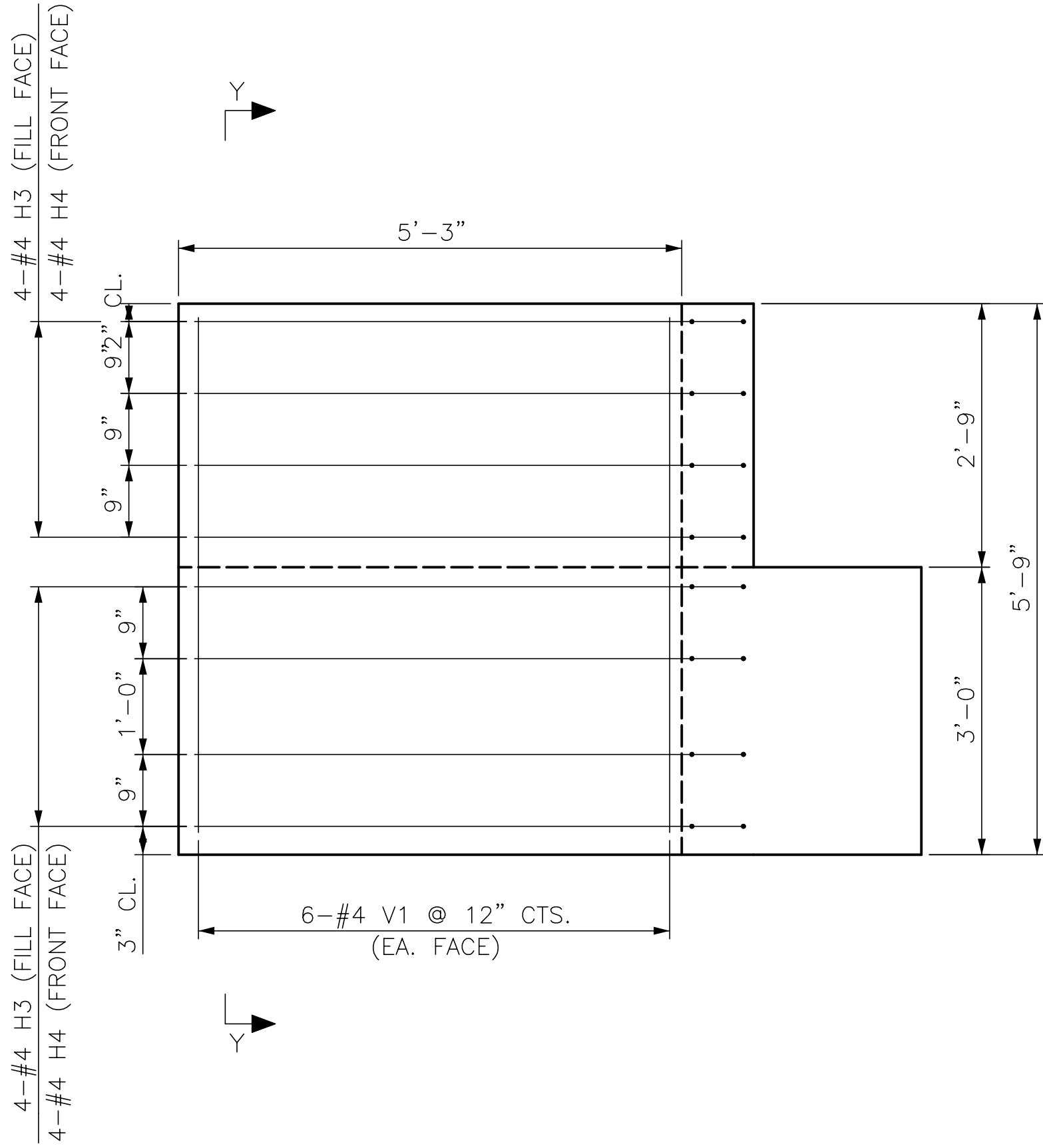
-W1- ELEVATION (X-X)



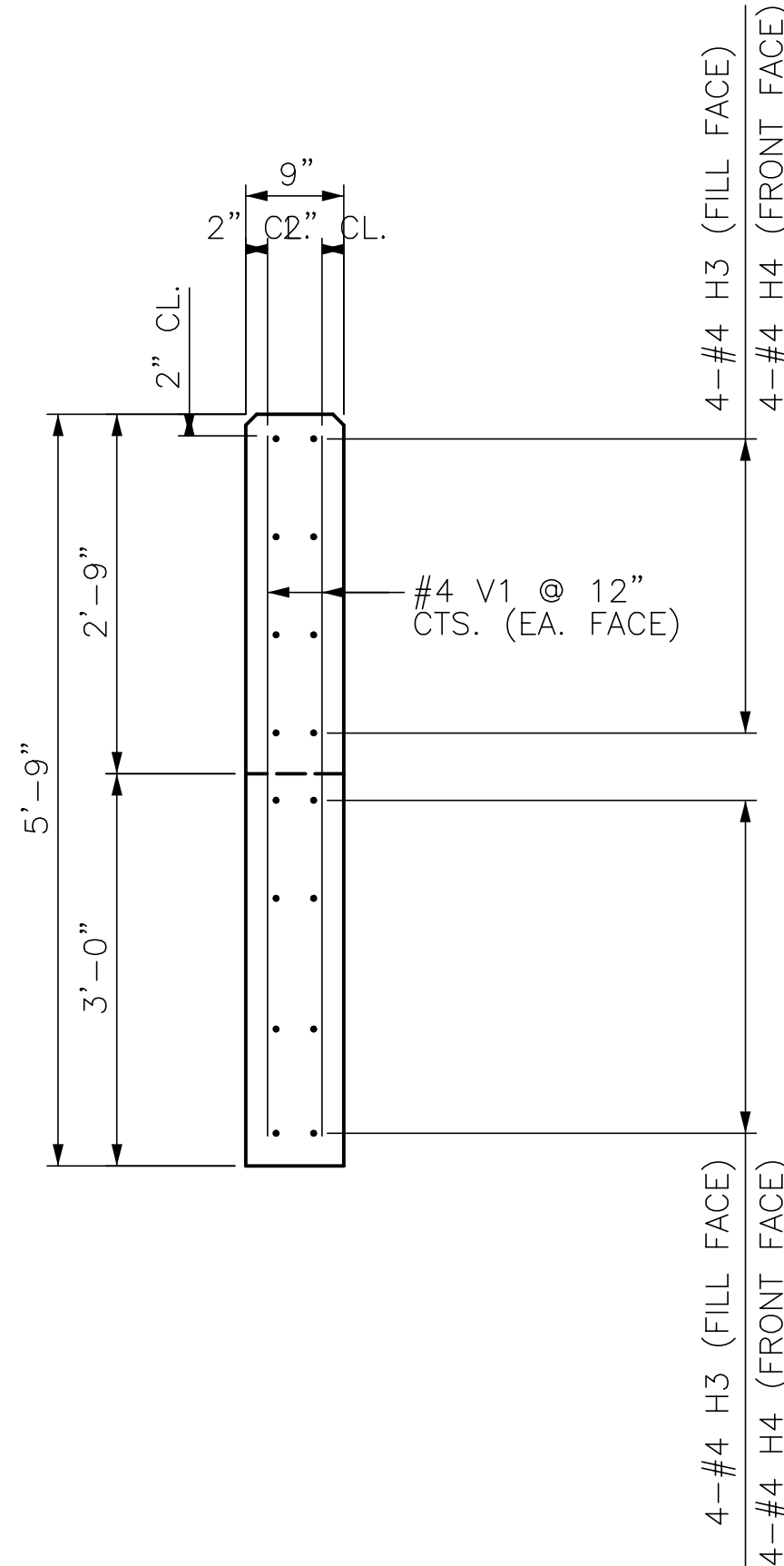
-W1- SECTION Y-Y)



-W2- PLAN



-W2- ELEVATION (X-X)



-W2- SECTION Y-Y)

BILL OF MATERIAL (-W1-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	8	#4	6	5'-0"	27
H2	8	#4	6	4'-9"	25
V1	8	#4	STR	5'-4"	29
REINFORCING STEEL (FOR -W1-)					81 LBS.
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					

BILL OF MATERIAL (-W2-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W2-)					118 LBS.
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					



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PROJECT NO.	53999

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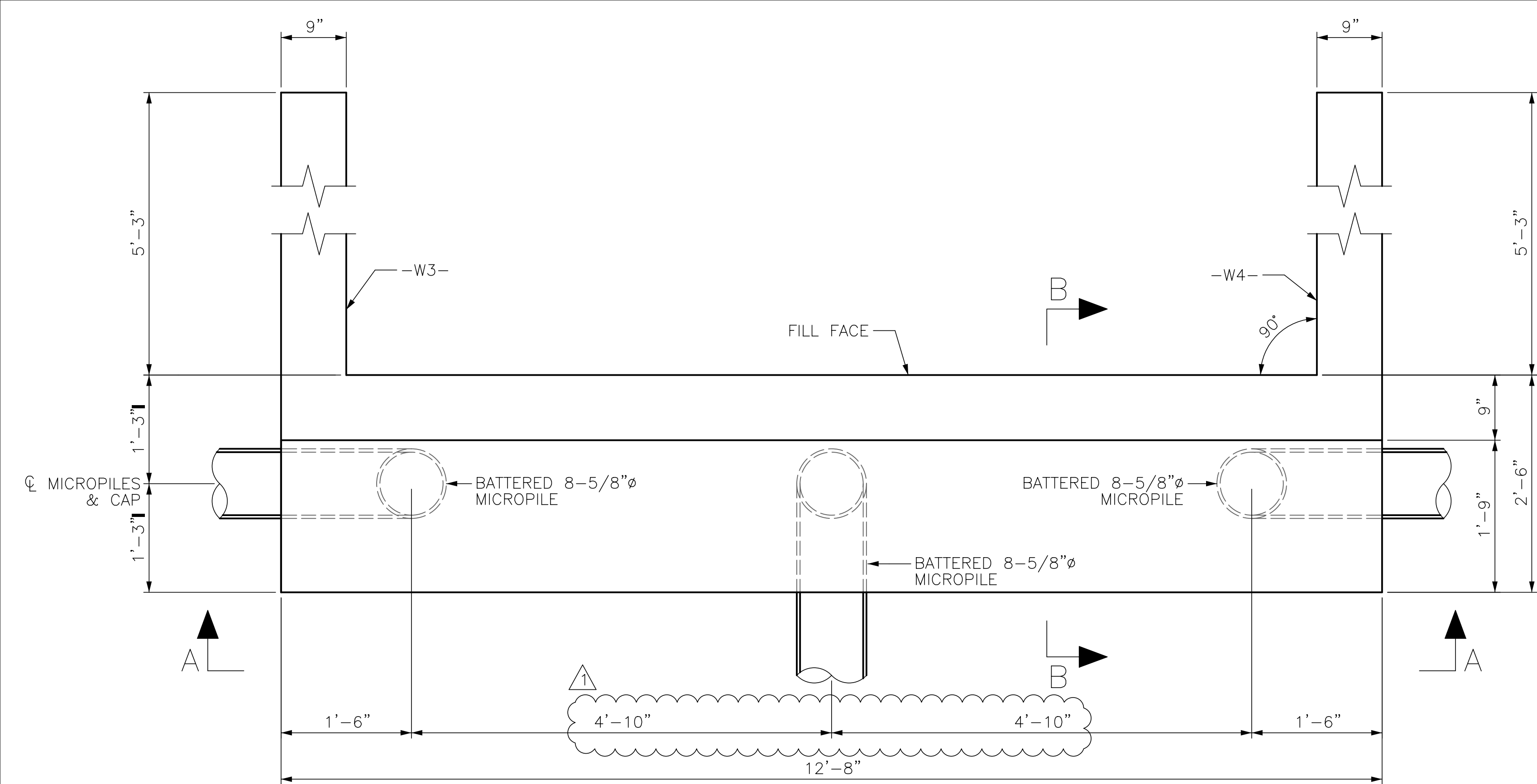
WINGWALLS
-W1- & -W2-

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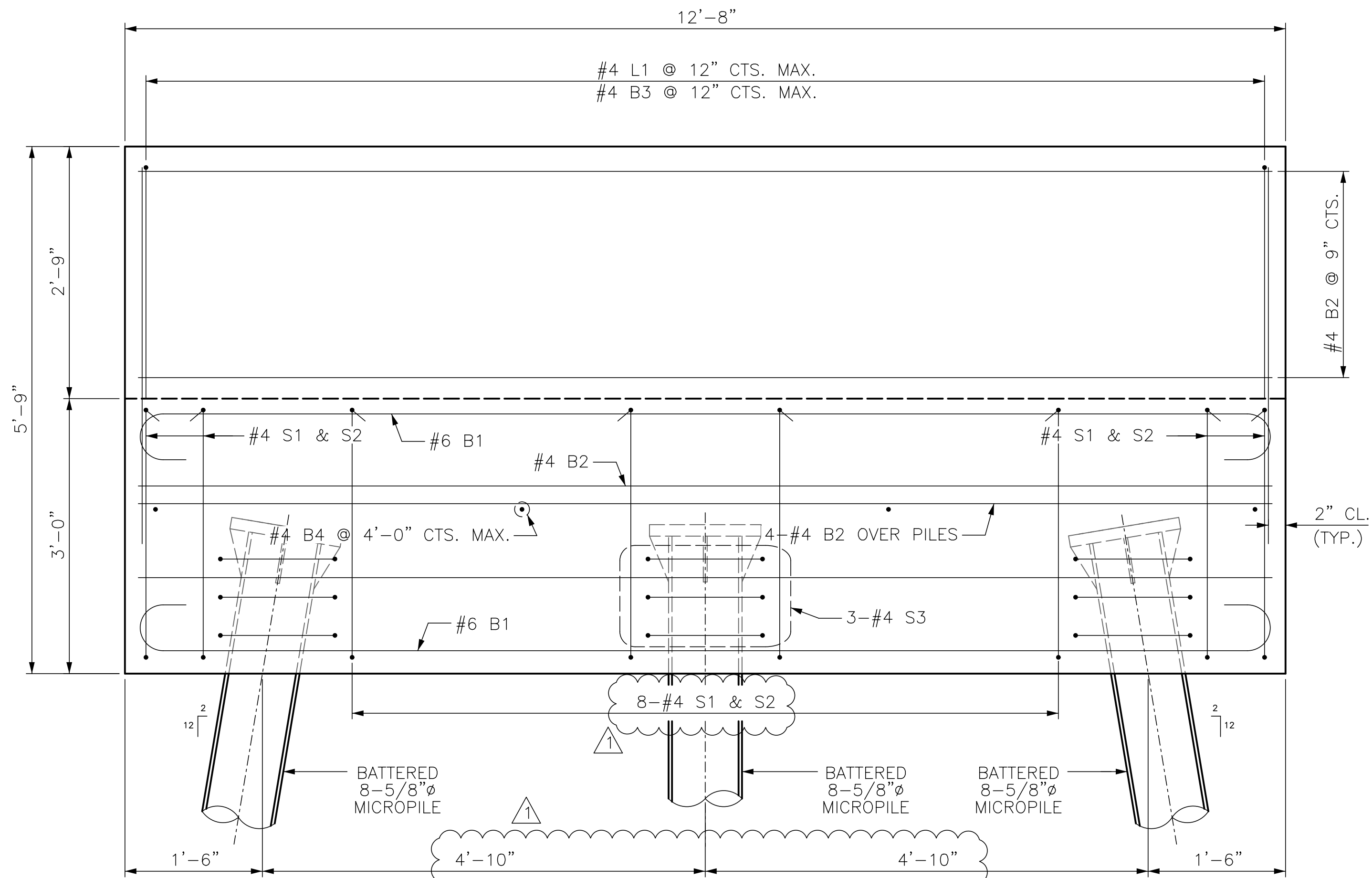
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S-5

TOTAL SHEETS



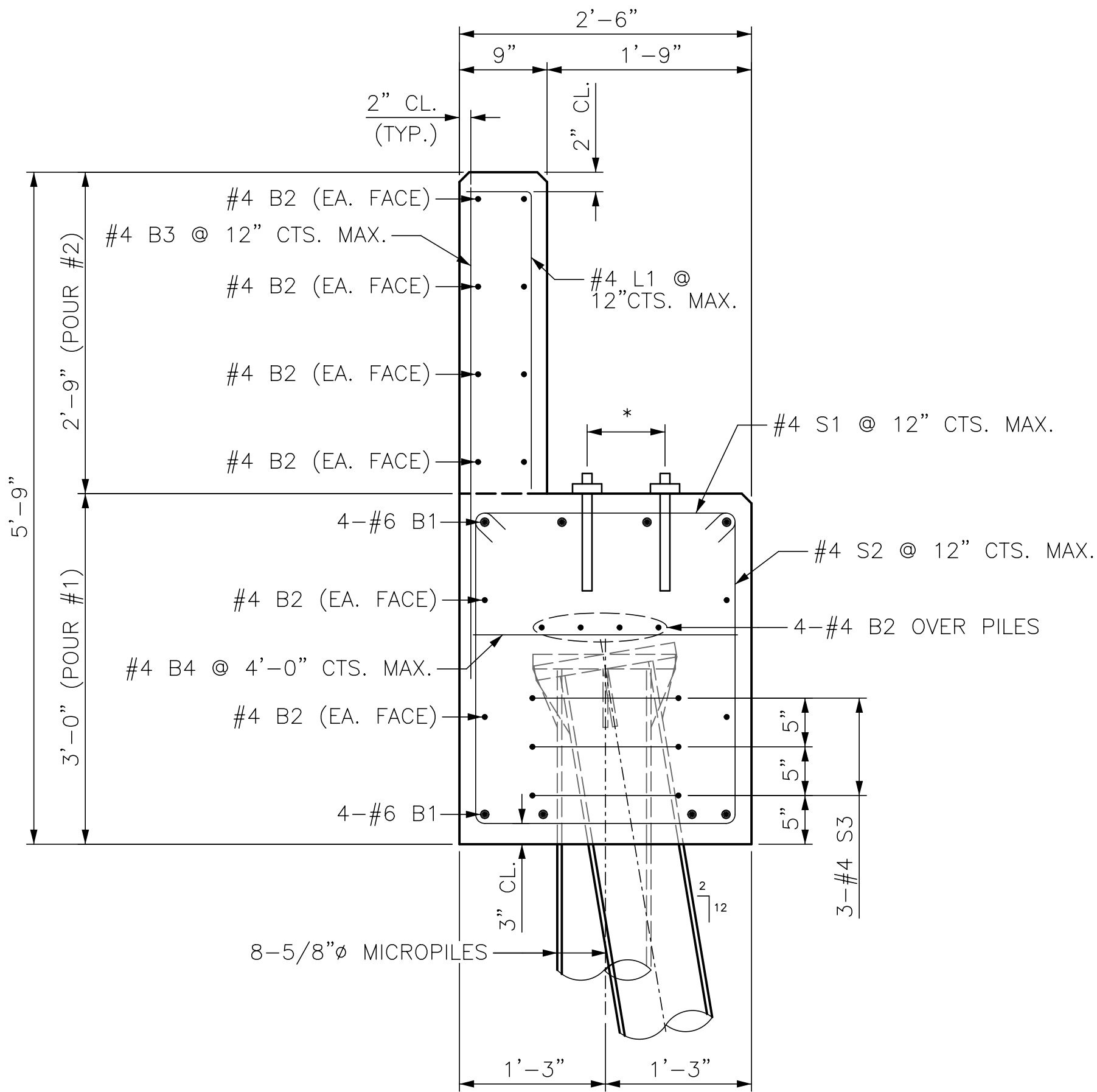
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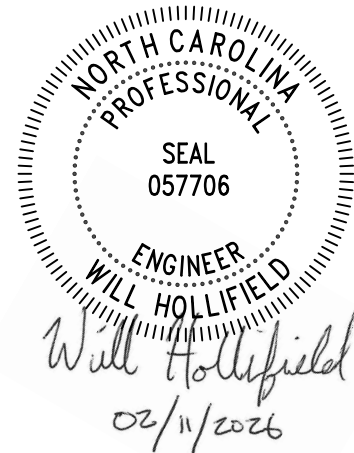
ELEVATION (A-A)

BAR TYPES			BILL OF MATERIAL (END BENT 2)				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
B1	8	#6	1	13'-6"	162		
B2	16	#4	STR	12'-4"	132		
B3	14	#4	STR	4'-2"	39		
B4	4	#4	STR	2'-2"	6		
S1	12	#4	2	2'-11"	23		
S2	12	#4	3	8'-1"	65		
S3	9	#4	4	5'-2"	31		
L1	14	#4	5	2'-11"	27		
REINFORCING STEEL (FOR END BENT 2)					485 LBS.		
CLASS A CONCRETE BREAKDOWN (FOR END BENT 2)							
POUR #1 (CAP & LOWER WINGS)					4.39 C.Y.		
POUR #2 (BACKWALL & UPPER WINGS)					1.77 C.Y.		
TOTAL CLASS A CONCRETE					6.16 C.Y.		

"*" DIMENSIONS PROVIDED BY FABRICATOR OR PREMANUFACTURED PREDESTRIAN BRIDGE.



SECTION (B-B)



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SHEET CONTENTS

END BENT 2

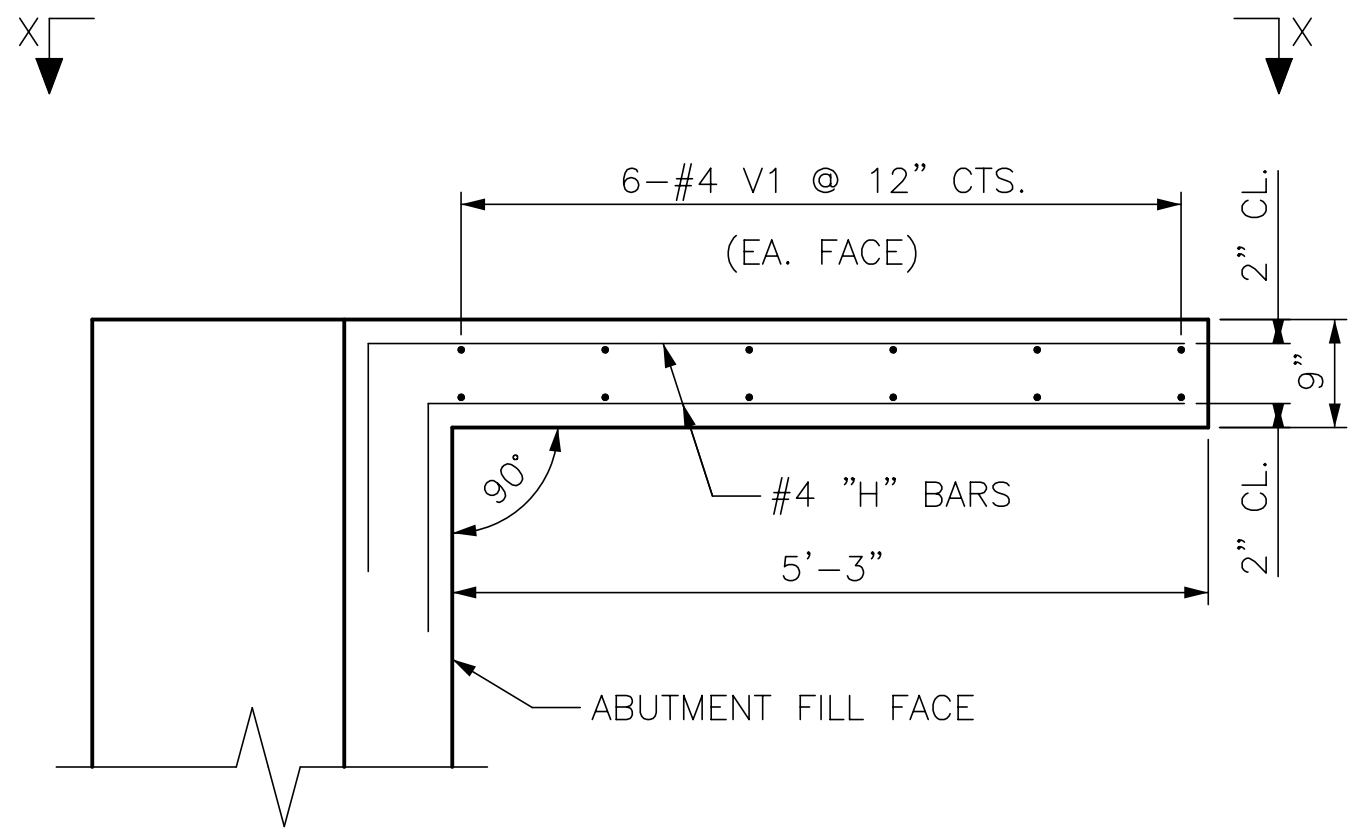
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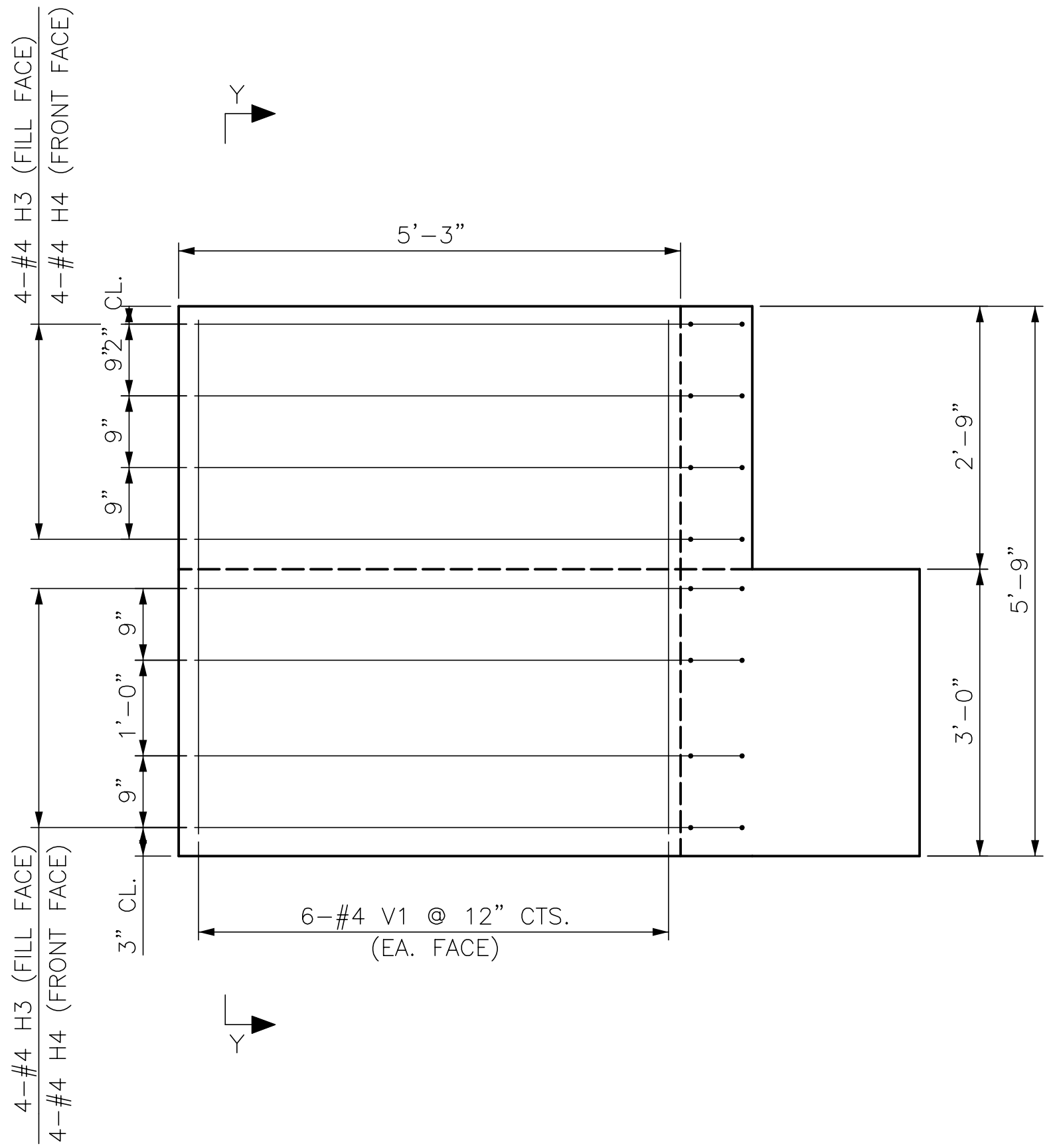
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TOTAL SHEETS

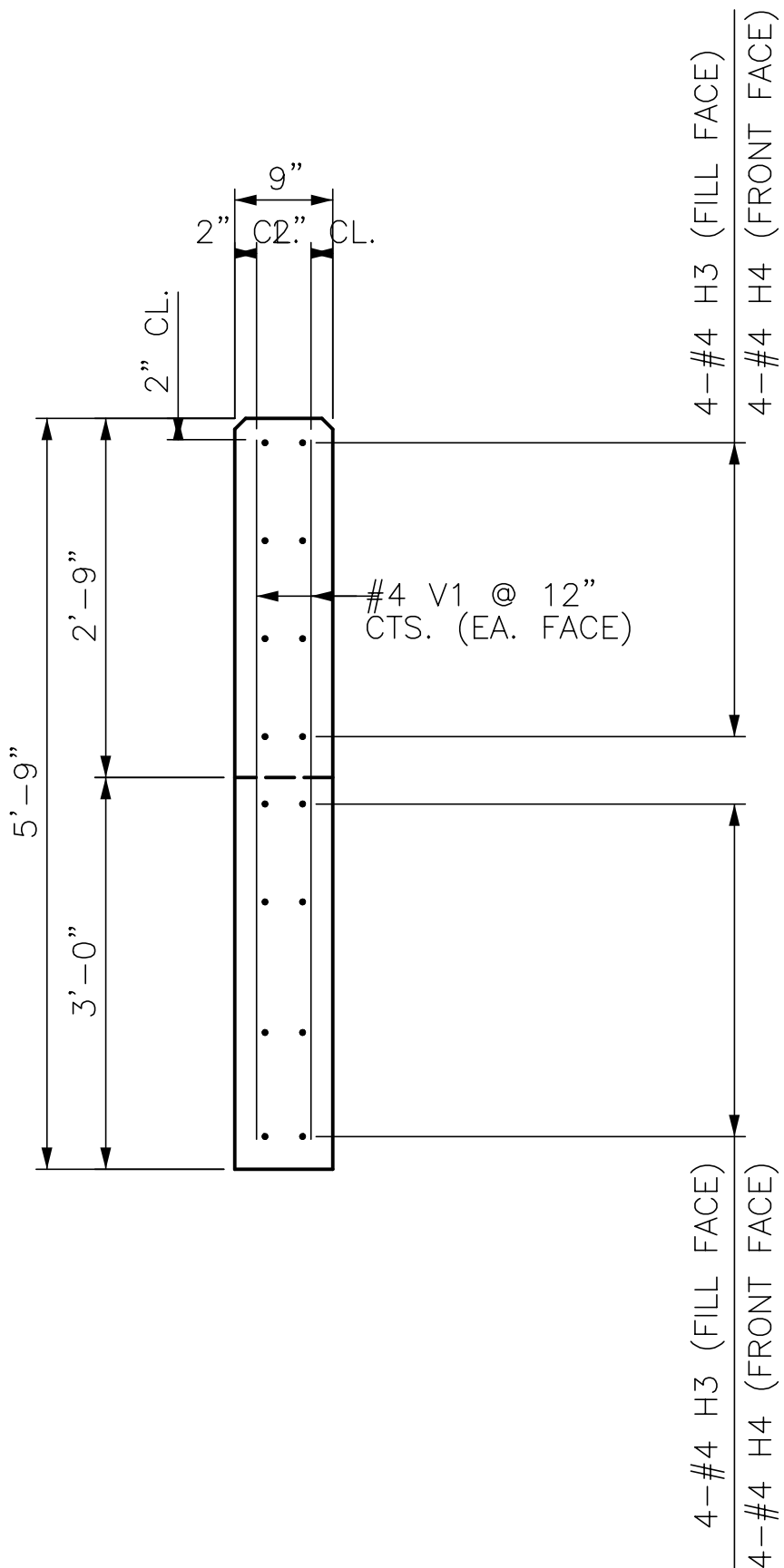
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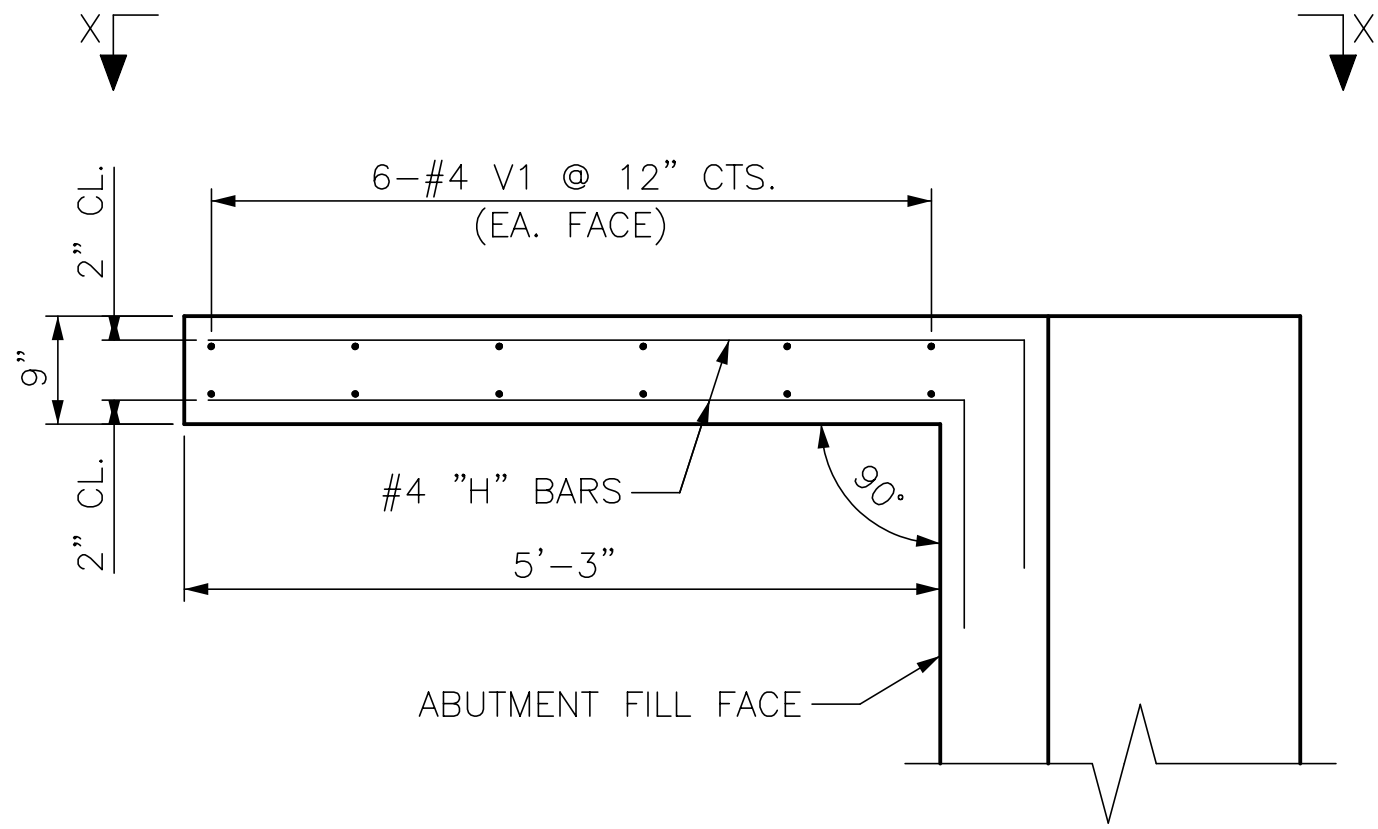
-W3- PLAN



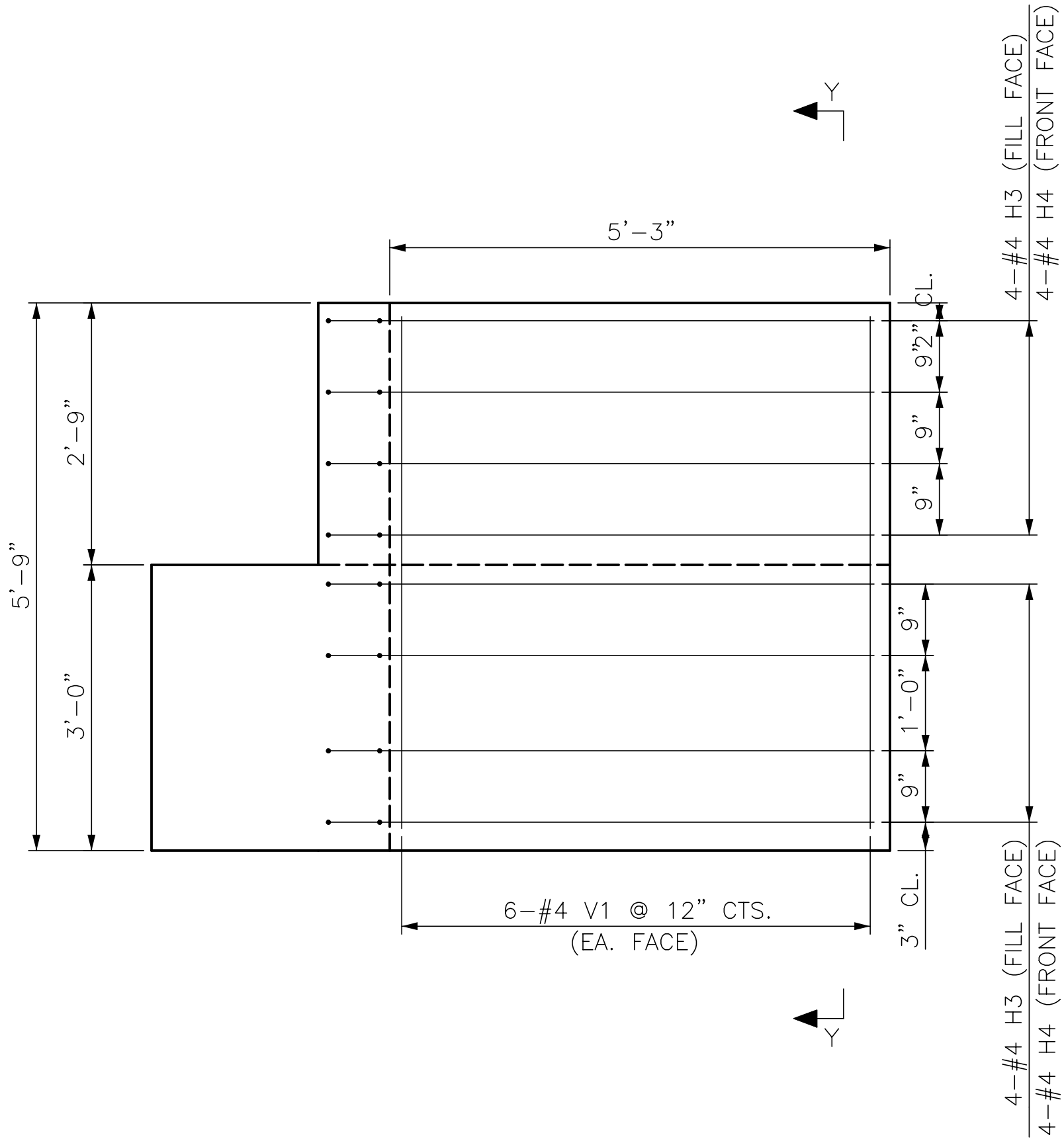
-W3- ELEVATION (X-X)



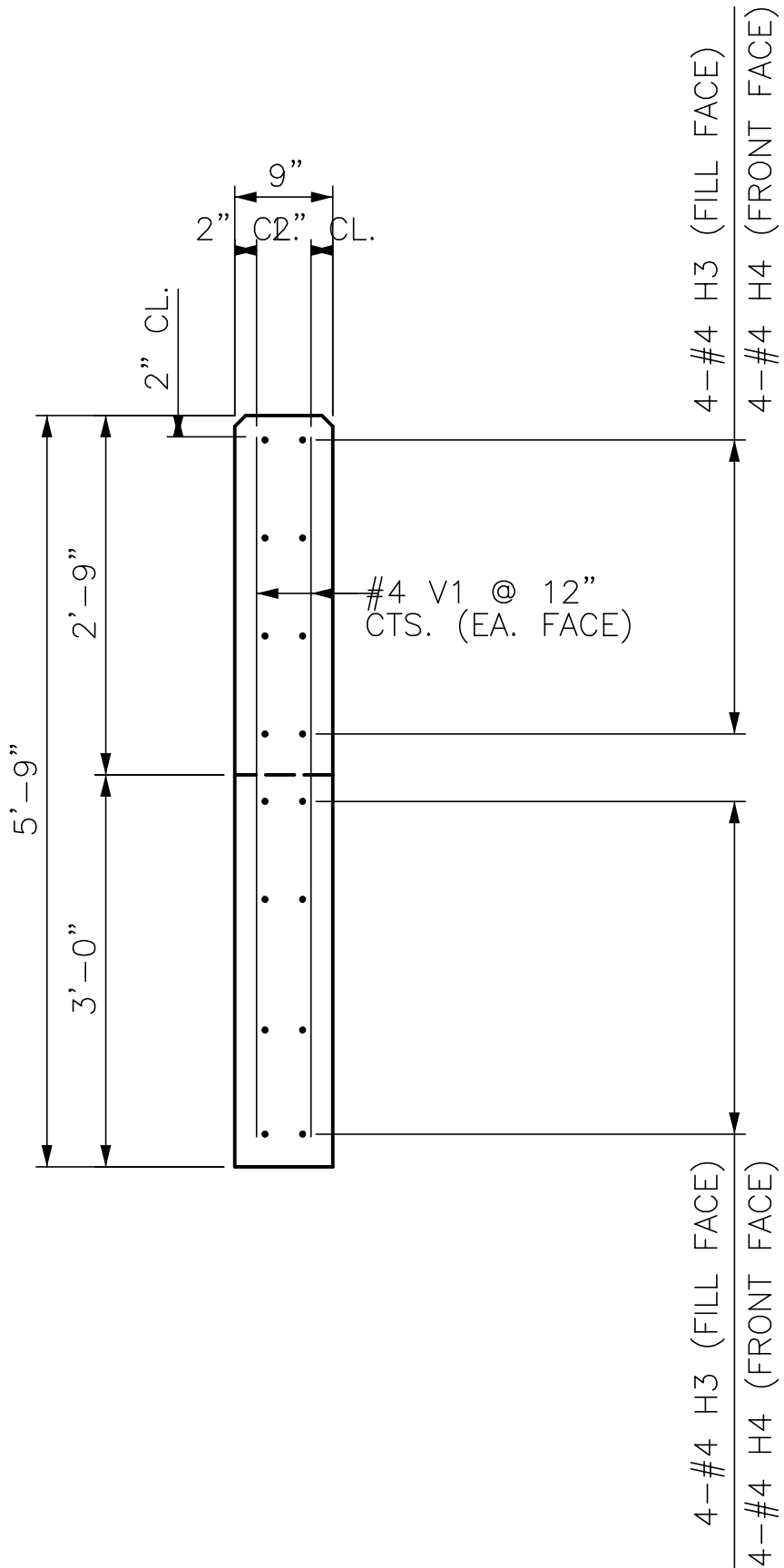
-W3- SECTION Y-Y



-W4- PLAN



-W4- ELEVATION (X-X)



-W4- SECTION (Y-Y)

BILL OF MATERIAL (-W3-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W3-)					118 LBS.
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					

BILL OF MATERIAL (-W4-)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H3	8	#4	7	7'-3"	39
H4	8	#4	7	6'-10"	37
V1	12	#4	STR	5'-4"	43
REINFORCING STEEL (FOR -W4-)					118 LBS.
NOTE: WINGWALL CLASS A CONCRETE QUANTITIES INCLUDED IN END BENT QUANTITIES.					
BAR TYPES					



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SHEET CONTENTS

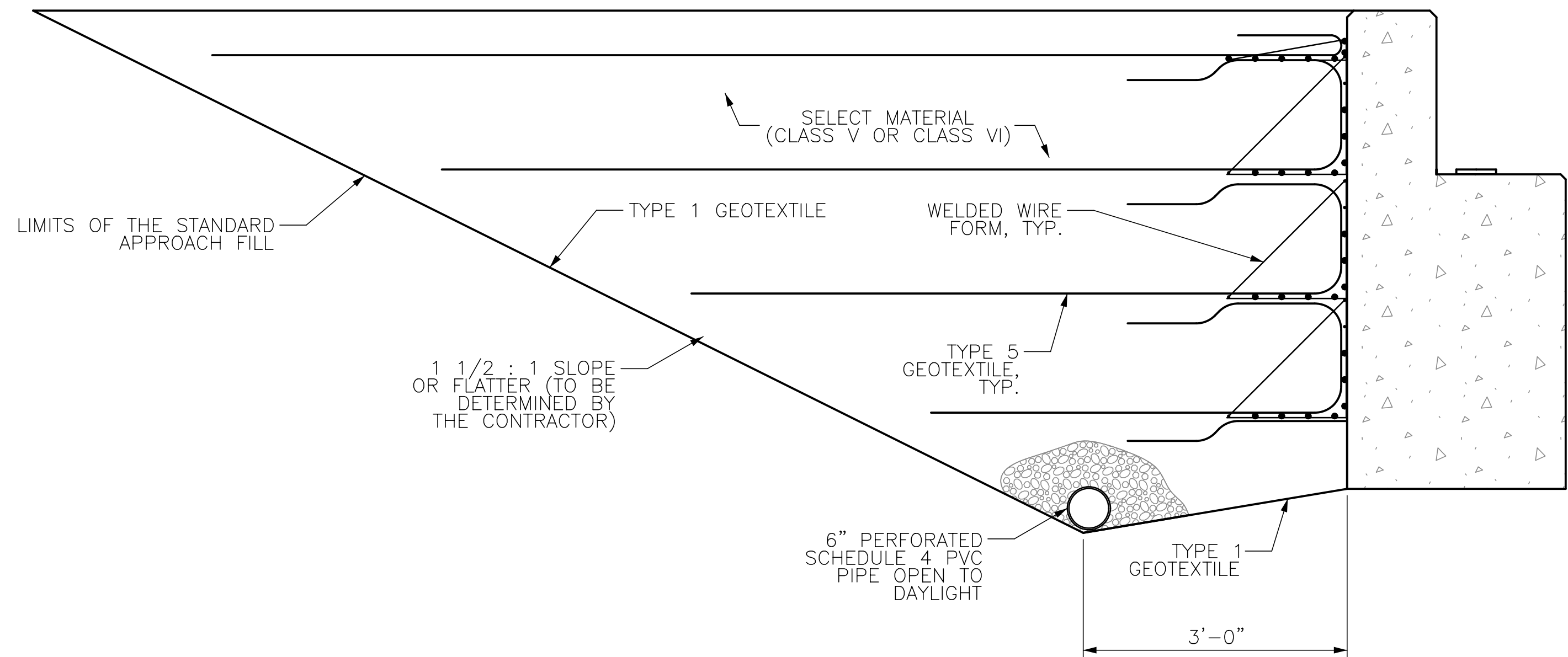
WINGWALLS
-W3- & -W4-

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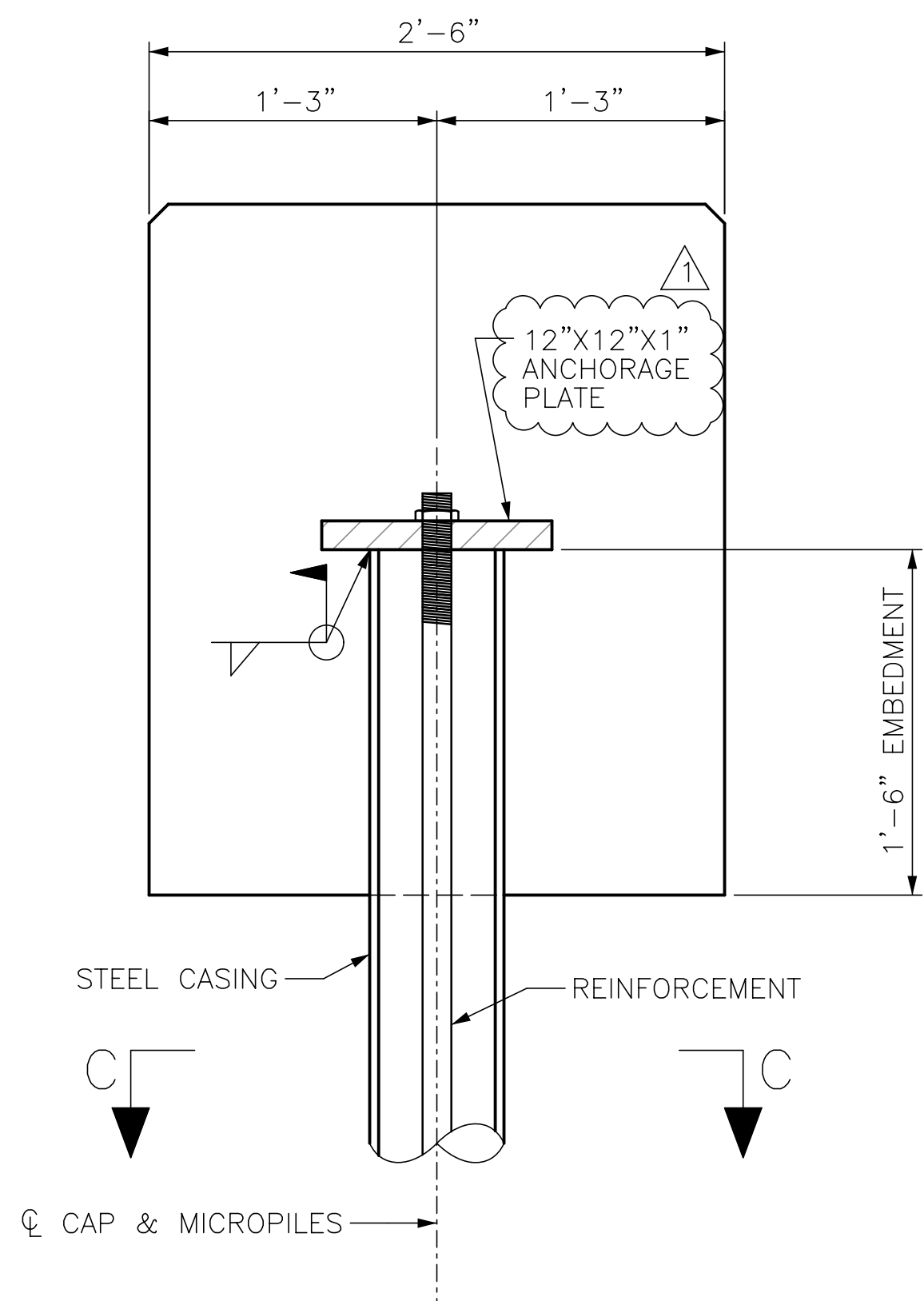
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S-7

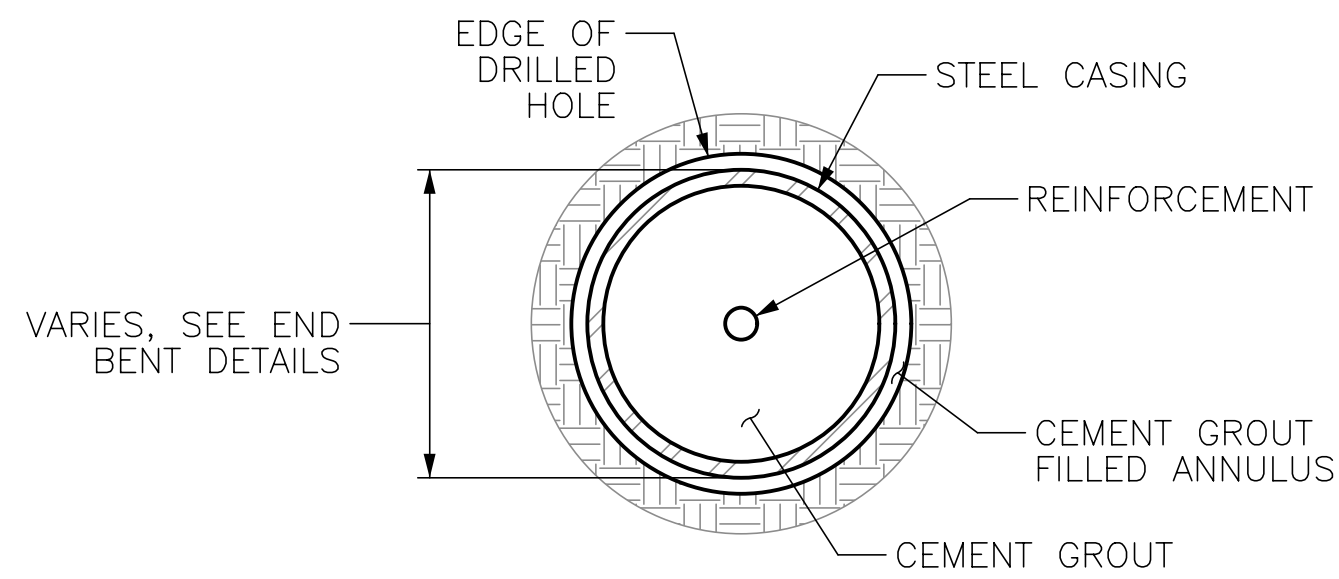
TOTAL SHEETS



APPROACH FILL DETAIL



TYP. MICROPILE ANCHORAGE DETAIL



TYP. MICROPILE DETAIL (SECTION C-C)



MFG SECTION 3 ABUTMENT DESIGN (UPSTREAM BRIDGE)
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AT
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SHEET CONTENTS

ADDITIONAL DETAILS

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SHEET NO.

S-8

TOTAL SHEETS

8