

**TOWN OF CLAYTON
NORTH CAROLINA**

**SAM'S BRANCH GREENWAY
PHASE II**

LOCATION:
FROM CITY ROAD TO O'NEIL STREET

TYPE OF WORK:
GRADING, PAVING, STRUCTURE,
DRAINAGE, & EROSION CONTROL

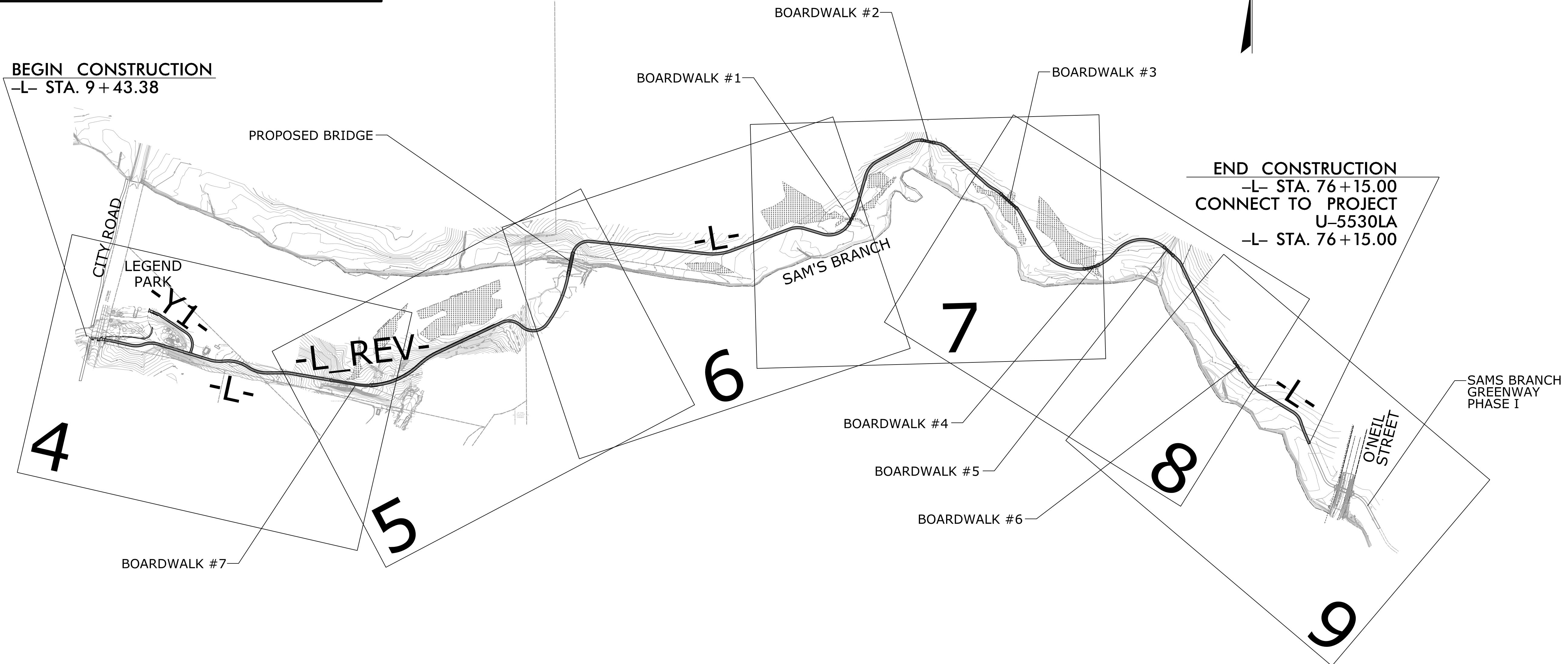
NCDOT TIP: U-5530LB
WBS: 44111.1.F6
FA# STPDA-0406(8)

INDEX OF SHEETS

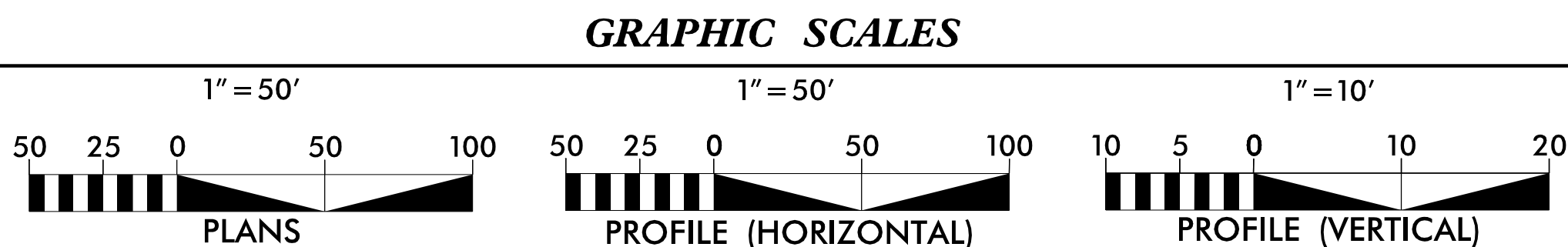
1	TITLE
1A	PLAN SHEET SYMBOLS
1B	GENERAL NOTES
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2A - 2B	GREENWAY DETAILS
3 - 3A	SUMMARIES
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SB-1 - SB-8	BOARDWALK PLANS
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X-1 - X-16	CROSS SECTION SHEETS



BEGIN CONSTRUCTION
-L- STA. 9+43.38



END CONSTRUCTION
-L- STA. 76+15.00
CONNECT TO PROJECT
U-5530LA
-L- STA. 76+15.00



DESIGN DATA

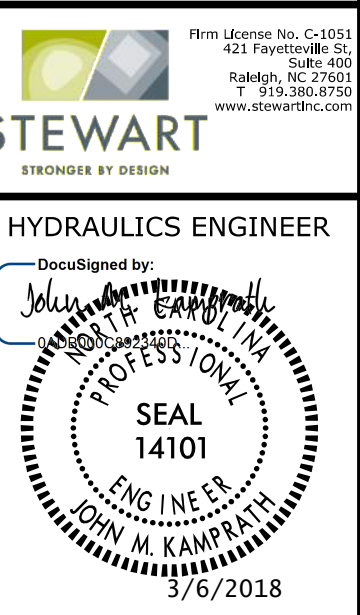
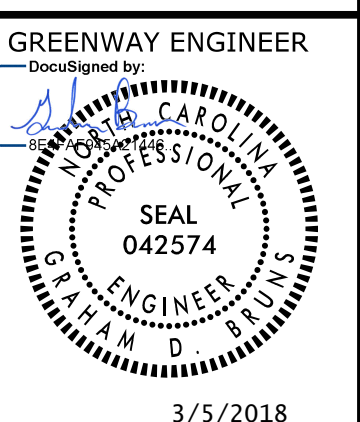
DESIGN SPEED = 20 MPH
LEAN ANGLE = 20 DEGREES
FUNC. CLASSIFICATION = GREENWAY

PROJECT LENGTH

LENGTH OF ASPHALT TRAIL = 1.22 MI
LENGTH OF BOARDWALK = .07 MI
LENGTH OF BRIDGE = .01 MI
LENGTH OF PROJECT = 1.30 MI



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**



DATE: MARCH 5, 2018

REVISIONS:

NO.	DATE

PROJECT NO.: H14009.00

1

Note: Not to Scale

***S.U.E. = Subsurface Utility Engineering**

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	✕
Property Monument	□
Parcel/Sequence Number	(23)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	+
Building	□
School	□
Church	□
Dam	□

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	-JS-
Buffer Zone 1	-BZ 1-
Buffer Zone 2	-BZ 2-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	⌵
Proposed Lateral, Tail, Head Ditch	← FLOW
False Sump	◇

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite RW Marker	△
Proposed Control of Access Line with Concrete CA Marker	△
Existing Control of Access	△
Proposed Control of Access	△
Existing Easement Line	-E-
Proposed Temporary Construction Easement	-TCE-
Proposed Temporary Drainage Easement	-TDE-
Proposed Permanent Drainage Easement	-PDE-
Proposed Permanent Greenway Easement	-PGE-
Proposed Permanent Utility Easement	-PUE-
Proposed Temporary Utility Easement	-TUE-
Proposed Aerial Utility Easement	-AUE-
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	CR
Existing Metal Guardrail	T T T T
Proposed Guardrail	T T T T
Existing Cable Guiderail	□ □ □ □
Proposed Cable Guiderail	□ □ □ □
Equality Symbol	⊕
Pavement Removal	⊗
VEGETATION:	
Single Tree	○
Single Shrub	○
Hedge	~~~~~
Woods Line	~~~~~

Orchard	☼ ☼ ☼ ☼
Vineyard	□

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊙
Storm Sewer	-S-

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊙
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	□
H-Frame Pole	●
Recorded U/G Power Line	-P-
Designated U/G Power Line (S.U.E.*)	-P-

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊙
Telephone Booth	□
Telephone Pedestal	□
Telephone Cell Tower	⊙
U/G Telephone Cable Hand Hole	□
Recorded U/G Telephone Cable	-T-
Designated U/G Telephone Cable (S.U.E.*)	-T-
Recorded U/G Telephone Conduit	-TC-
Designated U/G Telephone Conduit (S.U.E.*)	-TC-
Recorded U/G Fiber Optics Cable	-T FO-
Designated U/G Fiber Optics Cable (S.U.E.*)	-T FO-

WATER:

Water Manhole	⊙
Water Meter	○
Water Valve	⊗
Water Hydrant	⊙
Recorded U/G Water Line	-W-
Designated U/G Water Line (S.U.E.*)	-W-
Above Ground Water Line	-A/G Water-

TV:

TV Satellite Dish	⊗
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□
Recorded U/G TV Cable	-TV-
Designated U/G TV Cable (S.U.E.*)	-TV-
Recorded U/G Fiber Optic Cable	-TV FO-
Designated U/G Fiber Optic Cable (S.U.E.*)	-TV FO-

GAS:

Gas Valve	◇
Gas Meter	⊙
Recorded U/G Gas Line	-G-
Designated U/G Gas Line (S.U.E.*)	-G-
Above Ground Gas Line	-A/G Gas-

SANITARY SEWER:

Sanitary Sewer Manhole	⊙
Sanitary Sewer Cleanout	⊙
U/G Sanitary Sewer Line	-SS-
Above Ground Sanitary Sewer	-A/G Sanitary Sewer-
Recorded SS Forced Main Line	-FSS-
Designated SS Forced Main Line (S.U.E.*)	-FSS-

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line	-UTL-
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊙
U/G Test Hole (S.U.E.*)	⊙
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEILL STREET**



STEWART
HYDRAULICS ENGINEER

3/5/2018

DATE: MARCH 5, 2018

NO.	DATE

PROJECT NO.:

H14009.00

SCALE: 1"=50'

1A

GENERAL NOTES

- 1 THE CONTRACTOR SHALL PERFORM ALL CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE JANUARY 2018 NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
- 2 ALL DEMOLITION SHALL BE APPROVED BY THE TOWN OF CLAYTON.
- 3 ALL DEMOLITION AND SUBSEQUENT CONSTRUCTION TO BE IN ACCORDANCE WITH PERMITS ISSUED AND APPLICABLE STATE, COUNTY, AND LOCAL CODES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, PERMITS, EQUIPMENT, ETC. THAT MAY BE REQUIRED.
- 4 WHERE ASPHALT SECTION IS REMOVED, CONTRACTOR SHALL USE A SAW CUT AT THE LIMITS OF DEMOLITION TO OBTAIN A CLEAN EDGE.
- 5 NO GRADING IS TO OCCUR IN THE TREE PROTECTION AREAS OR TREE CRITICAL ROOT ZONES.
- 6 THE CONTRACTOR MUST, AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS OR RUBBISH CAUSED BY HIM, HIS EMPLOYEES, OR HIS WORK. ALL DEBRIS SHALL BE REMOVED FROM THE SITE ON A DAILY BASIS.
- 7 EXISTING UTILITIES AND STRUCTURES SHOWN BOTH UNDERGROUND AND ABOVE ARE BASED ON THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BEGINNING RELATED CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.
- 8 CONTRACTOR SHALL LOCATE ALL UTILITIES AND UTILITY ELEVATIONS PRIOR TO CONSTRUCTION. ALL UTILITIES TO REMAIN SHALL BE PROTECTED BY THE CONTRACTOR. ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY CONTRACTOR AT HIS EXPENSE.
- 9 CONTRACTOR SHALL RESTORE ALL LAY DOWN AND STAGING AREAS TO ORIGINAL CONDITIONS AND TO THE SATISFACTION OF THE OWNER, PRIOR TO DEMOBILIZATION AT THE CONCLUSION OF THE PROJECT.
- 10 ANY EXCAVATION MUST BE FILLED IN AND TAMPED AT THE CONCLUSION OF EACH WORK PERIOD, AND EQUIPMENT AND SUPPLIES RETURNED TO THE CONSTRUCTION STAGING AREA.
- 11 ORANGE CONSTRUCTION/SAFETY FENCING REMOVED TO FACILITATE ACCESS BY THE CONTRACTOR FOR CONSTRUCTION MUST BE REPLACED AT THE END OF EACH WORK PERIOD TO DIRECT PEDESTRIAN AND VEHICULAR TRAFFIC AWAY FROM HAZARDOUS AREAS.
- 12 DEMOLITION, AND SUBSEQUENT CONSTRUCTION OF STORM DRAINAGE FACILITIES SHALL BE PERFORMED IN SUCH A MANNER THAT THE OLD PIPE AND STRUCTURES ARE REMOVED AND NEW STRUCTURES AND PIPING ARE IMMEDIATELY PUT INTO SERVICE. CONTRACTOR SHALL ENSURE THAT STORM DRAINAGE DOES NOT REMAIN OUT OF SERVICE FOR LONGER THAN 12 HOURS AT A TIME. PROVISIONS SHALL BE MADE TO MAINTAIN STORM WATER DRAINAGE DURING CONSTRUCTION.
- 13 CONTRACTOR SHALL MAINTAIN ALL ABOVE AND BELOW GROUND STORM WATER DRAINAGE AND PATTERNS AND PIPING AS THEY CURRENTLY EXIST UNLESS NOTED OTHERWISE. ANY DISTURBANCE OF THE PATTERNS OR STRUCTURES BY THE CONTRACTOR SHALL BE CORRECTED BY THE CONTRACTOR TO CONDITION PRIOR TO DISTURBANCE. CLEAN OUT STORM WATER PIPE ONLY IF NOTED ON PLAN AND ACCORDING TO DETAIL.
- 14 CONTRACTOR SHALL STAKE CENTERLINE OF TRAIL ACCORDING TO PLANS AND OBTAIN APPROVAL FROM OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE RESOLVED PRIOR TO CONSTRUCTION.
- 15 CONTRACTOR SHALL VERIFY ALL STATIONING FOR APPLICABILITY TO EXISTING CONDITIONS PRIOR TO CONSTRUCTION. DEVIATION FROM ALIGNMENT DUE TO LARGE TREES OR OTHER OBSTACLES ETC SHALL BE APPROVED BY THE TOWN OF CLAYTON AND THE ENGINEER OF RECORD.
- 16 CONTRACTOR ACCESS FOR TRAIL CONSTRUCTION SHALL BE CONFIRMED BY CONTRACTOR WITH OWNER'S REPRESENTATIVE AND PROPERTY OWNER PRIOR TO CONSTRUCTION.
- 17 CONTRACTOR SHALL REVIEW TREE REMOVAL WITH OWNER'S REPRESENTATIVE AND OBTAIN APPROVAL PRIOR TO TREE REMOVAL. CONTRACTOR SHALL REMOVE ALL VEGETATION TO A MINIMUM OF 3' BEYOND ASPHALT EDGE OF TRAIL AND BOARDWALK OR WITHIN REQUIRED DRAINAGE DITCHES. TRIM UP BRANCHES OF TREES TO PROVIDE 10' VERTICAL CLEARANCE ABOVE PAVEMENT SURFACE.

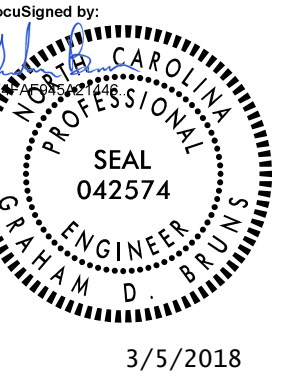
NOTES

- 18 THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND METHODS ASSOCIATED WITH PROJECT AS SET FORTH IN THESE PLANS. IF DEPARTURES FROM THE SPECIFICATIONS OR DRAWINGS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREOF SHALL BE SUBMITTED TO THE OWNER IN WRITING FOR REVIEW. NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE WRITTEN PERMISSION OF THE OWNER.
- 19 TREES AND PLANTS WILL NOT BE DAMAGED OR REMOVED IN ORDER TO SERVICE AND MAINTAIN THE UTILITY, SIDEWALK, GREENWAY OR OTHER SIMILAR FEATURE
- 20 SUPERELEVATION TRANSITION IS SHOWN ON THE PLAN VIEW.

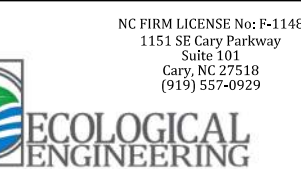


**SAM'S BRANCH GREENWAY
 PHASE II
 CITY ROAD TO NORTH O'NELL STREET**

GREENWAY ENGINEER



HYDRAULICS ENGINEER



DATE: MARCH 5, 2018

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NO.	DATE

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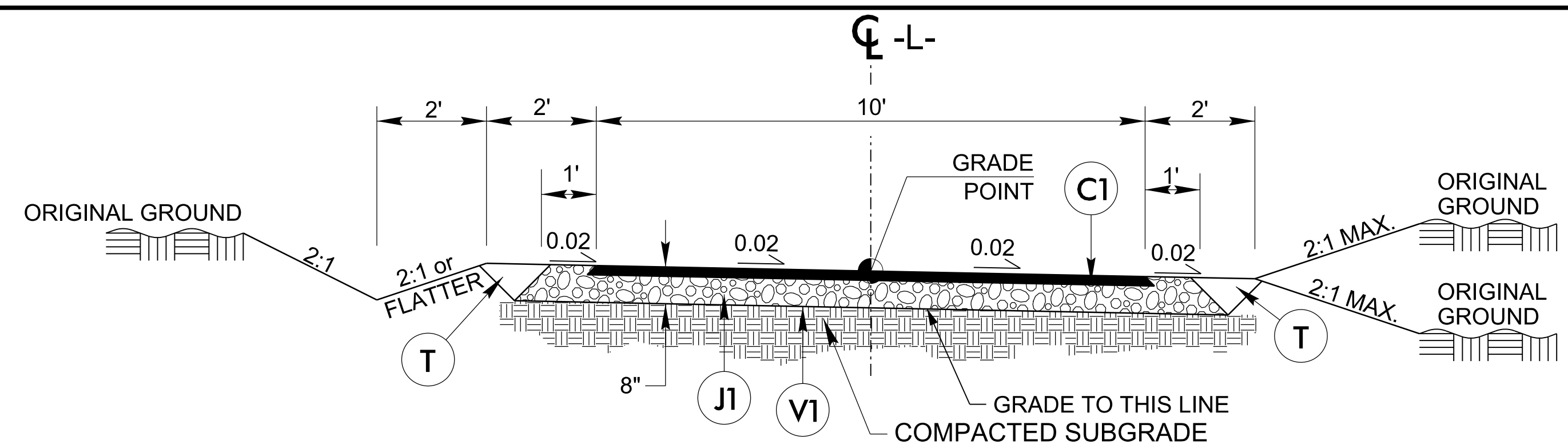
H14009.00

1B

PAVEMENT SCHEDULE	
C1	PROPOSED APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
J1	PROPOSED 6" AGGREGATE BASE COURSE.
V1	GEOTEXTILE SEPARATOR FABRIC
T	EARTH MATERIAL.

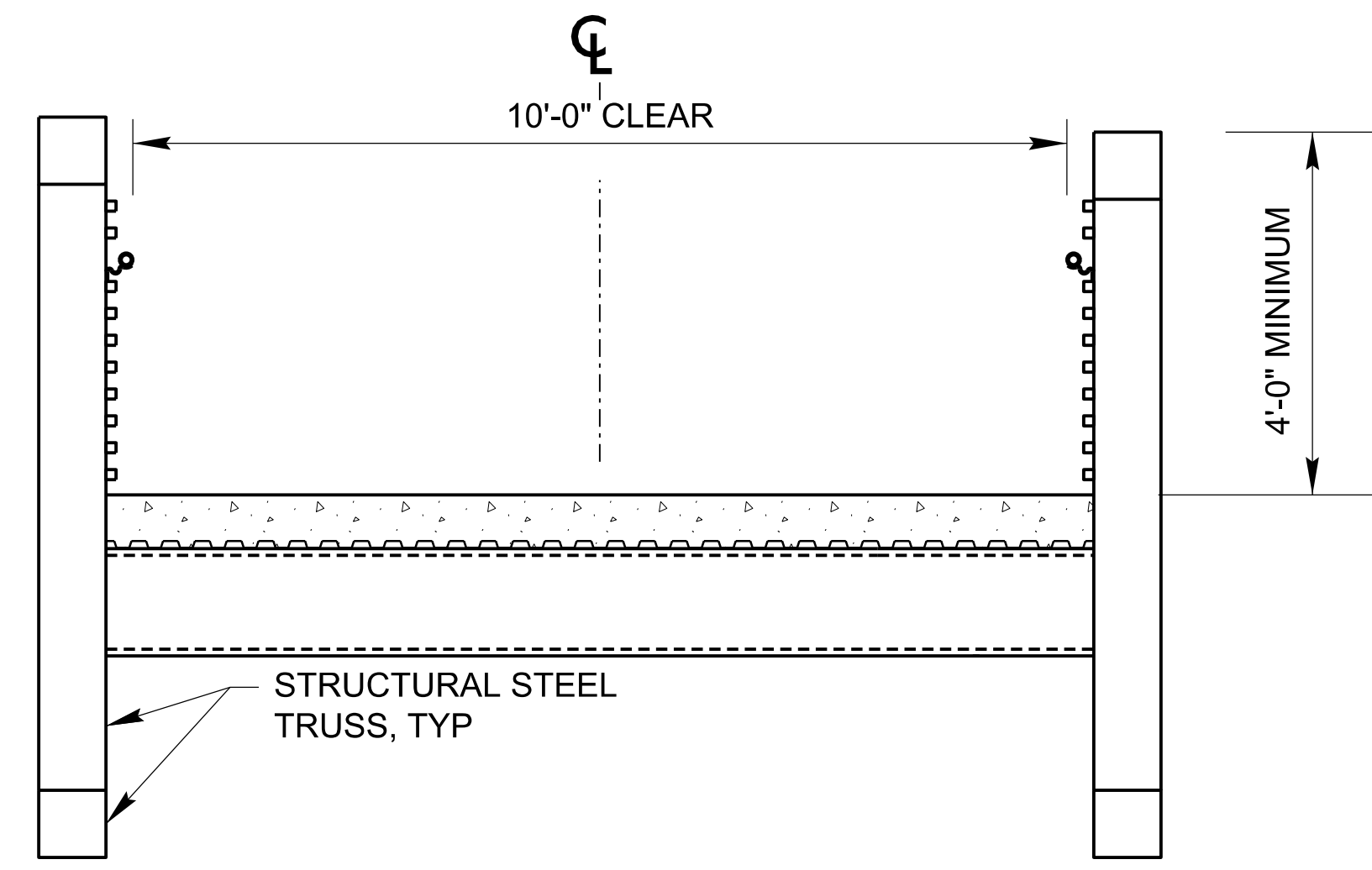
NOTES:

- CROSS SLOPE DIRECTION VARIES. SEE PLAN VIEW AND CROSS SECTIONS FOR DIRECTION OF SLOPE.
- SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
- CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.



TYPICAL SECTION #1 - 10' ASPHALT GREENWAY TRAIL APPLIES TO THE FOLLOWING LOCATIONS

CHAIN	BEGIN STATION	END STATION
-L-	STA. 10+20.00	STA. 18+02.00
-L_REV-	STA. 18+02.00	STA. 20+20.00
-L_REV-	STA. 22+00.00	STA. 25+21.31
-L-	STA. 26+00.03	STA. 33+73.00
-L-	STA. 34+53.00	STA. 47+00.00
-L-	STA. 34+53.00	STA. 47+00.00
-L-	STA. 47+50.00	STA. 52+15.00
-L-	STA. 52+75.00	STA. 56+35.00
-L-	STA. 57+35.00	STA. 61+45.00
-L-	STA. 62+15.00	STA. 65+35.00
-L-	STA. 65+95.00	STA. 71+20.00
-L-	STA. 71+70.00	STA. 76+15.00

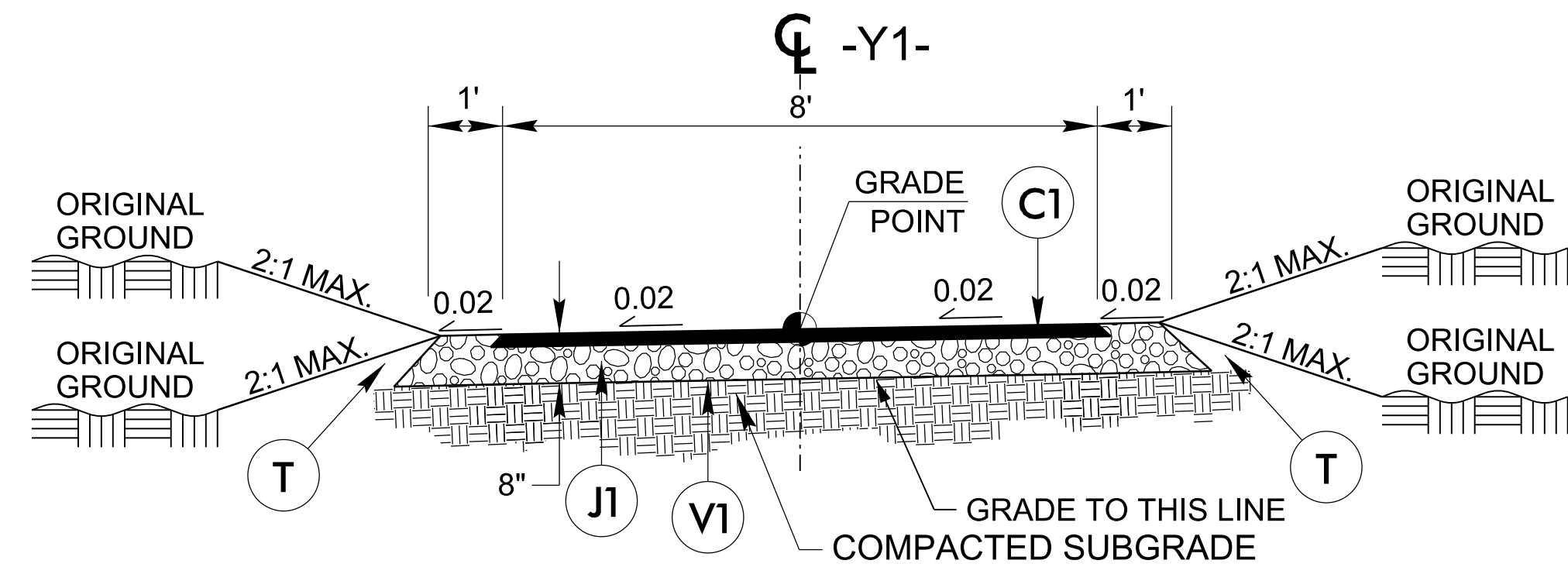


BRIDGE TYPICAL SECTION

BRIDGE NO. (CLEAR WIDTH)	CHAIN	BEGIN STATION	END STATION
S1 (10')	-L-	33+83.00	34+43.00

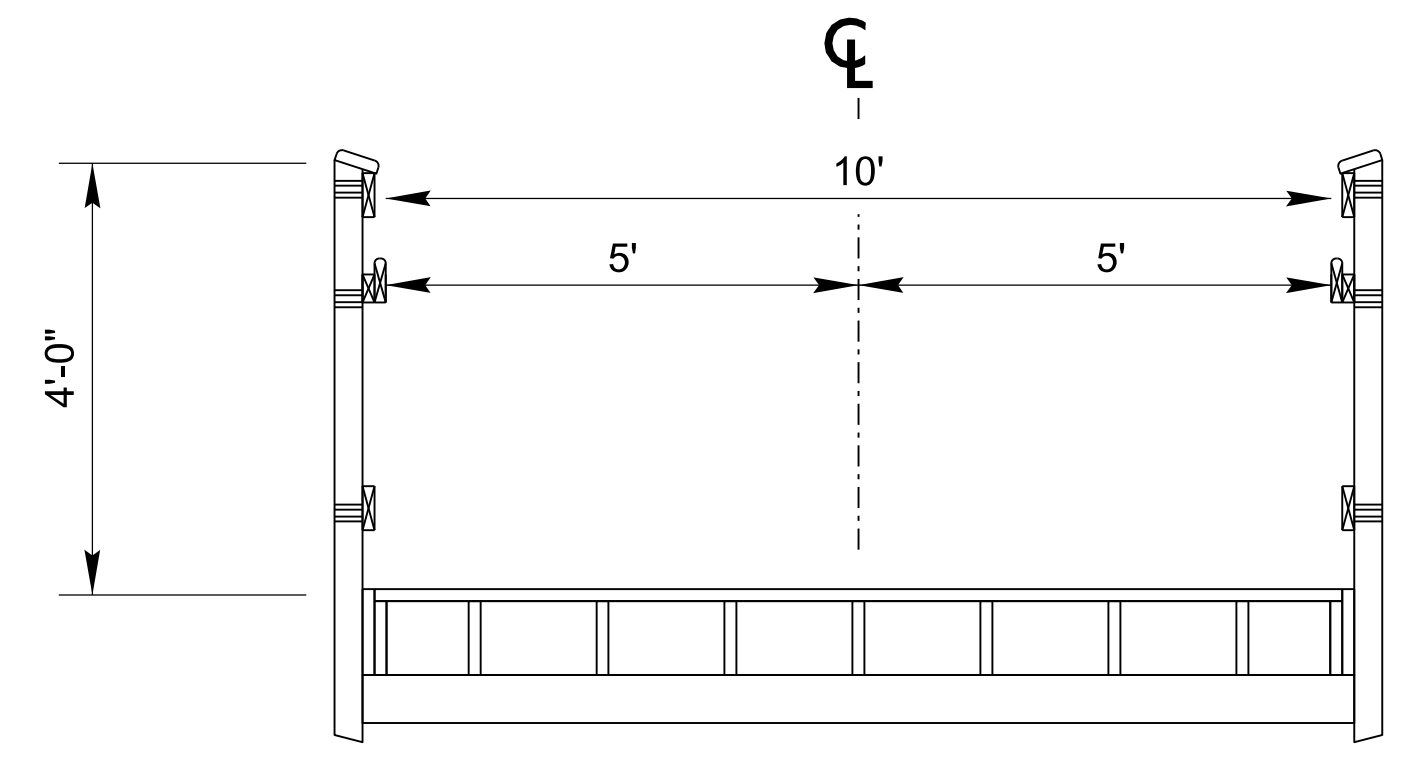
CONCRETE APPROACH SLABS

STRUCTURE	CHAIN	BEGIN STATION	END STATION
S1	-L-	STA. 33+73.00	STA. 33+83.00
S1	-L-	STA. 34+43.00	STA. 34+53.00
BOARDWALK 1	-L-	STA. 47+00.00	STA. 47+10.00
BOARDWALK 1	-L-	STA. 47+40.00	STA. 47+50.00
BOARDWALK 2	-L-	STA. 52+15.00	STA. 52+25.00
BOARDWALK 2	-L-	STA. 52+65.00	STA. 52+75.00
BOARDWALK 3	-L-	STA. 56+45.00	STA. 56+45.00
BOARDWALK 3	-L-	STA. 57+25.00	STA. 57+35.00
BOARDWALK 4	-L-	STA. 61+45.00	STA. 61+55.00
BOARDWALK 4	-L-	STA. 62+05.00	STA. 62+15.00
BOARDWALK 5	-L-	STA. 65+45.00	STA. 65+45.00
BOARDWALK 5	-L-	STA. 65+85.00	STA. 65+95.00
BOARDWALK 6	-L-	STA. 71+20.00	STA. 71+30.00
BOARDWALK 6	-L-	STA. 71+60.00	STA. 71+70.00
BOARDWALK 7	-L_REV-	STA. 20+20.00	STA. 20+30.00
BOARDWALK 7	-L_REV-	STA. 21+90.00	STA. 22+00.00



TYPICAL SECTION #2 - 8' ASPHALT GREENWAY TRAIL APPLIES TO THE FOLLOWING LOCATIONS

CHAIN	BEGIN STATION	END STATION
-Y1-	STA. 10+50.00	STA. 13+15.92



BOARDWALK TYPICAL SECTION

BOARDWALK NO.	CHAIN	BEGIN STATION	END STATION
1	-L-	STA. 47+10.00	STA. 47+40.00
2	-L-	STA. 52+25.00	STA. 52+65.00
3	-L-	STA. 56+45.00	STA. 57+25.00
4	-L-	STA. 61+55.00	STA. 62+05.00
5	-L-	STA. 65+45.00	STA. 65+85.00
6	-L-	STA. 71+30.00	STA. 71+60.00
7	-L_REV-	STA. 20+30.00	STA. 21+90.00



SAM'S BRANCH GREENWAY
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GREENWAY ENGINEER



HYDRAULICS ENGINEER



DATE: MARCH 5, 2018

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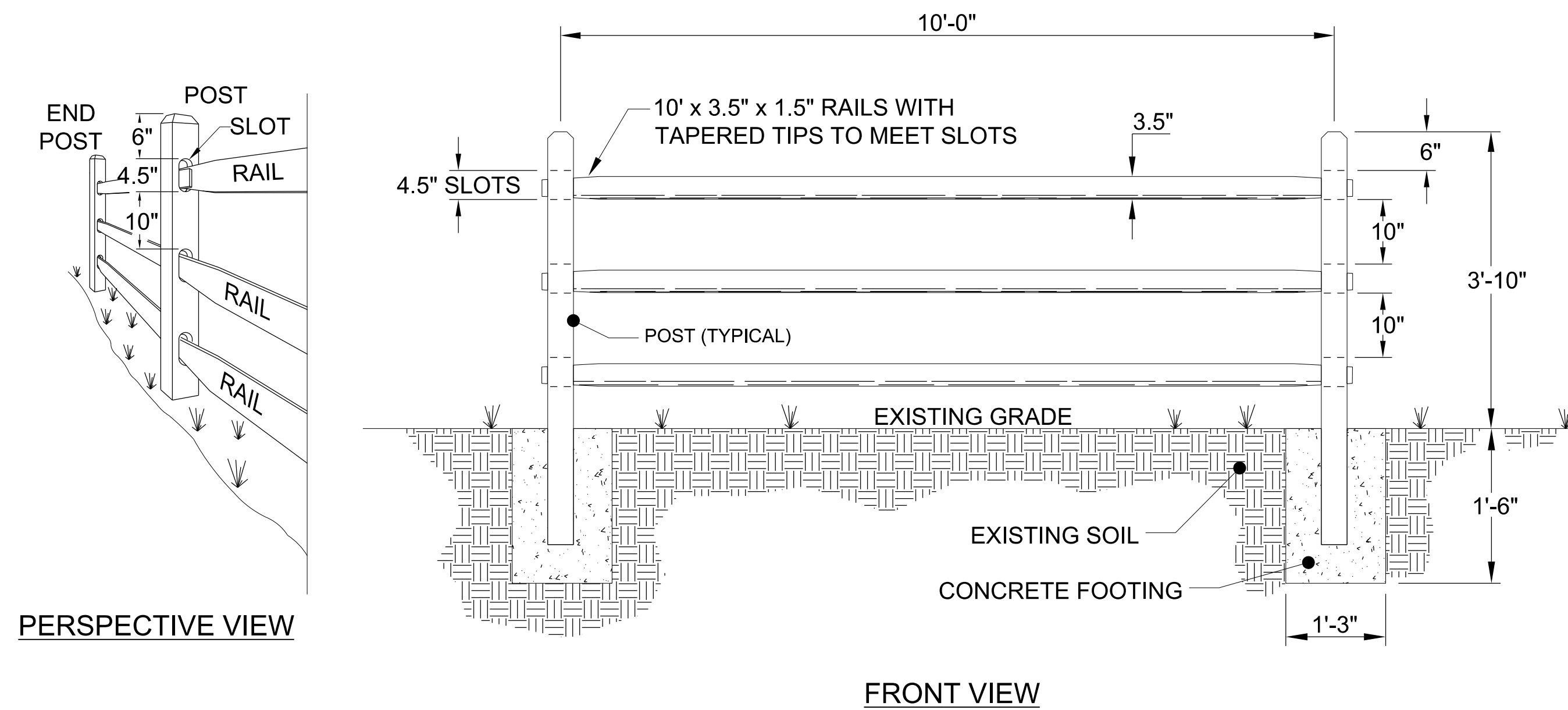
PROJECT NO.:

H14009.00

SCALE: NTS

EC-2

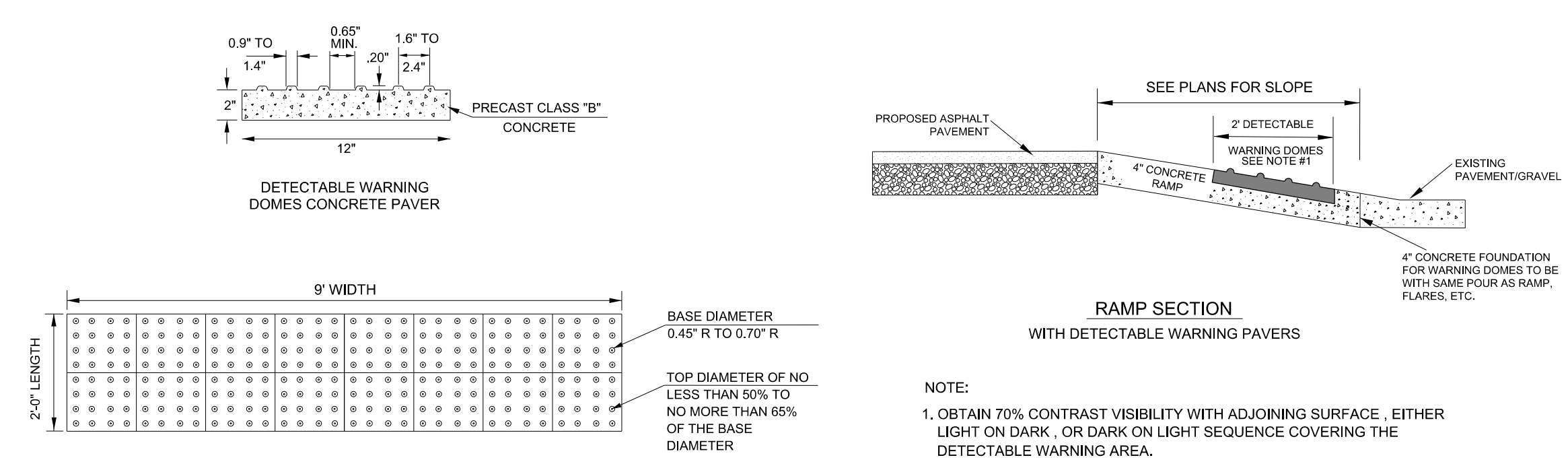
NOTES:
 1) ALL WOOD FOR SPLIT RAIL FENCE TO BE PRESSURE TREATED.
 2) END POST SHALL BE TERMINAL POST.



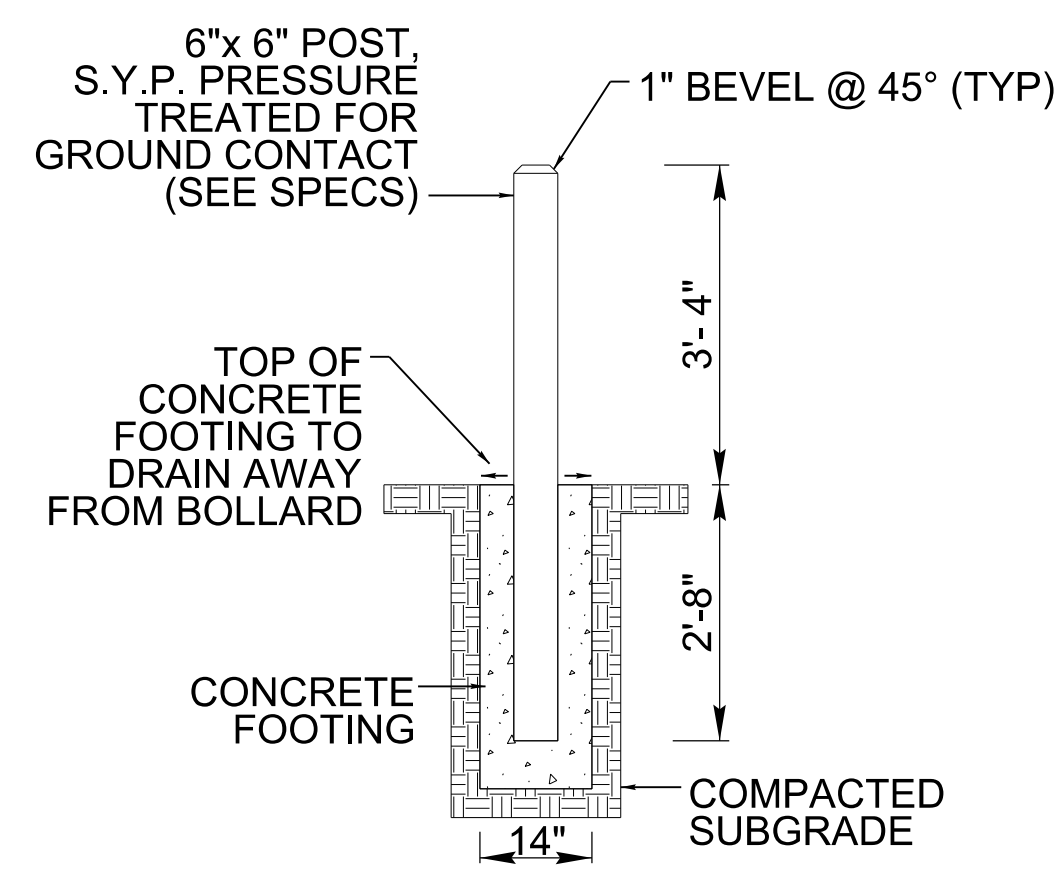
PERSPECTIVE VIEW

FRONT VIEW

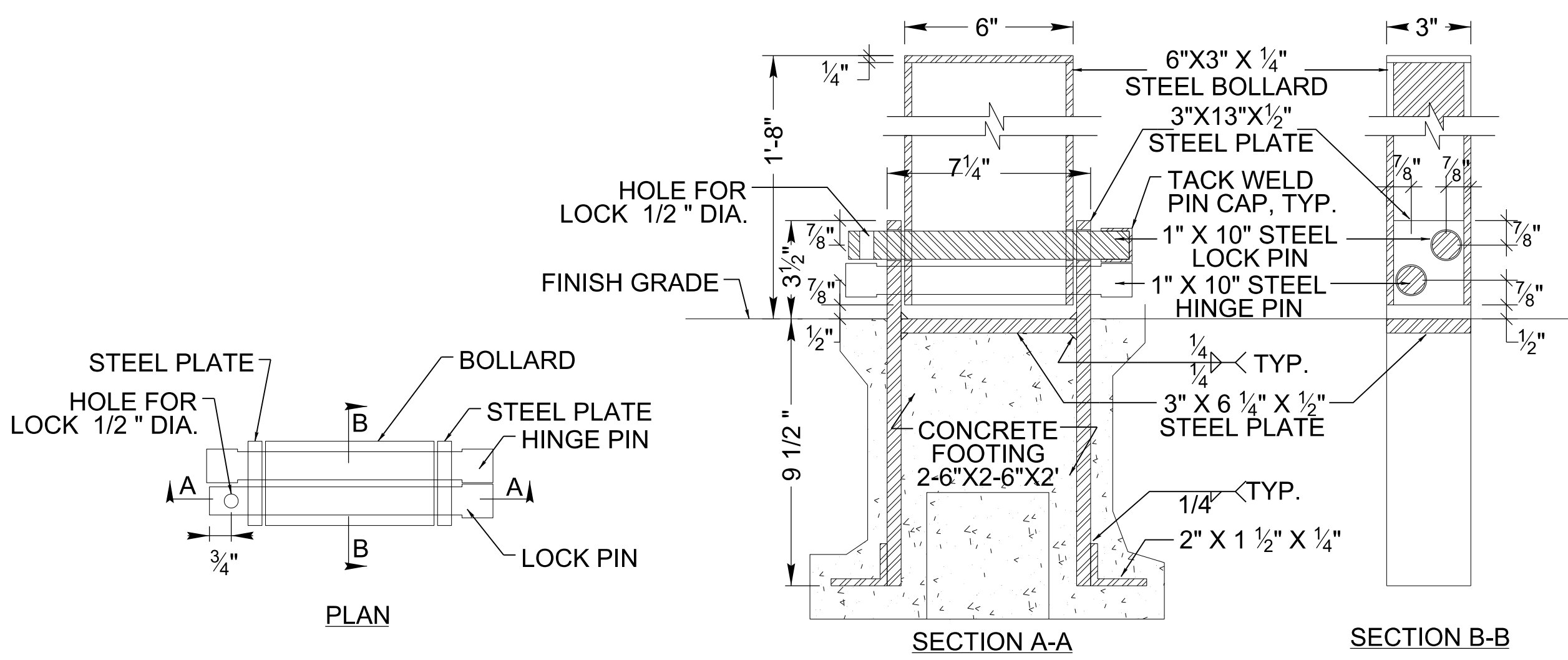
1 DETAIL FOR SPLIT RAIL FENCE



2 TRUNCATED DOME PAVERS



PERMANENT BARRIER WOOD BOLLARD

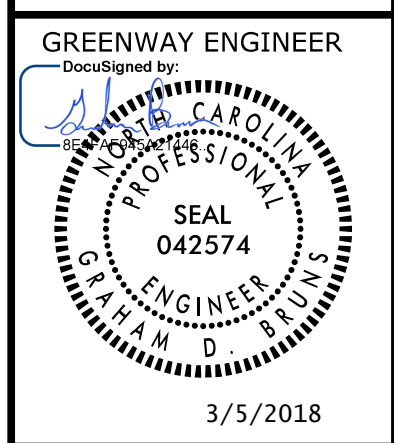


COLLAPSIBLE BOLLARD

3 BOLLARDS

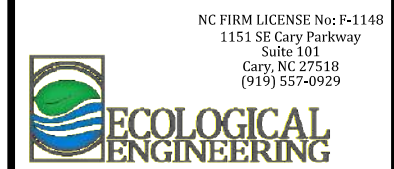


SAM'S BRANCH GREENWAY
 PHASE II
 CITY ROAD TO NORTH O'NELL STREET



STEWART
 ENGINEERING
 STRONGER BY DESIGN

HYDRAULICS ENGINEER

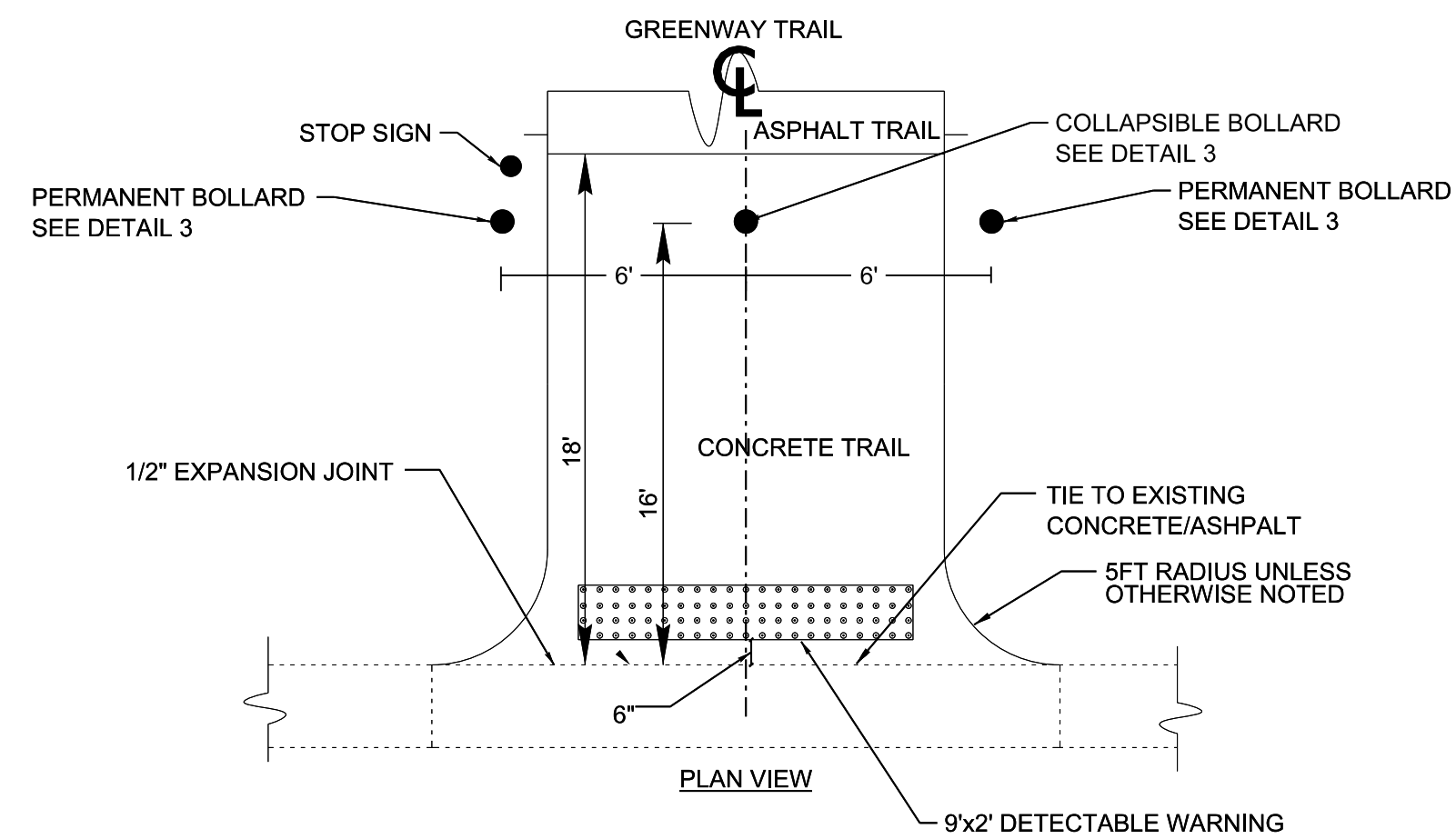


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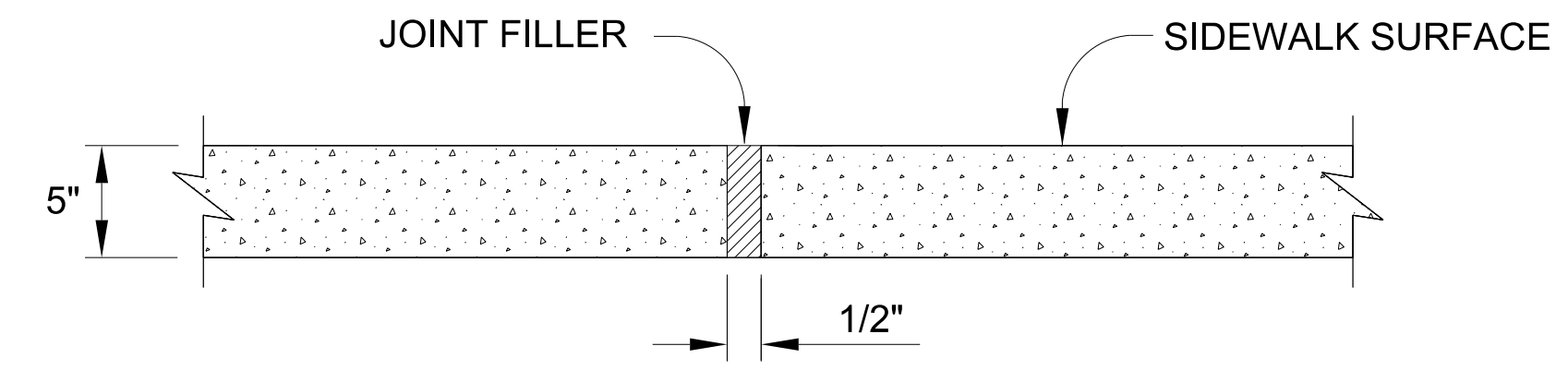
NO.	DATE

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SCALE:

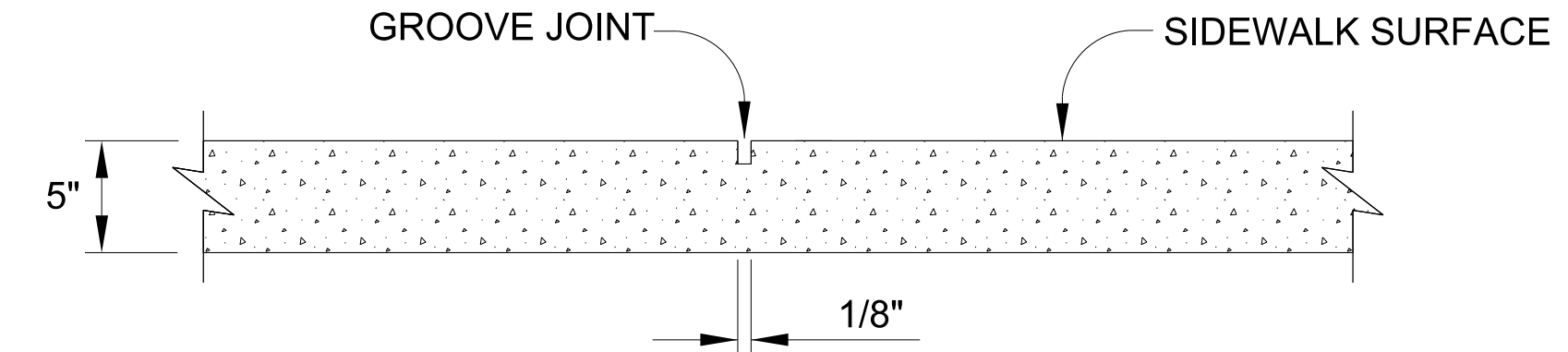


4 GREENWAY ENTRANCE RAMP



TRANSVERSE EXPANSION JOINT

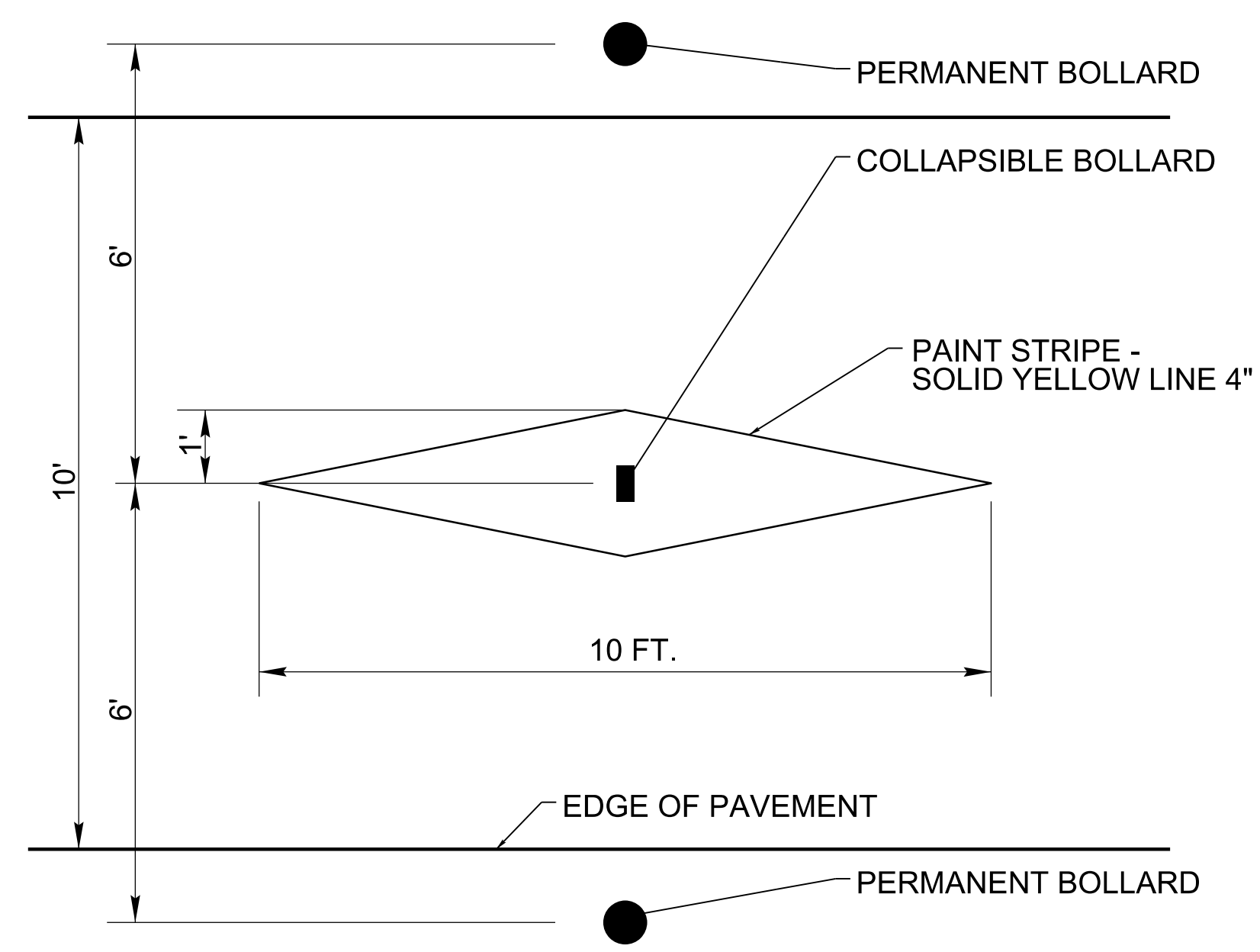
NOTE:
1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 40 FEET.



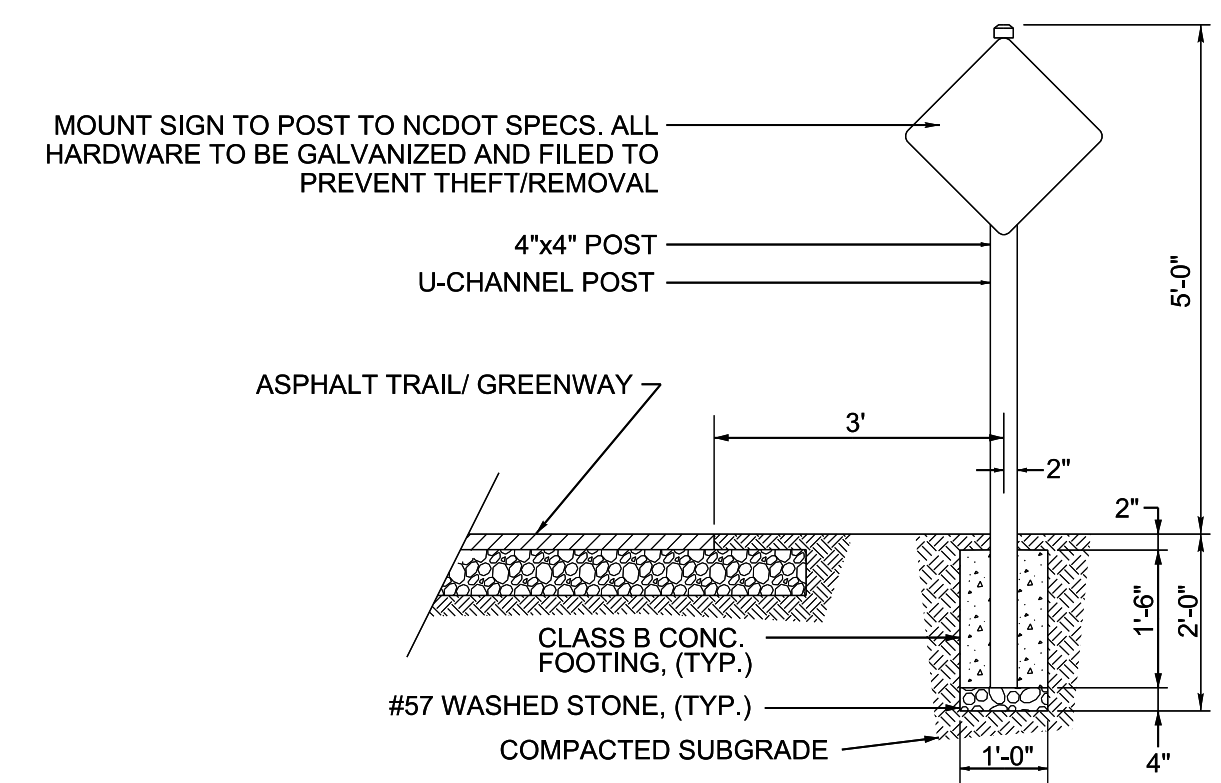
GROOVE JOINT

NOTE:
1. PLACE GROOVE JOINTS EVERY 10'.

5 CONCRETE GREENWAY JOINTS



6 TYPICAL BOLLARD PLACEMENT & PAVEMENT MARKING

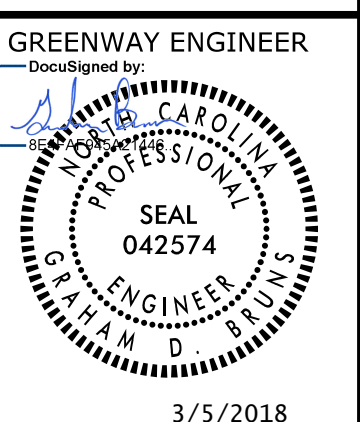


NOTES:
1. SEE PLANS FOR SIGN TYPE AND SIZE.
2. SIGNS ASSOCIATED WITH VEHICULAR TRAFFIC AND SIGNS ALONG ROADWAYS SHALL MEET NCDOT AND MUTCD SIGN REQUIREMENTS, AND BE INSTALLED PER NCDOT STANDARD DRAWING 904.50

7 GREENWAY TYPICAL SIGN INSTALLATION



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NELL STREET**



STEWART
STRONGER BY DESIGN

HYDRAULICS ENGINEER



DATE: MARCH 5, 2018

REVISIONS:	
NO.	DATE

PROJECT NO.:
H14009.00

SCALE:

COMPUTED BY: ECOLOGICAL ENGINEERING, LLP DATE: 1/29/2016
 CHECKED BY: ECOLOGICAL ENGINEERING, LLP DATE: 1/29/2016

Note: Invert Elevations are for Bid Purposes only and shall not be used for project construction stakeout.
 See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (L, RT, OR CL)	STRUCTURE NO.	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC)							R. C. PIPE (CLASS III)						ENDWALLS		QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + 'B'		FRAME, GRATES AND HOOD STANDARD 840.03			CONCRETE TRANSITIONAL SECTION		REMARKS																			
							12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	15"	18"	24"	30"	36"	42"	48"	R.C.P.	C.S.P.	PER EACH (0" THRU 5.0')		5.0' THRU 10.0'	10.0' AND ABOVE	E	F	G	CATCH BASIN	DROP INLET	D.I. FRAME WITH GRATE STD. 840.16	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	D.I. STD. 840.14 OR STD. 840.15	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD. 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN. FT.		
																																															CU. YDS.	A
10+07 -L-	RT	0401	282.6'																			1																										
10+07 -L-	CL	0401 EX		278.6	278.5												24																												0.4465			COLLAR & EXTEND EXISTING 18" RCP
30+25 -L-	CL	0502		213.7	213.5			34																																								
54+46 -L-	CL	0701		194.0	193.9			27																																								
54+49 -L-	CL	0702		194.0	193.9			27																																								
62+55 -L-	CL	0801		188.6	188.4			30																																								
TOTALS								88	30							24																											0.4465					

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRADED DROP INLET
G.D.I. (N.S.)	GRADED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

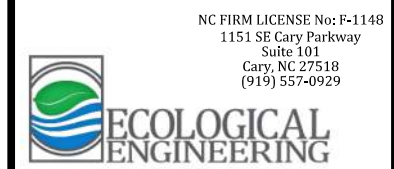


**SAM'S BRANCH GREENWAY
 PHASE II
 CITY ROAD TO NORTH O'NEILL STREET**

GREENWAY ENGINEER



HYDRAULICS ENGINEER



DATE: MARCH 5, 2018

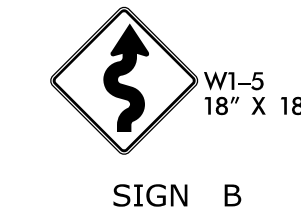
REVISIONS:	
NO.	DATE

PROJECT NO.:

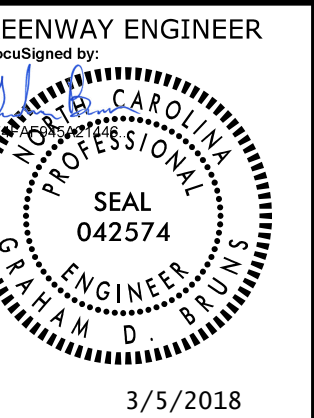
H14009.00

LIST OF SIGNAGE ALONG TRAIL

SIGNAGE SYMBOL				TYPE OF SIGNS																										COMMENTS
				A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z		
ALIGNMENT	STATION	LOCATION (LT OR RT)	OFFSET (FT)	STOP	WINDING ROAD																									
L	10+15.00	LT	8'	1																								R1-1		
L	28+00.00	RT	8'	1																								W1-5		
Y1	10+45.00	LT	8'	1																								R1-1		
Y1	13+07.40	RT	8'	1																								R1-1		
SUBTOTAL				3	1																									
SIGNAGE SYMBOL				A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z		



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NELL STREET**



HYDRAULICS ENGINEER



DATE: MARCH 5, 2018

REVISIONS:

NO.	DATE

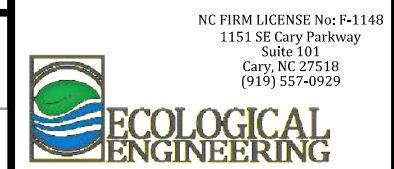
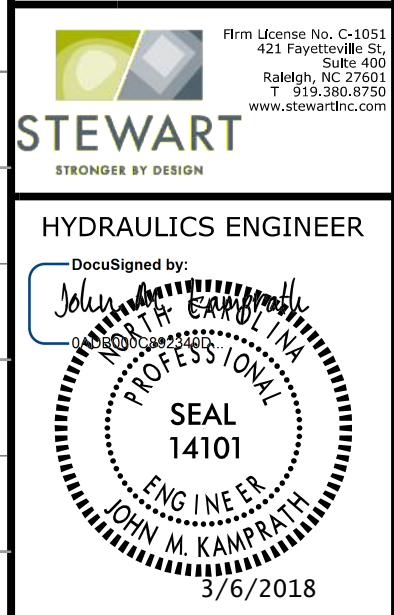
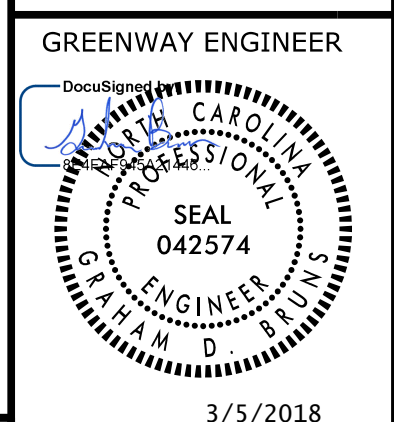
PROJECT NO.:

H14009.00

3A



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NELL STREET**



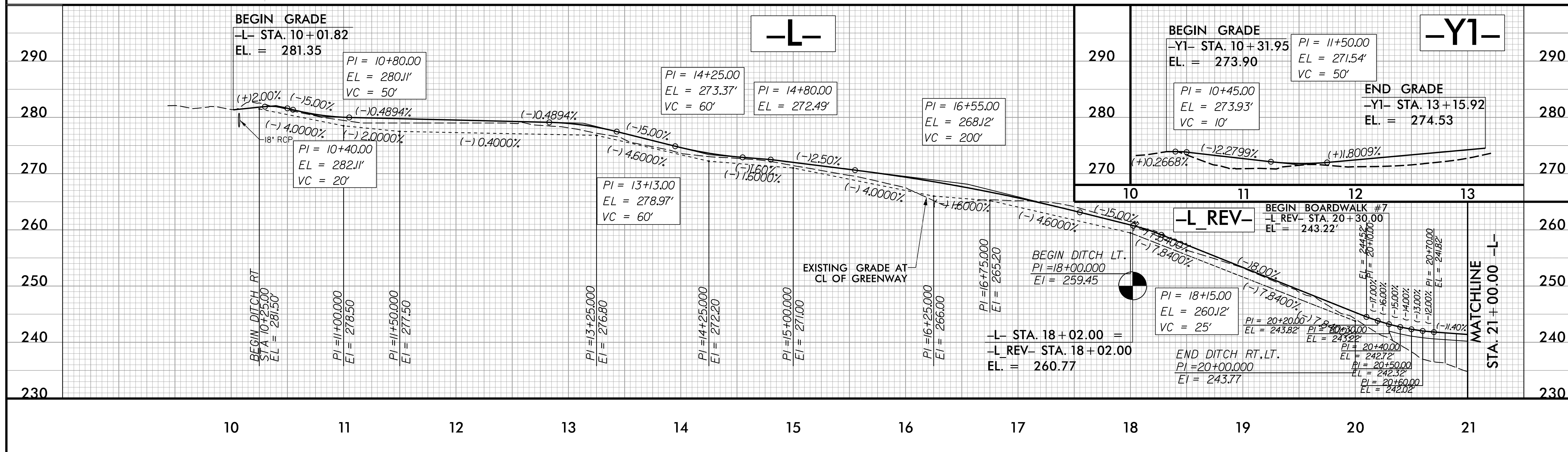
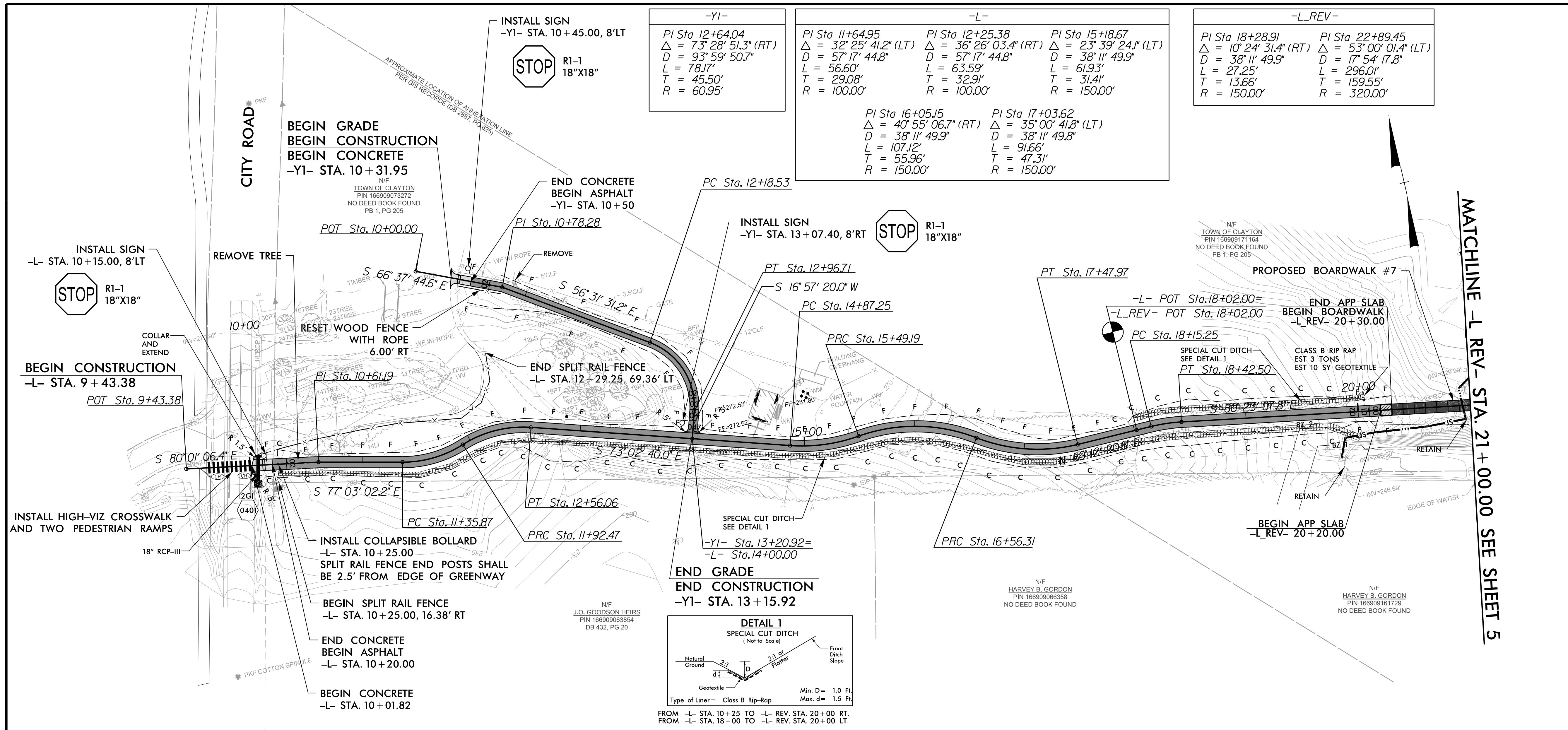
DATE: MARCH 5, 2018

REVISIONS:

NO.	DATE

PROJECT NO.: H14009.00

SCALE: 1"=50'





**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NELL STREET**

GREENWAY ENGINEER

3/5/2018

HYDRAULICS ENGINEER

3/6/2018

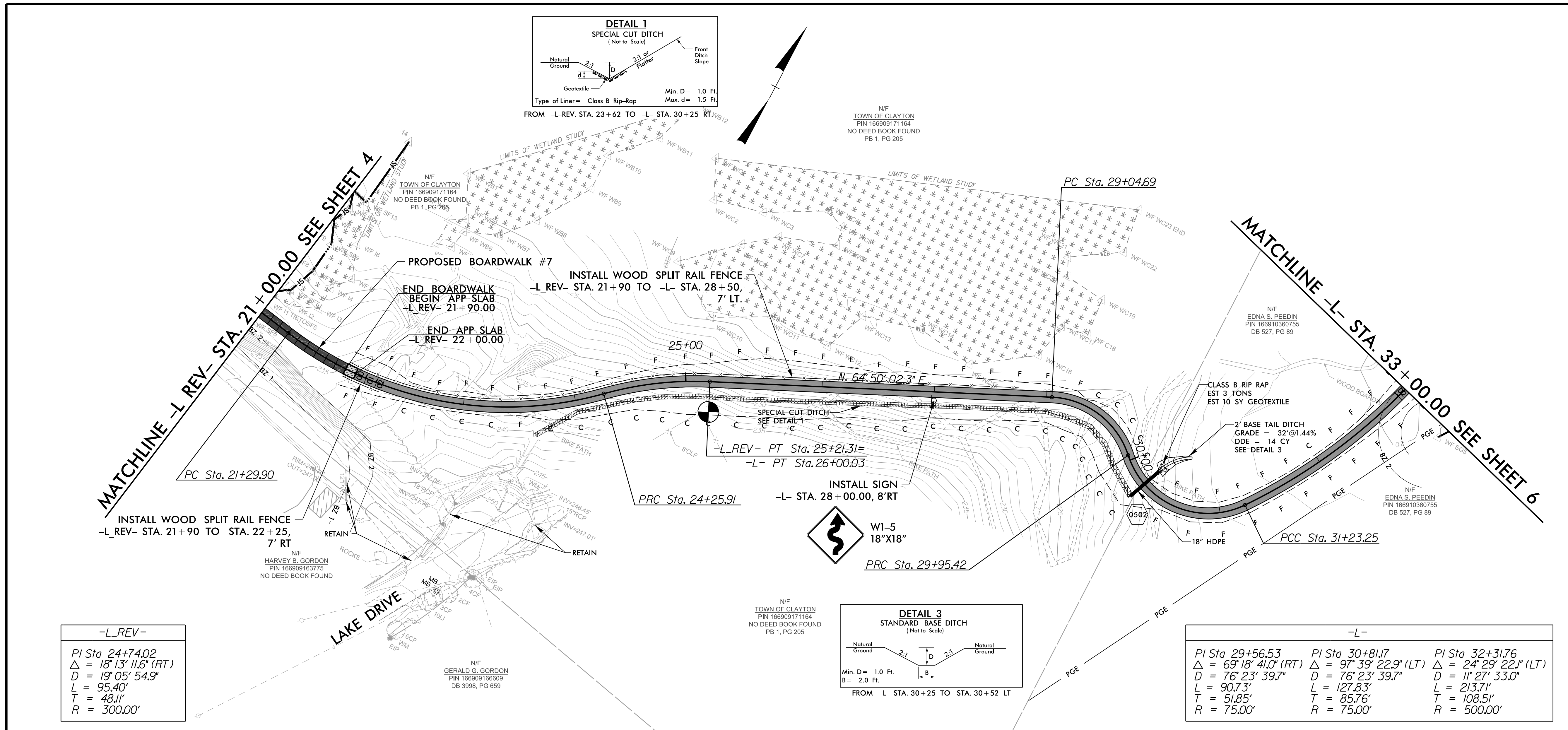
DATE: MARCH 5, 2018

REVISIONS:

NO.	DATE

PROJECT NO.:
H14009.00

SCALE: 1"=50'

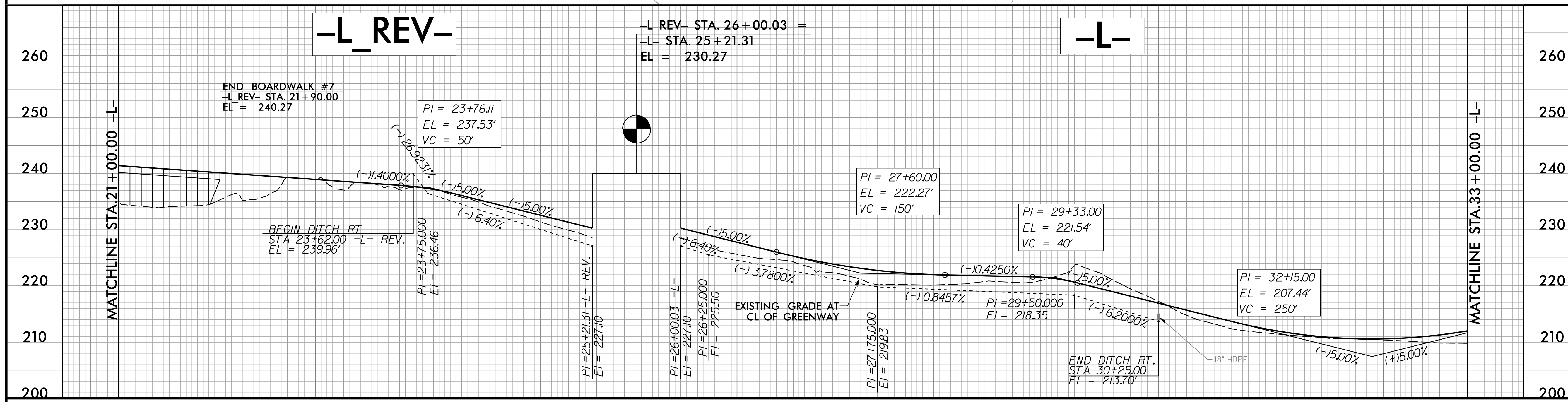


-L_REV-

PI Sta 24+74.02
$\Delta = 18' 13'' 11.6'' (RT)$
$D = 19' 05'' 54.9''$
$L = 95.40'$
$T = 48.11'$
$R = 300.00'$

-L-

PI Sta 29+56.53	PI Sta 30+81.7	PI Sta 32+31.76
$\Delta = 69' 18'' 41.0'' (RT)$	$\Delta = 97' 39'' 22.9'' (LT)$	$\Delta = 24' 29'' 22.1'' (LT)$
$D = 76' 23'' 39.7''$	$D = 76' 23'' 39.7''$	$D = 11' 27'' 33.0''$
$L = 90.73'$	$L = 127.83'$	$L = 213.71'$
$T = 51.85'$	$T = 85.76'$	$T = 108.51'$
$R = 75.00'$	$R = 75.00'$	$R = 500.00'$





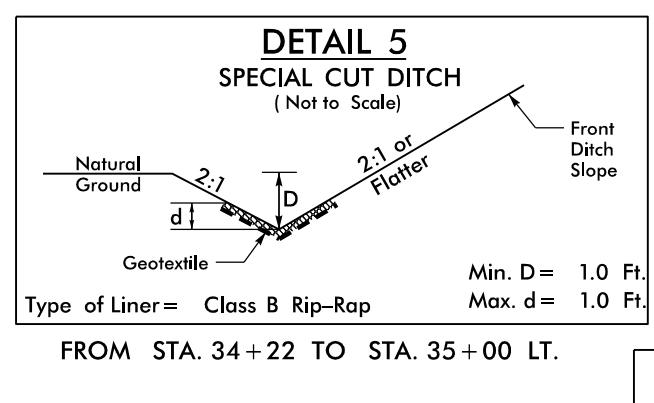
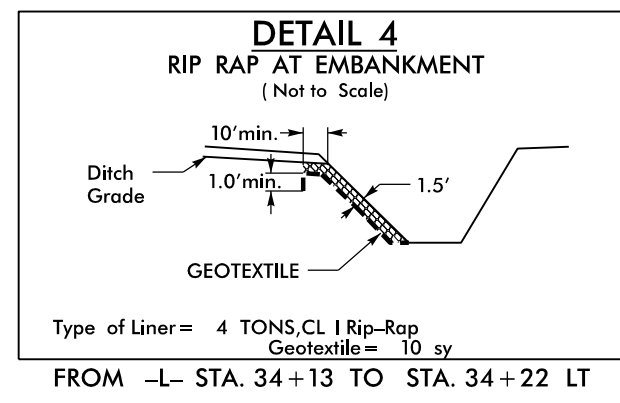
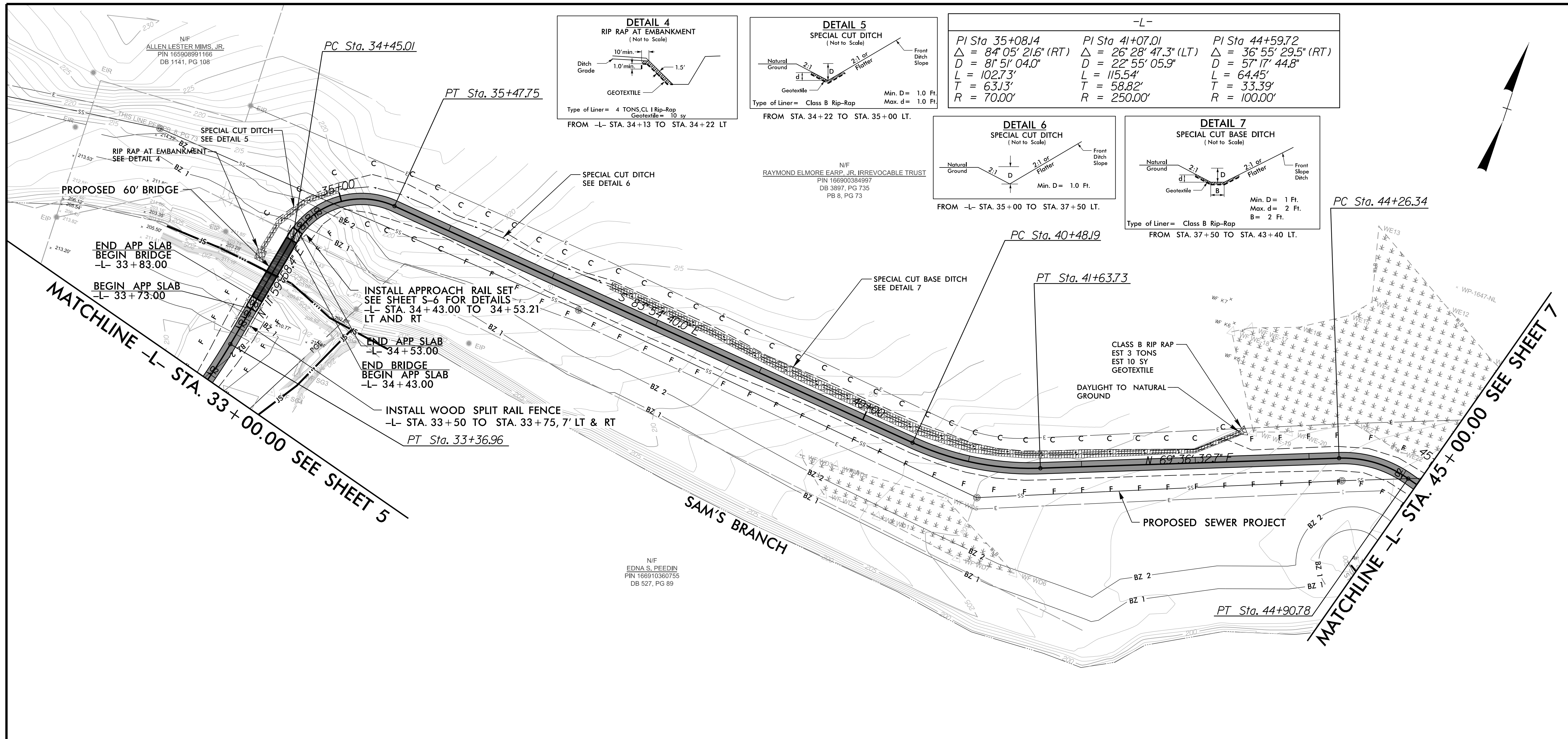
**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NELL STREET**

GREENWAY ENGINEER
SEAL 042574
3/5/2018

HYDRAULICS ENGINEER
SEAL 14101
3/6/2018

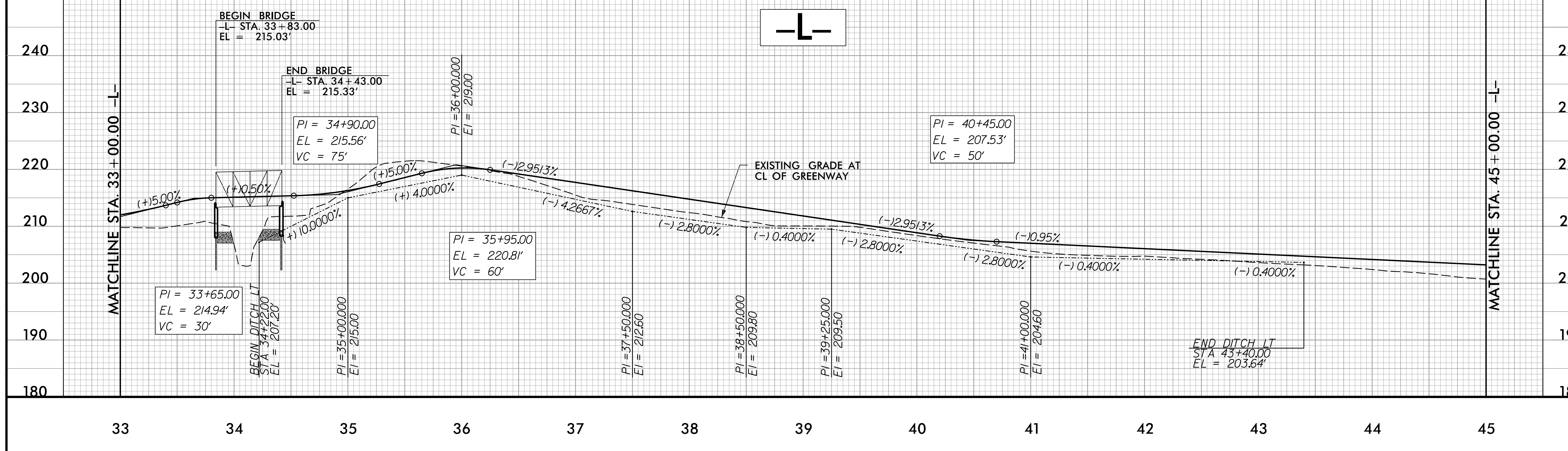
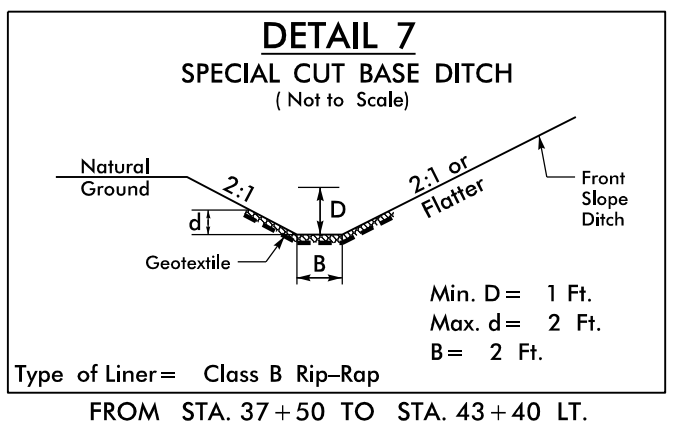
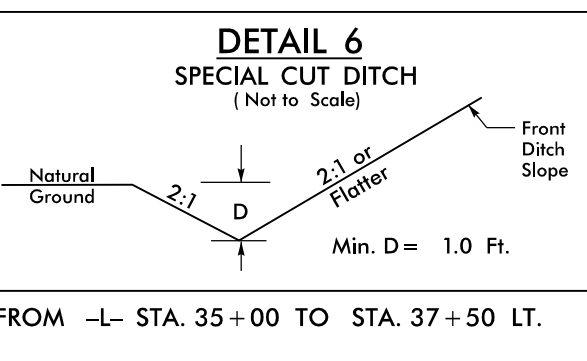
ECOLOGICAL ENGINEERING

DATE: MARCH 5, 2018
REVISIONS:
NO. DATE
PROJECT NO.:
H14009.00
SCALE: 1"=50'



-L-

PI Sta 35+08.14	PI Sta 41+07.01	PI Sta 44+59.72
$\Delta = 84^{\circ} 05' 21.6"$ (RT)	$\Delta = 26^{\circ} 28' 47.3"$ (LT)	$\Delta = 36^{\circ} 55' 29.5"$ (RT)
$D = 81^{\circ} 51' 04.0"$	$D = 22^{\circ} 55' 05.9"$	$D = 57^{\circ} 17' 44.8"$
$L = 102.73'$	$L = 115.54'$	$L = 64.45'$
$T = 63.13'$	$T = 58.82'$	$T = 33.39'$
$R = 70.00'$	$R = 250.00'$	$R = 100.00'$



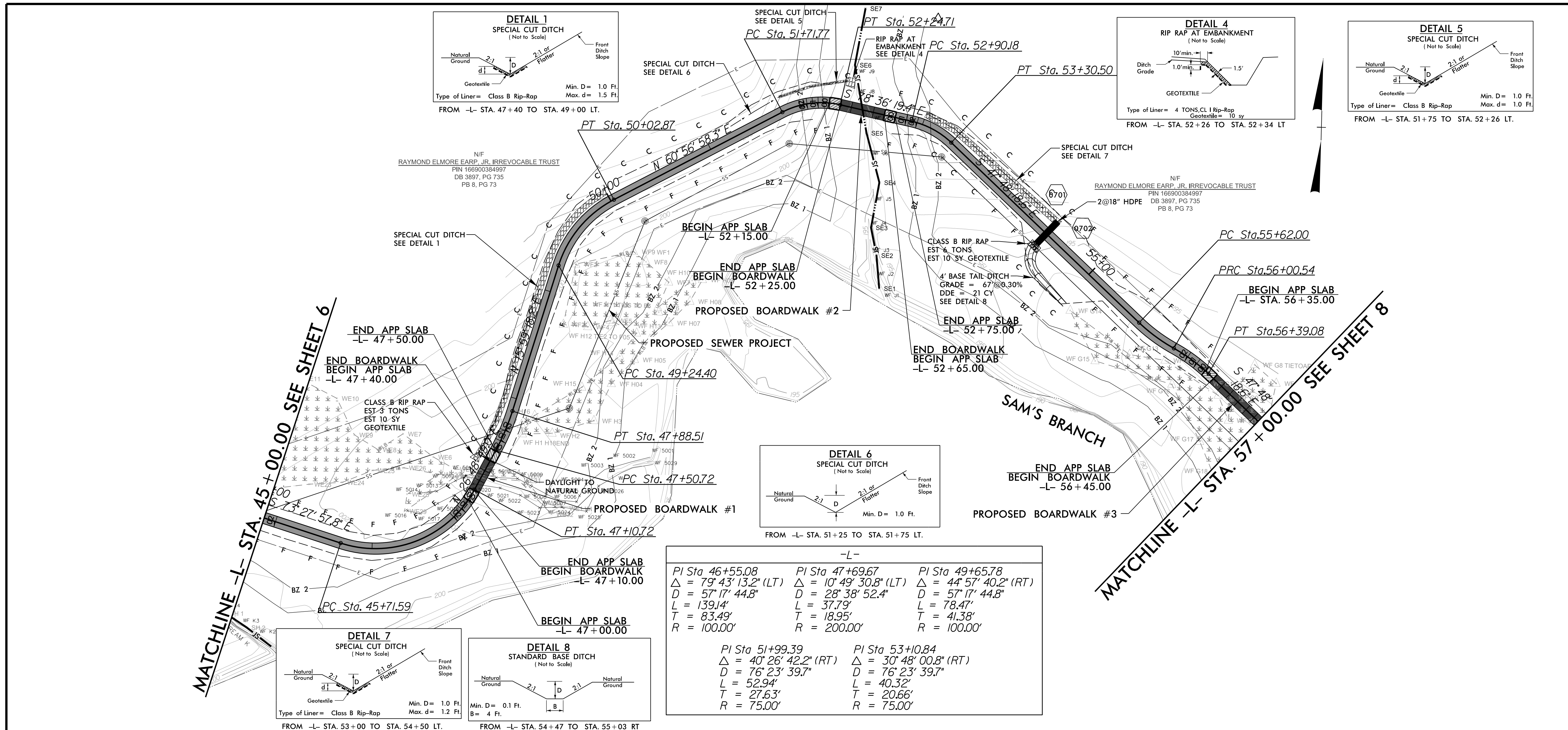


**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NELL STREET**

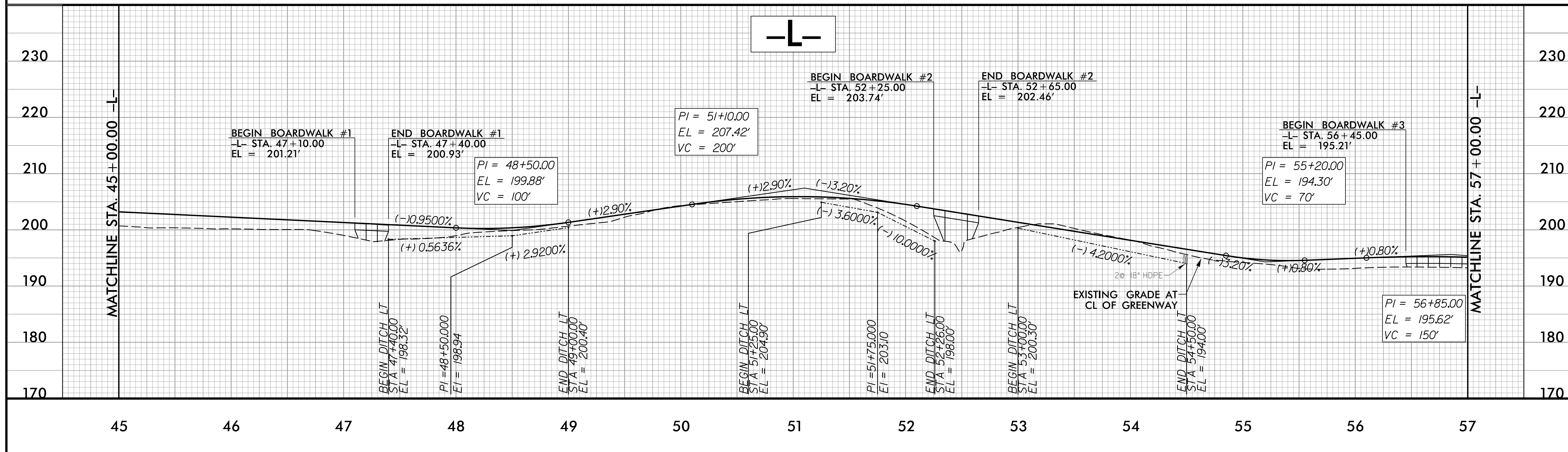
GREENWAY ENGINEER

HYDRAULICS ENGINEER

ECOLOGICAL ENGINEERING
 DATE: MARCH 5, 2018
 REVISIONS:
 NO. DATE
 PROJECT NO.:
H14009.00
 SCALE: 1"=50'



-L-		
PI Sta 46+55.08 Δ = 79° 43' 13.2" (LT) D = 57° 17' 44.8" L = 139.14' T = 83.49' R = 100.00'	PI Sta 47+69.67 Δ = 10° 49' 30.8" (LT) D = 28° 38' 52.4" L = 37.79' T = 18.95' R = 200.00'	PI Sta 49+65.78 Δ = 44° 57' 40.2" (RT) D = 57° 17' 44.8" L = 78.47' T = 41.38' R = 100.00'
PI Sta 51+99.39 Δ = 40° 26' 42.2" (RT) D = 76° 23' 39.7" L = 52.94' T = 27.63' R = 75.00'	PI Sta 53+10.84 Δ = 30° 48' 00.8" (RT) D = 76° 23' 39.7" L = 40.32' T = 20.66' R = 75.00'	



45 46 47 48 49 50 51 52 53 54 55 56 57



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NELL STREET**

GREENWAY ENGINEER

 3/5/2018

STEWART
 STRONGER BY DESIGN

HYDRAULICS ENGINEER

 3/6/2018

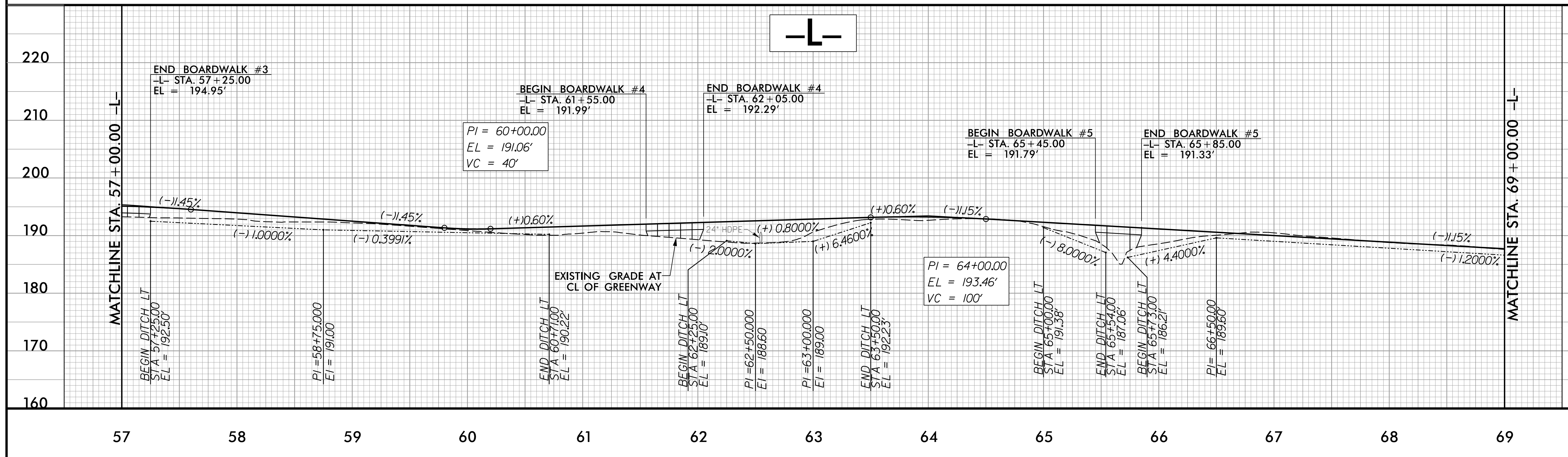
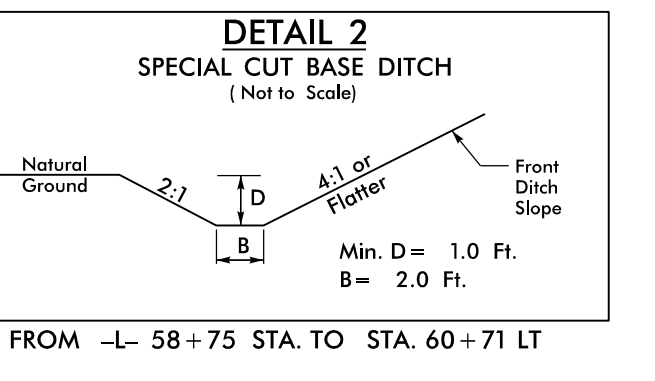
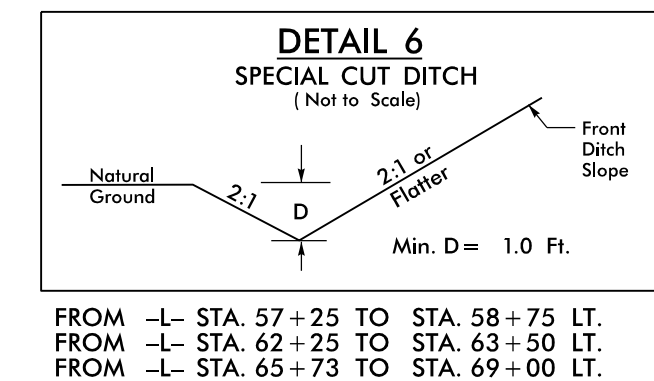
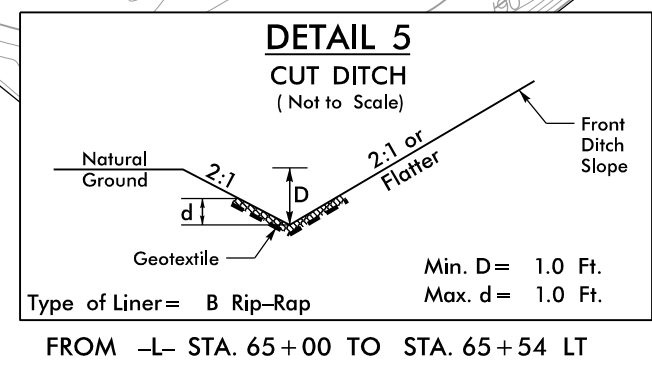
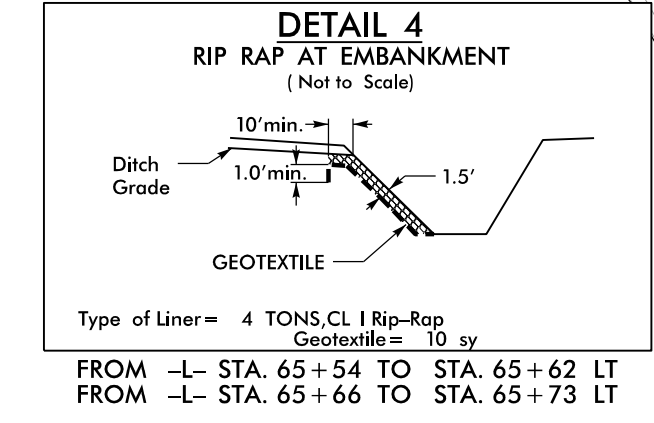
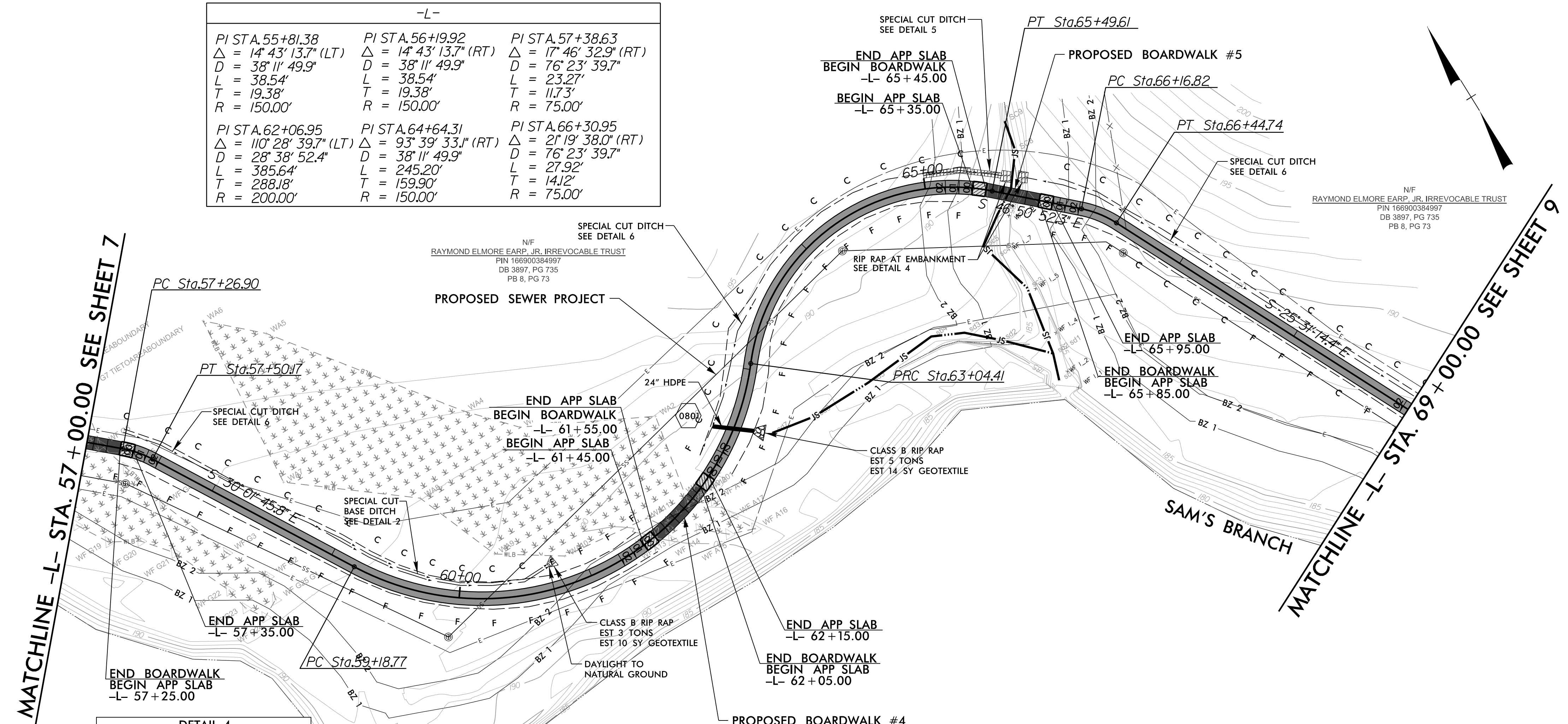
ECOLOGICAL
 ENGINEERING

DATE: MARCH 5, 2018
 REVISIONS:
 NO. DATE

PROJECT NO.:
H14009.00

SCALE: 1"=50'

-L-		
PI STA. 55+81.38 Δ = 14° 43' 13.7" (LT) D = 38' 11" 49.9" L = 38.54' T = 19.38' R = 150.00'	PI STA. 56+19.92 Δ = 14° 43' 13.7" (RT) D = 38' 11" 49.9" L = 38.54' T = 19.38' R = 150.00'	PI STA. 57+38.63 Δ = 17° 46' 32.9" (RT) D = 76' 23' 39.7" L = 23.27' T = 11.73' R = 75.00'
PI STA. 62+06.95 Δ = 110° 28' 39.7" (LT) D = 28' 38' 52.4" L = 385.64' T = 288.18' R = 200.00'	PI STA. 64+64.31 Δ = 93° 39' 33.1" (RT) D = 38' 11" 49.9" L = 245.20' T = 159.90' R = 150.00'	PI STA. 66+30.95 Δ = 21° 19' 38.0" (RT) D = 76' 23' 39.7" L = 27.92' T = 14.12' R = 75.00'





**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

 3/5/2018

STEWART
 STRONGER BY DESIGN

HYDRAULICS ENGINEER

 3/6/2018

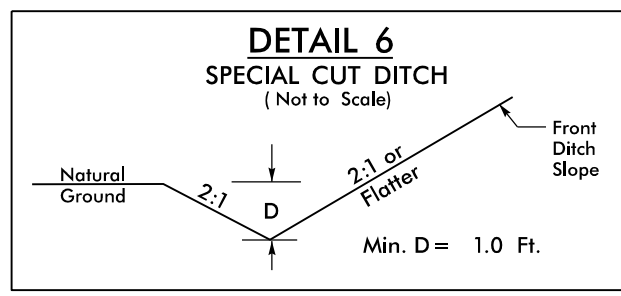
NC FIRM LICENSE No. F-1148
 1151 E. City Park Way
 Suite 101
 Raleigh, NC 27601
 (919) 557-0929
**ECOLOGICAL
ENGINEERING**

DATE: MARCH 5, 2018
 REVISIONS:
 NO. DATE

PROJECT NO.:
H14009.00

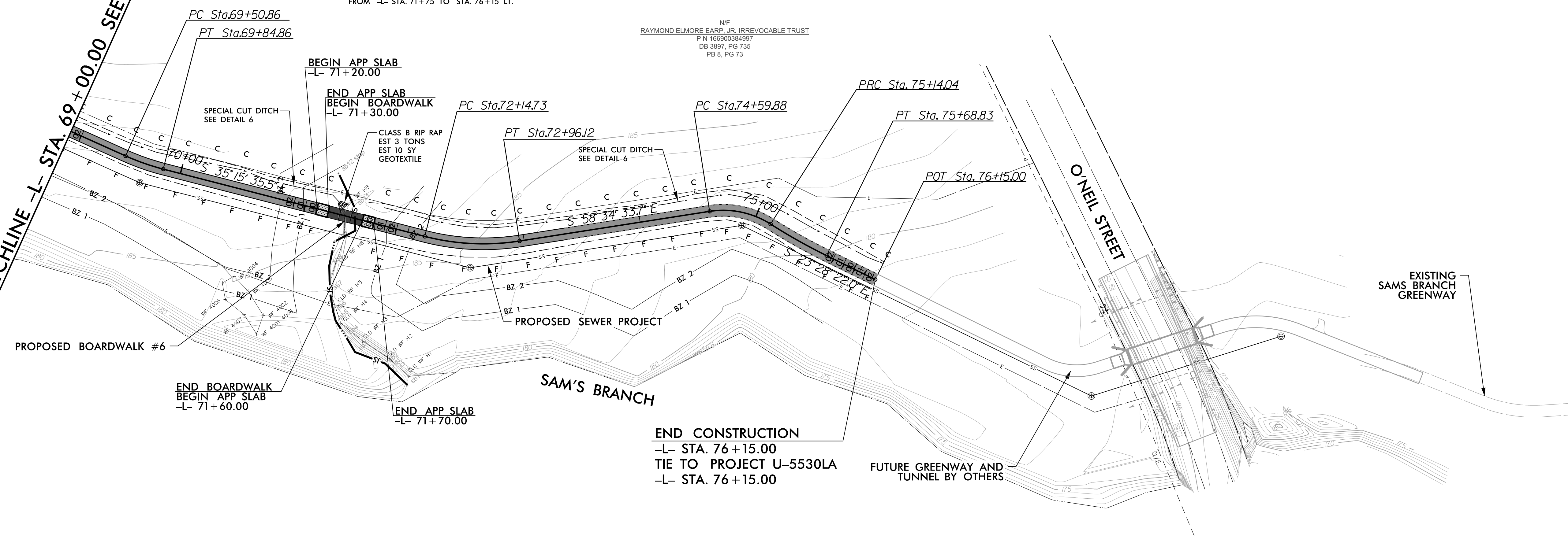
SCALE: 1"=50'

-L-			
PI STA. 69+67.90	PI STA. 72+56.00	PI Sta 74+88.20	PI Sta 75+41.47
$\Delta = 9^{\circ} 44' 21.1''$ (LT)	$\Delta = 23^{\circ} 18' 58.3''$ (LT)	$\Delta = 41^{\circ} 22' 53.6''$ (RT)	$\Delta = 6^{\circ} 16' 41.9''$ (LT)
D = 28' 38' 52.4"	D = 28' 38' 52.4"	D = 76' 23' 39.7"	D = 11' 27' 33.0"
L = 34.00'	L = 81.39'	L = 54.17'	L = 54.79'
T = 17.04'	T = 41.27'	T = 28.33'	T = 27.42'
R = 200.00'	R = 200.00'	R = 75.00'	R = 500.00'



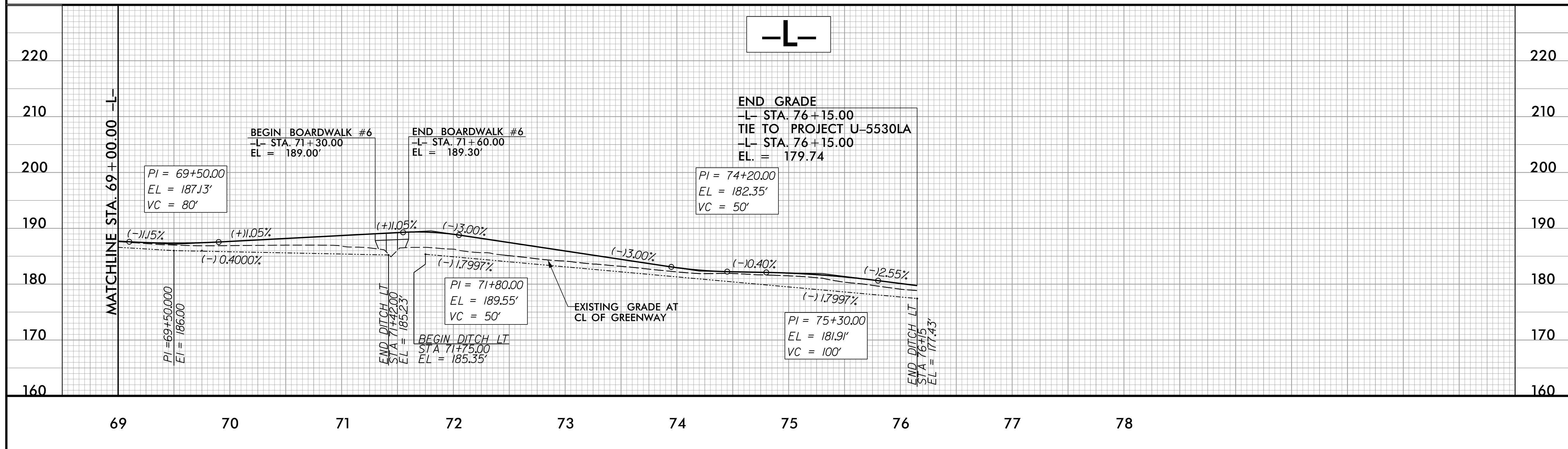
FROM -L- STA. 69+00 TO STA. 71+42 LT.
 FROM -L- STA. 71+75 TO STA. 76+15 LT.

MATCHLINE -L- STA. 69+00.00 SEE SHEET 8

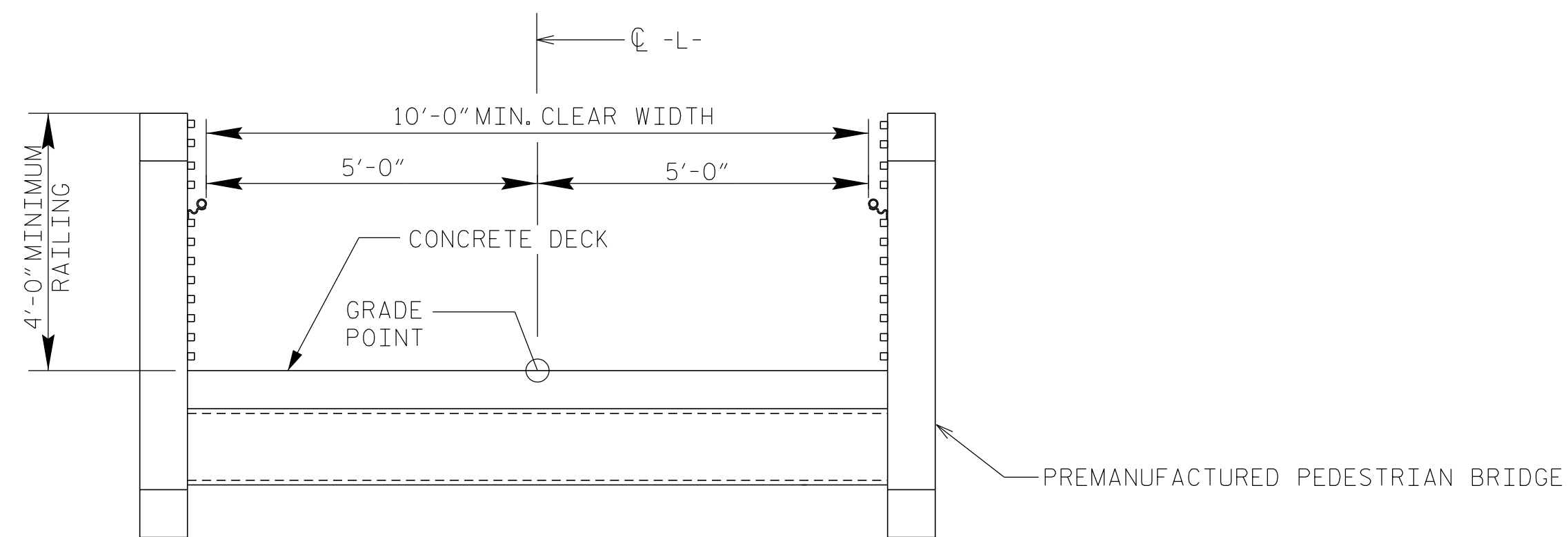


N/F
 RAYMOND ELMORE EARP, JR. IRREVOCABLE TRUST
 PIN 168900384997
 DB 3897, PG 735
 PB 8, PG 73

END CONSTRUCTION
 -L- STA. 76+15.00
 TIE TO PROJECT U-5530LA
 -L- STA. 76+15.00



69 70 71 72 73 74 75 76 77 78



TYPICAL SECTION
PREMANUFACTURED PEDESTRIAN BRIDGE

BRIDGE NO.	CHAIN	BEGIN STATION	END STATION
S1	-L-	33+83.00	34+43.00

NOTES:

1. ASSUMED LIVE LOAD = 90psf AS PER LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES, 2nd EDITION.
2. THIS BRIDGE HAVE BEEN DESIGNED IN ACCORDANCE WITH THE LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES 2ND EDITION. (AASHTO H5 LOADING INCLUDING AMBULANCES AND OTHER VEHICLES/EQUIPMENT UP TO 10,000 LB.)
3. ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE HPS 50W.
4. CONTRACTOR SHALL LOCATE ALL UTILITIES AND UTILITY ELEVATIONS PRIOR TO CONSTRUCTION. ALL UTILITIES TO REMAIN SHALL BE PROTECTED BY THE CONTRACTOR. ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY CONTRACTOR.
5. FOR SUBMITTALS, SEE SPECIAL PROVISIONS.
6. FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
7. FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
8. FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
9. FOR PLACING LOAD ON STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.
10. FOR PREMANUFACTURED PEDESTRIAN BRIDGE S1, SEE SPECIAL PROVISIONS.
11. FABRICATOR OF PREMANUFACTURED PEDESTRIAN BRIDGE S1 SHALL INDICATE THE LOCATION OF DRAINAGE HOLES FOR THE BRIDGE TUBULAR MEMBERS IN THE SHOP DRAWINGS.
12. CONCRETE DECKS SHALL BE CLASS AA CONCRETE AND ADHERE TO NCDOT SPECIFICATIONS.
13. CONCRETE DECKS SHALL BE CAST IN PLACE WITH A MEDIUM BROOM FINISH.
14. BRIDGE LOADINGS ARE ESTIMATED. AFTER SHOP DRAWINGS FOR THE PREMANUFACTURED PEDESTRIAN BRIDGE ARE SUBMITTED, IT IS THE RESPONSIBILITY OF THE THE ENGINEER OF RECORD TO CHECK THE END BENTS FOR ACTUAL BRIDGE LOADINGS. SHOP DRAWINGS SHALL BE FORWARDED TO ENGINEER OF RECORD UPON RECEIPT.

SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEILL STREET

Firm License No. C-1051
421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com



STEWART

STRUCTURAL ENGINEER



DATE: JANUARY 15, 2018

REVISIONS:	
NO.	DATE

PROJECT NO.:

H14009.00

NTS

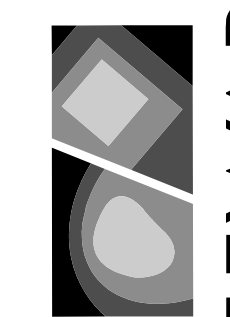
S-1

TYPICAL SECTION AND GENERAL NOTES FOR BRIDGE STRUCTURE



**SAM'S BRANCH GREENWAY
PHASE II
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T: 919.380.8750
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STEWART

STRUCTURAL ENGINEER



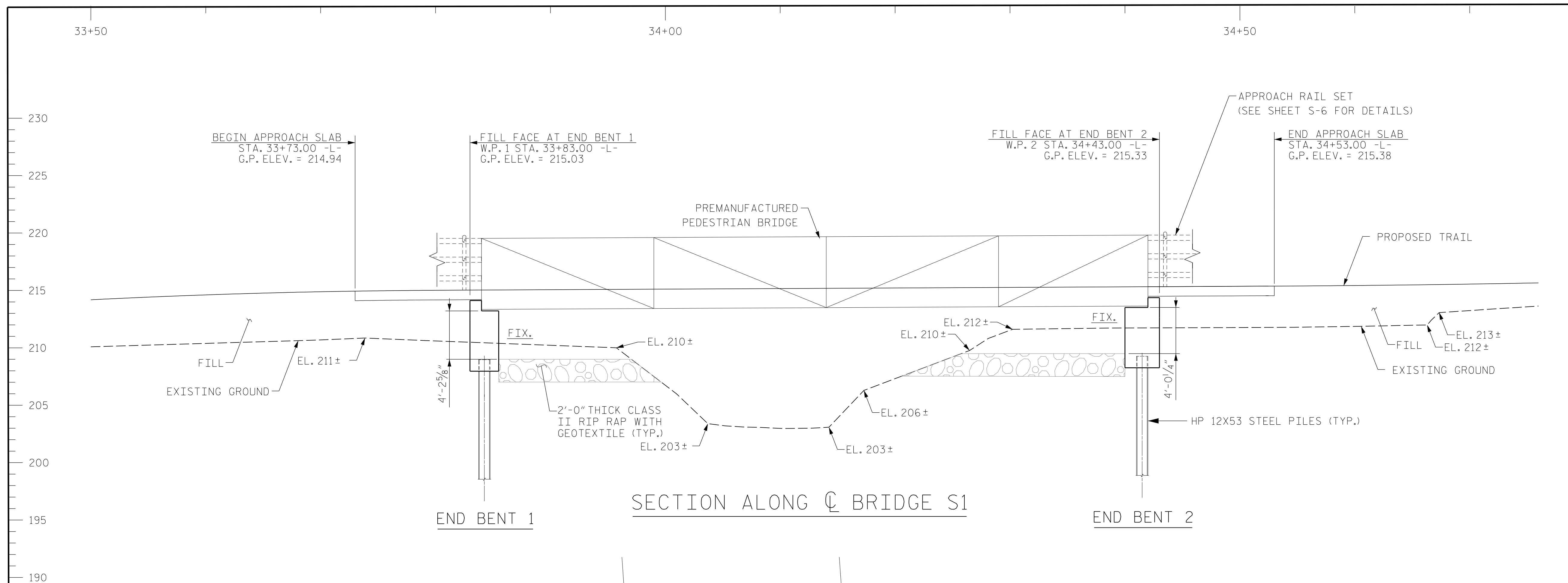
DATE: JANUARY 15, 2018

NO.	DATE

PROJECT NO.:

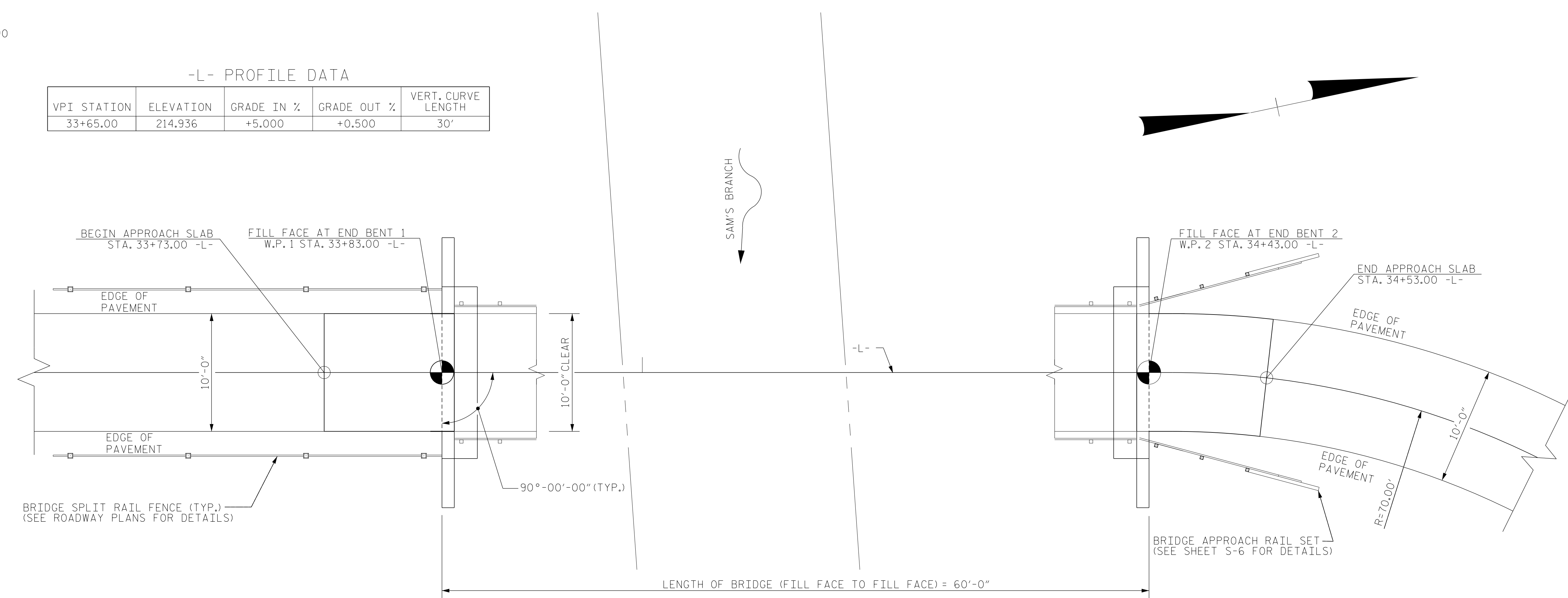
H14009.00

S-2

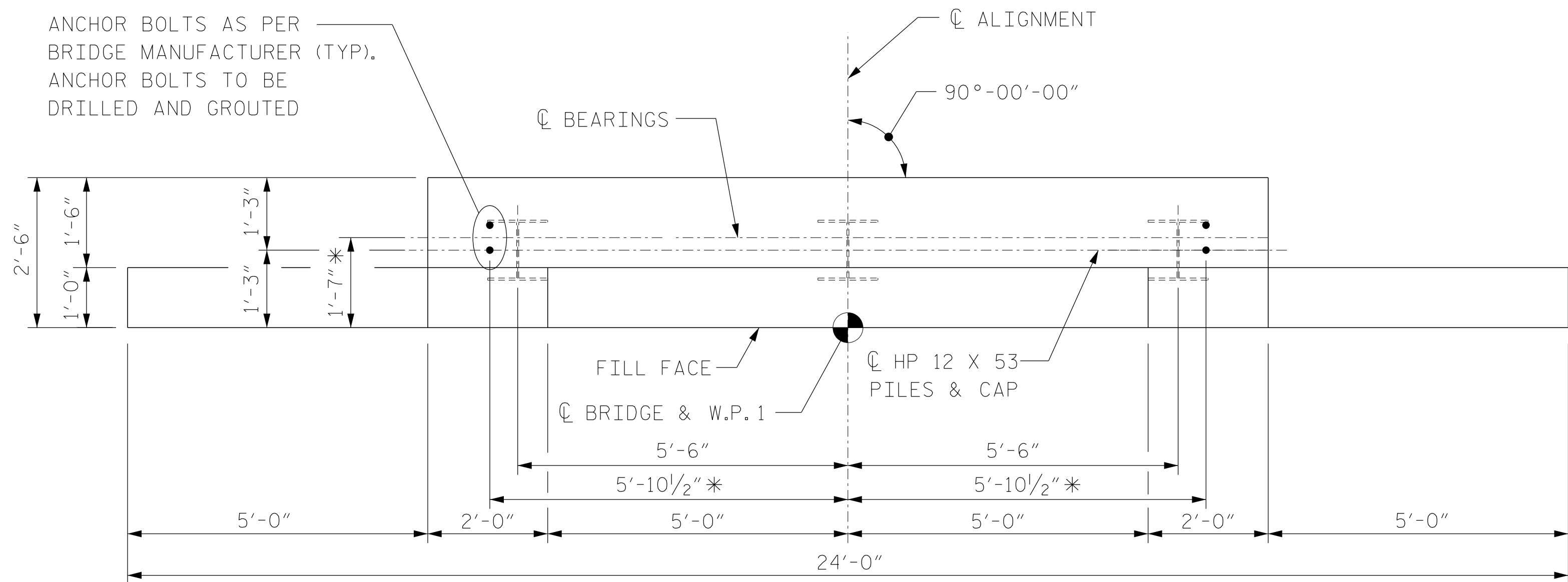


-L- PROFILE DATA

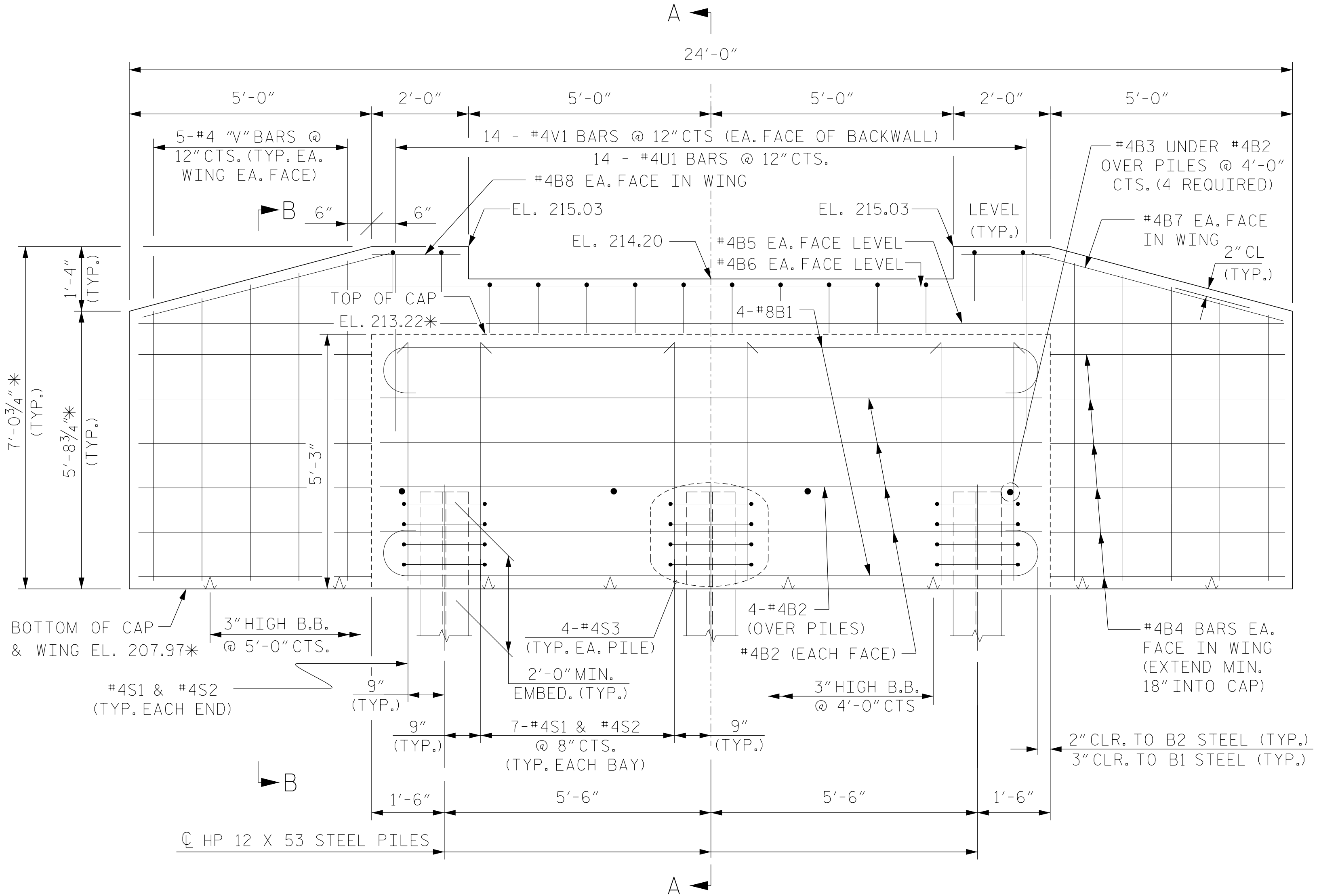
VPI STATION	ELEVATION	GRADE IN %	GRADE OUT %	VERT. CURVE LENGTH
33+65.00	214.936	+5.000	+0.500	30'



BRIDGE S1 PLAN - SAM'S BRANCH



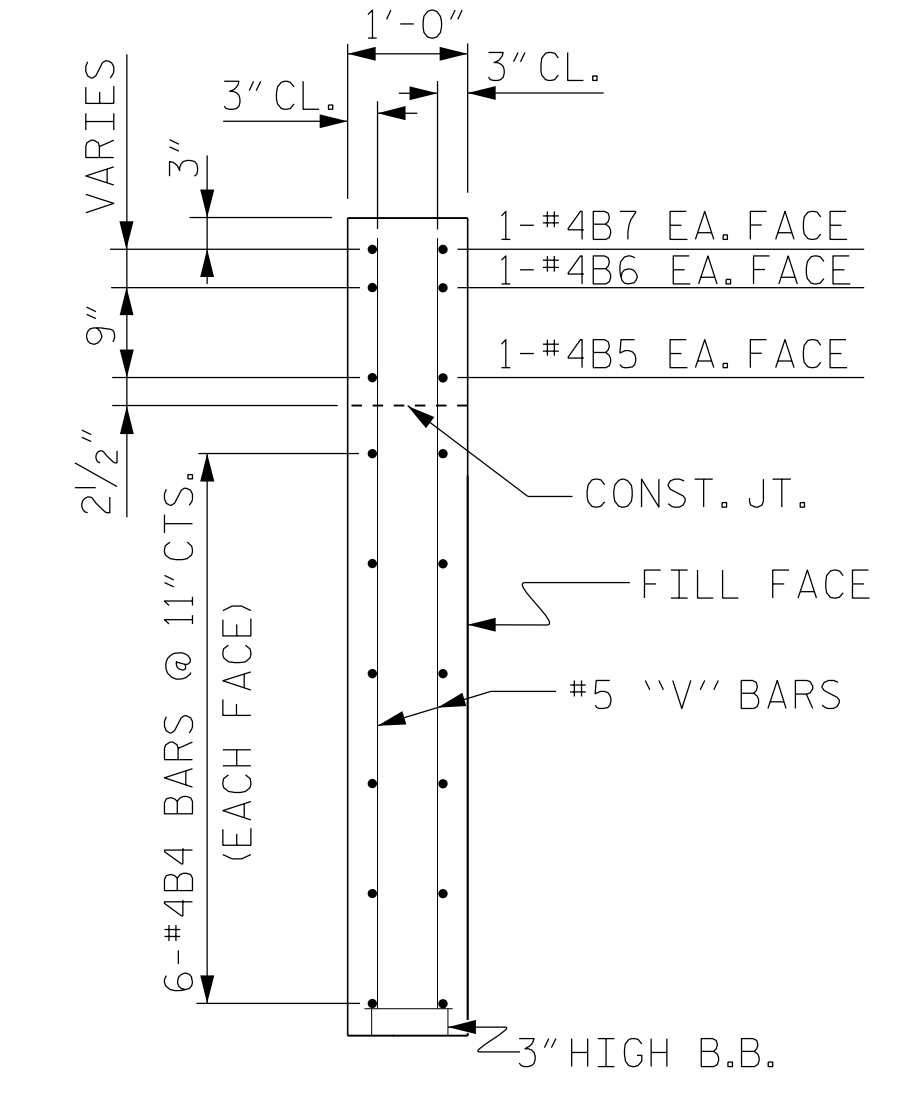
PLAN OF END BENT 1



ELEVATION OF END BENT 1 BRIDGE S1

FOR CROSS SECTION A-A, SEE SHEET S-5
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET S-5.

* DIMENSIONS MARKED WITH AN ASTERISK ARE TO BE ADJUSTED BY STEWART ENGINEERING AFTER PREMANUFACTURED BRIDGE IS DESIGNED. DIMENSIONS, CONCRETE AND REINFORCING STEEL QUANTITIES ARE SUBJECT TO CHANGE UNTIL AFTER SHOP DRAWINGS ARE REVIEWED AND APPROVED. NO ADDITIONAL PAYMENT WILL BE MADE FOR ANY ADJUSTMENTS TO QUANTITIES. UPON RECEIPT OF BRIDGE SHOP DRAWINGS, CONSTRUCTION ADMINISTRATOR SHALL FORWARD DRAWINGS TO STEWART ENGINEERING AFTER WHICH STEWART WILL ISSUE UPDATED BRIDGE PLANS. CONTRACTOR SHALL NOT BEGIN BRIDGE CONSTRUCTION UNTIL UPDATED BRIDGE PLANS ARE ISSUED.

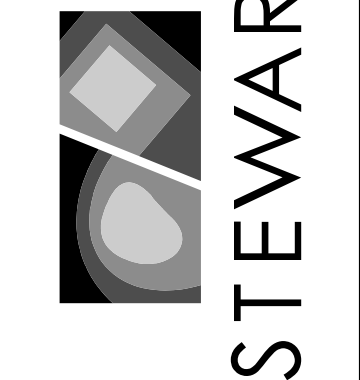


SECTION B-B
 TYPICAL FOR BOTH WINGS



SAM'S BRANCH GREENWAY
 PHASE II
 CITY ROAD TO NORTH O'NEILL STREET

Firm License No. C-1051
 421 Fayetteville St.
 Suite 400
 Raleigh, NC 27601
 T 919.380.8750
 www.stewartinc.com



STRUCTURAL ENGINEER

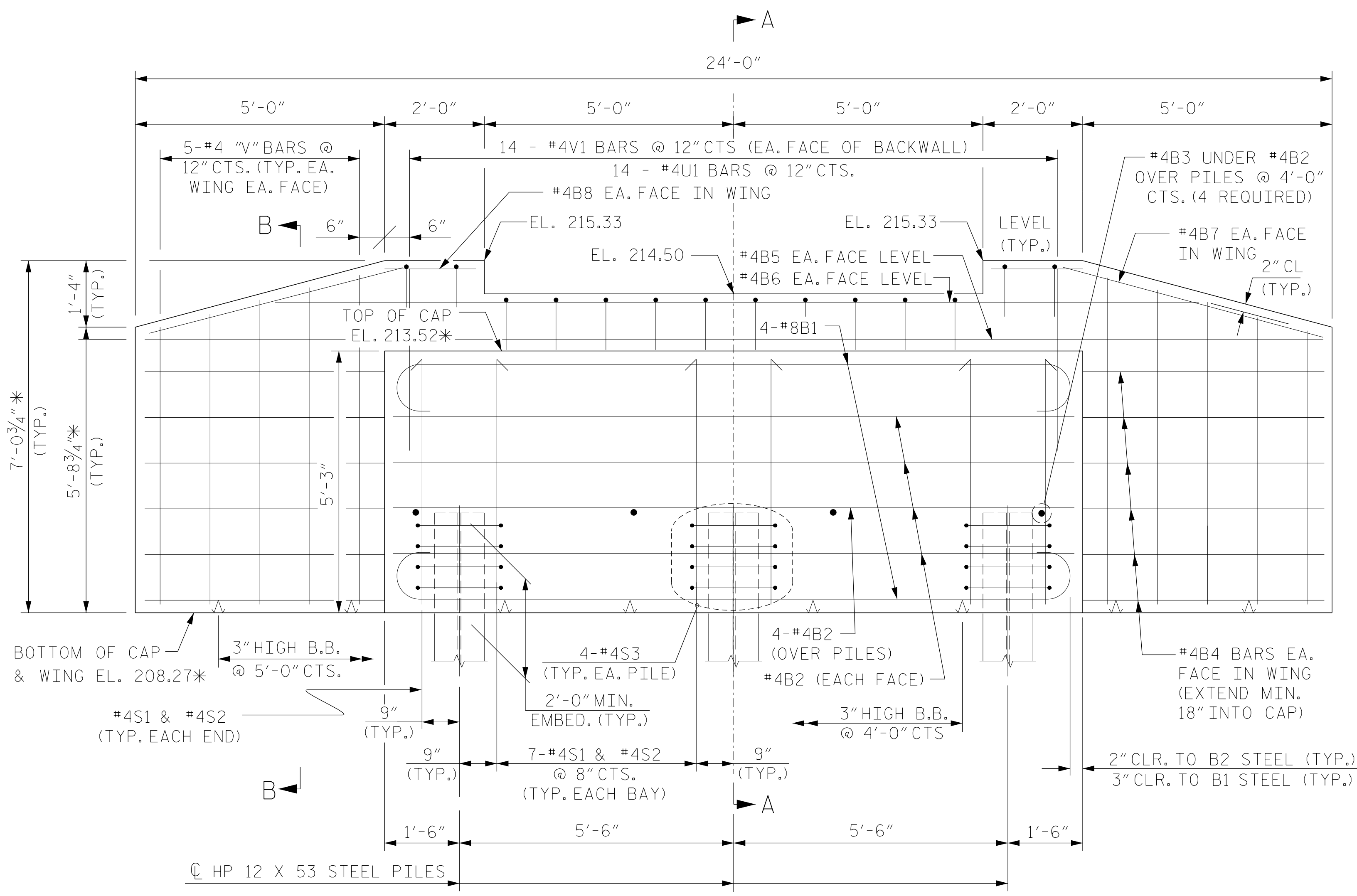
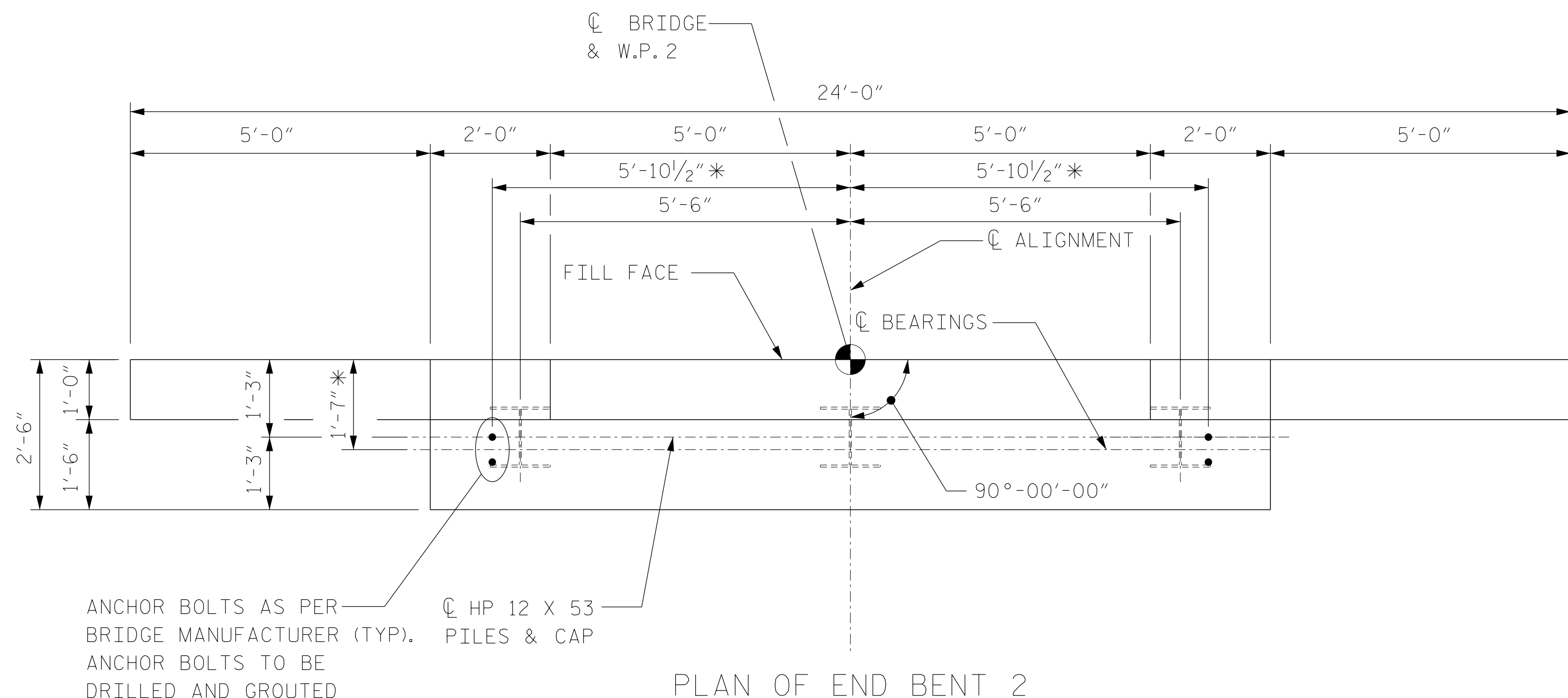


DATE: JANUARY 15, 2018

REVISIONS:	
NO.	DATE

PROJECT NO.:
 H14009.00

S-3



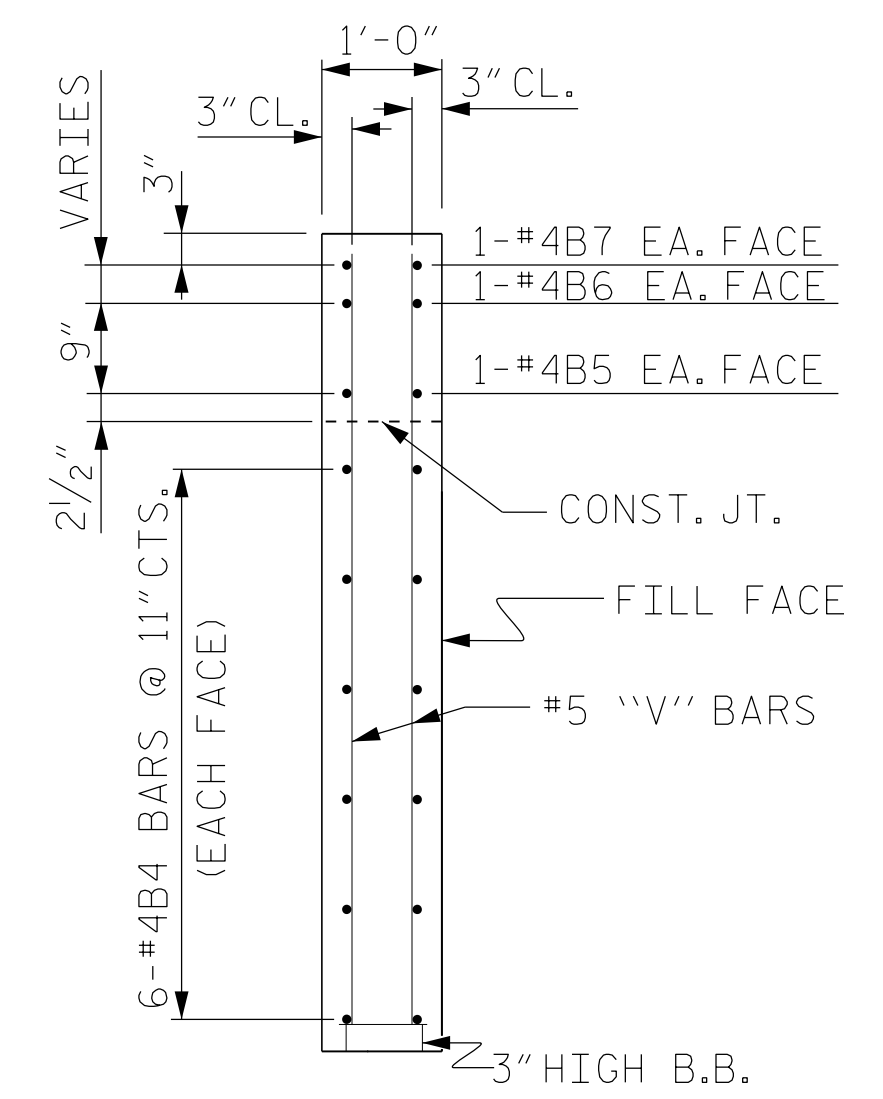
BRIDGE S1

ELEVATION OF END BENT 2

FOR CROSS SECTION A-A, SEE SHEET S-5

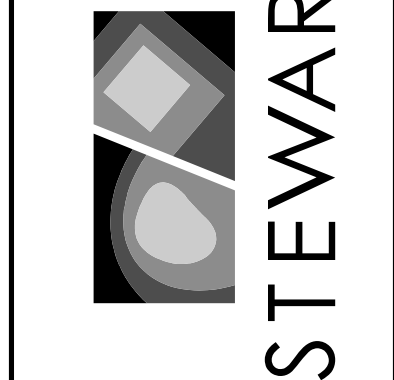
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET S-5.

* DIMENSIONS MARKED WITH AN ASTERISK ARE TO BE ADJUSTED BY STEWART ENGINEERING AFTER PREMANUFACTURED BRIDGE IS DESIGNED. DIMENSIONS, CONCRETE AND REINFORCING STEEL QUANTITIES ARE SUBJECT TO CHANGE UNTIL AFTER SHOP DRAWINGS ARE REVIEWED AND APPROVED. NO ADDITIONAL PAYMENT WILL BE MADE FOR ANY ADJUSTMENTS TO QUANTITIES. UPON RECEIPT OF BRIDGE SHOP DRAWINGS, CONSTRUCTION ADMINISTRATOR SHALL FORWARD DRAWINGS TO STEWART ENGINEERING AFTER WHICH STEWART WILL ISSUE UPDATED BRIDGE PLANS. CONTRACTOR SHALL NOT BEGIN BRIDGE CONSTRUCTION UNTIL UPDATED BRIDGE PLANS ARE ISSUED.

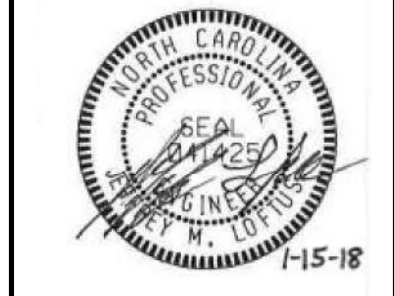


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NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

STIRRUPS TO BE PLACED VERTICALLY AND INVERTED ALTERNATELY.

THE TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE BACKWALL TO EDGE OF CAP AT THE RATE OF 2%.

ANCHOR BOLTS SHALL BE SET BY DRILLING HOLES AND GROUTING AFTER THE CAP HAS BEEN POURED AND CURED. EMBEDMENT DEPTH OF ANCHORS SHALL BE AT LEAST 15 INCHES. WHEN PLACING MAIN CAP STEEL, ENSURE THAT FUTURE DRILLING FOR ANCHOR BOLTS WILL BE AT LEAST ONE INCH CLEAR FROM EDGE OF REINFORCING BAR.

NO ADDITIONAL PAYMENT IS MADE FOR REINFORCING STEEL OR CONCRETE. THE ENTIRE COST OF THIS WORK TO BE INCLUDED AMONG THE VARIOUS PAY ITEMS.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

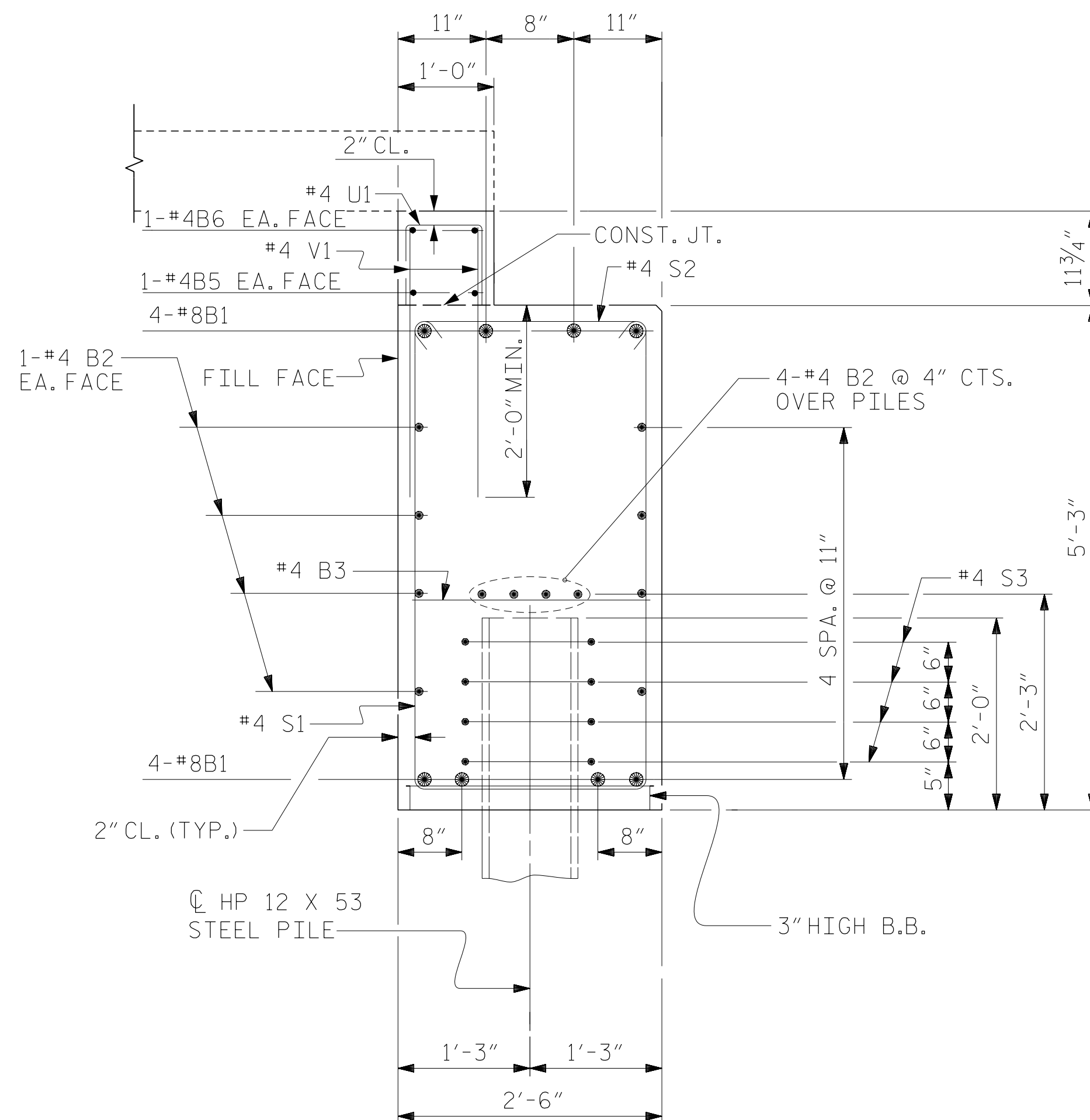
PILES AT END BENT NOS.1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 35 TONS PER PILE.

DRIVE PILES AT END BENT NOS.1 AND 2 TO A REQUIRED RESISTANCE OF 60 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWNDRAG AND SCOUR.

INSTALL PILES AT END BENT NOS.1 AND 2 TO A TIP ELEVATION NO HIGHER THAN 180 FT.

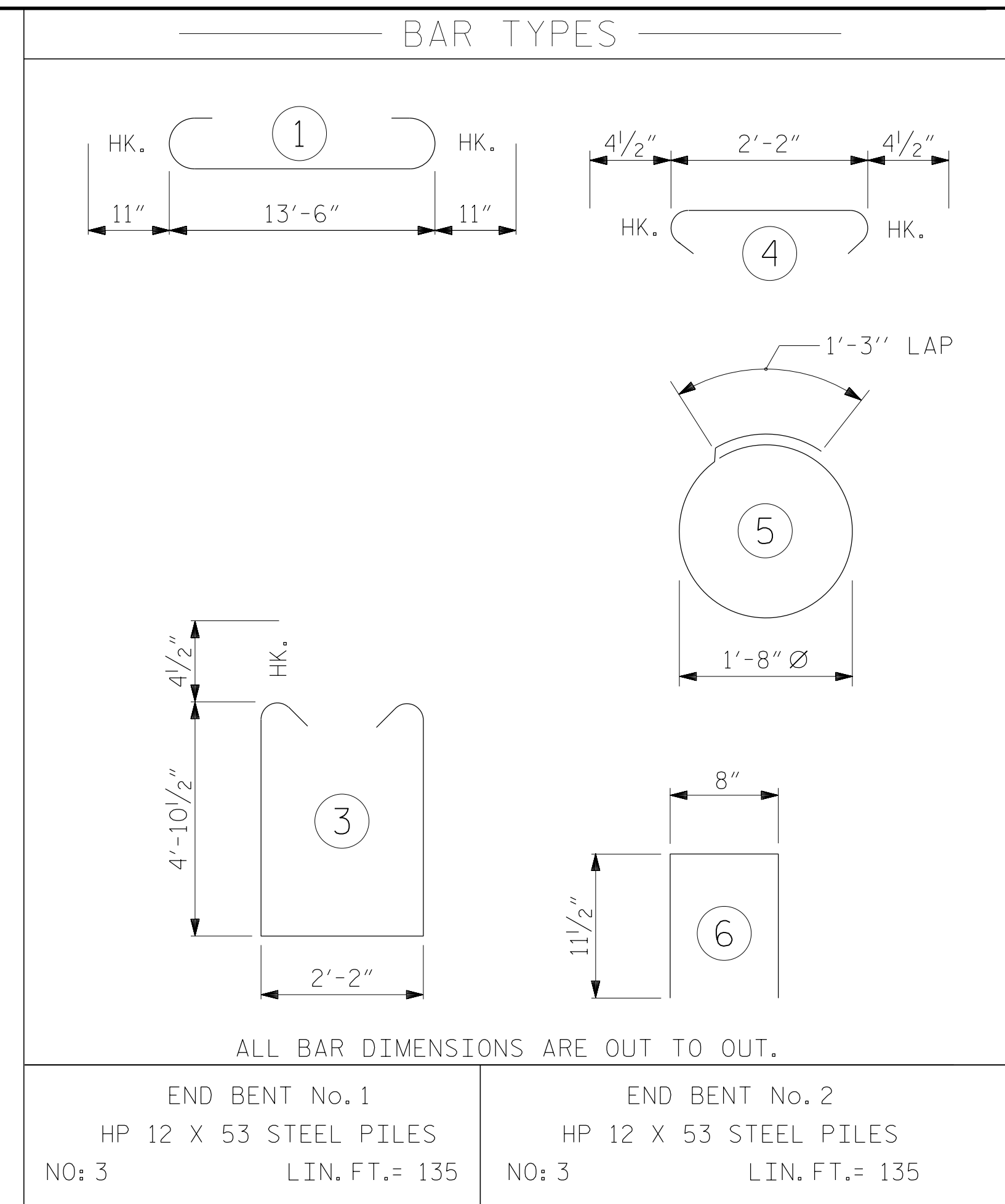
THE SCOUR CRITICAL ELEVATION FOR END BENT NOS.1 AND 2 IS ELEVATION 204 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS (AND FOR PILE DRIVING CRITERIA, SEE PILE DRIVING CRITERIA PROVISION).



SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT No. 1
HP 12 X 53 STEEL PILES
NO: 3 LIN. FT.= 135

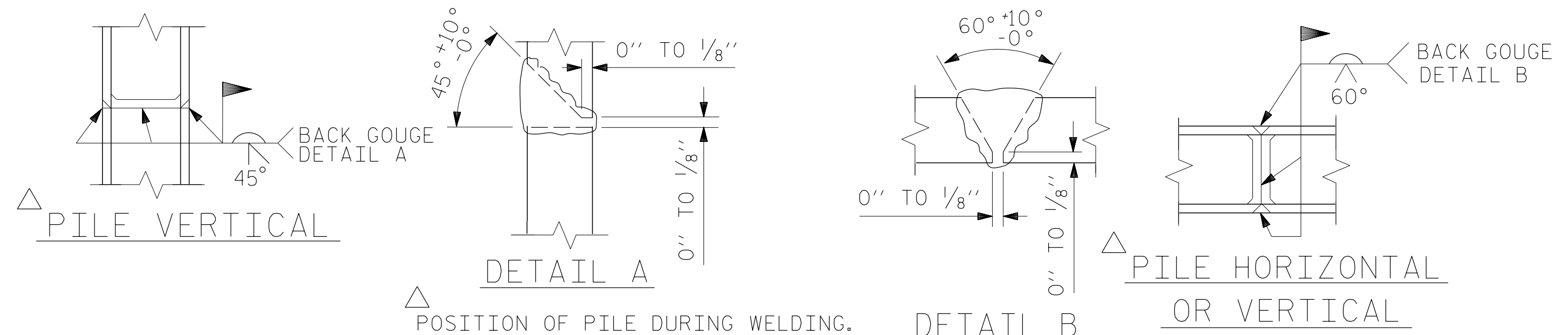
END BENT No. 2
HP 12 X 53 STEEL PILES
NO: 3 LIN. FT.= 135

BILL OF MATERIAL FOR ONE END BENT

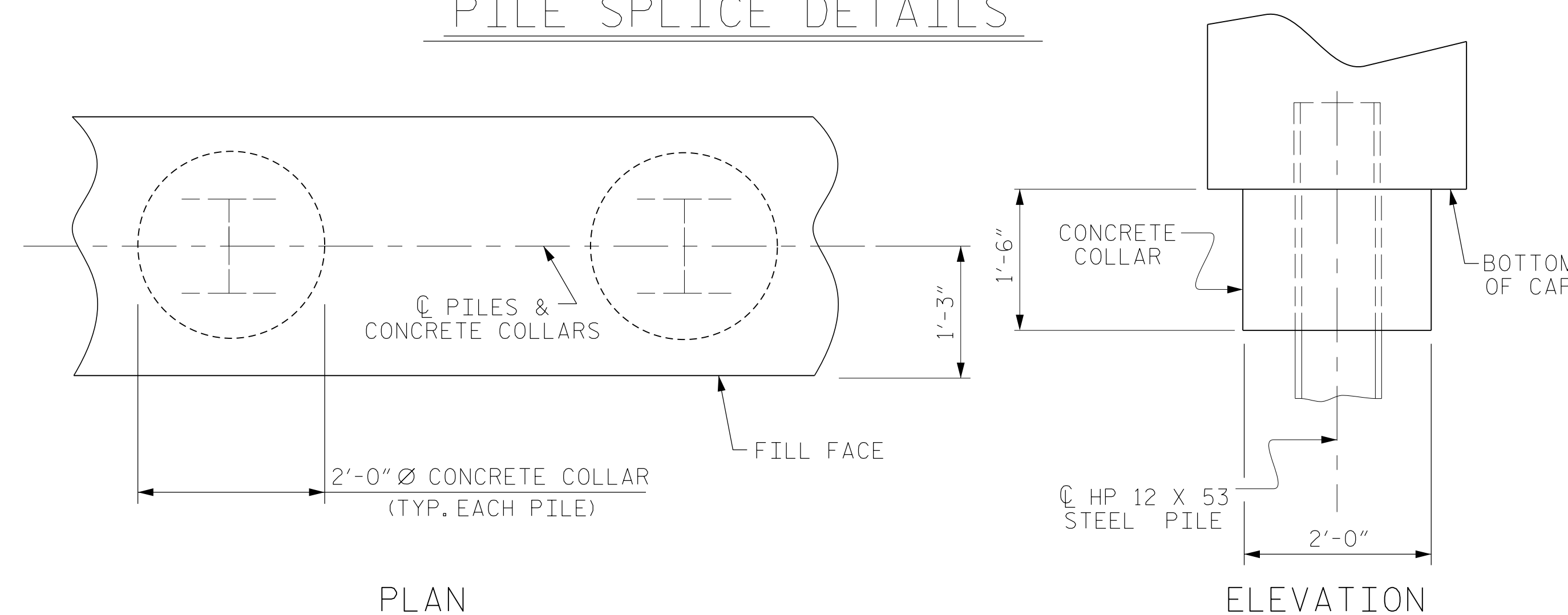
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#8	1	15'-4"	328
B2	12	#4	STR	13'-8"	110
B3	4	#4	STR	2'-2"	6
B4	24	#4	STR	6'-4"	102
B5	2	#4	STR	23'-8"	32
B6	2	#4	STR	18'-6"	25
B7	4	#4	STR	5'-3"	14
B8	4	#4	STR	1'-9"	5
S1	16	#4	3	12'-8"	135
S2	16	#4	4	2'-11"	31
S3	12	#4	5	6'-6"	52
U1	14	#4	6	2'-7"	24
V1	28	#4	STR	2'-10"	53
V2	4	#4	STR	6'-6"	17
V3	4	#4	STR	6'-3"	17
V4	4	#4	STR	6'-0"	16
V5	4	#4	STR	5'-9"	15
V6	4	#4	STR	5'-5"	14

REINFORCING STEEL (FOR ONE END BENT) 996 LBS.

TOTAL CLASS A CONCRETE (FOR ONE END BENT) 9.8 C.Y.

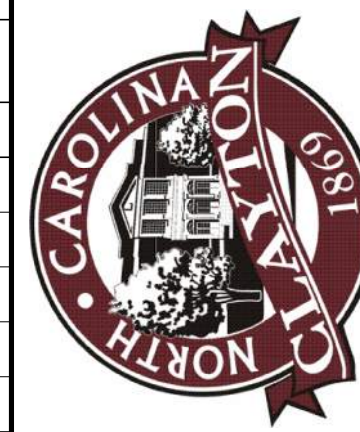


PILE SPLICE DETAILS



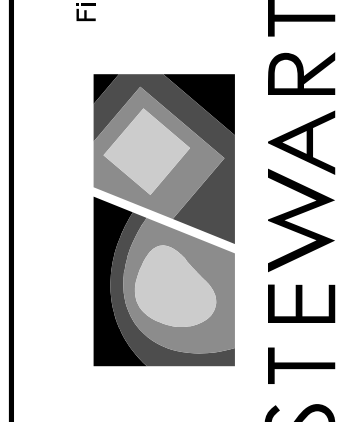
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



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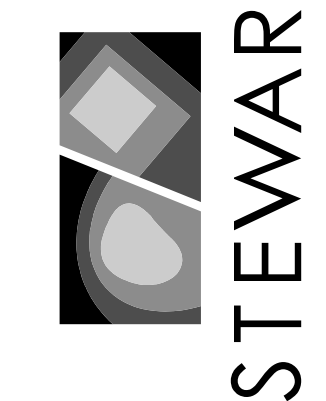
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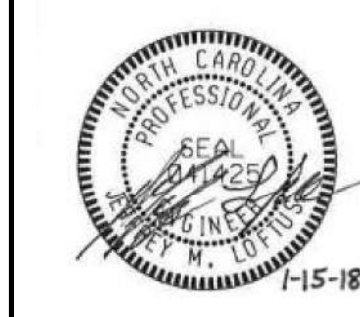


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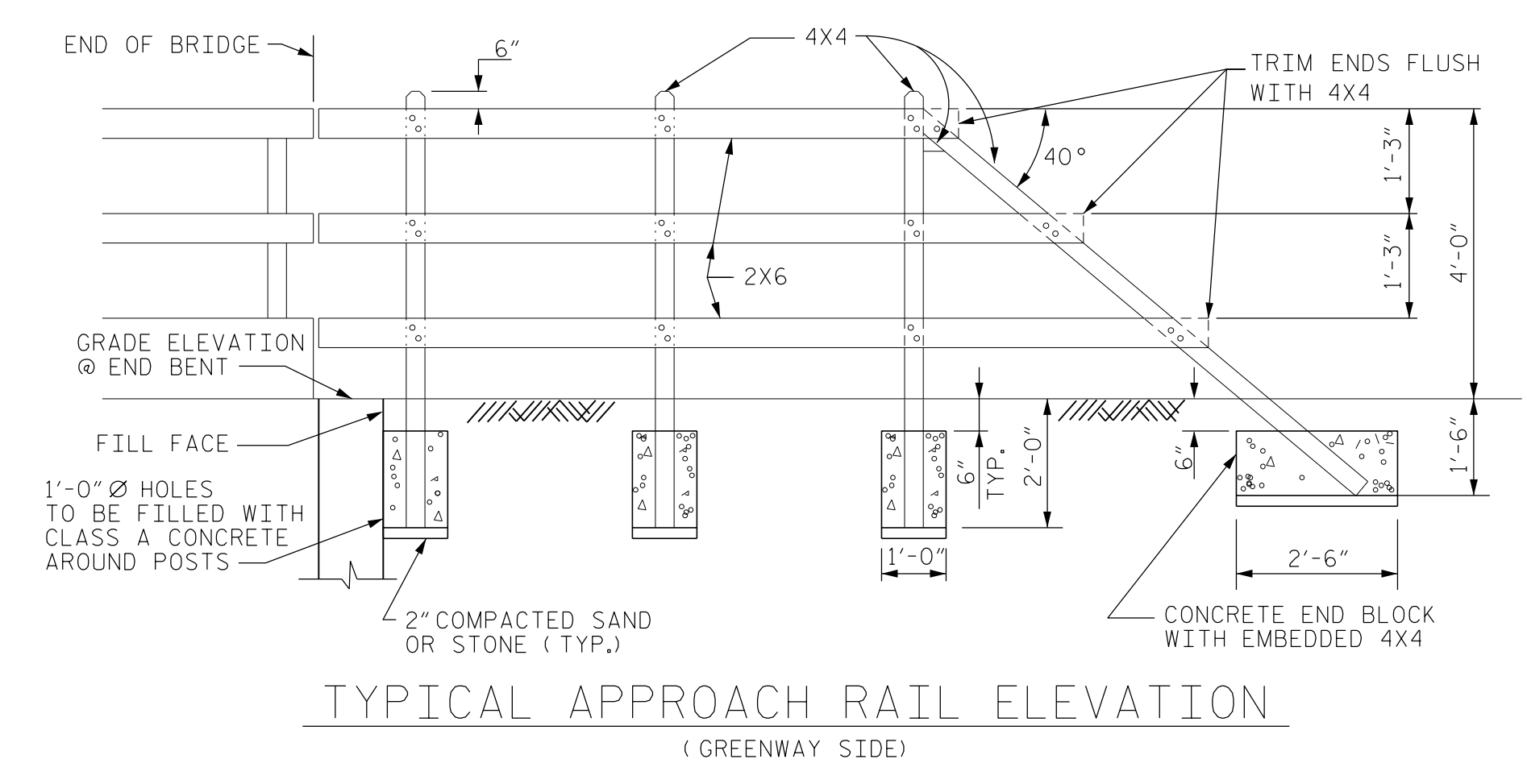
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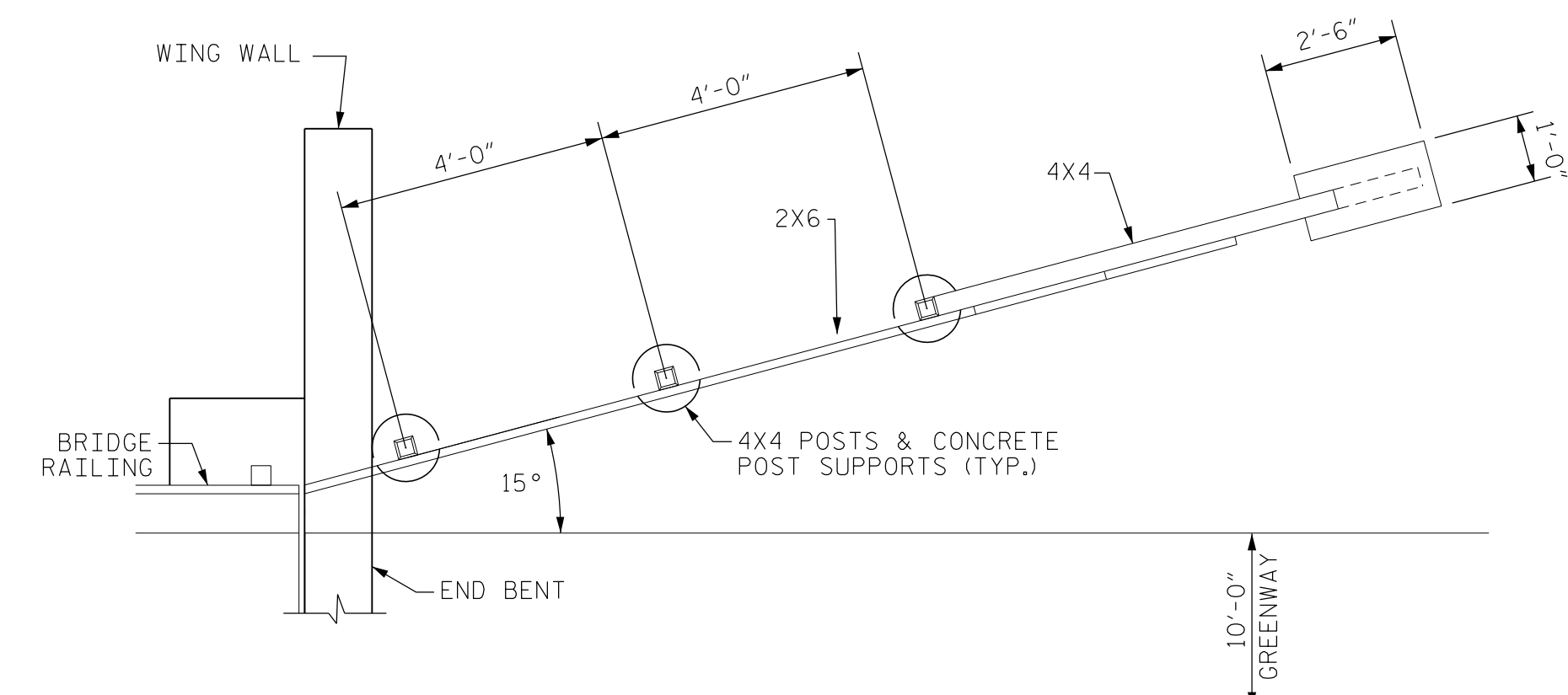
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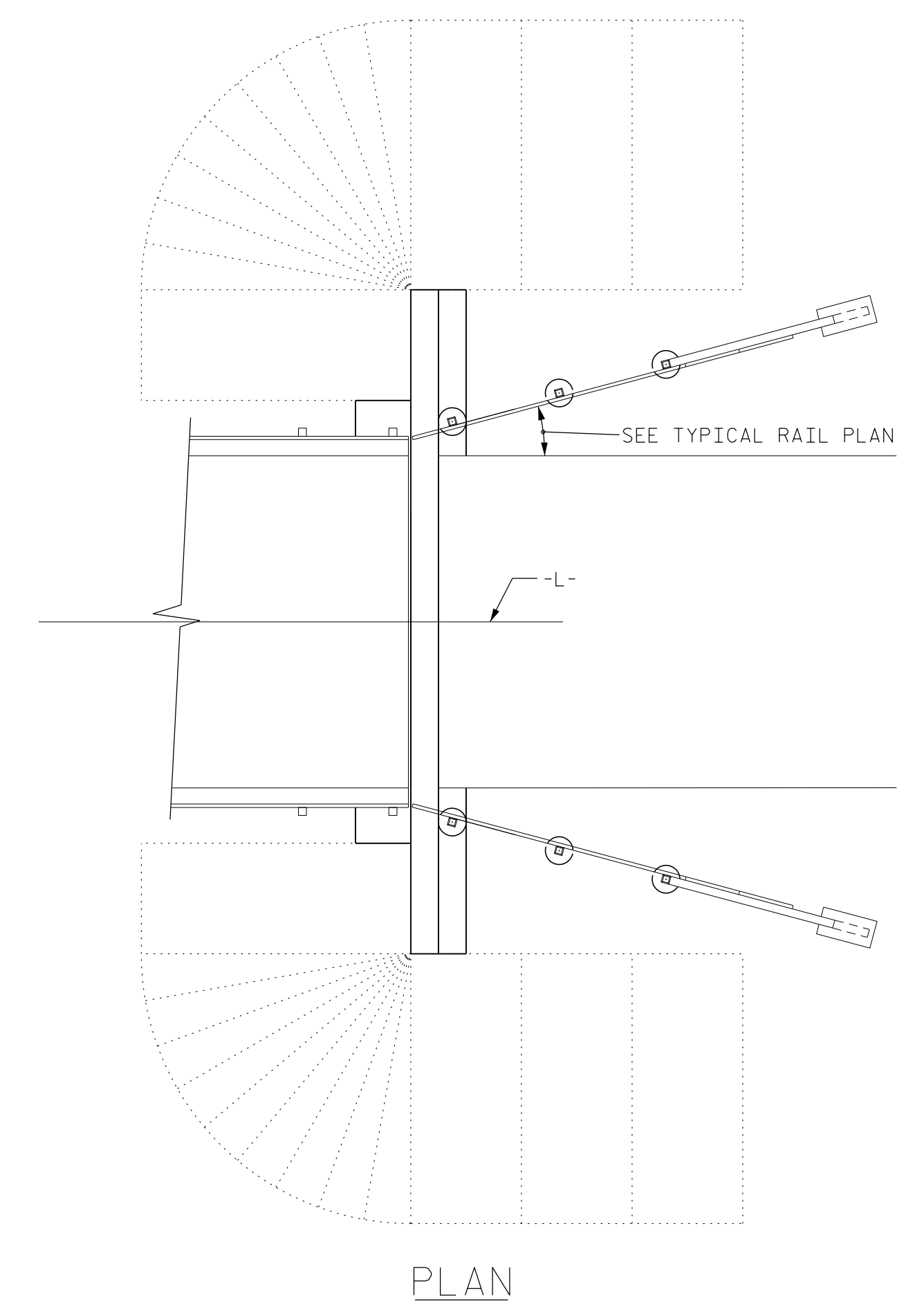
TYPICAL APPROACH RAIL ELEVATION
(GREENWAY SIDE)



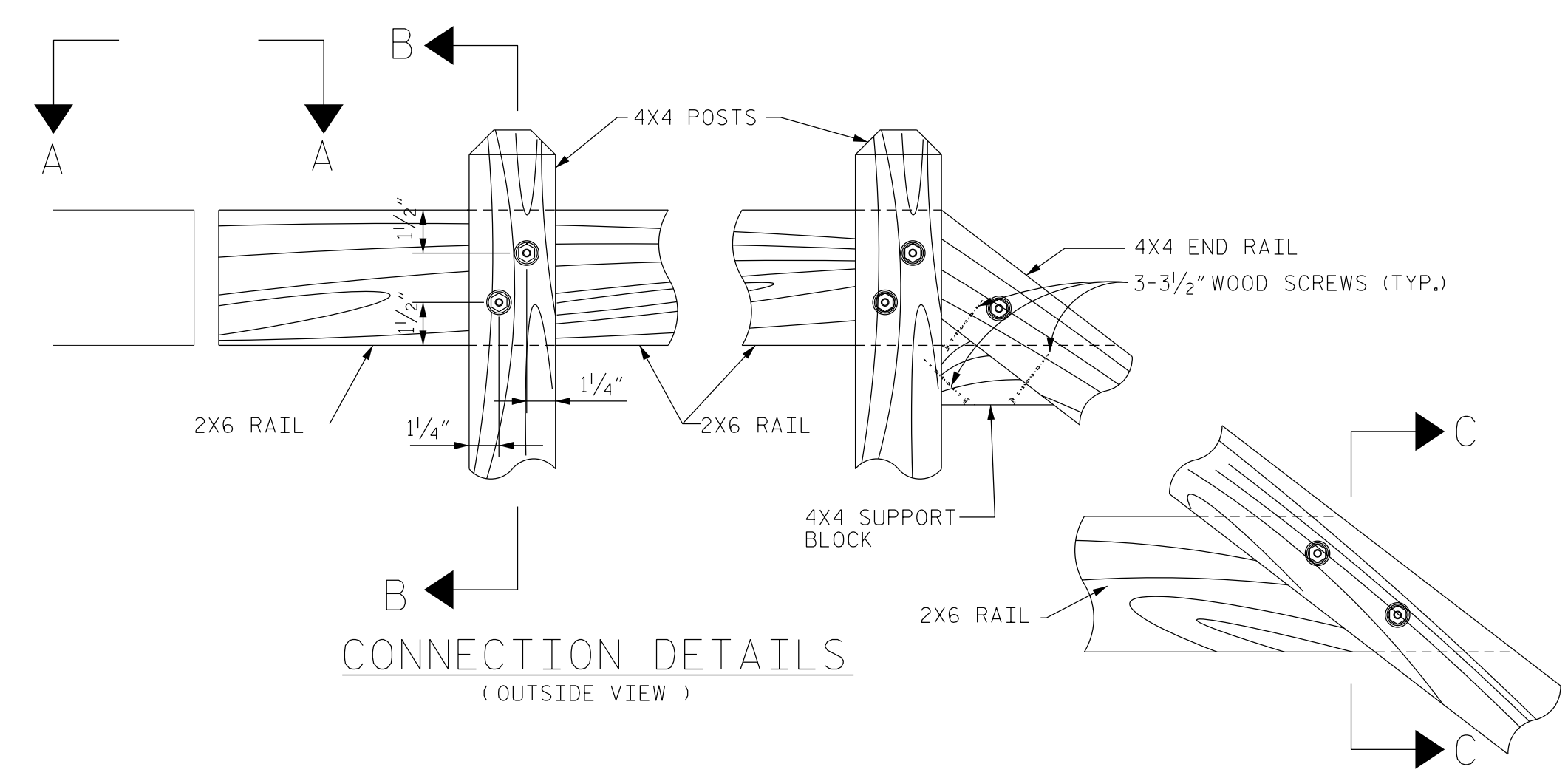
TYPICAL APPROACH RAIL PLAN

NOTES

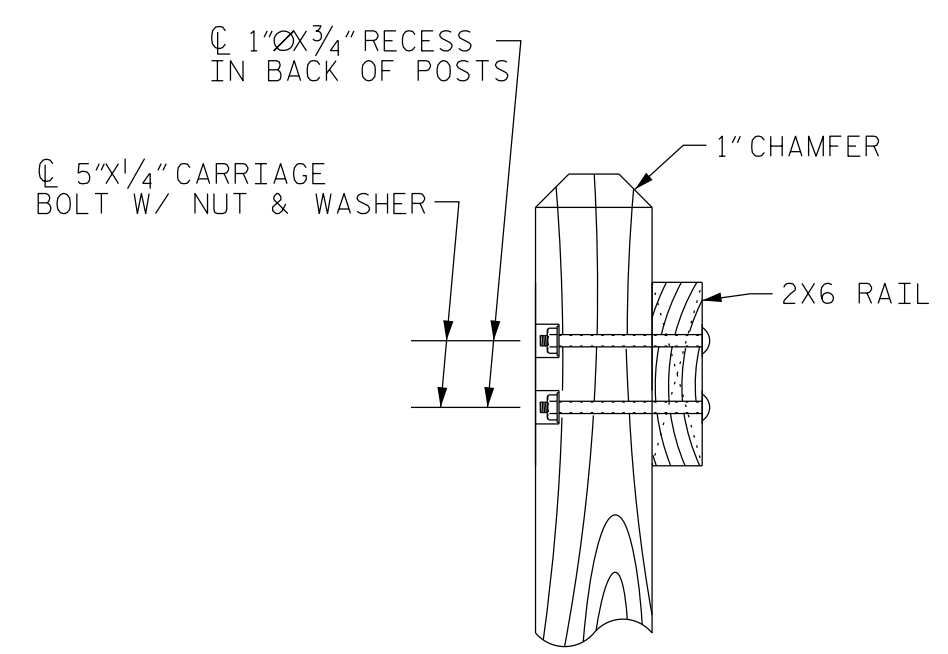
- ALL LUMBER FOR THE GUARDRAIL & POSTS SHALL BE TREATED AND MEET THE REQUIREMENTS OF SECTION 1082 OF THE NCDOT STANDARD SPECIFICATIONS.
- ALL SCREWS, BOLTS, NUTS AND WASHERS ARE TO BE HOT DIPPED GALVANIZED.
- THE LOCATION OF POST FOOTINGS AND END BLOCKS ARE TO BE FIELD VERIFIED. DEVIATIONS FROM PLAN DIMENSIONS ARE TO BE APPROVED BY THE ENGINEER.
- THE APPROACH RAIL SET INCLUDES TWO RAILS FOR A PARTICULAR INSTALLATION. FOR APPROACH RAIL SET, SEE SPECIAL PROVISIONS.
- APPROACH RAILS ARE REQUIRED AT THE END OF BRIDGE STRUCTURE S1 AND THE BEGINNING AND END OF ALL BOARDWALKS FOR THIS PROJECT (15 SETS TOTAL).



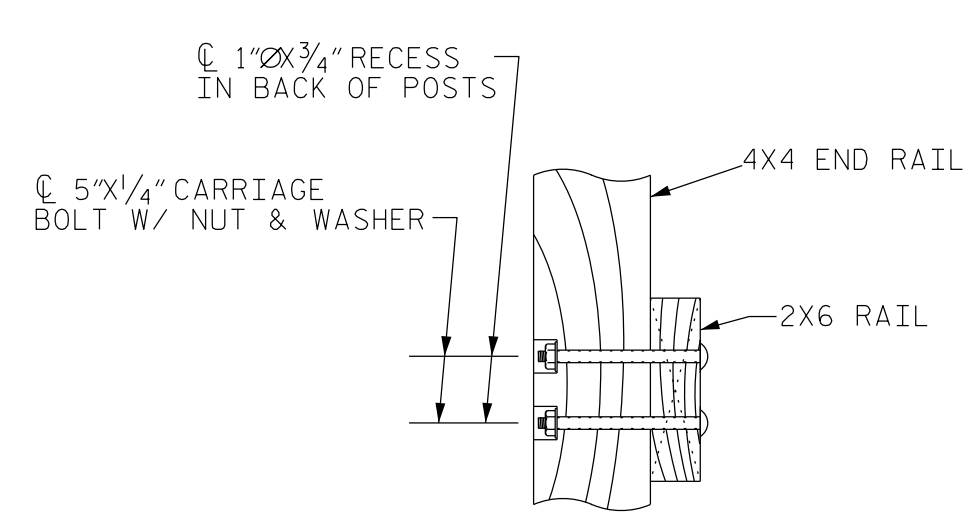
PLAN



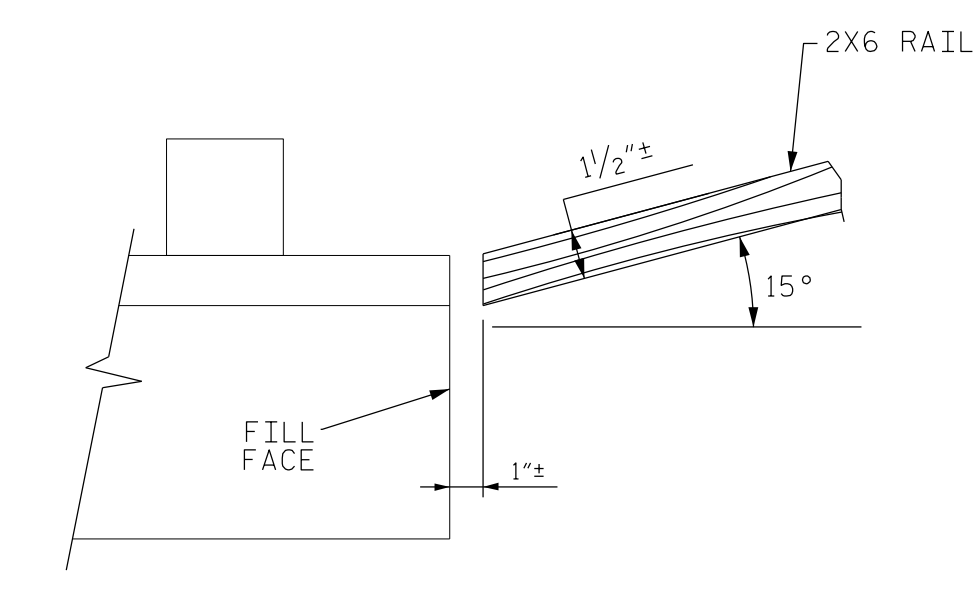
CONNECTION DETAILS
(OUTSIDE VIEW)



SECTION B-B

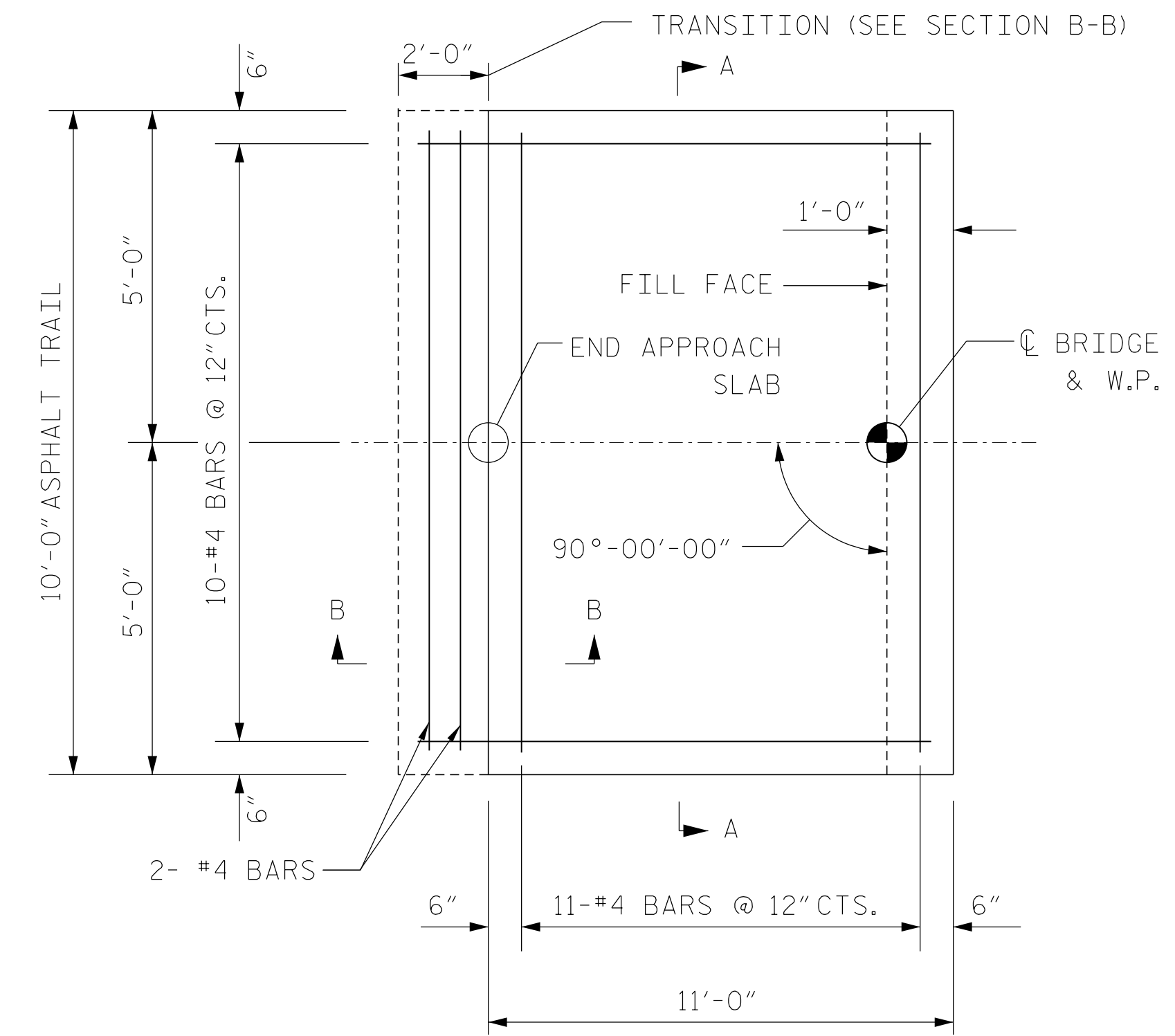
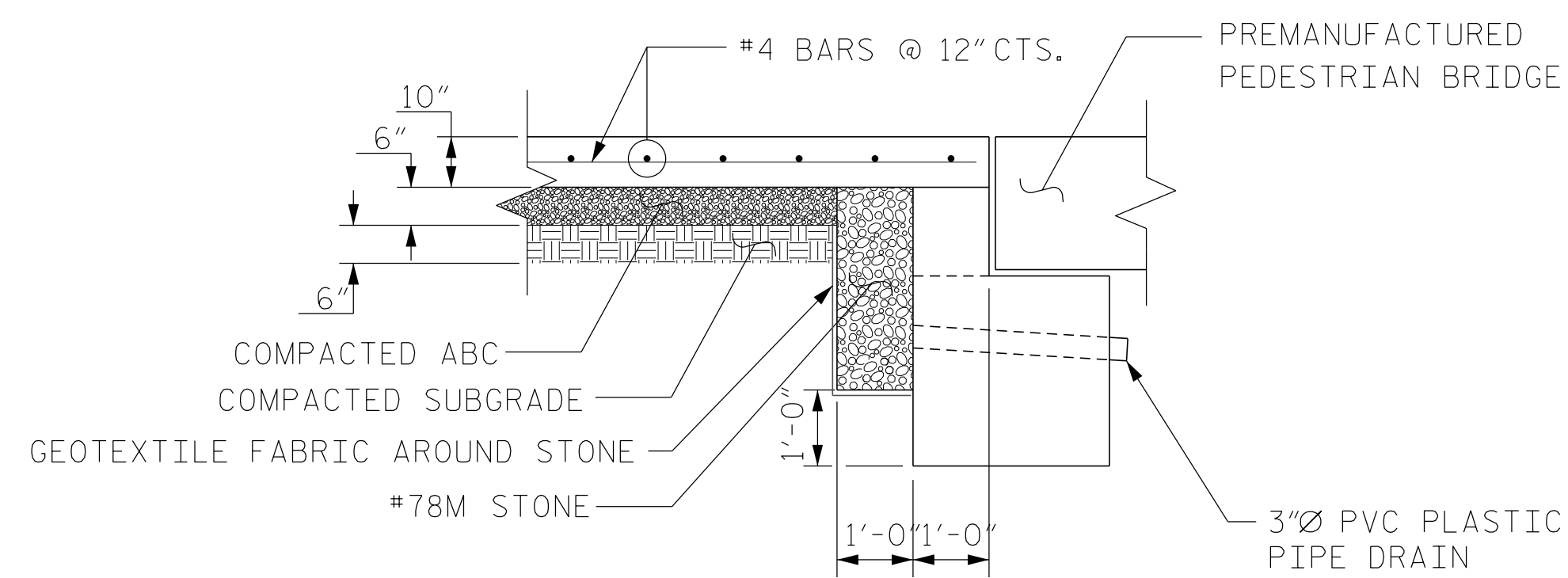


SECTION C-C



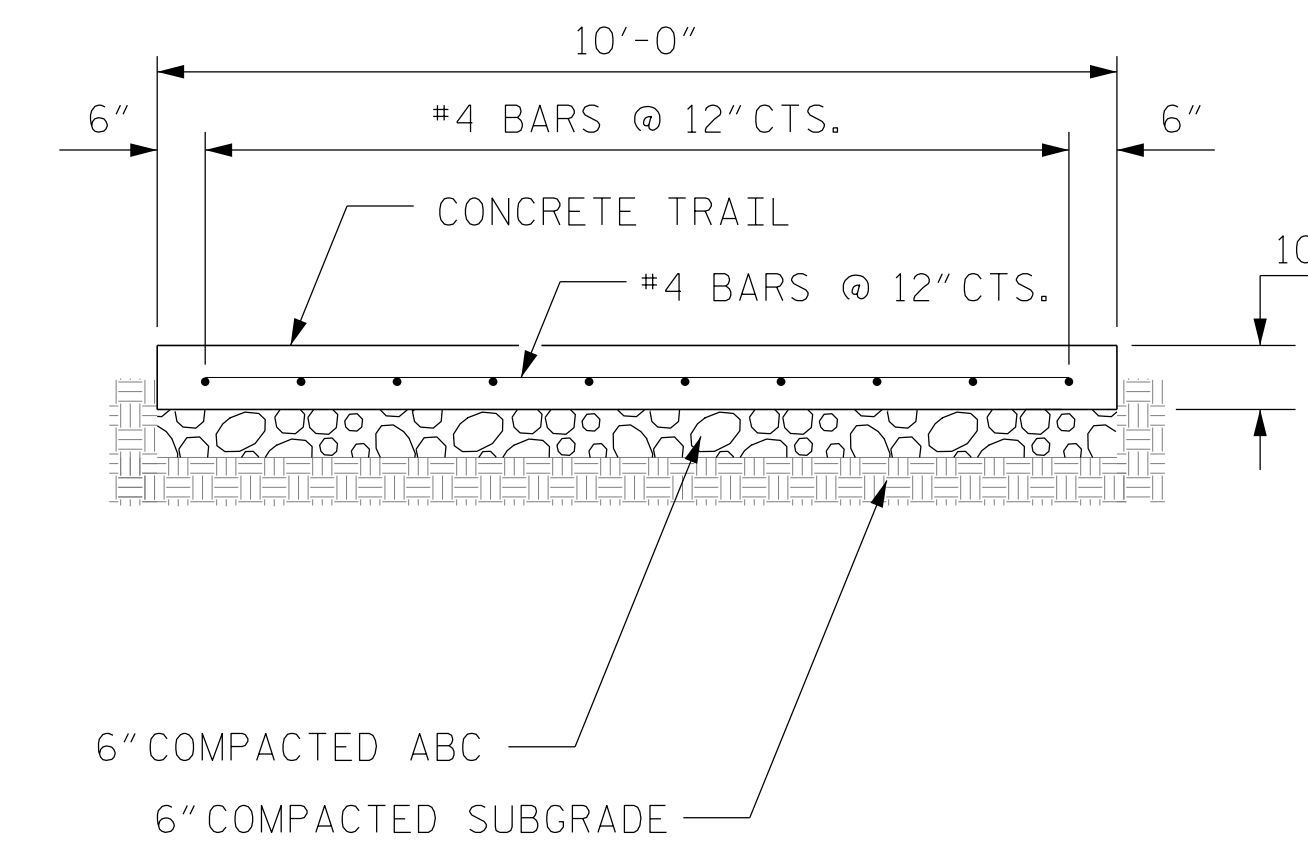
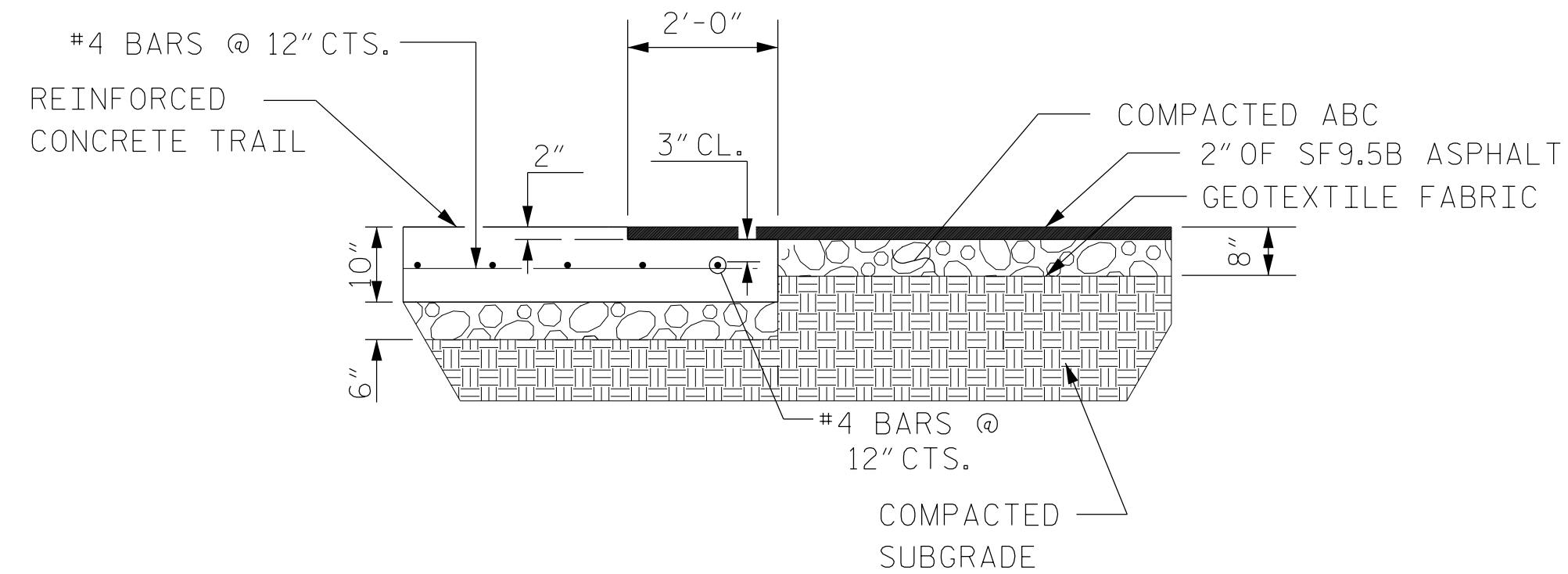
SECTION A-A

APPROACH RAIL DETAILS
(BRIDGE APPROACH SHOWN, BOARDWALK APPROACH SIMILAR)



(END BENT 1 SHOWN, END BENT 2 SHALL HAVE THE CORNERS SET ALONG HORIZONTAL CURVE)

APPROACH SLAB ELEVATIONS				
BRIDGE	END BENT 1 LOCATION	ELEVATION	END BENT 2 LOCATION	ELEVATION
S1	-L- STA. 33+73.00	214.94	-L- STA. 34+42.00	215.32
	-L- STA. 33+84.00	215.03	-L- STA. 34+53.00	215.38



TYPICAL DETAILS FOR BRIDGE APPROACH SLABS



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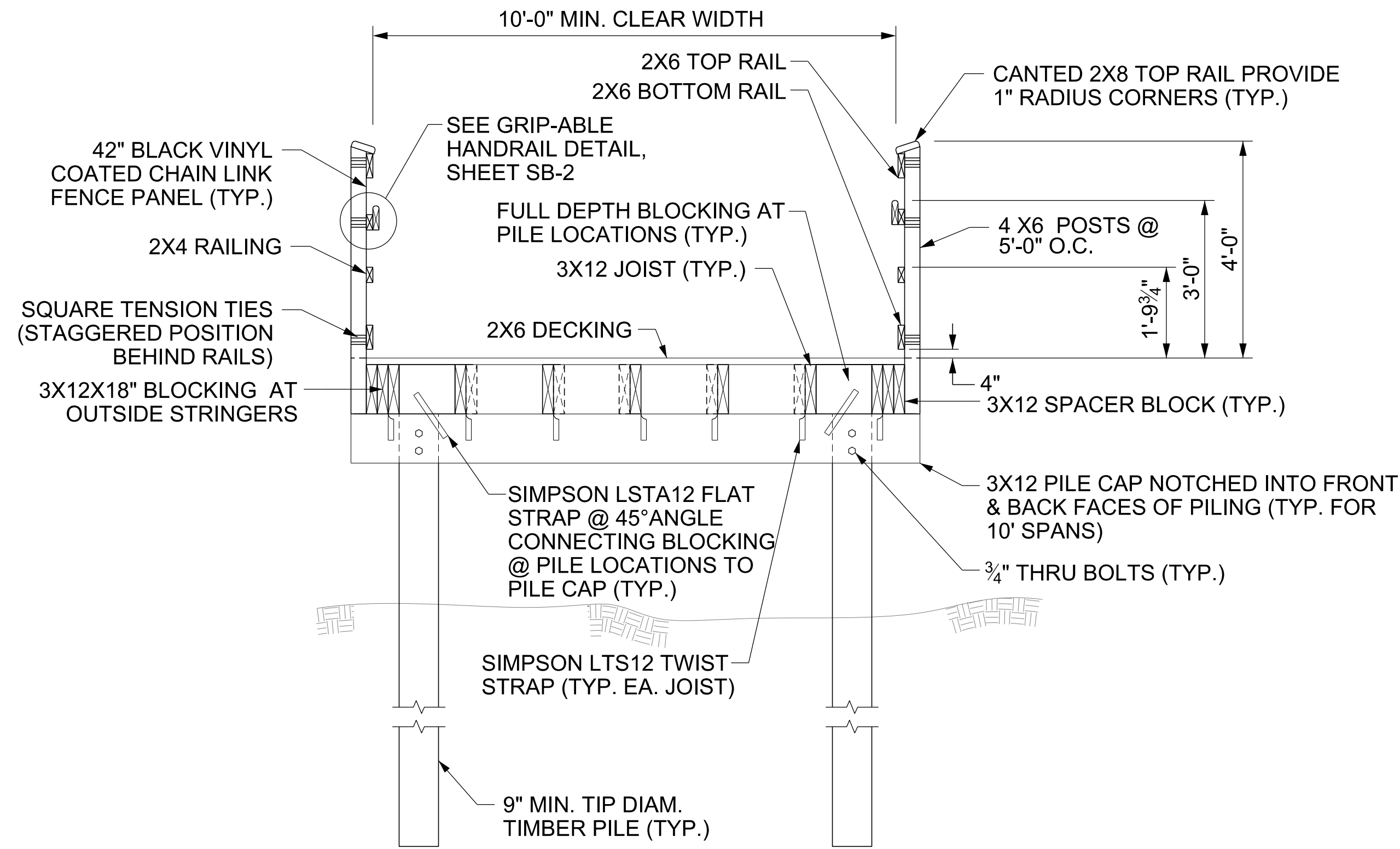
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SECTION A-A
NOTE: SEE SHEET SB-2 FOR SECTION CUT LOCATION
TYPICAL 10' SPAN CONSTRUCTION SHOWN

BOARDWALK LOCATIONS									
BOARDWALK #	CHAIN	BEGIN STATION	ELEVATION	CHAIN	END STATION	ELEVATION	LENGTH	20' SPAN	REMARKS
1	-L-	47+10.00	201.21	-L-	47+40.00	200.93	30.00'	NO	-
2	-L-	52+25.00	203.74	-L-	52+65.00	202.46	40.00'	YES	-
3	-L-	56+45.00	195.21	-L-	57+25.00	194.95	80.00'	NO	-
4	-L-	61+55.00	191.99	-L-	62+05.00	192.29	50.00'	NO	-
5	-L-	65+45.00	191.79	-L-	65+85.00	191.33	40.00'	YES	-
6	-L-	71+30.00	189.02	-L-	71+60.00	189.33	30.00'	NO	-
7	-L_REV-	20+30.00	243.22	-L_REV-	21+90.00	240.27	160.00'	NO	PARTIAL VERT. CURVE

NOTE: THERE IS ONE 20 FOOT BOARDWALK SPAN IN BOARDWALKS THAT INDICATE "YES" IN THE 20' SPAN COLUMN. BEGIN AND END ELEVATIONS SHOWN. FOR INTERMEDIATE ELEVATIONS, SEE PROFILE ON ROADWAY PLANS. FOR VERTICAL CURVE PARAMETERS ON BOARDWALK 7, SEE PROFILE ON ROADWAY PLANS

	REQUIRED PILE TIP DEPTHS		ESTIMATED PILE TIP DEPTHS	
	10 FOOT SPAN	20 FOOT SPAN	10 FOOT SPAN	20 FOOT SPAN
BOARDWALK 1	12 FT*	N/A	11.5 FT*	N/A
BOARDWALK 2	12 FT*	12 FT	11.5 FT*	12 FT
BOARDWALK 3	9 FT*	N/A	6.5 FT*	N/A
BOARDWALK 4	10 FT*	N/A	7.5 FT*	N/A
BOARDWALK 5	11 FT	11 FT	11 FT	12 FT
BOARDWALK 6	12 FT	N/A	15 FT	N/A
BOARDWALK 7	13 FT	N/A	20 FT	N/A

NOTE: PLEASE NOTE THAT SOME OF THE REQUIRED TIP DEPTHS ARE BELOW THE ANTICIPATED DRIVING REFUSAL ELEVATION (DENOTED BY *). SEE NOTES 5 THRU 9 FOR INSTRUCTIONS WHEN MIN. TIP ELEVATIONS ARE NOT ACHIEVED.

ALL PROVIDED DEPTHS ARE RELATIVE TO THE GROUND SURFACE AT EACH PILE LOCATION.

TYPICAL BOARDWALK DETAILS

NOTES:

- BOARDWALKS ARE TO BE SUPPORTED ON 9" MIN. TIP DIAMETER PILING AND CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS.
- DRIVING RESISTANCES OF 15.5 KIPS AND 24 KIPS SHOULD BE USED FOR PILES SUPPORTING 10 FOOT SPANS AND 20 FOOT SPANS, RESPECTIVELY.
- PILE DRIVING (BLOW COUNT) CRITERIA IS TO BE ESTABLISHED USING A PILE DRIVING ANALYZER (PDA). ONE PDA TEST WILL BE REQUIRED PER 1,000 LINEAR FEET OF BOARDWALK BUT NOT LESS THAN ONE PDA TEST PER BOARDWALK UNLESS ALLOWED BY THE DESIGN ENGINEER. PDA TESTING SHALL BE THE RESPONSIBILITY OF THE PILE CONTRACTOR. FOR PDA TESTING SEE SPECIAL PROVISIONS FOR TIMBER BOARDWALK.
- BOARDWALK PILES MAY BE ADVANCED WITH IMPACT OR VIBRATORY PILE DRIVING EQUIPMENT. IF A VIBRATORY HAMMER IS USED, A MINIMUM OF ONE PILE PER TEN PILES MUST BE STRUCK WITH AN IMPACT HAMMER AFTER VIBRATORY INSTALLATION. IMPACT HAMMER BLOW COUNTS MUST MEET THE CRITERIA ESTABLISHED BY THE AFOREMENTIONED PDA TESTING. ALL PILES INSTALLED USING VIBRATORY EQUIPMENT, INCLUDING PDA PILES AND PILES RECEIVING FINAL HAMMER VERIFICATION, SHOULD BE CONTINUOUSLY MONITORED TO RECORD PILE PENETRATION RATES. PENETRATION RATES SHOULD BE COMPARED TO THE NEAREST IMPACT HAMMER VERIFIED PILE FOR CAPACITY SUBSTANTIATION.
- MINIMUM PENETRATION FOR TIMBER PILING SHALL BE AS SHOWN IN THE REQUIRED PILE TIP DEPTHS TABLE. WHEN MINIMUM PENETRATION CAN NOT BE ACHIEVED WITHOUT CAUSING DAMAGE TO THE PILING, NOTIFY THE ENGINEER IMMEDIATELY. PILES THAT DO NOT REACH MINIMUM EMBEDMENT MAY REQUIRE THE USE OF PILE EXCAVATION OR PILE BATTERING FOR NECESSARY LATERAL RESISTANCE OR THE ADDITION OF A 3RD PILE FOR NECESSARY UPLIFT RESISTANCE.
- IF PILE EXCAVATION IS USED IN BOARDWALK NOS. 1, 2 OR 4, THE DIAMETER OF THE EXCAVATION SHOULD BE AT LEAST 2 INCHES SMALLER THAN THE DIAMETER OF THE PILE TO ENABLE DEVELOPMENT OF SKIN FRICTION BETWEEN THE PILE AND THE SURROUNDING SOIL. IF PILE EXCAVATION IS USED IN BOARDWALK NO. 3, THE DIAMETER OF THE EXCAVATION SHOULD BE AT LEAST 6 INCHES LARGER THAN THE LARGEST PILE DIAMETER. THE PILE SHOULD BE INSTALLED IN THE CENTER OF THE EXCAVATION AND THE ANNULUS SHOULD BE TREMIE GROUTED FROM THE TIP ELEVATION. A MINIMUM GROUT COLUMN OF 6 FT SHOULD BE PLACED TO PROVIDE THE NECESSARY GROUT-TO-GROUND BOND FOR UPLIFT RESISTANCE. THE REMAINDER OF THE ANNULUS (IF ANY) CAN BE BACKFILLED WITH PEA GRAVEL (#78 STONE).
- CONTRACT QUANTITIES INCLUDE 75 LF OF PILE EXCAVATION AS A CONTINGENCY ITEM.
- IF A 3 PILE BENT SYSTEM IS UTILIZED TO CONTROL UPLIFT FORCES DUE TO THE MINIMUM TIP ELEVATION NOT BEING ACHIEVED, SEE DETAILS ON SHEET SB-6.
- IF PILE BATTERING IS UTILIZED TO CONTROL LATERAL FORCES DUE TO THE MINIMUM TIP ELEVATION NOT BEING ACHIEVED, SEE DETAILS ON SHEET SB-7.
- PILING SHALL BE INSTALLED TO SUPPORT THE FOLLOWING LOADS:

10 FOOT SPAN ADJACENT TO 10 FOOT SPAN:		10 FOOT SPAN ADJACENT TO 20 FOOT SPAN:	
COMPRESSION	9.1 KIPS PER PILE (DEAD + LIVE)	COMPRESSION	14.2 KIPS PER PILE (DEAD + LIVE)
UPLIFT	0.6 KIPS PER PILE	UPLIFT	0.6 KIPS PER PILE
LATERAL	1.0 KIPS PER PILE	LATERAL	1.6 KIPS PER PILE
- ALL TIMBER DIMENSIONS ARE BASED ON NOMINAL TIMBER SIZES.
- ALL EXPOSED CORNERS OF 2X8 TOP RAILS SHALL BE FINISHED WITH 1" MINIMUM RADIUS.
- PRE-DRILLED HOLES MAY BE NECESSARY TO PREVENT SPLITTING OF TIMBERS DURING CONSTRUCTION. 2X6 DECKING TO BE ATTACHED TO JOISTS USING 3"x1/8" GALVANIZED SCREWS. DECKING SHALL BE ATTACHED WITH TWO GALVANIZED OR STAINLESS STEEL SCREWS AT EVERY JOIST.
- ALL BOLTS, NUTS, WASHERS, ETC. SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A153 UNLESS OTHERWISE NOTED. SIMPSON STRONG TIE CONNECTORS (WHERE USED) SHALL BE GALVANIZED.
- TREATED TIMBER AND LUMBER SHALL BE USED AND SHALL BE IN ACCORDANCE WITH 2012 NCDOT STANDARD SPECIFICATIONS, SECTION 1082 AND SHALL BE SOUTHERN PINE, GRADE 1 OR BETTER.
- ALL WORK SHALL BE ACCOMPLISHED AS DIRECTED BY THE ENGINEER. ANY DISCREPANCIES FOUND ON THIS DRAWING SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING.
- BASIS OF PAYMENT FOR THE BOARDWALK WILL BE AT THE CONTRACT UNIT PRICES FOR BOARDWALK - 10 FT SPAN, BOARDWALK - 20 FT SPAN, BOARDWALK POSTS 9" MIN. TIP DIAM., AND WILL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, LABOR, TOOLS, AND INCIDENTALS NECESSARY FOR INSTALLING IN PLACE.
- FOR TIMBER BOARDWALK, SEE SPECIAL PROVISION FOR "TIMBER BOARDWALK".
- X-BRACE TIMBER PILES IN THE TRANSVERSE DIRECTION IN ALL BAYS WHEN TOP OF BOARDWALK EXCEEDS 6'-0" IN HEIGHT FROM TOP OF DECK TO GROUND SURFACE. X-BRACE IN LONGITUDINAL DIRECTION WILL NOT BE ALLOWED. ATTACH X-BRACING TO POSTS W/ 5/8" DIA. HEX BOLT AT EACH END. FOR BRACING DETAILS SEE DWG. SB-3.
- 2X6 BOTTOM SUPPORT RAIL TO BE INSTALLED 4" ABOVE DECK SURFACE.
- 2X6 GRIP-ABLE HANDRAIL SHALL BE CONTINUOUS ACROSS A MINIMUM OF THREE POSTS.
- THE PILE HAMMER USED BY THE CONTRACTOR MUST BE APPROVED BY THE ENGINEER AND BY THE TOWN OF CLAYTON PRIOR TO CONSTRUCTION.
- VINYL COATED CHAIN LINK FENCE SHALL BE KNUCKLED AT BOTH ENDS.
- THE NOTCHED AREA ON TOP OF THE TIMBER PILES MUST BE TREATED WITH A WATERPROOFING SEALANT MATERIAL APPROVED BY THE NCDOT MATERIALS AND TESTS UNIT.
- UNO = UNLESS NOTED OTHERWISE



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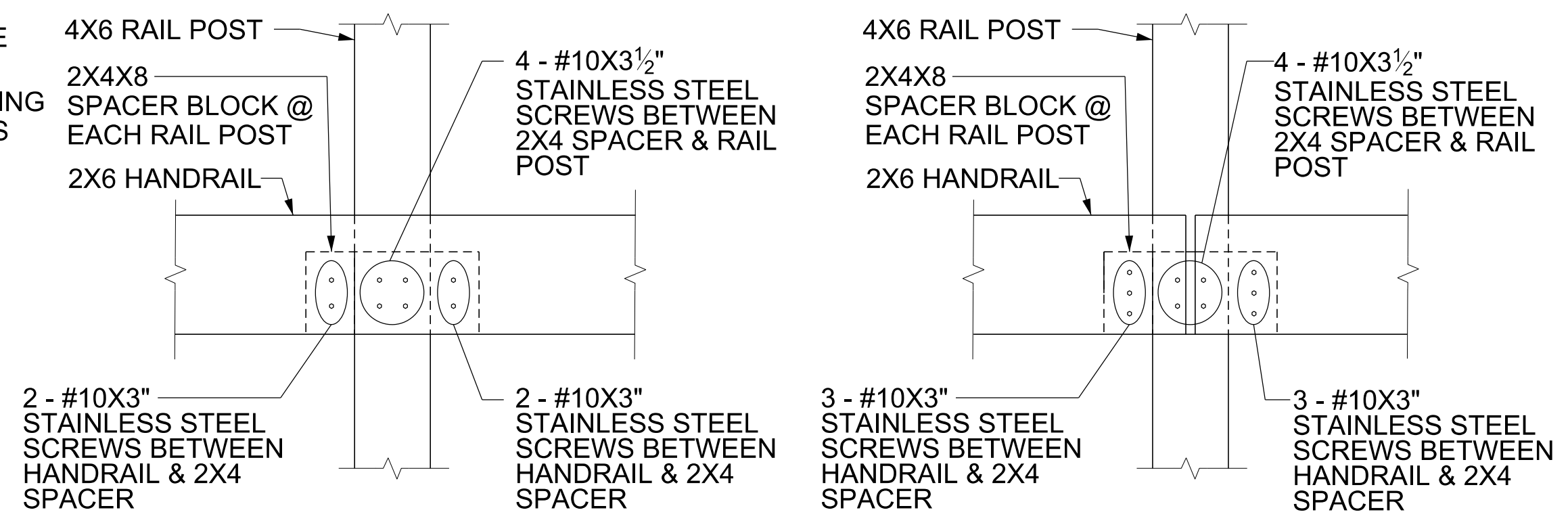
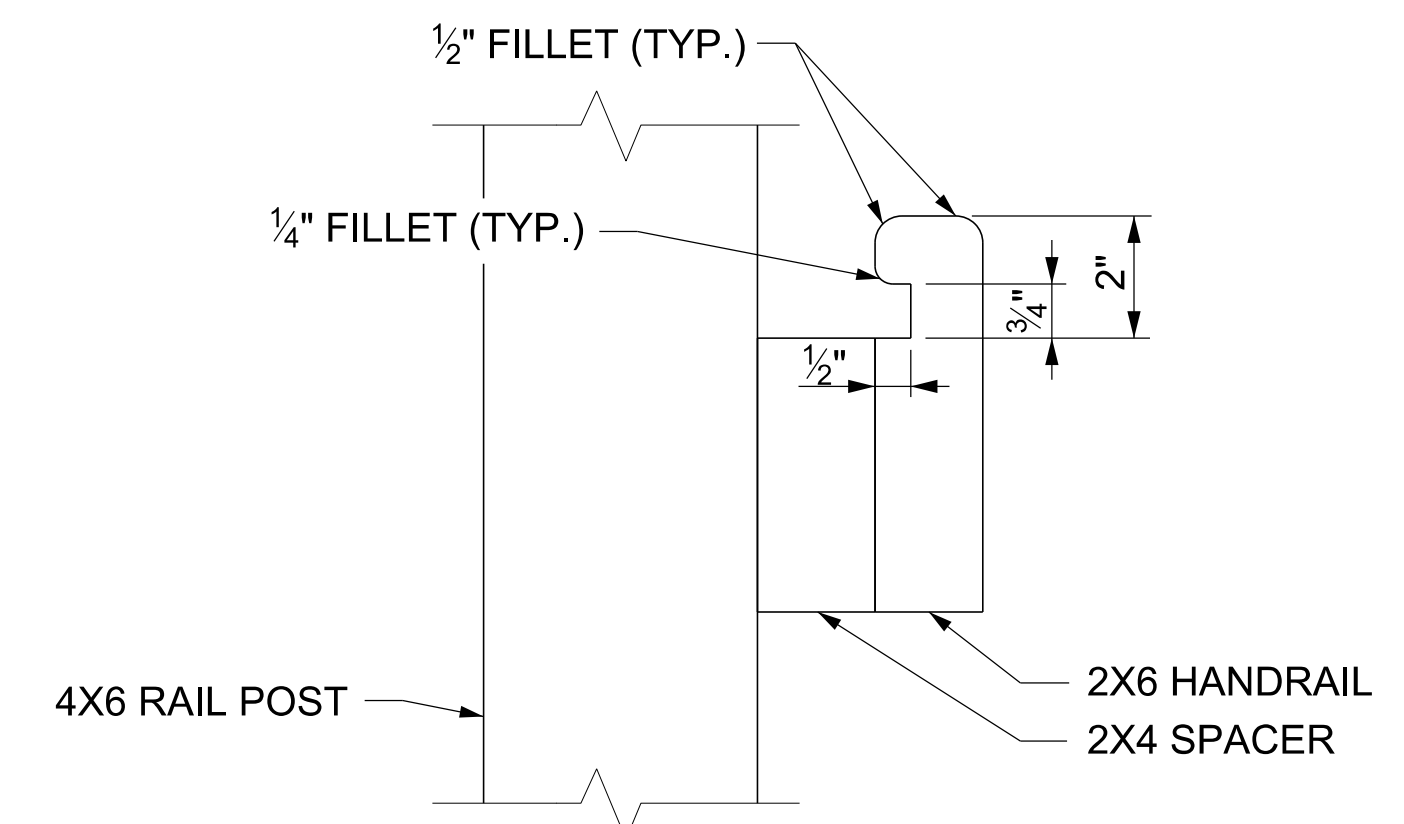
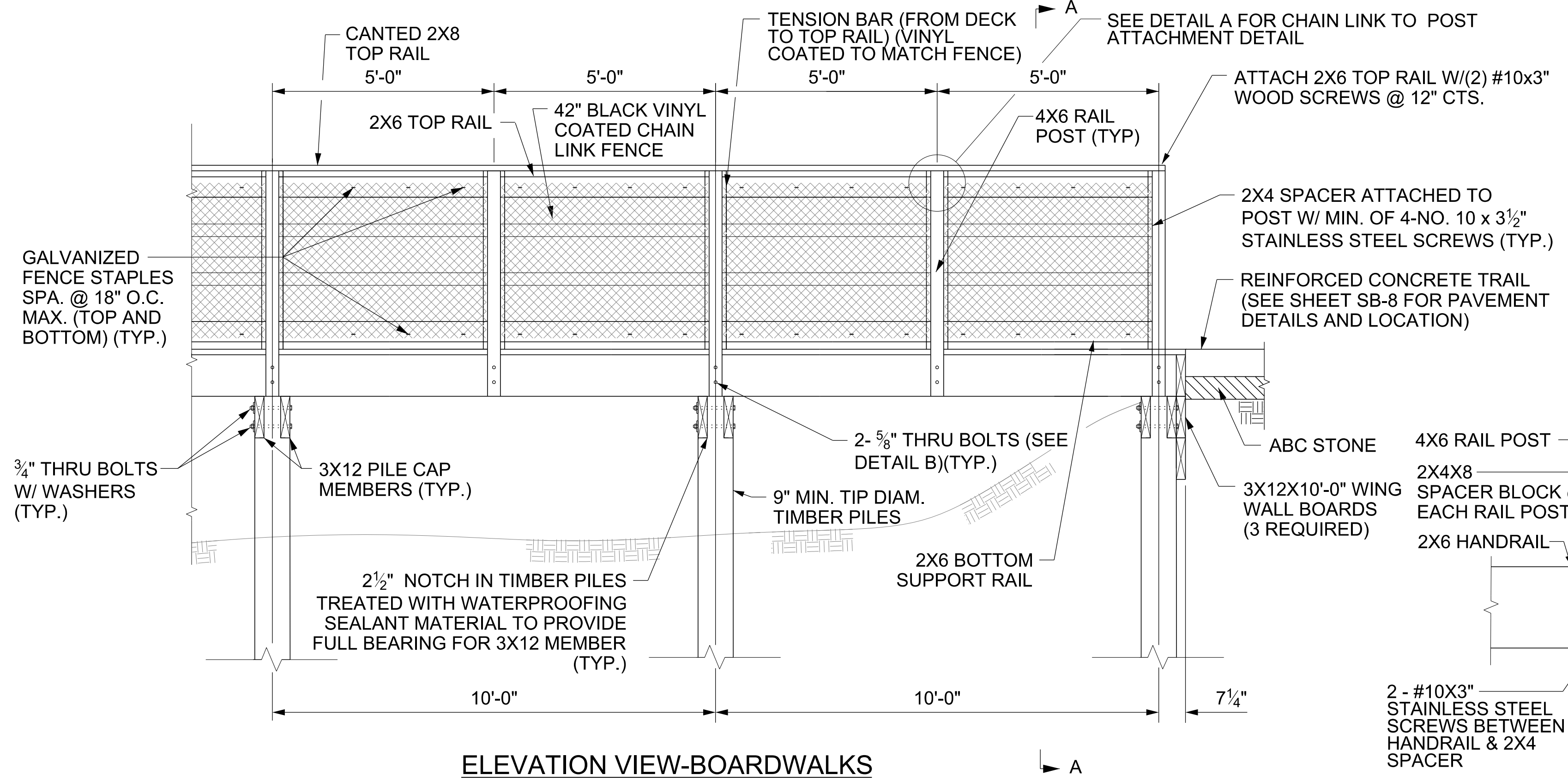
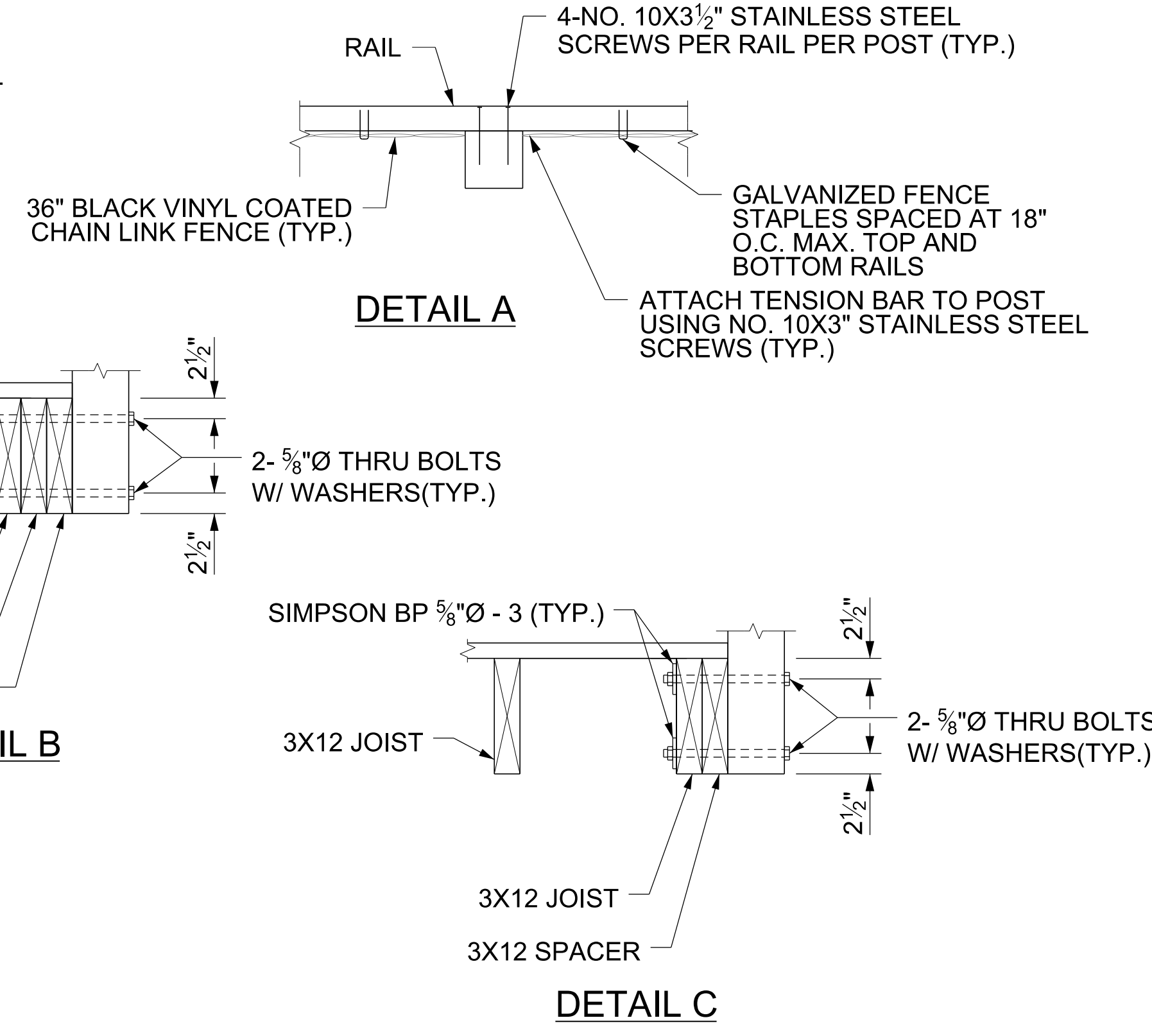
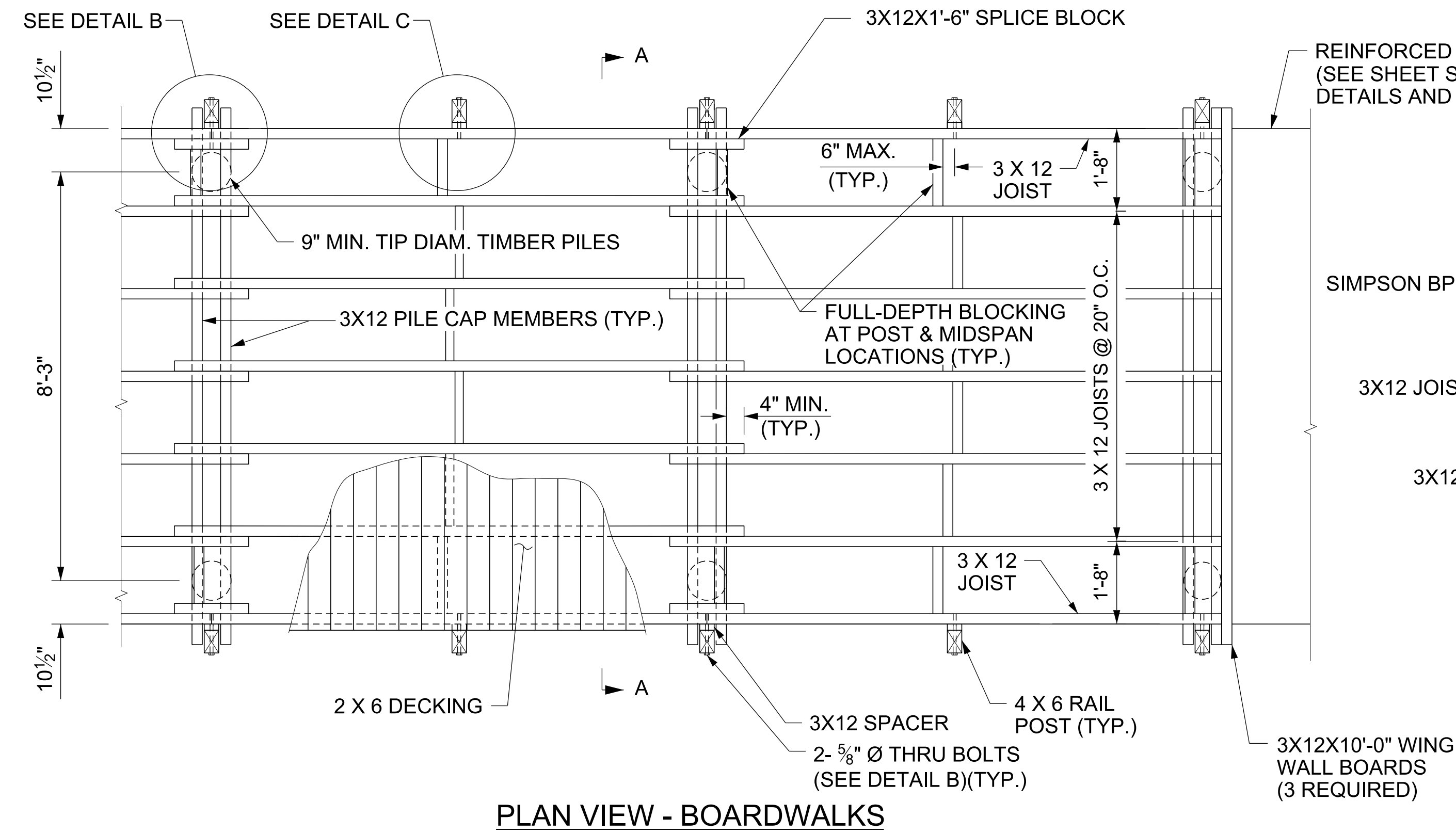
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SB-1



DESIGN LOADS

PEDESTRIAN LIVE LOAD	90 PSF
VEHICLE LIVE LOAD	AASHTO H5
WIND LOAD ON SUPERSTRUCTURE	54 PSF

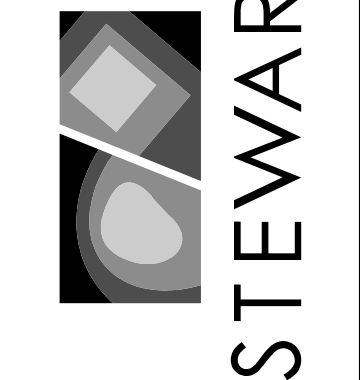
TYPICAL BOARDWALK DETAILS

GRIP-ABLE HANDRAIL ATTACHMENT DETAIL



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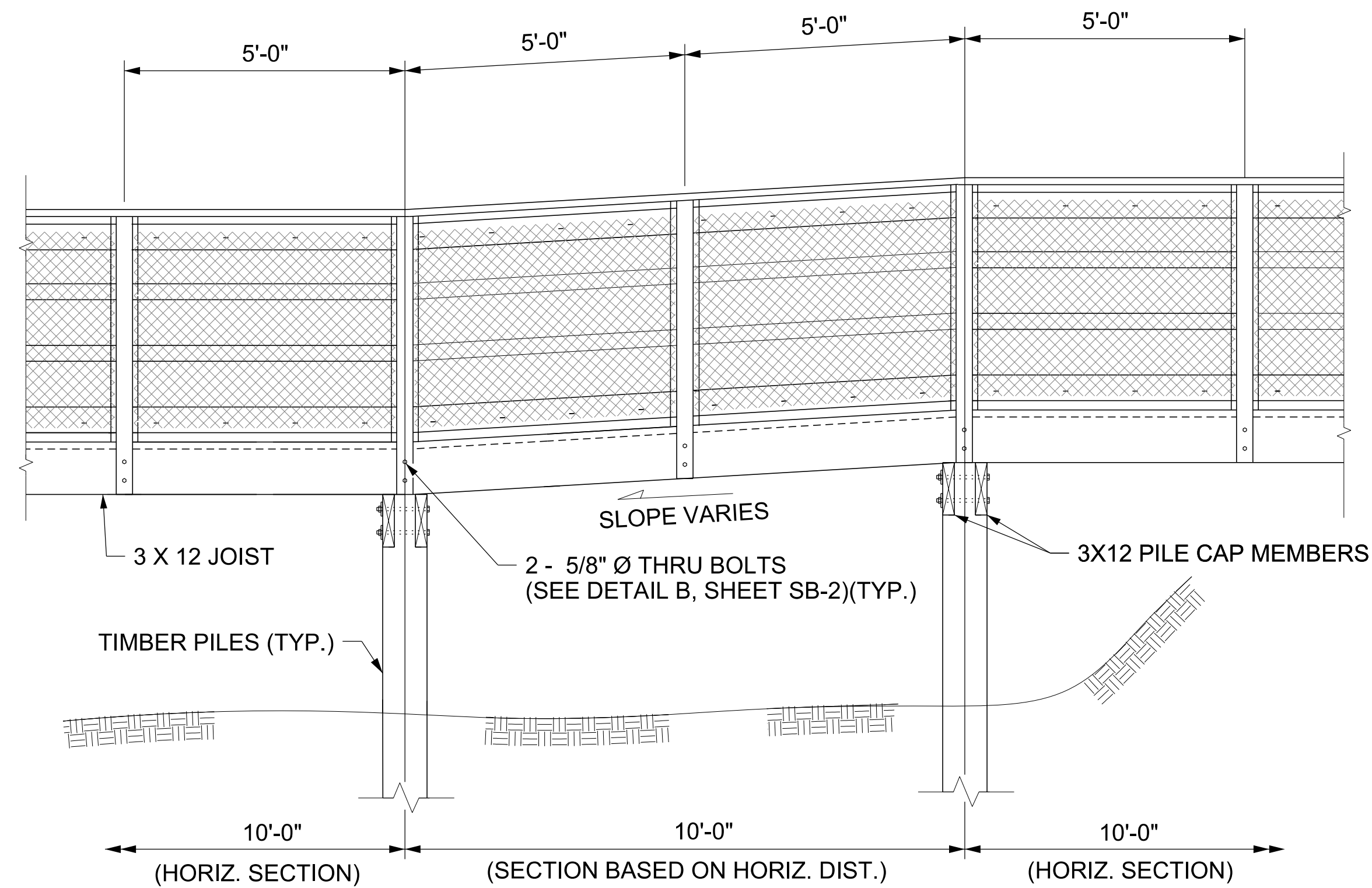
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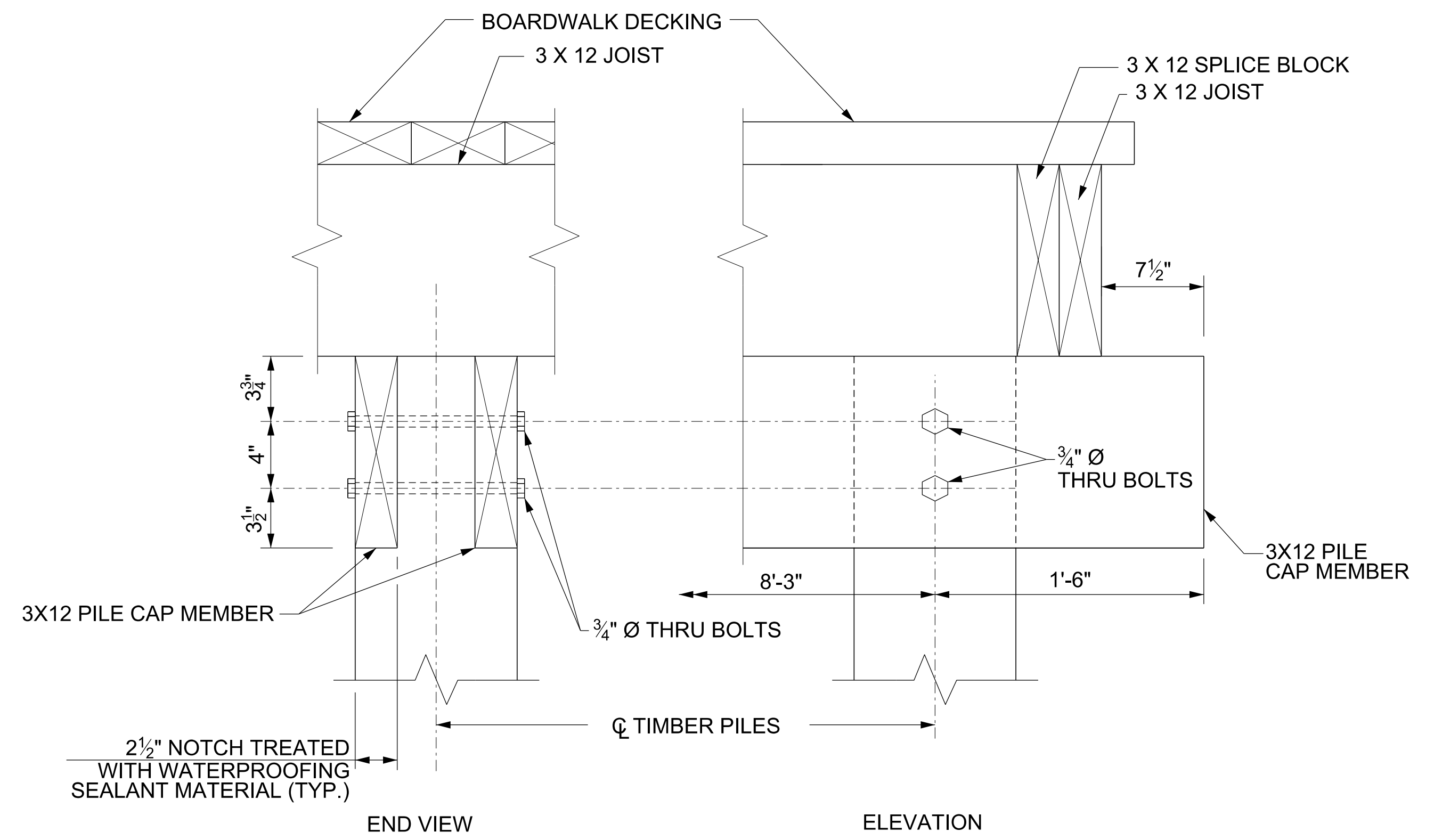
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NTS

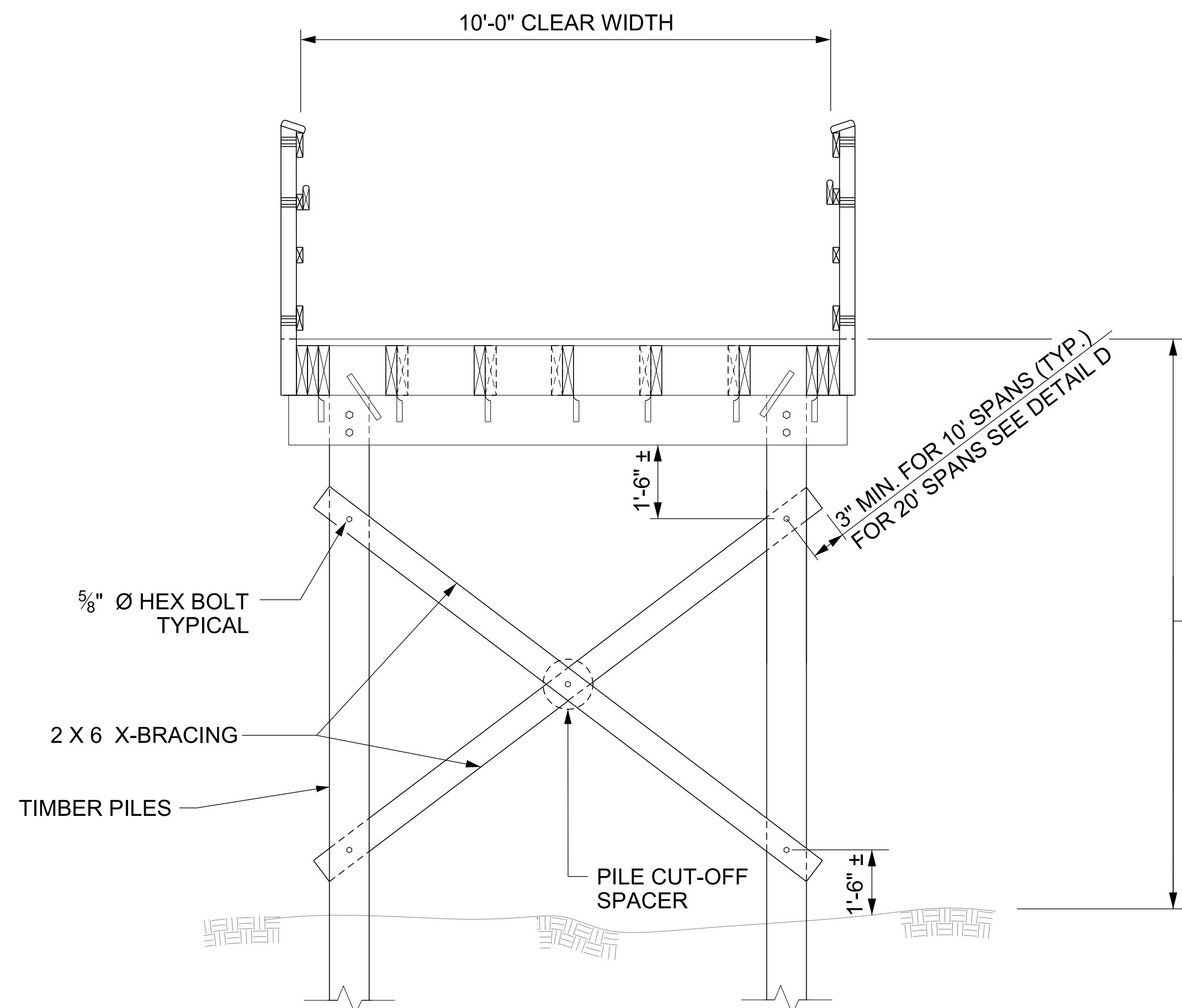
SB-2



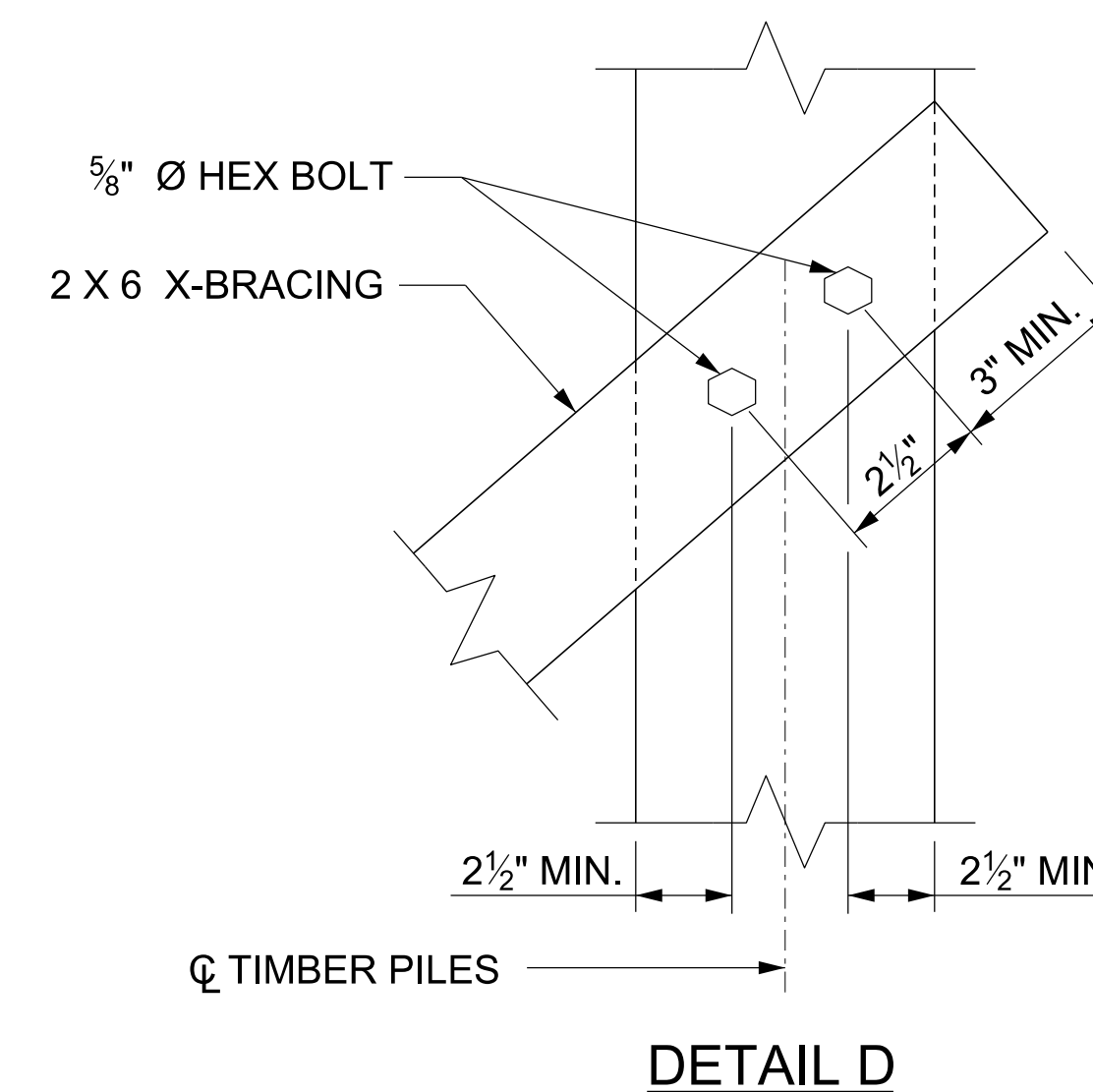
ELEVATION VIEW WITH SLOPED DECKING



BEAM CONNECTION TO TIMBER PILES
(TYPICAL 10' SPANS)



TRANSVERSE BRACING DETAIL
TYPICAL BOARDWALK BRACING DETAIL ON TIMBER PILES
(TRANSVERSE DIRECTION)



DETAIL D
TYPICAL BOARDWALK BRACING CONNECTION DETAIL FOR 20' SPANS

TYPICAL BOARDWALK DETAILS



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEILL STREET**

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421 Fayetteville St.
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com



STEWART

STRUCTURAL ENGINEER



DATE: JANUARY 15, 2018

REVISIONS:	
NO.	DATE

PROJECT NO.:

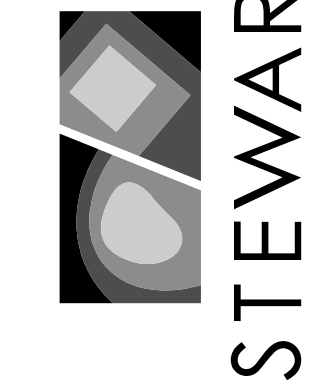
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SB-3



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DATE: JANUARY 15, 2018

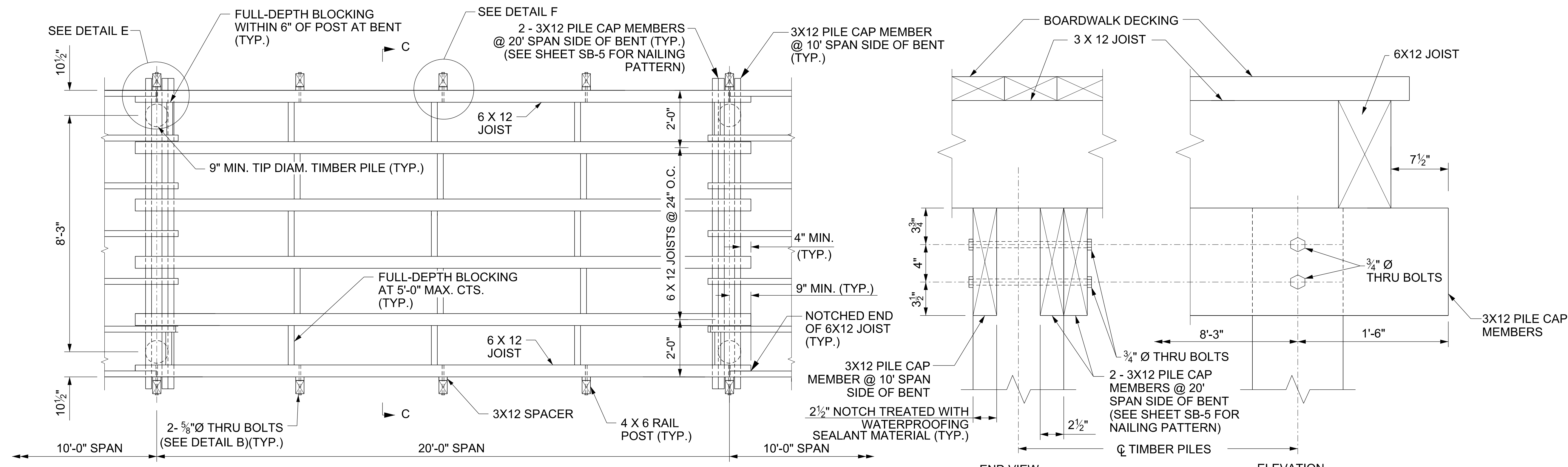
REVISIONS:

NO.	DATE

PROJECT NO.:

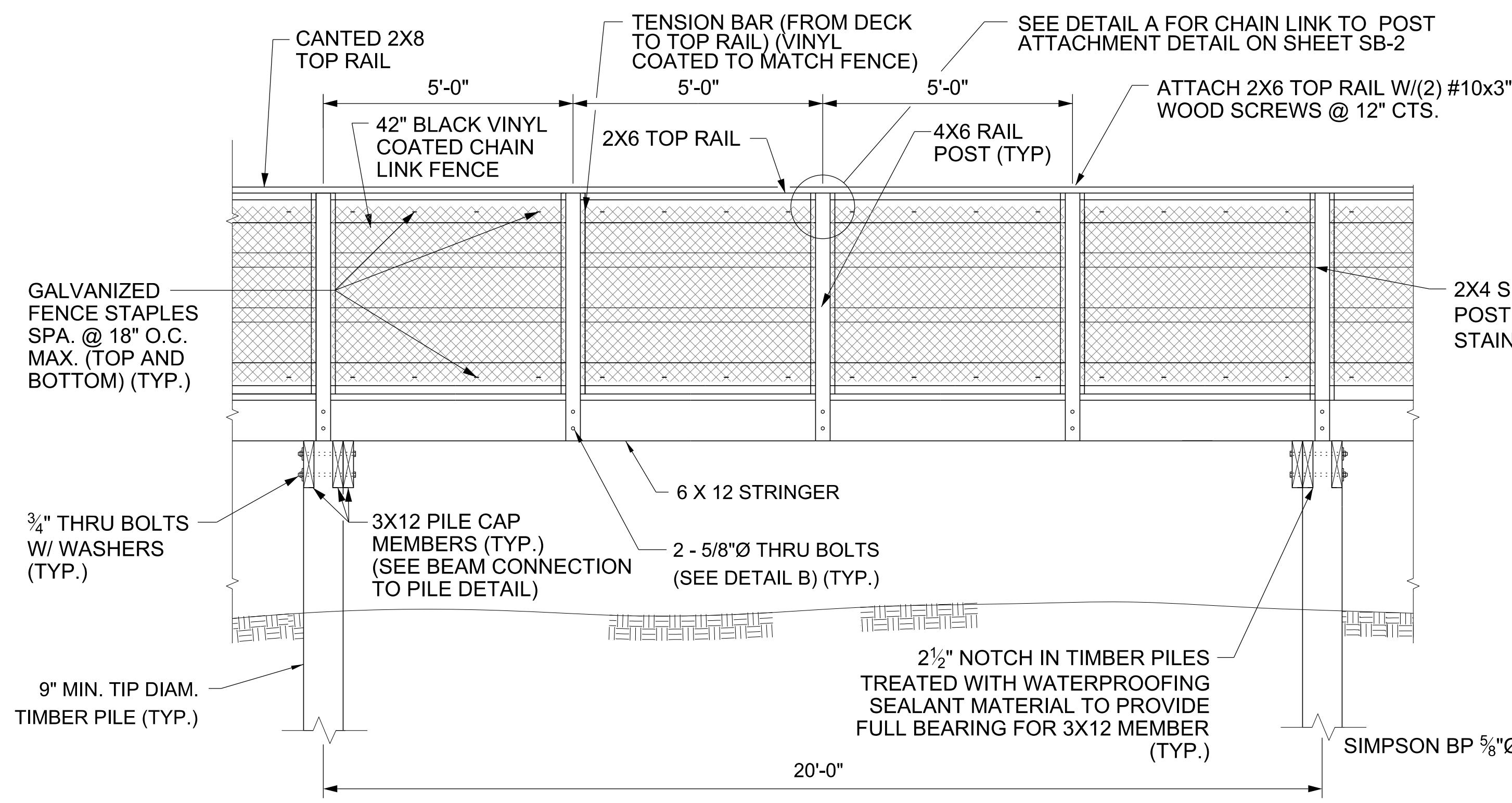
H14009.00

SB-4

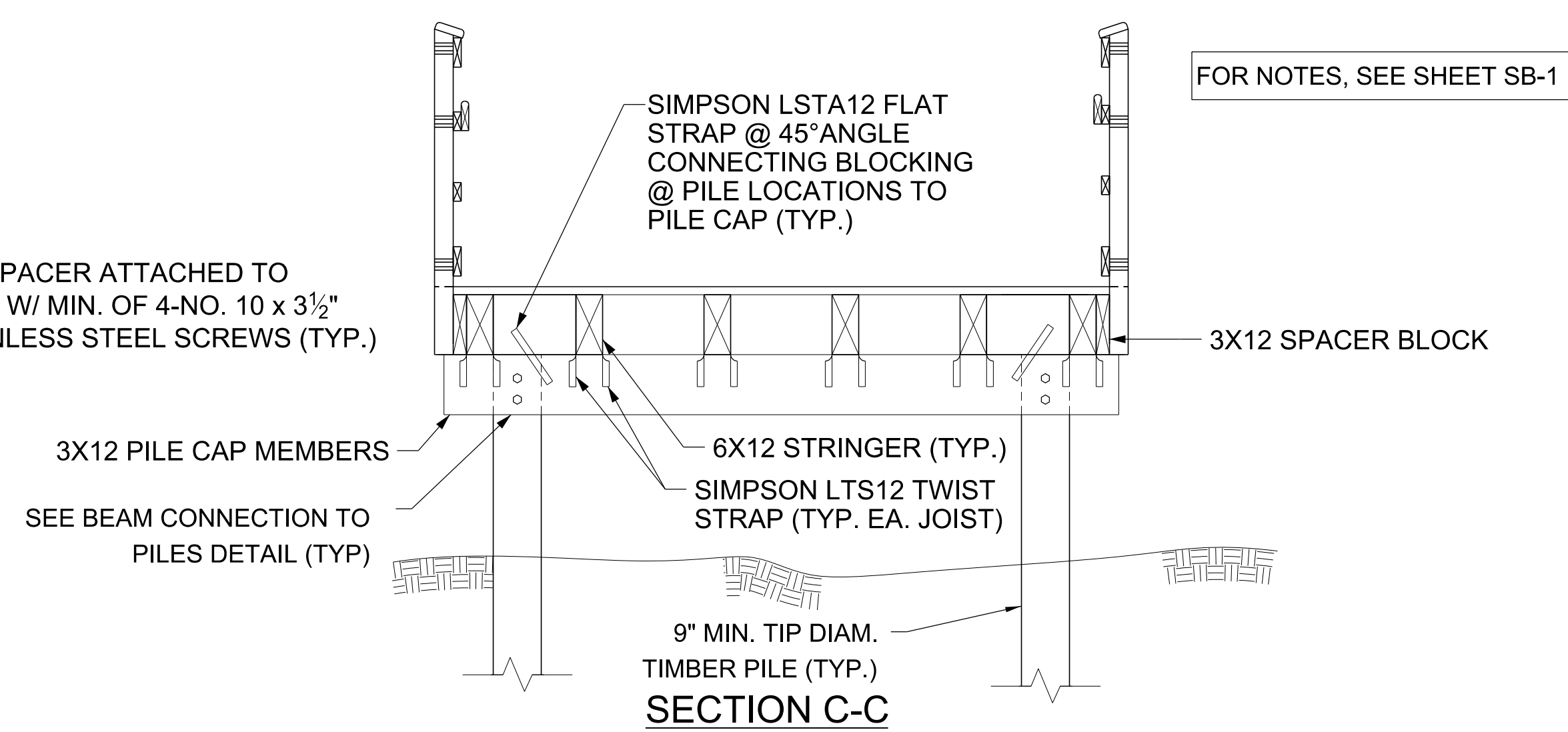


PLAN VIEW - 20 FT SPAN

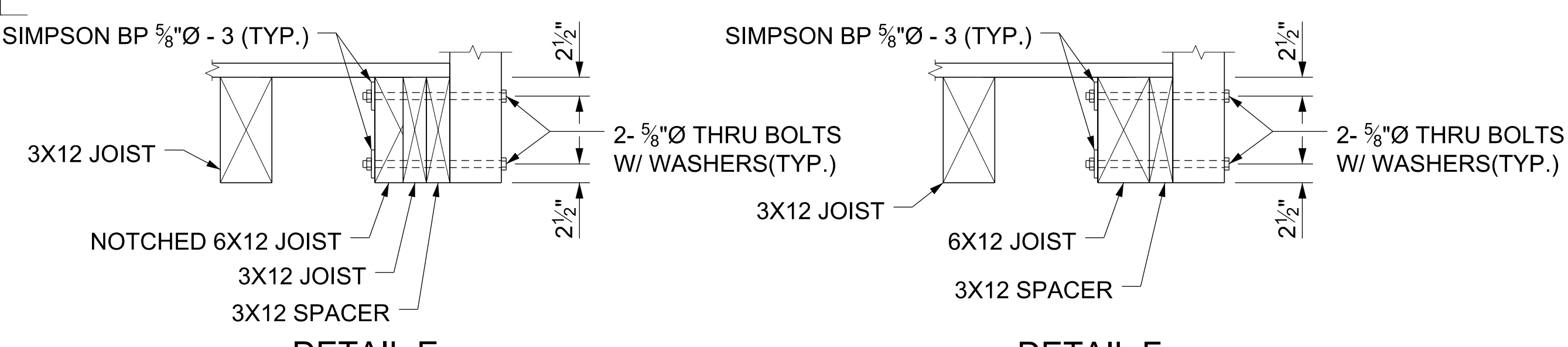
**BEAM CONNECTION TO TIMBER PILES
(TYPICAL 20' SPANS)**



ELEVATION VIEW - 20 FT SPAN



SECTION C-C



DETAIL E

DETAIL F

DESIGN LOADS

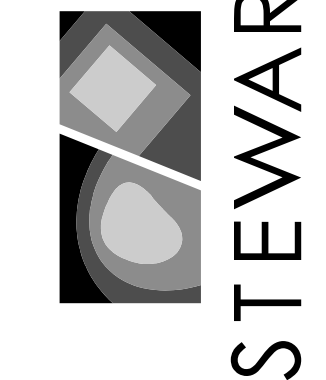
PEDESTRIAN LIVE LOAD	90 PSF
VEHICLE LIVE LOAD	AASHTO H5
WIND LOAD ON SUPERSTRUCTURE	54 PSF

TYPICAL DETAILS FOR 20 FT BOARDWALK UNIT

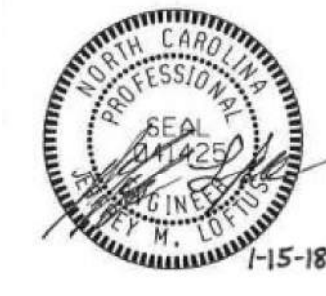


SAM'S BRANCH GREENWAY
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DATE: JANUARY 15, 2018

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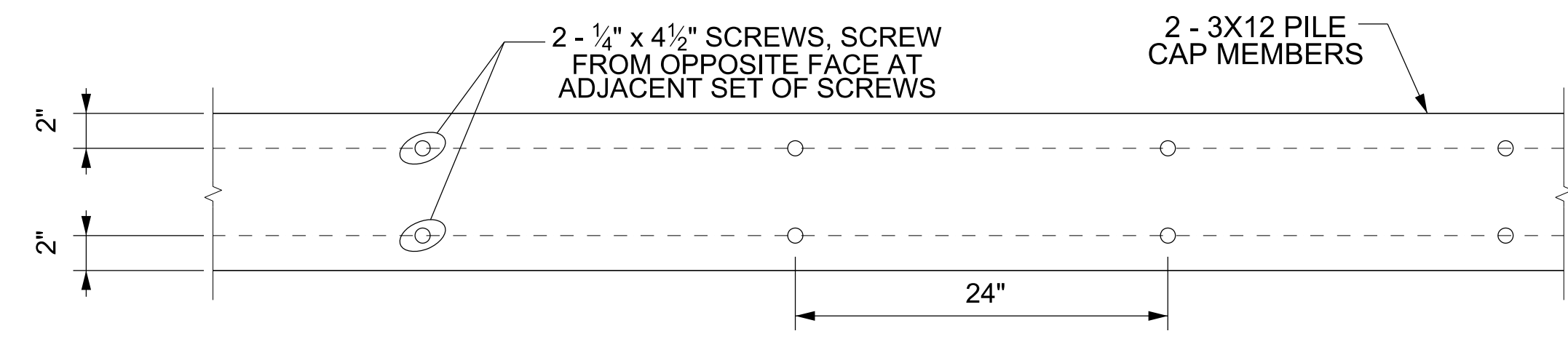
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PROJECT NO.:

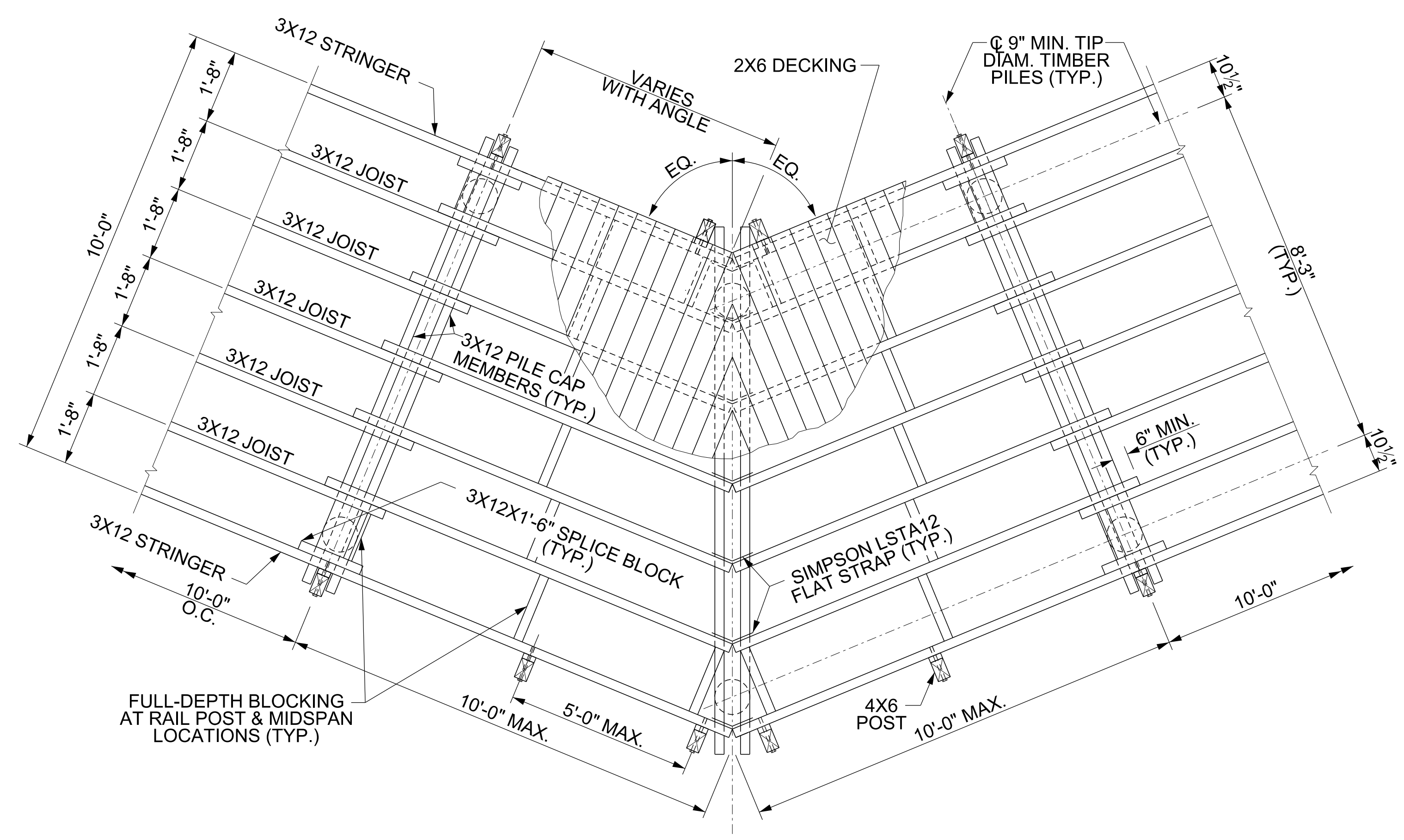
H14009.00

NTS

SB-5



20' SPAN PILE CAP MEMBER NAILING PATTERN



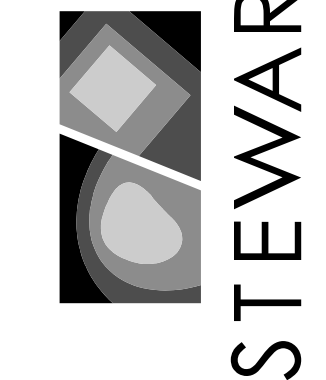
FRAMING PLAN AT BEND

TYPICAL BOARDWALK DETAILS



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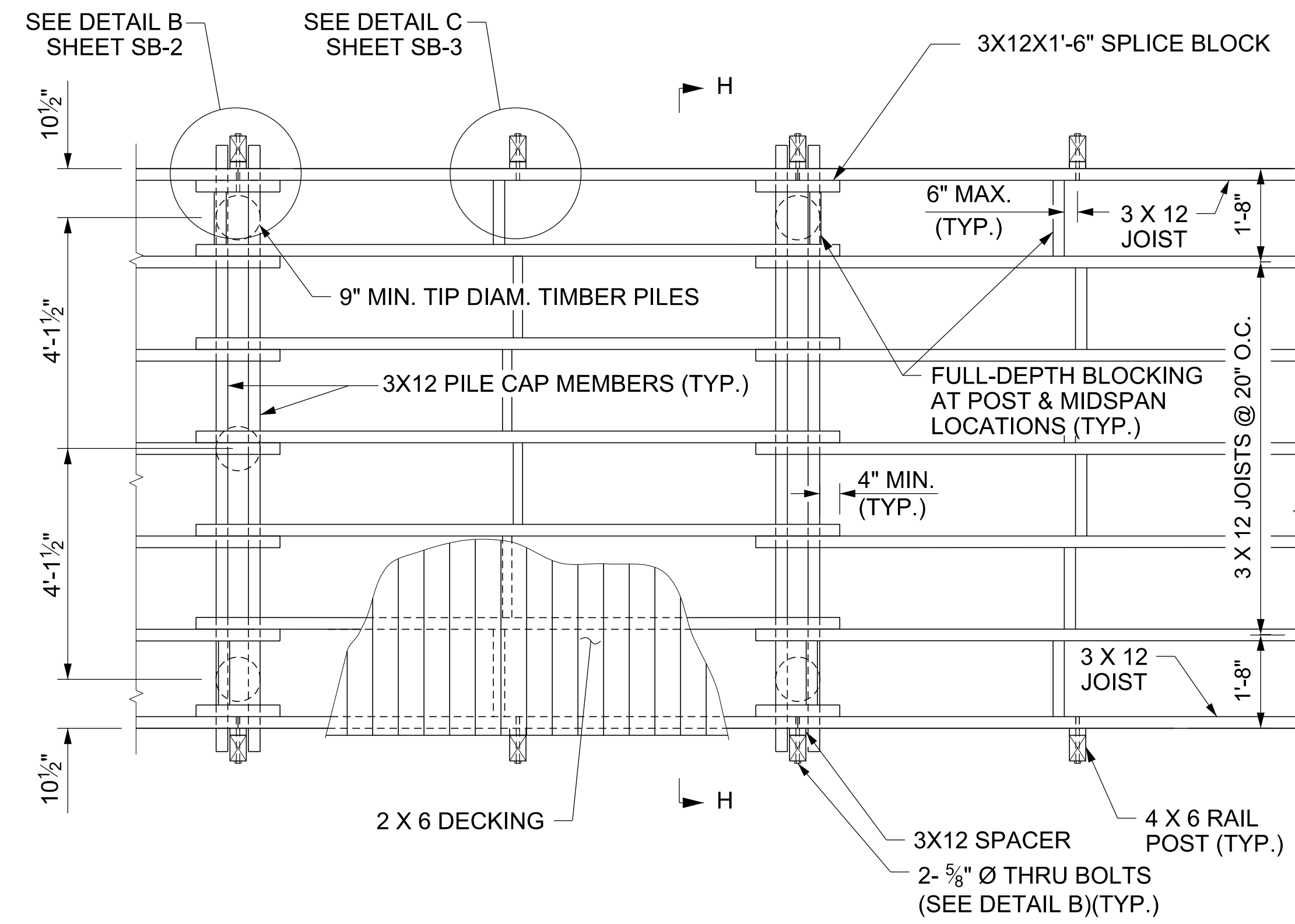
REVISIONS:	
NO.	DATE

PROJECT NO.:

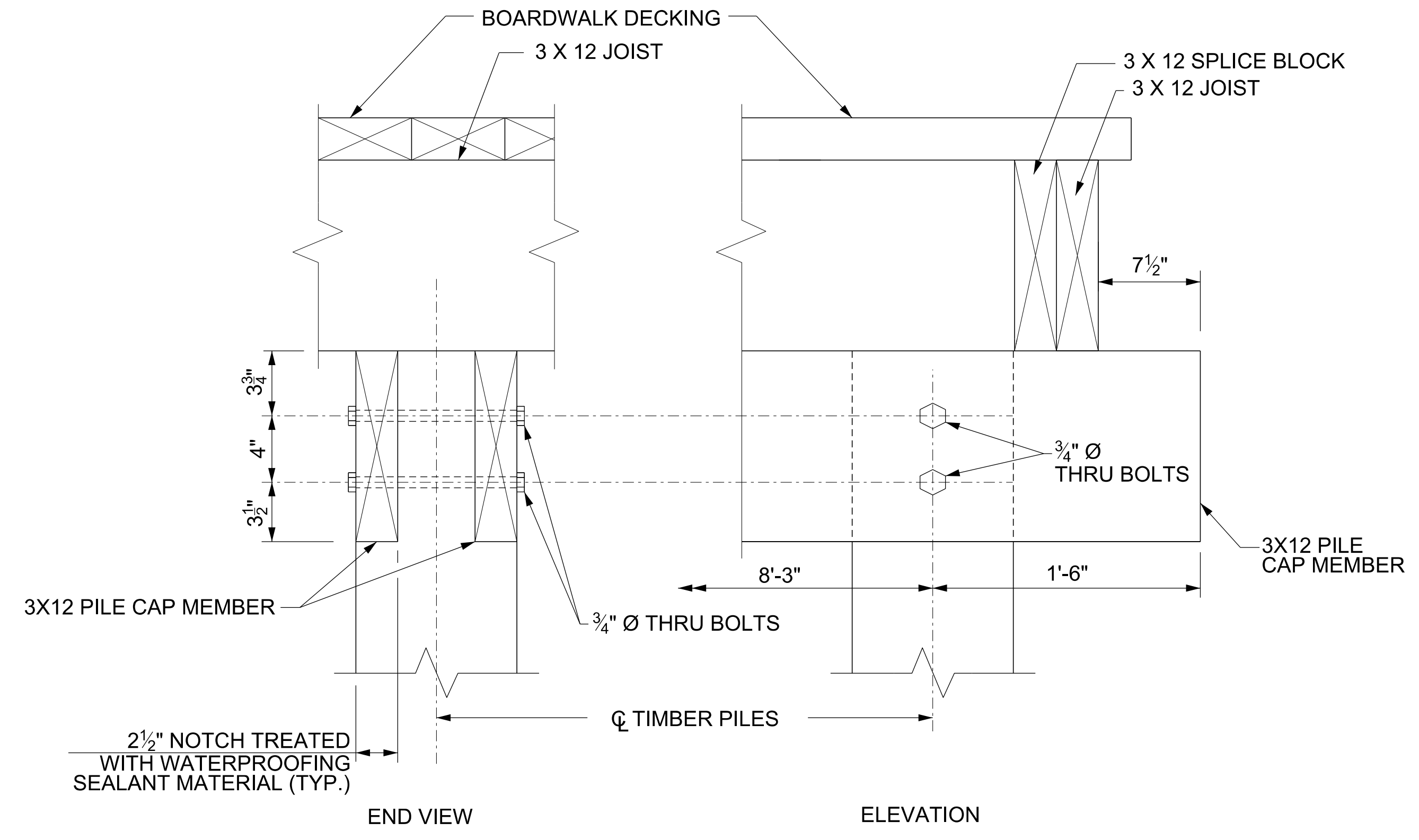
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NTS

SB-6

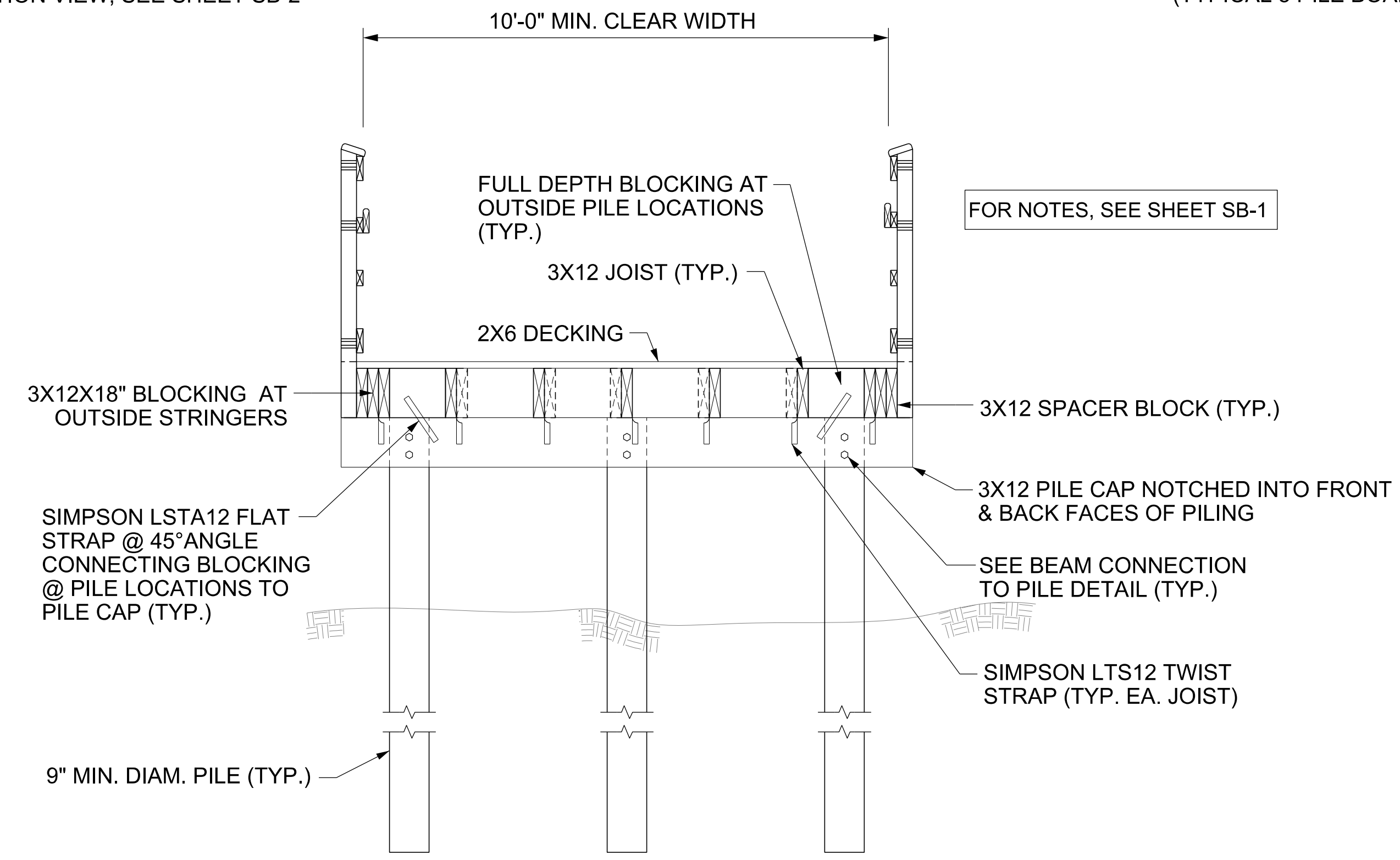


PLAN VIEW - 3 PILE BOARDWALK
NOTE: FOR ELEVATION VIEW, SEE SHEET SB-2



BEAM CONNECTION TO TIMBER PILES
(TYPICAL 3 PILE BOARDWALK)

DESIGN LOADS	
PEDESTRIAN LIVE LOAD	90 PSF
VEHICLE LIVE LOAD	AASHTO H5
WIND LOAD ON SUPERSTRUCTURE	54 PSF



SECTION H-H

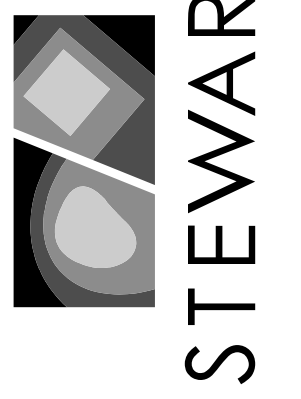
NOTE: FOR ADDITIONAL DETAILS, SEE SHEET SB-1 SECTION A-A

TYPICAL DETAILS FOR 3 PILE BOARDWALK



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DATE: JANUARY 15, 2018

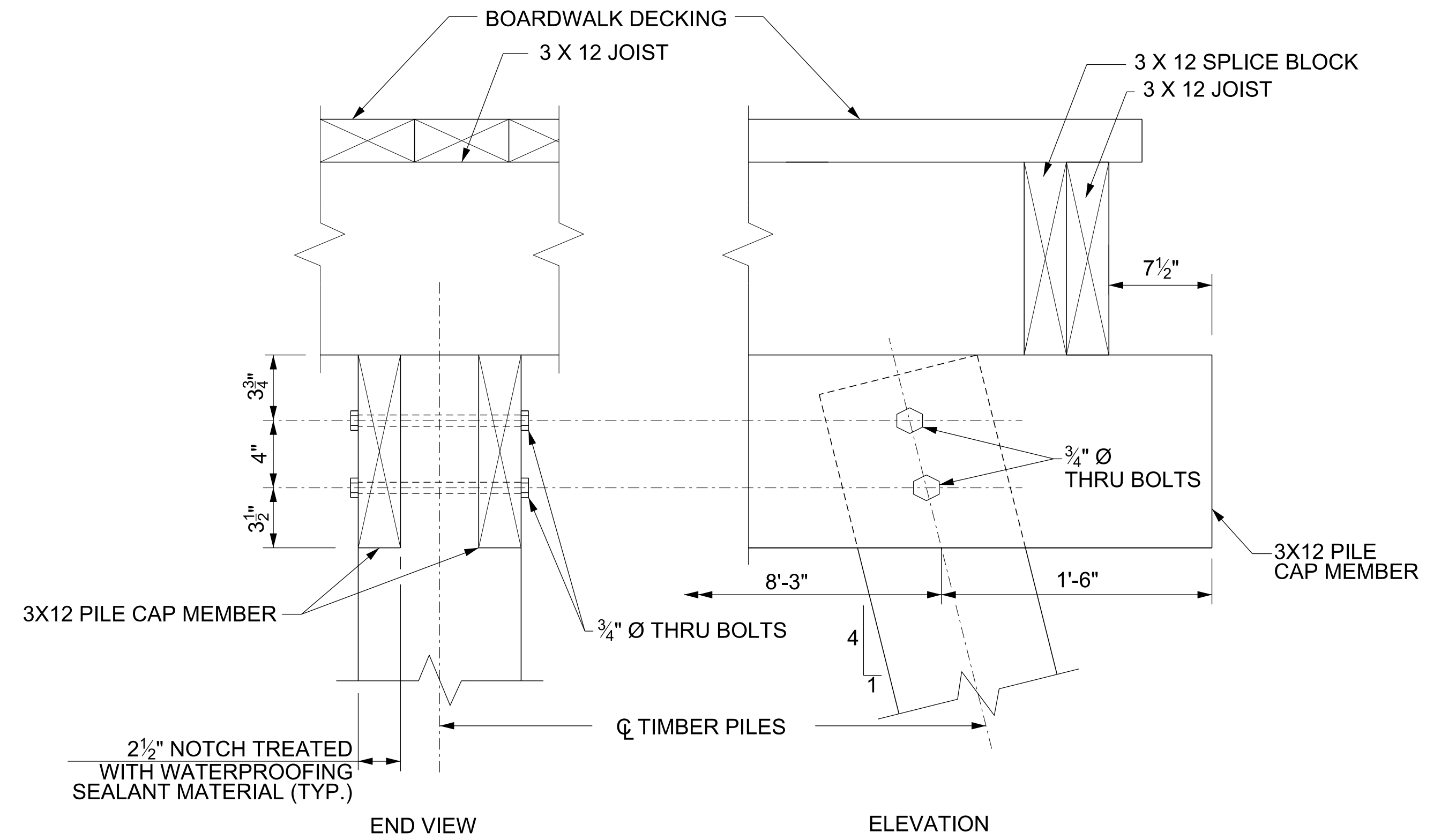
REVISIONS:	
NO.	DATE

PROJECT NO.:

H14009.00

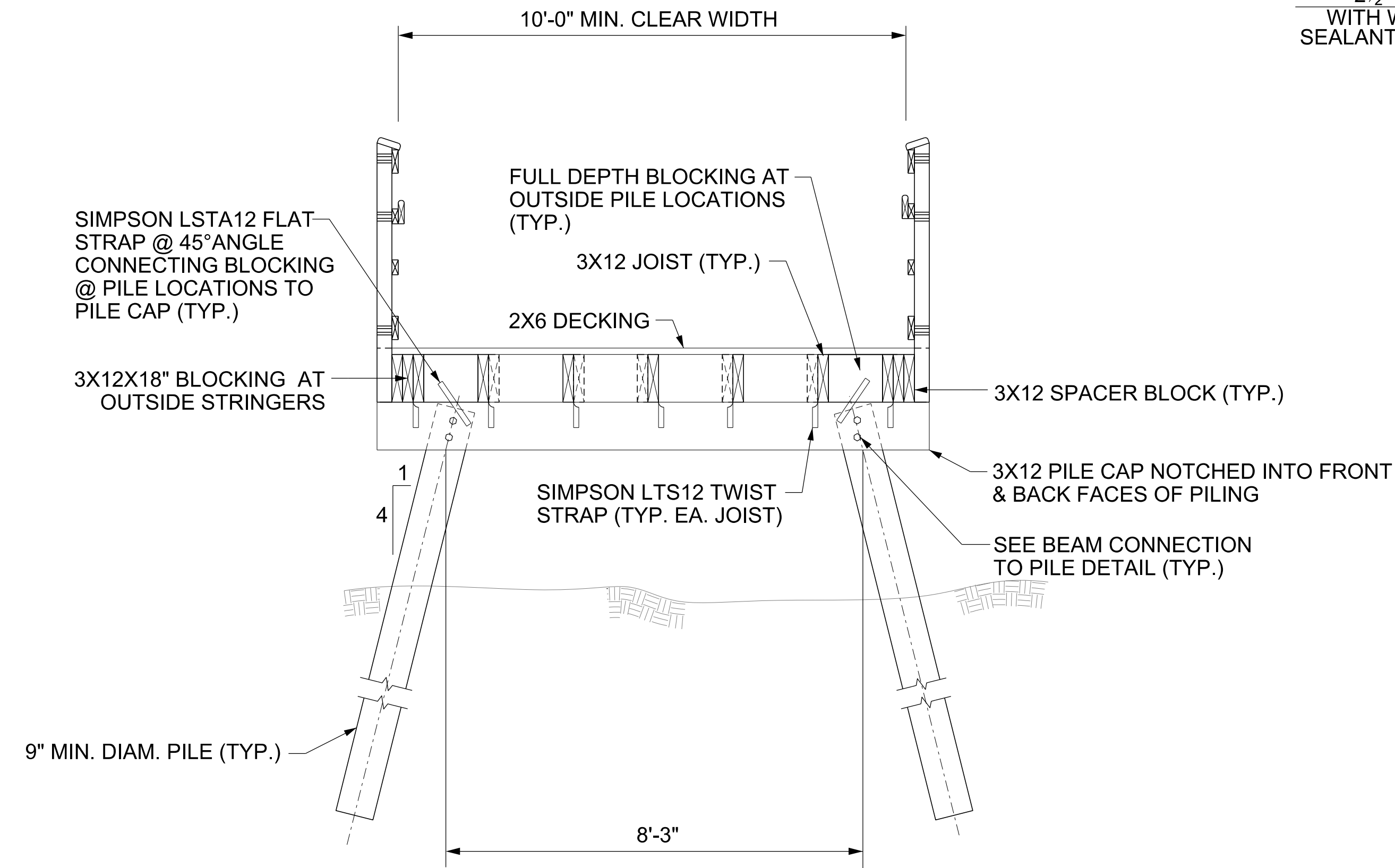
NTS

SB-7



BEAM CONNECTION TO TIMBER PILES
(TYPICAL BATTERED PILE BOARDWALK)

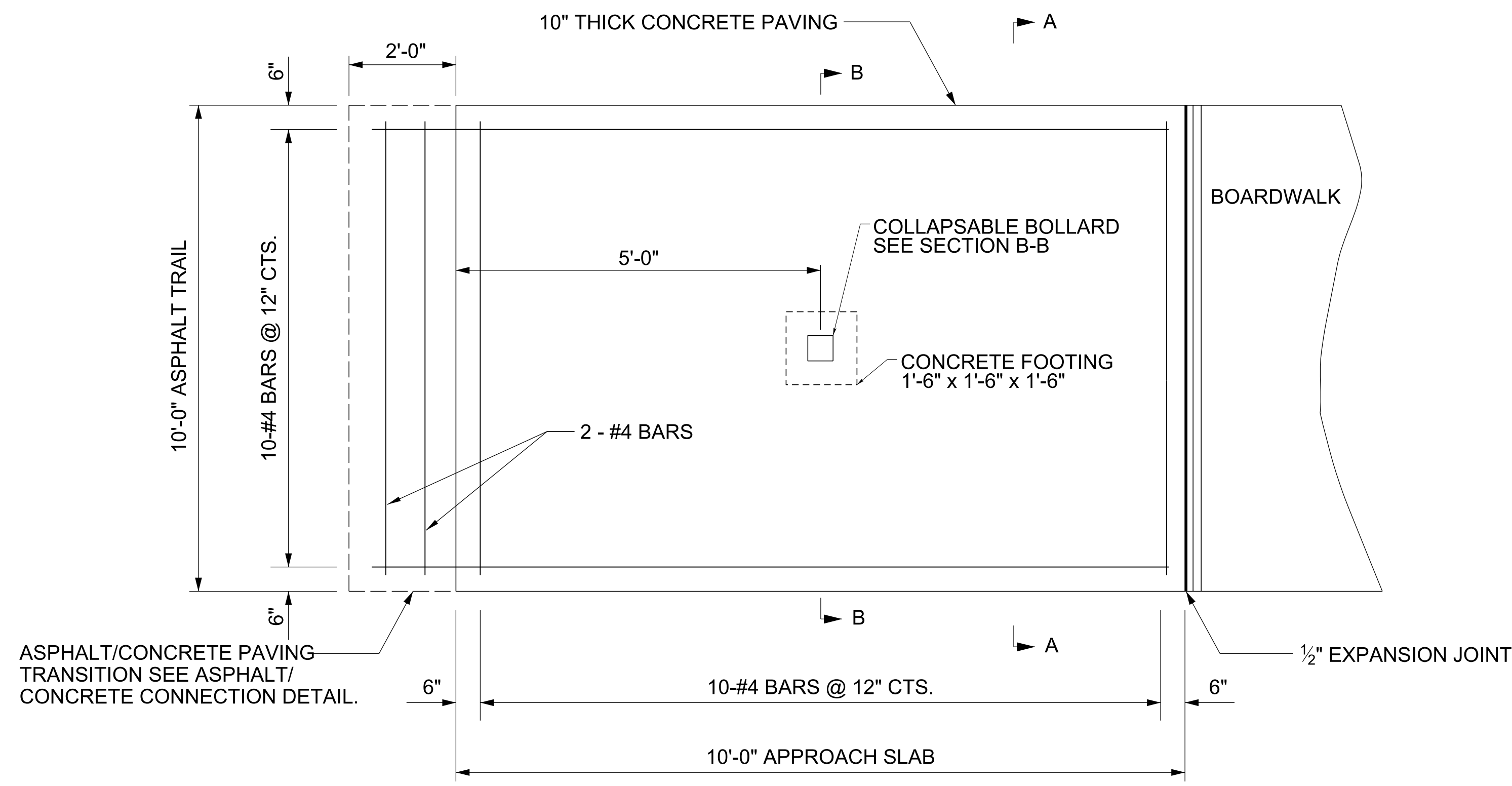
FOR NOTES, SEE SHEET SB-1



NOTE: USE 4:1 TYPICAL BATTER IN TRANSVERSE DIRECTION ONLY
FOR ADDITIONAL DETAILS, SEE SHEET SB-1 SECTION A-A

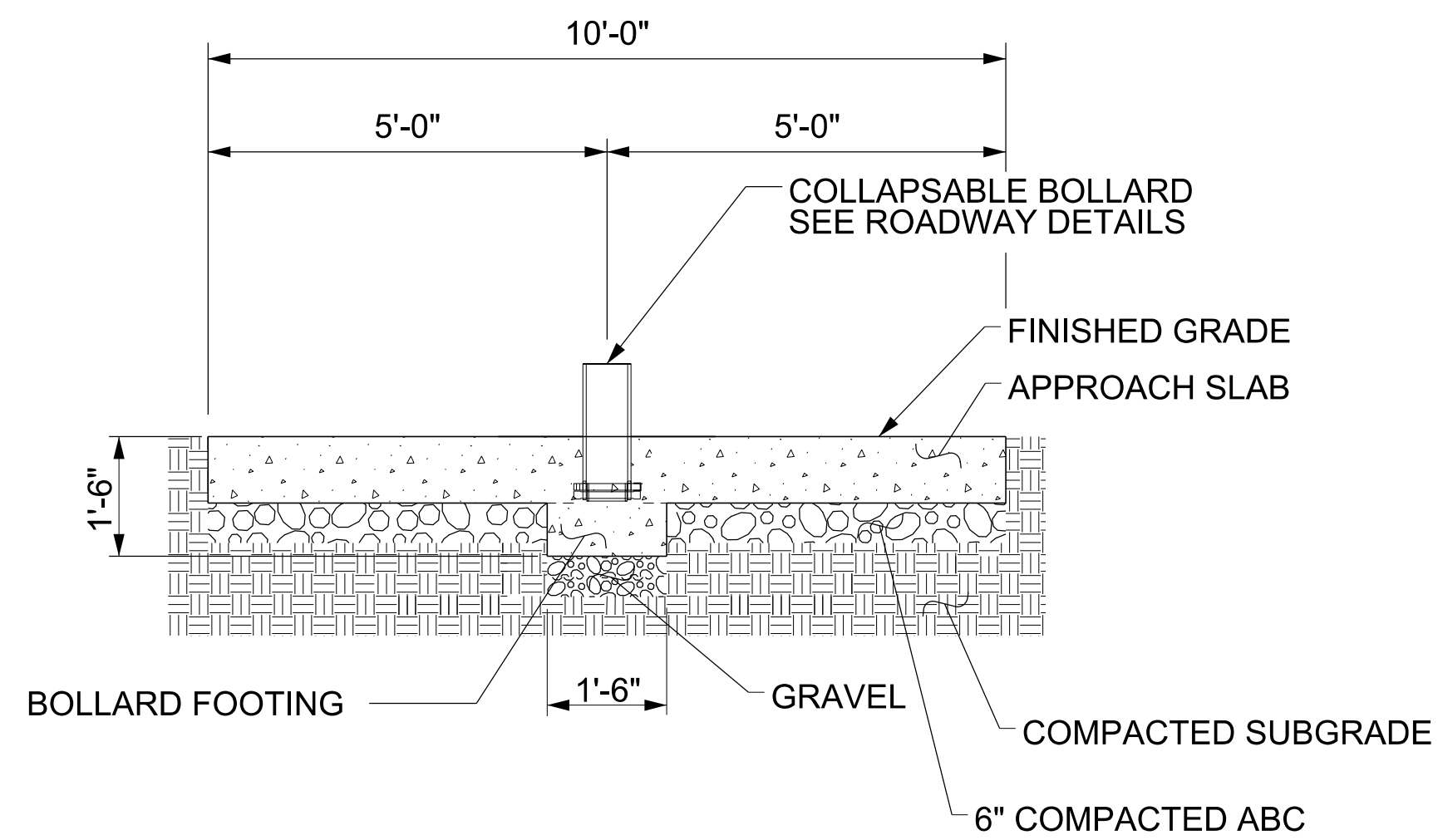
DESIGN LOADS	
PEDESTRIAN LIVE LOAD	90 PSF
VEHICLE LIVE LOAD	AASHTO H5
WIND LOAD ON SUPERSTRUCTURE	54 PSF

TYPICAL DETAILS FOR BATTERED PILE BOARDWALK

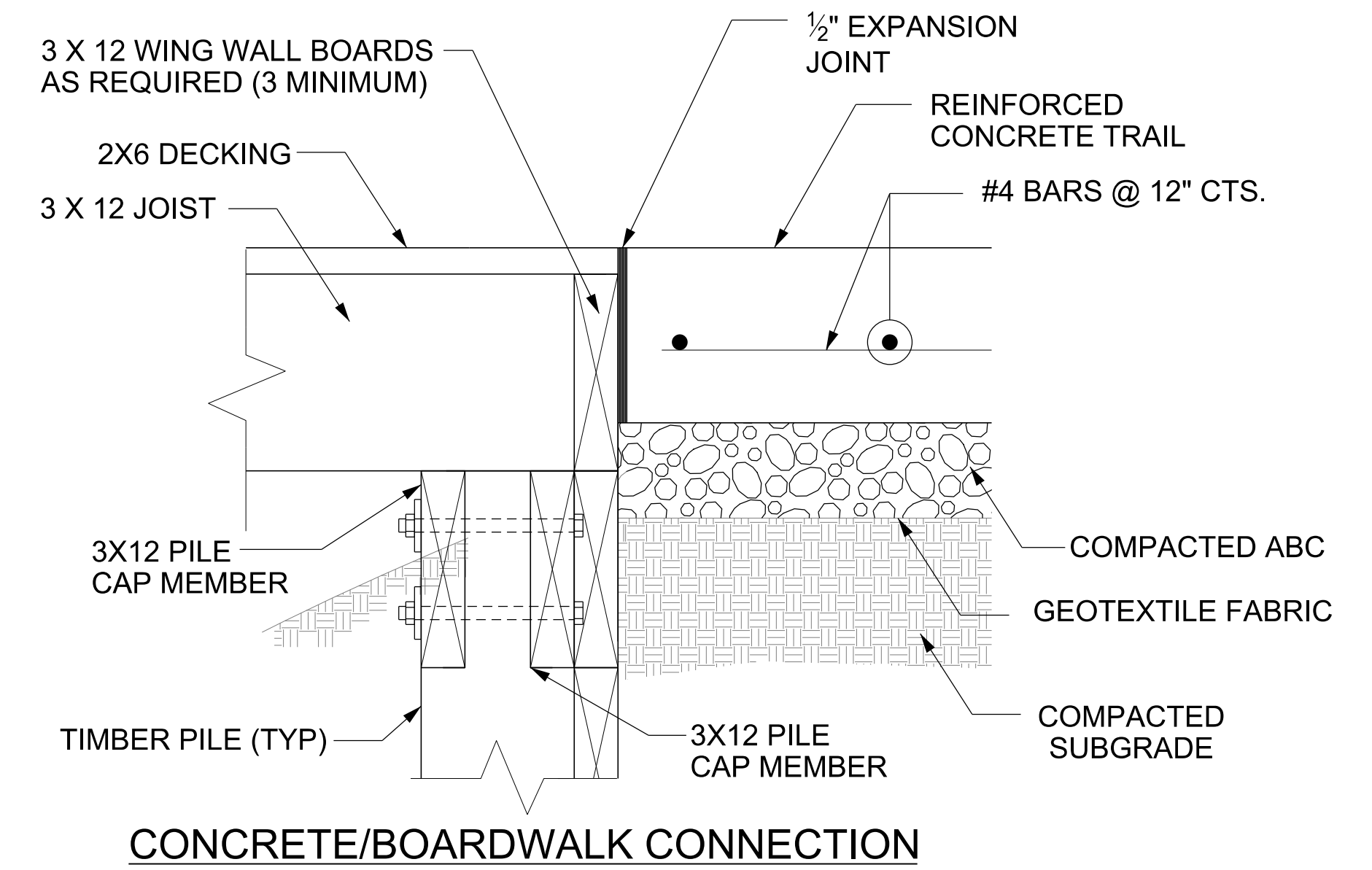


PLAN VIEW

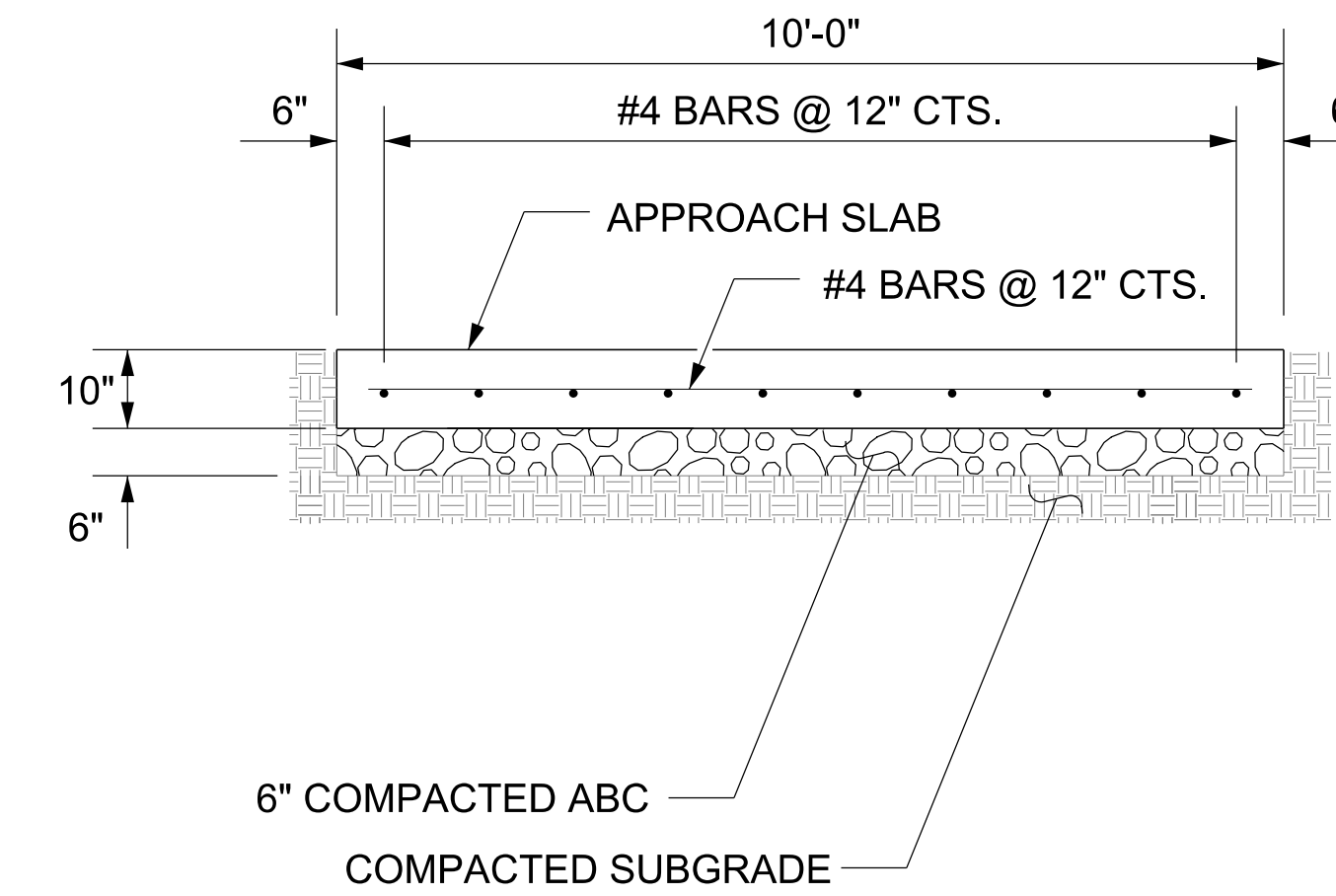
FOR APPROACH DETAILS TO BRIDGE
STRUCTURES, SEE SHEET S-7



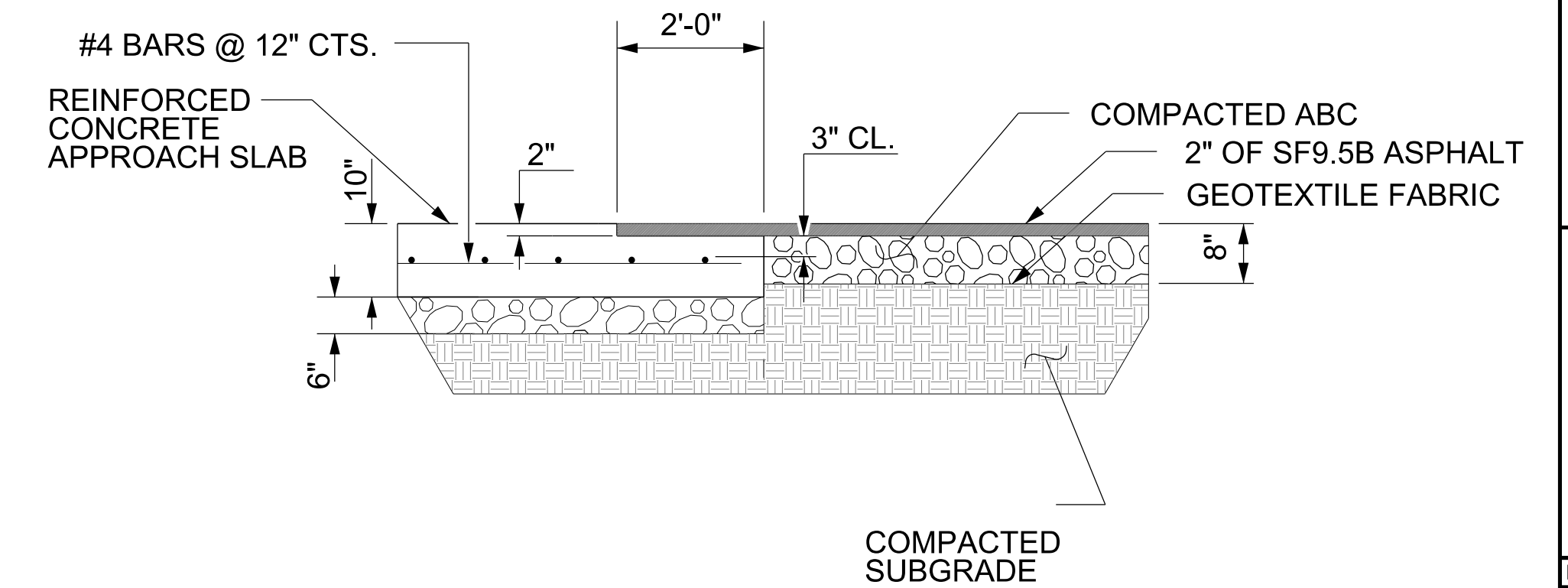
SECTION B-B



CONCRETE/BOARDWALK CONNECTION



SECTION A-A



ASPHALT/CONCRETE CONNECTION

NOTE: GEOTEXTILE TO EXTEND FULL WIDTH OF TRANSITION.
COST OF GEOTEXTILE TO BE INCLUDED WITH THE PAY ITEM
"CONCRETE APPROACH".

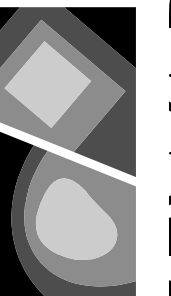
NOTE:
PAYMENT FOR CONCRETE TRAIL AT EACH END OF BOARDWALK WILL BE MADE
UNDER THE PAY ITEM "CONCRETE APPROACH".

TYPICAL DETAILS FOR 10' APPROACH SLAB



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DATE: JANUARY 15, 2018

REVISIONS:	
NO.	DATE

PROJECT NO.:

H14009.00

NTS

SB-8

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	
1630.05	Temporary Diversion	
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle/Coir Fiber Wattle	
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	
1632.02	Type B	
1632.03	Type C	
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

PLAN FOR PROPOSED EROSION CONTROL JOHNSTON COUNTY

**TOWN OF CLAYTON
NORTH CAROLINA**

**SAM'S BRANCH GREENWAY
PHASE II**

**LOCATION:
FROM CITY ROAD TO O'NEIL STREET**

**TYPE OF WORK:
GRADING, PAVING, STRUCTURE,
DRAINAGE, & EROSION CONTROL**

Roadway Standard Drawings

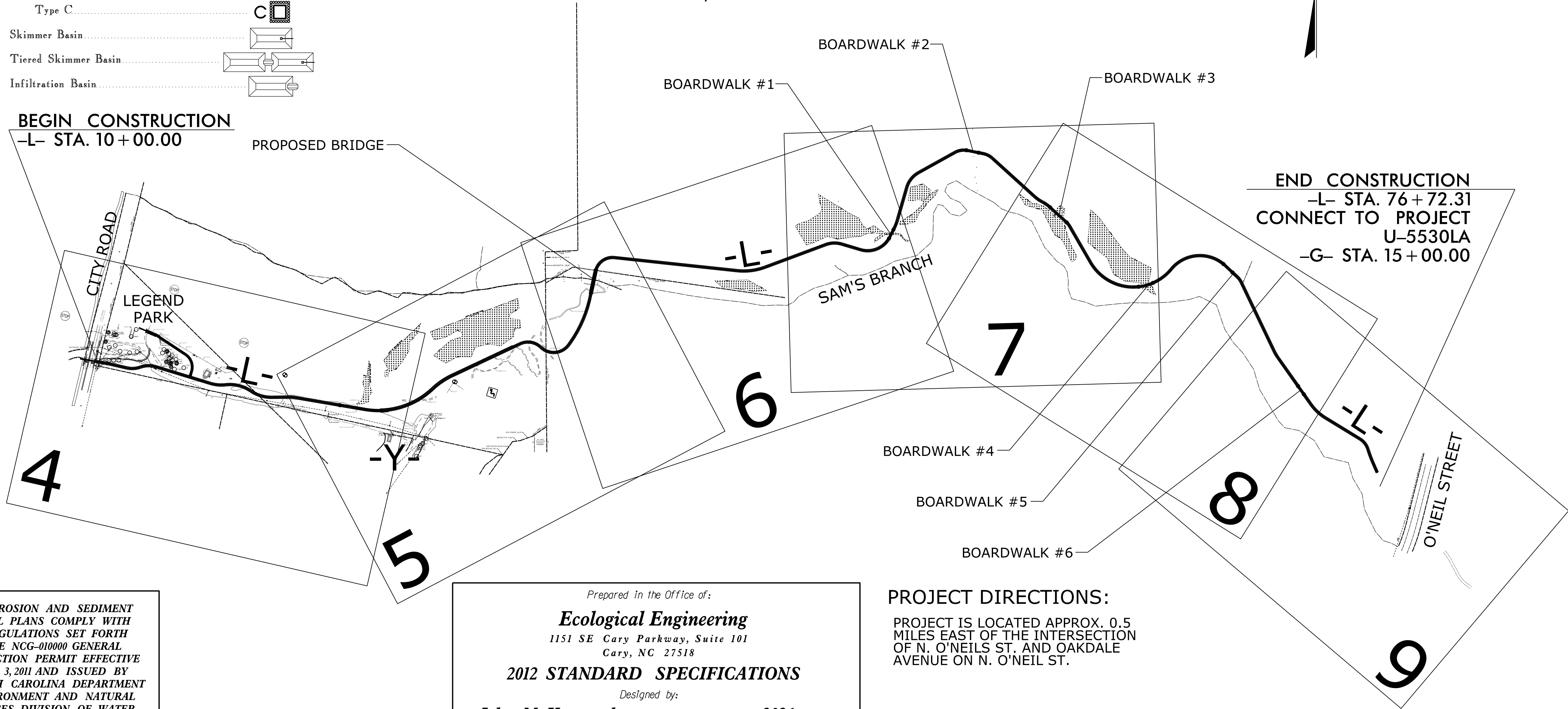
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

**THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.**

**BEGIN CONSTRUCTION
-L- STA. 10 + 00.00**

**END CONSTRUCTION
-L- STA. 76 + 72.31
CONNECT TO PROJECT
U-5530LA
-G- STA. 15 + 00.00**



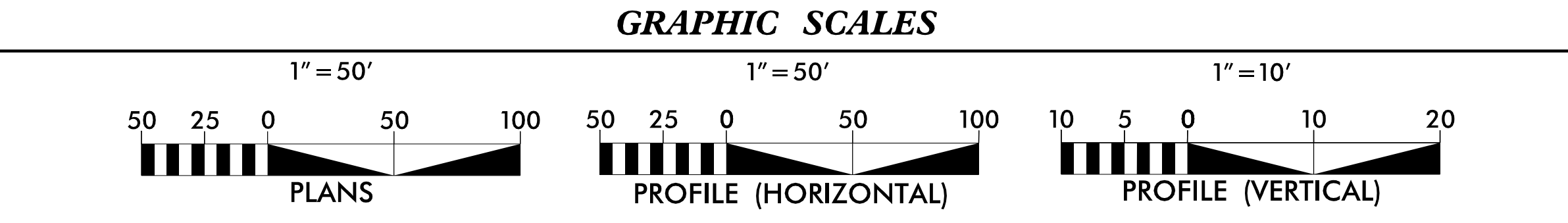
THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared in the Office of:
Ecological Engineering
1151 SE Cary Parkway, Suite 101
Cary, NC 27518

2012 STANDARD SPECIFICATIONS

Designed by:
John M. Kamprath 3036
NAME LEVEL III CERTIFICATION NO.

PROJECT DIRECTIONS:
PROJECT IS LOCATED APPROX. 0.5 MILES EAST OF THE INTERSECTION OF N. O'NEILS ST. AND OAKDALE AVENUE ON N. O'NEIL ST.



DESIGN DATA

DESIGN SPEED = 20 MPH
LEAN ANGLE = 20 DEGREES
FUNC. CLASSIFICATION = GREENWAY

PROJECT LENGTH

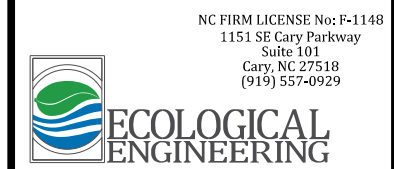
LENGTH OF ASPHALT TRAIL = 1.23 MI
LENGTH OF BOARDWALK = .05 MI
LENGTH OF BRIDGE = .01 MI
LENGTH OF PROJECT = 1.29 MI



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER



DATE: SEPTEMBER 11, 2015

REVISIONS:

NO.	DATE

PROJECT NO.:

H14009.00

EC-1

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	⊗
Property Monument	□
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-wL-B-
Proposed Wetland Boundary	-wL-B-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
Known Contamination Area: Soil	-----
Potential Contamination Area: Soil	-----
Known Contamination Area: Water	-----
Potential Contamination Area: Water	-----
Contaminated Site: Known or Potential	☠ ☢

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or UG Tank Cap	○
Sign	○
Well	○
Small Mine	⊗
Foundation	□
Area Outline	□
Cemetery	+
Building	□
School	□
Church	□
Dam	▬

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	-JS-
Buffer Zone 1	-BZ 1-
Buffer Zone 2	-BZ 2-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite RW Marker	○
Proposed Control of Access Line with Concrete CA Marker	○
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	-E-
Proposed Temporary Construction Easement	-E-
Proposed Temporary Drainage Easement	-TDE-
Proposed Permanent Drainage Easement	-PDE-
Proposed Permanent Drainage / Utility Easement	-DUE-
Proposed Permanent Utility Easement	-PUE-
Proposed Temporary Utility Easement	-TUE-
Proposed Aerial Utility Easement	-AUE-
Proposed Permanent Easement with Iron Pin and Cap Marker	○

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	○
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	○
Pavement Removal	-----

VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----

Orchard	○
Vineyard	□

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□
Paved Ditch Gutter	-----
Storm Sewer Manhole	○
Storm Sewer	-----

UTILITIES:

POWER:	
Existing Power Pole	○
Proposed Power Pole	○
Existing Joint Use Pole	○
Proposed Joint Use Pole	○
Power Manhole	○
Power Line Tower	□
Power Transformer	□
UG Power Cable Hand Hole	○
H-Frame Pole	○
UG Power Line LOS B (S.U.E.*)	-----
UG Power Line LOS C (S.U.E.*)	-----
UG Power Line LOS D (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	○
Proposed Telephone Pole	○
Telephone Manhole	○
Telephone Pedestal	○
Telephone Cell Tower	○
UG Telephone Cable Hand Hole	○
UG Telephone Cable LOS B (S.U.E.*)	-----
UG Telephone Cable LOS C (S.U.E.*)	-----
UG Telephone Cable LOS D (S.U.E.*)	-----
UG Telephone Conduit LOS B (S.U.E.*)	-----
UG Telephone Conduit LOS C (S.U.E.*)	-----
UG Telephone Conduit LOS D (S.U.E.*)	-----
UG Fiber Optics Cable LOS B (S.U.E.*)	-----
UG Fiber Optics Cable LOS C (S.U.E.*)	-----
UG Fiber Optics Cable LOS D (S.U.E.*)	-----

WATER:

Water Manhole	○
Water Meter	○
Water Valve	⊗
Water Hydrant	○
UG Water Line LOS B (S.U.E.*)	-----
UG Water Line LOS C (S.U.E.*)	-----
UG Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

TV Pedestal	○
TV Tower	⊗
UG TV Cable Hand Hole	○
UG TV Cable LOS B (S.U.E.*)	-----
UG TV Cable LOS C (S.U.E.*)	-----
UG TV Cable LOS D (S.U.E.*)	-----
UG Fiber Optic Cable LOS B (S.U.E.*)	-----
UG Fiber Optic Cable LOS C (S.U.E.*)	-----
UG Fiber Optic Cable LOS D (S.U.E.*)	-----

GAS:

Gas Valve	◇
Gas Meter	◇
UG Gas Line LOS B (S.U.E.*)	-----
UG Gas Line LOS C (S.U.E.*)	-----
UG Gas Line LOS D (S.U.E.*)	-----
Above Ground Gas Line	-----

SANITARY SEWER:

Sanitary Sewer Manhole	○
Sanitary Sewer Cleanout	○
UG Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
SS Forced Main Line LOS B (S.U.E.*)	-----
SS Forced Main Line LOS C (S.U.E.*)	-----
SS Forced Main Line LOS D (S.U.E.*)	-----

MISCELLANEOUS:

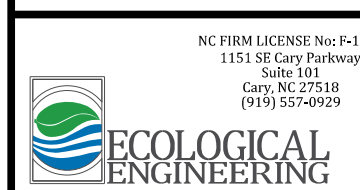
Utility Pole	○
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	○
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
UG Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	○
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	○
UG Test Hole LOS A (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER



DATE: SEPTEMBER 11, 2015

REVISIONS:	
NO.	DATE

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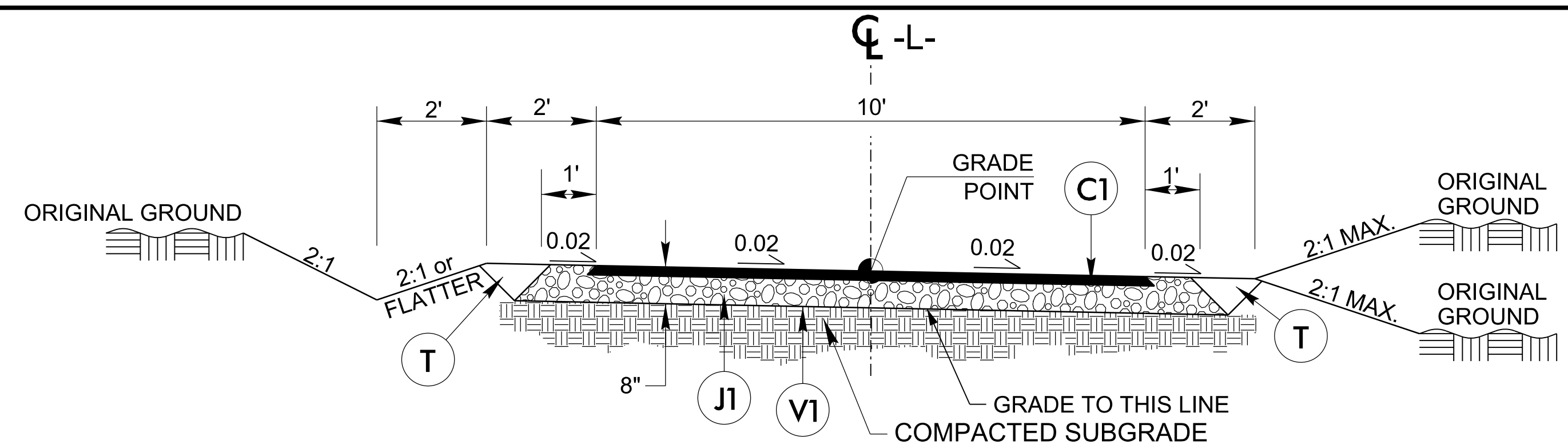
H14009.00

EC-1A

PAVEMENT SCHEDULE	
C1	PROPOSED APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
J1	PROPOSED 6" AGGREGATE BASE COURSE.
V1	GEOTEXTILE SEPARATOR FABRIC
T	EARTH MATERIAL.

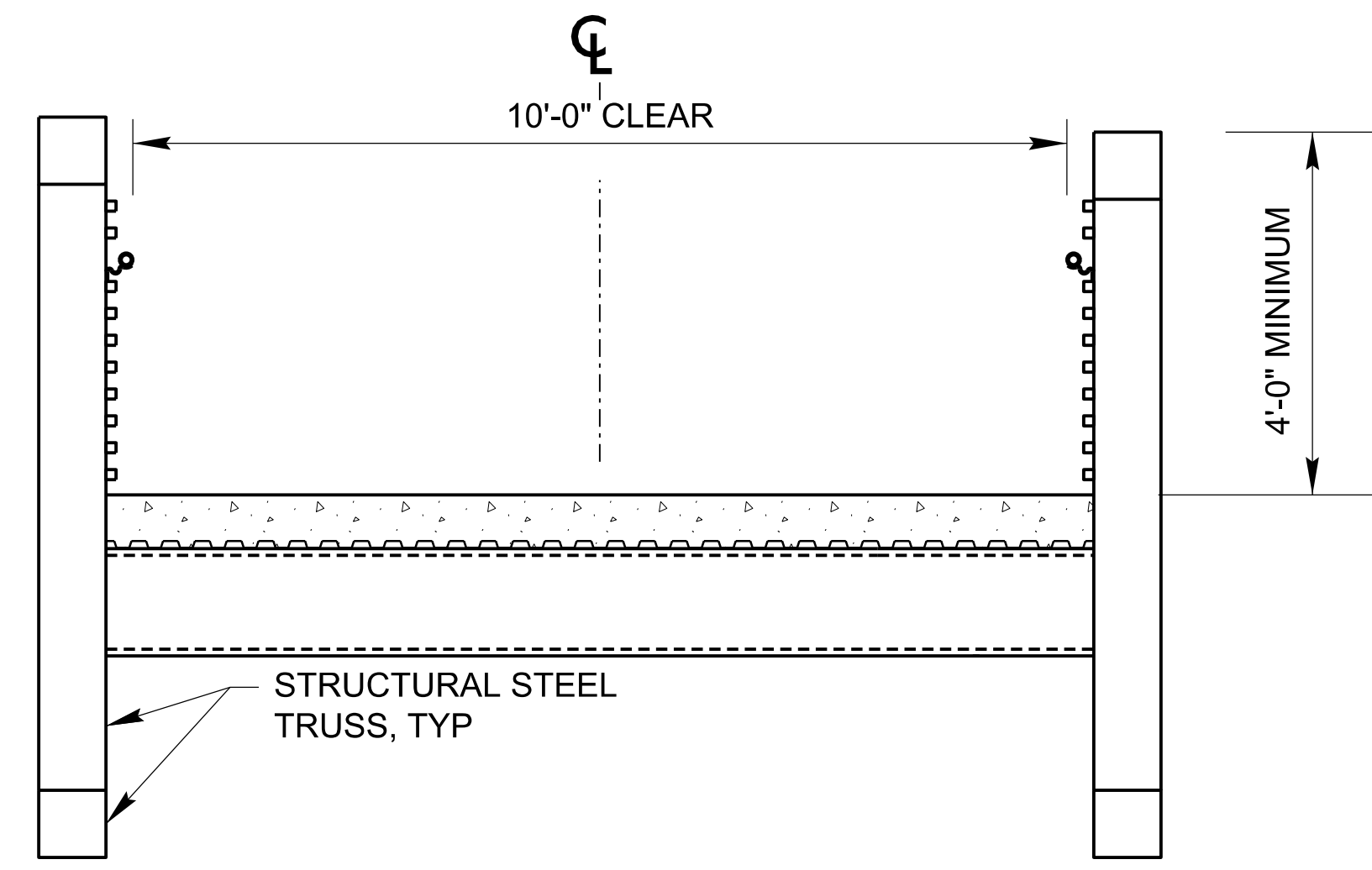
NOTES:

- CROSS SLOPE DIRECTION VARIES. SEE PLAN VIEW AND CROSS SECTIONS FOR DIRECTION OF SLOPE.
- SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
- CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.



TYPICAL SECTION #1 - 10' ASPHALT GREENWAY TRAIL APPLIES TO THE FOLLOWING LOCATIONS

CHAIN	BEGIN STATION	END STATION
-L-	STA. 10+20.00	STA. 18+02.00
-L_REV-	STA. 18+02.00	STA. 20+20.00
-L_REV-	STA. 22+00.00	STA. 25+21.31
-L-	STA. 26+00.03	STA. 33+73.00
-L-	STA. 34+53.00	STA. 47+00.00
-L-	STA. 34+53.00	STA. 47+00.00
-L-	STA. 47+50.00	STA. 52+15.00
-L-	STA. 52+75.00	STA. 56+35.00
-L-	STA. 57+35.00	STA. 61+45.00
-L-	STA. 62+15.00	STA. 65+35.00
-L-	STA. 65+95.00	STA. 71+20.00
-L-	STA. 71+70.00	STA. 76+15.00

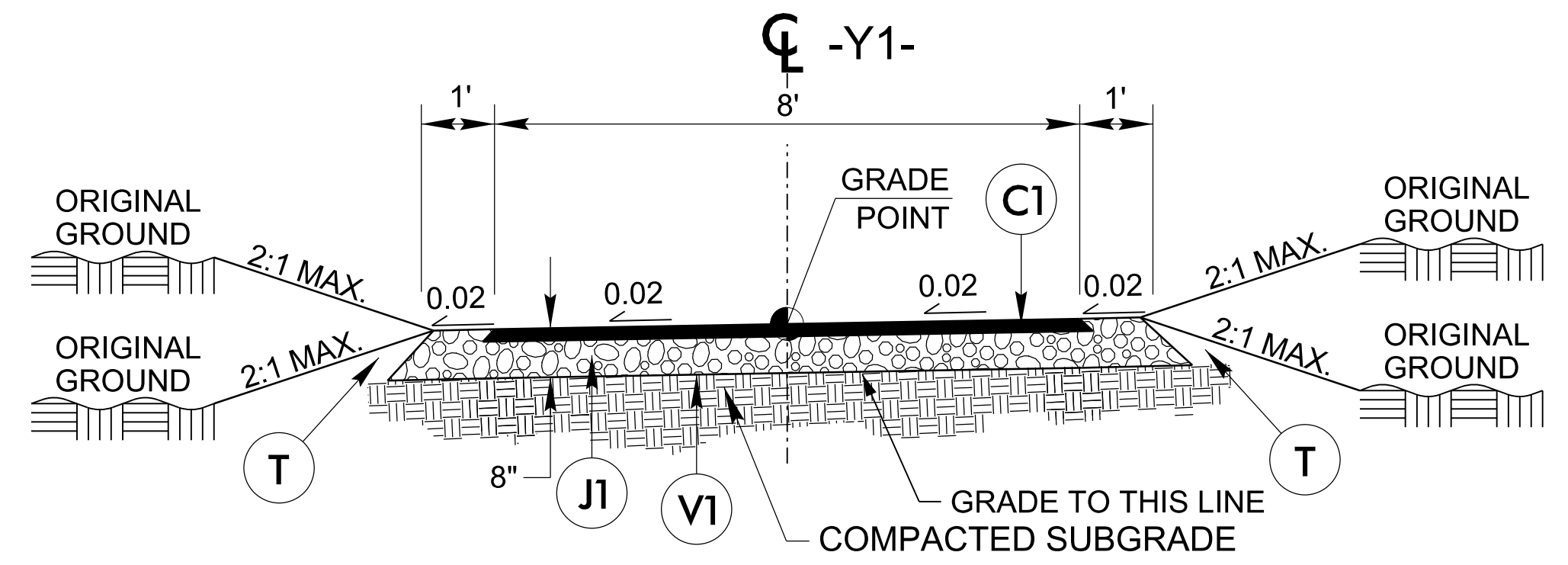


BRIDGE TYPICAL SECTION

BRIDGE NO. (CLEAR WIDTH)	CHAIN	BEGIN STATION	END STATION
S1 (10')	-L-	33+83.00	34+43.00

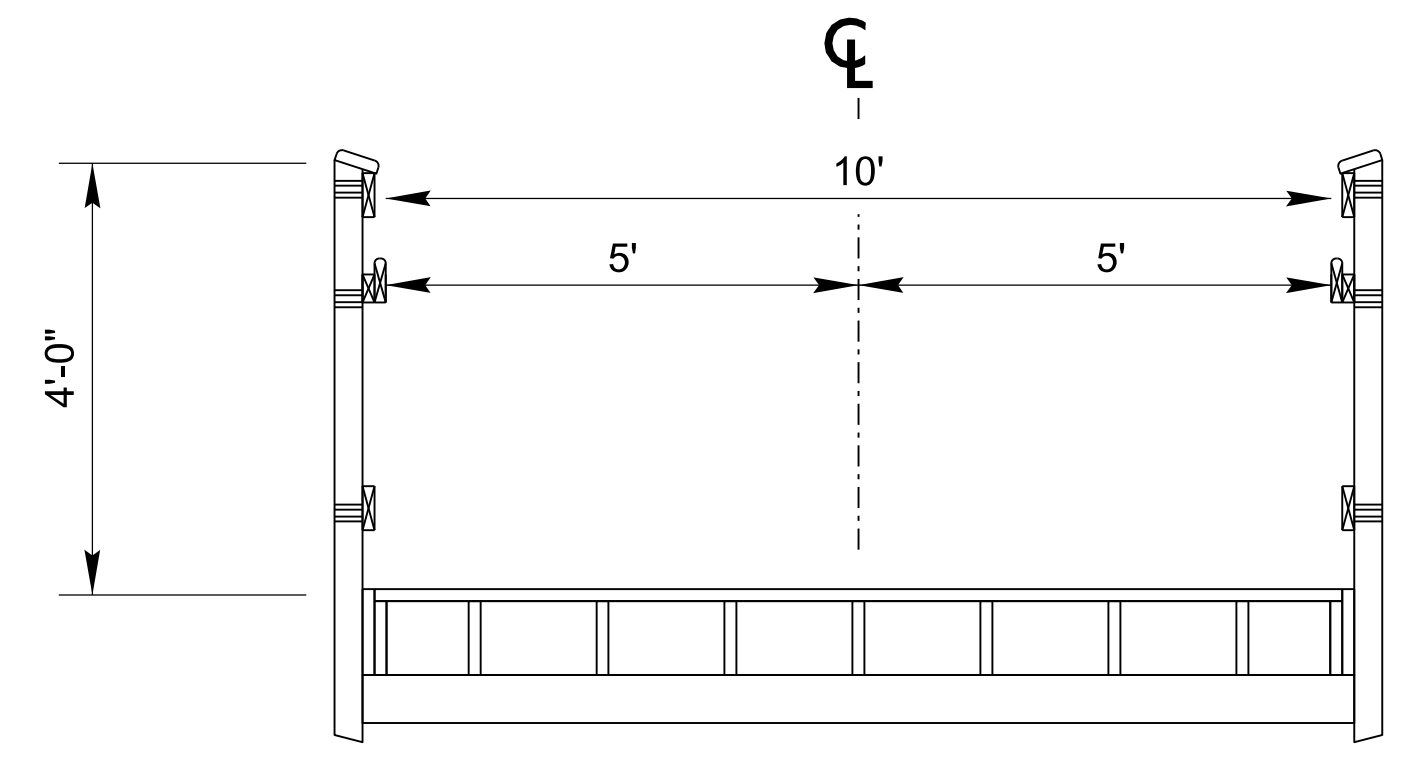
CONCRETE APPROACH SLABS

STRUCTURE	CHAIN	BEGIN STATION	END STATION
S1	-L-	STA. 33+73.00	STA. 33+83.00
S1	-L-	STA. 34+43.00	STA. 34+53.00
BOARDWALK 1	-L-	STA. 47+00.00	STA. 47+10.00
BOARDWALK 1	-L-	STA. 47+40.00	STA. 47+50.00
BOARDWALK 2	-L-	STA. 52+15.00	STA. 52+25.00
BOARDWALK 2	-L-	STA. 52+65.00	STA. 52+75.00
BOARDWALK 3	-L-	STA. 56+35.00	STA. 56+45.00
BOARDWALK 3	-L-	STA. 57+25.00	STA. 57+35.00
BOARDWALK 4	-L-	STA. 61+45.00	STA. 61+55.00
BOARDWALK 4	-L-	STA. 62+05.00	STA. 62+15.00
BOARDWALK 5	-L-	STA. 65+35.00	STA. 65+45.00
BOARDWALK 5	-L-	STA. 65+85.00	STA. 65+95.00
BOARDWALK 6	-L-	STA. 71+20.00	STA. 71+30.00
BOARDWALK 6	-L-	STA. 71+60.00	STA. 71+70.00
BOARDWALK 7	-L_REV-	STA. 20+20.00	STA. 20+30.00
BOARDWALK 7	-L_REV-	STA. 21+90.00	STA. 22+00.00



TYPICAL SECTION #2 - 8' ASPHALT GREENWAY TRAIL APPLIES TO THE FOLLOWING LOCATIONS

CHAIN	BEGIN STATION	END STATION
-Y1-	STA. 10+50.00	STA. 13+15.92



BOARDWALK TYPICAL SECTION

BOARDWALK NO.	CHAIN	BEGIN STATION	END STATION
1	-L-	STA. 47+10.00	STA. 47+40.00
2	-L-	STA. 52+25.00	STA. 52+65.00
3	-L-	STA. 56+45.00	STA. 57+25.00
4	-L-	STA. 61+55.00	STA. 62+05.00
5	-L-	STA. 65+45.00	STA. 65+85.00
6	-L-	STA. 71+30.00	STA. 71+60.00
7	-L_REV-	STA. 20+30.00	STA. 21+90.00



SAM'S BRANCH GREENWAY
 PHASE II
 CITY ROAD TO NORTH O'NELL STREET

GREENWAY ENGINEER



HYDRAULICS ENGINEER



DATE: JANUARY 23, 2018

NO.	DATE

PROJECT NO.:

H14009.00

SCALE: NTS

EC-2

PROJECT DESCRIPTION

THE PROJECT SITE IS LOCATED IN JOHNSTON COUNTY WITHIN THE TOWN OF CLAYTON AND IS WITHIN THE NEUSE RIVER BASIN. THE PROPOSED PROJECT INCLUDES THE CONSTRUCTION OF APPROXIMATELY 1.3 MILES OF NEW GREENWAY ALONG SAM'S BRANCH BETWEEN CITY ROAD AND O'NEIL STREET. THE LIMITS OF DISTURBANCE WERE CALCULATED BASED ON CLEARING METHOD TWO AT APPROXIMATELY 6.3 ACRES FOR THIS SITE. ALL DISTURBED AREAS WILL BE STABILIZED WITH VEGETATION BY SEEDING AND MULCHING.

THE PROJECT DESIGN SHALL COMPLY WITH NORTH CAROLINA LAND QUALITY GUIDELINES AND PROCEDURES AND ALL APPLICABLE FEDERAL, STATE, AND TOWN REQUIREMENTS AND STANDARDS; IDENTIFYING AREAS WHERE RIGHT-OF-WAY OR EASEMENT ACQUISITION MAY BE NECESSARY TO ACCOMMODATE THE ROADWAY WIDENING; AND PROVIDING PLANS, SPECIFICATIONS AND ESTIMATES. THE PLANS SHALL BE COMPLETED TO SHOW THE DESIGN, SITE PLANS, LANDSCAPING, DRAINAGE, EASEMENTS AND UTILITY CONFLICTS.

GENERAL NOTES

- ANY STAGING, MATERIAL LAY DOWN, DIRT OR WASTE PILES WILL BE LOCATED WITHIN THE LIMITS OF DISTURBANCE. IF ANY ADDITIONAL STAGING AREAS ARE REQUIRED BY THE CONTRACTOR, ANY ADDITIONAL EASEMENTS, AND REGULATORY PERMITS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL MATERIALS WILL BE CONTAINED WITHIN LIMITS OF DISTURBANCE AND WILL BE LOCATED A MINIMUM OF 50' FROM ANY WATERCOURSE OR DRAINAGE STRUCTURES.
- CONCRETE TRUCK CLEAN OUT SLURRY GENERATED FOR THIS PROJECT MUST STAY ON THIS PROJECT OR ANOTHER AREA MUST BE DESIGNATED AS A CONCRETE WASHOUT AREA. RECOMMENDED AREA FOR CONCRETE WASHOUT IS SHOWN ON THE PLANS. IF AN ALTERNATIVE AREA FOR WASHOUT IS USED IT MUST BE LOCATED WITHIN THE LIMITS OF DISTURBANCE AS INDICATED ON THE PLANS.

CONSTRUCTION SEQUENCE

- THE CONTRACTOR SHALL NOTIFY NCDENR DIVISION OF LAND QUALITY BEFORE BEGINNING ANY WORK ON THIS SITE. (PHONE NUMBER (919) 791-4200)
- HOLD PRECONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.
- FLAG WORK LIMITS AND INSTALL TEMPORARY SILT FENCE AND OTHER MEASURES AS SHOWN ON THE CLEARING AND GRUBBING PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. NO CLEARING CAN TAKE PLACE UNTIL EROSION CONTROL MEASURES ARE INSTALLED AND IF CLEARING IS REQUIRED TO INSTALL EROSION CONTROL MEASURES, ONLY CLEAR THE AREA NEEDED TO INSTALL EROSION CONTROL DEVICES.
- CALL FOR ON-SITE INSPECTION BY ENVIRONMENTAL INSPECTOR TO OBTAIN APPROVAL.
- COMPLETE SITE CLEARING AND GRUBBING FOR ENTIRE PROJECT. MAINTAIN AND ADJUST DEVICES AS NEEDED.
- ONCE THE GREENWAY/ACCESS ROAD HAS BEEN INSTALLED UP TO THE CRANE PAD LOCATION FOR CONSTRUCTION OF BRIDGE AT 34+43 -L- THE CRANE CAN BE BROUGHT IN.
- PERFORM GRADING OPERATIONS AND INSTALL PROPOSED DRAINAGE NETWORK. INSTALL FINAL GRADING EROSION CONTROL DEVICES AS THE DRAINAGE NETWORK IS CONSTRUCTED. FOLLOWING THE CONSTRUCTION OF ANY DITCHES, ALL TEMPORARY MATTING OR RIP RAP MUST BE INSTALLED WITHIN 7 DAYS AS SPECIFIED BY NCG-010000. CROSS PIPES THAT REQUIRE IMPERVIOUS DIKES AND SPECIAL STILLING BASINS WILL BE INSTALLED FOLLOWING CLEARING AND GRUBBING PRIOR TO THE INSTALLATION OF FINAL GRADE EROSION CONTROL DEVICES.
- STABILIZE ALL DENUDED AREAS. STABILIZATION FOR THIS PROJECT SHALL COMPLY WITH THE TIME FRAME GUIDELINES AS SPECIFIED BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY. TEMPORARY OR PERMANENT GROUND COVER STABILIZATION SHALL OCCUR WITHIN 7 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY, WITH THE FOLLOWING EXCEPTIONS IN WHICH TEMPORARY OR PERMANENT GROUND COVER SHALL BE PROVIDED IN 14 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY:
 - SLOPES 2:1 AND 3:1, WITH A SLOPE LENGTH OF 10 FEET OR LESS
 - SLOPES 3:1 OR FLATTER, WITH A SLOPE LENGTH OF 50 FEET OR LESS
 - SLOPES 4:1 OR FLATTER
- INSPECT ALL EROSION AND SEDIMENT CONTROL DEVICES WEEKLY AND AFTER EVERY RAINFALL EVENT. PERFORM REQUIRED MAINTENANCE AND REPAIR IMMEDIATELY.
- AFTER THE SITE IS STABILIZED, REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.

24 HR CONTACT: TIM SIMPSON
TOWN OF CLAYTON
(919)-553-1530

NURSE CROP SEEDING

PREPERATION FOR PRIMARY/PERMANENT STABILIZATION SHALL NOT BEGIN UNTIL ALL CONSTRUCTION AND UTILITY WORK WITHIN THE PREPARATION AREA IS COMPLETE. HOWEVER, IT MAY BE NECESSARY TO PREPARE FOR NURSE CROPS PRIOR TO COMPLETION OF CONSTRUCTION AND INSTALLATION OF UTILITIES.

A QUICKLY GERMINATING NURSE CROP OF NON-INVASIVE, NON-COMPETITIVE ANNUAL GRASS SPECIES SHOULD BE USED ALONG WITH NATIVE SEEDING AND/OR MATTING. THESE TEMPORARY MEASURES SHOULD BE PLANTED AT MINIMUM DENSITY AS TO NOT INHIBIT THE GROWTH AND ESTABLISHMENT OF THE PERMANENT, NATIVE SPECIES. REFER TO THE TEMPORARY SEEDING SCHEDULE FOR SPECIFIC NURSE CROP SPECIES AND SEEDING RATES.

TEMPORARY SEEDING SCHEDULE

FERTILIZER SHALL BE THE SAME ANALYSIS AS SPECIFIED FOR PERMANENT SEEDING AND APPLIED AT THE RATE OF 400 POUNDS AND SEEDED AT THE RATE OF 50 POUNDS PER ACRE. SWEET SUDAN GRASS, GERMAN MILLET, OR BROWNTOP MILLET SHALL BE USED IN SUMMER MONTHS AND RYE GRAIN DURING THE REMAINDER OF THE YEAR. THE ENGINEER WILL DETERMINE THE EXACT DATES FOR USING EACH KIND OF SEED.

PERMANENT SEEDING SCHEDULE

SEEDING MIXTURE RATES

MARCH 1 - AUGUST 31		SEPTEMBER 1 - FEBRUARY 28	
LB/ACRE	TYPE	LB/ACRE	TYPE
240	TALL FESCUE	240	TALL FESCUE
10	CENTIPEDE	10	CENTIPEDE
25	BERMUDAGRASS (HULLED)	35	BERMUDAGRASS (HULLED)

ON CUT AND FILL SLOPES 2:1 OR STEEPER CENTIPEDE SHALL BE APPLIED AT THE RATE OF 5 LBS/ACRE AND ADD 20 LBS OF SERICEA LESPEDEZA FROM JANUARY 1 TO DECEMBER 31.

SOIL AMENDMENTS

APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY A MINIMUM OF 2 TONS/ACRE GROUND AGRICULTURAL LIMESTONE AND 3 TONS/ACRE IN CLAY SOILS, AND 500 LB/ACRE 10-20-20 FERTILIZER. A DIFFERENT ANALYSIS OF FERTILIZER MAY BE USED PROVIDED THE 1-2-2 RATIO IS MAINTAINED AND THE RATE OF APPLICATION ADJUSTED TO PROVIDE THE SAME AMOUNT OF PLANT FOOD AS A 10-20-20 ANALYSIS AND AS DIRECTED.

MULCH

APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT AT A RATE OF 400 GALLONS OF ASPHALT PER ACRE.

MAINTENANCE

REFERTILIZE IN THE SECOND YEAR UNLESS GROWTH IS FULLY ADEQUATE. MAY BE MOWED ONCE OR TWICE A YEAR, BUT MOWING IS NOT NECESSARY. THE MINIMUM MOWING HEIGHT SHALL BE 4". RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

ANNOUNCEMENT OF COMBINED SELF-MONITORING AND SELF-INSPECTION FORM

THE SEDIMENTATION POLLUTION CONTROL ACT WAS AMENDED IN 2006 TO REQUIRE THAT PERSONS RESPONSIBLE FOR LAND-DISTURBING ACTIVITIES INSPECT A PROJECT AFTER EACH PHASE OF THE PROJECT TO MAKE SURE THAT THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN IS BEING FOLLOWED.

RULES DETAILING THE DOCUMENTATION OF THESE INSPECTIONS BECAME EFFECTIVE OCTOBER 1, 2010.

TO SIMPLIFY DOCUMENTATION OF SELF-INSPECTION REPORTS AND NPDES SELF-MONITORING REPORTS, A COMBINED FORM IS NOW AVAILABLE. THE NEW FORM WAS DEVELOPED TO SATISFY THE REQUIREMENTS OF THE SEDIMENTATION POLLUTION CONTROL ACT AND THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES, NCG 010000. BEGINNING AUGUST 1, 2013 THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES IS RESPONSIBLE FOR ADMINISTERING BOTH THE SPCA AND THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES, NCG 010000. THE COMBINED FORM SHOULD MAKE IT EASIER TO COMPLY WITH SELF-INSPECTION REQUIREMENTS.

THE COMBINED SELF-MONITORING FORM IS AVAILABLE AS A PDF AND WORD DOCUMENT FROM THE LAND QUALITY WEB SITE,

<http://portal.ncdenr.org/web/1/erosion>

IF YOU HAVE QUESTIONS, PLEASE CONTACT THE LAND QUALITY SECTION AT A DENR REGIONAL OFFICE.

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.

SOIL PREPARATION

FOR AREAS THAT ARE TO BE SEEDED ALL STONES LARGER THAN 3 INCHES, STICKS, ROOTS, AND OTHER MATERIALS SHALL BE REMOVED. AREAS TO BE SEEDED OR PLANTED SHALL BE TILLED OR RIPPED TO A MINIMUM DEPTH OF 4 INCHES. LIME AND FERTILIZER SHALL BE APPLIED AS SPECIFIED IN THE SEEDING SCHEDULE.

WETLAND SEEDING MIXTURE

SEEDING MIXTURE TO BE USED FOR RESTORATION OF ANY DISTURBED WETLAND DURING CONSTRUCTION.

COMMON NAME	SPECIES NAME	PERCENT	RATE (LBS/ACRE)
AUTUMN BENTGRASS	AGROSTIS PERENNANS	25	20
BEGGAR TICKS	BIDENS ARISTOSA	5	20
BLACK-EYED SUSAN	RUDBECKIA HIRTA	2.5	20
BLUE FLAG	IRIS VERSICOLOR	2.5	20
BLUE VERVAIN	VERBENA HASTATE	2.5	20
BUSHY BLUESTEM	ANDROPOGON GLOMERATUS	2.5	20
CARDINAL FLOWER	LOBELIA CARDINALIS	2.5	20
COREOPSIS	COREOPSIS LANCEOLATA	5	20
DEER TONGUE	PANICUM CLANDESTINUM	5	20
FOX SEDGE	CAREX VELPINOIDEA	10	20
INDIAN GRASS	SORGHASTRUM NUTANAS	2.5	20
LITTLE BLUESTEM	SCHIZACHYRIUM SCOPARIUM	25	20
PARTRIDGE PEA	CHAMAECRISTA FASCICULATA	2.5	20
PENNSYLVANIA SMARTWEED	POLYGONUM PENNSYLVANICUM	2.5	20
RIVER OATS	UNIOLA LATIFOLIA	2.5	20
SNOWY TICK TREFOLI	DESMODIUM CANADENSE	2.5	20
SOFT RUSH	JUNCUS EFFUSUS	2.5	20
SWITCHGRASS	PANICUM VIRGATUM	7	20
VIRGINIA WILD RYE	ELYMUS VIRGINICUS	13	20

MAINTENANCE REQUIREMENTS

- EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL OR AT A MINIMUM ONCE A WEEK. IF REPAIRS ARE NEEDED THEY WILL BE DONE SO IMMEDIATELY.
- SEDIMENT WILL BE REMOVED FROM BEHIND SILT FENCING WHEN IT BECOMES 0.5 FT DEEP OR GREATER. SILT FENCING WILL BE REPLACED AS NECESSARY TO MAINTAIN AN ADEQUATE BARRIER.
- EROSION AND SEDIMENT CONTROL PRACTICES INCLUDING: SILT CHECKS, COIR FIBER WATTLES (WITH AND WITHOUT PAM), AND ROCK INLET SEDIMENT TRAPS WILL BE CLEANED OUT AS NECESSARY.
- ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO THE SPECIAL PROVISIONS IN ORDER TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
- RAINFALL TO BE RECORDED DAILY EVEN IF ITS ZERO INCHES.

PIPE CONSTRUCTION SEQUENCE

ALL CROSS PIPES TO BE INSTALLED IN THE DRY AND COMPLETED IN ONE DAY TO MINIMIZE IMPACT TO WATERCOURSE. OTHERWISE, CONTRACTOR MUST USE COFFER DAMS WITH PUMP AROUND AND SILT BAG FOR DEWATERING OR OTHER ACCEPTABLE ALTERNATIVE TO DIRECT FLOW THROUGH WORK AREA.

CONTRACTOR MUST HAVE PUMP AROUND IN PLACE EVEN IF CROSS PIPE IS TO BE INSTALLED IN THE DRY.



SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET

GREENWAY ENGINEER

HYDRAULICS ENGINEER

NC FIRM LICENSE No. F-1148
 1151 E. Cary Parkway
 Suite 101
 Cary, NC 27513
 (919) 557-0929



DATE: SEPTEMBER 11, 2015

REVISIONS:

NO.	DATE

PROJECT NO.:

H14009.00

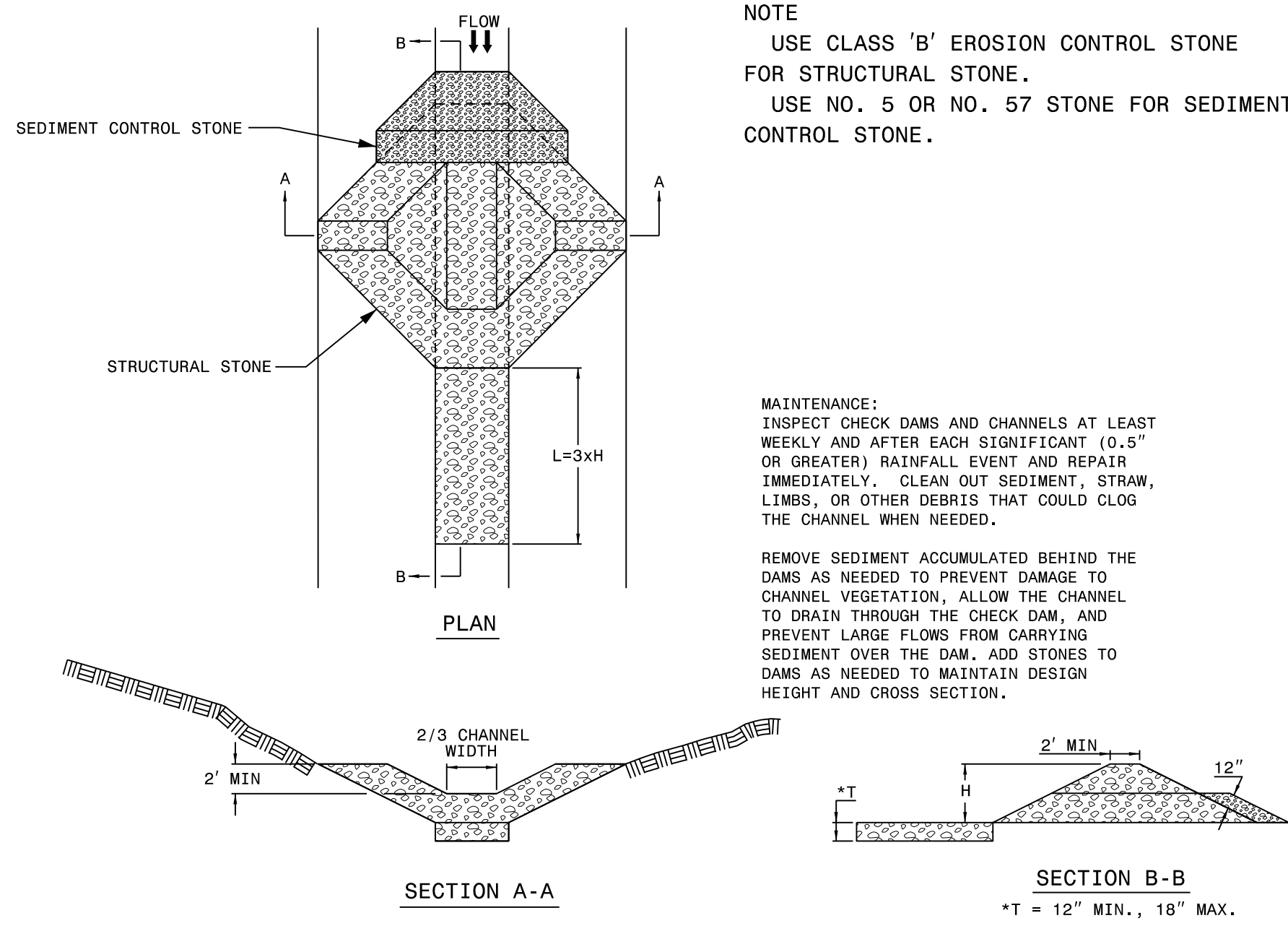
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EC-3

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'A'

SHEET 1 OF 1
1633.01



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

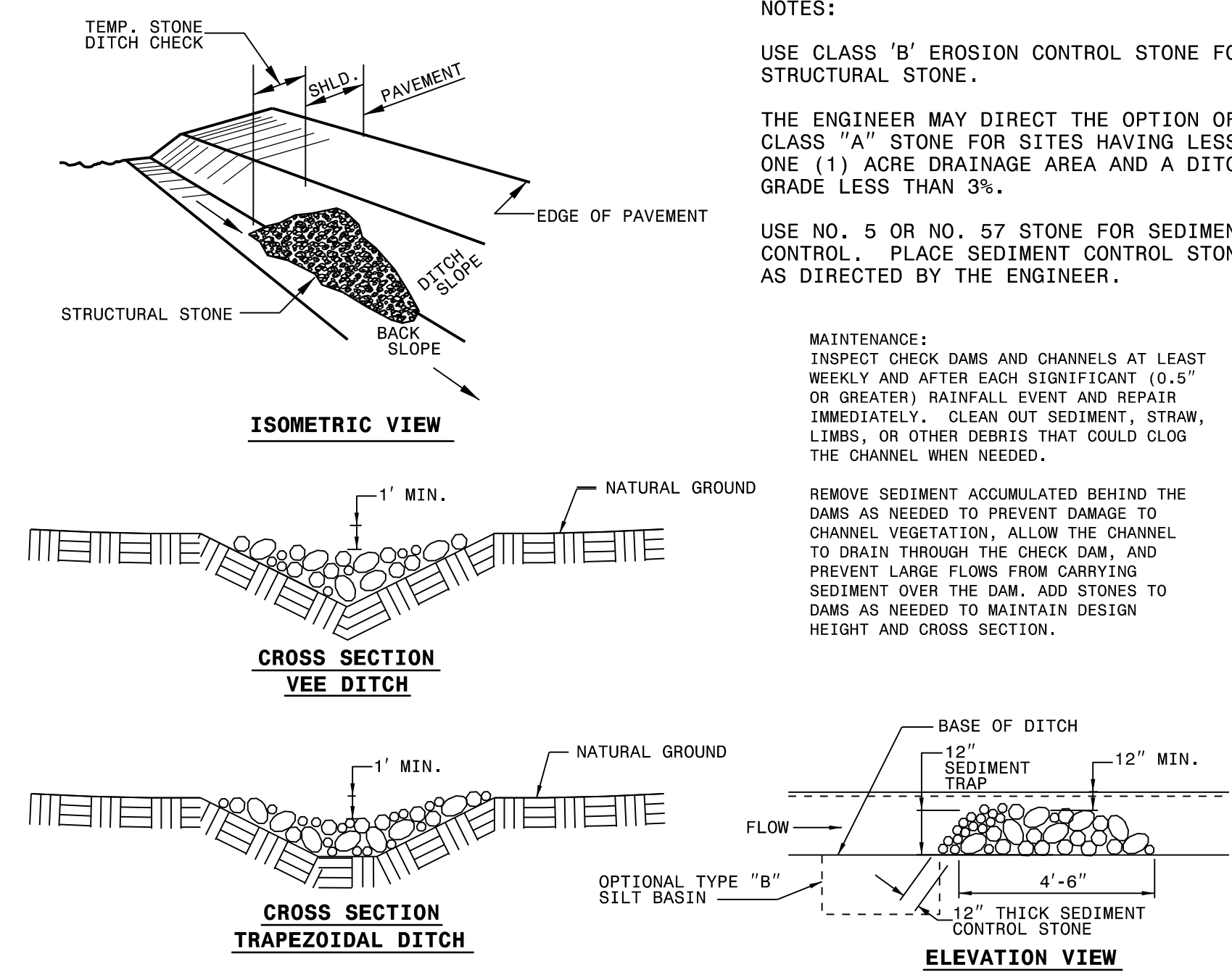
ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'A'

SHEET 1 OF 1
1633.01

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'B'

SHEET 1 OF 1
1633.02



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

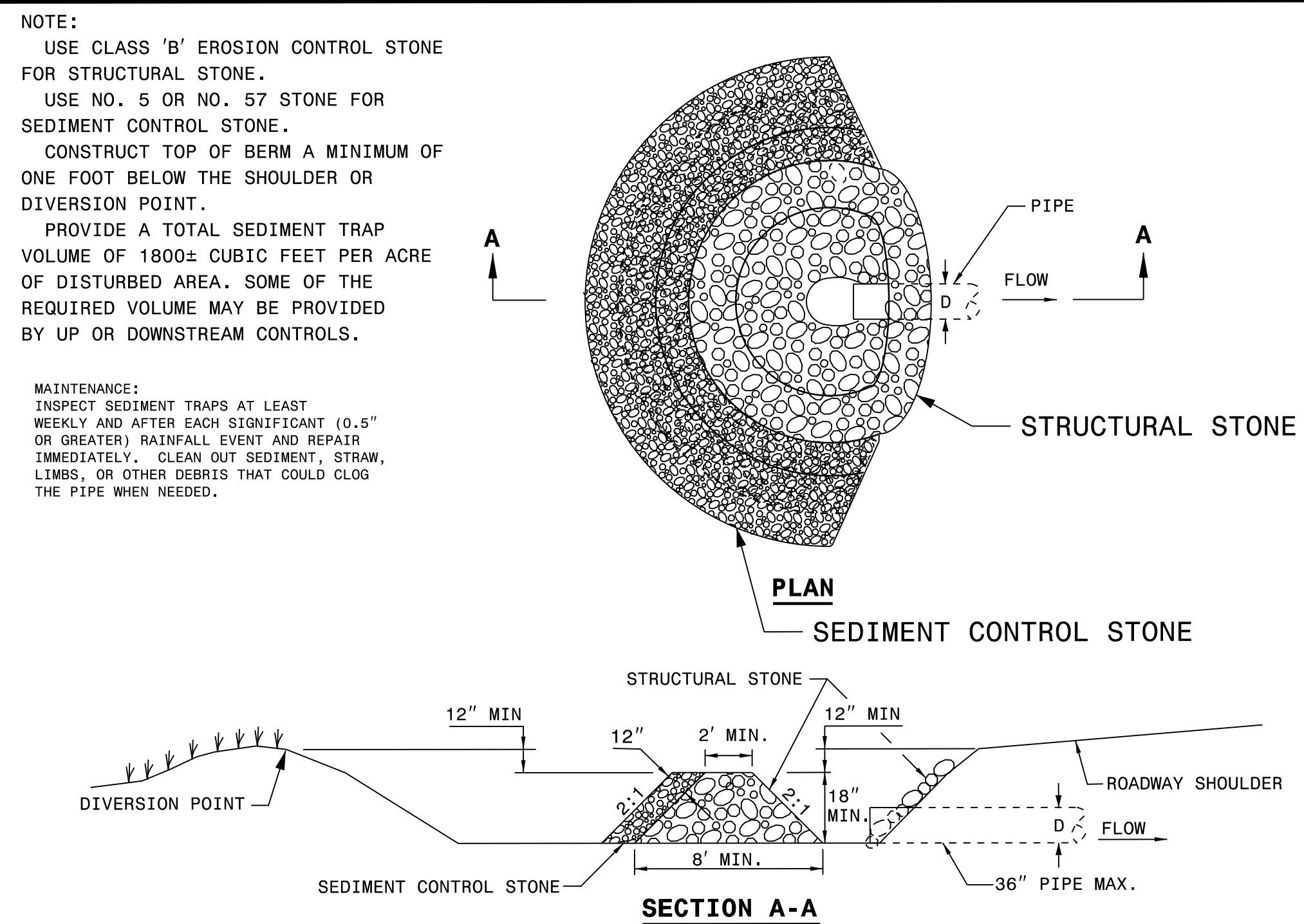
ENGLISH STANDARD DRAWING FOR
TEMPORARY ROCK SILT CHECK TYPE 'B'

SHEET 1 OF 1
1633.02

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
ROCK PIPE INLET SEDIMENT TRAP TYPE 'A'

SHEET 1 OF 1
1635.01



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

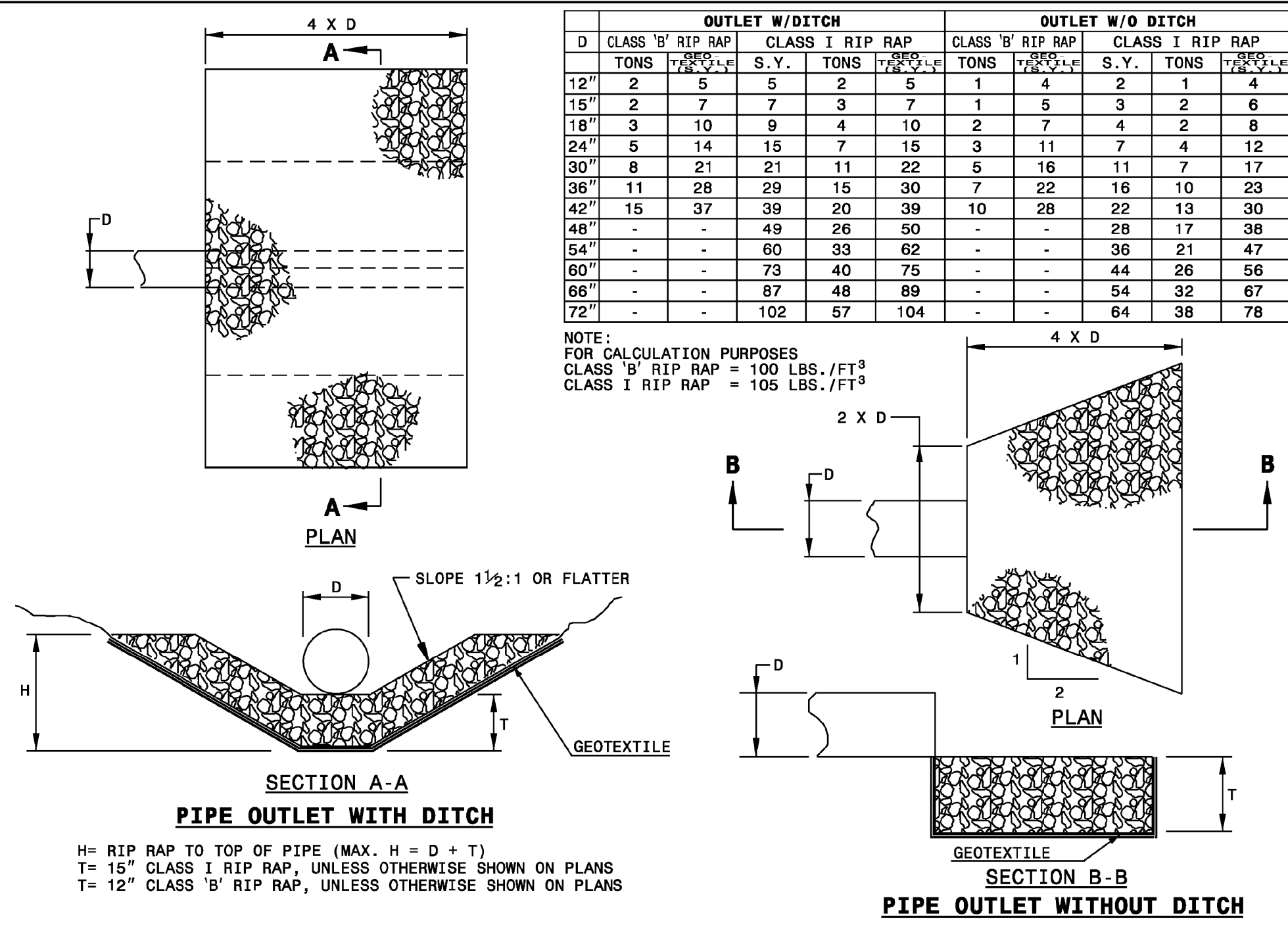
ENGLISH STANDARD DRAWING FOR
ROCK PIPE INLET SEDIMENT TRAP TYPE 'A'

SHEET 1 OF 1
1635.01

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
GUIDE FOR RIP RAP AT PIPE OUTLETS

SHEET 1 OF 1
876.02



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
GUIDE FOR RIP RAP AT PIPE OUTLETS

SHEET 1 OF 1
876.02



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER

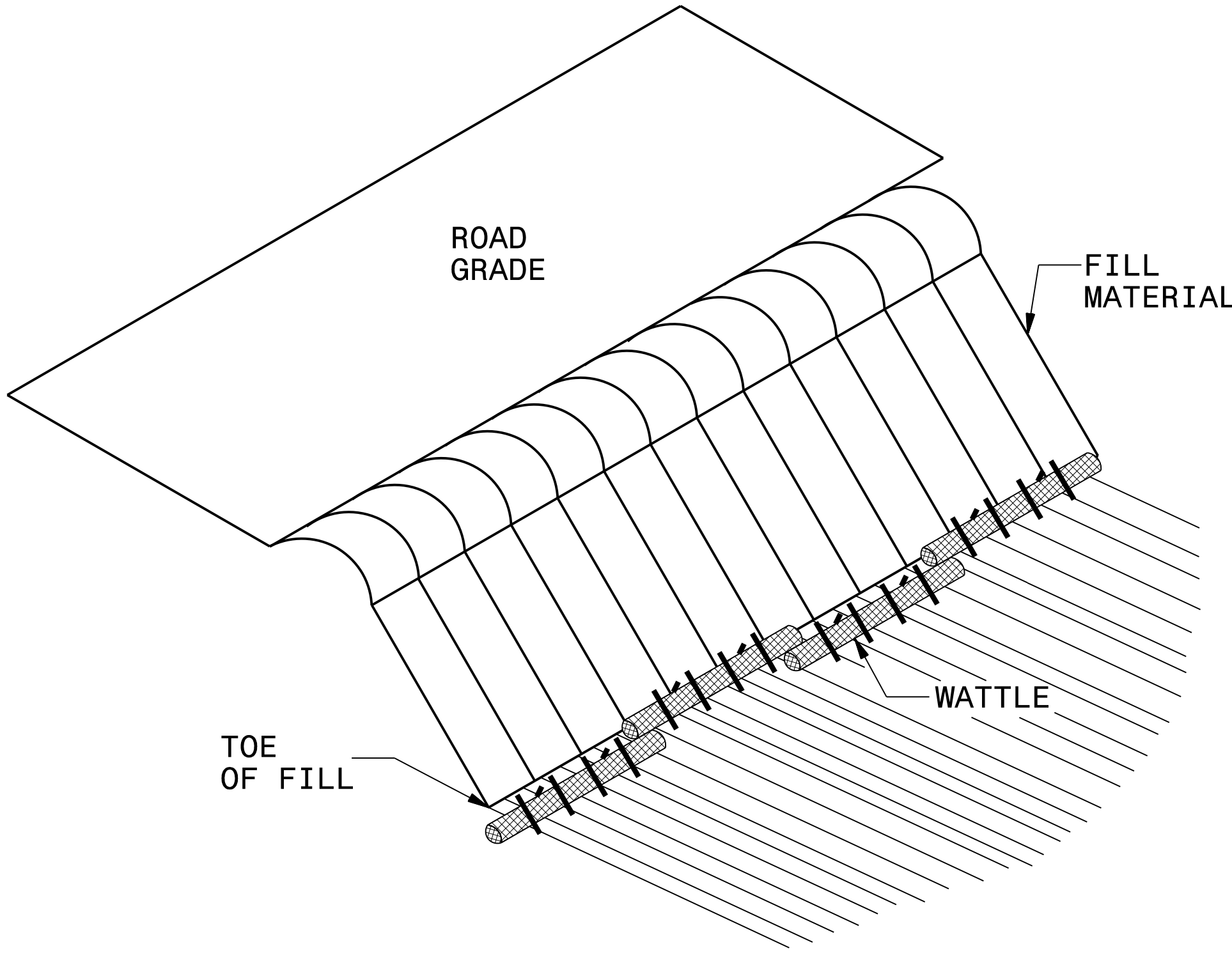


DATE: SEPTEMBER 11, 2015
REVISIONS:
NO. DATE

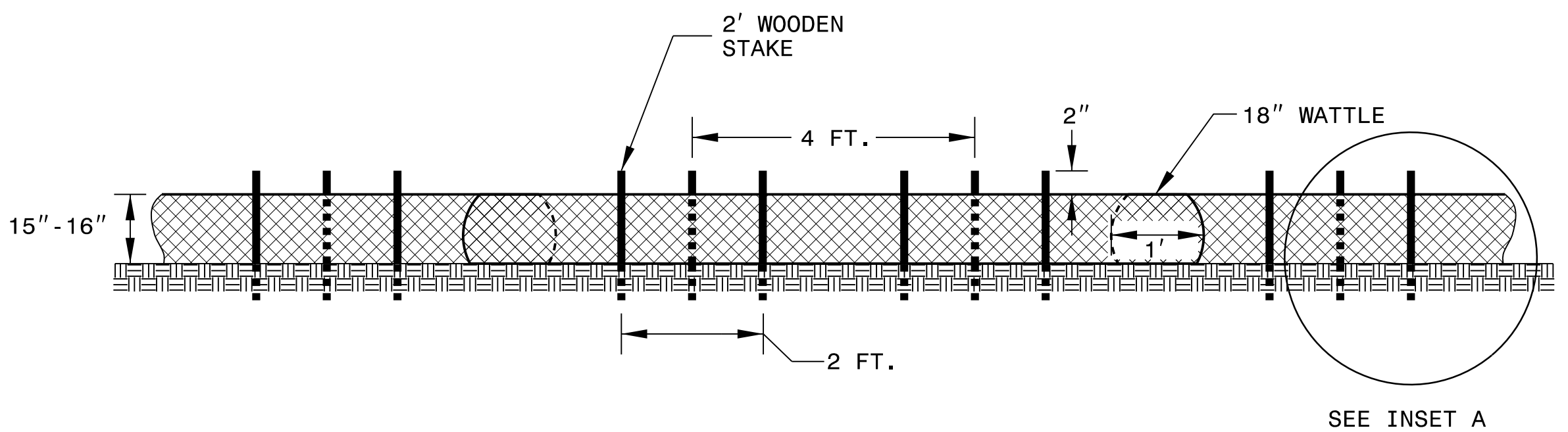
PROJECT NO.:
H14009.00

SCALE: 1"=50'
EC-3B

COIR FIBER WATTLE BARRIER DETAIL



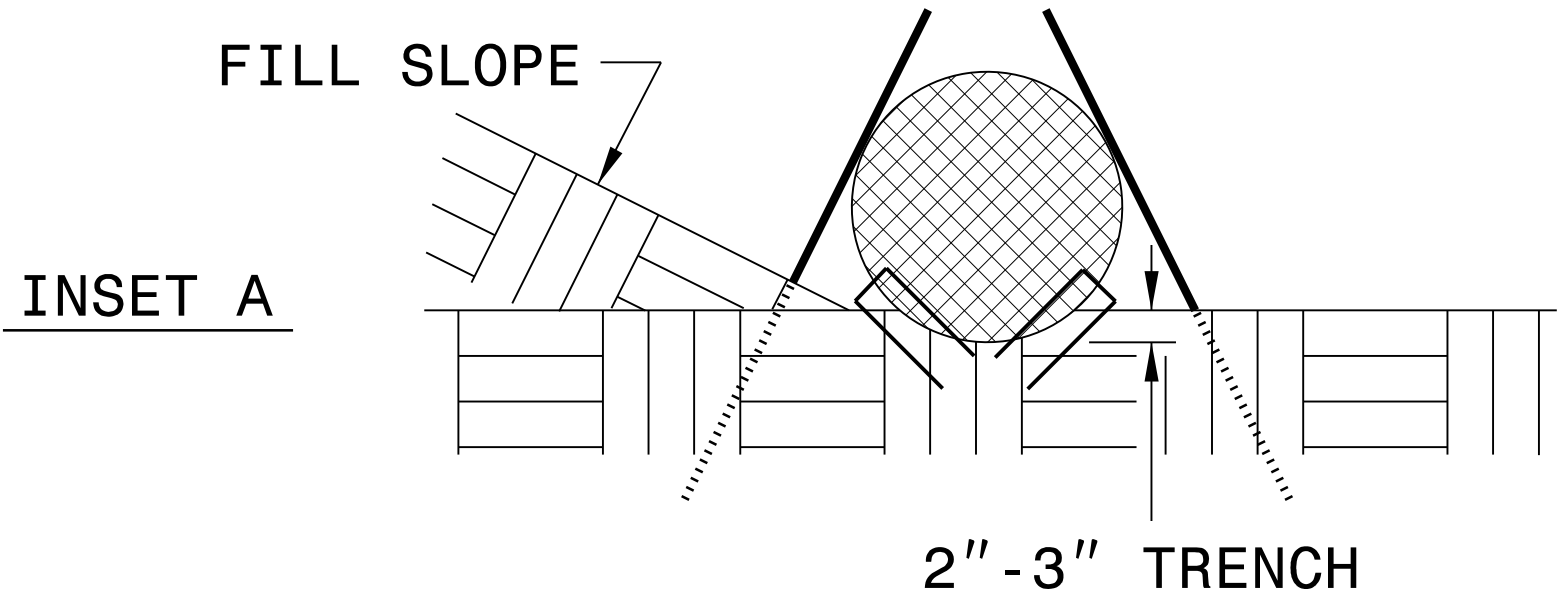
ISOMETRIC VIEW



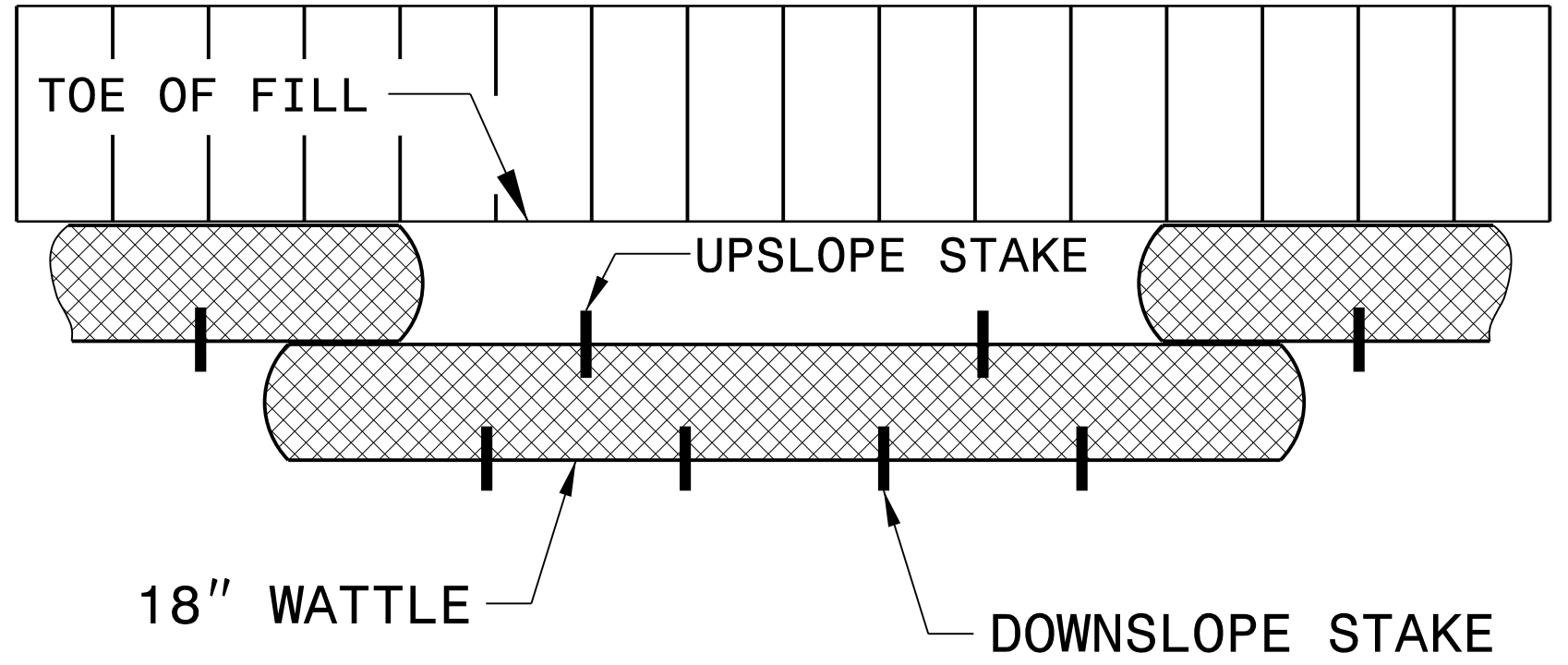
FRONT VIEW

NOTES:

- USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLES ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 25 FT.



INSET A



TOP VIEW



SAM'S BRANCH GREENWAY
PHASE II
 CITY ROAD TO NORTH O'NEIL STREET

GREENWAY ENGINEER

HYDRAULICS ENGINEER



DATE: SEPTEMBER 11, 2015

REVISIONS:	
NO.	DATE

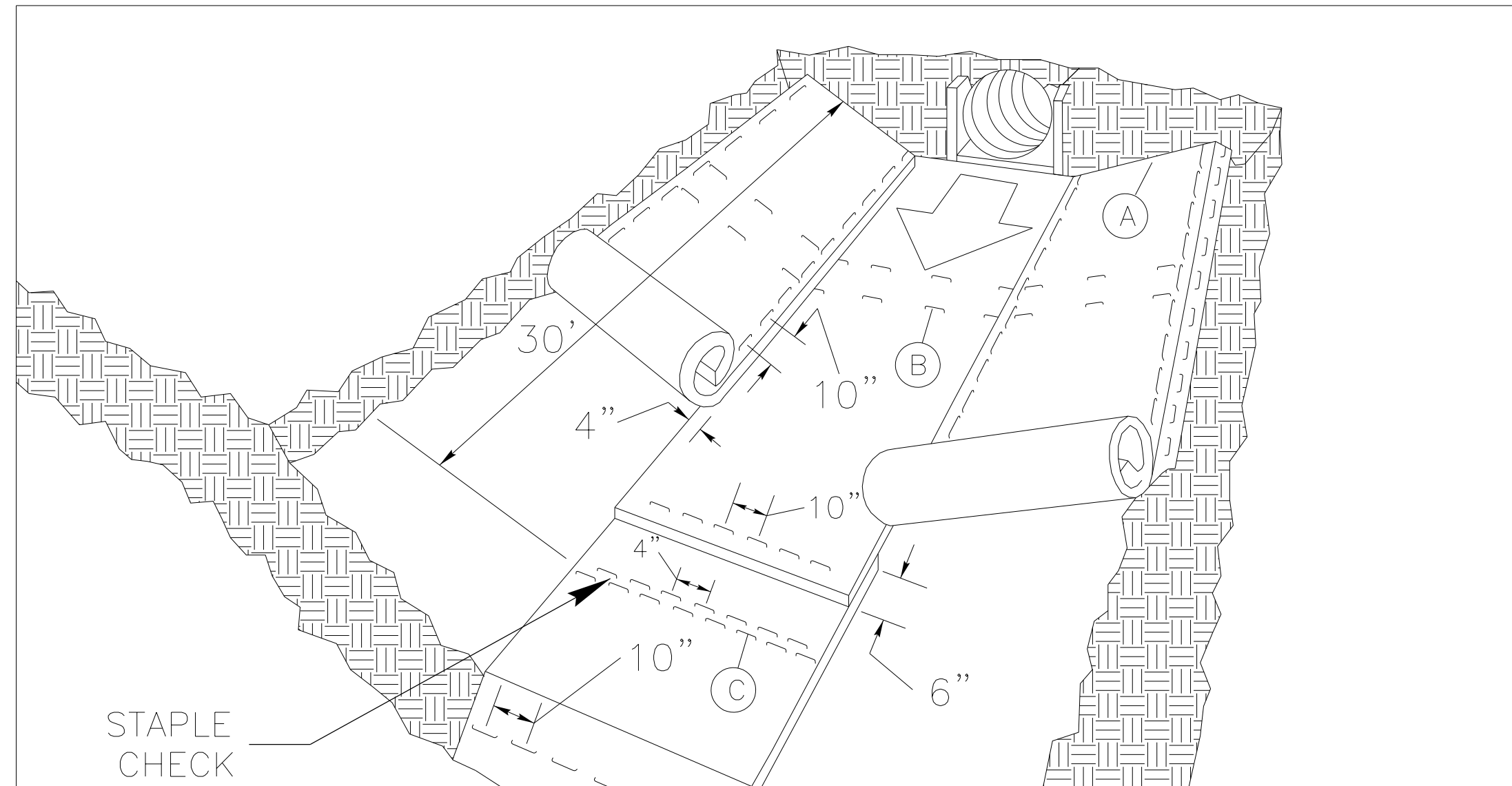
PROJECT NO.:

H14009.00

SCALE: 1"=50'

EC-3D

MATTING INSTALLATION DETAIL



MATTING IN DITCHES

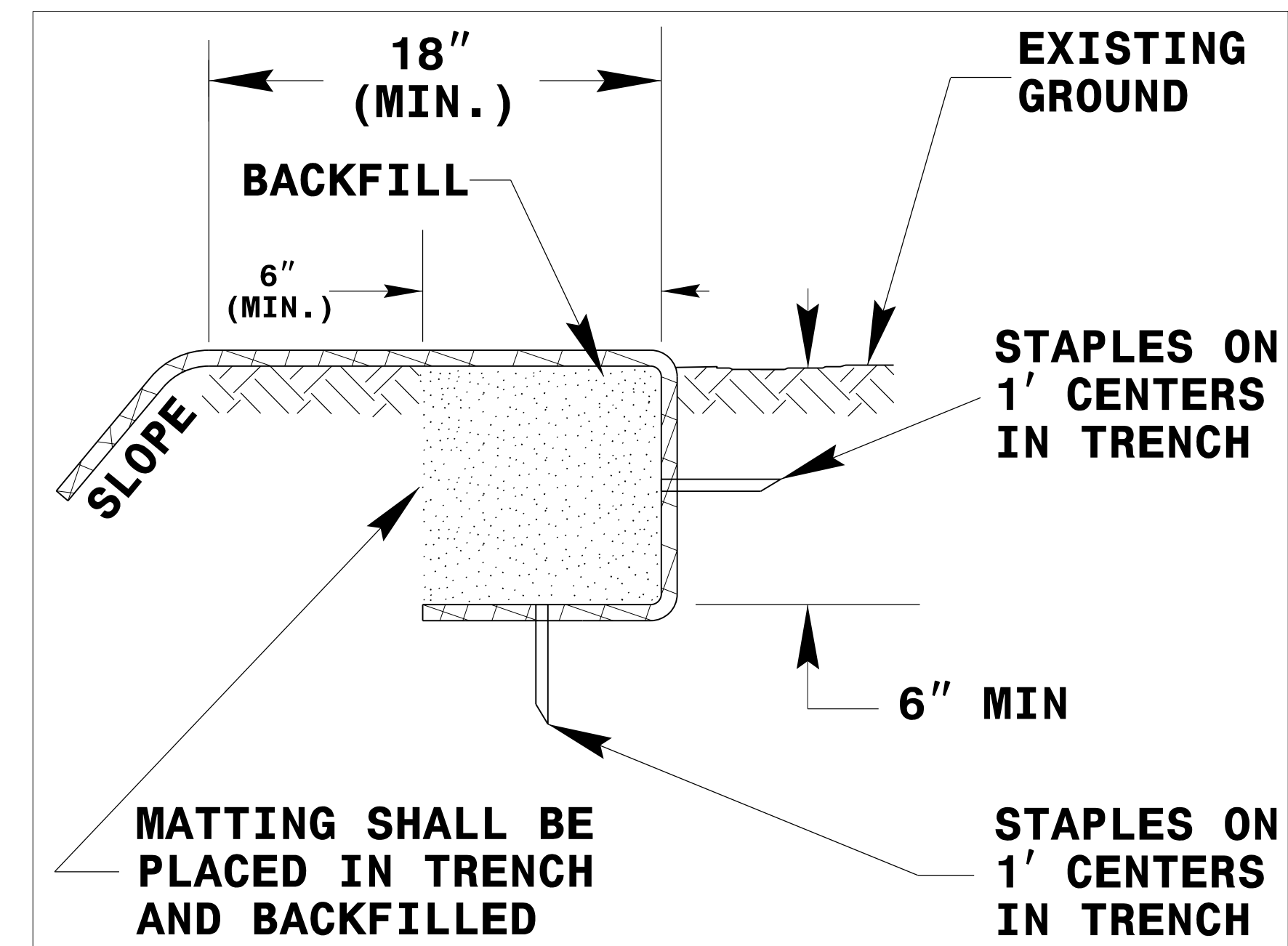
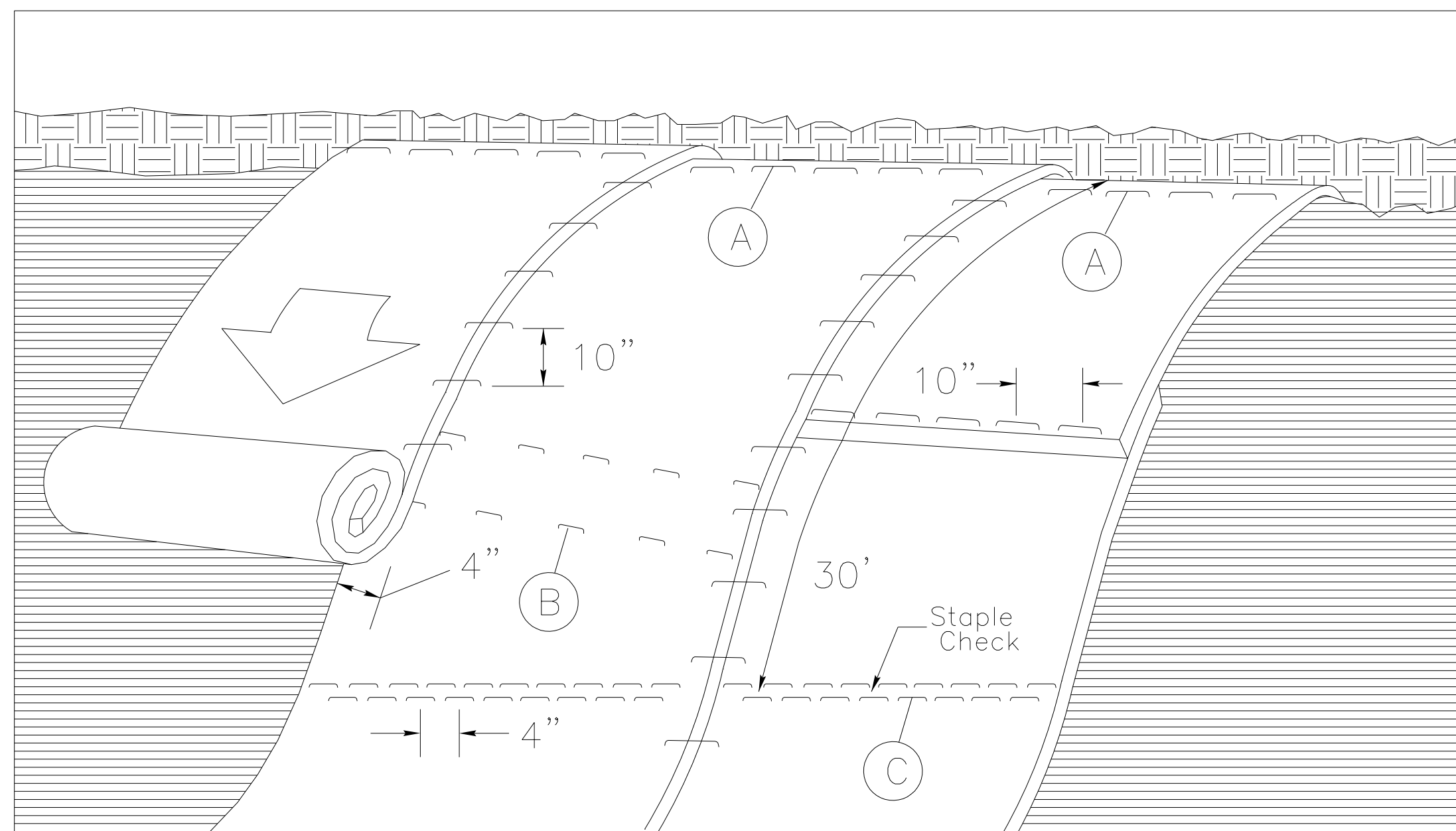


DIAGRAM (A)



MATTING ON SLOPES

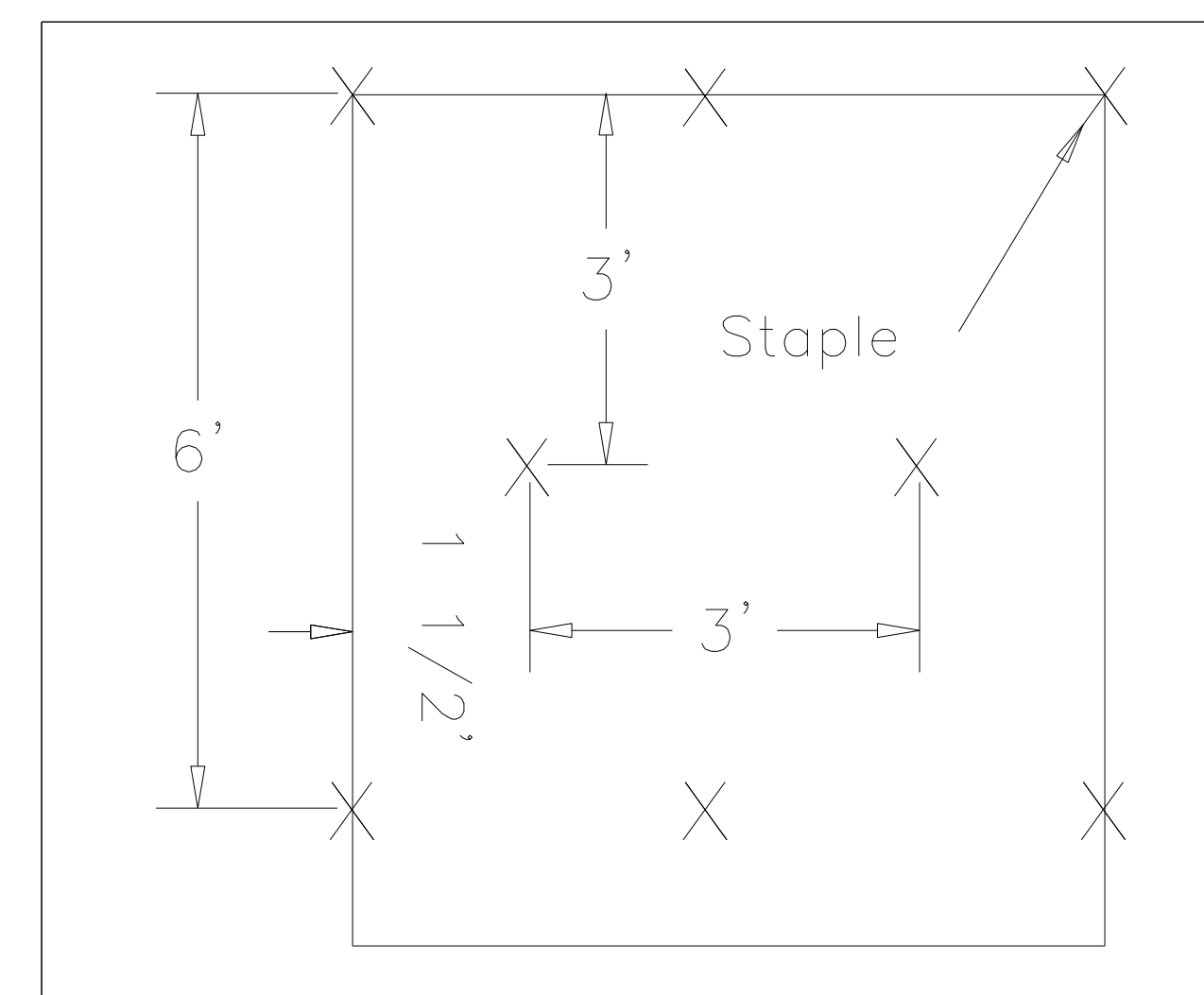


DIAGRAM (B)

Staple Check Pattern

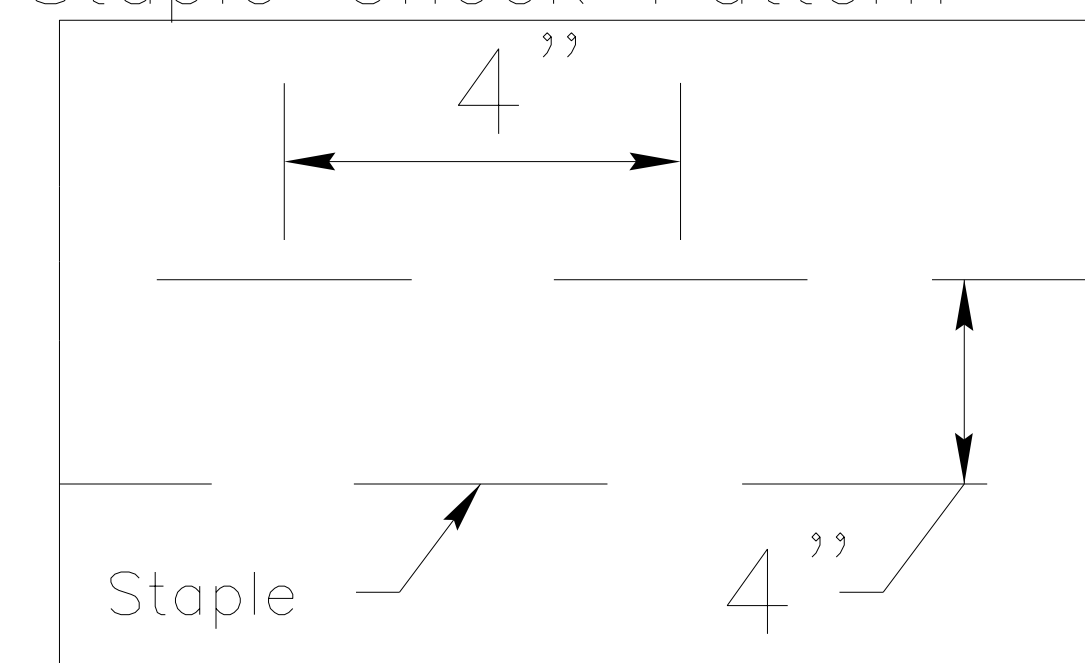


DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE



SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET

GREENWAY ENGINEER

Firm License No. C-1101
421 Fayetteville St.
Raleigh, NC 27601
T 919.380.8750
www.stewardinc.com

HYDRAULICS ENGINEER

NC FIRM LICENSE No. F-1148
1151 E. Cary Parkway
Suite 101
Cary, NC 27513
(919) 557-0929



DATE: SEPTEMBER 11, 2015

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NO.	DATE

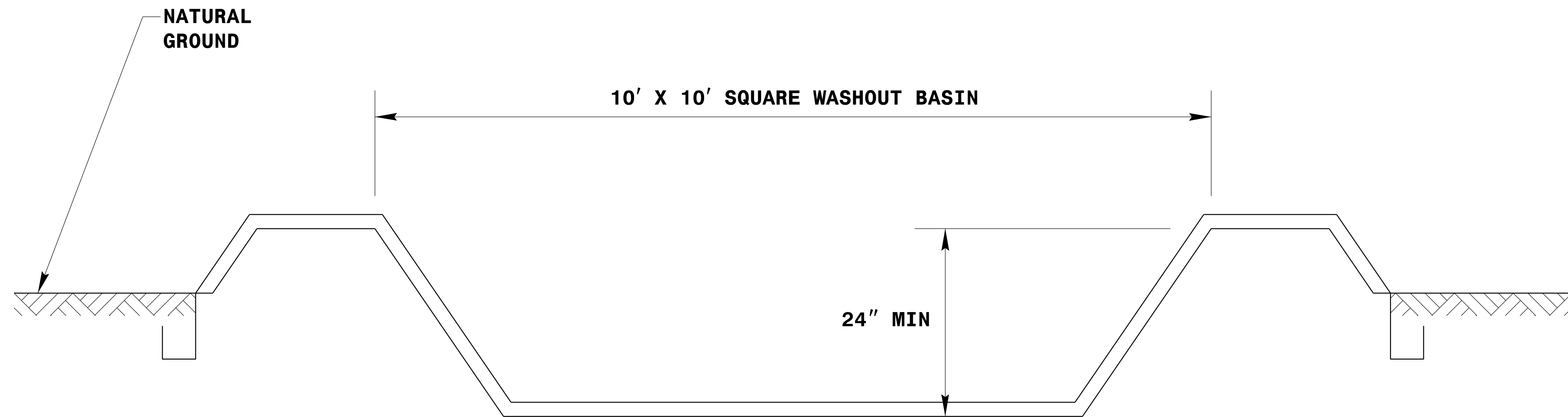
PROJECT NO.:

H14009.00

SCALE: 1"=50'

EC-3E

CONCRETE WASHOUT PIT



NOTES:

1. INSTALL CONCRETE WASHOUT PIT AS SHOWN ON PLANS.
2. LINE PIT WITH IMPERVIOUS FABRIC OR POLYETHYLENE SHEET. ANCHOR FABRIC INTO GROUND OUTSIDE PIT AS SHOWN.
3. MAXIMUM WATER AND SEDIMENT DEPTH IS 12". PIT MUST BE EXCAVATED AND RE-LINED WHEN DEPTH OF SEDIMENT REACHES 12" OR COMBINED WATER/SEDIMENT DEPTH EXCEEDS 12" FOLLOWING WASHOUT OF CONCRETE TRUCK.
4. ALLOW WATER TO EVAPORATE COMPLETELY PRIOR TO EXCAVATING PIT.
5. WASHOUT PIT MAY BE LOCATED NO CLOSER THAN 50' TO DRAINS, INLETS, OR SURFACE WATERS.
6. ALL WASHOUT OPERATIONS MUST BE AT LEAST 50' FROM STORM DRAINS OR WATERBODIES UNLESS INDIVIDUAL SITE DIFFICULTIES MAKE THIS REQUIREMENT IMPRACTICAL. A REDUCTION OF THIS DISTANCE REQUIREMENT WILL BE ALLOWED ON A CASE-BY-CASE BASIS IF THE PERMITTING AUTHORITY DETERMINES THAT THE WASHOUT FACILITY WITH A REDUCED BUFFER WILL ADEQUATELY PROTECT THE WATER QUALITY IN ADJACENT STREAMS.
7. WASHOUT OF CONCRETE TRUCKS SHALL BE PERFORMED IN DESIGNATED AREAS ONLY.



**SAM'S BRANCH GREENWAY
 PHASE II
 CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

Firm License No. C-4101
 421 Fayetteville St.
 Raleigh, NC 27601
 T 919.386.4750
 www.stewardinc.com

HYDRAULICS ENGINEER

NC FIRM LICENSE No. F-1148
 1151 SE Cary Parkway
 Suite 101
 Cary, NC 27513
 (919) 557-0929

**ECOLOGICAL
 ENGINEERING**

DATE: SEPTEMBER 11, 2015

REVISIONS:

NO.	DATE

PROJECT NO.:

H14009.00

SCALE: 1"=50'

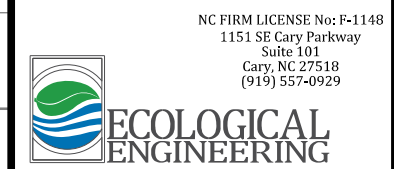
EC-3G



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER



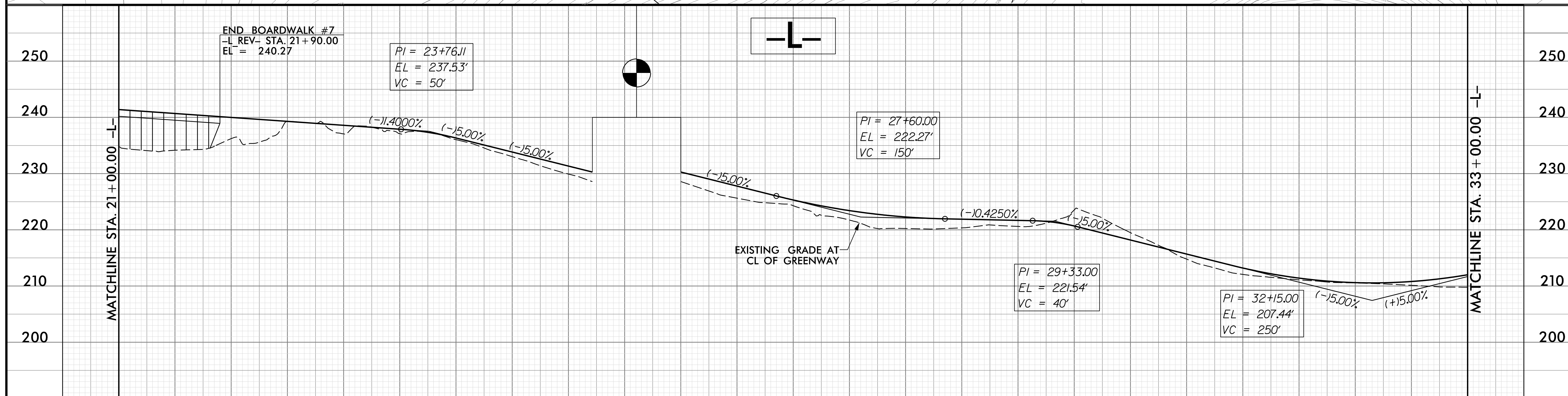
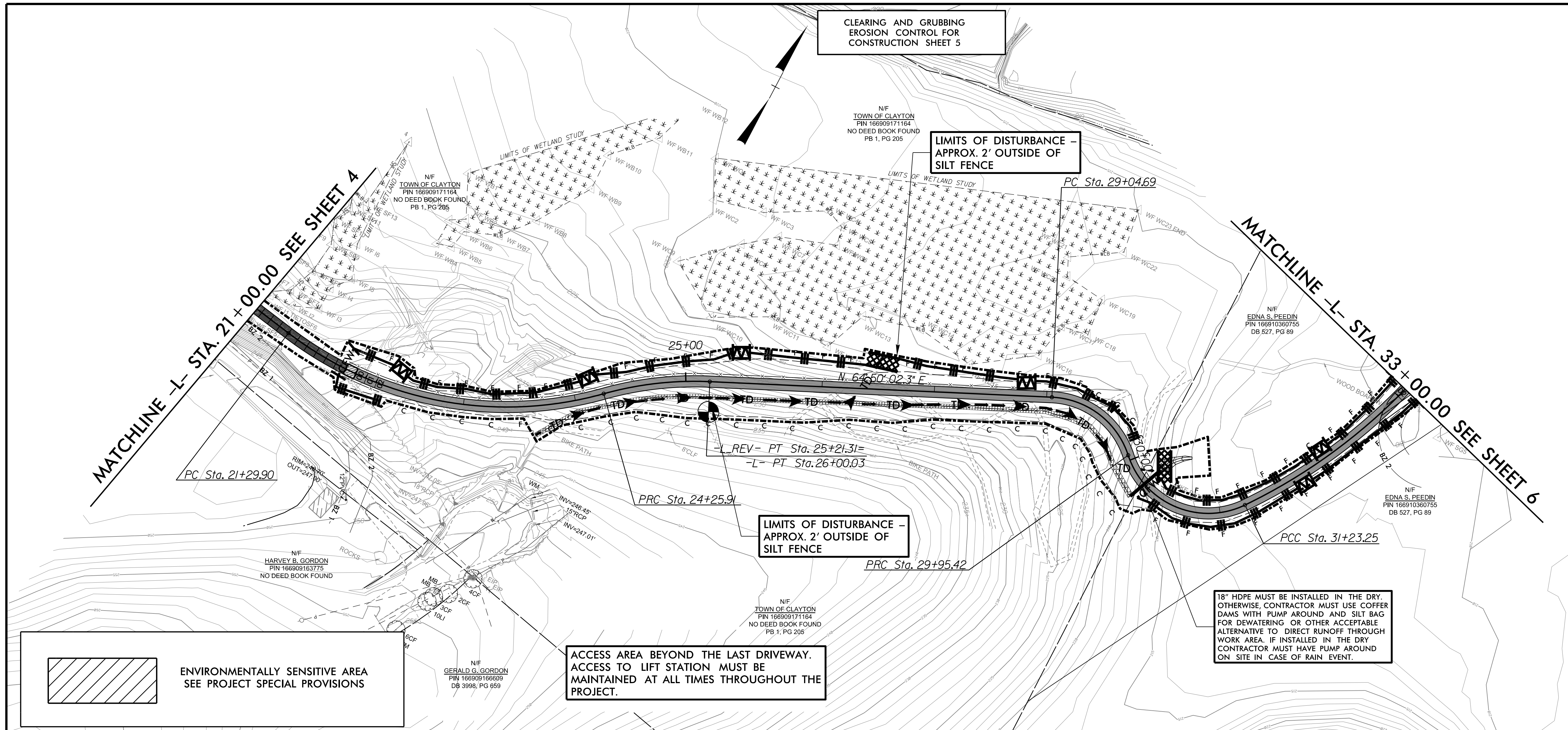
DATE: SEPTEMBER 11, 2015

REVISIONS:
NO. DATE

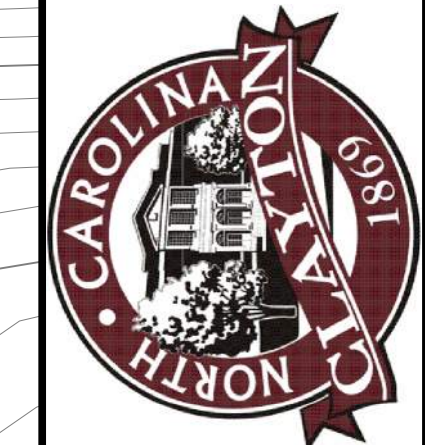
PROJECT NO.:
H14009.00

SCALE: 1"=50'

EC5/CONST5



21	22	23	24	25	26	27	28	29	30	31	32	33
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**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER

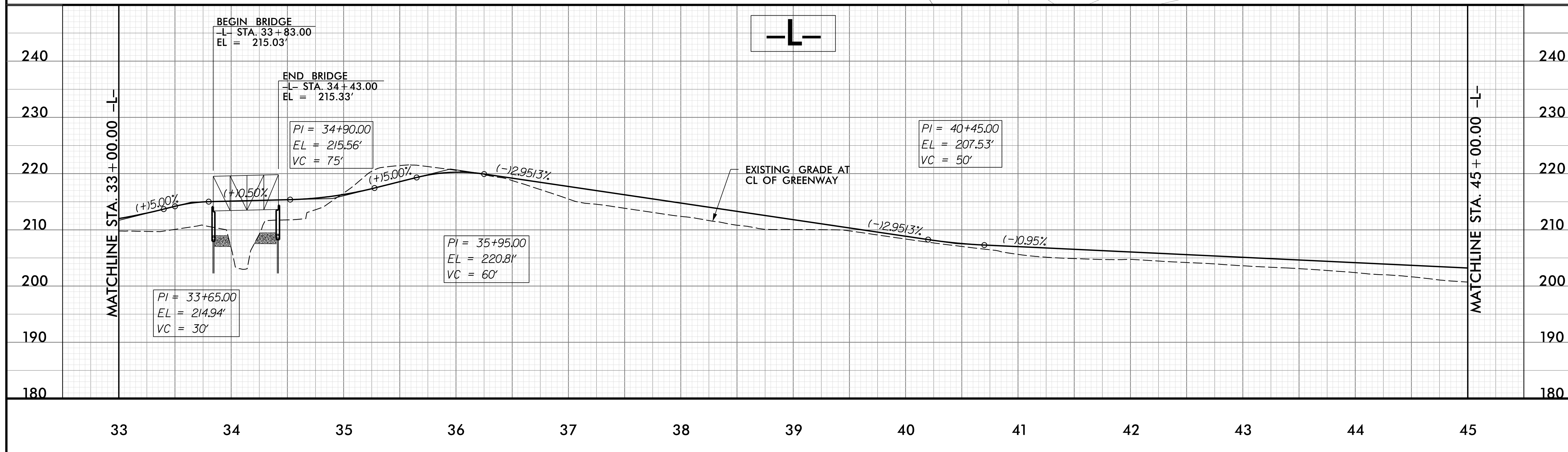
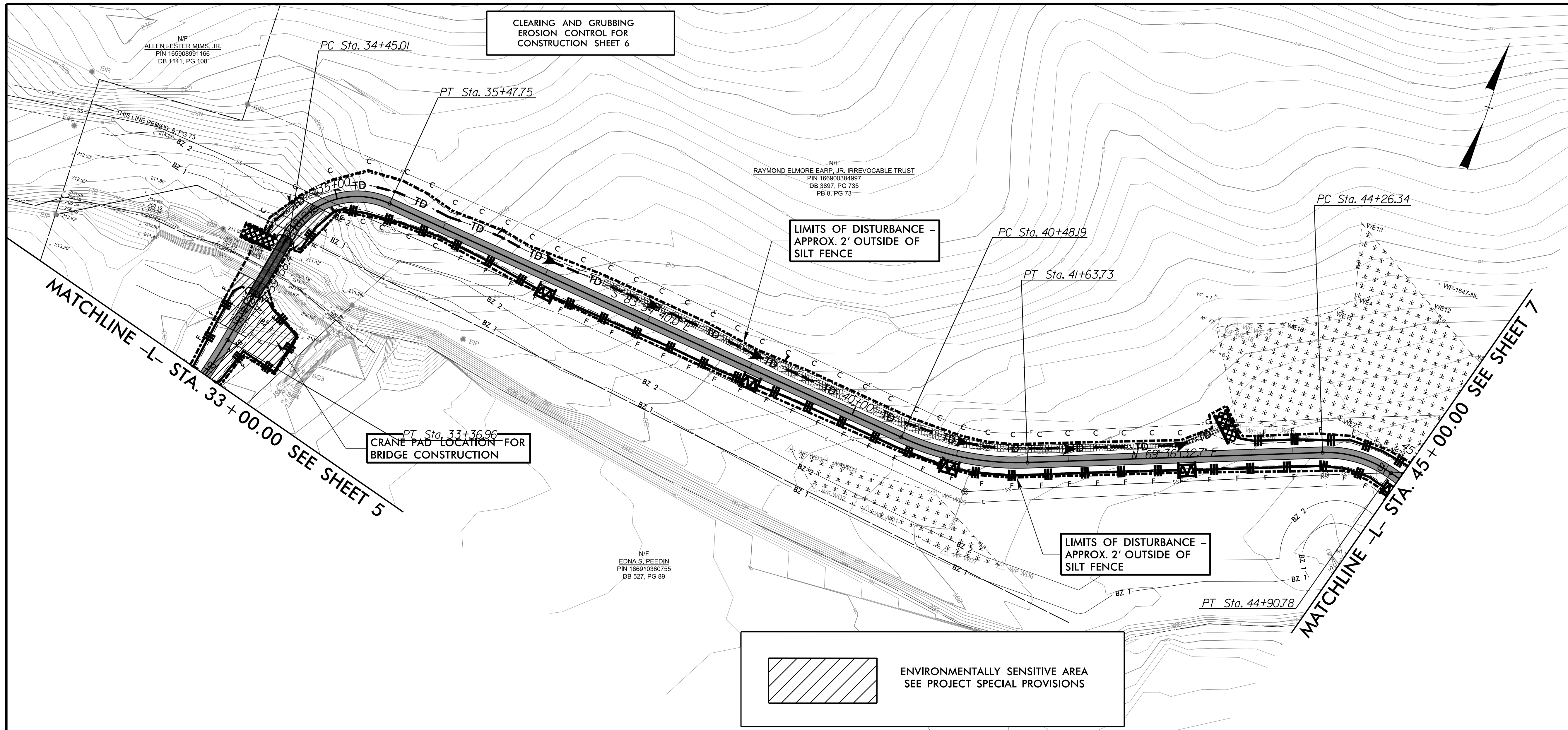


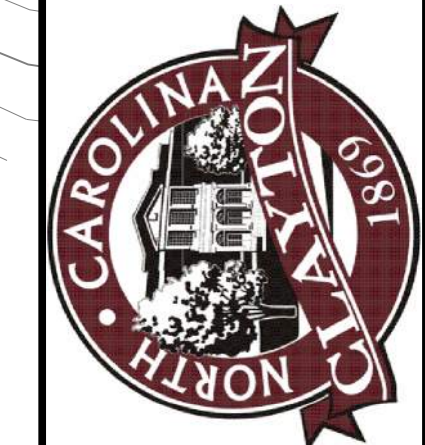
DATE: SEPTEMBER 11, 2015
REVISIONS:

PROJECT NO.:
H14009.00

SCALE: 1"=50'

EC6/CONST6





**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER

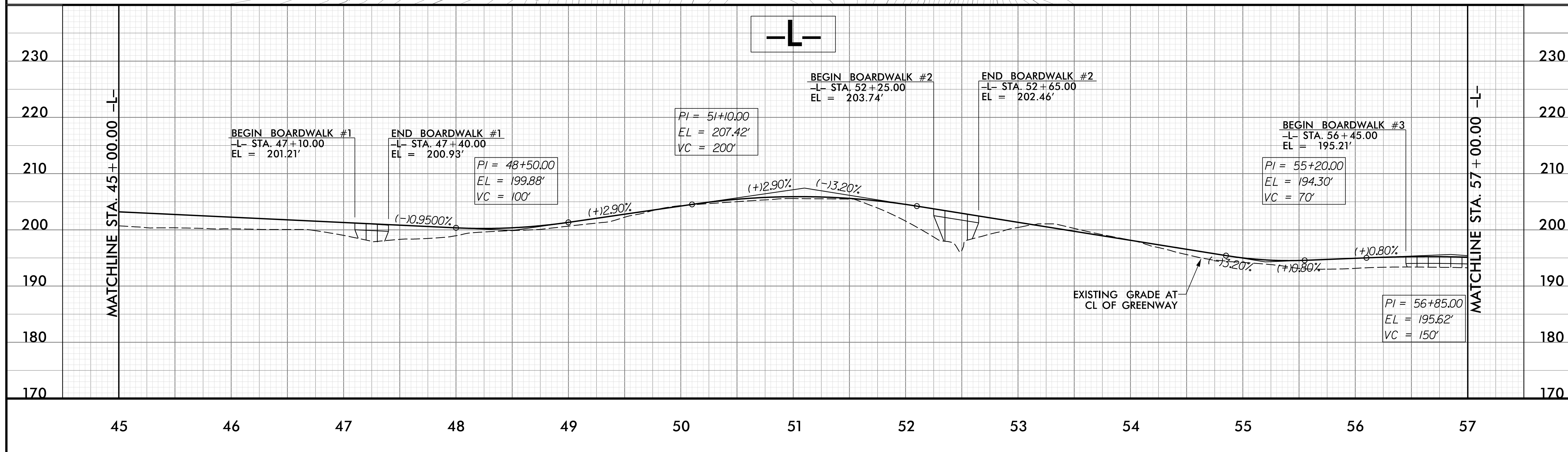
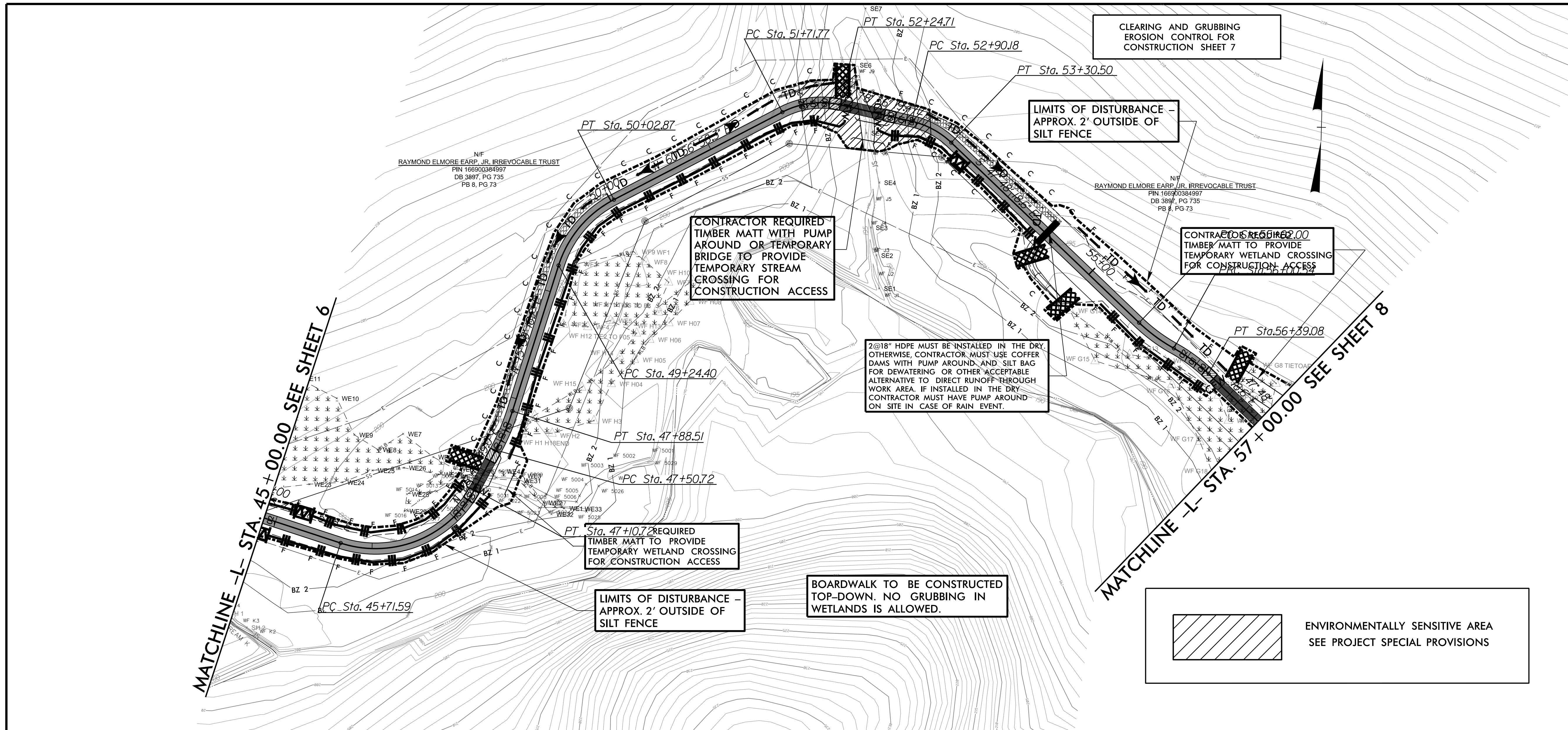


DATE: SEPTEMBER 11, 2015
REVISIONS:

PROJECT NO.:
H14009.00

SCALE: 1"=50'

EC7/CONST7



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 8

BOARDWALK TO BE CONSTRUCTED
TOP-DOWN. NO GRUBBING IN
WETLANDS IS ALLOWED.

24" HDPE MUST BE INSTALLED IN THE DRY.
OTHERWISE, CONTRACTOR MUST USE COFFER
DAMS WITH PUMP AROUND AND SILT BAG
FOR DEWATERING OR OTHER ACCEPTABLE
ALTERNATIVE TO DIRECT RUNOFF THROUGH
WORK AREA. IF INSTALLED IN THE DRY,
CONTRACTOR MUST HAVE PUMP AROUND
ON SITE IN CASE OF RAIN EVENT.

LIMITS OF DISTURBANCE -
APPROX. 2' OUTSIDE OF
SILT FENCE

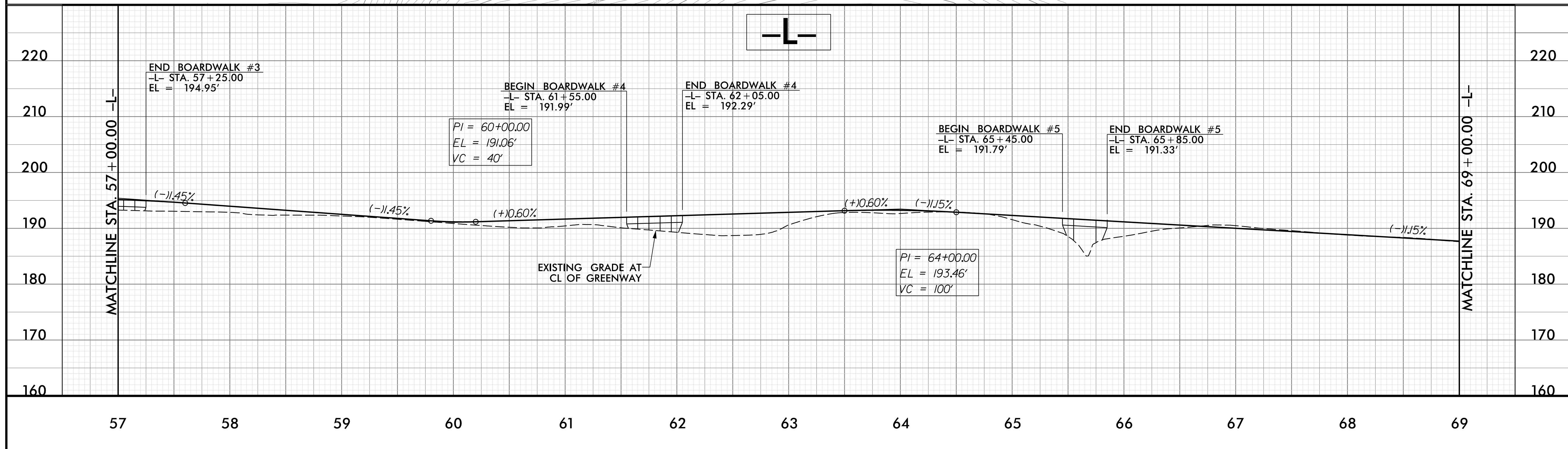
CONTRACTOR REQUIRED
TIMBER MATT WITH PUMP
AROUND OR TEMPORARY
BRIDGE TO PROVIDE
TEMPORARY WETLAND/STREAM
CROSSING FOR CONSTRUCTION
ACCESS

LIMITS OF DISTURBANCE -
APPROX. 2' OUTSIDE OF
SILT FENCE

 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

MATCHLINE -L- STA. 57+00.00 SEE SHEET 7

MATCHLINE -L- STA. 69+00.00 SEE SHEET 9



**SAM'S BRANCH GREENWAY
PHASE II**
CITY ROAD TO NORTH O'NEIL STREET

GREENWAY ENGINEER

HYDRAULICS ENGINEER



DATE: SEPTEMBER 11, 2015

REVISIONS:

NO.	DATE

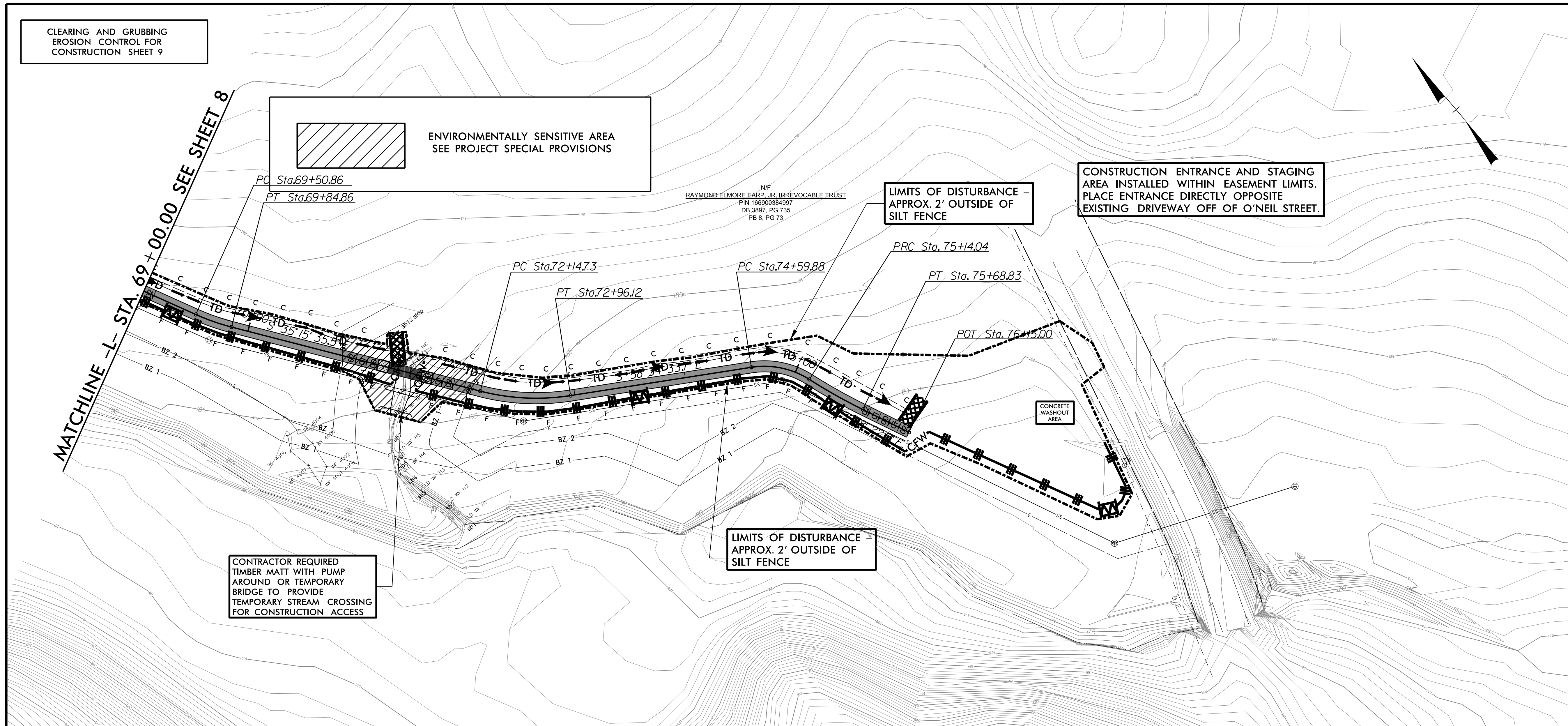
PROJECT NO.:

H14009.00

SCALE: 1"=50'

EC8/CONST8

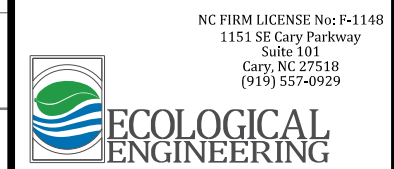
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 9



**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER



DATE: SEPTEMBER 11, 2015

REVISIONS:

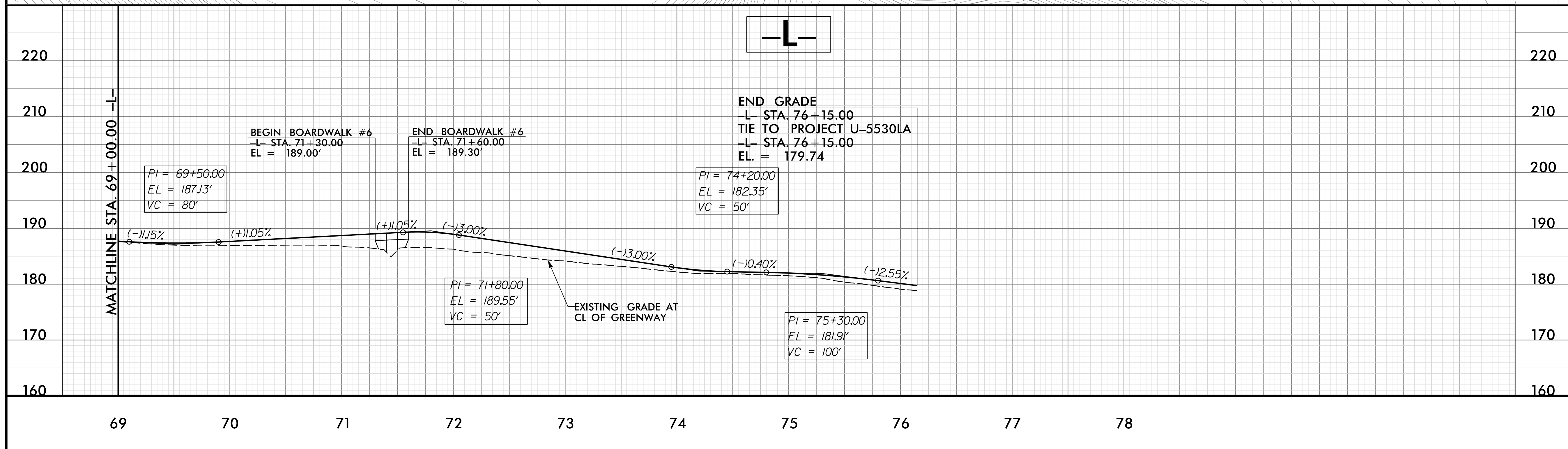
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PROJECT NO.:

H14009.00

SCALE: 1"=50'

EC9/CONST9





**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER



DATE: SEPTEMBER 11, 2015

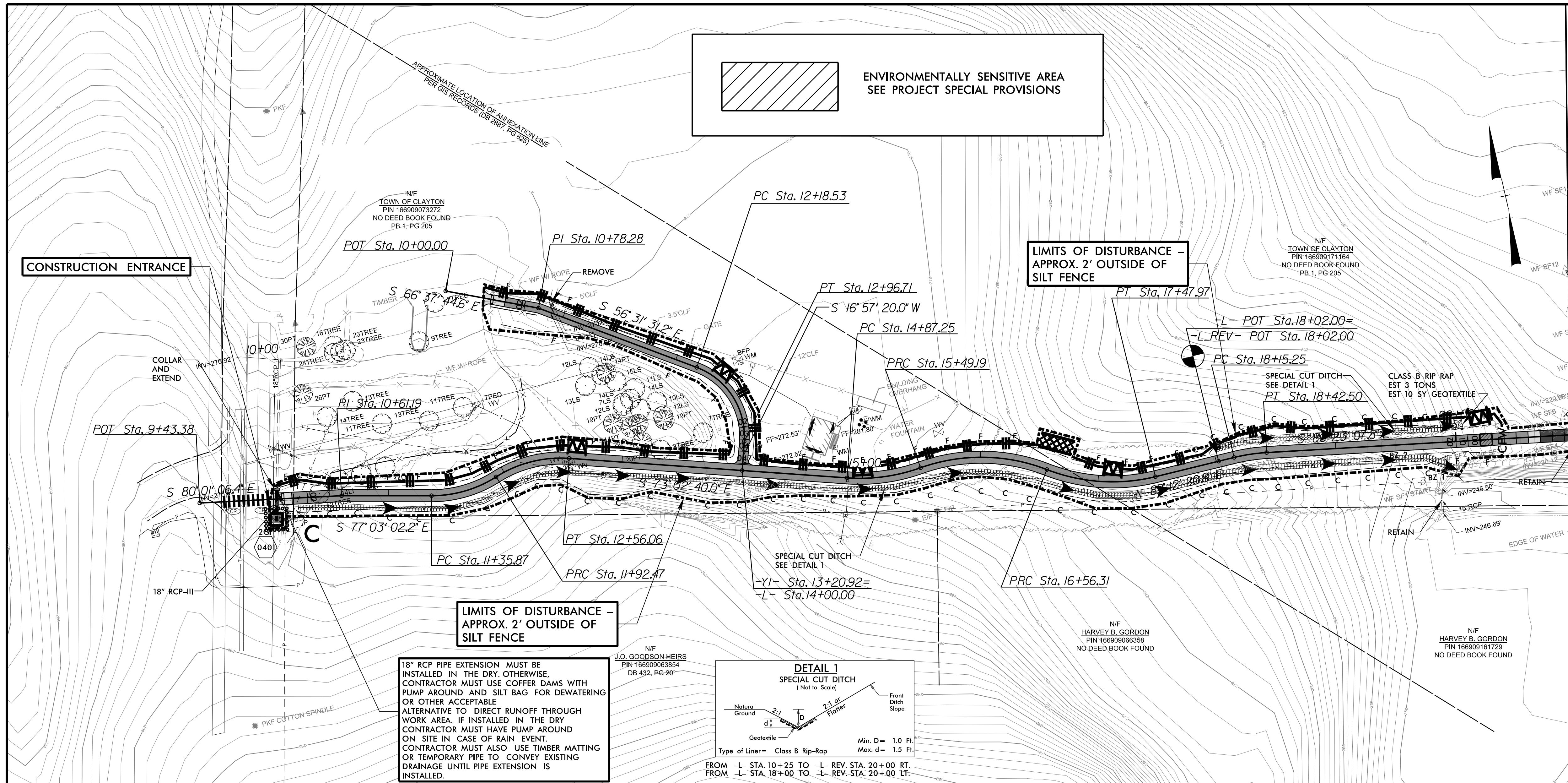
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NO. DATE

PROJECT NO.:

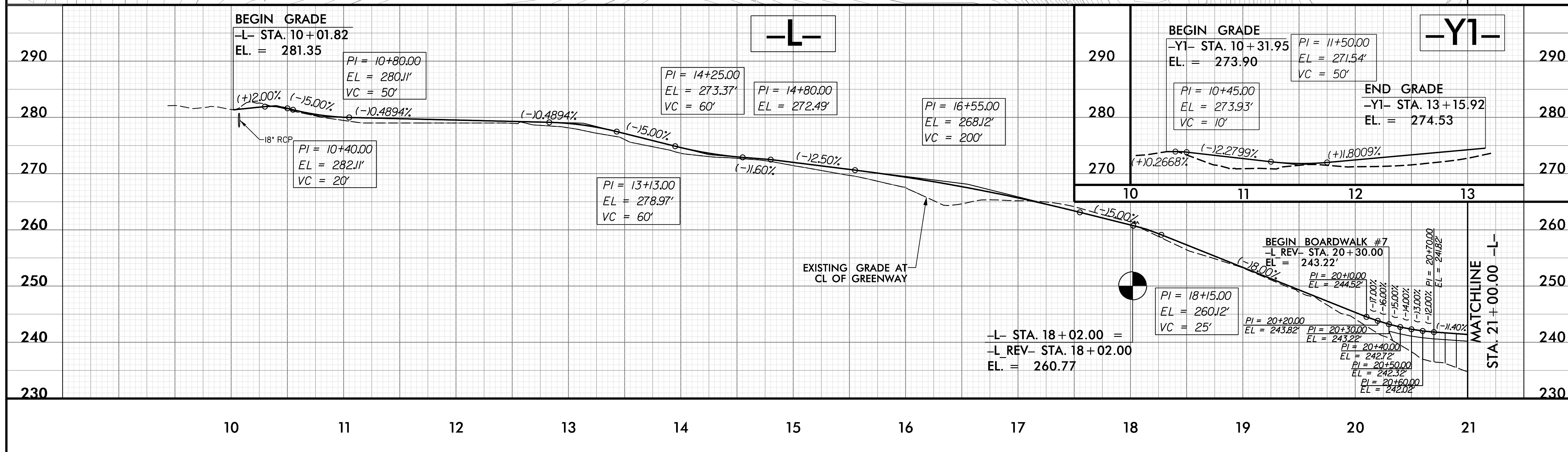
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SCALE: 1"=50'

EC10/CONST4

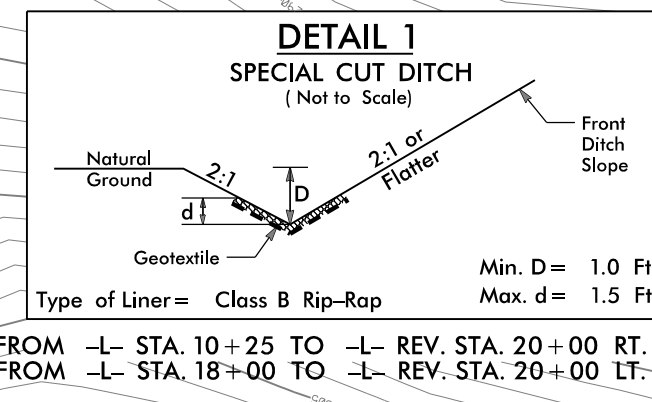


MATCHLINE -L- STA. 21+00.00 SEE SHEET 5



LIMITS OF DISTURBANCE - APPROX. 2' OUTSIDE OF SILT FENCE

18" RCP PIPE EXTENSION MUST BE INSTALLED IN THE DRY. OTHERWISE, CONTRACTOR MUST USE COFFER DAMS WITH PUMP AROUND AND SILT BAG FOR DEWATERING OR OTHER ACCEPTABLE ALTERNATIVE TO DIRECT RUNOFF THROUGH WORK AREA. IF INSTALLED IN THE DRY, CONTRACTOR MUST HAVE PUMP AROUND ON SITE IN CASE OF RAIN EVENT. CONTRACTOR MUST ALSO USE TIMBER MATTING OR TEMPORARY PIPE TO CONVEY EXISTING DRAINAGE UNTIL PIPE EXTENSION IS INSTALLED.



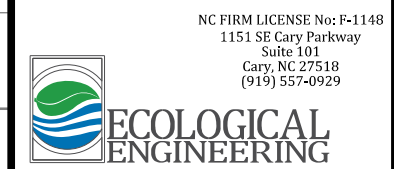
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**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER



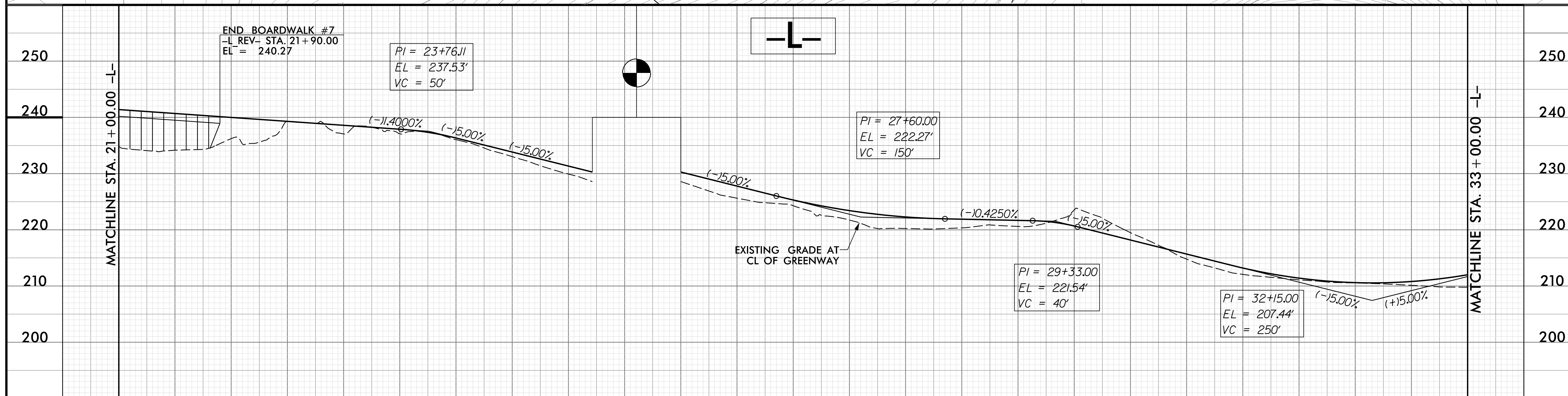
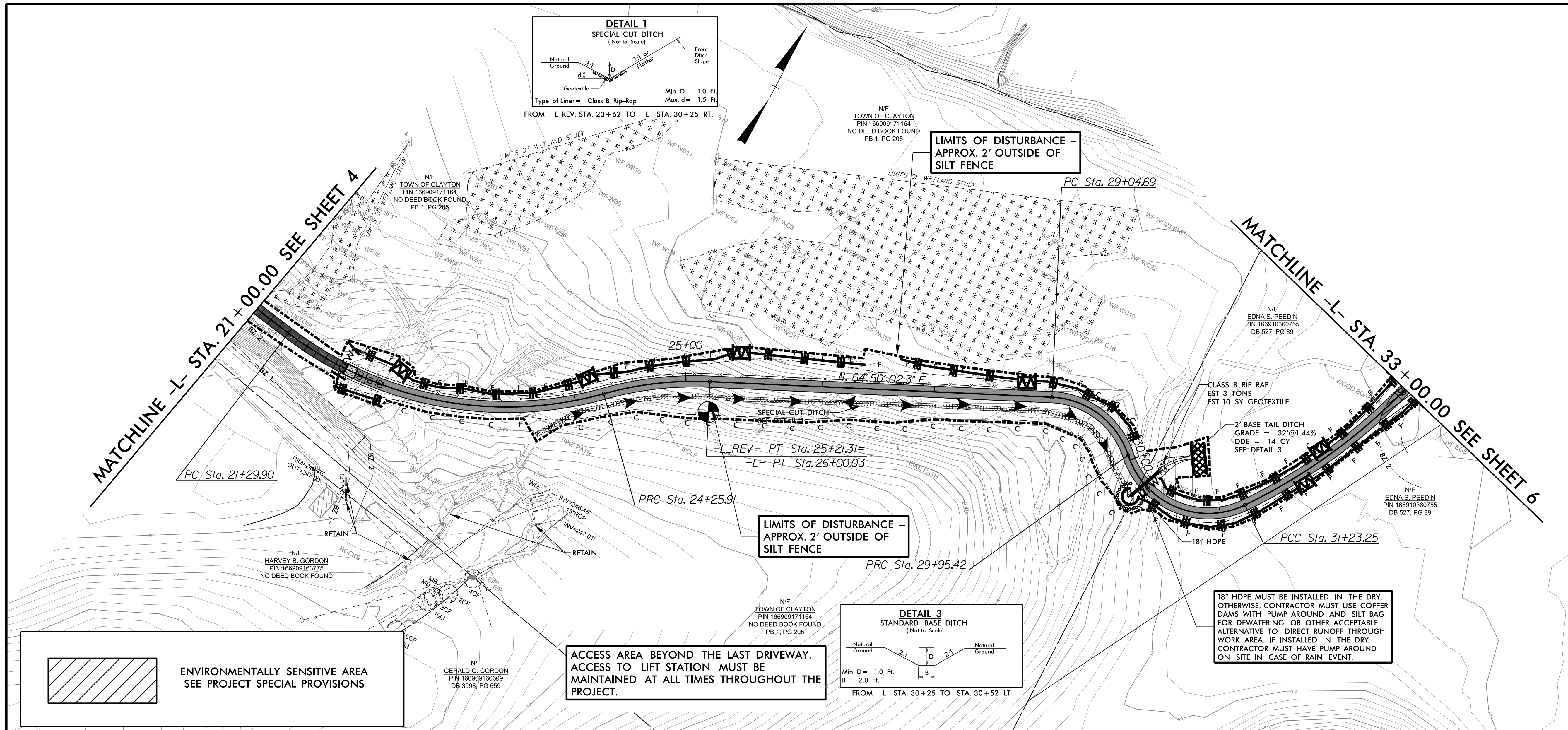
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REVISIONS:
NO. DATE

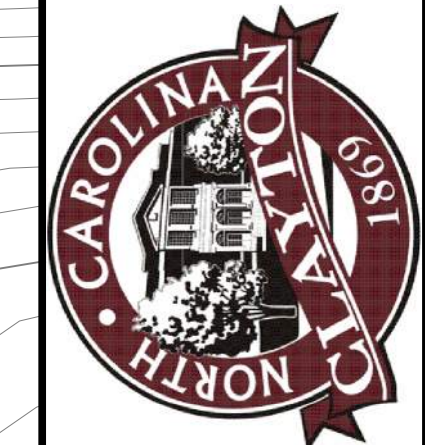
PROJECT NO.:
H14009.00

SCALE: 1"=50'

EC11/CONST5



21	22	23	24	25	26	27	28	29	30	31	32	33
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**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER

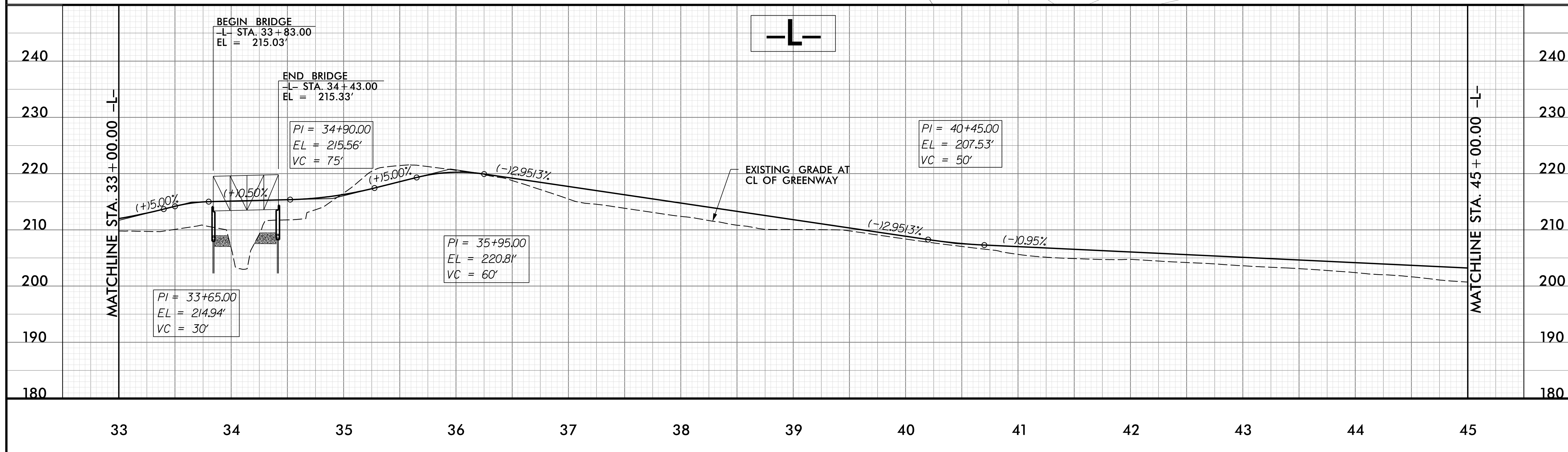
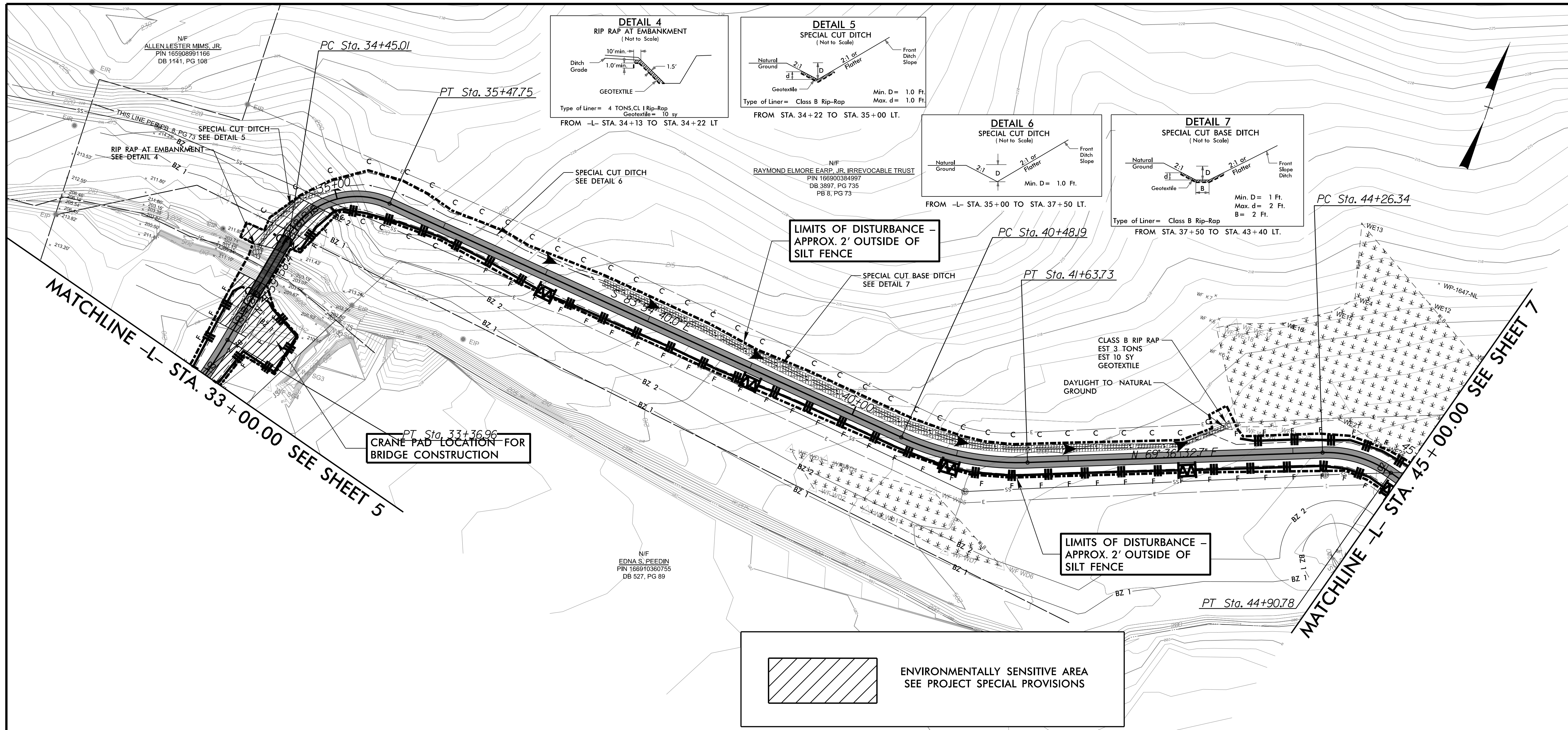


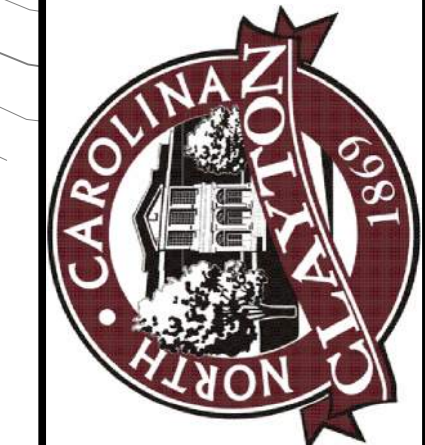
DATE: SEPTEMBER 11, 2015
REVISIONS:

PROJECT NO.:
H14009.00

SCALE: 1"=50'

EC12/CONST6





**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER

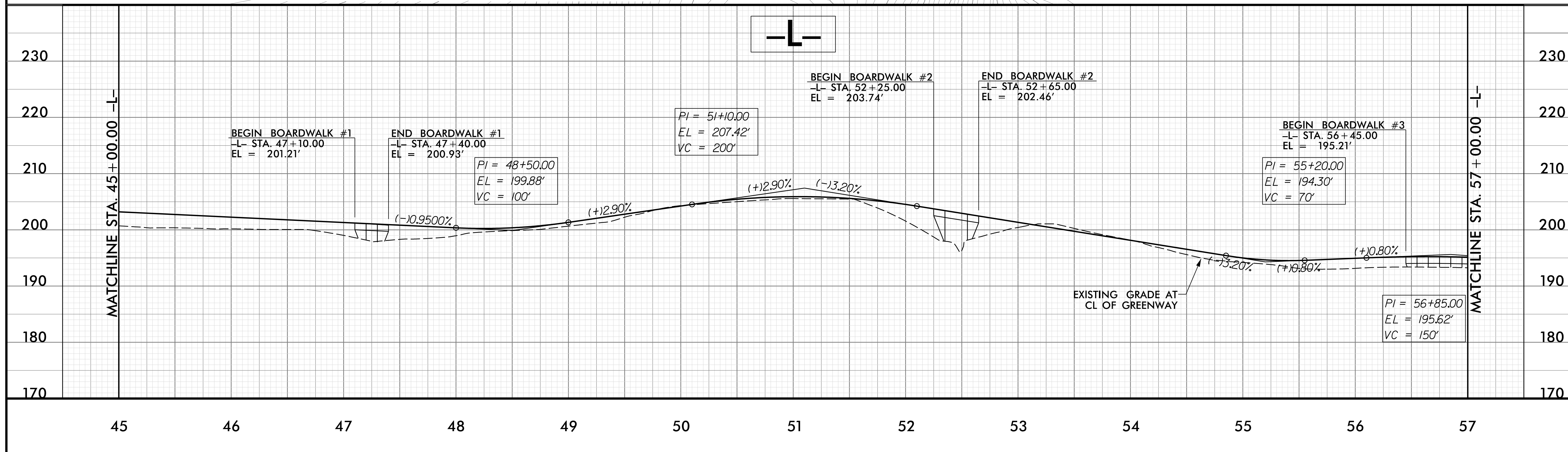
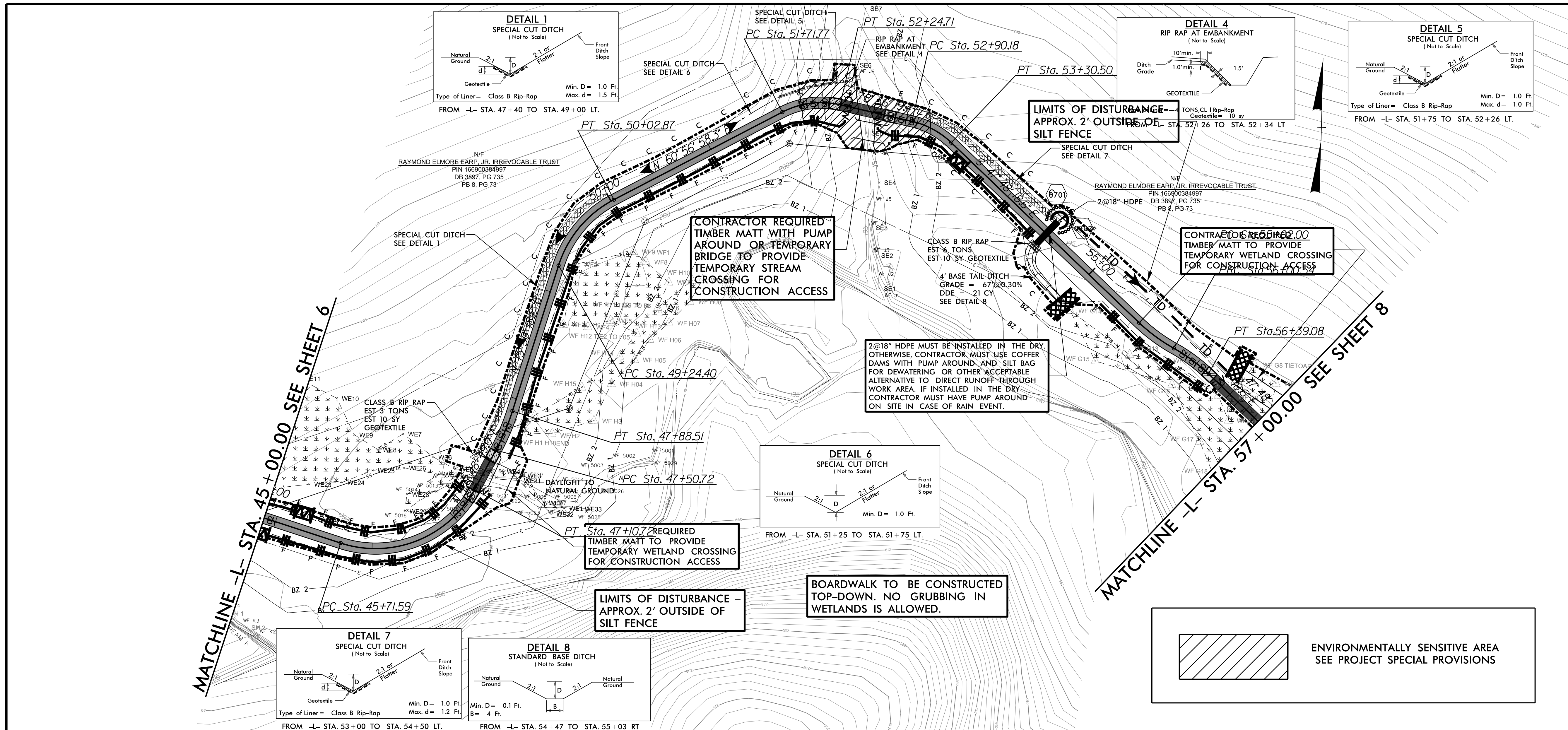


DATE: SEPTEMBER 11, 2015
REVISIONS:

PROJECT NO.:
H14009.00

SCALE: 1"=50'

EC13/CONST7

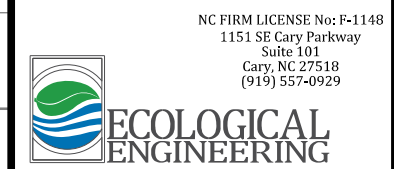




**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER



DATE: SEPTEMBER 11, 2015

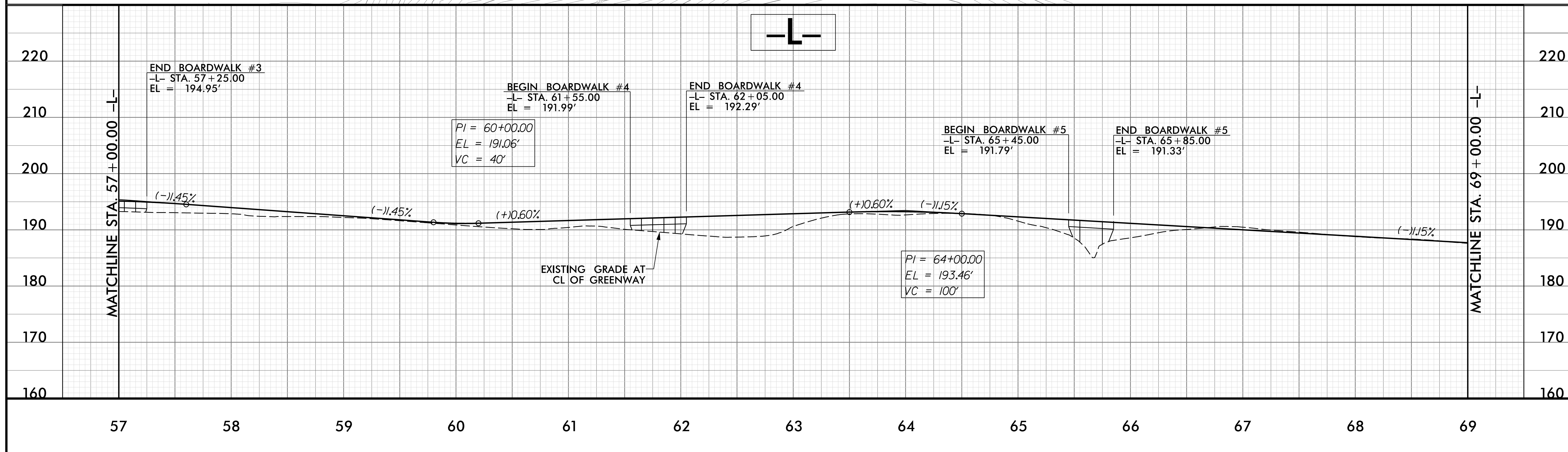
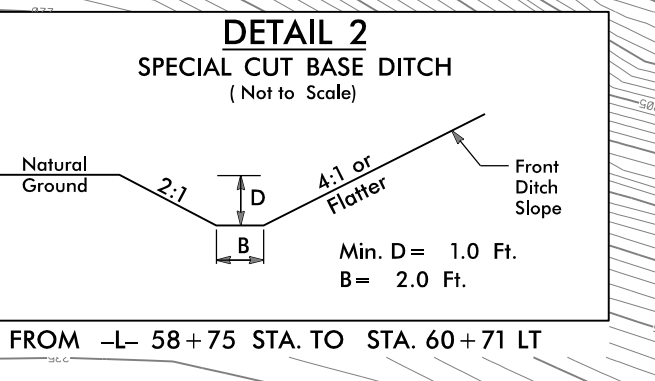
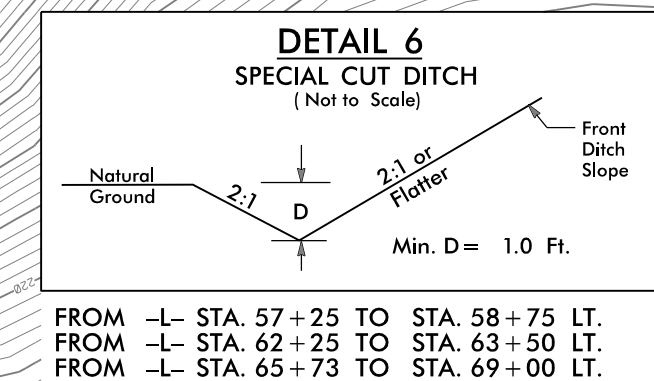
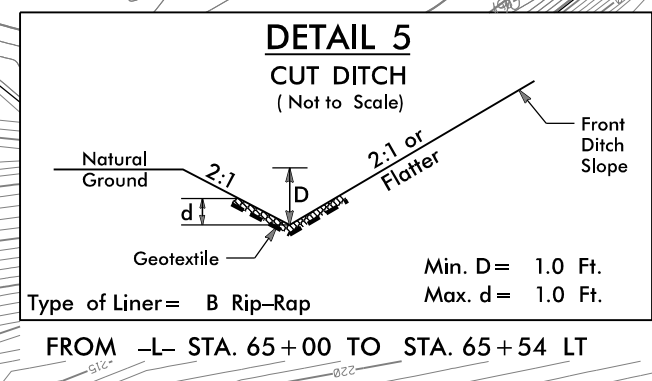
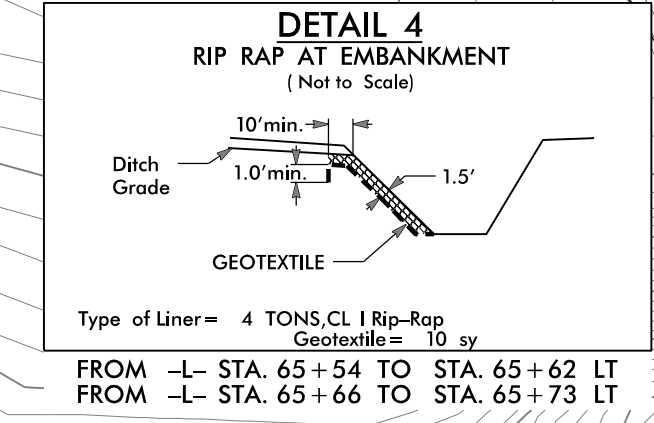
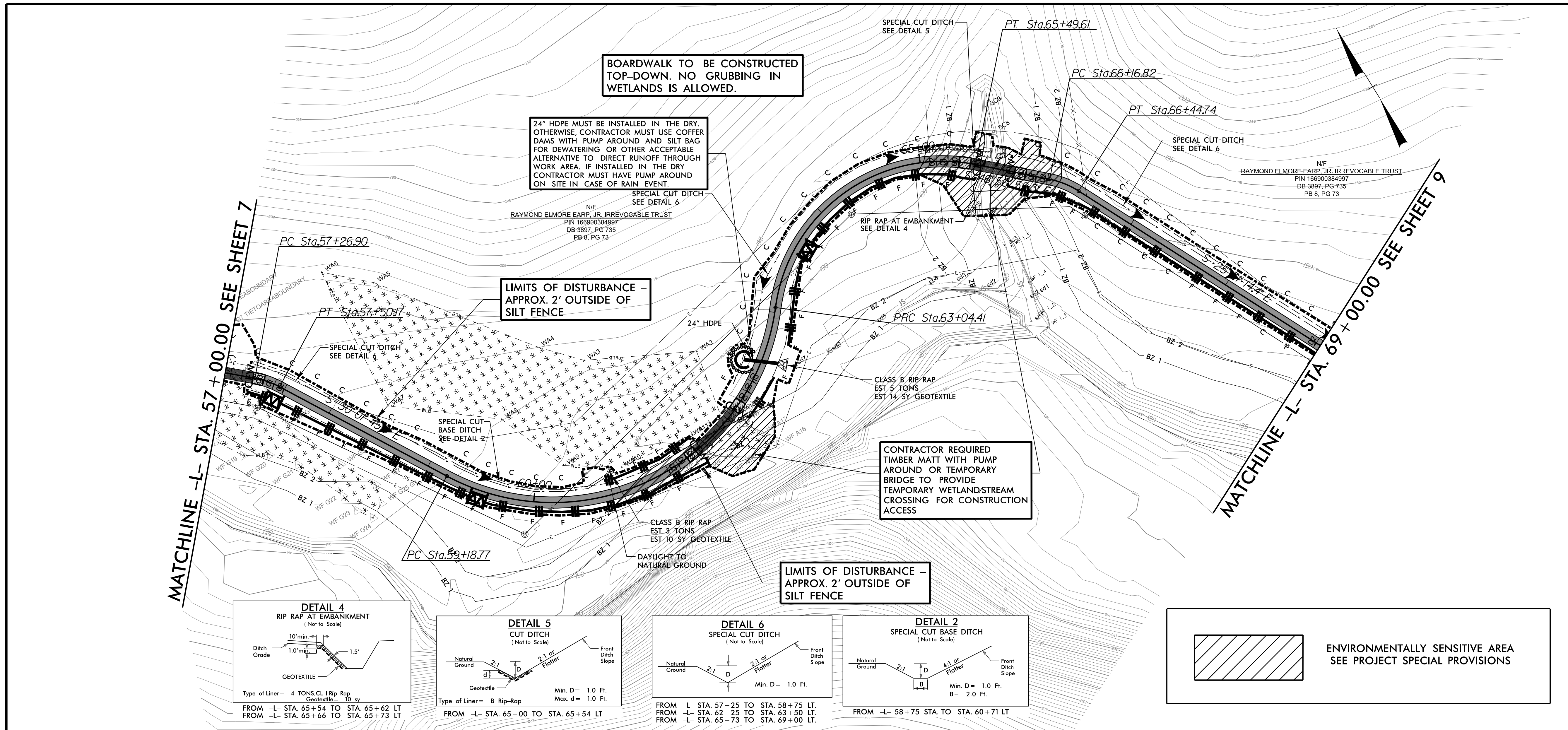
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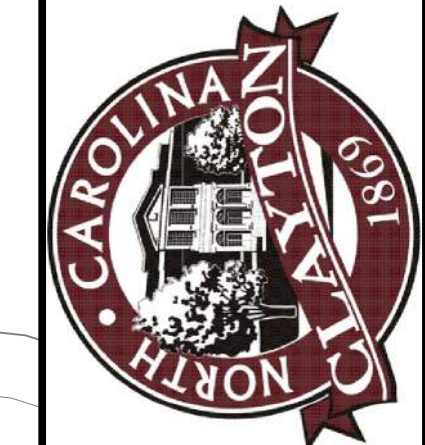
PROJECT NO.:

H14009.00

SCALE: 1"=50'

EC14/CONST8

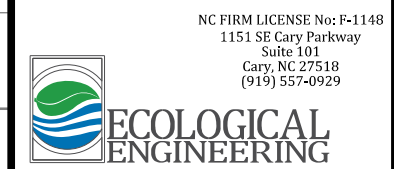




**SAM'S BRANCH GREENWAY
PHASE II
CITY ROAD TO NORTH O'NEIL STREET**

GREENWAY ENGINEER

HYDRAULICS ENGINEER



DATE: SEPTEMBER 11, 2015

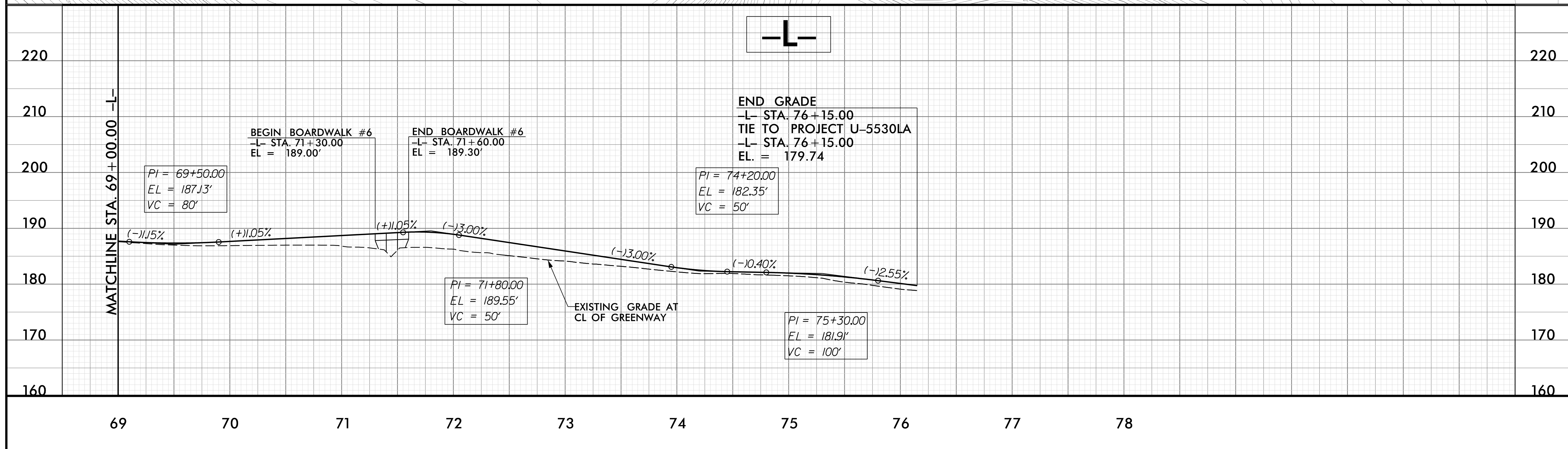
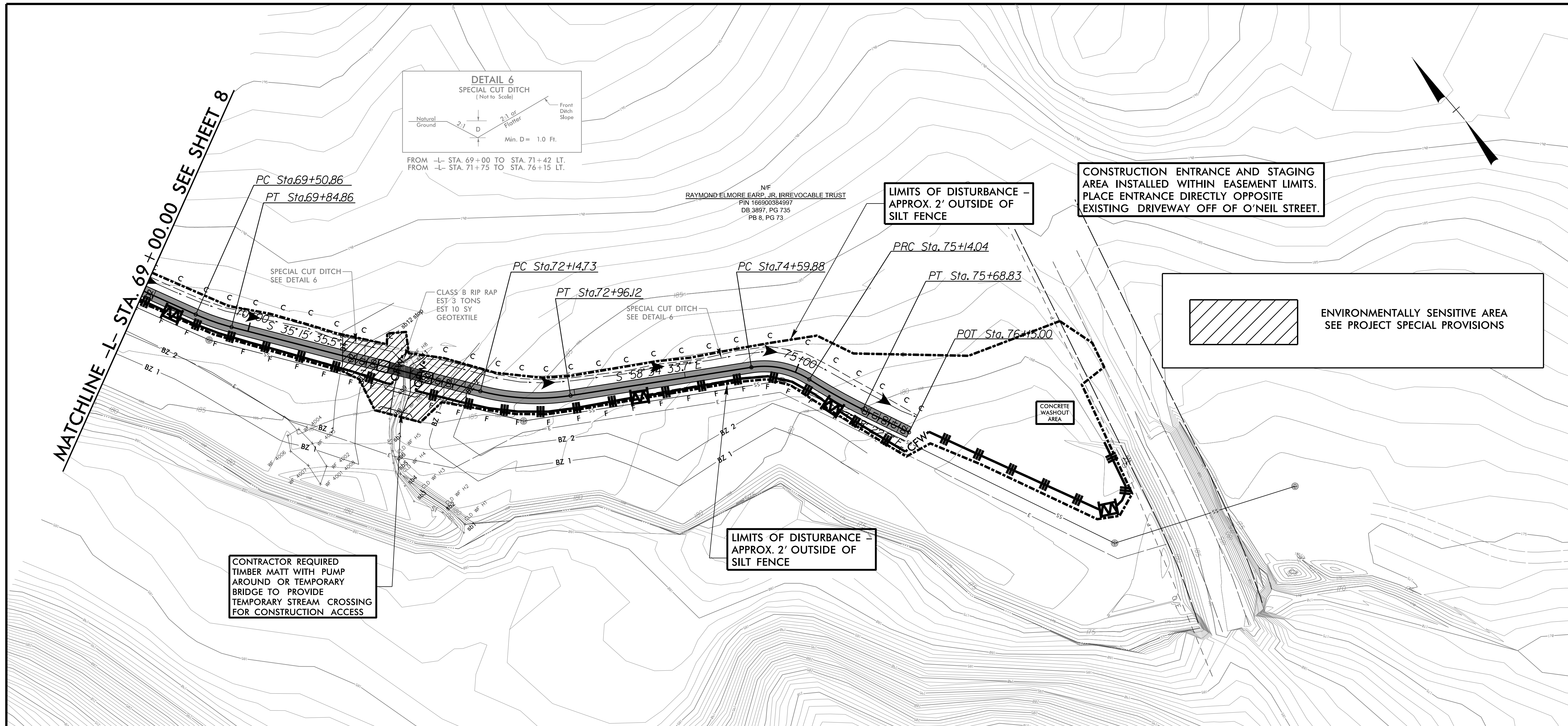
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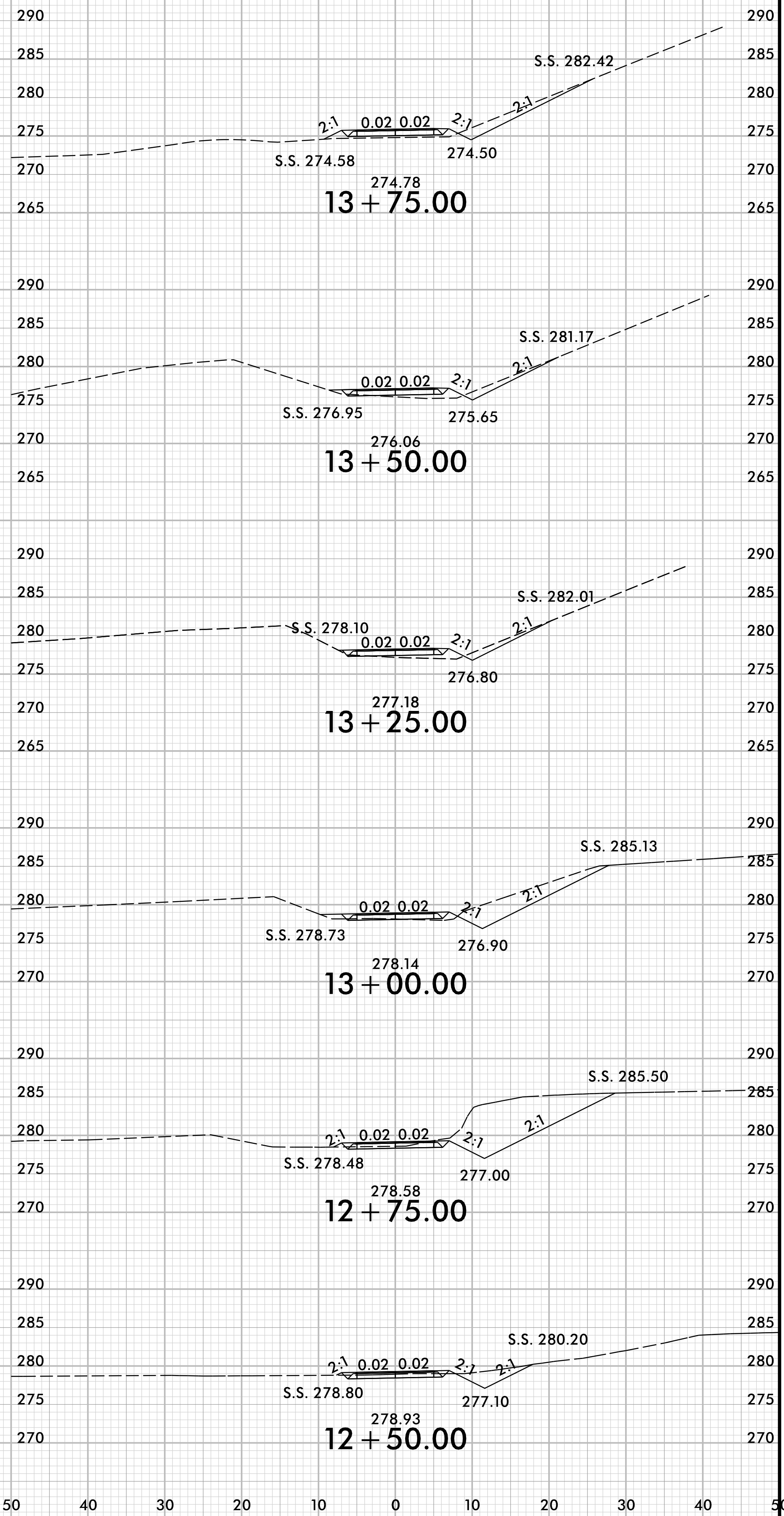
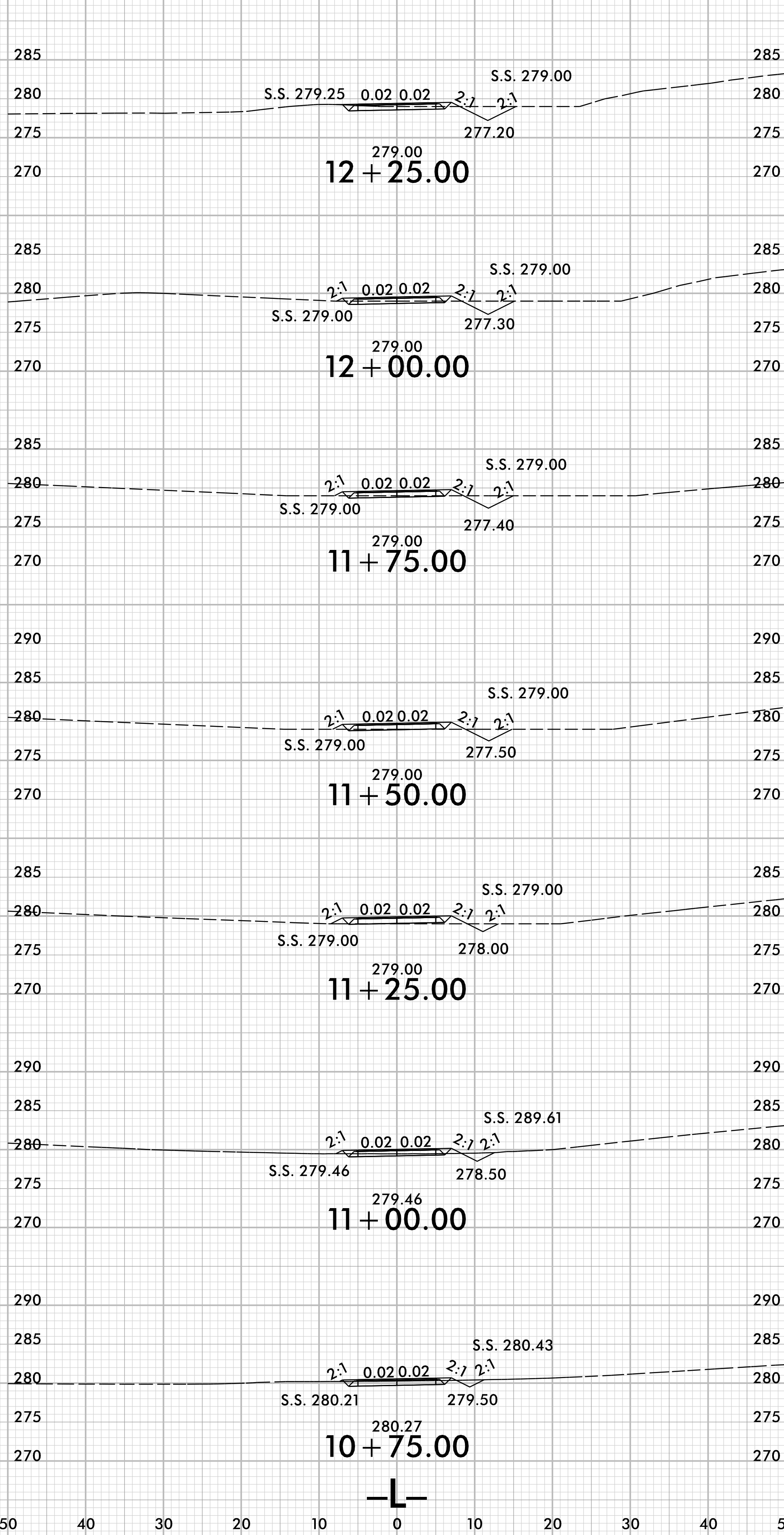
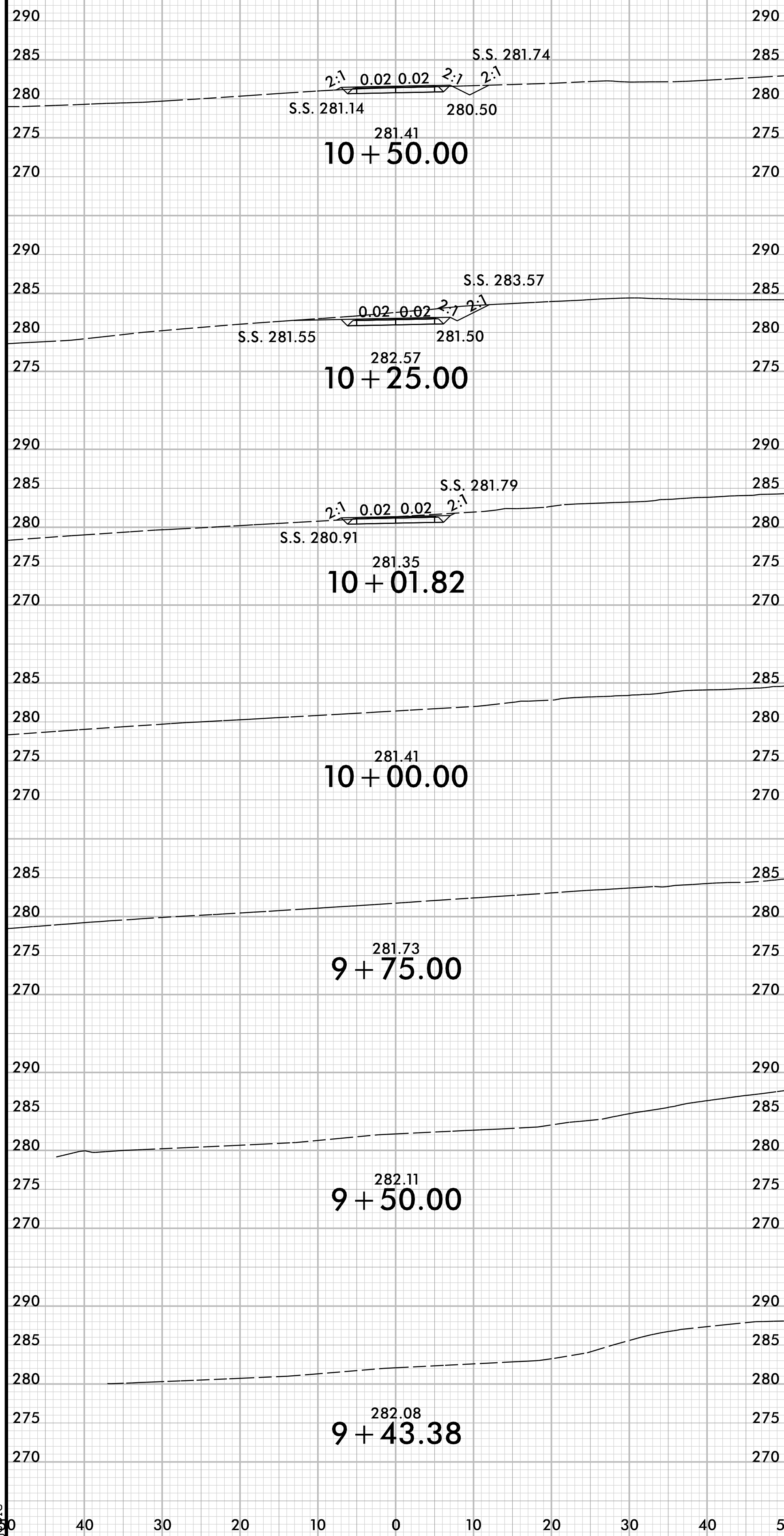
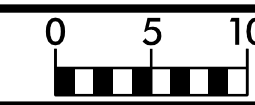
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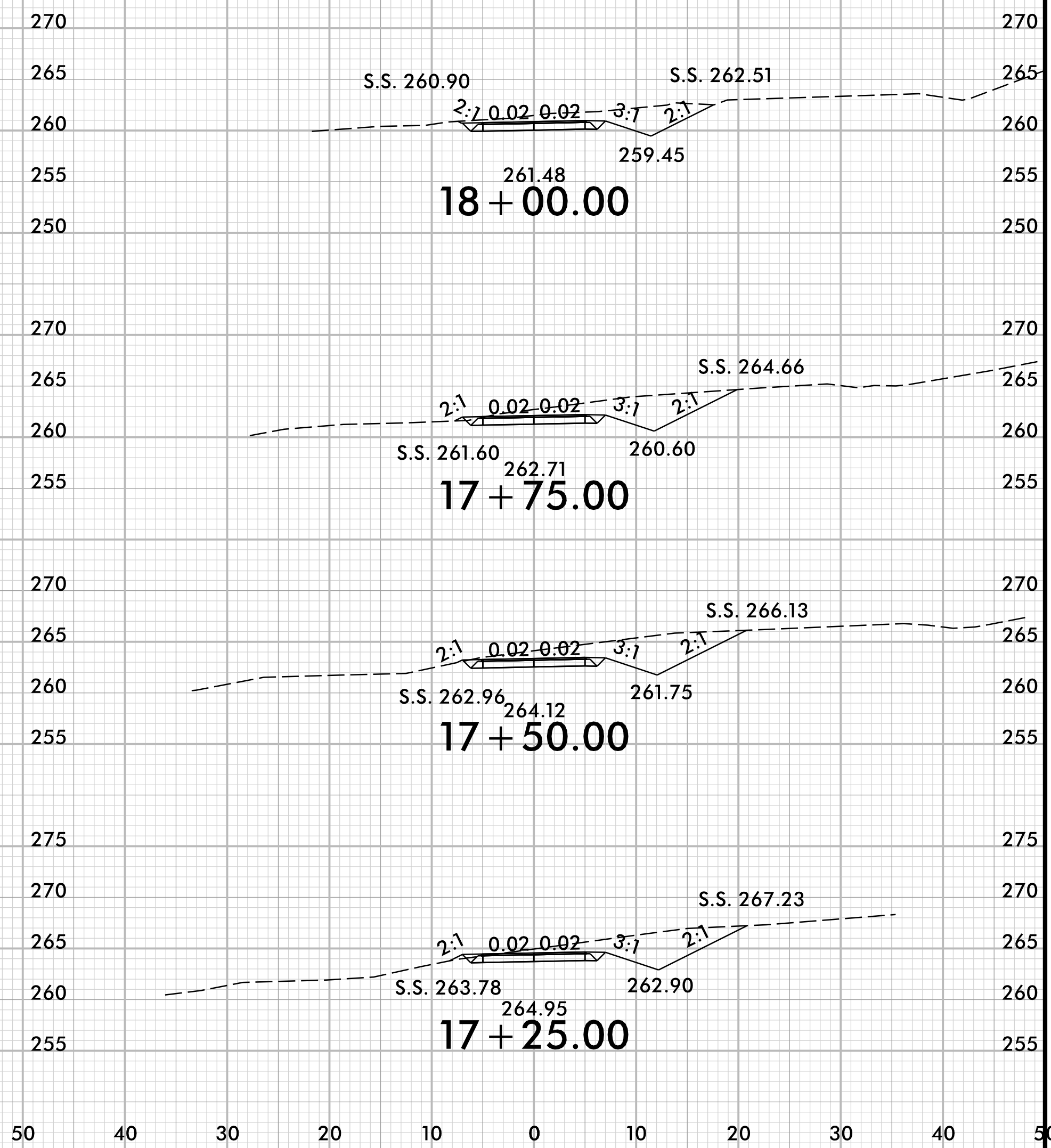
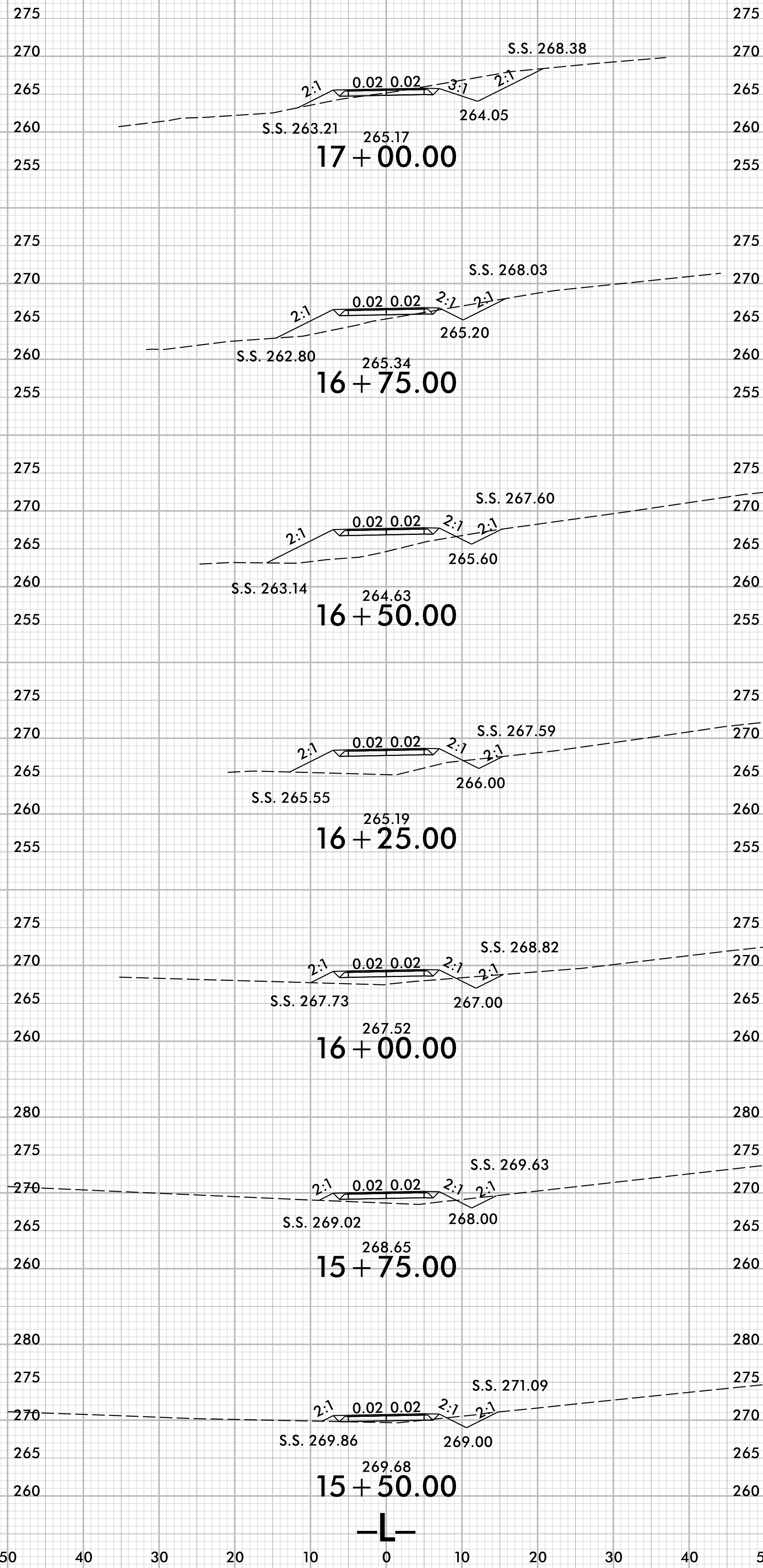
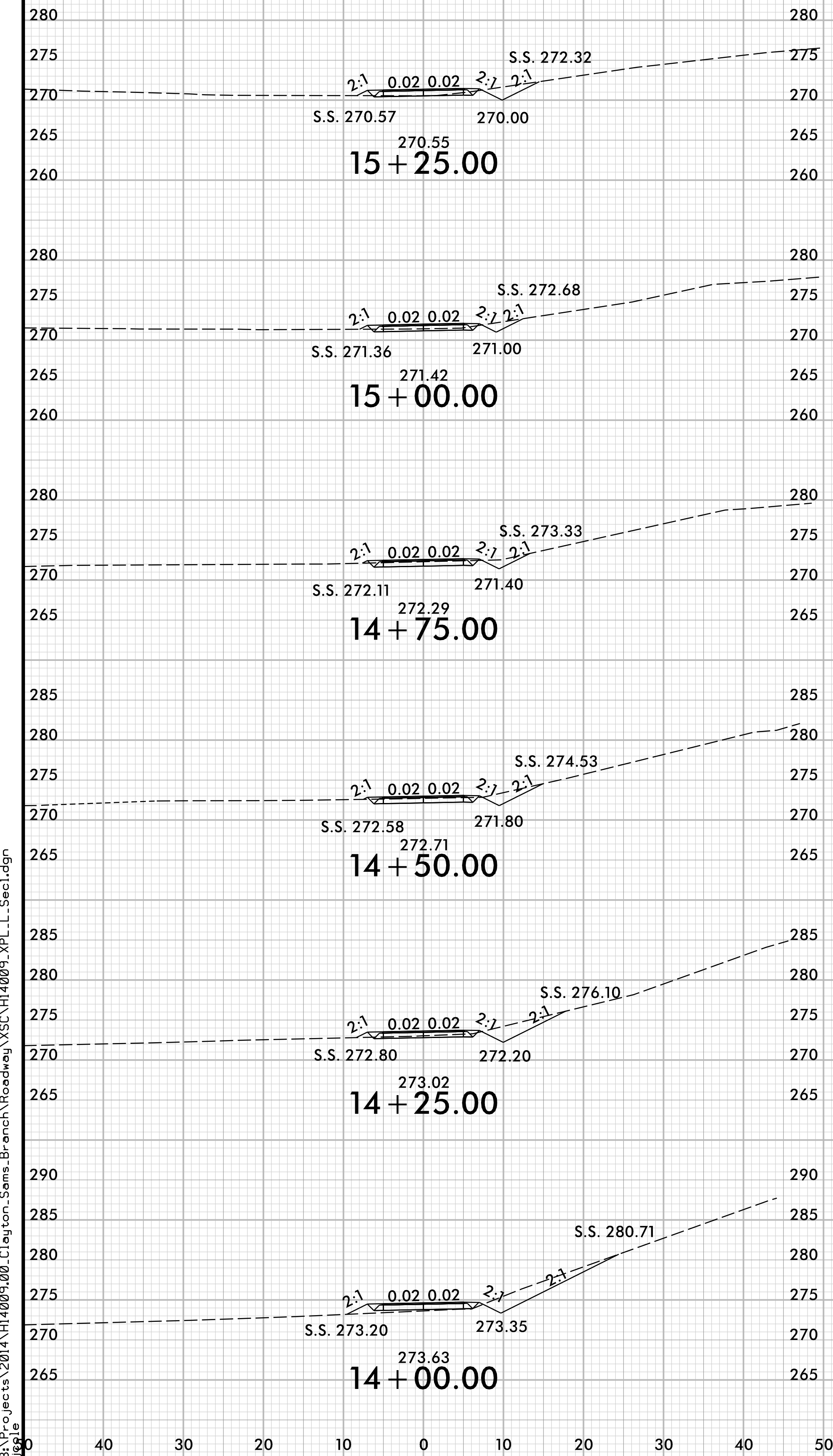
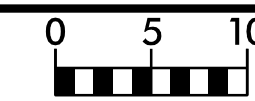
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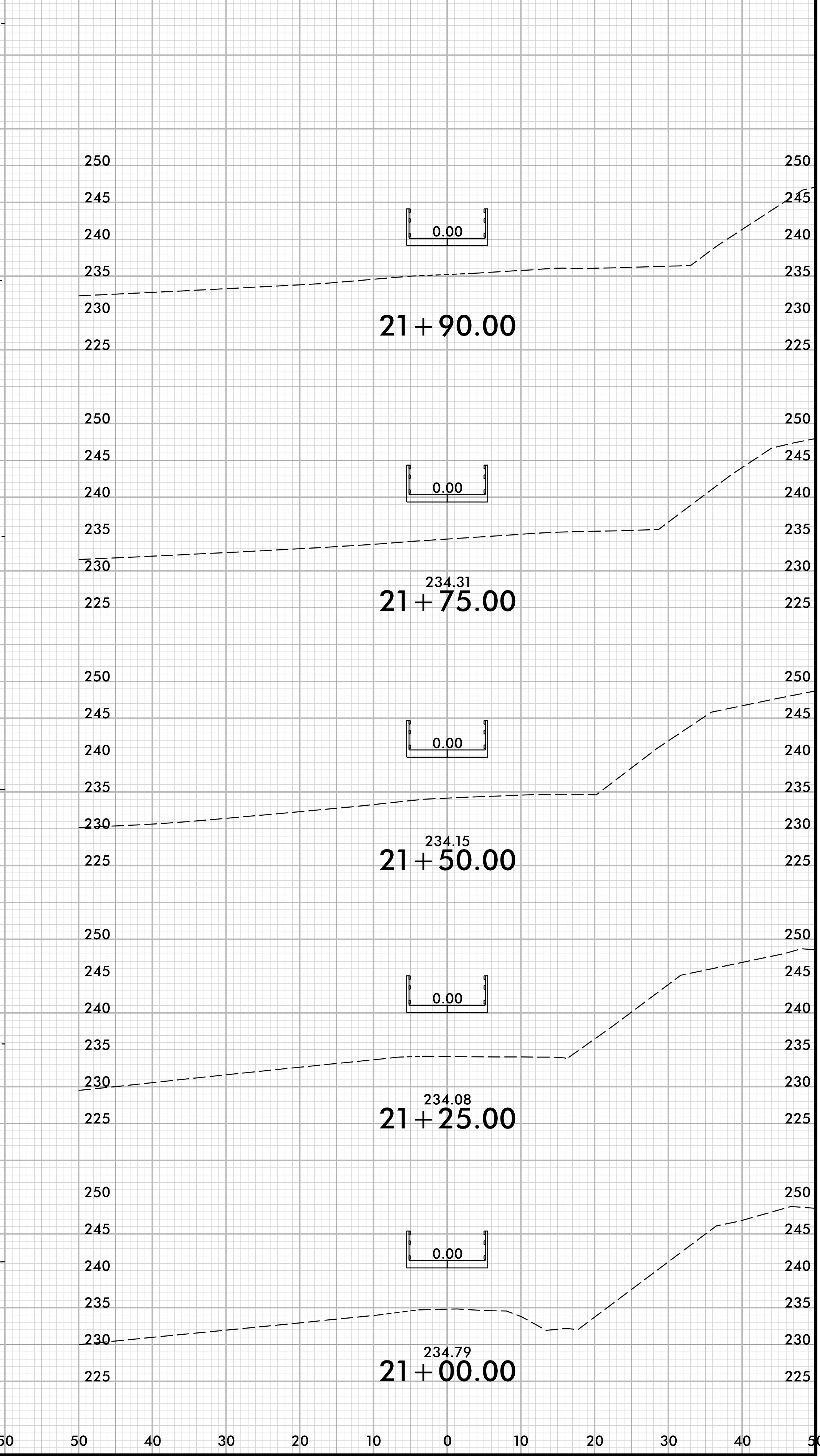
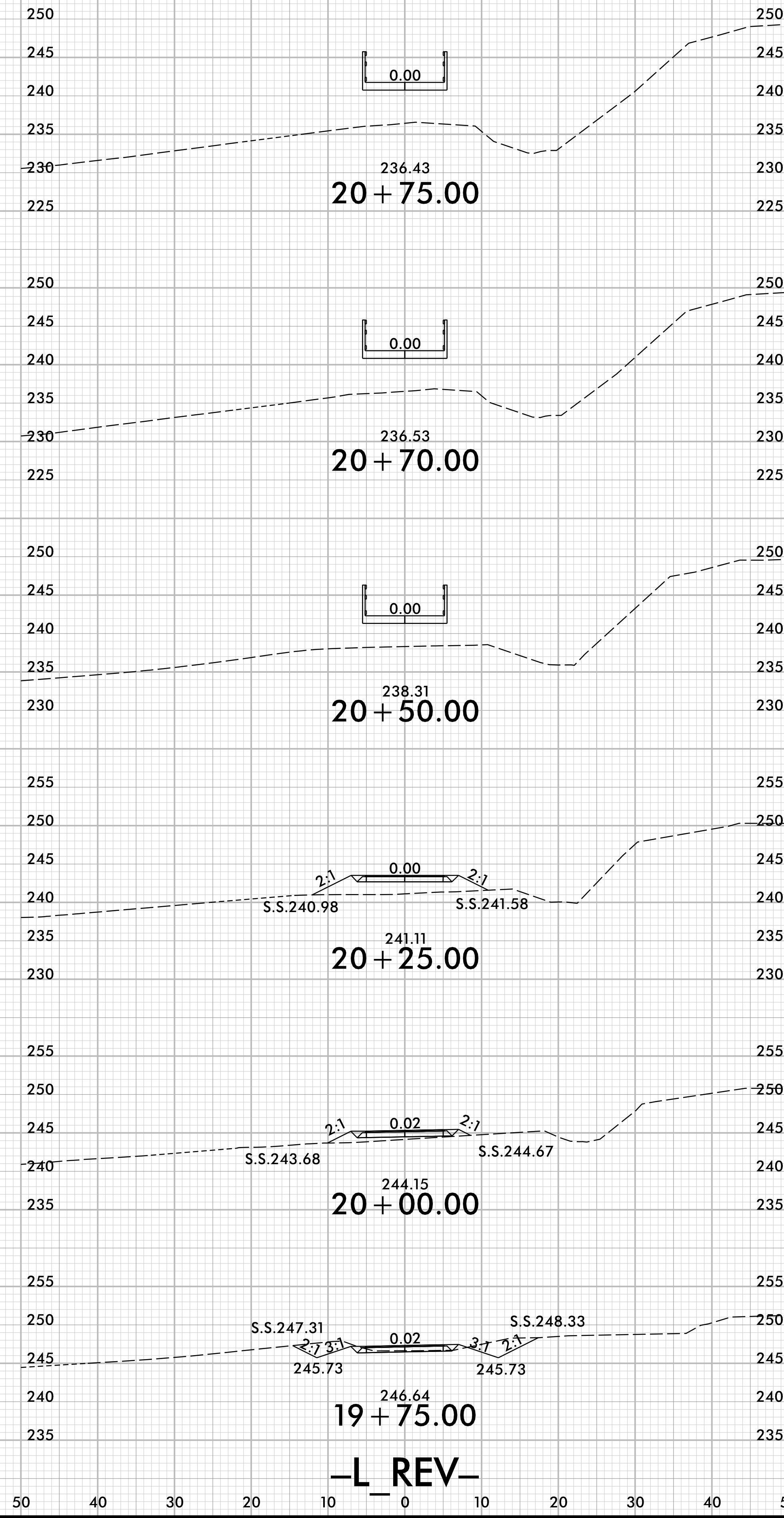
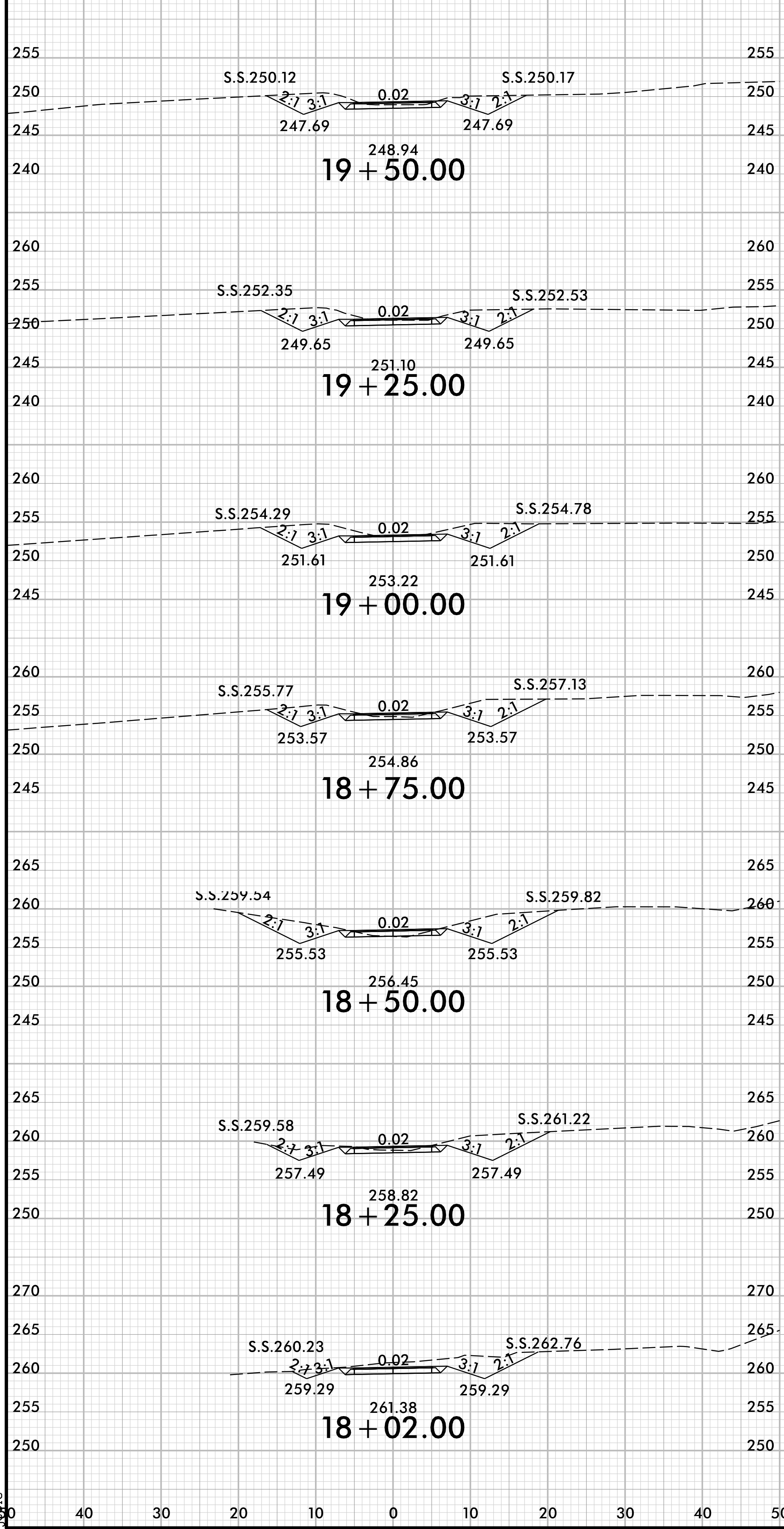
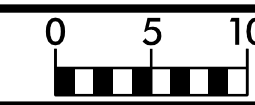
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EC15/CONST9

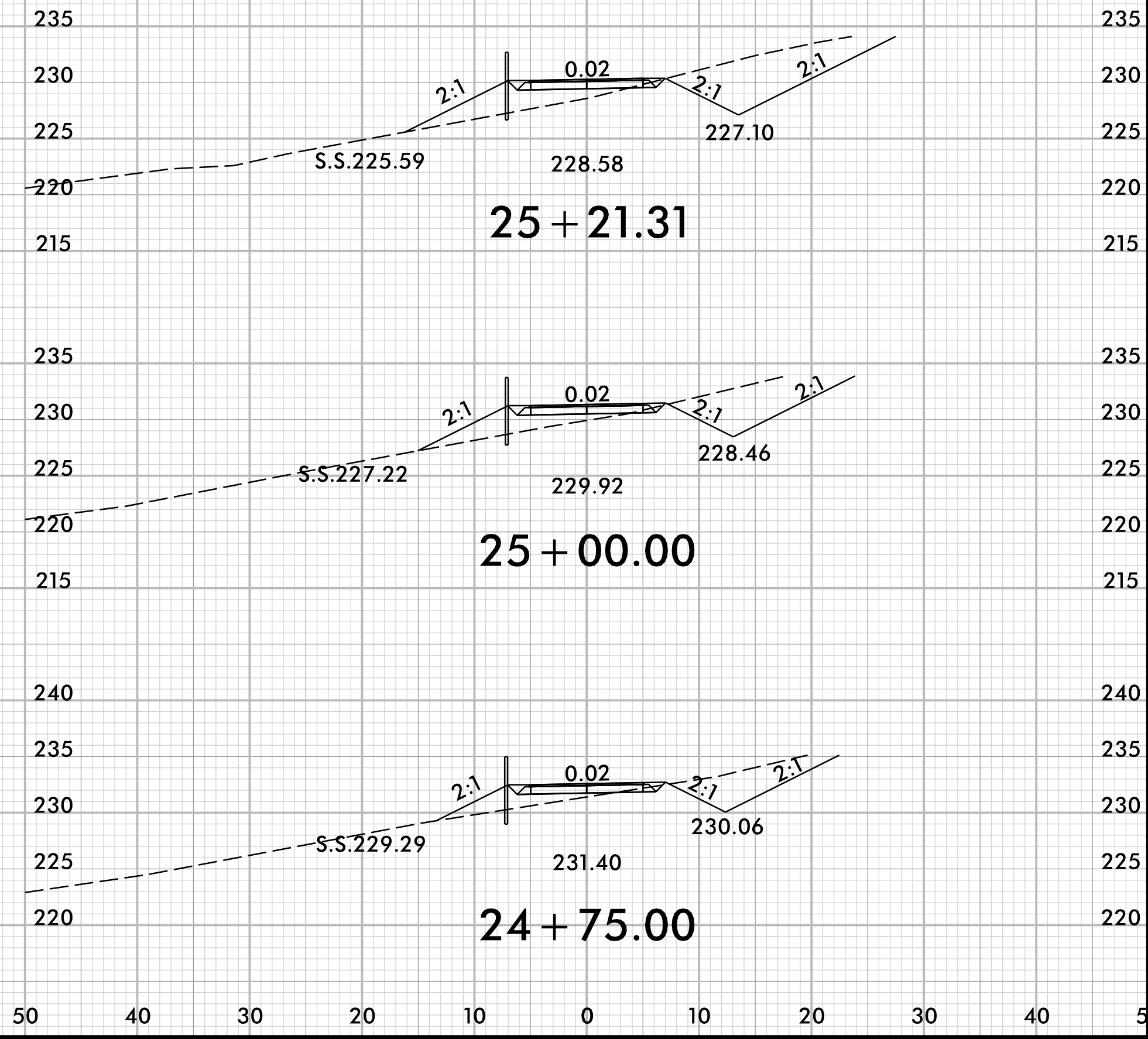
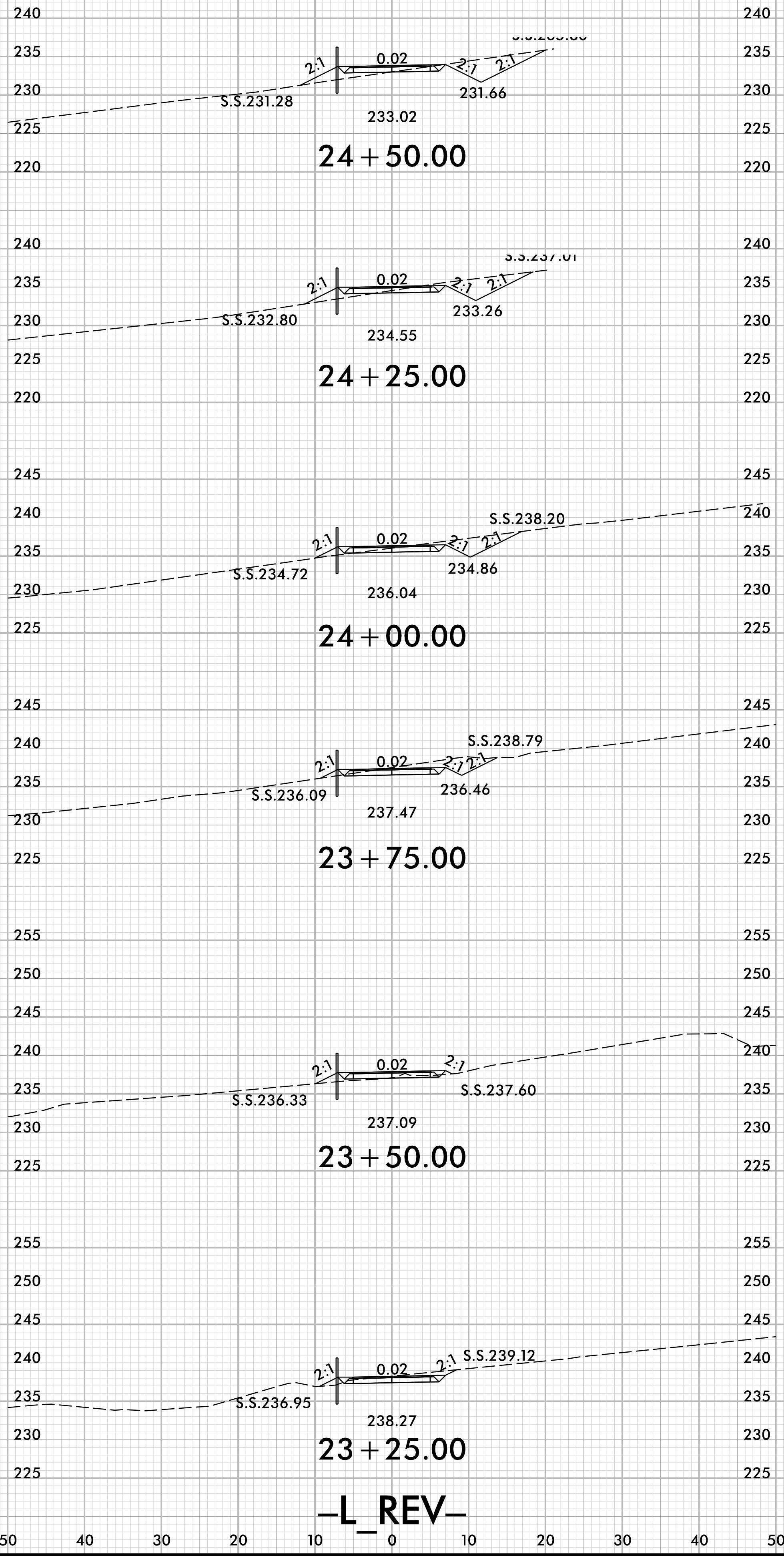
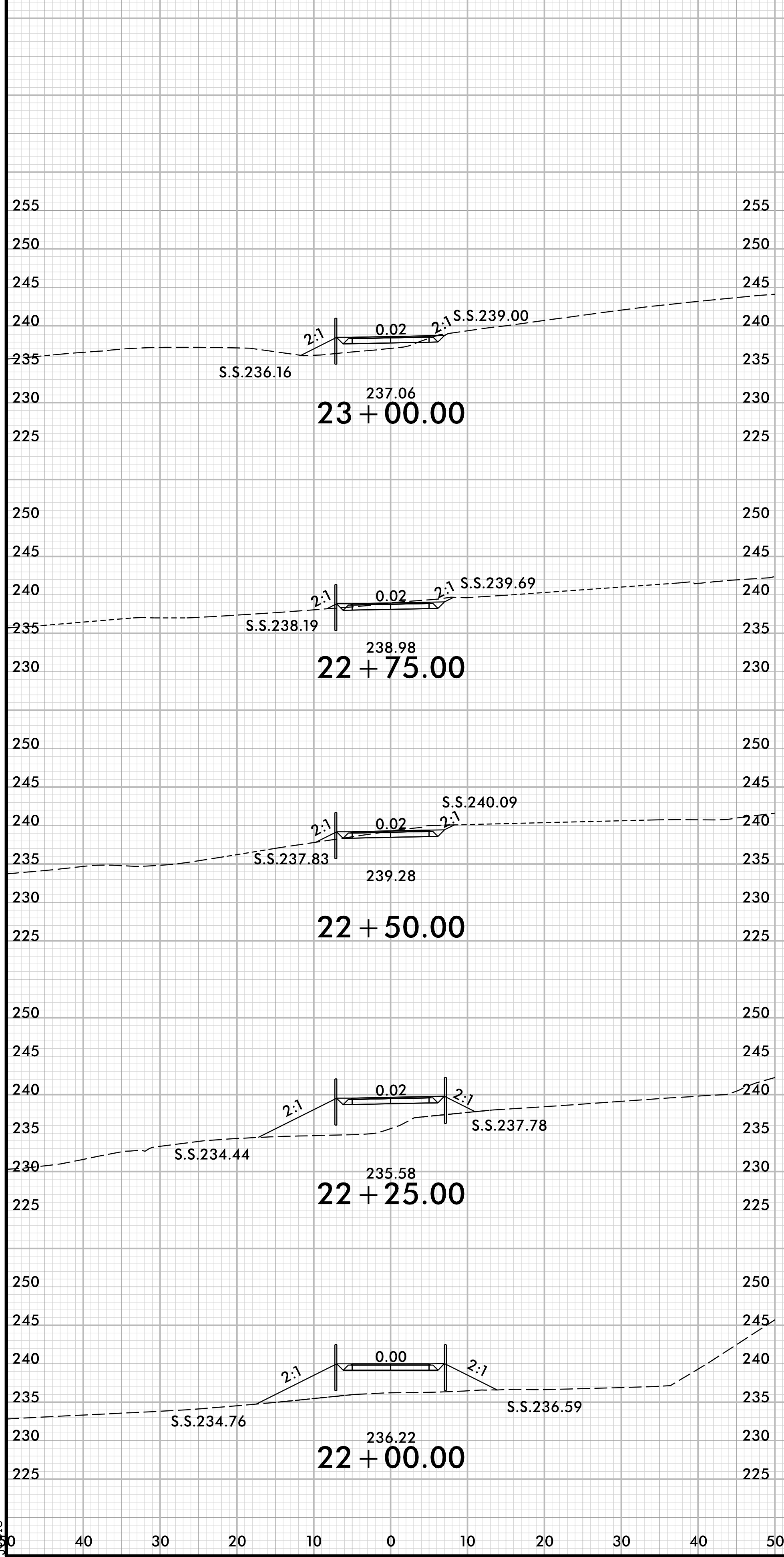






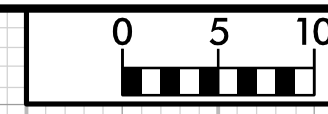


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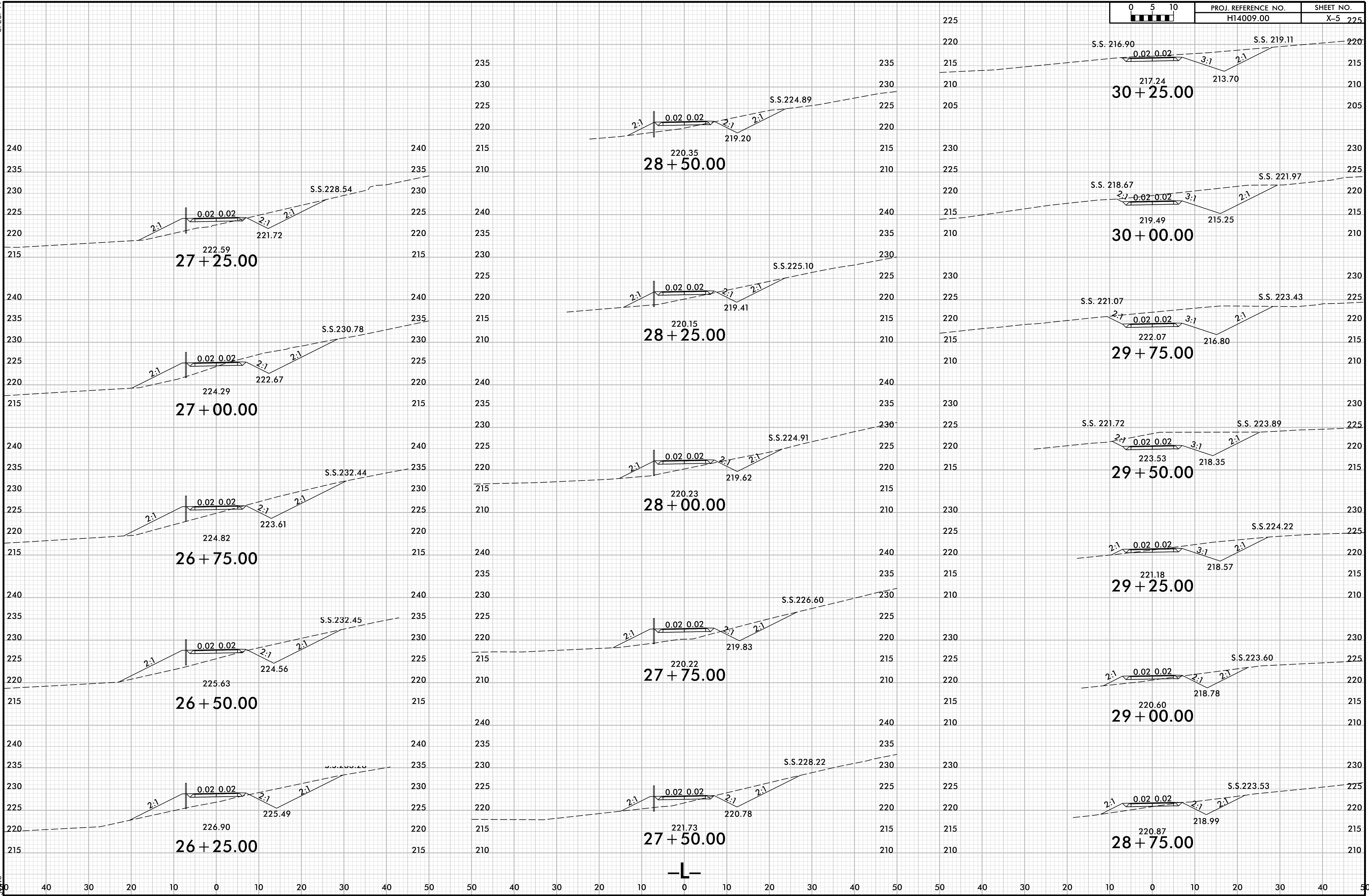
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8/23/99



PROJ. REFERENCE NO.
H14009.00

SHEET NO.
X-5 225



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