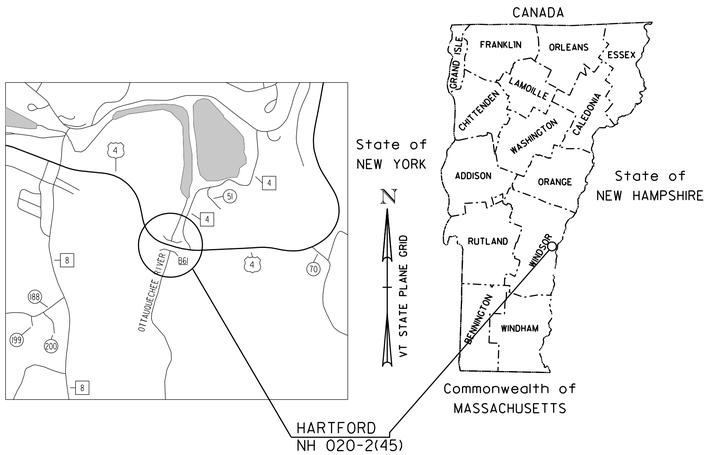
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

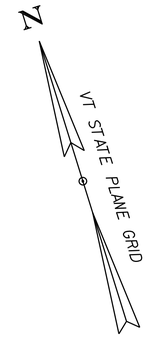
TOWN OF HARTFORD
COUNTY OF WINDSOR

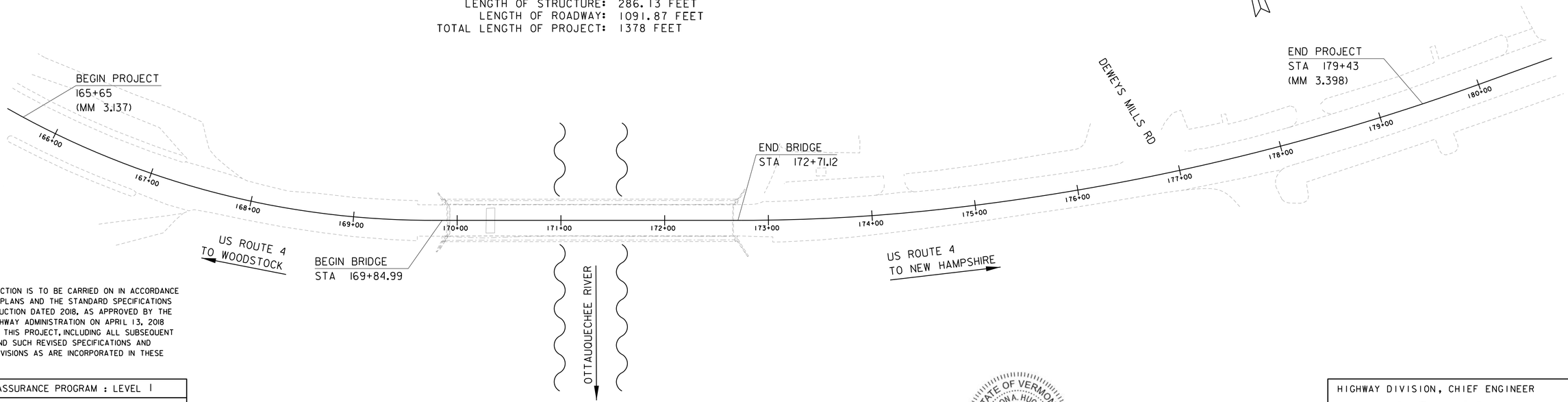
ROUTE NO: US 4, PRINCIPAL ARTERIAL - NHS
BRIDGE NO: 61 OVER OTTAUQUECHEE RIVER

PROJECT LOCATION: BRIDGE 61 ("QUECHEE GORGE BRIDGE") CARRIES US 4 OVER THE OTTAUQUECHEE RIVER IN THE TOWN OF HARTFORD APPROXIMATELY 3.5 MILES FROM THE US 4/VT 12 INTERSECTION.

PROJECT DESCRIPTION: BRIDGE REHABILITATION AND APPROACH ROADWAY IMPROVEMENTS

LENGTH OF STRUCTURE: 286.13 FEET
LENGTH OF ROADWAY: 1091.87 FEET
TOTAL LENGTH OF PROJECT: 1378 FEET





CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON APRIL 13, 2018 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

SCALE: 1" = 50'-0"
0 50 100
SCALE IN FEET

QUALITY ASSURANCE PROGRAM : LEVEL 1

SURVEYED BY : VTRANS
SURVEYED DATE : 10/31/2017

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83

STATE OF VERMONT
PRESTON A. HUCKABEE
NO. 018.0134747
Structural
LICENSED
PROFESSIONAL ENGINEER
7/13/22

GILL ENGINEERING

HIGHWAY DIVISION, CHIEF ENGINEER
APPROVED Erin Sisson, P.E. DATE July 14, 2022

PROJECT MANAGER : J.B. MCCARTHY

PROJECT NAME : HARTFORD
PROJECT NUMBER : NH 020-2(45)

SHEET 1 OF 97 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 2018.12.18.10
ASD

INDEX OF SHEETS

PLAN SHEETS

DETAIL SHEETS

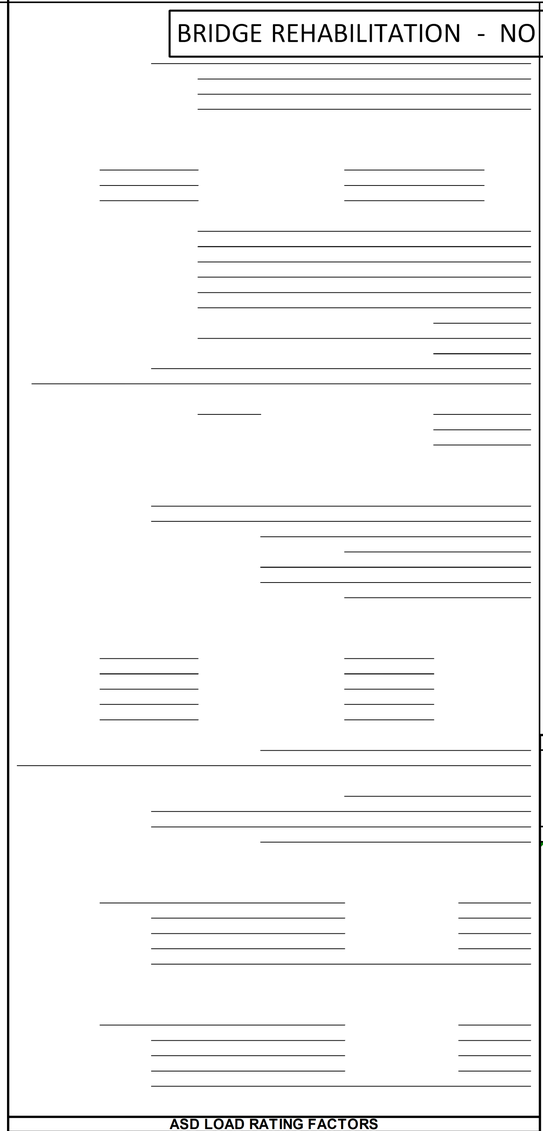
HSD-621.06	MISCELLANEOUS GUARDRAIL DETAILS	2/27/2017
HSD-621.07A	MIDWEST GUARDRAIL SYSTEM (MGS)	1/4/2021
HSD-621.07B	W-BEAM GUARDRAIL COMPONENTS	4/17/2019
HSD-621.07C	MIDWEST GUARDRAIL SYSTEM (MGS) ANCHOR	4/17/2019
HSD-621.07C	MIDWEST GUARDRAIL SYSTEM (MGS) ANCHOR COMPONENTS	4/17/2019
HSD-621.07E	MIDWEST GUARDRAIL SYSTEM (MGS) ANCHOR COMPONENTS	4/17/2019

STANDARDS LIST

C-2A	PORTLAND CEMENT CONCRETE SIDEWALK DRIVE ENTRANCES WITH SIDEWALK A	10-14-2005
C-3A	SIDEWALK RAMPS	04-07-2020
C-10	CURBING	02-11-2008
D-13	CONCRETE CATCH BASIN	01-03-2000
D-16	DRAINAGE DETAILS INCLUDING DROP INLETS, IRON GRATE TYPE B&C, CONC END	06-01-1994
E-1	TREE PLANTING	07-11-2017
E-15	SILT FENCE	04-07-2020
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-191	PAVEMENT MARKING DETAILS	02-01-1999
E-193	PAVEMENT MARKING DETAILS	08-18-1995
F-2	CHAIN LINK FENCE, TYPE I DETAILS	06-01-1994
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	03-10-2017
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	03-10-2017
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINALS	10-02-2018
S-500	CONCRETE DETAILS AND NOTES	04-07-2020
S-501	CONCRETD DETAILS AND NOTES	04-07-2020
S-600	STRUCTURAL DETAILS AND NOTES	04-07-2020
S-601	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	04-07-2020
T-1	TRAFFIC CONTROL GENERAL NOTES	04-25-2016
T-2	TRAFFIC SIGN GENERAL NOTES	04-07-2020
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-29	CONSTRUCTION SIGN DETAILS	08-06-2012
T-31	CONSTRUCTION SIGN DETAILS	08-06-2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08-06-2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08-06-2012
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

FINAL HYDRAULIC REPORT

BRIDGE REHABILITATION - NO HYDRAULICS REPORT



TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON THE EXISTING STRUCTURE.
2. INSTALL AND MAINTAIN TEMPORARY SIGNAL FOR ONE-LANE ALTERNATING TRAFFIC.
3. MAINTAIN SIDEWALK ON ONE SIDE OF THE BRIDGE.

DESIGN VALUES

1.	DESIGN LIVE LOAD		HS-20
2.	FUTURE PAVEMENT	dp:	0.0 INCH
3.	ABUTMENT BEARING TO BEARING LENGTH (THREE SPANS) (40.75 - 187.88 - 51.50) FT	L:	280.13 FT
4.	MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5.	PRESTRESSING STRAND	fy:	---
6.	PRESTRESSED CONCRETE STRENGTH	$f'c$:	---
7.	PRESTRESSED CONCRETE RELEASE STRENGTH	$f'ci$:	---
8.	SPECIAL PROVISION (CONCRETE HIGH PERFORMANCE, CLASS AA)	$f'c$:	---
9.	PERFORMANCE-BASED STRUCTURAL CONCRETE, CLASS PCD	$f'c$:	4.0 KSI
10.	PERFORMANCE-BASED STRUCTURAL CONCRETE, CLASS PCS	$f'c$:	---
11.	CONCRETE, CLASS C	$f'c$:	---
12.	REINFORCING STEEL	fy:	60 KSI
13.	STRUCTURAL STEEL AASHTO M270	fy:	50 KSI
14.	NOMINAL BEARING RESISTANCE OF SOIL	qn:	---
15.	SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
16.	NOMINAL BEARING RESISTANCE OF ROCK	qn:	---
17.	ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
18.	PILE RESISTANCE FACTOR	ϕ:	---
19.	LATERAL PILE DEFLECTION	Δ:	---
20.	BASIC WIND SPEED	$V3s$:	---
21.	MINIMUM GROUND SNOW LOAD	pg:	---
22.	SEISMIC DATA PGA: ---	Ss:	---
		$S1$:	---
23.			
24.			---
25.			---
26.			---

ASD LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HS-20	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
INVENTORY	1.46*	0.89					
POSTING	2.25*	1.50	1.52		1.63*	1.48*	1.42
OPERATING		1.91	1.93	1.09	2.02*	1.83*	
COMMENTS:	BEARING AT L0 PIN PLATES CONTROLS EXCEPT AS MARKED * WHERE SHEAR IN THE FASTENERS OF GUSSET U3						

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2021	9200	1100	58	3.9	660
2041	10000	1200	58	5.7	1100

20 year ESAL for flexible pavement from 2021 to 2041 : 6224000

40 year ESAL for flexible pavement from 2021 to 2061 : 14527000

Design Speed : 35 mph

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

PROJECT NAME: **Hartford**

PROJECT NUMBER: **020-2(45)**

FILE NAME: **z17b082forms.dgn**
PROJECT LEADER: **AMS**
DESIGNED BY: **AMS**
PRELIMINARY INFORMATION SHEET

PLOT DATE: 6/14/2022
DRAWN BY: **YS**
CHECKED BY: **PAH**

GENERAL NOTES

1. GENERAL SCOPE OF THE BRIDGE WORK: THE WORK ON THE BRIDGE SHALL CONSIST OF CLEANING AND PAINTING EXISTING STRUCTURAL STEEL, REPAIRING AND STRENGTHENING EXISTING STRUCTURAL STEEL, TEMPORARY SUPPORT OF EXISTING SUSPENDED WATERLINE ON THE BRIDGE, REPLACING SELECTED STRINGERS, JACKING AND REPLACEMENT OF EXISTING BEARINGS AT ABUTMENTS, REMOVAL OF EXISTING IMPACTED RUST AT SELECTED STEEL PIN CONNECTIONS BY HEAT AND HAMMER METHOD, ULTRASONIC TESTING OF STEEL PINS IN CONNECTIONS, INSTALLATION OF NEW BRIDGE SCUPPERS AND DOWN SPOUTS, PARTIAL DEMOLITION AND RECONSTRUCTION OF THE EXISTING BRIDGE DECK AND SIDEWALKS, INSTALLATION OF A NEW PEDESTRIAN PROTECTIVE SCREEN, INSTALLATION OF A NEW CURB MOUNTED TRAFFIC RAILING, PARTIAL DEMOLITION AND RECONSTRUCTION OF EXISTING BRIDGE BACKWALLS, REMOVAL OF EXISTING ARMORED EXPANSION JOINTS AND REPLACEMENT WITH NEW PRECOMPRESSED JOINT SEALS, NEW DECK WATERPROOFING MEMBRANE AND WEARING SURFACE, CONSTRUCTION OF NEW MOMENT SLABS AT BRIDGE APPROACHES ADJACENT TO ABUTMENTS.

2. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2018 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS.

3. DESIGN IS FOR THE 2002 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS-20-44 LIVE LOAD AT THE VERMONT POSTING LEVEL.

4. DIMENSIONS SHOWN ON EXISTING DETAILS ARE TAKEN FROM RECORD PLANS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE AND NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL THE CONTRACTOR HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

   THE RECORD PLANS AND EXISTING DETAILS FOR THIS STRUCTURE ARE INCOMPLETE. FURTHER, MANY OF THE DETAILS ON THE ORIGINAL 1910 TRUSS STRUCTURE WERE BASED ON STANDARD PRACTICE AT THE TIME IT WAS CONSTRUCTED AND ARE ASSUMED. THE DETAILS DEPICTED HEREIN ARE BASED UPON THE RECORD PLANS, FIELD OBSERVATION AND OTHER ENGINEERING ASSUMPTIONS AND ARE DEEMED ADEQUATE FOR BIDDING PURPOSES. THE CONTRACTOR HOWEVER WILL BE REQUIRED TO CONDUCT A FIELD SURVEY TAKING ALL NECESSARY MEASUREMENTS AND IDENTIFYING ALL DETAILS REQUIRED FOR THE COMPLETION OF THE WORK PRIOR TO THE PREPARATION OF SHOP DRAWINGS.

TRAFFIC CONTROL

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. THE PLAN SHALL CLEARLY DETAIL HOW TRAFFIC WILL BE MAINTAINED. THE PLAN SHALL SPECIFY ALL CONSTRUCTION ACTIVITIES REQUIRING ALTERNATING ONE WAY TRAFFIC, RELATE THOSE ACTIVITIES TO THE CONSTRUCTION SCHEDULE, AND SHOW APPROPRIATE TEMPORARY TRAFFIC CONTROL. ALL COSTS WILL BE INCLUDED IN ITEM 641.11 TRAFFIC CONTROL, ALL-INCLUSIVE.

6. FOR ADDITIONAL TRAFFIC CONTROL NOTES SEE SHEET 26.

STRUCTURAL STEEL

7. ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M270 GRADE 50 UNLESS NOTED OTHERWISE. ALL MEMBERS ARE MAIN MEMBERS UNLESS NOTED AS SECONDARY MEMBERS ON THE PLANS. CVN TESTS SHALL NOT BE REQUIRED FOR MATERIAL CONNECTED TO MAIN MEMBERS DESIGNATED AS COMPRESSION MEMBERS ON THE DRAWINGS. ALL OTHER MAIN MEMBERS SHALL BE TREATED IN ACCORDANCE WITH SECTION 741.01. FILL PLATES ARE SECONDARY MEMBERS.

8. UNLESS NOTED OTHERWISE, ALL NEW CONNECTIONS SHALL BE MADE WITH MECHANICALLY GALVANIZED HIGH STRENGTH BOLTS MEETING THE REQUIREMENTS OF SECTION 714.05 OF EITHER ⅞" DIAMETER IN 15/16" DIAMETER HOLES OR ¾" DIAMETER IN 13/16" DIAMETER HOLES. BOLT DIAMETERS SHALL BE AS IDENTIFIED ON THE DRAWINGS.

9. ALL BOLTS THROUGH THE TRUSS CHORDS, DIAGONALS, AND GUSSETS SHALL BE INSTALLED WITH THE BOLT HEADS EXPOSED TO VIEW. ACCESSIBILITY TO THE NUTS MAY BE LIMITED BY THE STRUCTURE AND THE BOLTS MAY REQUIRE TIGHTENING VIA THE BOLT HEAD. THE CONTRACTOR SHALL ENSURE THE NUMBER OF HARDENED WASHERS PROVIDED PER BOLT, AND BOLT GRIPS ARE OF SUFFICIENT LENGTH, TO ACCOMMODATE THE CHOSEN METHOD OF TIGHTENING.

2

10. STRUCTURAL STEEL FOR REPAIRS SHALL BE BROUGHT TO THE SITE WITH A PRIME COAT OF PAINT CONFORMING TO THE APPROVED THREE COAT PAINT SYSTEM BEING USED FOR THE BRIDGE APPLIED IN THE SHOP. ALL SUBSEQUENT COATS OF PAINT SHALL BE APPLIED AFTER THE STRUCTURAL STEEL IS ERECTED AND FASTENED TO THE STRUCTURE. STRINGERS MAY BE BROUGHT TO THE SITE WITH ALL THREE COATS OF PAINT APPLIED IN THE SHOP.

PROTECTIVE COATINGS

11. THE EXISTING STRUCTURAL STEEL ON THE BRIDGE STRUCTURE WAS PAINTED WITH A MATERIAL WHICH MAY CONTAIN LEAD. ANY STRUCTURAL STEEL THAT IS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE PROPERLY DISPOSED OR RECYCLED UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL IDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSAL OF THE STRUCTURAL STEEL.

2

12. ALL EXISTING STEEL MEMBERS SHALL BE CLEANED AND PAINTED IN ACCORDANCE WITH ITEM 900.645 SPECIAL PROVISION (REMOVAL, CONTAINMENT, AND DISPOSAL OF LEAD PAINT) AND ITEM 900.645 SPECIAL PROVISION (FIELD PAINTING STEEL, THREE COAT SYSTEM). THE SURFACE PREPARATION SHALL INCLUDE REMOVAL OF THE EXISTING PAINT SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF SSPC-SP10, "NEAR WHITE METAL BLAST CLEANING". THROUGH THE COURSE OF THE WORK, ALL NEWLY EXPOSED FAYING SURFACES ON THE EXISTING STEEL SHALL BE CLEANED AND PRIMED WITH AN ORGANIC ZINC RICH PRIMER MEETING THE CLASS B SLIP COEFFICIENT VALUE OF NOT LESS THAN 0.50 AS SPECIFIED BY AASHTO. AFTER REMOVING THE EXISTING DECK CONCRETE, ANY SURFACES THAT WILL BE IN CONTACT WITH NEW CONCRETE SHALL BE CLEANED AND PRIMED PRIOR TO POURING THE NEW DECK TO AVOID RUST BLEED.

13. CONTRACTOR SHALL PROVIDE A DETAILED PLAN FOR CLEANING AND PAINTING BEARING DEVICES IF ANCHOR CABLES ARE PLACED AROUND BEARING PLATES. PAYMENT WILL BE CONSIDERED INCIDENTAL TO CONTRACT ITEM 900.645 SPECIAL PROVISION (REMOVAL, CONTAINMENT, AND DISPOSAL OF LEAD PAINT).

14. UTILITIES THAT ARE PRESENT ON THE STRUCTURES SHALL NOT BE BLAST CLEANED OR PAINTED. THESE UTILITIES MUST BE PROTECTED. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

2

15. AFTER CLEANING AND PRIMING IS COMPLETE, ~~THE STRUCTURE SHALL BE INSPECTED FOR~~ THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DETERIORATION THAT MAY REQUIRE REMEDIATION NOT OTHERWISE ADDRESSED BY THE REPAIR DETAILS CONTAINED HEREIN. ~~IF ANY DETERIORATION IS FOUND THE ENGINEER SHALL BE NOTIFIED TO DETERMINE AN APPROPRIATE COURSE OF ACTION~~. THE ENGINEER WILL DETERMINE AN APPROPRIATE COURSE OF ACTION.

16. AFTER ~~THE INSPECTION IS COMPLETE AND~~ ANY SUPPLEMENTAL REPAIRS HAVE BEEN IDENTIFIED, THE BRIDGE STRUCTURE MAY RECEIVE THE INTERMEDIATE AND TOP COATS OF PAINT IN REGIONS WHERE NO REPAIRS ARE REQUIRED. INTERMEDIATE AND TOP COATS OF PAINT SHALL BE HELD IN REGIONS WHERE REPAIRS ARE REQUIRED UNTIL SUCH REPAIRS ARE COMPLETE AND ACCEPTED, AT WHICH TIME PAINTING MAY COMMENCE.

17. THE COLOR OF THE FINAL COAT OF PAINT SHALL MATCH SAE AMS-STD-595, GREEN, CHIP NUMBER 14062.

18. THE GALVANIZED STEEL CM-TL3 BRIDGE RAILING FROM STA 169+60.25 TO STA 172+96.76 AND THE GALVANIZED STEEL DOWNSPOUTS SHALL BE POWDER COATED TO MATCH SAE AMS-STD-595, GREEN, CHIP NUMBER 14062. THE GALVANIZED STEEL CM-TL3 FROM STA 167+52.07 TO STA 169+46.29 AND THE STEEL GUARDRAIL SHALL BE POWDER COATED TO MATCH SAE AMS-STD-595, BLACK, CHIP NUMBER 27038.

REINFORCING STEEL

19. ALL REINFORCEMENT WITHIN THE BACKWALL, KEEPER BLOCKS, AND WINGWALL CAPS SHALL BE LEVEL 1 (UNCOATED) AND COMPENSATED UNDER ITEM 507.11 "REINFORCING STEEL, LEVEL 1".

20. ALL REINFORCEMENT WITHIN THE SUPERSTRUCTURE AND MOMENT SLABS SHALL BE LEVEL 1 (EPOXY COATED) AND COMPENSATED UNDER ITEM 507.11 "REINFORCING STEEL, LEVEL 1 (EPOXY COATED)".

CONCRETE

21. ALL CONCRETE SHALL BE ITEM 900.608 SPECIAL PROVISION (PERFORMANCE-BASED STRUCTURAL CONCRETE, CLASS PCD) UNLESS NOTED OTHERWISE IN THE PLANS.

EROSION PREVENTION AND SEDIMENTATION CONTROL

22. THE CONTRACTOR SHALL PROVIDE A SITE-SPECIFIC EROSION PREVENTION AND SEDIMENT CONTROL PLAN IN ACCORDANCE WITH SECTION 653 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. ESTIMATED QUANTITIES FOR EPSC WORK HAVE BEEN INCLUDED IN THE CONTRACT FOR BIDDING PURPOSES. IF THE CONTRACTOR'S EPSC PLAN REQUIRES ITEMS OF WORK THAT ARE NOT INCLUDED IN THE PLANS IT SHALL BE PAID FOR AS PART OF ITEM 653.03 MAINTENANCE OF EPSC PLAN.

SUPPORT OF EXISTING WATER LINE

23. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING FOR THE EXISTING WATER LINE SUSPENDED UNDER THE NORTH SIDE OF THE BRIDGE. THE CONTRACTOR SHALL PROVIDE TEMPORARY FRAMING OR SIMILAR MEANS TO BRACE THE EXISTING WATER LINE AT EACH ABUTMENT AT THE PIPE BENDS FOR THE THRUST. THIS WORK SHALL BE PAID UNDER ITEM 502.10 SHORING SUPERSTRUCTURE (WATER LINE SUPPORT).

2

REMOVAL OF EXISTING CONCRETE

24. REMOVAL OF ALL EXISTING CONCRETE WILL BE PAID FOR UNDER ITEM 529.25 "REMOVAL OF CONCRETE OR MASONRY". THIS WORK WILL INCLUDE REMOVAL OF THE EXISTING DECK AND SIDEWALK SLAB, ABUTMENT BACKWALLS, AND PORTIONS OF WINGWALLS, TO THE LIMITS SHOWN. DRILLING THROUGH THE EXISTING BRIDGE DECK AS NOTED ON SHEET 15 WILL BE INCIDENTAL TO THIS ITEM.

REMOVAL OF EXISTING BRIDGE RAILING

25. THE QUANTITY FOR ITEM 525.10 "REMOVAL OF EXISTING BRIDGE RAILING" CONSIDERS THE EXISTING BRIDGE RAILING AT THE BACK OF SIDEWALK AND THE ATTACHED PEDESTRIAN SCREEN AS ONE RAILING. IF THE REMOVABLE PEDESTRIAN BARRIER IS PRESENT AT THE FRONT OF THE SIDEWALK, IT'S REMOVAL WILL BE INCIDENTAL TO ITEM 525.10 "REMOVAL OF EXISTING BRIDGE RAILING". SEE SPECIAL PROVISIONS FOR SALVAGE REQUIREMENTS.

SUMMARY OF STRUCTURAL STEEL ITEMS

26. THE FOLLOWING BREAKDOWN IDENTIFIES THE PLAN DETAILS ASSOCIATED WITH EACH STRUCTURAL STEEL PAY ITEM. WORK INCLUDES THE DETAILS ON THE DRAWINGS AND INCIDENTAL ITEMS IDENTIFIED ELSEWHERE WITHIN THE PLANS AND STANDARD SPECIFICATIONS.
    A. ITEM 506.60 "STRUCTURAL STEEL (PEDESTRIAN SCREEN)"
        - STEEL WORK AS DETAILED ON SHEETS 69 AND 70
    B. ITEM 506.60 "STRUCTURAL STEEL (SCUPPERS AND DOWNSPOUTS)"
        - STEEL WORK AS DETAILED ON SHEETS 54, 55, AND 56
        - REMOVAL OF EXISTING SCUPPERS AND DOWNSPOUTS
    C. ITEM 506.60 "STRUCTURAL STEEL, ROLLED BEAM"
        - STEEL WORK AS DETAILED ON SHEETS 42 AND 43, EXCEPT DETAIL "FB1 BRACE CONNECTION DETAIL AT U0W-U1W (SOUTH TRUSS)" ON SHEET 43 WHICH WILL BE PAID UNDER 506.60 STRUCTURAL STEEL (REPAIRS)
        - REMOVAL OF EXISTING STEEL/RIVETS ASSOCIATED WITH THESE DETAILS
    D. ITEM 506.60 "STRUCTURAL STEEL (REPAIRS)"
        - ALL REMAINING STRUCTURAL STEEL WORK AS DETAILED ON SHEETS 46-52
        - "FB1 BRACE CONNECTION DETAIL AT U0W-U1W (SOUTH TRUSS)" ON SHEET 43
        - ANY ADDITIONAL STEEL REPAIRS IDENTIFIED DURING CONSTRUCTION
        - REMOVAL OF EXISTING STEEL/RIVETS ASSOCIATED WITH THESE DETAILS

ADDENDUM	REVISION	PLOT DATE	DESCRIPTION	BY
2	1	09-01-22	REVISED NOTES 10, 12, 15, AND 16. ADDED NOTES 24, 25, AND 26.	DCH

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082forms.dgn
PROJECT LEADER: AMS
DESIGNED BY: PAH
GENERAL NOTES

PLOT DATE: 9/1/2022
DRAWN BY: YS
CHECKED BY: PAH

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

1011 - ROADWAY	1031 - TRAINING	1041 - LANDSCAPING	1051 - EROSION CONTROL	1211 - BRIDGE NO. 1	1999 - FULL C.E. ITEMS
1					
340					
50					
1					
680					
4000					
300					
10					
60					
1					
710					
240					
1					
				1	
				1	
				36800	
				8700	
				47500	
				5412	
				2500	
				101650	
				98	
				570	
				16	
				1	
				58	
				950	
				3	
				575	
				950	
				188	
				4	
255				26	
				31	
				31	
				5	
				5	
25					
20					
1					

TOTALS

GRAND TOTAL	FINAL
1	
340	
50	
1	
680	
4000	
300	
10	
60	
1	
710	
240	
1	
1	
1	
36800	
8700	
47500	
5412	
2500	
101650	
98	
570	
16	
1	
58	
950	
3	
575	
950	
188	
4	
281	
31	
31	
5	
5	
25	
20	
1	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
CY	COMMON EXCAVATION	203.15	
CY	TRENCH EXCAVATION OF EARTH	204.20	
CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
CY	STRUCTURE EXCAVATION	204.25	
SY	COARSE-MILLING, BITUMINOUS PAVEMENT	210.10	
CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	
CY	AGGREGATE SURFACE COURSE	401.10	
CWT	EMULSIFIED ASPHALT	404.65	
LU	MAT DENSITY PAY ADJUSTMENT (N.A.B.I.)	406.29	
TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVB	406.36	
SY	HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES	406.38	
LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	
LS	SHORING SUPERSTRUCTURE	502.10	
LS	SHORING SUPERSTRUCTURE (WATER LINE SUPPORT)	502.10	
LB	STRUCTURAL STEEL, ROLLED BEAM	506.50	
LB	STRUCTURAL STEEL (REPAIRS)	506.60	
LB	STRUCTURAL STEEL (PEDESTRIAN SCREEN)	506.60	
LB	STRUCTURAL STEEL (SCUPPERS AND DOWNSPOUTS)	506.60	
LB	REINFORCING STEEL, LEVEL I (UNCOATED)	507.11	
LB	REINFORCING STEEL, LEVEL I (EPOXY COATED)	507.11	
LF	DRILLING AND GROUTING DOWELS	507.16	
EACH	MECHANICAL BAR CONNECTOR	507.19	
EACH	MECHANICAL BAR CONNECTOR (DOWEL BAR SPLICER)	507.19	
LS	SHEAR CONNECTORS (1644 - 7/8" X 7")	508.15	
GAL	WATER REPELLENT, SILANE	514.10	
SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	519.10	
MFBM	STRUCTURAL LUMBER AND TIMBER, TREATED (PLANK RAIL)	522.25	
LF	REMOVAL OF EXISTING BRIDGE RAILING	525.10	
SY	REMOVAL OF BRIDGE PAVEMENT	529.10	
CY	REMOVAL OF CONCRETE OR MASONRY	529.25	
CY	REMOVAL OF CONCRETE OR MASONRY (ROCK SHELF)	529.25	
CY	CONTROLLED DENSITY (FLOWABLE) FILL	541.45	
SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I	580.10	
SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II	580.11	
SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13	
SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14	
LF	12" CPEP	601.0905	
LF	18" CPEP	601.0915	
EACH	PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE	604.20	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORK SUMMARY
		FILL AVAILABLE
340	CY	COMMON EXCAVATION (340 x 1.0)
201	CY	STRUCTURE EXCAVATION (670 x 0.3)
50	CY	TRENCH EXCAVATION (50 x 1.0)
591	CY	TOTAL FILL AVAILABLE
		FILL REQUIRED
110	CY	FILL (110 CY EARTH)
126.5	CY	FACTORED FILL (x 1.15)
126.5	CY	TOTAL FILL REQUIRED
464.5	CY	TOTAL WASTE

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082forms.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
QUANTITY SHEET 1

PLOT DATE: 7/7/2022
DRAWN BY: YS
CHECKED BY: PAH
SHEET 4 OF 97

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
					1011 - ROADWAY	1031 - TRAINING	1041 - LANDSCAPING	1051 - EROSION CONTROL	1211 - BRIDGE NO. 1	1999 - FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
					1						1		EACH	PRECAST REINFORCED CONCRETE CURB DI WITH CAST IRON GRATE	604.30				
					2						2		EACH	CHANGING ELEVATION OF DROP INLETS, CATCH BASINS, OR MANHOLES	604.40				
					1						1		EACH	CAST IRON GRATE WITH FRAME, TYPE B	604.46				
					1						1		EACH	CAST IRON GRATE WITH FRAME, TYPE D	604.47				
					350						350		CY	STONE FILL, TYPE II	613.11				
					1010						1010		LF	VERTICAL GRANITE CURB	616.21				
					380						380		LF	REMOVAL OF EXISTING CURB	616.41				
					380						380		SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	618.10				
					90						90		SF	DETECTABLE WARNING SURFACE	618.30				
					40						40		LF	CHAIN-LINK FENCE, 8 FEET	620.13				
					2						2		EACH	BRACING ASSEMBLY FOR CHAIN-LINK FENCE, 8 FEET	620.22				
					65						65		LF	REMOVAL OF EXISTING FENCE	620.55				
					200						200		LF	STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS (POWDER COATED BLACK)	621.205				
					2						2		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
					900						900		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
					500						500		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
					1000						1000		HR	FLAGGERS	630.15				
										1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
										1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
										1	1		LS	TESTING EQUIPMENT, PROTECTIVE COATINGS	631.18				
										1	1		LS	TESTING EQUIPMENT, GROUT	631.19				
										6000	6000		DL	FIELD OFFICE COMMUNICATIONS (N.A.B.I.)	631.26				
					27						27		EACH	CPM SCHEDULE	633.10				
						1040					1040		HR	EMPLOYEE TRAINEESHIP	634.10				
					1						1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
					1						1		LS	TRAFFIC CONTROL, ALL-INCLUSIVE	641.11				
					4						4		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15				
					2710						2710		LF	DURABLE 6 INCH WHITE LINE, POLYUREA	646.424				
					2760						2760		LF	DURABLE 6 INCH YELLOW LINE, POLYUREA	646.434				
					130						130		LF	DURABLE CROSSWALK MARKING, POLYUREA	646.504				
					8970						8970		LF	TEMPORARY 6 INCH WHITE LINE, PAINT	646.622				
					6210						6210		LF	TEMPORARY 6 INCH YELLOW LINE, PAINT	646.632				
					50						50		LF	TEMPORARY 24 INCH STOP BAR, PAINT	646.682				
					48						48		LF	TEMPORARY CROSSWALK MARKING, PAINT	646.702				
					710						710		SY	GEOTEXTILE UNDER STONE FILL	649.31				
								30			30		LB	SEED	651.15				
								100			100		LB	FERTILIZER	651.18				
								1			1		TON	AGRICULTURAL LIMESTONE	651.20				
								100			100		CY	TOPSOIL	651.35				

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082forms.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
QUANTITY SHEET 2

PLOT DATE: 7/7/2022
DRAWN BY: YS
CHECKED BY: PAH

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES

1011 - ROADWAY	1031 - TRAINING	1041 - LANDSCAPING	1051 - EROSION CONTROL	1211 - BRIDGE NO. 1	1999 - FULL C.E. ITEMS
			1		
			100		
			1		
			1		
			4		
			1220		
		1			
		2			
		1			
89					
149					
10					
6					
2					
				515	
				75000	
				16	
2					
				10	
				145	
				860	
1160					
700					
1160					
405					
				1	
				1	
				1	
1					

TOTALS

GRAND TOTAL	FINAL
1	
100	
1	
1	
4	
1220	
1	
2	
1	
89	
149	
10	
6	
2	
515	
75000	
16	
2	
10	
145	
860	
1160	
700	
1160	
405	
1	
1	
1	
1	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
LS	EPSC PLAN	653.01	
HR	MONITORING EPSC PLAN	653.02	
LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	653.03	
TON	HAY MULCH	653.10	
EACH	INLET PROTECTION DEVICE, TYPE II	653.41	
LF	PROJECT DEMARCATION FENCE	653.55	
EACH	DECIDUOUS TREES (QUERCUS PALUSTRIS)(B & B)(2" - 2 1/2" CALIPER)	656.30	
EACH	DECIDUOUS TREES (GLEDITSIA TRIACANTHOS 'STREET KEEPER')(B&B)(1"-2" CALIPER	656.30	
LS	TREE PROTECTION	656.85	
SF	TRAFFIC SIGN, TYPE A	675.20	
LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	
EACH	REMOVING SIGNS	675.50	
EACH	RESETTING SIGNS	675.60	
EACH	TEMPORARY TRAFFIC SIGNAL SYSTEM	678.40	
CY	SPECIAL PROVISION (PERFORMANCE-BASED STRUCTURAL CONCRETE, CLASS PCD)	900.608	
DL	SPECIAL PROVISION (IMPACTED RUST REMOVAL AT PINS) (N.A.B.I.)	900.615	
EACH	SPECIAL PROVISION (SLIDING BEARING DEVICE ASSEMBLY, COTTON DUCK PAD)	900.620	
EACH	SPECIAL PROVISION (REMOVE EXISTING CALL BOX)	900.620	
GAL	SPECIAL PROVISION (EPOXY PASTE INJECTION AT TRUSS REPAIRS)	900.625	
LF	SPECIAL PROVISION (BRIDGE JOINT, PRECOMPRESSED SEAL)	900.640	
LF	SPECIAL PROVISION (BRIDGE RAILING, CM-TL3) (POWDER COATED)	900.640	
LF	SPECIAL PROVISION (GLARE SCREEN)	900.640	
LF	SPECIAL PROVISION (REMOVE & RESET TEMPORARY BRACED CONCRETE BARRIER)	900.640	
LF	SPECIAL PROVISION (TEMPORARY BRACED CONCRETE BARRIER)	900.640	
LF	SPECIAL PROVISION (WEAK POST GUARDRAIL) (POWDER COATED BLACK)	900.640	
LS	SPECIAL PROVISION (REMOVAL, CONTAINMENT, AND DISPOSAL OF LEAD PAINT)(TYPE	900.645	
LS	SPECIAL PROVISION (ULTRASONIC TESTING OF EXISTING PINS)	900.645	
LS	SPECIAL PROVISION (FIELD PAINTING STEEL, THREE COAT SYSTEM)	900.645	
LS	SPECIAL PROVISION (PUBLIC PROTECTION FOR BRIDGE PROJECTS)	900.645	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082forms.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
QUANTITY SHEET 3

PLOT DATE: 7/12/2022
DRAWN BY: YS
CHECKED BY: PAH

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES

SUPER-STRUCTURE	ABUTMENT 1	ABUTMENT 2	ROADWAY	TRUSS	TOTALS: BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER
1					1	LS	SHORING SUPERSTRUCTURE	502.10
1					1	LS	SHORING SUPERSTRUCTURE (WATER LINE SUPPORT)	502.10
36800					36800	LB	STRUCTURAL STEEL, ROLLED BEAM	506.50
				8700	8700	LB	STRUCTURAL STEEL (REPAIRS)	506.60
47500					47500	LB	STRUCTURAL STEEL (PEDESTRIAN SCREEN)	506.60
5412					5412	LB	STRUCTURAL STEEL (SCUPPERS & DOWNSPOUTS)	506.60
	1249	1251			2500	LB	REINFORCING STEEL, LEVEL I (UNCOATED)	507.11
63565			38085		101650	LB	REINFORCING STEEL, LEVEL I (EPOXY COATED)	507.11
	49	49			98	LF	DRILLING AND GROUTING DOWELS	507.16
570					570	EACH	MECHANICAL BAR CONNECTOR	507.19
	8	8			16	EACH	MECHANICAL BAR CONNECTOR (DOWEL BAR SPLICER)	507.19
1					1	LS	SHEAR CONNECTORS (1644 - 7/8" x 7")	508.15
44	7	7			58	GAL	WATER REPELLENT, SILANE	514.10
950					950	SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	519.10
			3		3	MFBM	STRUCTURAL LUMBER AND TIMBER, TREATED (PLANK RAIL)	522.25
575					575	LF	REMOVAL OF EXISTING BRIDGE RAILING	525.10
950					950	SY	REMOVAL OF BRIDGE PAVEMENT	529.10
174	7	7			188	CY	REMOVAL OF CONCRETE OR MASONRY	529.25
		4			4	CY	REMOVAL OF CONCRETE OR MASONRY (ROCK SHELF)	529.25
	13	13			26	CY	CONTROLLED DENSITY (FLOWABLE) FILL	541.45
31					31	SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I	580.10
31					31	SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II	580.11
	2	3			5	SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13
	2	3			5	SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14
250	11	11	243		515	CY	SPECIAL PROVISION (PERFORMANCE-BASED STRUCTURAL CONCRETE, CLASS PCD)	900.608
				75000	75000	DL	SPECIAL PROVISION (IMPACTED RUST REMOVAL AT PINS) (N.A.B.I.)	900.615
16					16	EACH	SPECIAL PROVISION (SLIDING BEARING DEVICE ASSEMBLY, COTTON DUCK PAD)	900.620
10					10	GAL	SPECIAL PROVISION (EPOXY PASTE INJECTION AT TRUSS REPAIRS)	900.625
145					145	LF	SPECIAL PROVISION (BRIDGE JOINT, PRECOMPRESSED SEAL)	900.640
665			195		860	LF	SPECIAL PROVISION (BRIDGE RAILING, CM-TL3) (POWDER COATED)	900.640
				1	1	LS	SPECIAL PROVISION (REMOVAL, CONTAINMENT, AND DISPOSAL OF LEAD PAINT)(TYPE	900.645
				1	1	LS	SPECIAL PROVISION (ULTRASONIC TESTING OF EXISTING PINS)	900.645
				1	1	LS	SPECIAL PROVISION (FIELD PAINTING STEEL, THREE COAT SYSTEM)	900.645

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082forms.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
BRIDGE QUANTITY SHEET

PLOT DATE: 7/12/2022
DRAWN BY: YS
CHECKED BY: PAH
SHEET 7 OF 97

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

THE SYMBOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOGY. THE SYMBOLOGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLOGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	HWY	HIGHWAY EASEMENT
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	R.T.& I.	RIGHT, TITLE, AND INTEREST
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
⧈	BNDNS	BOUND TO BE SET
◎	IPNF	IRON PIN FOUND
●	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
	APL	BOUND APPARENT LOCATION
	BM	BENCHMARK
	BND	BOUND
	CB	CATCH BASIN
	COMB	COMBINATION POLE
	DITHR	DROP INLET THROATED DNC
	EL	ELECTRIC POWER POLE
	FPOLE	FLAGPOLE
	GASFIL	GAS FILLER
	GP	GUIDE POST
	GSO	GAS SHUT OFF
	GUY	GUY POLE
	GUYW	GUY WIRE
	GV	GATE VALVE
	H	TREE HARDWOOD
	HCTRL	CONTROL HORIZONTAL
	HVCTRL	CONTROL HORIZ. & VERTICAL
	HYD	HYDRANT
	IP	IRON PIN
	IPIPE	IRON PIPE
	LI	LIGHT - STREET OR YARD
	MB	MAILBOX
	MH	MANHOLE (MH)
	MM	MILE MARKER
	PM	PARKING METER
	PMK	PROJECT MARKER
	POST	POST STONE/WOOD
	RRSIG	RAILROAD SIGNAL
	RRSL	RAILROAD SWITCH LEVER
	S	TREE SOFTWOOD
	SAT	SATELLITE DISH
	SHRUB	SHRUB
	SIGN	SIGN
	STUMP	STUMP
	TEL	TELEPHONE POLE
	TIE	TIE
	TSIGN	SIGN W/DOUBLE POST
	VCTRL	CONTROL VERTICAL
	WELL	WELL
	WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADIUS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE
CB	CHORD BEARING

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

- UGU — UTILITY (GENERIC-UNKNOWN)
- UT — TELEPHONE
- UE — ELECTRIC
- UC — CABLE (TV)
- UEC — ELECTRIC+CABLE
- UET — ELECTRIC+TELEPHONE
- UCT — CABLE+TELEPHONE
- UECT — ELECTRIC+CABLE+TELEPHONE
- G — GAS LINE
- W — WATER LINE
- S — SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

- AGU — UTILITY (GENERIC-UNKNOWN)
- T — TELEPHONE
- E — ELECTRIC
- C — CABLE (TV)
- EC — ELECTRIC+CABLE
- ET — ELECTRIC+TELEPHONE
- AER E&T — ELECTRIC+TELEPHONE
- CT — CABLE+TELEPHONE
- ECT — ELECTRIC+CABLE+TELEPHONE
- UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

- TOP OF CUT SLOPE
- TOE OF FILL SLOPE
- STONE FILL
- BOTTOM OF DITCH ℄
- CULVERT PROPOSED
- STRUCTURE SUBSURFACE
- PDF — PROJECT DEMARCATION FENCE
- BF — BARRIER FENCE
- TREE PROTECTION ZONE (TPZ)
- STRIPING LINE REMOVAL
- SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

- TOWN LINE — TOWN BOUNDARY LINE
- COUNTY LINE — COUNTY BOUNDARY LINE
- STATE LINE — STATE BOUNDARY LINE
- PROPOSED STATE R.O.W. (LIMITED ACCESS)
- PROPOSED STATE R.O.W.
- STATE ROW (LIMITED ACCESS)
- STATE ROW
- TOWN ROW
- PERMANENT EASEMENT LINE (P)
- TEMPORARY EASEMENT LINE (T)
- SURVEY LINE
- P/L — PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6f — 6F PROPERTY BOUNDARY
- 4f — 4F PROPERTY BOUNDARY
- HAZ — HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLOGY

ENVIRONMENTAL RESOURCES

- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- T&E — THREATENED & ENDANGERED SPECIES
- HAZ — HAZ — HAZARDOUS WASTE AREA
- AG — AGRICULTURAL LAND
- HABITAT — FISH & WILDLIFE HABITAT
- FLOOD PLAIN — FLOOD PLAIN
- OHW — ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCH — ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
- HISTORIC — HISTORIC AREA
- (H) HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

- ROAD EDGE PAVEMENT
- ROAD EDGE GRAVEL
- DRIVEWAY EDGE
- DITCH
- FOUNDATION
- FENCE (EXISTING)
- FENCE WOOD POST
- FENCE STEEL POST
- GARDEN
- ROAD GUARDRAIL
- RAILROAD TRACKS
- CULVERT (EXISTING)
- STONE WALL
- WALL
- WOOD LINE
- BRUSH LINE
- HEDGE
- BODY OF WATER EDGE
- LEDGE EXPOSED

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082legend.dgn
PROJECT LEADER: AMS
DESIGNED BY: VTRANS
LEGEND SHEET

PLOT DATE: 7/6/2022
DRAWN BY: VTRANS
CHECKED BY: VTRANS
SHEET 8 OF 97

PRIMARY CONTROL

HVCTRL #1
B94071
NORTH = 414525.7700
EAST = 1668299.9300
ELEV = 648.2500

GENERAL LOCATION, HARTFORD,
ABOUT 6.5 MI (10.5 KM) EAST OF WOODSTOCK VILLAGE, ABOUT 4.5 MI (7.2 KM) WEST OF WHITE RIVER JUNCTION. TO REACH FROM THE INTERSECTION OF U.S. ROUTE 4 WEST AND U.S. ROUTE 5 IN WHITE RIVER JUNCTION GO WEST ALONG U.S. ROUTE 4 FOR 5.5 MI (8.9 KM) TO THE MARK ON THE RIGHT, IN A MOWED LAWN AT THE SOUTHEAST CORNER OF THE TIMBER VILLAGE COMPLEX, OPPOSITE TALL TIMBERS ROAD. IT IS 0.7 MI (1.1 KM) EAST ALONG U.S. ROUTE 4 FROM THE QUECHEE GORGE BRIDGE, 4.4 M (14.4 FT) NORTH OF AND ABOUT 0.4 M (1.3 FT) LOWER THAN THE NORTH EDGE OF PAVEMENT OF U.S. ROUTE 4, 6.7 M (22.0 FT) EAST OF POLE NO. 25T/602/91, 15.0 M (49.2 FT) SOUTHWEST OF A U.S. ARMY CORPS OF ENGINEERS PROPERTY MARKER, AND 9.7 M (31.8 FT) SOUTH OF A FIBERGLASS WITNESS POST IN A

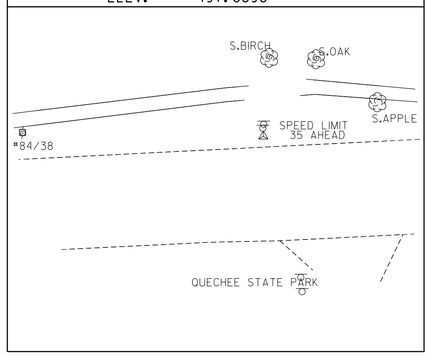
HVCTRL #5
209 NHL
NORTH =414507.6700
EAST = 1665113.4100
ELEV = 618.0800

GENERAL LOCATION, HARTFORD,
AT QUECHEE GORGE, ABOUT 5.5 MI (8.9 KM) EAST OF WOODSTOCK VILLAGE, ABOUT 5 MI (8.0 KM) WEST OF WHITE RIVER JUNCTION. TO REACH FROM THE INTERSECTION OF U.S. ROUTE 4 WEST AND U.S. ROUTE 5 IN WHITE RIVER JUNCTION GO WEST ALONG U.S. ROUTE 4 FOR 6.1 MI (9.8 KM) TO THE INTERSECTION OF DEWEYS MILLS ROAD RIGHT AT THE EAST EDGE OF THE QUECHEE GORGE PARKING LOT AND THE MARK ON THE RIGHT IN A GRASS TRIANGLE. IT IS 0.1 MI (0.2 KM) EAST ALONG U.S. ROUTE 4 FROM THE EAST END OF THE QUECHEE GORGE BRIDGE. THE MARK IS 13.9 M (45.6 FT) NORTH OF AND ABOUT 0.2 M (0.7 FT) HIGHER THAN THE NORTH EDGE OF PAVEMENT OF U.S. ROUTE 4, 4.8 M (15.7 FT) WEST OF THE WEST EDGE OF DEWEYS MILLS ROAD, 6.9 M (22.6 FT) NORTHWEST OF POLE NO. 72, AND 0.1 M (0.3 FT) EAST OF A FIBERGLASS WITNESS POST. IT IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 10-CM SQUARE CONCRETE MONUMENT.

SECONDARY CONTROL

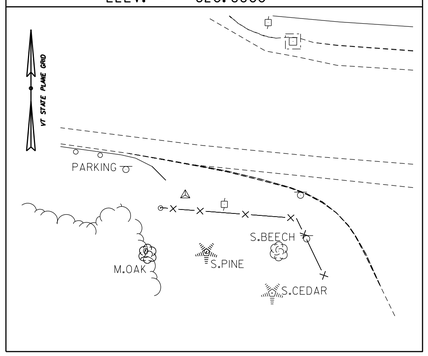
HVCTRL #3

NORTH = 414405.6153
EAST = 1497216.8245
ELEV. = 497.0690



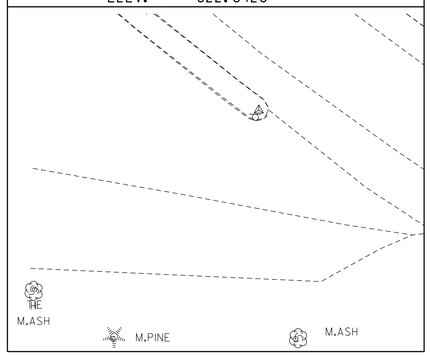
HVCTRL #4

NORTH = 414405.6153
EAST = 1665164.2728
ELEV. = 620.8800



HVCTRL #6

NORTH = 414711.5014
EAST = 1664200.8088
ELEV. = 622.6420



HVCTRL

NORTH =
EAST =
ELEV. =

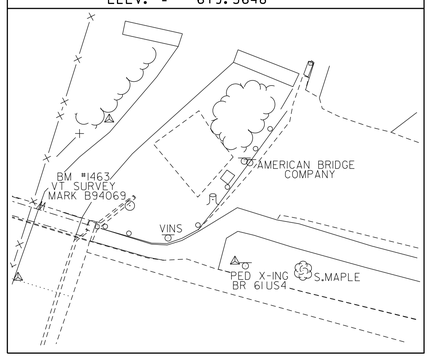
HVCTRL

NORTH =
EAST =
ELEV. =

SECONDARY CONTROL

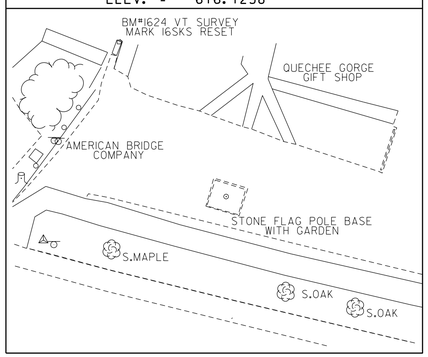
BM #1463

NORTH = 414531.7152
EAST = 1664755.4953
ELEV. = 619.3648



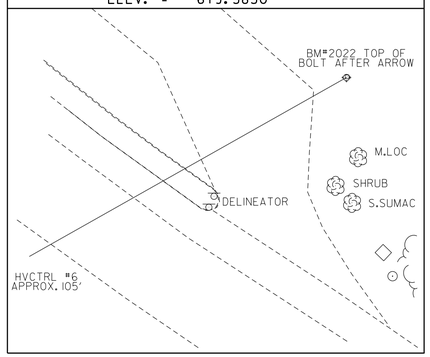
BM #1624

NORTH = 414574.8802
EAST = 1664811.8278
ELEV. = 616.1238



BM #2022

NORTH = 414760.3760
EAST = 1664293.9860
ELEV. = 619.3850



HVCTRL

NORTH =
EAST =
ELEV. =

HVCTRL

NORTH =
EAST =
ELEV. =

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83(2011)
ADJUSTMENT COMPASS

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

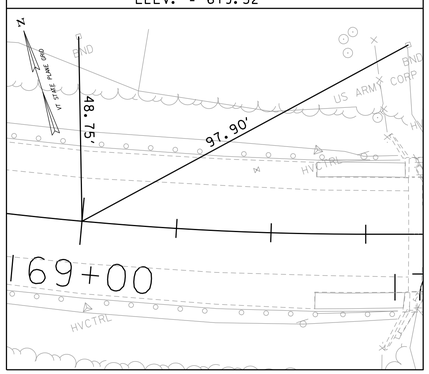
FILE NAME: X17B082TI
PROJECT LEADER: J.MCCARTHY
DESIGNED BY: VTRANS
TIE SHEET

PLOT DATE: 7/6/2022
DRAWN BY: H.MCGOWAN
CHECKED BY: L.MACCORMACK

ALIGNMENT TIES

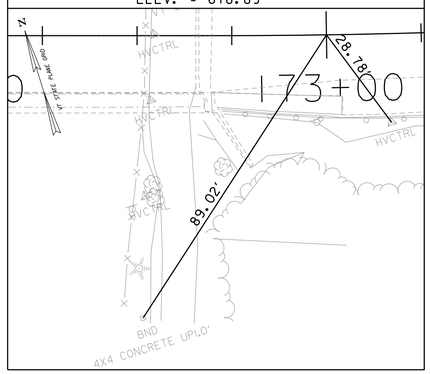
169+00

NORTH = 414626.59
EAST = 1664397.04
ELEV. = 619.32



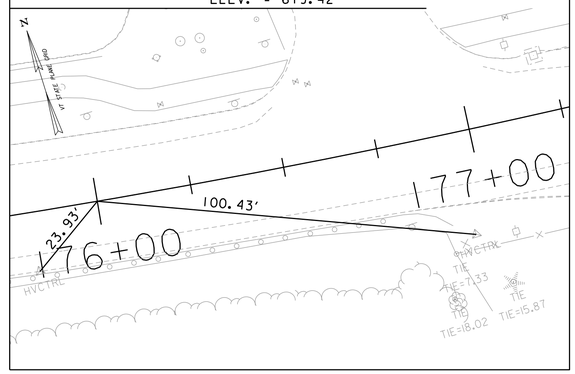
173+00

NORTH = 414504.66
EAST = 1664777.91
ELEV. = 618.89

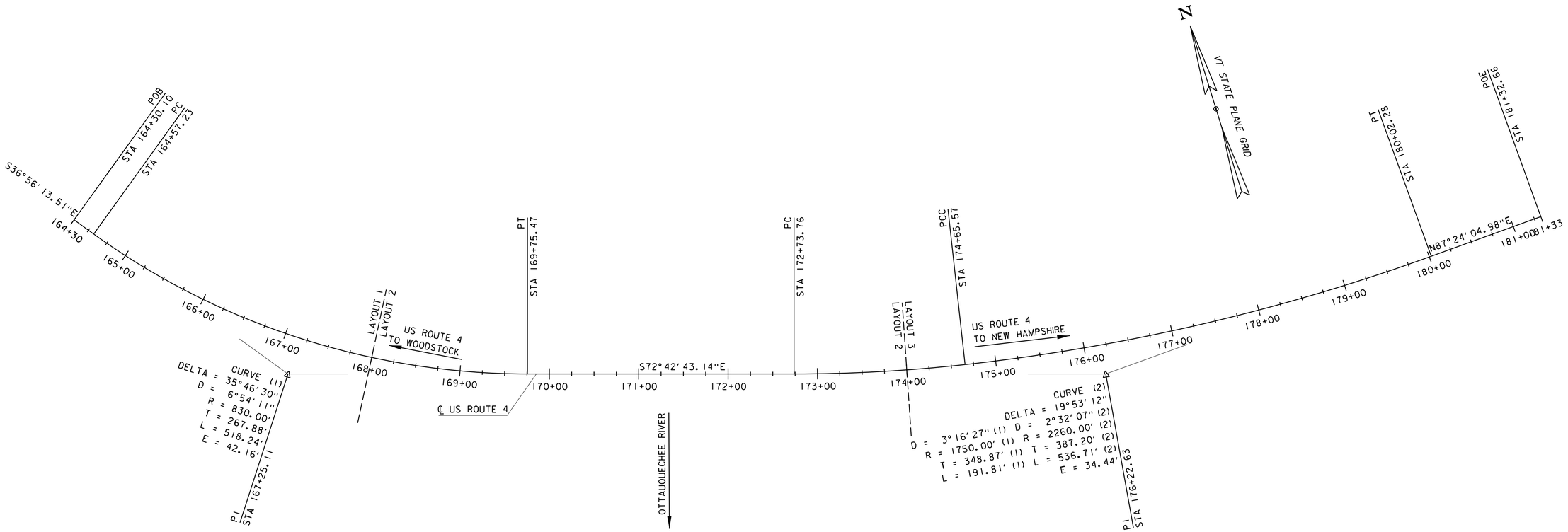


176+00

NORTH = 414443.68
EAST = 1665071.34
ELEV. = 619.42



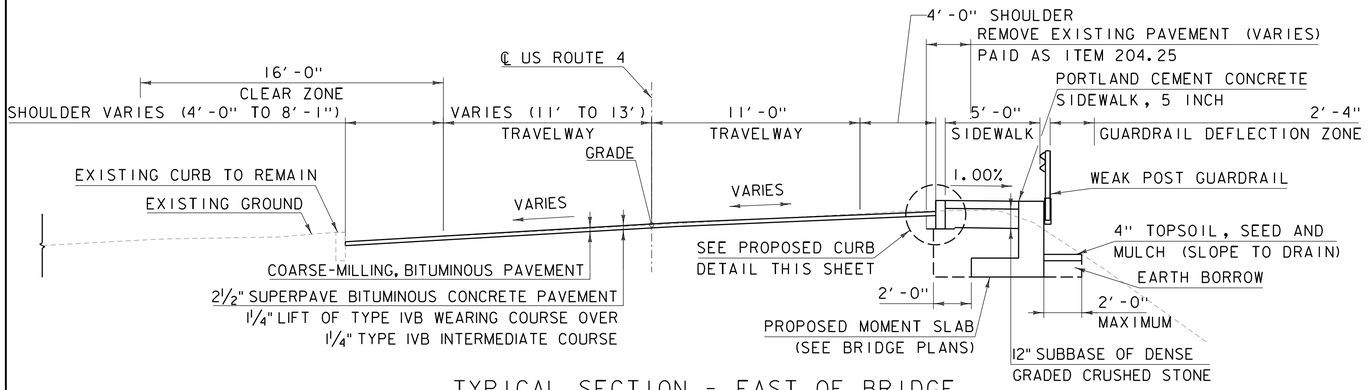
US ROUTE 4			
STATION	POINT TYPE	NORTHING	EASTING
164+30.10	POB	414916.33	1664034.92
164+57.23	PC	414894.64	1664051.22
167+25.11	PI	414680.53	1664212.20
169+75.47	PT	414600.92	1664467.98
172+73.76	PC	414512.27	1664752.80
174+65.57	PCC	414465.41	1664938.69
176+22.63	PI	414408.60	1665085.90
180+02.28	PT	414426.15	1665472.70
181+32.66	POE	414432.07	1665602.95



SCALE: 1" = 60'-0"
0 60 120
SCALE IN FEET

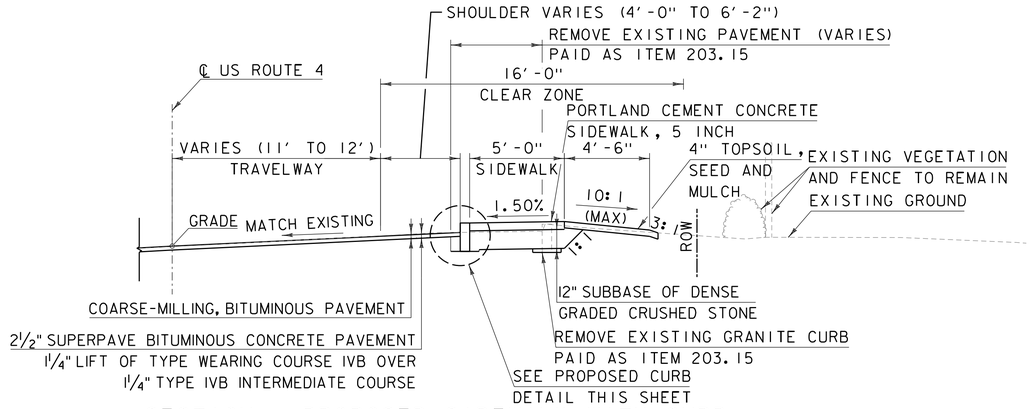
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082alignmenttie.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
ALIGNMENT DATA	SHEET 10 OF 97



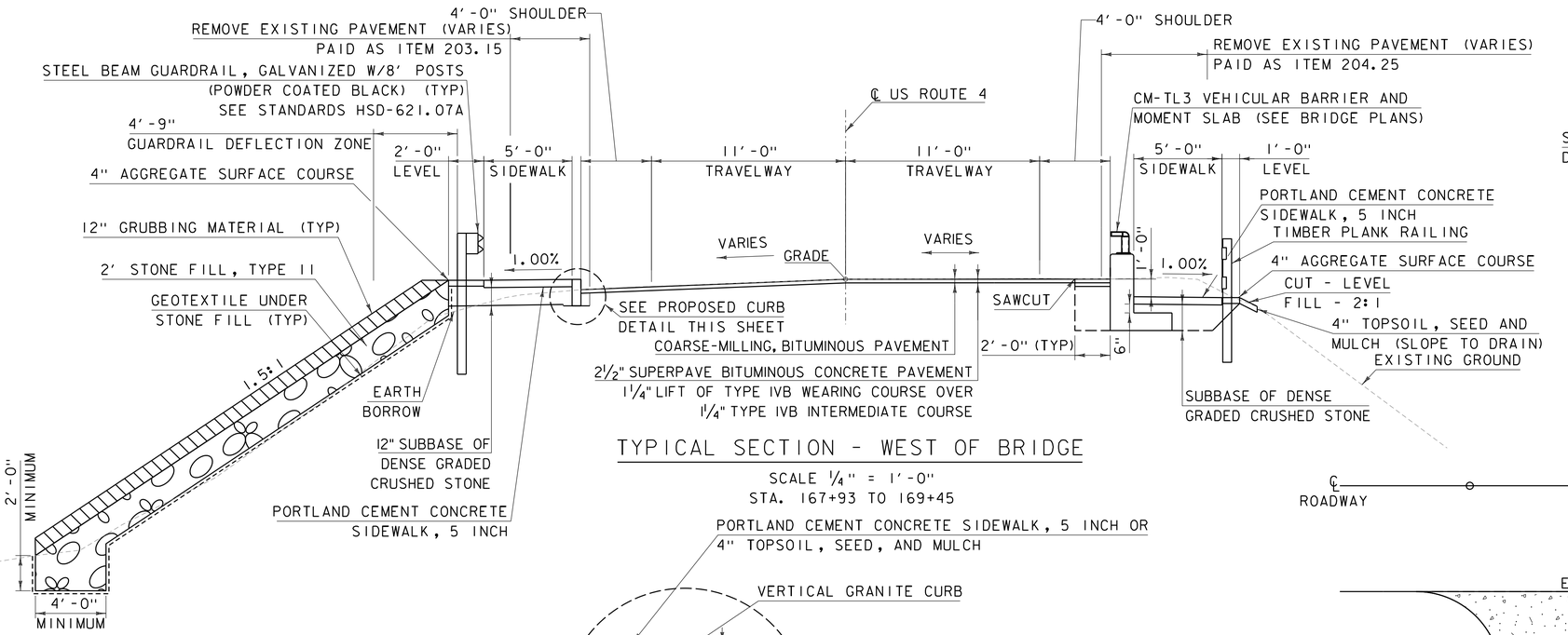
TYPICAL SECTION - EAST OF BRIDGE

SCALE ¼" = 1'-0"
STA. 174+04 TO 179+43



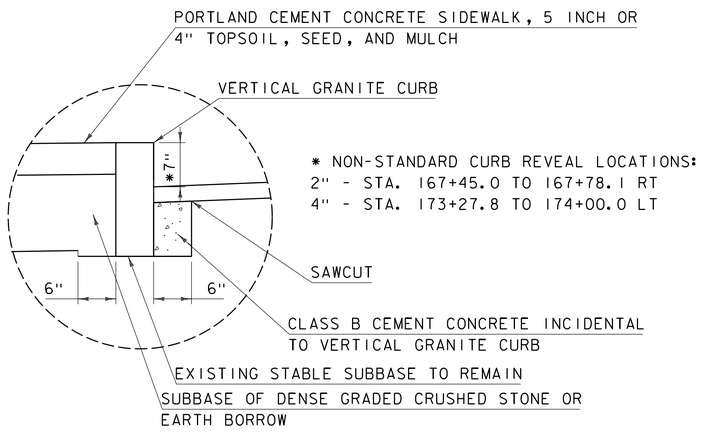
SECTION - PROPOSED SIDEWALK WITH CURB

SCALE ¼" = 1'-0"
STA. 177+97 TO 179+43



TYPICAL SECTION - WEST OF BRIDGE

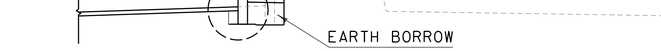
SCALE ¼" = 1'-0"
STA. 167+93 TO 169+45



* NON-STANDARD CURB REVEAL LOCATIONS:
2" - STA. 167+45.0 TO 167+78.1 RT
4" - STA. 173+27.8 TO 174+00.0 LT

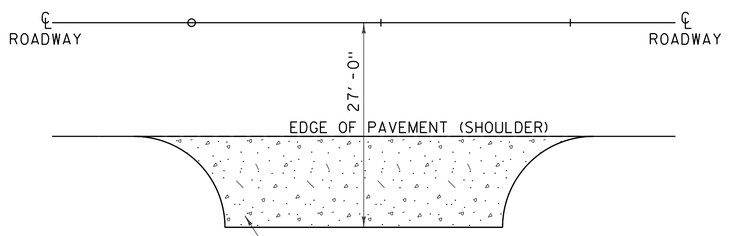
PROPOSED CURB DETAIL

SCALE 1" = 1'-0"



SECTION - REMOVE CURB/PROPOSED CURB

SCALE ¼" = 1'-0"
STA. 165+65.0 TO 166+89.7 RT
STA. 173+27.8 TO 174+04.4 LT*



DRIVEWAY DETAIL

NOT TO SCALE
STA. 167+15, RT
STA. 167+50, LT
STA. 177+60, RT

MATERIAL TOLERANCES
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROWS	+/- 1"

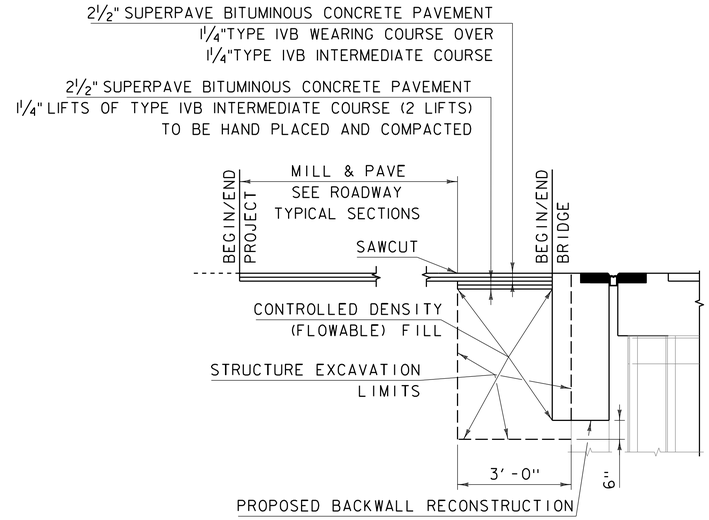
NOTES:
1. EMULSION APPLICATION RATE SHALL BE APPLIED PER TABLE 406.12A OF THE STANDARD SPECIFICATION.

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

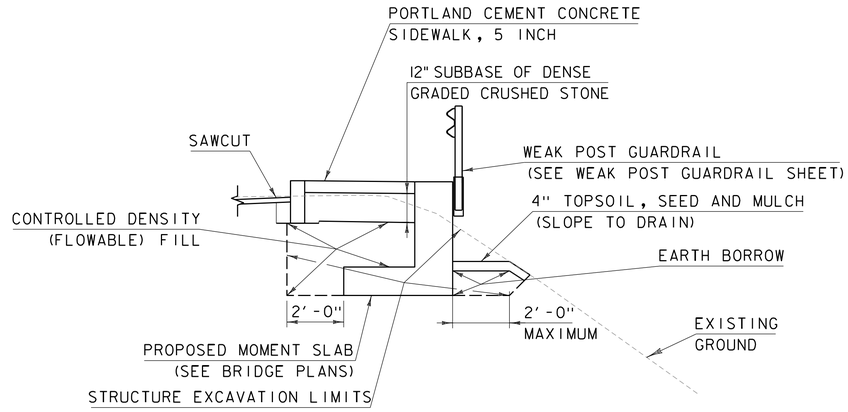
FILE NAME: z17b082roadtyp.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
ROADWAY TYPICAL SECTIONS

PLOT DATE: 7/6/2022
DRAWN BY: YS
CHECKED BY: SBC
SHEET 11 OF 97



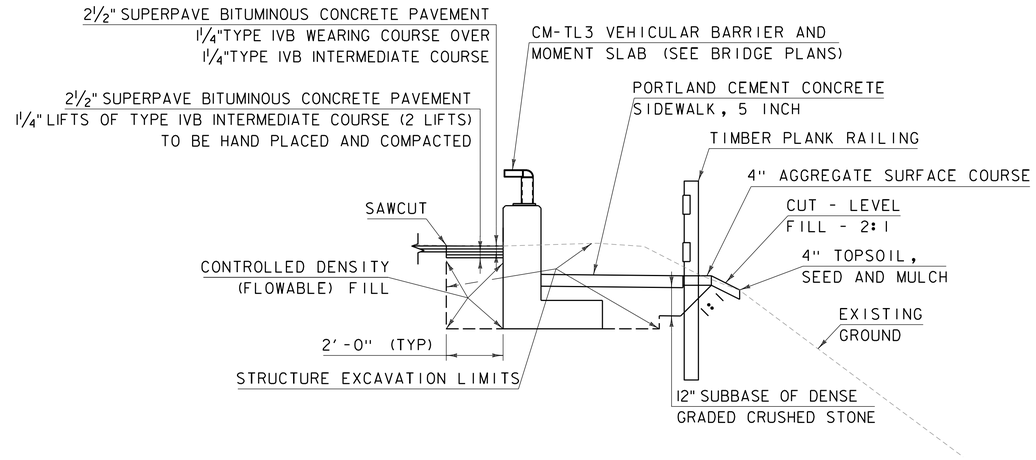
SUBBASE DETAIL AT ABUTMENT

SCALE: ½" = 1'-0"



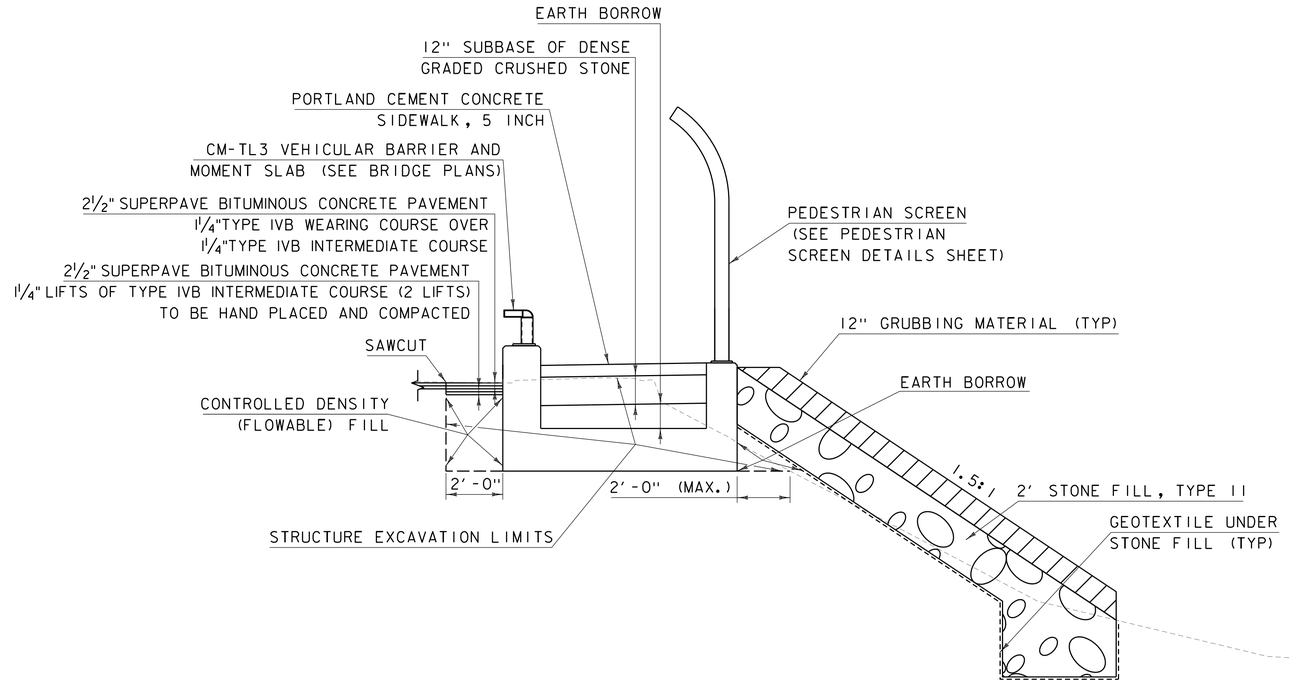
TYPICAL WEAK POST MOMENT SLAB SECTION

SCALE: ⅜" = 1'-0"



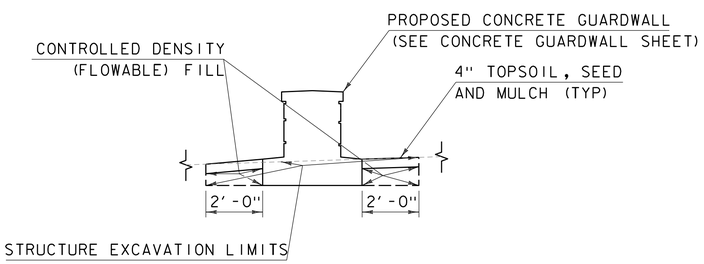
TYPICAL CM-TL3 SECTION

SCALE: ⅜" = 1'-0"



TYPICAL CM-TL3 MOMENT SLAB WITH PEDESTRIAN SCREEN

SCALE: ⅜" = 1'-0"

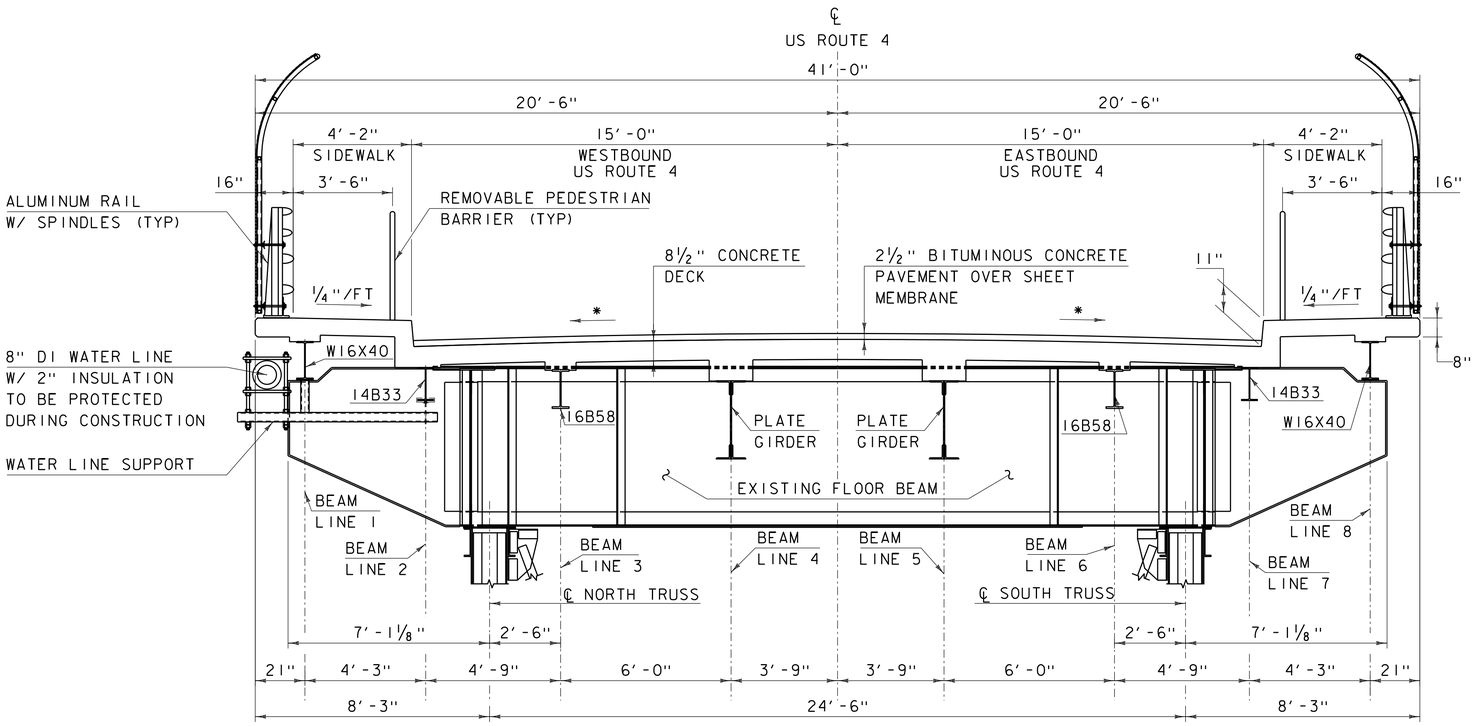


TYPICAL GUARDWALL SECTION

SCALE: ⅜" = 1'-0"

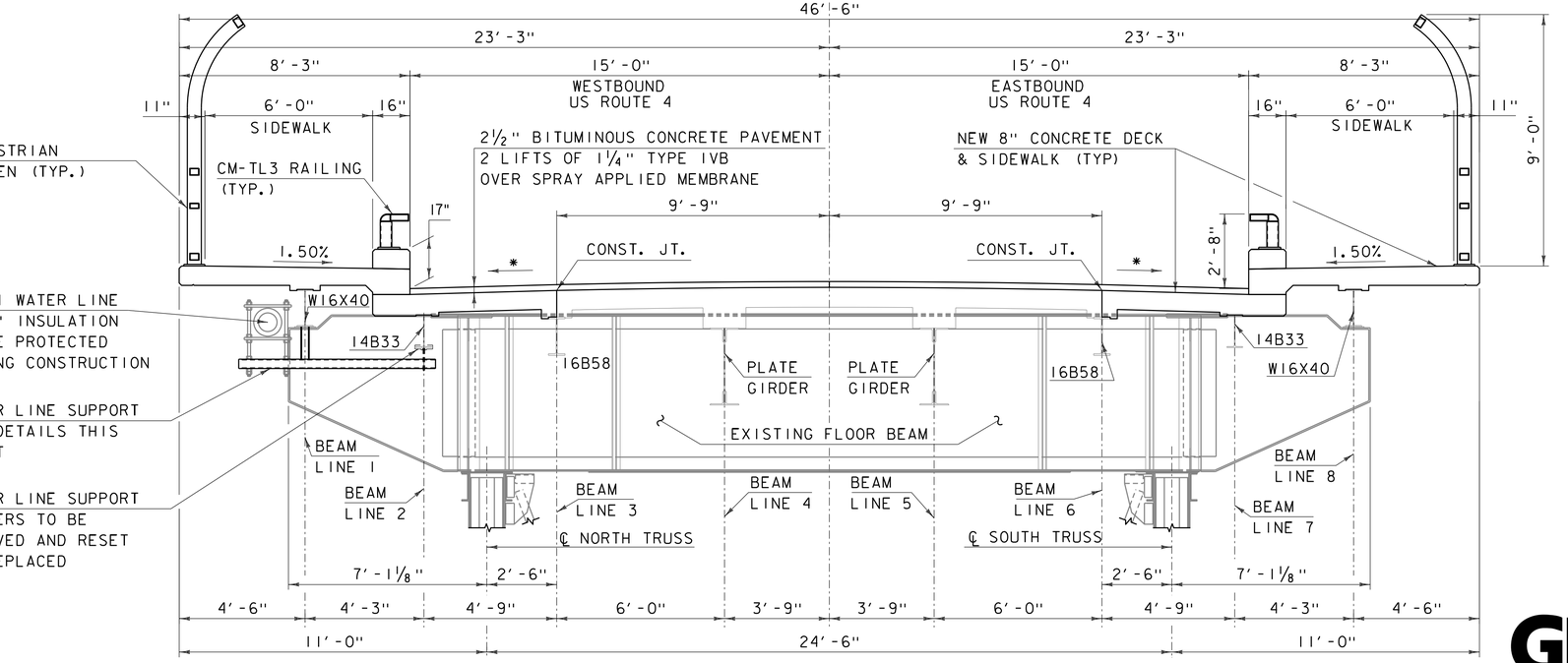
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082roadtyp.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: ABL	CHECKED BY: SBC
EARTHWORK SECTIONS	SHEET 12 OF 97



BRIDGE 61 MAIN SPAN EXISTING TYPICAL SECTION

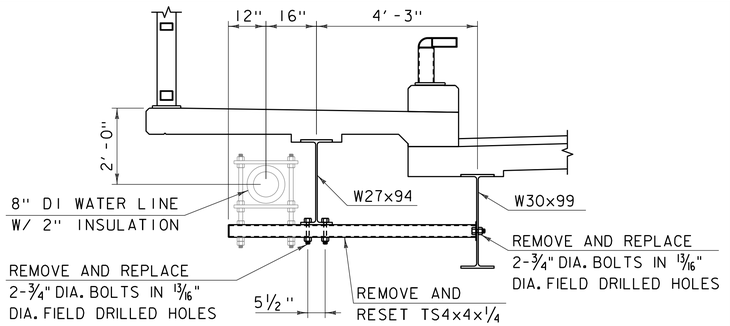
SCALE ⅜" = 1'-0"



BRIDGE 61 MAIN SPAN PROPOSED TYPICAL SECTION

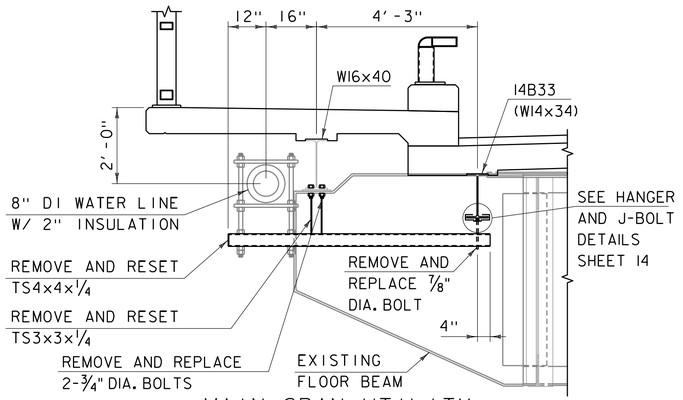
SCALE ⅜" = 1'-0"

• SEE DECK CROSS SLOPE DETAIL ON SHEET 15



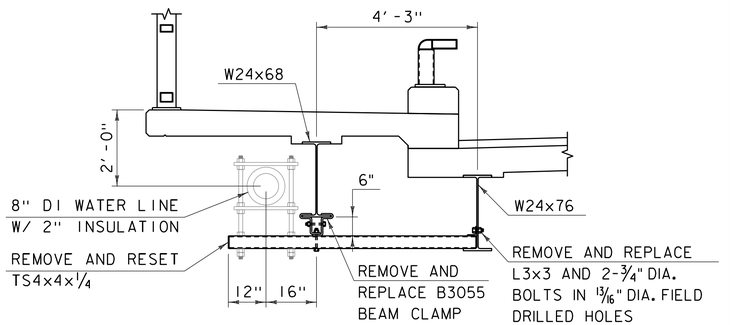
WEST APPROACH SPAN
UTILITY SUPPORT DETAIL

SCALE ½" = 1'-0"



MAIN SPAN UTILITY
SUPPORT DETAIL

SCALE ½" = 1'-0"

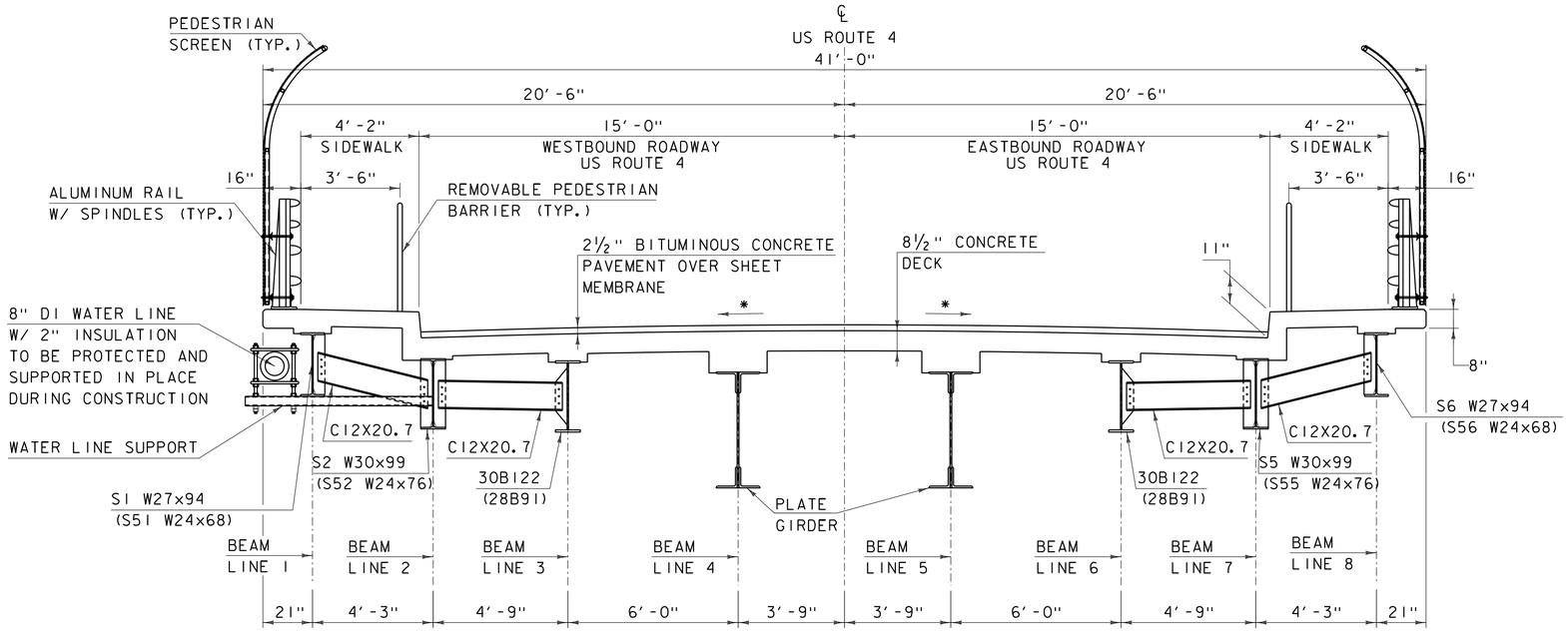


EAST APPROACH SPAN
UTILITY SUPPORT DETAIL

SCALE ½" = 1'-0"

GILL ENGINEERING

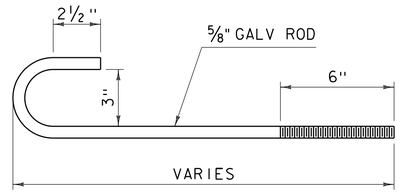
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082bridgetyp.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: FB	CHECKED BY: PAH
BRIDGE TYPICAL SECTIONS SHEET 1	SHEET 13 OF 97



WEST APPROACH SHOWN, EAST SIMILAR EXCEPT AS NOTED IN PARENTHESES

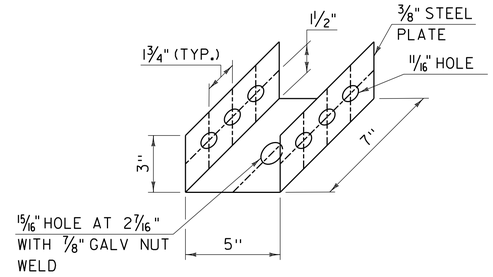
BRIDGE 61 APPROACH SPANS EXISTING TYPICAL SECTION

SCALE 3/8" = 1'-0"



J-BOLT DETAIL

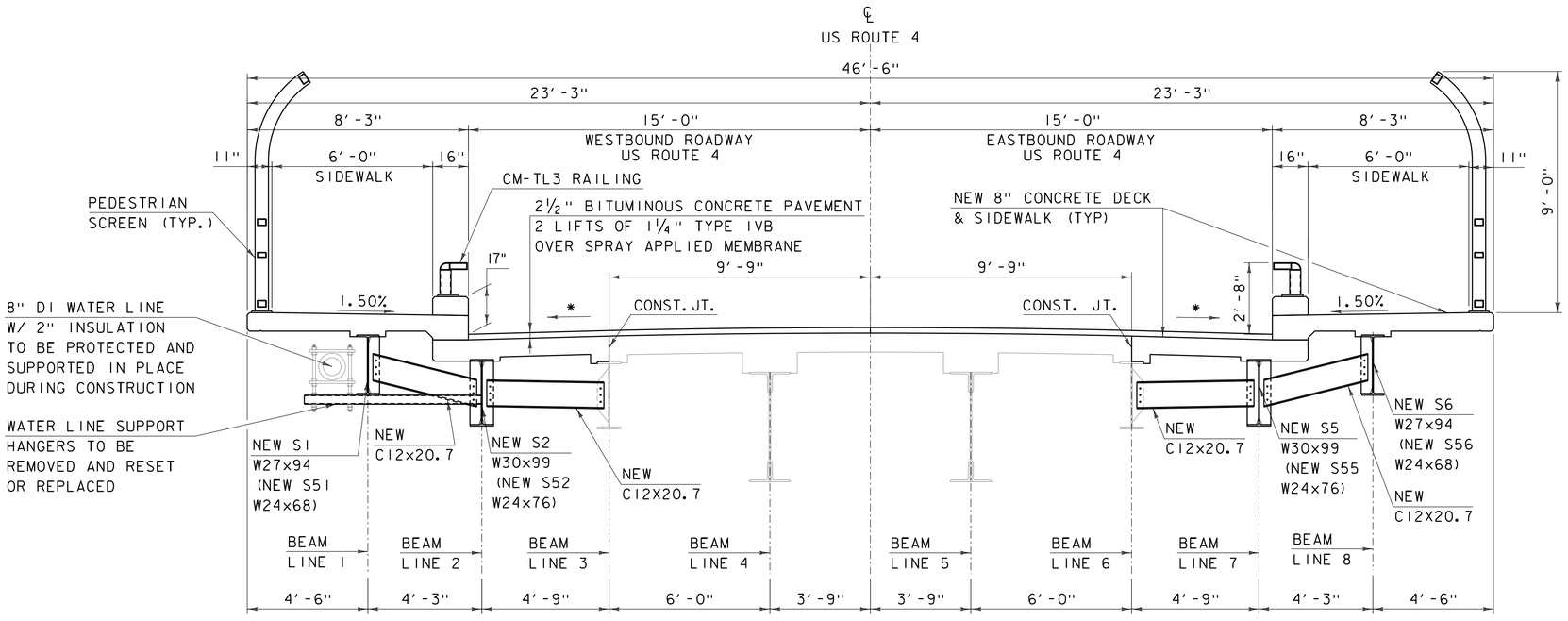
SCALE 3" = 1'-0"



HANGER DETAIL

SCALE 3" = 1'-0"

NOTE: SEE MAIN SPAN UTILITY SUPPORT DETAIL SHEET 13.



WEST APPROACH SHOWN, EAST SIMILAR EXCEPT AS NOTED IN PARENTHESES

BRIDGE 61 APPROACH SPANS PROPOSED TYPICAL SECTION

SCALE 3/8" = 1'-0"

* SEE DECK CROSS SLOPE DETAIL ON SHEET 15

NOTE: ALL WATER LINE SUPPORTS AND HARDWARE ARE SECONDARY MEMBERS.

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)

FILE NAME: z17b082bridgetyp.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: FB	CHECKED BY: PAH
BRIDGE TYPICAL SECTIONS SHEET 2	SHEET 14 OF 97

NORTH CURBLINE TOP OF SLAB ELEVATIONS

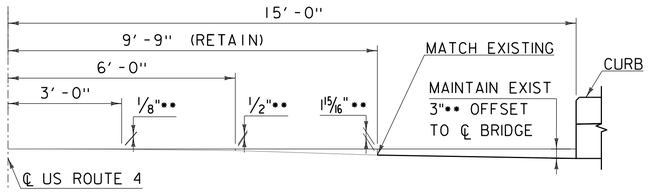
LOCATION	WEST APPROACH SPAN S2				MAIN SPAN FLOORBEAMS										EAST APPROACH SPAN S52			
	0.0L	0.25L	0.5L	0.75L	FB1	FB2	FB3	FB4	FB5	FB6	FB7	FB8	FB9	FB10	0.25L	0.5L	0.75L	1.0L
SURVEYED TOP OF DECK ELEV. AT N. CURBLINE																		
EXISTING DECK THICKNESSES OVER BEAMS AT N. CURBLINE																		
SURVEYED TOP OF BEAMS AT REFERENCE POINTS																		
HAUNCH DEPTH																		
NEW TOP OF DECK SLAB ELEVATIONS AT N. CURBLINE																		

SOUTH CURBLINE TOP OF SLAB ELEVATIONS

LOCATION	WEST APPROACH SPAN S5				MAIN SPAN FLOORBEAMS										EAST APPROACH SPAN S55			
	0.0L	0.25L	0.5L	0.75L	FB1	FB2	FB3	FB4	FB5	FB6	FB7	FB8	FB9	FB10	0.25L	0.5L	0.75L	1.0L
SURVEYED TOP OF DECK ELEV. AT S. CURBLINE																		
EXISTING DECK THICKNESSES OVER BEAMS AT S. CURBLINE																		
SURVEYED TOP OF BEAMS AT REFERENCE POINTS																		
HAUNCH DEPTH																		
NEW TOP OF DECK SLAB ELEVATIONS AT S. CURBLINE																		

SLAB ELEVATION NOTES:

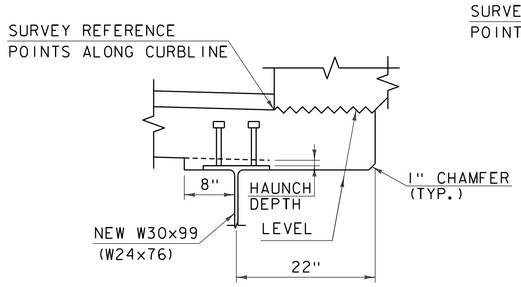
1. FOR EACH STAGE, AFTER THE EXISTING DECK IS EXPOSED BY REMOVAL OF THE WEARING SURFACE AND MEMBRANE WATERPROOFING, THE ENGINEER WILL ESTABLISH THE FLOORBEAM CENTERLINES AND BEAM QUARTER POINTS AS IDENTIFIED IN THE TOP OF SLAB ELEVATIONS TABLE ALONG THE EXISTING CURBLINE.
2. THE ENGINEER WILL SURVEY THE EXISTING DECK AT THESE LOCATIONS AND RECORD THE ELEVATIONS IN THE TABLE.
3. THE CONTRACTOR SHALL DRILL THROUGH THE DECK AT EACH LOCATION TO DETERMINE THE EXISTING THICKNESS OF DECK CONCRETE OVER THE BEAM AND RECORD THE THICKNESSES IN THE TABLE.
4. AFTER THE EXISTING DECK AND SIDEWALK ARE REMOVED AND THE NEW STRINGERS ARE INSTALLED, THE ENGINEER WILL SURVEY THE TOP OF BEAMS AT THE CORRESPONDING LOCATIONS AS THE TOP OF DECK ELEVATIONS IDENTIFIED IN THE TABLE.
5. THIS INFORMATION WILL BE USED BY THE ENGINEER TO ESTABLISH HAUNCH DEPTHS AND TOP OF SLAB ELEVATIONS AT THE CURBLINE TO CAST THE DECK.



•• DIMENSIONS TAKEN FROM RECORD BRIDGE PLANS

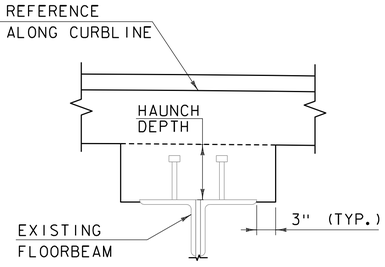
* DECK CROSS-SLOPE DETAIL

SCALE 1/2" = 1'-0"



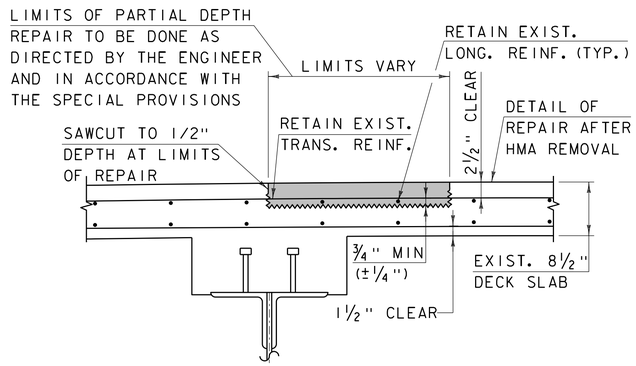
STRINGER HAUNCH DETAIL

SCALE 1" = 1'-0"



FLOORBEAM HAUNCH DETAIL

SCALE 1" = 1'-0"



DECK REPAIR DETAIL

SCALE 1" = 1'-0"

DECK REPAIR NOTES:

1. AFTER REMOVAL OF THE EXISTING WEARING SURFACE AND MEMBRANE WATERPROOFING THE CONTRACTOR SHALL SOUND THE DECK AND ESTABLISH LIMITS OF VARIOUS CLASS II CONCRETE REPAIRS AT THE DIRECTION OF THE ENGINEER. THE EXTENT, LOCATION AND REPAIR TYPE OF ALL CONCRETE REPAIRS ARE TO BE FIELD VERIFIED AND APPROVED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT THE REPAIR AREAS. REPAIR CONFIGURATIONS SHOULD BE KEPT AS SIMPLE AS POSSIBLE, PREFERABLY WITH SQUARE CORNERS. ESTIMATED SURFACE AREA FOR CLASS II REPAIR IS 10% OF THE TOTAL DECK SURFACE AREA.
2. THE LIMITS OF THE REPAIRS SHALL BE SAWCUT ALONG NEAT LINES TO A DEPTH OF 1/2" WHERE PRACTICAL TO PRODUCE A CLEAN EDGE.
3. REMOVE DETERIORATED AND UNSOUND CONCRETE TO A MINIMUM OF 3/4" BEYOND THE BOTTOM OF THE TOP MAT OF REINFORCING.
4. MISSING OR DETERIORATED REINFORCING STEEL SHALL BE REPLACED WITH EPOXY COATED REINFORCEMENT AS DIRECTED BY THE ENGINEER AND WILL BE PAID FOR UNDER ITEM 507.11 REINFORCING STEEL, LEVEL I (EPOXY COATED).
5. REPAIR CONCRETE SHALL MEET THE REQUIREMENTS OF SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS AA).
6. ALL EXPOSED REINFORCING STEEL SHALL BE CLEANED BY MECHANICAL CLEANING AND HIGH PRESSURE WASHING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. WHERE ACTIVE CORROSION HAS OCCURED (THAT WHICH WOULD INHIBIT BONDING) BLAST CLEAN STEEL TO WHITE METAL FINISH.
7. AFTER REMOVAL AND EDGE PREPARATION ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, GREASE, LOOSELY BONDED AGGREGATE) BY ABRASION BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. CHECK THE CONCRETE SURFACES AFTER CLEANING TO ENSURE THAT THE SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE OR THAT ADDITIONAL DELAMINIATIONS ARE NOT PRESENT.
8. EXISTING CONCRETE SURFACES THAT WILL BE IN CONCTACT WITH REPAIR CONCRETE SHALL BE PRE-WETTED FOR A MINIMUM OF 24 HOURS USING POTABLE WATER IN ORDER TO ACHIEVE A SATURATED SURFACE DRY CONDITION IMMEDIATELY PRIOR TO PLACEMENT OF REPAIR CONCRETE.

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082bridgetyp.dgn
PROJECT LEADER: AMS
DESIGNED BY: FB
DECK SLAB ELEVATION DETAILS

PLOT DATE: 7/13/2022
DRAWN BY: CSB
CHECKED BY: PAH
SHEET 15 OF 97

COARSE-MILLING, BITUMINOUS PAVEMENT
STA. 165+65.0 TO 168+00.0

VERTICAL GRANITE CURB
STA. 165+65.0 TO 166+89.7 RT
STA. 167+45.0 TO 167+78.1 RT (2" REVEAL)
STA. 167+62.9 TO 168+00.0 LT

REMOVAL OF EXISTING CURB
STA. 165+65.0 TO 166+89.7 RT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
STA. 167+59.1 TO 168+00.0 LT
STA. 167+41.8 TO 168+00.0 RT

DETECTABLE WARNING SURFACE
STA. 167+60.8 LT
STA. 167+43.2 RT

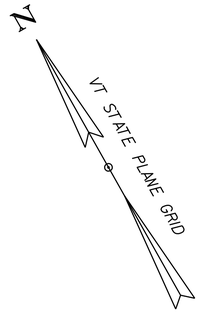
STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS
(POWDER COATED BLACK)
STA. 167+93.2 TO 168+00.0 LT

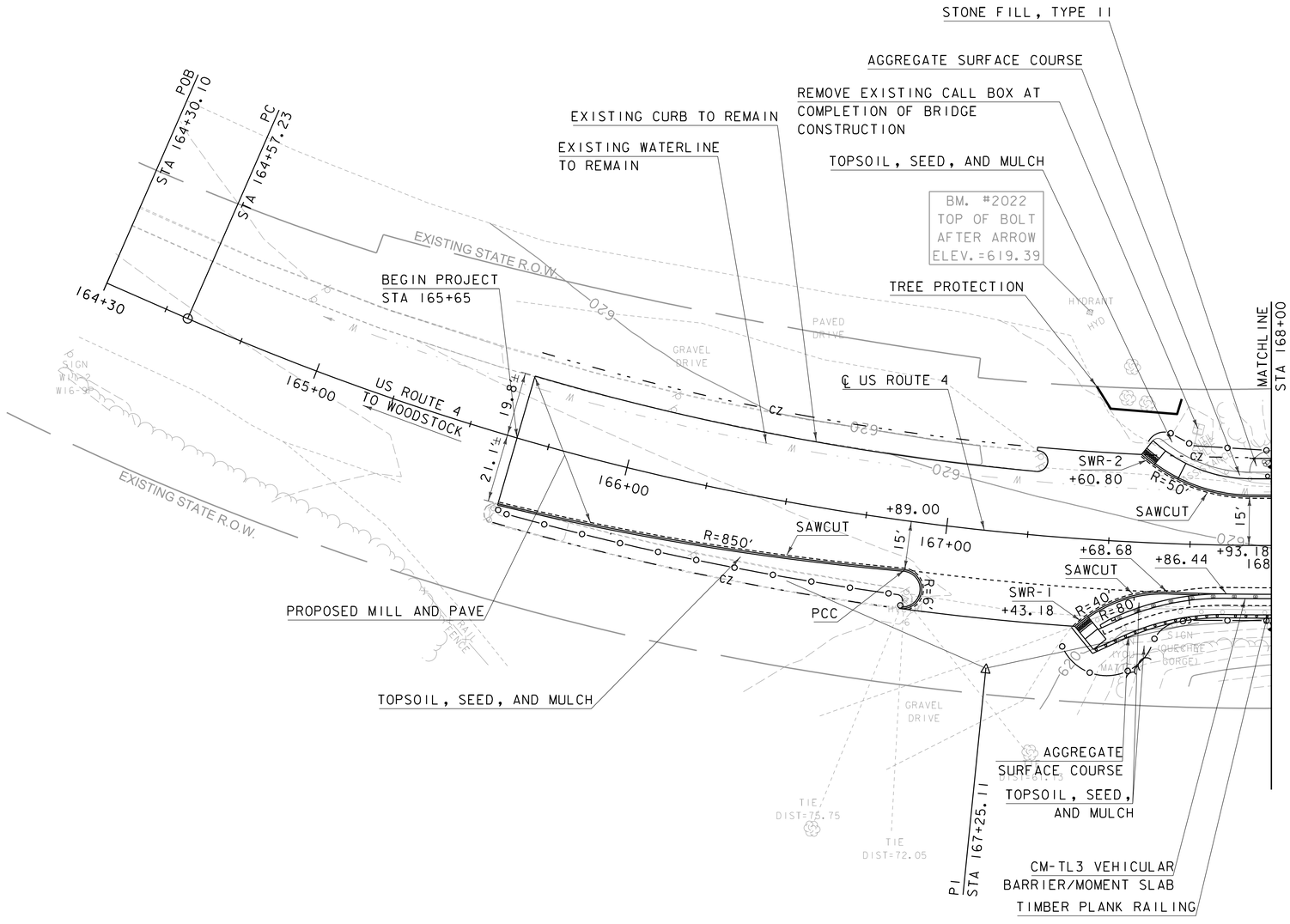
REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 167+80.3 TO 168+00.0 LT
STA. 167+42.0 TO 168+00.0 RT

AGGREGATE SURFACE COURSE
STA. 167+62.2 TO 168+00.0 LT
STA. 167+40.5 TO 168+00.0 RT

ANCHOR FOR STEEL BEAM RAIL
STA. 167+93.2 LT

TIMBER PLANK RAILING
STA. 167+47.4 TO 168+00.0 RT





NOTE:
SEE SHEETS 93-95 FOR PDF LIMITS.

LAYOUT 1

SCALE 1" = 20'-0"
20 0 20

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082border.dgn	PLOT DATE: 7/12/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
LAYOUT SHEET 1 OF 3	SHEET 16 OF 97

COARSE-MILLING, BITUMINOUS PAVEMENT
STA. 168+00.0 TO 169+82.5
STA. 172+73.6 TO 174+00.0

VERTICAL GRANITE CURB
STA. 168+00.0 TO 169+49.9 LT
STA. 169+56.1 TO 169+63.0 LT
STA. 172+96.0 TO 173+01.0 RT
STA. 173+27.8 TO 174+00.0 LT (4" REVEAL)
STA. 173+07.0 TO 174+00.0 RT

REMOVAL OF EXISTING CURB
STA. 173+04.7 TO 174+00.0 LT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
STA. 168+00.0 TO 169+85.0 LT
STA. 168+00.0 TO 169+85.0 RT
STA. 172+71.1 TO 173+28.7 LT
STA. 172+71.1 TO 174+00.0 RT
STA. 173+60.4 TO 173+68.4 LT

DETECTABLE WARNING SURFACE
STA. 169+53.0 LT
STA. 169+53.0 RT
STA. 173+04.0 LT
STA. 173+04.0 RT

STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS (POWDER COATED BLACK)
STA. 168+00.0 TO 169+66.7 LT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 168+00.0 TO 169+84.1 LT
STA. 168+00.0 TO 169+83.5 RT
STA. 172+71.5 TO 173+01.0 LT
STA. 172+72.2 TO 174+00.0 RT

AGGREGATE SURFACE COURSE
STA. 168+00.0 TO 169+66.7 LT
STA. 168+00.0 TO 169+67.2 RT

TIMBER PLANK RAILING
STA. 168+00.0 TO 169+67.2 RT
STA. 172+89.8 TO 173+01.0 LT

CONCRETE GUARDWALL
STA. 173+07.0 TO 173+67.0 LT

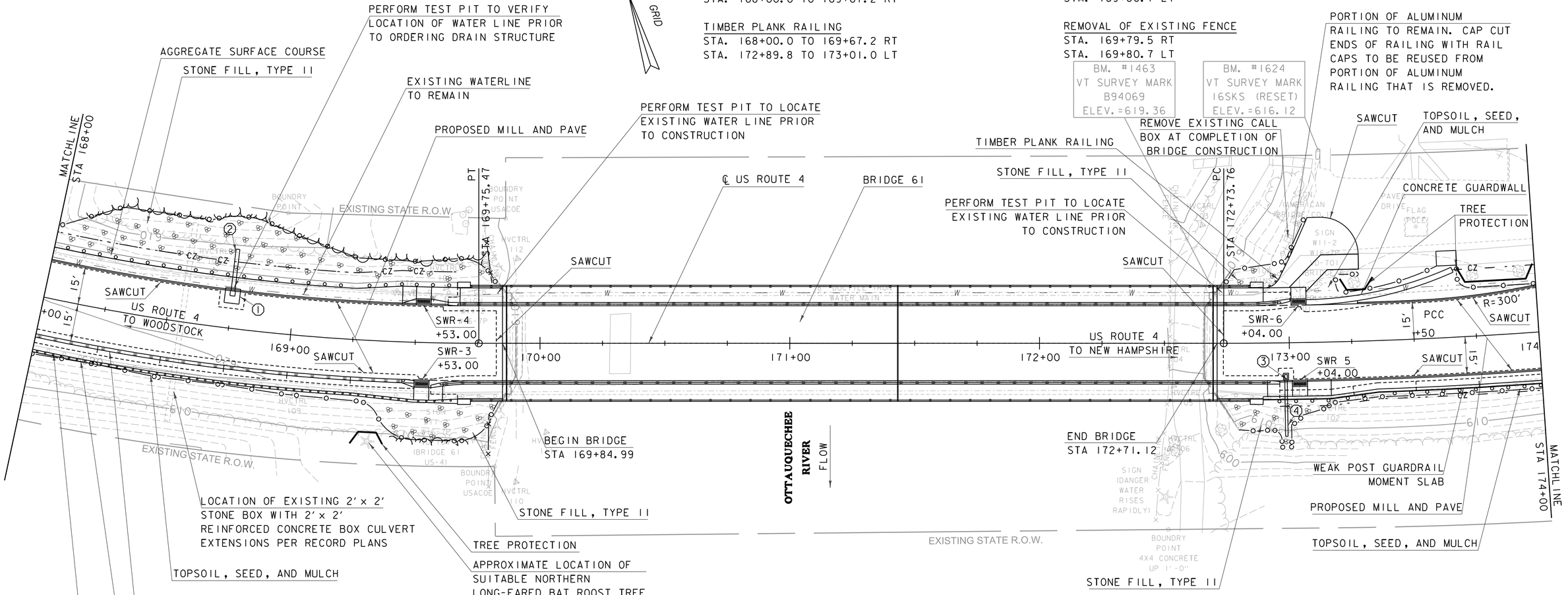
WEAK POST GUARDRAIL (POWDER COATED BLACK)
STA. 172+89.3 TO 174+00.0 RT

CHAIN-LINK FENCE, 8 FEET
STA. 169+79.5 RT
STA. 169+80.7 LT

BRACING ASSEMBLY FOR CHAIN-LINK FENCE, 8 FEET
STA. 169+79.5 RT
STA. 169+80.7 LT

REMOVAL OF EXISTING FENCE
STA. 169+79.5 RT
STA. 169+80.7 LT

N
VT STATE PLANE GRID



① STA. 168+75.0, 15.0' LT
NEW PRECAST REINFORCED CONCRETE CATCH BASIN WITH CAST IRON GRATE, TYPE D
LID EL 618.22
SUMP EL 611.47

② STA. 168+75.0 LT - 168+75.0 LT
NEW 18" X 17.6' CPEP
INLET EL 612.98
OUTLET EL 612.63

③ STA. 172+98.5, 14.5'RT
NEW PRECAST REINFORCED CONCRETE CURB DROP INLET WITH CAST IRON GRATE, TYPE B
LID EL 618.67
SUMP EL 614.34

④ STA. 172+98.5 RT - 172+98.5 RT
NEW 12" X 23.8' CPEP
INLET EL 614.84
OUTLET EL 608.28

NOTE:
SEE SHEETS 93-95 FOR PDF LIMITS.

EXISTING BRIDGE INFORMATION
3 HINGE STEEL DECK ARCH
BUILT 1911, RECONSTRUCTED 1989
STRUCTURE LENGTH = 285'
MAXIMUM SPAN LENGTH = 188'

LAYOUT 2
SCALE 1" = 20'-0"
20 0 20

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082border.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
LAYOUT SHEET 2 OF 3
PLOT DATE: 7/12/2022
DRAWN BY: ABL
CHECKED BY: SBC
SHEET 17 OF 97

COARSE-MILLING, BITUMINOUS PAVEMENT
STA. 174+00.0 TO 179+43.0

VERTICAL GRANITE CURB
STA. 174+00.0 TO 177+24.3 RT
STA. 177+29.7 TO 177+33.7 RT
STA. 174+00.0 TO 174+04.4 LT (4" REVEAL)
STA. 177+89.4 TO 177+91.8 RT
STA. 177+97.0 TO 179+43.0 RT

REMOVAL OF EXISTING CURB
STA. 174+00.0 TO 174+04.4 LT
STA. 177+89.4 TO 179+43.0 RT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
STA. 174+00.0 TO 177+29.7 RT
STA. 177+91.8 TO 179+43.0 RT

DETECTABLE WARNING SURFACE
STA. 177+27.5 RT
STA. 177+93.8 RT

STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS (POWDER COATED BLACK)
STA. 176+90.1 TO 177+00.0 RT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 174+00.0 TO 176+90.6 RT

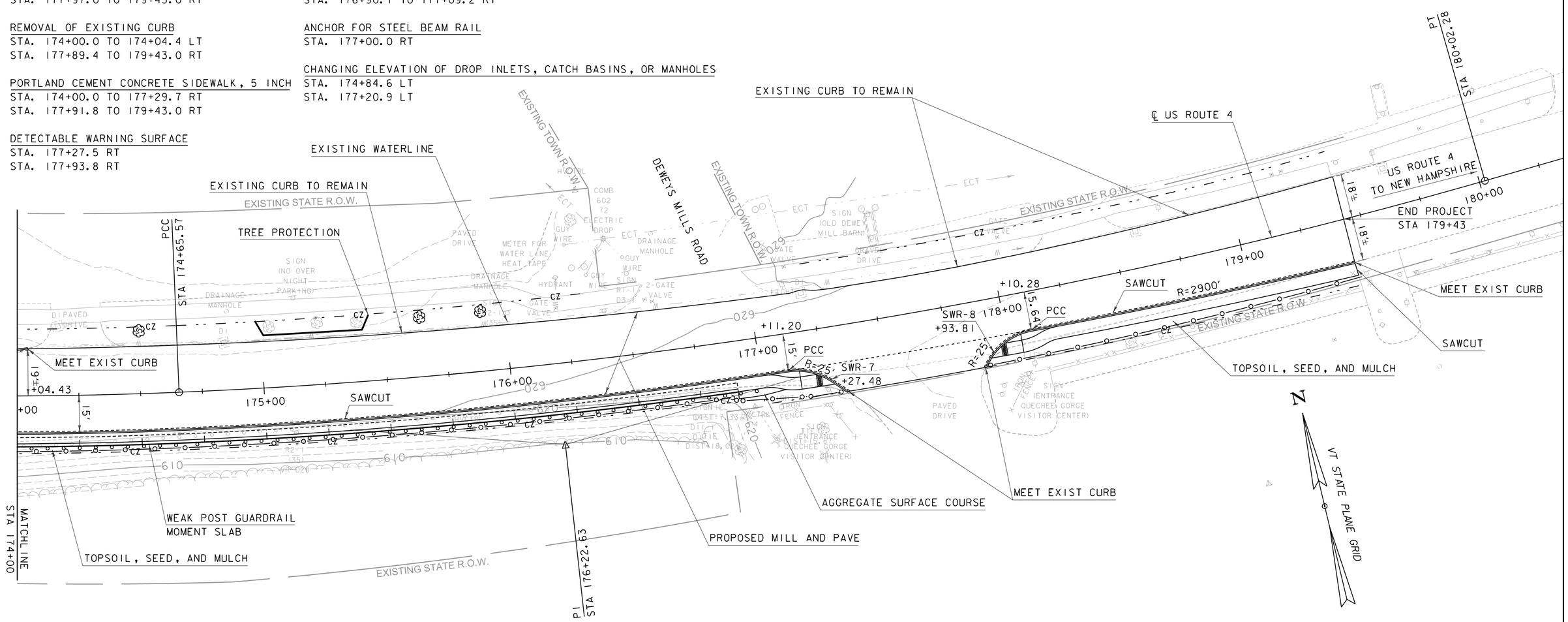
AGGREGATE SURFACE COURSE
STA. 176+90.1 TO 177+09.2 RT

ANCHOR FOR STEEL BEAM RAIL
STA. 177+00.0 RT

CHANGING ELEVATION OF DROP INLETS, CATCH BASINS, OR MANHOLES
STA. 174+84.6 LT
STA. 177+20.9 LT

WEAK POST GUARDRAIL (POWDER COATED BLACK)
STA. 174+00.0 TO 176+90.1 RT

DECIDUOUS TREES
STA. 174+50 LT (QP)
STA. 175+65 LT (GTS)
STA. 175+90 LT (GTS)



NOTE:
SEE SHEETS 93-95 FOR PDF LIMITS.

PLANT LIST
DECIDUOUS TREES

QTY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	PAY ITEM
1	QP	QUERCUS PALUSTRIS	PIN OAK	2"-2½" CALIPER	B	656.30
2	GTS	GLEDITA TRIACANTHOS STREETKEEPER	STREETKEEPER HONEY LOCUST	1"-2" CALIPER	B AND B	656.30

LAYOUT 3

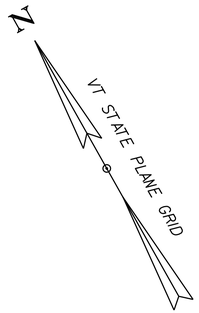
SCALE 1" = 20'-0"
20 0 20

GILL ENGINEERING

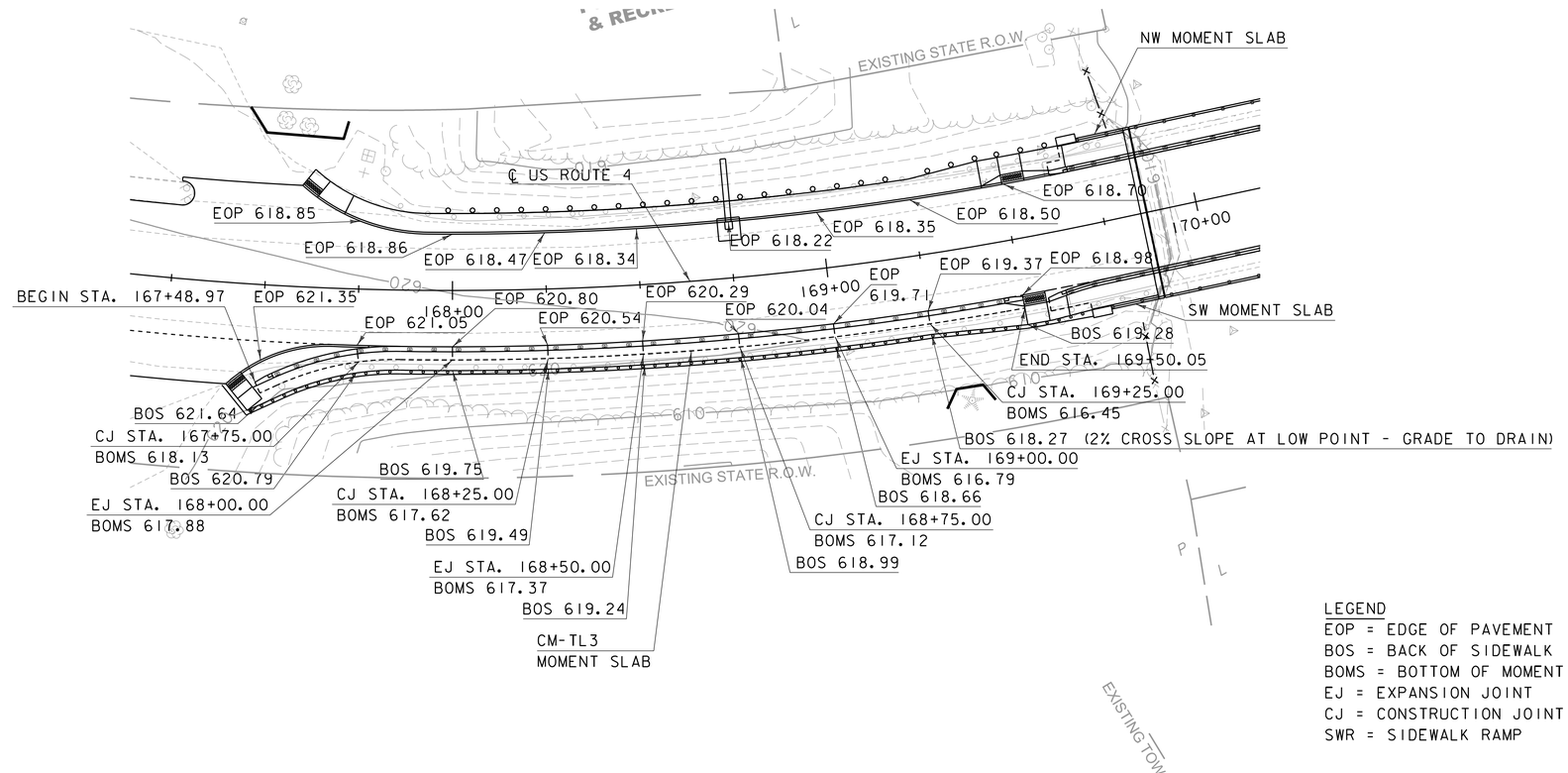
PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082border.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
LAYOUT SHEET 3 OF 3

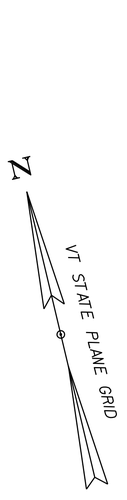
PLOT DATE: 7/12/2022
DRAWN BY: ABL
CHECKED BY: SBC
SHEET 18 OF 97

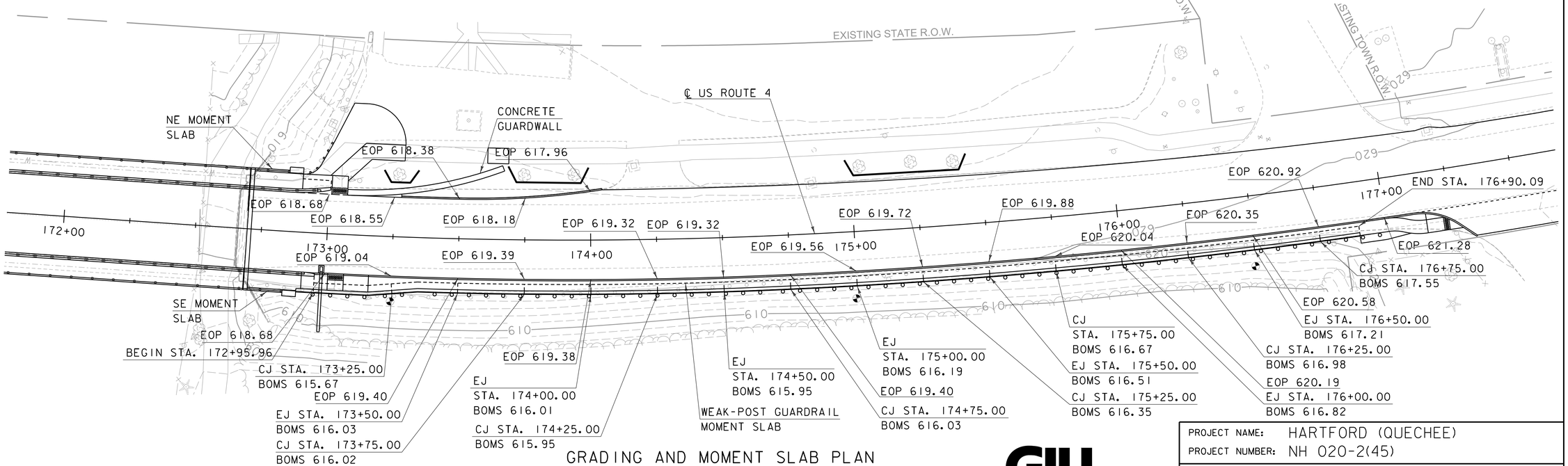


NOTE: FOR ADDITIONAL GRADING INFORMATION AT SIDEWALK RAMPS, SEE SIDEWALK RAMP DETAILS SHEETS 20 & 21



LEGEND
EOP = EDGE OF PAVEMENT
BOS = BACK OF SIDEWALK
BOMS = BOTTOM OF MOMENT SLAB
EJ = EXPANSION JOINT
CJ = CONSTRUCTION JOINT
SWR = SIDEWALK RAMP



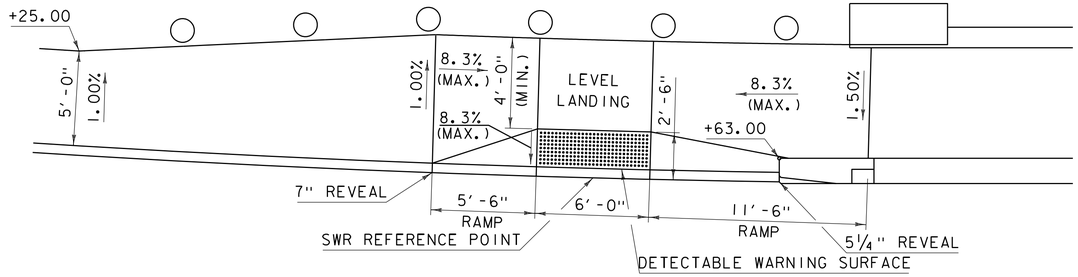


GRADING AND MOMENT SLAB PLAN

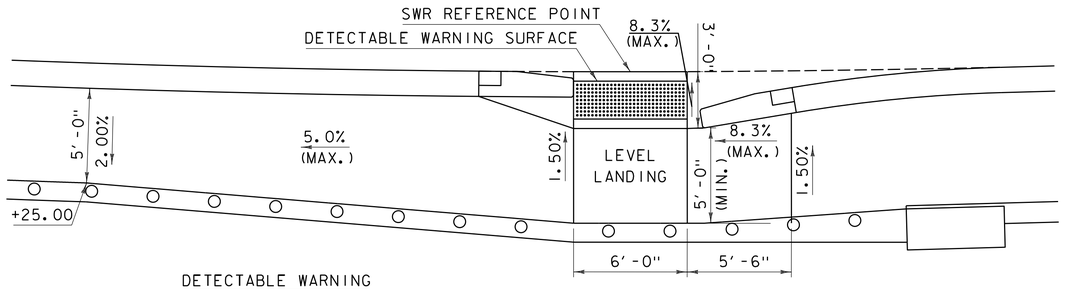
SCALE 1" = 20'-0"
20 0 20

GILL ENGINEERING

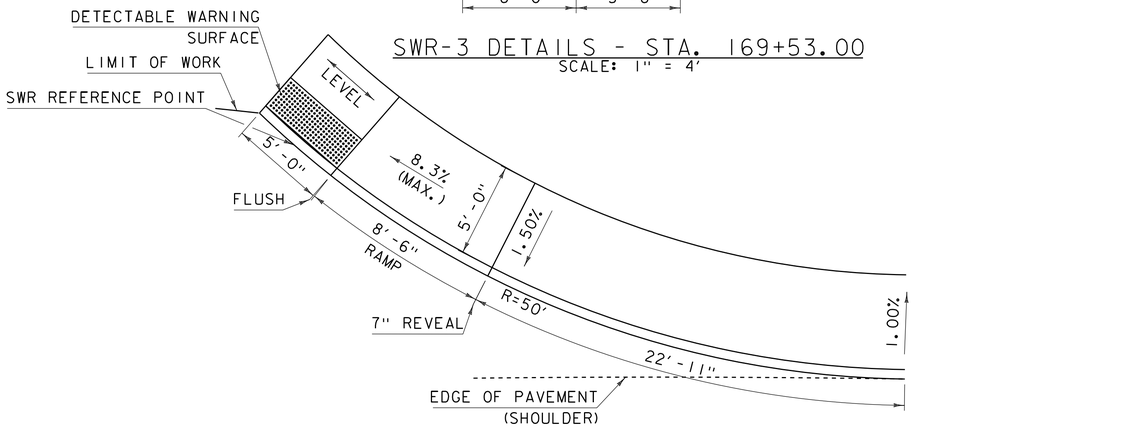
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082grading.dgn	PLOT DATE: 7/12/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
GRADING PLAN	SHEET 19 OF 97



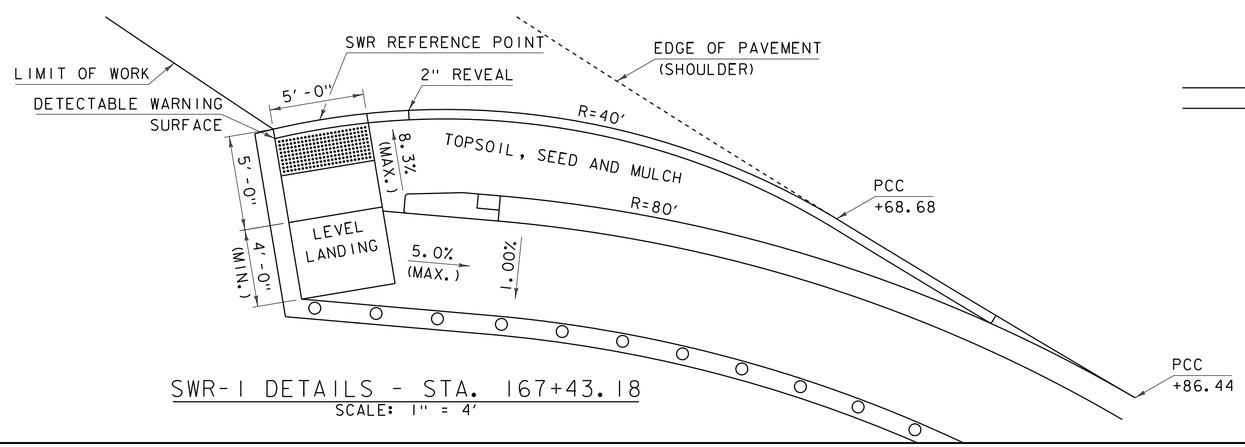
SWR-4 DETAILS - STA. 169+53.00
SCALE: 1" = 4'



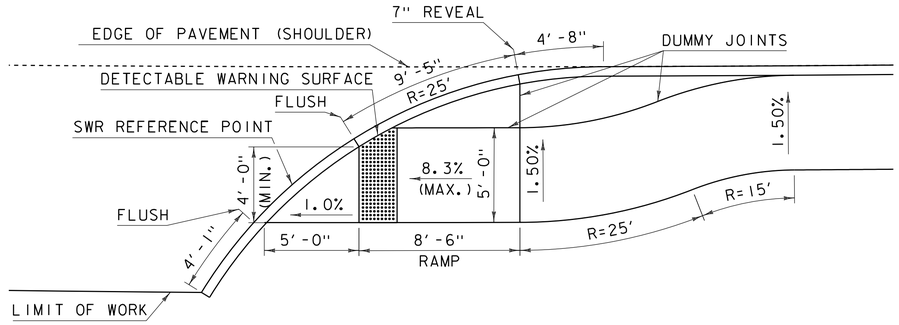
SWR-3 DETAILS - STA. 169+53.00
SCALE: 1" = 4'



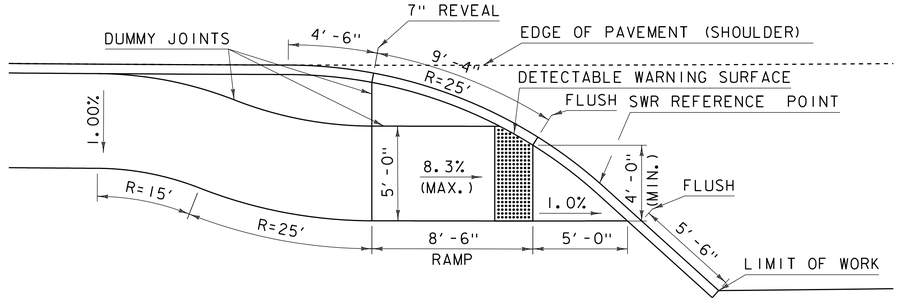
SWR-2 DETAILS - STA 167+60.80
SCALE: 1" = 4'



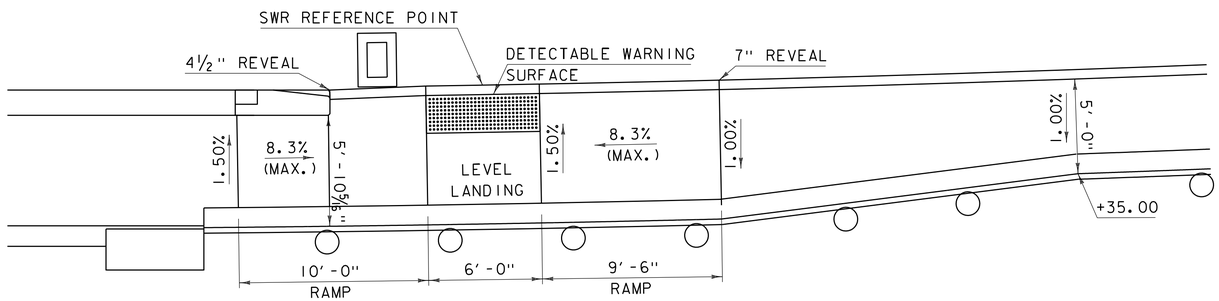
SWR-1 DETAILS - STA. 167+43.18
SCALE: 1" = 4'



SWR-8 DETAILS - STA. 177+93.81
SCALE: 1" = 4'



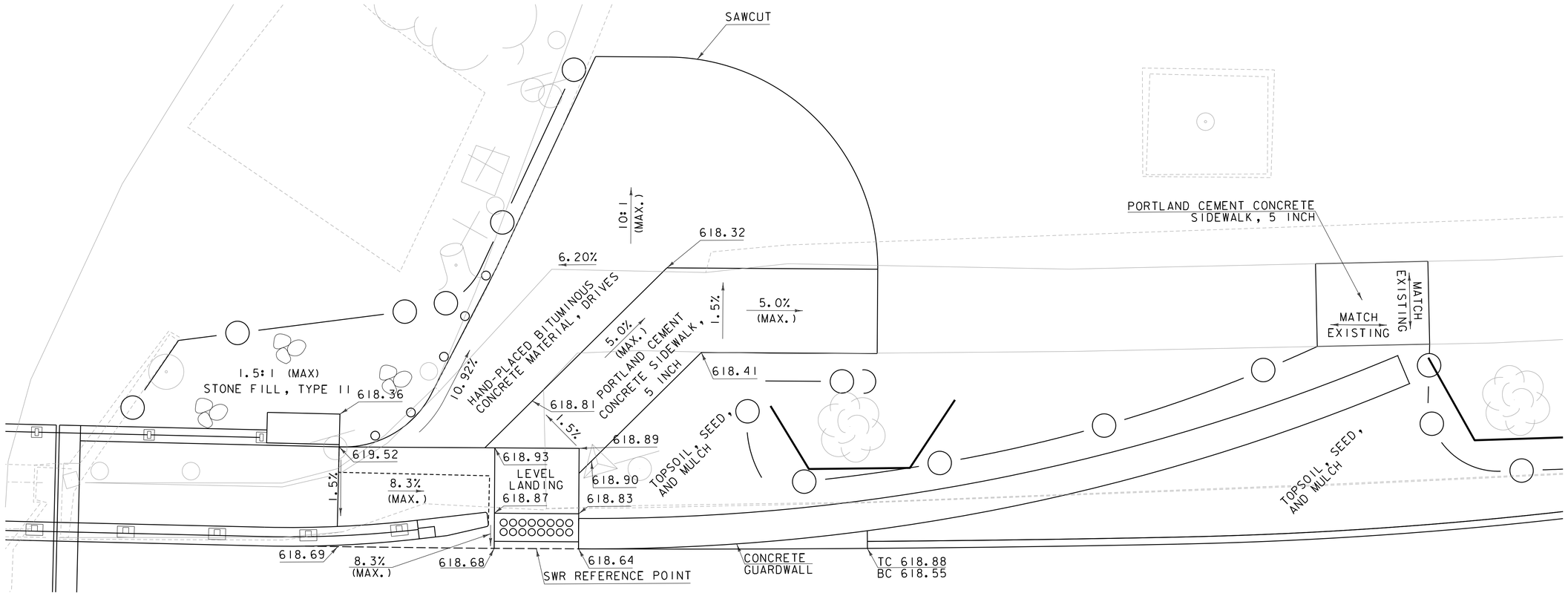
SWR-7 DETAILS - STA. 177+27.48
SCALE: 1" = 4'



SWR-5 DETAILS - STA. 173+04.00
SCALE: 1" = 4'

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)	
PROJECT NUMBER: NH 020-2(45)	
FILE NAME: z17b082wcrdetails.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
SIDEWALK RAMP DETAILS 1OF 2	SHEET 20 OF 97

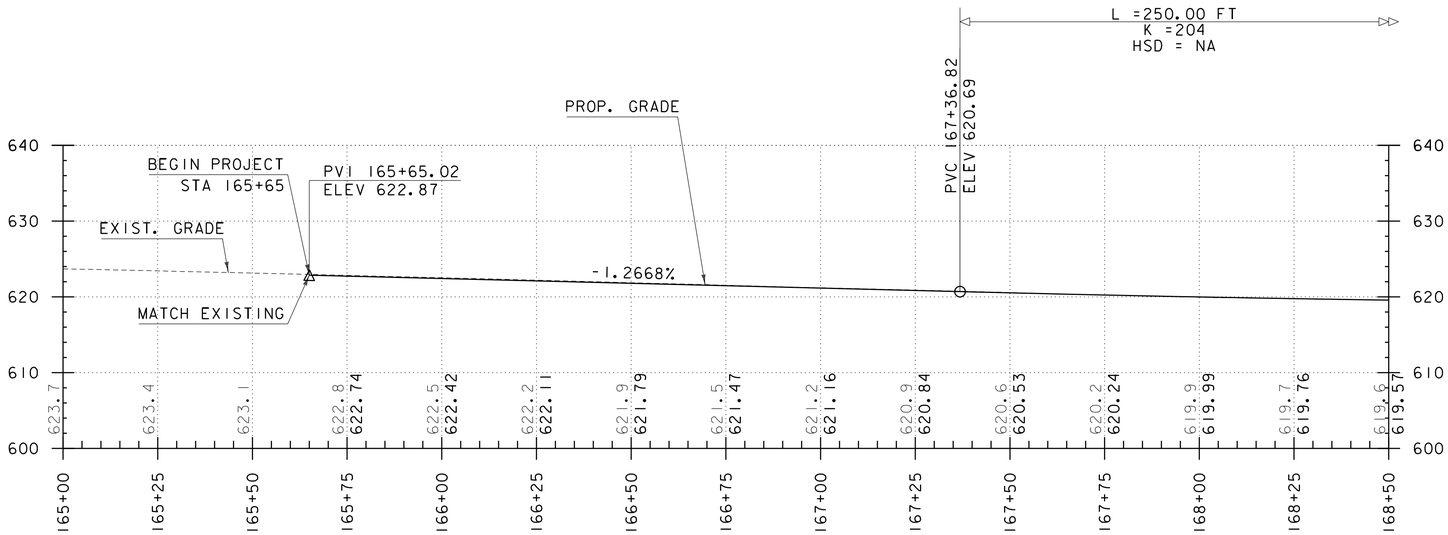


SWR-6 DETAILS - STA. 173+04.00

SCALE: 1" = 4'

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082wcrdetails.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
SIDEWALK RAMP DETAILS 2 OF 2	SHEET 21 OF 97



US ROUTE 4 PROFILE

SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

CONTINUED ON
PROFILE SHEET 2

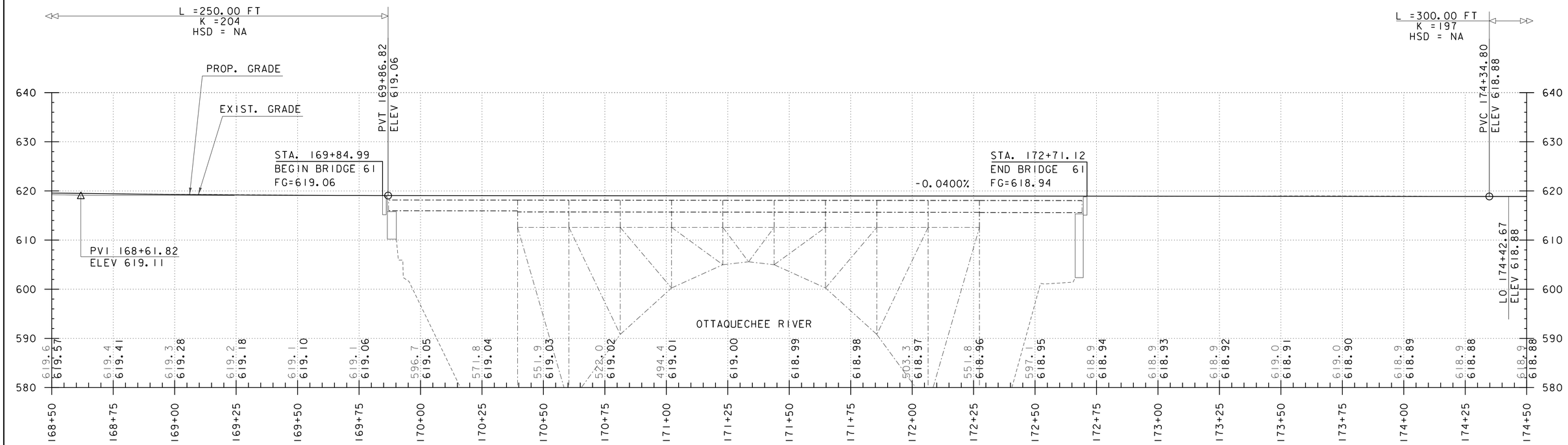
NOTE:
GRADES SHOWN TO THE NEAREST
TENTH ARE EXISTING GROUND ALONG ℄
GRADES SHOWN TO THE NEAREST
HUNDREDTH ARE FINISH GRADE ALONG ℄

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082profile.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
PROFILE SHEET 1

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: SBC
SHEET 22 OF 97



US ROUTE 4 PROFILE

SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

CONTINUED ON PROFILE SHEET 1

CONTINUED ON PROFILE SHEET 3

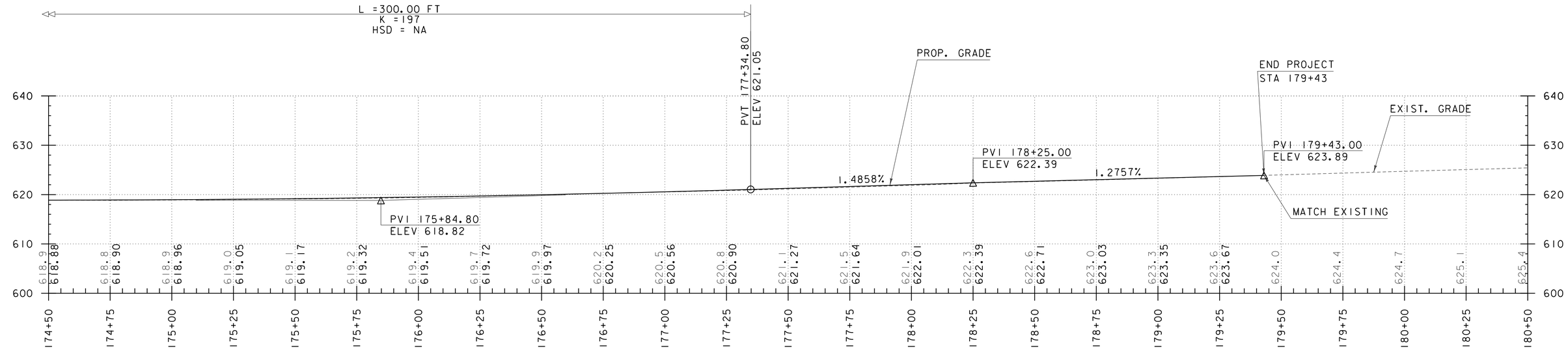
NOTE:
GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄
GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ℄

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: zl7b082profile.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
PROFILE SHEET 2

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: SBC



CONTINUED ON
PROFILE SHEET 2

US ROUTE 4 PROFILE

SCALE: HORIZONTAL 1"=20'-0"
VERTICAL 1"=10'-0"

NOTE:
GRADES SHOWN TO THE NEAREST
TENTH ARE EXISTING GROUND ALONG ℄
GRADES SHOWN TO THE NEAREST
HUNDREDTH ARE FINISH GRADE ALONG ℄

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082profile.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
PROFILE SHEET 3	SHEET 24 OF 97

STAGED CONSTRUCTION NOTES

1. THIS SEQUENCE IS LIMITED TO THE BRIDGE WORK. IT IS ASSUMED THE ASSOCIATED HIGHWAY WORK WILL BE COORDINATED WITH THE BRIDGE WORK SEQUENCING.
2. CLEANING AND PAINTING THE STRUCTURAL STEEL SHALL BE SEQUENCED AS REQUIRED TO PERMIT THE STRUCTURAL STEEL REPAIRS TO BE COORDINATED WITH THE CONSTRUCTION STAGING. THE STRUCTURAL STEEL REPAIRS FOR EACH TRUSS SHALL BE PERFORMED DURING THE STAGE IN WHICH THE DECK AND SIDEWALK SLABS ARE REMOVED.

SUGGESTED STAGED CONSTRUCTION SEQUENCE OF OPERATIONS FOR MAJOR ITEMS OF WORK

STAGE ONE CONSTRUCTION:

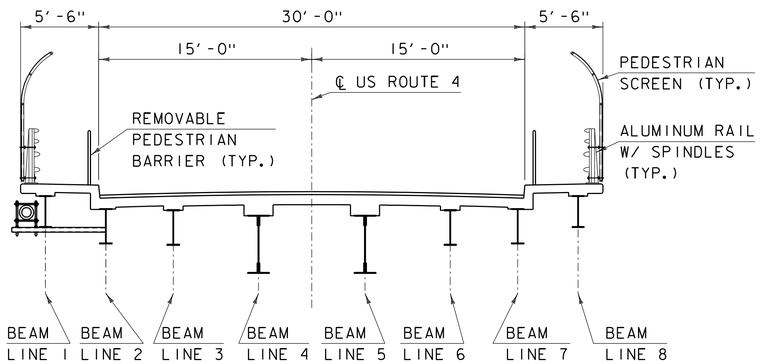
3. ERECT WORK/PAINTERS PLATFORM UNDER THE BRIDGE. PLACE DEMOLITION SHIELDING AS REQUIRED FOR THE WORK WITHIN STAGE ONE.
4. PLACE TEMPORARY BARRIER AND ESTABLISH STAGE ONE TEMPORARY TRAFFIC CONTROL PLAN.
5. REMOVE EXISTING BRIDGE RAIL AND PEDESTRIAN SCREEN.
6. REMOVE THE EXISTING PAVEMENT ON THE BRIDGE DECK TO THE LIMITS SHOWN.
7. REMOVE THE DECK AND SIDEWALK SLABS TO THE LIMITS SHOWN.
8. REMOVE THE EXISTING ARMORED JOINTS AT THE ABUTMENTS AND MIDSPAN LOCATIONS TO THE LIMITS SHOWN. EXCAVATE THE EXISTING ABUTMENT BACK WALLS AND PORTIONS OF THE WINGWALLS TO THE LIMITS SHOWN.
9. REMOVE EXISTING STRINGERS TO BE REPLACED AND INSTALL REPLACEMENT STRINGERS AND NEW CONNECTIONS AT FLOORBEAMS AND NEW BEARINGS.
10. PERFORM ALL STRUCTURAL STEEL REPAIRS IDENTIFIED THAT ARE ASSOCIATED WITH THE SOUTH TRUSS.
11. PERFORM ALL BRACING REPAIRS THAT ARE ASSOCIATED WITH BRACING BETWEEN THE TRUSSES.
12. JACK SOUTHERLY BRIDGE BEAMS IN APPROACH SPANS AND REPLACE BEARINGS
13. PLACE SCUPPERS AND DOWNSPOUTS
14. FORM AND PLACE THE BRIDGE BACKWALL AND NEW EXPANSION JOINT HEADERS TO THE CENTERLINE OF THE BRIDGE. PROTECT THE JOINT HEADER POCKETS AS REQUIRED FOR TRAFFIC.
15. FORM AND PLACE THE NEW BRIDGE DECK, SIDEWALK SLAB AND SAFETY CURB.
16. SOUND AND REPAIR THE EXISTING BRIDGE DECK.
17. FORM AND PLACE THE SOUTHERLY MOMENT SLABS ON THE APPROACHES. FORM AND PLACE THE CM-TL3 TRANSITION POSTS AND PEDESTRIAN SCREEN END POSTS.
18. PLACE THE CM-TL3 CURB MOUNTED BRIDGE RAIL AND PEDESTRIAN SCREEN.
19. PLACE SPRAY APPLIED MEMBRANE WATERPROOFING.
20. PLACE INITIAL 1¼"COURSE OF PAVEMENT TO STAGE 1 CENTERLINE OF BRIDGE.

STAGE TWO CONSTRUCTION:

21. PLACE DEMOLITION SHIELDING AS REQUIRED FOR THE WORK WITHIN STAGE TWO.
22. PLACE TEMPORARY BARRIER AND ESTABLISH STAGE TWO TEMPORARY TRAFFIC CONTROL PLAN.
23. REMOVE EXISTING BRIDGE RAIL AND PEDESTRIAN SCREEN.
24. REMOVE PORTION OF EXISTING SIDEWALK SLAB AND DECK SLAB TO PERMIT ACCESS TO THE STRINGERS AND WATERLINE WITHIN THE LIMITS OF THE EAST AND WEST APPROACH SPANS AND BETWEEN FB6 AND FB7. PLACE TEMPORARY WATERLINE SUPPORTS AND TRANSFER SUPPORT FROM THE EXISTING TO THE TEMPORARY. IT IS ASSUMED FOR THIS SEQUENCE THAT THE TEMPORARY WATERLINE SUPPORT BEAMS WILL BE MOUNTED ON THE REMAINING PORTIONS OF SIDEWALK SLABS AND ABUTMENTS REMAINING AT EACH LOCATION.
25. REMOVE EXISTING STRINGERS TO BE REPLACED AND INSTALL REPLACEMENT STRINGERS AND NEW CONNECTIONS AT FLOORBEAMS AND NEW BEARINGS.
26. RESTORE PERMANENT WATERLINE SUPPORTS AND TRANSFER SUPPORT FROM TEMPORARY TO PERMANENT SUPPORTS.
27. REMOVE THE EXISTING PAVEMENT ON THE BRIDGE DECK TO THE LIMITS SHOWN.
28. REMOVE THE REMAINDER OF DECK AND SIDEWALK SLABS TO THE LIMITS SHOWN.
29. REMOVE THE EXISTING ARMORED JOINTS AT THE ABUTMENTS AND MIDSPAN LOCATIONS TO THE LIMITS SHOWN. EXCAVATE THE EXISTING ABUTMENT BACK WALLS AND PORTIONS OF THE WINGWALLS TO THE LIMITS SHOWN. PROVIDE PROTECTION AND TEMPORARY SUPPORT OF THE WATERLINE AT THE ABUTMENTS. PROVIDE PROTECTION AND TEMPORARY SUPPORT OF THE HEAT TRACE CONDUIT.
30. PERFORM ALL STRUCTURAL STEEL REPAIRS IDENTIFIED THAT ARE ASSOCIATED WITH THE NORTH TRUSS.
31. JACK NOTHERLY BRIDGE BEAMS IN APPROACH SPANS AND REPLACE BEARINGS
32. PLACE SCUPPERS AND DOWNSPOUTS
33. FORM AND PLACE THE BRIDGE BACKWALL AND NEW EXPANSION JOINT HEADERS TO THE CENTERLINE OF THE BRIDGE. PROTECT THE JOINT HEADER POCKETS AS REQUIRED FOR TRAFFIC.
34. FORM AND PLACE THE NEW BRIDGE DECK, SIDEWALK SLAB AND SAFETY CURB.
35. SOUND AND REPAIR THE EXISTING BRIDGE DECK.
36. FORM AND PLACE THE NORTHERLY MOMENT SLABS ON THE APPROACHES. FORM AND PLACE THE CM-TL3 TRANSITION POSTS AND PEDESTRIAN SCREEN END POSTS.
37. PLACE THE CM-TL3 CURB MOUNTED BRIDGE RAIL AND PEDESTRIAN SCREEN.
38. PLACE SPRAY APPLIED MEMBRANE WATERPROOFING.
39. PLACE INITIAL 1¼" COURSE OF PAVEMENT TO STAGE 2 CENTERLINE OF BRIDGE.

STAGE THREE CONSTRUCTION:

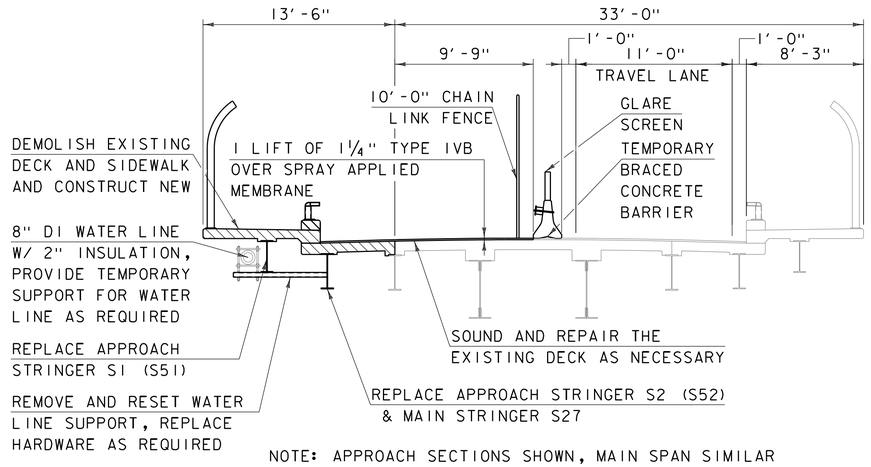
40. REMOVE STAGE TWO TEMPORARY TRAFFIC CONTROL AND IMPLEMENT SHORT TERM TRAFFIC CONTROLS.
41. PLACE TOP 1¼" COURSE OF PAVEMENT.
42. PLACE THE BRIDGE EXPANSION JOINTS.
43. COMPLETE ANY MISCELLANEOUS WORK.
44. REMOVE THE WORK/PAINTER'S PLATFORM FROM UNDER THE BRIDGE.



EXISTING

SCALE 3/16" = 1'-0"

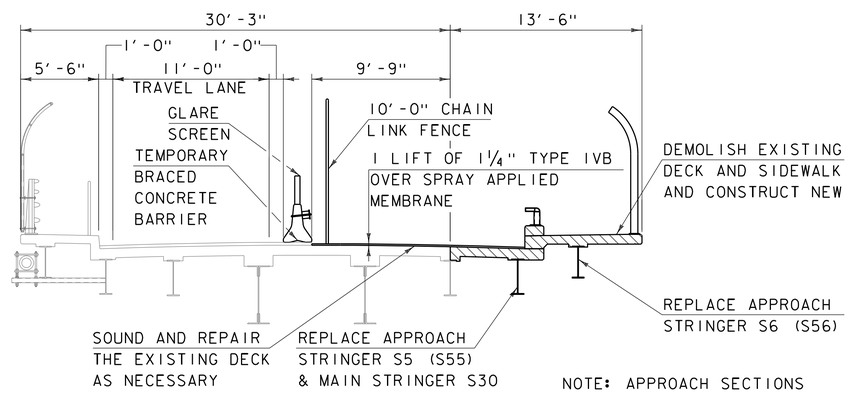
NOTE: APPROACH SECTIONS SHOWN, MAIN SPAN SIMILAR.



NOTE: APPROACH SECTIONS SHOWN, MAIN SPAN SIMILAR

STAGE 2 - CONSTRUCTION

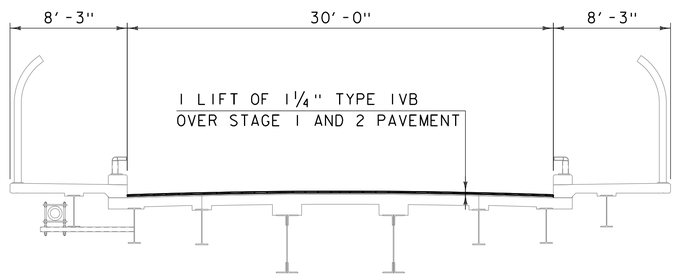
SCALE 3/16" = 1'-0"



NOTE: APPROACH SECTIONS SHOWN, MAIN SPAN SIMILAR.

STAGE 1 - CONSTRUCTION

SCALE 3/16" = 1'-0"



NOTE: APPROACH SECTIONS SHOWN, MAIN SPAN SIMILAR

STAGE 3 - CONSTRUCTION

SCALE 3/16" = 1'-0"

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)	
PROJECT NUMBER: NH 020-2(45)	
FILE NAME: z17b082bridgetyp.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: CSB
DESIGNED BY: FB	CHECKED BY: PAH
STAGING NOTES & CROSS SECTIONS	SHEET 25 OF 97

TRAFFIC CONTROL NOTES

1. ALL SIGNING SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE MUTCD, AND ITS LATEST REVISIONS. FOR ADDITIONAL SIGNING INSTRUCTIONS SEE THE T SERIES OF THE STANDARD DRAWINGS. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.
2. EXISTING PAVEMENT MARKINGS AND CROSSWALK SIGNS SHALL BE REMOVED OR FULLY COVERED WHILE PROJECT IS ACTIVE TO PREVENT CONFUSION FOR THE MOTORIST AND THE PEDESTRIANS AT EXISTING CROSSWALKS.
3. TYPE III BARRICADES SHALL BE USED TO BLOCK OFF THE WORK AREA AND KEEP PEDESTRIANS OUT OF THE AREA BEHIND CONCRETE BARRIERS.
4. TRAFFIC CONTROL DEVICES SHALL BE USED TO PROHIBIT NON-CONSTRUCTION VEHICLES AND PEDESTRIANS FROM ENTERING THE RESTRICTED WORK ZONES AND STAGING AREAS.
5. CLOSED DRIVEWAYS (INCLUDING THOSE OPEN TO PEDESTRIAN TRAVEL) SHALL HAVE TYPE III BARRICADES ACROSS THE WIDTH OF THE DRIVEWAY WITH A SIGN INDICATING “ROAD CLOSED”.
6. TEMPORARY CLOSURE OF CROSSWALKS SHALL UTILIZE A TYPE III BARRICADE AND A SIGN (R9-10) NOTING “SIDEWALK CLOSED USE OTHER SIDE” WITH AN ARROW DIRECTING PEDESTRIANS TO THE ALTERNATE CROSSWALK.
7. TEMPORARY BARRIER SHALL BE LOCATED OUTSIDE OF THE CLEAR ZONE OR ATTENUATED FROM TRAFFIC (INCLUDING PARKING LOT TRAFFIC).
8. A 10'-0" TALL TEMPORARY CHAIN LINK/SECURITY FENCE SHALL PROVIDE FOR MEANS RESTRICTION IMMEDIATELY FOLLOWING THE REMOVAL OF THE EXISTING PEDESTRIAN SCREEN AND SHALL REMAIN UNTIL THE NEW PEDESTRIAN SCREEN IS FULLY CONSTRUCTED. TEMPORARY CHAIN LINK/SECURITY FENCE MUST BE POSITIVELY SECURED AT THE END OF EACH WORK SHIFT.
9. IF TEMPORARY CROSSWALKS ARE UTILIZED, THEY SHALL BE PLACED AS CLOSE TO PERPENDICULAR TO THE HIGHWAY AS POSSIBLE AND ACCOMPANIED BY APPROPRIATE MUTCD SIGNAGE (BLACK ON ORANGE). DETECTABLE SURFACES ARE REQUIRED ON EITHER END OF ALL TEMPORARY CROSSWALKS.
10. THE UNIT BID PRICE FOR ITEM 641.11, "TRAFFIC-CONTROL, ALL-INCLUSIVE", PAY ITEM INCLUDES, BUT NOT LIMITED TO, THE FOLLOWING:
    a. PREPARATION OF A COMPLETE TRAFFIC CONTROL PLAN (INCLUDING BUT NOT LIMITED TO: TRAFFIC CONTROL/TPAR PLAN, TEMPORARY TRAFFIC SIGNAL DESIGN AND SEQUENCE/TIMING CHART, DESIGN OF TEMPORARY RELOCATION OR REPLACEMENT OF EXISTING CALL BOX(ES))
    b. TEMPORARY SUPPORT OF EXCAVATION
    c. EMBANKMENT
    d. DRUMS, BARRELS, BARRICADES
    e. TEMPORARY SIGNS, POSTS, AND ANCHORS FOR: TRAFFIC MANAGEMENT, SIDEWALK AND DRIVEWAY CLOSURES, AND GUIDANCE FOR LOCAL BUSINESSES AND TOURISTS
    f. 10'-0" TALL CHAIN LINK/SECURITY FENCE
    g. PAVEMENT MARKING REMOVAL
    h. EXISTING SIGN COVERING AND/OR REMOVAL
    i. TEMPORARY PAVEMENT
    j. FENCING AND/OR BARRICADES TO SECURE WORK ZONES AND STAGING AREAS, CLOSE DRIVEWAYS/PARKING LOTS, AND TO PREVENT/DETER PEDESTRIANS FROM CROSSING ROUTE 4
    k. TEMPORARY RELOCATION OR REPLACEMENT OF EXISTING CALL BOX(ES)
    l. ENERGY ABSORPTION ATTENUATOR
11. TRAFFIC CONTROL ITEMS NOT PAID FOR IN THE UNIT BID PRICE FOR ITEM 641.11 "TRAFFIC CONTROL, ALL-INCLUSIVE", AND PAID FOR SEPARATELY INCLUDE THE FOLLOWING:
    a. ITEM 630.10"UNIFORMED TRAFFIC OFFICERS"
    b. ITEM 630.15"FLAGGERS"
    c. ITEM 641.15"PORTABLE CHANGEABLE MESSAGE SIGN"
    d. ITEM 646.622"TEMPORARY 6 INCH WHITE LINE, PAINT"
    e. ITEM 646.632"TEMPORARY 6 INCH YELLOW LINE, PAINT"
    f. ITEM 646.682"TEMPORARY 24 INCH STOP BAR, PAINT"
    g. ITEM 646.702”TEMPORARY CROSSWALK MARKING, PAINT”
    h. ITEM 678.40"TEMPORARY TRAFFIC SIGNAL" - FULLY ACTUATED
    i. ITEM 900.640"SPECIAL PROVISION - GLARE SCREEN"
    j. ITEM 900.640"SPECIAL PROVISION - TEMPORARY BRACED CONCRETE BARRIER"
    k. ITEM 900.640"SPECIAL PROVISION - REMOVE & RESET TEMPORARY BRACED CONCRETE BARRIER"

PEDESTRIAN TEMPORARY TRAFFIC CONTROL NOTES

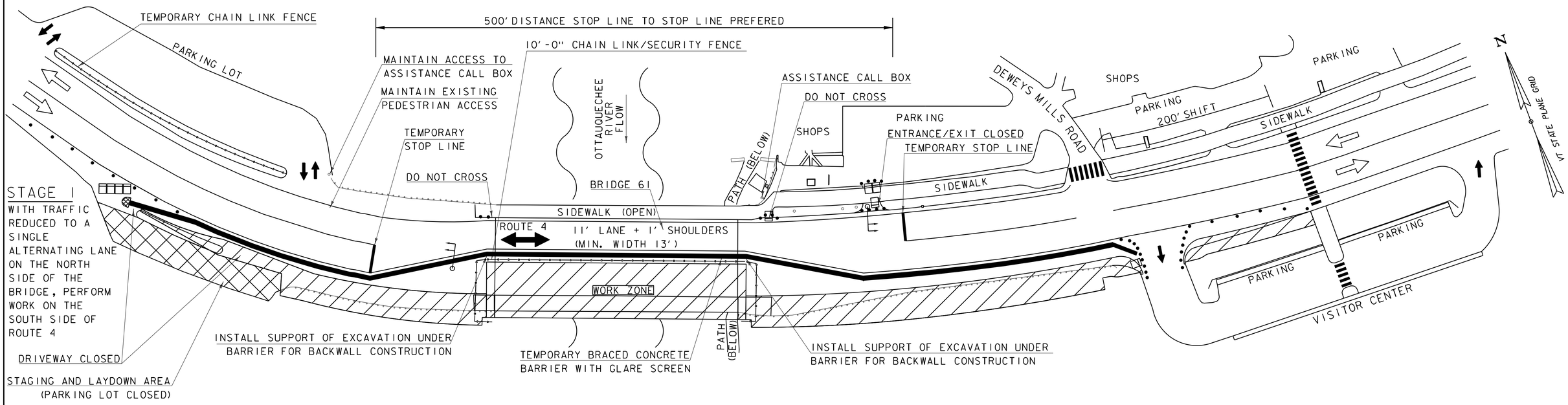
12. THE CONTRACTOR SHALL PROVIDE A TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) FOR REVIEW AND WRITTEN APPROVAL BY THE RESIDENT ENGINEER A MINIMUM OF THREE WEEKS BEFORE SUCH PLAN IS IMPLEMENTED. THIS PLAN SHALL DETAIL THE CONSTRUCTION PHASING AND SCHEDULE AND THE SPECIFIC METHODS OF MAINTAINING SAFE PEDESTRIAN ACCESS THROUGHOUT THE CONSTRUCTION AREA. THIS PLAN SHALL PROVIDE THE LOCATION AND DETAILS OF TEMPORARY CONSTRUCTION SIGNING, MARKINGS, BARRICADES, CHANNELIZING DEVICES, TPARS AND METHODS TO MAINTAIN ACCESS TO ADJACENT PROPERTIES, BUSINESSES, RESIDENCES, ETC.
13. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN THROUGH MOVEMENTS FROM ONE END OF THE CONSTRUCTION AREA TO THE OTHER, ON AT LEAST ONE SIDE OF THE STREET DURING CONSTRUCTION. ANY SIDEWALK CLOSURES SHALL MEET THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), PART 6.
14. PEDESTRIAN ACCESS SHALL BE PROVIDED TO ALL ADJACENT PROPERTIES, BUILDINGS, RESIDENCES, COMMERCIAL PROPERTIES, PARKING LOTS AND TRANSIT STOPS. THIS MAY INCLUDE TEMPORARY WALKWAYS SPANNING THE CONSTRUCTION AREA.
15. IF SIDEWALKS ARE CLOSED, A TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) SHALL BE PROVIDED ON THE SAME SIDE OF THE ROAD AS THE CLOSED SIDEWALK, IF POSSIBLE. SIGNS AND BARRICADES SHALL BE USED TO PROVIDE ADVANCE NOTICE OF THE CLOSURE AND THE ROUTE OF ANY PEDESTRIAN DETOURS. THE TPAR SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4 FEET. IF THE TPAR IS LESS THAN 5 FEET IN WIDTH, A 5 FOOT BY 5 FOOT PASSING SPACE MUST BE PROVIDED AT LEAST EVERY 200 FEET. THE SURFACE OF THE TPAR SHALL BE FIRM, STABLE AND SLIP-RESISTANT AND CONTINUOUS WITH A MINIMUM 80 INCHES OVERHEAD CLEARANCE FOR THE LENGTH OF THE TPAR. THE TPAR SHALL MAINTAIN THE SAME LEVEL OF ACCESSIBILITY AND DETECTIBILITY AS THE FACILITY THAT IS BEING CLOSED. THE TPAR SHALL NOT LEAD PEDESTRIANS INTO CONFLICTS WITH VEHICLES, EQUIPMENT, OR CONSTRUCTION OPERATIONS.
16. WHEN TEMPORARY CROSSWALKS ARE USED FOR THE TPAR, TEMPORARY DETECTABLE WARNINGS SHALL BE PLACED AT EACH END OF THE TEMPORARY CROSSWALKS. THE TEMPORARY CROSSWALK SHALL BE DELINEATED WITH TEMPORARY PAVEMENT MARKINGS OR TAPE. THE MARKINGS SHALL BE PARALLEL 12-INCH-WIDE WHITE LINES PLACE 7 FEET ON CENTER APART. IT SHOULD BE NOTED THAT CURB PARKING SHALL BE PROHIBITED FOR AT LEAST 50 FEET IN ADVANCE OF MIDBLOCK CROSSWALKS. TEMPORARY CROSSWALK SIGNS SHALL BE PROVIDED FOR THE CROSS WALK.
17. IF THERE IS WORK OCCURING OVER AN OPEN SIDEWALK, PROTECTIVE OVERHEAD COVERING MUST BE PROVIDED AS NECESSARY TO ENSURE PROTECTION FROM FALLING OBJECTS AND DRIPPING FROM OVERHEAD STRUCTURES. COVERED WALKWAYS SHOULD BE STURDILY CONSTRUCTED AND ADEQUATELY LIGHTED FOR NIGHTTIME USE.
18. INDIVIDUAL CHANNELIZING DEVICES, TAPE, OR ROPE USED TO CONNECT INDIVIDUAL DEVICES AND OTHER DISCONTINUOUS BARRIERS AND DEVICES, PAVEMENT MARKINGS ARE NOT DETECTABLE BY PERSONS WITH VISUAL DISABILITIES. THESE MEASURES DO NOT PROVIDE ACCEPTABLE PATH GUIDANCE ON TEMPORARY OR RE-ALIGNED SIDEWALKS OR OTHER PEDESTRIAN FACILITIES. PEDESTRIAN CHANNELIZING DEVICES SHALL INCLUDE A CONTINUOUSLY DETECTABLE BOTTOM AND TOP EDGE THROUGHOUT THE LENGTH OF THE FACILITY SUCH THAT IT CAN BE FOLLOWED BY PEDESTRIANS USING LONG CANES FOR GUIDANCE.
19. CHANNELIZING DEVICES ON BOTH SIDES OF THE TPAR SHALL INCLUDE A CONTINUOUS SOLID TOP AND BOTTOM RAILS. THE TOP EDGE OF THE TOP RAIL SHALL BE BETWEEN 32 INCHES AND 38 INCHES ABOVE THE GROUND LEVEL. THE BOTTOM RAIL SHALL BE AT LEAST 6 INCHES WIDE, WITH THE BOTTOM EDGE OF THE BOTTOM RAIL SURFACE NO HIGHER THAN 2 INCHES ABOVE THE GROUND.
20. IF THE TPAR IS ADJACENT TO MOVING TRAFFIC, CONSTRUCTION OPERATIONS/EQUIPMENT, OR DROP-OFFS, THEN CRASHWORTHY CHANNELIZING DEVICES THAT MEET THE REQUIREMENTS OF THE MUTCD SHALL BE USED.
21. THE CONTRACTOR SHALL NOT STORE OR PLACE ANY CONSTRUCTION MATERIALS, EQUIPMENT OR SIGNS IN THE PEDESTRIAN PATH OF TRAVEL.
22. PROVISION OF THE TPAR AND ALL ITS ELEMENTS, INCLUDING BUT NOT LIMITED TO SIGNS, CHANNELIZING DEVICES, BARRICADES, TEMPORARY CURB RAMPS, TEMPORARY PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES IS TO BE PAID FOR INCIDENTAL TO TRAFFIC CONTROL, ALL INCLUSIVE (ITEM 641.11).

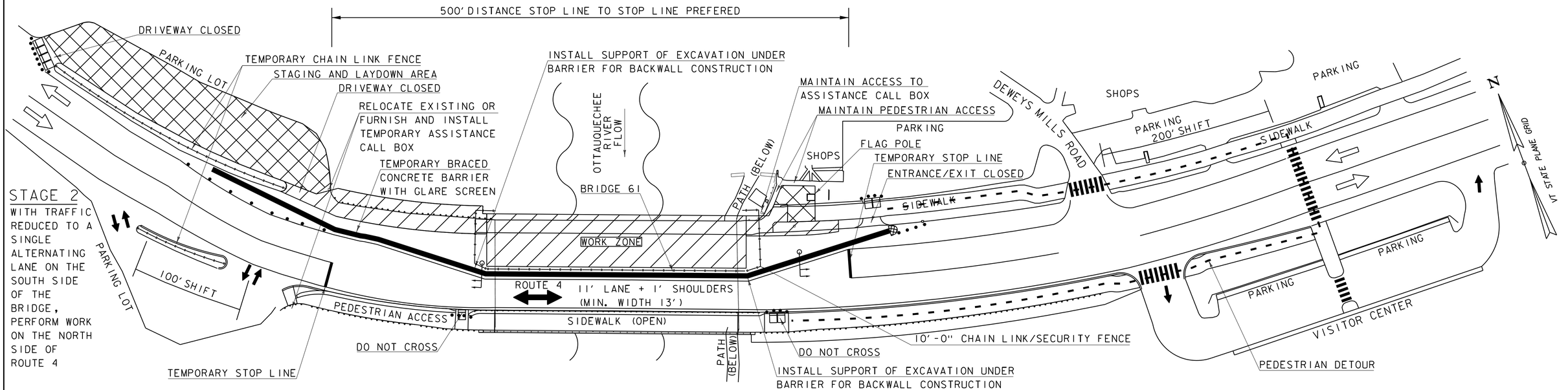
GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082forms.dgn
PROJECT LEADER: AMS
DESIGNED BY: PAH
TRAFFIC CONTROL NOTES

PLOT DATE: 7/6/2022
DRAWN BY: YS
CHECKED BY: PAH
SHEET 26 OF 97





LEGEND

- AREA OF CONSTRUCTION ACTIVITY
- CONTRACTOR STAGING AREA
- DRUM
- TEMPORARY TRAFFIC SIGNAL (FULLY ACTUATED)
- ENERGY ABSORPTION ATTENUATOR, TEMPORARY
- TYPE III BARRICADE
- TEMPORARY BRACED CONCRETE BARRIER WITH GLARE SCREEN
- CHAIN LINK FENCE
- DIRECTION OF TRAFFIC

GENERAL PHASING NOTES

1. THE PHASING PLAN SHOWN IN THESE PLANS IS CONCEPTUAL IN NATURE. THE CONTRACTOR SHALL SUBMIT A COMPLETE TRAFFIC CONTROL PLAN FOR ALL PHASES OF CONSTRUCTION IN ACCORDANCE WITH ITEM 641.11 TRAFFIC CONTROL, ALL INCLUSIVE.
2. SEE SHEET 25 FOR DESCRIPTION OF BRIDGE WORK FOR EACH STAGE.

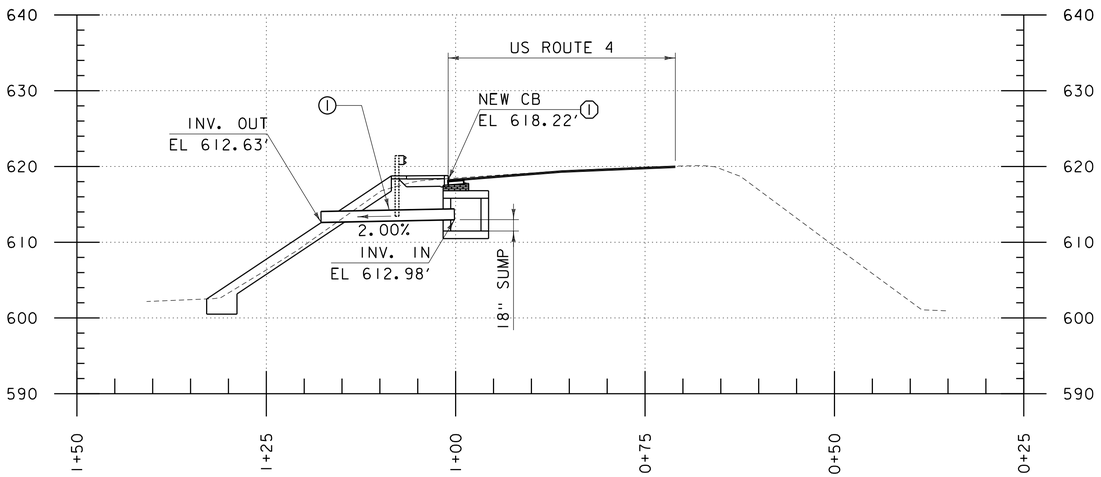
GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

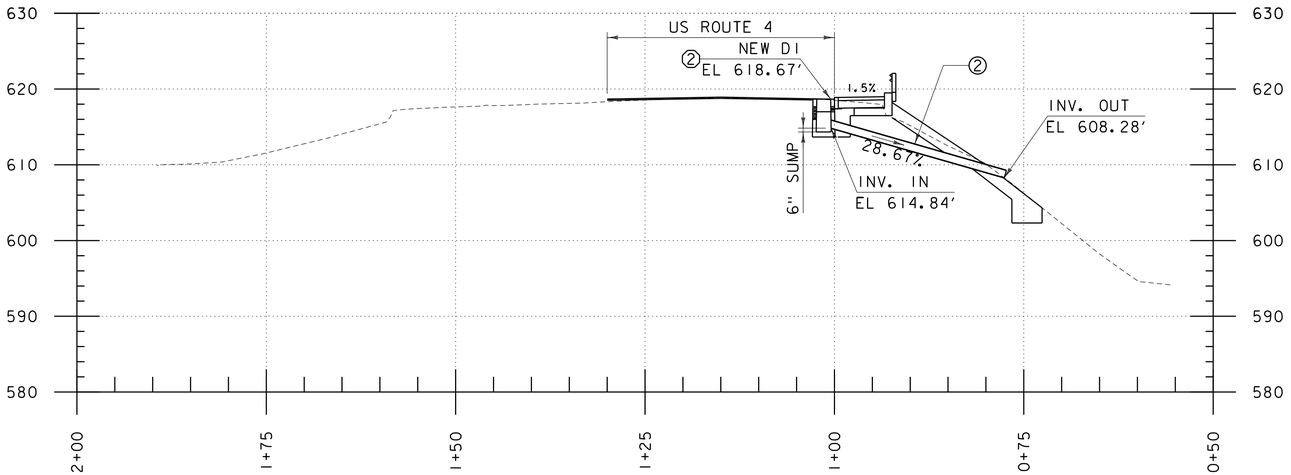
FILE NAME: z17b082staging.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
TRAFFIC STAGING

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: SBC
SHEET 27 OF 97

INLET #1 - PIPE #1
FREE OUTLET
US4 STA. 168+75.00



INLET #2 - PIPE #2
FREE OUTLET
US4 STA. 172+98.50



NOTES:
1. PIPE PROFILE IS DRAWN TO SCALE 1"=10' FOR FULL SIZE PLOT SET.
2. CATCH BASIN (CB) USED IS CONCRETE CATCH BASIN WITH CAST IRON GRATE, TYPE D
3. SEE "LAYOUT SHEET" FOR CB STATION AND OFFSET LOCATIONS

(#) NEW PIPE:
1=18" DIA, CPEP
2=12" DIA, CPEP

(#) NEW STRUCTURE:
1= CATCH BASIN
2= DROP INLET

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082drndet.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
PIPE PROFILE

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: SBC
SHEET 28 OF 97

STATE OF VERMONT
AGENCY OF TRANSPORTATION

DRAINAGE DETAIL SHEET

STATION	STATION	POS.	ASKEW	INLET/OUTLET TYPE		DITCH		PIPE ARCH			PIPE		ALLOWABLE OPTIONS						PIPE ELBOW	ES	CB	PRCCDI	DEPTH DI	CONC CLASS B	REINF STEEL	DI GRATE	CHAN ELEV	CRM	TRENCH EXCAVATION		COMM EXC	UNC CHAN EXC	STRUCT EXCAV	GRAN BKFILL STRUCT	GRAN BORR	EROS MATT	STONE FILL		MARKER POSTS				REMARKS
				INLET	OUTLET	IN	OUT	SPAN	RISE	L	D	L	PCCSP	CAAP	RCP	CSP	CPEP	PCCSP PI										EARTH	ROCK									LT	RT			
			NO. DEG.					IN	IN	FT	IN	FT	TH	TH	CL	TH	SL	TH	NO. DEG.	EA	EA		FT	CY	LBS	TYPE	EA	CY	CY	CY	CY	CY	CY	CY	SY	CY	TYPE	EA	EA			
168+75	---	LT																			X		6.75			D		24.3					16.6					1				NEW CATCH BASIN
168+75	168+75	LT		CB	PIPE						18	17.6					X											8.5					3.4					1				NEW 18" DIA PIPE - OPTION
172+99	---	RT																			X		4.33			B		5.7					5.4						1			NEW DROP INLET
172+99	172+99	RT		DI	PIPE						12	23.8					X											9.7					4.3						1			NEW 12" DIA PIPE - OPTION

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)

FILE NAME: z17b082drn.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
DRAINAGE DETAIL SHEET	SHEET 29 OF 97

DURABLE 6 INCH WHITE LINE, POLYUREA
STA. 165+65.0 TO 168+00.0 LT (EDGE LINE)
STA. 165+65.0 TO 168+00.0 RT (EDGE LINE)

DURABLE 6 INCH YELLOW LINE, POLYUREA
STA. 165+65.0 TO 168+00.0 (DOUBLE CENTER LINE)

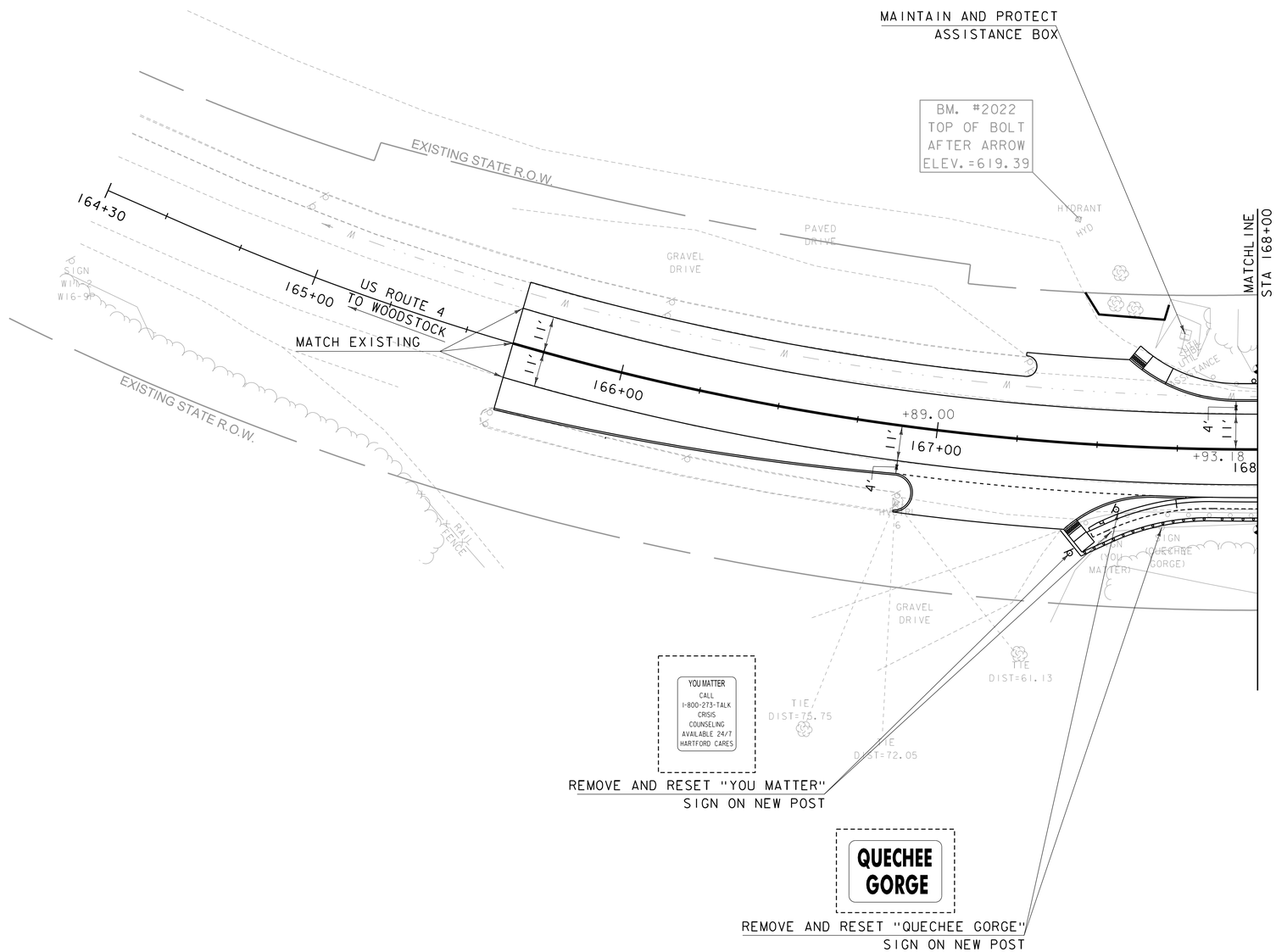
REMOVING SIGNS
STA. 167+55.9 RT
STA. 167+71.0 RT

SQUARE TUBE SIGN POST AND ANCHOR
STA. 167+43.8 RT
STA. 167+57.0 RT

RESETTING SIGNS
STA. 167+55.9 TO STA. 167+43.8 RT
STA. 167+71.0 TO STA. 167+57.0 RT

N

VT STATE PLANE GRID



LEGEND

☐ = PROPOSED SIGNS

⬚ = EXISTING SIGNS

LAYOUT 1

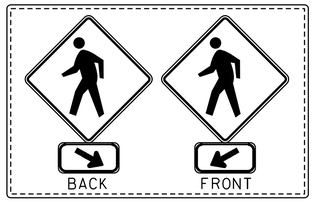
SCALE 1" = 20'-0"
20 0 20

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082border.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
TRAFFIC LINES & SIGNS LAYOUT 1	SHEET 30 OF 97

DURABLE 6 INCH WHITE LINE, POLYUREA
STA. 168+00.0 TO 174+00.0 LT (EDGE LINE)
STA. 168+00.0 TO 174+00.0 RT (EDGE LINE)

DURABLE 6 INCH YELLOW LINE, POLYUREA
STA. 168+00.0 TO 174+00.0 (DOUBLE CENTER LINE)



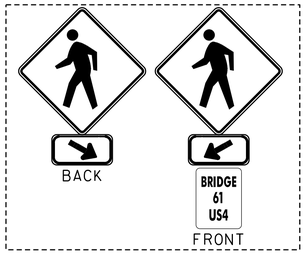
REMOVE W11-2(2), W16-7pL AND W16-7pR SIGNS AND POST WITH REFLECTIVE STRIPS.
PROPOSED W11-2(2), W16-7pL AND W16-7pR SIGNS AND POST WITH REFLECTIVE STRIPS.

N
VT STATE PLANE GRID

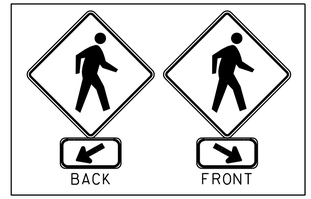
DURABLE CROSSWALK MARKING, POLYUREA
STA. 169+53.0, 15.0' LT TO 169+53.0, 15.0' RT
STA. 173+04.0, 15.0' LT TO 173+04.0, 15.0' RT

RESETTING SIGNS
STA. 172+89.5 TO STA. 172+92.2 LT
STA. 172+97.2 TO STA. 172+91.3 RT

REMOVING SIGNS
STA. 169+74.5 LT
STA. 169+59.0 RT
STA. 172+89.5 LT
STA. 173+11.4 LT
STA. 172+97.2 RT



SQUARE TUBE SIGN POST AND ANCHOR
STA. 169+51.2 LT
STA. 169+59.0 RT
STA. 169+34.6 RT
STA. 172+91.3 RT
STA. 172+92.2 LT
STA. 172+94.8 LT
STA. 173+28.2 LT
STA. 173+05.7 RT



PROPOSED W11-2(2), W16-7pL, W16-7pR SIGNS AND POST WITH REFLECTIVE STRIPS.

REMOVE W11-2(2), W16-7pL, W16-7pR, BRIDGE NUMBER PLAQUE AND POST WITH REFLECTIVE STRIPS.

MAINTAIN AND PROTECT EXISTING "AMERICAN BRIDGE CO." SIGN AND ASSISTANCE CALL BOX

BRIDGE 61 US4

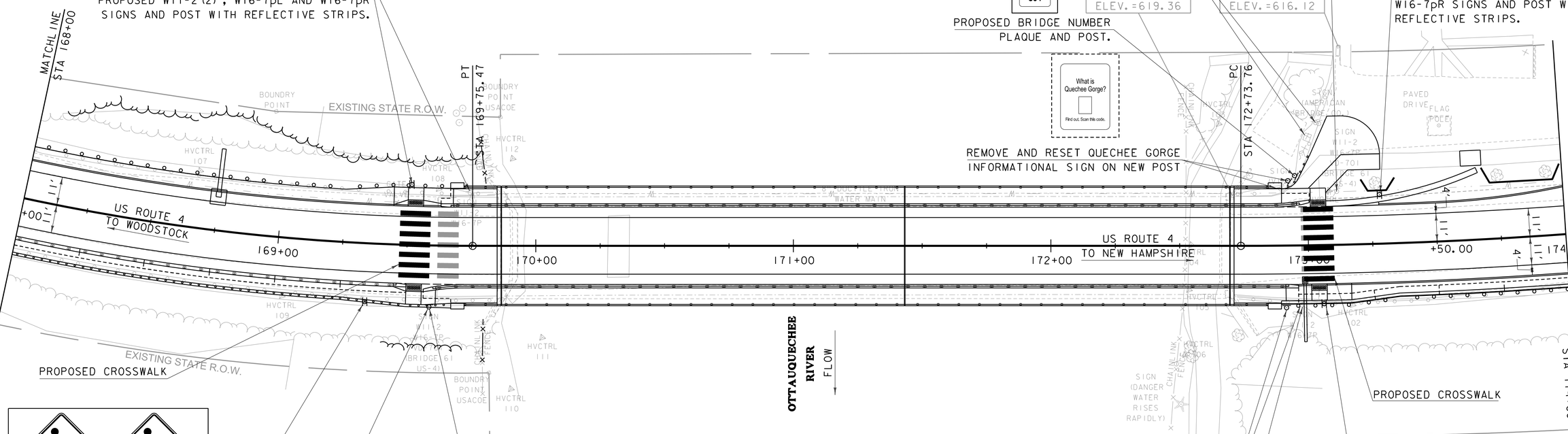
PROPOSED BRIDGE NUMBER PLAQUE AND POST.

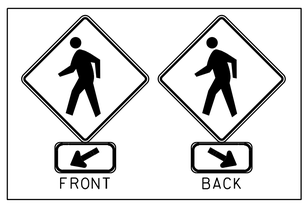
BM. #1463
VT SURVEY MARK
B94069
ELEV.=619.36

BM. #1624
VT SURVEY MARK
16SKS (RESET)
ELEV.=616.12

What is Quechee Gorge?
Find out. Scan this code.

REMOVE AND RESET QUECHEE GORGE INFORMATIONAL SIGN ON NEW POST



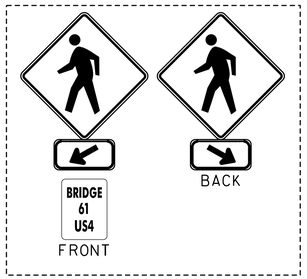


PROPOSED W11-2(2), W16-7pL, W16-7pR SIGNS AND POST WITH REFLECTIVE STRIPS.

BRIDGE 61 US4

PROPOSED BRIDGE NUMBER PLAQUE AND POST.

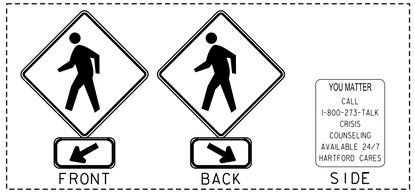
LEGEND
□ = PROPOSED SIGNS
⬚ = EXISTING SIGNS



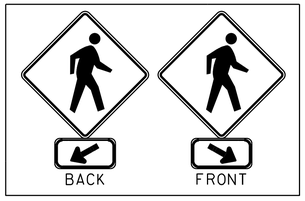
REMOVE W11-2(2), W16-7pL, W16-7pR, BRIDGE NUMBER PLAQUE AND POST WITH REFLECTIVE STRIPS.

YOU MATTER
CALL
1-800-273-TALK
CRISIS
COUNSELING
AVAILABLE 24/7
HARTFORD CARES

RESET "YOU MATTER" SIGN ON NEW POST.



REMOVE W11-2(2), W16-7pL, W16-7pR, AND "YOU MATTER" SIGN AND POST WITH REFLECTIVE STRIPS.



PROPOSED W11-2(2), W16-7pL, W16-7pR SIGNS AND POST WITH REFLECTIVE STRIPS.

LAYOUT 2
SCALE 1" = 20'-0"
20 0 20

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082border.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
TRAFFIC LINES & SIGNS LAYOUT 2

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: SBC
SHEET 31 OF 97

DURABLE 6 INCH WHITE LINE, POLYUREA
STA. 174+00.0 TO 176+51.0 LT (EDGE LINE)
STA. 174+00.0 TO 179+43.0 RT (EDGE LINE)
STA. 177+06.9 TO 179+43.0 LT (EDGE LINE)

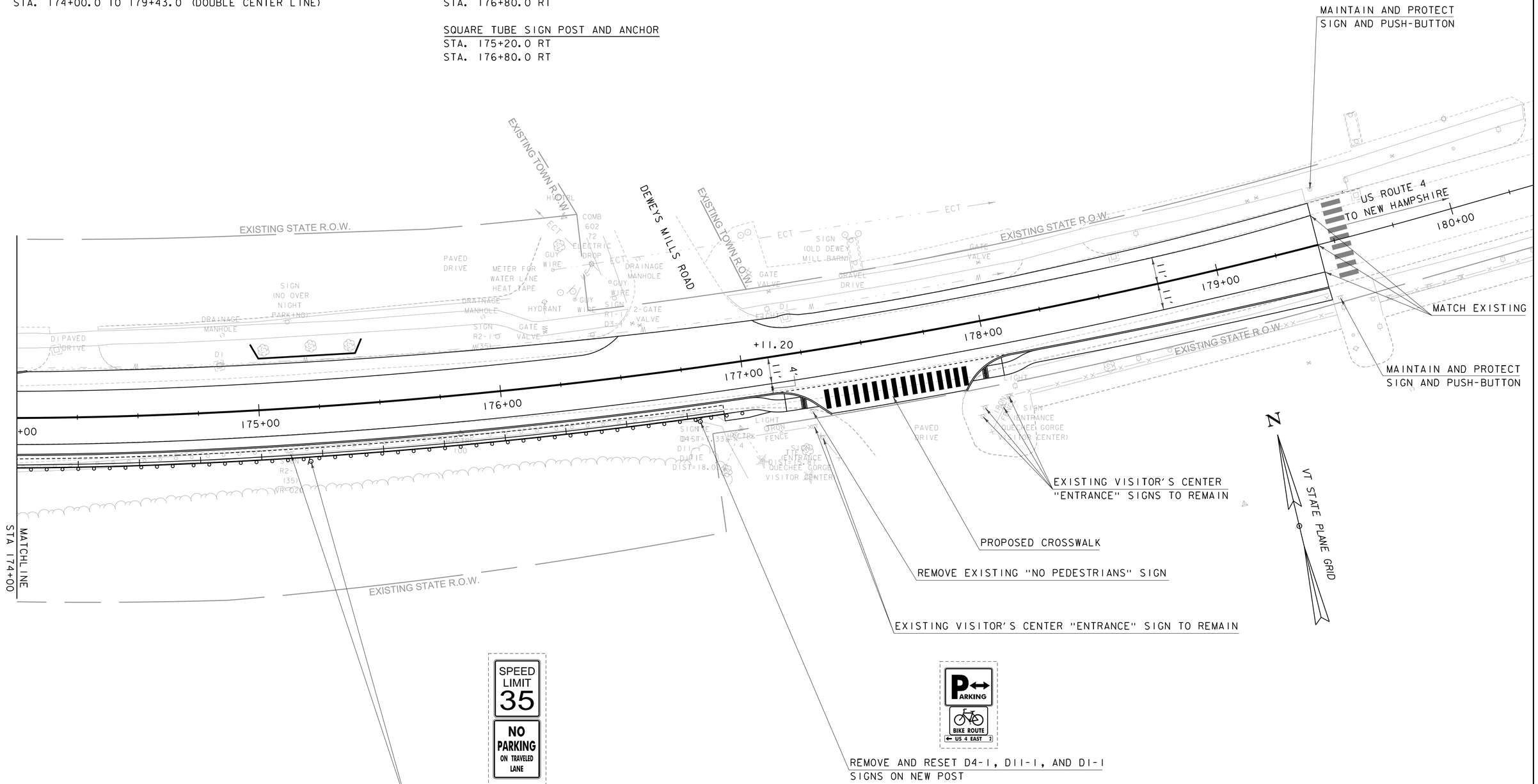
DURABLE 6 INCH YELLOW LINE, POLYUREA
STA. 174+00.0 TO 179+43.0 (DOUBLE CENTER LINE)

DURABLE CROSSWALK MARKING, POLYUREA
STA. 177+27.0 TO STA. 177+94.4 RT

REMOVING SIGNS
STA. 177+27.0 RT
STA. 175+12.0 RT
STA. 176+80.0 RT

SQUARE TUBE SIGN POST AND ANCHOR
STA. 175+20.0 RT
STA. 176+80.0 RT

RESETTING SIGNS
STA. 175+12.0 TO STA. 175+20.0 RT
STA. 176+80.0 RT



LEGEND

☐ = PROPOSED SIGNS

⬚ = EXISTING SIGNS

LAYOUT 3

SCALE 1" = 20'-0"
20 0 20

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: zl7b082border.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
TRAFFIC LINES & SIGNS LAYOUT 3

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: SBC
SHEET 32 OF 97

SOIL CLASSIFICATION

AASHTO	
A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.Q.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

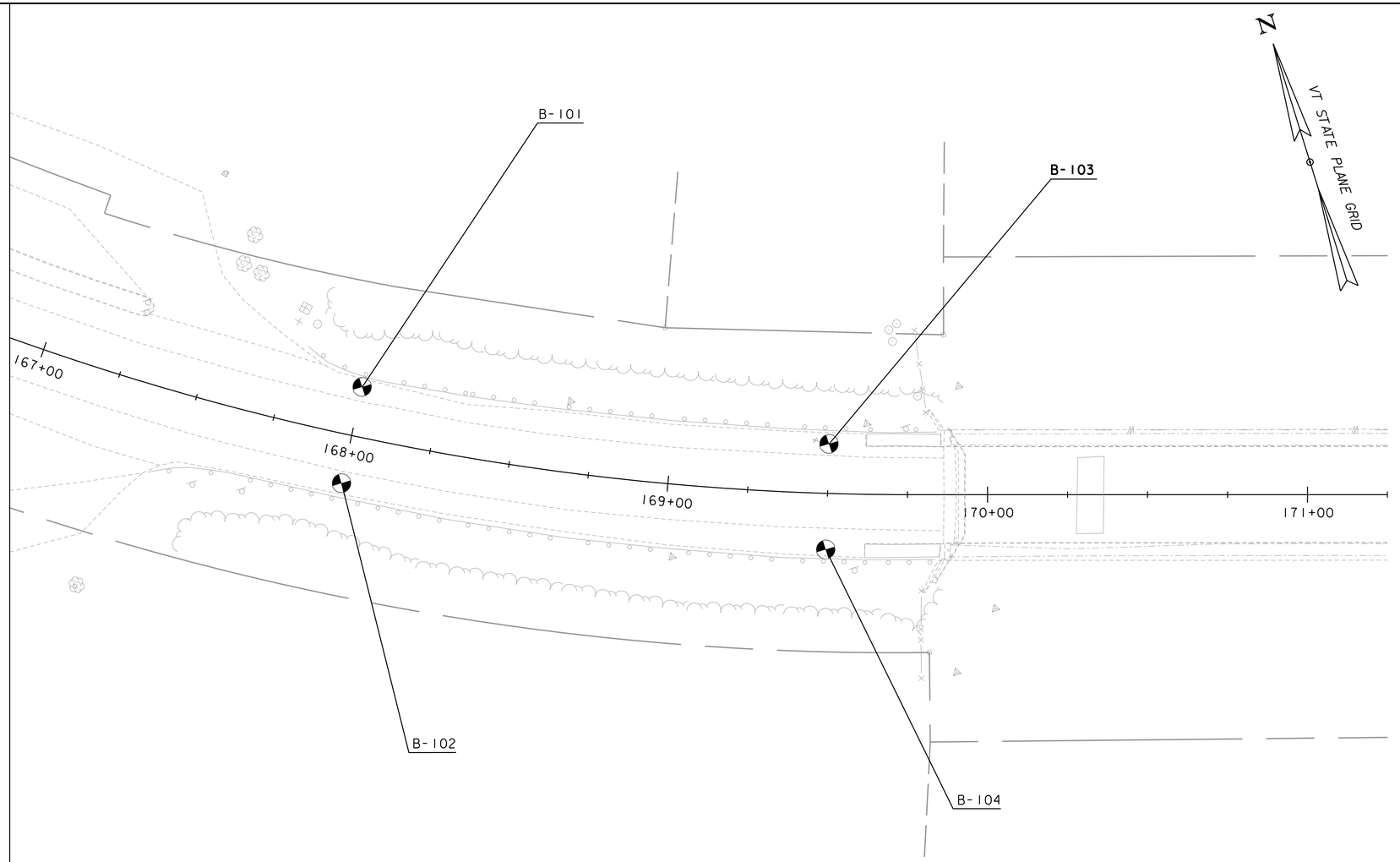
DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

▼	Water Elevation
⊗	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1 3/8" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	Top of Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

COLOR

blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		



BORING PLAN

SCALE 1" = 20'-0"

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).

SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).

SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

MUCK - Soft organic soil (containing > 10% organic material.

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

1. The subsurface explorations shown herein were made between December 6, 2019 and January 10, 2020 by the Vermont Agency of Transportation.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Vermont Agency of Transportation and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

GILL ENGINEERING

BORING CHART

HOLE NO.	STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-101	168+00.00	-15.52	618.6	591.6
B-102	168+00.01	15.24	620.0	595.0
B-103	169+49.98	-15.49	618.5	
B-104	169+49.96	17.52	619.2	600.7
B-105	173+25.08	16.44	618.5	593.4
B-106	174+99.82	12.31	619.5	
B-107	176+49.85	13.14	620.5	

PROJECT NAME: HARTFORD (QUECHEE)

PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17a082bor.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
BORING INFORMATION SHEET 1

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: PAH
SHEET 33 OF 97

SOIL CLASSIFICATION

	AASHTO
A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
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COMMONLY USED SYMBOLS

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US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
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%Rec.	Percent Recovery
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<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

COLOR			
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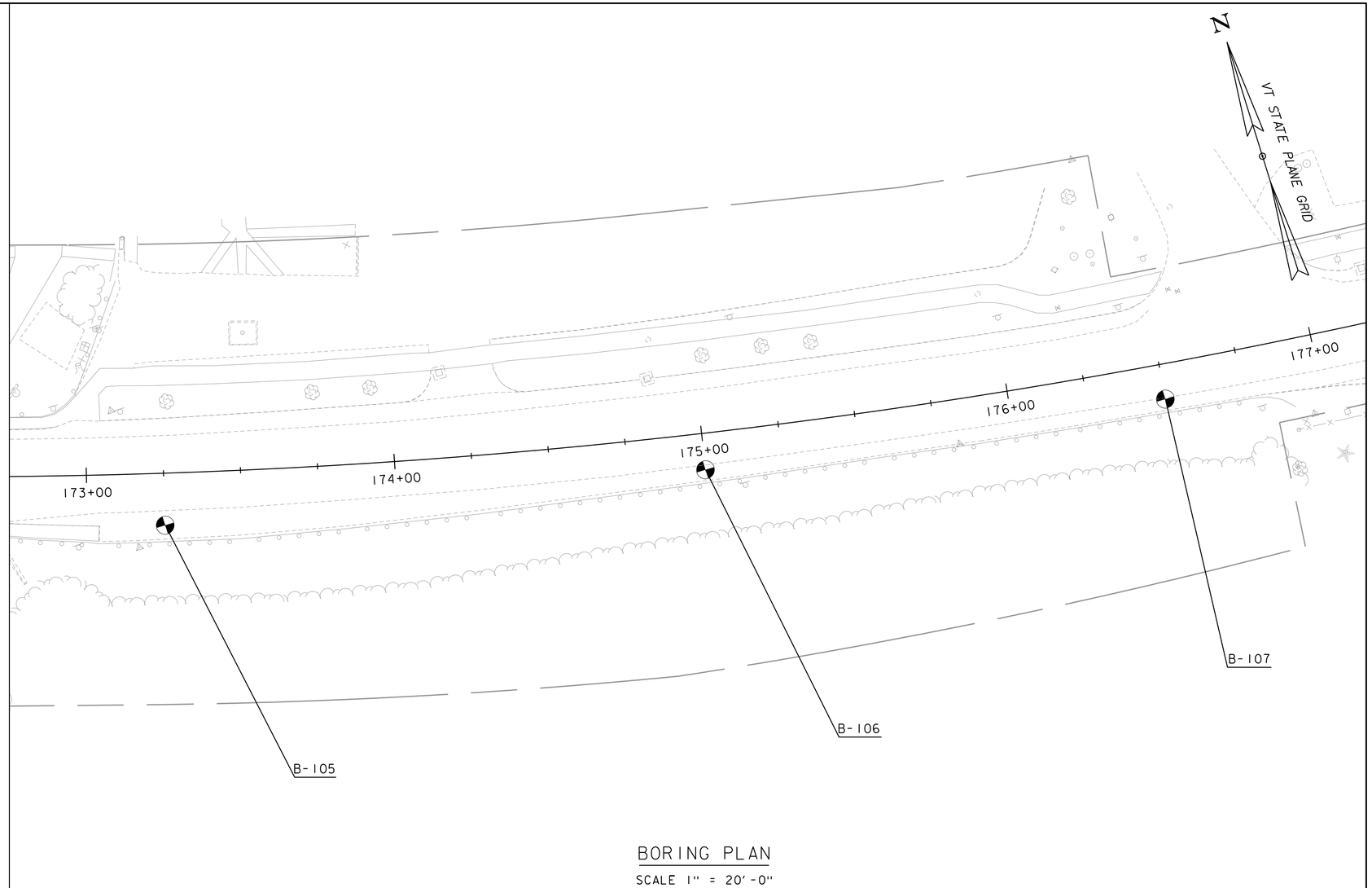
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		



BORING PLAN

SCALE 1" = 20'-0"

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7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

GILL ENGINEERING

BORING CHART

HOLE NO.	STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-101	168+00.00	-15.52	618.6	591.6
B-102	168+00.01	15.24	620.0	595.0
B-103	169+49.98	-15.49	618.5	
B-104	169+49.96	17.52	619.2	600.7
B-105	173+25.08	16.44	618.5	593.4
B-106	174+99.82	12.31	619.5	
B-107	176+49.85	13.14	620.5	

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: zl7a082bor.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
BORING INFORMATION SHEET 2

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: PAH
SHEET 34 OF 97

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Harford-Quechee
NH 020-2(45)
US 4 BR 61

Boring No.: **B101**
Page No.: 1 of 1
Pin No.: 17b082
Checked By: CME

Boring Crew: Gonyaw, Brochu, Hook
Date Started: 12/06/19 Date Finished: 12/09/19
VTSPG NAD83: N 414688.20 ft E 1664316.88 ft
Station: 168+00 Offset: -9.50
Ground Elevation: 618.6 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 55 TRACK	C_E = 1.52

Groundwater Observations

Date	Depth (ft)	Notes
12/09/19	19.0	WT before drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Asphalt 0.0' - 0.75'								
		A-1-b, SaGr, brn, MTW, Rec. = 0.9 ft				24-17-8-6 (25)	2.3	46.2	40.9	12.9
		GrSa, brn, Moist, Rec. = 0.4 ft, 3.0 ft - 3.4 ft, Split sample				5-5-5-5 (10)	10.6	62.7	27.6	9.7
		A-4, SaSi, brn, Moist, Rec. = 1.0 ft, Split sample					20.5	7.9	42.0	50.1
5		A-1-b, GrSa, brn, Moist, Rec. = 1.3 ft, Field Note: NXDC cleanout 6.1' - 7.0'				7-9-8-5 (17)	8.0	30.3	50.8	18.9
		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft, Field Note: NXDC cleanout 8.5' - 9.0'				2-1-2-1 (3)	16.4	26.6	60.2	13.2
10		A-1-b, GrSa, gray, Moist, Rec. = 0.3 ft, Field Note: Rock in end of sampler, NXDC cleanout 10.5' - 11.0'				1-3-1-4 (4)	15.0	41.9	50.8	7.3
		Rec. = 0.1 ft, 11.0 ft - 13.0 ft, Field Note: Rock in end of sampler, insufficient sample to test NXDC cleanout 12.4' - 13.0', Lost water return @ 11.7'				1-2-1-2 (3)	1.2			
		A-2-4, SiGrSa, gray, Moist, Rec. = 0.3 ft, Field Note: NXDC cleanout 16.4' - 17.0'				2-2-3-4 (5)	16.5	34.2	38.9	26.9
15		A-1-b, SaGr, gray, Moist, Rec. = 0.2 ft, Field Note: Rock in end of sampler, Advanced casing 17.3' - 17.8' w/ downpressure only, NXDC cleanout 12.4' - 13.0'				4-2-5-8 (7)	9.0	56.8	33.0	10.2
20		A-4, SaSi, brn, Moist, Rec. = 1.2 ft, Field Note: Water return @ 23.0', NXDC cleanout 24.2' - 25.0'				6-8-8-13 (16)	15.8	16.3	42.8	40.9
25										
30		27.0 ft - 32.0 ft, Gray, Calcareous SCHIST, Gray calcareous micaceous SCHIST with quartz and calcite veins. Joints are fresh and expose mica and sulfides. Medium hard, unweathered.. Medium hard, Unweathered, Good rock, NXMDC	R-1 (55)	100 (94)	11 4 5 5 5	Top of Bedrock @ 27.0 ft				
35		32.0 ft - 37.0 ft, Gray, Calcareous SCHIST, Gray calcareous micaceous SCHIST with quartz and calcite veins. Orange staining on joints. Hard, slightly weathered.. Hard, Slightly weathered, Good rock, NXMDC	R-2 (40)	100 (82)	5 4 5 5 5					
40		Hole stopped @ 37.0 ft								
		Remarks: Hole collapse 20.5'								

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG HARTFORD NH020-2(45).GPJ VERMONT AOT.GDT 2/11/20

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Harford-Quechee
NH 020-2(45)
US 4 BR 61

Boring No.: **B102**
Page No.: 1 of 1
Pin No.: 17b082
Checked By: CME

Boring Crew: Gonyaw, Brochu, Hook
Date Started: 12/18/19 Date Finished: 12/23/19
VTSPG NAD83: N 414668.92 ft E 1664308.29 ft
Station: 168+00 Offset: 15.20
Ground Elevation: 620.0 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_E = 1.56

Groundwater Observations

Date	Depth (ft)	Notes
12/23/19	10.0	WT before drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, 0.0' - 1.80' Asphalt					
		A-1-b, GrSa, brn, Moist, Rec. = 1.0 ft	38-27-12-11 (39)	10.1	24.6	59.0	16.4
		A-2-4, GrSa, brn, Moist, Rec. = 1.2 ft	8-9-10-12 (19)	13.3	20.2	61.6	18.2
5		A-1-b, GrSa, brn, Moist, Rec. = 1.3 ft	8-9-7-7 (16)	11.8	23.8	66.1	10.1
		A-1-b, Sa, brn, Moist, Rec. = 0.3 ft, Field Note: Rollercone Cleanout 8.1' - 9.0'	9-8-6-6 (14)	6.6	10.1	72.7	17.2
10		A-2-4, GrSa, brn, MTW, Rec. = 0.6 ft, Field Note: Open hole Rollercone 9.0' - 11.0'	3-2-2-2 (4)	19.6	20.8	60.7	18.5
		A-1-b, GrSa, brn, MTW, Rec. = 0.5 ft, Field Note: Rollercone Cleanout 12.5' - 13.0'	5-2-2-2 (4)	15.0	31.1	57.9	11.0
		A-2-4, Sa, brn, Wet, Rec. = 0.4 ft, Field Note: Rollercone Cleanout 14.3' - 15.0'	2-1-2-2 (3)	19.9	18.8	66.8	14.4
15		Field Note:, No Recovery, Rec. = 0.0 ft, Rollercone Cleanout 19.2' - 20.0'					
20		A-4, SaSi, brn, Moist, Rec. = 1.5 ft	5-7-7-12 (14)	18.8	4.2	48.8	47.0
		Field Note:, Rec. = 0.0 ft, NXDC Cleanout 23.1' - 25.0', Refusal at 25.0'Field Note:	R @ 25.0'				
25		Hole stopped @ 25.0 ft — Top of Bedrock @ 25.0 ft					
		Remarks: Hole collapse 20.5'					

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG HARTFORD NH020-2(45).GPJ VERMONT AOT.GDT 2/11/20

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082bor.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
BORING LOGS I

PLOT DATE: 7/6/2022
DRAWN BY: DJD
CHECKED BY: PAH

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Harford-Quechee
NH 020-2(45)
US 4 BR 61

Boring No.: **B103**
Page No.: 1 of 1
Pin No.: 17b082
Checked By: CME

Boring Crew: Gonyaw, Brochu, Hook
Date Started: 12/13/19 Date Finished: 12/16/19
VTSPG NAD83: N 414623.89 ft E 1664453.61 ft
Station: 169+50 Offset: -9.30
Ground Elevation: 618.5 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_E = 1.56

Groundwater Observations

Date	Depth (ft)	Notes
12/16/19	13.6	WT before drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Asphalt 0.0' - 0.8'								
		A-1-b, GrSa, brn, Moist, Rec. = 1.3 ft				4-6-5-5 (11)	11.1	25.2	55.4	19.4
		A-1-b, GrSa, brn, Moist, Rec. = 0.5 ft, Field Note: NXDC Cleanout 4.1' - 5.0'				6-11-47-12 (58)	7.8	54.2	36.8	9.0
5		A-1-b, SaGr, brn, Moist, Rec. = 0.2 ft, Field Note: NXDC Cleanout 6.6' - 7.0'				4-3-2-1 (5)	11.9	56.8	34.1	9.1
		A-1-b, SaGr, brn, MTW, Rec. = 0.2 ft, Field Note: NXDC Cleanout 8.5' - 9.0'				3-3-6-9 (9)	10.3	64.4	29.6	6.0
		A-1-b, SaGr, brn, Moist, Rec. = 0.4 ft, Split Sample				12-9-18-22 (27)	6.9	49.5	36.0	14.5
10		A-2-4, GrSa, brn, Moist, Rec. = 0.5 ft, Field Note: NXDC Cleanout 10.7' - 11.0'					19.0	20.2	59.8	20.0
		A-2-4, GrSiSa, brn, Moist, Rec. = 0.5 ft, Field Note: NXDC Cleanout 11.7' - 13.0', Refusal at 11.5'				50-R@11.5'	17.4	20.5	56.3	23.2
		A-2-4, SiSa, brn, Moist, Rec. = 0.3 ft, Field Note: NXDC Cleanout 13.8' - 15.0', Refusal at 13.3'				R@13.3'	15.4	18.7	53.0	28.3
15		A-1-b, SaGr, gray, Moist, Rec. = 0.2 ft, Field Note: Refusal at 15.2' Field Note:, NXDC Cleanout 15.0 - 17.0', 10 Blows no movement				R@15.2' R@17.0'	8.9	65.5	23.7	10.8
		17.0 ft - 22.0 ft, Gray, Sulfidic SCHIST, Gray sulfidic micaceous SCHIST with mottled quartz veins. Brown/rusty staining on joints. Medium hard, slightly weathered.. Medium hard, Slightly weathered, Fair rock, NXMDC	R-1 (60)	4.2 (62)	5 4 4 5 4					
20										
		22.0 ft - 27.0 ft, Gray, Sulfidic SCHIST, Gray sulfidic micaceous SCHIST with calcareous and quartz rich veins. Yellow-orange staining on joints. Medium hard, very slightly weathered.. Medium hard, Very slightly weathered, Fair rock, NXMDC	R-2 (75)	4.8 (78)	4 5 7 7 7					
25										
		Hole stopped @ 27.0 ft								

Remarks:
Hole collapse 16.6'

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG HARTFORD NH020-2(45).GPJ VERMONT AOT.GDT 2/11/20

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Harford-Quechee
NH 020-2(45)
US 4 BR 61

Boring No.: **B104**
Page No.: 1 of 1
Pin No.: 17b082
Checked By: CME

Boring Crew: Gonyaw, Hook
Date Started: 1/02/20 Date Finished: 1/03/20
VTSPG NAD83: N 414600.29 ft E 1664446.74 ft
Station: 169+50 Offset: 17.50
Ground Elevation: 619.2 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_E = 1.56

Groundwater Observations

Date	Depth (ft)	Notes
01/03/20	16.5	WT before drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Asphalt 0.0' - 0.9'					
2.5		A-1-b, Sa, brn, Moist, Rec. = 1.1 ft	8-6-4-4 (10)		15.9	73.4	10.7
		A-1-b, GrSa, brn, Moist, Rec. = 0.5 ft	2-2-2-2 (4)		20.2	74.7	5.1
5.0		A-1-b, GrSa, brn, Moist, Rec. = 1.0 ft, Field Note: Rollercone Cleanout 6.2' - 7.0'	2-2-6-5 (8)		22.6	68.0	9.4
7.5		A-1-b, GrSa, brn, Moist, Rec. = 0.5 ft	4-3-12-19 (15)		41.8	45.7	12.5
		A-1-b, SiGr, gray, Moist, Rec. = 0.1 ft, Field Note: NXDC Cleanout 8.0' - 9.0'					
10.0		A-4, SaSi, brn, Moist, Rec. = 0.6 ft, Field Note: NXDC Cleanout 10.5' - 11.0'	5-1-1-2 (2)		10.4	43.1	46.5
12.5		A-1-b, SiGrSa, brn, Moist, Rec. = 0.3 ft, Field Note: NXDC Cleanout 12.2' - 13.0'	5-4-4-15 (8)		36.4	39.9	23.7
		A-1-b, SiGrSa, brn, Moist, Rec. = 0.6 ft, Field Note: Refusal at 13.7', 50 blows, NXDC Cleanout 14.0' - 15.0'	28-R @ 13.7"		32.1	44.9	23.0
15.0		Field Note:, No Recovery, Refusal at 15.0', 10 Blows no movement	R @ 15.0'				
17.5		Field Note:, Cobbles & Boulders 13.7' - 18.5', Bedrock appears to be at 18.5'					
		Hole stopped @ 18.5 ft	Top of Bedrock @ 18.5 ft				
20.0							

Remarks:
Hole collapse 16.0'

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG HARTFORD NH020-2(45).GPJ VERMONT AOT.GDT 2/11/20

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082bor.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
BORING LOGS 2

PLOT DATE: 7/6/2022
DRAWN BY: DJD
CHECKED BY: PAH

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Harford-Quechee
NH 020-2(45)
US 4 BR 61

Boring No.: **B105**
Page No.: 1 of 1
Pin No.: 17b082
Checked By: CME

Boring Crew: Gonyaw, Hook, Brochu
Date Started: 1/07/20 Date Finished: 1/08/20
VTSPG NAD83: N 414484.84 ft E 1664800.52 ft
Station: 173+25 Offset: 18.00
Ground Elevation: 618.5 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_E = 1.56

Groundwater Observations

Date	Depth (ft)	Notes
01/08/20	25.1	WT before drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Asphalt 0.0' - 0.8'					
		A-4, GrSa, brn, Moist, Rec. = 1.0 ft, Field Note: NXDC Cleanout 2.4' - 3.0'	30-29-13-7 (42)				
5		Field Note:, No Recovery, NXDC Cleanout 4.5' - 5.0'	3-2-2-1 (4)				
		Field Note:, No Recovery, Rock in end of sampler NXDC Cleanout 6.6' -7.0'	2-1-2-2 (3)				
		A-4, GrSi, brn, Moist, Rec. = 0.6 ft	2-2-1-2 (3)				
10		Field Note:, No Recovery					
		A-4, GrSi, brn, Moist, Rec. = 0.8 ft, Field Note: NXDC Cleanout 12.6' - 13.0	3-2-2-2 (4)				
		Field Note:, No Recovery	2-1-1-1 (2)				
15		Field Note:, No Recovery	2-1-2-1 (3)				
		A-4, GrSi, brn, Moist, Rec. = 0.2 ft	2-1-2-1 (3)				
20		Field Note:, No Recovery, NXDC Cleanout 24.2' - 25.0' Refusal at 25.1', 10 blows no movemnet	R @ 25.1'				
25		Hole stopped @ 25.1 ft — Top of Bedrock @ 25.1 ft					

Remarks:
Hole collapse 25.0'

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG HARTFORD NH020-2(45).GPJ VERMONT AOT.GDT 2/11/20

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Harford-Quechee
NH 020-2(45)
US 4 BR 61

Boring No.: **B106**
Page No.: 1 of 1
Pin No.: 17b082
Checked By: CME

Boring Crew: Gonyaw, Hook, Brochu
Date Started: 1/08/20 Date Finished: 1/08/20
VTSPG NAD83: N 414450.81 ft E 1664972.85 ft
Station: 175+00 Offset: 14.30
Ground Elevation: 619.5 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_E = 1.56

Groundwater Observations

Date	Depth (ft)	Notes
01/08/20	11.6	WT during drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Asphalt 0.0' - 0.4'					
		A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft	11-16-17-10 (33)		21.7	63.3	15.0
		A-1-b, Sa, brn, MTW, Rec. = 0.4 ft	7-8-8-6 (16)		15.4	77.8	6.8
5		A-1-b, GrSa, brn, MTW, Rec. = 0.6 ft, Field Note: Rollercone Cleanout 6.1' - 7.0'	7-7-6-8 (13)		22.7	71.0	6.3
		A-2-4, Sa, brn, MTW, Rec. = 1.1 ft, Field Note: Rollercone Cleanout 8.6' - 9.0'	6-7-4-7 (11)		11.8	73.1	15.1
10		A-1-b, Sa, brn, MTW, Rec. = 1.2 ft, Field Note: Rollercone Cleanout 10.5' - 11.0'	6-7-9-8 (16)		15.8	70.8	13.4
		A-2-4, Sa, brn, MTW, Rec. = 0.6 ft, Field Note: Rollercone Cleanout 12.6' - 13.0'	6-4-2-2 (6)		20.0	63.5	16.5
		Field Note:, No Recovery, Rollercone Cleanout 14.5' - 25.0'	1-1-2-1 (3)				
15		A-1-b, GrSa, brn, MTW, Rec. = 0.5 ft, Field Note: Rollercone Cleanout 19.2' - 20.0'	1-2-1-1 (3)		23.2	66.3	10.5
20		No Recovery, 20.0 ft - 25.0 ft, Rollercone Cleanout 24.3' - 25.0'	2-2-2-2 (4)				
25		A-1-b, GrSa, brn, Moist, Rec. = 0.2 ft	5-3-2-3 (5)		31.8	57.7	10.5
		Hole stopped @ 27.0 ft					

Remarks:
Hole collapse 20.7'

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG HARTFORD NH020-2(45).GPJ VERMONT AOT.GDT 2/11/20

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082bor.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
BORING LOGS 3

PLOT DATE: 7/6/2022
DRAWN BY: DJD
CHECKED BY: PAH

STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Harford-Quechee
NH 020-2(45)
US 4 BR 61

Boring No.: **B107**
Page No.: 1 of 1
Pin No.: 17b082
Checked By: CME

Boring Crew: Brochu, Whitlock, Judkins
Date Started: 1/10/20 Date Finished: 1/10/20
VTSPG NAD83: N 414428.02 ft E 1665122.11 ft
Station: 176+51 Offset: 12.00
Ground Elevation: 620.5 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	C_E = 1.56

Groundwater Observations

Date	Depth (ft)	Notes
01/10/20	8.2	WT after drilling

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Asphalt 0.0' - 0.68'					
		Field Note:, Concrete 0.68' - 1.26'					
		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft, Field Note: Rollercone Cleanout 2.4' - 3.0'	42-45-13-R (58)		28.1	54.2	17.7
		A-2-4, Sa, brn, Moist, Rec. = 1.0 ft, Field Note: Rollercone Cleanout 4.4' - 5.0'	5-8-13-10 (21)		13.2	71.4	15.4
5		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft, Field Note: Rollercone Cleanout 6.1' - 7.0'	7-9-11-8 (20)		25.6	63.8	10.6
		A-2-4, GrSi, brn, Moist, Rec. = 0.7 ft, Field Note: Rollercone Cleanout 8.5' - 9.0'	8-8-5-5 (13)		27.2	60.4	12.4
10		Field Note:, No Recovery, Rec. = 0.0 ft, Rollercone Cleanout 10.5' - 11.0'	2-3-2-1 (5)				
		A-3, Sa, brn, MTW, Rec. = 0.6 ft, Field Note: Rollercone Cleanout 12.5' - 13.0'	1-2-1-2 (3)		10.0	80.4	9.6
		A-2-4, Sa, brn, MTW, Rec. = 0.6 ft, Field Note: Rollercone Cleanout 14.5' - 15.0'	1-2-2-2 (4)		15.1	65.5	19.4
15		A-2-4, Sa, brn, Moist, Rec. = 0.8 ft, Field Note: Rollercone Cleanout 19.4' - 20.0'	2-4-7-5 (11)		16.5	66.3	17.2
20		A-2-4, Sa, brn, Moist, Rec. = 0.8 ft, Field Note: Rollercone Cleanout 24.6' - 25.0'	8-10-8-8 (18)		5.1	80.9	14.0
25		Field Note:, No Recovery, Rec. = 0.0 ft	9-11-10-11 (21)				
		Hole stopped @ 27.0 ft					

Remarks:
Hole collapse 22.8'

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

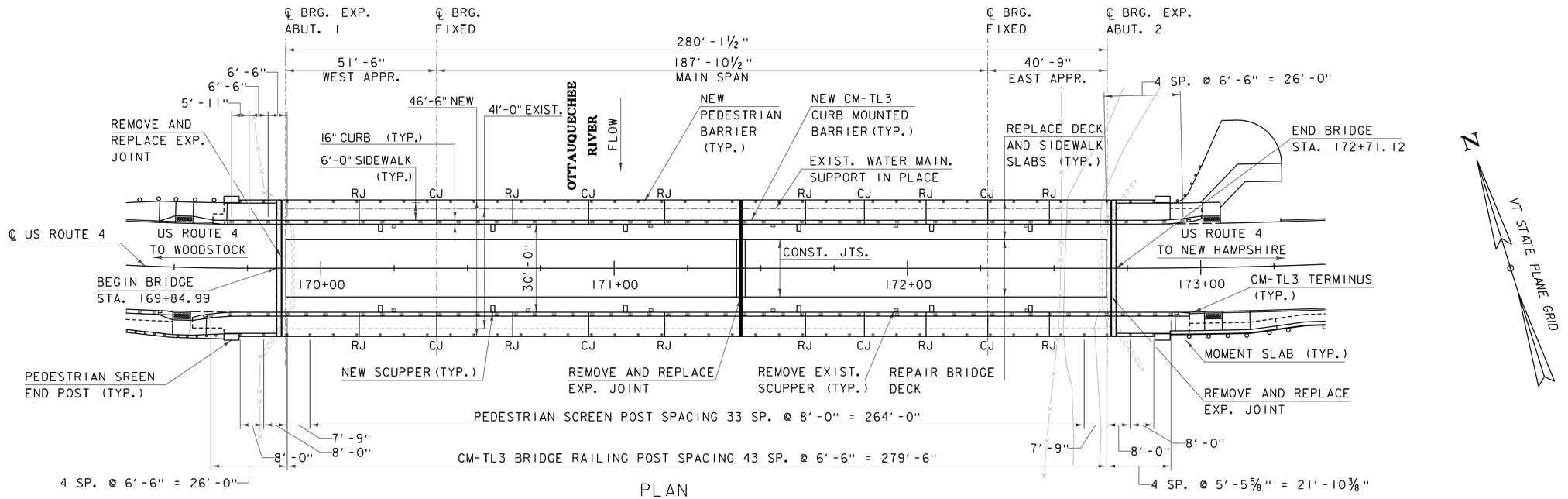
BORING LOG HARTFORD NH020-2(45).GPJ VERMONT AOT.GDT 2/11/20

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

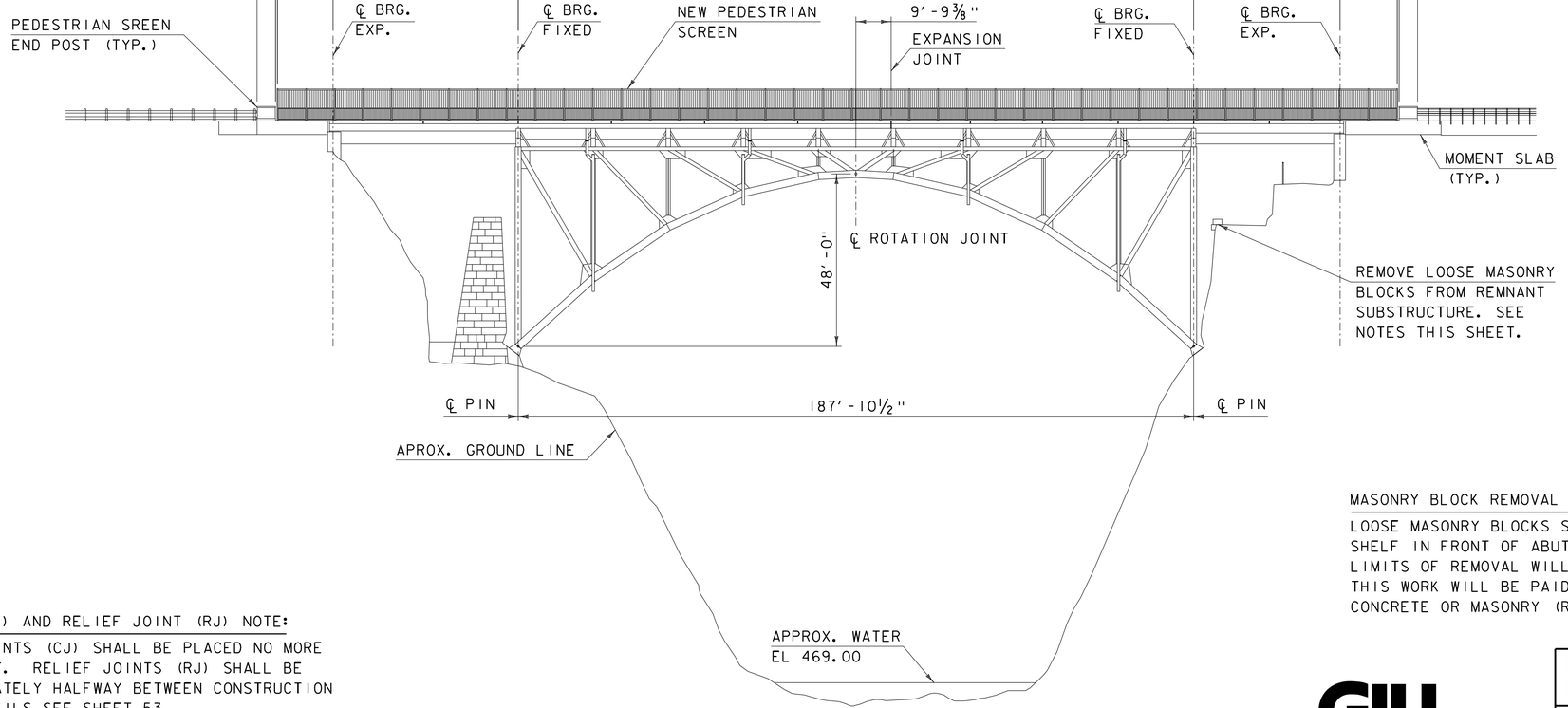
FILE NAME: z17b082bor.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
BORING LOGS 4

PLOT DATE: 7/6/2022
DRAWN BY: DJD
CHECKED BY: PAH



PLAN

SCALE 1" = 20′-0"



ELEVATION

SCALE 1" = 20′-0"

CONSTRUCTION (CJ) AND RELIEF JOINT (RJ) NOTE:

CONSTRUCTION JOINTS (CJ) SHALL BE PLACED NO MORE THAN 50 FT APART. RELIEF JOINTS (RJ) SHALL BE PLACED APPROXIMATELY HALFWAY BETWEEN CONSTRUCTION JOINTS. FOR DETAILS SEE SHEET 53.

MASONRY BLOCK REMOVAL NOTES:

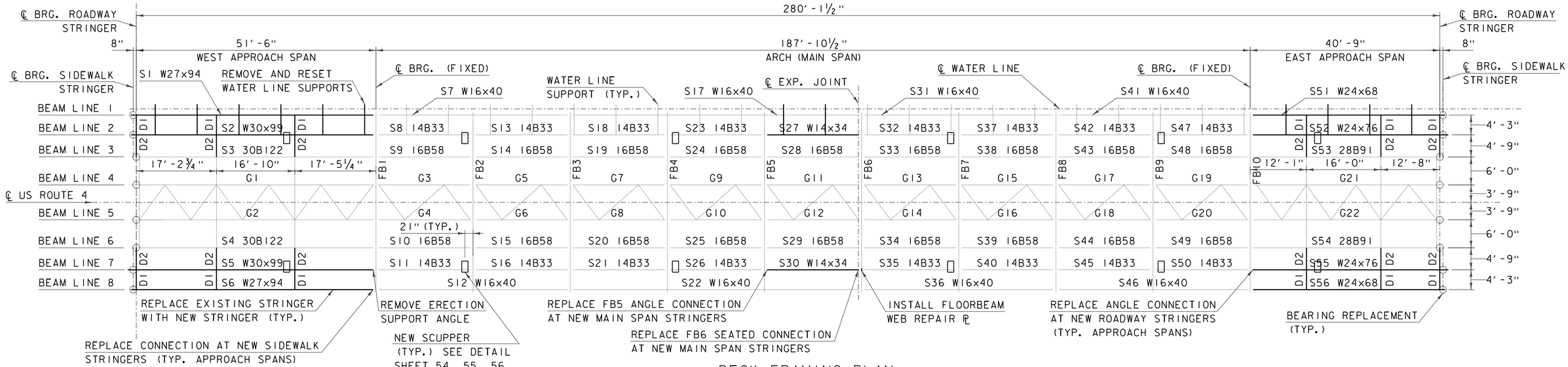
LOOSE MASONRY BLOCKS SHALL BE REMOVED FROM THE ROCK SHELF IN FRONT OF ABUTMENT 2 ABOVE THE ARCH SUPPORT. LIMITS OF REMOVAL WILL BE CONFIRMED IN THE FIELD. THIS WORK WILL BE PAID UNDER ITEM 529.25 REMOVAL OF CONCRETE OR MASONRY (ROCK SHELF).

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: zl7b082pe.dgn
PROJECT LEADER: AMS
DESIGNED BY: FB
PLAN AND ELEVATION

PLOT DATE: 7/6/2022
DRAWN BY: YS
CHECKED BY: PAH
SHEET 39 OF 97

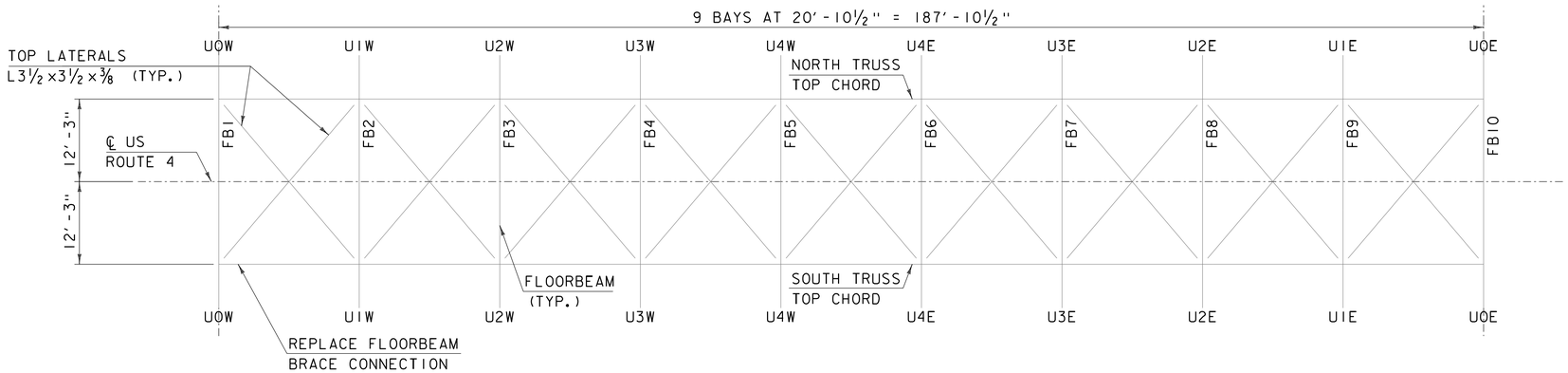


DECK FRAMING PLAN

SCALE 3/32 " = 1′-0"

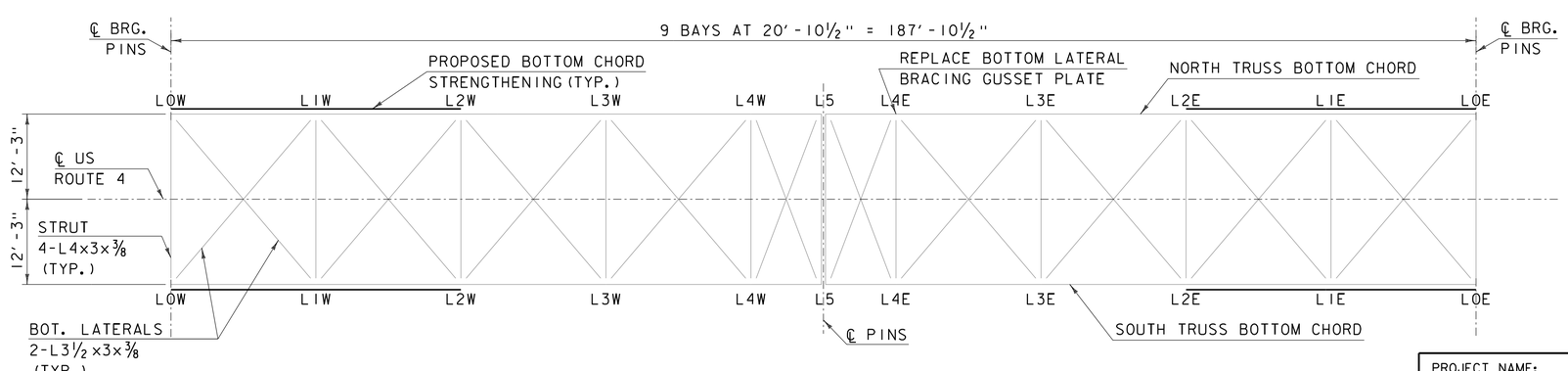
NOTE:

APPRACH SPAN DIAPHRAGMS D1 & D2 ARE C12x20.7.



TOP CHORD BRACING PLAN

SCALE 3/32 " = 1′-0"



BOTTOM CHORD BRACING PLAN

SCALE 3/32 " = 1′-0"

NOTE:

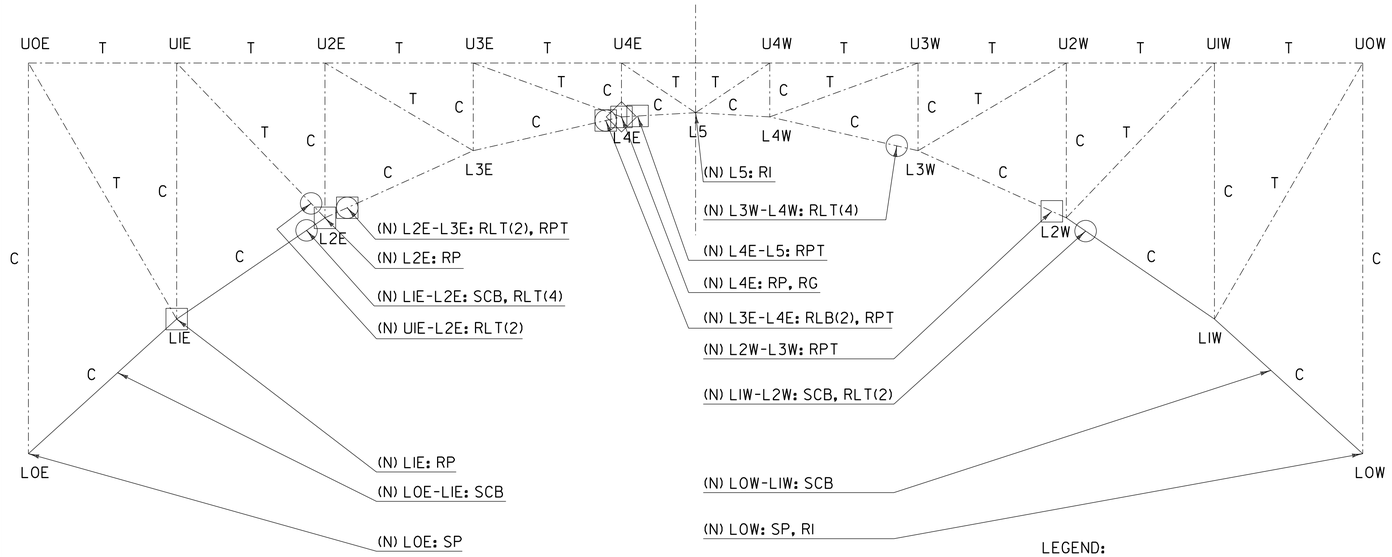
MEMBERS RENUMBERED FROM RECORD PLANS FOR CONSISTENCY.

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

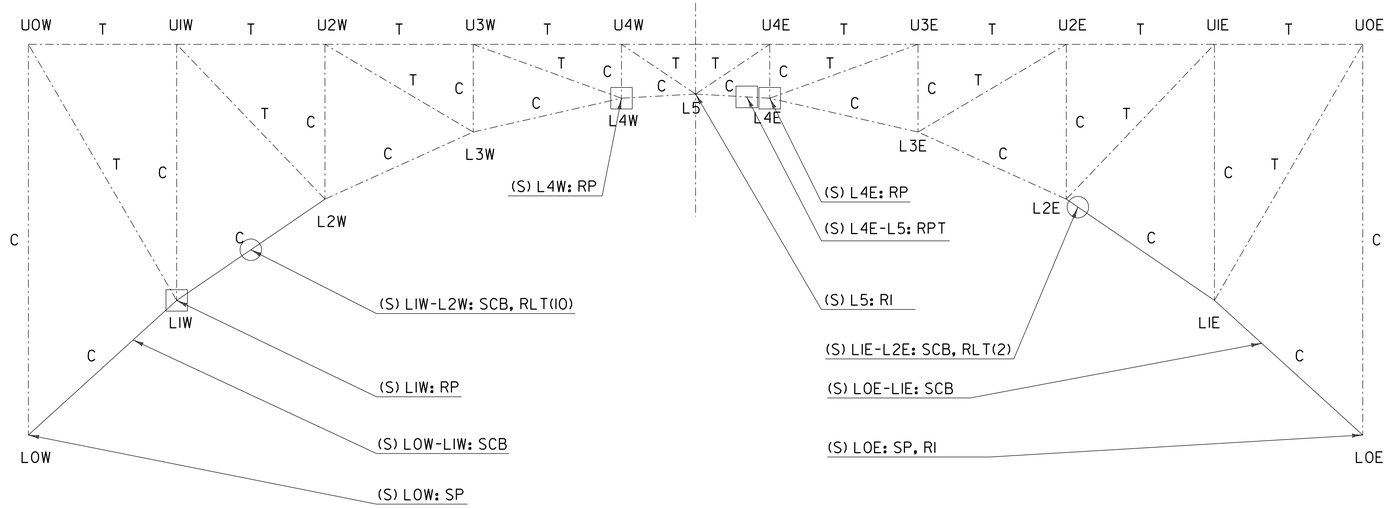
FILE NAME: z17b082sup.dgn
PROJECT LEADER: AMS
DESIGNED BY: FB
FRAMING PLAN

PLOT DATE: 7/6/2022
DRAWN BY: DJD
CHECKED BY: PAH



NORTH TRUSS REPAIRS

LEGEND:
- TIE PLATE REPAIR LOCATION
- LACING REPAIR LOCATION
- GUSSET PLATE REPAIR LOCATION



SOUTH TRUSS REPAIRS

BOLT AND RIVET SYMBOL LEGEND:
- EXISTING RIVET TO REMAIN
- H.S. BOLT TO REPLACE EXISTING RIVET
- NEW H.S. BOLT

TRUSS REPAIR LEGEND:
(X) XXX: XX = (N/S TRUSS) NODE: REPAIR CODE
(X) XXX-XXX: XXX = (N/S TRUSS) MEMBER: REPAIR CODE
C = COMPRESSION MEMBER
T = TENSION MEMBER

TRUSS NODE REPAIR CODES
- RP: REPLACE TOP TIE PLATE
- RG: REPLACE BOTTOM GUSSET PLATE
- RI: REMOVE IMPACTED RUST
- SP: STRENGTHEN PIN PLATE
- SEE SHEETS 47, 49, 50 & 52 FOR DETAILS

TRUSS MEMBER REPAIR CODES
- RLT(#): REPLACE LACING, TOP (QUANTITY OF BARS)
- RLB(#): REPLACE LACING, BOTTOM (QUANTITY OF BARS)
- RPT: REPLACE TIE PLATE, TOP
- RPB: REPLACE TIE PLATE, BOTTOM
- SCB: STRENGTHEN CHORD, BOTTOM
- SEE SHEETS 46, 48 & 51 FOR DETAILS

STRUCTURAL STEEL REPAIRS:

1. STRUCTURAL STEEL REPAIRS FOR EACH TRUSS AND BRACING SHALL BE PERFORMED DURING THE ASSOCIATED CONSTRUCTION STAGE AS STATED IN THE STAGED CONSTRUCTION NOTES ON SHEET 25.

2. TRUSS AND BRACING STRUCTURAL STEEL REPAIRS ARE IDENTIFIED AS FOLLOWS:

2.1 BOTTOM CHORD LACING AND DIAGONAL LACING
SOUTH TRUSS:
LIE-L2E TOP LACING REPLACE 2 BROKEN LACING BARS NEAR L2E, RLT(4)
LIW-L2W TOP LACING REPLACE SERIES OF 10 MISSING AND DETERIORATED LACING BARS NEAR THE SCUPPER DOWN SPOUT, RLT(10). REMOVE EXISTING BOLTED CHANNEL FLANGE COVER PLATE. IF THE CHANNEL FLANGE IS DETERIORATED NOTIFY THE ENGINEER BEFORE PROCEEDING WITH LACING REPAIRS.

NORTH TRUSS:
LIE-L2E TOP LACING REPLACE 4 BROKEN LACING BARS NEAR L2E, RLT(4)
UIE-L2E TOP LACING REPLACE 2 DETERIORATED LACING BARS NEAR L2E, RLT(2)
L2E-L3E TOP LACING REPLACE 2 BROKEN LACING BARS NEAR L2E, RLT(2)
L3E-L4E BOTTOM LACING REPLACE 2 BROKEN LACING BARS NEAR L4E, RLB(2)
LIW-L2W TOP LACING REPLACE 2 DETERIORATED LACING BARS NEAR L2W, RLT(2)
L3W-L4W TOP LACING REPLACE 4 DETERIORATED LACING BARS NEAR L3W, RLT(4)

2.2 BOTTOM CHORD TIE PLATES ADJACENT TO TRUSS NODE GUSSET PLATES, RPT
SOUTH TRUSS:
L4E-L5 AT L4E REPLACE TOP TIE PLATE

NORTH TRUSS:
L2E-L3E AT L2E REPLACE TOP TIE PLATE
L3E-L4E AT L4E REPLACE TOP TIE PLATE
L4E-L5 AT L4E REPLACE TOP TIE PLATE
L2W-L3W AT L2W REPLACE TOP TIE PLATE

2.3 BOTTOM CHORD EXTERIOR CHANNEL TOP FLANGE TIE PLATES AT TRUSS NODES, RP
SOUTH TRUSS:
LIW REPLACE TOP FLANGE TIE PLATE
L4W REPLACE TOP FLANGE TIE PLATE
L4E REPLACE TOP FLANGE TIE PLATE

NORTH TRUSS:
LIE REPLACE TOP FLANGE TIE PLATE
L2E REPLACE TOP FLANGE TIE PLATE
L4E REPLACE TOP FLANGE TIE PLATE

2.4 NORTH TRUSS REPLACE BOTTOM LATERAL BRACING GUSSET PLATE AT L4E, RG

2.5 PIN PLATE IMPACTED RUST REMOVAL, RI
SOUTH TRUSS:
LOE REMOVE PACK RUST FROM PIN PLATES AND REALIGN PLATES
L5 REMOVE PACK RUST FROM PIN PLATES AND REALIGN PLATES

NORTH TRUSS:
L5 REMOVE PACK RUST FROM PIN PLATES AND REALIGN PLATES
LOW REMOVE PACK RUST FROM PIN PLATES AND REALIGN PLATES

2.6 BOTTOM CHORD STRENGTHENING AND PIN PLATE STRENGTHENING NORTH AND SOUTH TRUSSES, SCB.

2.7 SWAY BRACING BETWEEN TRUSSES
LOE BOTTOM CHORD LATERAL BRACING BETWEEN NORTH AND SOUTH TRUSSES LACING IS SEVERELY DAMAGED FROM FALLING SHALE. REMOVE SHALE DEBRIS AND REPLACE LACING FULL LENGTH OF BRACE, RLT.

LIW BOTTOM CHORD LATERAL BRACING BETWEEN NORTH AND SOUTH TRUSSES BOTTOM ANGLES HAVE SEVERE DETERIORATION WITH 4 DETERIORATED LACING BARS. REPLACE BOTTOM ANGLES AND LACING BARS, RLT(4).

3. TRUSS REPAIRS SHALL BE PERFORMED IN THE FOLLOWING SEQUENCE.

3.1 BOTTOM CHORD AND DIAGONAL LACING REPAIRS: FOR EACH TRUSS CHORD LACING REPAIRS SHALL BE COMPLETED FIRST. LIMITS OF LACING REMOVAL SHALL BE AS NOTED ON THE LACING REPAIR DETAILS. ONLY ONE SECTION OF LACING SHALL BE PERMITTED TO BE REMOVED ON A CHORD MEMBER AT A TIME, WHERE AN INDIVIDUAL CHORD MEMBER IS A SEGMENT BETWEEN TRUSS NODES I.E. SOUTH TRUSS LIW TO L2W. FOR CHORD MEMBERS WITH MULTIPLE LACING SECTIONS TO BE REPAIRED, ONE SECTION SHALL BE REPAIRED TO COMPLETION BEFORE THE NEXT SECTION MAY BE REMOVED.

3.2 BOTTOM CHORD TIE PLATE REPAIRS: FOR EACH TRUSS CHORD MEMBER TIE PLATE REPAIRS SHALL BE COMPLETED NEAR EACH TRUSS NODE AFTER THE LACING REPAIRS ARE COMPLETED FOR THAT CHORD MEMBER.

3.3 BOTTOM CHORD EXTERIOR CHANNEL TOP FLANGE TIE PLATES AT TRUSS NODES: PERFORM TRUSS CHORD EXTERIOR CHANNEL TOP FLANGE TIE PLATE REPAIRS AFTER TRUSS CHORD TIE PLATE REPAIRS ARE COMPLETED.

3.4 NORTH TRUSS BOTTOM LATERAL BRACING GUSSET PLATE AT L4E SHALL BE REPLACED AFTER THE BOTTOM CHORD EXTERIOR CHANNEL TOP FLANGE TIE PLATE REPAIRS ARE COMPLETED

3.5 PIN PLATE IMPACTED RUST REMOVAL SHALL BE PERFORMED AT ONE PIN SUPPORT AT A TIME TO COMPLETION.

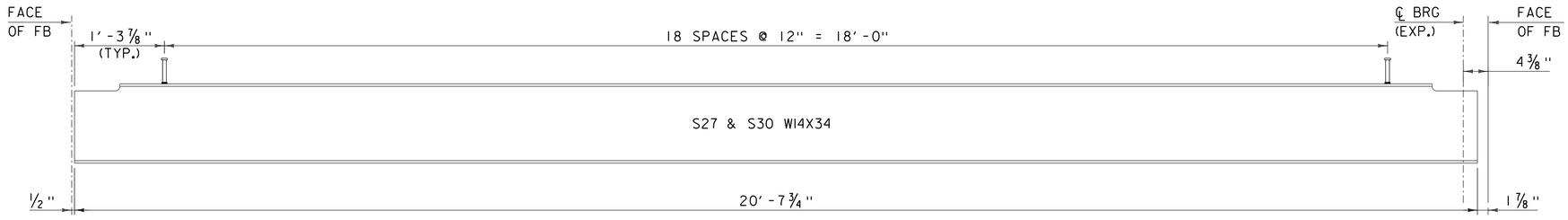
3.6 BOTTOM CHORD STRENGTHENING AND PIN PLATE STRENGTHENING.

3.7 UT TESTING AT PINS.

3.8 SWAY BRACING REPAIRS MAY BE PERFORMED AT ANY TIME.

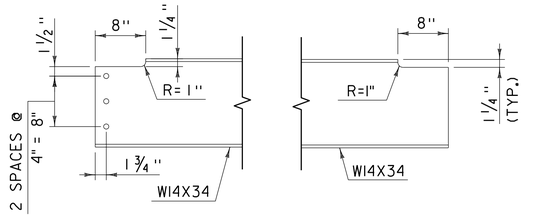
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: zl7b082TrussRepairs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: DJD
DESIGNED BY: FB	CHECKED BY: PAH
ARCH REPAIR LOCATIONS	SHEET 41 OF 97



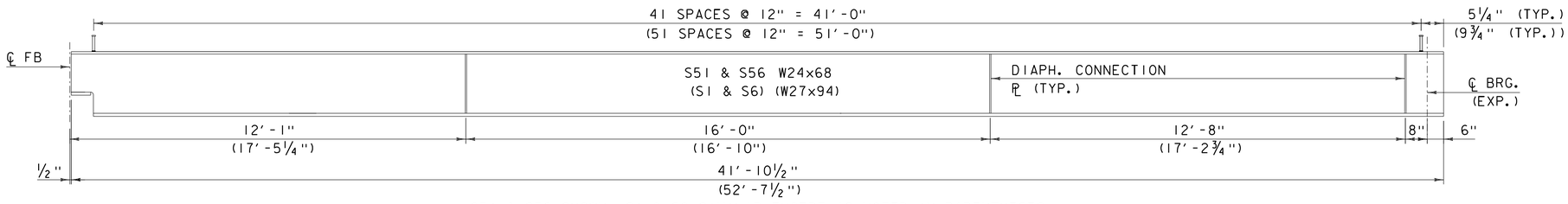
S27 & S30 EXTERIOR ROADWAY STRINGER ELEVATION

SCALE 1" = 1-0"



STRINGER END DETAILS S27 & S30

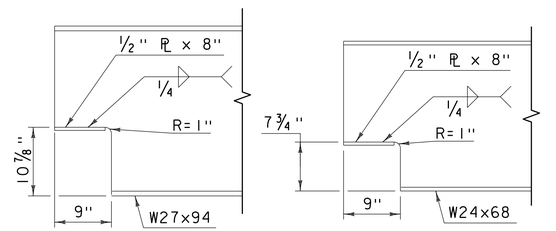
SCALE 1" = 1-0"



S51 & S56 SHOWN, S1 & S6 SIMILAR EXCEPT AS NOTED IN PARENTHESES

APPROACH SIDEWALK STRINGER ELEVATION

SCALE: ½" = 1'-0"

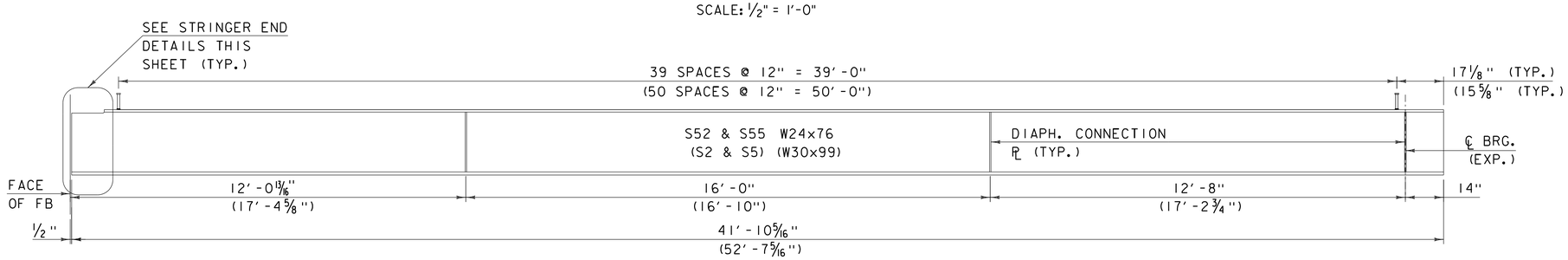


STRINGER END DETAIL S1 & S6

SCALE 1" = 1-0"

STRINGER END DETAIL S51 & S56

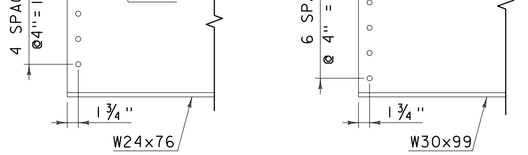
SCALE 1" = 1-0"



S52 & S55 SHOWN, S2 & S5 SIMILAR EXCEPT AS NOTED IN PARENTHESES

APPROACH EXTERIOR ROADWAY STRINGER ELEVATION

SCALE: ½" = 1'-0"



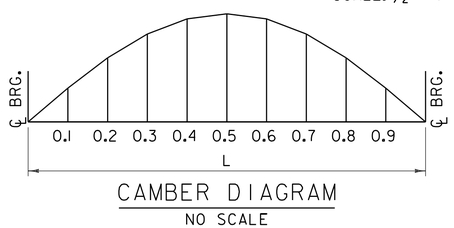
STRINGER END DETAIL S52 & S55

SCALE 1" = 1-0"

STRINGER END DETAIL S2 & S5

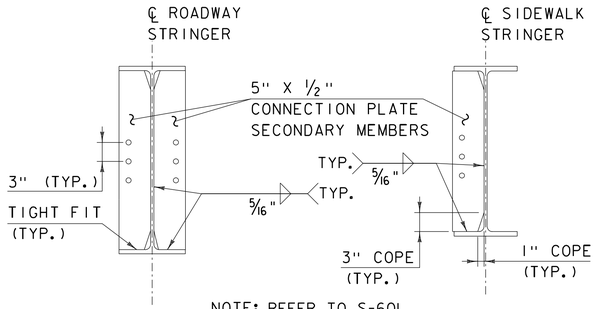
SCALE 1" = 1-0"

S27 & S30 CAMBER TABLE				
BM. NO.	LOAD TYPE	CL BRG. Fix.	0.5L	CL BRG. Exp.
S27 S30	STEEL DEFL.	0	0	0
	CONC. DEFL.	0	3/16	0
	S.D.L. DEFL.	0	1/16	0
	ADD'L CAMBER	0	4/16	0
	TOTAL CAMBER	**0**	**8/16**	**0**



CAMBER DIAGRAM

NO SCALE



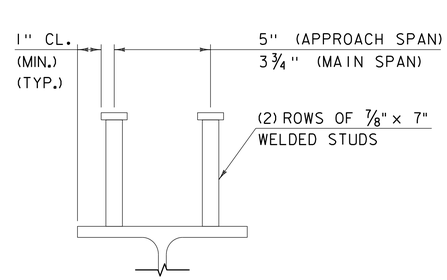
NOTE: REFER TO S-601

DIAPHRAGM CONNECTION PLATE

SCALE 1" = 1'-0"

WEST APPROACH STRINGER CAMBER TABLE						
BM. NO.	LOAD TYPE	CL BRG. Exp.	0.25L	0.5L	0.75L	CL BRG. Fix.
S1 S6	STEEL DEFL.	0	4/16	5/16	4/16	0
	CONC. DEFL.	0	13/16	1 3/16	13/16	0
	S.D.L. DEFL.	0	1/16	2/16	1/16	0
	ADD'L CAMBER	0	7/16	10/16	7/16	0
	TOTAL CAMBER	**0**	**1 10/16**	**2 5/16**	**1 10/16**	**0**
S2 S5	STEEL DEFL.	0	1/16	2/16	1/16	0
	CONC. DEFL.	0	8/16	11/16	8/16	0
	S.D.L. DEFL.	0	3/16	4/16	3/16	0
	ADD'L CAMBER	0	7/16	10/16	7/16	0
	TOTAL CAMBER	**0**	**1 3/16**	**1 11/16**	**1 3/16**	**0**

EAST APPROACH STRINGER CAMBER TABLE						
BM. NO.	LOAD TYPE	CL BRG. Fix.	0.25L	0.5L	0.75L	CL BRG. Exp.
S51 S56	STEEL DEFL.	0	2/16	3/16	2/16	0
	CONC. DEFL.	0	9/16	13/16	9/16	0
	S.D.L. DEFL.	0	1/16	1/16	1/16	0
	ADD'L CAMBER	0	6/16	8/16	6/16	0
	TOTAL CAMBER	**0**	**1 3/16**	**1 10/16**	**1 3/16**	**0**
S52 S55	STEEL DEFL.	0	1/16	1/16	1/16	0
	CONC. DEFL.	0	6/16	8/16	6/16	0
	S.D.L. DEFL.	0	2/16	3/16	2/16	0
	ADD'L CAMBER	0	6/16	8/16	6/16	0
	TOTAL CAMBER	**0**	**14/16**	**1 4/16**	**14/16**	**0**



SHEAR STUD CONNECTORS

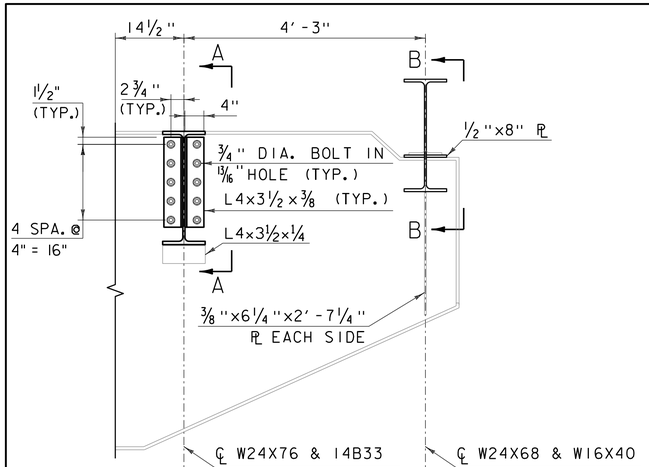
NOT TO SCALE

GILL ENGINEERING

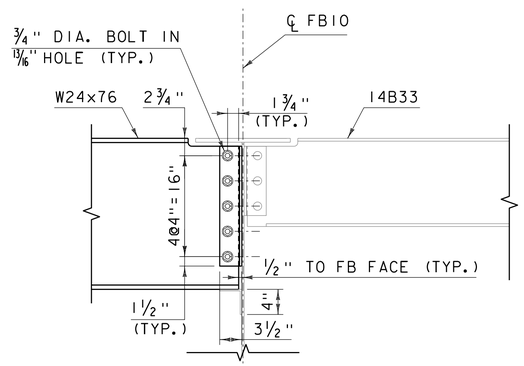
PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082sup.dgn
PROJECT LEADER: AMS
DESIGNED BY: FB
STEEL BEAM DETAILS

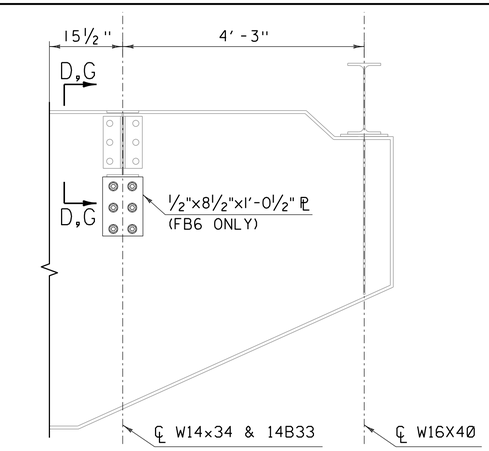
PLOT DATE: 7/6/2022
DRAWN BY: YS
CHECKED BY: PAH
SHEET 42 OF 97



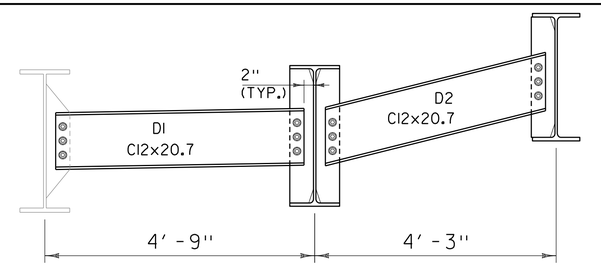
FBIO EXTENSION ELEVATION
(LOOKING WEST)
SCALE ¾" = 1'-0"



FB10 SECTION A-A
SCALE 1" = 1'-0"

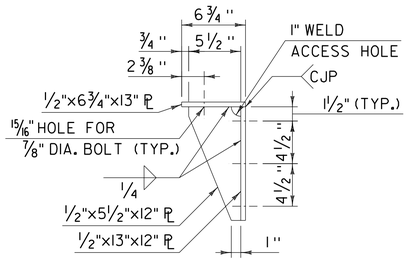


FB6 EXTENSION ELEVATION
(LOOKING WEST)
SCALE ¾" = 1'-0"
NOTE: FB5 SIMILAR EXCEPT AS SHOWN ABOVE.

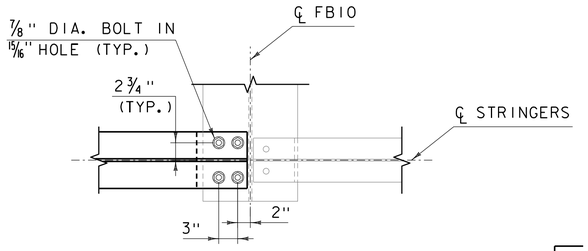


NOTE: DIAPHRAGMS AND CONNECTING MATERIAL ARE SECONDARY MEMBERS.

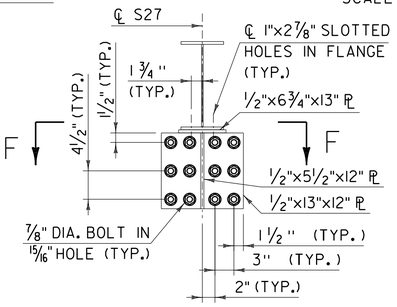
DIAPHRAGMS
SCALE ¾" = 1'-0"



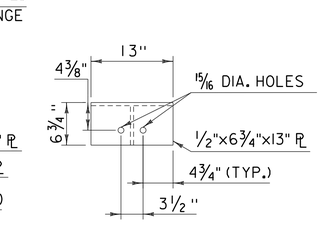
SEATED CONNECTION DETAIL
SCALE 1½" = 1'-0"



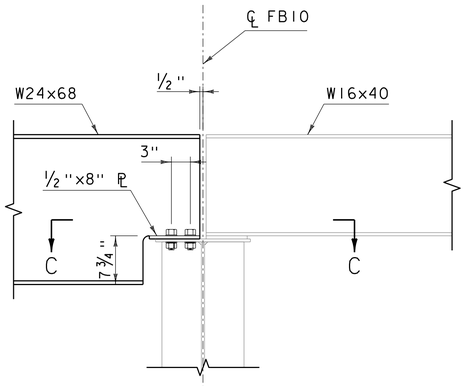
FB10 SECTION C-C
SCALE 1" = 1'-0"



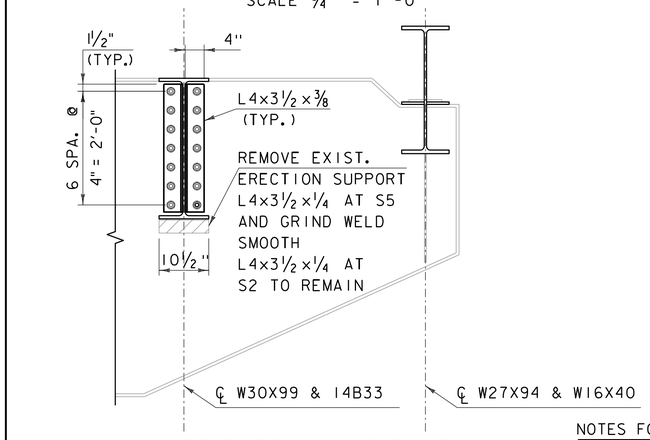
S27 & S30 SECTION E-E
SCALE 1" = 1'-0"



SECTION F-F
SCALE 1" = 1'-0"

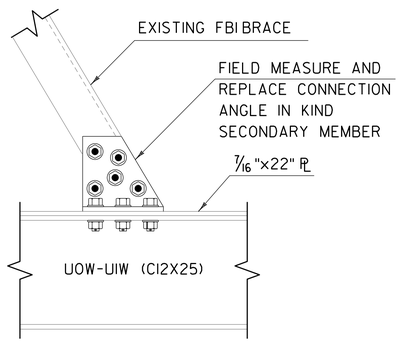


FB10 SECTION B-B
SCALE 1" = 1'-0"



FBI EXTENSION ELEVATION
(LOOKING EAST)
SCALE ¾" = 1'-0"

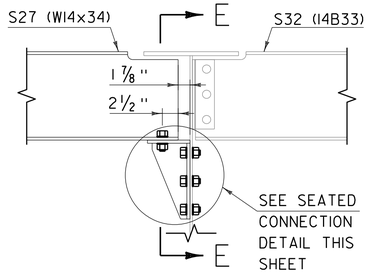
NOTES:
1. DETAILS SAME AS FBE1 EXCEPT AS SHOWN ABOVE.
2. SEE NOTES FOR REMOVING EXISTING STEEL AND MT TESTING.



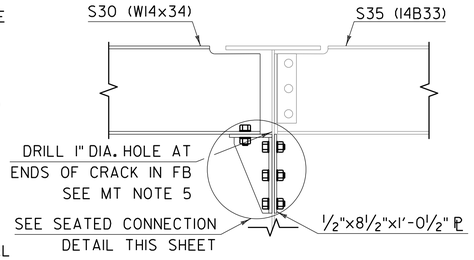
FBI BRACE CONNECTION DETAIL AT U0W-U1W (SOUTH TRUSS)
SCALE 1½" = 1-0"

NOTES FOR REMOVING EXISTING STEEL AND MT TESTING:

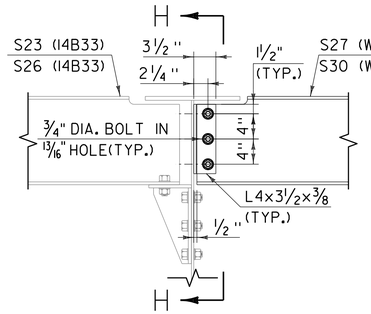
1. CUTTING EXISTING STEEL SHALL BE PERFORMED WITH CARE TO AVOID DAMAGING OR NOTCHING ANY OF THE MATERIAL TO REMAIN.
2. CUTTING SHALL BE ACHIEVED BY MECHANICAL MEANS; THERMAL CUTTING SHALL NOT BE ALLOWED.
3. THE GRINDING OF WELD METAL TO MAKE THE PROFILE FLUSH WITH BASE METAL SHALL BE IN THE DIRECTION OF PRIMARY STRESS. THERE SHALL BE NO TOLERANCE FOR OVERGRINDING.
4. UPON COMPLETION OF THE GRINDING OPERATIONS THE REPAIR AREA SHALL BE 100% MT TESTED. THIS WORK SHALL BE PERFORMED BY NDE LEVEL II TECHNICIAN SUPPLIED BY THE CONTRACTOR. THE COST SHALL BE INCIDENTAL TO 560.60 STRUCTURAL STEEL (REPAIRS).
5. THE EXISTING CRACKS ABOVE THE SEATED CONNECTION DETAIL SHALL BE 100% MT TESTED TO DETERMINE THE CRACK LIMITS PRIOR TO DRILLING THE 1INCH DIAMETER CRACK ARREST HOLES. THE CRACK ARREST HOLES SHALL BE CENTERED AT EACH CRACK TIP.
6. IN THE EVENT THE CONTRACTOR DAMAGES THE EXISTING STEEL THAT IS TO REMAIN DURING CUTTING OR GRINDING OPERATIONS, THE CONTRACTOR SHALL REPLACE, REPAIR, OR REINFORCE THE DAMAGED AREA AS MAY BE REQUIRED TO RESTORE THE AREA TO EXISTING OR BETTER CONDITION PRIOR TO DAMAGE. ANY DAMAGE DONE BY CONTRACTOR OPERATIONS TO EXISTING STEEL THAT IS TO REMAIN, SHALL BE REPAIRED AND TESTED TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE AGENCY.
8. COST OF REMOVAL OF EXISTING STEEL AND RIVETS SHALL BE INCIDENTAL TO ITEM 506.50 STRUCTURAL STEEL, ROLLED BEAMS AND 506.60 STRUCTURAL STEEL (REPAIRS). STEEL REMOVAL SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 529.04 REMOVAL OF STRUCTURES.
9. THE COST FOR MT TESTING SHALL BE INCIDENTAL TO ITEM 506.60 STRUCTURAL STEEL.



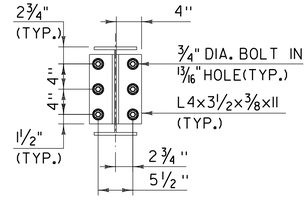
FB6 AT S27 SECTION D-D
SCALE 1" = 1'-0"



FB6 AT S30 SECTION D-D
SCALE 1" = 1'-0"
NOTE: DETAILS SAME AS FB6 SECTION AT S27 EXCEPT AS SHOWN ABOVE.



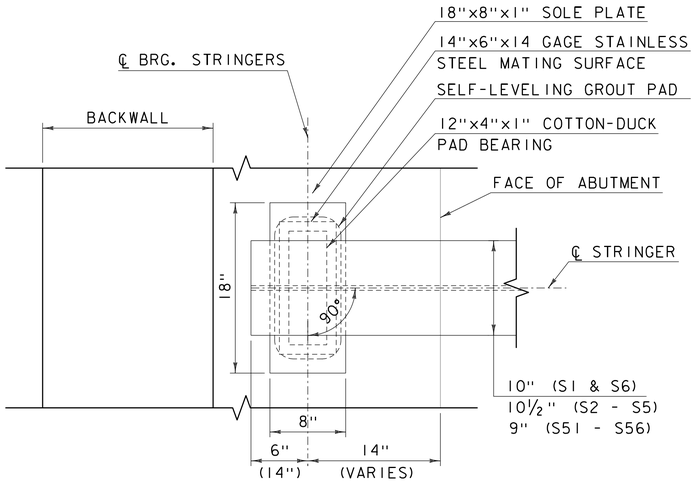
FB5 SECTION G-G
SCALE 1" = 1'-0"



S27 (S30) SECTION H-H
SCALE 1" = 1'-0"

GILL ENGINEERING

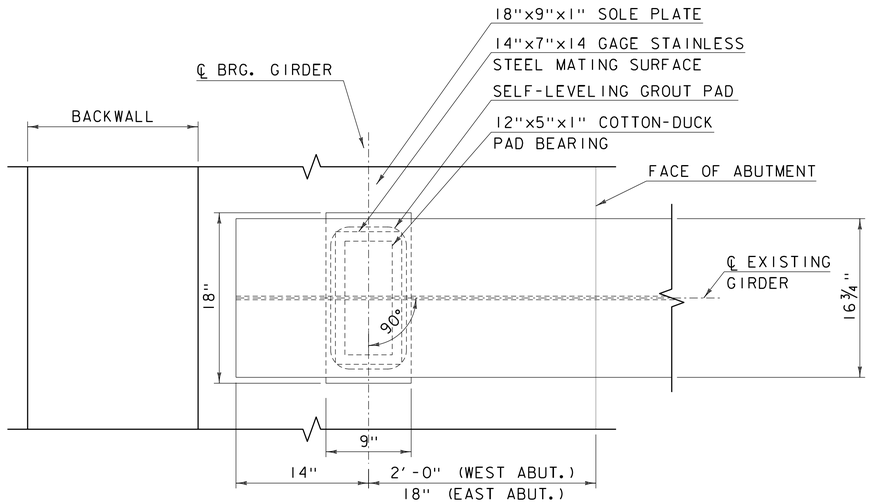
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082sup.dgn	PLOT DATE: 7/12/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: CSB	CHECKED BY: PAH
STRINGER CONNECTION DETAILS	SHEET 43 OF 97



STRINGER BEARING PLAN

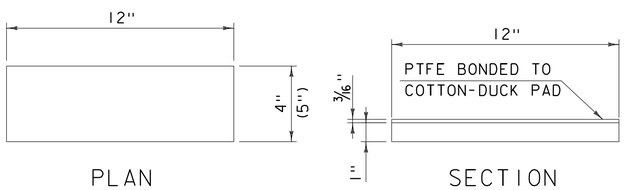
SCALE 1½" = 1'-0"

NOTE: SIDWALK STRINGER SHOWN. ROADWAY STRINGER SIMILAR EXCEPT AS NOTED IN PARENTHESES.



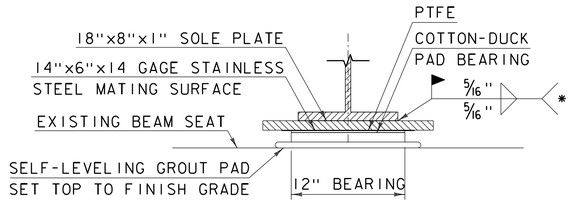
GIRDER BEARING PLAN

SCALE 1½" = 1'-0"



PTFE SURFACE AND COTTON-DUCK BEARING PAD DETAIL

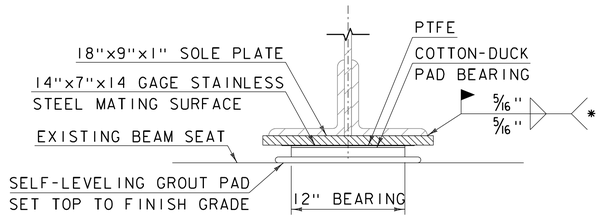
SCALE 3" = 1'-0"



STRINGER BEARING SECTION

SCALE 1½" = 1'-0"

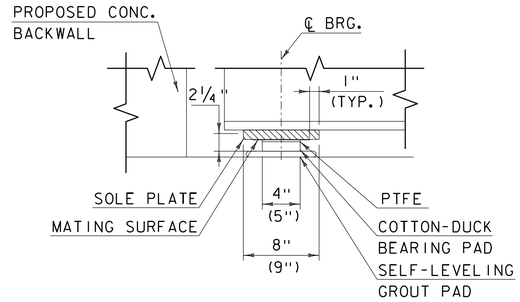
(*) - WELDS SHALL TERMINATE ¼" FROM EDGE OF PLATE



GIRDER BEARING SECTION

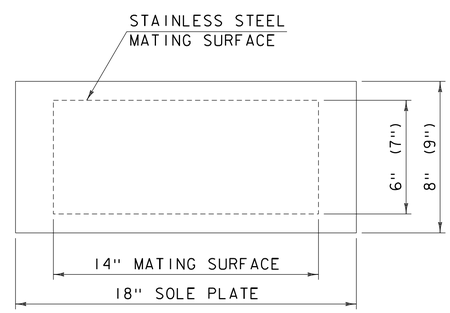
SCALE 1½" = 1'-0"

(*) - WELDS SHALL TERMINATE ¼" FROM EDGE OF PLATE



TYPICAL BEARING ELEVATION

SCALE 1½" = 1'-0"



SOLE PLATE

SCALE 3" = 1'-0"

NOTE: STRINGER DIMENSIONS SHOWN. GIRDER DIMENSIONS SIMILAR EXCEPT AS NOTED IN PARENTHESES.

BEARING NOTES:

1. UNLESS OTHERWISE NOTED, STRINGER DIMENSIONS SHOWN ON DETAILS. GIRDER DIMENSIONS SHOWN IN PARENTHESES.
2. COTTON-DUCK PAD BEARINGS WERE DESIGNED PER METHOD A OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 14.7.6. THE COMPRESSIVE DESIGN LOAD ON THE BEARING PAD IS 55.6 KIPS FOR THE STRINGER BEARING AND 76.2 KIPS FOR THE GIRDER BEARING. THE COMPRESSIVE DESIGN STRESS IS THE RESULT OF DIVIDING THE COMPRESSIVE DESIGN LOAD BY THE AREA OF THE PAD AND IS EQUAL TO 1.16 KSIFOR THE STRINGER BEARING AND 1.27 KSI FOR THE GIRDER BEARING.
3. COTTON-DUCK BEARING PADS SHALL BE MANUFACTURED OF ALL NEW MATERIALS AND COMPOSED OF MULTIPLE LAYERS OF PRESTRESSED DUCK, IMPREGNATED AND BOUND WITH A HIGH QUALITY RUBBER COMPOUND, CONTAINING ROT AND MILDW INHIBITORS AND ANTIOXIDANTS, COMPOUNDED INTO RESILIENT PADS OF UNIFORM THICKNESS. COTTON-DUCKS BEARING PADS SHALL BE TESTED AND VERIFIED TO MEET THE TEST REQUIREMENTS OF SPECIFICATION MIL-C-882E.
4. STAINLESS STEEL MATING SURFACE SHALL BE TYPE 304 CONFORMING TO ASTM A 167/A 240 WITH A SURFACE FINISH OF 8 MICRO-INCHES RMS OR BETTER. IT SHALL BE WELDED WITH AN ALL-AROUND WELD TO THE SOLE PLATE SO THAT IT REMAINS FLAT AND IN FULL CONTACT WITH THE SOLE PLATE.
5. STAINLESS STEEL MATING SURFACE SHALL BE PROTECTED FROM SCRATCHES, GOUGES OR OTHER DAMAGE DURNG SHIPMENT AND STORAGE.
6. STEEL SOLE PLATES ARE SECONDARY MEMBERS AND SHALL CONFORM TO AASHTO M270 GRADE 50 AND SHALL BE METALLIZED OR GALVANIZED EXCEPT FOR THE STAINLESS STEEL MATING SURFACE AND FOR 1" WIDE STRIPS, WHERE THE SOLE PLATE SHALL BE WELDED TO THE FLANGE. AFTER WELDING, APPLY A GALVANIZING REPAIR PAINT (726.08) WITH A MINIMUM DRY FILM THICKNESS OF 3 MILLS TO THESE STRIPS. SOLE PLATES ARE SECONDARY MEMBERS.
7. ALL SOLE PLATES SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING ASSEMBLY LOCATION ON THE BRIDGE AND DIRECTION ARROW THAT POINTS UP STATION. ALL MARKS SHALL BE PERMANENT AND VISIBLE AFTER THE SOLE PLATE IS INSTALLED.
8. PTFE SURFACE SHALL BE FABRICATED AS UNFILLED SHEET AND SHALL BE MADE FROM PTFE RESIN ALONE. IT SHALL CONTAIN DIMPLES TO ACT AS A RESERVOIR FOR LUBRICANT.
9. VERIFY ALL DIMENSIONS IN THE FIELD.

BEARING INSTALLATION NOTES:

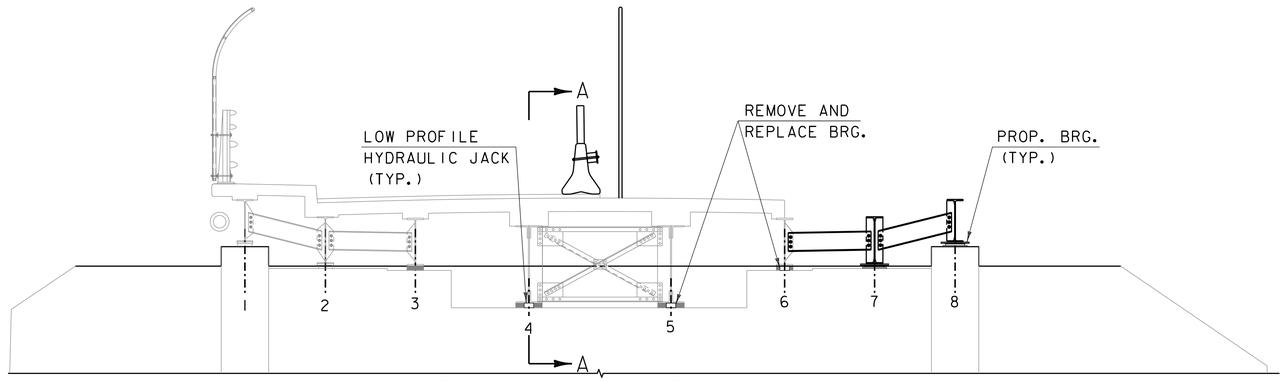
10. MORTAR TYPE IV SHALL BE USED TO PREPARE THE BEAM SEATS FOR BEARING PLACEMENT AND SHALL BE A SUITABLE FREE FLOWING, NON-SHRINK, CEMENTITIOUS GROUT WITH A MINIMUM 28 DAY f'c = 5000 PSI FOUND ON THE VTRANS APPROVED PRODUCTS LIST. GROUT SHALL BE PLACED TO LEVEL THE SEATS IN A THIN LAYER FOR SETTING THE BEARINGS AT THE PROPER ELEVATIONS. BEARINGS MAY BE SET WHEN THE GROUT HAS ACHIEVED A MINIMUM COMPRESSION STRENGTH OF 3000 PSI AS FOUND BY GROUT CUBE COMPRESSION TESTING.

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082sup.dgn
PROJECT LEADER: AMS
DESIGNED BY: FB
BEARING DETAILS

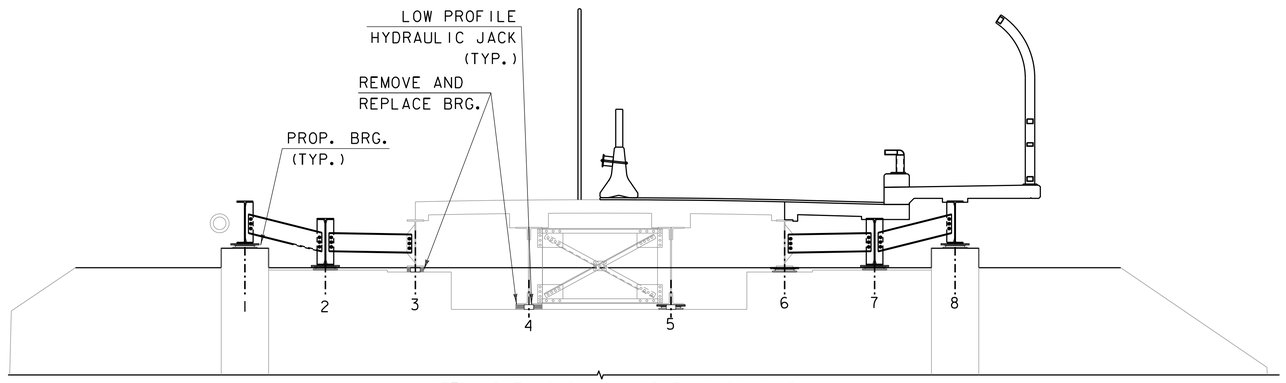
PLOT DATE: 7/6/2022
DRAWN BY: CSB
CHECKED BY: PAH
SHEET 44 OF 97



NOTE: ABUT. 2 SHOWN, ABUT. 1 SIMILAR.

STAGE 1 - JACKING ELEVATION

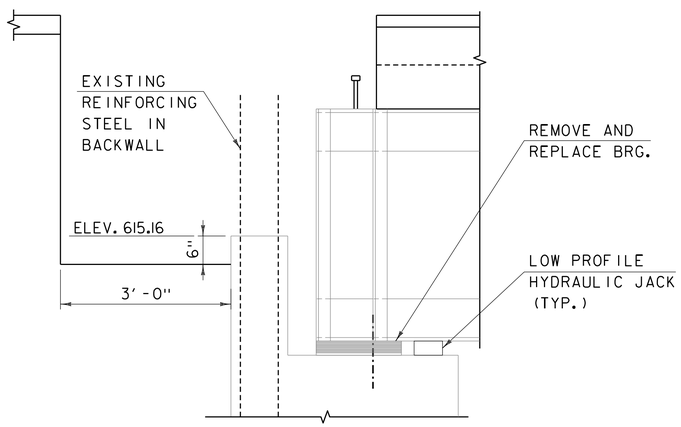
SCALE 1/4" = 1'-0"



NOTE: ABUT. 2 SHOWN, ABUT. 1 SIMILAR.

STAGE 2 - JACKING ELEVATION

SCALE 1/4" = 1'-0"



SECTION A-A

SCALE 3/4" = 1'-0"

	STAGE 1 UNFACTORED REACTIONS AT EACH BEAM	
	EAST APPROACH	WEST APPROACH
4 & 5	DL: 27.18 K LL: 43.29 K	DL: 33.65 K LL: 45.22 K
6	DL: 15.20 K LL: 19.29 K	DL: 20.07 K LL: 20.41 K

	STAGE 2 UNFACTORED REACTIONS AT EACH BEAM	
BEAM LINE	EAST APPROACH	WEST APPROACH
3	DL: 14.87 K LL: 19.54 K	DL: 14.87 K LL: 20.41 K
4 & 5	DL: 26.86 K LL: 43.29 K	DL: 25.23 K LL: 45.22 K

GENERAL JACKING NOTES:

1. THE WORK SHALL FOLLOW THE REQUIREMENTS OF SECTION 502 AND SHALL BE PAID FOR UNDER ITEM 502.10. JACKING DETAILS SHOWN SCHEMATICALLY.

2. JACKING AND BEARING REPLACEMENT WILL BE DONE FOLLOWING THE DECK REPLACEMENT STAGES. AFTER STAGE 1 DEMOLITION, BEAM LINES 5 AND 6 WILL BE JACKED AND THE BEARINGS REPLACED. THE JACK UNDER BEAM LINE 4 WILL BE PARTIALLY LOADED TO PROVIDE STRESS RELIEF. FOLLOWING STAGE 1 COMPLETION AND STAGE 2 DEMOLITION, THE SAME PROCEDURE WILL BE FOLLOWED TO REPLACE THE BEARINGS UNDER BEAM LINES 3 AND 4.

3. THIS JACKING SEQUENCE SHALL BE FOLLOWED IN ORDER TO TRANSFER THE SUPERSTRUCTURE LOADS FROM THE ABUTMENT BEARING TO THE TEMPORARY JACKING SYSTEM DURING THE BEARING REPLACEMENT AT THE ABUTMENT.

4. LOW PROFILE HYDRAULIC JACKS SHALL BE USED DUE TO LOW CLEARANCES. JACK BOXES WITH HORSESHOE SHIMS OR THREADED LOCK OFF JACKS SHALL BE USED.

RAISING THE BRIDGE

5. NO LIVE LOAD SHALL BE PERMITTED ON THE BRIDGE SPAN DURING THE JACKING OPERATION AND UNTIL JACK LOCKING MECHANISMS OR STEEL SHIMS HAVE BEEN SECURED AS DESCRIBED HEREIN. SHOULD IT BECOME NECESSARY TO PROVIDE RELIEF TO TRAFFIC DURING JACKING OPERATIONS THE CONTRACTOR SHALL BE PREPARED TO CEASE JACKING AND LOCK THE JACK MECHANISM OR INSTALL TEMPORARY SHIMS AS APPROPRIATE THEN DEPRESSURIZE THE JACKS TO ALLOW TRAFFIC TO TRAVEL OVER THE SPAN.

6. IN STAGE 1, BEAM LINES 5 AND 6 SHALL BE JACKED AND BEAM LINE 4 SHALL BE PARTIALLY JACKED IN ORDER TO RELIEVE STRESS IN THE DECK. IN STAGE 2, BEAM LINES 3 AND 4 SHALL BE FULLY JACKED AND BEAM LINE 5 SHALL BE PARTIALLY JACKED IN ORDER TO RELIEVE STRESS. LIMIT JACKING FORCE WHEN THE BEARING BEGINS TO LIFT UP 1/16".

7. CONTINUE TO RAISE BEAMS SUFFICIENTLY TO PERMIT BEARING REPLACEMENT. MAXIMUM LIFT SHALL BE 1/4" ABOVE BEARING UNLESS DIRECTED BY THE ENGINEER.

8. THE MAXIMUM DIFFERENTIAL DISPLACEMENT BETWEEN BEAMS SHALL NOT EXCEED 1/8".

9. AFTER THE BEAMS ARE JACKED, LOCK OFF JACKS OR PLACE HORSESHOE SHIMS BETWEEN THE TOP PLATE AND THE JACKING BOX.

10. DE-PRESSURIZE AND REMOVE THE JACKS.

11. OPEN BRIDGE TO VEHICULAR TRAFFIC.

12. PERFORM BEARING REPLACEMENT WORK.

LOWERING THE BRIDGE

13. NO LIVE LOAD SHALL BE PERMITTED ON THE BRIDGE SPAN DURING THE JACKING OPERATION AND UNTIL JACK LOCKING MECHANISMS OR STEEL SHIMS HAVE BEEN SECURED AS DESCRIBED HEREIN. SHOULD IT BECOME NECESSARY TO PROVIDE RELIEF TO TRAFFIC DURING JACKING OPERATIONS THE CONTRACTOR SHALL BE PREPARED TO CEASE JACKING AND LOCK THE JACK MECHANISM OR INSTALL TEMPORARY SHIMS AS APPROPRIATE THEN DEPRESSURIZE THE JACKS TO ALLOW TRAFFIC TO TRAVEL OVER THE SPAN.

14. BEAMS SHALL BE LOWERED SIMULTANEOUSLY USING PRESSURIZED JACKS SUCH THAT NO DYNAMIC EFFECTS ARE IMPARTED INTO THE STRUCTURE.

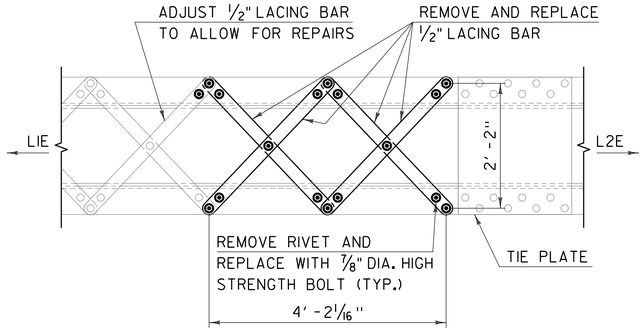
15. ONCE THE BEAMS ARE FULLY SUPPORTED BY THE BEARINGS, BRIDGE MAY BE OPENED TO VEHICULAR TRAFFIC.

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

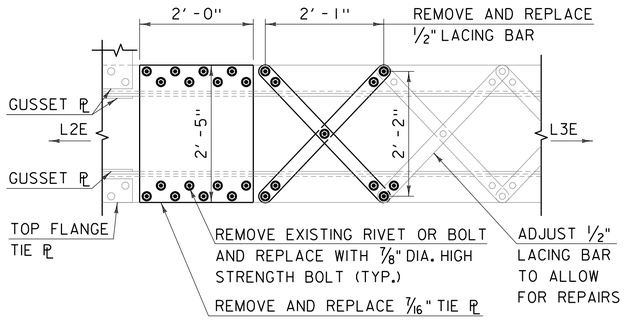
FILE NAME: z17b082jacking.dgn
PROJECT LEADER: AMS
DESIGNED BY: YS
JACKING DETAILS

PLOT DATE: 7/6/2022
DRAWN BY: YS
CHECKED BY: PAH



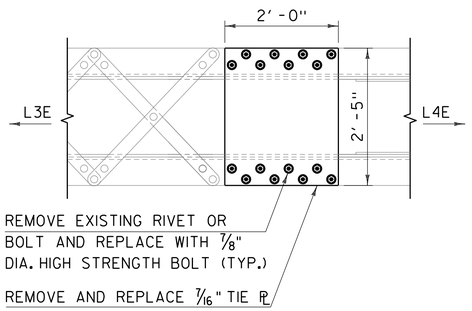
NORTH TRUSS BOTTOM CHORD L1E-L2E
TOP SIDE WEST END REPAIR, RLT(2)

SCALE 3/4" = 1'-0"



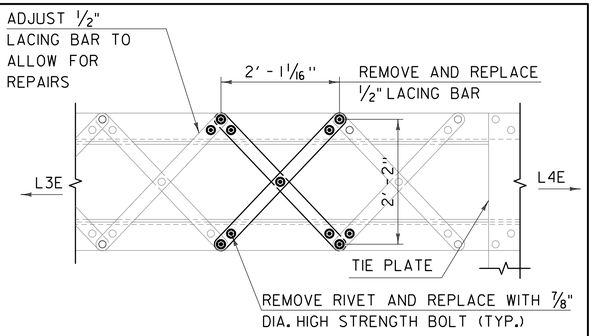
NORTH TRUSS BOTTOM CHORD L2E-L3E TOP
SIDE EAST END REPAIR, RLT(2) & RPT

SCALE 3/4" = 1'-0"



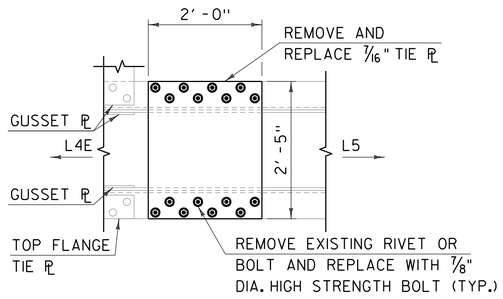
NORTH TRUSS BOTTOM CHORD L3E-L4E
TOP SIDE WEST END REPAIR, RPT

SCALE 3/4" = 1'-0"



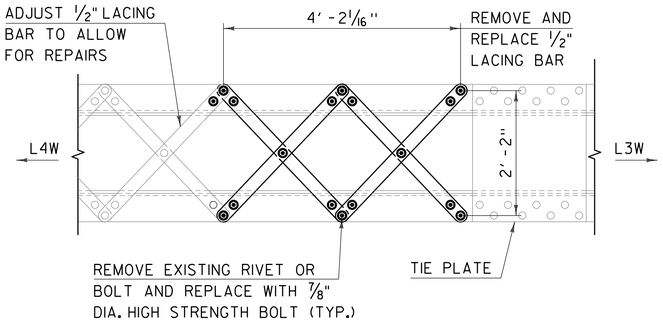
NORTH TRUSS BOTTOM CHORD L3E-L4E
BOTTOM SIDE WEST END REPAIR, RLB(2)

SCALE 3/4" = 1'-0"



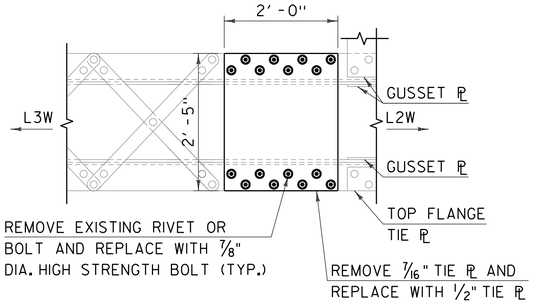
NORTH TRUSS BOTTOM CHORD L4E-L5
TOP SIDE EAST END REPAIR, RPT

SCALE 3/4" = 1'-0"



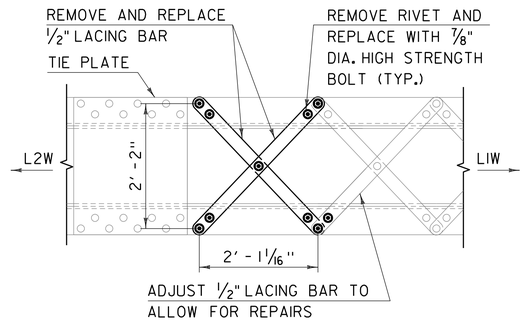
NORTH TRUSS BOTTOM CHORD L3W-L4W
TOP SIDE WEST END REPAIR, RLT(4)

SCALE 3/4" = 1'-0"



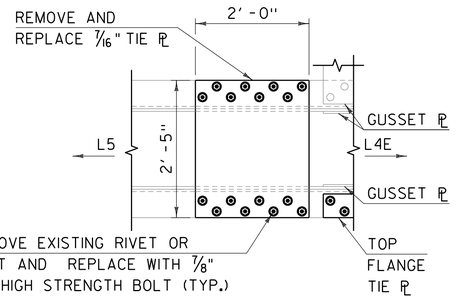
NORTH TRUSS BOTTOM CHORD L2W-L3W
TOP SIDE WEST END REPAIR, RPT

SCALE 3/4" = 1'-0"



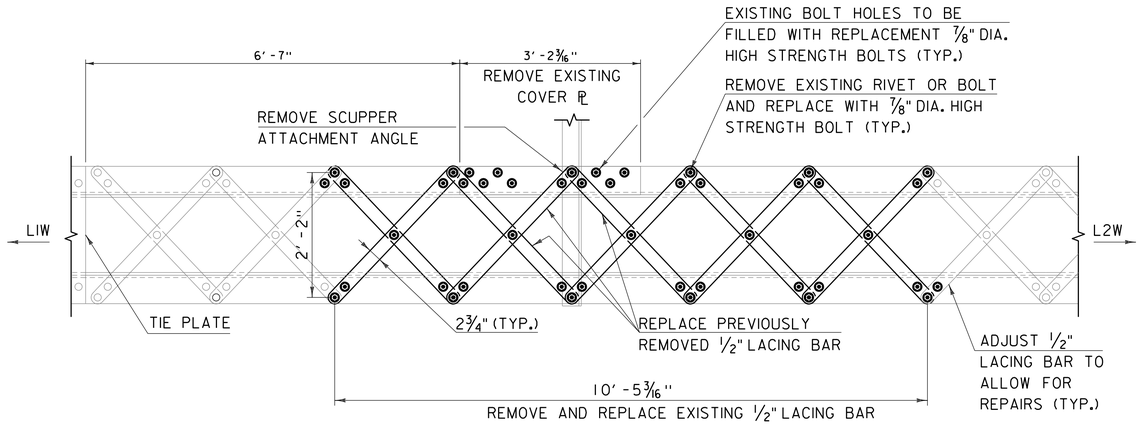
NORTH TRUSS BOTTOM CHORD L1W-L2W
TOP SIDE WEST END REPAIR, RLT(2)

SCALE 3/4" = 1'-0"



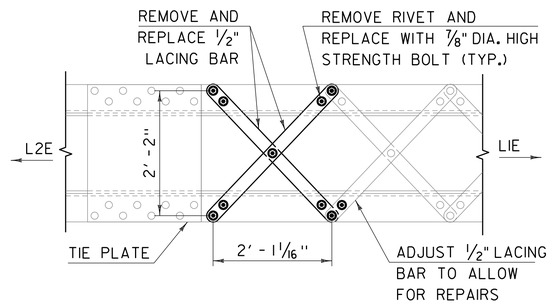
SOUTH TRUSS BOTTOM CHORD L4E-L5
TOP SIDE EAST END REPAIR, RPT

SCALE 3/4" = 1'-0"



SOUTH TRUSS BOTTOM CHORD L1W-L2W TOP SIDE REPAIR, RLT(10)

SCALE 3/4" = 1'-0"



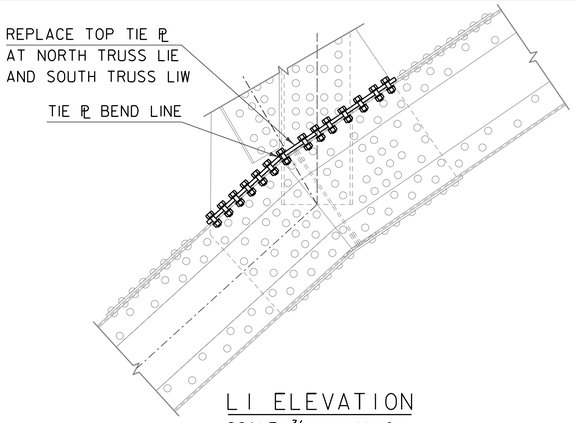
SOUTH TRUSS BOTTOM CHORD L1E-L2E
TOP SIDE WEST END REPAIR, RLT(2)

SCALE 3/4" = 1'-0"

NOTES:
1. SEE SHEET 41 FOR TRUSS REPAIR LOCATIONS AND LEGEND.
2. PROVIDE FILL PLATES AS REQUIRED UNDER LACING BARS.

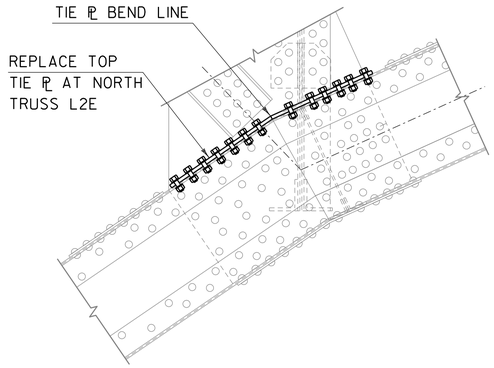
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082TrussRepairs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: FB	CHECKED BY: PAH
BOTTOM CHORD REPAIRS I	SHEET 46 OF 97



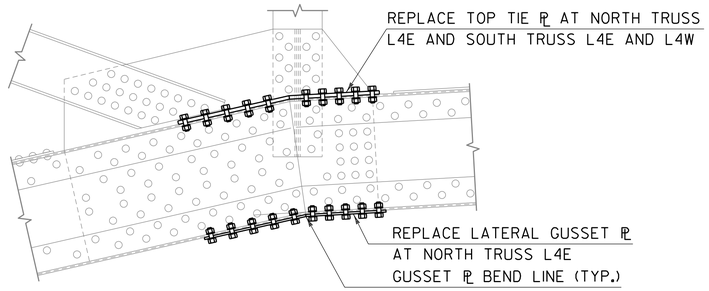
L1 ELEVATION

SCALE 3/4" = 1'-0"



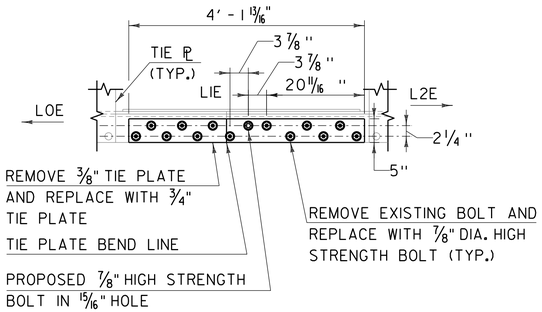
L2 ELEVATION

SCALE 3/4" = 1'-0"



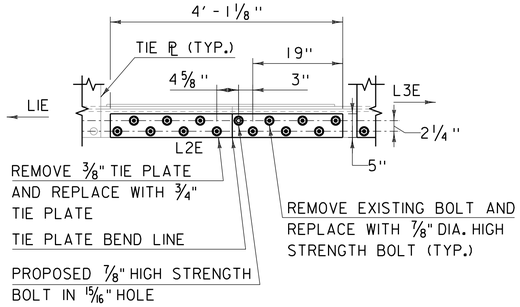
L4 ELEVATION

SCALE 3/4" = 1'-0"



NORTH TRUSS BOTTOM CHORD L1E
TIE PLATE REPLACEMENT, RP

SCALE 3/4" = 1'-0"



NORTH TRUSS BOTTOM CHORD L2E
TIE PLATE REPLACEMENT, RP

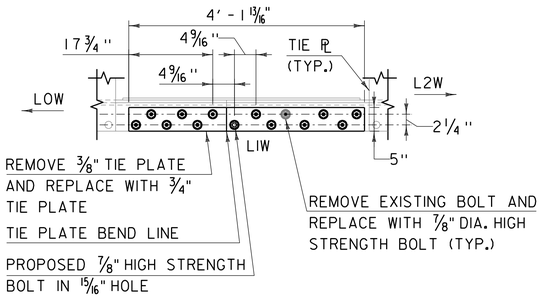
SCALE 3/4" = 1'-0"

SOUTH TRUSS BOTTOM CHORD L4E
TIE PLATE REPLACEMENT, RP
(NORTH TRUSS SIMILAR)

SCALE 3/4" = 1'-0"

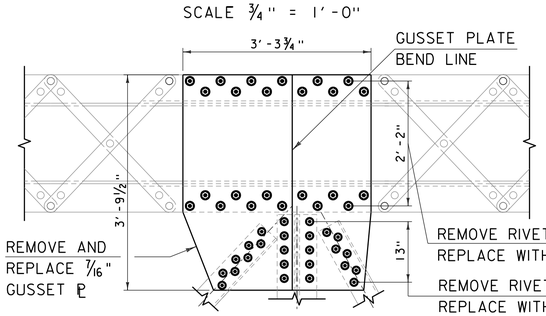
SOUTH TRUSS BOTTOM CHORD L4W
TIE PLATE REPLACEMENT, RP

SCALE 3/4" = 1'-0"



SOUTH TRUSS BOTTOM CHORD L1W
TIE PLATE REPLACEMENT, RP

SCALE 3/4" = 1'-0"



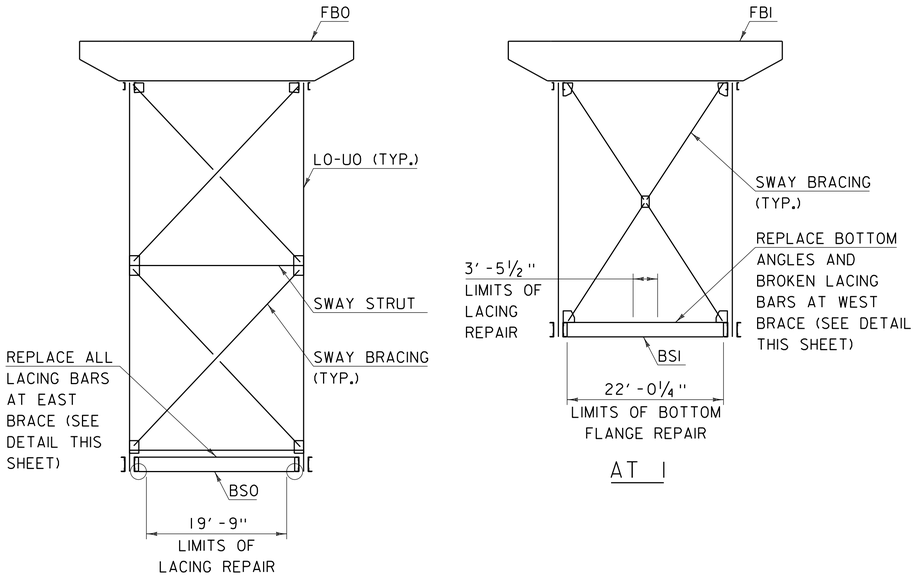
NORTH TRUSS BOTTOM CHORD L4E LATERAL GUSSET REPLACEMENT, RG

SCALE 3/4" = 1'-0"

NOTE: SEE SHEET 41 FOR TRUSS REPAIR LOCATIONS.

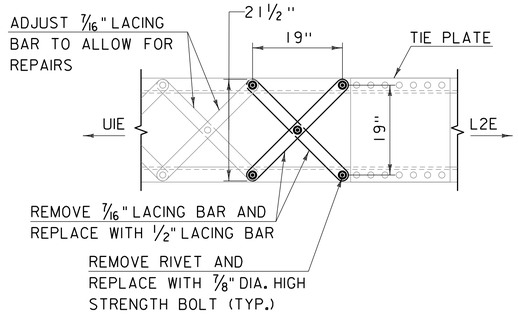
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: zl7b082TrussRepairs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: FB	CHECKED BY: PAH
BOTTOM CHORD REPAIRS 2	SHEET 47 OF 97



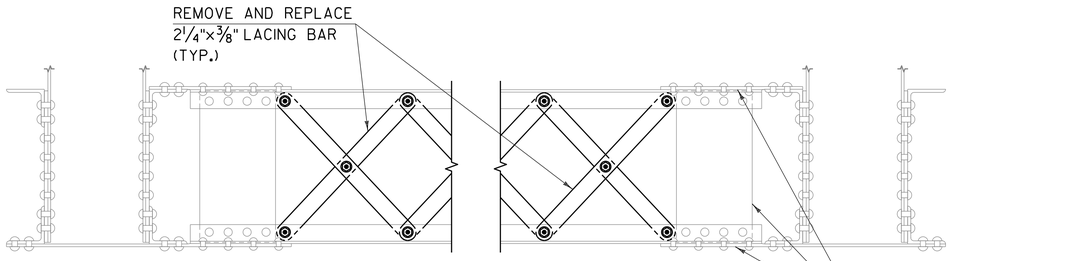
SWAY BRACING REPAIRS

SCALE 3/32" = 1'-0"



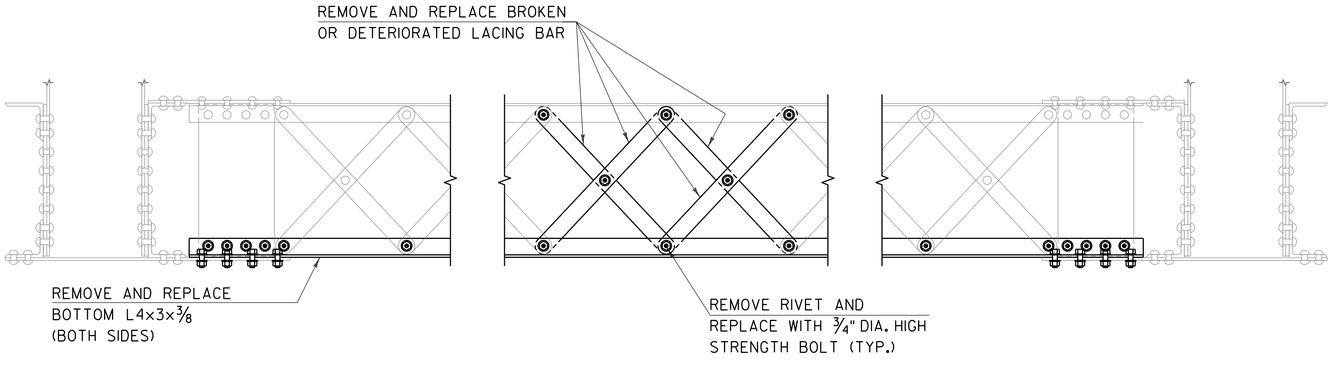
NORTH TRUSS DIAGONAL U1E-L2E TOP SIDE BOTTOM END REPAIR, RLT(2)

SCALE 3/4" = 1'-0"



BSO EAST BRACING REPAIRS

SCALE 1" = 1'-0"



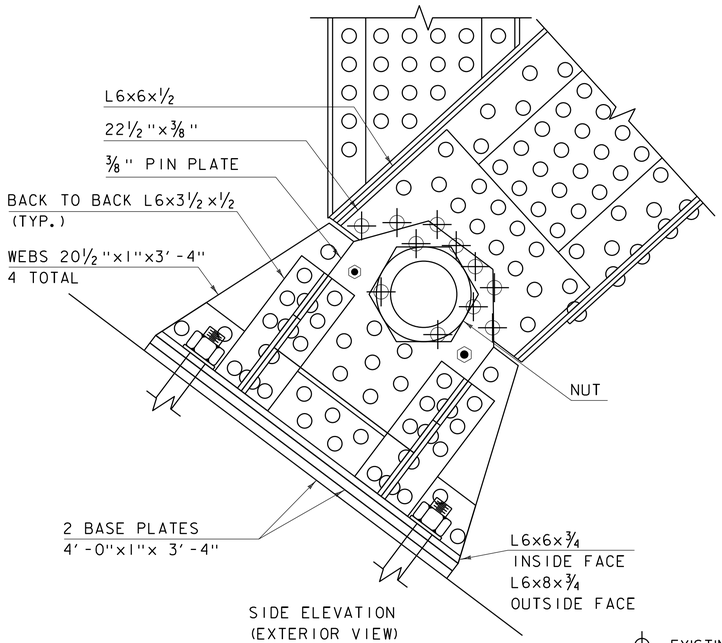
BSI WEST BRACING REPAIRS

SCALE 1" = 1'-0"

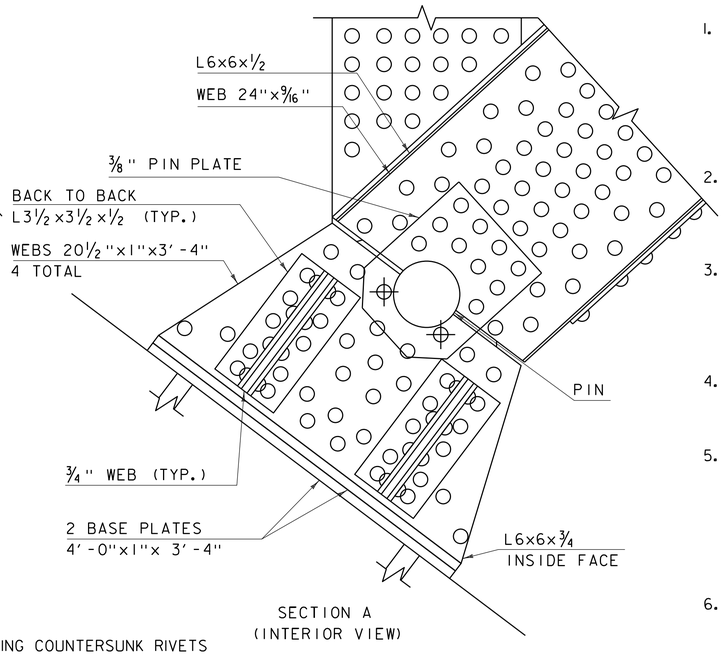
NOTE: ALL LATERAL BRACING MEMBERS SHOWN ON THIS SHEET ARE SECONDARY MEMBERS.

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)	
PROJECT NUMBER: NH 020-2(45)	
FILE NAME: z17b082sup.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: DJD
DESIGNED BY: FB	CHECKED BY: PAH
SWAY BRACING REPAIR LOCATIONS	SHEET 48 OF 97



SIDE ELEVATION
(EXTERIOR VIEW)



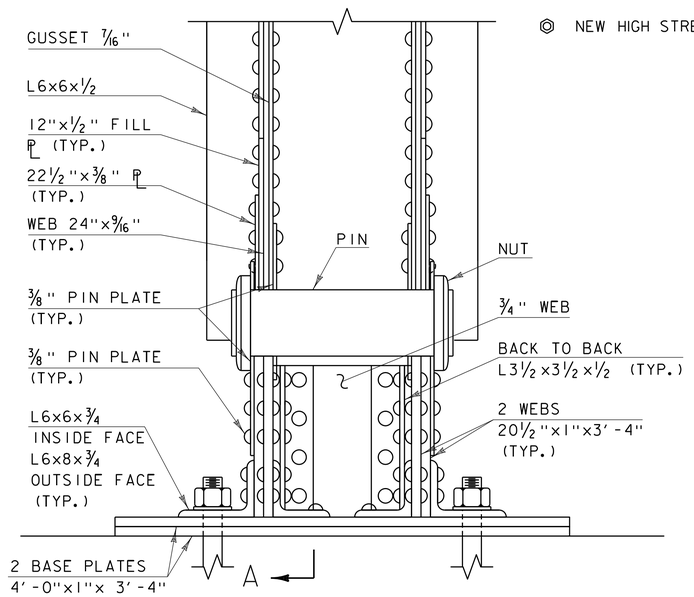
SECTION A
(INTERIOR VIEW)

EXISTING COUNTERSUNK RIVETS

EXISTING BUTTON HEAD RIVETS

EXISTING RIVETS TO BE REMOVED AND REPLACED WITH HIGH STRENGTH BOLTS TO FACILITATE IMPACTED RUST REMOVAL OPERATIONS

NEW HIGH STRENGTH BOLT



SECTION THROUGH PIN

LO DETAILS

SCALE 1 1/2" = 1-0"

IMPACTED RUST REMOVAL AT PINS NOTES:

1. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A HEATING AND IMPACTED RUST REMOVAL PROCEDURE, A RIVET REMOVAL PROCEDURE IN IMPACTED RUST AREAS, AND A PLATE STRAIGHTENING PROCEDURE USING HEAT STRAIGHTENING METHODS. PROCEDURES SHALL LIST ALL METHODS AND TOOLS REQUIRED TO REMOVE AND REPLACE RIVETS WITH HIGH STRENGTH BOLTS, HEAT AND REMOVE IMPACTED RUST FROM THE PINS AND PIN PLATE ASSEMBLIES, AND STRAIGHTEN THE DEFORMED PLATES REMAINING AT LOCATIONS IDENTIFIED HEREIN. ANY DAMAGE TO THE EXISTING STRUCTURE CAUSED BY CONTRACTOR OPERATIONS SHALL BE REPAIRED AND TESTED TO A STATE SATISFACTORY TO THE ENGINEER AT NO EXPENSE TO THE AGENCY.

2. ALL HEATING AND IMPACTED RUST REMOVAL WORK AT A TRUSS CHORD PIN SHALL BE PERFORMED IN THE CONSTRUCTION STAGE IN WHICH THE BRIDGE DECK AND SIDEWALK ARE REMOVED OVER THAT TRUSS CHORD. NO IMPACTED RUST REMOVAL OPERATIONS SHALL COMMENCE UNTIL THAT PORTION OF BRIDGE DECK AND SIDEWALK HAVE BEEN COMPLETELY REMOVED IN THAT CONSTRUCTION STAGE.

3. HEATING AND IMPACTED RUST REMOVAL WORK SHALL COMMENCE AFTER THE BLAST CLEANING FOR EACH PIN ASSEMBLY IS COMPLETED THROUGH THE CLEANING AND PAINTING OPERATIONS. FOR EACH LOCATION, THE AREAS THAT WILL BE AFFECTED BY HEATING DURING THE IMPACTED RUST REMOVAL AND STRAIGHTENING PROCEDURES SHALL NOT RECEIVE A COAT OF PRIMER UNTIL THE IMPACTED RUST REMOVAL AND PLATE REALIGNMENT WORK IS COMPLETED AND ACCEPTED.

4. HEATING, IMPACTED RUST REMOVAL, AND STRAIGHTENING SHALL PROCEED SEQUENTIALLY AROUND THE PIN PLATE ASSEMBLIES BEGINNING AT THE AREAS WITH THE MOST SEVERE IMPACTED RUST AND WORKING AROUND TO THE LEAST.

5. RIVETS IDENTIFIED ON THE DRAWINGS SHALL BE REMOVED ONE AT A TIME FOLLOWING THE APPROVED PROCEDURE FOR RIVET REMOVAL IN IMPACTED RUST AREAS. IF A RIVET CANNOT BE REMOVED WITH A RIVET BUSTER, IT SHALL BE DRILLED OUT USING A 13/16 INCH BIT AND REAMED TO FULL SIZE AFTER DRILLING TO CLEAR ANY REMAINING DEBRIS. ALL PERSONNEL INVOLVED WITH RIVET REMOVAL OPERATIONS SHALL BE DI.5 CERTIFIED WELDERS. EACH PERSON WILL BE REQUIRED TO DEMONSTRATE THE ABILITY TO FOLLOW THE APPROVED PROCEDURES AND PERFORM THE REQUIRED WORK ON SCRAP STEEL THAT IS CONFIGURED SIMILARLY TO THE CONFIGURATIONS ON THE BRIDGE TO THE SATISFACTION OF THE ENGINEER.

6. HEAT AND HAMMER METHOD: EACH AREA OF IMPACTED RUST REMOVAL SHALL BE HEATED WITH AN OXYGEN/ACETYLENE TORCH TO BETWEEN 300 AND 400 DEGREES FAHRENHEIT. THE TEMPERATURE SHALL BE MONITORED USING CONTACT THERMOMETERS, PYROMETRIC STICKS OR OTHER SUITABLE MEANS. ONCE THE APPROPRIATE TEMPERATURE HAS BEEN REACHED, A RIVET BUSTER WITH A BLUNT END SHALL BE USED TO HAMMER THE HEATED AREA TO SHAKE LOOSE THE IMPACTED RUST. A MINIMUM 1/2 INCH THICK BUFFER PLATE SHALL BE PLACED BETWEEN THE STRUCTURAL STEEL AND THE RIVET BUSTER TO PROTECT THE STRUCTURAL STEEL FROM IMPACT DAMAGE.

7. FOR REMOVAL OF IMPACTED RUST IN AREAS WITH MULTIPLE PLIES OF STEEL, ALL HEATING AND HAMMERING WILL TAKE PLACE FROM THE SIDE WITH THE LEAST NUMBER OF PLATES BETWEEN THE RIVET BUSTER AND THE IMPACTED RUST.

8. PRESSURIZED AIR AND MECHANICAL MEANS SHALL BE USED TO AID IN LOOSENING AND REMOVING IMPACTED RUST FROM BETWEEN THE PLATES. WHEN APPROPRIATE HAND TOOLS THAT ALLOW FOR DIGGING AND SCRAPING THE IMPACTED RUST OUT FROM BETWEEN THE PLATES MAY BE USED TO REACH TO THE INTERIOR OF EACH CREVICE.

9. FOR EACH AREA, IMPACTED RUST REMOVAL METHODS SHALL ALTERNATE BETWEEN THE HEAT AND HAMMER METHOD TO PRESSURIZED AIR AND MECHANCAL REMOVAL MEANS AS APPROPRIATE UNTIL ALL POSSIBLE PACK RUST IS REMOVED

10. AFTER THE REMOVAL OPERATIONS IN STEP 9 HAVE REMOVED ALL POSSIBLE IMPACTED RUST BY HEATING, ANY IMPACTED RUST THAT REMAINS WITHIN THE CREVICE SHALL BE REMOVED BY OPENING UP THE CREVICE SLIGHTLY WITH STEEL WEDGES DRIVEN BETWEEN THE PLATES AT THE EDGES OF THE WORK. IMPACTED RUST REMOVAL SHALL THEN CONTINUE BY USING PRESSURIZED AIR AND MECHANICAL MEANS AS STATED IN STEP 8 UNTIL ALL POSSIBLE IMPACTED RUST HAS BEEN EXTRACTED FROM BETWEEN THE PLATES. THE HEAT AND HAMMER METHOD SHALL NOT BE USED WHEN WEDGES ARE PRESENT IN THE IMPACTED CAVITY.

11. ONCE THE IMPACTED RUST REMOVAL PROCESS IS COMPLETE AND ACCEPTED, THE STEEL WEDGES SHALL BE REMOVED. THE PLATES SHALL BE REALIGNED AND BROUGHT TOGETHER ALONG THE TRAILING EDGE OF THE REPAIR SO THAT ONE TEMPORARY HIGH STRENGTH BOLT MAY BE INSTALLED INTO OPEN RIVET HOLE AND FULLY TENSIONED. THE PLATES SHALL BE REHEATED TO BETWEEN 300 TO 400 DEGREES FAHRENHEIT AND BRIDGE CLAMPS OR SIMILAR MEANS SHALL BE APPLIED TO PREVENT ANY NEW DEFORMATION OCCURING AS THE IMPACTED RUST REMOVAL PROGRESSES INTO THE NEXT AREA.

12. THE NEXT RIVET IN PROGRESSION SHALL BE REMOVED AND STEPS 5 THROUGH 11 SHALL BE REPEATED. THE IMPACTED RUST REMOVAL SHALL PROGRESS AROUND THE PIN PLATE ASSEMBLIES UNTIL ALL IMPACTED RUST IS REMOVED AND ALL PLATES AND CHORD MEMBERS ARE REALIGNED TO THE SATISFACTION OF THE ENGINEER.

13. ONCE ALL OF THE PACK RUST REMOVAL AND PLATE REALIGNMENT HAS BEEN COMPLETED AND ACCEPTED, THE TEMPORARY HIGH STRENGTH BOLTS SHALL BE REMOVED AND REPLACED ONE AT A TIME WITH NEW PERMANENT HIGH STRENGTH BOLTS AND FULLY TENSIONED, UNTIL ALL OF THE TEMPORARY BOLTS HAVE BEEN REPLACED WITH PERMANENT ONES.

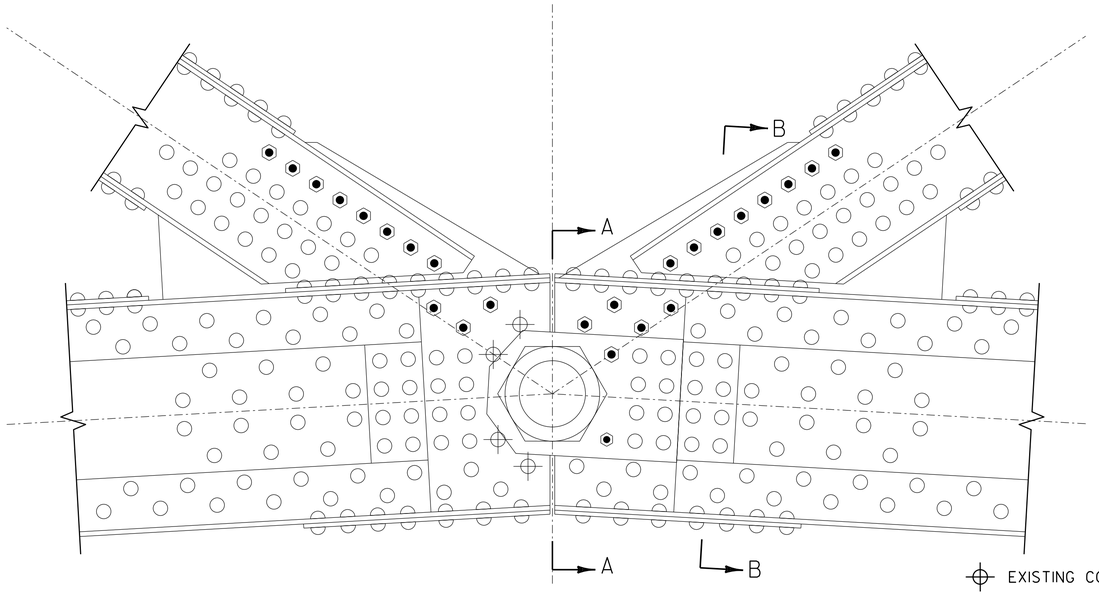
14. AFTER ALL BOLTS ARE TIGHTENED THE REPAIR PLATES SHALL BE SEALED USING PRESSURE INJECTED EPOXY REPAIR COMPOUND.

GILL ENGINEERING

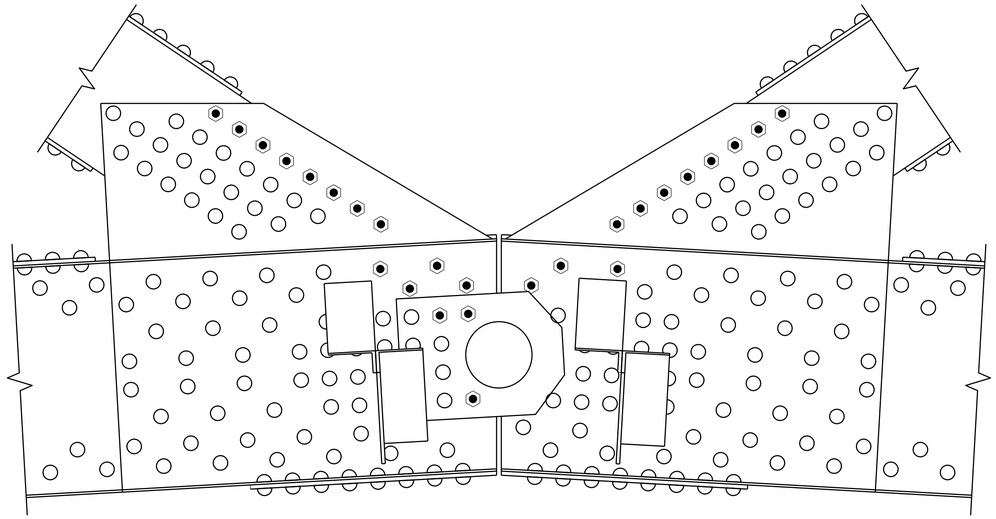
PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082sup.dgn
PROJECT LEADER: AMS
DESIGNED BY: FB
TRUSS JOINT REPAIRS 1

PLOT DATE: 7/6/2022
DRAWN BY: YS
CHECKED BY: PAH



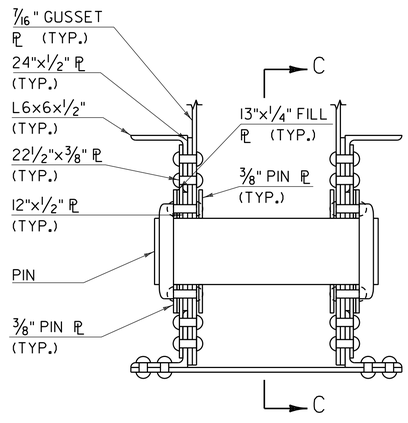
L5 ELEVATION
SCALE 1½" = 1-0"



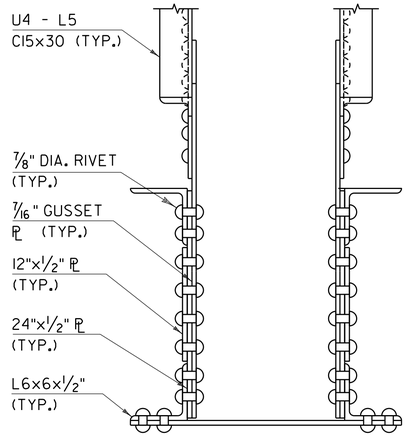
SECTION C
SCALE: 1½"=1'-0"

- EXISTING COUNTERSUNK RIVETS
- EXISTING BUTTON HEAD RIVETS
- EXISTING RIVETS TO BE REMOVED AND REPLACED WITH HIGH STRENGTH BOLTS TO FACILITATE IMPACTED RUST REMOVAL OPERATIONS
- NEW HIGH STRENGTH BOLT

NOTE: FOLLOW IMPACTED RUST REMOVAL AT PINS NOTES ON SHEET 49.



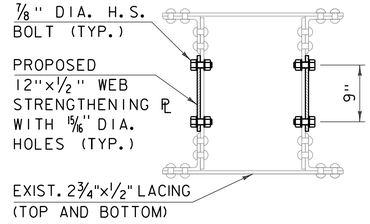
SECTION A - SECTION AT CENTER PIN
SCALE: 1½"=1'-0"



SECTION B
SCALE: 1½"=1'-0"

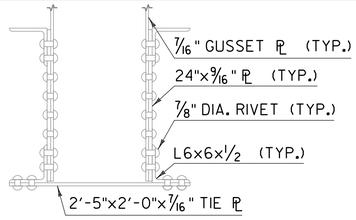
GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)	
PROJECT NUMBER: NH 020-2(45)	
FILE NAME: z17b082sup.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: FB	CHECKED BY: PAH
TRUSS JOINT REPAIRS 2	SHEET 50 OF 97



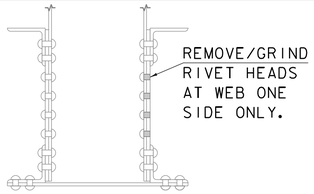
SECTION A - PROPOSED

SCALE: 1"=1'-0"



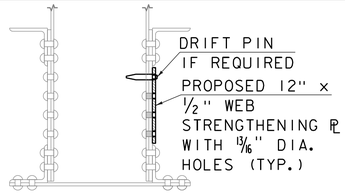
SECTION B - EXISTING

SCALE: 1"=1'-0"



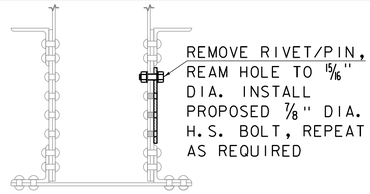
SECTION B - STEP 1

SCALE: 1"=1'-0"



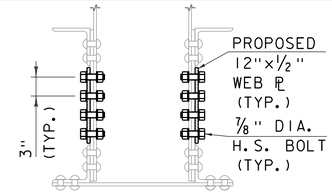
SECTION B - STEP 2

SCALE: 1"=1'-0"



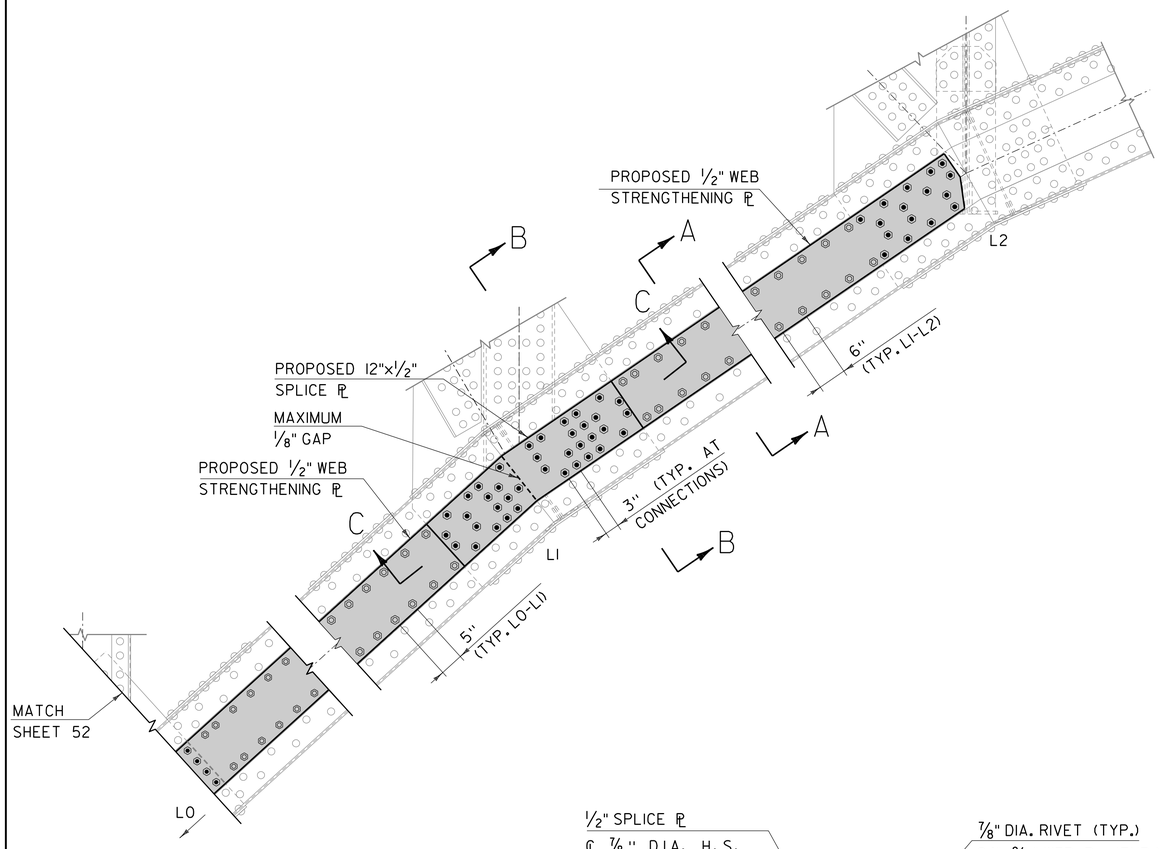
SECTION B - STEP 3

SCALE: 1"=1'-0"



SECTION B - PROPOSED

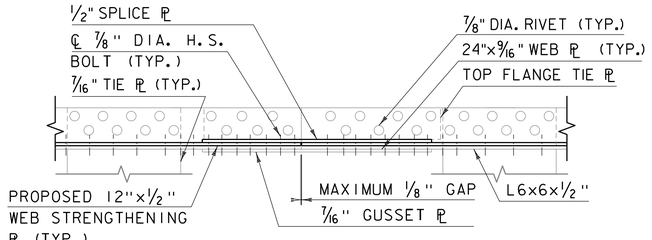
SCALE: 1"=1'-0"



BOTTOM CHORD L0-L2 STRENGTHENING DETAIL

SCALE 3/4" = 1'-0"

NOTE: PERFORM SIMILAR WORK ON EACH SIDE OF TRUSS CHORD, TYPICAL AT ALL FOUR CORNERS.



SECTION C - PROPOSED

SCALE: 1"=1'-0"

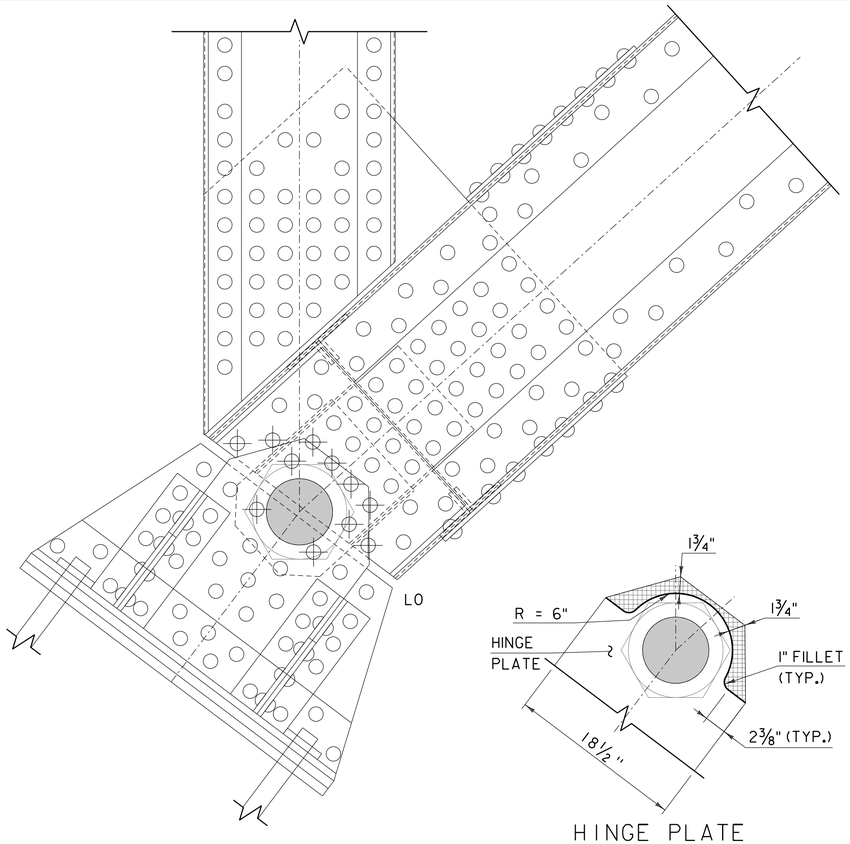
- EXISTING COUNTERSUNK RIVETS
- EXISTING BUTTON HEAD RIVETS
- EXISTING RIVETS TO BE REMOVED AND REPLACED WITH HIGH STRENGTH BOLTS TO FACILITATE IMPACTED RUST REMOVAL OPERATIONS
- NEW HIGH STRENGTH BOLT

BOTTOM CHORD STRENGTHENING NOTES:

1. THE DETAILS DEPICTED HEREIN ARE BASED UPON THE RECORD BRIDGE PLANS AND SOME FIELD OBSERVATION. THE EXISTING PITCH AND GAUGE OF THE RIVETS ARE NOT GUARANTEED. THE CONTRACTOR WILL BE REQUIRED TO CONDUCT A FIELD SURVEY TAKING ALL NECESSARY MEASUREMENTS AND IDENTIFYING ALL DETAILS REQUIRED FOR THE COMPLETION OF THE WORK PRIOR TO THE PREPARATION OF SHOP DRAWINGS. ALL PERSONNEL INVOLVED WITH RIVET REMOVAL OPERATIONS SHALL BE REQUIRED TO DEMONSTRATE THE ABILITY TO FOLLOW THE APPROVED PROCEDURES AND PERFORM THE REQUIRED WORK ON SCRAP STEEL THAT IS CONFIGURED SIMILARLY TO THE CONFIGURATIONS ON THE BRIDGE TO THE SATISFACTION OF THE ENGINEER.
2. AT ALL LOCATIONS WHERE NEW STEEL WILL BE BOLTED USING EXISTING RIVET HOLES, THE CONTRACTOR SHALL MAKE TEMPLATES TO TRANSFER THE EXACT BOLT SPACING TO THE NEW STEEL.
3. ALL WORK FOR THE CHORD STRENGTHENING PLATE INSTALLATION SHALL BE PERFORMED IN THE CONSTRUCTION STAGE IN WHICH THE BRIDGE DECK AND SIDEWALK ARE REMOVED OVER THAT TRUSS CHORD. NO CHORD STRENGHTNING WORK SHALL COMMENCE UNTIL THAT PORTION OF BRIDGE DECK AND SIDEWALK HAVE BEEN COMPLETELY REMOVED IN THAT CONSTRUCTION STAGE.
4. REPAIRS TO ANY ONE MEMBER ARE TO BE MADE IN TWO STEPS, COMMENCING WITH REPAIRS TO ONLY ONE SIDE OF THAT MEMBER (I.E. INTERIOR OR EXTERIOR) TO COMPLETION, SUCH THAT THE MEMBER MAINTAINS ITS LOAD CARRYING CAPACITY THROUGHOUT THE REPAIR PROCESS. ONCE THE REPAIRS TO THE FIRST SIDE ARE COMPLETE THE CONTRACTOR SHALL PERFORM THE REPAIRS TO THE OTHER SIDE TO COMPLETION.
5. PRIOR TO THE INSTALLATION OF ANY NEW STEEL, THE NEW FAYING SURFACES ON THE EXISTING STEEL SHALL BE THOROUGHLY CLEANED TO SSPC-SPIO CONDITION AND A PRIME COAT OF PAINT SHALL BE APPLIED. THE PRIMER SHALL BE A ZINC RICH PRIMER MATCHING THE APPROVED 3 COAT SYSTEM BEING USED FOR THE BRIDGE AND MEETING THE REQUIREMENTS OF AASHTO CLASS B SLIP COEFFICIENT.
6. ALL NEW STEEL SHALL CONFORM TO AASHTO M270, GRADE 50. ALL NEW STEEL SHALL BE BROUGHT TO THE SITE FULLY PRIMED WITH A ZINC RICH PRIMER MATCHING THE APPROVED 3 COAT SYSTEM BEING USED FOR THE BRIDGE AND MEETING THE REQUIREMENTS OF AASHTO CLASS B SLIP COEFFICIENT.
7. ALL EXISTING RIVETS ARE ASSUMED TO BE 7/8 INCH DIA. IN 15/16 INCH DIA. HOLES.
8. ALL HOLES IN THE NEW STEEL SHALL BE SUB DRILLED TO 13/16 INCH DIA. UNLESS NOTED OTHERWISE AND FIELD REAMED TO 15/16 ".
9. HIGH STRENGTH BOLTS SHALL CONFORM TO SUBSECTION 714.05 WITH COMPATIBLE WASHERS AND NUTS. ALL NEW BOLTS SHALL BE 7/8 INCH DIA. HIGH STRENGTH BOLTS IN 15/16 INCH DIA. HOLES WITH A MINIMUM 1 1/2 INCH EDGE DISTANCE, 3 INCH CENTER TO CENTER SPACING THROUGHOUT.
10. NO REPAIRS SHALL COMMENCE UNTIL ALL MATERIALS ARE ON HAND. THIS INCLUDES ALL MEASUREMENTS, TRANSFER OF EXISTING HOLE LOCATIONS TO NEW STEEL, AND COMPLETION OF SUB DRILLED HOLES IN NEW STEEL.
11. ANY UNEXPECTED STEEL DETERIORATION, MATERIAL LOSS, AND/OR CRACKS REVEALED DURING THE RESTORATION PROCESS MUST BE RELAYED TO THE ENGINEER WHO WILL EXAMINE AND ASSESS THE DETERIORATION.
12. ONCE ALL PROPOSED STEEL FOR A PARTICULAR LOCATION IS ON HAND AND THE CONTRACTOR IS READY FOR INSTALLATION, THEY SHALL CAREFULLY REMOVE THE RIVET HEADS WHICH INTERFERE WITH THE INSTALLATION OF THE NEW PLATES. IT IS INTENDED TO MAINTAIN THE REMAINING PORTION OF THE RIVETS IN PLACE, SHANK AND FAR SIDE HEAD.
13. ANY RIVETS WHICH ARE FOUND TO BE LOOSE SHALL BE REMOVED AND REPLACED WITH A FULL BODY DRIFT PIN AND THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED. THE DIAMETER OF THE MAIN BODY OF THE DRIFT PIN SHALL COMPLETELY FILL THE EXISTING HOLE AND PROVIDE FULL BEARING ON CONNECTED PARTS. IF NECESSARY, THE EXISTING HOLE SHALL BE REAMED TO ENSURE GOOD FIT. THE LEADING EDGE TAPER OF THE DRIFT PIN SHALL BE SUFFICIENT TO ALLOW FOR REASONABLE DRIVING INTO PLACE. THE BACK END SHALL BE TURNED TO A DIMENSION WHICH ALLOWS THE NEW PLATE TO BE PLACED OVER IT. THE CONTRACTOR SHALL HAVE AN ASSORTMENT OF VARIOUS DIAMETER DRIFT PINS ON HAND TO ACCOMMODATE VARIOUS DIAMETER BOLT HOLES AND ENSURE A TIGHT FIT.
14. RIVET HEAD REMOVAL SHALL UTILIZE A LIGHT CHIPPING HAMMER WITH AN APPROPRIATE ATTACHMENT FOR GRINDING, BURNING WILL NOT BE ALLOWED. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE EXISTING STEEL. IN THE EVENT THE CONTRACTOR DAMAGES THE EXISTING STEEL THAT IS TO REMAIN DURING RIVET REMOVAL OPERATIONS, THE CONTRACTOR SHALL REPLACE, REPAIR, OR REINFORCE THE DAMAGED AREA AS MAY BE REQUIRED TO RESTORE THE AREA TO EXISTING OR BETTER CONDITION PRIOR TO DAMAGE. ANY DAMAGE DONE BY CONTRACTOR OPERATIONS TO EXISTING STEEL THAT IS TO REMAIN, SHALL BE REPAIRED AND TESTED TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE AGENCY.
15. IN LOCATIONS WHERE THERE IS AN EXISTING RIVET, NO MORE THAN ONE (1) RIVET MAY BE REMOVED AT ANY ONE TIME. THE HOLES SHALL BE REAMED TO FULL SIZE, 15/16 INCH DIA., AND A 7/8 INCH DIA. H.S. BOLT INSTALLED. THE REMOVAL OF THE RIVET SHALL BE ACCOMPLISHED BY PUNCHING THE BODY OF THE SHANK OUT. IF THE RIVET CANNOT BE REMOVED IN THIS MANNER IT SHALL BE REMOVED BY DRILLING A 13/16 INCH DIA. HOLE AND REAMING TO FULL SIZE. CUTTING AND BURNING WILL NOT BE ALLOWED.
16. WHERE A NEW 15/16 INCH DIA. HOLE IS CALLED FOR, USING THE PROPOSED STEEL IN PLACE AS A TEMPLATE, HOLES IN THE EXISTING STEEL SHALL BE SUB DRILLED TO 13/16 INCH DIA., THEN BOTH HOLES IN PROPOSED STEEL AND HOLES IN EXISTING STEEL SHALL BE REAMED TO FULL SIZE, 15/16 INCH DIA. AND A 7/8 INCH DIA. H.S. BOLT INSTALLED.
17. THE PROPOSED STEEL SHALL BE PROPERLY POSITIONED OVER ANY PINS AND SECURED IN PLACE WITH CLAMPS OR OTHER MECHANICAL MEANS. WELDING WILL NOT BE ALLOWED.
18. INSTALLATION OF NEW BOLTS SHALL BE PERFORMED ONE AT A TIME WHETHER REPLACING A RIVET OR A DRIFT PIN.
19. AT LOCATIONS WHERE A DRIFT PIN IS TO BE REPLACED WITH A NEW BOLT THE PIN SHALL BE DRIVEN OUT AND A NEW BOLT INSTALLED.
20. ALL BOLTS SHALL BE FULLY TENSIONED IN ACCORDANCE WITH THE REQUIREMENTS OF VTRANS SECTION 516.19.
21. AFTER ALL BOLTS ARE TIGHTENED THE REPAIR PLATES SHALL BE SEALED USING PRESSURE INJECTED EPOXY REPAIR COMPOUND.

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082sup.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: DJD
DESIGNED BY: FB	CHECKED BY: PAH
TRUSS STRENGTHENING	SHEET 51 OF 97

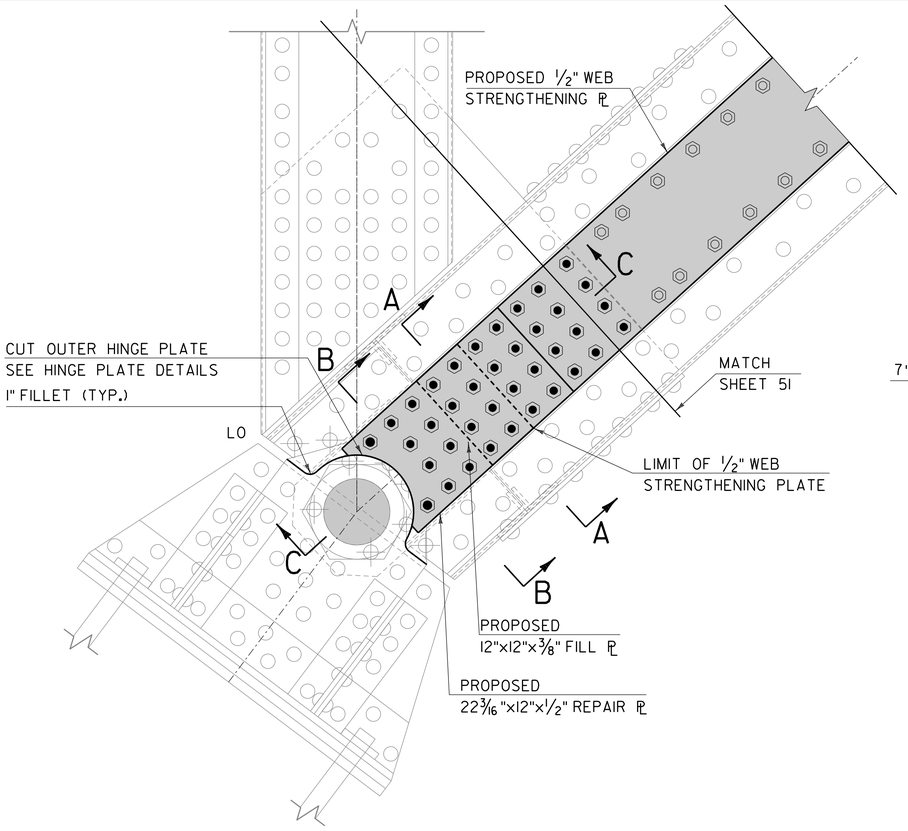


EXISTING PIN DETAIL

SCALE 1½" = 1'-0"

HINGE PLATE CUT LINE DETAIL

SCALE 1½" = 1'-0"

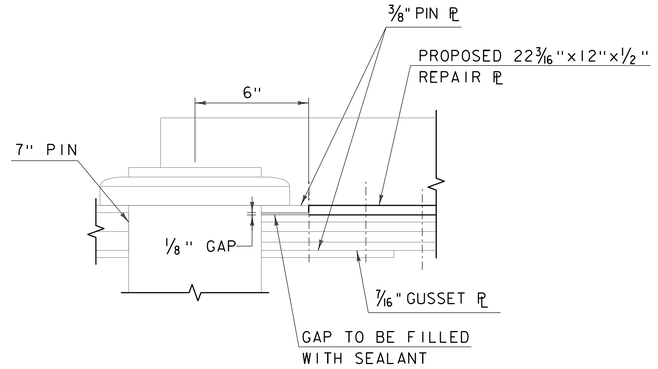


PIN STRENGTHENING DETAIL

SCALE 1½" = 1'-0"

NOTE:
TYPICAL AT ALL FOUR CORNERS

- EXISTING COUNTERSUNK RIVETS
- EXISTING BUTTON HEAD RIVETS
- EXISTING RIVETS TO BE REMOVED AND REPLACED WITH HIGH STRENGTH BOLTS TO FACILITATE IMPACTED RUST REMOVAL OPERATIONS
- NEW HIGH STRENGTH BOLT

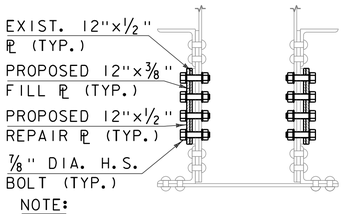


DETAIL AT PIN PLATE

SCALE: 3"=1'-0"

NOTES FOR REMOVING EXISTING STEEL:

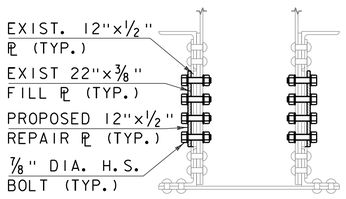
1. CUTTING EXISTING STEEL SHALL BE PERFORMED WITH CARE TO AVOID DAMAGING OR NOTCHING ANY OF THE MATERIAL TO REMAIN.
2. CUTTING SHALL BE ACHIEVED BY MECHANICAL MEANS; THERMAL CUTTING SHALL NOT BE ALLOWED.
3. IN THE EVENT THE CONTRACTOR DAMAGES THE EXISTING STEEL THAT IS TO REMAIN DURING CUTTING OR GRINDING OPERATIONS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY AND THE CONTRACTOR SHALL SUBMIT A REPAIR PROCEDURE FOR APPROVAL. THE CONTRACTOR SHALL REPLACE, REPAIR, OR REINFORCE THE DAMAGED AREA AS MAY BE REQUIRED TO RESTORE THE AREA TO EXISTING OR BETTER CONDITION PRIOR TO DAMAGE. ANY DAMAGE DONE BY CONTRACTOR OPERATIONS TO EXISTING STEEL THAT IS TO REMAIN, SHALL BE REPAIRED AND TESTED TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE AGENCY.
4. COST OF REMOVAL OF EXISTING STEEL SHALL BE INCIDENTAL TO ITEM 506.60 STRUCTURAL STEEL (REPAIRS). STEEL REMOVAL SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 529.04 REMOVAL OF STRUCTURES.



NOTE:
REPLACE EXISTING RIVETS WITH H.S. BOLTS USING SAME PROCEDURE AS SHOWN IN SECTION B, STEPS 1 THROUGH 3 ON SHEET 51.

SECTION A - PROPOSED

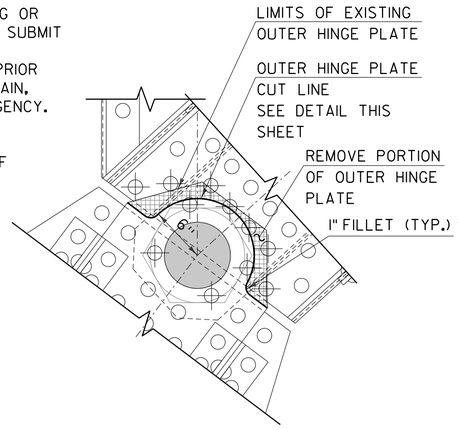
SCALE: 1"=1'-0"



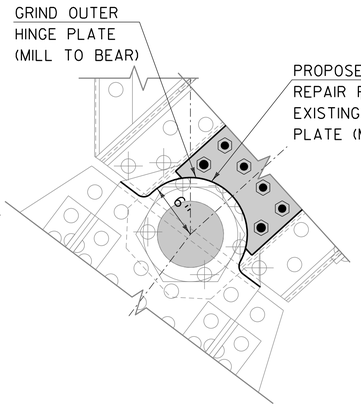
NOTE:
REPLACE EXISTING RIVETS WITH H.S. BOLTS USING SAME PROCEDURE AS SHOWN IN SECTION B, STEPS 1 THROUGH 3 ON SHEET 51.

SECTION B - PROPOSED

SCALE: 1"=1'-0"



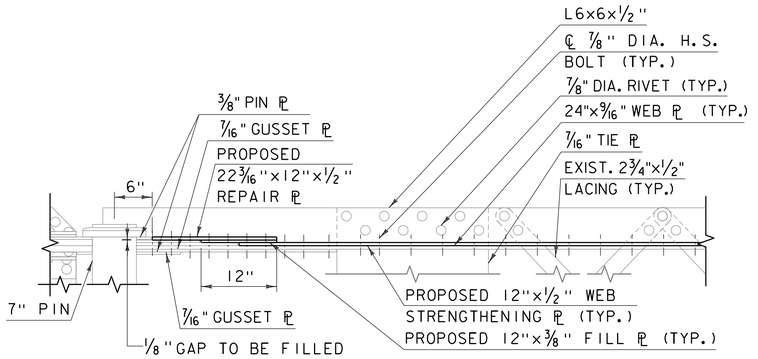
HINGE PLATE MODIFICATION DETAIL



STRENGTHENING PLATE INSTALLATION DETAIL

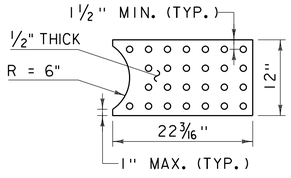
HINGE PLATE DETAILS

SCALE 1½" = 1'-0"



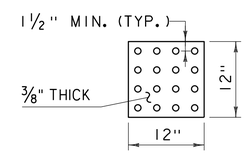
SECTION C - PROPOSED

SCALE: 1"=1'-0"



STRENGTHENING PLATE DETAIL

SCALE: 1"=1'-0"

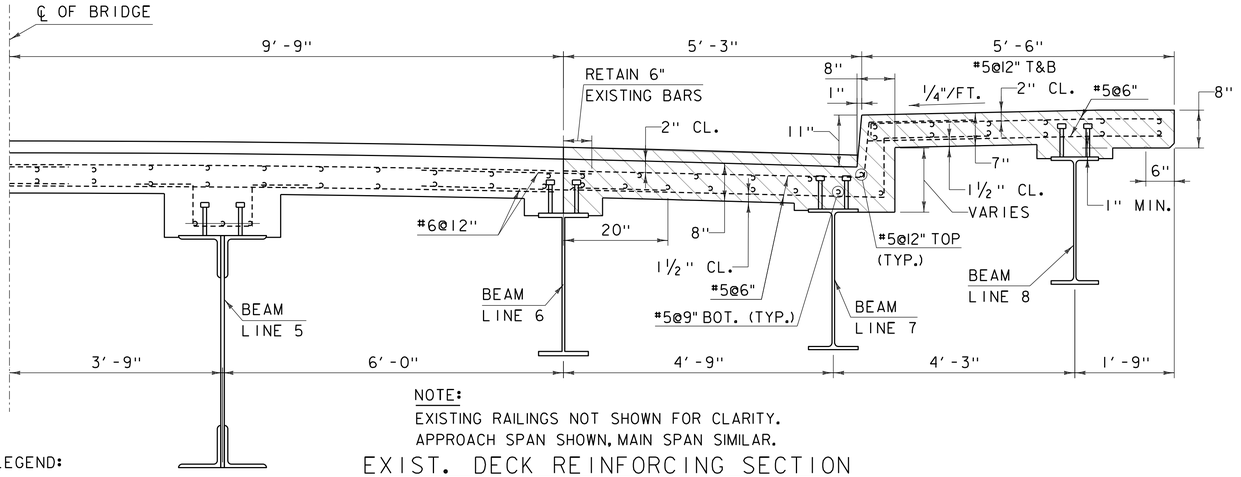


FILL PLATE DETAIL

SCALE: 1"=1'-0"

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082sup.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: DJD
DESIGNED BY: FB	CHECKED BY: PAH
PIN STRENGTHENING DETAILS	SHEET 52 OF 97



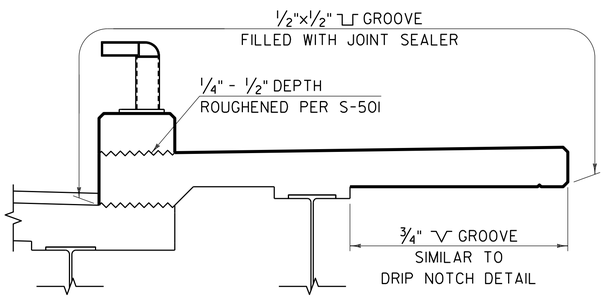
NOTE:
EXISTING RAILINGS NOT SHOWN FOR CLARITY.
APPROACH SPAN SHOWN, MAIN SPAN SIMILAR.

EXIST. DECK REINFORCING SECTION

SCALE 3/4" = 1-0"

LEGEND:

EXIST. BRIDGE COMPONTENTS TO BE DEMOLISHED

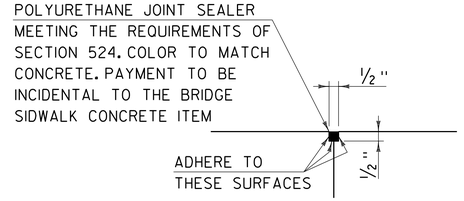


SIDEWALK SLAB RELIEF JOINT SECTION

SCALE 3/4" = 1-0"

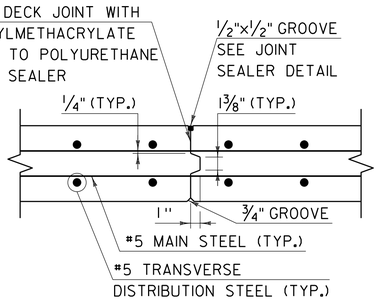
RELIEF JOINT NOTES:

1. THERE IS NO JOINT IN THE SIDEWALK SLAB AT THESE LOCATIONS.
2. GROOVES SHALL BE SCORED OR CAST INTO THE SLAB.
3. ALL LONGITUDINAL BARS SHALL BE CONTINUOUS THROUGH THIS LOCATION.



JOINT SEALER DETAIL

SCALE 3" = 1-0"

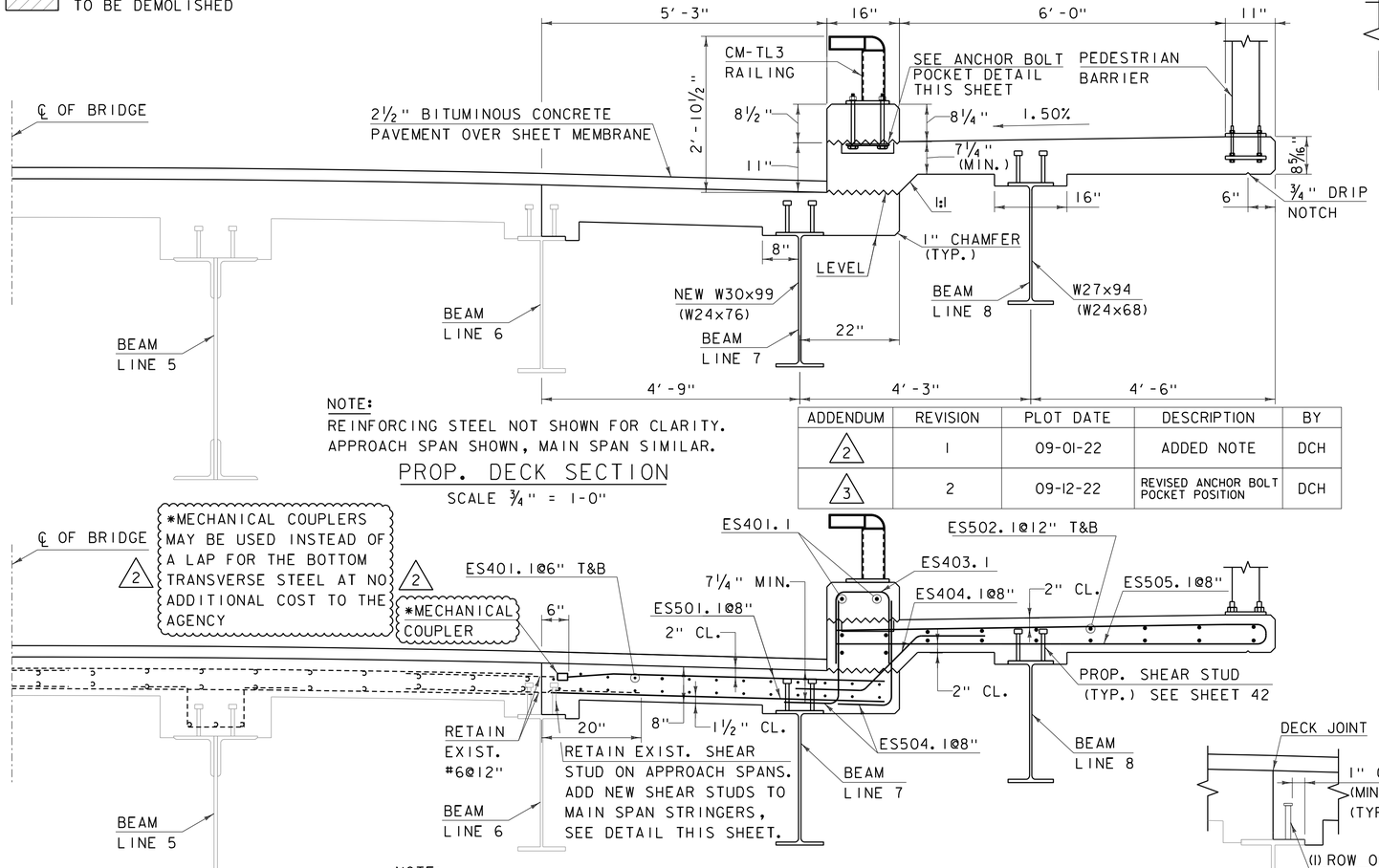


NOTES:

1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.

TRANSVERSE CONSTRUCTION JOINT IN SIDEWALK SLAB

SCALE 1 1/2" = 1-0"



NOTE:
REINFORCING STEEL NOT SHOWN FOR CLARITY.
APPROACH SPAN SHOWN, MAIN SPAN SIMILAR.

PROP. DECK SECTION

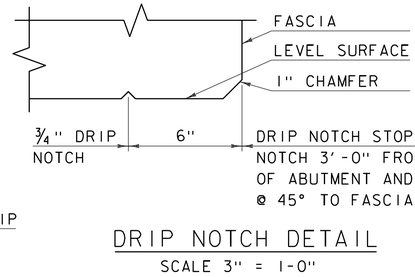
SCALE 3/4" = 1-0"

ADDENDUM	REVISION	PLOT DATE	DESCRIPTION	BY
2	1	09-01-22	ADDED NOTE	DCH
3	2	09-12-22	REVISED ANCHOR BOLT POCKET POSITION	DCH

NOTE:
APPROACH SPAN SHOWN, MAIN SPAN SIMILAR.

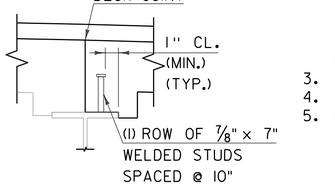
PROP. DECK REINFORCING SECTION

SCALE 3/4" = 1-0"



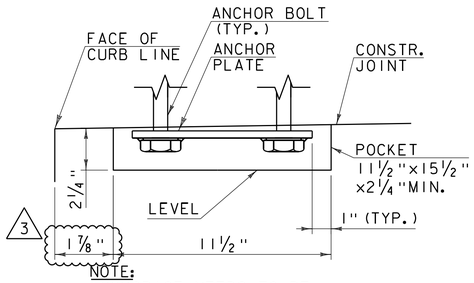
DRIP NOTCH DETAIL

SCALE 3" = 1-0"



BEAM LINES 3 AND 6 SHEAR STUD DETAIL

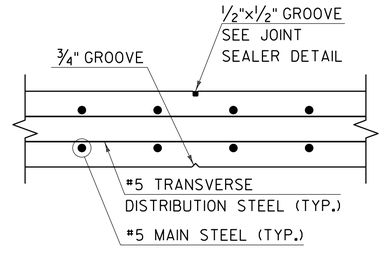
NOT TO SCALE



NOTE:
ANCHORAGE NEEDS TO BE INDEPENDENTLY SUPPORTED.

ANCHOR BOLT POCKET DETAIL

SCALE 3" = 1-0"



TRANSVERSE RELIEF JOINT IN SIDEWALK SLAB

SCALE 1 1/2" = 1-0"

DECK WIDENING NOTES:

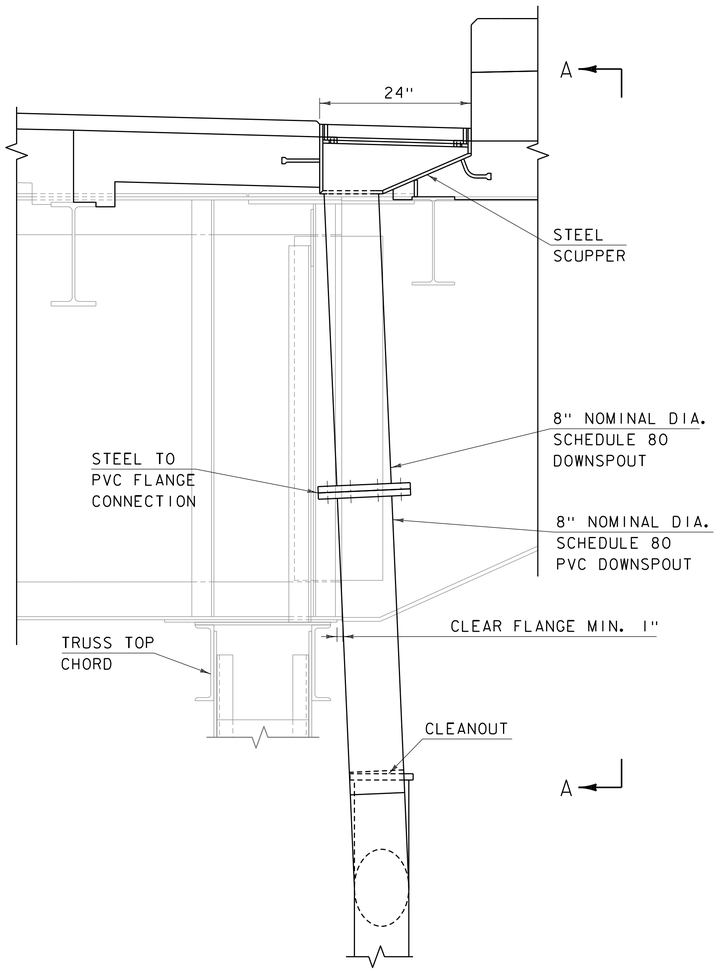
1. THE SIDEWALK SLABS SHALL BE PLACED IN ALTERNATING SECTIONS WITH A MINIMUM OF 72 HOURS IN BETWEEN PLACEMENTS.
2. TO PREPARE THE CONSTRUCTION JOINT SURFACES FOR PLACEMENT OF NEW CONCRETE AGAINST PREVIOUSLY PLACED CONCRETE, THE SURFACE OF THE PREVIOUSLY CAST CONCRETE SHALL BE CLEANED OF ALL LAITANCE. JUST PRIOR TO PLACEMENT OF THE NEW CONCRETE THE CONSTRUCTION JOINT SURFACES SHALL BE PRE-WETTED WITH POTABLE WATER FOR A MINIMUM OF 24 HOURS TO ACHIEVE A SATURATED SURFACE DRY CONDITION.
3. APPROACHES SHOWN, DECK WORK SIMILAR ON MAIN SPAN.
4. SYMMETRICAL ACROSS CENTERLINE.
5. WATERLINE AND SUPPORTS NOT SHOWN. SEE SHEET 13 FOR DETAILS.

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

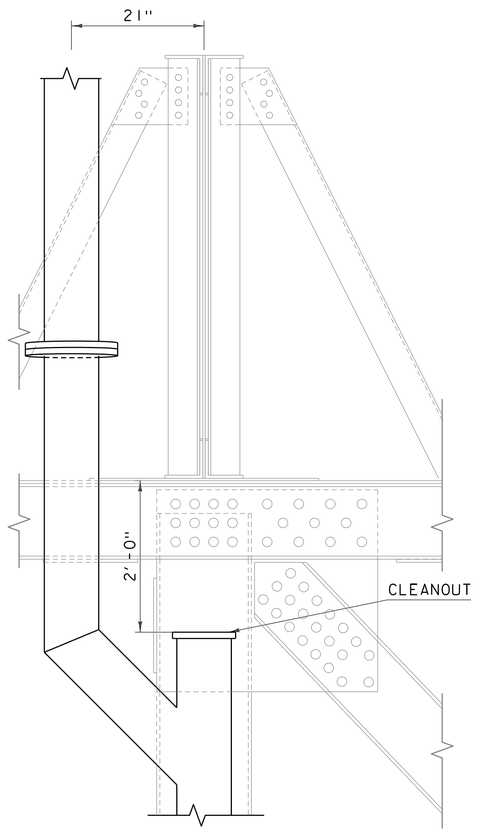
FILE NAME: z17b082sup.dgn
PROJECT LEADER: AMS
DESIGNED BY: FB
DECK DETAILS

PLOT DATE: 9/13/2022
DRAWN BY: YS
CHECKED BY: PAH
SHEET 53 OF 97



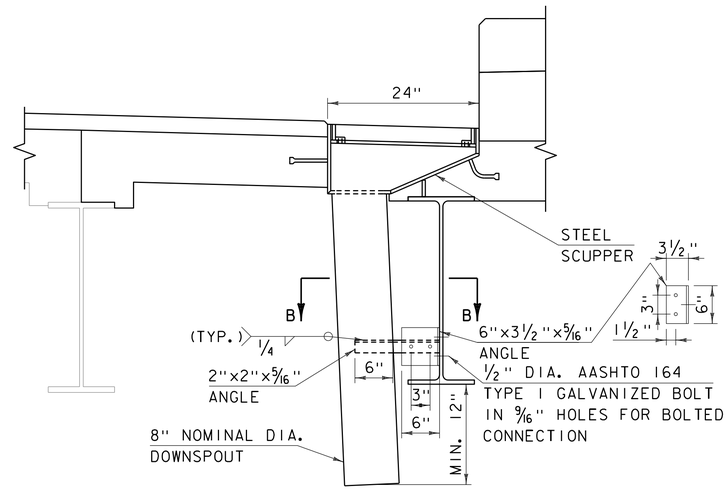
PROP DOWNSPOUT MAIN SPAN CROSS SECTION

SCALE 1" = 1'-0"



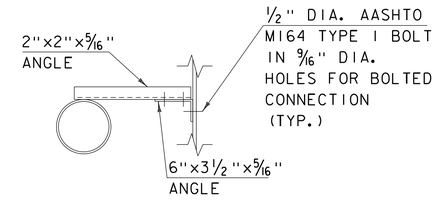
SECTION A-A

SCALE 1" = 1'-0"



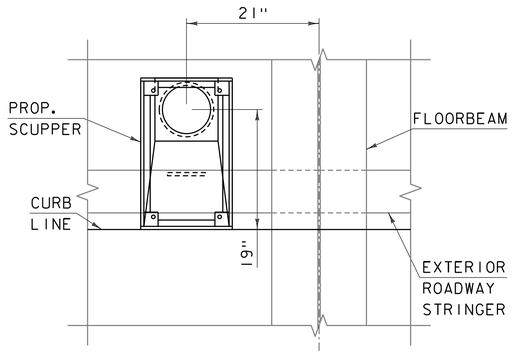
PROP DOWNSPOUT APPROACH SPAN CROSS SECTION

SCALE 1" = 1'-0"



SECTION B-B

SCALE: 1" = 1'-0"



TYPICAL PROP. SCUPPER LOCATION

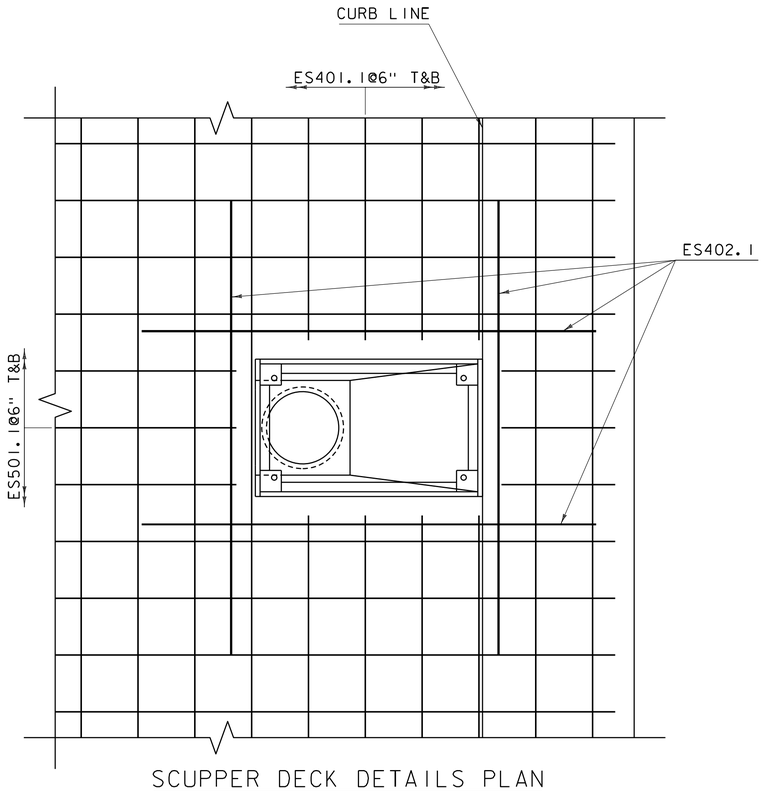
SCALE 1" = 1'-0"

NOTES:

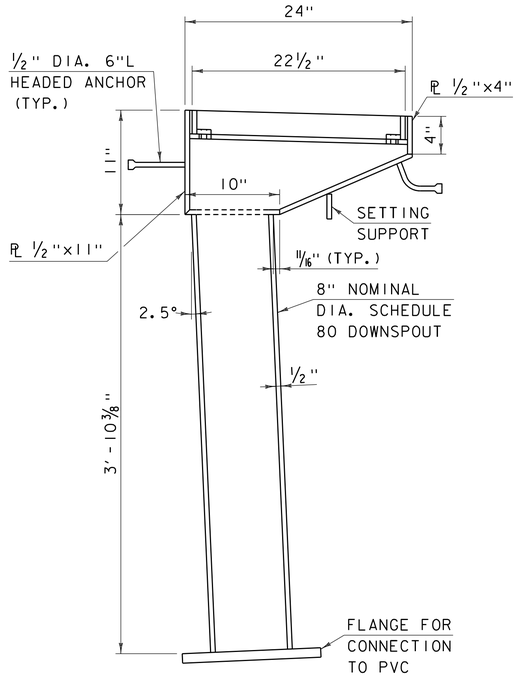
1. ALL STEEL PLATES AND ANGLES FOR SCUPPER AND SUPPORTS SHALL BE AASHTO M270 GRADE 36.
2. ALL STEEL FOR GRATE SHALL BE AASHTO M270 GRADE 50.
3. ALL PIPE SECTIONS FOR DOWN SPOUTS SHALL BE ASTM A500 GRADE A OR B.
4. ALL WELDS SHALL BE CONTINUOUS. ALL JOINTS SHALL BE WELDED USING TWO-SIDED 1/4" FILLET WELDS OR 1/4" PJP WELDS WITH A BACKING SEAL WELD, AS APPLICABLE UNLESS NOTED OTHERWISE.
5. ALL STEEL TO BE HOT DIPPED GALVANIZED AFTER WELDING ASSEMBLY. ALL EXPOSED DOWNSPOUTS SHALL BE POWDER COATED.
6. TEMPORARY SUPPORT IS REQUIRED. SUPPORT DETAILS SHALL BE SUBMITTED WITH SHOP DRAWINGS.
7. TOP SURFACE OF SCUPPER SHALL BE SLOPED TO MATCH ROADWAY CROSS SLOPE AND GRADE.
8. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO THE DEVELOPMENT OF SHOP DRAWINGS AND FABRICATION.
9. ALL PVC PIPE SHALL BE ASTM D1785 SCHEDULE 80
10. ALL BOLTS AND RELATED HARDWARE FOR DRAINAGE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M232.
11. ALL SCUPPERS AND CONNECTIONS ARE SECONDARY MEMBERS.

GILL ENGINEERING

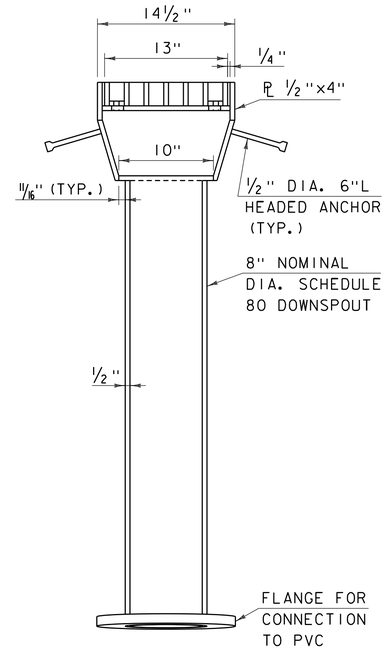
PROJECT NAME: HARTFORD (QUECHEE)	
PROJECT NUMBER: NH 020-2(45)	
FILE NAME: z17b082scup.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
SCUPPER DETAILS 1	SHEET 54 OF 97



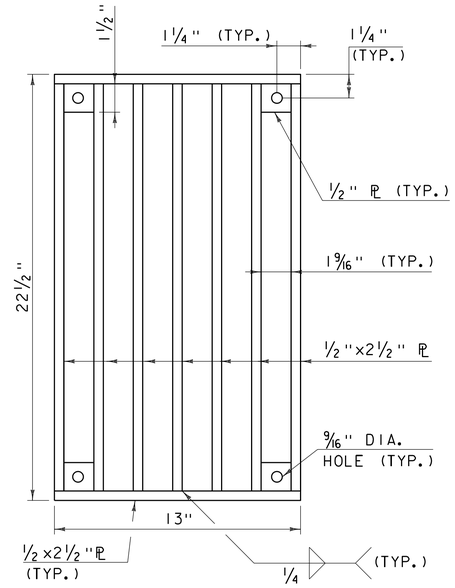
SCUPPER DECK DETAILS PLAN
SCALE 1½" = 1'-0"



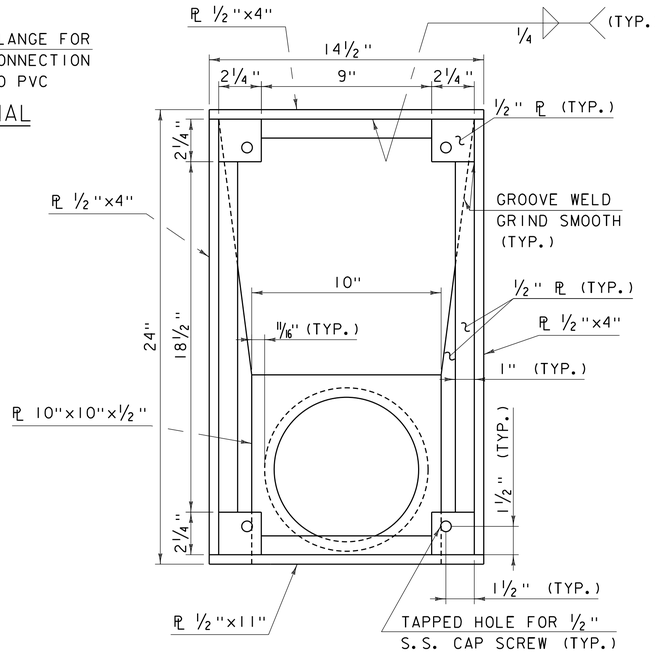
SCUPPER CROSS SECTION VIEW
SCALE 1½" = 1'-0"



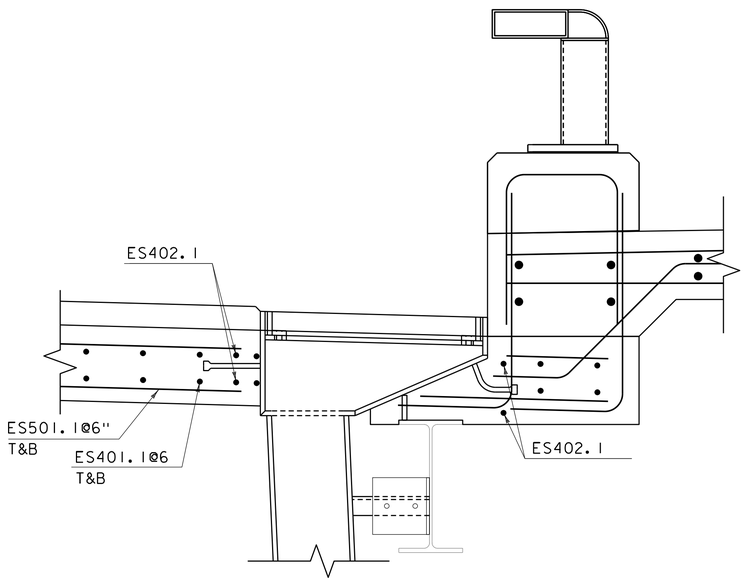
SCUPPER LONGITUDINAL SECTION VIEW
SCALE 1½" = 1'-0"



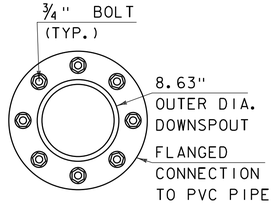
SCUPPER GRATE
SCALE 3" = 1'-0"



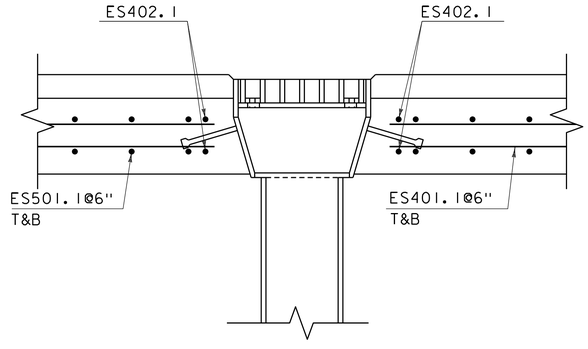
SCUPPER FRAME
SCALE 3" = 1'-0"



SCUPPER DECK DETAILS SECTION
SCALE 1½" = 1'-0"



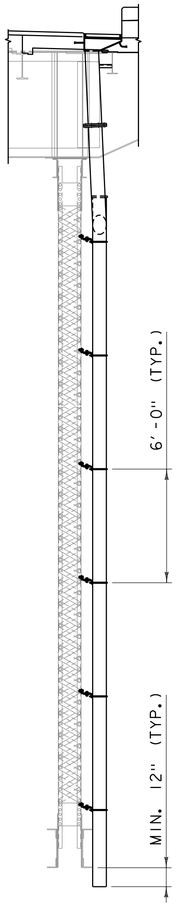
DOWNSPOUT TO PVC PIPE CONNECTION
SCALE 1½" = 1'-0"



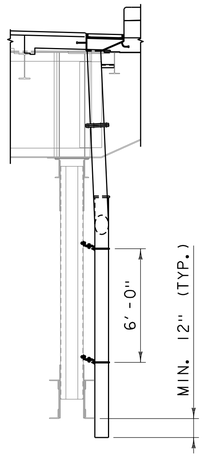
SCUPPER DECK DETAILS LONGITUDINAL SECTION
SCALE 1½" = 1'-0"

GILL ENGINEERING

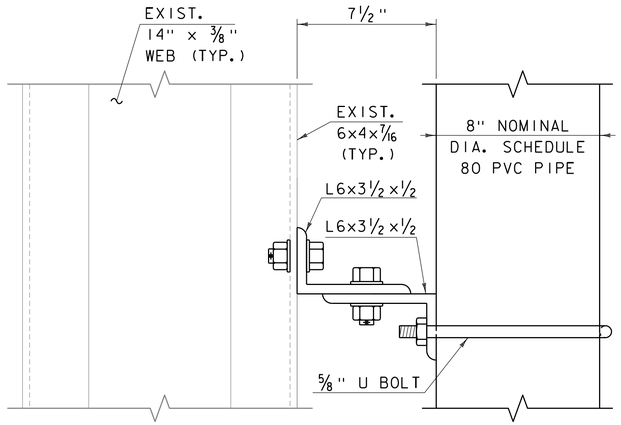
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082scup.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
SCUPPER DETAILS 2	SHEET 55 OF 97



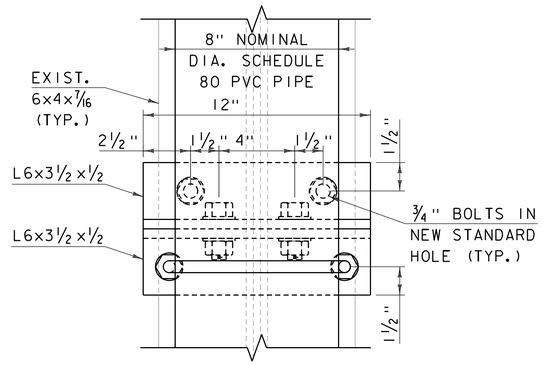
PVC PIPE FULL
HEIGHT AT U1-L1
SCALE 1/4" = 1'-0"



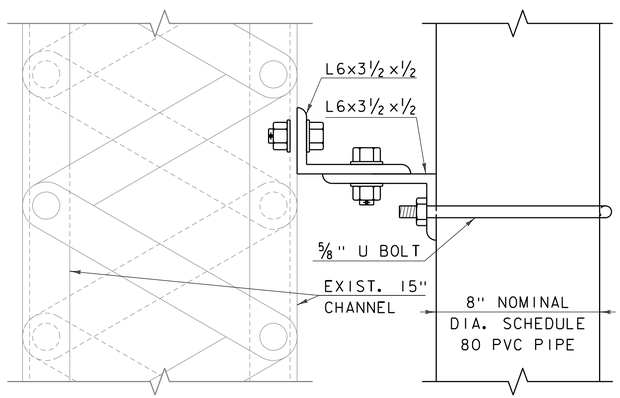
PVC PIPE FULL
HEIGHT AT U3-L3
SCALE 1/4" = 1'-0"



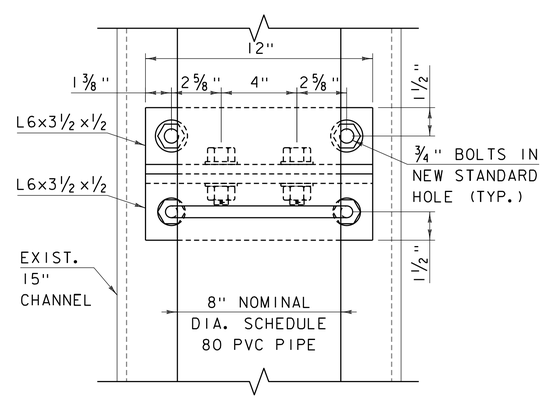
U3-L3 SIDE VIEW
CONNECTION DETAILS FOR PVC PIPE
SCALE 3" = 1'-0"



U3-L3 FRONT VIEW
CONNECTION DETAILS FOR PVC PIPE
SCALE 3" = 1'-0"



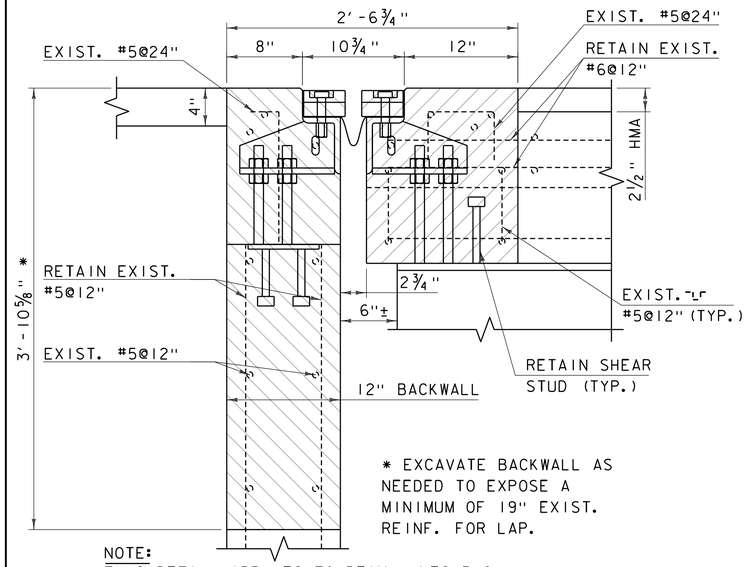
UI-LI SIDE VIEW
CONNECTION DETAILS FOR PVC PIPE
SCALE 3" = 1'-0"



UI-LI FRONT VIEW
CONNECTION DETAILS FOR PVC PIPE
SCALE 3" = 1'-0"

GILL ENGINEERING

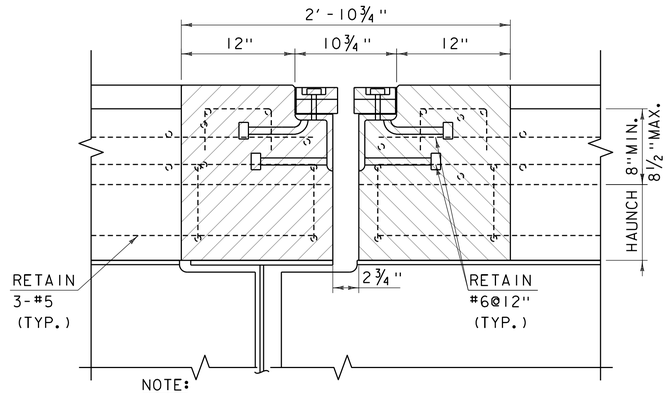
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082scup.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
SCUPPER DETAILS 3	SHEET 56 OF 97



NOTE:
THIS DETAIL APPLIES TO BEAM LINES 3-6.

EXIST. EXPANSION JOINT DEMO AT ENDS OF BRIDGE

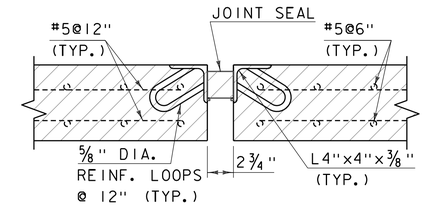
SCALE 1½" = 1-0"



NOTE:
THIS DETAIL APPLIES TO BEAM LINES 3-6.

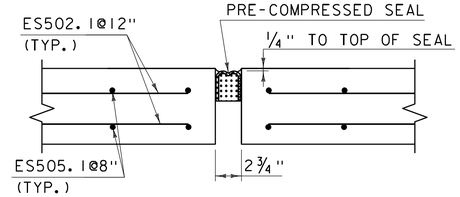
EXIST. MIDSPAN EXPANSION JOINT DEMO

SCALE 1½" = 1-0"



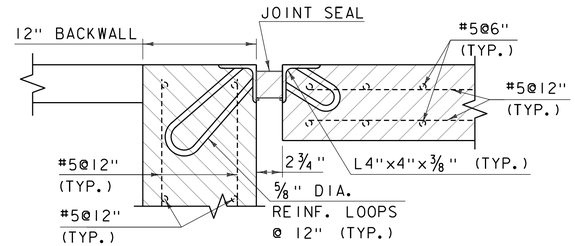
EXIST. SIDEWALK DEMO AT MIDSPAN EXP. JT.

SCALE 1½" = 1-0"



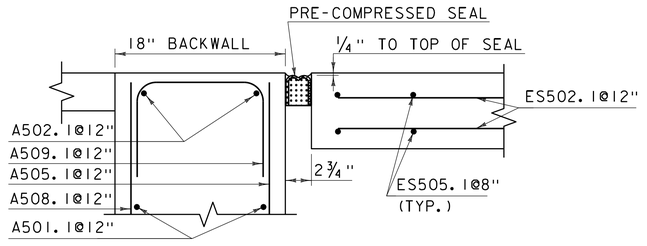
PROP. SIDEWALK AT MIDSPAN EXP. JT.

SCALE 1½" = 1-0"



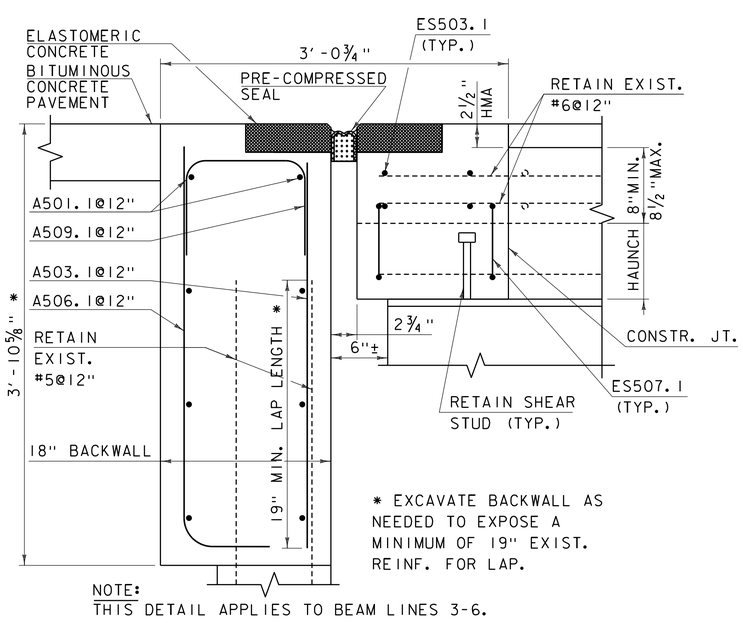
EXIST. SIDEWALK AT END OF DECK

SCALE 1½" = 1-0"



PROP. SIDEWALK AT END OF DECK

SCALE 1½" = 1-0"



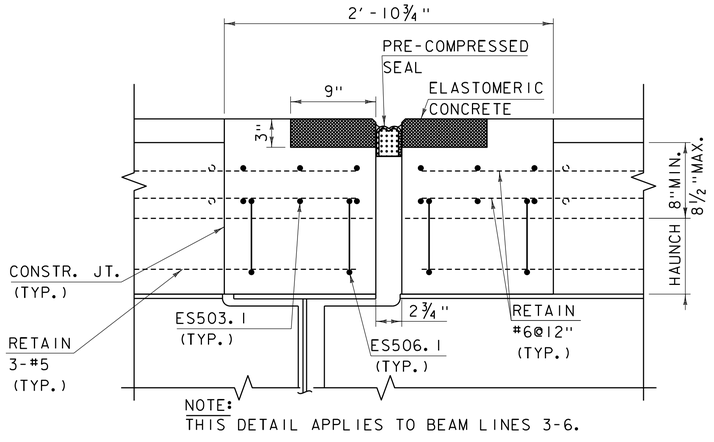
NOTE:
THIS DETAIL APPLIES TO BEAM LINES 3-6.

PROP. EXPANSION JOINT SECTION AT ENDS OF BRIDGE

SCALE 1½" = 1-0"

LEGEND:

EXIST. BRIDGE COMPONTENTS TO BE DEMOLISHED EXCEPT AS NOTED



NOTE:
THIS DETAIL APPLIES TO BEAM LINES 3-6.

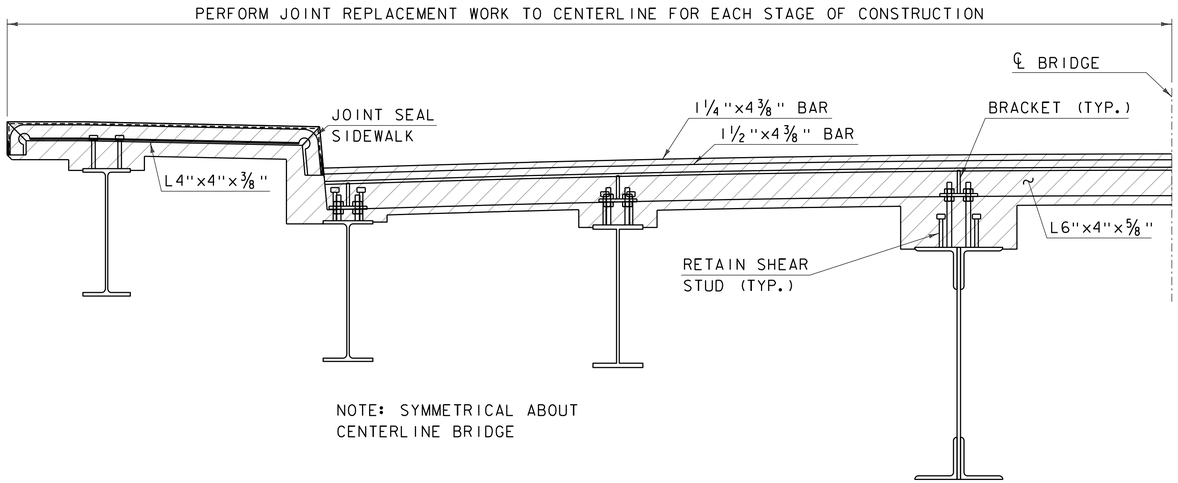
PROP. MIDSPAN EXPANSION JOINT SECTION

SCALE 1½" = 1-0"

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)

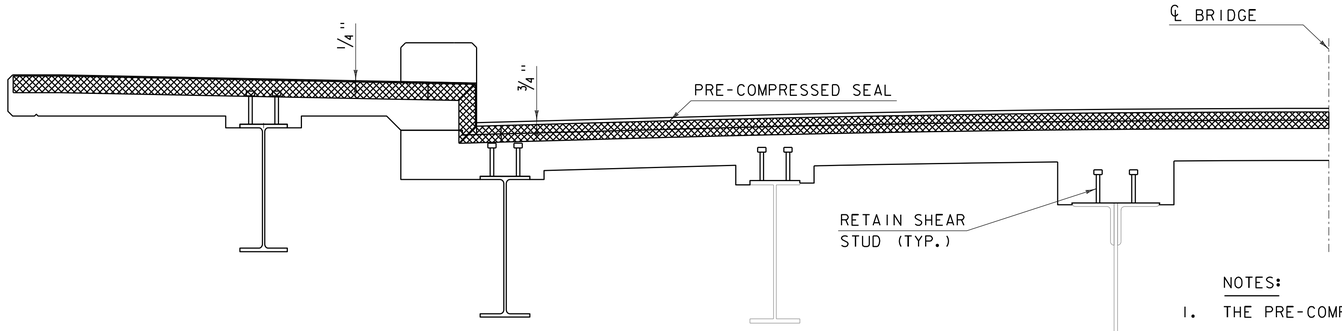
FILE NAME: zl7b082joint.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
JOINT DETAILS 1	SHEET 57 OF 97



NOTE: SYMMETRICAL ABOUT
CENTERLINE BRIDGE

EXIST. JOINT DEMOLITION CROSS SECTION

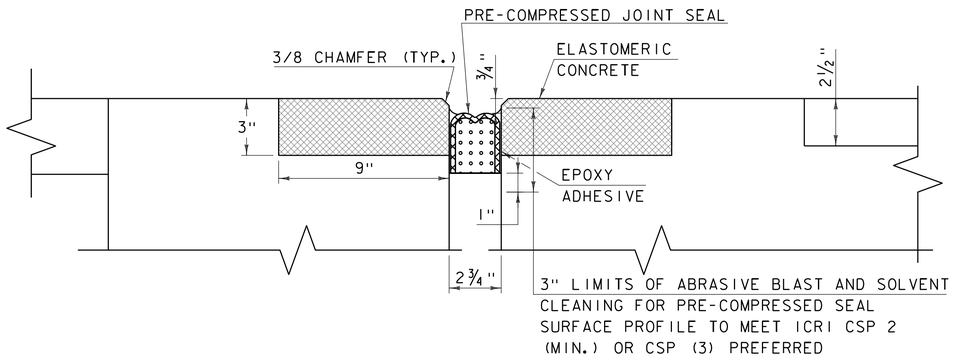
SCALE ¾" = 1-0"



NOTE: SYMMETRICAL ABOUT
CENTERLINE US ROUTE 4

PROP. JOINT CROSS SECTION

SCALE ¾" = 1-0"



JOINT AT ABUTMENT SHOWN, MIDSPAN SIMILAR

PRE-COMPRESSED JOINT SEAL

SCALE 3" = 1-0"

NOTES:

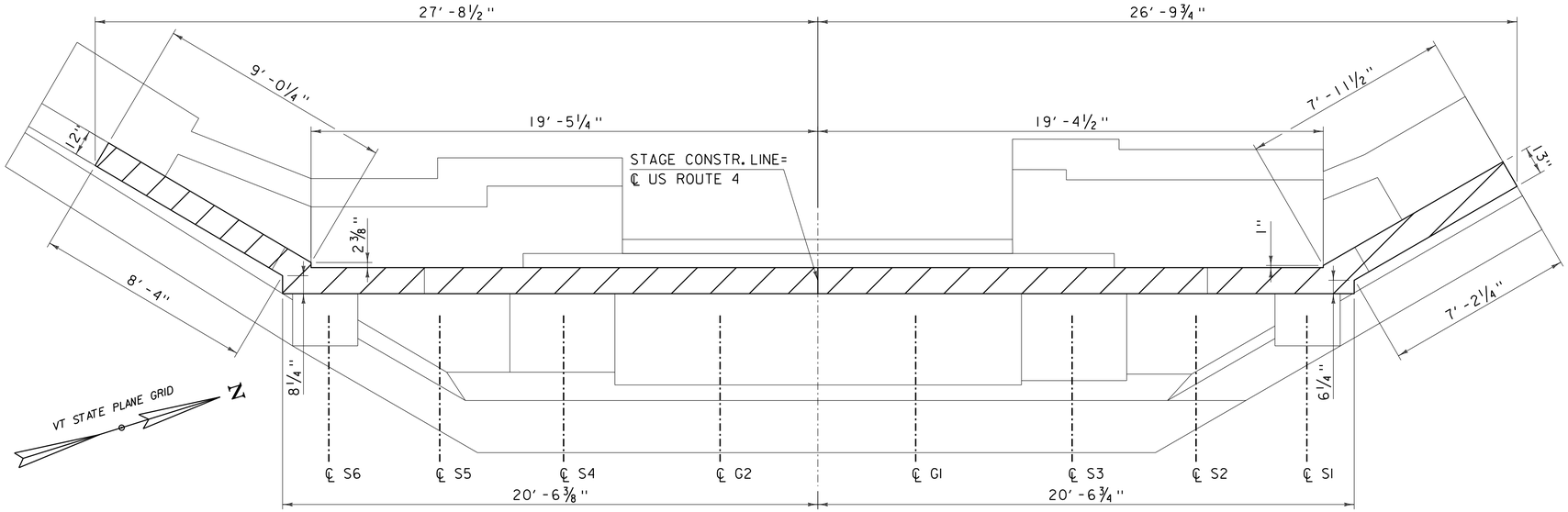
1. THE PRE-COMPRESSED SEAL JOINT SYSTEM SHALL BE THE BEJS SYSTEM MANUFACTURED BY EMSEAL JOINT SYSTEM, LTD.
2. THE INSTALLATION AND SPLICING OF THE PRE-COMPRESSED SEAL SHALL FOLLOW THE MANUFACTURERS INSTRUCTIONS.
3. THE REQUIRED NOMINAL SEAL WIDTH SHALL BE DETERMINED BY THE MANUFACTURER IN ORDER TO KEEP THE SEAL IN COMPRESSION WHEN THE JOINT GAP IS AT ITS MAXIMUM ANTICIPATED OPENING
4. THE JOINT SYSTEM INSTALLATION SHALL TAKE PLACE AFTER THE JOINT HEADER CONCRETE ADJACENT TO THE JOINT HAS SUFFICIENTLY CURED.
5. THE JOINT OPENING SHALL BE FREE OF ALL CONTAMINANTS SUCH AS GREASE, DUST, AND DIRT. PRIOR TO JOINT SYSTEM INSTALLATION, THE JOINT WALLS SHALL BE BLOWN CLEAN WITH OIL-FREE COMPRESSED AIR AND WIPED CLEAN WITH A CLEAN WET CLOTH TO THE BOTTOM OF THE PRE-COMPRESSED SEAL MATERIAL PLUS 1" TO REMOVE ANY DUST REMAINING. THE SUBSTRATE PREP SHALL FOLLOW THE ICRI CONCRETE SURFACE PROFILE STANDARDS TO ACHIEVE A SURFACE PROFILE OF CSP 2 (MIN.) OR 3 (PREFERRED) IN ORDER TO ACCEPT THE JOINT SYSTEM.
6. THE PRE-COMPRESSED SEAL JOINT SYSTEM SHALL BE CONTINUOUS THROUGH SIDEWALKS. CONTINUITY OF SEAL SHALL BE ACHIEVED THROUGH THE USE OF FACTORY-FABRICATED UNIVERSAL OR CUSTOM TRANSITIONS SUPPLIED BY THE MANUFACTURER. THE FIELD SPLICE OF THE PRE-COMPRESSED SEAL SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. THE ELASTOMAERIC CONCRETE SHALL CONSIST OF EMCRETE NOSING MATERIAL AS MANUFACTURED BY EMSEAL JOINT SYSTEM, LTD.
8. THE ELASTOMERIC CONCRETE SHALL BE SUFFICIENTLY CURED SO THAT VEHICULAR TRAFFIC MAY BE APPLIED IN NO MORE THAN 2 HOURS AFTER MIXING AND PLACEMENT.
9. THE JOINT GAP OF 2¾" IS ASSUMED TO OCCUR AT AN AMBIENT TEMPERATURE OF 70°F. FOR EVERY CHANGE IN 10°F THE JOINT GAP WILL INCREASE OR DECREASE BY 1/16"

LEGEND:

EXIST. BRIDGE COMPONTENTS TO BE DEMOLISHED

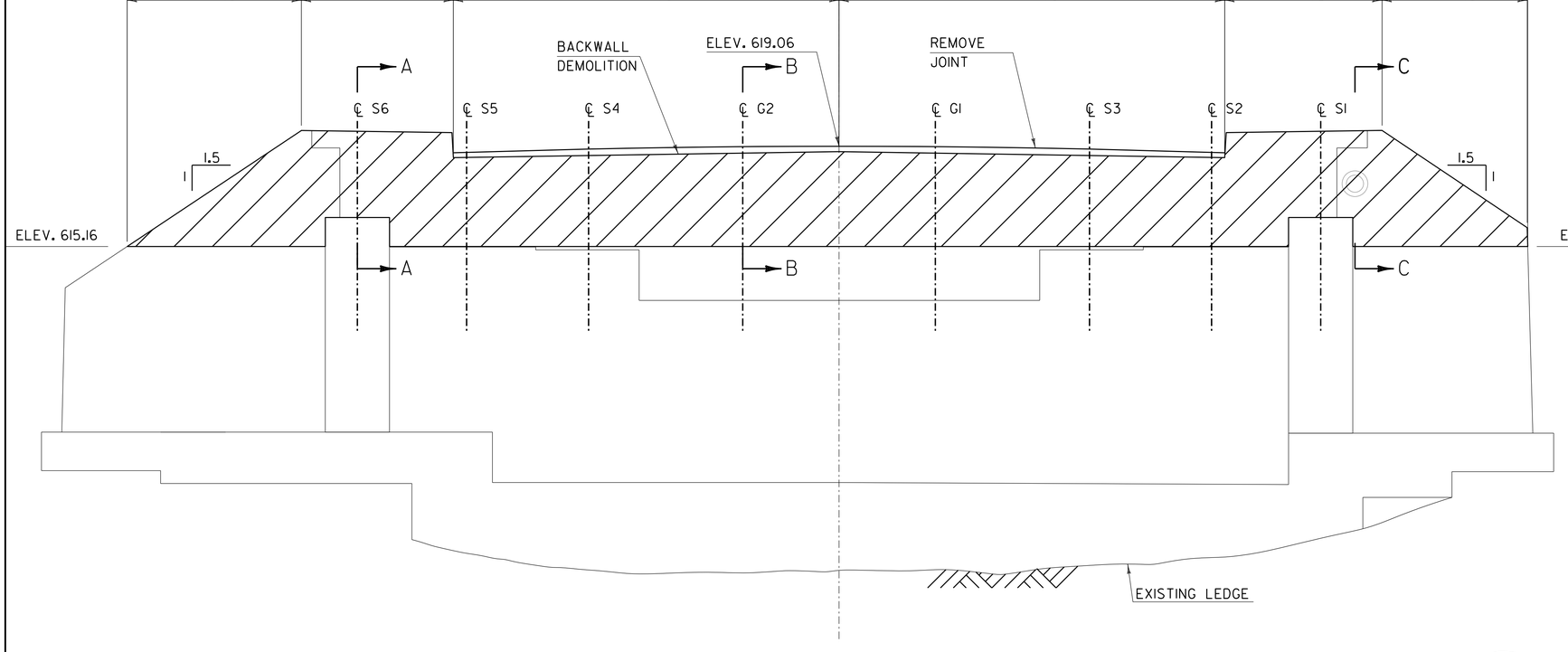
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082joint.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
JOINT DETAILS 2	SHEET 58 OF 97



ABUTMENT I DEMO PLAN (WEST ABUTMENT)

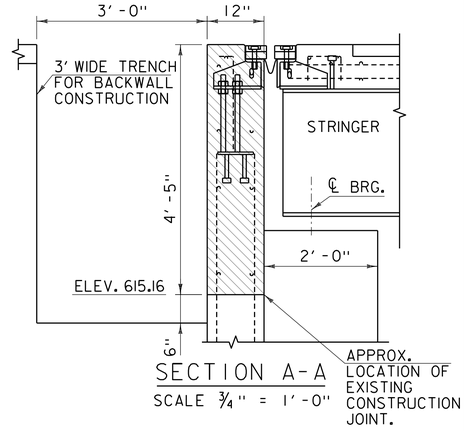
SCALE 3/8" = 1'-0"



ABUTMENT I DEMO ELEVATION (WEST ABUTMENT)

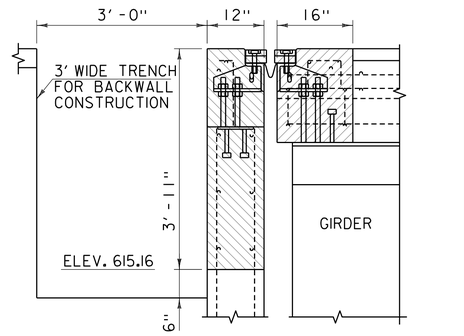
SCALE 3/8" = 1'-0"

SEE SHEET 60 FOR DEMOLITION NOTES.



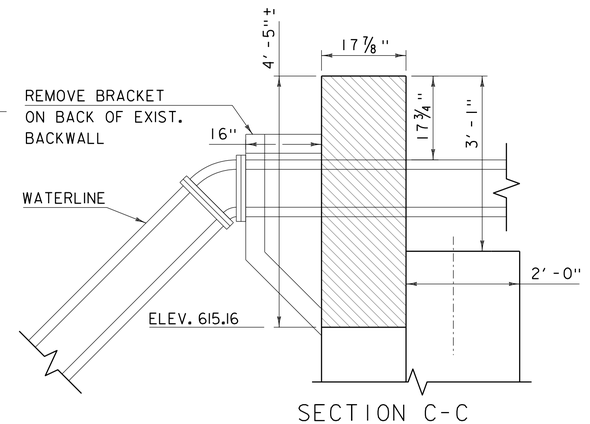
SECTION A-A

SCALE 3/4" = 1'-0"



SECTION B-B

SCALE 3/4" = 1'-0"

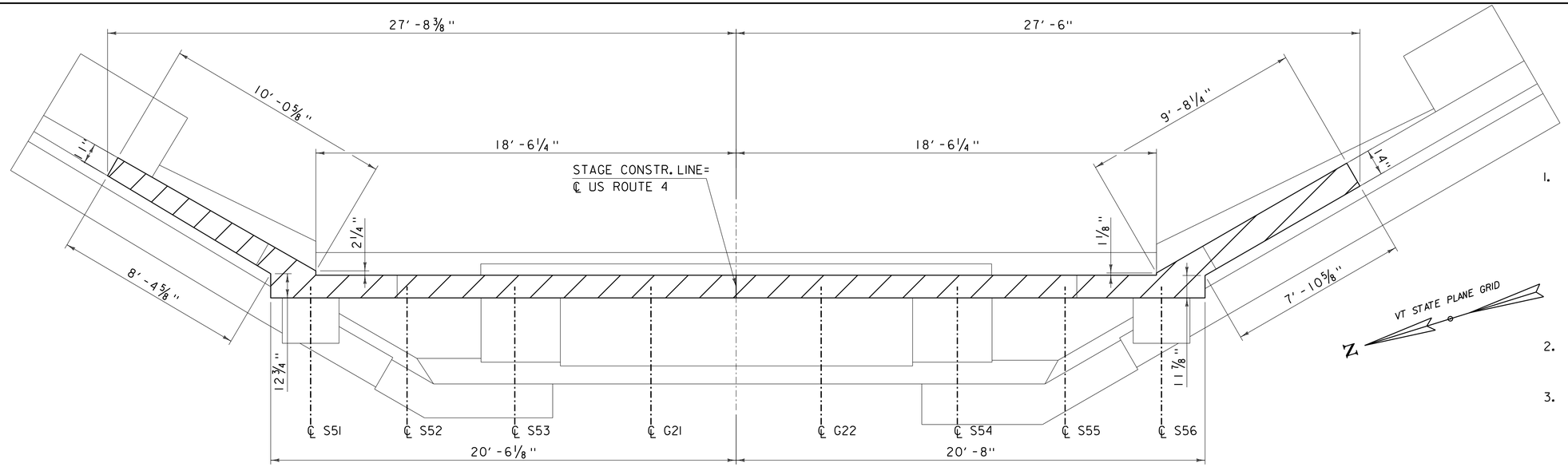


SECTION C-C

SCALE 3/4" = 1'-0"

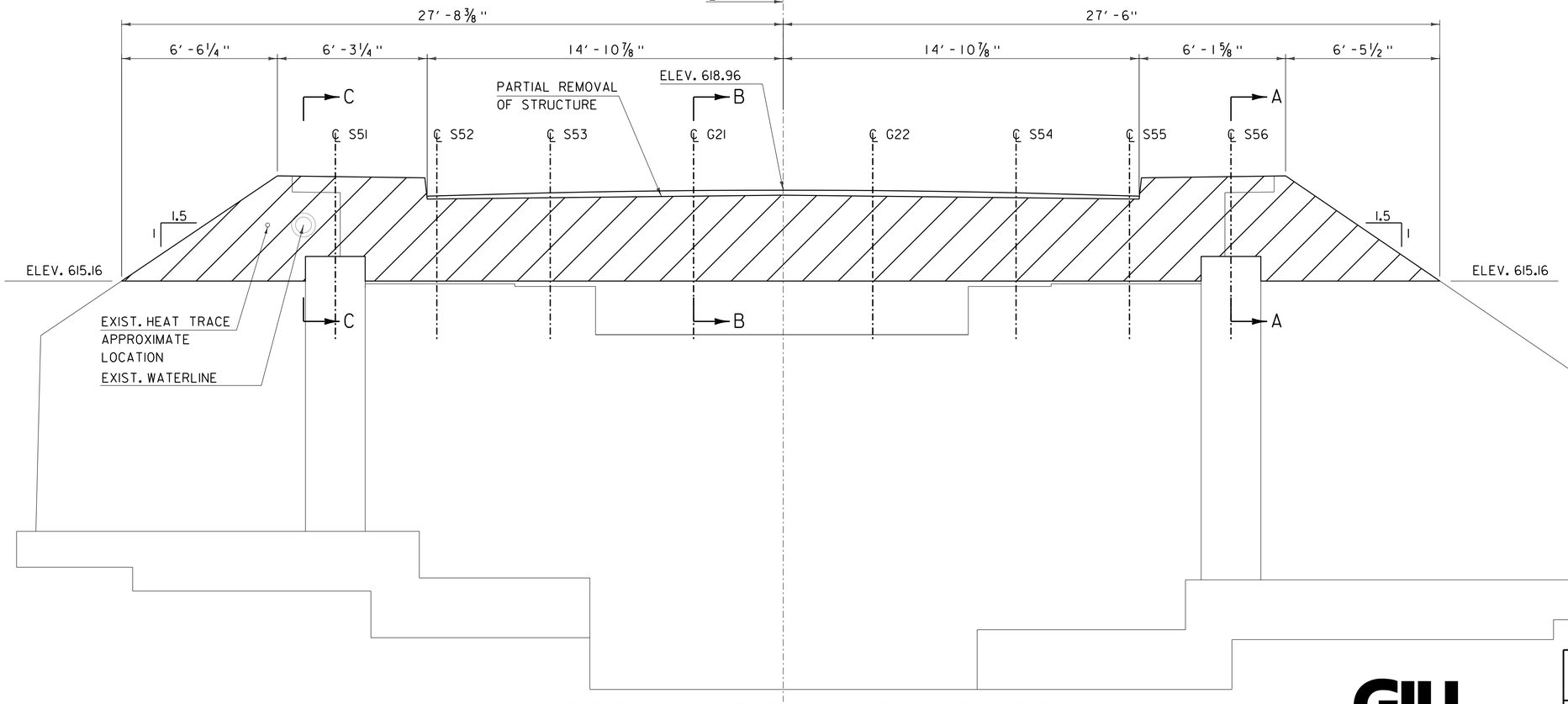
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082sub.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
ABUTMENT I DEMO (WEST ABUTMENT)	SHEET 59 OF 97



ABUTMENT 2 DEMO PLAN (EAST ABUTMENT)

SCALE 3/8″ = 1′-0″



ABUTMENT 2 DEMO ELEVATION (EAST ABUTMENT)

SCALE 3/8″ = 1′-0″

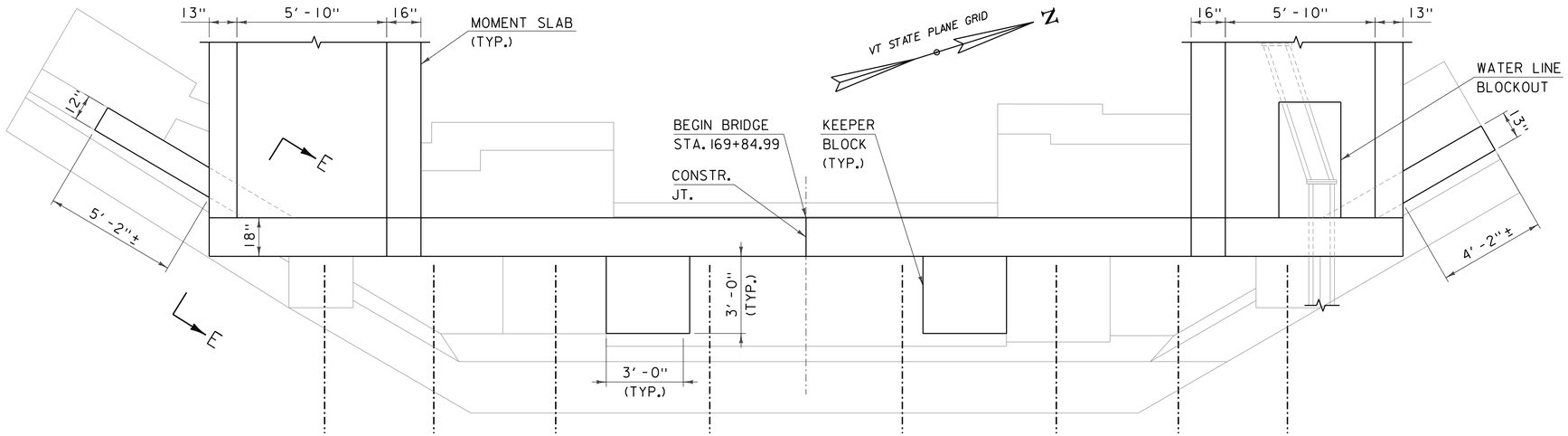
SEE SHEET 59 FOR SECTIONS.

DEMOLITION NOTES:

1. THE EXISTING WATER LINE SHALL BE INDEPENDENTLY SUPPORTED AND PROTECTED FROM DAMAGE DURING DEMOLITION WORK. THE CONTRACTOR SHALL PROVIDE A SUITABLE TEMPORARY THRUST FRAME OR SIMILAR MEANS TO RESTRAIN THE WATERPIPE AT THE CHANGES IN DIRECTION. THE HEAT TRACE WIRES AND CONDUIT SHALL BE RELOCATED OR TEMPORARILY DISCONNECTED FOR THE WORK.
2. HATCHED AREAS DENOTE THE LIMITS OF REINFORCED CONCRETE EXCAVATION.
3. PROPOSED DIMENSIONS FOR ABUTMENT BACKWALL RECONSTRUCTION DETERMINED FROM RECORD PLANS AND SOME FIELD OBSERVATIONS AND ARE DEEMED ADEQUATE FOR BIDDING PURPOSES. CONTRACTOR SHALL VERIFY PROPOSED DIMENSIONS ON ACTUAL STRUCTURE PRIOR TO ANY WINGWALL DEMOLITION WORK COMMENCING.
4. THE LIMITS OF REINFORCED CONCRETE EXCAVATION SHALL BE SAWCUT ALONG NEAT LINES TO A DEPTH OF 1" WHERE PRACTICAL TO PRODUCE A CLEAN EDGE. IF REINFORCEMENT IS ENCOUNTERED DURING SAWING OPERATIONS THE DEPTH OF SAWCUT SHALL BE ADJUSTED TO A SHALLOWER DEPTH TO AVOID CUTTING STEEL.
5. ALL SURFACES SUBJECT TO CONCRETE EXCAVATION SHALL BE CLEANED THOROUGHLY BY ABRASIVE BLAST CLEANING OR OTHER APPROVED METHODS. COMPRESSED AIR SHALL THEN BE USED TO REMOVE ANY REMAINING DEBRIS.
6. ANY EXISTING REINFORCEMENT IDENTIFIED TO BE RETAINED WHICH IS DAMAGED BY CONTRACTOR OPERATIONS SHALL BE REPLACED BY DRILLING AND GROUTING NEW BARS OF THE SAME SIZE IN ADJACENT LOCATIONS.

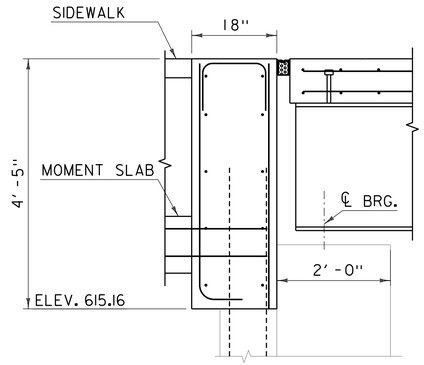
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082sub.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
ABUTMENT 2 DEMO (EAST ABUTMENT)	SHEET 60 OF 97



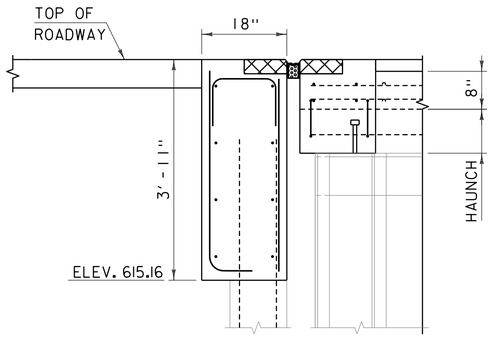
PROP. ABUTMENT 1 PLAN (WEST ABUTMENT)

SCALE 3/8" = 1'-0"



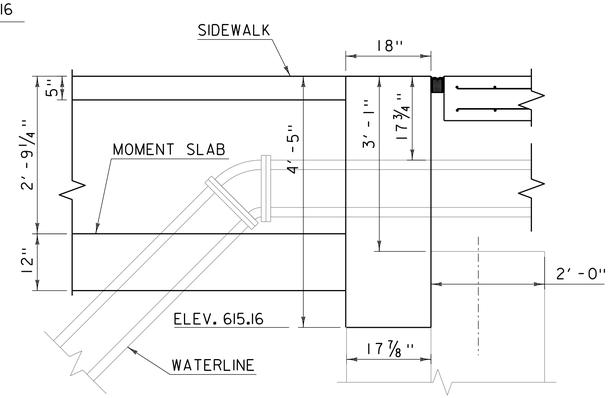
SECTION A-A

SCALE 3/4" = 1'-0"



SECTION B-B

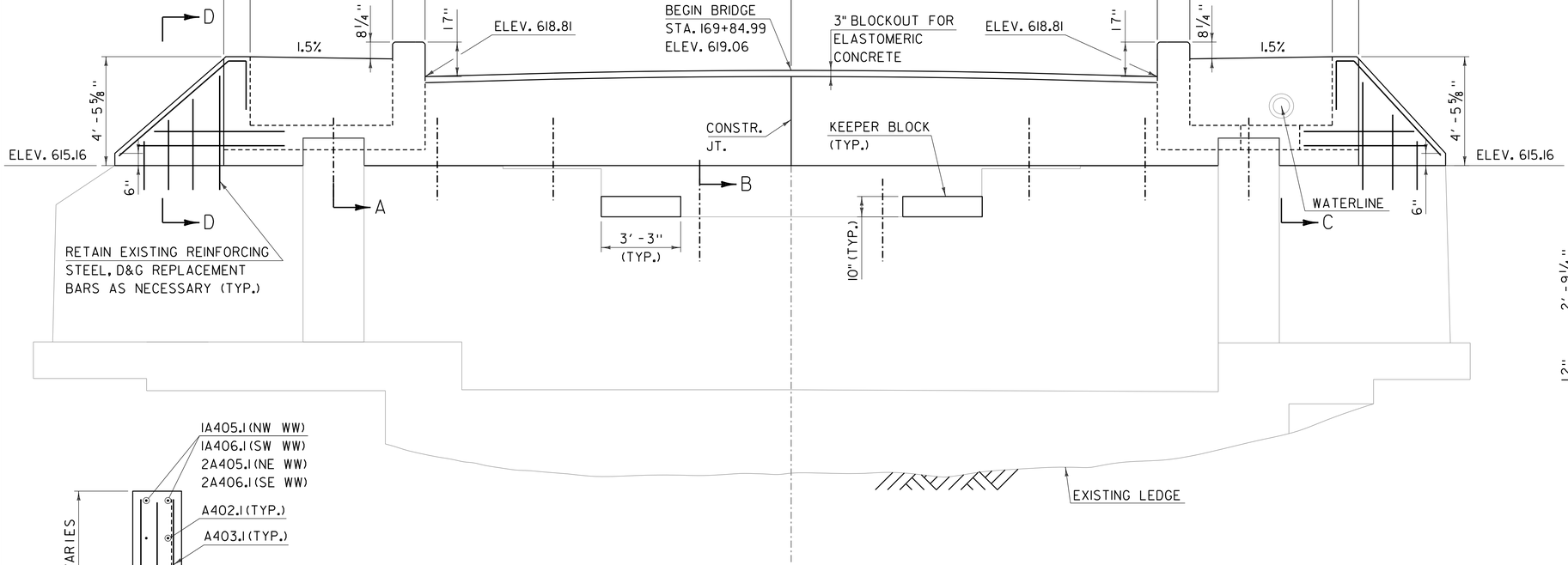
SCALE 3/4" = 1'-0"



SECTION C-C

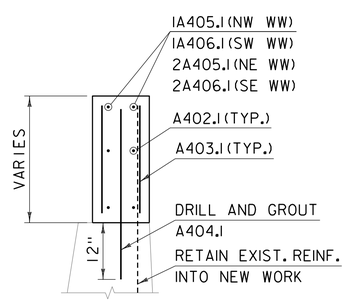
SCALE 3/4" = 1'-0"

NOTE: REINFORCEMENT NOT SHOWN FOR CLARITY.



PROP. ABUTMENT 1 ELEVATION (WEST ABUTMENT)

SCALE 3/8" = 1'-0"

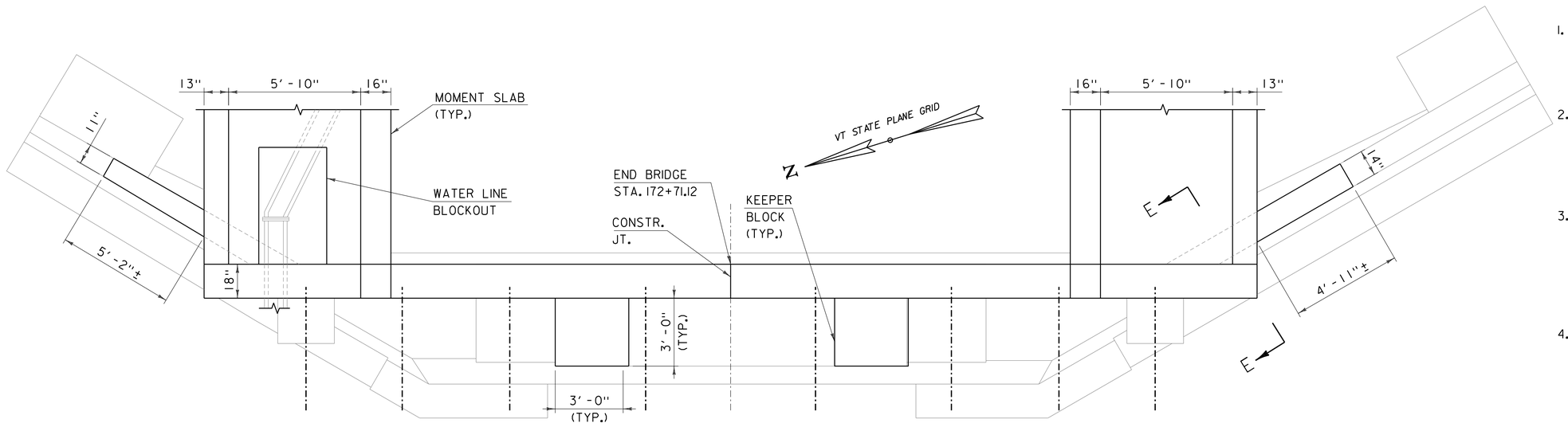


SECTION D-D

SCALE 3/4" = 1'-0"

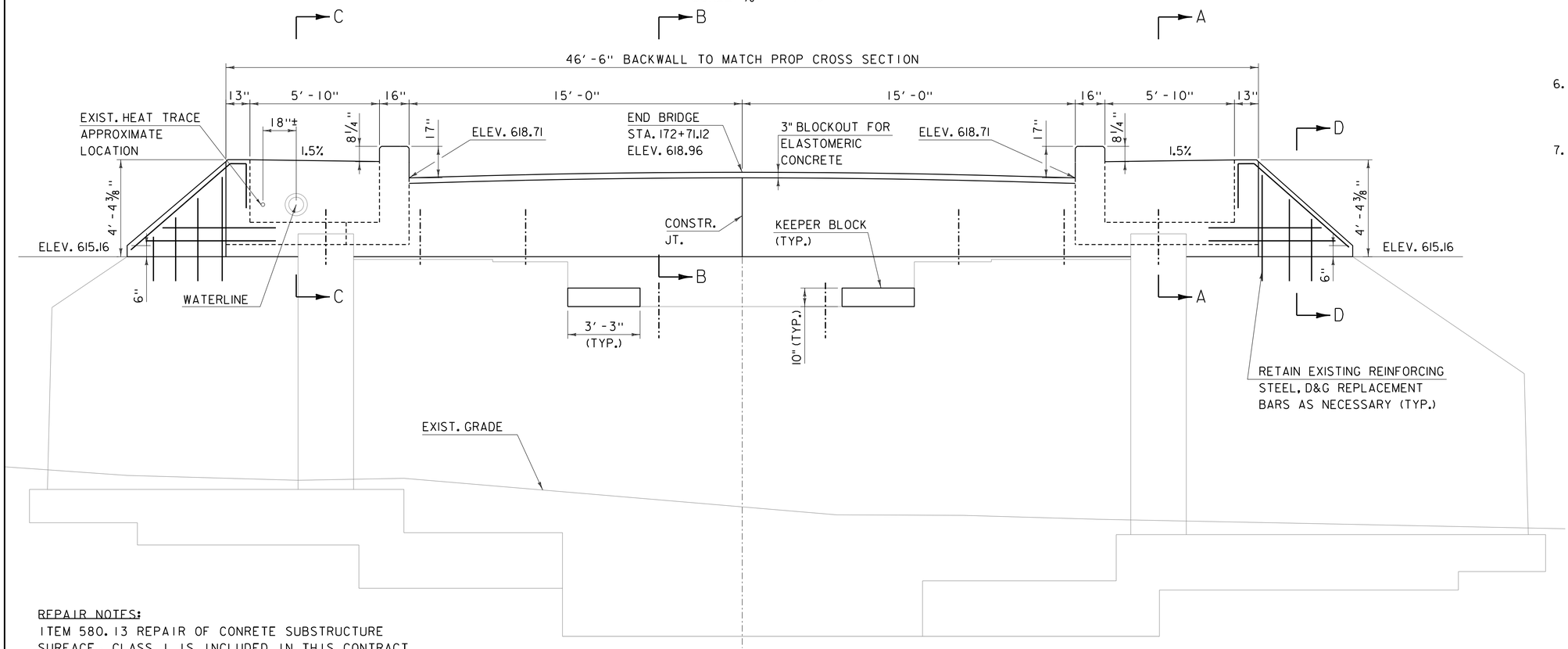
GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)	
PROJECT NUMBER: NH 020-2(45)	
FILE NAME: z17b082sub.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
PROP. ABUTMENT 1 (WEST ABUTMENT)	SHEET 61 OF 97



PROP. ABUTMENT 2 PLAN (EAST ABUTMENT)

SCALE 3/8" = 1'-0"



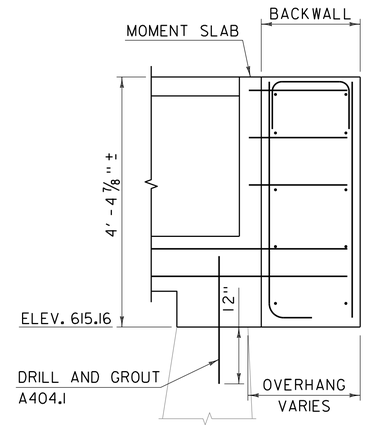
PROP. ABUTMENT 2 ELEVATION (EAST ABUTMENT)

SCALE 3/8" = 1'-0"

REPAIR NOTES:
ITEM 580.13 REPAIR OF CONRETE SUBSTRUCTURE SURFACE, CLASS I IS INCLUDED IN THIS CONTRACT FOR SURFACE REPAIRS TO THE ABUTMENTS AND WINGWALLS PER DIRECTION OF THE ENGINEER.

CONSTRUCTION NOTES:

1. ALL REINFORCEMENT IN THE ABUTMENT BACKWALL SHALL BE UNCOATED AND HAVE 2 INCHES MINIMUM COVER UNLESS NOTED OTHERWISE.
2. ANY EXISTING REINFORCEMENT IDENTIFIED TO BE RETAINED WHICH IS DAMAGED BY CONTRACTOR OPERATIONS SHALL BE REPLACED BY DRILLING AND GROUTING NEW BARS OF THE SAME SIZE IN ADJACENT LOCATIONS.
3. ALL SURFACES WHERE NEW CONCRETE IS TO BE CAST AGAINST EXISTING CONCRETE SHALL BE CLEANED THOROUGHLY BY ABRASIVE BLAST CLEANING OR OTHER APPROVED METHODS. THEN COMPRESSED AIR SHALL BE USED TO REMOVE ANY REMAINING DEBRIS.
4. BEFORE PLACEMENT OF NEW CONCRETE, CONTACT SURFACES SHALL BE PRE-WETTED FOR A MINIMUM OF 24 HOURS USING POTABLE WATER IN ORDER TO ACHIEVE A SATURATED SURFACE DRY CONDITION IMMEDIATELY PRIOR TO PLACEMENT.
5. D&G - THE DEPTH OF HOLES FOR DRILLED AND GROUTED DOWELS SHALL BE AS DIMENSIONED OR AS RECOMMENDED BY THE MANUFACTURER OF THE GROUT TO DEVELOP THE FULL TENSILE STRENGTH OF THE DOWEL.
6. ALL NEW CONCRETE SHALL BE ITEM 900.608 (PERFORMANCE-BASED STRUCTURAL CONCRETE, CLASS PCD)
7. AFTER REMOVAL OF FORMS THE THRUST FRAME FOR THE WATERLINE SHALL BE INSTALLED AND THE TEMPORARY THRUST SUPPORT REMOVED.



SECTION E-E

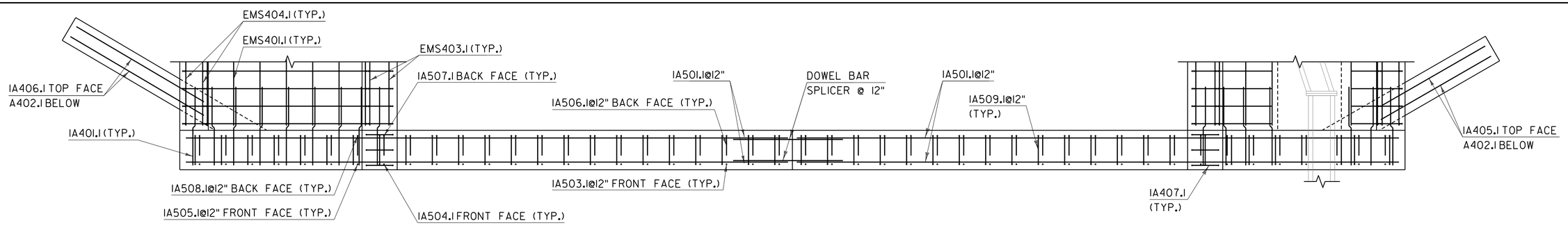
SCALE 3/4" = 1'-0"

NOTE: MOMENT SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

GILL ENGINEERING

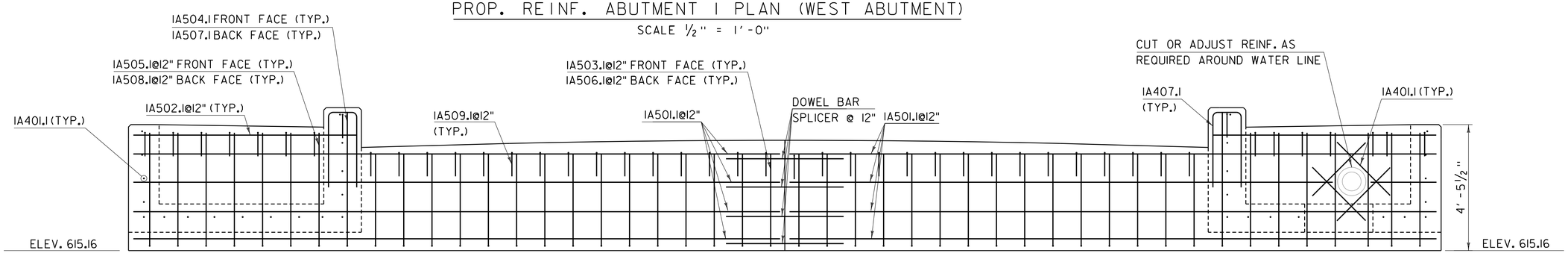
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)

FILE NAME: z17b082sub.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
PROP. ABUTMENT 2 (EAST ABUTMENT)	SHEET 62 OF 97



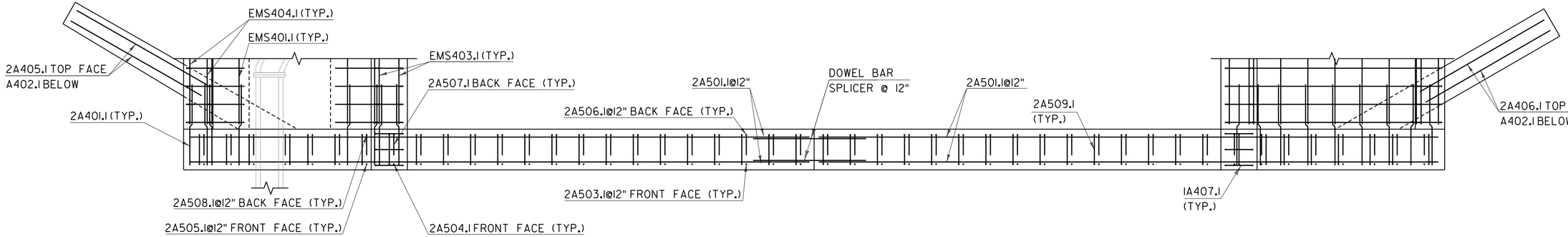
PROP. REINF. ABUTMENT 1 PLAN (WEST ABUTMENT)

SCALE ½" = 1'-0"



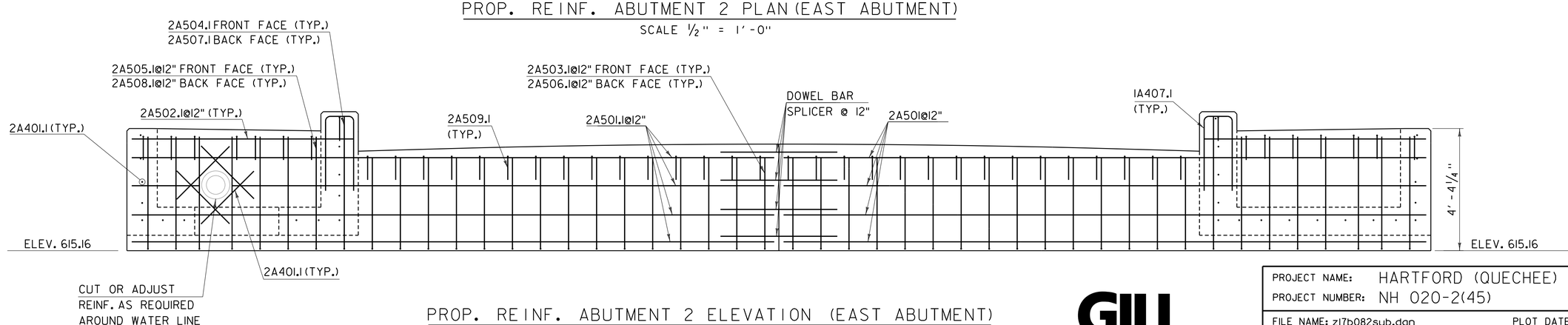
PROP. REINF. ABUTMENT 1 ELEVATION (WEST ABUTMENT)

SCALE ½" = 1'-0"



PROP. REINF. ABUTMENT 2 PLAN (EAST ABUTMENT)

SCALE ½" = 1'-0"

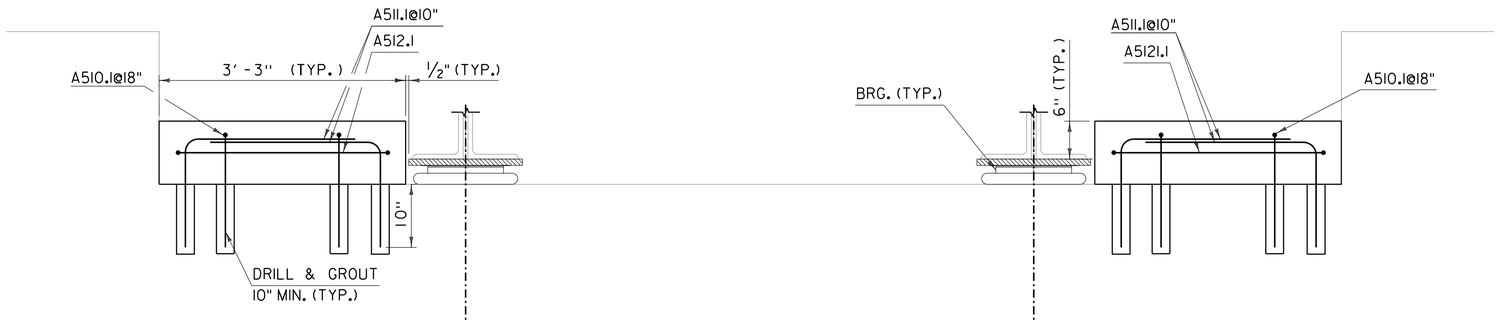


PROP. REINF. ABUTMENT 2 ELEVATION (EAST ABUTMENT)

SCALE ½" = 1'-0"

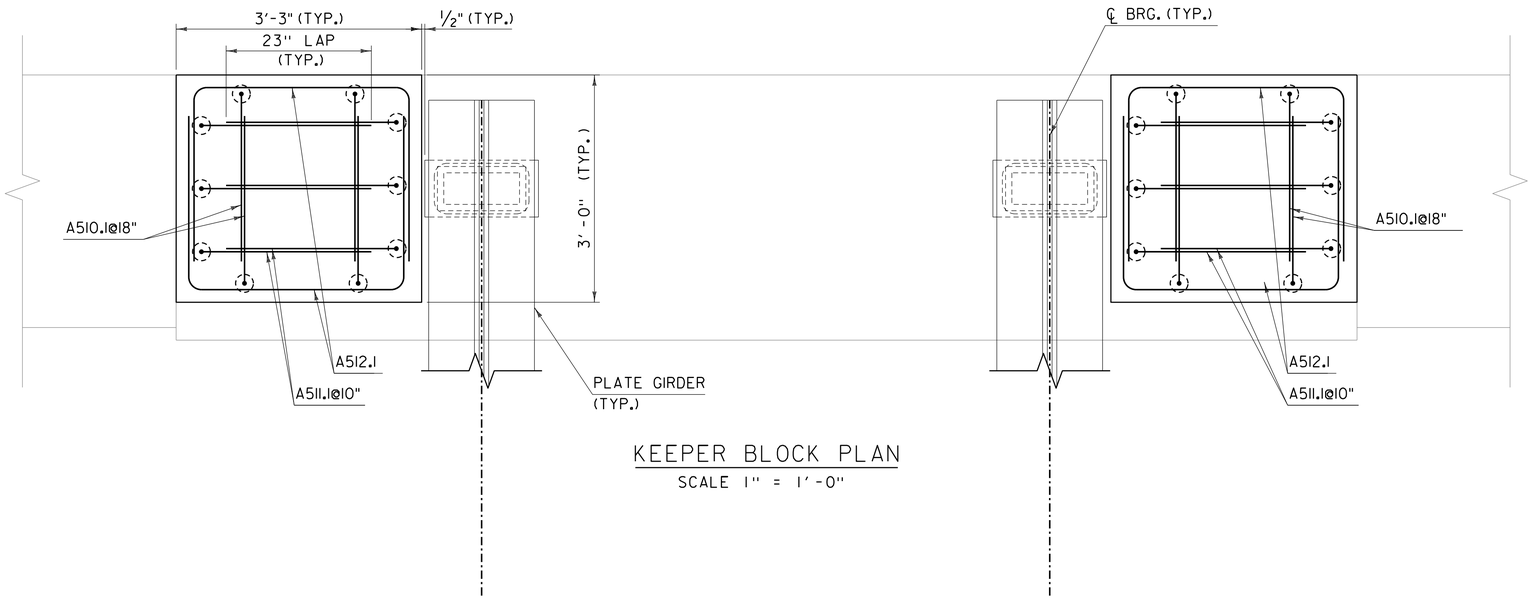
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082sub.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
PROP. ABUTMENTS REINF.	SHEET 63 OF 97



KEEPER BLOCK SECTION

SCALE 1" = 1'-0"

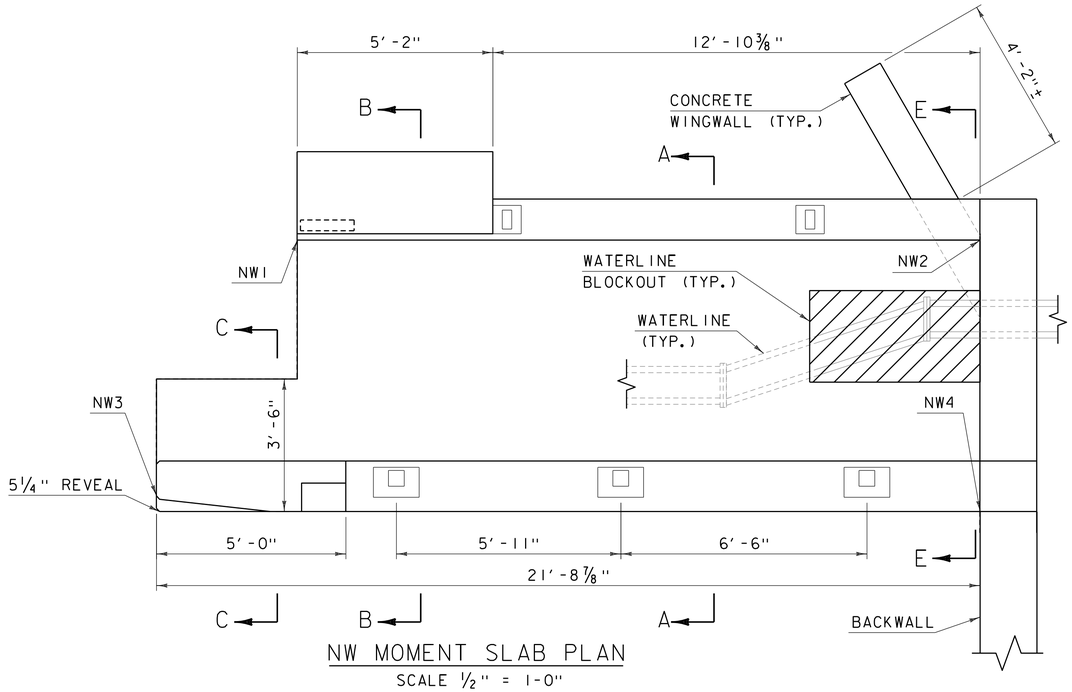


KEEPER BLOCK PLAN

SCALE 1" = 1'-0"

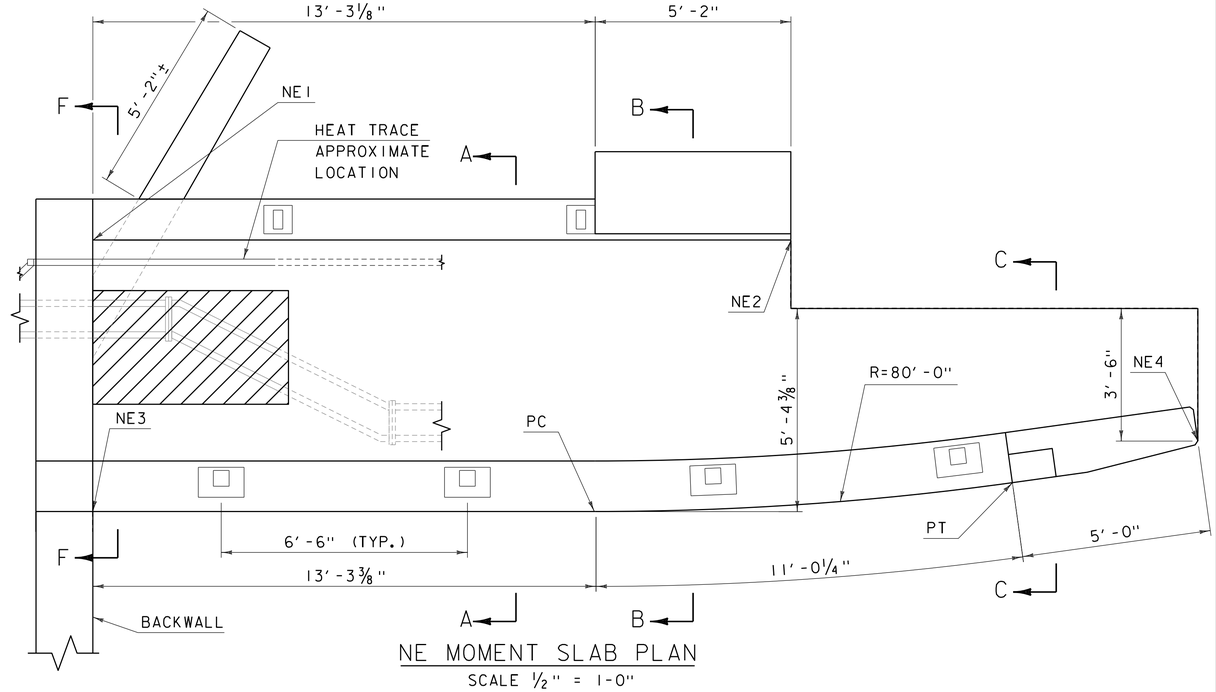
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082sub.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: CSB	CHECKED BY: PAH
KEEPER BLOCK	SHEET 64 OF 97



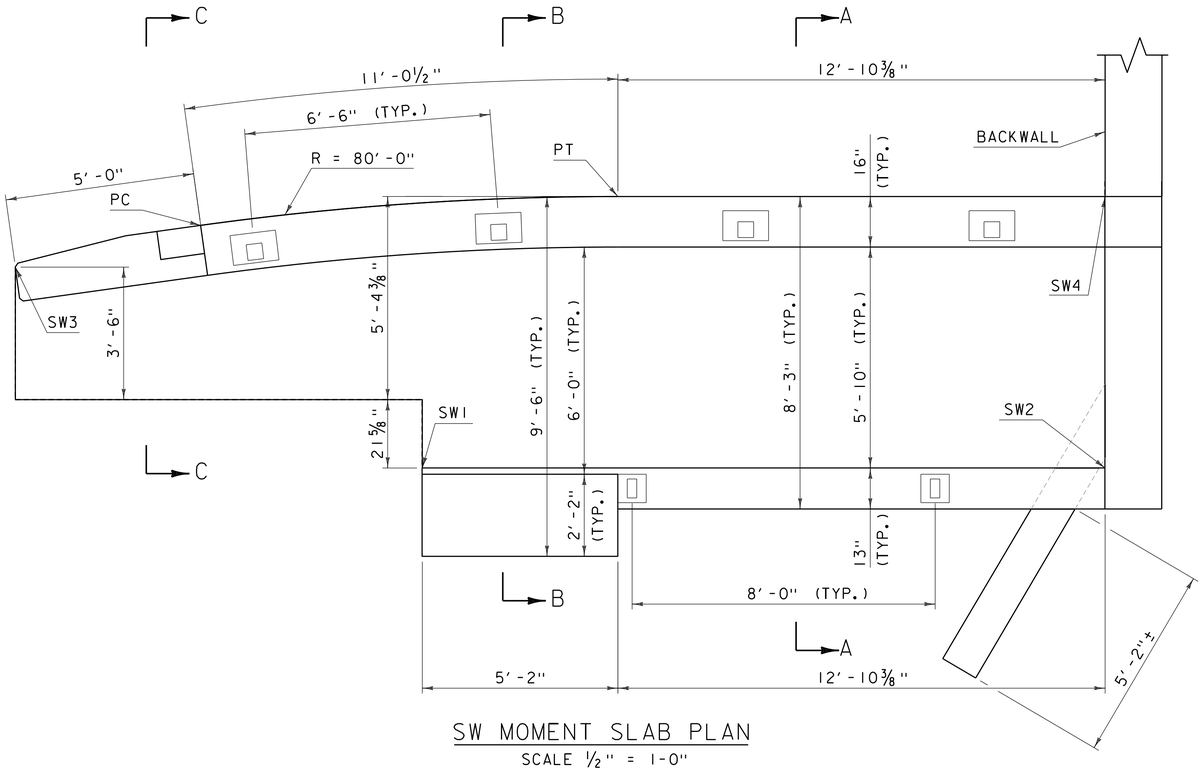
NW MOMENT SLAB PLAN

SCALE ½″ = 1-0″



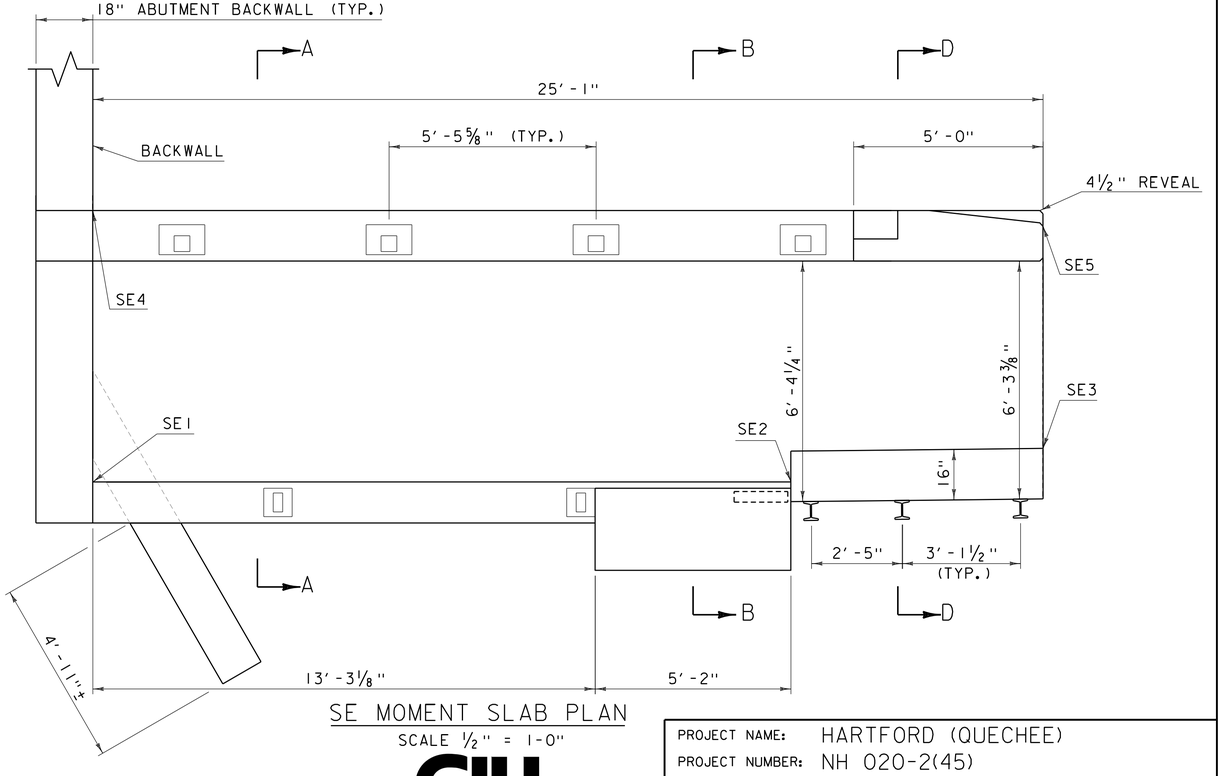
NE MOMENT SLAB PLAN

SCALE ½″ = 1-0″



SW MOMENT SLAB PLAN

SCALE ½″ = 1-0″



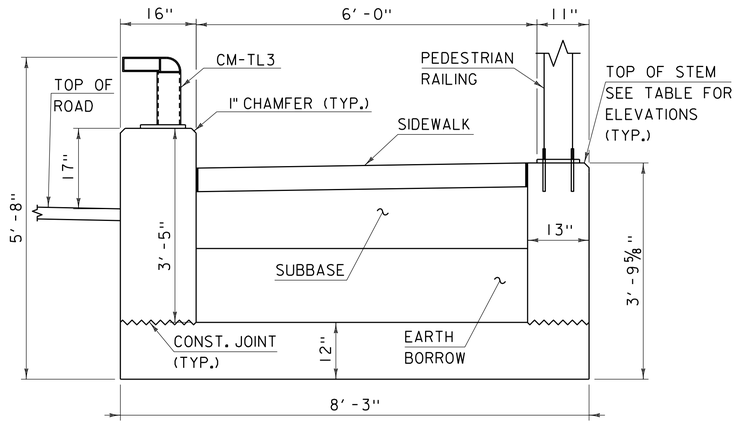
SE MOMENT SLAB PLAN

SCALE ½″ = 1-0″

NOTE: SEE SHEETS 66-67 FOR SECTIONS A-A, B-B, C-C, D-D, E-E, F-F.

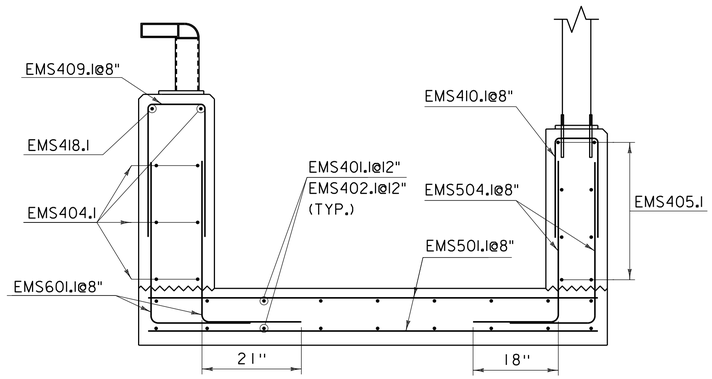
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082momentslab.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: FB	CHECKED BY: PAH
MOMENT SLAB DETAILS 1	SHEET 65 OF 97



MOMENT SLAB SECTION A-A

SCALE ¾" = 1-0"

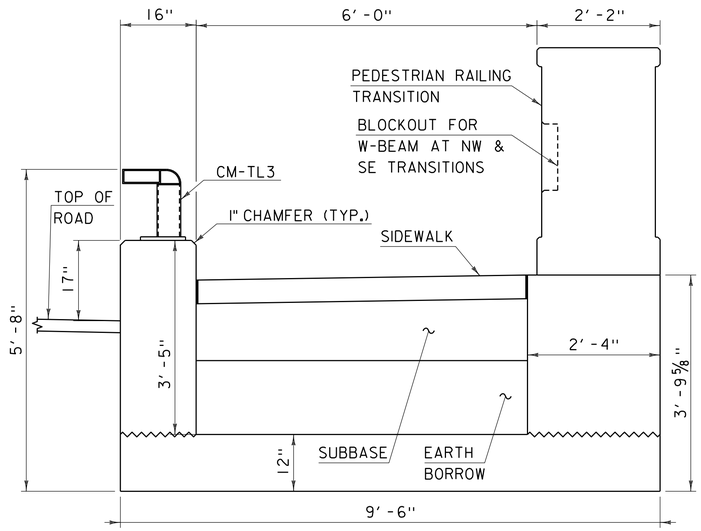


MOMENT SLAB SECTION A-A REINF.

SCALE ¾" = 1-0"

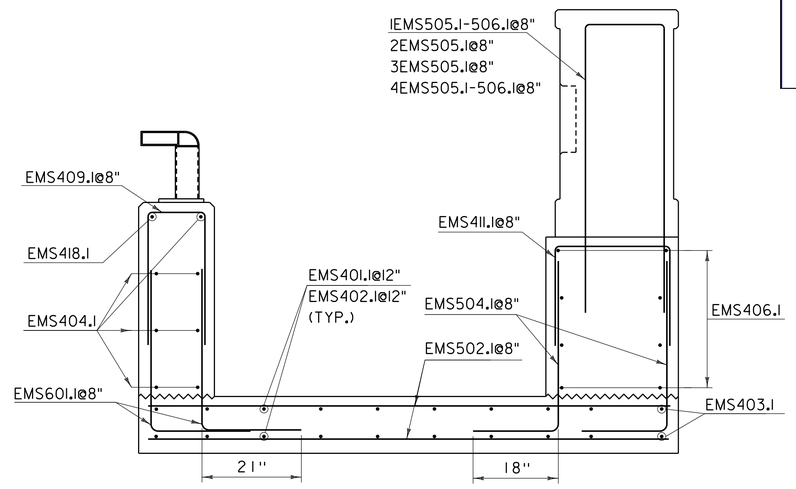
MOMENT SLAB TOP OF STEM ELEVATIONS

MOMENT SLAB	POINT	STATION	OFFSET	ELEVATION
NW	1	169+66.73	22.12	619.64
	2	169+84.99	22.17	619.62
	3	169+63.02	15.32	620.16
	4	169+84.99	15.00	620.22
SW	1	169+67.18	22.21	619.64
	2	169+84.99	22.17	619.62
	3	169+56.60	17.08	620.17
	4	169+84.99	15.00	620.22
	PC	169+61.31	15.90	620.25
	PT	169+72.19	15.01	620.23
NE	1	172+71.11	22.17	619.51
	2	172+89.75	22.09	619.50
	3	172+71.11	15.00	620.11
	4	173+00.54	16.66	620.02
	PC	172+84.47	14.97	620.11
	PT	172+95.59	15.63	620.10
SE	1	172+71.11	22.17	619.51
	2	172+89.35	22.24	619.50
	3	172+95.93	21.42	619.49
	4	172+71.11	15.00	620.11
	5	172+96.00	15.57	620.02



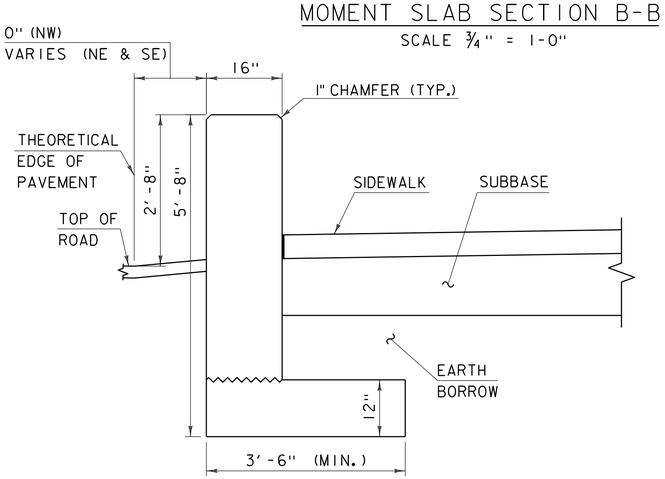
MOMENT SLAB SECTION B-B

SCALE ¾" = 1-0"



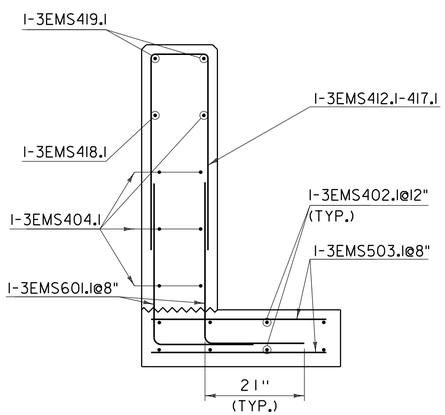
MOMENT SLAB SECTION B-B REINF.

SCALE ¾" = 1-0"



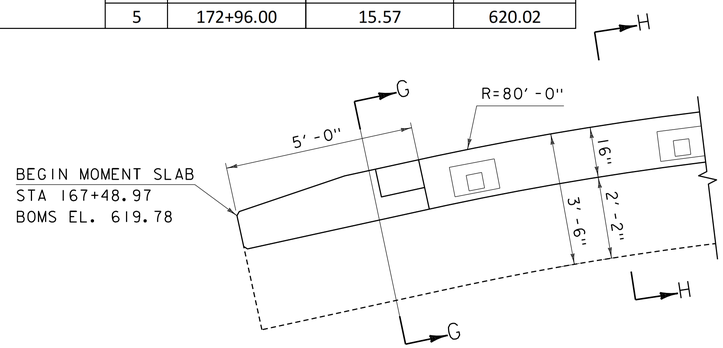
MOMENT SLAB SECTION C-C

SCALE ¾" = 1-0"



MOMENT SLAB SECTION C-C REINF.

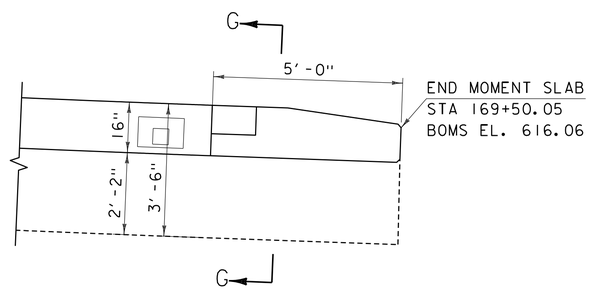
SCALE ¾" = 1-0"



CM-TL3 MOMENT SLAB AT WCR-1 PLAN

SCALE ½" = 1-0"

NOTE:
BOMS: BOTTOM OF MOMENT SLAB



CM-TL3 MOMENT SLAB AT WCR-3 PLAN

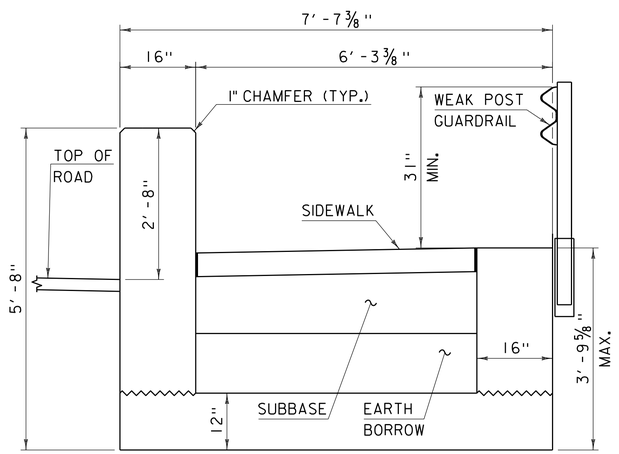
SCALE ½" = 1-0"

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

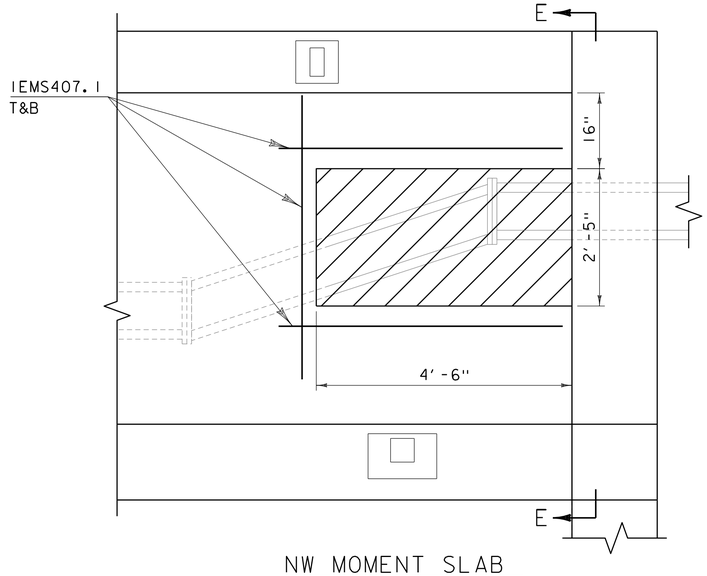
FILE NAME: z17b082momentslab.dgn
PROJECT LEADER: AMS
DESIGNED BY: FB
MOMENT SLAB DETAILS 2

PLOT DATE: 7/6/2022
DRAWN BY: YS
CHECKED BY: PAH
SHEET 66 OF 97



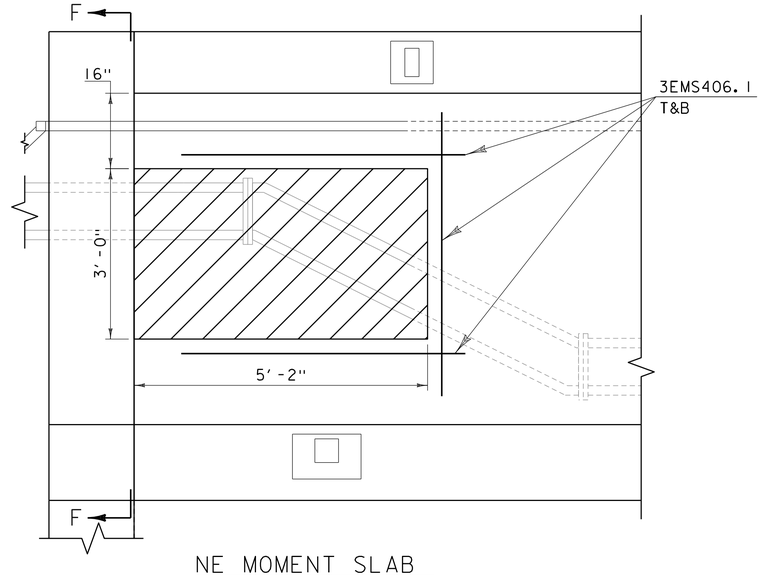
MOMENT SLAB SECTION D-D

SCALE 3/4" = 1-0"



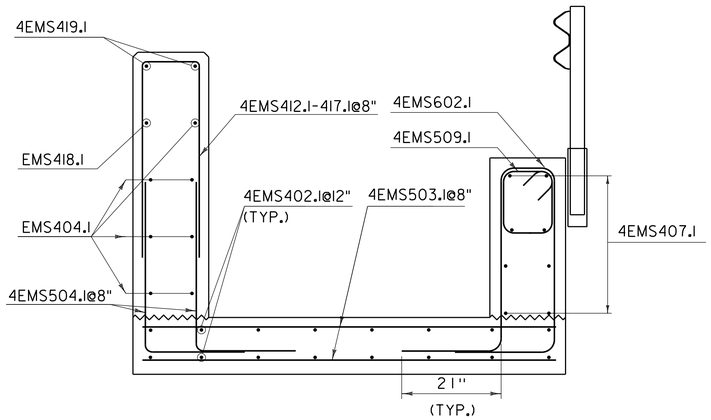
NW MOMENT SLAB
WATERLINE BLOCKOUT PLAN

SCALE 3/4" = 1-0"



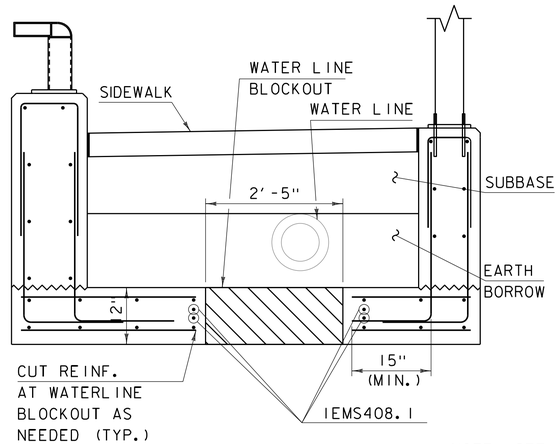
NE MOMENT SLAB
WATERLINE BLOCKOUT PLAN

SCALE 3/4" = 1-0"



MOMENT SLAB SECTION D-D REINF.

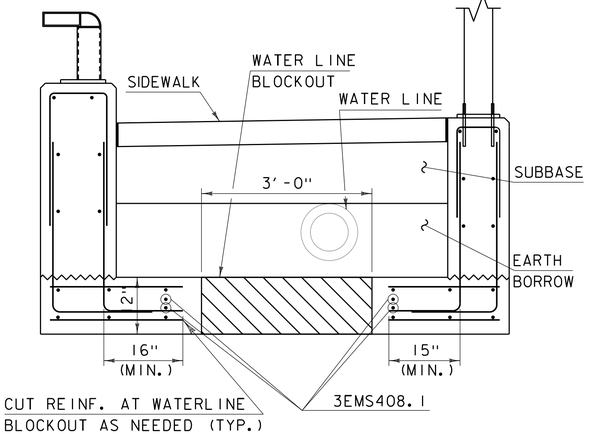
SCALE 3/4" = 1-0"



SECTION E-E

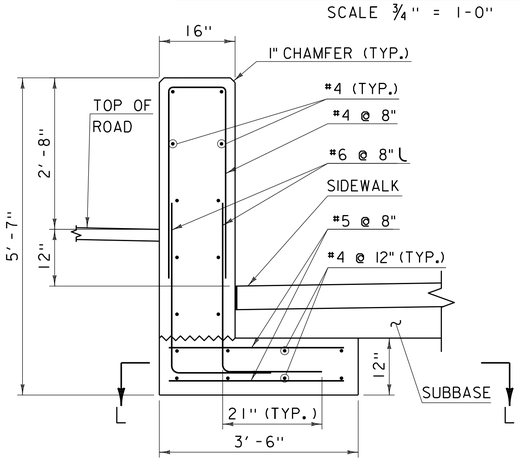
SCALE 3/4" = 1-0"

NOTE: SEE SECTION A-A FOR REINFORCING STEEL



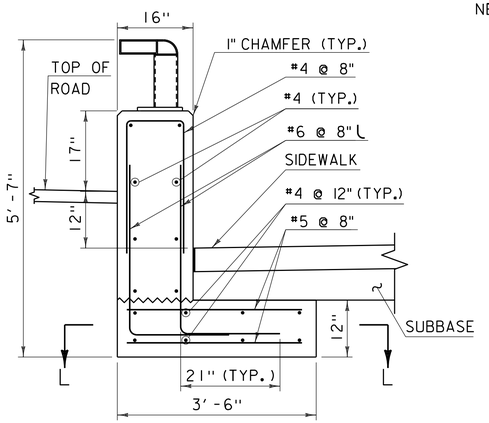
SECTION F-F

SCALE 3/4" = 1-0"



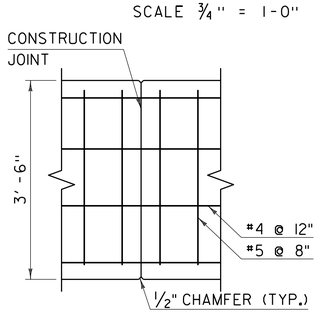
CM-TL3 MOMENT SLAB
SECTION G-G

SCALE 3/4" = 1-0"

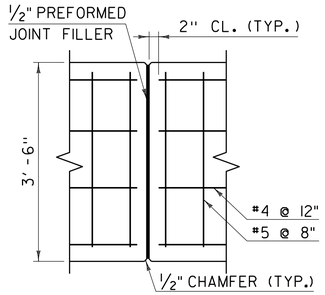


CM-TL3 MOMENT
SLAB SECTION H-H

SCALE 3/4" = 1-0"



CONSTRUCTION JOINT



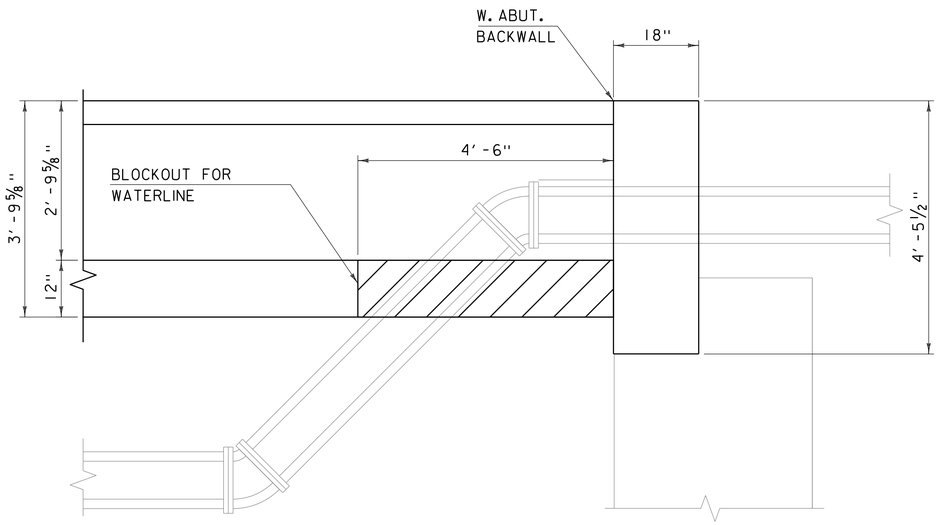
EXPANSION JOINT

MOMENT SLAB SECTION L-L

SCALE 3/4" = 1-0"

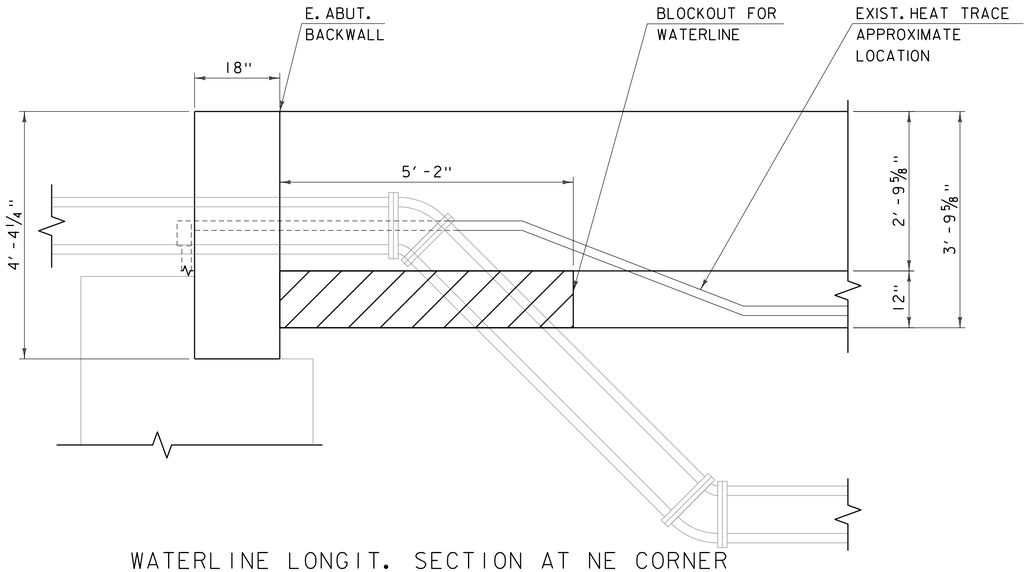
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082momentslab.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: FB	CHECKED BY: PAH
MOMENT SLAB DETAILS 3	SHEET 67 OF 97



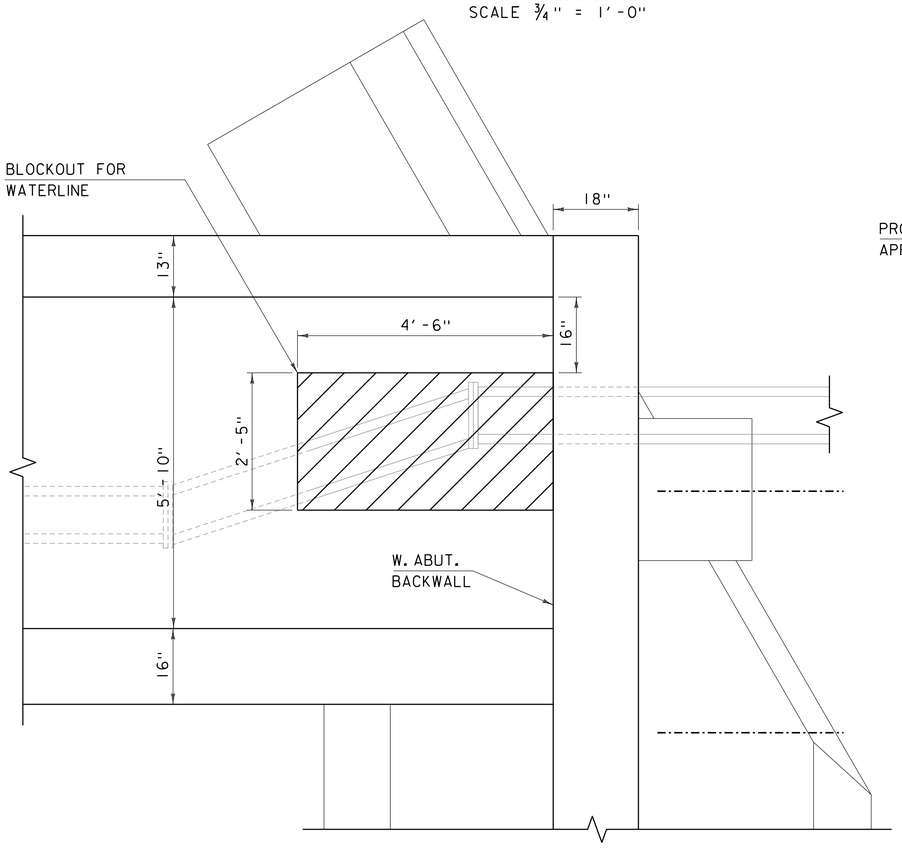
WATERLINE LONGIT. SECTION AT NW CORNER

SCALE ¾" = 1'-0"



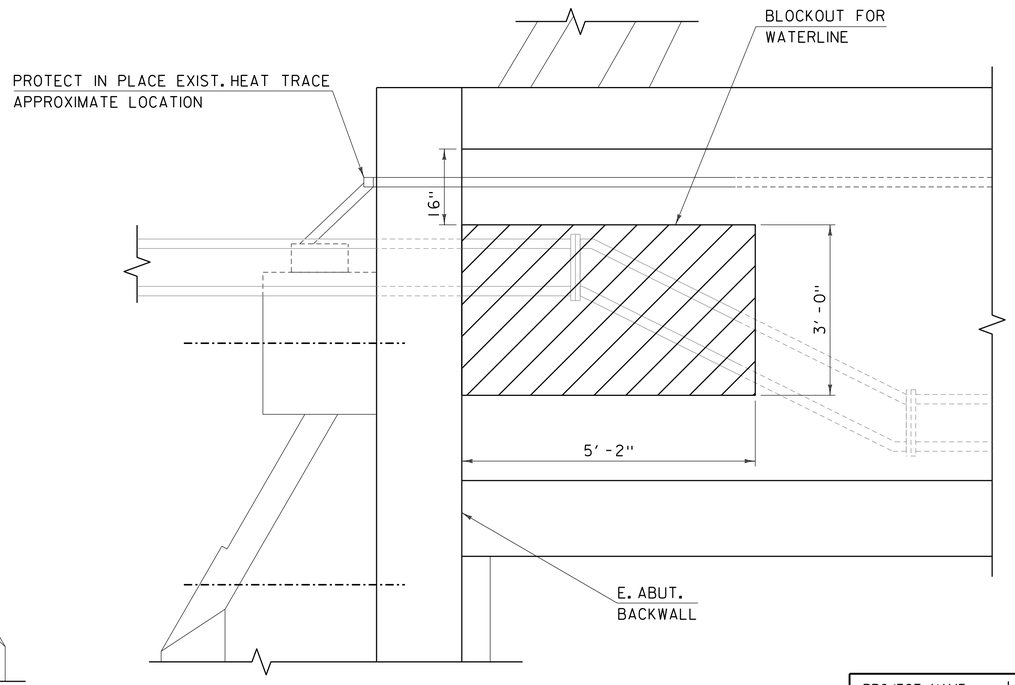
WATERLINE LONGIT. SECTION AT NE CORNER

SCALE ¾" = 1'-0"



WATERLINE PLAN AT NW CORNER

SCALE ¾" = 1'-0"

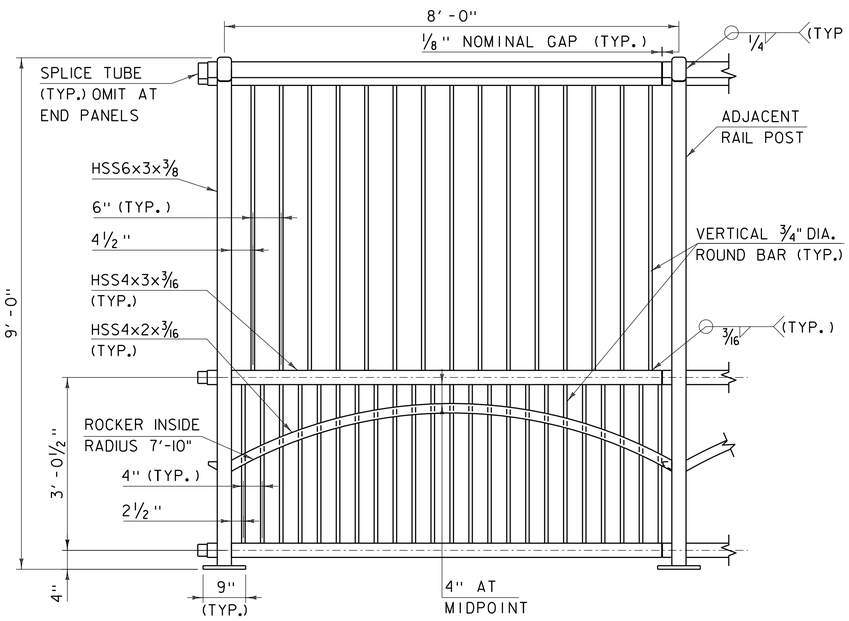


WATERLINE PLAN AT NE CORNER

SCALE ¾" = 1'-0"

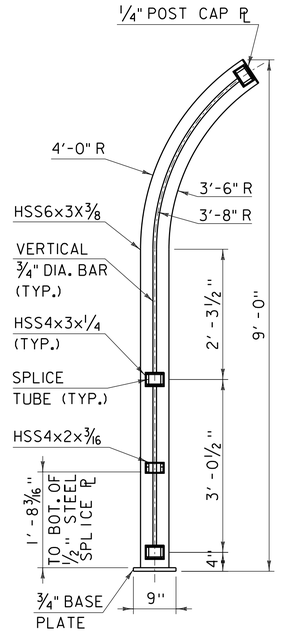
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082sub.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: YS	CHECKED BY: PAH
WATERLINE DETAILS	SHEET 68 OF 97



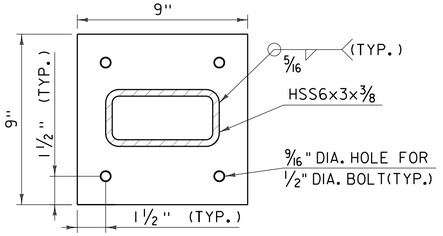
PEDESTRIAN SCREEN ELEVATION

SCALE 3/4" = 1-0"



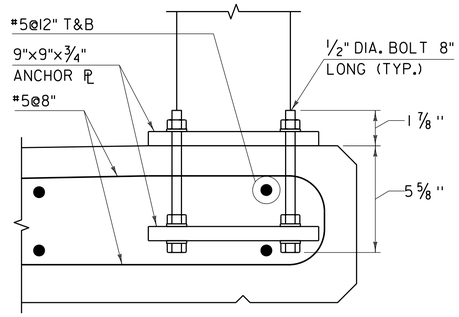
TYPICAL PEDESTRIAN SCREEN POST

SCALE 3/4" = 1-0"



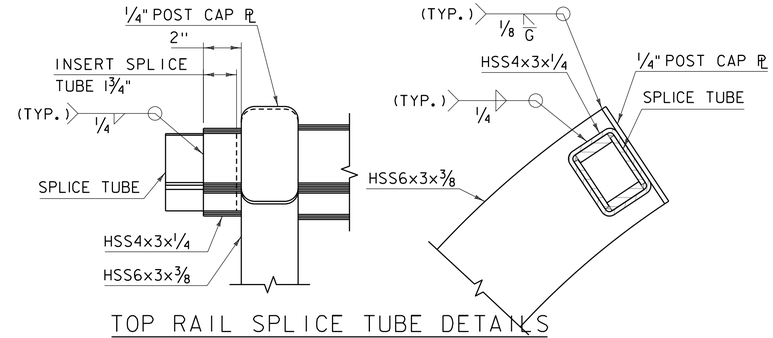
PEDESTRIAN SCREEN BASE PLATE DETAILS

SCALE 3" = 1-0"



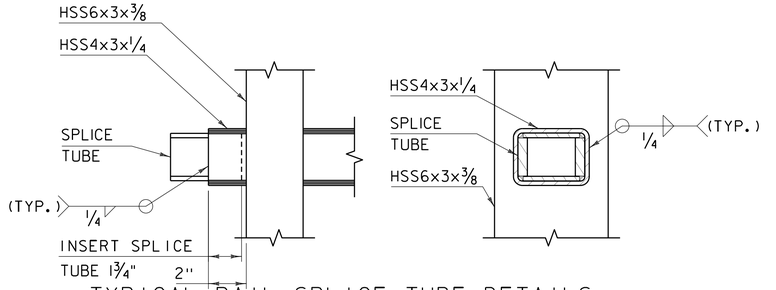
PEDESTRIAN SCREEN ANCHORAGE

SCALE 3" = 1-0"



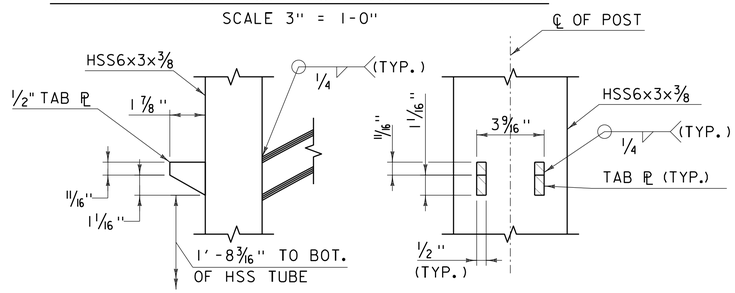
TOP RAIL SPLICE TUBE DETAILS

SCALE 3" = 1-0"



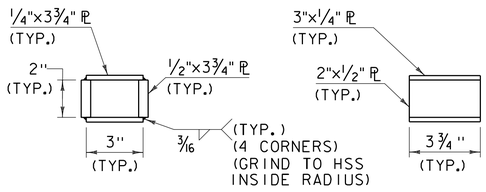
TYPICAL RAIL SPLICE TUBE DETAILS

SCALE 3" = 1-0"



ROCKER SPLICE PLATE DETAILS

SCALE 3" = 1-0"



CROSS SECTION ELEVATION

SPLICE TUBE DETAILS

SCALE 3" = 1-0"

EXPLODED ISOMETRIC VIEW OF PEDESTRIAN SCREEN

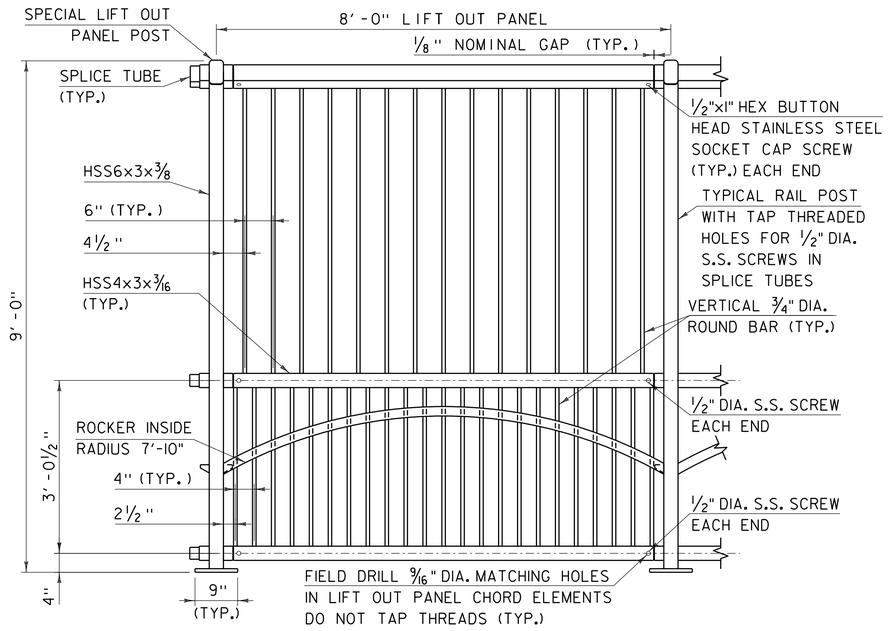
SCALE 3" = 1-0"

NOTES:

1. HSS MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 WITH A CERTIFIED MINIMUM FY=46 KSI.
2. 3/4 INCH DIAMETER ROUND BAR FOR SCREEN PALES SHALL CONFORM TO THE REQUIRMENTS OF ASTM A36.
3. ALL BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M270 GRADE 50. ALL OTHER STRUCTURAL STEEL COMPONENTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M270 GRADE 36 OR GRADE 50.
4. ALL WELDING TO BE PERFORMED IN ACCORDANCE WITH THE ANSI/AWS D1.1 STRUCTURAL STEEL WELDING CODE.
5. ALL STEEL FOR THE PEDESTRIAN SCREEN SHALL BE GALVANIZED AND POWDER COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 726.09. PAINT COLOR SHALL MATCH SAE AMS-STD-595, GREEN, CHIP NUMBER 14062.
6. FABRICATOR SHALL LOCATE VENT HOLES IN SHOP DRAWINGS AS APPROPRIATE.
7. SPLICE TUBES AND ROCKER SPLICE PLATES SHALL BE SET OR GROUND TO PERMIT A SNUG FIT OF ADJOINING COMPONENTS WITH GALVANIZED COATINGS.
8. ALL ANCHOR BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A449 TYPE 1 AND SHALL USE HEAVY HEX NUTS AND COMPATIBLE HARDENED WASHERS. ALL ANCHOR BOLTS AND WASHERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH AASHTO M232.
9. SCREEN POSTS SHALL BE SET PLUMB.
10. ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUTS SECURING THE BASE PLATE TO THE CONCRETE SHALL BE TENSIONED TO A SNUG TIGHT CONDITION AS INSTALLATION PROGRESSES. AFTER THE COMPLETE PEDESTRIAN SCREEN IS INSTALLED, THE ANCHOR NUTS SHALL BE RE-TIGHTENED TO SNUG TIGHT, THEN GIVEN AN ADDITIONAL 1/8 TURN.
11. ALL PEDESTRIAN SCREENS ARE SECONDARY MEMBERS.

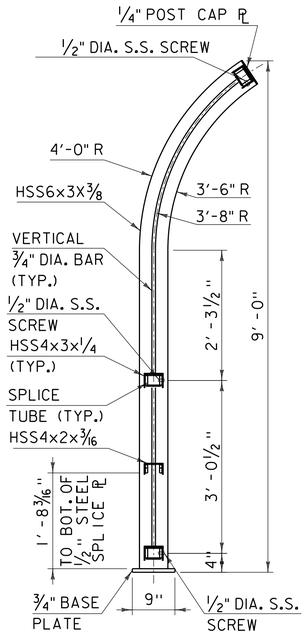
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082rail.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: DJD
DESIGNED BY: FB	CHECKED BY: PAH
PEDESTRIAN SCREEN DETAILS	SHEET 69 OF 97



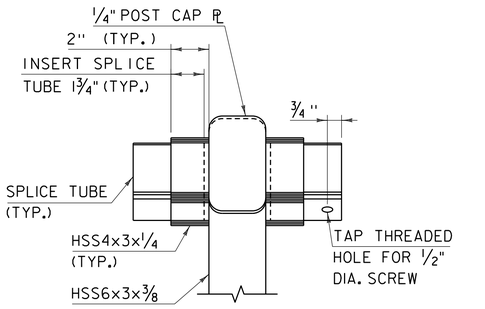
PEDESTRIAN SCREEN LIFT OUT PANEL ELEVATION

SCALE 3/4" = 1-0"



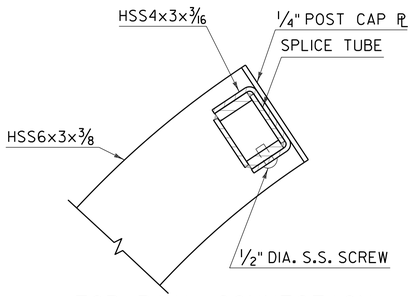
LIFT OUT PANEL SCREEN POST

SCALE 3/4" = 1-0"



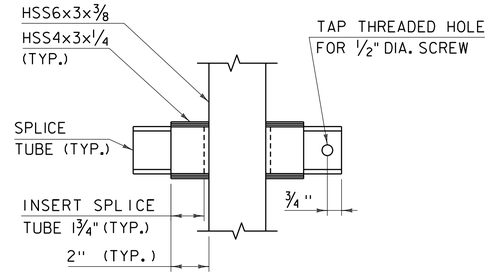
SPECIAL LIFT OUT PANEL POST TOP RAIL SPLICE TUBE DETAILS

SCALE 3" = 1-0"



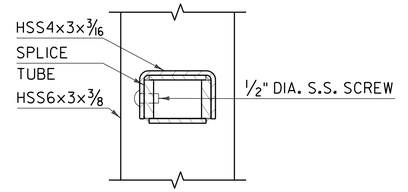
TOP RAIL CONNECTION AT SPLICE TUBE

SCALE 3" = 1-0"



SPECIAL LIFT OUT PANEL POST TYPICAL RAIL SPLICE TUBE DETAILS

SCALE 3" = 1-0"

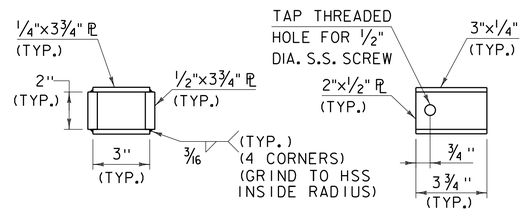


TYPICAL RAIL CONNECTION AT SPLICE TUBE

SCALE 3" = 1-0"

EXPLODED ISOMETRIC VIEW OF PEDESTRIAN SCREEN LIFT OUT PANEL

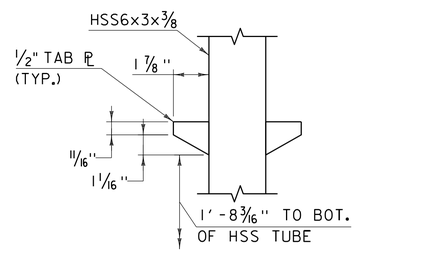
SCALE 3" = 1-0"



CROSS SECTION ELEVATION

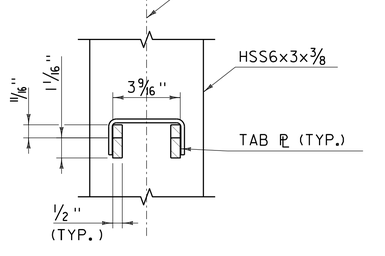
SPLICE TUBE DETAILS

SCALE 3" = 1-0"



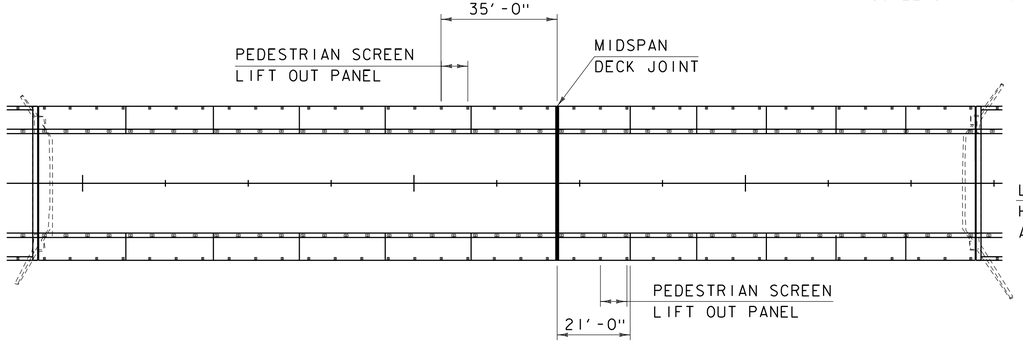
SPECIAL LIFT OUT PANEL POST ROCKER SPLICE PLATE DETAILS

SCALE 3" = 1-0"



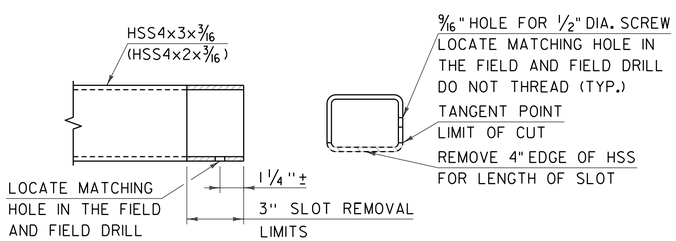
ROCKER CONNECTION AT SPLICE PLATE

SCALE 3" = 1-0"



REMOVABLE PANEL KEY PLAN

NOT TO SCALE



NOTE: TYPICAL RAIL DETAIL SHOWN. RAIL AT ROCKER SPLICE SIMILAR EXCEPT AS SHOWN IN PARENTHESES.

HSS CHORD AT SPLICE PLATE DETAIL

SCALE 3" = 1-0"

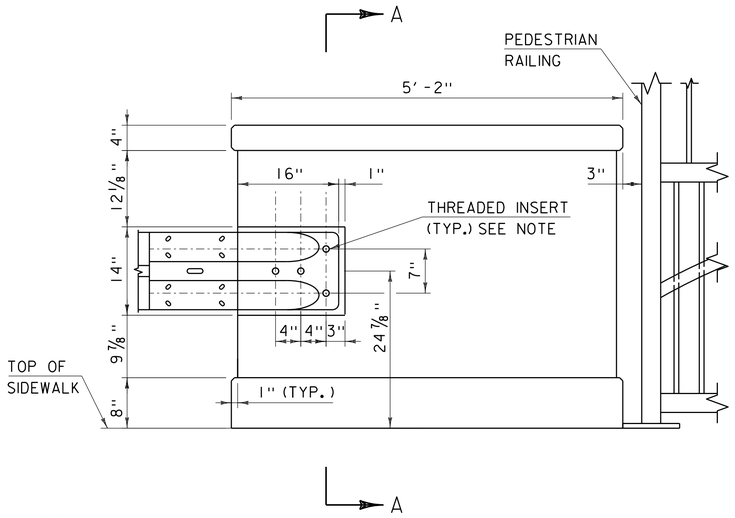
NOTE: FOR TYPICAL DETAILS NOT SHOWN REFER TO PEDESTRIAN SCREEN SHEET 69.

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

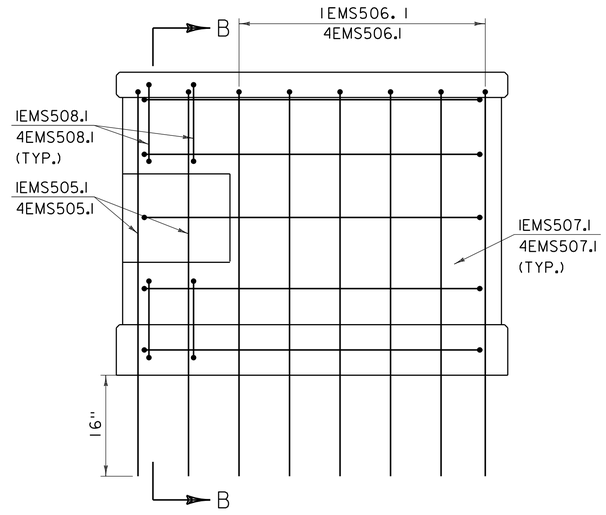
FILE NAME: z17b082rail.dgn
PROJECT LEADER: AMS
DESIGNED BY: FB
PEDESTRIAN SCREEN REMOVABLE PANEL

PLOT DATE: 7/6/2022
DRAWN BY: DJD
CHECKED BY: PAH
SHEET 70 OF 97

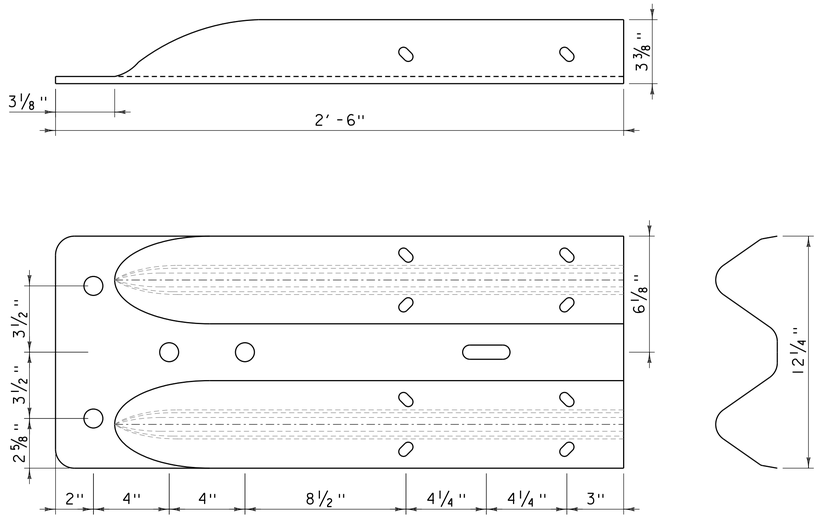


NOTE:
THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER ⅞" DIA. S.S. BOLT. S.S. BOLTS SHALL BE ⅞" DIA. x 11/2" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR 7/8" S.S.BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.

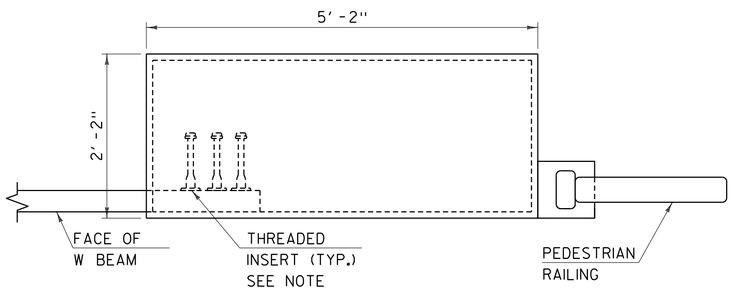
FRONT ELEVATION
SCALE 1" = 1-0"



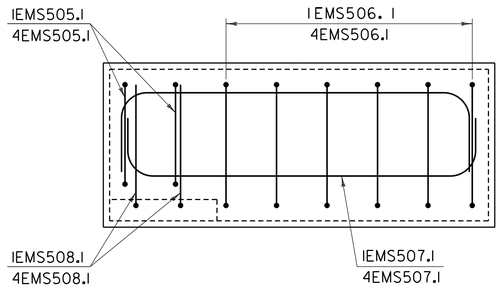
REINFORCEMENT ELEVATION
SCALE 1" = 1-0"



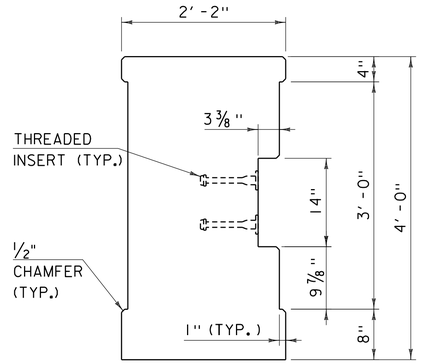
TERMINAL CONNECTOR
SCALE 3" = 1-0"



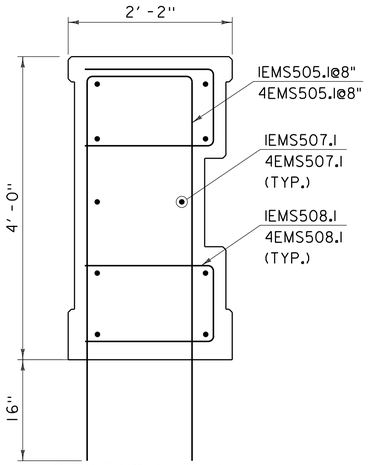
PLAN
SCALE 1" = 1-0"



REINFORCEMENT PLAN
SCALE 1" = 1-0"



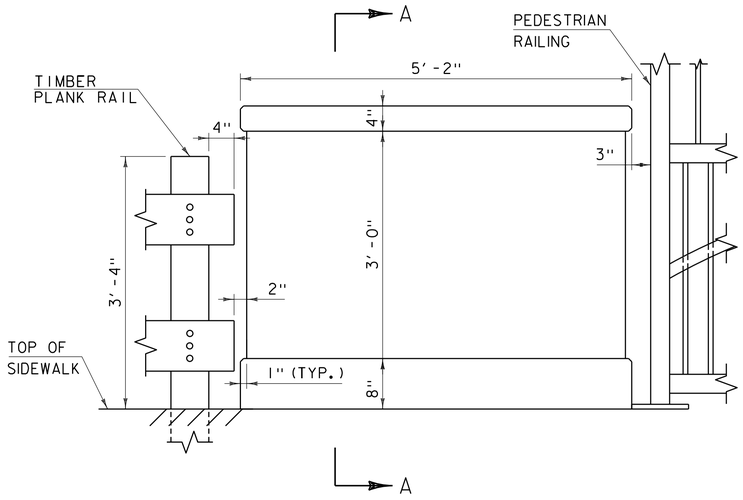
SECTION A-A
SCALE 1" = 1-0"



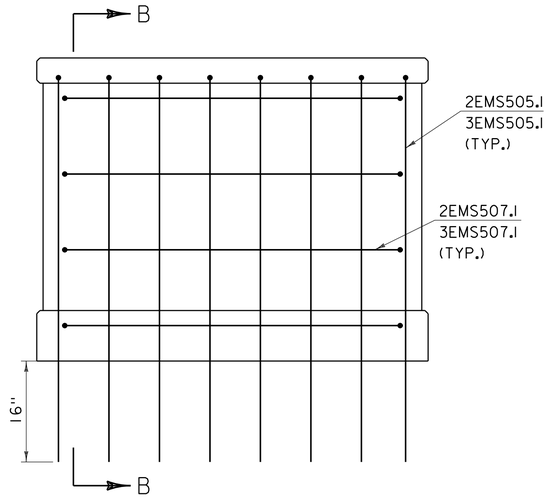
SECTION B-B
SCALE 1" = 1-0"

GILL ENGINEERING

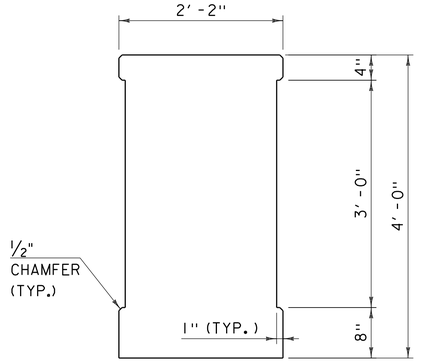
PROJECT NAME: HARTFORD (QUECHEE)	
PROJECT NUMBER: NH 020-2(45)	
FILE NAME: z17b082rail.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: DJD
DESIGNED BY: YS	CHECKED BY: PAH
NW & SE CORNER PED SCREEN TRANSITION	SHEET 71 OF 97



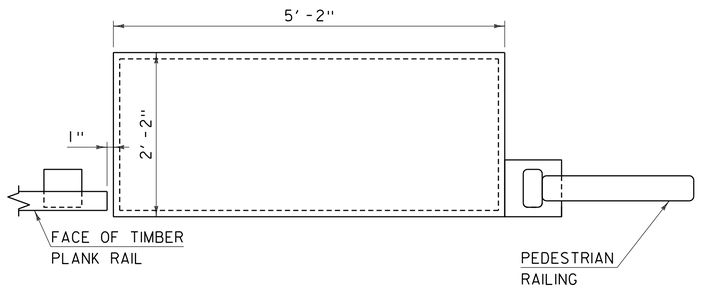
ELEVATION
SCALE 1" = 1-0"



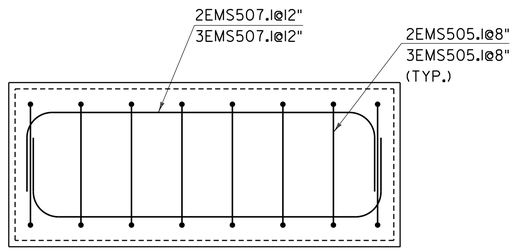
REINFORCEMENT ELEVATION
SCALE 1" = 1-0"



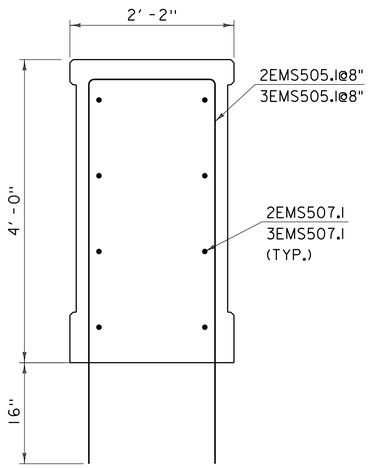
SECTION A-A
SCALE 1" = 1-0"



PLAN
SCALE 1" = 1-0"



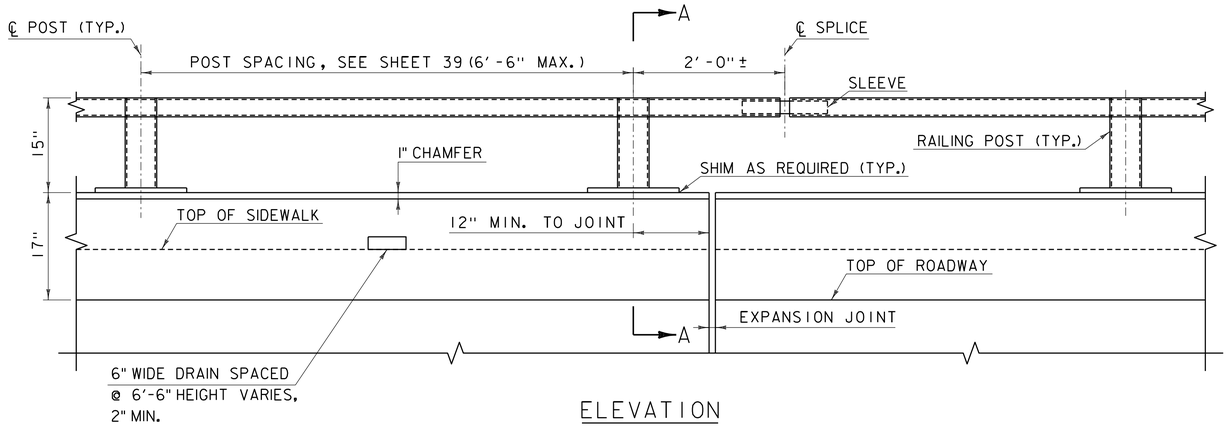
REINFORCEMENT PLAN
SCALE 1" = 1-0"



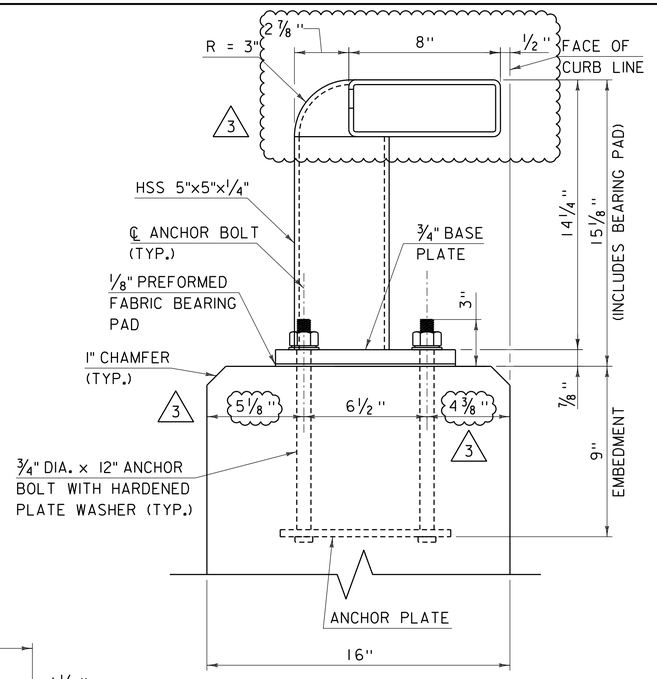
SECTION B-B
SCALE 1" = 1-0"

GILL ENGINEERING

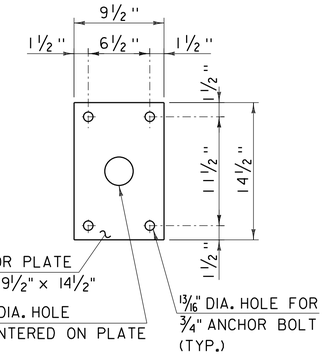
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082rail.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: DJD
DESIGNED BY: YS	CHECKED BY: PAH
SW & NE CORNER PED SCREEN TRANSITION	SHEET 72 OF 97



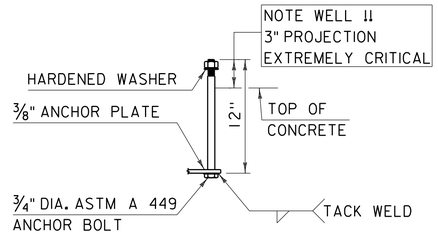
ELEVATION
SCALE 1" = 1-0"



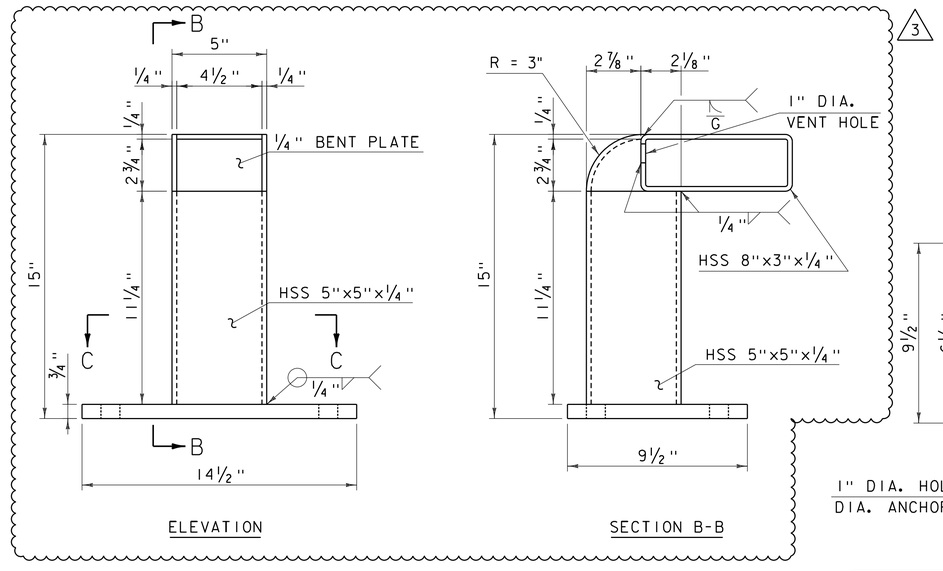
SECTION A-A
SCALE 3" = 1-0"



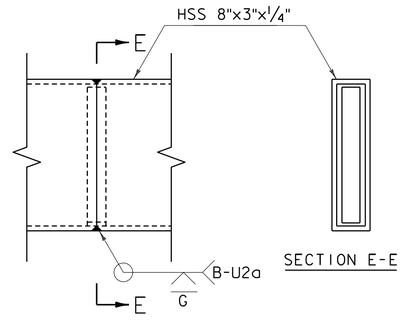
ANCHOR PLATE
SCALE 1 1/2" = 1-0"



ANCHOR BOLT
SCALE 1 1/2" = 1-0"

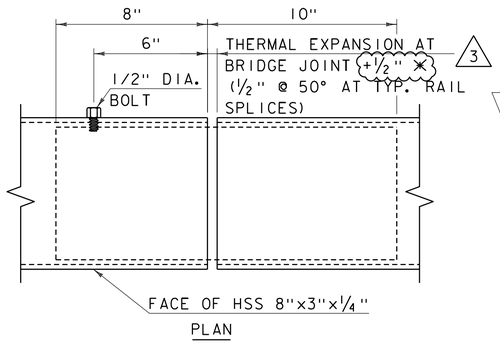


RAIL POST DETAILS
SCALE 3" = 1-0"

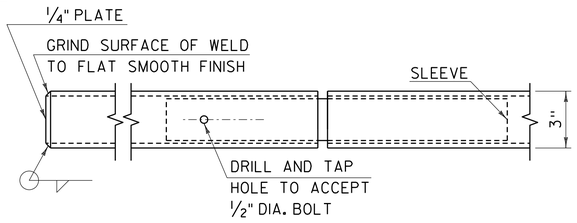


WELDED TUBE SPLICE
SCALE 3" = 1-0"

ADDENDUM	REVISION	PLOT DATE	DESCRIPTION	BY
3	1	09-12-22	REVISED RAIL POST DETAILS, REVISED SPLICE CALLOUT, ADDED NOTE 8.	DCH

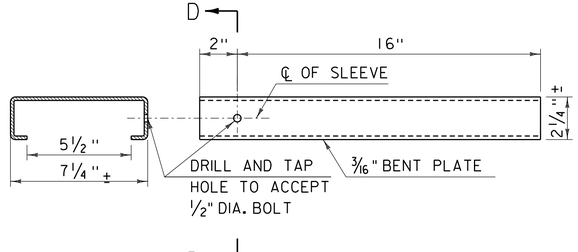


PLAN



RAIL CAP

REAR ELEVATION



SECTION D-D

SLEEVE

TYPICAL SPLICE DETAILS
SCALE 3" = 1-0"

MATERIALS:

STRUCTURAL STEEL TUBING	ASTM A 500 GRADE B GALVANIZED
POST AND BASE PLATE	AASHTO M270 GRADE 36 GALVANIZED
ANCHOR BOLTS	ASTM A 449 GALVANIZED
NUTS, BOLTS, AND WASHER	ASTM A 325 GALVANIZED

GENERAL NOTES:

1. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR POSTS. IF NEEDED, HSS 8"x3"x1/4" RAILS MAY BE CONNECTED IN THE SHOP BY USING TUBE-WELDED SPLICES, AS SHOWN IN THE PROVIDED DETAILS.
2. RAILS SHALL HAVE A TUBE SPLICE IN THE PANEL OVER BRIDGE EXPANSION JOINTS.
3. ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN A ADDITIONAL 1/8" TURN AFTER RAIL IS ASSEMBLED.
4. ALL POSTS SHALL BE SET PERPENDICULAR TO GRADE.
5. WELDING SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AASHTO/AWS D1.5, EXCEPT THAT WELDING OF THE WELDED TUBE SPLICE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWS D1.1
6. 1/4" CONTINUOUS FILLET WELDS ALL AROUND UNLESS NOTED OTHERWISE.
7. ALL CM-TL3 RAILING COMPONENTS ARE SECONDARY MEMBERS.

3

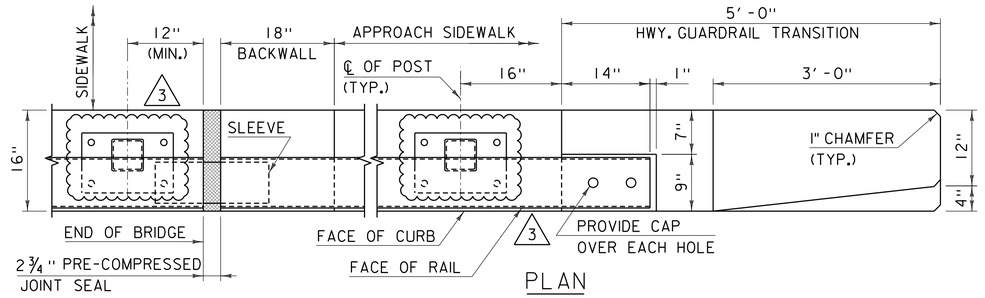
8. ALL WELDS SHALL BE CONTINUOUS AND ALL AROUND WHERE POSSIBLE. ALL JOINTS SHALL BE WELDED USING TWO-SIDED 1/4" FILLET WELDS OR 1/4" PJP WELDS WITH A BACKING SEAL WELD, AS APPLICABLE UNLESS NOTED OTHERWISE.

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082rail.dgn
PROJECT LEADER: AMS
DESIGNED BY: YS
CM-TL3 DETAILS

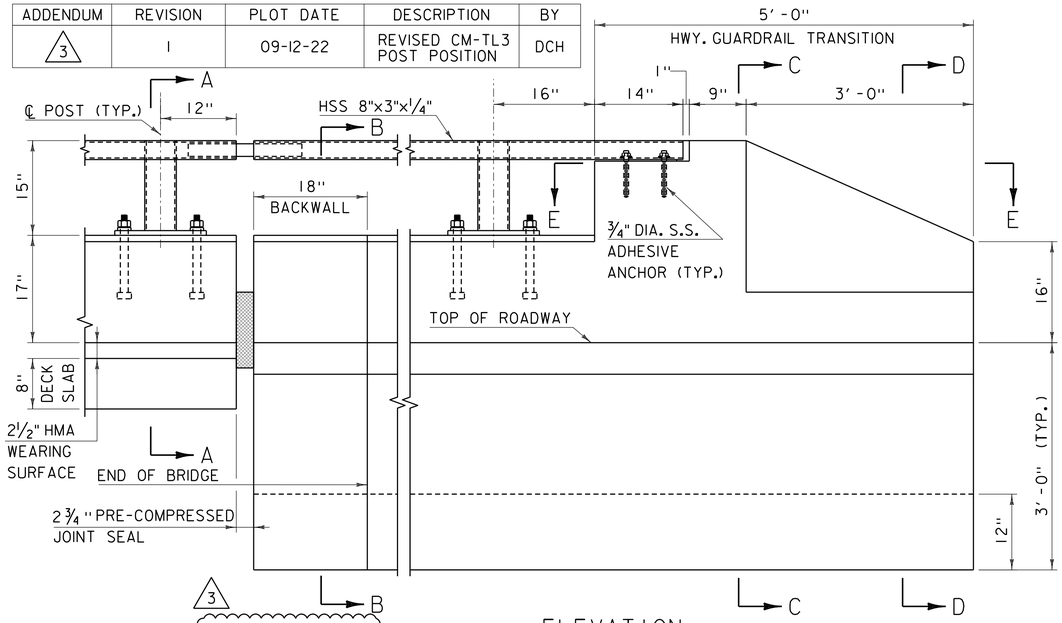
PLOT DATE: 9/13/2022
DRAWN BY: YS
CHECKED BY: PAH
SHEET 73 OF 97



PLAN

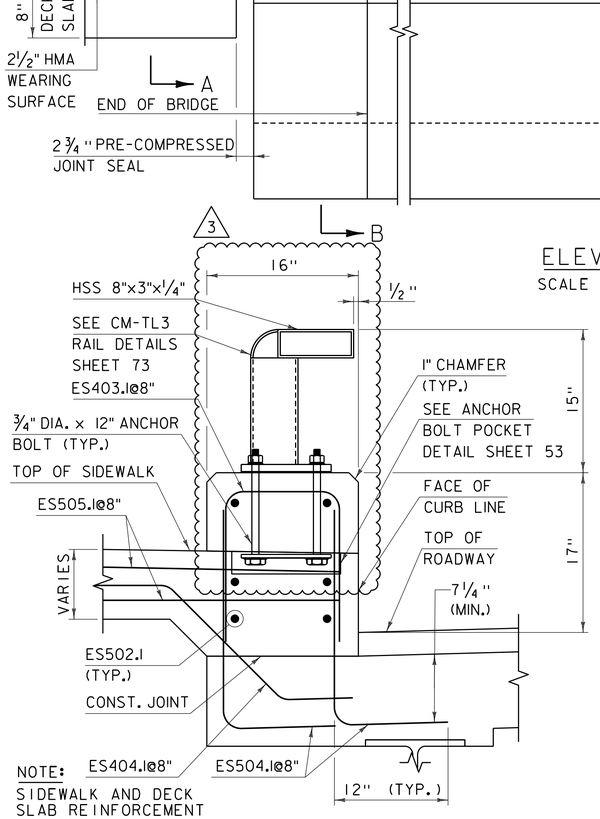
SCALE 1" = 1'-0"

ADDENDUM	REVISION	PLOT DATE	DESCRIPTION	BY
3	1	09-12-22	REVISED CM-TL3 POST POSITION	DCH



ELEVATION

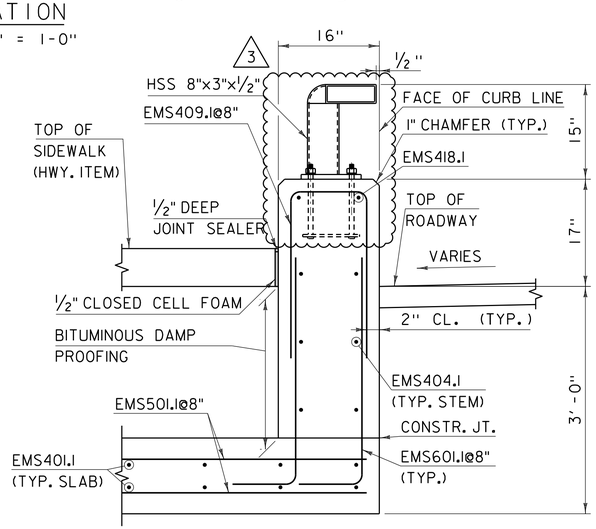
SCALE 1" = 1'-0"



NOTE: SIDEWALK AND DECK SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

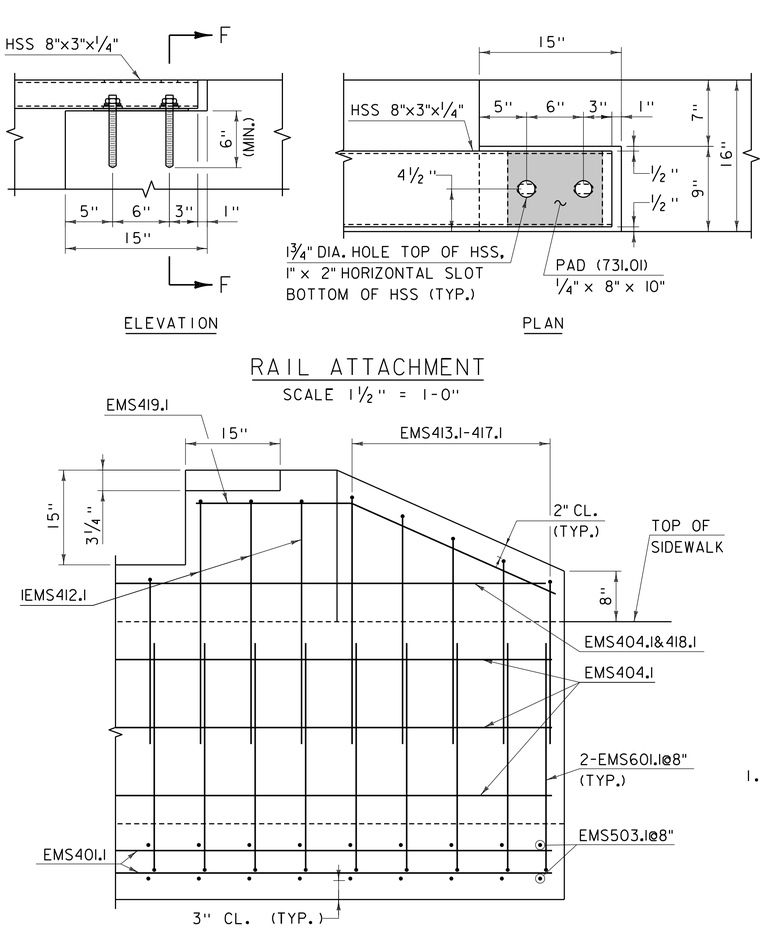
SECTION A-A

SCALE 1½" = 1'-0"



SECTION B-B

SCALE 1" = 1'-0"

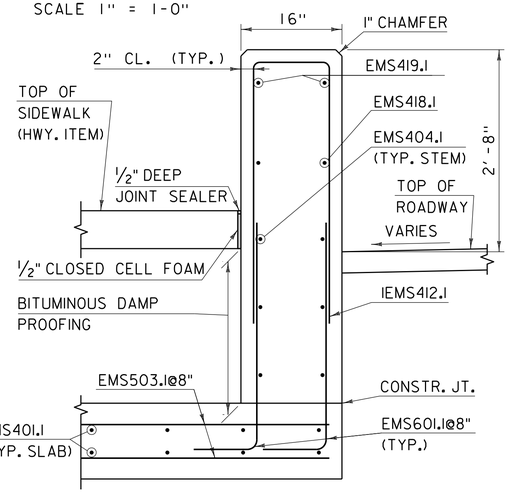


RAIL ATTACHMENT

SCALE 1½" = 1'-0"

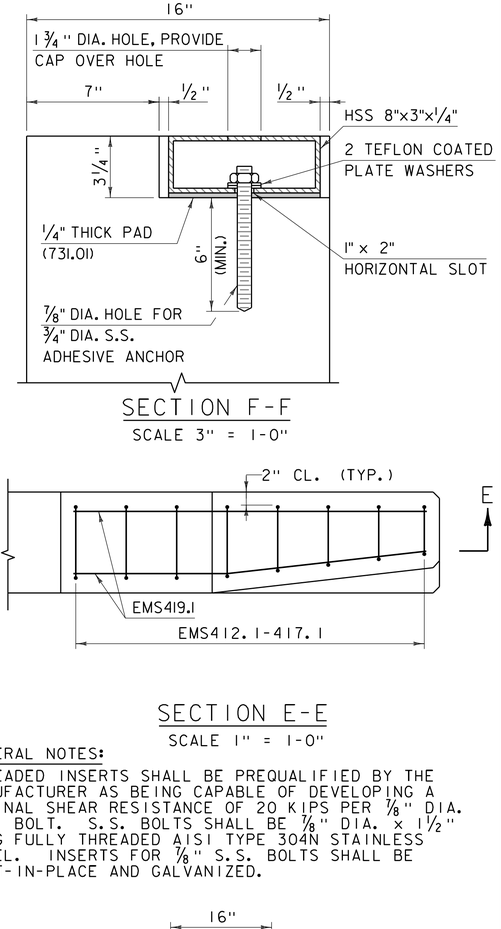
SECTION E-E

SCALE 1" = 1'-0"



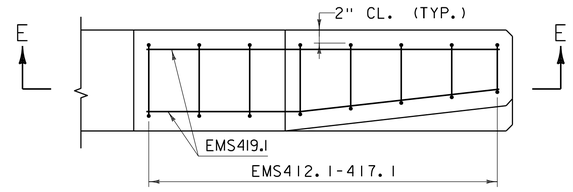
SECTION C-C

SCALE 1" = 1'-0"



SECTION F-F

SCALE 3" = 1'-0"

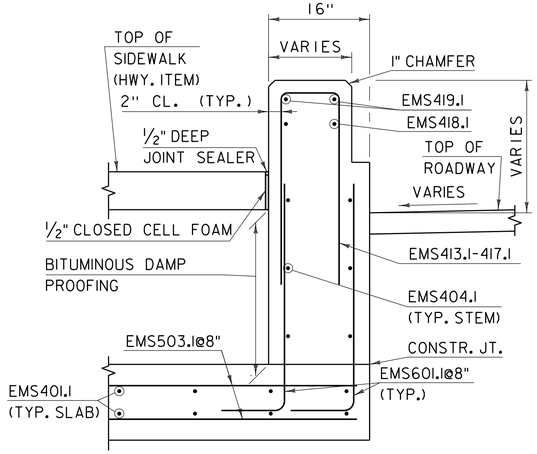


SECTION E-E

SCALE 1" = 1'-0"

GENERAL NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER ⅞" DIA. S.S. BOLT. S.S. BOLTS SHALL BE ⅞" DIA. x 1½" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR ⅞" S.S. BOLTS SHALL BE CAST-IN-PLACE AND GALVANIZED.



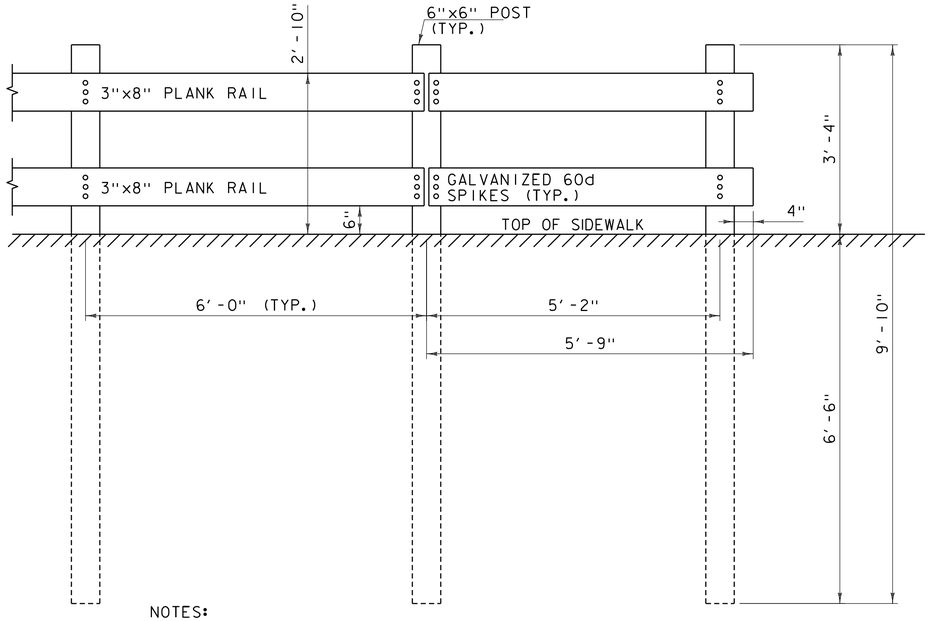
SECTION D-D

SCALE 1" = 1'-0"

HIGHWAY GUARDRAIL TRANSITION FOR CM-TL3 RAILING

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082rail.dgn	PLOT DATE: 9/13/2022
PROJECT LEADER: AMS	DRAWN BY: DJD
DESIGNED BY: DJD	CHECKED BY: PAH
CM-TL3 ENDPOST DETAILS	SHEET 74 OF 97

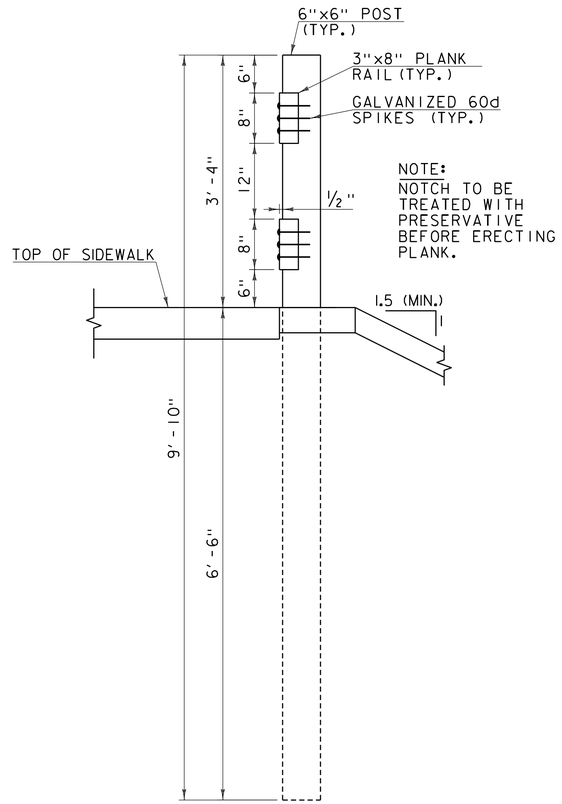


NOTES:

1. TIMBER PLANK RAILS AND POSTS SHALL BE NO. 1 SPRUCE PINE FIR OR BETTER.
2. PLANKS TWELVE FEET IN LENGTH TO BE USED WHEREVER POSSIBLE.
3. ALL TIMBER MEMBERS SHALL BE GIVEN A PRESERVATIVE TREATMENT PER SUBSECTION 726.01.

TIMBER PLANK RAIL ELEVATION

SCALE 3/4" = 1-0"

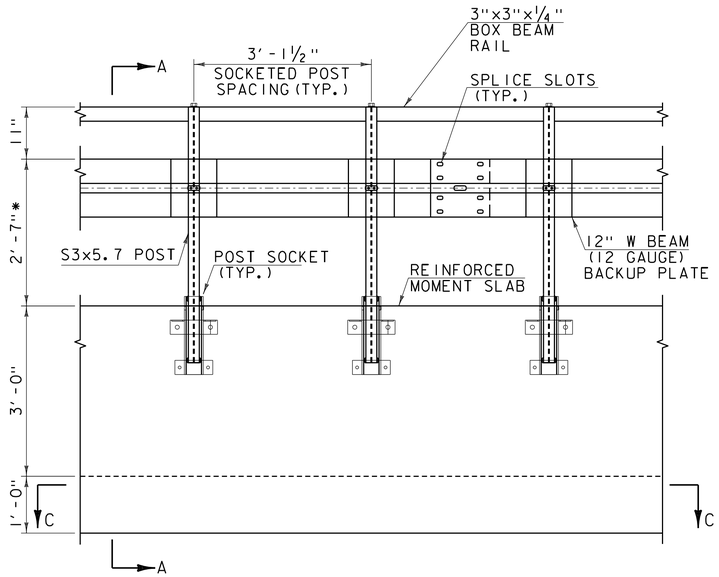


TIMBER PLANK RAIL SECTION

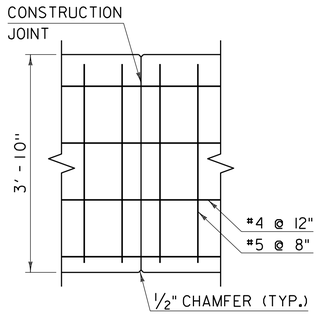
SCALE 1" = 1-0"

GILL ENGINEERING

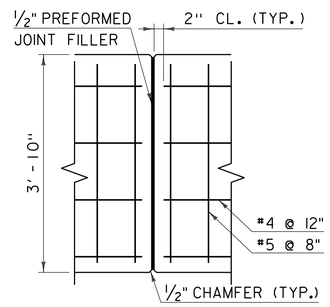
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082rail.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: DJD
DESIGNED BY: YS	CHECKED BY: PAH
PLANK RAIL	SHEET 75 OF 97



POST SOCKET ATTACHED TO MOMENT SLAB ELEVATION
SCALE ¾" = 1-0"

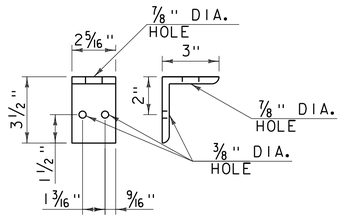


CONSTRUCTION JOINT

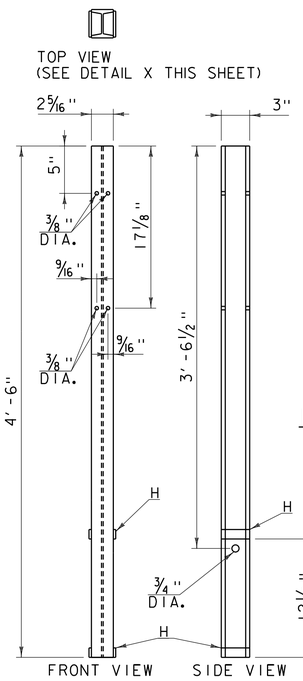


EXPANSION JOINT

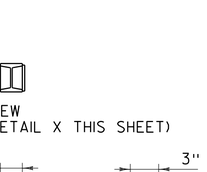
SECTION C-C
SCALE ¾" = 1-0"



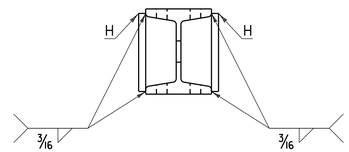
SHELF BRACKET DETAILS
SCALE 3" = 1'-0"



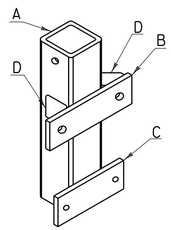
S3x5.7 POST
SCALE 1½" = 1-0"



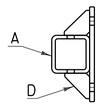
H. POST STANDOFF
SCALE 1½" = 1-0"



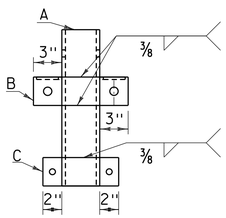
S3x5.7 TOP VIEW DETAIL X



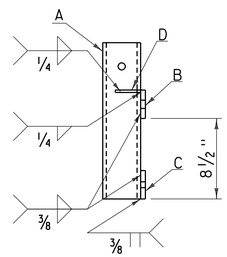
ISOMETRIC VIEW



TOP VIEW

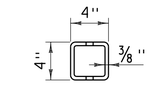


FRONT VIEW

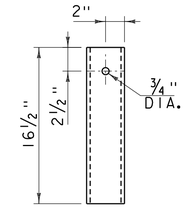


(BOTTOM MOUNTING PLATE MAY BE BEVELED TO ACHIEVE PROPER WELD DEPTH)
SIDE VIEW

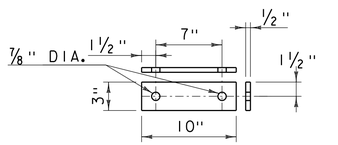
POST SOCKET ATTACHED TO HEADWALL
SCALE 1½" = 1-0"



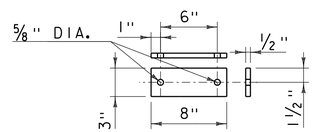
TOP VIEW



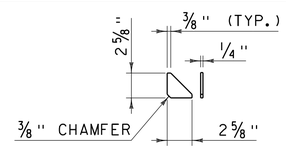
A. SQUARE TUBE



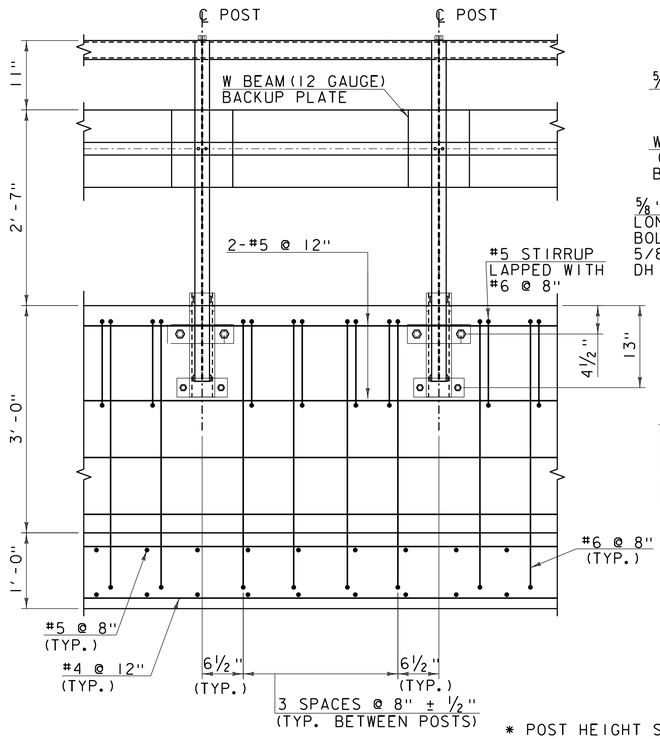
B. TOP MOUNTING PLATE



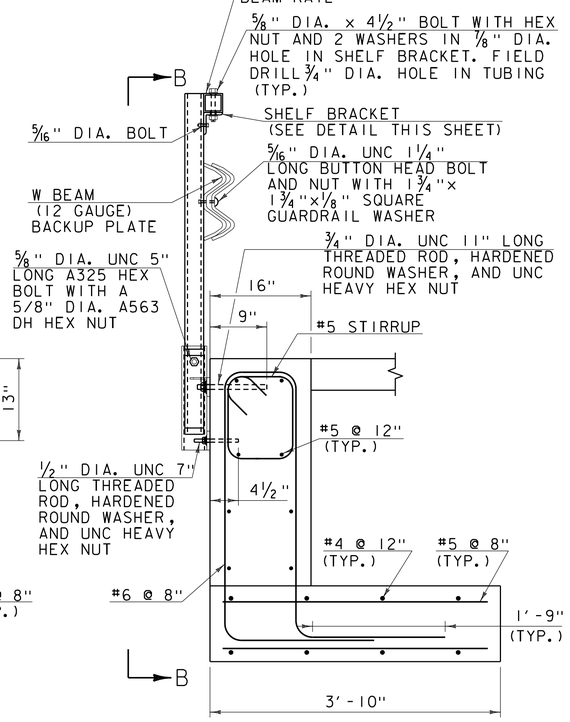
C. BOTTOM MOUNTING PLATE



D. TOP PLATE GUSSET



SECTION B-B
SCALE 1" = 1'-0"



SECTION A-A
SCALE 1" = 1'-0"

* POST HEIGHT SHALL BE ADJUSTED TO MAINTAIN A CONSTANT GRADE LINE AT SIDEWALK RAMP SWR-5 BETWEEN STA 172+91.16 AND STA 173+16.36

NOTES:
ALL GUARDRAIL COMPONENTS SHALL BE HOT-DIPPED GALVANIZED. PLATES AND GUSSETS ARE ASTM A709 GRADE 50, BOLTS ARE ASTM 307, AND THE S3X5.7 POSTS ARE ASTM A992.

W BEAM BACKUP PLATE: THE S3X5.7 POSTS UTILIZE A 12" WIDE W-BEAM BACKUP PLATE INSTEAD OF A BLOCKOUT.

ANCHORS: ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A449, TYPE 1. ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUT SECURING THE POST BAS PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN AFTER STEEL IS IN PLACE.

PAYMENT: ALL GUARDRAIL COMPONENTS, INCLUDING SOCKET CONNECTIONS, POSTS, W-BEAM, AND HARDWARE SHALL BE PAID IN LINEAR FEET AS ITEM 900.640 (WEAK POST GUARDRAIL) (POWDER COATED BLACK)

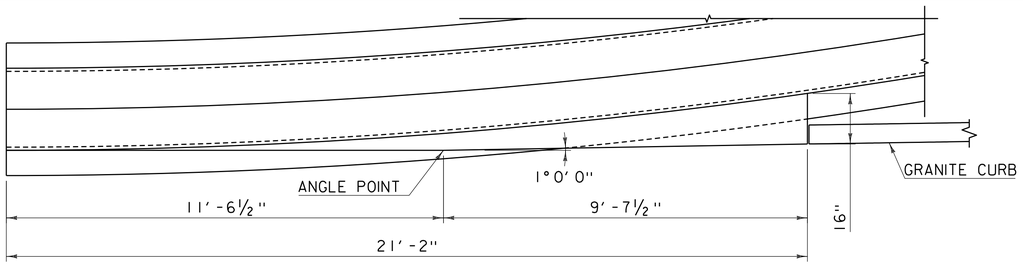
ALL WEAK POST GUARDRAIL COMPONENTS ARE SECONDARY MEMBERS.

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

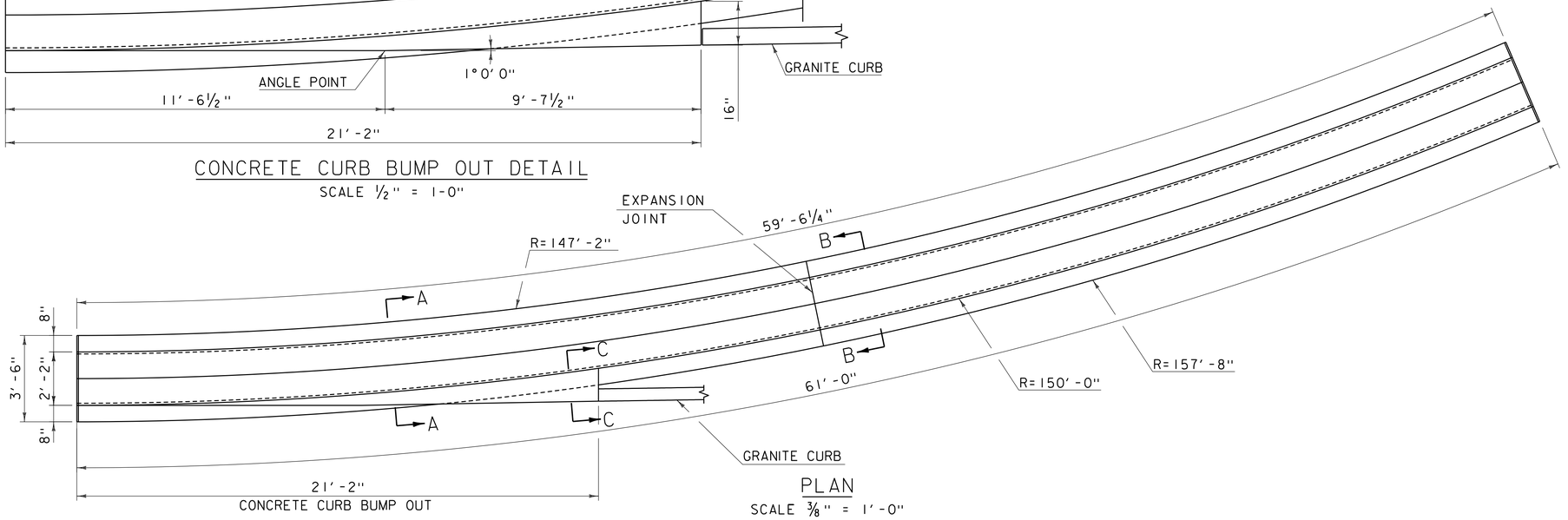
FILE NAME: z17b082rail.dgn
PROJECT LEADER: AMS
DESIGNED BY: ---
WEAK POST GUARDRAIL

PLOT DATE: 7/6/2022
DRAWN BY: YS
CHECKED BY: PAH
SHEET 76 OF 97



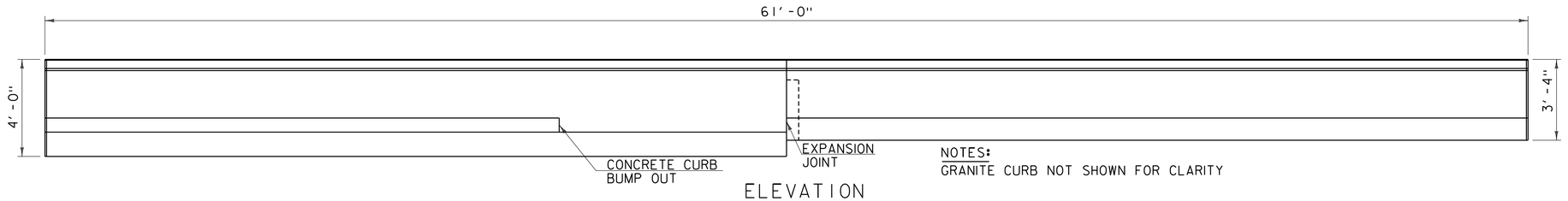
CONCRETE CURB BUMP OUT DETAIL

SCALE ½" = 1-0"



PLAN

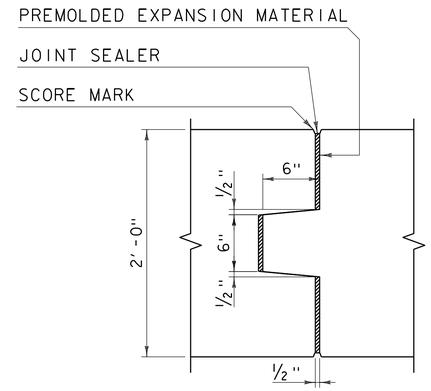
SCALE ⅜" = 1'-0"



NOTES:
GRANITE CURB NOT SHOWN FOR CLARITY

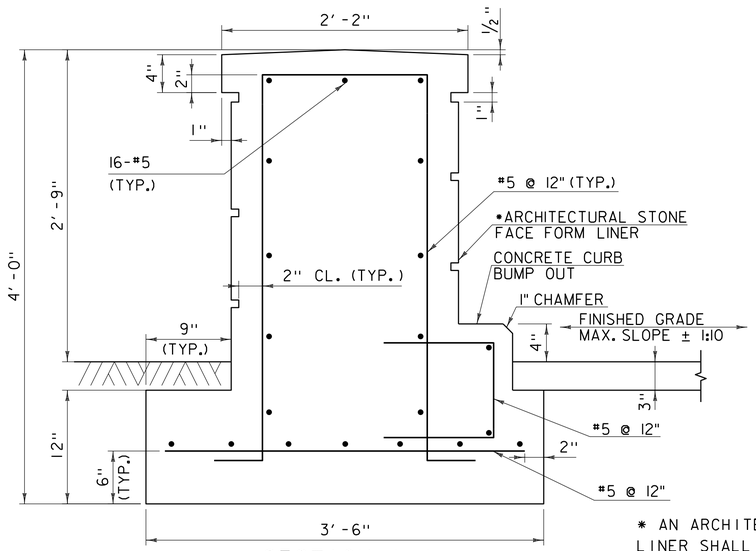
ELEVATION

SCALE ⅜" = 1'-0"



EXPANION JOINT DETAIL

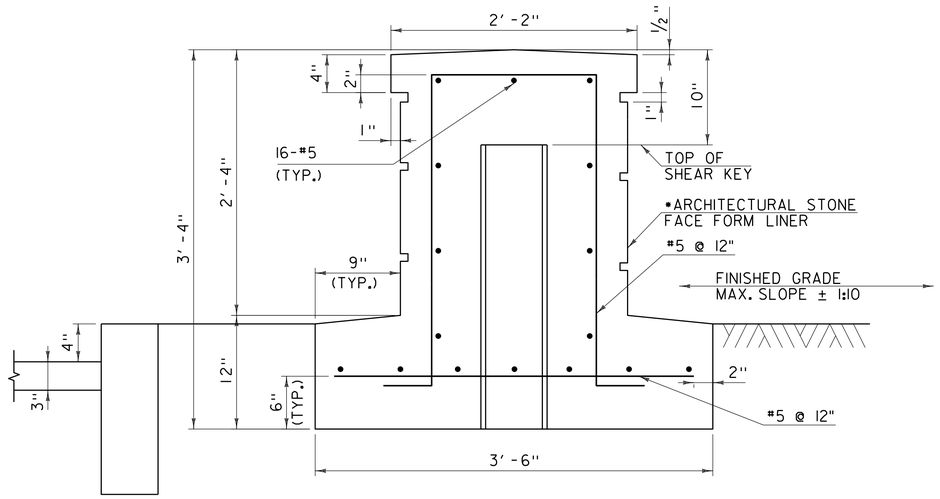
SCALE 1½" = 1'-0"



SECTION A-A

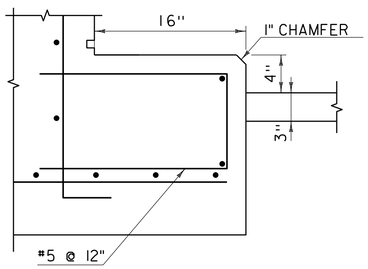
SCALE 1½" = 1'-0"

* AN ARCHITECTURAL STONE FACE FORM LINER SHALL BE USED ON THE VERTICAL EXPOSED FACES OF THE GUARDWALL, SEE SPECIAL PROVISIONS.



SECTION B-B

SCALE 1½" = 1'-0"



SECTION C-C

SCALE 1½" = 1'-0"

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082rail.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: ---	CHECKED BY: PAH
CONCRETE GUARDWALL	SHEET 77 OF 97

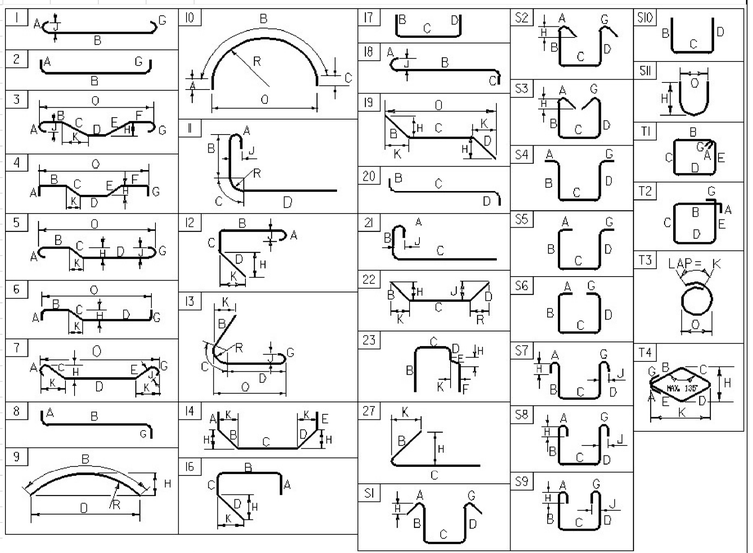
STATE OF VERMONT
AGENCY OF TRANSPORTATION

REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
SUPERSTRUCTURE																	
▲	448	4	40'- 0"	ES401.1	STR												
△	98	4	4'- 0"	ES402.1	STR												
	848	4	3'- 7"	ES403.1	17		1'- 3"	1'- 0"	1'- 3"								
	848	4	3'- 10"	ES404.1	19		1'- 3"	1'- 4"	1'- 3"				0'- 11"		0'- 11"		3'- 2"
✳	2241	5	6'- 3"	ES501.1	STR												
▲	288	5	40'- 0"	ES502.1	STR												
	20	5	32'- 4"	ES503.1	STR												
	1696	5	3'- 1"	ES504.1	17		2'- 1"	1'- 0"									
	848	5	16'- 2"	ES505.1	17		7'- 11"	0'- 4"	7'- 11"								
	8	5	4'- 4"	ES506.1	S4	1'- 0"	0'- 8"	1'- 0"	0'- 8"	1'- 0"							
	8	5	4'- 8"	ES507.1	S4	1'- 0"	0'- 8"	1'- 4"	0'- 8"	1'- 0"							
ABUTMENTS																	
	36	4	2'- 8"	1A401.1	STR												
✳ ▲	9	4	6'- 0"	1A402.1	STR												
▲	14	4	3'- 7"	1A403.1	STR												
▲	7	4	5'- 0"	1A404.1	STR												
	2	4	8'- 1"	1A405.1	16		2'- 0"	0'- 10"	5'- 0"				3'- 7"		3'- 11"		
	2	4	8'- 9"	1A406.1	16		2'- 0"	0'- 10"	5'- 0"				4'- 6"		3'- 11"		
	6	4	6'- 2"	1A407.1	17		2'- 7"	1'- 0"	2'- 7"								
	16	5	23'- 1"	1A501.1	STR												
	4	5	7'- 11"	1A502.1	STR												
△	32	5	3'- 3"	1A503.1	STR												
	2	5	4'- 9"	1A504.1	STR												
	14	5	3'- 11"	1A505.1	STR												
	32	5	4'- 1"	1A506.1	17		3'- 3"	0'- 10"									
	2	5	5'- 7"	1A507.1	17		4'- 9"	0'- 10"									
	14	5	4'- 9"	1A508.1	17		3'- 11"	0'- 10"									
	46	5	2'- 9"	1A509.1	17		0'- 10"	1'- 1"	0'- 10"								
	8	5	3'- 9"	1A510.1	17		1'- 6"	2'- 3"									
	12	5	3'- 8"	1A511.1	17		1'- 5"	2'- 3"									
	4	5	7'- 5"	1A512.1	17		2'- 4"	2'- 10"	2'- 4"								
	36	4	2'- 8"	2A401.1	STR												
▲	8	4	6'- 0"	2A402.1	STR												
▲	14	4	3'- 7"	2A403.1	STR												
▲	7	4	5'- 0"	2A404.1	STR												
	2	4	8'- 9"	2A405.1	16		2'- 0"	0'- 10"	5'- 0"				4'- 6"		3'- 11"		
	2	4	8'- 6"	2A406.1	16		2'- 0"	0'- 10"	5'- 0"				4'- 4"		3'- 9"		
	6	4	6'- 2"	2A407.1	17		2'- 7"	1'- 0"	2'- 7"								
	16	5	23'- 1"	2A501.1	STR												
	4	5	7'- 11"	2A502.1	STR												
	32	5	3'- 3"	2A503.1	STR												
	2	5	4'- 9"	2A504.1	STR												
	14	5	3'- 11"	2A505.1	STR												
	32	5	4'- 1"	2A506.1	17		3'- 3"	0'- 10"									
	2	5	5'- 7"	2A507.1	17		4'- 9"	0'- 10"									
	14	5	4'- 9"	2A508.1	17		3'- 11"	0'- 10"									
	46	5	2'- 9"	2A509.1	17		0'- 10"	1'- 1"	0'- 10"								
	8	5	3'- 9"	2A510.1	17		1'- 6"	2'- 3"									
	12	5	3'- 8"	2A511.1	17		1'- 5"	2'- 3"									
	4	5	7'- 5"	2A512.1	17		2'- 4"	2'- 10"	2'- 4"								
NW MOMENT SLAB																	
	10	4	17'- 8"	1EMS401.1	STR												
	8	4	21'- 5"	1EMS402.1	STR												
	2	4	4'- 10"	1EMS403.1	STR												
	7	4	21'- 5"	1EMS404.1	STR												
	8	4	13'- 10"	1EMS405.1	STR												
	8	4	4'- 10"	1EMS406.1	STR												
	6	4	5'- 0"	1EMS408.1	STR												
	26	4	5'- 8"	1EMS409.1	17		2'- 4"	1'- 0"	2'- 4"								
	20	4	4'- 3"	1EMS410.1	17		1'- 9"	0'- 9"	1'- 9"								
	8	4	5'- 6"	1EMS411.1	17		1'- 9"	2'- 0"	1'- 9"								
	3	4	7'- 4"	1EMS412.1	17		3'- 2"	1'- 0"	3'- 2"								
	1	4	7'- 5"	1EMS413.1	17		3'- 3"	0'- 11"	3'- 3"								
	1	4	6'- 11"	1EMS414.1	17		3'- 0"	0'- 11"	3'- 0"								
	1	4	6'- 3"	1EMS415.1	17		2'- 9"	0'- 10"	2'- 9"								
	1	4	5'- 7"	1EMS416.1	17		2'- 5"	0'- 9"	2'- 5"								
	1	4	5'- 0"	1EMS417.1	17		2'- 2"	0'- 8"	2'- 2"								
	1	4	21'- 1"	1EMS418.1	19		20'- 3"	2'- 10"					0'- 5"		3'- 0"		
	2	4	4'- 11"	1EMS419.1	19		2'- 2"	2'- 9"					2'- 6"		1'- 2"		
	40	5	7'- 11"	1EMS501.1	STR												
	16	5	9'- 2"	1EMS502.1	STR												
	12	5	3'- 2"	1EMS503.1	STR												
	54	5	4'- 7"	1EMS504.1	17		2'- 10"	1'- 9"									
	2	5	11'- 9"	1EMS505.1	17		5'- 2"	1'- 5"	5'- 2"								
	6	5	12'- 0"	1EMS506.1	17		5'- 2"	1'- 8"	5'- 2"								
	10	5	6'- 8"	1EMS507.1	17		1'- 0"	4'- 8"	1'- 0"								
	4	5	3'- 8"	1EMS508.1	17		1'- 0"	1'- 8"	1'- 0"								
△	68	6	4'- 7"	1EMS601.1	17		2'- 10"	1'- 9"									
SW MOMENT SLAB																	
	8	4	17'- 8"	2EMS401.1	STR												
▲	10	4	28'- 5"	2EMS402.1	STR												
	2	4	4'- 10"	2EMS403.1	STR												
	7	4	28'- 7"	2EMS404.1	STR												
	8	4	14'- 5"	2EMS405.1	STR												
	8	4	4'- 10"	2EMS406.1	STR												
	3	4	7'- 4"	3EMS412.1	17		3'- 2"	1'- 0"	3'- 2"								
	1	4	7'- 5"	3EMS413.1	17		3'- 3"	0'- 11"	3'- 3"								
	1	4	6'- 11"	3EMS414.1	17		3'- 0"	0'- 11"	3'- 0"								
	1	4	6'- 3"	3EMS415.1	17		2'- 9"	0'- 10"	2'- 9"								
	1	4	5'- 7"	3EMS416.1	17		2'- 5"	0'- 9"	2'- 5"								
	1	4	5'- 0"	3EMS417.1	17		2'- 2"	0'- 8"	2'- 2"								
	1	4	28'- 7"	3EMS418.1	19		26'- 4"	2'- 10"					0'- 5"		3'- 0"		
	2	4	4'- 11"	3EMS419.1	19		2'- 2"	2'- 9"					2'- 6"		1'- 2"		
	40	5	7'- 11"	3EMS501.1	STR												
	16	5	9'- 2"	3EMS502.1	STR												
▲	6	5	4'- 10"	3EMS503.1	STR												
	56	5	4'- 7"	3EMS504.1	17		2'- 10"	1'- 9"									
	8	5	13'- 4"	3EMS505.1	17		5'- 10"	1'- 8"	5'- 10"								
	8	5	6'- 8"	3EMS507.1	17		1'- 0"	4'- 8"	1'- 0"								
	88	6	4'- 7"	3EMS601.1	17		2'- 10"	1'- 9"									
SE MOMENT SLAB																	
	2	4	18'- 1"	4EMS401.1	STR												
	16	4	24'- 9"	4EMS402.1	STR												
	2	4	4'- 10"	4EMS403.1	STR												
	7	4	24'- 9"	4EMS404.1	STR												
	8	4	14'- 5"	4EMS405.1	STR												
	8	4	4'- 10"	4EMS406.1	STR												
	8	4	6'- 6"	4EMS407.1	STR												
	30	4	5'- 8"	4EMS409.1	17		2'- 4"	1'- 0"	2'- 4"								
	20	4	4'- 3"	4EMS410.1	17		1'- 9"	0'- 9"	1'- 9"								
	8	4	5'- 6"	4EMS411.1	17		1'- 9"	2'- 0"	1'- 9"								
	3	4	7'- 4"	4EMS412.1	17		3'- 2"	1'- 0"	3'- 2"								
	1	4	7'- 5"	4EMS413.1	17		3'- 3"	0'- 11"	3'- 3"								
	1	4	6'- 11"	4EMS414.1	17		3'- 0"	0'- 11"	3'- 0"								
	1	4	6'- 3"	4EMS415.1	17		2'- 9"	0'- 10"	2'- 9"								
	1	4	5'- 7"	4EMS416.1	17		2'- 5"	0'- 9"	2'- 5"								
	1	4	5'- 0"	4EMS417.1	17		2'- 2"	0'- 8"	2'- 2"								
	1	4	24'- 5"	4EMS418.1	19		22'- 1"	2'- 10"					0'- 5"		3'- 0"		
	2	4	4'- 11"	4EMS419.1	19		2'- 2"	2'- 9"					2'- 6"		1'- 2"		
	40	5	7'- 11"	4EMS501.1	STR												
	16	5	9'- 2"	4EMS502.1	STR												
	20	5	7'- 3"	4EMS503.1	STR												
	56	5	4'- 7"	4EMS504.1	17		2'- 10"	1'- 9"									
	2	5	11'- 9"	4EMS505.1	17		5'- 2"	1'- 5"	5'- 2"								
	6	6	12'- 0"	4EMS606.1	17		5'- 2"	1'- 8"	5'- 2"								
	10	5	6'- 8"	4EMS507.1	17		1'- 0"	4'- 8"	1'- 0"								
	4	6	3'- 8"	4EMS608.1	17		1'- 0"	1'- 8"	1'- 0"								
	10	5	4'- 10"	4EMS509.1	T1	0'- 6"	0'- 10"	1'- 1"	0'- 10"	1'- 1"		0'- 6"					
	76	6	4'- 7"	4EMS601.1	17		2'- 10"	1'- 9"									
	10	6	10'- 11"	4EMS602.1	S5	1'- 9"	3'- 3"	0'- 10"	3'- 4"			1'- 9"					

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS-ROUND SECTION		
		DIAMETER INCHES	AREA INCHES²	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.04	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.14
#9	3.400	1.13	1.00	3.54
#10	4.3	1.270	1.27	3.990
#11	5.31	1.410	1.56	4.430
#14	7.65	1.69	2.25	5.32
#18	13.60	2.26	4.00	7.09

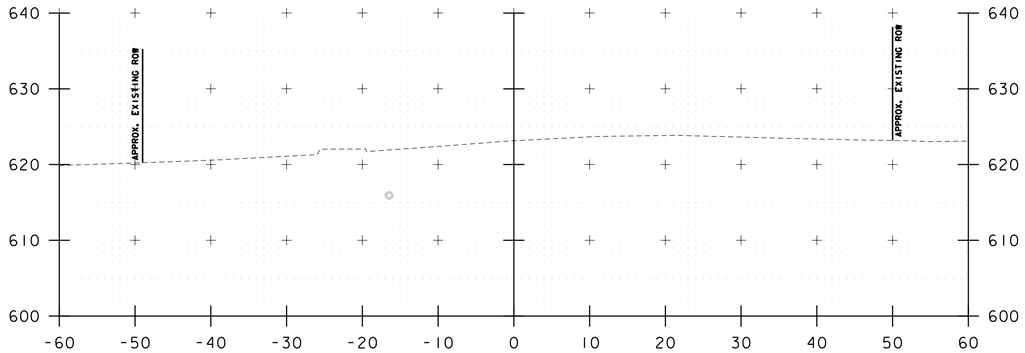
~ REINFORCING STEEL CORROSION RESISTANCE LEVEL ~

THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .1 FOR LEVEL ONE SUFFIX, .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROVIDED FOR EACH CORROSION LEVEL WILL BE RECORDED ON THE PLAN SET PI SHEET FOR AS-BUILT RECORD PLAN ARCHIVES.

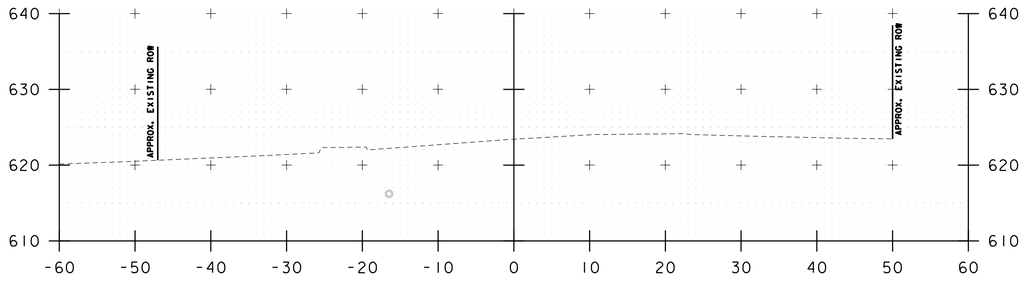
PROJECT NAME:

PROJECT NUMBER:

FILE NAME: z17b082forms.dgn
PROJECT MANAGER: A.SPERA
DESIGNED BY: Y.SIMONSON
REINFORCING STEEL SCHEDULE



165+50



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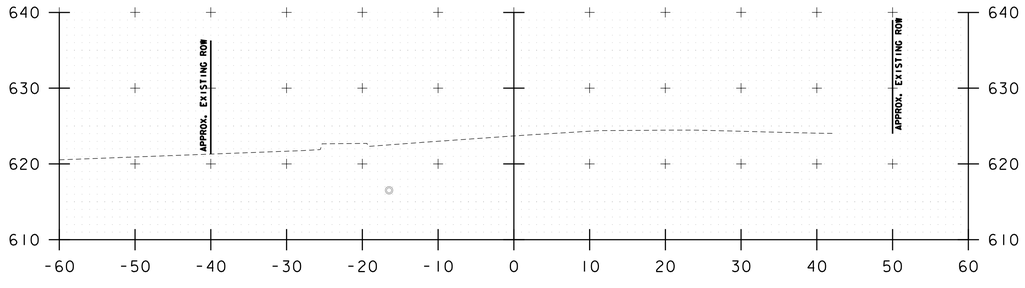
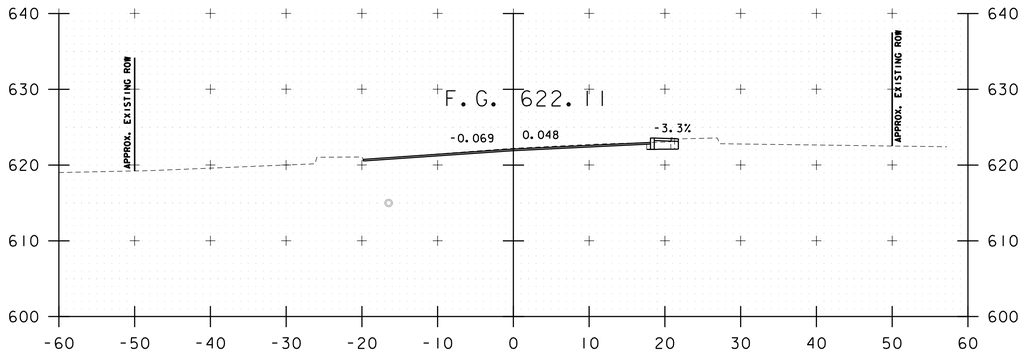
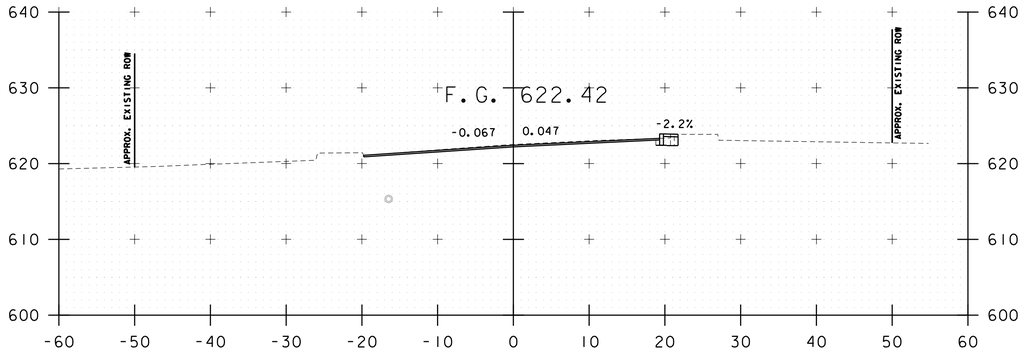


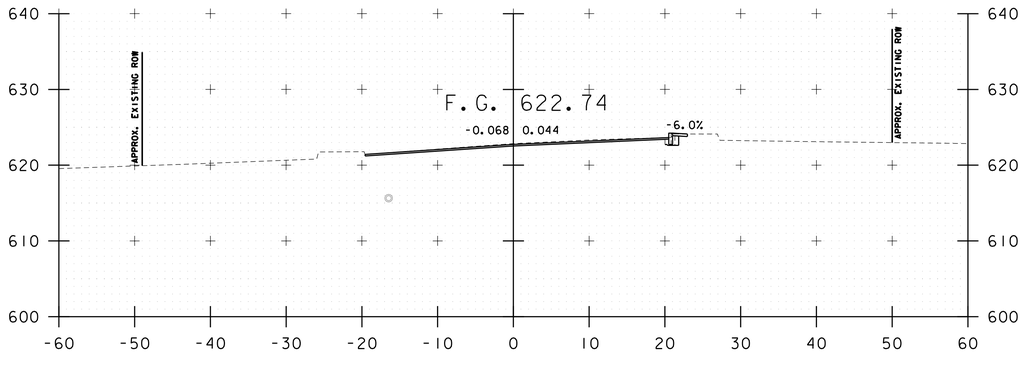
165+00



166+25



166+00



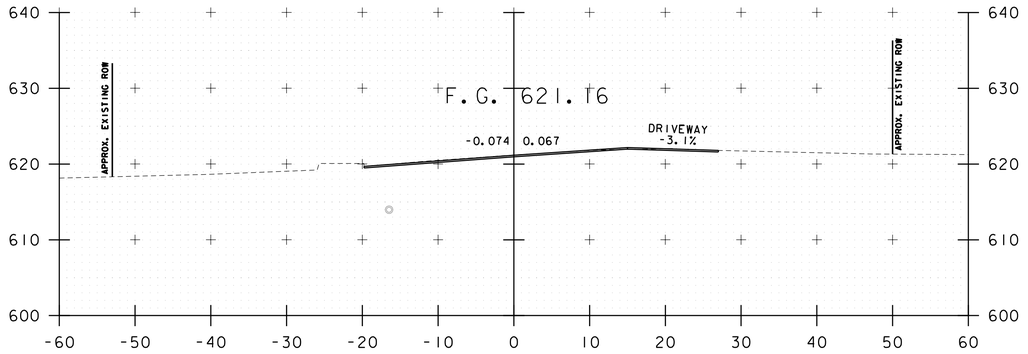
STA 165+65.00
BEGIN PROJECT
MATCH EXISTING

165+75

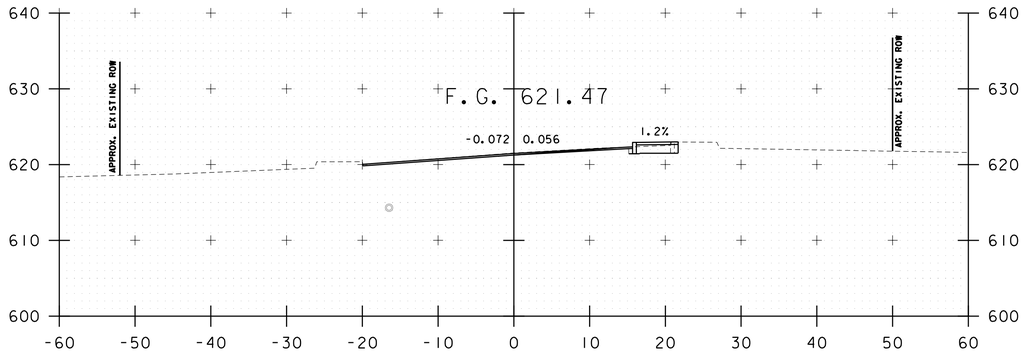
STA. 165+00 TO STA. 166+25

GILL ENGINEERING

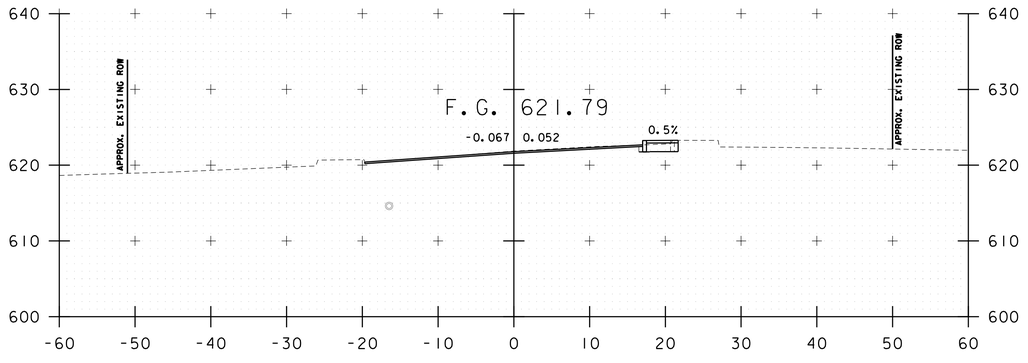
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 79 OF 97



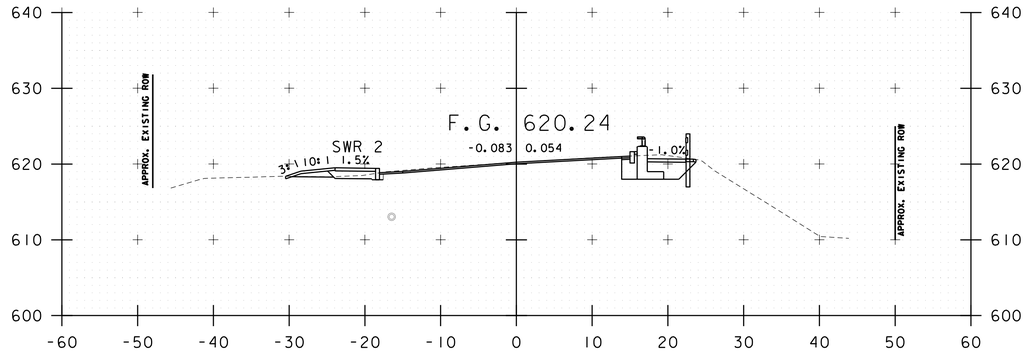
167+00



166+75

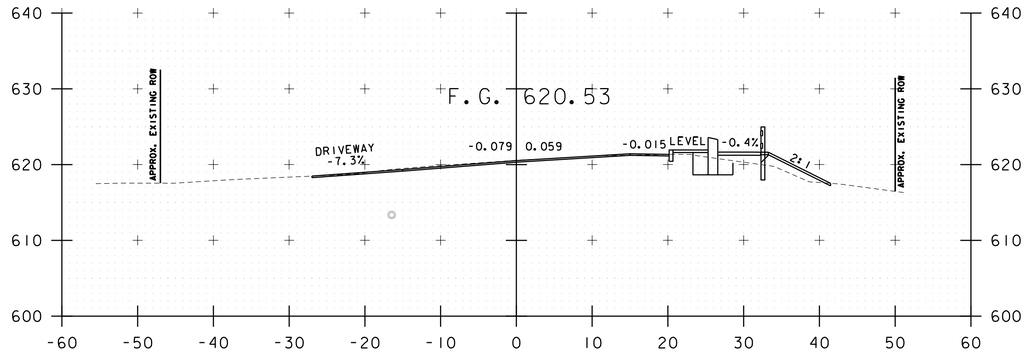


166+50



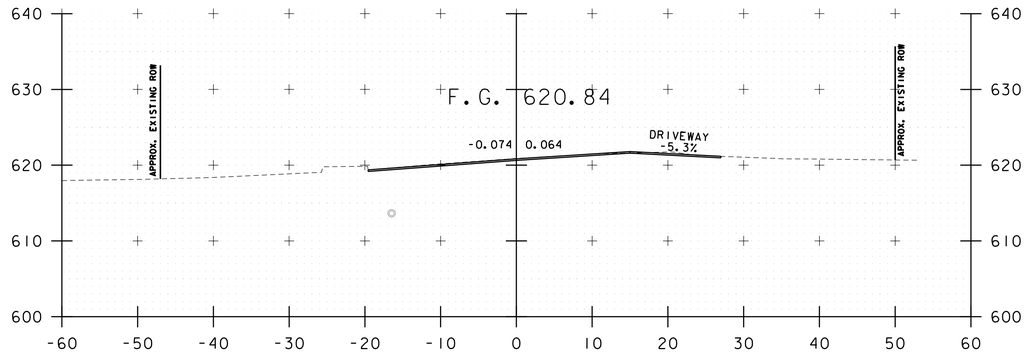
SWR 2
STA. 167+60.80 LT

167+75



SWR 1
STA. 167+43.18 RT

167+50

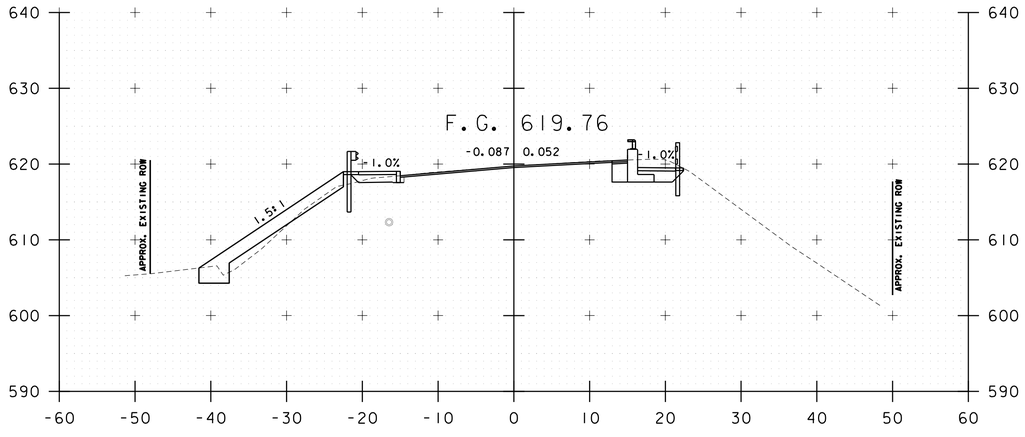


167+25

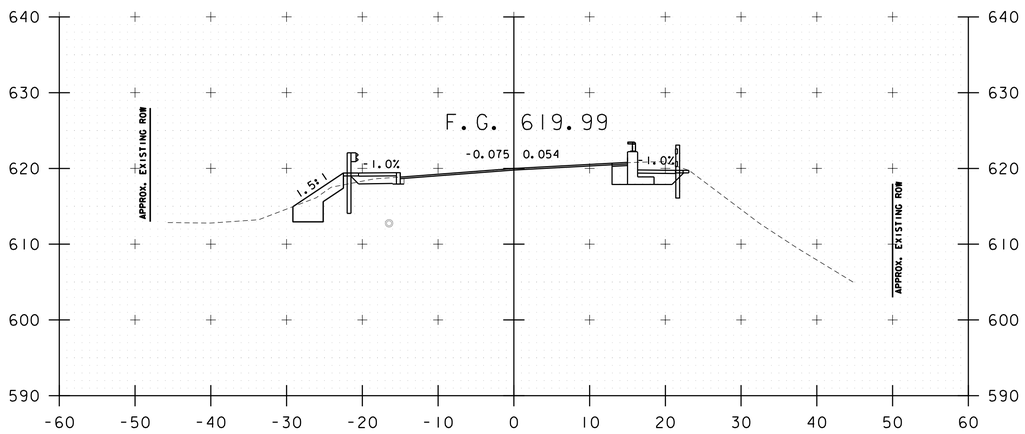
STA. 166+50 TO STA. 167+75

GILL ENGINEERING

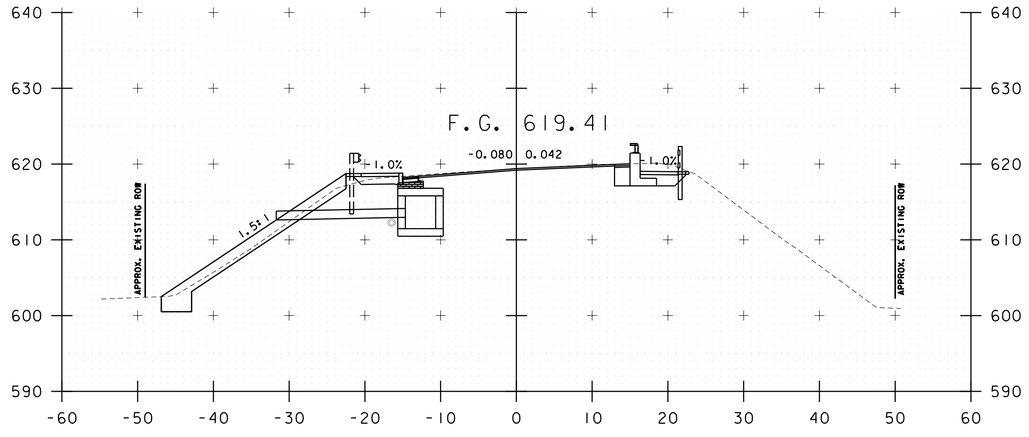
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: zl7b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 80 OF 97



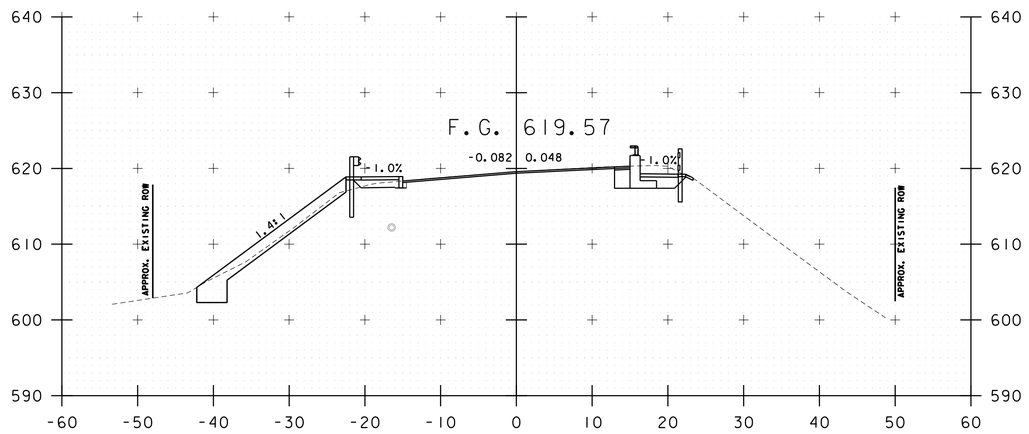
168+25



168+00



168+75

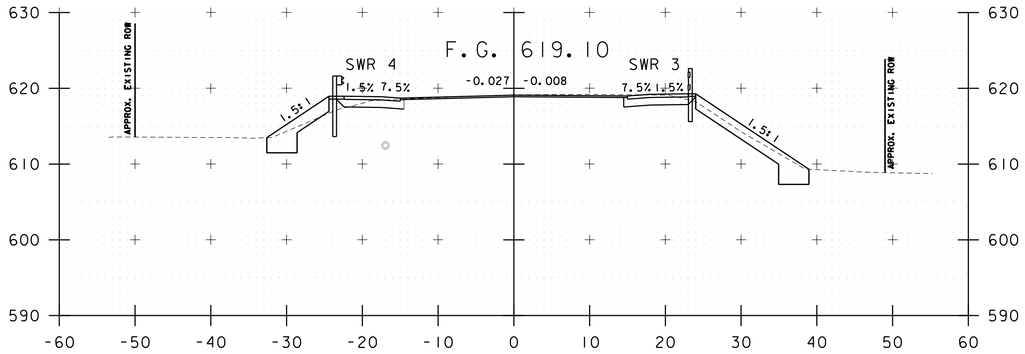


168+50

STA. 168+00 TO STA. 168+75

GILL ENGINEERING

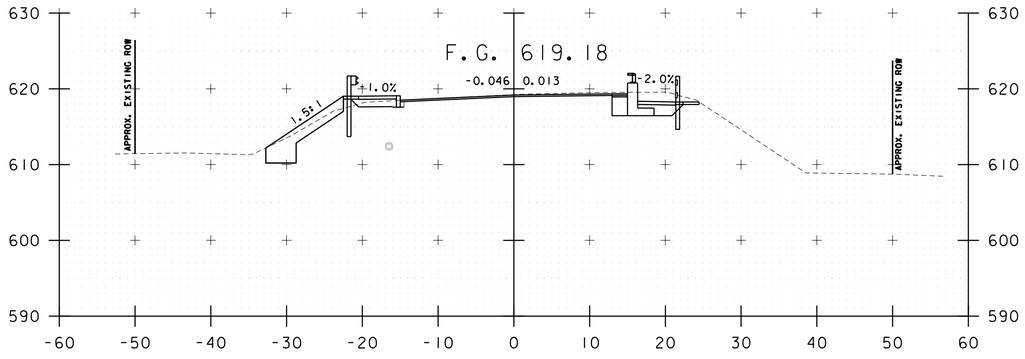
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: zl7b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 81 OF 97



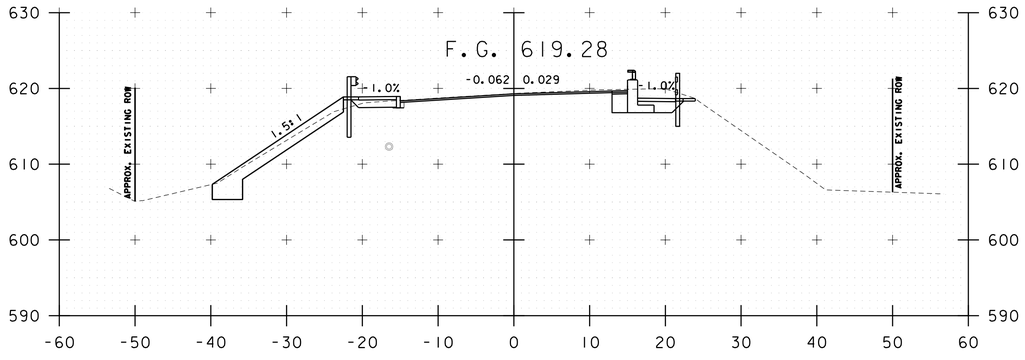
SWR 4
STA. 169+53.00 LT

SWR 3
STA. 169+53.00 RT

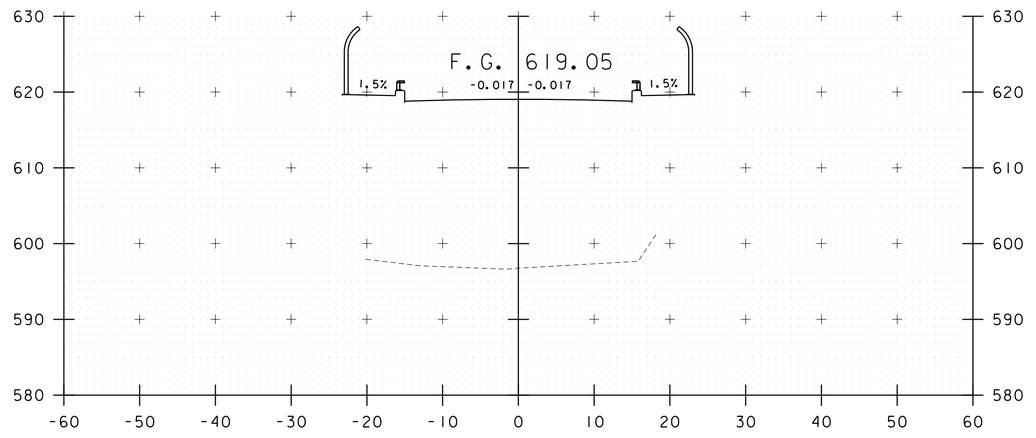
169+50



169+25

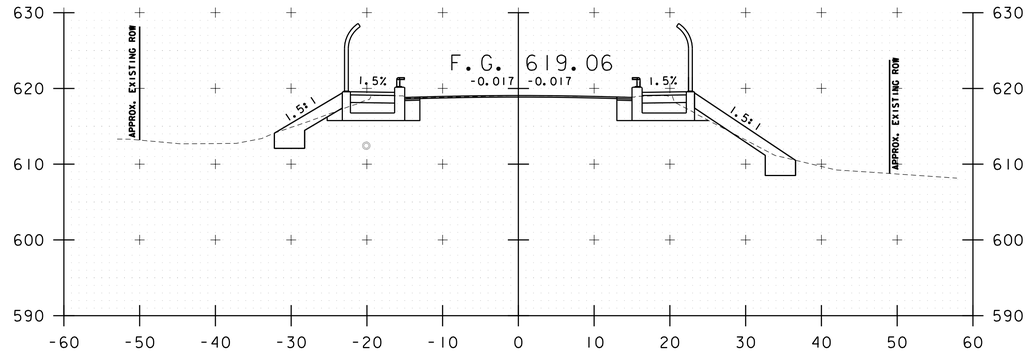


169+00



STA 169+84.99
BEGIN BRIDGE 61

170+00

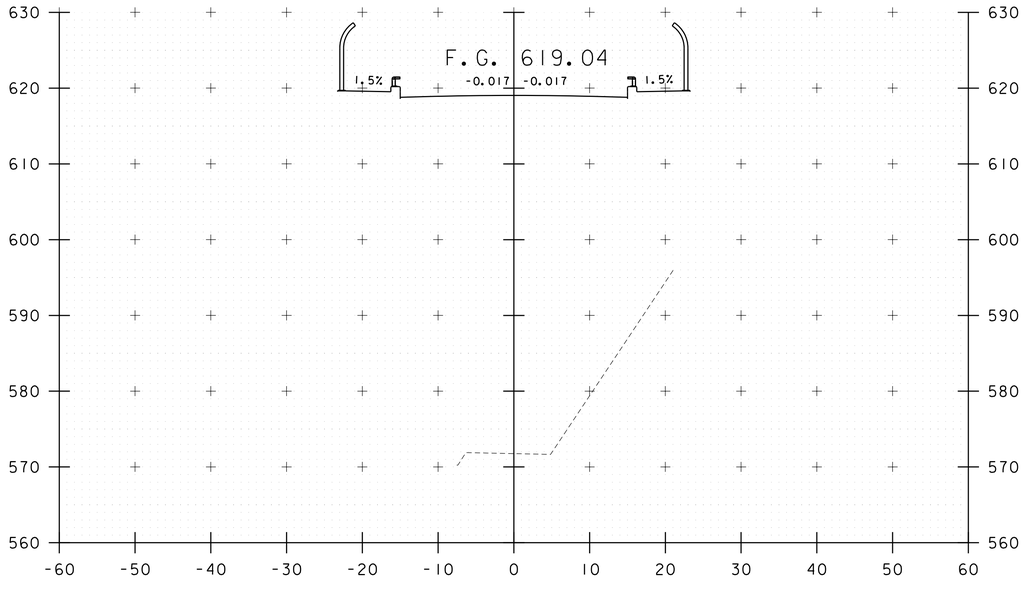


169+75

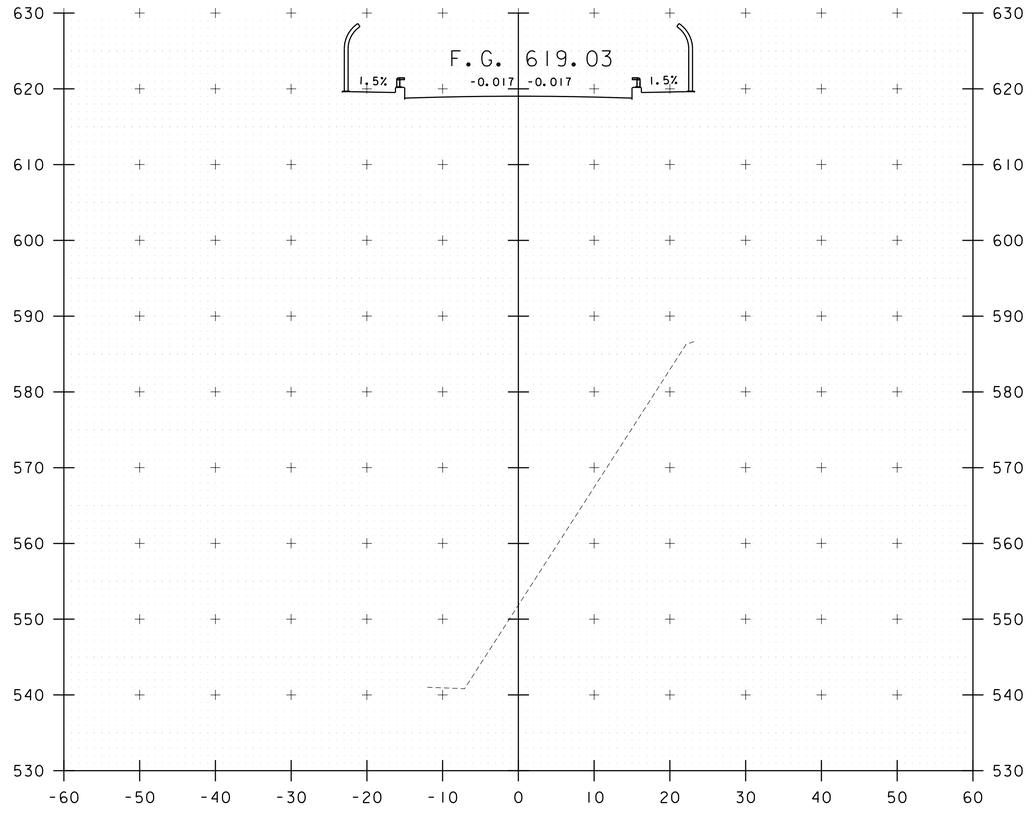
STA. 169+00 TO STA. 170+00

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: zl7b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 82 OF 97



170+25

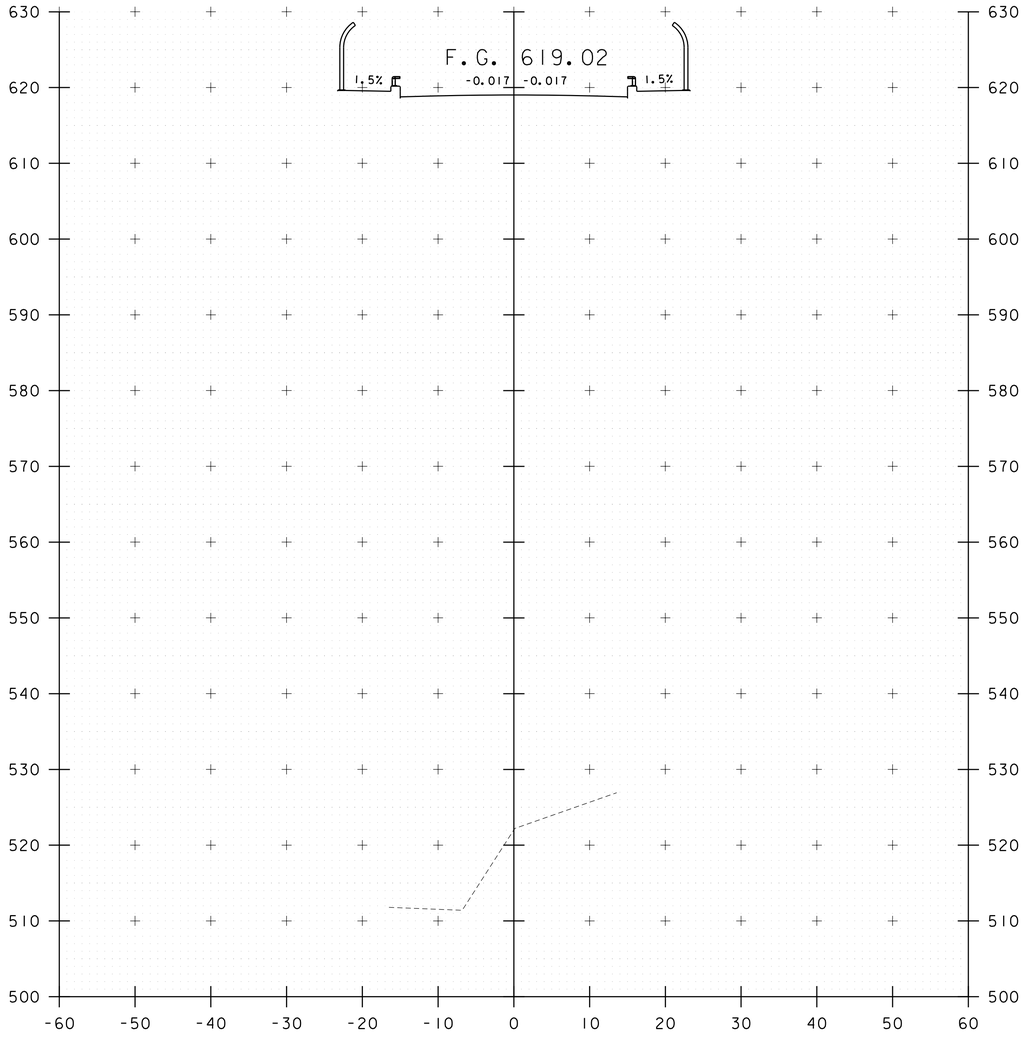


170+50

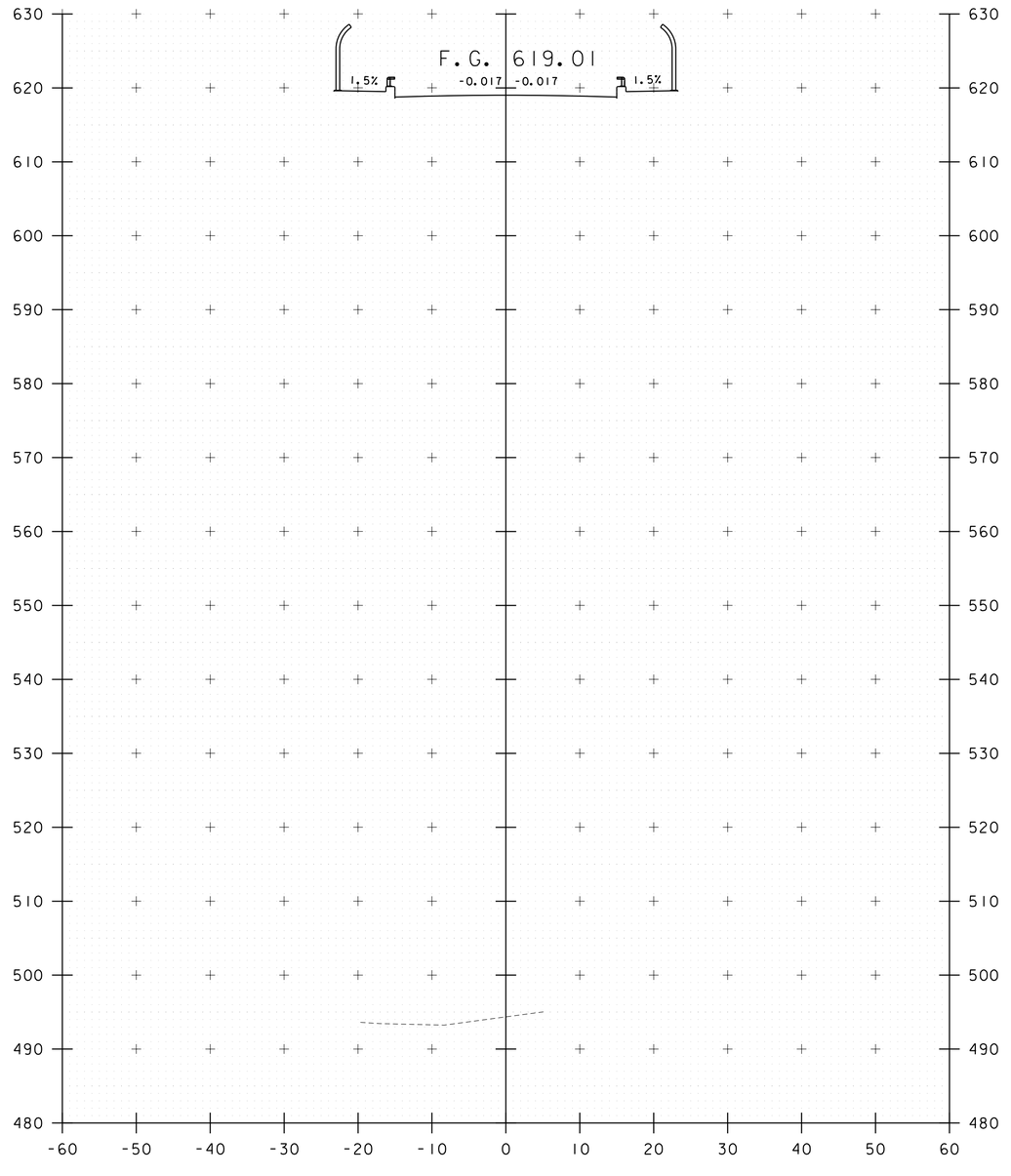
STA. 170+25 TO STA. 170+50

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: zl7b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 83 OF 97



170+75



171+00

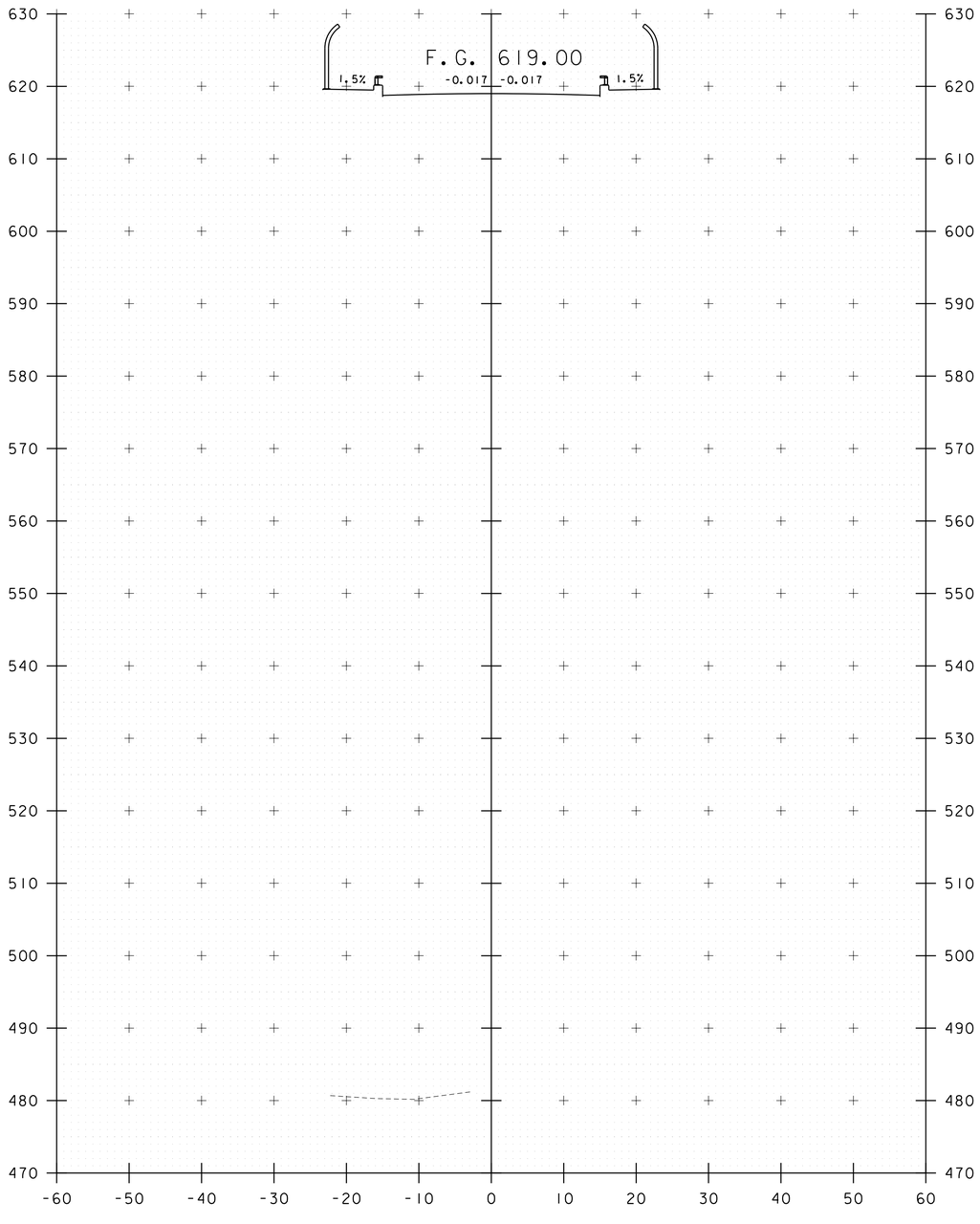
STA. 170+75 TO STA. 171+00

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082xs.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
CROSS SECTIONS

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: SBC
SHEET 84 OF 97

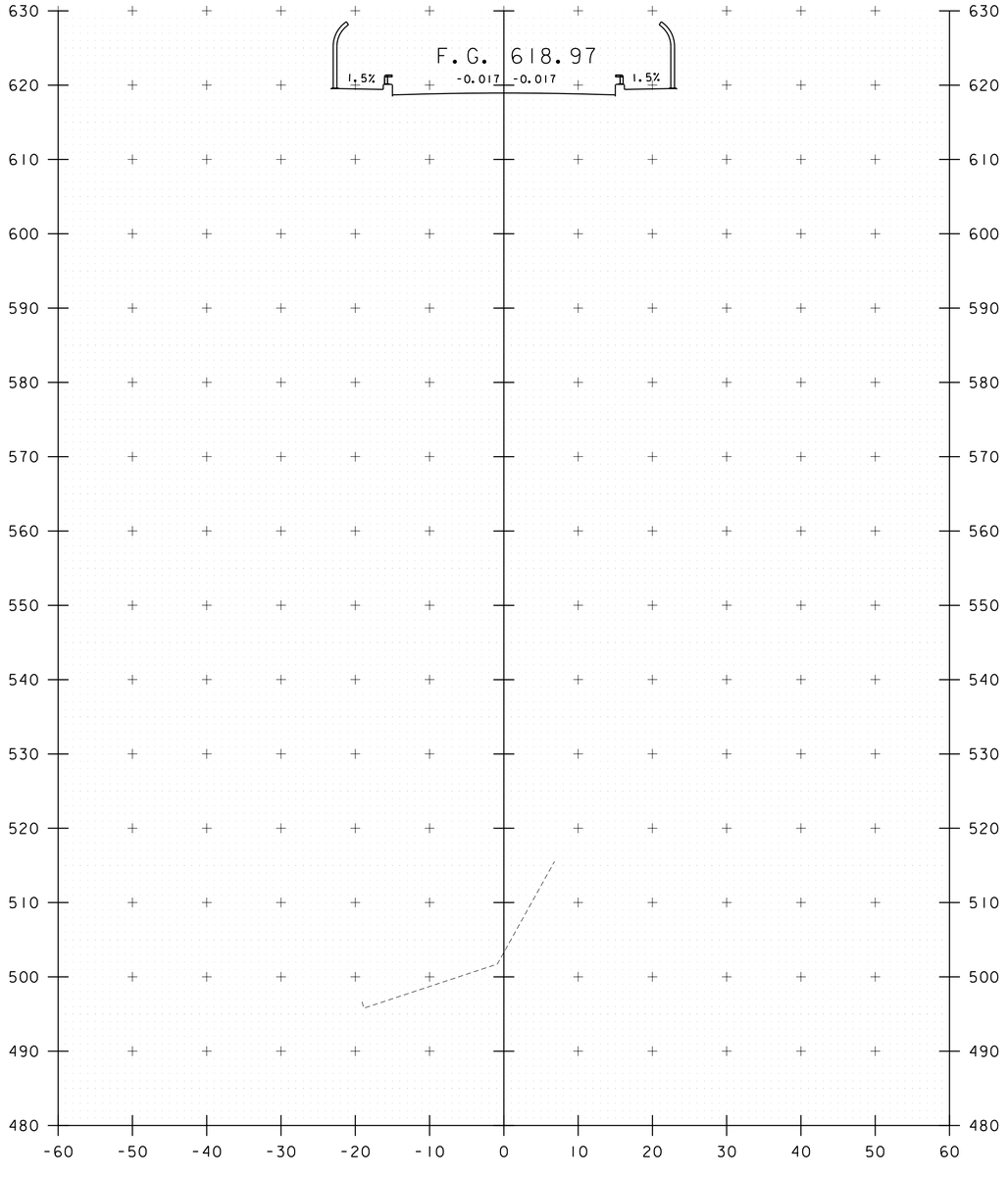


171+25

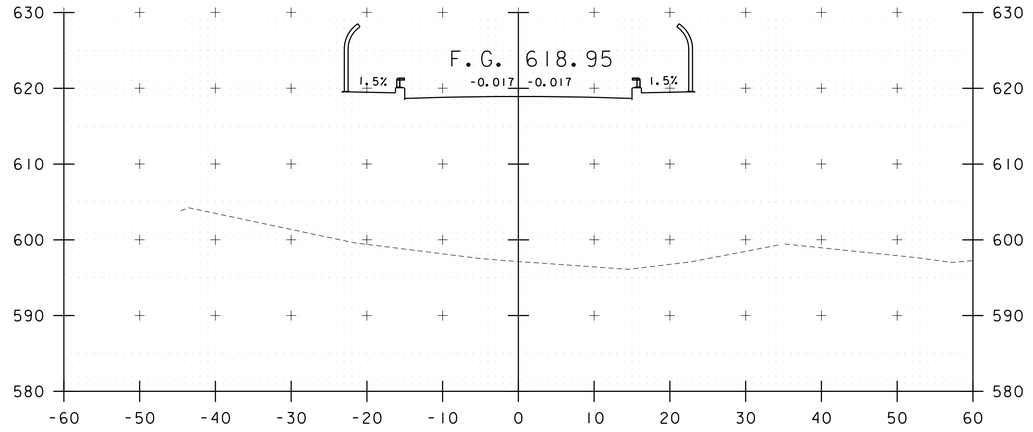
STA. 171+25 TO STA. 171+25

GILL ENGINEERING

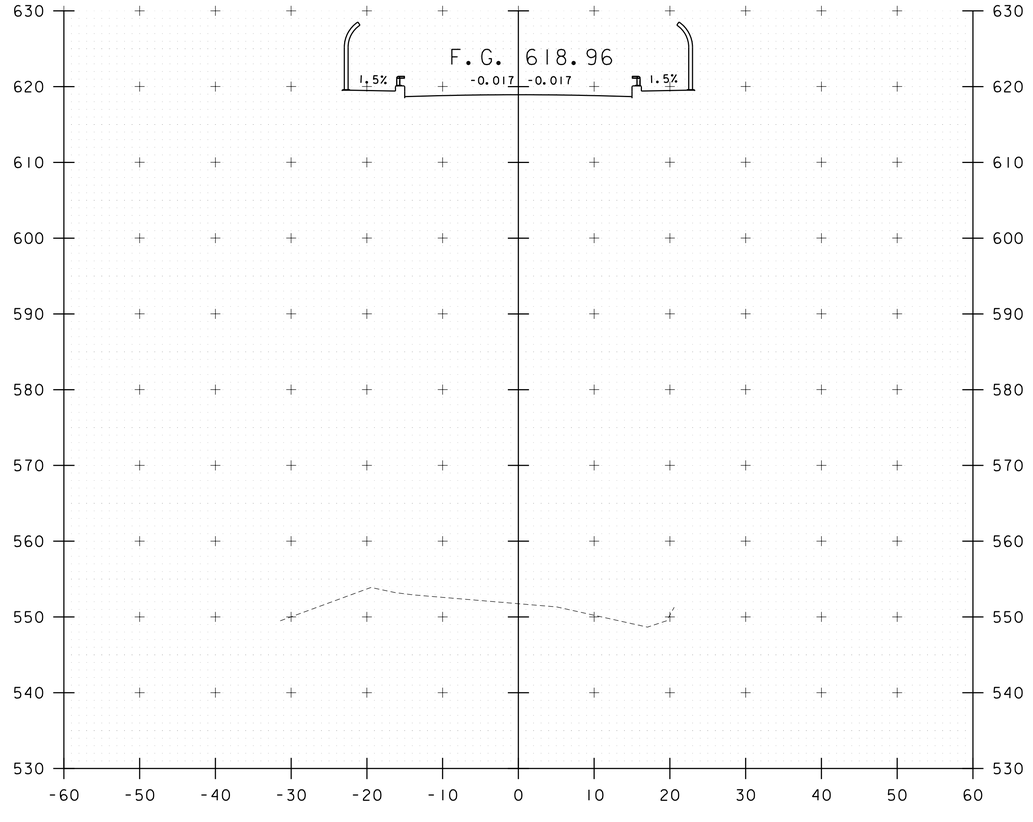
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: zl7b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 85 OF 97



172+00



172+50



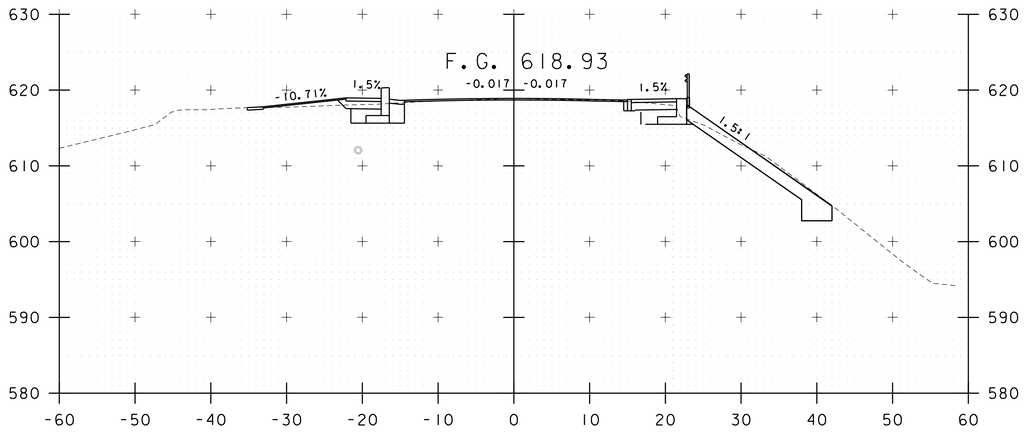
172+25

STA. 172+00 TO STA. 172+50

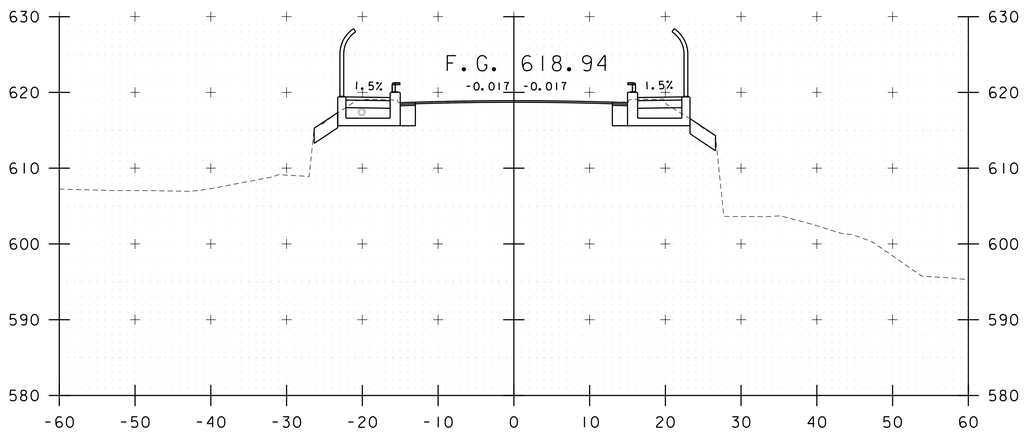
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 86 OF 97

SWR 6
STA. 173+04.00 LT



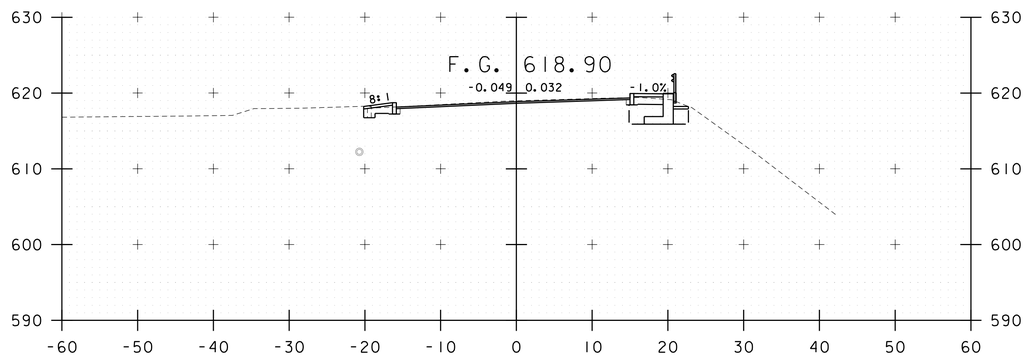
173+00



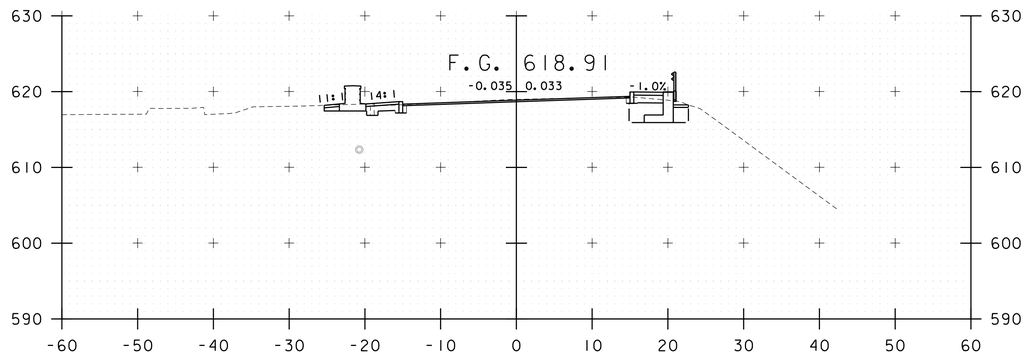
STA 172+71.12
END BRIDGE 61

172+75

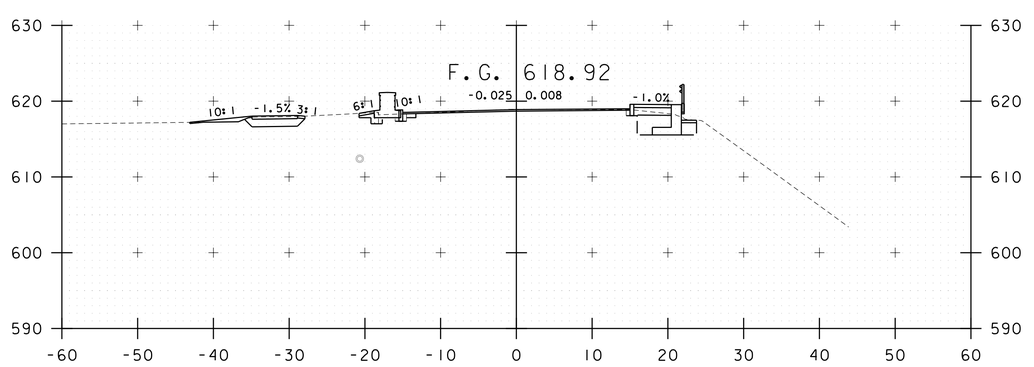
SWR 5
STA. 173+04.00 RT



173+75



173+50

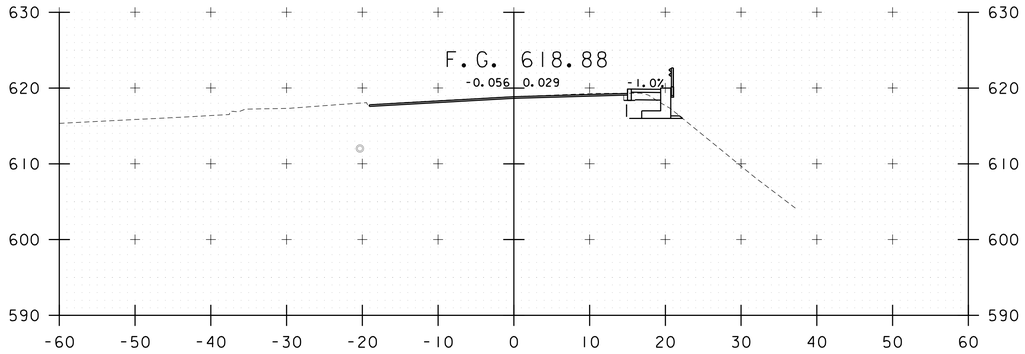


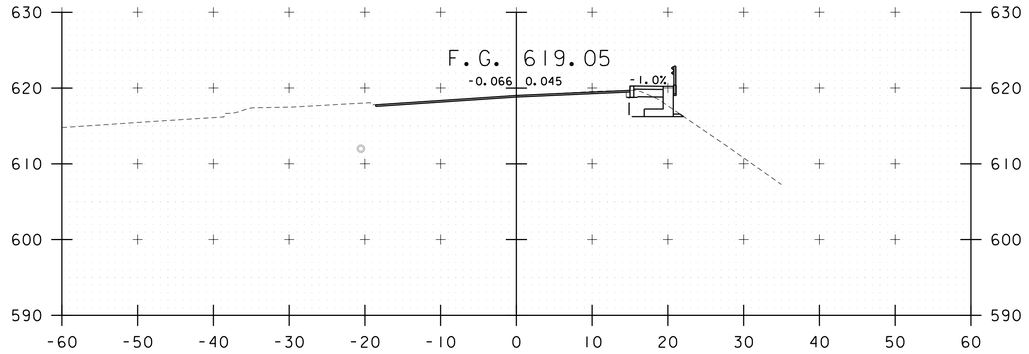
173+25

STA. 172+75 TO STA. 173+75

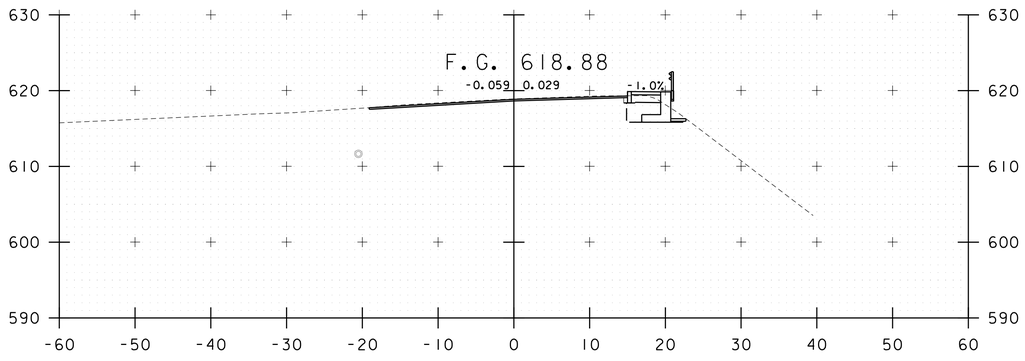
GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: zl7b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 87 OF 97

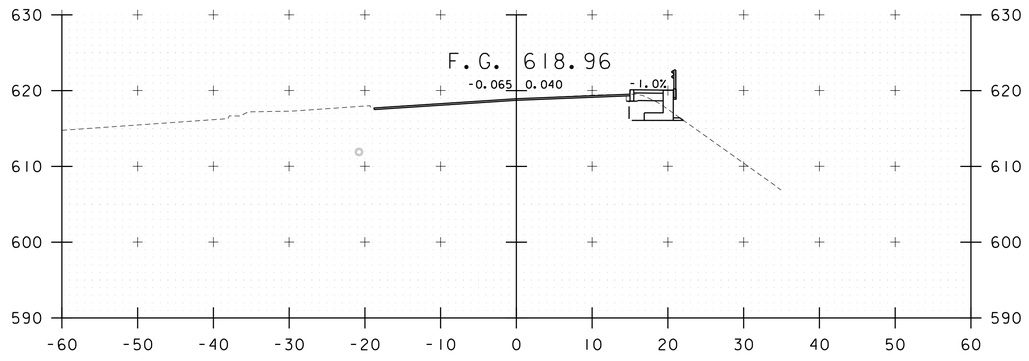




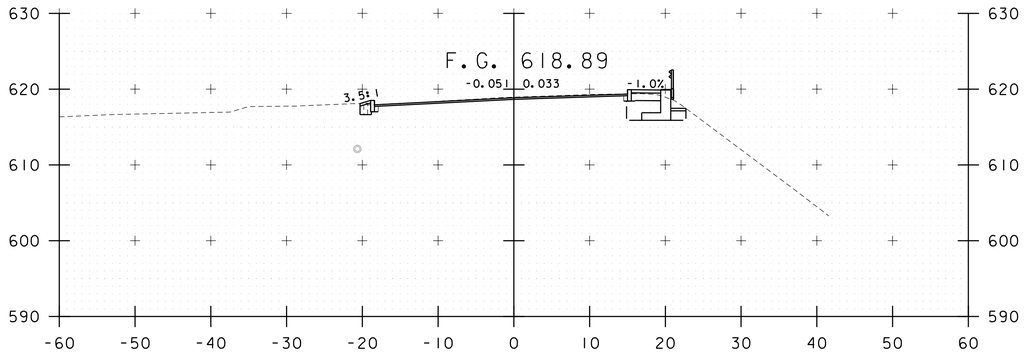
174+50



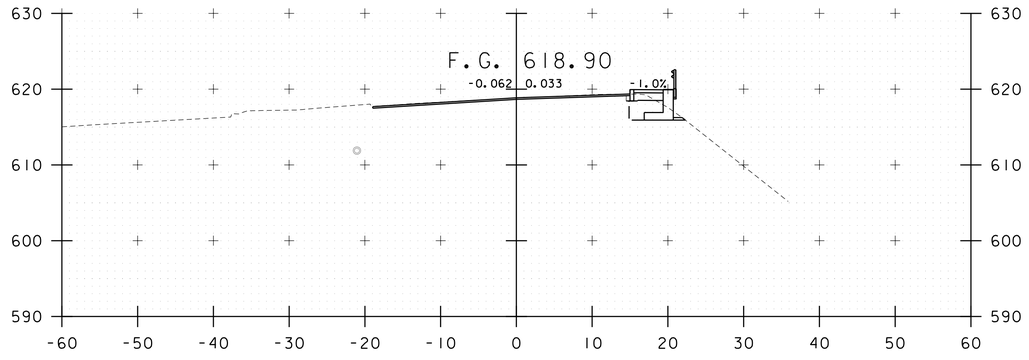
175+25



174+25



175+00



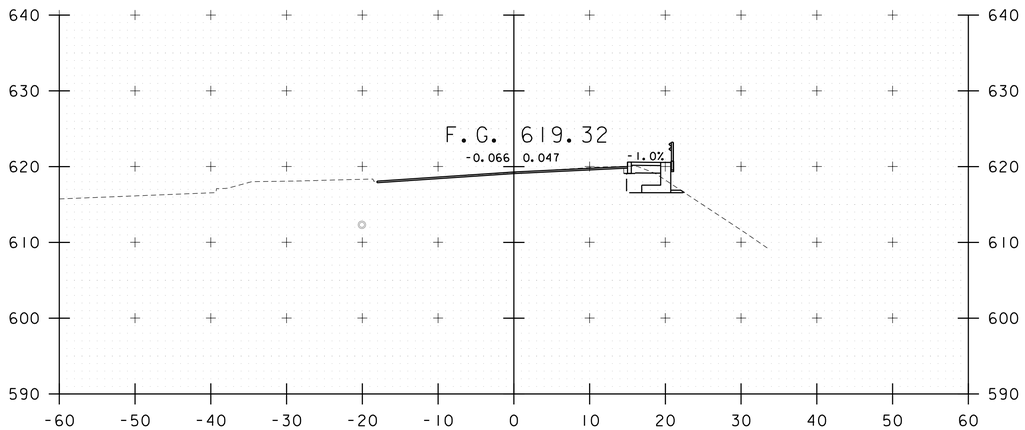
174+00

174+75

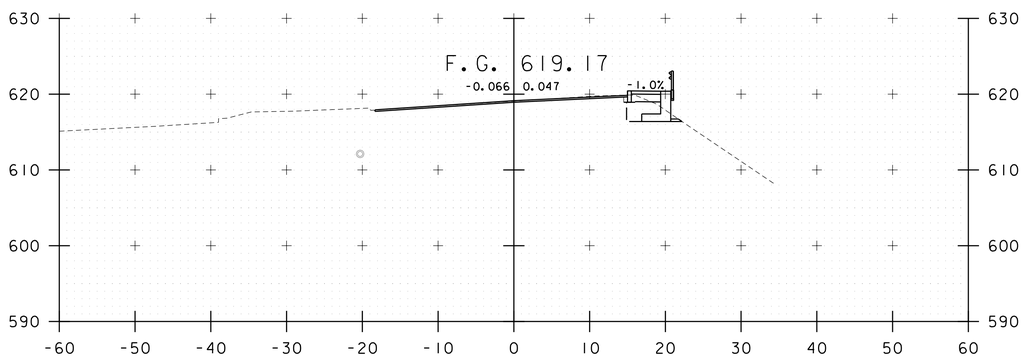
STA. 174+00 TO STA. 175+25

GILL ENGINEERING

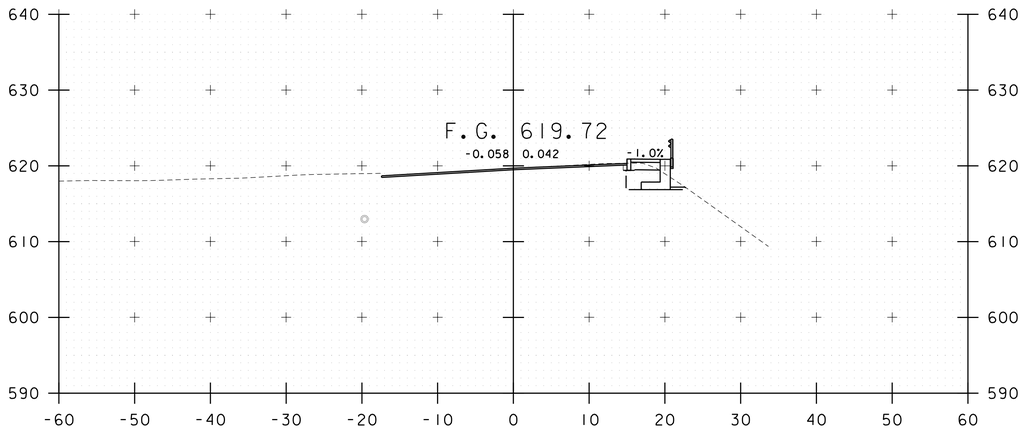
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 88 OF 97



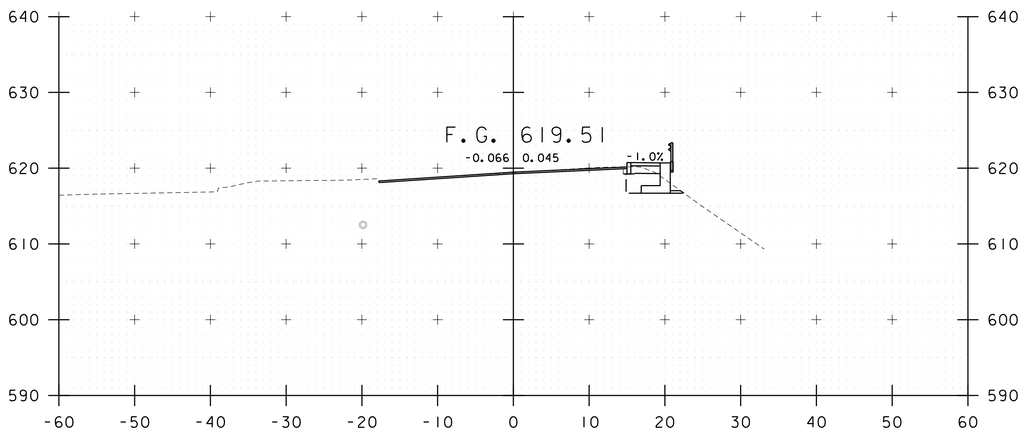
175+75



175+50



176+25

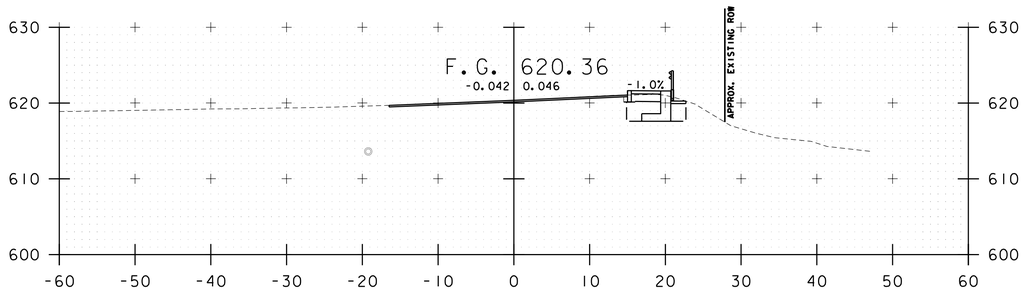


176+00

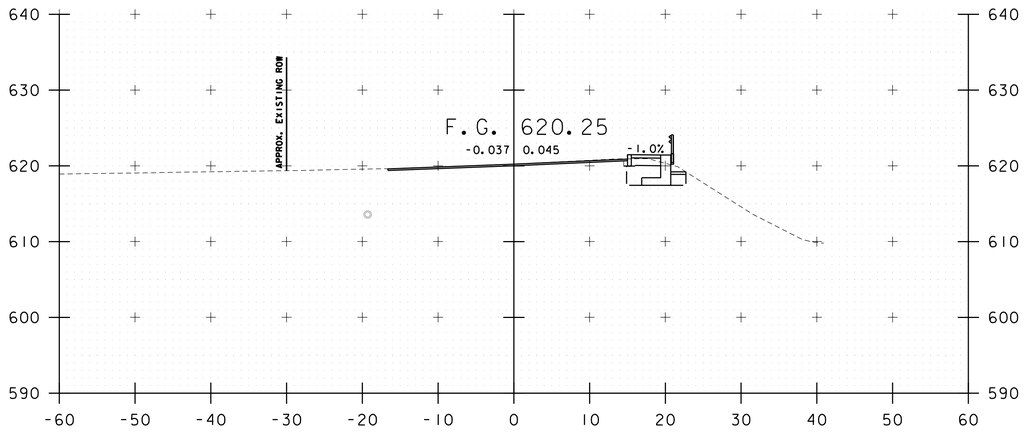
STA. 175+50 TO STA. 176+25

GILL ENGINEERING

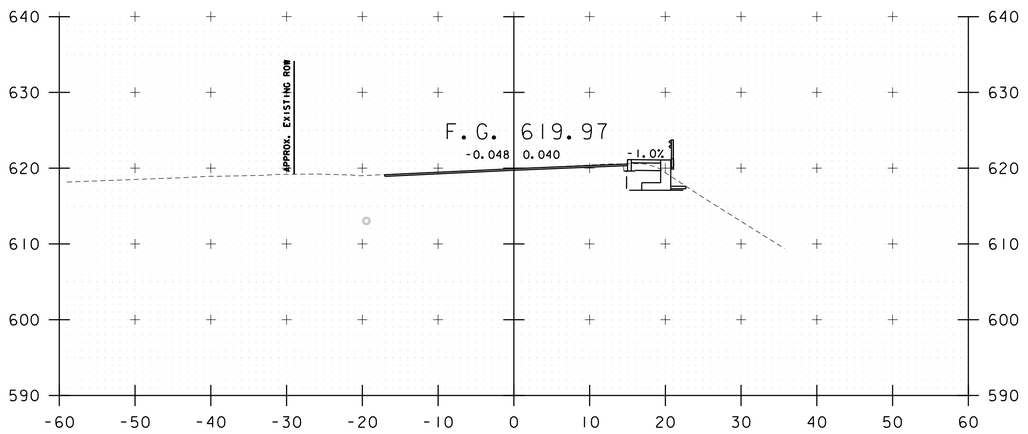
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: zl7b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 89 OF 97



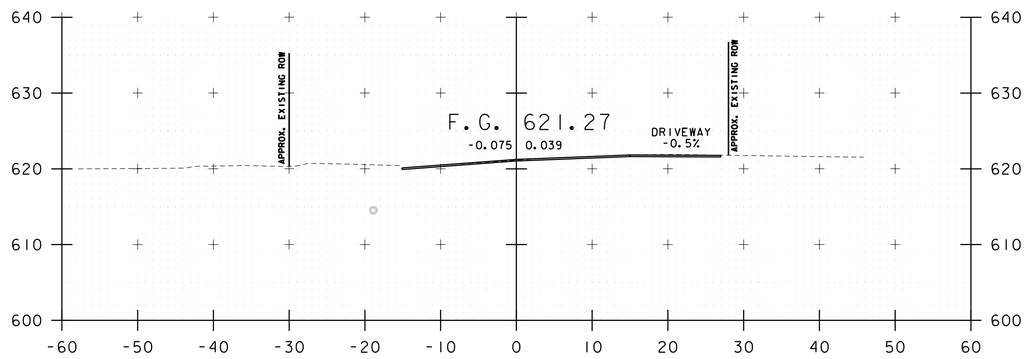
176+84.33



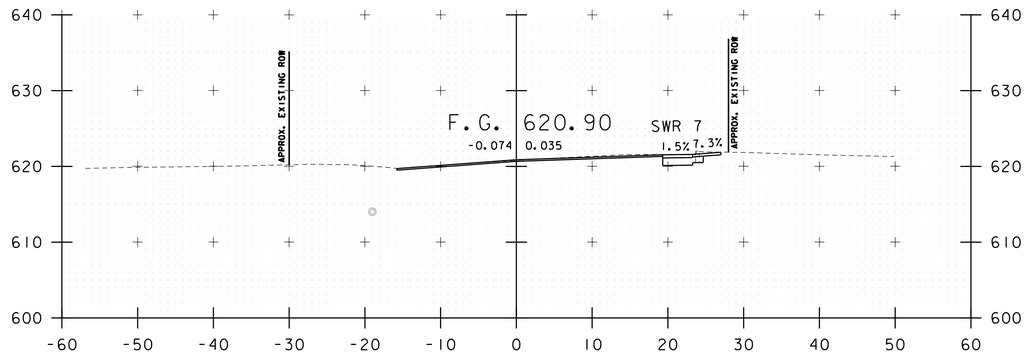
176+75



176+50

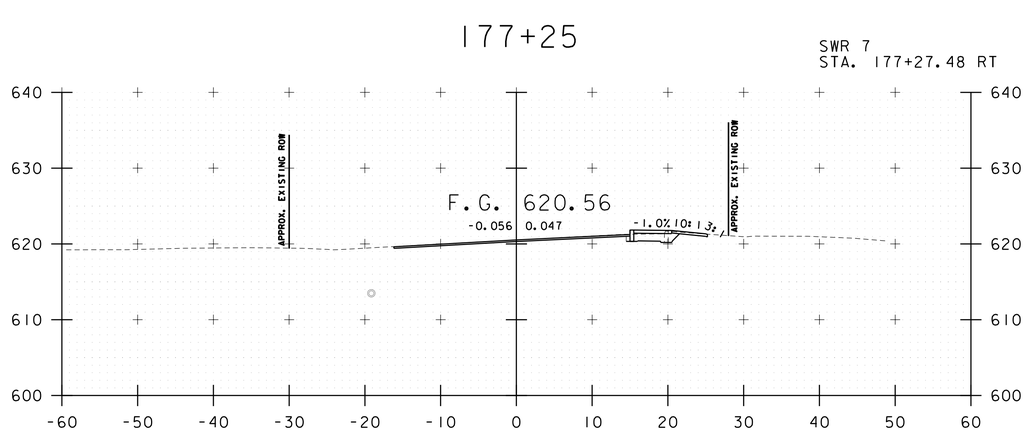


177+50



177+25

SWR 7
STA. 177+27.48 RT

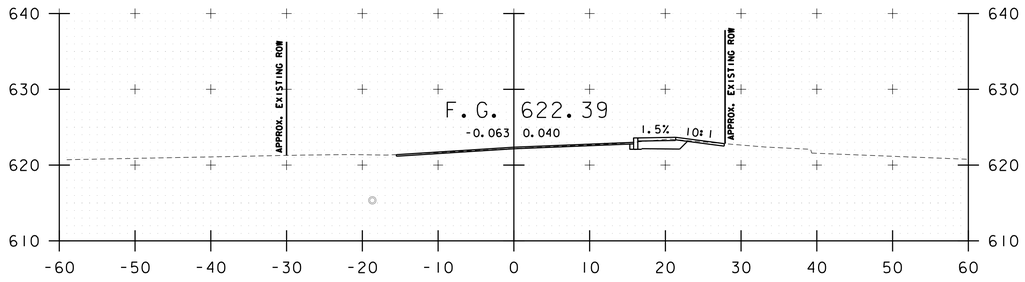


177+00

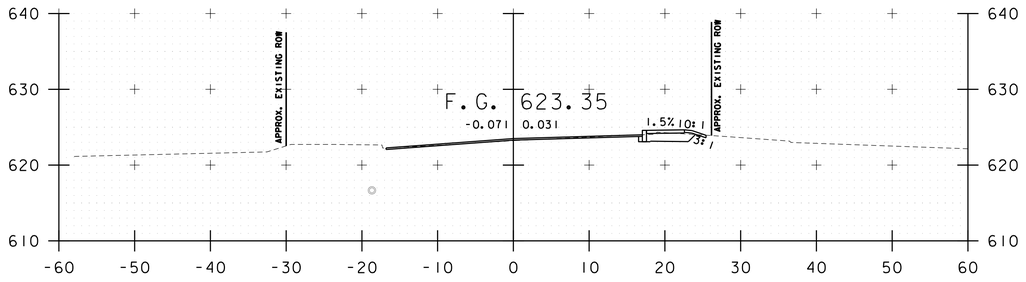
STA. 176+50 TO STA. 177+50

GILL ENGINEERING

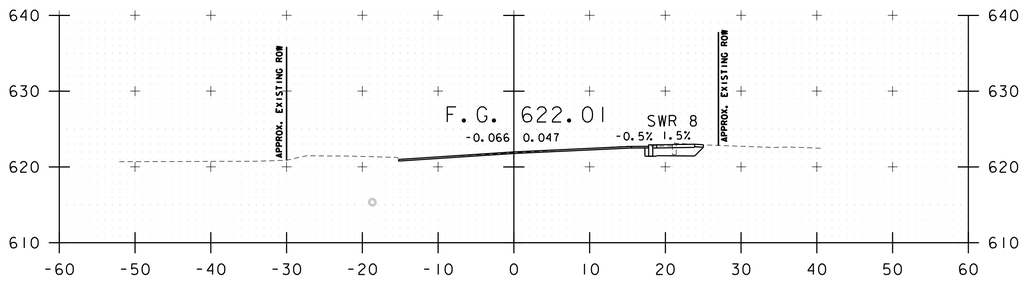
PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: zl7b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 90 OF 97



178+25

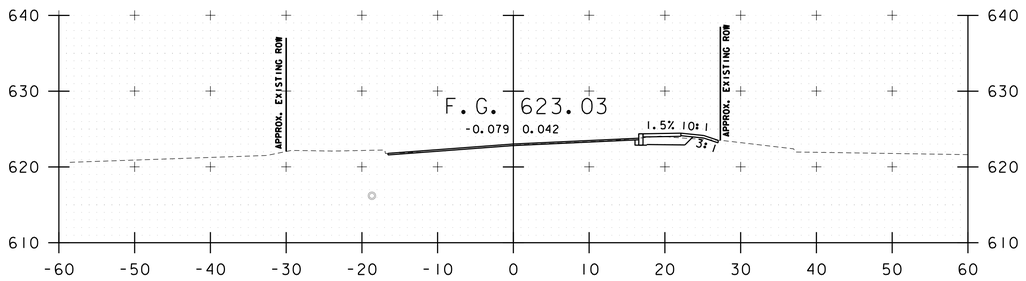


179+00

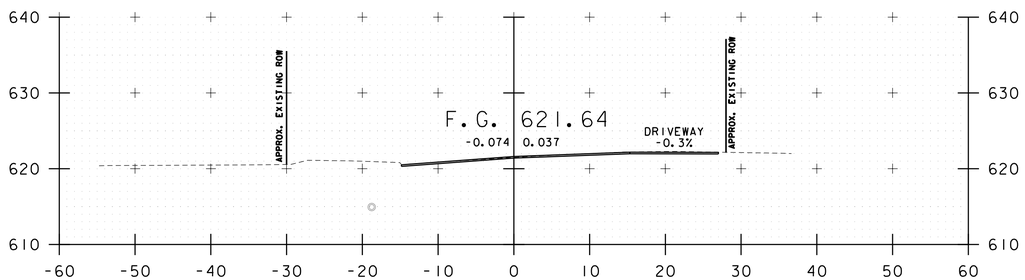


178+00

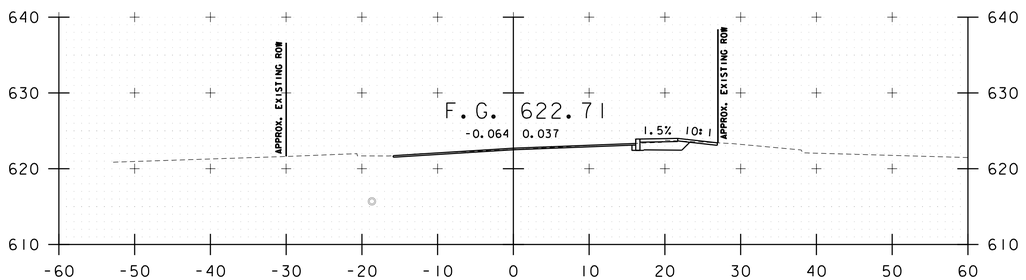
SWR 8
STA. 177+93.81 RT



178+75



177+75



178+50

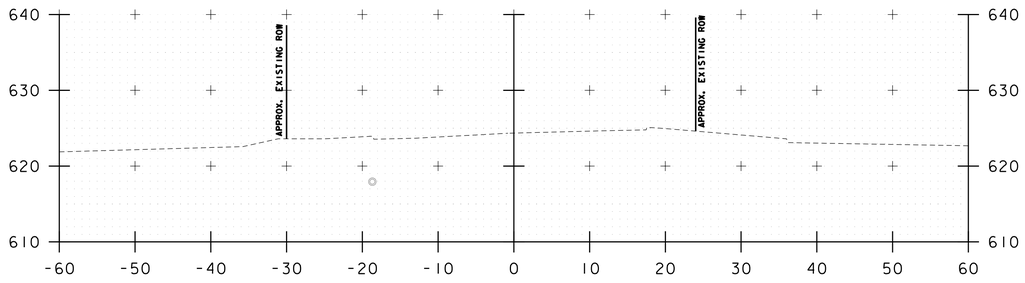
STA. 177+75 TO STA. 179+00

GILL ENGINEERING

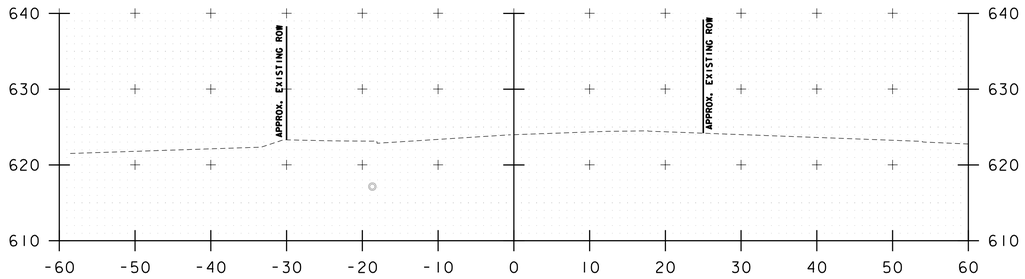
PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082xs.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
CROSS SECTIONS

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: SBC
SHEET 91 OF 97

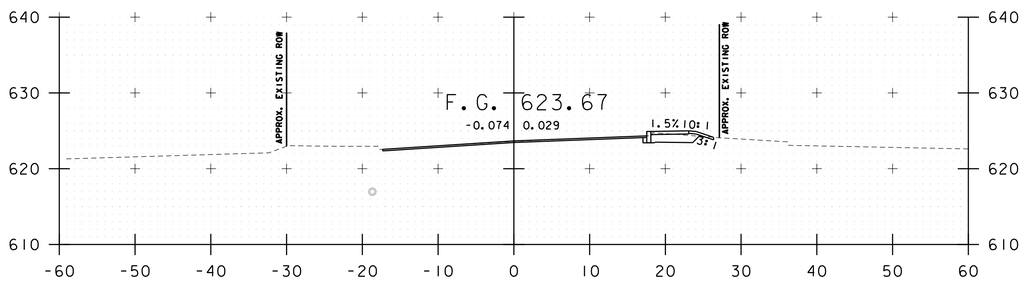


179+75

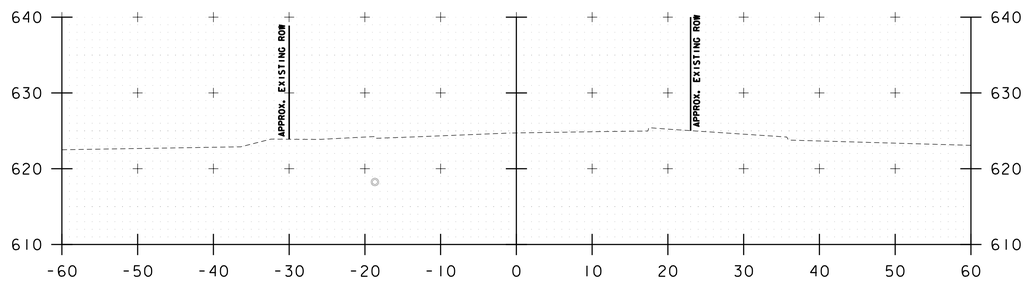


STA 179+43.00
END PROJECT
MATCH EXISTING

179+50



179+25



180+00

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)	
PROJECT NUMBER: NH 020-2(45)	
FILE NAME: z17b082xs.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: ABL
DESIGNED BY: ABL	CHECKED BY: SBC
CROSS SECTIONS	SHEET 92 OF 97

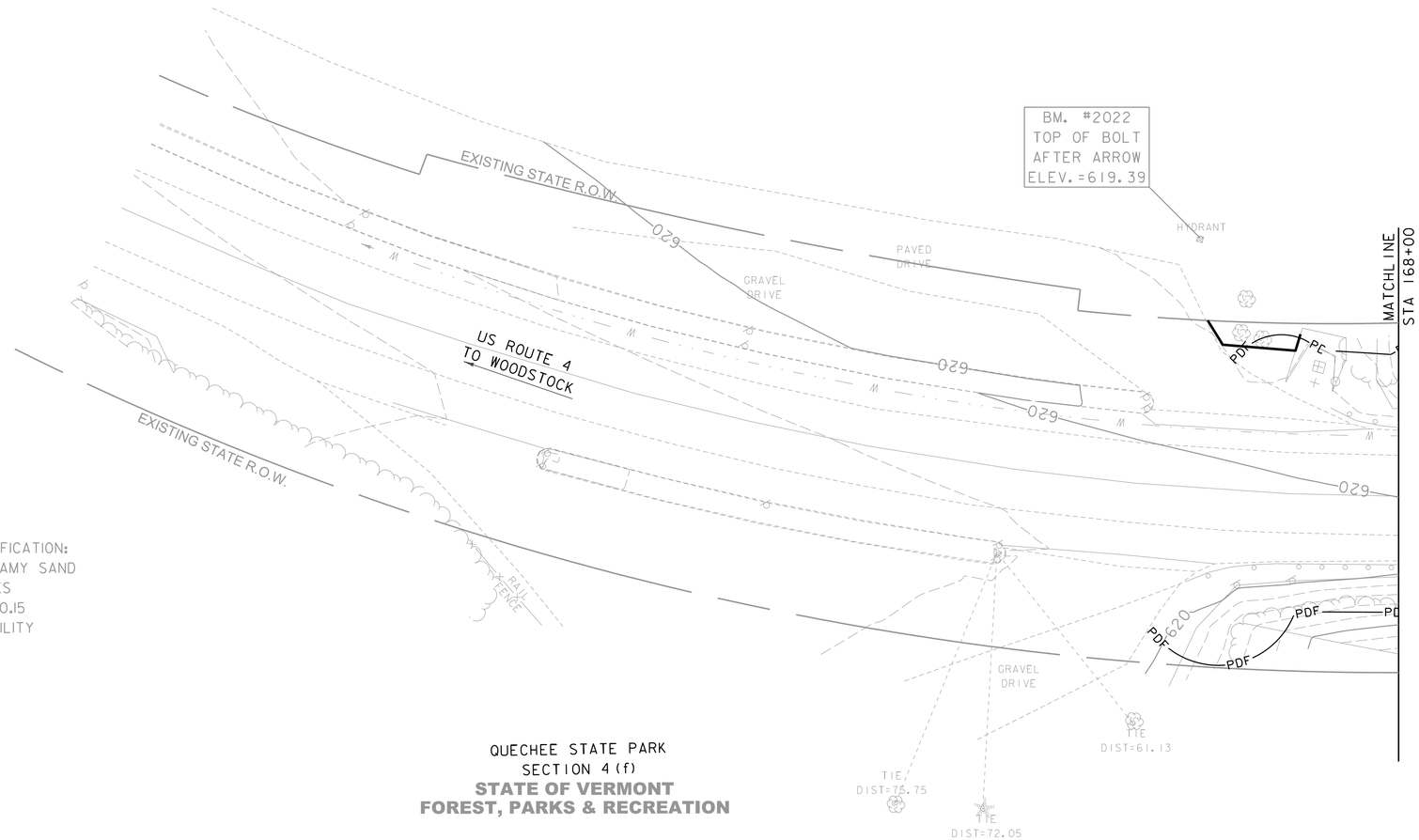
QUECHEE STATE PARK
SECTION 4(f)
STATE OF VERMONT
FOREST, PARKS & RECREATION

N

VT STATE PLANE GRID

SOIL CLASSIFICATION:
WINDSOR LOAMY SAND
8-15% SLOPES
"K FACTOR" 0.15
LOW ERODIBILITY

SOIL CLASSIFICATION:
WINDSOR LOAMY SAND
0-8% SLOPES
"K FACTOR" 0.15
LOW ERODIBILITY



QUECHEE STATE PARK
SECTION 4(f)
STATE OF VERMONT
FOREST, PARKS & RECREATION

EARTH DISTURBANCE
26165 SF = 0.60 ACRES
(TOTAL PROJECT AREA)

EXISTING CONDITIONS I

SCALE 1" = 20'-0"
20 0 20

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)	
PROJECT NUMBER: NH 020-2(45)	
FILE NAME: z17b082epscbdr.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: AMS	CHECKED BY: SBC
EXISTING CONDITIONS SHEET 1 OF 3	SHEET 93 OF 97

N

VT STATE PLANE GRID

SOIL CLASSIFICATION:
WINDSOR LOAMY SAND
0-8% SLOPES
"K FACTOR" 0.15
LOW ERODIBILITY

SOIL CLASSIFICATION:
LYMAN-ROCK
OUTCROP COMPLEX,
35-60% SLOPES
"K FACTOR" 0.37
HIGH ERODIBILITY

SOIL CLASSIFICATION:
LYMAN-ROCK
OUTCROP COMPLEX,
35-60% SLOPES
"K FACTOR" 0.37
HIGH ERODIBILITY

SOIL CLASSIFICATION:
WINDSOR LOAMY SAND
8-15% SLOPES
"K FACTOR" 0.15
LOW ERODIBILITY

25,000 GIFTS, INC.

SOIL CLASSIFICATION:
WINDSOR LOAMY SAND
0-8% SLOPES
"K FACTOR" 0.15
LOW ERODIBILITY

QUECHEE STATE PARK
SECTION 4(f)
STATE OF VERMONT
FOREST, PARKS & RECREATION

QUECHEE STATE PARK
SECTION 4(f)
UNITED STATES OF AMERICA
ARMY CORPS OF ENGINEERS

BM. #1463
VT SURVEY MARK
B94069
ELEV. = 619.36

BM. #1624
VT SURVEY MARK
16SKS (RESET)
ELEV. = 616.12

MATCHLINE
STA 168+00

BOUNDRY POINT

EXISTING STATE R.O.W.

BOUNDRY POINT USACOE

CHAIN LINK FENCE

GATE VALVE

8" DUCTILE IRON WATER MAIN

Ⓗ HISTORIC RESOURCE:
BRIDGE 61 LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES

PAVED DRIVE

FLAG (PDE)

US ROUTE 4
TO WOODSTOCK

US ROUTE 4
TO NEW HAMPSHIRE

EXISTING STATE R.O.W.

APPROXIMATE LOCATION OF SUITABLE
NORTHERN LONG-EARED BAT ROOST TREE

BOUNDRY POINT USACOE

BOUNDRY POINT
4X4 CONCRETE
UP 1'-0"

MATCHLINE
STA 174+00

QUECHEE STATE PARK
SECTION 4(f)
STATE OF VERMONT
FOREST, PARKS & RECREATION

QUECHEE STATE PARK
SECTION 4(f)
UNITED STATES OF AMERICA
ARMY CORPS OF ENGINEERS

SOIL CLASSIFICATION:
WINDSOR LOAMY SAND
25-60% SLOPES
"K FACTOR" 0.15
LOW ERODIBILITY

EXISTING BRIDGE INFORMATION
3 HINGE STEEL DECK ARCH
BUILT 1911, RECONSTRUCTED 1989
STRUCTURE LENGTH = 285'
MAXIMUM SPAN LENGTH = 188'

SOIL CLASSIFICATION:
WINDSOR LOAMY SAND
8-15% SLOPES
"K FACTOR" 0.15
LOW ERODIBILITY

EARTH DISTURBANCE
26165 SF = 0.60 ACRES
(TOTAL PROJECT AREA)

EXISTING CONDITIONS 2

SCALE 1" = 20'-0"
20 0 20

GILL ENGINEERING

PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

FILE NAME: z17b082epscbdr.dgn
PROJECT LEADER: AMS
DESIGNED BY: AMS
EXISTING CONDITIONS SHEET 2 OF 3

PLOT DATE: 7/13/2022
DRAWN BY: YS
CHECKED BY: SBC
SHEET 94 OF 97

25,000 GIFTS, INC.
SOIL CLASSIFICATION: WINDSOR LOAMY SAND 8-15% SLOPES "K FACTOR" 0.15 LOW ERODIBILITY
DANA'S BY THE GORGE,INC.
FREIGHTHOUSE, LLC
EXISTING TOWN R.O.W.
EXISTING STATE R.O.W.
PROTECT EXISTING DROP INLET
PROTECT EXISTING DROP INLET
PAVED DRIVE
METER FOR WATER LINE HEAT TAPE
DRAINAGE MANHOLE
HYDRANT
GUY WIRE
ELECTRIC DROP
2-GATE VALVE
GATE VALVE
GRAVEL DRIVE
US ROUTE 4
TO NEW HAMPSHIRE
PDF
620
610
LIGHT IRON FENCE
PAVED DRIVE
SOIL CLASSIFICATION: WINDSOR LOAMY SAND 0-8% SLOPES "K FACTOR" 0.15 LOW ERODIBILITY
N
VT STATE PLANE GRID
MATCHLINE STA 174+00
EXISTING STATE R.O.W.
QUECHEE STATE PARK
SECTION 4(f)
UNITED STATES OF AMERICA
ARMY CORPS OF ENGINEERS
SOIL CLASSIFICATION: WINDSOR LOAMY SAND 25-60% SLOPES "K FACTOR" 0.15 LOW ERODIBILITY

EARTH DISTURBANCE
26165 SF = 0.60 ACRES
(TOTAL PROJECT AREA)

EXISTING CONDITIONS 3

SCALE 1" = 20'-0"
20 0 20

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)

FILE NAME: z17b082epscbdr.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: AMS	CHECKED BY: SBC
EXISTING CONDITIONS SHEET 3 OF 3	SHEET 95 OF 97

VAOT LOW GROW/FINE FESCUE MIX

	LBS/AC					
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
38%	57	95	CREEPING RED FESCUE	FESTUCA RUBRA VAR. RUBRA	90%	98%
29%	43.5	72.5	HARD FESCUE	FESTUCA LONGIFOLIA	85%	95%
15%	22.5	37.5	CHEWINGS FESCUE	FESTUCA RUBRA VAR. COMMUTATA	87%	95%
15%	22.5	37.5	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	90%	95%
3%	4.5	7.5	INERTS			
100%	150	250				

VAOT RURAL AREA MIX

	LBS/AC					
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
37.5%	22.5	45	CREEPING RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	60	120				

GENERAL AMENDMENT GUIDANCE

FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION GUIDANCE

1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)

REVISIONS
JANUARY 12, 2015 WHF

GILL ENGINEERING

PROJECT NAME:	HARTFORD (QUECHEE)
PROJECT NUMBER:	NH 020-2(45)
FILE NAME: z17b082epscdetails.dgn	PLOT DATE: 7/6/2022
PROJECT LEADER: AMS	DRAWN BY: YS
DESIGNED BY: AMS	CHECKED BY: SBC
EPSC DETAILS	SHEET 96 OF 97

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

MILE MARKER, STATION OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS			NEW & SALVAGED SIGNS				EXIST POST		NEW SIGN POSTS																						SIGN DETAIL	
		EACH	WIDTH (in)	HEIGHT (in)	"A"	"B"	SALV SIGN	SALV TIS	RETAIN	SALVAGE	NO. OF POST	FLANGED CHANNEL (LB / FT)			SQUARE STEEL (in) (LB / FT)			ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (IN) (LB / FT)			FOUNDATION	TUBULAR STEEL Ø (IN) (LB / FT)				W-SHAPE STEEL FTG. SIZE		WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	DETAIL ON SHEET NUMBER	STANDARD SHEET NUMBER
															1.75	2.00	2.50			3.00	4.00	4.0 MOD		3.00	3.50	4.00	5.00							
												1.12	2.00	3.00	1.88	2.42	3.35			1.30	1.70	1.70		7.60	9.00	10.80	14.60	24"	30"					
OPTION ITEMS																																		
169+51.2, LT		2	36.0	36.0	18.00						1.0					14.0		X														W11-2		-
169+51.2, LT		1	24.0	12.0	2.00						-					-		X														W16-7pR		-
169+51.2, LT		1	24.0	12.0	2.00						-					-		X														W16-7pL		-
169+34.6, RT		2	36.0	36.0	18.00						1.0					14.0		X														W11-2		-
169+34.6, RT		1	24.0	12.0	2.00						-					-		X														W16-7pR		
169+34.6, RT		1	24.0	12.0	2.00						-					-		X														W16-7pL		
169+59.0, RT	BRIDGE 61 U54	1	6.0	10.0	0.42						1.0					8.0		X														BRIDGE NUMBER PLAQUE		
173+11.4, LT	BRIDGE 61 U54	1	6.0	10.0	0.42						1.0					8.0		X														BRIDGE NUMBER PLAQUE		
173+28.2, LT		2	36.0	36.0	18.00						1.0					14.0		X														W11-2		
173+28.2, LT		1	24.0	12.0	2.00						-					-		X														W16-7pR		
173+28.2, LT		1	24.0	12.0	2.00						-					-		X														W16-7pL		
173+05.7, RT		2	36.0	36.0	18.00						1.0					14.0		X														W11-2		
173+05.7, RT		1	24.0	12.0	2.00						-					-		X														W16-7pR		
173+05.7, RT		1	24.0	12.0	2.00						-					-		X														W16-7pL		
167+43.8, RT	YOU MATTER CALL 1-800-273-TALK CRISIS COUNSELING AVAILABLE 24/7 HARTFORD CARES	-	-	-	-						1.0					12.0		X														Additional sign to be reset on new post and anchor.		
167+57.0, RT	QUECHEE GORGE	-	-	-	-						1.0					12.0		X														Additional sign to be reset on new post and anchor.		
172+91.3, RT	YOU MATTER CALL 1-800-273-TALK CRISIS COUNSELING AVAILABLE 24/7 HARTFORD CARES	-	-	-	-						1.0					12.0		X														Additional sign to be reset on new post and anchor.		
172+94.3, LT	What is Quechee Gorge? Find out. Start the route.	-	-	-	-						1.0					12.0		X														Additional sign to be reset on new post and anchor.		
175+12.0, RT	SPEED LIMIT 35 (Top) / NO PARKING IN TRAVEL LANE (Bottom)	-	-	-	-						1.0					15.0		X														Additional signs to be reset on new post and anchor.		
176+80.0, RT	P PARKING (Top) / BIKE ROUTE (Middle) / ← US 4 EAST → (Bottom)	-	-	-	-						1.0					14.0		X														Additional signs to be reset on new post and anchor.		
												FT	FT	FT	FT	FT	FT	XXXXX XXXXX XXXXX XXXXX	EA	LB	LB	LB		LB	LB	LB	LB							
												.	.	.	.	149.	.		.	.	.	.			.	.	.	.							
FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."																																		
	TOTALS				SF 88.83	SF .	EA. .	SF .	12.0			FT .			FT 149.					LB .			EA.	LB .				EA. .	EA. .	LB .					

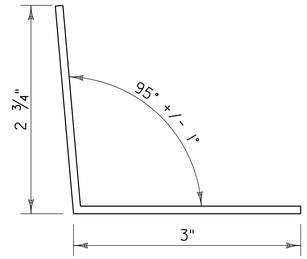
GILL ENGINEERING

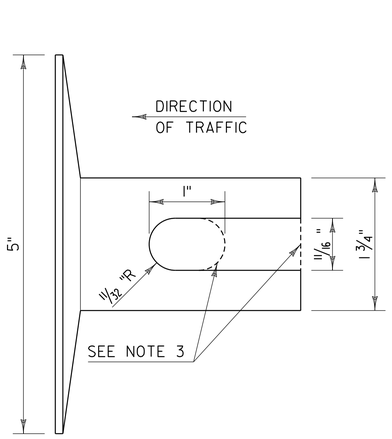
PROJECT NAME: HARTFORD (QUECHEE)
PROJECT NUMBER: NH 020-2(45)

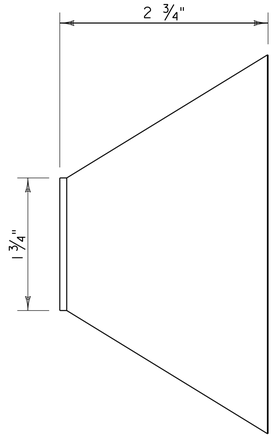
FILE NAME: z17b082TrafficLineBdr.dgn
PROJECT LEADER: AMS
DESIGNED BY: ABL
TRAFFIC SIGN SUMMARY

PLOT DATE: 7/6/2022
DRAWN BY: ABL
CHECKED BY: SBC
SHEET 97 OF 97

GUARDRAIL DELINEATOR DETAIL







NOTES:

1. GUARDRAIL DELINEATOR BASE MATERIAL SHALL BE 0.10 INCH THICK ALUMINUM IN ACCORDANCE WITH SUBSECTION 728.04 DELINEATION DEVICES.
2. GUARDRAIL DELINEATORS SHALL HAVE WHITE RETROREFLECTIVE SHEETING, EQUAL TO OR EXCEEDING TYPE III IN ACCORDANCE WITH SUBSECTION 750.08(B)(3) ON THE RIGHT SIDE OF THE TRAVELED WAY AND YELLOW RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING TYPE VII IN ACCORDANCE WITH SUBSECTION 750.08(B)(7) ON THE LEFT SIDE OF THE TRAVELED WAY IN RESPECT TO APPROACHING TRAFFIC. ON ONE DIRECTIONAL ROADWAYS RETROREFLECTIVE SHEETING MAY BE OMITTED ON FACES WHERE THERE WILL BE NO APPROACHING TRAFFIC.
3. HOLE MAY BE USED IN PLACE OF SLOT.

GUARDRAIL TERMINAL LABEL DETAIL

NOTES:

1. LINE ONE SHALL INDICATE THE INSTALLATION YEAR (YYYY).
2. LINE TWO SHALL INDICATE THE MODEL AS IDENTIFIED ON THE APPROVED PRODUCTS LIST. FOR GENERIC INSTALLATIONS THE STANDARD DRAWING DESIGNATION OR NAME AS IDENTIFIED IN THE FHWA ELIGIBILITY LETTER SHALL BE USED.
3. LINE THREE SHALL SHALL INDICATE ADDITIONAL MODEL INFORMATION IF NECESSARY.
4. LINE FOUR SHALL INDICATE FLARED (FLRD) OR TANGENT (TANG).
5. LEGEND SHALL BE SIZE 3/4 INCH ARIEL FONT.
6. LEGEND SHALL BE BLACK ON A WHITE BACKGROUND, LEGEND AND BACKGROUND SHALL NOT BE REFLECTIVE.
7. SUITABLE MATERIAL SHALL BE USED SO AS TO NOT DETERIORATE DURING EXPOSURE TO WEATHER.
8. LABELS SHALL BE APPLIED IN SUCH A WAY THAT THEY REMAIN INTACT DURING THE LIFE OF THE TERMINAL.
9. FOR W-BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE TOP OF POST ONE FACING AWAY FROM TRAFFIC.
10. FOR BOX BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE BOX BEAM ADJACENT TO POST ONE FACING AWAY FROM TRAFFIC.
11. PAYMENT SHALL BE INCIDENTAL TO OTHER TRAFFIC BARRIER ITEMS.

REV.	DATE	DESCRIPTION
0	NOV. 3, 2015	ORIGINAL APPROVAL
1	FEB. 27, 2017	UPDATED NAME, MINOR CORRECTIONS AND ADDED GUARDRAIL DELINEATOR DETAIL

OTHER DETAILS REQUIRED: NONE

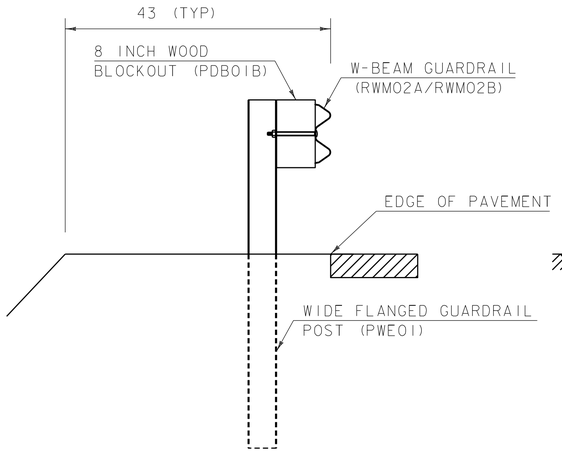
DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

MISCELLANEOUS GUARDRAIL DETAILS

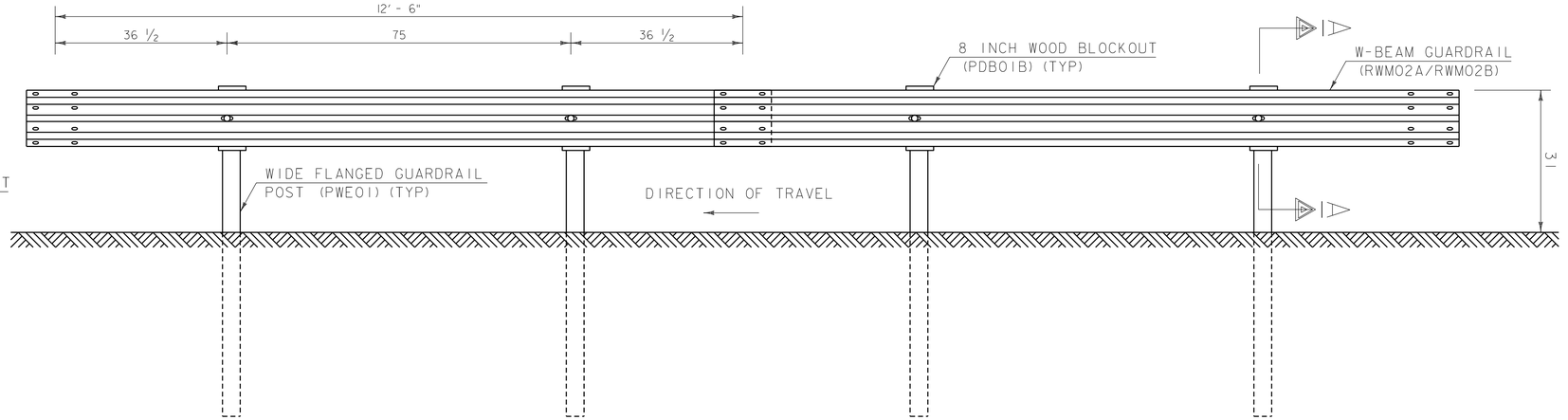
VTrans Working to Get You There
VERMONT AGENCY OF TRANSPORTATION

HIGHWAY SAFETY & DESIGN DETAIL

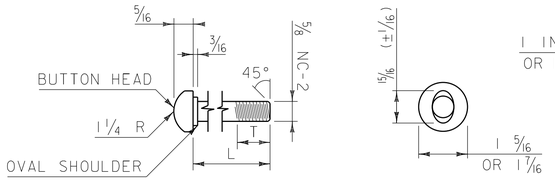
HSD-621.06



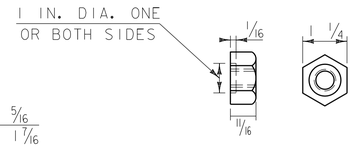
TYPICAL GUARDRAIL DETAIL
SECTION A-A



GUARDRAIL ELEVATION

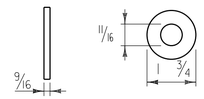


GUARDRAIL BOLT



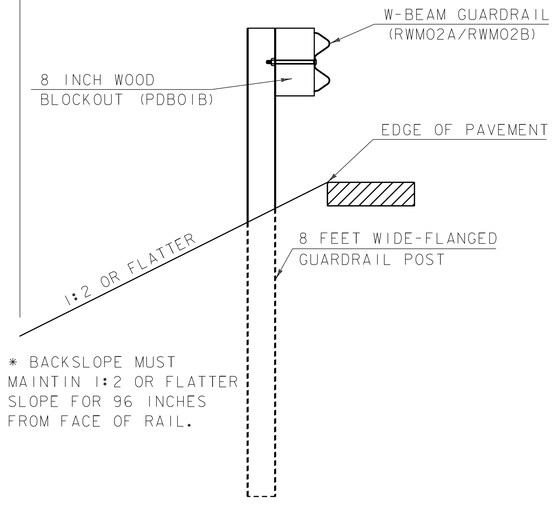
RECESSED NUT FOR GUARDRAIL BOLT

NOTE: WASHER IS USED UNDER RECESSED NUT WHERE GUARDRAIL BOLT IS USED WITH WOOD POSTS.

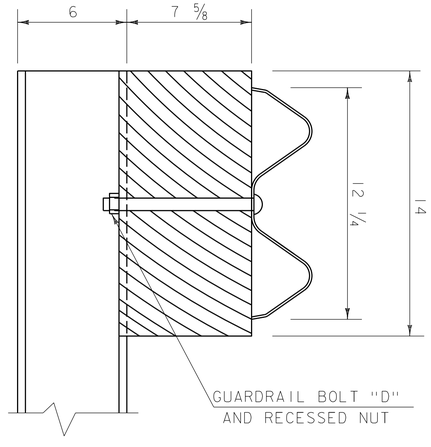


WASHER FOR 5/8" BOLTS
ARTBA F-13-73

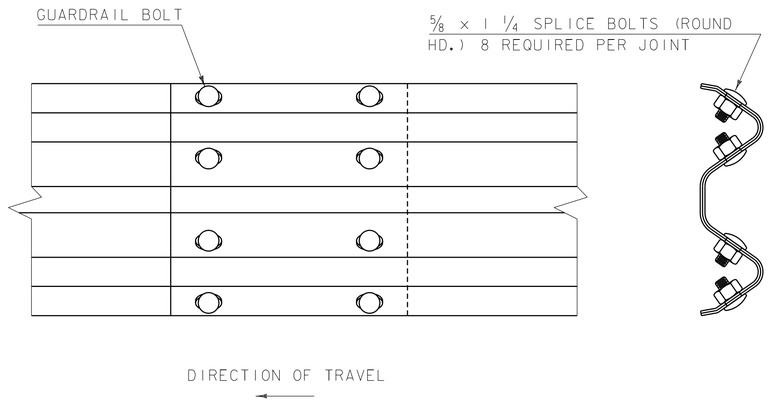
GUARDRAIL BOLTS				FASTENER USED IN	
BOLT DES.	ARTBA REF. NO.	L	T (MIN.)	STEEL POSTS	WOOD POSTS
"A"	F-3[1¼]-76	1¼"	1"	X	X
"C"	F-3[9½]-76	9½"	1¾"	X	
"D"	F-3[18]-76	18"	2½"		X
"F"	F-3[25]-76	25"	2"		X



8 FEET POSTS GUARDRAIL DETAIL
SECTION A-A



POST ATTATCHMENT DETAIL



SPLICE DETAIL

GENERAL NOTES

1. DESIGNATIONS ARE AS IDENTIFIED IN "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE" AS PUBLISHED BY THE "AMERICAN ASSOCIATION OF STATE AND HIGHWAY TRANSPORTATION OFFICIALS" (AASHTO), "ASSOCIATED GENERAL CONTRACTORS OF AMERICA" (AGC) AND THE "AMERICAN ROAD AND TRANSPORTATION BUILDERS ASSOCIATION" (ARTBA).
2. MATERIALS SHALL BE IN ACCORDANCE WITH SECTION 728 OF THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AS APPLICABLE.
3. WHEN W-BEAM GUARDRAIL, 8 FEET POSTS IS SPECIFIED ON THE PLANS, WIDE FLANGED GUARDRAIL POST (PWE01) SHALL BE INCREASED FROM 72 INCHES TO 96 INCHES, SEE DETAIL HSD-621.07B.
4. THE DYNAMIC DEFLECTION DISTANCE OF 57 INCHES FOR W BEAM GUARDRAIL SHALL BE MAINTAINED CLEAR OF OBSTACLES, TO BE MEASURED FROM THE BACK OF POST.
5. FOR TEST LEVEL 3 APPLICATIONS, AS APPROVED IN THE FEDERAL HIGHWAY ADMINISTRATION'S ELIGIBILITY LETTER, HSST/B-240, DATED NOVEMBER 8, 2012.
6. ALL DIMENSION IN INCHES, UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION
--	APR. 17, 2019	ORIGINAL APPROVAL
1	JAN. 4, 2021	CORRECTED REFERENCE IN NOTE 3

OTHER DETAILS REQUIRED: 621.07B

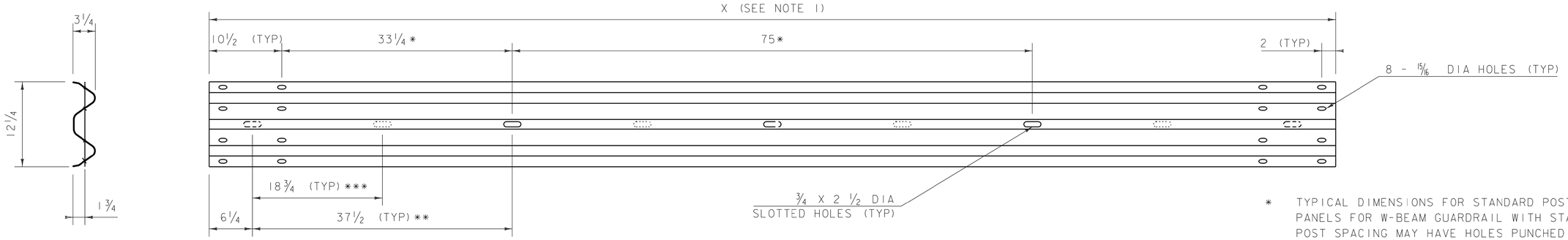
DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

MIDWEST GUARDRAIL SYSTEM (MGS)

VTrans Working to Get You There
VERMONT AGENCY OF TRANSPORTATION

HIGHWAY SAFETY & DESIGN DETAIL

HSD-621.07A



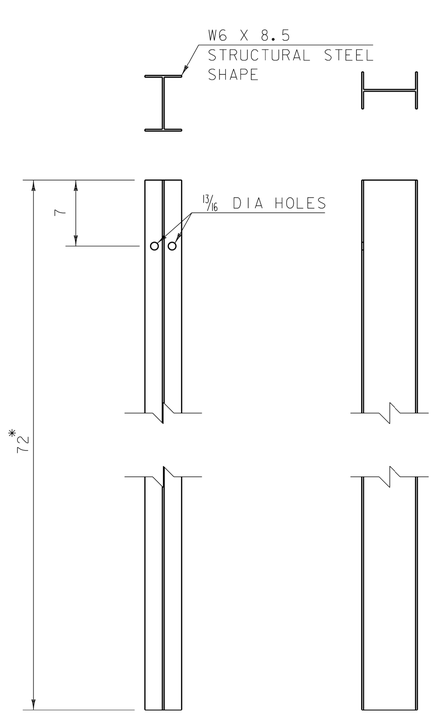
1. TANGENT W-BEAM RAIL LENGTHS SHALL BE 13'-6 1/2" OR 26'-1/2", UNLESS OTHERWISE SPECIFIED.
2. W-BEAM THICKNESS SHALL BE 1/8" FOR STANDARD W-BEAM GUARDRAIL (RWM02A) AND 5/64" FOR HEAVY DUTY GUARDRAIL (RWM02B).

* TYPICAL DIMENSIONS FOR STANDARD POST SPACING. PANELS FOR W-BEAM GUARDRAIL WITH STANDARD POST SPACING MAY HAVE HOLES PUNCHED AT ONE-HALF POST SPACING FOR INVENTORY PURPOSES.
** TYPICAL DIMENSION FOR ONE-HALF POST SPACING.
*** TYPICAL DIMENSION FOR ONE-QUARTER POST SPACING.

W-BEAM GUARDRAIL (RWM02A/ RWM02B)

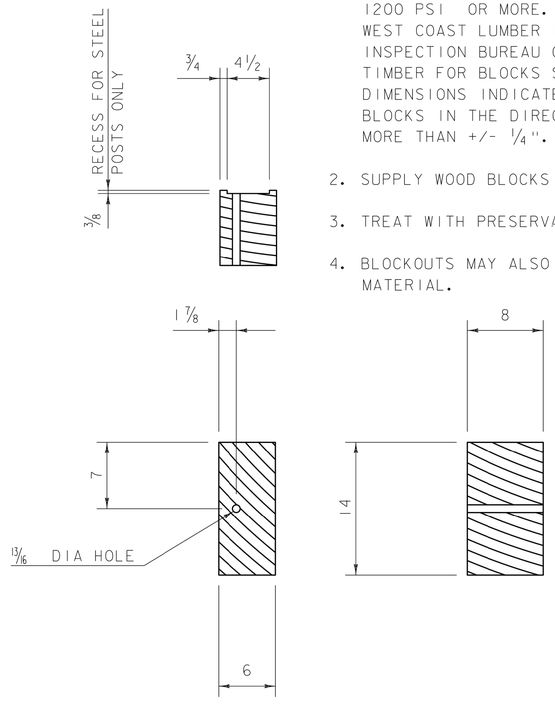
NOTES:

1. BLOCKS SHALL BE MADE OF TIMBER WITH A STRESS GRADE OF 1200 PSI OR MORE. TESTING SHALL BE IN ACCORDANCE WITH WEST COAST LUMBER INSPECTION BUREAU, SOUTHERN PINE INSPECTION BUREAU OR OTHER APPROPRIATE ASSOCIATION. TIMBER FOR BLOCKS SHALL BE ROUGH SAWN (UNPLANED) WITH DIMENSIONS INDICATED. THE SIZE TOLERANCE OF ROUGH SAWN BLOCKS IN THE DIRECTION OF THE BOLT HOLES SHALL BE NOT MORE THAN +/- 1/4".
2. SUPPLY WOOD BLOCKS PER AASHTO M 168.
3. TREAT WITH PRESERVATIVE PER AASHTO M 133.
4. BLOCKOUTS MAY ALSO BE MADE OF APPROVED ALTERNATIVE MATERIAL.

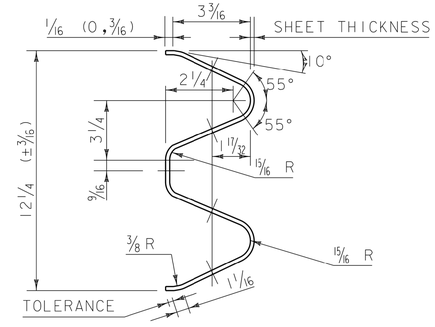


WIDE FLANGED GUARDRAIL POST (PWE01)

* POST LENGTH SHALL BE INCREASED TO 96 INCHES WHEN W BEAM GUARDRAIL, 8 FEET POSTS IS SPECIFIED.



8 INCH WOOD BLOCKOUT (PDB01B)



ARTBA RE-3(2@6'-3"=12'-6" CLASS A, TYPE 1)-73

TYPICAL GUARDRAIL SECTION

GENERAL NOTES

1. DESIGNATIONS ARE AS IDENTIFIED IN "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE" AS PUBLISHED BY THE "AMERICAN ASSOCIATION OF STATE AND HIGHWAY TRANSPORTATION OFFICIALS" (AASHTO), "ASSOCIATED GENERAL CONTRACTORS OF AMERICA" (AGC) AND THE "AMERICAN ROAD AND TRANSPORTATION BUILDERS ASSOCIATION" (ARTBA).
2. MATERIALS SHALL BE IN ACCORDANCE WITH SECTION 728 OF THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AS APPLICABLE.
3. ALL DIMENSION IN INCHES, UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION
--	APR. 17, 2019	ORIGINAL APPROVAL

OTHER DETAILS REQUIRED: NONE

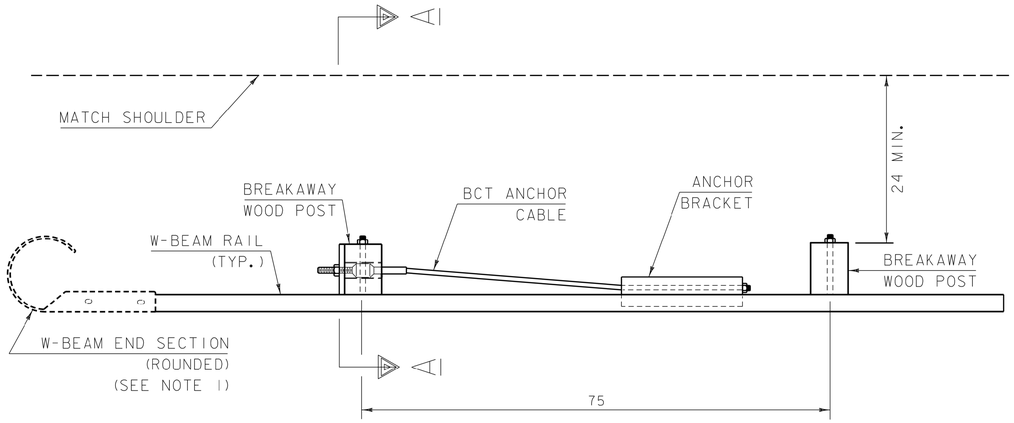
DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

W-BEAM GUARDRAIL COMPONENTS

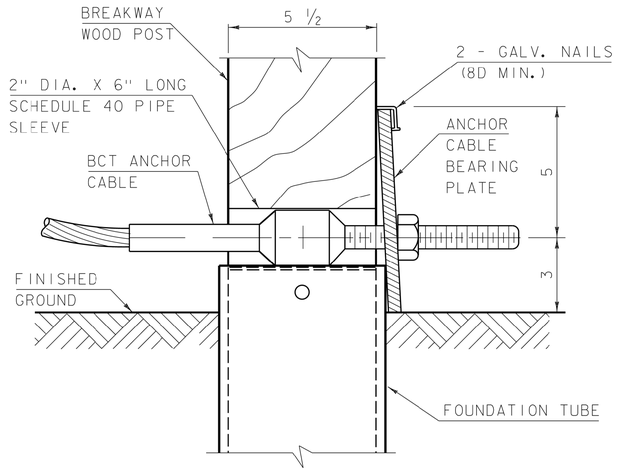
VTrans Working to Get You There — VERMONT AGENCY OF TRANSPORTATION

HIGHWAY SAFETY & DESIGN DETAIL

HSD-621.07B

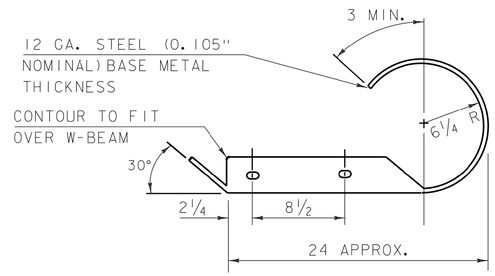


PLAN VIEW

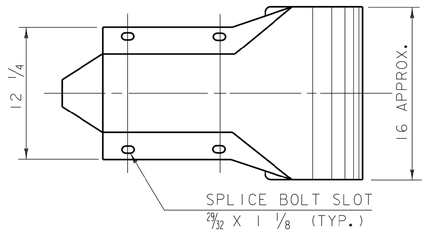


DETAIL A

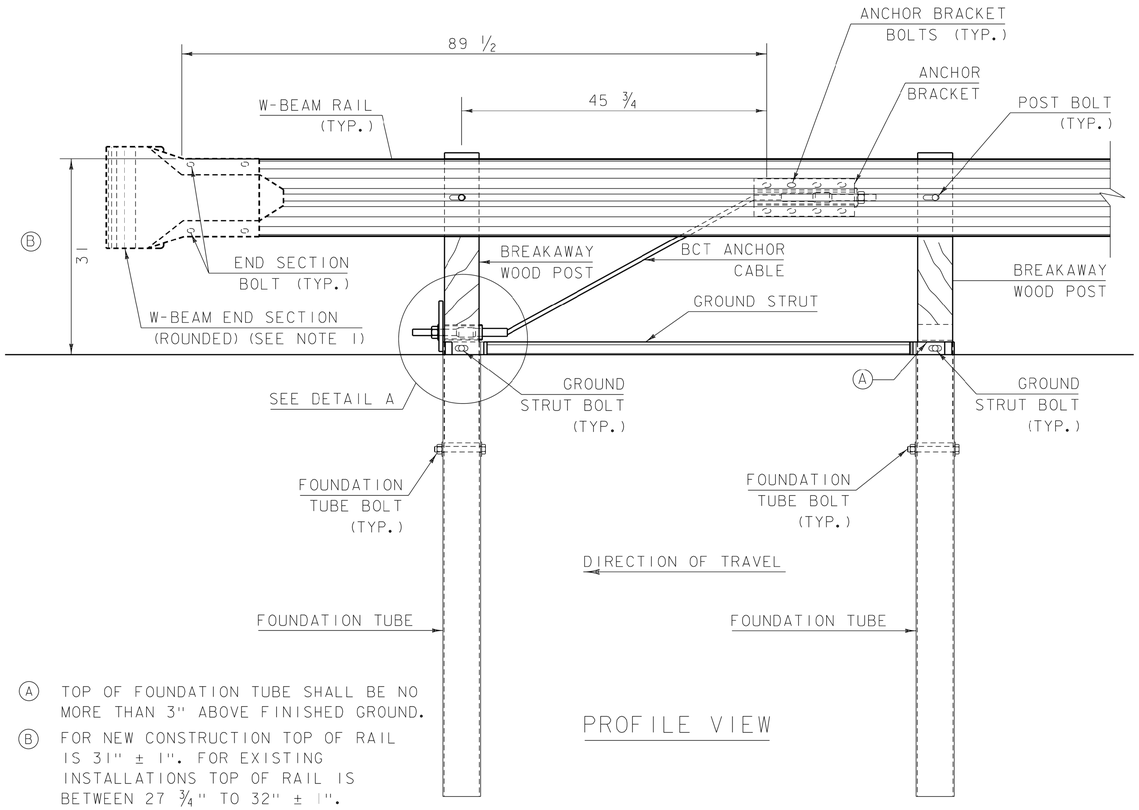
POST NO. 1
GROUND STRUT NOT SHOWN FOR CLARITY.



PLAN VIEW



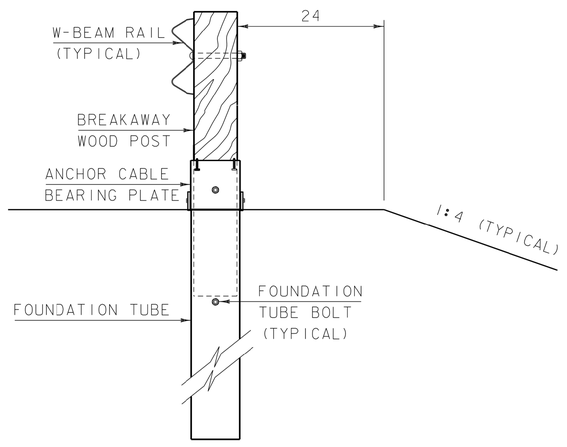
PROFILE VIEW
W-BEAM END SECTION (ROUNDED)



Ⓐ TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.

Ⓑ FOR NEW CONSTRUCTION TOP OF RAIL IS 31" ± 1". FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27 ¾" TO 32" ± 1".

PROFILE VIEW



SECTION A-A

GENERAL NOTES

1. WHEN AN ANCHOR IS USED IN THE MIDDLE OF A GUARDRAIL RUN A STANDARD W-BEAM MID-SPLICE CONNECTION SHALL BE UTILIZED.
2. END SECTION SHALL ONLY BE INSTALLED AS TRAILING END ON ONE-WAY TRAFFIC ROADS.
3. W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.
4. END SECTION BOLTS AND NUTS HAVE THE SAME MATERIAL REQUIREMENTS AS SPLICE BOLTS.
5. FOUNDATION TUBE BOLTS ARE ⅞" DIAMETER ASTM A307 HEX HEAD BOLT. FOUNDATION TUBE BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅞" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.
6. ANCHOR BRACKET AND GROUND STRUT BOLTS ARE A ⅝" DIAMETER ASTM A307 HEX HEAD BOLT. ANCHOR BRACKET BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅝" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.
7. W-BEAM END SECTION (ROUNDED) AND W-BEAM RAIL SHALL BE PAID FOR UNDER ITEM 621.20 STEEL BEAM GUARDRAIL GALVANIZED. ALL OTHER COMPONENTS SHALL BE PAID FOR UNDER ITEM 621.60 ANCHOR FOR STEEL BEAM RAIL.
8. ALL MEASUREMENTS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

REV.	DATE	DESCRIPTION
--	APR. 17, 2019	ORIGINAL APPROVAL

OTHER DETAILS REQUIRED: HSD-621.07D, HSD-621.07E

DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

MIDWEST GUARDRAIL SYSTEM (MGS) ANCHOR

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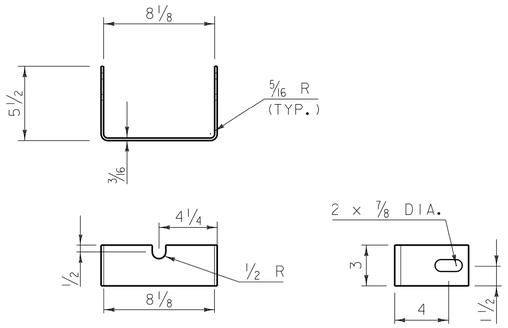
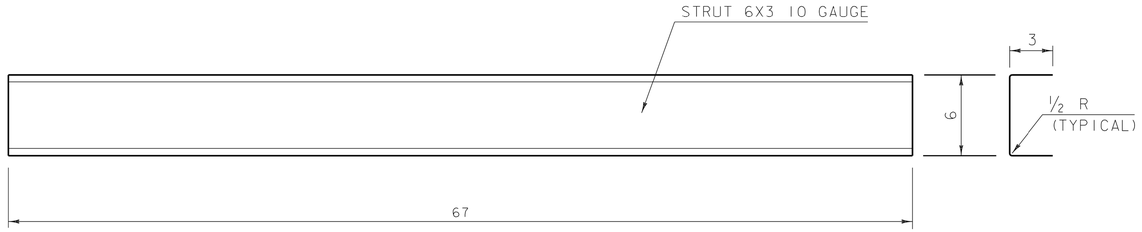
HIGHWAY SAFETY & DESIGN DETAIL

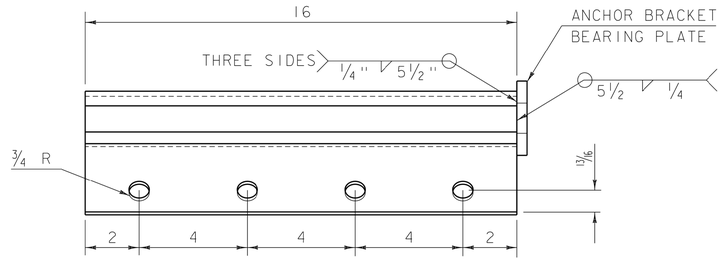
HSD-621.07C

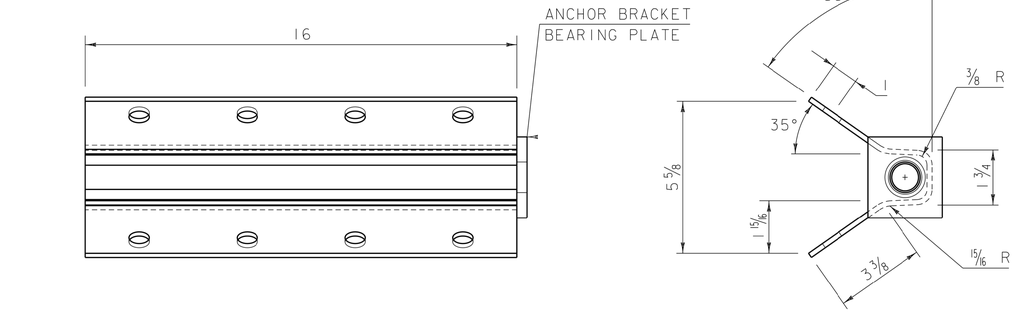


YOKE DETAIL

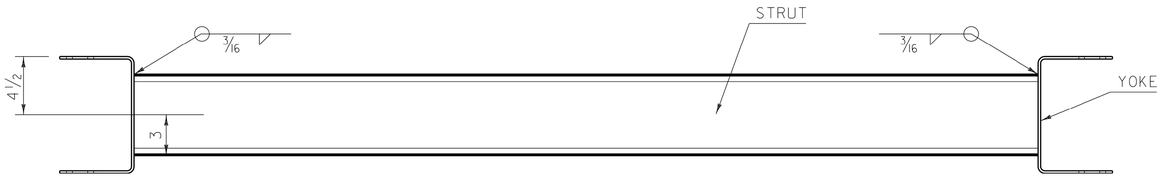


STRUT DETAIL

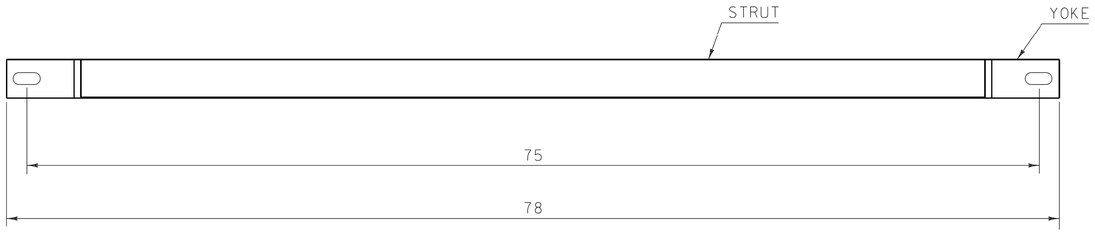




ANCHOR BRACKET

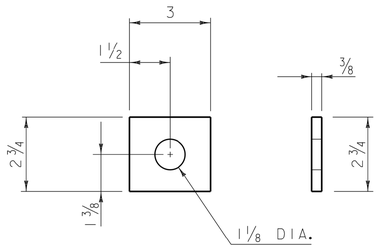


PLAN VIEW



PROFILE VIEW

GROUND STRUT DETAIL



ANCHOR BRACKET
BEARING PLATE

GENERAL NOTES

1. ALL MEASUREMENTS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

REV.	DATE	DESCRIPTION
--	APR. 17, 2019	ORIGINAL APPROVAL

OTHER DETAILS REQUIRED: HSD-621.07C, HSD-621.07E

DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

MIDWEST GUARDRAIL SYSTEM (MGS) ANCHOR COMPONENTS

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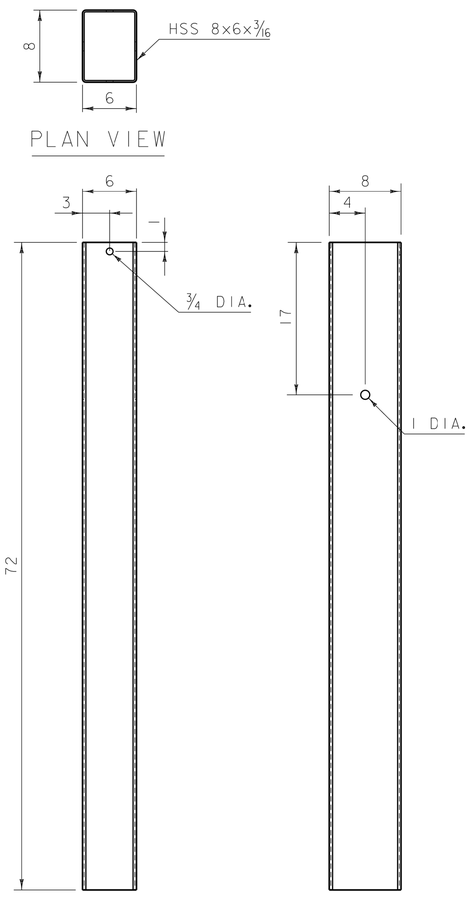
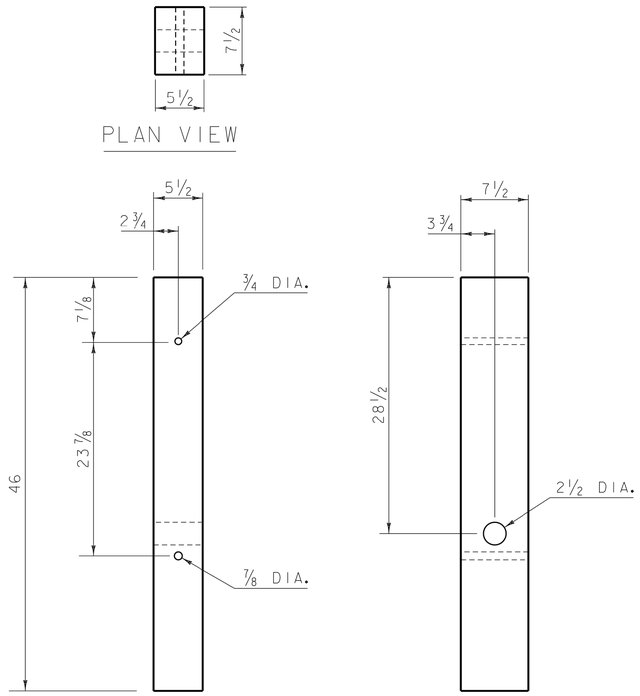
HIGHWAY SAFETY & DESIGN DETAIL

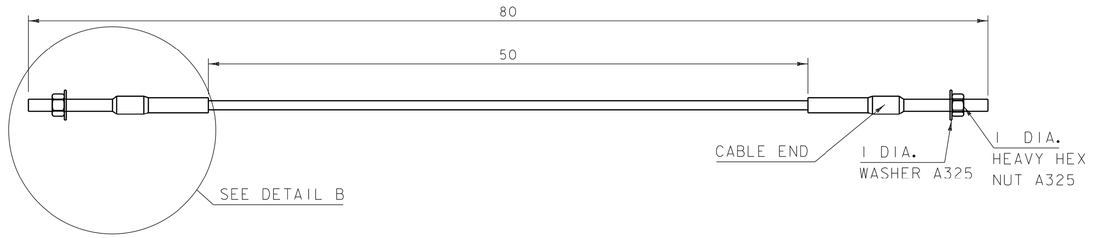
HSD-621.07D



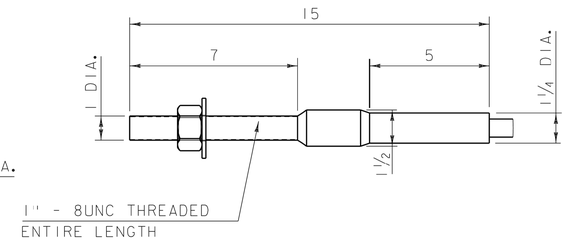
FOUNDATION TUBE



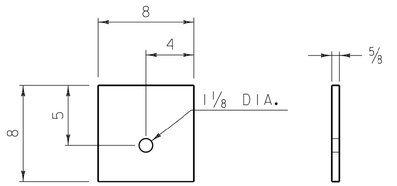
BREAKAWAY WOOD POST



BCT ANCHOR CABLE



DETAIL B



ANCHOR CABLE
BEARING PLATE

GENERAL NOTES

1. BCT ANCHOR CABLE IS A 3/4" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED.
2. END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123.
3. TREADED STUD SHALL CONFORM TO ASTM A325 OR SAE GRADE 5.
4. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB.
5. WIRE ROPE IS TO BE TAUT.
6. ALL MEASUREMENTS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

REV.	DATE	DESCRIPTION
--	APR. 17, 2019	ORIGINAL APPROVAL

OTHER DETAILS REQUIRED: HSD-621.07C, HSD-621.07D

DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

MIDWEST GUARDRAIL SYSTEM (MGS) ANCHOR COMPONENTS

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HIGHWAY SAFETY & DESIGN DETAIL

HSD-621.07E