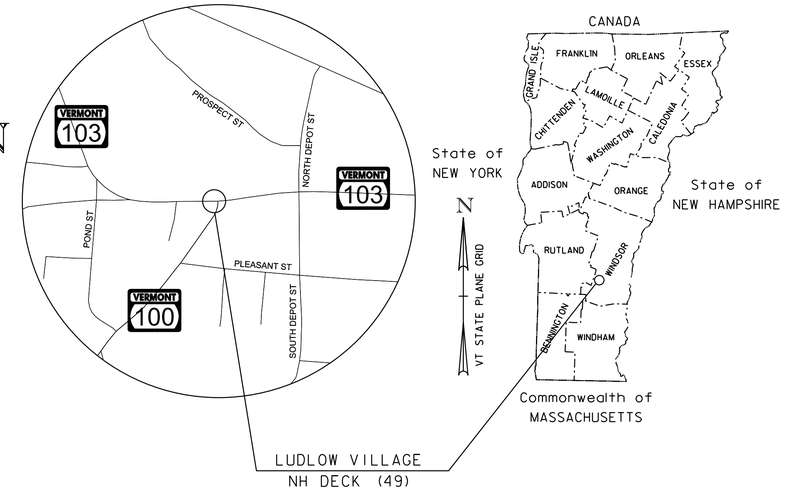
STATE OF VERMONT
AGENCY OF TRANSPORTATION

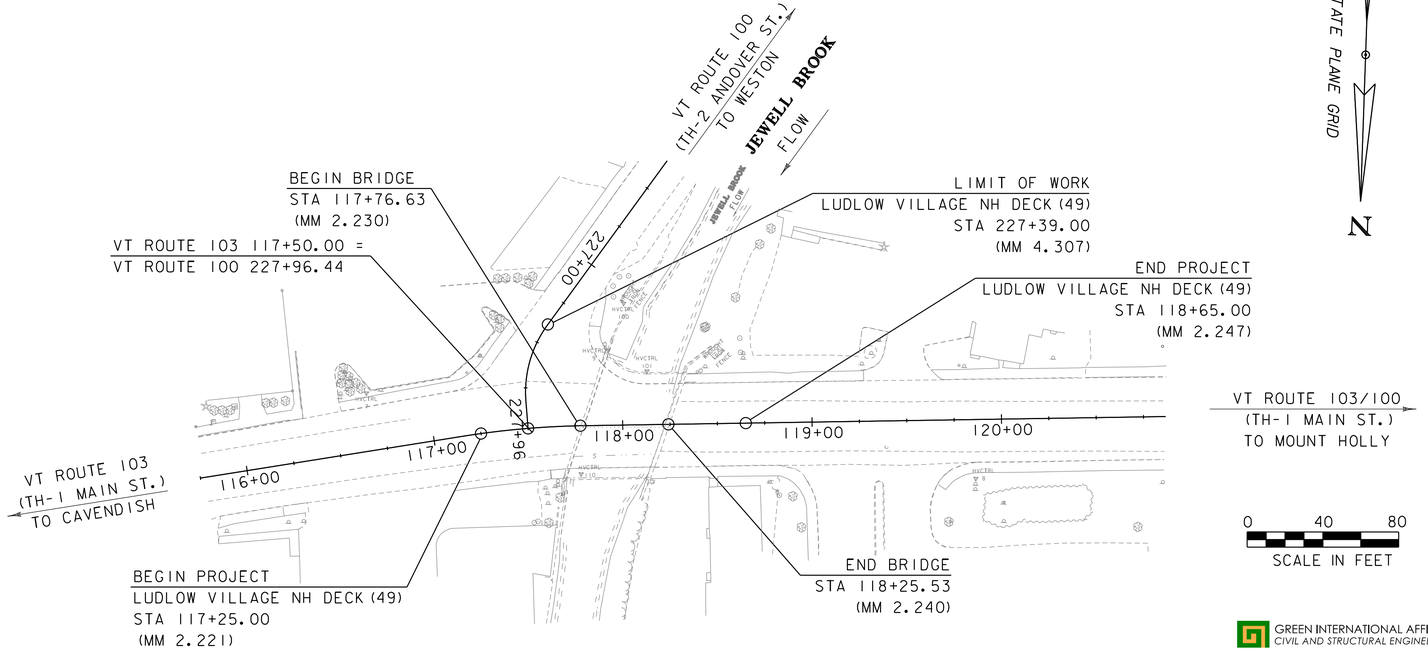


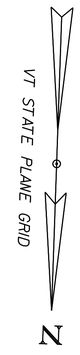
PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF LUDLOW
COUNTY OF WINDSOR
VT ROUTE 103 BRIDGE 26 (PRINCIPAL ARTERIAL)

PROJECT LOCATION: BEGINNING AT A POINT IN THE TOWN OF LUDLOW ON VERMONT ROUTE 103 AT MM 2.221 AND EXTENDING EAST APPROXIMATELY 0.026 MILES TO MM 2.247

PROJECT DESCRIPTION: DECK AND SUPERSTRUCTURE REPLACEMENT OF BRIDGE NO.26 OVER JEWELL BROOK ON VT-103 IN LUDLOW VILLAGE.

LENGTH OF STRUCTURE:	48.90 FEET
LENGTH OF ROADWAY:	127.10 FEET
LENGTH OF PROJECT:	176.00 FEET





0 40 80
SCALE IN 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.

QUALITY ASSURANCE PROGRAM : LEVEL I	
SURVEYED BY :	R. GILMAN
SURVEYED DATE :	9-11-2018
DATUM	
VERTICAL	NAVD88
HORIZONTAL	NAD 83 (1996)

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

FINAL PLANS
JULY 16, 2021

HIGHWAY DIVISION, CHIEF ENGINEER

APPROVED _____ DATE _____

PROJECT MANAGER : G. SWEENY

PROJECT NAME : LUDLOW VILLAGE
PROJECT NUMBER : NH DECK (49)

SHEET 1 OF 53 SHEETS

Version 11.06.15

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE 26)

I RED

INDEX OF SHEETS

PLAN SHEETS

DETAIL SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	2/9/2012
SD-502.00	CONCRETE DETAILS AND NOTES	10/10/2012

STANDARDS LIST

C-10	CURBING	2/11/2008
B-5	SLOPE GRADING, EMBANKMENTS, MUCK	6/1/1994
E-10	ROLLED EROSION CONTROL PRODUCT, TYPE I	7/1/2019
E-12	STABILIZED CONSTRUCTION ENTRANCE	7/1/2019
E-13	INLET PROTECTION DEVICE, TYPE I	7/1/2019
E-15	SILT FENCE	7/1/2019
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	8/8/1995
E-173	PULL BOXES AND JUNCTION BOXES	8/9/1995
E-191	PAVEMENT MARKING DETAILS	2/1/1999
E-192	PAVEMENT MARKING DETAILS	10/12/2000
E-193	PAVEMENT MARKING DETAILS	8/18/1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	3/10/2017
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	3/10/2017
J-1	PROJECT AND BOUNDARY MARKERS	6/1/1994
S-352A	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	8/22/2012
S-352B	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	8/22/2012
S-352C	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	8/22/2012
S-352D	GUARDRAIL APPROACH SECTION TO CONCRETE COMBINATION BRIDGE RAILING	2/2/2017
SD-501.00	CONCRETE DETAILS AND NOTES	2/9/2012
SD-502.00	CONCRETE DETAILS AND NOTES	10/10/2012
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	6/4/2010
SD-602.00	STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES	5/2/2011
T-1	TRAFFIC CONTROL GENERAL NOTES	4/25/2016
T-2	TRAFFIC SIGN GENERAL NOTES	4/25/2016
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	8/6/2012
T-13	TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED	8/6/2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	8/6/2012
T-24	TRAFFIC CONTROL FOR MAINTENANCE PAVEMENT MARKING OPERATION	8/6/2012
T-28	CONSTRUCTION SIGN DETAILS	8/6/2012
T-29	CONSTRUCTION SIGN DETAILS	8/6/2012
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T-31	CONSTRUCTION SIGN DETAILS	8/6/2012
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	8/6/2012
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	8/6/2012
T-40	DELINEATORS AND MILEPOSTS	1/2/2013
T-42	BRIDGE NUMBER PLAQUE	4/9/2014
T-44	MILEMARKER DETAILS STATE AND TOWN HIGHWAYS	4/9/2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	1/2/2013
T-56	STANDARD SIGN PLACEMENT	10/26/2015

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: 5/12/2020

DRAINAGE AREA : 9.4 sq. mi.
CHARACTER OF TERRAIN : Hilly to flat
STREAM CHARACTERISTICS : Straight with little to no floodplains
NATURE OF STREAMBED : Cobble

PEAK FLOW DATA - ANNUAL EXCEEDANCE PROBABILITY (AEP)

43% =	560 cfs	2% =	1700 cfs
10% =	1000 cfs	1% =	2000 cfs
4% =	1400 cfs	0.2% =	3000 cfs

DATE OF FLOOD OF RECORD : August 28, 2011
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ 43% AE 8.8 fps
ICE CONDITIONS : Unknown
DEBRIS: Light to Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Unknown
IS ORDINARY RISE RAPID? Unknown
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
IF YES, DESCRIBE: The Black River influences tailwater conditions

WATERSHED STORAGE: 0.3%
HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Rolled Beam with Concrete Deck
YEAR BUILT: 1931
CLEAR SPAN(NORMAL TO STREAM): 40.0 ft.
VERTICAL CLEARANCE ABOVE STREAMBED: 7.3 ft.
WATERWAY OF FULL OPENING: 320.0 sq. ft.
DISPOSITION OF STRUCTURE: Superstructure Replacment
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

43% AEP =	1001.7 ft	VELOCITY =	8.8 fps
10% AEP =	1002.6 ft	"	11.4 fps
4% AEP =	1003.3 ft	"	13.1 fps
2% AEP =	1003.8 ft	"	13.9 fps
1% AEP =	1004.3 ft	"	13.9 fps

LONG TERM STREAMBED CHANGES: Unknown

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: Yes*
FREQUENCY: 4% AEP
RELIEF ELEVATION: 1008.7 ft
DISCHARGE OVER ROAD @ 1% AEP: 71 cfs

UPSTREAM STRUCTURE

TOWN: Ludlow — DISTANCE: 740.0 ft
HIGHWAY# : TH-356 — STRUCTURE #: 54
CLEAR SPAN: 34.0 ft. — CLEAR HEIGHT: Unknown
YEAR BUILT: 1937 — FULL WATERWAY: Unknown
STRUCTURE TYPE: PS Concrete Stringer with CIP Concrete Deck

DOWNSTRUCTURE STRUCTURE

TOWN: Ludlow — DISTANCE: 760.0 ft.
HIGHWAY# : TH-308 — STRUCTURE #: 56
CLEAR SPAN: 92.0 ft. — CLEAR HEIGHT: Unknown
YEAR BUILT: 1954 — FULL WATERWAY: Unknown
STRUCTURE TYPE: Rolled Beam with CIP Concrete Deck

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY		1.18					
POSTING							
OPERATING		1.89	3.30	2.23	2.30	2.13	2.73
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast Bridge Unit

CLEAR SPAN(NORMAL TO STREAM): 40.0 ft.
VERTICAL CLEARANCE ABOVE STREAMBED: 7.3 ft.
WATERWAY OF FULL OPENING: 320.0 sq ft.

WATER SURFACE ELEVATIONS AT:

43% AEP =	1001.7 ft	VELOCITY=	8.8 fps
10% AEP =	1002.6 ft	"	11.4 fps
4% AEP =	1003.3 ft	"	13.1 fps
2% AEP =	1003.8 ft	"	13.9 fps
1% AEP =	1004.3 ft	"	13.9 fps

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: Yes
FREQUENCY: 4% AEP
RELIEF ELEVATION: 1008.7 ft
DISCHARGE OVER ROAD @ 1% AEP: 71 cfs

BRIDGE LOW CHORD ELEVATION: 1006.4 ft
FREEBOARD: @ 2% AEF=2.62 ft.

SCOUR: N/A

REQUIRED CHANNEL PROTECTION: Stone Fill Type IV for channel banks***

PERMIT INFORMATION

AVERAGE DAILY FLOW:	-	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	-	
ORDINARY HIGH WATER:	-	

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A
CLEAR SPAN (NORMAL TO STREAM): N/A
VERTICAL CLEARANCE ABOVE STREAMBED: N/A
WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

*Channel constriction found 200 ft upstream of BR26 causes roadway flooding
**Existing substructure is to be reused
***E-Stone, Type IV should be used for all in channel work

TRAFFIC MAINTENANCE NOTES

1. VEHICLE DETOUR ROUTE SHALL BE IN EFFECT DURING FULL BRIDGE CLOSURE
2. MAINTAIN TWO-WAY TRAFFIC ON THE STRUCTURE VIA PHASING
3. MAINTAIN PEDESTRIAN ACCESS VIA PEDESTRIAN DETOUR ROUTE

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	0.0 INCH
3. ABUTMENT BEARING TO BEARING LENGTH (SINGLE SPANS)	L:	45.0
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND (- - - DIAMETER - LOW RELAX)	f_y:	---
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. HIGH PERFORMANCE CONCRETE, CLASS PCD	f'_c:	4.0 KSI
9. HIGH PERFORMANCE CONCRETE, CLASS PCS	f'_c:	3.5 KSI
10. HIGH PERFORMANCE CONCRETE, CLASS SCC	f'_c:	
11. CONCRETE, CLASS B	f'_c:	4.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	50 KSI
14. SOIL UNIT WEIGHT	γ:	---
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	---
21. PILE SIZE		---
22. EST. PILE LENGTH	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	---
24. LATERAL PILE DEFLECTION	Δ:	---
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

TRAFFIC DATA

YEAR	ADT	DHV	%D	%T	ADTT
2023	8800	1100	53	7.1	850
2043	9500	1200	53	10.2	1300

20 year ESAL for flexible pavement from 2023 to 2043 : 5,087,000
40 year ESAL for flexible pavement from 2023 to 2063 : 10,912,000
Design Speed: 30 MPH

SUPERPAVE BITUMINOUS CONCRETE PAVEMENT MIXTURE DESIGN CRITERIA

DESIGN LIFE ESAL (DESIGN LANE)	10,912,000
DESIGN NUMBER OF GYRATIONS	80
PERFORMANCE GRADED ASPHALT BINDER	SEE SUBSECTION 406.03(b)

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

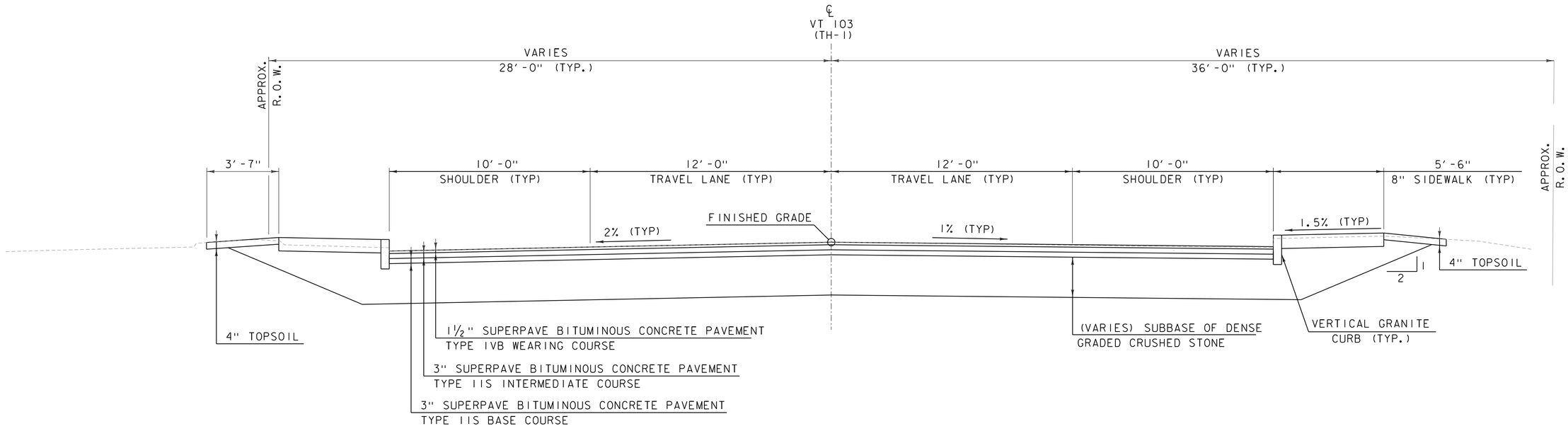
FILE NAME: z18j009forms.dgn
PROJECT LEADER: T.CARD
DESIGNED BY: A. OKA
PRELIMINARY INFORMATION SHEET

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 2 OF 53

MATERIAL TOLERANCES

MATERIAL ITEM	THICKNESS TOLERANCE
PAVEMENT (TOTAL DEPTH ALL LAYERS)	± ¼"
SUBBASE (TOTAL DEPTH ALL LAYERS)	± 1"
SAND BORROW (TOTAL DEPTH ALL LAYERS)	± 1"

TYPICAL SECTIONS



VT ROUTE 103 (TH-1) TYPICAL SECTION

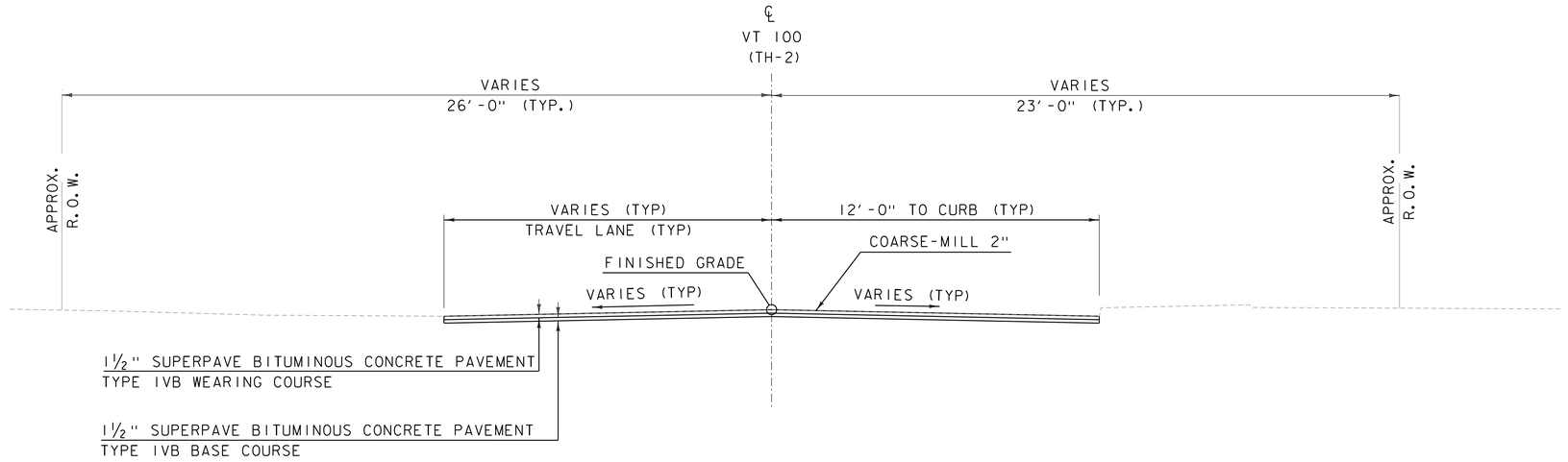
STA. 117+66.00 - 117+76.63

STA. 118+25.53 - 118+37.00

SCALE ⅜" = 1'-0"

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

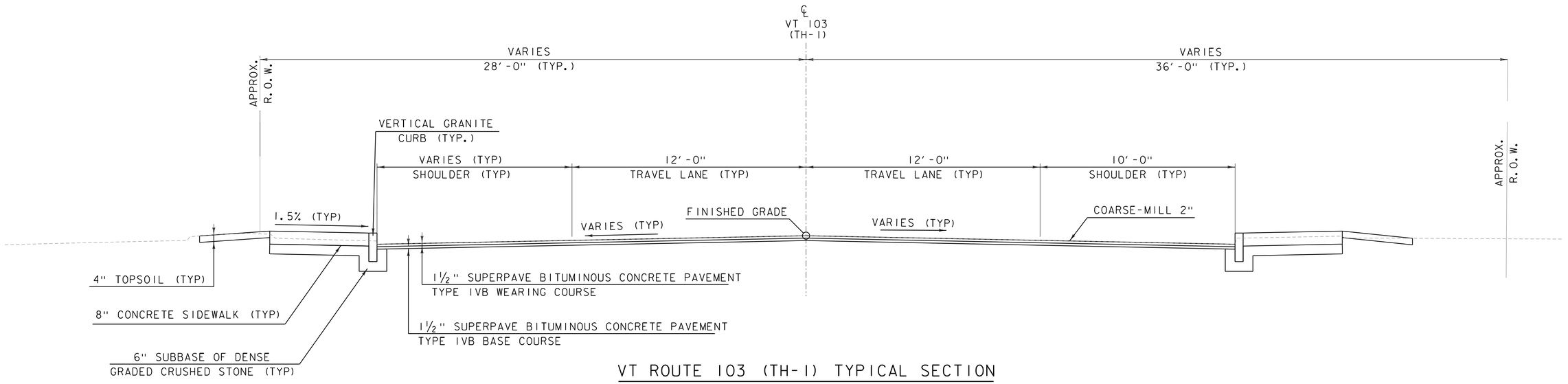
PROJECT NAME:	LUDLOW VILLAGE
PROJECT NUMBER:	NH DECK(49)
FILE NAME: z18j009typ.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: J. LABRECQUE
DESIGNED BY: D. VERTIYEV	CHECKED BY: E. ATKINS
TYPICAL SECTION SHEET 1	SHEET 3 OF 53



VT ROUTE 100 (TH-2) TYPICAL SECTION

STA. 227+39.00 - 227+75.00

SCALE ⅜" = 1'-0"



VT ROUTE 103 (TH-1) TYPICAL SECTION

STA. 117+25.00 - 117+66.00

STA. 118+37.00 - 118+65.00

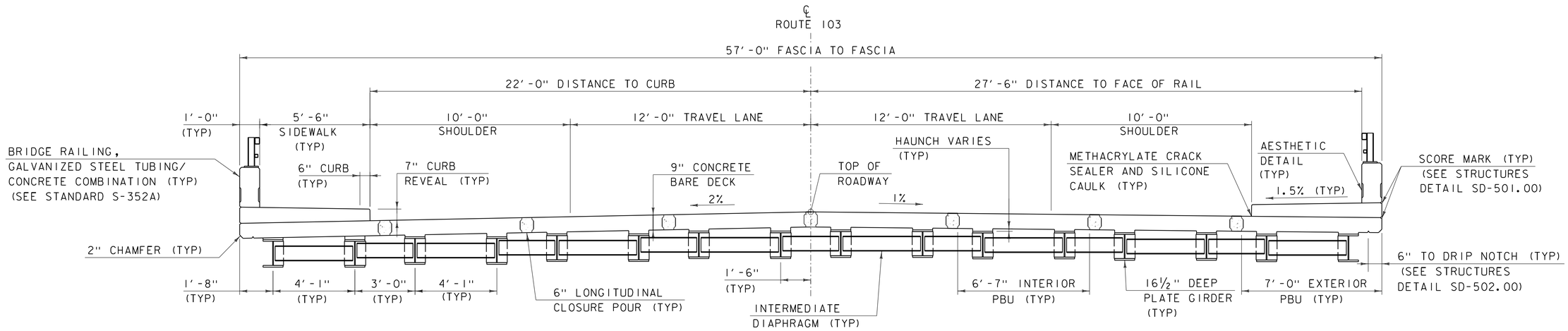
SCALE ⅜" = 1'-0"

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009typ.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: D. VERTIYEV
TYPICAL SECTION SHEET 2

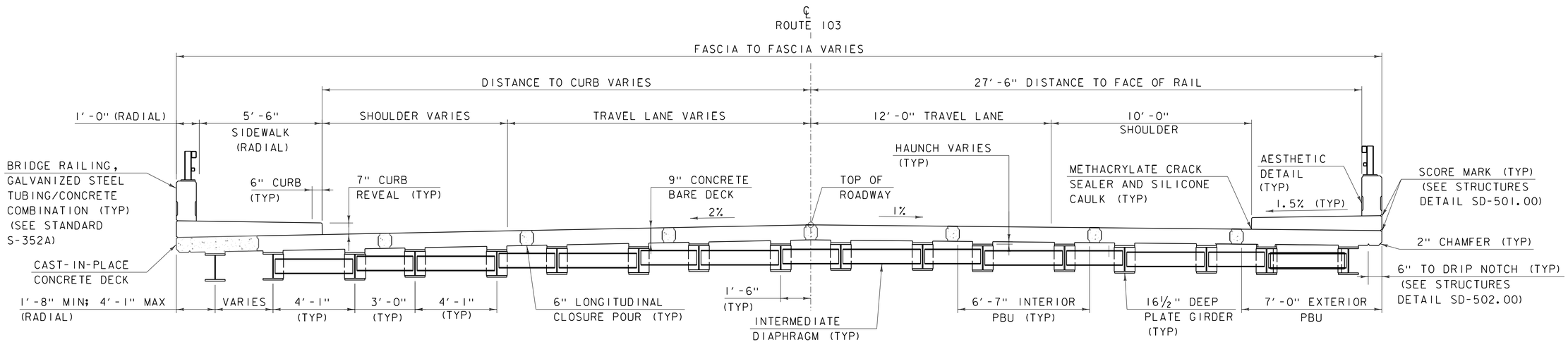
PLOT DATE: 7/14/2021
DRAWN BY: J. LABRECQUE
CHECKED BY: E. ATKINS
SHEET 4 OF 53

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS



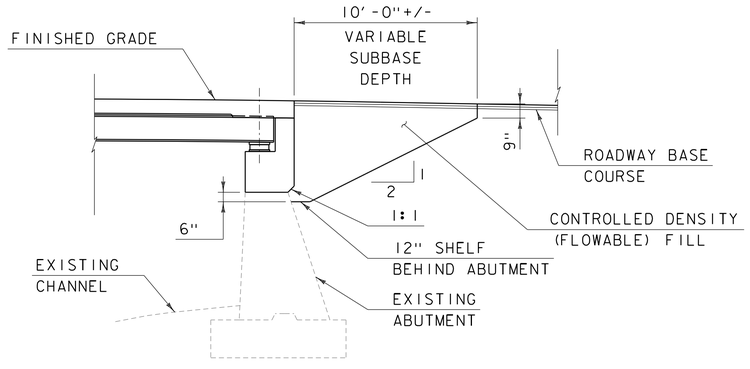
PROPOSED TYPICAL SECTION

SCALE 3/8" = 1'-0"



PROPOSED SECTION AT SPLAYED END

SCALE 3/8" = 1'-0"



TYPICAL ABUTMENT SECTION

SCALE 1/4" = 1'-0"

PROJECT NAME:	LUDLOW VILLAGE
PROJECT NUMBER:	NH DECK(49)
FILE NAME: z18j009typ.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: A. BARBOSA
DESIGNED BY: A. OKA	CHECKED BY: A. BEDARD
TYPICAL SECTION SHEET 3	SHEET 5 OF 53

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

1011 - ROADWAY	1031 - TRAINING	1051 - EROSION CONTROL	1211 - BRIDGE NO. 1	1999 - FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
220					220		CY	COMMON EXCAVATION	203.15	11
1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	-
			120		120		CY	STRUCTURE EXCAVATION	204.25	5
			70		70		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	1
480					480		SY	COARSE-MILLING, BITUMINOUS PAVEMENT	210.10	18
20					20		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	9
4					4		CWT	EMULSIFIED ASPHALT	404.65	-
1					1		LU	AIR VOIDS PAY ADJUSTMENT (N.A.B.I.)	406.28	-
1					1		LU	MAT DENSITY PAY ADJUSTMENT (N.A.B.I.)	406.29	-
1					1		LU	SURFACE TOLERANCE PAY ADJUSTMENT (N.A.B.I.)	406.30	-
70					70		TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT (TYPE IIS)	406.35	5
225					225		TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVB	406.36	6
12					12		SY	HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES	406.38	2
1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	-
			10		10		CY	HIGH PERFORMANCE CONCRETE, CLASS PCD	501.37	2
			40		40		CY	HIGH PERFORMANCE CONCRETE, CLASS PCS	501.38	4
			2100		2100		LB	STRUCTURAL STEEL	506.60	84
			4500		4500		LB	REINFORCING STEEL, LEVEL III	507.13	181
			220		220		LF	DRILLING AND GROUTING DOWELS	507.16	7
			560		560		EACH	MECHANICAL BAR CONNECTOR	507.19	3
			23		23		GAL	WATER REPELLENT, SILANE	514.10	1
			45		45		LF	JOINT SEALER, POLYURETHANE	524.21	5
			100		100		LF	REMOVAL OF EXISTING BRIDGE RAILING	525.10	3
			110		110		LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	525.45	3
			1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20	-
			25		25		CY	REMOVAL OF CONCRETE OR MASONRY	529.25	4
			33		33		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	-
			20		20		CY	CONCRETE, CLASS B	541.25	4
130					130		CY	CONTROLLED DENSITY (FLOWABLE) FILL	541.45	4
			340		340		LF	PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE	544.10	1
			20		20		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13	1
			5		5		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14	1
			2		2		CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	580.15	8
200					200		LF	VERTICAL GRANITE CURB	616.21	4
84					84		LF	REMOVAL OF EXISTING CURB	616.41	2
80					80		SY	PORTLAND CEMENT CONCRETE SIDEWALK, 8 INCH	618.11	3
15					15		SF	DETECTABLE WARNING SURFACE	618.30	-
900					900		LF	CHAIN-LINK FENCE, 4 FEET	620.11	-
1					1		EACH	ADJUST ELEVATION OF VALVE BOX	629.20	EST
370					370		HR	UNIFORMED TRAFFIC OFFICERS	630.10	EST

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
COMMON EXCAVATION		
209	CY	VT ROUTE 103
11	CY	ROUNDING
220	CY	TOTAL
STRUCTURE EXCAVATION		
115	CY	BRIDGE
5	CY	ROUNDING
120	CY	TOTAL
GRANULAR BACKFILL FOR STRUCTURES		
69	CY	BRIDGE
1	CY	ROUNDING
70	CY	TOTAL

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009qty.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
QUANTITY SHEET 1

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 6 OF 53

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES

1011 - ROADWAY	1031 - TRAINING	1051 - EROSION CONTROL	1211 - BRIDGE NO. 1	1999 - FULL C.E. ITEMS
210				
				1
				1
				1
				3000
7				
1				
1				
5				
250				
235				
15				
125				
725				
725				
50				
250				
48				
		50		
		5		
		0.1		
		5		
		1		
		50		
		1		
		0.1		
		80		
		65		
153.03				
1626				
35				
6				
40				
1				
			20	
			4	
			150	
			1950	

TOTALS

GRAND TOTAL	FINAL
210	
1	
1	
1	
3000	
7	
1	
1	
5	
250	
235	
15	
125	
725	
725	
50	
250	
48	
50	
5	
0.1	
5	
1	
50	
1	
0.1	
80	
65	
153.03	
1626	
35	
6	
40	
1	
20	
4	
150	
1950	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
HR	FLAGGERS	630.15	-
LS	FIELD OFFICE, ENGINEERS	631.10	-
LS	TESTING EQUIPMENT, CONCRETE	631.16	-
LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-
DL	FIELD OFFICE COMMUNICATIONS (N.A.B.I.)	631.26	-
EACH	CPM SCHEDULE	633.10	-
LS	MOBILIZATION/DEMOBILIZATION	635.11	-
LS	TRAFFIC CONTROL, ALL-INCLUSIVE	641.11	-
EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15	9
LF	DURABLE 4 INCH WHITE LINE, EPOXY PAINT	646.403	9
LF	DURABLE 4 INCH YELLOW LINE, EPOXY PAINT	646.413	2
LF	DURABLE 24 INCH STOP BAR, EPOXY PAINT	646.483	5
LF	DURABLE CROSSWALK MARKING, EPOXY PAINT	646.503	20
LF	TEMPORARY 4 INCH WHITE LINE, PAINT	646.602	19
LF	TEMPORARY 4 INCH YELLOW LINE, PAINT	646.612	2
LF	TEMPORARY 24 INCH STOP BAR, PAINT	646.682	10
LF	TEMPORARY CROSSWALK MARKING, PAINT	646.702	1
EACH	LINE STRIPING TARGETS	646.76	49
LB	SEED	651.15	1
LB	FERTILIZER	651.18	-
TON	AGRICULTURAL LIMESTONE	651.20	1
CY	TOPSOIL	651.35	EST
LS	EPSC PLAN	653.01	2
HR	MONITORING EPSC PLAN	653.02	-
LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	653.03	-
TON	HAY MULCH	653.10	1
LF	SILT FENCE, TYPE II	653.476	4
LF	PROJECT DEMARCATION FENCE	653.55	1
SF	TRAFFIC SIGN, TYPE A	675.20	-
LB	TUBULAR STEEL SIGN POST	675.33	-
LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	-
EACH	FOUNDATION FOR TUBULAR STEEL POST	675.43	-
EACH	REMOVING SIGNS	675.50	-
EACH	RESETTING SIGNS	675.60	1
CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)	900.608	-
EACH	SPECIAL PROVISION	900.620	7
LF	SPECIAL PROVISION (RAPID SETTING GROUT)	900.640	7
SF	SPECIAL PROVISION (CONCRETE BRIDGE DECK SURFACE PREPARATION)	900.670	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009qty.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
QUANTITY SHEET 2

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 7 OF 53

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET

SUMMARY OF BRIDGE QUANTITIES			TOTALS	DESCRIPTIONS	
ABUTMENT #1	ABUTMENT #2	SUPER-STRUCTURE	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER
63	57		120	CY	STRUCTURE EXCAVATION	204.25
36.5	33.5		70	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30
		10	10	CY	HIGH PERFORMANCE CONCRETE, CLASS PCD	501.37
22	18		40	CY	HIGH PERFORMANCE CONCRETE, CLASS PCS	501.38
		2100	2100	LB	STRUCTURAL STEEL	506.60
		4500	4500	LB	REINFORCING STEEL, LEVEL III	507.13
125	95		220	LF	DRILLING AND GROUTING DOWELS	507.16
		560	560	EACH	MECHANICAL BAR CONNECTOR	507.19
12	11		23	GAL	WATER REPELLENT, SILANE	514.10
12	33		45	LF	JOINT SEALER, POLYURETHANE	524.21
		100	100	LF	REMOVAL OF EXISTING BRIDGE RAILING	525.10
		110	110	LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION	525.45
		1	1	EACH	PARTIAL REMOVAL OF STRUCTURE	529.20
13	12		25	CY	REMOVAL OF CONCRETE OR MASONRY	529.25
		33	33	EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17
		20	20	CY	CONCRETE, CLASS B	541.25
		340	340	LF	PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE	544.10
2	18		20	SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13
1	4		5	SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14
1	1		2	CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	580.15
		20	20	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)	900.608
		4	4	EACH	SPECIAL PROVISION (BOX BEAM GUARDRAIL, TERMINAL SECTION)	900.620
75	75		150	LF	SPECIAL PROVISION (RAPID SETTING GROUT)	900.640
		1950	1950	SF	SPECIAL PROVISION (CONCRETE BRIDGE DECK SURFACE PREPARATION)	900.670

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009qty.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
BRIDGE QUANTITY SHEET

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 8 OF 53

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 — PDF — PROJECT DEMARCATION FENCE
- BF — 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 — 6F PROPERTY BOUNDARY
- 4f — 4f — 4F PROPERTY BOUNDARY
- HAZ — 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

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009legend.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: D. VERTIYEV
CONVENTIONAL SYMBOLOGY LEGEND SHEET

PLOT DATE: 7/14/2021
DRAWN BY: J. LABRECQUE
CHECKED BY: E. ATKINS
SHEET 9 OF 53

PRIMARY CONTROL

HVCTRL #1
BRIGADE AZ MK
NORTH = 326083.6000
EAST = 1591965.7300
ELEV. = 971.8700

THE STATION IS LOCATED ABOUT 6.4 MI (10.3 KM) WEST-NORTHWEST OF BALTIMORE, 3.8 MI (6.1 KM) WEST-NORTHWEST OF CAVENDISH AND 1.0 MI (1.6KM) EAST OF LUDLOW. TO REACH FROM THE INTERSECTION OF VT ROUTE 100 SOUTH (ANDOVER STREET) AND VT ROUTE 103 EAST (MAIN STREET), GO EAST ALONG MAIN STREET FOR 1.0 MI (1.6 KM) TO THE SITE OF THE MARK ON THE RIGHT, OPPOSITE THE LAWN ON THE NORTHWEST SIDE OF SAM'S STEAKHOUSE.
THE MARK IS SET 3 CM (1 INCH) BELOW GROUND SURFACE IN THE TOP OF A 30 CM (12 INCHES) DIAMETER CONCRETE MONUMENT ON THE NORTH EDGE OF A SMALL FIELD BETWEEN THE TIMBER INN MOTEL AND THE BROOKHAVEN RESORT CONDOMINIUMS.
IT IS 7.1 M (23.3 FT) SOUTHWEST OF AND ABOUT 0.3 M (1.0 FT) LOWER THAN THE CENTERLINE OF MAIN STREET, 21.5 M (70.5 FT) SOUTHEAST OF POLE NO 7/24/1 WITH GUY, 14.9 M (48.9 FT) NORTHWEST OF POLE NO 7/25/2, 14.1 M (46.3 FT) EAST OF A 4 CM (2 INCHES) DIAMETER IRON PIPE WHICH PROJECTS 0.5 M (1.6 FT) ABOVE GROUND SURFACE AND 0.3 M (1.0 FT) NORTHEAST OF A FIBERGLASS WITNESS POST.

HVCTRL #2
BRIGADE
NORTH = 326830.1000
EAST = 1590300.1300
ELEV. = 990.0200

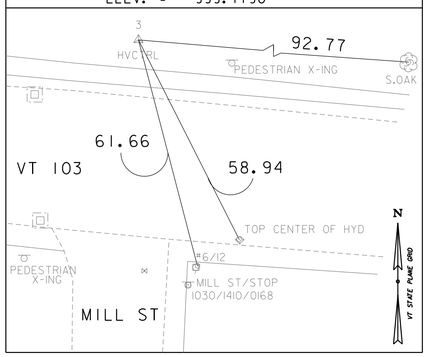
BRIGADE
GENERAL LOCATION, LUDLOW, VT.
TO REACH FROM THE INTERSECTION OF VT ROUTE 100 SOUTH (ANDOVER STREET) AND VT ROUTE 103 EAST (MAIN STREET), GO EAST ALONG MAIN STREET FOR 0.7 MI (1.13 KM) TO THE SITE OF THE MARK ON THE LEFT.

THE MARK IS A CHISELED CROSS CUT IN THE TOP OF THE WEST SIDE OF THE RIM FOR A 60 CM (24 INCH) DIAMETER MANHOLE, IN THE CONCRETE SIDEWALK SOUTHWEST OF BLACK RIVER HIGH SCHOOL.

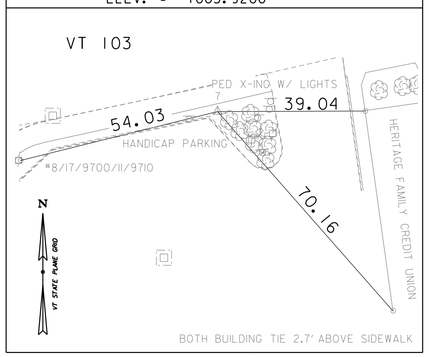
IT IS 5.7 M (18.7 FT) NORTHEAST OF AND ABOUT 0.2 M (0.7 FT) HIGHER THAN THE CENTERLINE OF MAIN STREET, 0.7 M (2.3 FT) NORTHEAST OF THE SOUTHWEST EDGE OF THE SIDEWALK CURB, 9.1 M (29.9 FT) SOUTHEAST OF POLE NO 9S/2300/185 WITH GUY, 15.9 M (52.2 FT) SOUTH OF THE SOUTHEAST CORNER OF A BRICK PLANTER WITH MARBLE BLACK RIVER HIGH SCHOOL SIGN, 36.8 M (120.7 FT) WEST NORTHWEST OF THE CENTERLINE OF THE SCHOOL EXIT DRIVE, 49.6 M (162.7 FT) EAST OF THE CENTERLINE OF THE SCHOOL ENTRANCE DRIVE, AND 30.4 M (99.7 FT) WEST OF A 60 CM (24 INCH) MAPLE.

SECONDARY CONTROL

HVCTRL #3
NORTH = 326933.0112
EAST = 1589441.7205
ELEV. = 999.1790



HVCTRL #7
NORTH = 326567.2949
EAST = 1586697.7269
ELEV. = 1005.9200



HVCTRL #8
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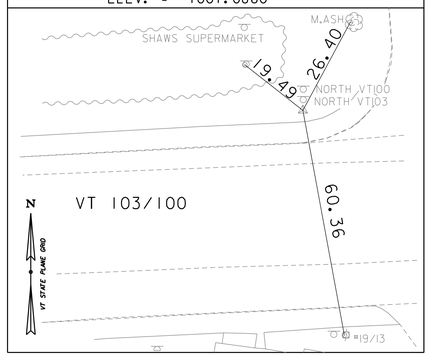
EAST = 1586374.6379
ELEV. = 1007.0860



HVCTRL #9
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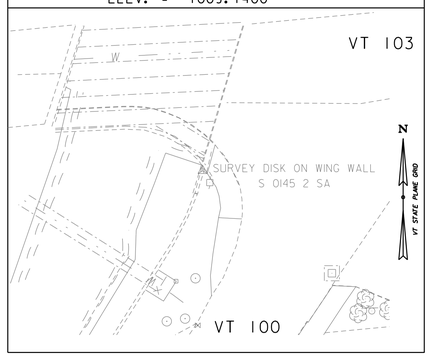
EAST = 1586571.0100
ELEV. = 1009.1400



BM #1311
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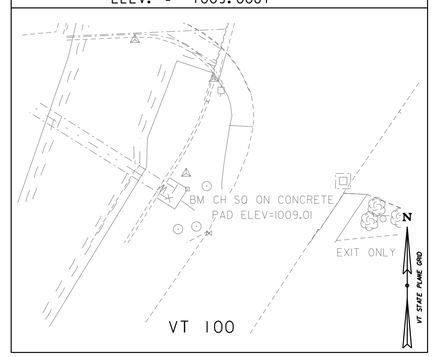
ELEV. = 1009.0087



SECONDARY CONTROL

NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83(96)
ADJUSTMENT COMPASS

*TRAVERSE COMPLETED ON 9/12/2018 BY R.GILMAN B.HERRING H.MCGOWAN

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

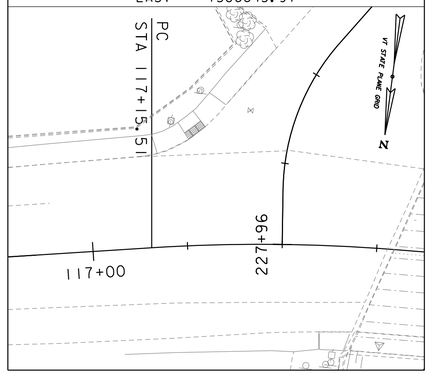
PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009t1.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: D. VERTIYEV
TIE SHEET 1

PLOT DATE: 7/14/2021
DRAWN BY: J. LABRECQUE
CHECKED BY: E. ATKINS
SHEET 10 OF 53

ALIGNMENT TIES

PC STA. 117+15.51
NORTH = 326588.25
EAST = 1586645.91



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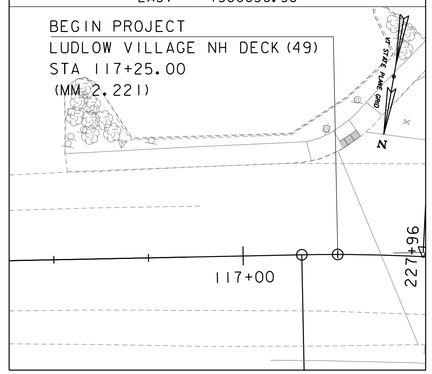
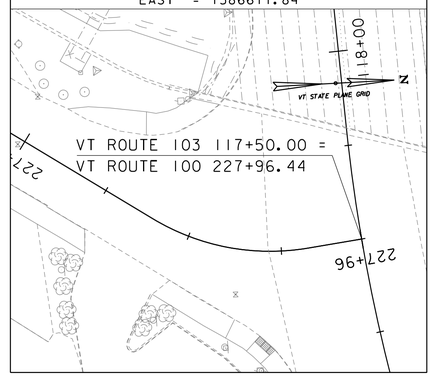
EAST = 1586636.58



STA. 117+50.00
NORTH = 326582.97
EAST = 1586611.84



POC STA. 117+77.86
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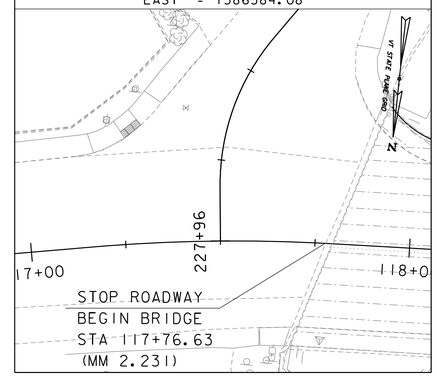
EAST = 1586584.08



PT STA. 117+79.52
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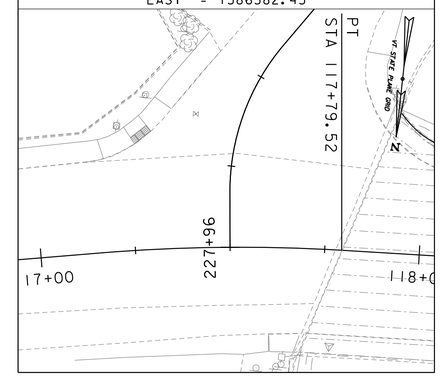
EAST = 1586582.43



ALIGNMENT TIES

POT STA. 118+24.86
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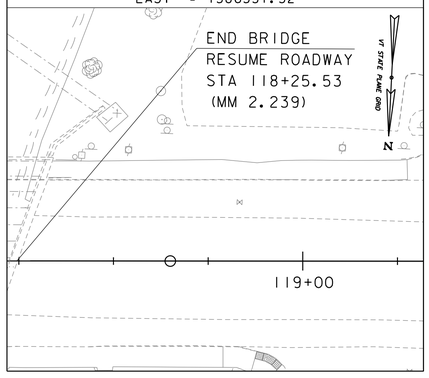
EAST = 1586537.32



POT STA. 118+65.00
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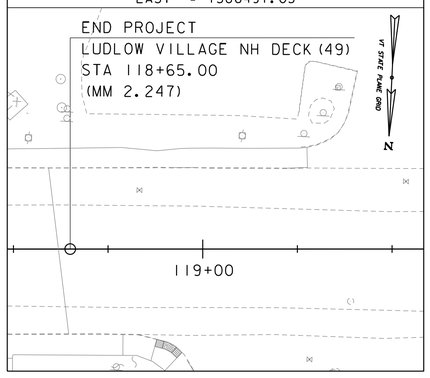
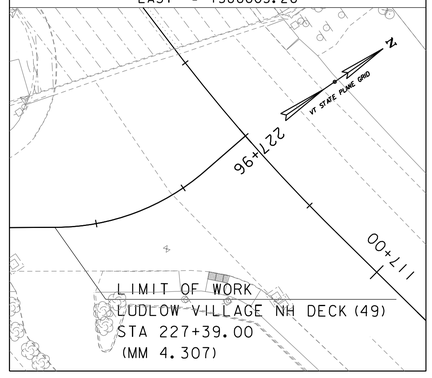


POT STA. 227+39.00
NORTH = 326527.79
EAST = 1586603.26



PC STA. 227+39.47
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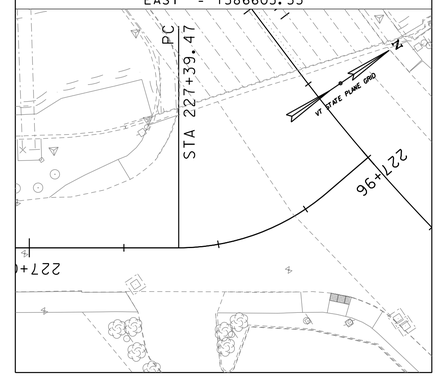
EAST = 1586603.53



PT STA. 227+81.99
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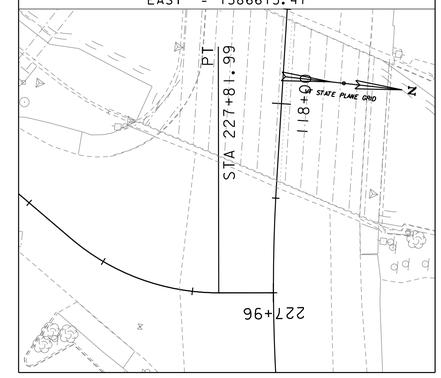
EAST = 1586613.47



ALIGNMENT TIES

CHAN. STA. 51+00.06
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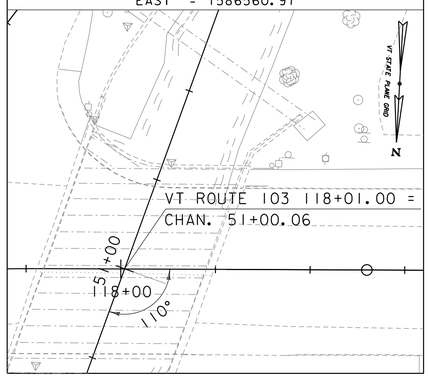
EAST = 1586560.97



DATUM

VERTICAL NAVD 88

HORIZONTAL NAD83 (2011)

ADJUSTMENT COMPASS

0 20 40
SCALE IN FEET

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009t1.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: D. VERTIYEV
TIE SHEET 2

PLOT DATE: 7/14/2021
DRAWN BY: J. LABRECQUE
CHECKED BY: E. ATKINS
SHEET 11 OF 53

VT STATE PLANE GRID

N

LIMIT OF WORK
LUDLOW VILLAGE NH DECK (49)
STA 227+39.00

BEGIN PROJECT
LUDLOW VILLAGE NH DECK (49)
STA 117+25.00

VT ROUTE 103 117+50.00 =
VT ROUTE 100 227+96.44

BEGIN BRIDGE
STA 117+76.63

END BRIDGE
STA 118+25.53

END PROJECT
LUDLOW VILLAGE NH DECK (49)
STA 118+65.00

VT ROUTE 103 118+01.00 =
JEWELL BROOK 51+00.06

VT ROUTE 100 CURVE (2)
DELTA = 40°36'41"
D = 95°29'35"
R = 60.00'
T = 22.20'
L = 42.53'
E = 3.98'

VT ROUTE 103 CURVE (1)
DELTA = 8°08'59"
D = 12°43'57"
R = 450.00'
T = 32.06'
L = 64.01'
E = 1.14'

EXISTING BRIDGE INFORMATION
BUILT 1931, RECONSTRUCTED 1965
SINGLE SPAN, 47' LONG
ROLLED BEAM, W/ CONCRETE DECK

0 20 40
SCALE IN FEET

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME:	LUDLOW VILLAGE
PROJECT NUMBER:	NH DECK(49)
FILE NAME: z18j009alignbdr.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: J. LABRECQUE
DESIGNED BY: D. VERTIYEV	CHECKED BY: E. ATKINS
ALIGNMENT SHEET 1	SHEET 12 OF 53

COARSE-MILLING, BITUMINOUS PAVEMENT
117+25.0 - 117+66.0
118+37.0 - 118+65.0
227+39.0 - 227+75.0

CONCRETE, CLASS B
117+67.0 RT - 118+17.0 RT
117+90.0 LT - 118+34.0 LT

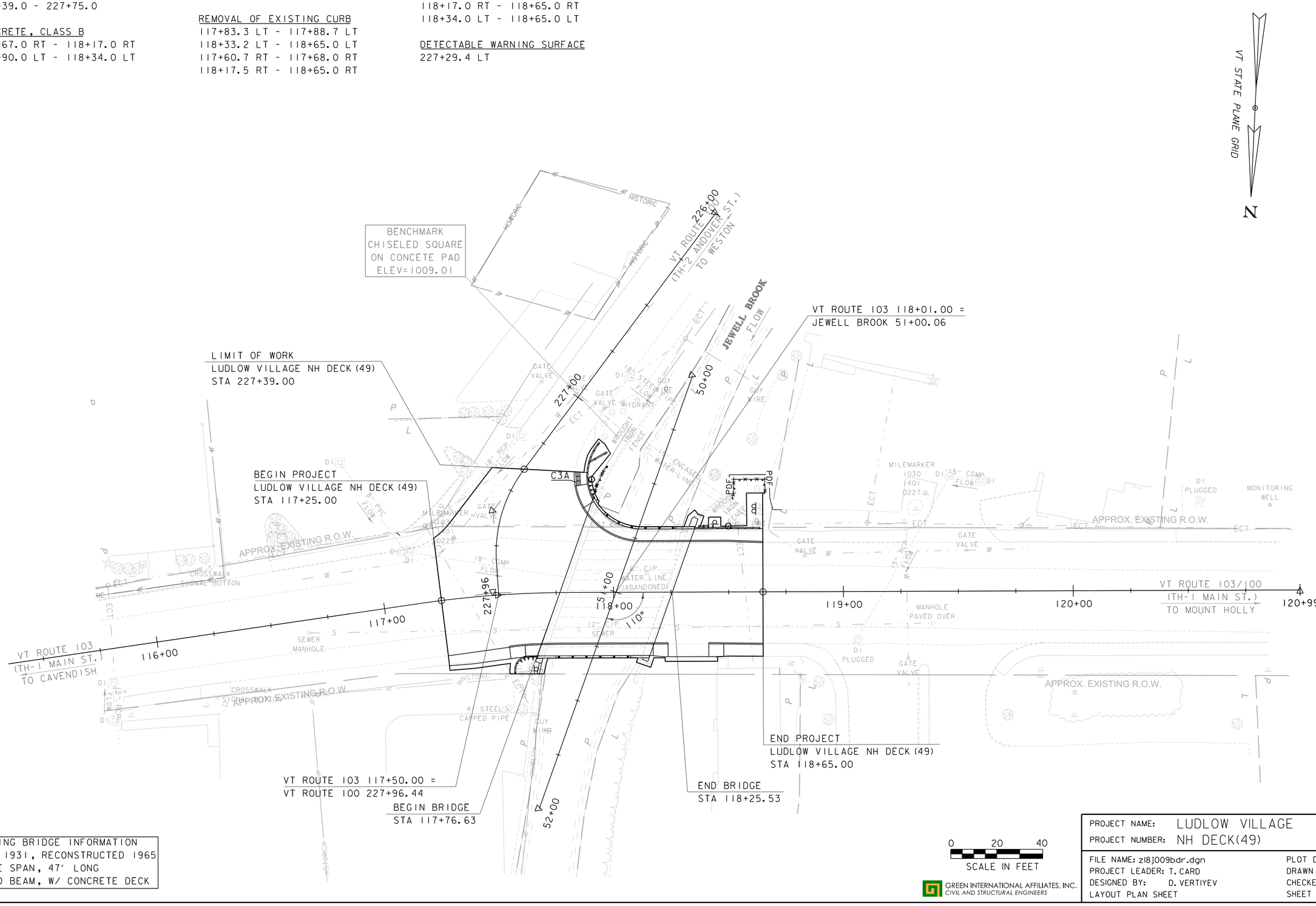
VERTICAL GRANITE CURB
117+83.1 LT - 118+65.0 LT
117+53.3 RT - 118+23.6 RT
118+41.4 RT - 118+65.0 RT

REMOVAL OF EXISTING CURB
117+83.3 LT - 117+88.7 LT
118+33.2 LT - 118+65.0 LT
117+60.7 RT - 117+68.0 RT
118+17.5 RT - 118+65.0 RT

PORTLAND CEMENT CONCRETE SIDEWALK, 8 INCH
117+25.0 RT - 117+67.0 RT
227+39.0 LT - 117+90.0 LT
118+17.0 RT - 118+65.0 RT
118+34.0 LT - 118+65.0 LT

DETECTABLE WARNING SURFACE
227+29.4 LT

ADJUST ELEVATION OF VALVE BOX
227+64.4 RT



EXISTING BRIDGE INFORMATION
BUILT 1931, RECONSTRUCTED 1965
SINGLE SPAN, 47' LONG
ROLLED BEAM, W/ CONCRETE DECK

0 20 40
SCALE IN FEET

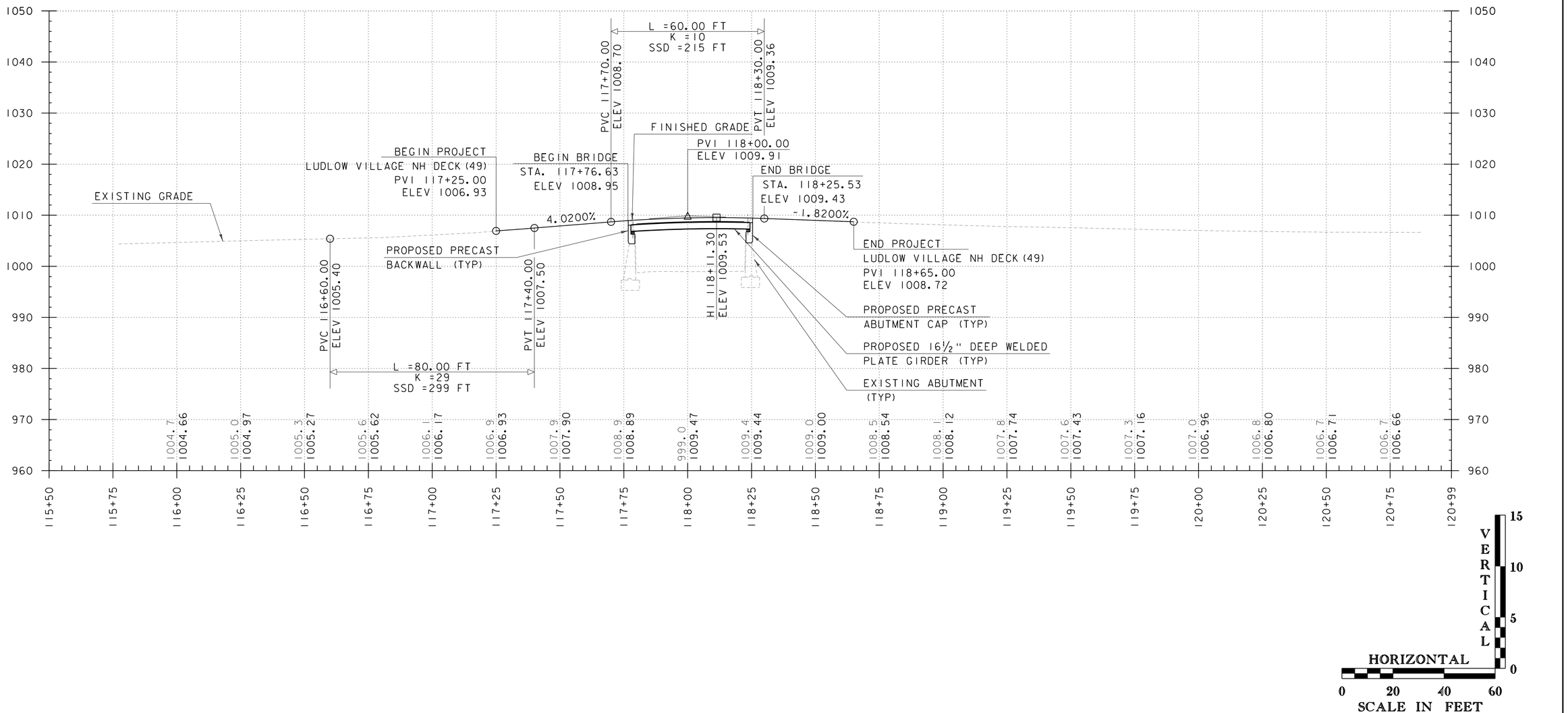
GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009bdr.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: D. VERTIYEV
LAYOUT PLAN SHEET

PLOT DATE: 8/4/2021
DRAWN BY: J. LABRECQUE
CHECKED BY: E. ATKINS
SHEET 13 OF 53

VT ROUTE 103 PROFILE



THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND APPROXIMATE ELEVATIONS ALONG THE PROPOSED ALIGNMENT. THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE PROPOSED PROFILE GRADES FOR THE NEW ALIGNMENT.

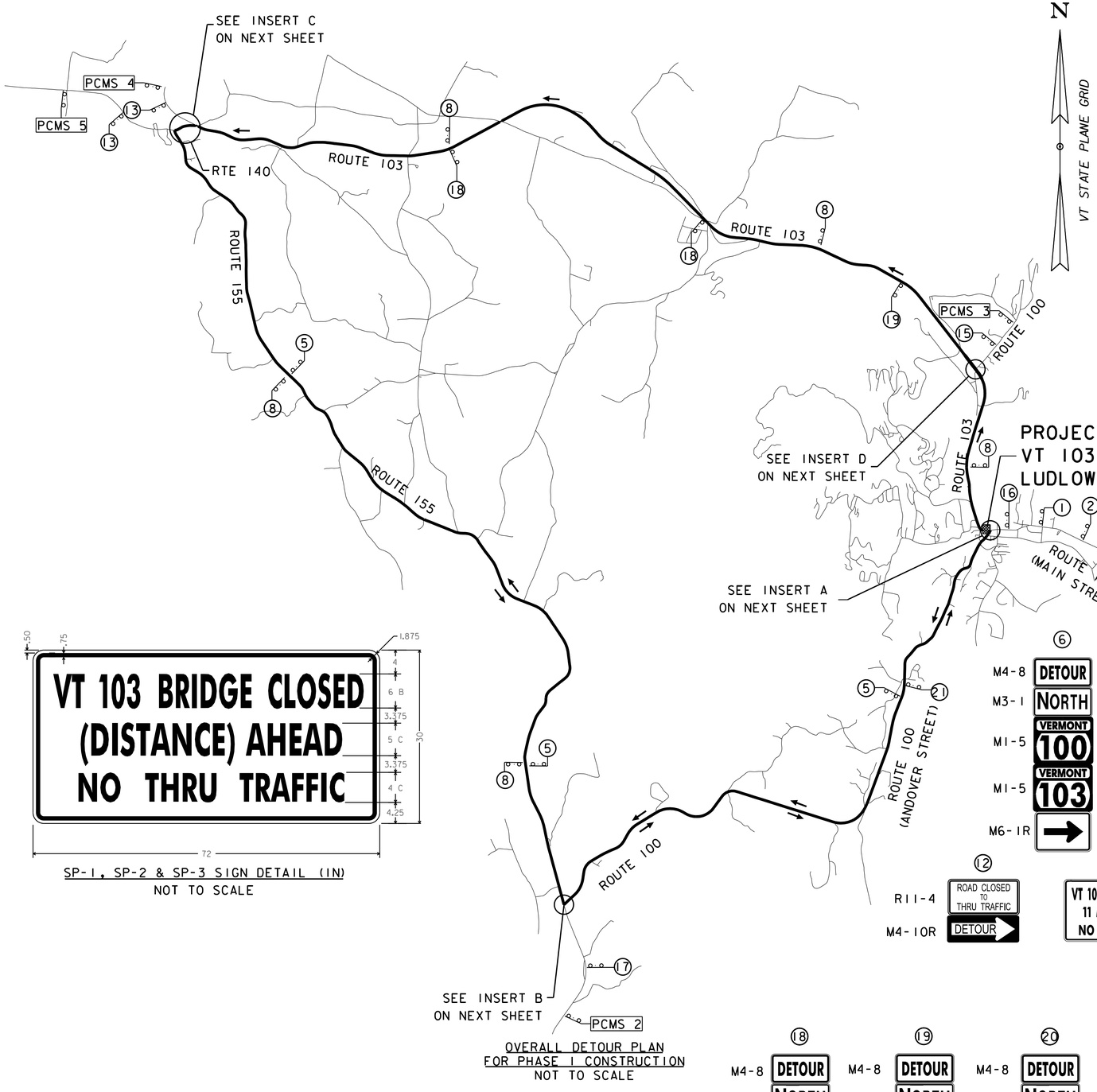
NOTE:
1. ALL STATIONS AND ELEVATIONS ARE SHOWN IN FEET.

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009profile.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
PROFILE SHEET 1

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 14 OF 53



OVERALL DETOUR PLAN
FOR PHASE I CONSTRUCTION
NOT TO SCALE

N

VT STATE PLANE GRID

NOTES:
1. THE PORTABLE MESSAGE SIGNS SHALL BE FULLY OPERATIONAL FOR A MINIMUM OF TWO WEEKS PRIOR TO THE CLOSURE OF VT ROUTE 103 (MAIN STREET).
2. DETOUR SIGNS SHALL BE PLACED ADJACENT TO THE EXISTING ROUTE MARKER ASSEMBLIES, WHERE APPLICABLE.
3. ALL CONFLICTING SIGNAGE SHALL BE COVERED FOR THE DURATION OF THE VT ROUTE 103 (MAIN STREET) CLOSURE, OR AS DIRECTED BY THE ENGINEER.
4. CONFIRMATION ROUTE MARKERS (SIGN ASSEMBLIES 6 AND 9) SHALL BE INSTALLED IMMEDIATELY FOLLOWING EACH TURN AND AT ALL LOCATIONS ALONG THE DETOUR ROUTE WHERE ROUTE MARKERS EXIST FOR THE PARENT ROUTE.
5. LOCATIONS OF SIGNS AND PCMS ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS WITH THE DIRECTION AND APPROVAL OF THE ENGINEER. INSTALL PCMS IN THE MOST VISIBLE LOCATION POSSIBLE SO THAT APPROACHING DRIVERS CAN READ THE MESSAGE A MINIMUM OF TWO TIMES BEFORE PASSING IT.
6. CONTRACTOR SHALL COORDINATE ALL WORK AND THE IMPLEMENTATION OF THE DETOUR WITH THE ENGINEER AND ALL OTHER CONSTRUCTION PROJECTS ALONG THE DETOUR ROUTE.
7. PEDESTRIAN ACCESS ALONG MAIN STREET SHALL BE MAINTAINED AT ALL TIMES. CONTRACTOR SHALL DETERMINE THE MOST APPROPRIATE WAY TO MAINTAIN AN ADA ACCESSIBLE ROUTE DURING ALL STAGES OF CONSTRUCTION. CONTRACTOR SHALL INCLUDE THEIR PEDESTRIAN ACCESS PLAN AS PART OF THE DETOUR SUBMITTAL FOR REVIEW AND APPROVAL.
8. ACCESS TO ALL RESIDENCES AND BUSINESSES ON MAIN STREET SHALL BE MAINTAINED AT ALL TIMES EXCLUDING 211 MAIN STREET.
9. AFTER VT ROUTE 103 (MAIN STREET) IS RE-OPENED TO TRAFFIC, ALL TRAFFIC SIGNAL CONTROLLER TIMING SETTINGS SHALL BE RESTORED TO THE EXISTING PRE-CONSTRUCTION SETTINGS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTION OF SIGNS ON ACCEPTABLE POSTS OR BREAKWAY MOUNTING DEVICES. ALL BREAKAWAY AND MOUNTING DEVICES SHALL BE COMPLIANT WITH THE LATEST EDITION OF MUTCD.
11. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PROVIDED FOR USE ALONG THIS PROJECT. THE PLACEMENT OF THESE UNITS AS WELL AS THE MESSAGE WILL BE APPROVED BY THE ENGINEER. THESE SIGNS WILL BE PAID FOR UNDER ITEM 641.15, PORTABLE CHANGEABLE MESSAGE SIGN.

SIGN ASSEMBLIES

① DETOUR AHEAD — W20-2
② VT 103 BRIDGE CLOSED / 0.5 MILES AHEAD / NO THRU TRAFFIC — SP-1
③ ROAD CLOSED 500 FT — W20-3
④ R11-2 ROAD CLOSED
⑤ DETOUR M4-8 / NORTH M3-1 / VERMONT 100 M1-5 / VERMONT 103 M1-5 / M6-3
⑥ DETOUR M4-8 / NORTH M3-1 / VERMONT 100 M1-5 / VERMONT 103 M1-5 / M6-1R
⑦ DETOUR M4-8 / SOUTH M3-3 / VERMONT 103 M1-5 / M6-1R
⑧ DETOUR M4-8 / SOUTH M3-3 / VERMONT 100 M1-5 / VERMONT 103 M1-5 / M6-3
⑨ DETOUR M4-8 / SOUTH M3-3 / VERMONT 100 M1-5 / VERMONT 103 M1-5 / M6-1L
⑩ END DETOUR M4-8a / NORTH M3-1 / VERMONT 103 M1-5 / DETOUR M4-8 / NORTH M3-1 / VERMONT 100 M1-5 / M6-1R
⑪ END DETOUR M4-8a / SOUTH M3-3 / VERMONT 103 M1-5
⑫ R11-4 ROAD CLOSED TO THRU TRAFFIC / M4-10R DETOUR
⑬ VT 103 BRIDGE CLOSED / 11 MILES AHEAD / NO THRU TRAFFIC — SP-2
⑭ NORTH M3-1 VERMONT 103 M1-5 M6-1L / SOUTH M3-3 VERMONT 103 M1-5 M6-1R
⑮ VT 103 BRIDGE CLOSED / 2 MILES AHEAD / NO THRU TRAFFIC — SP-3
⑯ DETOUR M4-8 / NORTH M3-1 / VERMONT 103 M1-5 / VERMONT 100 M1-5 / M5-1L
⑰ VT 103 BRIDGE CLOSED / 2 MILES AHEAD / NO THRU TRAFFIC — SP-4
⑱ DETOUR M4-8 / NORTH M3-1 / VERMONT 100 M1-5 / M6-3
⑲ DETOUR M4-8 / NORTH M3-1 / VERMONT 100 M1-5 / M5-1L
⑳ DETOUR M4-8 / NORTH M3-1 / VERMONT 100 M1-5 / M6-1L
㉑ DETOUR M4-8 / SOUTH M3-3 / VERMONT 103 M1-5 / M6-3
㉒ DETOUR M4-8 / SOUTH M3-3 / VERMONT 103 M1-5 / M6-1L / END DETOUR M4-8a / SOUTH M3-3 / VERMONT 100 M1-5
㉓ R11-2 ROAD CLOSED / M4-10L DETOUR
㉔ END DETOUR M4-8a / NORTH M3-1 / VERMONT 100 M1-5

SP-1, SP-2 & SP-3 SIGN DETAIL (IN)
NOT TO SCALE

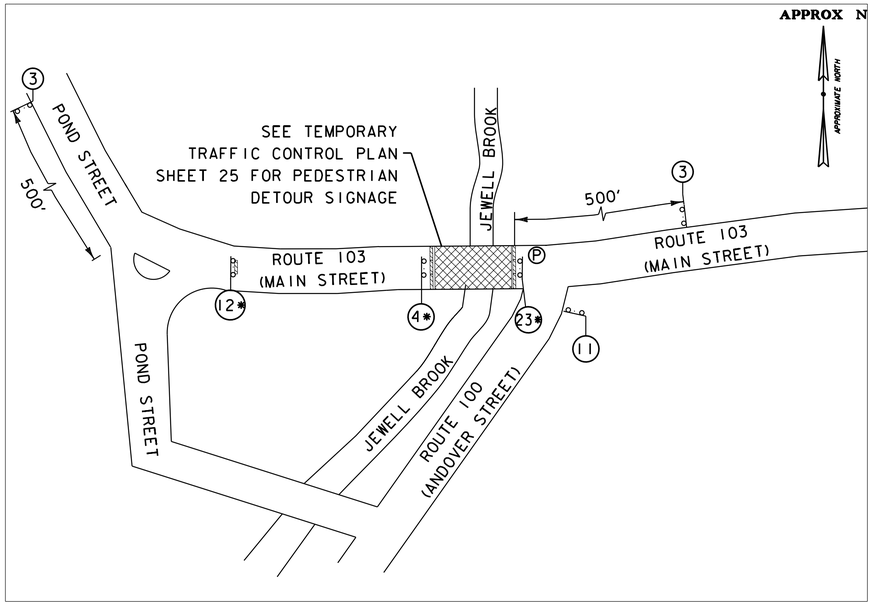
LEGEND
- WORK ZONE
- SIGN
- TYPE III BARRICADE
- (#) CONSTRUCTION SIGN ASSEMBLY I.D.
- DETOUR ROUTE
- FLOW OF TRAFFIC
- PCMS # PORTABLE CHANGEABLE MESSAGE SIGN I.D.
- (P) POLICE DETAIL

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

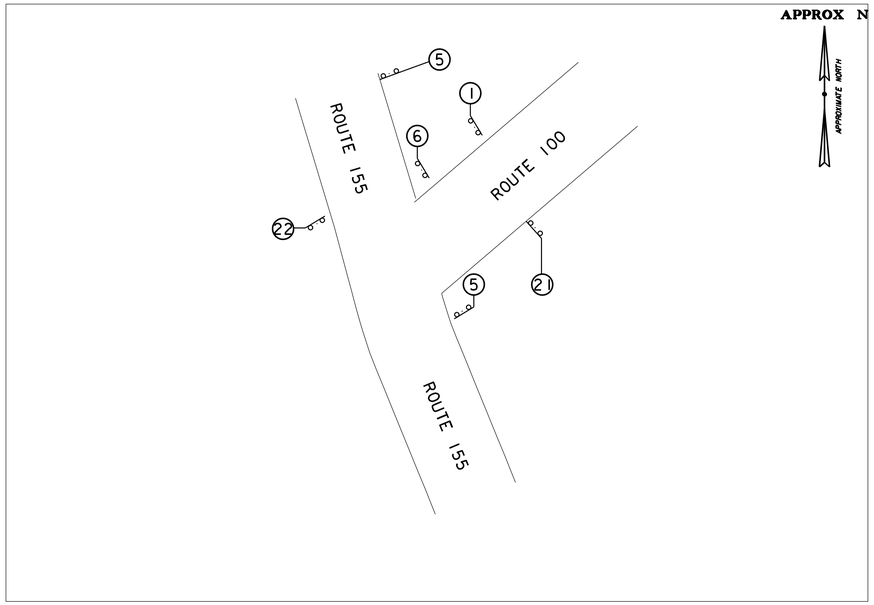
PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009dtrbdr.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
DETOUR PLAN SHEET 1

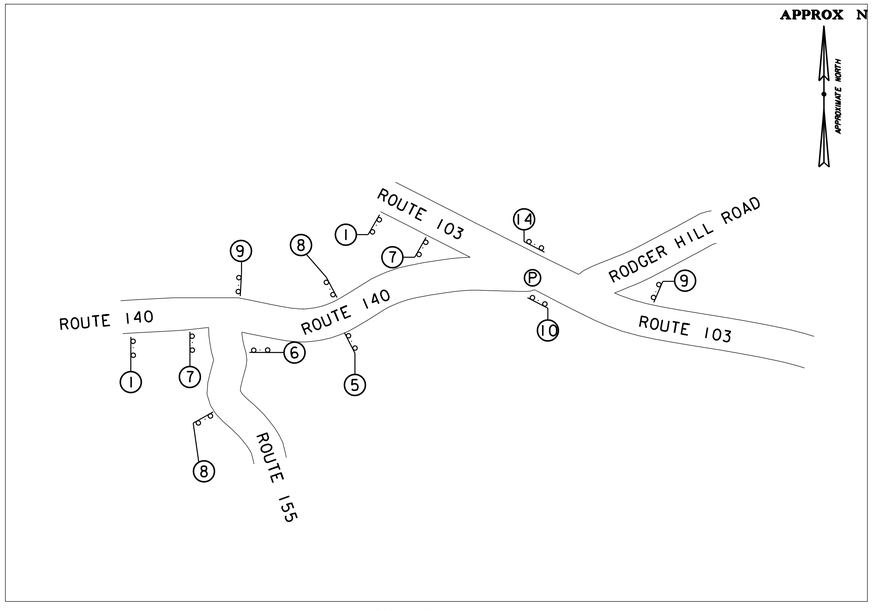
PLOT DATE: 7/14/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 15 OF 53



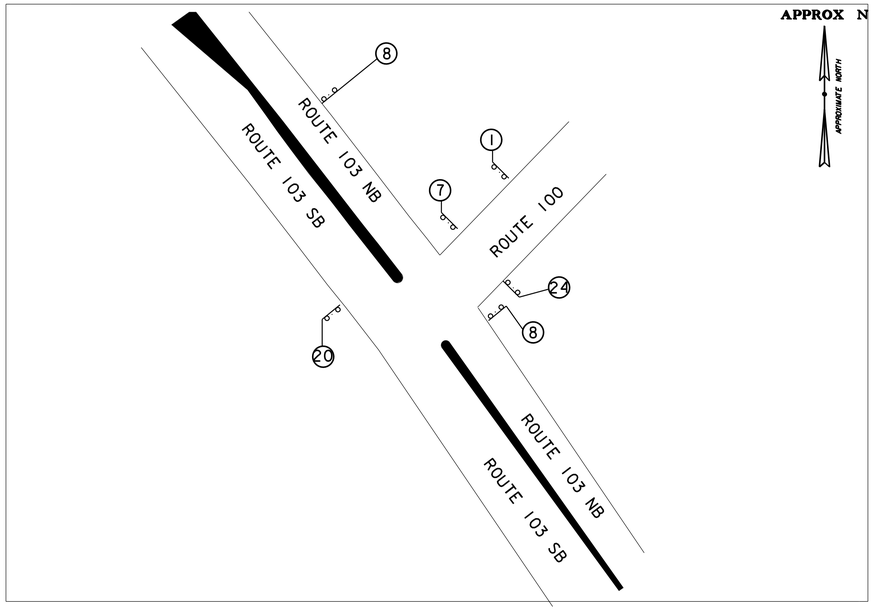
INSERT A
ROUTE 100 (ANDOVER STREET) AT
ROUTE 103 (MAIN STREET) INTERSECTION
NOT TO SCALE



INSERT B
ROUTE 103 (MAIN STREET) AT
ROUTE 155 INTERSECTION
NOT TO SCALE



INSERT C
ROUTE 155 / ROUTE 140 / ROUTE 103
INTERSECTION
NOT TO SCALE



INSERT D
ROUTE 100 AT ROUTE 103 INTERSECTION
NOT TO SCALE

LEGEND
- WORK ZONE
- SIGN
- TYPE III BARRICADE
- CONSTRUCTION SIGN ASSEMBLY I.D.
- DETOUR ROUTE
- FLOW OF TRAFFIC
- PCMS # PORTABLE CHANGEABLE MESSAGE SIGN I.D.
- (P) POLICE DETAIL

DETOUR PLAN DETAILS
FOR PHASE I CONSTRUCTION
NOT TO SCALE

NOTES:
1. SEE SHEET 21 FOR SIGN ASSEMBLY DETAILS
2. * MOUNTED ON TYPE III BARRICADE

PCMS DISPLAYS

PCMS 1

PCMS DISPLAY ADVANCED NOTIFICATION

VT103 BRIDGE CLOSING	MMM DD TO MMM DD

PCMS DISPLAY DURING CONTRUCTION

VT103 BRIDGE CLOSED	FOLLOW DETOUR

PCMS DISPLAY POST CONSTRUCTION

VT103 OPEN	TO ALL TRAFFIC

PCMS 2

PCMS DISPLAY ADVANCED NOTIFICATION

VT103 NB CLOSING AHEAD	MMM DD TO MMM DD

PCMS DISPLAY DURING CONTRUCTION

VT103 NB CLOSED AHEAD	FOLLOW DETOUR

PCMS DISPLAY POST CONSTRUCTION

VT103 NB OPEN	TO ALL TRAFFIC

PCMS 3-5

PCMS DISPLAY ADVANCED NOTIFICATION

VT103 SB CLOSING AHEAD	MMM DD TO MMM DD

PCMS DISPLAY DURING CONTRUCTION

VT103 SB CLOSED AHEAD	FOLLOW DETOUR

PCMS DISPLAY POST CONSTRUCTION

VT103 SB OPEN	TO ALL TRAFFIC

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009dtrbdr.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
DETOUR PLAN SHEET 2

PLOT DATE: 7/14/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 16 OF 53

(25) ROAD WORK AHEAD — W20-1, 48" X 48"

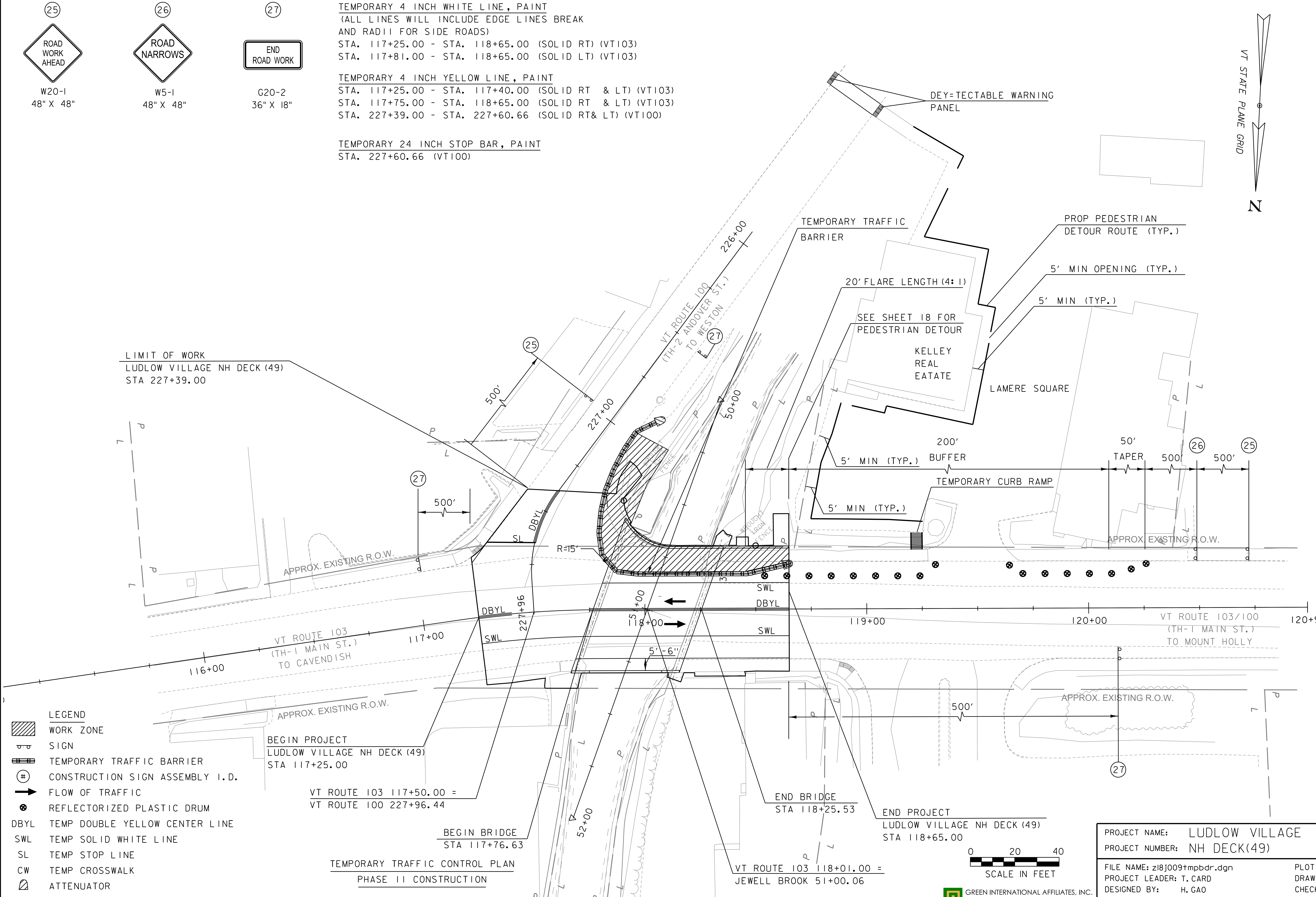
(26) ROAD NARROWS — W5-1, 48" X 48"

(27) END ROAD WORK — G20-2, 36" X 18"

TEMPORARY 4 INCH WHITE LINE, PAINT
(ALL LINES WILL INCLUDE EDGE LINES BREAK
AND RADII FOR SIDE ROADS)
STA. 117+25.00 - STA. 118+65.00 (SOLID RT) (VT103)
STA. 117+81.00 - STA. 118+65.00 (SOLID LT) (VT103)

TEMPORARY 4 INCH YELLOW LINE, PAINT
STA. 117+25.00 - STA. 117+40.00 (SOLID RT & LT) (VT103)
STA. 117+75.00 - STA. 118+65.00 (SOLID RT & LT) (VT103)
STA. 227+39.00 - STA. 227+60.66 (SOLID RT& LT) (VT100)

TEMPORARY 24 INCH STOP BAR, PAINT
STA. 227+60.66 (VT100)



LEGEND

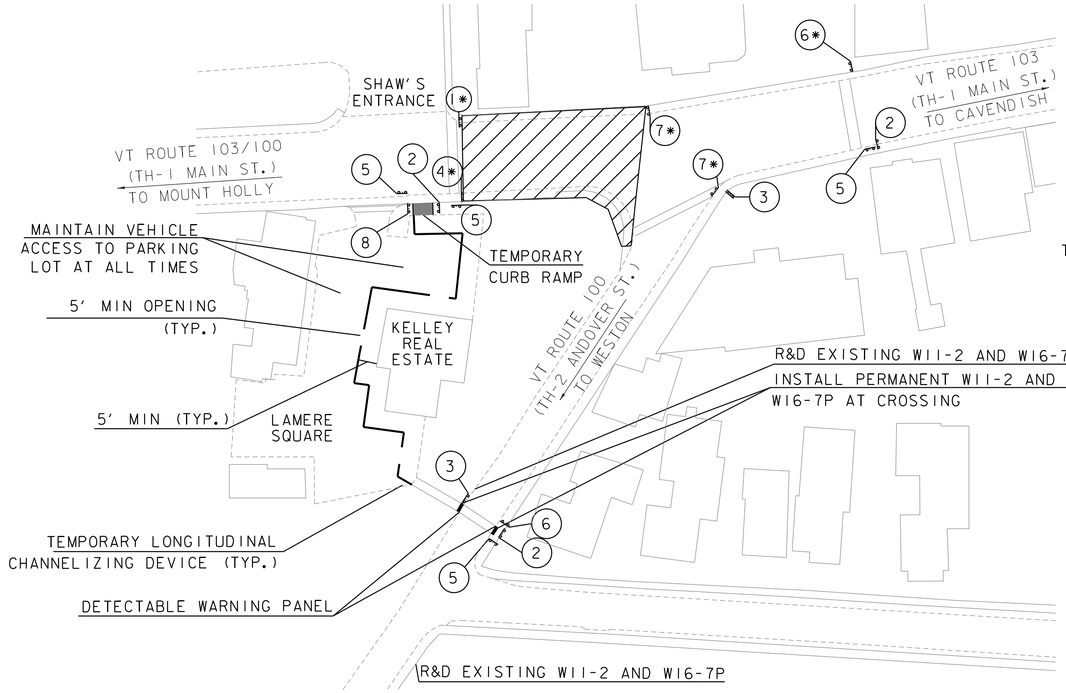
(hatch)	WORK ZONE
(symbol)	SIGN
(symbol)	TEMPORARY TRAFFIC BARRIER
(#)	CONSTRUCTION SIGN ASSEMBLY I.D.
→	FLOW OF TRAFFIC
⊗	REFLECTORIZED PLASTIC DRUM
DBYL	TEMP DOUBLE YELLOW CENTER LINE
SWL	TEMP SOLID WHITE LINE
SL	TEMP STOP LINE
CW	TEMP CROSSWALK
(symbol)	ATTENUATOR

TEMPORARY TRAFFIC CONTROL PLAN
PHASE II CONSTRUCTION

0 20 40
SCALE IN FEET

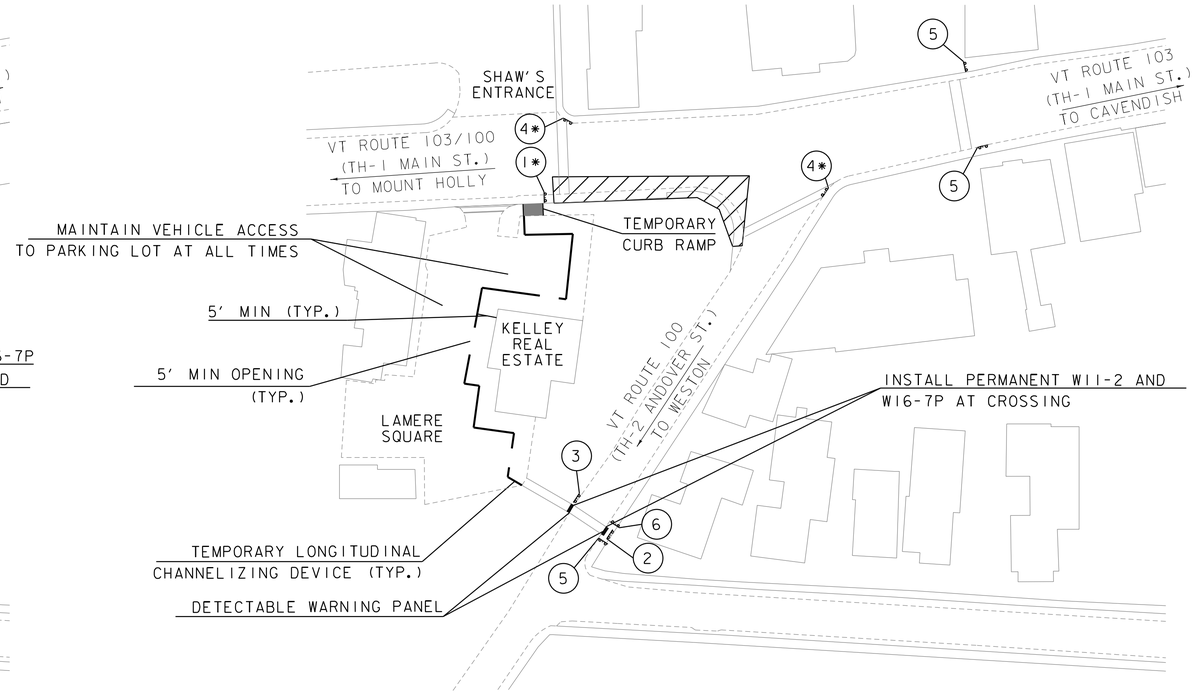
GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE	
PROJECT NUMBER: NH DECK(49)	
FILE NAME: z18j009tmpbdr.dgn	PLOT DATE: 8/18/2021
PROJECT LEADER: T. CARD	DRAWN BY: H. GAO
DESIGNED BY: H. GAO	CHECKED BY: W. WONG
TEMPORARY TRAFFIC CONTROL PLAN 1	SHEET 17 OF 53



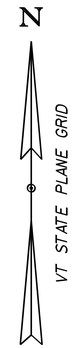
PEDESTRIAN DETOUR PLAN FOR PHASE I CONSTRUCTION

NOT TO SCALE

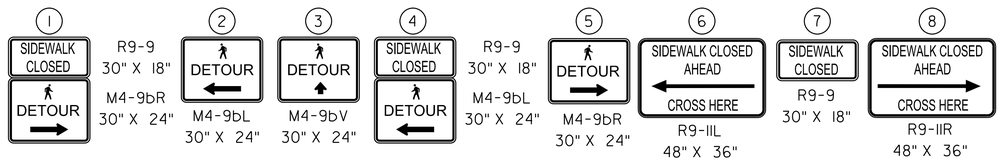


PEDESTRIAN DETOUR PLAN FOR PHASE II CONSTRUCTION

NOT TO SCALE



SIGN ASSEMBLIES



NOTES:

1. ALL PEDESTRIAN CHANNELIZING DEVICES (PCD) SHALL HAVE CONTINUOUS DETECTABLE TOP AND BOTTOM EDGE. THE USE OF CONES, BARRELS, OR OTHER INTERMITTENT DEVICES WITH TAPE IS NOT ACCEPTIBLE AS PCD.

2. TO PREVENT ANY TRIPPING HAZARD TO PEDESTRIANS, BALLAST SHALL BE LOCATED BEHIND OR INTERNAL TO THE DEVICE.

3. SEE SECTION 5.3 OF THE VERMONT BICYCLE AND PEDESTRIAN WORK ZONE TRAFFIC CONTROL GUIDE FOR PCD REQUIREMENTS. ADDITIONAL INFORMATION ON CHANNELIZING DEVICES CAN BE FOUND IN CHAPTER 6F OF THE MUTCD.

4. TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) SIGNS SHALL NOT BE PLACED IN THE PEDESTRIAN PATH AND SHALL NOT BLOCK CORNER SIGHT DISTANCE.

LEGEND

- WORK ZONE
- SIGN
- TEMPORARY TRAFFIC BARRIER
- (#) CONSTRUCTION SIGN ASSEMBLY I.D.
- FLOW OF TRAFFIC
- REFLECTORIZED PLASTIC DRUM
- DBYL TEMP DOUBLE YELLOW CENTER LINE
- EL TEMP EDGE LINE
- SWL SOLID WHITE LINE

NOTE

* MOUNTED ON TYPE III BARRICADE

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009tmpbdr.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TEMPORARY TRAFFIC CONTROL PLAN 2

PLOT DATE: 7/14/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 18 OF 53

TEMPORARY TRAFFIC CONTROL GENERAL NOTES

1. THE CONTRACTOR SHALL AGREE TO IMPLEMENT THE TEMPORARY TRAFFIC CONTROL PLAN AS SHOWN HEREIN OR SUBMIT AN ALTERNATIVE SITE-SPECIFIC TRAFFIC CONTROL PLAN DESIGNED BY AN ENGINEER LICENSED IN STATE OF VERMONT TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION. THE TRAFFIC CONTROL PLAN SHALL BE IN COMPLIANCE WITH VTRANS STANDARDS AND THE 2009 MUTCD. WHERE CONFLICTS EXIST, THE 2009 MUTCD SHALL GOVERN. CONSTRUCTION ZONE SIGNS SHALL BE INSTALLED AS SPECIFIED IN THE SPECIAL PROVISIONS.

2. THE CONSTRUCTION PHASING PLAN SHALL INDICATE THE AREAS OF WORK FOR EACH PHASE, A SUMMARY OF THE WORK, ANY TEMPORARY PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES REQUIRED FOR THAT PHASE. ANY CHANGES IN CONSTRUCTION APPROACH SIGNING REQUIRED FOR THAT PHASE SHALL ALSO BE SHOWN.

3. THE TRAFFIC CONTROL NARRATIVE SHALL DESCRIBE THE CONTRACTOR'S INTENTIONS FOR EACH CONSTRUCTION PHASE. IT SHALL LIST FOR CONSIDERATION AT A MINIMUM THE FOLLOWING: WORK SCHEDULE; ANY NEARBY SPECIAL EVENTS; EXPECTED LANE WIDTHS; DETOURS AND SPEED REDUCTIONS; PARKING SITUATIONS; EMERGENCY VEHICLE ACCOMODATIONS; PEDESTRIAN AND BICYCLE TRAFFIC; NEARBY SCHOOLS; ANTICIPATED LANE CLOSURES; SIDE ROAD AND DRIVE ACCESS PLANNING; ANTICIPATED ROADWAY SURFACE CONDITIONS; APPLICABLE TEMPORARY PAVEMENT MARKINGS; FLAGGER AND UNIFORMED TRAFFIC OFFICER INFORMATION; AND ANY CONCURRENT AND ADJACENT CONSTRUCTION ACTIVITIES FROM OTHER PROJECTS.

4. TRAFFIC PATTERNS SHALL NOT CHANGE UNTIL ALL TEMPORARY MARKINGS, SIGNING AND/OR SIGNAL WORK ARE COMPLETED FOR THE NEXT PATTERN. ANY CONFLICTING MARKINGS FROM THE PREVIOUS PATTERN(S) SHALL BE REMOVED.

5. REFER TO THE T- AND E-SERIES VERMONT STATE CONSTRUCTION STANDARD DRAWINGS AND THE LATEST EDITION OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR DETAILED INFORMATION REGARDING CHANNELIZATION DEVICES, TAPER LENGTHS, BARRICADES, DETOURS, LONGITUDINAL DROP-OFFS AND MISCELLANEOUS TRAFFIC CONTROL DETAILS, IF APPLICABLE.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING CONSTRUCTION SIGNAGE SO AS NOT TO INTERFERE OR OBSTRUCT THE VIEW OF EXISTING TRAFFIC CONTROL DEVICES, STOPPING SIGHT DISTANCE AND CORNER SIGHT DISTANCE. EXISTING SIGNS SHALL BE COVERED OR REMOVED WHEN THEY CONFLICT WITH CONSTRUCTION TRAFFIC OPERATIONS.

7. SIGN COVERING SHALL NOT DAMAGE THE RETRO-REFLECTIVITY OF THE SIGN FACE. THE SIGN COVER SHALL NOT DETERIORATE FOR THE DURATION THAT THE SIGN IS COVERED.

8. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL RESIDENTIAL DRIVEWAYS AND BUSINESS ACCESSES DURING CONSTRUCTION 24 HOURS A DAY EXCLUDING 211 MAIN STREET. IF AN ACCESS REQUIRES CLOSURE FOR ANY PERIOD OF TIME, THE CONTRACTOR SHALL CONTACT THE RESIDENCE OR BUSINESS 48 HOURS PRIOR TO THE SCHEDULED CLOSURE AND PROVIDE AN ALTERNATIVE ACCESS FOR THE ENTIRE LENGTH OF THE CLOSURE PERIOD.

9. THE BID PRICE FOR ITEM 641.11 TRAFFIC CONTROL, ALL INCLUSIVE SHALL INCLUDE ALL APPROACH AND CONSTRUCTION SIGNING, BARRIERS, BARRELS, CONES, BARRICADES, TEMPORARY REGULATORY AND WARNING SIGNS AND POST AS DETAILED IN THE VTRANS STANDARDS. ALL ADJUSTING, RELOCATING AND REMOVING OF THESE DEVICES AS DIRECTED BY THE ENGINEER SHALL ALSO BE INCLUDED. THE FOLLOWING ITEMS SHALL BE PAID FOR SEPARATELY: 620.11 – CHAIN-LINK FENCE, 4 FEET, 630.10 - UNIFORMED TRAFFIC OFFICERS, 630.15 – FLAGGERS, 641.15 – PORTABLE CHANGEABLE MESSAGE SIGN, 646.602 – TEMPORARY 4 INCH WHITE LINE, PAINT, 646.612 – TEMPORARY 4 INCH YELLOW LINE, PAINT, 646.682 – TEMPORARY 24 INCH STOP BAR, PAINT, 646.702 – TEMPORARY CROSSWALK MARKING, PAINT, 646.76 – LINE STRIPING TARGETS.

10. FURNISHING AND PERFORMING ORGINAL INSTALLATION AND FINAL REMOVAL FROM THE PROJECT OF TEMPORARY TRAFFIC BARRIER SHALL BE PAID FOR UNDER CONTRACT ITEM 621.90. PAYMENT FOR INTERMITTENT REMOVING AND RESETTING OF TEMPORARY TRAFFIC BARRIER TO ACCOMODATE PHASED CONSTRUCTION, AS ALLOWED UNDER SUBSECTION 621.14, WILL BE MADE UNDER CONTRACT ITEM 621.95.

11. TEMPORARY TRAFFIC BARRIERS SHALL BE DELINEATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND THE LATEST EDITION OF THE MUTCD. DELINEATION OF TRAFFIC BARRIERS SHALL BE PAID FOR UNDER CONTRACT ITEM 641.11 - TRAFFIC CONTROL, ALL-INCLUSIVE.

12. WHERE TEMPORARY TRAFFIC BARRIER IS USED, ELEVATION DIFFERENCES BETWEEN A PORTION OF ROADWAY OPENED FOR TRAFFIC AND A PORTION OF ROADWAY CONSTRUCTED SHALL NOT EXCEED 18 INCHES DURING NON-WORKING HOURS. FOR LONGITUDINAL DROP-OFFS WITH OTHER TYPES OF TEMPORARY CHANNELIZING DEVICES, REFER TO STANDARDS T-35 AND T-36.

13. ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE KEPT IN THEIR PROPER POSITION AT ALL TIMES AND SHALL BE REPAIRED, REPLACED, OR CLEANED AS NECESSARY TO PRESERVE THEIR APPEARANCE AND CONTINUITY.THE CONTRACTOR SHALL PROVIDE AT LEAST 5 PORTABLE CHANGEABLE MESSAGE SIGNS FOR THE DURATION OF THE PROJECT. THE INITIAL LOCATION AND MESSAGE CONTENT SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. MESSAGES SHALL CONSIST OF A MAXIMUM OF TWO PHRASES OF 3 LINES WITH 8 CHARACTERS AND SHALL ONLY BE VISIBLE TO MOTORISTS AT TIMES WHEN THE MESSAGE IS PERTINENT. THE RELOCATION OF THE SIGNS MAY BE NECESSARY TO CONVEY WORK ZONE TRAVEL INFORMATION THAT IS OTHERWISE DIFFICULT TO CONVEY WITH STATIC SIGNS. THESE RELOCATIONS SHALL BE PAID FOR UNDER CONTRACT ITEM 641.15 – PORTABLE CHANGEABLE MESSAGE SIGNS.

14. ALL EXISTING PAVEMENT MARKINGS IN CONFLICT WITH TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED. PAYMENT SHALL BE MADE UNDER CONTRACT ITEM 646.85 - REMOVAL OF EXISTING PAVEMENT MARKINGS.

15. FLAGGERS AND/OR TRAFFIC CONTROL PERSONNEL SHALL DIRECT BICYCLISTS THROUGH THE CONSTRUCTION AREA IN THE SAME MANNER AS VEHICULAR TRAFFIC. TRAFFIC CONTROL PERSONNEL MAY ASK BICYCLE RIDERS TO GO LAST TO ENSURE THEIR SAFETY.

16. SPECIAL CARE SHALL BE TAKEN TO PROVIDE ACCESS THROUGH THE WORK ZONE FOR EMERGENCY VEHICLES. THE CONTRACTOR SHALL COORDINATE WITH BOTH LUDLOW POLICE AND FIRE DEPARTMENTS TO DETERMINE THEIR MINIMUM ACCESS REQUIREMENTS BEFORE PROCEEDING TO THE NEXT PHASE OF CONSTRUCTION. THE CONTRACTOR SHALL ENSURE THAT ACCESS IS AVAILABLE TO ALL PROPERTIES AT ALL TIMES FOR EMERGENCY VEHICLES.

17. THE FIRST FIVE PLASTIC BARRELS/CONES OF A TAPER SHALL BE MOUNTED WITH TYPE A FLASHING LIGHTS.

18. CONSTRUCTION SIGNS SHALL BE IN NEW OR LINE NEW CONDITION PER VTRANS STANDARDS.

19. DIAMOND SHAPED CONSTRUCTION SIGNS SHALL BE 48 INCHES BY 48 INCHES WITH BLACK TEXT AND BORDER ON A RETROREFLECTIVE FLORESCENT ORANGE BACKGROUND.

20. WHERE TEMPORARY SIGNS ARE PLACED BEHIND GUARDRAIL, THEY SHALL BE ADJUSTED SUCH THAT THE BOTTOM OF THE SIGNS ARE ABOVE THE TOP OF THE GUARDRAIL.

21. PAVEMENT MARKING OBLITERATION SHALL REMOVE THE NON-APPLICABLE PAVEMENT MARKING MATERIAL, AND THE OBLITERATION METHOD SHALL MINIMIZE PAVEMENT SCARRING. PAINTING OVER EXISTING PAVEMENT MARKINGS WITH BLACK PAINT OR SPRAYING WITH ASPHALT SHALL NOT BE ACCEPTED AS A SUBSTITUTE FOR REMOVAL OR OBLITERATION.

22. A TRAVEL WIDTH OF 14-FEET MINIMUM (11' – 0" TRAVEL LANES, 3' – 0" SHOULDERS) SHALL BE MAINTAINED.

23. ALL REASONABLE EFFORTS SHALL BE MADE TO ACCOMMODATE BICYCLE TRAVEL. THIS CAN INCLUDE BUT NOT LIMITED TO HAVING BICYCLE FOLLOW THE RULES OF THE ROAD JUST LIKE MOTORISTS. ALSO, TO ENSURE THAT OBSTACLES, EQUIPMENT, CONSTRUCTION MATERIAL, TRAFFIC CONTROL DEVICES, ETC. DO NOT ENCROACH INTO THE BICYCLE PATH OF TRAVEL AND THAT THESE ROUTES ARE FREE OF RUTS, SAND, MUD AND DEBRIS TO PREVENT CYCLIST CRASHES. PER THE VTRANS BICYCLE PRIORITY MAP, VT 100 IN LUDLOW NORTH OF ANDOVER STREET IS CONSIDERED HIGH PRIORITY.

24. CONTRACTOR SHALL COMMUNICATE WITH BICYCLE EVENT COORDINATORS AND EVENT PLANNERS AS NEEDED DUE TO THE HIGH USE OF BICYCLES WITHIN THE PROJECT AREA.

PEDESTRIAN TEMPORARY TRAFFIC CONTROL NOTES

25. ALL REASONABLE EFFORTS SHALL BE MADE TO ACCOMMODATE PEDESTRIAN TRAVEL AT ALL TIMES. WHEN EXISTING PEDESTRIAN FACILITIES ARE DISRUPTED, CLOSED, OR RELOCATED IN A TEMPORARY TRAFFIC CONTROL ZONE, THE TEMPORARY FACILITIES SHALL BE DETECTABLE AND SHALL INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE FEATURES PRESENT IN THE EXISTING PEDESTRIAN FACILITY. PAYMENT WILL BE INCIDENTAL TO ITEM 641.11 TRAFFIC CONTROL, ALL-INCLUSIVE.

26. THE CONTRACTOR SHALL NOTIFY VTRANS IN ADVANCE IN THE EVENT THAT ACCOMMODATIONS FOR POSTAL DELIVERIES, NEWSPAPER ROUTES, TRASH SERVICES, AND/OR OTHER DELIVERY SERVICES ARE INTERRUPTED BY THE PROJECT SUCH THAT VTRANS CAN COMMUNICATE WITH THE PROPER CONTACTS.

27. THE CONTRACTOR SHALL PROVIDE TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) FOR REVIEW AND WRITTEN APPROVAL BY THE 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 DEVISE, TPAR'S AND METHODS TO MAINTAIN ACCESS TO ADJACENT PROPERTIES, BUSINESSES, RESIDENCES, ETC.

28. IF THE TPAR IS ADJACENT TO MOVING TRAFFIC, CONSTRUCTION OPERATIONS/EQUIPMENT, OR DROP-OFFS, THEN CRASH WORTHY CHANNELIZING DEVICES THAT MEET THE REQUIREMENT OF THE MUTCD SHALL BE USED.

29. PEDESTRIAN ACCESS SHALL BE PROVIDED TO ALL ADJACENT PROPERTIES, BUILDINGS, RESIDENCES, COMMERCIAL PROPERTIES, AND TRANSIT STOPS; THIS MAY INCLUDE TEMPORARY WALKWAYS SPANNING THE CONSTRUCTION AREA.

30. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN ACCESS TO ALL COMMERCIAL AND MUNICIPAL PROPERTIES DURING BUSINESS HOURS. VTRANS IS RESPONSIBLE FOR COORDINATING ACCESS TO RESIDENTIAL PROPERTIES WITH THE OWNER. CONTRACTOR SHALL NOTIFY VTRANS AT LEAST TWO WEEKS PRIOR TO STARTING MAJOR WORK ON COMMERCIAL OR MUNICIPAL ACCESSES. ALL ACCESSES SHALL ALSO BE KEPT FREE OF WORK AND TRAFFIC CONTROL OFFICERS OR FLAGGERS AS REQUIRED.

31. IF SIDEWALKS ARE CLOSED, A TPAR SHALL BE PROVIDED ON THE SAME SIDE OF THE ROAD AS THE CLOSED SIDEWALK, IF POSSIBLE. SIGN 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 FOUR FEET. IF TPAR IS LESS THAN 5 FEET WIDE, A FIVE FOOT BY FIVE FOOT LEVEL LANDING AREA MUST BE PROVIDED AT LEAST EVERY 200 FEET. THE SURFACES OF THE TPAR SHALL BE FIRM, STABLE AND SLIP-RESISTANT AND CONTINUOUS WITH A MINIMUM OF 80 INCHES OVERHEAD CLEARANCE FOR THE LENGTH OF THE TPAR. THE TPAR SHALL MAINTAIN THE SAME LEVEL OF ACCESSIBILITY AND DETECTABILITY AS THE FACILITY THAT IS BEING CLOSED. THE TPAR SHALL NOT LEAD PEDESTRIAN INTO CONFLICTS WITH VEHICLES, EQUIPMENT, OR CONSTRUCTION OPERATIONS.

32. INDIVIDUAL CHANNELIZING DEVICES, TAPE, OR ROPE USED TO CONNECT INDIVIDUAL DEVICES AND OTHER CONTINUOUS 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 MUST HAVE A CONTINUOUS DETECTABLE TOP AND BOTTOM EDGE THROUGH THE LENGTH OF THE FACILITY SUCH THAT IT CAN BE FOLLOWED BY PEDESTRIANS USING LONG CANES FOR GUIDANCE. DESIGN DETAILS FOR PEDESTRIAN CHANNELIZING DEVICES ARE PROVIDED IN VTRANS WORK ZONE TRAFFIC CONTROL DETAIL "PEDESTRIAN TRAFFIC CONTROL DEVICES" INCLUDED IN APPENDIX C OF "VERMONT BICYCLE AND PEDESTRIAN WORK ZONE TRAFFIC CONTROL GUIDE". ALL PEDESTRIAN CHANNELIZING DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MUTCD.

33. CHANNELIZING DEVICES ON BOTH SIDE OF THE TPAR SHALL INCLUDE CONTINUOUS SOLID TOP AND BOTTOM RAILS. THE TOP EDGE SHALL BE BETWEEN 32 INCHES AND 38 INCHES ABOVE THE GROUND LEVEL. THE BOTTOM RAIL SHALL BE AT LEAST SIX INCHES WIDE, WITH THE BOTTOM EDGE OF THE BOTTOM RAIL SURFACE NO HIGHER THAN TWO INCHES ABOVE THE GROUND.

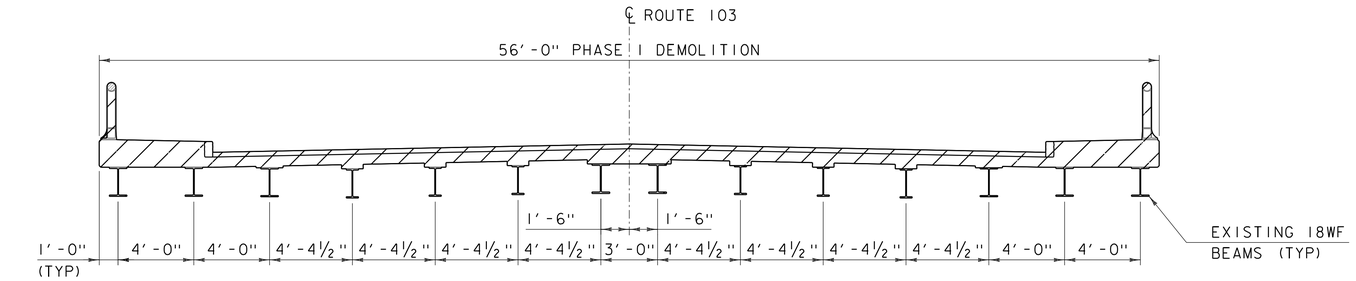
34. WHEN TEMPORARY CROSSWALKS ARE UTILIZED FOR THE TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR), TEMPORARY DETECTABLE WARNINGS SHALL BE PLACED AT EACH END OF THE TEMPORARY CROSSWALKS. THE TEMPORARY CROSSWALKS SHALL BE DELINEATED WITH TEMPORARY PAVEMENT MARKING OR TAPE. THE MARKINGS SHALL BE PARALLEL 12-INCH-WIDE WHITE LINES PAVED SEVEN FEET ON CENTER APART. TEMPORARY CROSSWALKS SIGNS SHALL BE PROVIDED FOR THE CROSSWALKS.

35. PAYMENT FOR THE PROVISIONS OF THE TPAR AND ALL ITS ELEMENTS, INCLUDING BUT NOT LIMITED TO SIGNS, CHANNELIZING DEVICES, BARRICADES, TEMPORARY CURB RAMPS, TEMPORARY PAVEMENT MARKING SAND OTHER TRAFFIC CONTROL DEVICES TO BE INCIDENTAL TO TRAFFIC CONTROL – ALL INCLUSIVE (ITEM 641.11). PAYMENT FOR DEVELOPING, IMPLEMENTING AND MAINTAINING THE TEMPORARY TRAFFIC CONTROL PLAN WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 641.1.

36. IF THERE IS WORK OCCURRING 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.

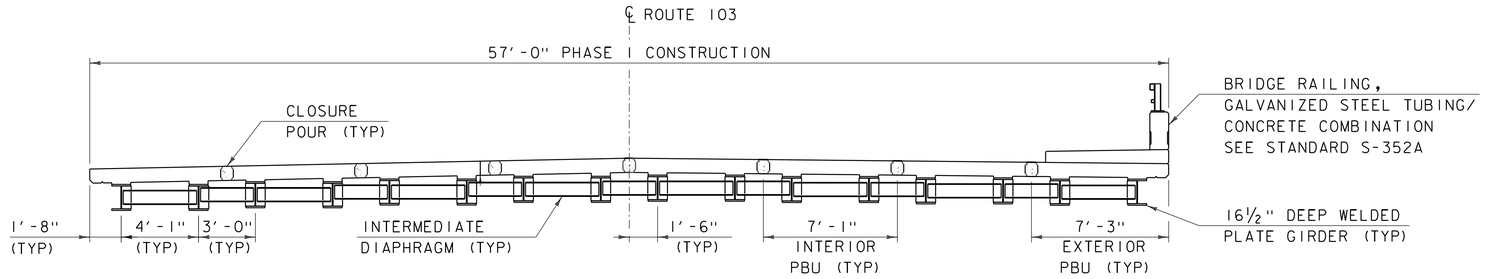
37. THE CONTRACTOR SHALL NOT STORE OR PLACE ANY CONSTRUCTION MATERIALS, EQUIPMENT OR SIGNS IN THE PEDESTRIAN PATH OF TRAVEL.

38. THE CONTRACTOR SHALL REVIEW AND USE THE "VERMONT BICYCLE AND PEDESTRIAN WORK ZONE TRAFFIC CONTROL GUIDE," AVAILABLE ON VTRANS WEBSITE TO DESIGN AND IMPLEMENT TRAFFIC CONTROL FOR BICYCLE AND PEDESTRIAN INTO THEIR SITE-SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION IF AN ALTERNATIVE SITE-SPECIFIC TRAFFIC CONTROL PLAN TO WHAT IS SHOWN HEREIN IS SUBMITTED TO THE ENGINEER FOR APPROVAL.



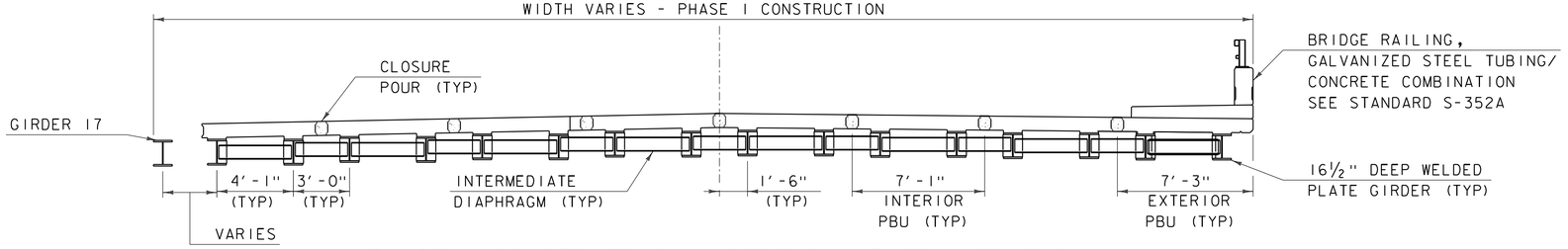
PHASE 1 DEMOLITION

SCALE ¼" = 1'-0"



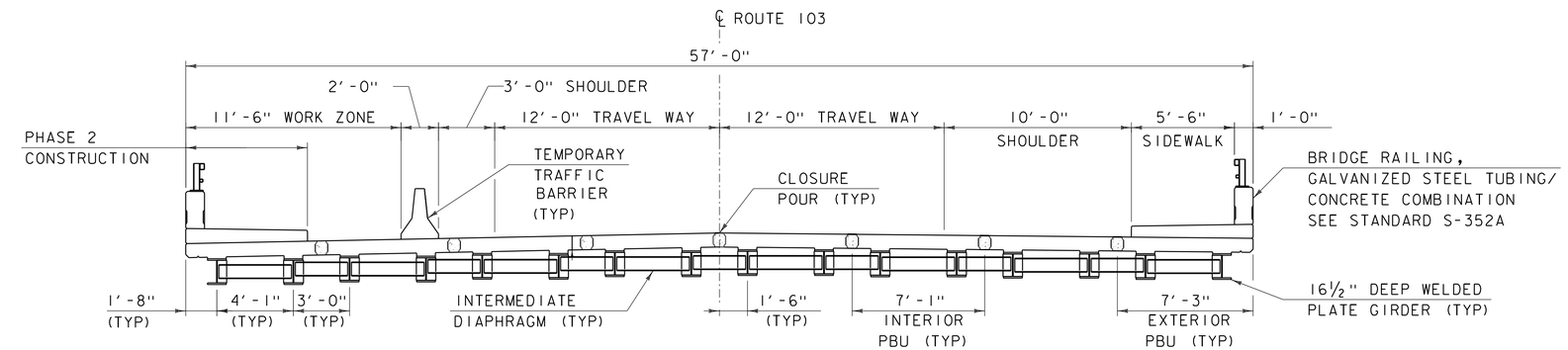
PHASE 1 CONSTRUCTION - TYPICAL SECTION

SCALE ¼" = 1'-0"



PHASE 1 CONSTRUCTION - SECTION AT SPLAYED END

SCALE ¼" = 1'-0"



PHASE 2 CONSTRUCTION - TYPICAL SECTION

SCALE ¼" = 1'-0"

LEGEND

PHASE 1 DEMOLITION

SUGGESTED SEQUENCE OF CONSTRUCTION:

SUBSTRUCTURE REPAIRS MAY BE PERFORMED PRIOR TO THE BRIDGE CLOSURE, OR AT ANY SUBSEQUENT PHASE, DEPENDING ON THE WATER LEVELS AND HOW THE WORK FITS INTO THE CONTRACTORS CRITICAL PATH SCHEDULE. IT IS RECOMMENDED THAT THESE REPAIRS ARE COMPLETED PRIOR TO PBU INSTALLATION.

PHASE 1 DEMOLITION AND CONSTRUCTION SHALL OCCUR UNDER THE FULL CLOSURE AND DETOUR OF ROUTE 103 AWAY FROM THE BRIDGE SITE. CONSTRUCTION PHASE 2 SHALL OCCUR WITH TWO LANES OF VEHICULAR TRAFFIC AND PEDESTRIAN TRAFFIC MAINTAINED THROUGH THE BRIDGE SITE. PLEASE REFER TO SHEETS 15-19 FOR MORE INFORMATION ON THE TRAFFIC MANAGEMENT DURING CONSTRUCTION.

PHASE 1 DEMOLITION:

1. BRIDGE STRUCTURE CLOSED TO TRAFFIC ON ROUTE 103 ONCE THE VEHICULAR AND PEDESTRIAN DETOUR IS ESTABLISHED PER THE REQUIREMENTS OF THE TRAFFIC MANAGEMENT PLANS.
2. ALL SHIELDING AND ANY TEMPORARY SUPPORT MEASURES SHALL BE INSTALLED PRIOR TO COMMENCING DEMOLITION ACTIVITIES.
3. REMOVE THE EXISTING DECK AND SUPERSTRUCTURE IN ITS ENTIRETY.
4. SAWCUT AND REMOVE THE TOP OF THE EXISTING ABUTMENT BRIDGE CAP TO THE ELEVATION SHOWN ON SHEETS 41-42.

PHASE 1 CONSTRUCTION:

1. CONTRACTOR TO PREPARE THE EXISTING ABUTMENT SURFACE, INSTALL DOWELS, PLACE PROPOSED PRECAST ABUTMENT CAPS INCLUDING BACKWALLS ON EACH SEAT, AND GROUT THE CAPS IN PLACE.
2. INSTALL BEARINGS, PREFABRICATED BRIDGE UNITS, WELDED STEEL PLATE GIRDER, AND CLOSURE POURS.
3. INSTALL PROPOSED NORTH RAILING AND SIDEWALK.

PHASE 2 CONSTRUCTION:

1. PLACE TEMPORARY TRAFFIC MEASURES IN ACCORDANCE WITH THE SECTION SHOWN ON SHEET 17 AND OPEN TO TWO WAY TRAFFIC.
2. POUR CAST-IN-PLACE SPLAYED PORTION OF DECK ADJACENT TO ROUTE 100.
3. INSTALL PROPOSED SOUTH BRIDGE RAILING AND SIDEWALK.

NOTE:
PROPOSED TEMPORARY TRAFFIC BARRIER SHOWN IN PHASE 2 CANNOT BE ANCHORED INTO THE PROPOSED PBU DECK. A BRACED TEMPORARY BARRIER SYSTEM THAT IS PINNED INTO THE APPROACHES MAY BE USED TO MINIMIZE DEFLECTIONS AND MAXIMIZE THE WORK ZONE.

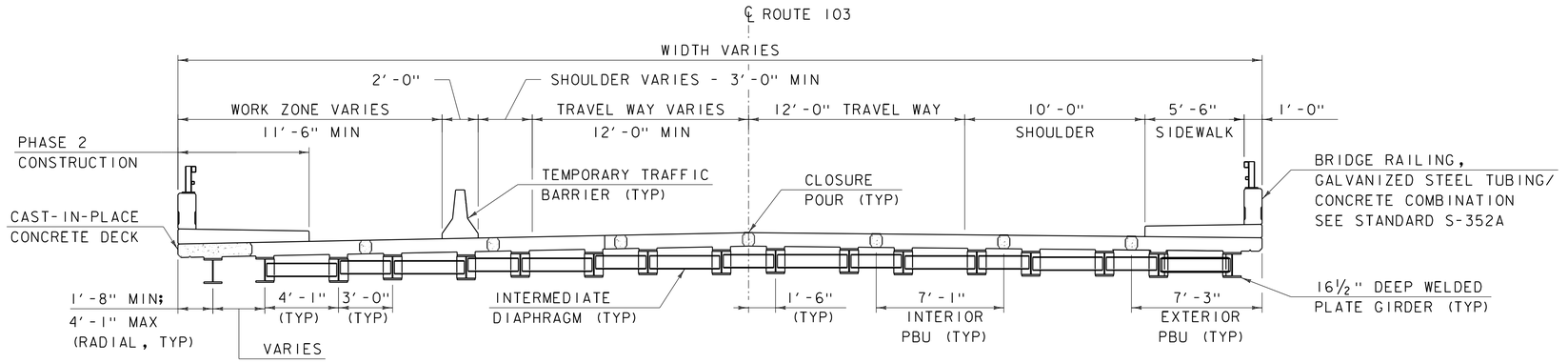
FINAL PAVEMENT COURSE IN APPROACHES SHALL NOT BE PLACED UNTIL DECK GRINDING HAS BEEN COMPLETED. TEMPORARY ASPHALT CAN BE USED AT STRUCTURE LIMIT FOR GRADE DIFFERENTIAL DURING PHASE 1 AND PHASE 2 CONSTRUCTION.

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009staging.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
STAGING SECTIONS SHEET 1 OF 2

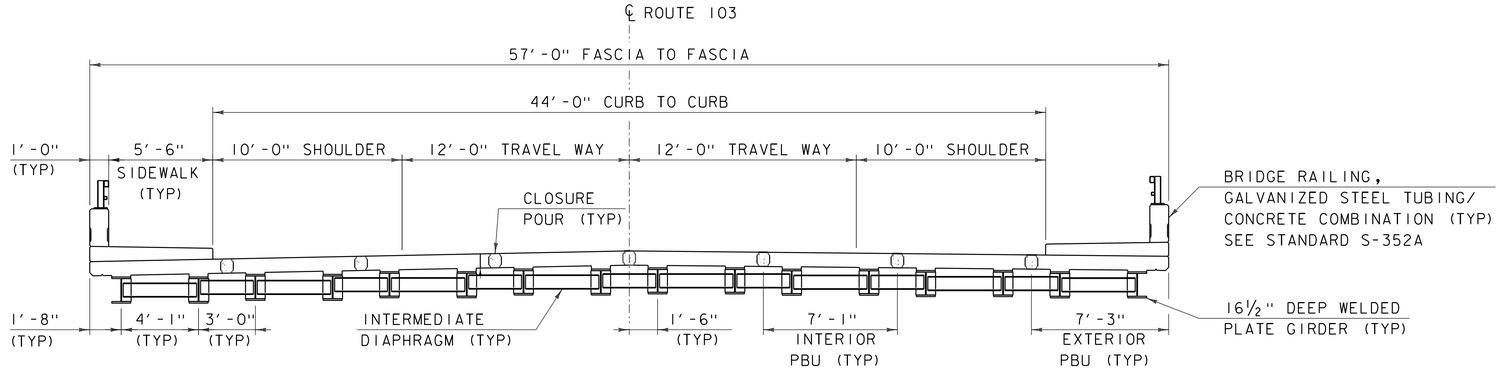
PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS



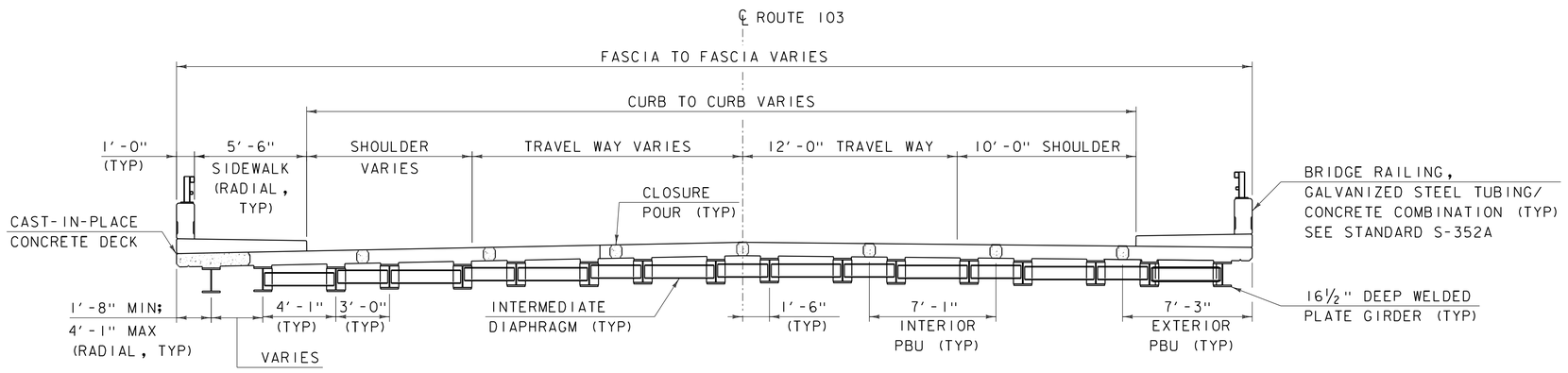
PHASE 2 CONSTRUCTION - SECTION AT SPLAYED END

SCALE 1/4" = 1'-0"



FINAL CONDITION - TYPICAL SECTION

SCALE 1/4" = 1'-0"



FINAL CONDITION - SECTION AT SPLAYED END

SCALE 1/4" = 1'-0"

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009staging.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
STAGING SECTIONS SHEET 2 OF 2

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD

DURABLE 24 INCH STOP BAR
STA. 227+47.00 (VT100)

DURABLE CROSSWALK MARKING
STA. 227+56.99 (VT 100)

DURABLE 4 INCH WHITE LINE
(ALL LINES WILL INCLUDE EDGE LINE BEAKS AND RADII FOR SIDE ROADS)
STA. 117+25.00 - STA. 118+65.00 (SOLID RT) (VT103)
STA. 117+83.00 - STA. 118+65.00 (SOLID LT) (VT103)

DURABLE 4 INCH YELLOW LINE
(ALL LINES WILL INCLUDE EDGE LINE BEAKS AND RADII FOR SIDE ROADS)
STA. 117+25.00 - STA. 117+40.00 (SOLID RT & LT) (VT103)
STA. 117+75.00 - STA. 118+65.00 (SOLID RT & LT) (VT103)
STA. 227+39.00 - STA. 227+47.00 (SOLID RT & LT) (VT100)

REMOVING SIGNS
AS SHOWN - 40

VT STATE PLANE GRID
N

STA. 116+58.25 LT
STA. 116+55.1 LT
STA. 116+17.34 RT
STA. 116+54.40 LT
STA. 115+93.61 LT
STA. 115+84.34 RT
STA. 116+25.34 RT
STA. 117+29.61 LT
STA. 117+39.48 LT
STA. 117+54.55 LT
STA. 118+41.11 LT
STA. 118+61.14 LT
STA. 119+36.03 LT
STA. 119+31.84 LT
STA. 119+80.81 LT
STA. 119+85.78 RT
STA. 119+26.74 LT
STA. 120+27.73 LT
STA. 120+84.66 RT
STA. 120+01.99 RT
STA. 118+77.18 RT
STA. 117+64.23 RT
STA. 117+65.16 RT
STA. 117+58.09 RT
STA. 117+56.17 RT

MATCH TO EXISTING
PAVEMENT MARKINGS
STA. 117+25.00

MATCH TO EXISTING
PAVEMENT MARKINGS
STA. 118+65.00

VT ROUTE 100
(TH-2 ANDOVER ST.)
TO WESTON

VT ROUTE 103
(TH-1 MAIN ST.)
TO CAVENDISH

VT ROUTE 103/100
(TH-1 MAIN ST.)
TO MOUNT HOLLY

JEWELL BROOK
FLOW

SL
R=30'
SWL
DBYL
SWL
10'-12'-12'-10'

116+00
117+00
227+96
227+00
50+00
52+00
118+00
119+00
120+00
120+99

LEGEND

⌀	SIGN
DBYL	DOUBLE YELLOW CENTER LINE
SWL	SINGLE WHITE LINE
SL	STOP LINE

NOTE:
ALL PAVEMENT MARKING PLACEMENTS SHALL MATCH INTO EXISTING AT THE LIMITS OF THE ROADWAY APROACHES.

0 20 40
SCALE IN FEET

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009sgnbdr.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
PAVEMENT MARKING & SIGN SHEET

PLOT DATE: 8/3/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 22 OF 53

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 1

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) lb/ft 1.75 1.88	2.0 2.42	2.5 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft 3.0 1.3	4.0 1.7	4.0 MOD 1.7	FOUNDATION	TUBULAR STEEL Ø (in) lb/ft 3.0 7.6	3.5 9.0	4.0 10.8	5.0 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN REQUIRED	REMARKS	SIGN DETAIL S.H.S.M.*	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
OPTION ITEMS																																				
VT ROUTE 103																																				
117+29.61 LT		1	42	12																													RETAIN EXISTING SIGN AND POST			
	STOP	1	30	30	6.25				1																								INSTALL NEW SIGN ON EXISTING POST	RI-1		
	1030 1410 0222	1	6	10	0.42																												INSTALL NEW SIGN (MOUNTED BACK TO BACK WITH THE PREVIOUS SIGN) VD-700			T-44
117+58.09 RT	Okemo Mtn Ski Area 1	1	72	12	6.00																												INSTALL NEW SIGN ON EXISTING POSTS VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Mount Holly 9	1	72	12	6.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Plymouth 12	1	72	12	6.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Weston 11	1	72	12	6.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Londonderry 16	1	72	12	6.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	SOUTH	1	24	12	2.00																											3D	INSTALL NEW SIGN ON NEW FRAME (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-3		
	VERMONT 100	1	30	24	5.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	←	1	21	15	2.19																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-1		
	NORTH	1	24	12	2.00																												INSTALL NEW SIGN (SIDE-MOUNTED WITH M3-3 SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-1		
TOTALS					SF 47.86	SF	EA.	EA.				FT	FT	FT	FT	FT	FT		EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB						

THE TOTAL LENGTH OF EACH POST HAS BEEN ASSUMED TO BE 15 FEET, WITH THE EXCEPTION OF POSTS FOR OBJECT MARKERS AND POSTS FOR BRIDGE PLAQUES AND MILE MARKERS WHICH HAVE BEEN ASSUMED TO BE 8 FEET AND 10 FEET PER POST, RESPECTIVELY FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE VTRANS STANDARD SHEETS AND THE "SIGN POST DESIGN GUIDELINE".

*STANDARD HIGHWAY SIGNS AND MARKINGS BOOK

**"TH SIGN" DENOTES A SIGN THAT IS WITHIN A TOWN HIGHWAY SEGMENT

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009tss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TRAFFIC SIGN SUMMARY SHEET 1

PLOT DATE: 8/3/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 23 OF 53

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 2

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) lb/ft 1.75 1.88	2.0 2.42	2.5 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft 3.0 1.3	4.0 1.7	4.0 MOD 1.7	FOUNDATION	TUBULAR STEEL Ø (in) lb/ft 3.0 7.6	3.5 9.0	4.0 10.8	5.0 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL S.H.S.M.*	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
OPTION ITEMS																																				
VT ROUTE 103																																				
	VERMONT 103	1	30	24	5.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	↑	1	21	15	2.19																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-3		
	NORTH	1	24	12	2.00																												INSTALL NEW SIGN (SIDE-MOUNTED WITH M3-1 SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-1		
	VERMONT 100	1	30	24	5.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	↑	1	21	15	2.19																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-3		
117+56.17 RT	← Okemo Mtn Ski Area 1	1	72	12	6.00																												INSTALL NEW SIGN ON EXISTING POSTS VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	← Mount Holly 9	1	72	12	6.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	← Plymouth 12	1	72	12	6.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Chester 13 →	1	72	12	6.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	NORTH	1	24	12	2.00																											3D	INSTALL NEW SIGN ON NEW FRAME (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-1		
	VERMONT 103	1	30	24	5.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	←	1	21	15	2.19																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-1		
											FT	FT	FT	FT	FT	FT	EA		LB	LB	LB		LB	LB	LB	LB									
TOTALS		SF 49.57	SF	EA.	EA.		FT			FT				LB	EA.		LB				EA.	EA.	LB												

THE TOTAL LENGTH OF EACH POST HAS BEEN ASSUMED TO BE 15 FEET, WITH THE EXCEPTION OF POSTS FOR OBJECT MARKERS AND POSTS FOR BRIDGE PLAQUES AND MILE MARKERS WHICH HAVE BEEN ASSUMED TO BE 8 FEET AND 10 FEET PER POST, RESPECTIVELY FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE VTRANS STANDARD SHEETS AND THE "SIGN POST DESIGN GUIDELINE".

*STANDARD HIGHWAY SIGNS AND MARKINGS BOOK

**"TH SIGN" DENOTES A SIGN THAT IS WITHIN A TOWN HIGHWAY SEGMENT

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009tss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TRAFFIC SIGN SUMMARY SHEET 2

PLOT DATE: 8/3/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 24 OF 53

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 3

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS			NEW & SALVAGED SIGNS				EXIST POST		NEW SIGN POSTS																					REMARKS	SIGN DETAIL		
		EA	WIDTH (in)	HEIGHT (in)	"A"	"B"	SALV SIGN	SALV TIS	RETAIN	SALVAGE	NO. OF POSTS	FLANGED CHANNEL lb/ft			SQUARE STEEL (in)			ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in)			FOUNDATION	TUBULAR STEEL Ø (in)				W-SHAPE STEEL				SIGN FRAME REQUIRED		S.H.S.M.*	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
																												FTG. SIZE		WEIGHT	POST SIZE					
																												24"	30"							
															1.75	2.0	2.5			3.0	4.0	4.0 MOD		3.0	3.5	4.0	5.0								
															lb/ft					lb/ft				lb/ft											
												1.12	2.0	3.0	1.88	2.42	3.35			1.3	1.7	1.7		7.6	9.0	10.8	14.6								
OPTION ITEMS																																			
VT ROUTE 103																																			
	NORTH	1	24	12	2.00																											INSTALL NEW SIGN (SIDE-MOUNTED WITH M3-1 SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-1		
	VERMONT 100	1	30	24	5.00																											INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	←	1	21	15	2.19																											INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-1		
	SOUTH	1	24	12	2.00																											INSTALL NEW SIGN (SIDE-MOUNTED WITH M3-1 SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-3		
	VERMONT 103	1	30	24	5.00																											INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	→	1	21	15	2.19																											INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-1		
117+65.16 RT	BRIDGE 26 VT-103	1	6	10	0.42						1				X			1														INSTALL NEW SIGN ON NEW POST VD-701			T-42
118+41.11 LT	BRIDGE 26 VT-103	1	6	10	0.42						1				X			1														INSTALL NEW SIGN ON NEW POST VD-701			T-42
118+61.14 LT	↑ Chester 13	1	72	12	6.00																			2								INSTALL NEW SIGN ON NEW POSTS VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Weston 11→	1	72	12	6.00																											INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Londonderry 16→	1	72	12	6.00																											INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	SOUTH	1	24	12	2.00																										2C	INSTALL NEW SIGN ON NEW FRAME (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-3		
	VERMONT 103	1	30	24	5.00																											INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
											FT	FT	FT	FT 20.0	FT	FT		EA	LB	LB	LB		LB	LB	LB	LB								
TOTALS		SF 44.22	SF	EA.	EA.						FT			FT 20.0					LB			EA.	LB 355.5				EA.	EA.	LB					

THE TOTAL LENGTH OF EACH POST HAS BEEN ASSUMED TO BE 15 FEET, WITH THE EXCEPTION OF POSTS FOR OBJECT MARKERS AND POSTS FOR BRIDGE PLAQUES AND MILE MARKERS WHICH HAVE BEEN ASSUMED TO BE 8 FEET AND 10 FEET PER POST, RESPECTIVELY. FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE VTRANS STANDARD SHEETS AND THE "SIGN POST DESIGN GUIDELINE".

*STANDARD HIGHWAY SIGNS AND MARKINGS BOOK

**"TH SIGN" DENOTES A SIGN THAT IS WITHIN A TOWN HIGHWAY SEGMENT

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009tss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TRAFFIC SIGN SUMMARY SHEET 3

PLOT DATE: 8/3/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 25 OF 53

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 4

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) lb/ft 1.75 1.88	2.0 2.42	2.5 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft 3.0 1.3	4.0 1.7	4.0 MOD 1.7	TUBULAR STEEL Ø (in) FOUNDATION	3.0 7.6	3.5 9.0	4.0 10.8	5.0 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN SAMPLE REQUIRED	REMARKS	SIGN DETAIL S.H.S.M.*	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
OPTION ITEMS																																				
VT ROUTE 103																																				
	↑	1	21	15	2.19																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-3		
	SOUTH	1	24	12	2.00																													INSTALL NEW SIGN (SIDE-MOUNTED WITH M3-3 SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-3		
	VERMONT 100	1	30	24	5.00																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	→	1	21	15	2.19																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-1		
	SHEET TOTAL				11.38																																
	SUBTOTAL TSSS 1				47.86																																
	SUBTOTAL TSSS 2				49.57																																
	SUBTOTAL TSSS 3				44.22										20.00											355.5											
	SUBTOTAL TSSS 4				11.38																																
	GRAND TOTAL				153.03										20.00											355.5											

THE TOTAL LENGTH OF EACH POST HAS BEEN ASSUMED TO BE 15 FEET, WITH THE EXCEPTION OF POSTS FOR OBJECT MARKERS AND POSTS FOR BRIDGE PLAQUES AND MILE MARKERS WHICH HAVE BEEN ASSUMED TO BE 8 FEET AND 10 FEET PER POST, RESPECTIVELY. FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE VTRANS STANDARD SHEETS AND THE "SIGN POST DESIGN GUIDELINE".

*STANDARD HIGHWAY SIGNS AND MARKINGS BOOK

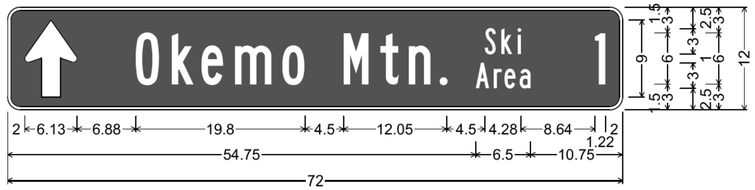
**"TH SIGN" DENOTES A SIGN THAT IS WITHIN A TOWN HIGHWAY SEGMENT

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

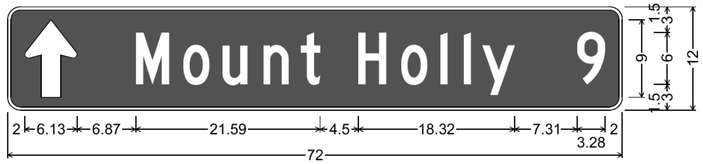
FILE NAME: z18j009tss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TRAFFIC SIGN SUMMARY SHEET 4

PLOT DATE: 8/3/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 26 OF 53



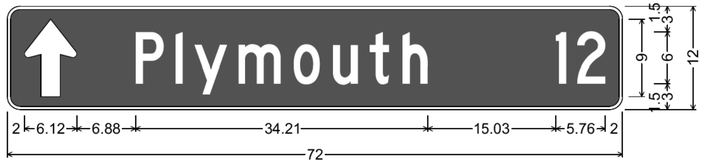
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 90'; "Okemo", B; "Mtn.", B; "Ski", B;
"Area", B; "1", B;
Table of distances between letter and object lefts

2.00	⬆ 13.01	O 4.18	k 3.48	e 3.91	m 5.59	o 7.14	M 4.30	t 3.35	n 3.65	. 5.25	S 1.97	k 1.93	i 9.02	l 1.22	2.00			
54.75	A 2.17	r 1.29	e 1.77	a 1.27	10.75													



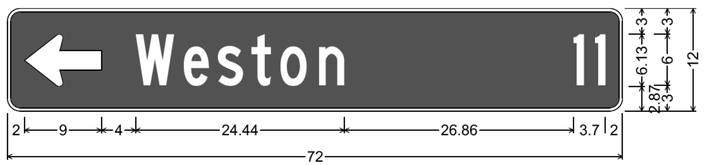
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 90'; "Mount", C; "Holly", C; "9", C;
Table of distances between letter and object lefts

2.00	⬆ 13.00	M 5.58	o 4.57	u 4.83	n 4.32	t 6.79	H 4.97	o 4.57	l 2.73	l 2.23	y 11.13	9 3.28	2.00	



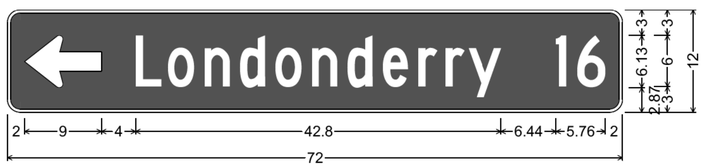
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 90'; "Plymouth", C; "12", C;
Table of distances between letter and object lefts

2.00	⬆ 13.00	P 4.67	l 2.22	y 5.20	m 6.45	o 4.57	u 4.32	t 3.84	h 17.97	l 2.48	2 3.28	2.00	



1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180'; "Weston", C; "11", C;
Table of distances between letter and object lefts

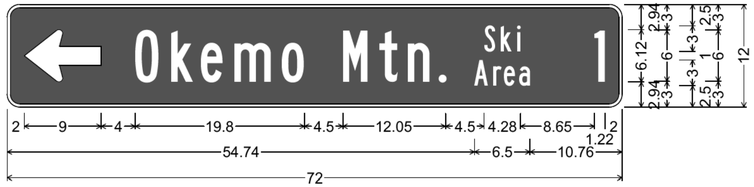
2.00	⬅ 13.00	W 5.65	e 3.97	s 3.91	t 3.40	o 4.57	n 29.80	l 2.48	l 1.22	2.00	



1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180'; "Londonderry", C 80% spacing; "16", C;
Table of distances between letter and object lefts

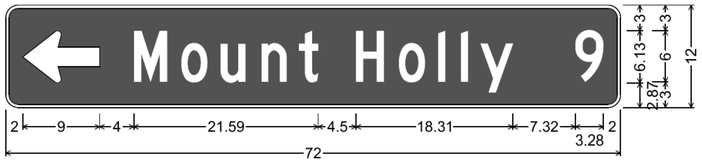
2.00	⬅ 13.00	L 3.80	o 4.26	n 4.15	d 4.15	o 4.26	n 4.15	d 4.15	e 4.18	r 3.15	r 2.73	y 10.26	l 2.48	6 3.28	2.00

STA. 117+57.98 RT



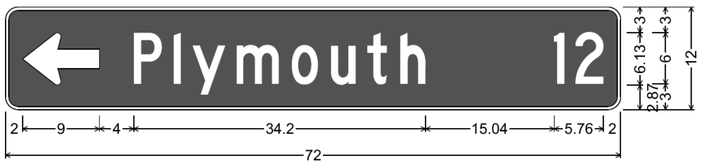
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180'; "Okemo", B; "Mtn.", B; "Ski", B;
"Area", B; "1", B;
Table of distances between letter and object lefts

2.00	⬅ 13.00	O 4.18	k 3.48	e 3.91	m 5.59	o 7.14	M 4.30	t 3.35	n 3.65	. 5.25	S 1.97	k 1.93	i 9.03	l 1.22	2.00			
54.74	A 2.18	r 1.28	e 1.77	a 1.27	10.76													



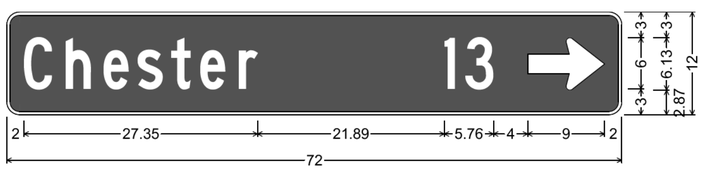
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180'; "Mount", C; "Holly", C; "9", C;
Table of distances between letter and object lefts

2.00	⬅ 13.00	M 5.58	o 4.56	u 4.83	n 4.32	t 6.80	H 4.97	o 4.57	l 2.73	l 2.22	y 11.14	9 3.28	2.00	



1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180'; "Plymouth", C; "12", C;
Table of distances between letter and object lefts

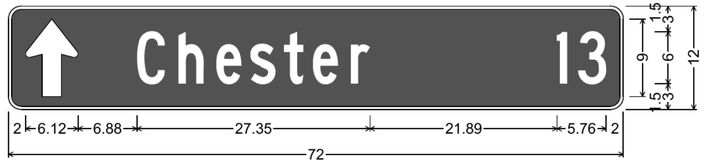
2.00	⬅ 13.00	P 4.66	l 2.22	y 5.20	m 6.45	o 4.57	u 4.32	t 3.84	h 17.98	l 2.48	2 3.28	2.00	



1.50" Radius, 0.38" Border, White on, Green;
"Chester", C; "13", C; Standard Arrow Custom 9.00" X 6.13" 0';
Table of distances between letter and object lefts

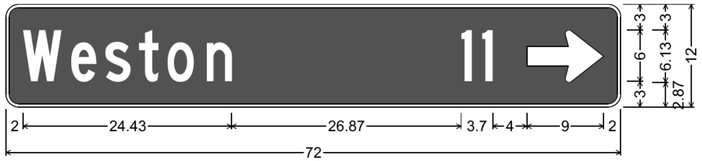
2.00	C 4.90	h 4.45	e 3.97	s 3.91	t 3.40	e 4.48	r 24.13	l 2.48	3 7.28	➡ 9.00	2.00	

STA. 117+60.56 RT



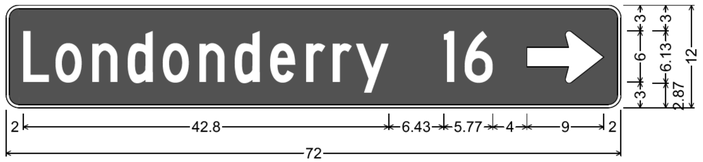
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 90'; "Chester", C; "13", C;
Table of distances between letter and object lefts

2.00	⬆ 13.00	C 4.90	h 4.45	e 3.97	s 3.91	t 3.40	e 4.49	r 24.12	l 2.48	3 3.28	2.00			



1.50" Radius, 0.38" Border, White on, Green;
"Weston", C; "11", C; Standard Arrow Custom 9.00" X 6.13" 0';
Table of distances between letter and object lefts

2.00	W 5.64	e 3.98	s 3.90	t 3.40	o 4.57	n 29.81	l 2.48	l 5.22	➡ 9.00	2.00	



1.50" Radius, 0.38" Border, White on, Green;
"Londonderry", C 80% spacing; "16", C; Standard Arrow Custom 9.00" X 6.13" 0';
Table of distances between letter and object lefts

2.00	L 3.80	o 4.27	n 4.15	d 4.14	o 4.27	n 4.15	d 4.15	e 4.17	r 3.15	r 2.73	y 10.25	l 2.48	6 7.29	➡ 9.00	2.00

STA. 118+61.14 LT

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009tss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TRAFFIC SIGN DETAIL SHEET 1

PLOT DATE: 8/3/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 27 OF 53

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 1

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS			NEW & SALVAGED SIGNS				EXIST POST		NEW SIGN POSTS																				REMARKS	SIGN DETAIL		
		EA	WIDTH (in)	HEIGHT (in)	"A"	"B"	SALV SIGN	SALV TIS	RETAIN	SALVAGE	NO. OF POSTS	FLANGED CHANNEL lb/ft			SQUARE STEEL (in)			ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in)			FOUNDATION	TUBULAR STEEL Ø (in)				W-SHAPE STEEL				SIGN REMAINED		S.H.S.M.*	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
															1.75	2.0	2.5			3.0	4.0	4.0 MOD		3.0	3.5	4.0	5.0	FTG. SIZE		WEIGHT	POST SIZE					
															lb/ft					lb/ft				lb/ft				24"	30"							
												1.12	2.0	3.0	1.88	2.42	3.35			1.3	1.7	1.7		7.6	9.0	10.8	14.6									
OPTION ITEMS																																			
VT ROUTE 103																																			
117+32.33 LT	Andover St	1																													RESET EXISTING SIGN AND POST			
117+40.15 LT	STOP	1	30	30	6.25						1					X		1													INSTALL NEW SIGN ON NEW POST	R1-1		
	1030 1410 0222	1	6	10	0.42																										INSTALL NEW SIGN (MOUNTED BACK TO BACK WITH THE PREVIOUS SIGN) VD-700			T-44
117+57.98 RT	Okemo Mtn Ski Area 1	1	72	12	6.00																						2				INSTALL NEW SIGN ON NEW POSTS VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Mount Holly 9	1	72	12	6.00																										INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Plymouth 12	1	72	12	6.00																										INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Weston 11	1	72	12	6.00																										INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Londonderry 16	1	72	12	6.00																										INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	SOUTH	1	24	12	2.00																									3D	INSTALL NEW SIGN ON NEW FRAME (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-3		
	VERMONT 100	1	30	24	5.00																										INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
		1	21	15	2.19																										INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-1		
	NORTH	1	24	12	2.00																										INSTALL NEW SIGN (SIDE-MOUNTED WITH M3-3 SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-1		
											FT	FT	FT	FT	FT 15.0	FT		EA	LB	LB	LB		LB	LB	LB	LB									
TOTALS		SF 47.86	SF	EA.	EA.						FT			FT 15.0					LB			EA.	LB 635.1				EA.	EA.	LB						

THE TOTAL LENGTH OF EACH POST HAS BEEN ASSUMED TO BE 15 FEET, WITH THE EXCEPTION OF POSTS FOR OBJECT MARKERS AND POSTS FOR BRIDGE PLAQUES AND MILE MARKERS WHICH HAVE BEEN ASSUMED TO BE 8 FEET AND 10 FEET PER POST, RESPECTIVELY. FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE VTRANS STANDARD SHEETS AND THE "SIGN POST DESIGN GUIDELINE".

*STANDARD HIGHWAY SIGNS AND MARKINGS BOOK

**"TH SIGN" DENOTES A SIGN THAT IS WITHIN A TOWN HIGHWAY SEGMENT

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009tss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TRAFFIC SIGN SUMMARY SHEET 1

PLOT DATE: 7/14/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 23 OF 53

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 2

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) lb/ft 1.75 1.88	2.0 2.42	2.5 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft 3.0 1.3	4.0 1.7	4.0 MOD 1.7	FOUNDATION	TUBULAR STEEL Ø (in) lb/ft 3.0 7.6	3.5 9.0	4.0 10.8	5.0 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL S.H.S.M.*	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
OPTION ITEMS																																				
VT ROUTE 103																																				
	VERMONT 103	1	30	24	5.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	↑	1	21	15	2.19																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-3		
	NORTH	1	24	12	2.00																												INSTALL NEW SIGN (SIDE-MOUNTED WITH M3-1 SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-1		
	VERMONT 100	1	30	24	5.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	↑	1	21	15	2.19																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-3		
117+60.56 RT	← Okemo Mtn Ski Area 1	1	72	12	6.00																										2		INSTALL NEW SIGN ON NEW POSTS VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	← Mount Holly 9	1	72	12	6.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	← Plymouth 12	1	72	12	6.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Chester 13 →	1	72	12	6.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	NORTH	1	24	12	2.00																											3D	INSTALL NEW SIGN ON NEW FRAME (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-1		
	VERMONT 103	1	30	24	5.00																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	←	1	21	15	2.19																												INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-1		
TOTALS		SF 49.57	SF	EA.	EA.		FT	FT	FT	FT	FT	FT		EA	LB	LB	LB			LB	EA.	LB 635.1	LB	LB	LB	EA.	EA.	LB						

THE TOTAL LENGTH OF EACH POST HAS BEEN ASSUMED TO BE 15 FEET, WITH THE EXCEPTION OF POSTS FOR OBJECT MARKERS AND POSTS FOR BRIDGE PLAQUES AND MILE MARKERS WHICH HAVE BEEN ASSUMED TO BE 8 FEET AND 10 FEET PER POST, RESPECTIVELY. FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE VTRANS STANDARD SHEETS AND THE "SIGN POST DESIGN GUIDELINE".

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**"TH SIGN" DENOTES A SIGN THAT IS WITHIN A TOWN HIGHWAY SEGMENT

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009tss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TRAFFIC SIGN SUMMARY SHEET 2

PLOT DATE: 7/14/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 24 OF 53

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 3

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) lb/ft 1.75 1.88	2.0 2.42	2.5 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft 3.0 1.3	4.0 1.7	4.0 MOD 1.7	FOUNDATION	TUBULAR STEEL Ø (in) lb/ft 3.0 7.6	3.5 9.0	4.0 10.8	5.0 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL S.H.S.M.*	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
OPTION ITEMS																																				
VT ROUTE 103																																				
	NORTH	1	24	12	2.00																													INSTALL NEW SIGN (SIDE-MOUNTED WITH M3-1 SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-1		
	VERMONT 100	1	30	24	5.00																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	←	1	21	15	2.19																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-1		
	SOUTH	1	24	12	2.00																													INSTALL NEW SIGN (SIDE-MOUNTED WITH M3-1 SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-3		
	VERMONT 103	1	30	24	5.00																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	→	1	21	15	2.19																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-1		
117+65.16 RT	BRIDGE 26 VT-103	1	6	10	0.42						1				X			1																INSTALL NEW SIGN ON NEW POST VD-701			T-42
118+41.11 LT	BRIDGE 26 VT-103	1	6	10	0.42						1				X			1																INSTALL NEW SIGN ON NEW POST VD-701			T-42
118+61.14 LT	↑ Chester 13	1	72	12	6.00																				2									INSTALL NEW SIGN ON NEW POSTS VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Weston 11 →	1	72	12	6.00																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	Londonderry 16 →	1	72	12	6.00																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) VDI-1A		TRAFFIC SIGN DETAIL SHEET	T-93
	SOUTH	1	24	12	2.00																												2C	INSTALL NEW SIGN ON NEW FRAME (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-3		
	VERMONT 103	1	30	24	5.00																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
TOTALS		SF 44.22	SF	EA.	EA.		FT				FT 20.0				EA	LB				EA.	LB 355.5				EA.	EA.	LB									

THE TOTAL LENGTH OF EACH POST HAS BEEN ASSUMED TO BE 15 FEET, WITH THE EXCEPTION OF POSTS FOR OBJECT MARKERS AND POSTS FOR BRIDGE PLAQUES AND MILE MARKERS WHICH HAVE BEEN ASSUMED TO BE 8 FEET AND 10 FEET PER POST, RESPECTIVELY FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE VTRANS STANDARD SHEETS AND THE "SIGN POST DESIGN GUIDELINE".

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GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009tss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TRAFFIC SIGN SUMMARY SHEET 3

PLOT DATE: 7/14/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 25 OF 53

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET 4

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) lb/ft 1.75 1.88	2.0 2.42	2.5 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft 3.0 1.3	4.0 1.7	4.0 MOD 1.7	TUBULAR STEEL Ø (in) FOUNDATION	3.0 7.6	3.5 9.0	4.0 10.8	5.0 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN SAME REQUIRED	REMARKS	SIGN DETAIL S.H.S.M.*	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
OPTION ITEMS																																				
VT ROUTE 103																																				
	↑	1	21	15	2.19																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-3		
	SOUTH	1	24	12	2.00																													INSTALL NEW SIGN (SIDE-MOUNTED WITH M3-3 SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M3-3		
	VERMONT 100	1	30	24	5.00																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	VMI-5		E-136B
	→	1	21	15	2.19																													INSTALL NEW SIGN (SUB-MOUNTED WITH PREVIOUS SIGN) (REFLECTIVE GREEN LEGEND ON WHITE BACKGROUND)	M6-1		
	SHEET TOTAL				11.38																																
	SUBTOTAL TSSS 1				47.86											15.00																	635.1					
	SUBTOTAL TSSS 2				49.57																												635.1					
	SUBTOTAL TSSS 3				44.22										20.00											355.5											
	SUBTOTAL TSSS 4				11.38																																
	GRAND TOTAL				153.03										20.00	15.00										355.5				1270.2							

THE TOTAL LENGTH OF EACH POST HAS BEEN ASSUMED TO BE 15 FEET, WITH THE EXCEPTION OF POSTS FOR OBJECT MARKERS AND POSTS FOR BRIDGE PLAQUES AND MILE MARKERS WHICH HAVE BEEN ASSUMED TO BE 8 FEET AND 10 FEET PER POST, RESPECTIVELY. FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE VTRANS STANDARD SHEETS AND THE "SIGN POST DESIGN GUIDELINE".

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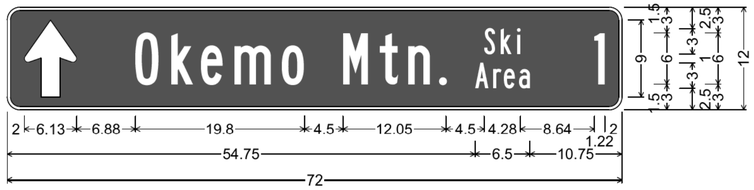
GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

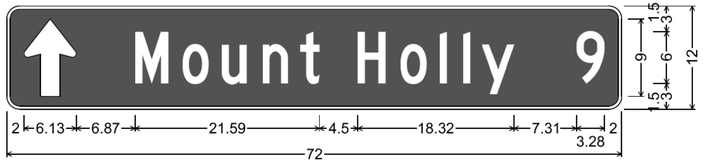
FILE NAME: z18j009tss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TRAFFIC SIGN SUMMARY SHEET 4

PLOT DATE: 7/14/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 26 OF 53



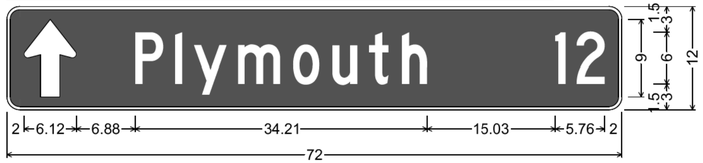
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 90'; "Okemo", B; "Mtn.", B; "Ski", B;
"Area", B; "1", B;
Table of distances between letter and object lefts

2.00	↑ 13.01	O 4.18	k 3.48	e 3.91	m 5.59	o 7.14	M 4.30	t 3.35	n 3.65	. 5.25	S 1.97	k 1.93	i 9.02	l 1.22	2.00			
54.75	A 2.17	r 1.29	e 1.77	a 1.27	10.75													



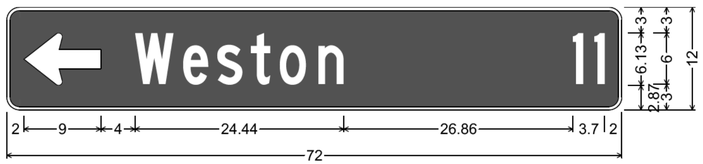
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 90'; "Mount", C; "Holly", C; "9", C;
Table of distances between letter and object lefts

2.00	↑ 13.00	M 5.58	o 4.57	u 4.83	n 4.32	t 6.79	H 4.97	o 4.57	l 2.73	l 2.23	y 11.13	9 3.28	2.00	



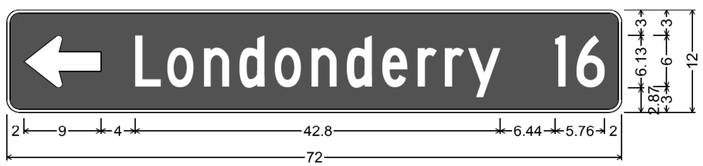
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 90'; "Plymouth", C; "12", C;
Table of distances between letter and object lefts

2.00	↑ 13.00	P 4.67	l 2.22	y 5.20	m 6.45	o 4.57	u 4.32	t 3.84	h 17.97	l 2.48	2 3.28	2.00	



1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180'; "Weston", C; "11", C;
Table of distances between letter and object lefts

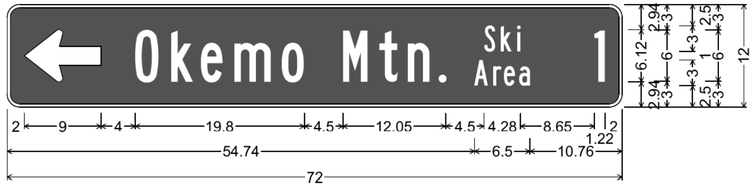
2.00	← 13.00	W 5.65	e 3.97	s 3.91	t 3.40	o 4.57	n 29.80	l 2.48	l 1.22	2.00	



1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180'; "Londonderry", C 80% spacing; "16", C;
Table of distances between letter and object lefts

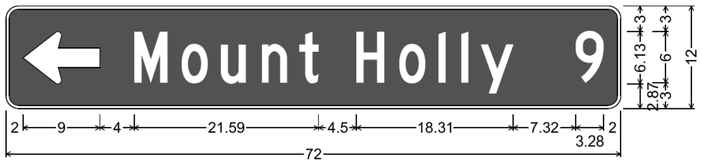
2.00	← 13.00	L 3.80	o 4.26	n 4.15	d 4.15	o 4.26	n 4.15	d 4.15	e 4.18	r 3.15	r 2.73	y 10.26	l 2.48	6 3.28	2.00

STA. 117+57.98 RT



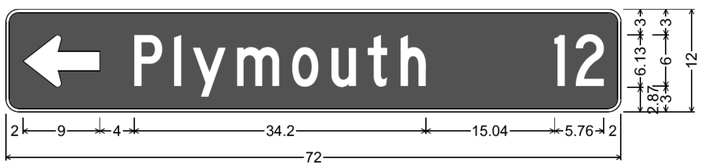
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180'; "Okemo", B; "Mtn.", B; "Ski", B;
"Area", B; "1", B;
Table of distances between letter and object lefts

2.00	← 13.00	O 4.18	k 3.48	e 3.91	m 5.59	o 7.14	M 4.30	t 3.35	n 3.65	. 5.25	S 1.97	k 1.93	i 9.03	l 1.22	2.00			
54.74	A 2.18	r 1.28	e 1.77	a 1.27	10.76													



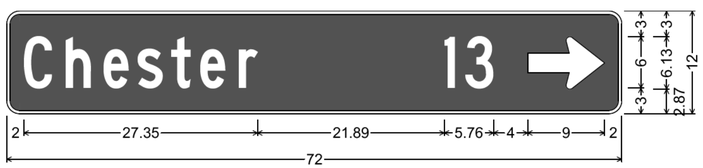
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180'; "Mount", C; "Holly", C; "9", C;
Table of distances between letter and object lefts

2.00	← 13.00	M 5.58	o 4.56	u 4.83	n 4.32	t 6.80	H 4.97	o 4.57	l 2.73	l 2.22	y 11.14	9 3.28	2.00	



1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 180'; "Plymouth", C; "12", C;
Table of distances between letter and object lefts

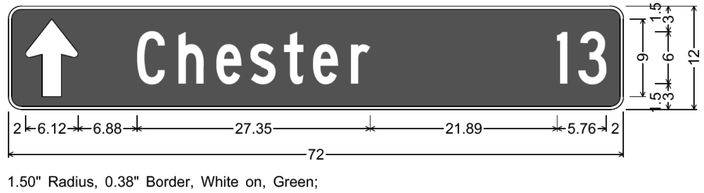
2.00	← 13.00	P 4.66	l 2.22	y 5.20	m 6.45	o 4.57	u 4.32	t 3.84	h 17.98	l 2.48	2 3.28	2.00	



1.50" Radius, 0.38" Border, White on, Green;
"Chester", C; "13", C; Standard Arrow Custom 9.00" X 6.13" 0';
Table of distances between letter and object lefts

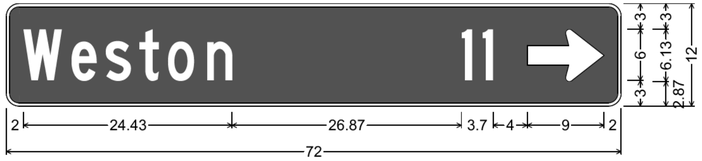
2.00	C 4.90	h 4.45	e 3.97	s 3.91	t 3.40	e 4.48	r 24.13	l 2.48	3 7.28	→ 9.00	2.00

STA. 117+60.56 RT



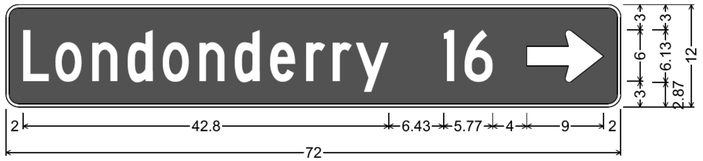
1.50" Radius, 0.38" Border, White on, Green;
Standard Arrow Custom 9.00" X 6.13" 90'; "Chester", C; "13", C;
Table of distances between letter and object lefts

2.00	↑ 13.00	C 4.90	h 4.45	e 3.97	s 3.91	t 3.40	e 4.49	r 24.12	l 2.48	3 3.28	2.00			



1.50" Radius, 0.38" Border, White on, Green;
"Weston", C; "11", C; Standard Arrow Custom 9.00" X 6.13" 0';
Table of distances between letter and object lefts

2.00	W 5.64	e 3.98	s 3.90	t 3.40	o 4.57	n 29.81	l 2.48	l 5.22	→ 9.00	2.00	



1.50" Radius, 0.38" Border, White on, Green;
"Londonderry", C 80% spacing; "16", C; Standard Arrow Custom 9.00" X 6.13" 0';
Table of distances between letter and object lefts

2.00	L 3.80	o 4.27	n 4.15	d 4.14	o 4.27	n 4.15	d 4.15	e 4.17	r 3.15	r 2.73	y 10.25	l 2.48	6 7.29	→ 9.00	2.00

STA. 118+61.14 LT

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18J009tss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: H. GAO
TRAFFIC SIGN DETAIL SHEET I

PLOT DATE: 7/14/2021
DRAWN BY: H. GAO
CHECKED BY: W. WONG
SHEET 27 OF 53

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 kPa	CONSISTENCY
<12	Very Soft
12-24	Soft
24-48	Med. Stiff
48-96	Stiff
96-192	Very Stiff
>192	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS) N	DESCRIPTIVE TERM	CONSISTENCY (COHESIVE SOILS) 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

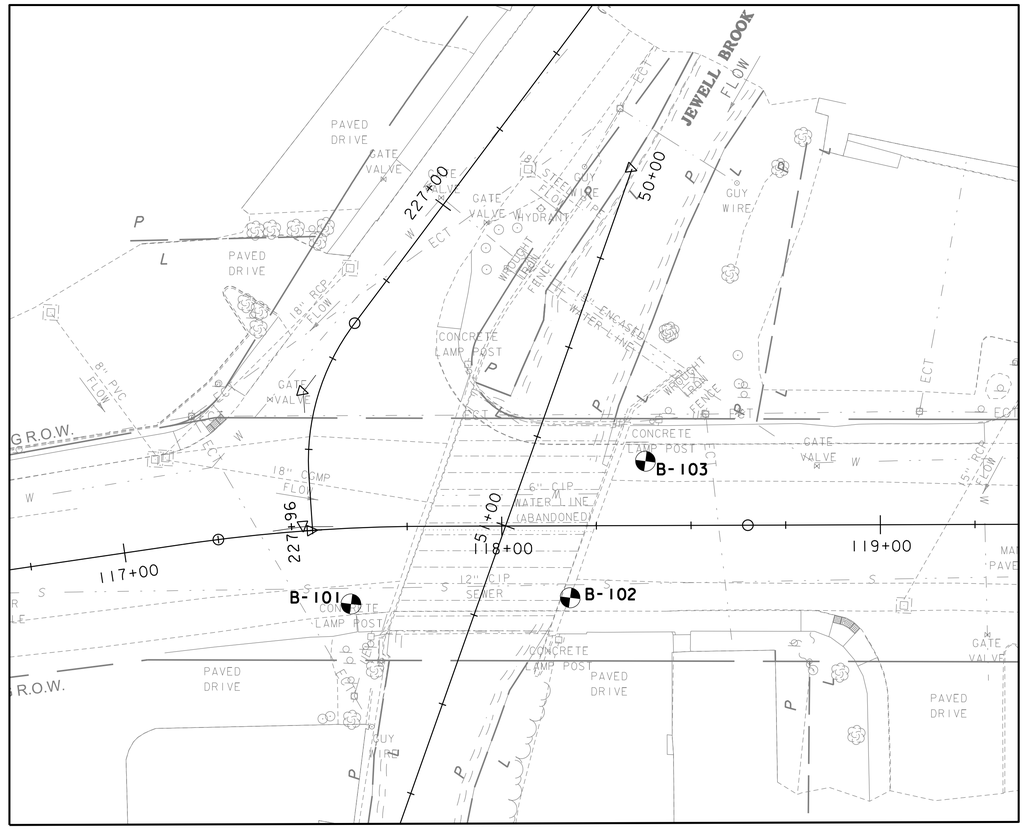
▼	Water Elevation
⊕	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per 300 mm For: 50.8 mm O.D. Sampler 35.0 mm I.D. Sampler Hammer Weight Of 63.5 kg. Hammer Fall Of 762 mm
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 30.1mm
BX	Core Size 42.0 mm
NX	Core Size 54.7 mm
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	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
ROD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
OW	Indicates a temporary observation well installed

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 CHART

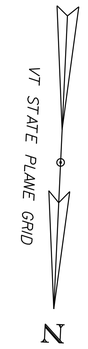
HOLE NO.	STATION	OFFSET (FT)	NORTHING (FT)	EASTING (FT)	APPROX GROUND SURFACE ELEV. (FT)
B-101	STA. 117+59	20 RT	326602.30	1586600.98	1006.0
B-102	STA. 118+18	19 RT	326597.18	1586542.78	1007.0
B-103	STA. 118+38	17 LT	326560.83	1586525.09	1007.0



BORING LAYOUT

0 20 40

SCALE IN FEET



DEFINITIONS (AASHTO)

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

BOULDER - A rock fragment with an average dimension > 304.8 mm.

COBBLE - Rock fragments with an average dimension between 76.2 and 304.8 mm.

GRAVEL - Rounded particles of rock < 76.2 mm and > 2 mm (#10 sieve).

SAND - Particles of rock < 2 mm (#10 sieve) and > 75 μm (#200 sieve).

SILT - Soil < 75 μm (#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 11/02/20 and 11/03/20 by the Agency.

2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency 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 judgement 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 judgement 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. Borings indicated on the plans have been made for design purposes only.

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009boring.dgn
PROJECT LEADER: M. CRUZ
DESIGNED BY: T. CARD
BORING PLAN

PLOT DATE: 7/14/2021
DRAWN BY: A. RUSSELL
CHECKED BY: T. CARD
SHEET 28 OF 53

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

BORING LOG

Bridge No. 26 Replacement Project
Ludlow Village NH DECK(49)
Ludlow, Vermont

Boring No.: **B-101**
Page No.: 1 of 1
Pin No.: 18J009
Checked By: J. Baron

Boring Crew: K. Smith (NEBC), J. Szmyt (GZA)
Date Started: 11/02/20 Date Finished: 11/02/20
VTSPG NAD83: N 326602.30 ft E 1586600.98 ft
Station: 117+59 Offset: 20 RT
Ground Elevation: 1006.0 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	2 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	Failing CF-15 Truck	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Notes
11/02/20	11.8	Stab. time = 0.25 hrs.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Visual Description, Approximately 4 inches of pavement, ASPHALT	22-19-19-18 (38)				
		Visual Description, (Modified Burmister), S-1 (0.3-2.3'): Dense, brown, fine to medium SAND, little Gravel, trace Silt (A-1-a). Moist, Rec. = 1.0 ft, FILL					
		Visual Description, (Modified Burmister), S-2 (2.3-4.3'): Dense, brown, fine to coarse SAND, some Gravel, trace Silt (A-1-a). Moist, Rec. = 0.83 ft, FILL	18-18-16-19 (34)				
5		Visual Description, (Modified Burmister), S-3 (4.3-6.3'): Very dense, brown, GRAVEL, some fine to medium Sand, trace Silt (A-1-b). Moist, Rec. = 1.08 ft, FILL	19-35-24-26 (59)	2.3	64.0	26.1	9.9
		Visual Description, SAND					
10		Visual Description, (Modified Burmister), S-4 (9.0-10.8'): Dense, brown, fine to coarse SAND, little Gravel, little Silt (A-1-b). Wet. Stone in tip of spoon, Rec. = 0.5 ft, SAND	13-20-19-50/4" (39)				
		Visual Description, SAND					
15		Visual Description, (Modified Burmister), S-5 (14.0-16.0'): Very dense, light brown/olive, fine to medium SAND, some Silt, trace Gravel (A-2-4). Wet, Rec. = 1.25 ft, SAND	48-47-43-41 (90)				
		Visual Description, SAND					
20		Visual Description, (Modified Burmister), S-6 (19.0-20.7'): Very dense, light brown/olive, fine to medium SAND, some Silt, trace Gravel (A-2-4). Wet, Rec. = 1.08 ft, SAND	63-51-42-50/2" (93)				
		Hole stopped @ 20.7 ft					
25							
30							

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 04.0191154.02 VTRANS LUDLOW VILLAGE - NH DECK(49).GPJ VERMONT AOT.GDT 1/8/21

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

BORING LOG

Bridge No. 26 Replacement Project
Ludlow Village NH DECK(49)
Ludlow, Vermont

Boring No.: **B-102**
Page No.: 1 of 1
Pin No.: 18J009
Checked By: J. Baron

Boring Crew: K. Smith (NEBC), J. Szmyt (GZA)
Date Started: 11/02/20 Date Finished: 11/02/20
VTSPG NAD83: N 326597.18 ft E 1586542.78 ft
Station: 118+18 Offset: 19 RT
Ground Elevation: 1007.0 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	2 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	Failing CF-15 Truck	C_E = 1.3

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Visual Description, Approximately 4 inches of pavement, ASPHALT	18-10-15-17 (25)				
		Visual Description, (Modified Burmister), S-1 (0.3-2.3'): Medium dense, brown, fine to medium SAND, little Silt, trace Gravel (A-1-b). Moist, Rec. = 0.5 ft, FILL					
		Visual Description, (Modified Burmister), S-2 (2.3-4.3'): Medium dense, brown, fine to coarse SAND, some Gravel, trace Silt (A-1-a). Moist, Rec. = 0.5 ft, FILL	15-9-11-12 (20)				
5		Visual Description, (Modified Burmister), S-3 (4.3-6.3'): Dense, brown, fine to medium SAND, little Gravel, trace Silt (A-1-a). Moist, Rec. = 0.92 ft, SAND	16-20-16-13 (36)				
		Visual Description, SAND					
10		Visual Description, (Modified Burmister), S-4 (9.0-11.0'): Very dense, brown, fine to medium SAND, little Gravel, trace Silt (A-1-a). Wet, Rec. = 1.0 ft, SAND	67-50-28-25 (78)				
		Visual Description, SAND					
15		Visual Description, (Modified Burmister), S-5 (14.0-16.0'): Very dense, brown, GRAVEL, some fine to coarse Sand, trace Silt (A-1-b). Wet. Stone in tip of spoon, Rec. = 0.67 ft, GRAVEL	49-37-35-56 (72)	7.7	64.5	26.9	8.6
		Visual Description, GRAVEL					
20		Visual Description, (Modified Burmister), S-6 (19.0-21.0'): Very dense, brown/olive, fine to medium SAND, some Silt, little Gravel (A-2-4). Wet, Rec. = 1.25 ft, SAND	44-52-50-45 (102)				
		Hole stopped @ 21.0 ft					
25							
30							

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 04.0191154.02 VTRANS LUDLOW VILLAGE - NH DECK(49).GPJ VERMONT AOT.GDT 1/8/21

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009borlog.dgn
PROJECT LEADER: M. CRUZ
DESIGNED BY: T. CARD
BORING LOG SHEET 1

PLOT DATE: 7/14/2021
DRAWN BY: A. RUSSELL
CHECKED BY: D. VERTIYEV

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

BORING LOG

Bridge No. 26 Replacement Project
Ludlow Village NH DECK(49)
Ludlow, Vermont

Boring No.: **B-103**
Page No.: 1 of 1
Pin No.: 18J009
Checked By: J. Baron

Boring Crew: K. Smith (NEBC), J. Szmyt (GZA)
Date Started: 11/03/20 Date Finished: 11/03/20
VTSPG NAD83: N 326560.83 ft E 1586525.09 ft
Station: 118+38 Offset: 17 LT
Ground Elevation: 1007.0 ft

	Casing	Sampler
Type:	WASH BORE	SS
I.D.:	4 in	2 in
Hammer Wt:	300 lb.	140 lb.
Hammer Fall:	24 in.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig: Failing CF-15 Truck	C_E = 1.3	

Groundwater Observations

Date	Depth (ft)	Notes
11/03/20	12.6	Stab. time = 0.5 hrs.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Visual Description, Approximately 4 inches of pavement, ASPHALT					
		Visual Description, (Modified Burmister), S-1 (0.3-2.3'): Dense, light brown, fine to medium SAND, some Gravel, trace Silt (A-1-a). Moist, Rec. = 0.92 ft, FILL	46-25-17-13 (42)				
		Visual Description, (Modified Burmister), S-2 (2.3-4.3'): Dense, light brown, fine to medium SAND, little Gravel, trace Silt (A-1-a). Moist, Rec. = 1.25 ft, FILL	11-18-20-15 (38)				
5		Visual Description, (Modified Burmister), S-3 (4.3-6.3'): Medium dense, light brown, fine to medium SAND, little Gravel, trace Silt (A-1-a). Moist, Rec. = 0.67 ft, FILL	12-11-10-15 (21)				
		Visual Description, FILL					
		Visual Description, (Modified Burmister), S-4 (9.0-11.0'): Dense, light brown, fine to medium SAND, some Gravel, little Silt (A-1-b). Wet, Rec. = 0.83 ft, SAND	33-19-19-19 (38)	9.3	47.1	37.6	15.3
10		Visual Description, SAND					
		Visual Description, (Modified Burmister), S-5 (14.0-16.0'): No recovery, Rec. = 0.0 ft, SAND	33-26-23-27 (49)				
15		Visual Description, (Modified Burmister), S-6 (16.0-18.0'): No recovery, Rec. = 0.0 ft, SAND	18-21-19-17 (40)				
		Visual Description, SAND					
		Visual Description, (Modified Burmister), S-6 (19.0-21.0'): Very dense, light brown/olive, fine to medium SAND, little Silt, little Gravel (A-1-b). Wet, Rec. = 0.67 ft, SAND	96-72-54-45 (126)				
20		Hole stopped @ 21.0 ft					
25							
30							

Remarks:
1. Driller notes that drill action indicated increased gravel and harder drilling at approximately 13 feet below ground surface.

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.

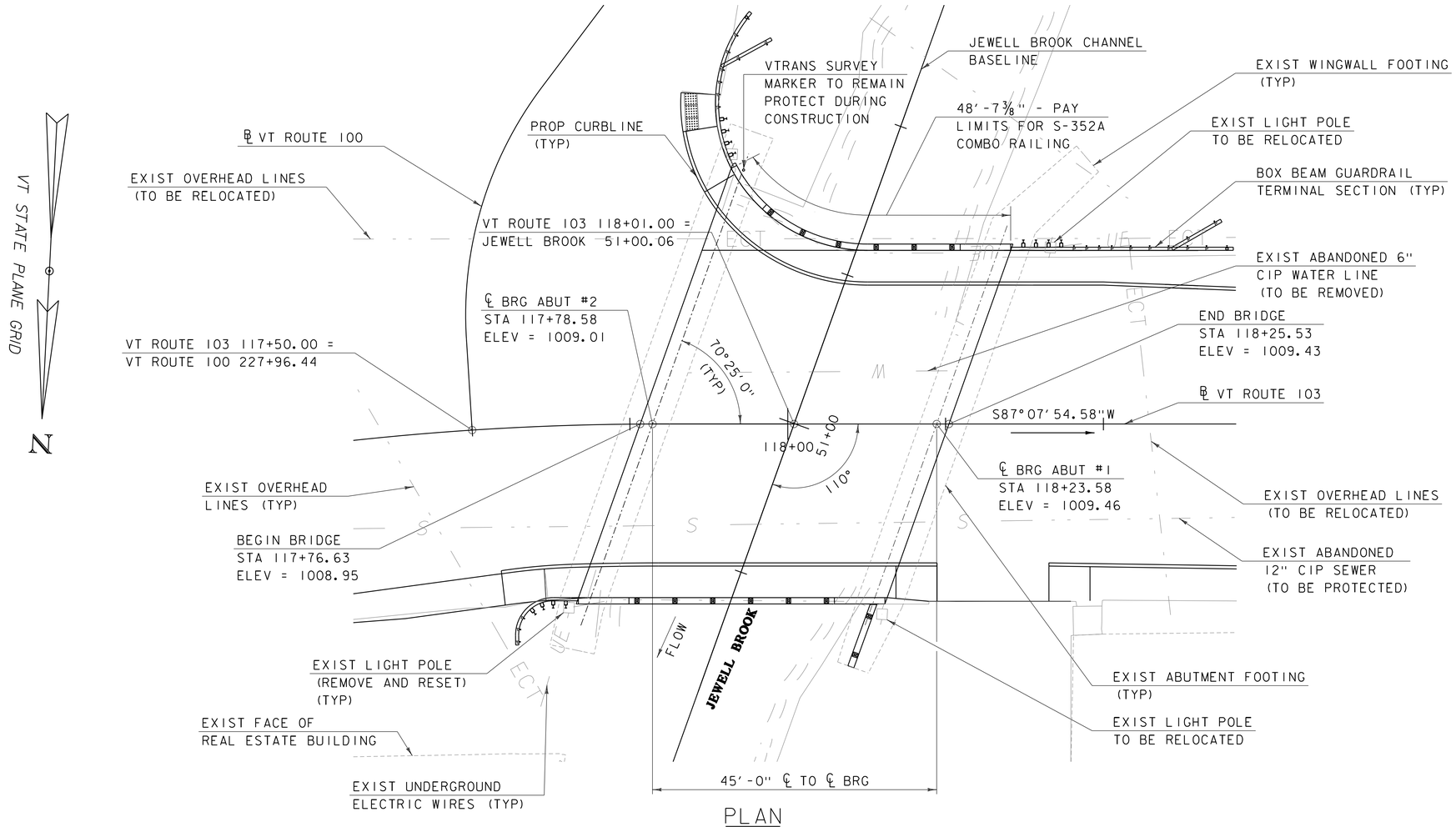
BORING LOG 04.0191154.02 VTRANS LUDLOW VILLAGE - NH DECK(49).GPJ VERMONT AOT.GDT 1/8/21

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

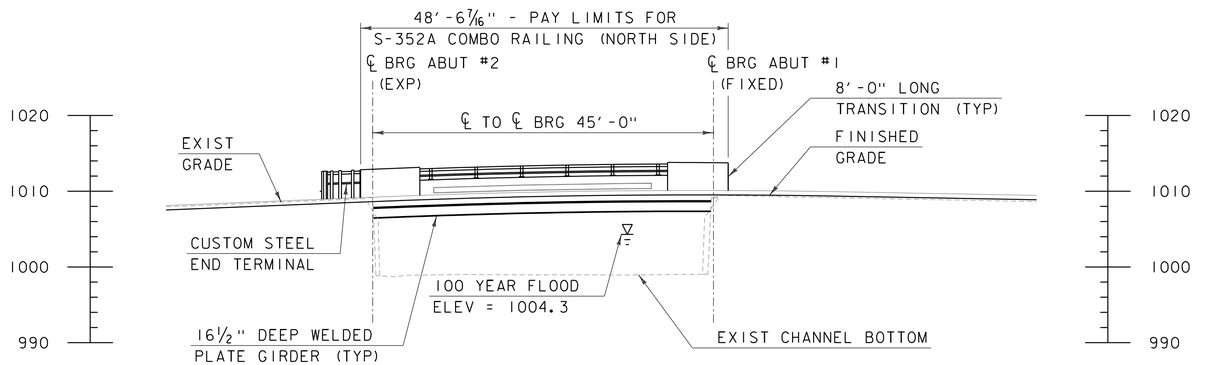
FILE NAME: z18j009borlog.dgn
PROJECT LEADER: M. CRUZ
DESIGNED BY: T. CARD
BORING LOG SHEET 2

PLOT DATE: 7/14/2021
DRAWN BY: A. RUSSELL
CHECKED BY: D. VERTIYEV
SHEET 30 OF 53



PLAN

SCALE 1" = 10'-0"



ELEVATION NORTH FASCIA

SCALE 1" = 10'-0"

NOTE:
SEE SHEETS 48-49 FOR BRIDGE RAILING POST SPACING, INCLUDING THE FIRST POST ON BRIDGE DIMENSIONS AT EACH CORNER.

0 10 20
SCALE IN FEET

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME:	LUDLOW VILLAGE
PROJECT NUMBER:	NH DECK(49)
FILE NAME: z18j009pe.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: A. BARBOSA
DESIGNED BY: A. OKA	CHECKED BY: A. BEDARD
BRIDGE PLAN AND ELEVATION	SHEET 31 OF 53

GENERAL:

1. ALL MATERIALS, DESIGN, AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2018, WITH ITS LATEST REVISIONS AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION WITH INTERIMS THROUGH 2020.

2. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68°F, UNLESS OTHERWISE NOTED.

3. PLAN DIMENSIONS, LAYOUT AND DETAILS RELATIVE TO THE EXISTING STRUCTURE ARE APPROXIMATE, BASED ON LIMITED FIELD SURVEY AND ORIGINAL DESIGN PLANS AND SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. THE CONTRACTOR SHALL FIELD VERIFY EXISTING DIMENSIONS AND DETAILS AFFECTING NEW CONSTRUCTION AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION, ORDERING MATERIALS OR FABRICATION DRAWING PREPARATION. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN SCOPE OF WORK.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING CONSISTENCY BETWEEN THE FABRICATOR'S SHOP DRAWINGS AND ENSURING THAT ALL PRECAST AND RAIL FIT TOGETHER.

5. THE REMOVAL OF THE EXISTING BRIDGE SUPERSTRUCTURE WILL BE PAID UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE." THIS WORK SHALL INCLUDE REMOVAL OF THE ENTIRE SUPERSTRUCTURE, DECK AND RAILINGS.

6. THE PARTIAL REMOVAL OF THE BRIDGE SUBSTRUCTURE SHALL INCLUDE THE PARTIAL REMOVAL OF THE EXISTING ABUTMENTS AND WINGWALLS SHOWN IN THE PLANS AND WILL BE PAID UNDER ITEM 529.25, "REMOVAL OF CONCRETE MASONRY."

EARTHWORK, REMOVAL AND RELATED ITEMS:

7. NO ONSITE DISPOSAL OF WASTE MATERIALS SHALL BE ALLOWED.

8. THE EXISTING SUPERSTRUCTURE SHALL BE REMOVED IN ITS ENTIRETY. THE EXISTING ABUTMENTS SHALL BE PARTIALLY REMOVED TO LIMITS SHOWN ON THE "TYPICAL SECTIONS AND DETAILS" SHEET.

9. THE EXISTING STRUCTURAL STEEL ON THIS PROJECT WAS PAINTED WITH A MATERIAL WHICH MAY CONTAIN LEAD. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE STRUCTURAL STEEL.

10. THE "CONTROLLED DENSITY (FLOWABLE) FILL" UNDER THE BRIDGE, AS SHOWN IN THE PLANS, SHALL BE PLACED BEFORE THE SUPERSTRUCTURE IS SET.

TRAFFIC CONTROL:

11. THE CONTRACTOR MAY OPEN THE BRIDGE TO TWO WAY TRAFFIC PRIOR TO CASTING THE SOUTHERN SPLAYED PORTION OF THE DECK AND THE SOUTHERN SIDEWALK. THE NORTHERN BRIDGE RAILING SHALL BE CAST DURING THE BRIDGE CLOSURE AND REACH A COMPRESSIVE STRENGTH OF 3000 PSI PRIOR TO ALLOWING TRAFFIC ADJACENT TO THE RAILING. THE NORTHERN BRIDGE RAILING SHALL CONTINUE TO BE CURED AFTER OPENING TO TRAFFIC FOR THE REQUIRED DURATION IN ACCORDANCE WITH SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED METAL HAND RAILING/CONCRETE PARAPET COMBINATION). TRAFFIC SHALL BE MAINTAINED WITH TEMPORARY TRAFFIC BARRIER ADJACENT TO SOUTHBOUND TRAFFIC AND THE PERMANENT BRIDGE RAILING ADJACENT TO NORTHBOUND TRAFFIC. MINIMUM TRAVEL WIDTHS SHALL BE 11 FEET EACH. SEE PROJECT SPECIAL PROVISIONS FOR ADDITIONAL BRIDGE CLOSURE PERIOD WORK REQUIREMENTS.

12. IF THE CONTRACTOR ELECTS TO OPEN THE BRIDGE TO TRAFFIC PRIOR TO CONSTRUCTION COMPLETION OF BOTH BRIDGE RAILINGS, THE DECISION TO DO SO SHALL BE MADE AHEAD OF THE BRIDGE CLOSURE PERIOD AND A TEMPORARY TRAFFIC CONTROL PLAN SHALL BE SUBMITTED FOR ACCEPTANCE IN ACCORDANCE WITH SPECIAL PROVISION "(TRAFFIC CONTROL, ALL-INCLUSIVE)."

13. THE FORMWORK FOR THE CAST-IN-PLACE RAILING SHALL NOT BE ANCHORED INTO THE DECK OR SIDEWALK.

CONCRETE:

14. CONCRETE FOR THE BRIDGE RAILING AND PORTIONS OF SIDEWALK LOCATED ON THE SUPERSTRUCTURE SHALL BE CAST ONSITE AFTER LONGITUDINAL CLOSURE POURS HAVE BEEN CAST AND CURED. FORMWORK AND REINFORCING STEEL MAY BE ASSEMBLED OFFSITE ON THE PREFABRICATED MEMBERS PRIOR TO ERECTION/INSTALLATION.

15. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL CONCRETE SURFACES EXPOSED IN THE FINAL CONDITION, WITH THE EXCEPTION OF THE UNDERSIDE OF THE BRIDGE DECK BETWEEN DRIP NOTCHES.

16. ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS FOR LEVEL III "STAINLESS STEEL" CORROSION RESISTANCE IN ACCORDANCE WITH SECTION 507, UNLESS OTHERWISE NOTED.

17. MINIMUM CLEAR COVER SHALL BE AS FOLLOWS:
-ALONG TOP SURFACE OF SUPERSTRUCTURE: 2½ INCHES**
-ALONG BOTTOM SURFACE OF SUPERSTRUCTURE: 2 INCHES
-ALONG BACK FACES OF WALLS AGAINST EARTH: 2 INCHES
-ELSEWHERE UNLESS OTHERWISE NOTED: 3 INCHES
**VALUE PROVIDED IS IN THE FINAL CONDITION. 3 INCHES OF COVER SHALL BE PROVIDED DURING INITIAL DECK CASTING, PRIOR TO DIAMOND GRINDING.

18. TEST BARS SHALL BE PROVIDED IN ACCORDANCE WITH THE "VERMONT AGENCY OF TRANSPORTATION MATERIAL SAMPLING MANUAL" AVAILABLE ON THE AGENCY WEBSITE.

19. ALL COSTS ASSOCIATED WITH DETAILING, FURNISHING AND FIELD-INSTALLING REINFORCING BARS WITHIN PBU CLOSURE POURS, APPROACH SLAB CLOSURE POURS AND ABUTMENT CONNECTION BLOCK OUTS, INCLUDING ANY NECESSARY DRILLING AND GROUTING, WILL BE PAID UNDER ITEM 507.11, "REINFORCING STEEL, LEVEL I."

20. CONCRETE FOR PRECAST ABUTMENT CONNECTION BLOCK OUTS AND PBU LONGITUDINAL CLOSURE POURS SHALL MEET THE REQUIREMENTS OF AND BE PAID UNDER ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)."

21. CONCRETE FOR SIDEWALK CONSTRUCTION ON THE BRIDGE AND APPROACH SLABS SHALL MEET THE REQUIREMENTS OF SECTION 501 FOR CONCRETE, HIGH PERFORMANCE CLASS A.

22. AFTER THE CONCRETE HAS BEEN PLACED AND THE FINISHING OPERATIONS CONCLUDED IT SHALL NOT BE WALKED ON OR DISTURBED IN ANY MANNER, INCLUDING THE REMOVAL OF FORMS FOR 12 HOURS.

23. ALL LIFTING POINTS IN THE SUPERSTRUCTURE SHALL BE REMOVABLE TO THE MINIMUM CLEAR COVER FOR REINFORCING STEEL SPECIFIED IN THE PLANS. THE LIFTING POINTS SHALL BE DETAILED IN THE APPROPRIATE FABRICATION DRAWING. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.

24. ALL RECESSED LIFTING POINTS, ANCHOR BOLT, TRANSVERSE POST-TENSIONING RECESSES, BLOCK OUTS AND LONGITUDINAL JOINTS SHALL BE FILLED WITH A TYPE IV MORTAR PER SUBSECTION 707.03. PAYMENT WILL BE CONSIDERED INCIDENTAL TO THE APPROPRIATE PRECAST ITEM.

25. THE METHOD OF FORMING FOR SUBSEQUENT POURS AFTER PLACING THE PBU SUPERSTRUCTURE SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR IS ENCOURAGED TO WORK WITH THE FABRICATOR IF ADDITIONAL SUPPORTS ARE REQUIRED. IN NO CASE SHALL THE CONTRACTOR ATTACH ADDITIONAL FORM OR SCREED SUPPORTS BY DRILLING OR SIMILAR MEANS INTO ANY PRECAST SUPERSTRUCTURE UNIT.

26. THE METHOD OF FORMING THE DECK CLOSURE POUR SHALL BE DETERMINED BY THE CONTRACTOR. THE FORMS SHALL BE REMOVABLE AND ABLE TO ACCOMMODATE DIFFERENTIAL CAMBER AND SETTING TOLERANCES. FORM SUPPORTS SHALL NOT PENETRATE THROUGH THE TOP OF THE POUR UNLESS APPROVED BY THE ENGINEER.

27. FORMWORK AND SHIELDING SHALL BE INSTALLED IN A WAY THAT PREVENTS MATERIAL FROM BLEEDING OUT INTO WATER BELOW.

28. THE EFFECTIVE CURE TIME OF THE BRIDGE RAIL MAY BE REDUCED TO MINIMUM OF SEVEN (7) DAYS PROVIDED THAT THE CONCRETE HAS REACHED 85% OF THE 28-DAY COMPRESSIVE STRENGTH PRIOR TO ANY VEHICULAR LOADING.

PRECAST ABUTMENTS:

29. CONCRETE COMPRESSIVE STRENGTH: f'_c = 5,000 PSI.

PREFABRICATED BRIDGE UNITS (PBU'S):

30. IN ORDER TO REDUCE POTENTIAL DIFFERENTIAL CAMBER IN THE RIDING SURFACE, THE PRECAST DECK OF ALL PBU'S SHALL BE CAST SIMULTANEOUSLY. PBU'S SHALL BE ARRANGED HORIZONTALLY AND VERTICALLY ADJACENT TO EACH OTHER IN AN ARRANGEMENT THAT MIMICS FINAL, IN-PLACE GEOMETRY PRIOR TO DETERMINING BLOCKING DIMENSIONS, SETTING DECK FORMS AND CASTING THE DECK.

31. THE DECK SHALL BE CAST TO AN INITIAL THICKNESS OF 9½ INCHES. AFTER THE LONGITUDINAL CLOSURE POURS, SIDEWALK AND BRIDGE RAILINGS HAVE BEEN CAST AND CURED, THE ENTIRE BRIDGE DECK SURFACE SHALL BE DIAMOND GROUND A NOMINAL ½ INCHES FOR A RESULTING DECK THICKNESS OF 9 INCHES. THE ADDITIONAL DECK THICKNESS DURING FABRICATION SHALL BE INCIDENTAL TO PAY ITEM 544.10 "PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE." THE DECK GRINDING AND ASSOCIATED DETAILS SHALL BE PAID UNDER A SEPARATE ITEM, ITEM 900.670 "SPECIAL PROVISION (CONCRETE BRIDGE DECK SURFACE PREPARATION)," SINCE IT APPLIES TO BOTH THE PBU'S AND CIP PORTIONS OF THE BRIDGE DECK.

32. DIMENSIONS AND ELEVATIONS PROVIDED ON THE PLANS ARE BASED ON THE FINAL DECK THICKNESS OF 9 INCHES. THE CONTRACTOR SHALL ACCOUNT FOR THE INITIAL 9½ INCH DECK THICKNESS IN ALL FABRICATION DRAWINGS, SUBMITTALS AND WORK EFFORTS.

33. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED AT THE DECK CASTING SITE AND BEFORE ANY FORMWORK OR OTHER LOADS ARE ADDED TO THE BEAMS, ELEVATIONS ALONG THE TOP OF THE BEAM FLANGES SHALL BE TAKEN AS DIRECTED BY THE ENGINEER FOR USE IN DETERMINING DECK FORMWORK ELEVATIONS.

34. THE CONTRACTOR SHALL CONSIDER AND INCORPORATE, AS NECESSARY, THE USE OF TEMPORARY BLOCKING DURING ALL STAGES OF CONSTRUCTION TO AVOID OVERTURNING OF THE PBU'S CAUSED BY ECCENTRIC LOADING. SEE THE "SUPERSTRUCTURE PLAN" SHEET FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

35. CONCRETE RETARDING ADMIXTURE SHALL BE APPLIED TO FORMWORK FOR SLAB EDGES THAT WILL COME IN CONTACT WITH HIGH PERFORMANCE CONCRETE, RAPID SET TO PROVIDE A NOMINAL ⅛ INCH ROUGHENED SURFACE MAY BE PROPOSED. ALL SUCH SURFACES SHALL BE POWER WASHED WITH WATER PRIOR TO INSTALLATION. PAYMENT FOR ACHIEVING THE SURFACE FINISH WILL BE CONSIDERED INCIDENTAL TO ITEM 900.640, "SPECIAL PROVISION (PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE) (BRIDGE 11) (FPQ)."

36. UNLESS NOTED OTHERWISE, ALL NEW STRUCTURAL STEEL SHALL BE GALVANIZED AND CONFORM TO AASHTO M 270 GRADE 50.

37. STEEL PLATES MARKED "(CVN)" SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01.

38. UNLESS OTHERWISE NOTED, ALL BOLTS SHALL BE ⅞ INCH DIAMETER ASTM A325 TYPE 1 AND MEET THE REQUIREMENTS OF SUBSECTION 714.05. HOLE DIAMETERS SHALL BE 15/16 INCHES.

39. STEEL BEAMS SHALL CONFORM TO THE GENERAL GEOMETRY AND DETAILS PROVIDED. ANY MODIFICATIONS TO THE STEEL BEAMS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT AND SUBMITTED TO THE ENGINEER FOR APPROVAL.

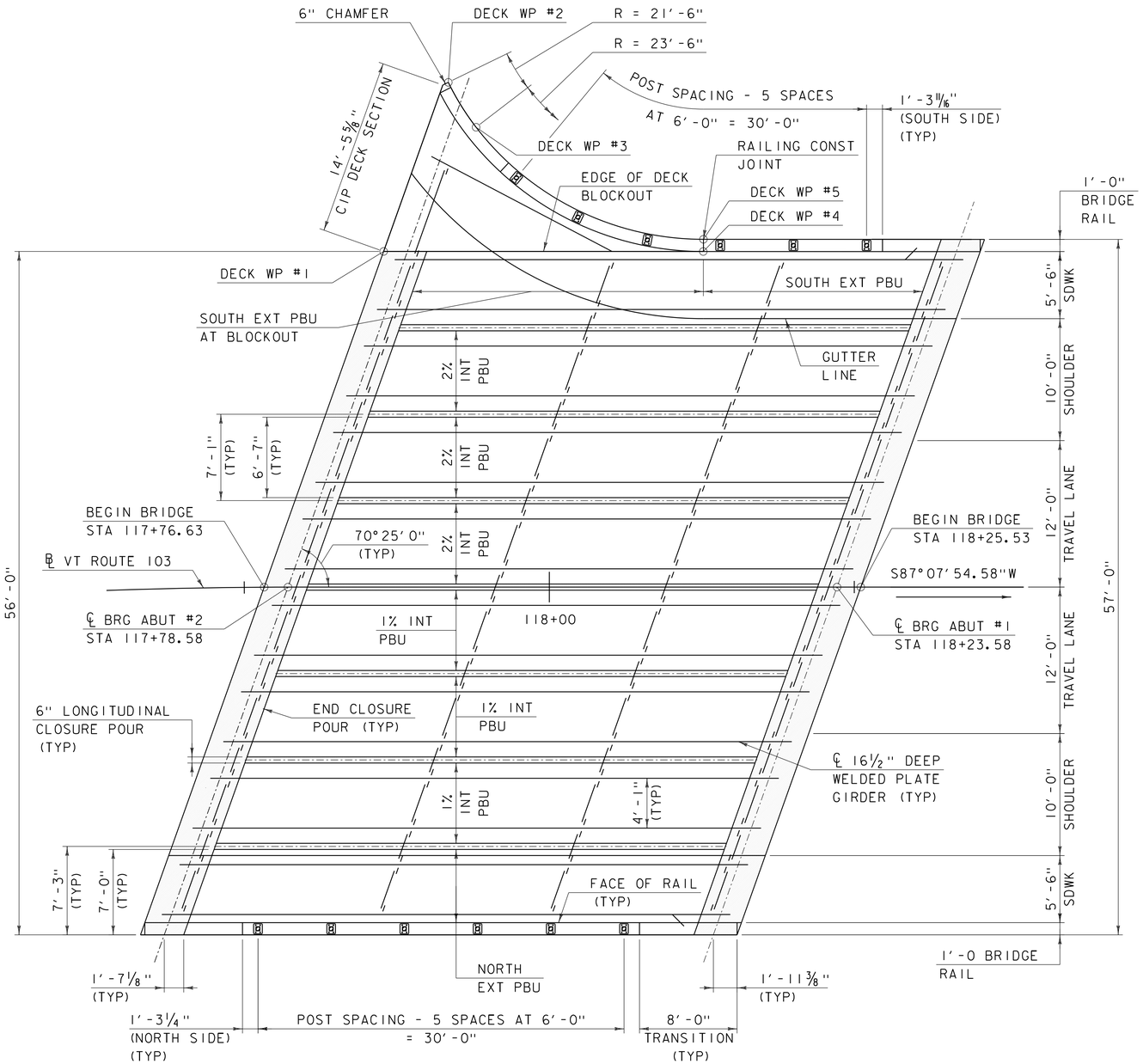
40. SURFACES OF BEAMS INCLUDING BEARING STIFFENERS AND DIAPHRAGMS SHALL BE PAINTED WITH A SYSTEM 1 - OZ/E/U PAINT IN ACCORDANCE WITH ITEM 900.645, "SPECIAL PROVISION (QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS)." FAYING SURFACES OF CONNECTIONS AND THE TOP OF THE TOP FLANGE SHALL REMAIN FREE OF PAINT. THE TOP COAT ON THE BEAMS SHALL BE LIGHT FULL GRAY, FEDERAL STANDARD 595, COLOR CHIP 16440.

41. ANY CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL.

42. DURING THE FABRICATION OF THE UNITS, IN THEIR TEMPORARY POSITION, THE BEAMS SHALL BE ONLY SUPPORTED AT BEARING POINTS.

43. THE CONCRETE EDGES ALONG THE LONGITUDINAL CLOSURE POURS SHALL BE TREATED TO PROVIDE A ROUGHENED/EXPOSED COARSE AGGREGATE SURFACE. THE AMPLITUDE OF THE EXPOSED COARSE AGGREGATE SHALL BE A MINIMUM OF ⅛ INCH AND BE COMPLETED PRIOR TO ERECTION OF THE BEAMS. THE FABRICATOR SHALL INDICATE THE METHOD USED TO ACHIEVE THIS PROFILE ON THE FABRICATION DRAWINGS AND METHOD USED TO PROTECT THE REINFORCING STEEL. THIS SHALL BE INCIDENTAL TO PAY ITEM 544.10 "PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE."

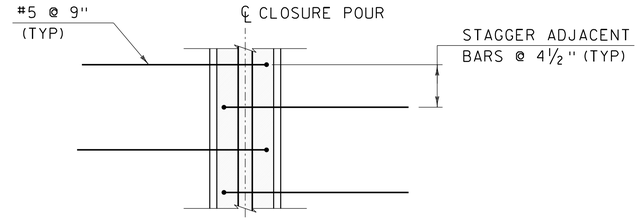
44. PRIOR TO THE CONCRETE PLACEMENT OF THE LONGITUDINAL CLOSURE POUR, THE JOINT SHALL BE SATURATED WITH WATER IN ACCORDANCE WITH SECTION 501 OF THE STANDARD SPECIFICATIONS.



SUPERSTRUCTURE PLAN

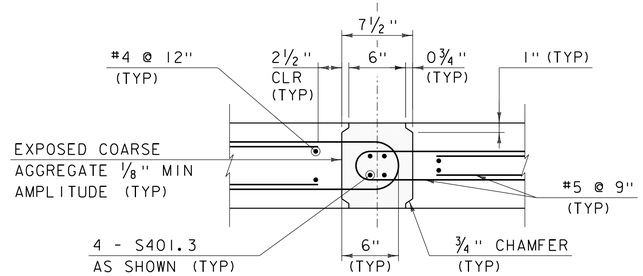
SCALE 3/16" = 1'-0"

DECK WORKING POINTS				
WORKING POINT	NORTHING	EASTING	STATION	OFFSET
WP #1	326552.7059	1586576.9065	117+86.42	27.50 LT
WP #2	326538.6047	1586572.3064	117+91.72	41.36 LT
WP #3	326542.1639	1586569.8483	117+94.00	37.68 LT
WP #4	326551.4013	1586550.7271	118+12.63	27.50 LT
WP #5	326550.4026	1586550.7772	118+12.63	28.50 LT



LONGITUDINAL CLOSURE POUR DETAIL - PLAN

SCALE 1 1/2" = 1'-0"



LONGITUDINAL CLOSURE POUR DETAIL - SECTION

SCALE 1 1/2" = 1'-0"

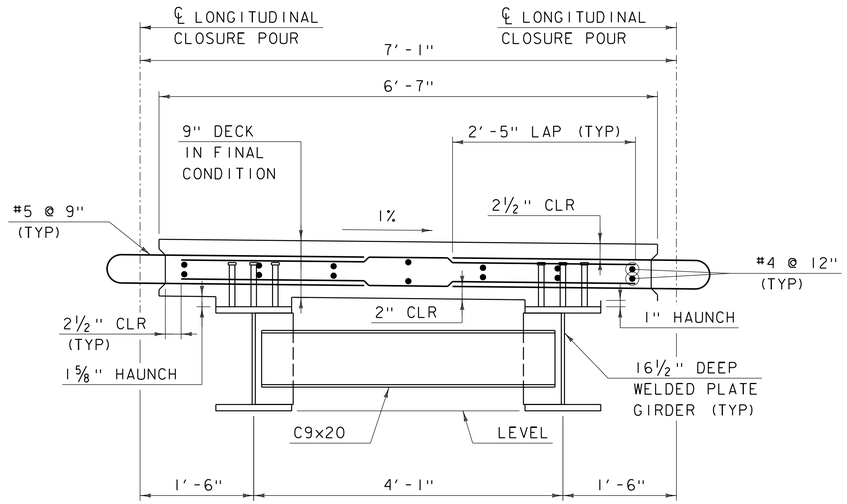
NOTES:
1. FOR CIP DECK SECTION DETAILS, REFER TO SHEET 40.
2. FOR END CLOSURE POUR DETAILS, REFER TO SHEET 38.

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

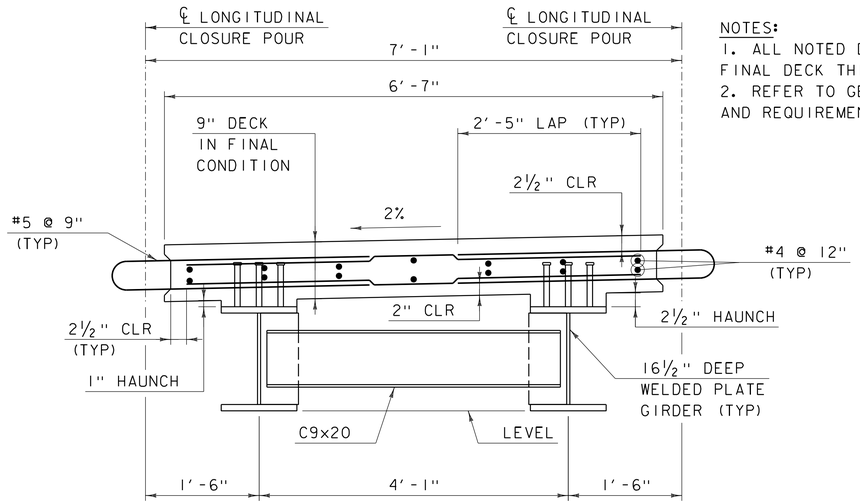
FILE NAME: z18j009sup.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD

SUPERSTRUCTURE LAYOUT & DECK DETAILS



TYPICAL SECTION - INTERIOR PBU (1%)

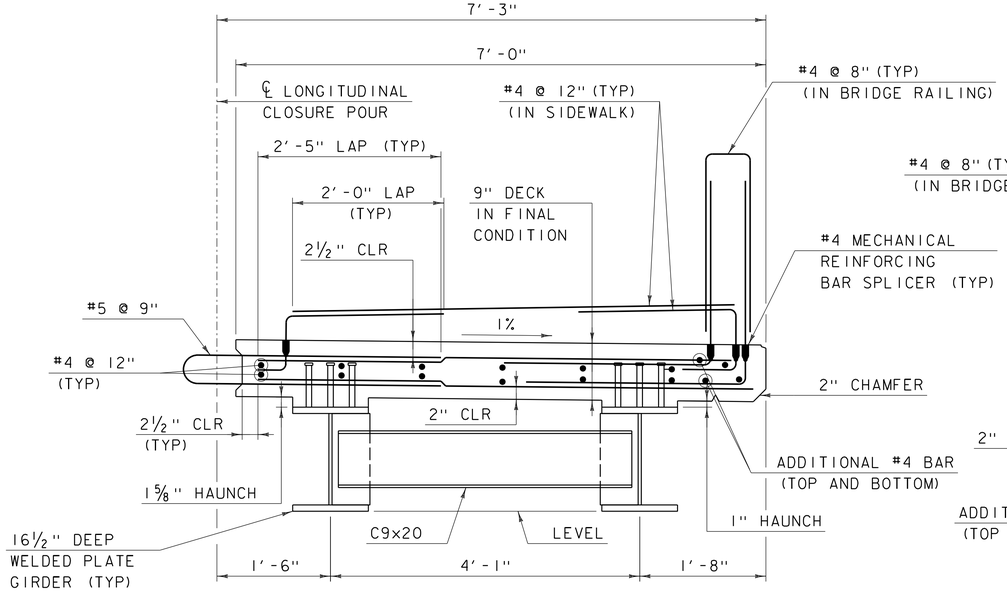
SCALE 1" = 1′-0"



NOTES:
1. ALL NOTED DIMENSIONS AND/OR ELEVATIONS ARE BASED ON FINAL DECK THICKNESS OF 9 INCHES.
2. REFER TO GENERAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS FOR THE PREFABRICATED BRIDGE UNITS.

TYPICAL SECTION - INTERIOR PBU (2%)

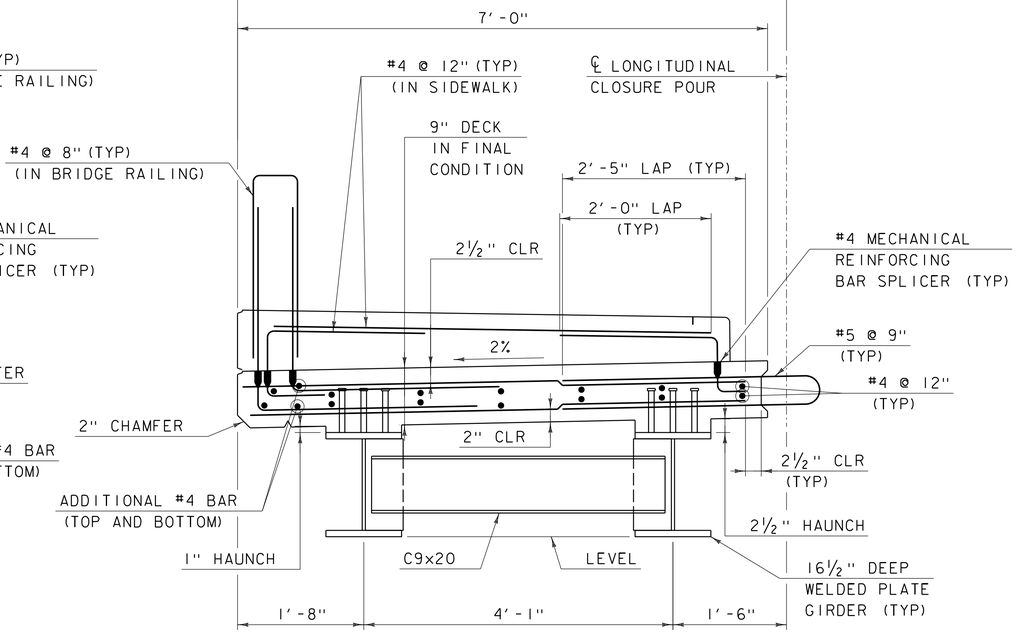
SCALE 1" = 1′-0"



NOTE: CONTRACTOR HAS OPTION TO INCLUDE SIDEWALK AS PART OF NORTH EXTERIOR PBU.

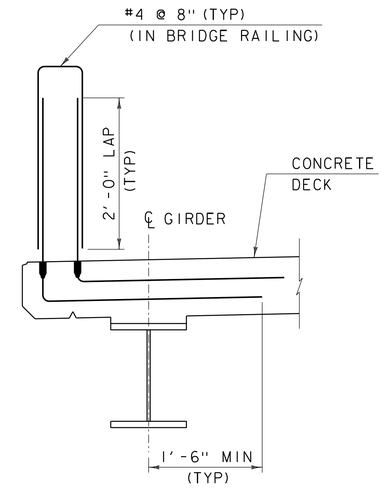
TYPICAL SECTION - NORTH EXTERIOR PBU

SCALE 1" = 1′-0"



TYPICAL SECTION - SOUTH EXTERIOR PBU

SCALE 1" = 1′-0"

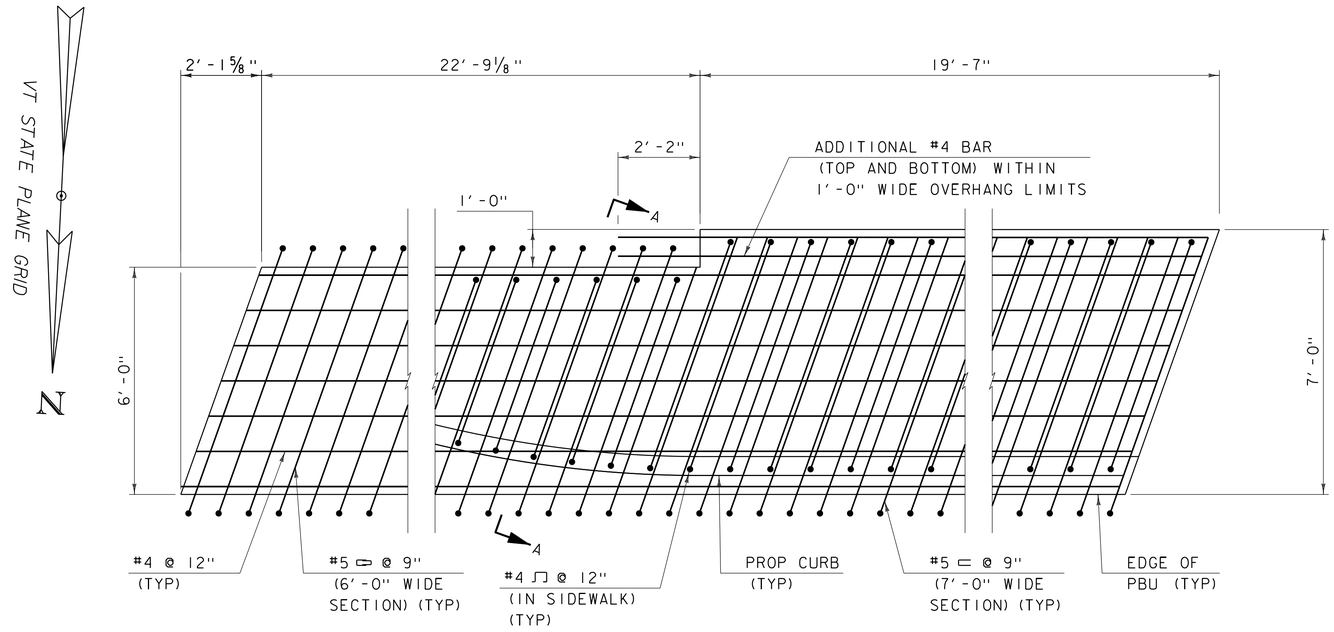


BRIDGE RAILING REINFORCING DETAIL

SCALE 1" = 1′-0"

PROJECT NAME:	LUDLOW VILLAGE
PROJECT NUMBER:	NH DECK(49)
FILE NAME: z18j009sup2.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: A. BARBOSA
DESIGNED BY: A. OKA	CHECKED BY: A. BEDARD
PBU TYP SECTIONS AND DETAILS SHT 1 OF 2 SHEET	34 OF 53

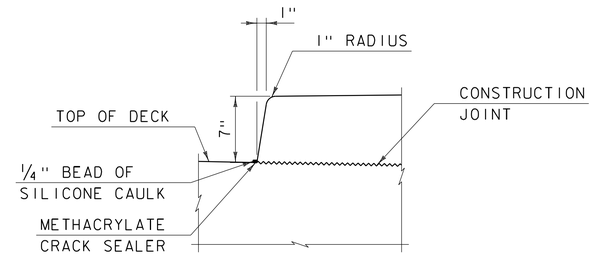
GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS



NOTE: GIRDERS AND BRIDGE RAILING REINFORCING NOT SHOWN FOR CLARITY

SOUTH EXTERIOR PBU AT BLOCKOUT - PLAN

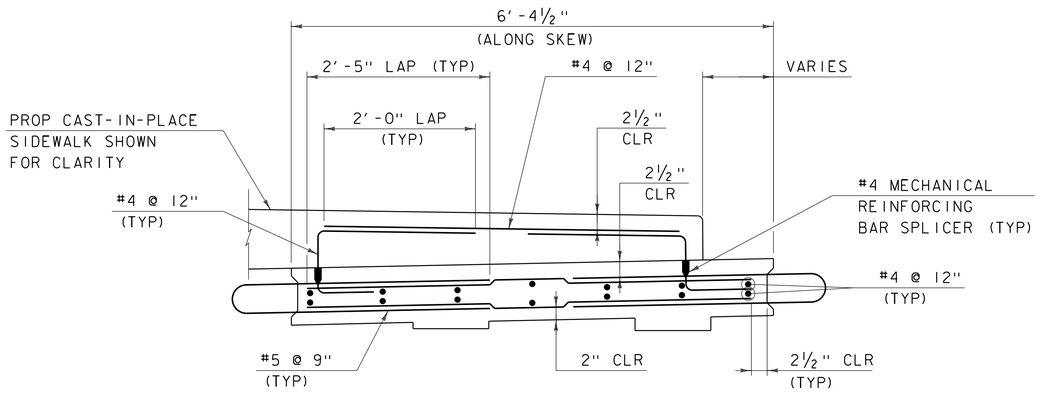
SCALE 1/2" = 1'-0"



NOTES:
1. DECK GRINDING MUST BE COMPLETED PRIOR TO APPLICATION OF METHACRYLATE CRACK SEALER AND SILICONE CAULK.
2. METHACRYLATE CRACK SEALER SHALL BE APPLIED AFTER SIDEWALK CURING PERIOD IS COMPLETE AND IN ACCORDANCE WITH REQUIREMENTS OF MANUFACTURER AND THE STANDARD SPECIFICATIONS.
3. BEFORE SEALING, THE CONCRETE AT THE INTERFACE OF DECK AND CURB SHALL BE SWEPT CLEAN AND BLOWN OFF USING OIL FREE COMPRESSED AIR IMMEDIATELY PRIOR TO APPLYING THE SEALER.
4. APPLY 1/4" HIGH BEAD OF SILICONE CAULKING COMPOUND ABOUT 1/4" FROM THE FACE OF CURB.
5. METHACRYLATE SHALL THEN BE POURED INTO THE 1/4" WIDE GAP BETWEEN THE FACE OF CURB AND THE BEAD OF CAULK.

FACE OF CURB DETAILS

SCALE 1 1/2" = 1'-0"



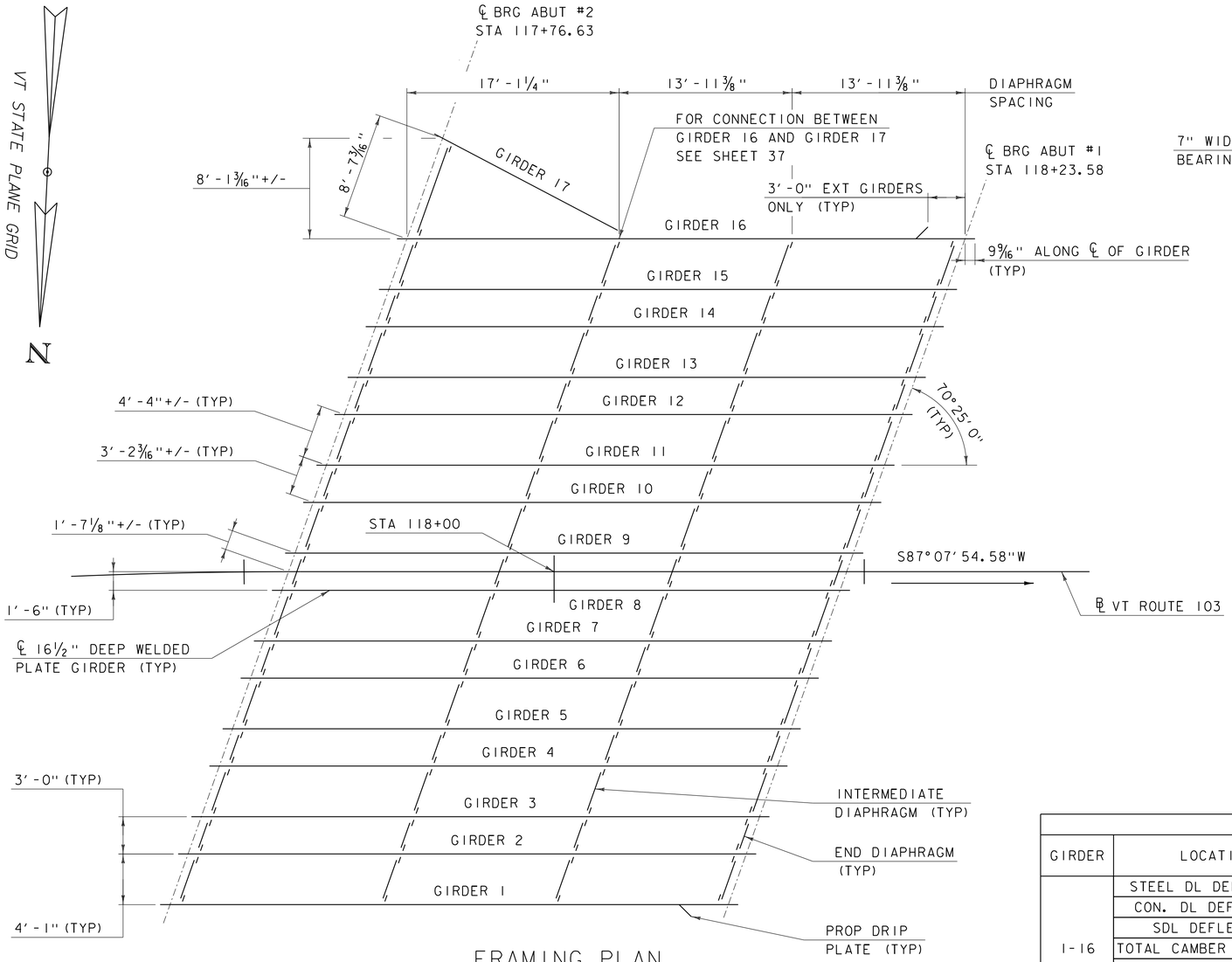
NOTE: GIRDERS NOT SHOWN FOR CLARITY

SOUTH EXTERIOR PBU AT BLOCKOUT - SECTION A-A

SCALE 1" = 1'-0"

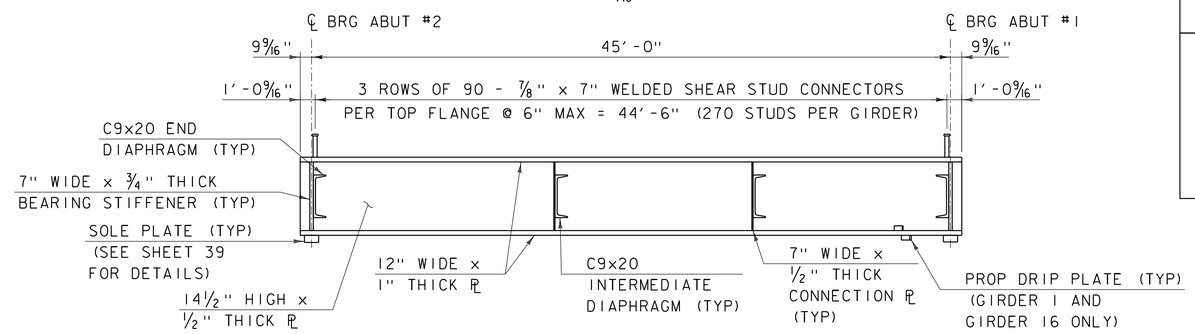
GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME:	LUDLOW VILLAGE
PROJECT NUMBER:	NH DECK(49)
FILE NAME: z18j009sup2.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: A. BARBOSA
DESIGNED BY: A. OKA	CHECKED BY: A. BEDARD
PBU TYP SECTIONS AND DETAILS SHT 2 OF 2	SHEET 35 OF 53



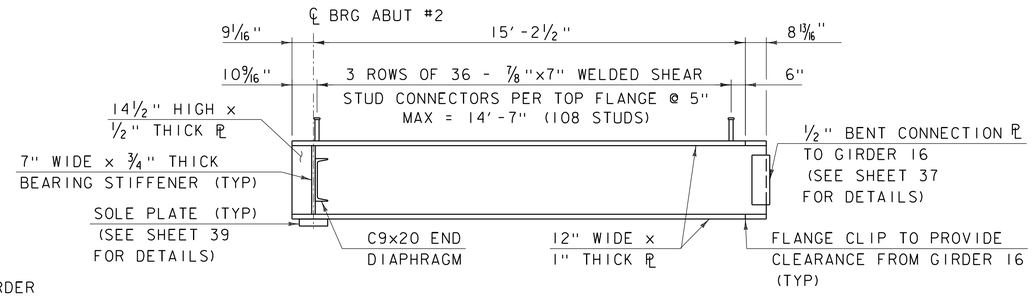
FRAMING PLAN

SCALE ³⁄₁₆" = 1'-0"



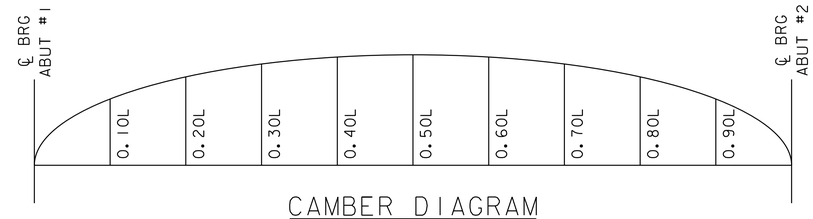
GIRDER ELEVATION - GIRDERS 1-16

NOT TO SCALE



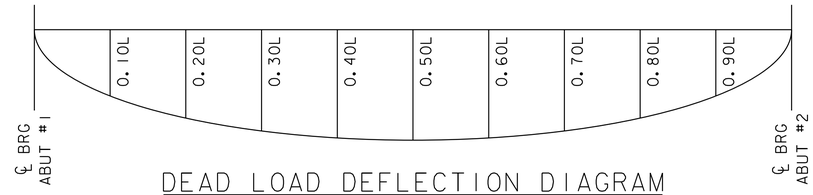
GIRDER ELEVATION - GIRDER 17

NOT TO SCALE



CAMBER DIAGRAM

NOT TO SCALE



DEAD LOAD DEFLECTION DIAGRAM

NOT TO SCALE

CAMBER TABLE

GIRDER	LOCATION	℄ BRG ABUT #1	0.10L	0.20L	0.30L	0.40L	0.50L	0.60L	0.70L	0.80L	0.90L	℄ BRG ABUT #2
1-16	STEEL DL DEFLECTION	0	1/16	1/8	3/16	3/16	3/16	3/16	3/16	1/8	1/16	0
	CON. DL DEFLECTION	0	5/16	9/16	3/4	7/8	15/16	7/8	3/4	9/16	5/16	0
	SDL DEFLECTION	0	1/16	1/16	1/16	1/8	1/8	1/8	1/16	1/16	1/16	0
	TOTAL CAMBER DUE TO DL	0	3/8	3/4	1	1 3/16	1 1/4	1 3/16	1	3/4	3/8	0
	SAG CURVE	0	0	0	0	0	0	0	0	0	0	0
	RESIDUAL CAMBER	0	1 1/16	1 15/16	2 1/2	2 7/8	3	2 7/8	2 1/2	1 15/16	1 1/16	0
	TOTAL CAMBER	0	1 1/2	2 11/16	3 9/16	4 1/16	4 1/4	4 1/16	3 9/16	2 11/16	1 1/2	0
17	STEEL DL DEFLECTION	0	0	0	0	0	0	0	0	0	0	0
	CON. DL DEFLECTION	0	0	0	0	0	0	0	0	0	0	0
	SDL DEFLECTION	0	0	0	0	0	0	0	0	0	0	0
	TOTAL CAMBER DUE TO DL	0	0	0	0	0	1/16	1/16	0	0	0	0
	SAG CURVE	0	0	0	0	0	0	0	0	0	0	0
	RESIDUAL CAMBER	0	3/8	5/8	13/16	15/16	1	15/16	13/16	5/8	3/8	0
	TOTAL CAMBER	0	3/8	5/8	7/8	1	1	1	7/8	11/16	3/8	0

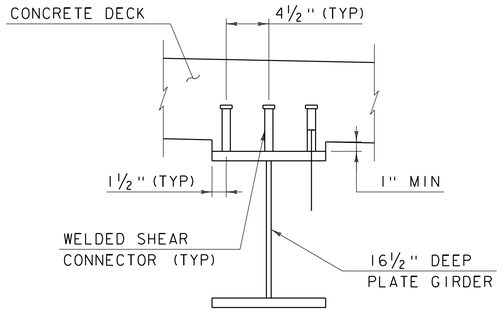
NOTE:
REFER TO GENERAL NOTES FOR ADDITIONAL INFORMATION ON STRUCTURAL STEEL.

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

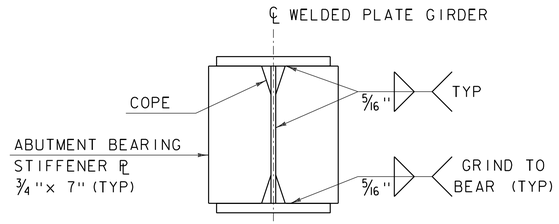
FILE NAME: z18j009fp.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
FRAMING PLAN AND BEAM ELEVATION

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD



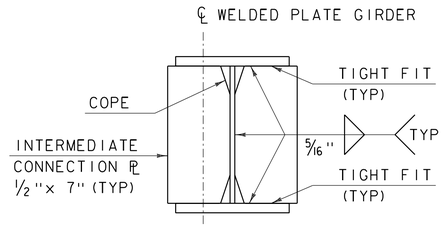
HAUNCH AND SHEAR CONNECTOR DETAIL

SCALE 1 1/2" = 1'-0"



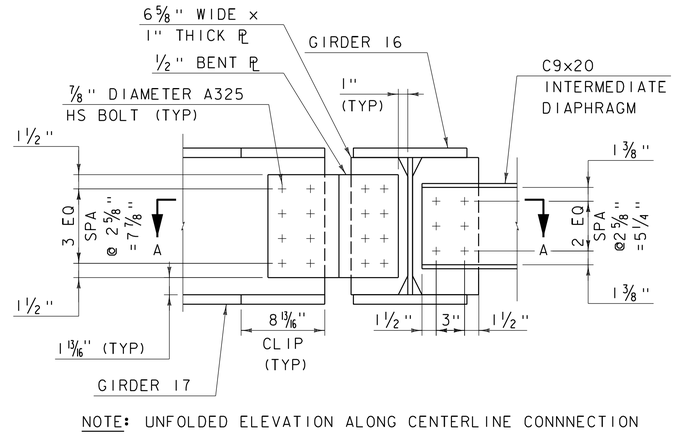
ABUTMENT BEARING STIFFENER DETAIL

SCALE 1 1/2" = 1'-0"



INTERMEDIATE CONNECTION PLATE DETAIL

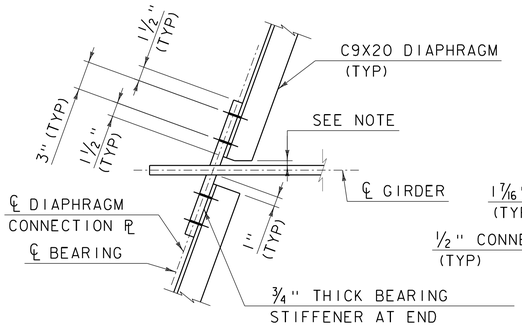
SCALE 1 1/2" = 1'-0"



NOTE: UNFOLDED ELEVATION ALONG CENTERLINE CONNNECTION

GIRDER CONNECTION TO GIRDER 16 ELEVATION

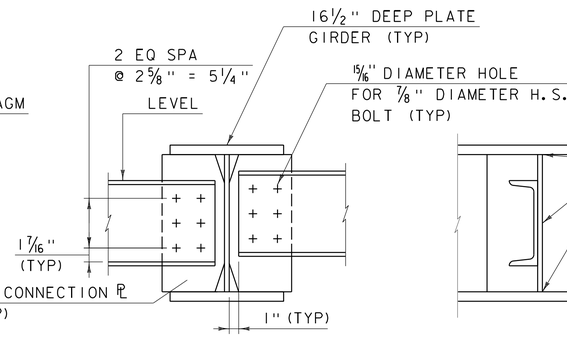
SCALE 1 1/2" = 1'-0"



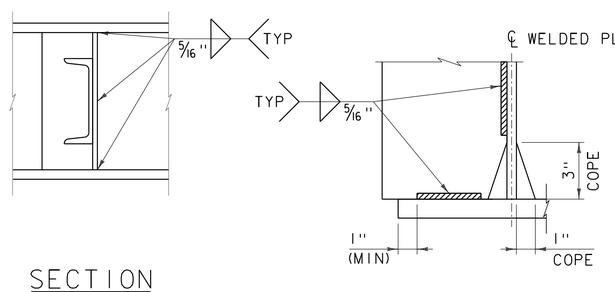
NOTE: FLANGE OF CHANNEL MAY BE CLIPPED TO AVOID INTERFERENCE WITH WEB

DIAPHRAGM CONNECTION DETAIL

SCALE 1 1/2" = 1'-0"



ELEVATION



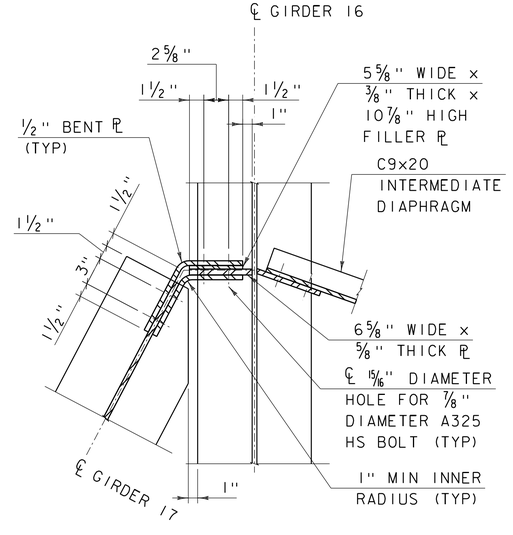
SECTION

DIAPHRAGM DETAILS

SCALE 1 1/2" = 1'-0"

WELD TERMINATION AND COPING DETAILS FOR STEEL MEMBERS

SCALE 3" = 1'-0"

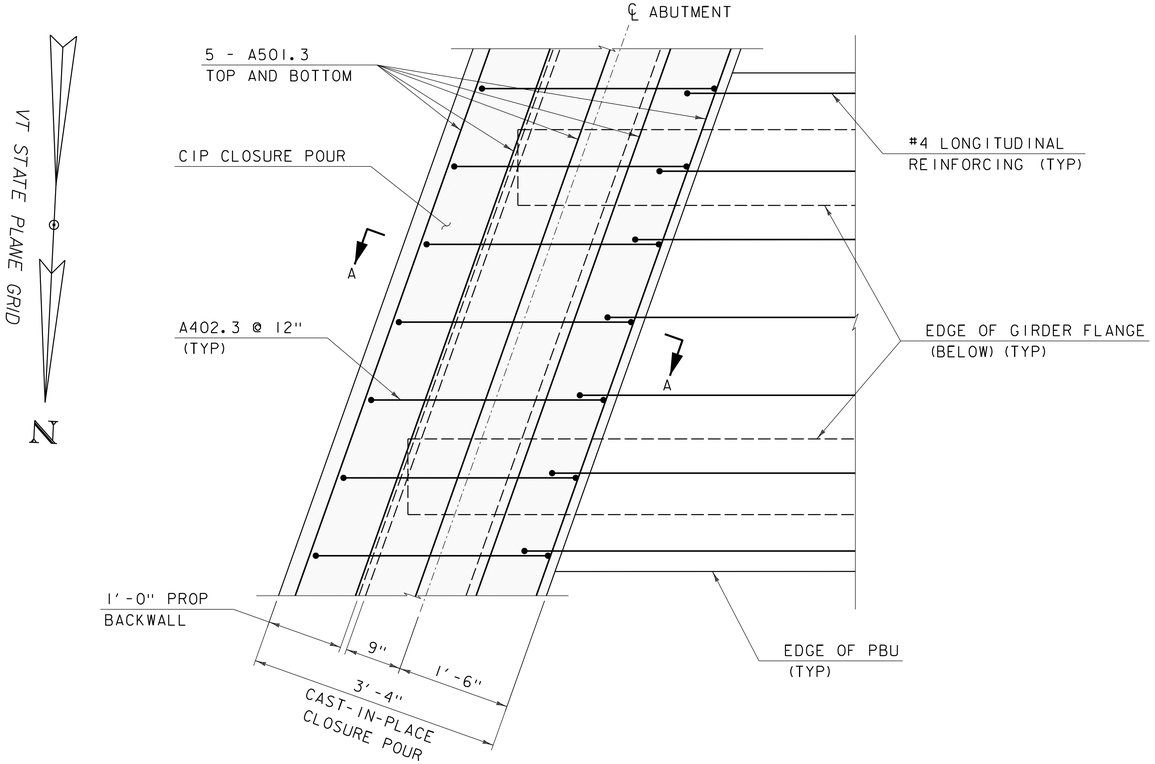


GIRDER CONNECTION TO GIRDER 16 SECTION A-A

SCALE 1 1/2" = 1'-0"

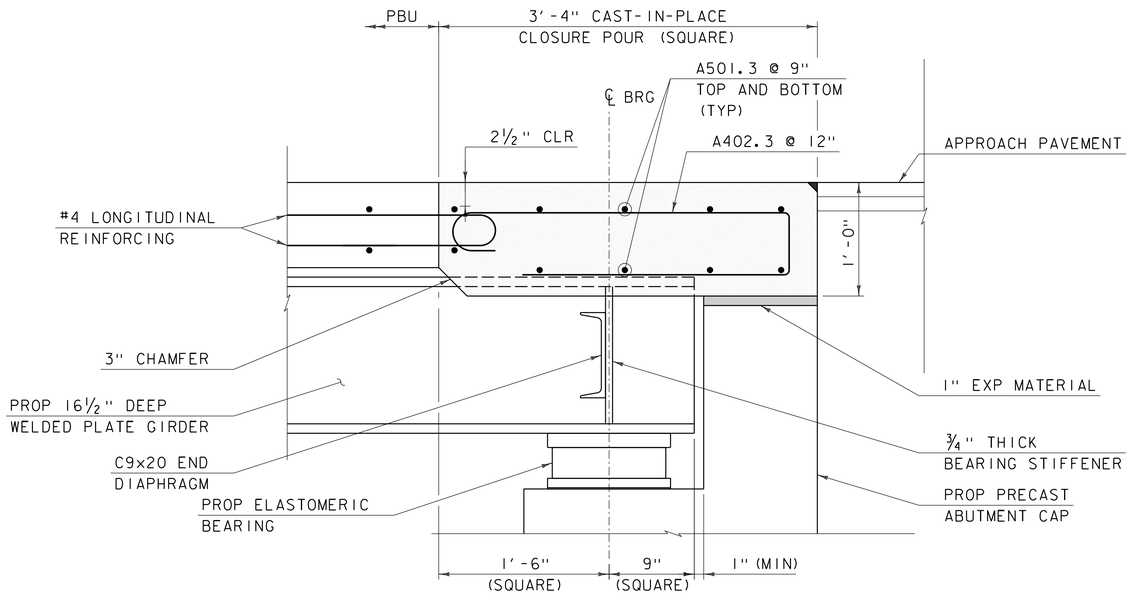
PROJECT NAME:	LUDLOW VILLAGE
PROJECT NUMBER:	NH DECK(49)
FILE NAME: z18j009sup2.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: A. BARBOSA
DESIGNED BY: A. OKA	CHECKED BY: A. BEDARD
BEAM DETAILS	SHEET 37 OF 53

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS



TYPICAL BRIDGE END - PLAN

SCALE 1" = 1'-0"



TYPICAL BRIDGE END - SECTION A-A

SCALE 1½" = 1'-0"

LEGEND:

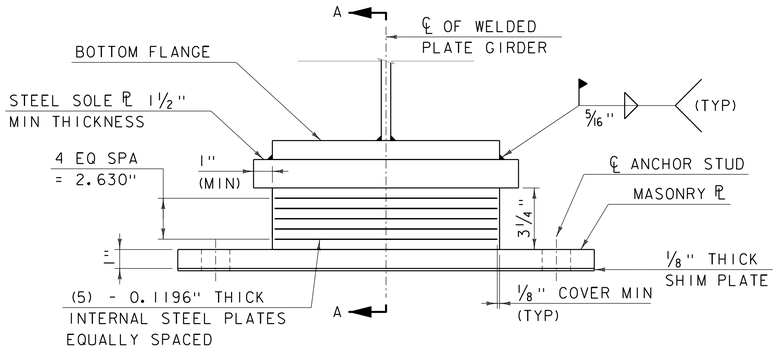
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009beamend.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
BRIDGE END DETAILS

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 38 OF 53

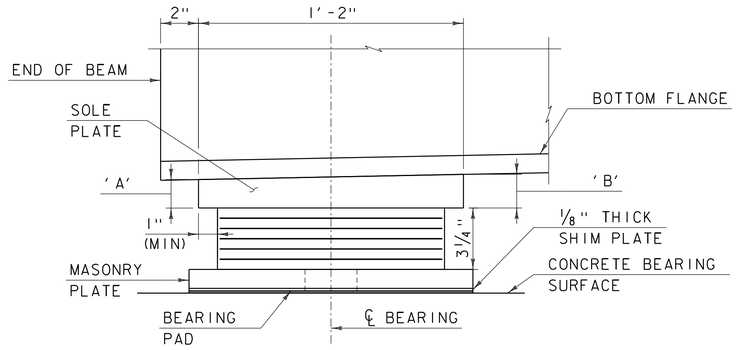
GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS



NOTE: CONTRACTOR SHALL HAVE 1/8" MINIMUM SHIM PLATES ON SITE FOR MINOR ELEVATION ADJUSTMENTS.

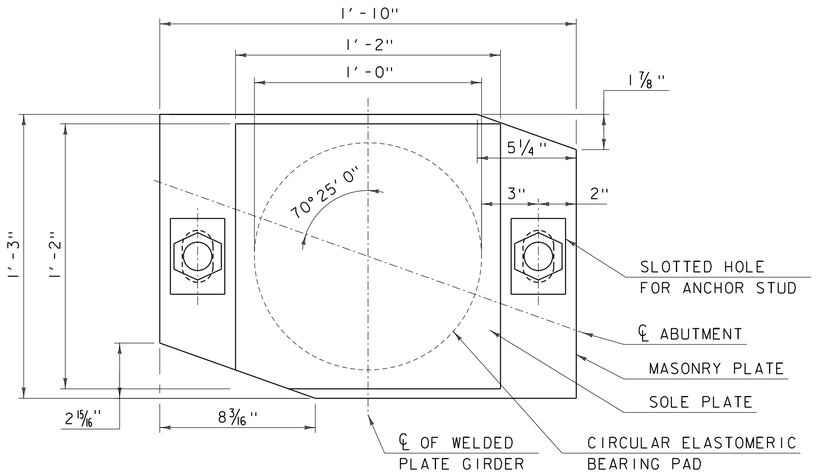
TYPICAL BEARING ELEVATION

SCALE 3" = 1'-0"



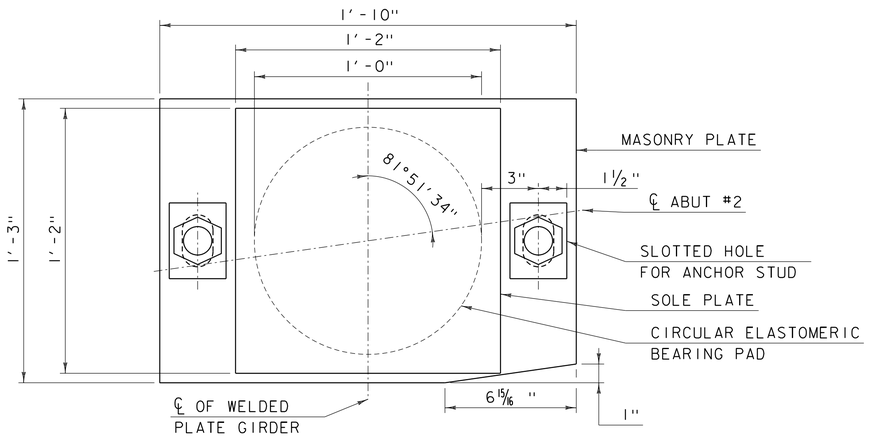
SECTION A-A

SCALE 3" = 1'-0"



TYPICAL BEARING PLAN

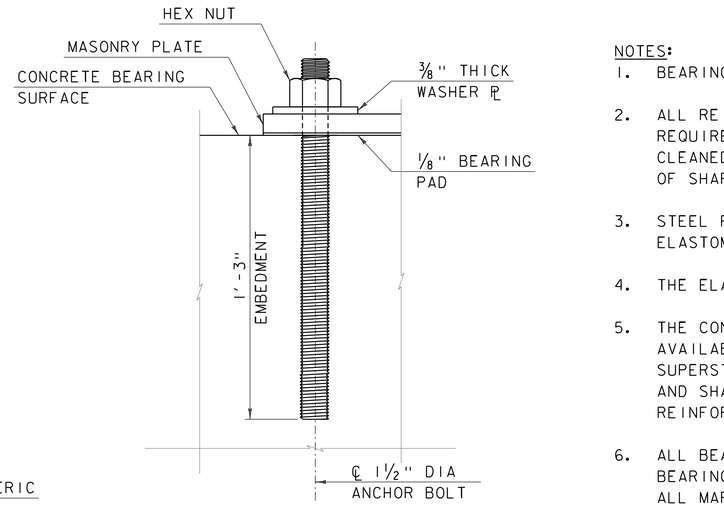
SCALE 3" = 1'-0"



GIRDER 17 BEARING PLAN

SCALE 3" = 1'-0"

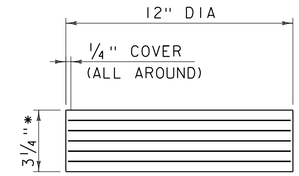
SOLE PLATE DIMENSIONS				
GIRDER	ABUTMENT			
	ABUT #1		ABUT #2	
	'A'	'B'	'A'	'B'
GIRDERS 1-3	1½"	1½"	1½"	1 15/16"
GIRDERS 4-6	1½"	1½"	1½"	1 7/8"
GIRDERS 7-10	1½"	1½"	1½"	1 13/16"
GIRDERS 11-13	1½"	1½"	1½"	1¾"
GIRDERS 14-15	1½"	1½"	1½"	1 11/16"
GIRDER 16	1½"	1½"	1½"	2"
GIRDER 17	1½"	1½"	1½"	1 13/16"



NOTE:
ANCHOR STUDS SHALL BE CAST INTO PRECAST ABUTMENT CAP DURING FABRICATION.

ANCHOR STUD DETAIL

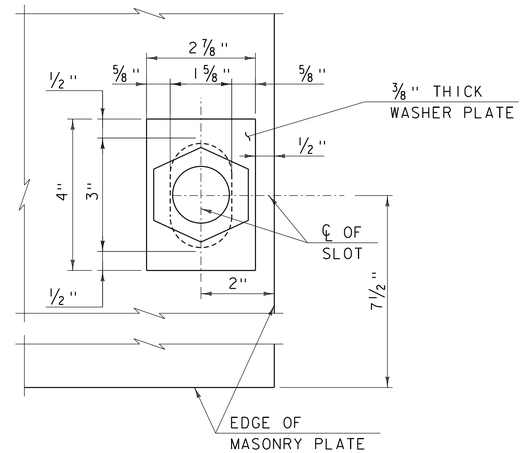
SCALE 3" = 1'-0"



* (2) - ¼" EXTERIOR ELASTOMER LAYERS
(4) - 0.538" ELASTOMER LAYERS
(5) - 11 GAGE STEEL REINFORCING PLATES

BEARING DETAILS

SCALE 3" = 1'-0"



SLOTTED HOLE DETAIL

SCALE 6" = 1'-0"

NOTES:

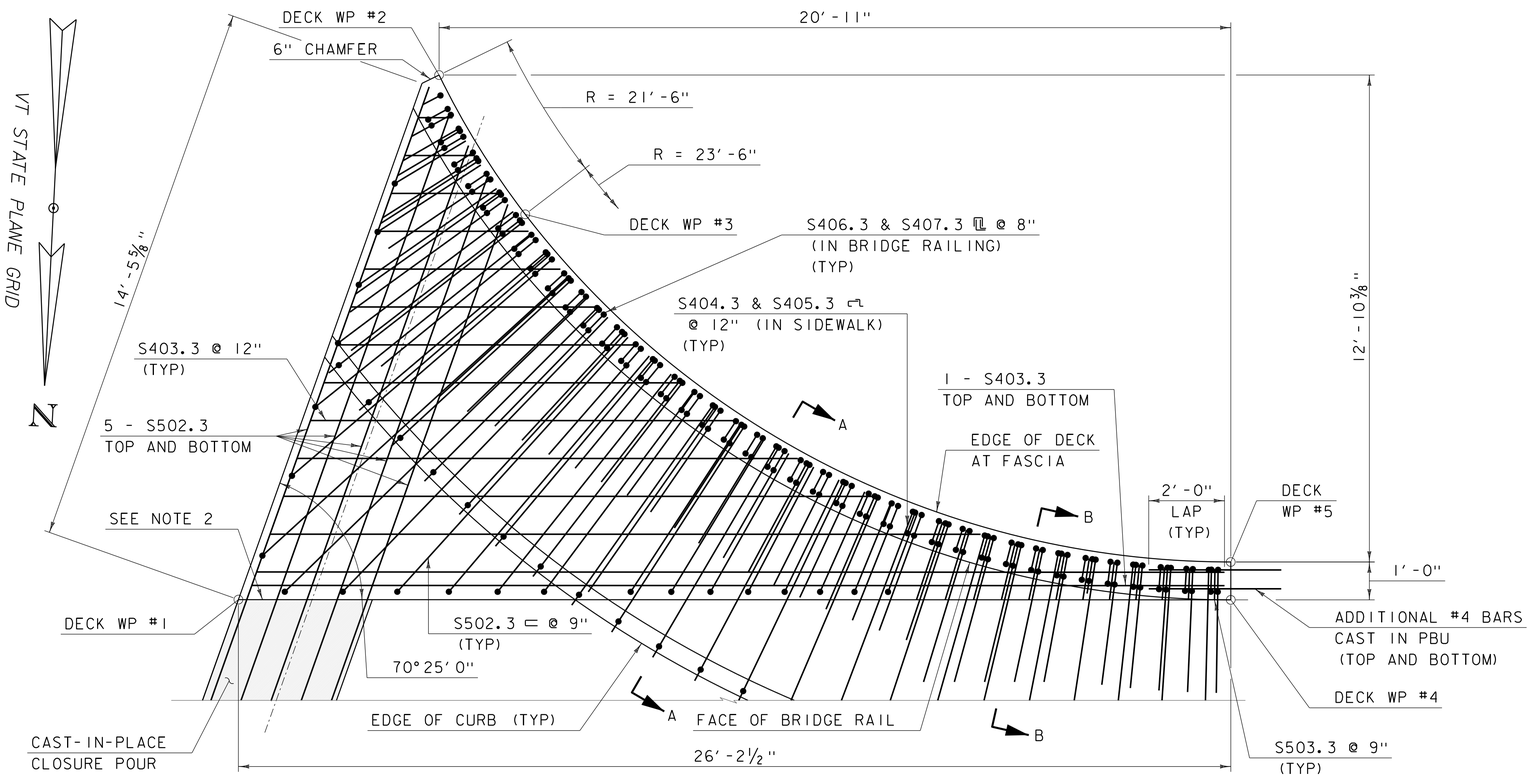
1. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
2. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMER SHALL BE STEEL MEETING THE REQUIREMENTS OF SUBSECTION 714.02. ALL INTERNAL STEEL PLATES SHALL BE BLAST CLEANED AND FREE OF COATINGS, RUST AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
3. STEEL REINFORCED ELASTOMETRIC BEARINGS SHALL HAVE A MINNIMUM 1/8" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL PLATES.
4. THE ELASTOMER WAS DEIGNED WITH A SHEAR MODULUS OF 160 PSI +/- 15%.
5. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 33 GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED UNDER ITEM 531.17 "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD."
6. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND SHALL BE VISIBLE AFTER THE BEARING IS INSTALLED.

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009bearing.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
BEARING DETAILS

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 39 OF 53

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

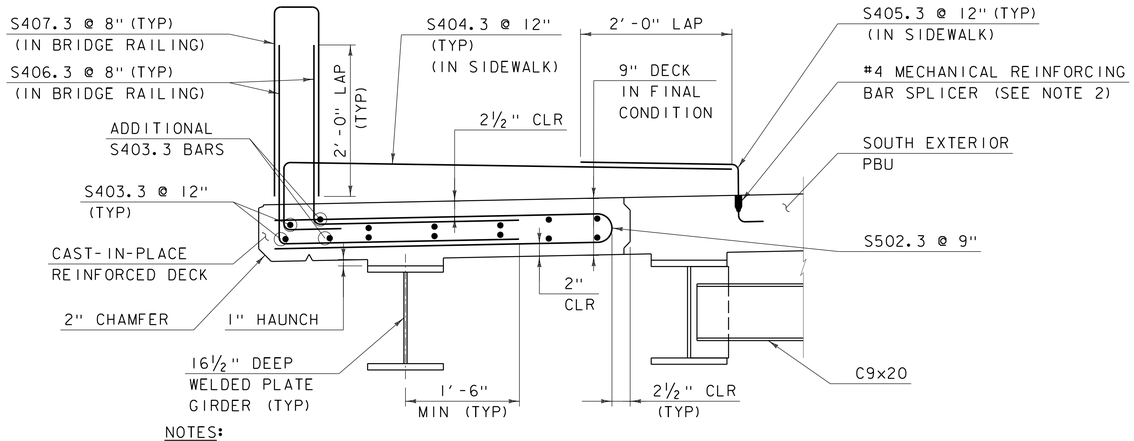


NOTES:

1. SEE SHEET 33 FOR DECK WORKING POINTS STATION, OFFSET, NORTHING, AND EASTING.
2. THE SHEAR KEY DETAIL SHOWN IN SECTION A-A ON THIS SHEET BETWEEN THE CAST-IN-PLACE SPLAYED DECK AND PBU SHALL BE MAINTAINED FOR THE FULL LENGTH OF THE INTERFACE BETWEEN THE CAST-IN-PLACE DECK END POUR AND THE CAST-IN-PLACE SPLAYED DECK.

CAST-IN-PLACE END OF DECK REINFORCING - PLAN

SCALE ½" = 1'-0"

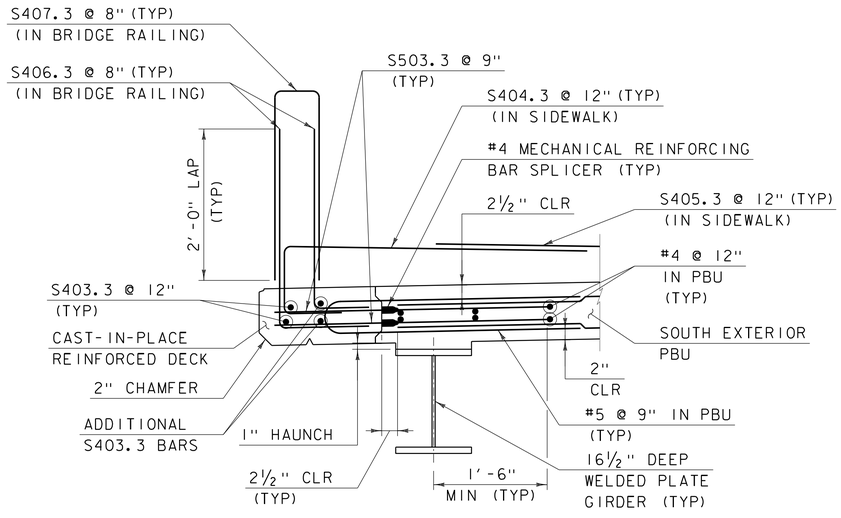


NOTES:

1. SEE SHEET 35 FOR SOUTH EXTERIOR PBU REINFORCING DETAILS.
2. MECHANICAL REINFORCING BAR SPLICERS ONLY REQUIRED AT LOCATIONS WHERE SIDEWALK CONNECTED TO PBU.

CAST-IN-PLACE DECK REINFORCING - SECTION A-A

SCALE 1" = 1'-0"

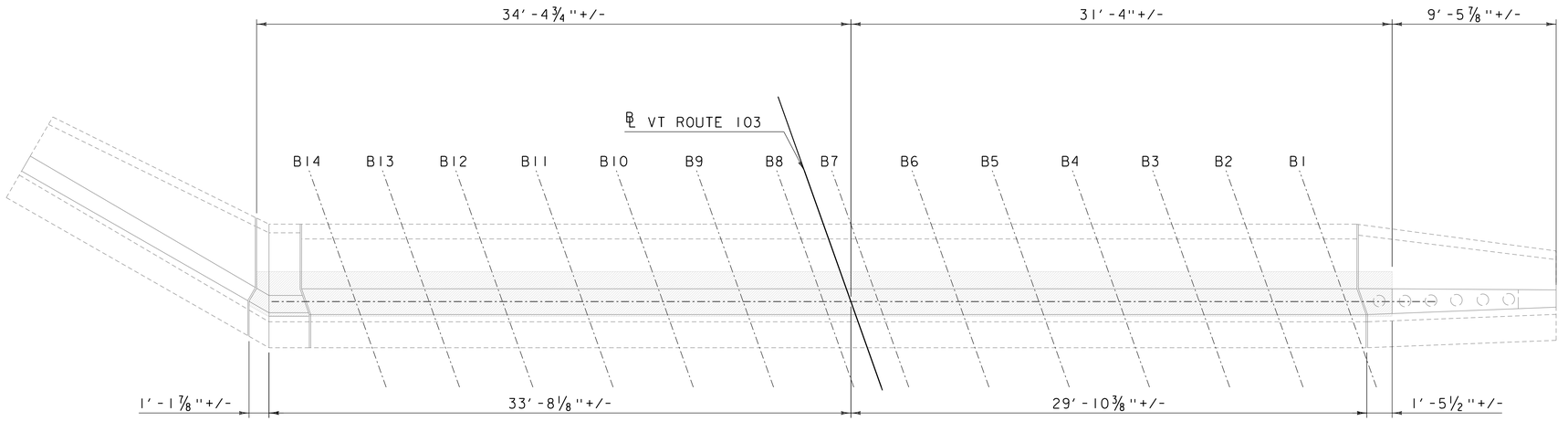


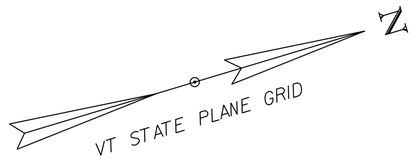
CAST-IN-PLACE DECK REINFORCING - SECTION B-B

SCALE 1" = 1'-0"

PROJECT NAME:	LUDLOW VILLAGE
PROJECT NUMBER:	NH DECK(49)
FILE NAME: z18j009concdets.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: A. BARBOSA
DESIGNED BY: A. OKA	CHECKED BY: A. BEDARD
MISCELLANEOUS CONCRETE DETAILS	SHEET 40 OF 53

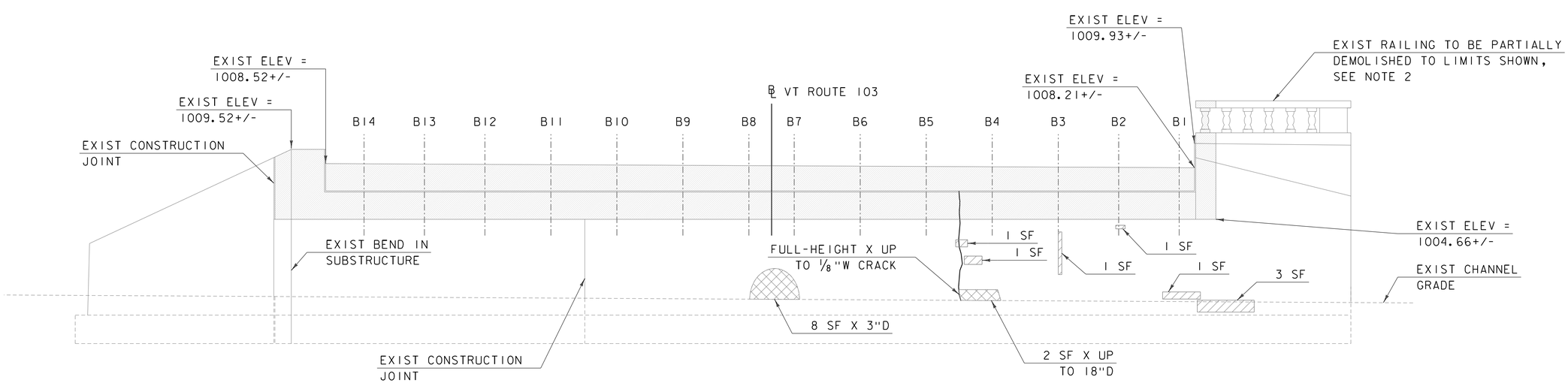
GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS





EXISTING ABUTMENT #1 PLAN

SCALE ¼" = 1'-0"



EXISTING ABUTMENT #1 ELEVATION

SCALE ¼" = 1'-0"

NOTES:

1. LOCATIONS AND QUANTITIES SHOWN ARE APPROXIMATE AND FOR BIDDING PURPOSES ONLY. ALL REPAIRS SHALL BE FIELD MEASURED AND QUANTIFIED BY THE CONTRACTOR, AND APPROVED BY THE ENGINEER.
2. ORNAMENTAL RAILING AT NORTHWEST CORNER SHALL BE DEMOLISHED TO THE LIMIT BETWEEN THE FIRST AND SECOND PILASTERS. THE REMAINING PORTION OF THE RAILING SHALL BE MAINTAINED AND PROTECTED DURING CONSTRUCTION.

LEGEND:

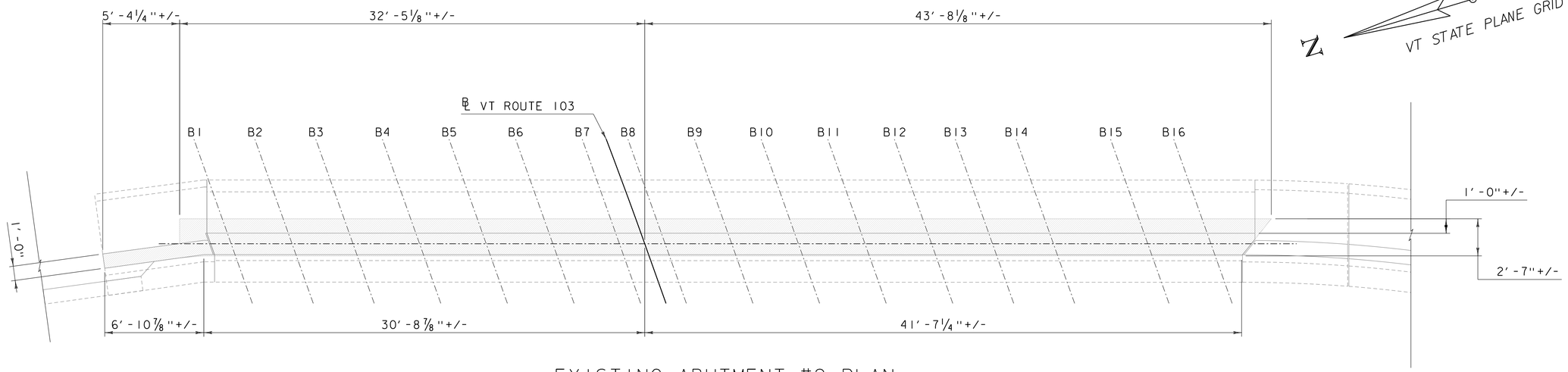
- LIMITS OF REMOVAL
- REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I
- REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009subrepair.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
ABUTMENT 1MODIFICATIONS

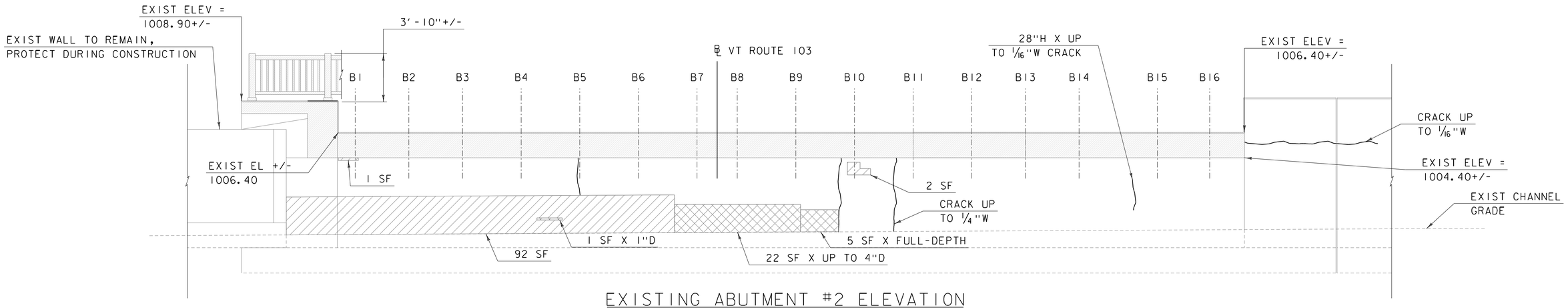
PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS



EXISTING ABUTMENT #2 PLAN

SCALE 1/4" = 1'-0"



EXISTING ABUTMENT #2 ELEVATION

SCALE 1/4" = 1'-0"

NOTE:
LOCATIONS AND QUANTITIES SHOWN ARE APPROXIMATE AND FOR BIDDING PURPOSES ONLY. ALL REPAIRS SHALL BE FIELD MEASURED AND QUANTIFIED BY THE CONTRACTOR, AND APPROVED BY THE ENGINEER.

LEGEND:

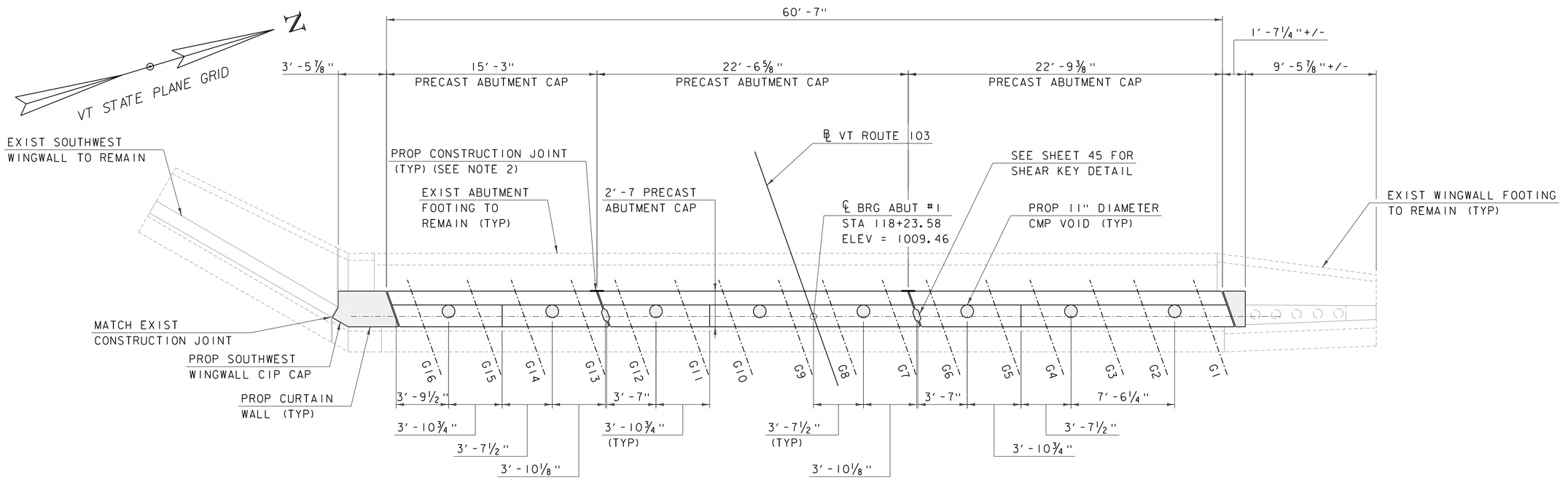
- LIMITS OF REMOVAL
- REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I
- REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

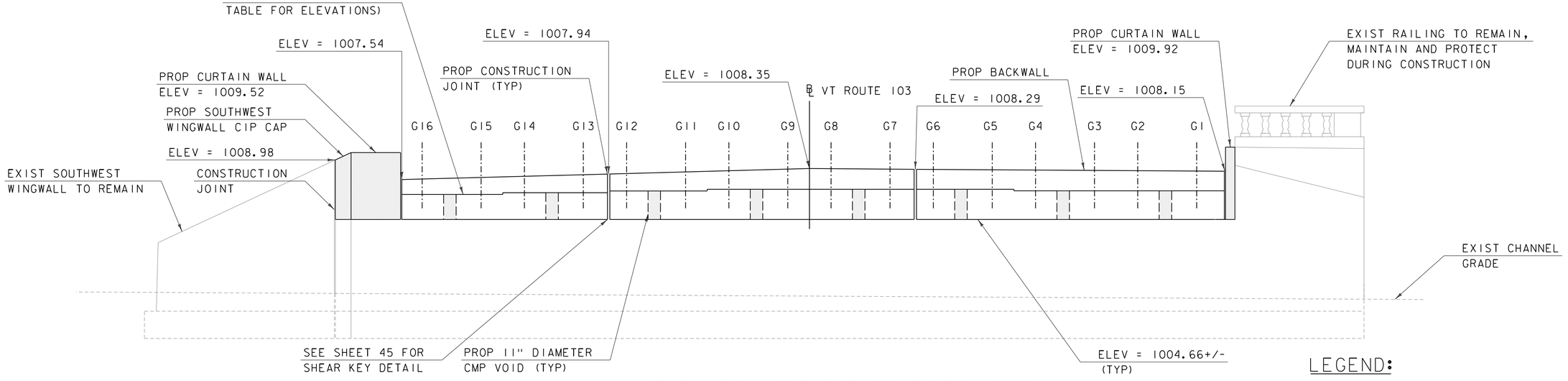
FILE NAME: zl8j009subrepair.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
ABUTMENT 2 MODIFICATIONS

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 42 OF 53



PROPOSED ABUTMENT #1 PLAN

SCALE ¼" = 1'-0"



PROPOSED ABUTMENT #1 ELEVATION

SCALE ¼" = 1'-0"

NOTES:
1. SEE SHEET 46 FOR DETAILS OF THE CAST-IN-PLACE ABUTMENT AND WINGWALL SECTIONS AT THE CORNERS.
2. PROPOSED CONSTRUCTION JOINT LOCATIONS MAY BE ADJUSTED BY THE CONTRACTOR AS LONG AS ALL MINIMUM OFFSETS ARE MAINTAINED.

BEAM SEAT ELEV TABLE	
GIRDER	SEAT ELEV
G1-G4	1006.71
G5-G10	1006.82
G11-G12	1006.71
G13-14	1006.57
G15-G16	1006.44

LEGEND:

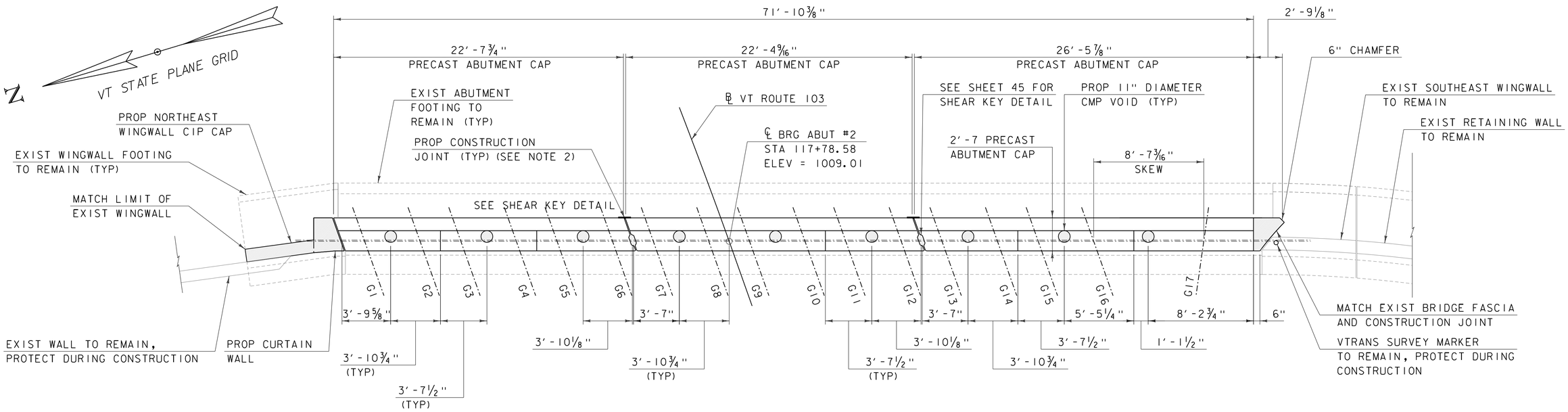
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009abutpe.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
ABUTMENT 1PLAN & ELEVATION

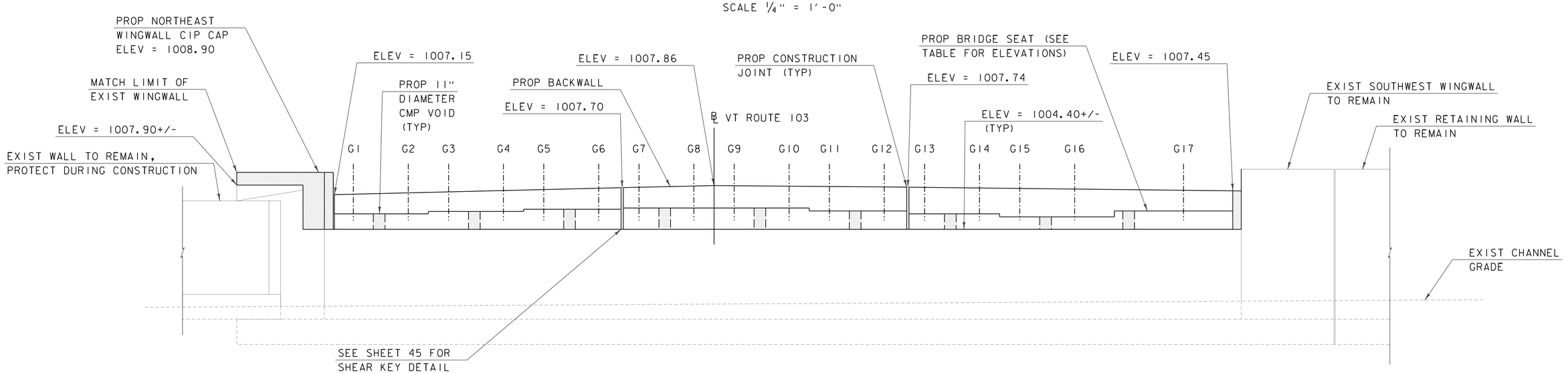
PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 43 OF 53

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS



PROPOSED ABUTMENT #2 PLAN

SCALE 1/4" = 1'-0"



PROPOSED ABUTMENT #2 ELEVATION

SCALE 1/4" = 1'-0"

BEAM SEAT ELEV. TABLE	
GIRDER NO.	SEAT ELEV.
G1-G2	1005.63
G3-G4	1005.82
G5-G6	1005.99
G7-10	1006.09
G11-G12	1005.86
G13-G14	1005.63
G15-G16	1005.39
G16-G17	1005.86

NOTES:
1. SEE SHEET 47 FOR DETAILS OF THE CAST-IN-PLACE ABUTMENT AND WINGWALL SECTIONS AT THE CORNERS.
2. PROPOSED CONSTRUCTION JOINT LOCATIONS MAY BE ADJUSTED BY THE CONTRACTOR AS LONG AS ALL MINIMUM OFFSETS ARE MAINTAINED.

LEGEND:

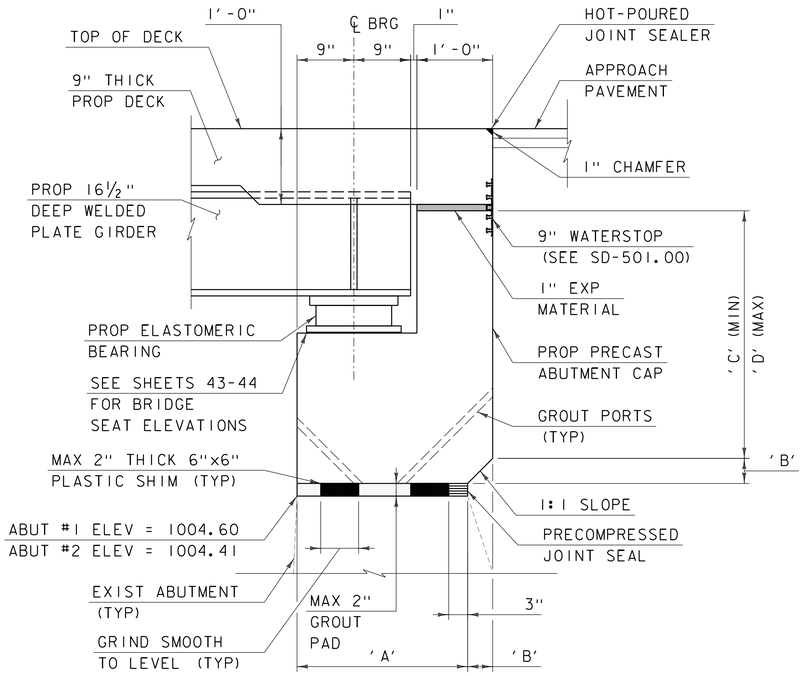
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009abutpe.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
ABUTMENT 2 PLAN & ELEVATION

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 44 OF 53

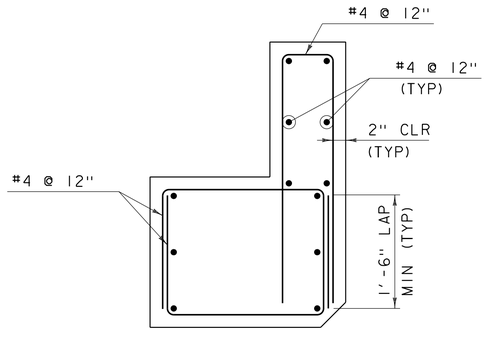


NOTE: PROPOSED GROUT SHALL BE PLACED IN A WAY THAT MATERIAL DOES NOT BLEED OUT.

TYPICAL PRECAST ABUTMENT CAP SECTION

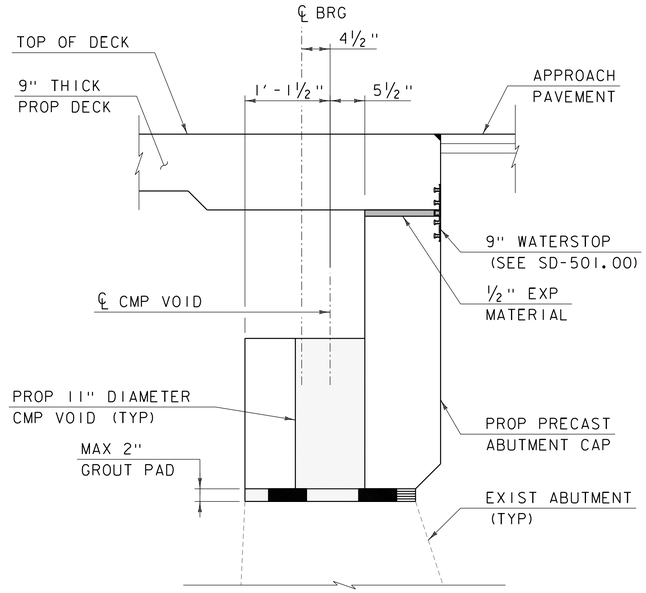
SCALE 1" = 1'-0"

PRECAST ABUTMENT CAP DIMENSIONS				
	DIMENSION			
	'A'	'B'	'C'	'D'
ABUT #1 CAP	2'-3"	4"	2'-7¼"	3'-5"
ABUT #2 CAP	2'-2⅝"	4⅜"	2'-4½"	3'-1"



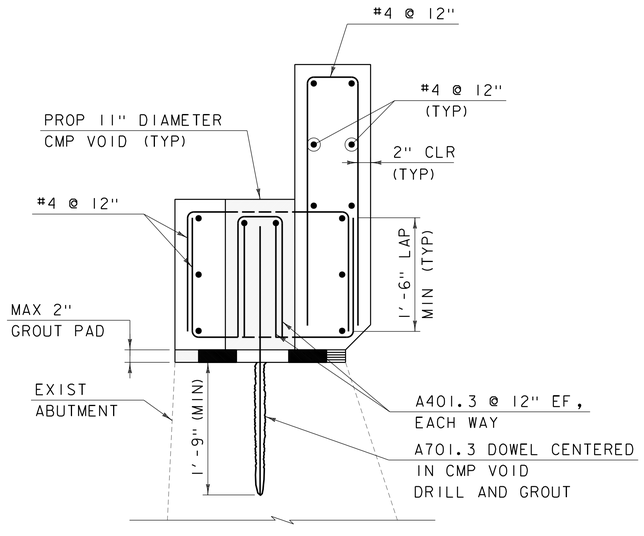
TYPICAL PRECAST ABUTMENT CAP SECTION - REINFORCING DETAIL

SCALE 1" = 1'-0"



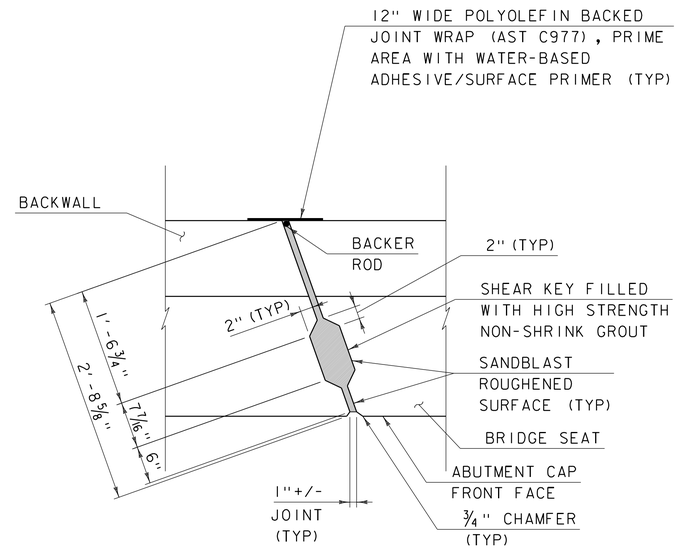
TYPICAL PRECAST ABUTMENT CAP SECTION AT VOID

SCALE 1" = 1'-0"



TYPICAL SECTION PRECAST ABUTMENT CAP SECTION AT VOID - REINFORCING DETAIL

SCALE 1" = 1'-0"



NOTE: THE SHEAR KEY GROUT, BACKER ROD AND JOINT WRAP SHALL BE INCIDENTAL TO PAY ITEM 544.10 "PREFABRICATED BRIDGE UNIT SUPERSTRUCTURE."

ABUTMENT CAP SHEAR KEY DETAIL

SCALE 1" = 1'-0"

LEGEND:

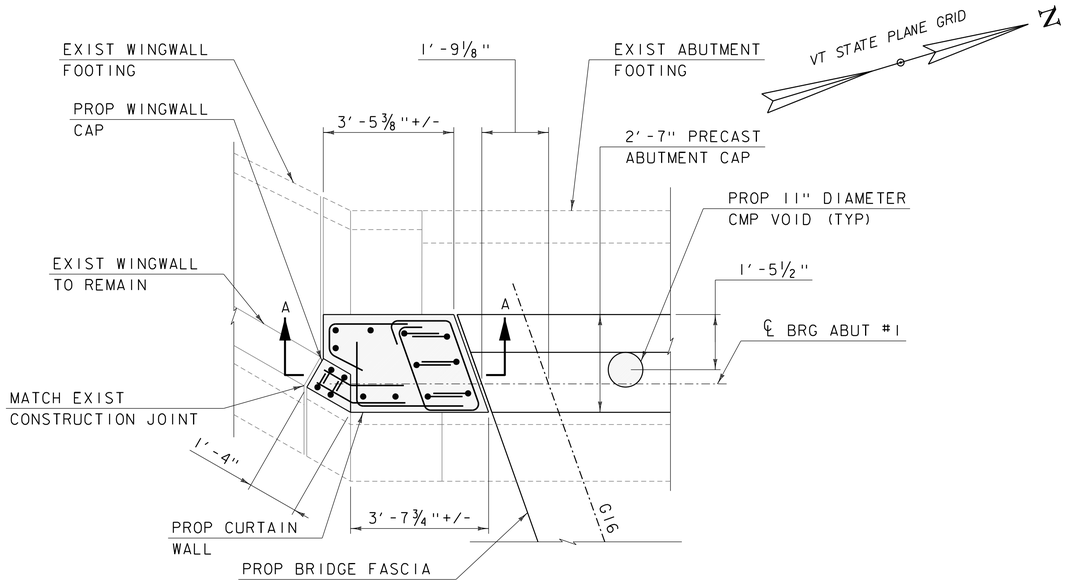
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

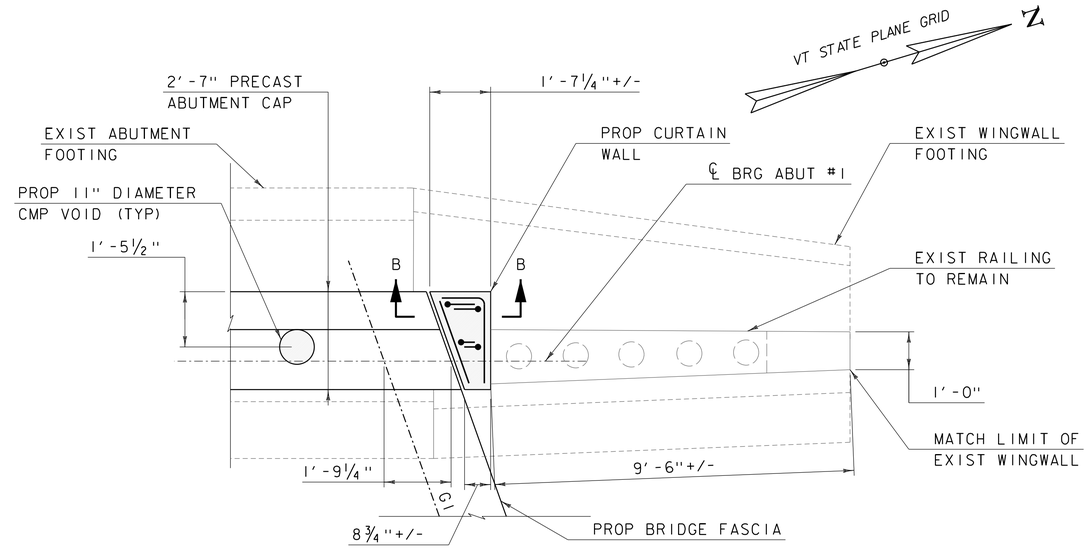
FILE NAME: z18j009sub.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
ABUTMENT CAP SECTION AND DETAILS

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 45 OF 53



ABUTMENT #1 AT SOUTHWEST CORNER - PLAN

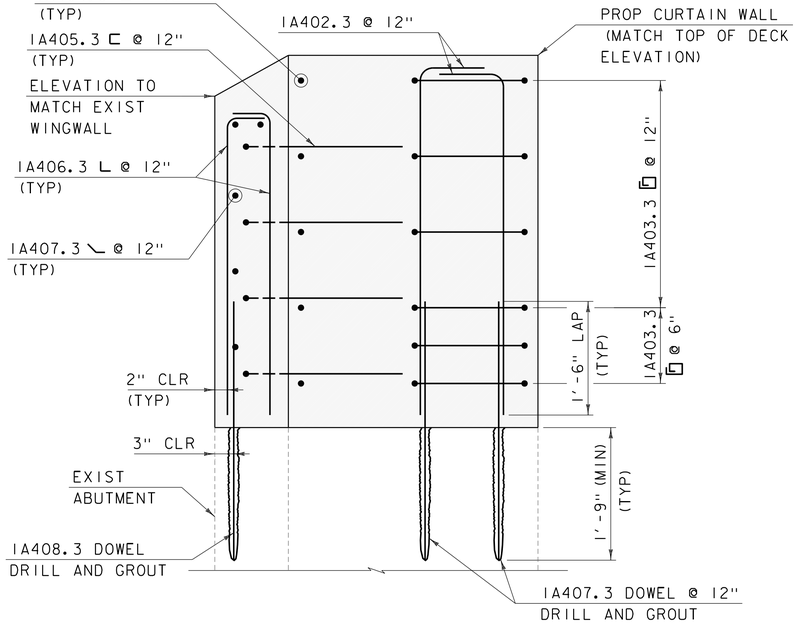
SCALE ½" = 1'-0"



NOTE: FOR RAILING DETAILS SEE SHEET 49.

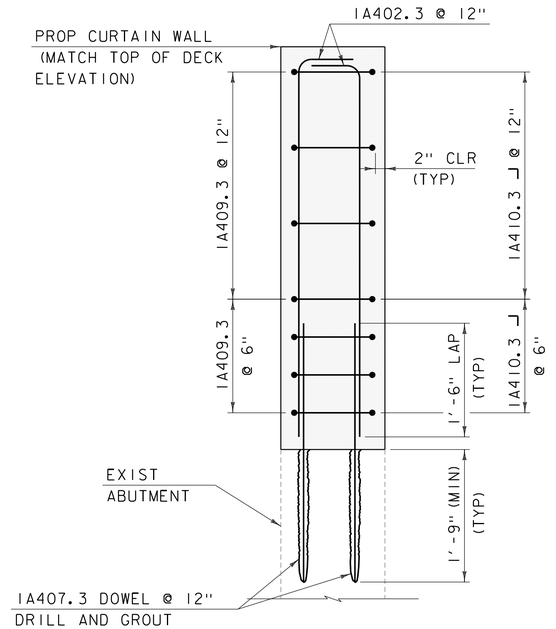
ABUTMENT #1 AT NORTHWEST CORNER - PLAN

SCALE ½" = 1'-0"



SECTION A-A

SCALE 1" = 1'-0"



SECTION B-B

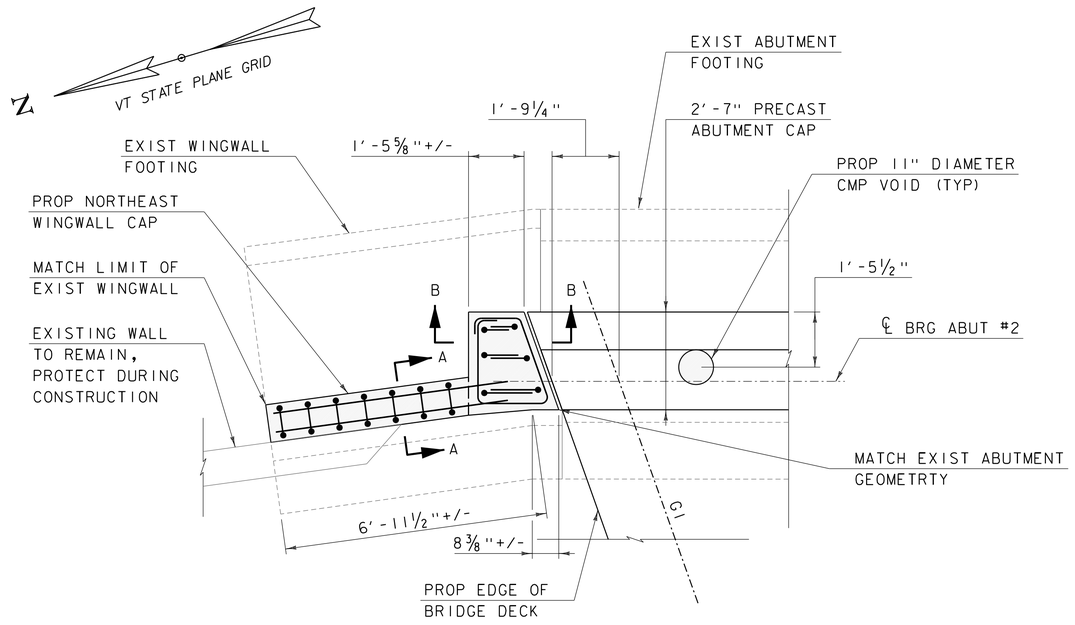
SCALE 1" = 1'-0"

LEGEND:

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

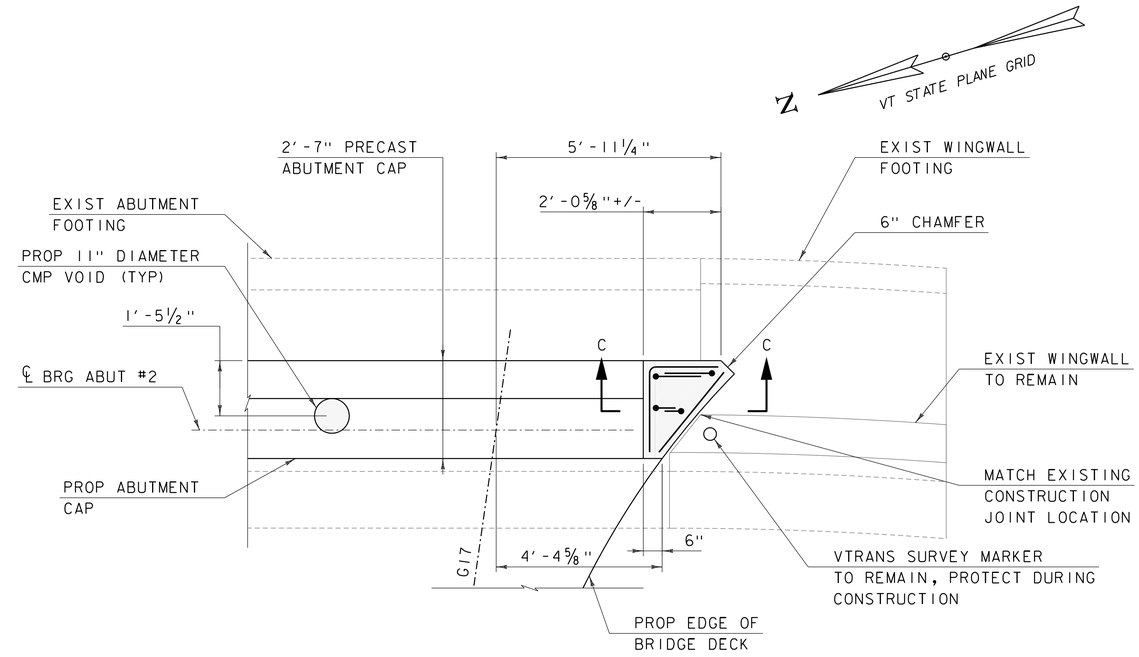
GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE	
PROJECT NUMBER: NH DECK(49)	
FILE NAME: z18j009sub.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: A. BARBOSA
DESIGNED BY: A. OKA	CHECKED BY: A. BEDARD
ABUTMENT I MISCELLANEOUS DETAILS	SHEET 46 OF 53



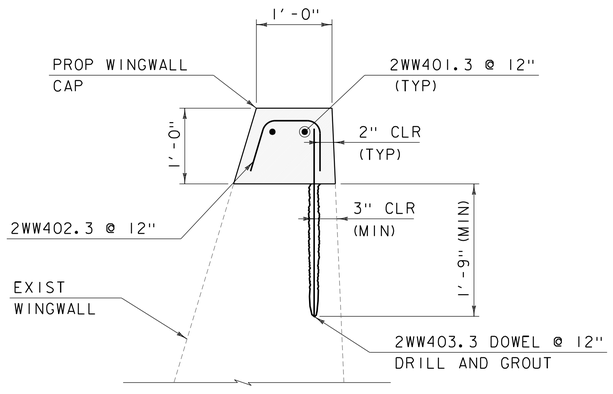
ABUTMENT #2 AT NORTHEAST CORNER - PLAN

SCALE ½" = 1'-0"



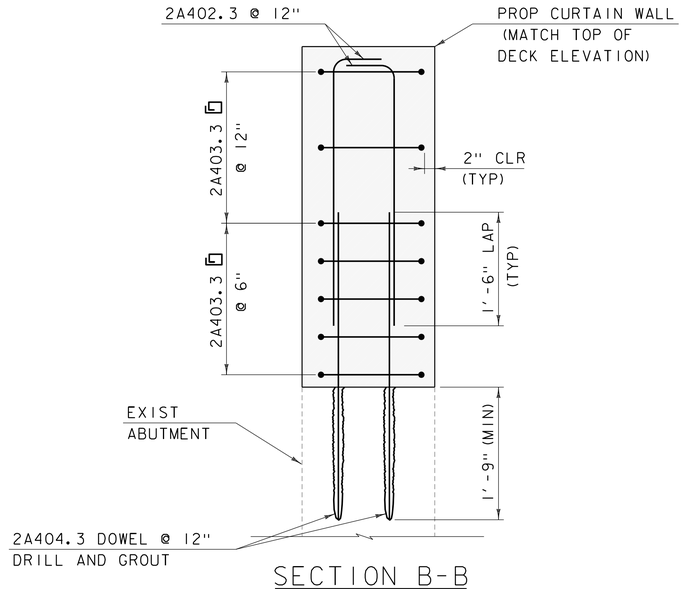
ABUTMENT #2 AT SOUTHEAST CORNER - PLAN

SCALE ½" = 1'-0"



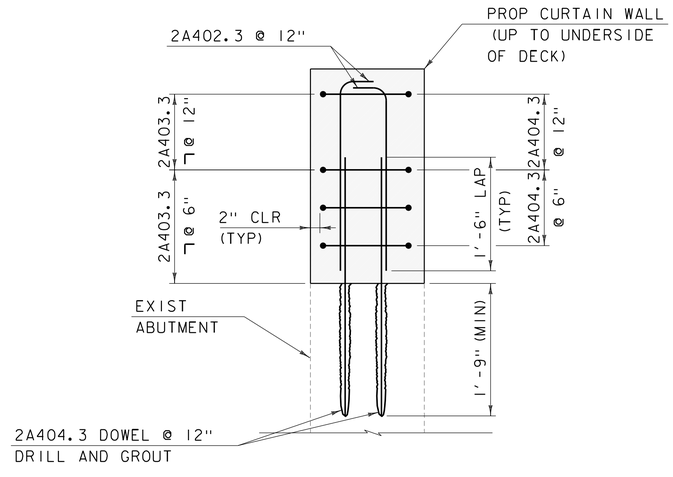
SECTION A-A

SCALE 1" = 1'-0"



SECTION B-B

SCALE 1" = 1'-0"



SECTION C-C

SCALE 1" = 1'-0"

LEGEND:

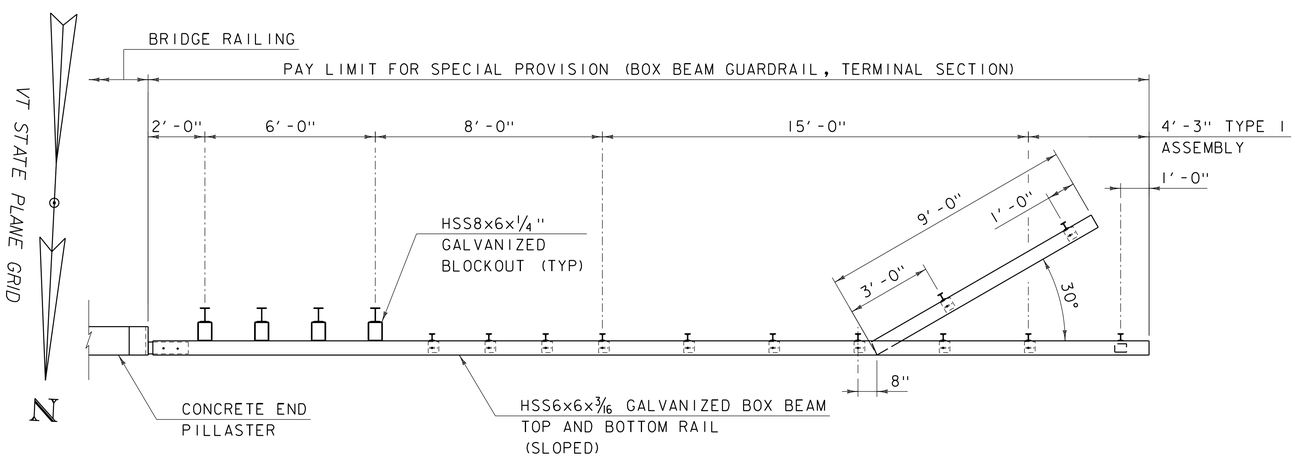
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

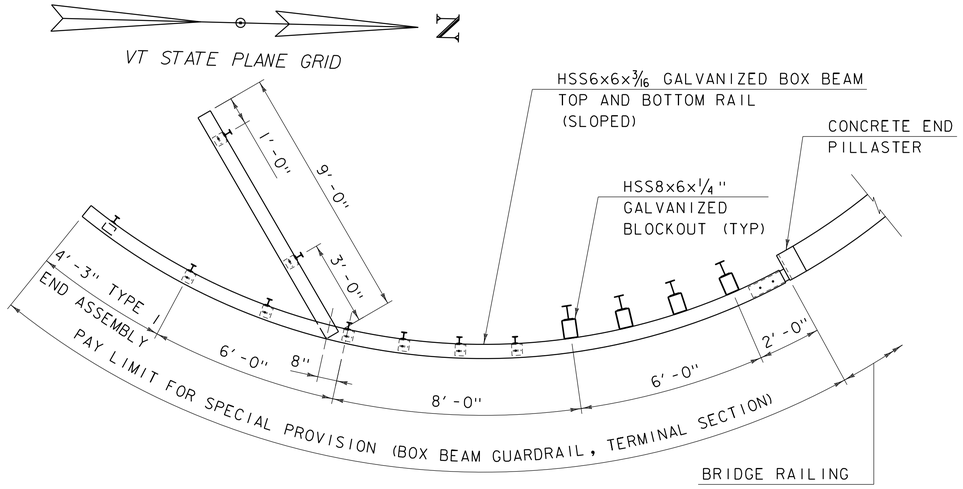
FILE NAME: z18j009sub.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
ABUTMENT 2 MISCELLANEOUS DETAILS

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 47 OF 53



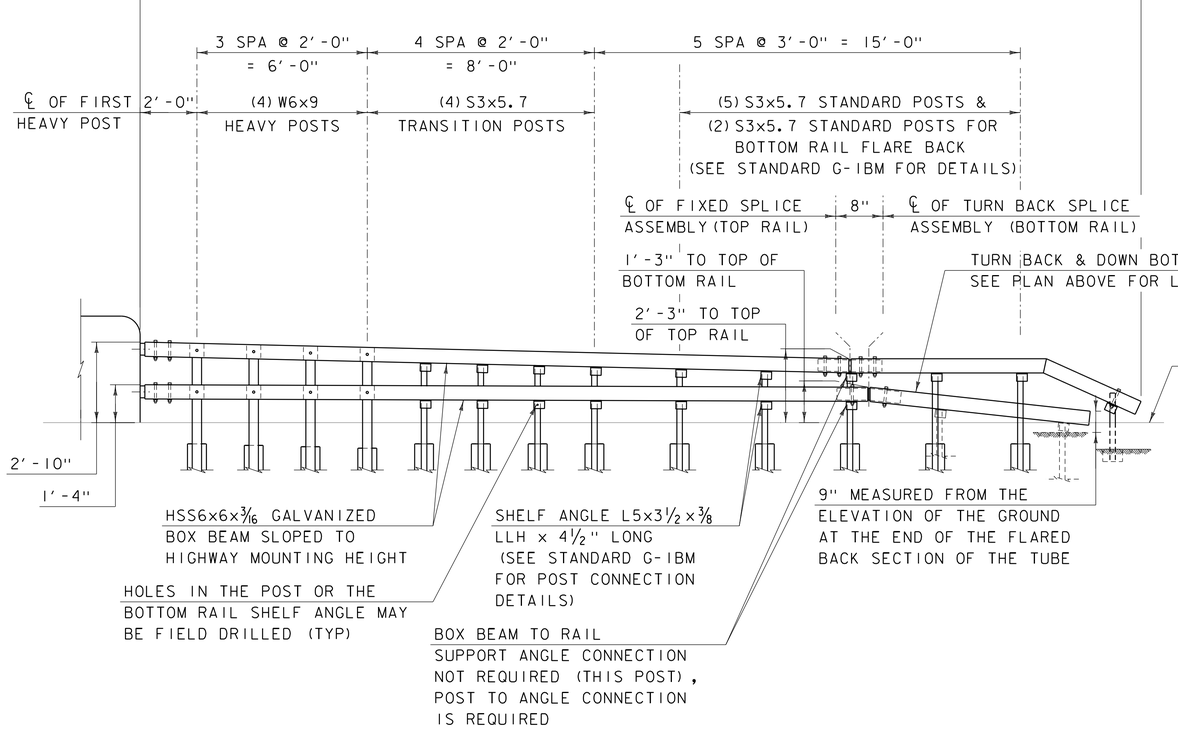
SOUTHWEST APPROACH RAILING - PLAN

SCALE 3/8" = 1'-0"



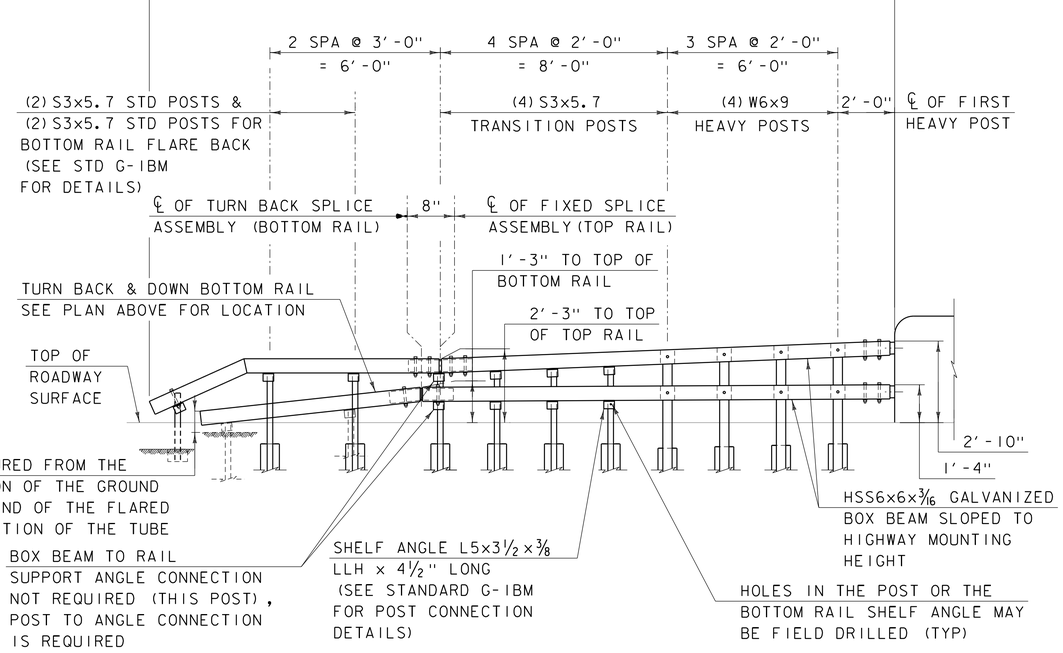
SOUTHEAST APPROACH RAILING - PLAN

SCALE 3/8" = 1'-0"



SOUTHWEST APPROACH RAILING - ELEVATION

SCALE 3/8" = 1'-0"

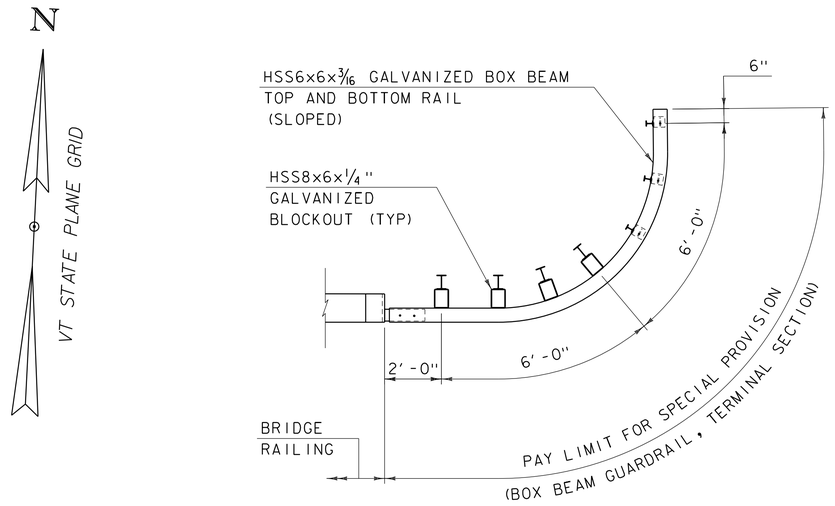


SOUTHEAST APPROACH RAILING - UNFOLDED ELEVATION

SCALE 3/8" = 1'-0"

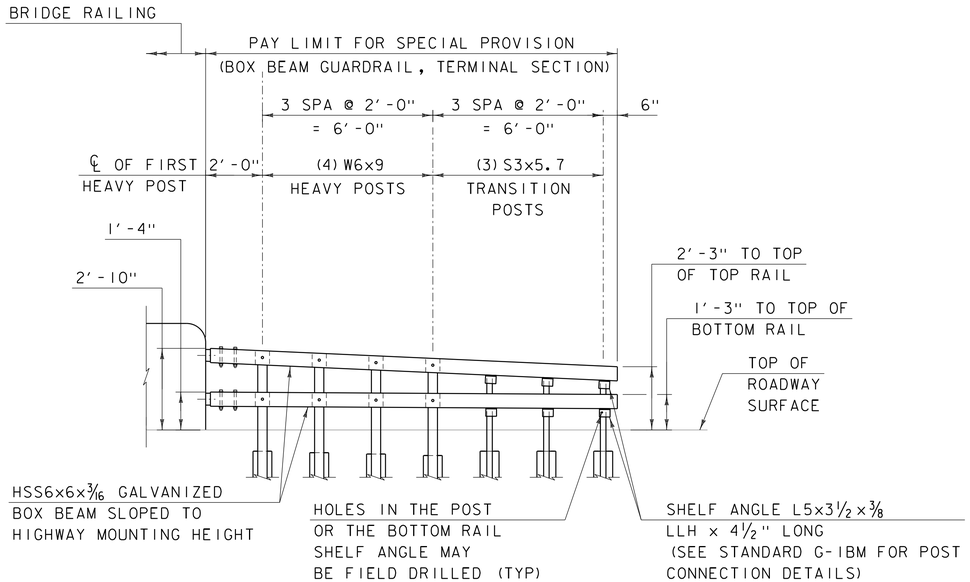
PROJECT NAME:	LUDLOW VILLAGE
PROJECT NUMBER:	NH DECK(49)
FILE NAME: z18j009railing.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: A. BARBOSA
DESIGNED BY: A. OKA	CHECKED BY: A. BEDARD
APPROACH RAILING DETAILS SHEET 1 OF 2	SHEET 48 OF 53

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS



NORTHEAST APPROACH RAILING - PLAN

SCALE 3/8" = 1'-0"



NORTHEAST APPROACH RAILING - UNFOLDED ELEVATION

SCALE 3/8" = 1'-0"

PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009railing.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
APPROACH RAILING DETAILS SHEET 2 OF 2

PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 49 OF 53

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

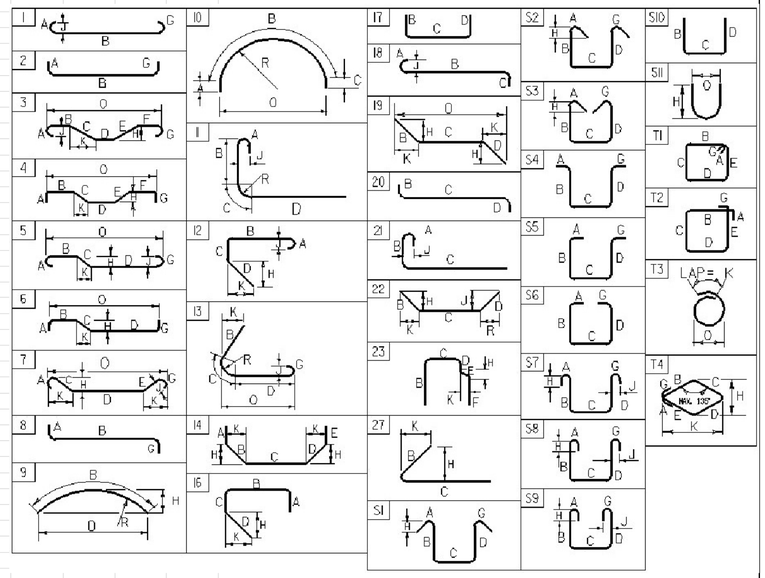
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
PBU DECK CLOSURE POURS																	
	28	4	45'- 0"	S401.3	STR												
	160	4	6'- 0"	1S402.3	S9	0'- 6"	2'- 9"	0'- 6"	2'- 3"				0'- 4"				
▲	5	5	62'- 0"	1S501.3	STR												
▲	5	5	77'- 6"	1S501.3	STR												
	160	4	6'- 0"	2S402.3	S9	0'- 6"	2'- 9"	0'- 6"	2'- 3"				0'- 4"				
▲	5	5	62'- 0"	2S501.3	STR												
▲	5	5	77'- 6"	2S501.3	STR												
CAST-IN-PLACE SPLAYED DECK																	
▲	18	4	26'- 0"	S403.3	STR												
	34	4	9'- 0"	S404.3	S10		0'- 8"	0'- 11"	7'- 5"								
	34	4	9'- 0"	S405.3	20		4'- 10"	0'- 9"	3'- 5"								
	100	4	8'- 0"	S406.3	S10		4'- 0"	4'- 0"									
	50	4	5'- 0"	S407.3	S10		2'- 3"	0'- 6"	2'- 3"								
▲	45	5	15'- 0"	S502.3	S11								7'- 4"				0'- 5"
▲	24	5	2'- 2"	S503.3	STR												
ABUTMENT CMP VOIDS																	
	36	4	2'- 6"	1A401.3	S10		1'- 0"	0'- 6"	1'- 0"								
	18	7	3'- 6"	1A701.3	STR												
	36	4	2'- 6"	2A401.3	S10		1'- 0"	0'- 6"	1'- 0"								
	18	7	3'- 6"	2A701.3	STR												
ABUTMENT #1 SOUTHWEST CORNER																	
	6	4	3'- 6"	1A402.3	2	0'- 8"	2'- 10"										
	6	4	7'- 0"	1A403.3	T2	0'- 5"	1'- 3"	2'- 0"	1'- 1"	1'- 10"		0'- 5"					
	5	4	3'- 0"	1A404.3	2	1'- 6"	1'- 6"										
	5	4	4'- 0"	1A405.3	12		2'- 4"	0'- 8"	1'- 0"				0'- 6"		0'- 10"		
	4	4	3'- 6"	1A406.3	2	0'- 8"	2'- 10"										
	5	4	2'- 3"	1A407.3	14		1'- 1"	1'- 2"					0'- 6"		1'- 0"		
	8	4	4'- 9"	1A408.3	STR												
ABUTMENT #1 WINGWALL																	
	2	4	8'- 6"	1WWA401.3	STR												
	9	4	3'- 0"	1WWA402.3	S10		1'- 2"	0'- 8"	1'- 2"								
	9	4	2'- 6"	1WWA403.3	STR												
ABUTMENT #1 NORTHWEST CORNER																	
	6	4	3'- 6"	1A402.3	2	0'- 8"	2'- 10"										
	9	4	7'- 0"	1A403.3	T2	0'- 5"	1'- 3"	2'- 0"	1'- 1"	1'- 10"		0'- 5"					
	6	4	4'- 9"	1A408.3	STR												
ABUTMENT #2 NORTHEAST CORNER																	
	6	4	3'- 6"	2A402.3	2	0'- 8"	2'- 10"										
	7	4	7'- 0"	2A403.3	T2	0'- 5"	1'- 3"	2'- 0"	1'- 1"	1'- 10"		0'- 5"					
	6	4	4'- 9"	2A404.3	STR												
ABUTMENT #2 WINGWALL																	
	2	4	7'- 0"	2WWA401.3	STR												
	8	4	3'- 0"	2WWA402.3	S10		1'- 2"	0'- 8"	1'- 2"								
	8	4	2'- 6"	2WWA403.3	STR												
ABUTMENT #2 SOUTHEAST CORNER																	
	4	4	3'- 6"	2A402.3	2	0'- 8"	2'- 10"										
	4	4	7'- 0"	2A403.3	T2	0'- 5"	1'- 3"	2'- 0"	1'- 1"	1'- 10"		0'- 5"					
	4	4	2'- 9"	2A404.3	STR												

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O

~ 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 INCHES ^{2}	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	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544

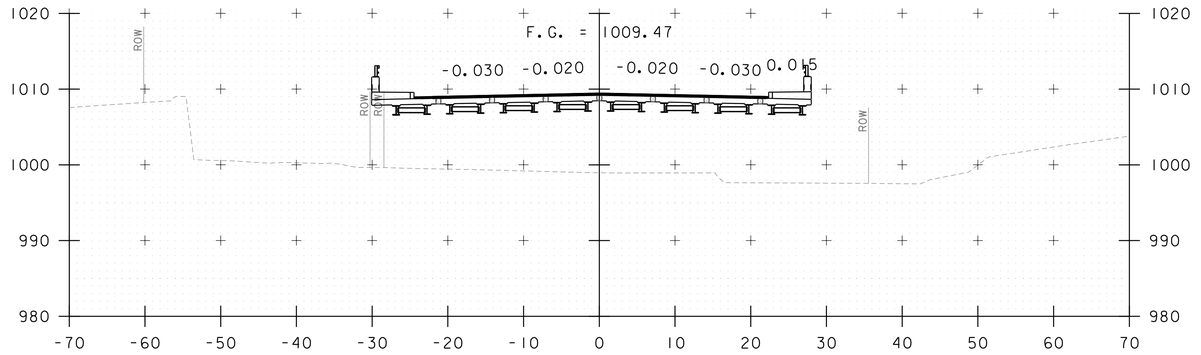
NOTE: REINFORCING FOR CAST-IN-PLACE CONCRETE ONLY.

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

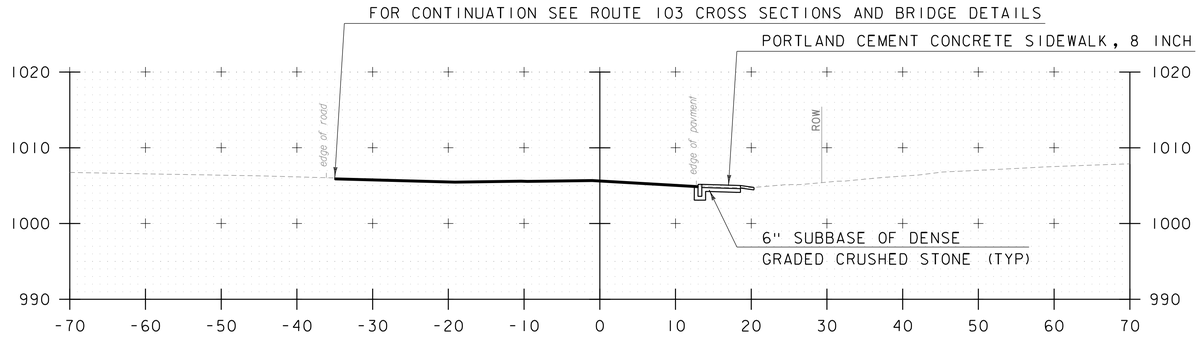
PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009rss.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: A. OKA
REINFORCING STEEL SCHEDULE

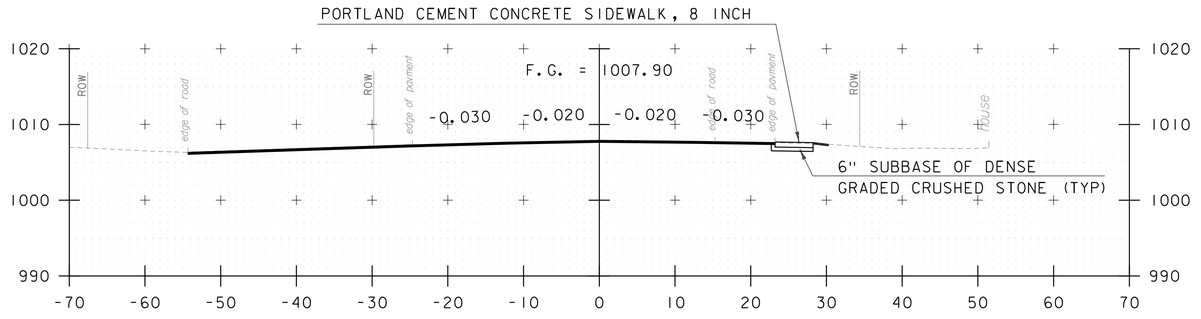
PLOT DATE: 7/14/2021
DRAWN BY: A. BARBOSA
CHECKED BY: A. BEDARD
SHEET 50 OF 53



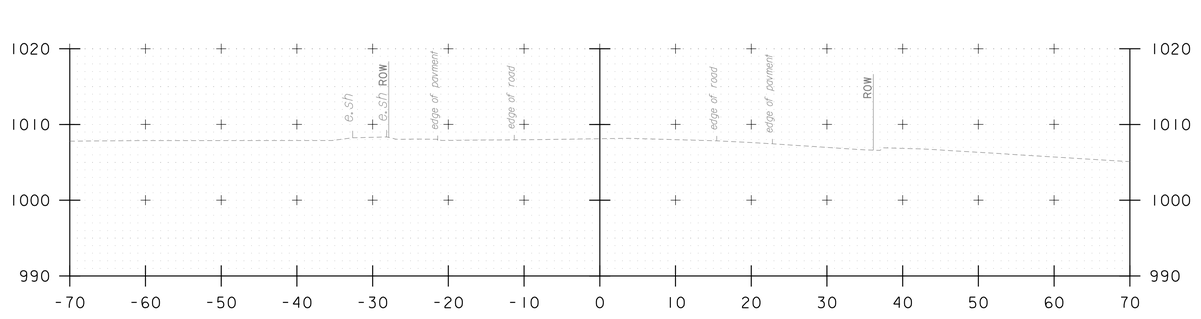
118+00
117+76.63 STOP ROADWAY - BEGIN BRIDGE



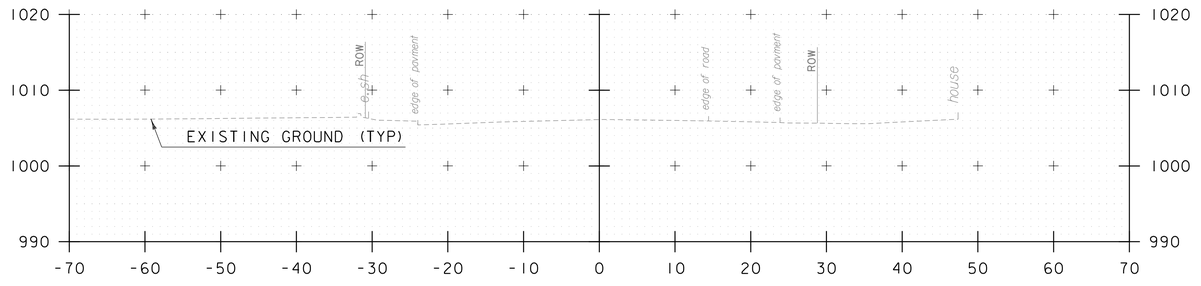
227+50
227+39.00 BEGIN LUDLOW VILLAGE NH DECK (49)



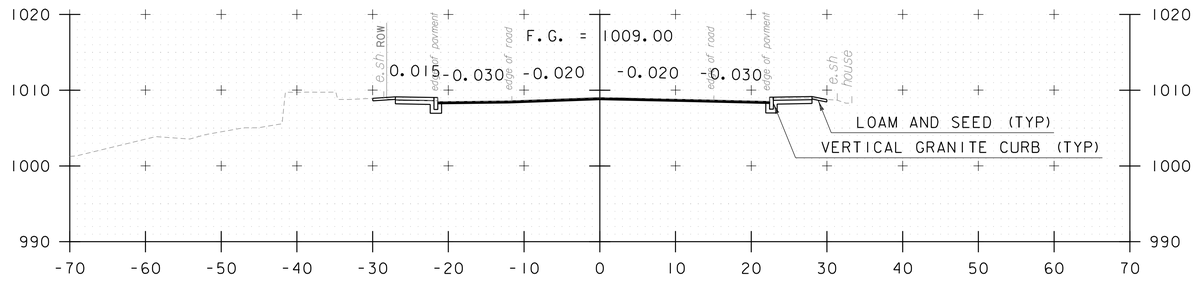
117+50
117+25.00 BEGIN LUDLOW VILLAGE NH DECK (49)



119+00
118+65.00 END LUDLOW VILLAGE NH DECK (49)



117+00



118+50
118+25.53 STOP BRIDGE - BEGIN ROADWAY

STA. 116+50 TO STA. 119+00

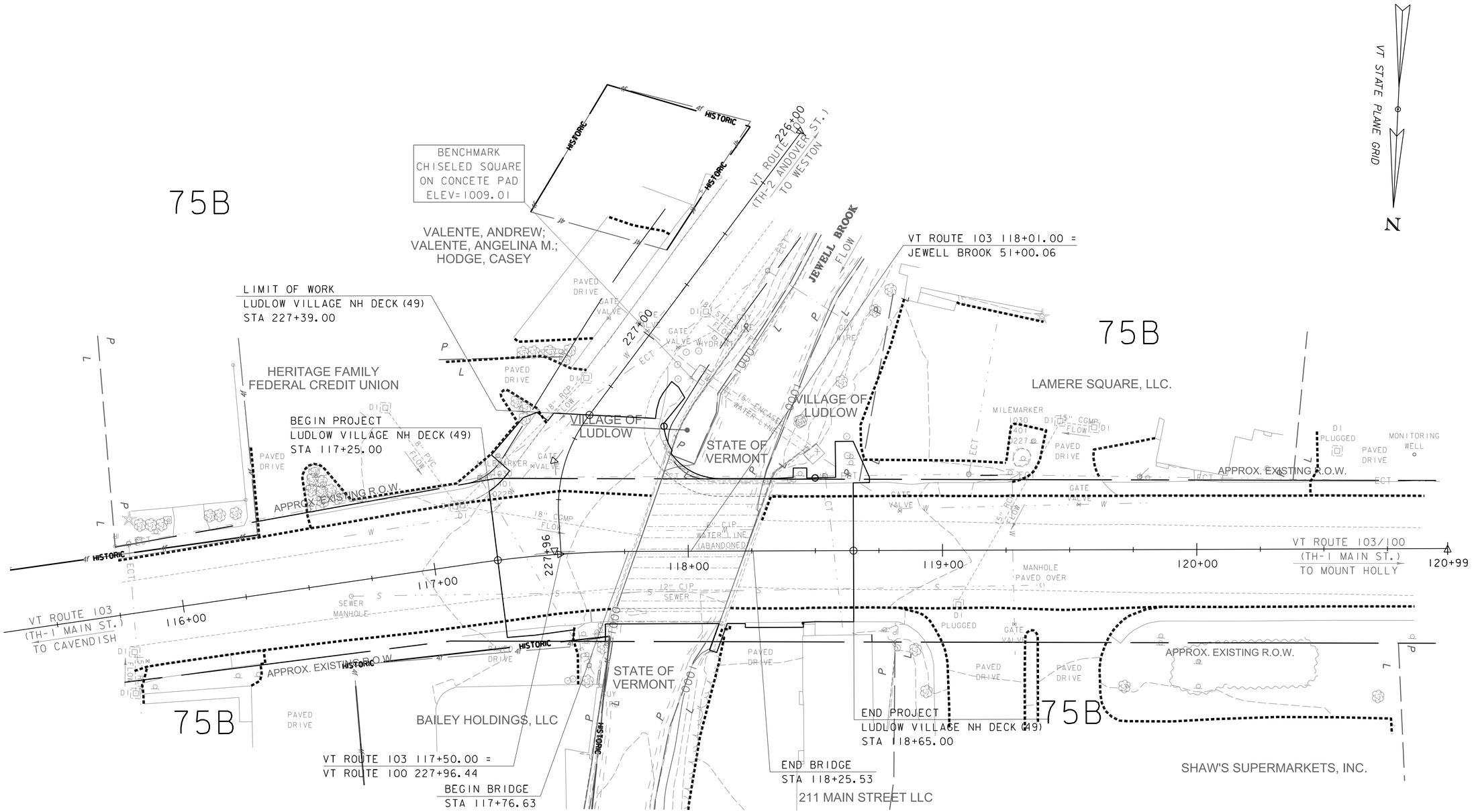
PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009xsl.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: D. VERTIYEV
CROSS SECTIONS SHEET 1

PLOT DATE: 7/14/2021
DRAWN BY: J. LABRECQUE
CHECKED BY: E. ATKINS
SHEET 51 OF 53

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

AREA OF DISTURBANCE = 0.36 ACRES



NOTES:

1. ALL SEDIMENT AND EROSION PREVENTION CONTROL MEASURES SHALL BE COMPLETED AND IN PLACE BEFORE THE BEGINNING OF WORK.
2. 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.

SOIL LEGEND

SOIL DESIGNATION	HYDROLOGIC SOIL GROUP CLASSIFICATION	SOIL ERODIBILITY COEFFICIENTS (K)
75B = URBAN LAND-COLTON-CROGHAN COMPLEX, 0 TO 8 PERCENT SLOPES	A	0.17

0 20 40
SCALE IN FEET

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

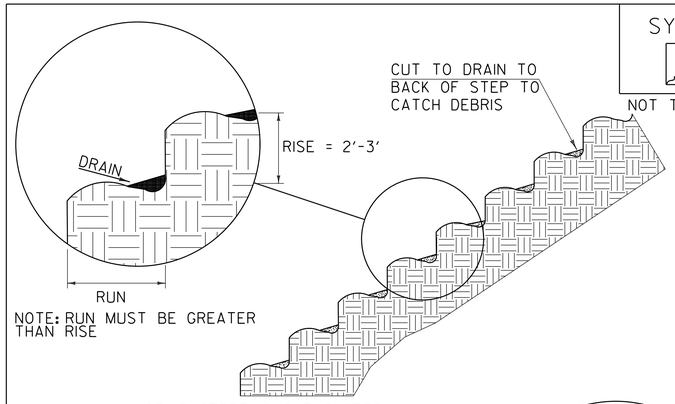
PROJECT NAME: LUDLOW VILLAGE
PROJECT NUMBER: NH DECK(49)

FILE NAME: z18j009eroex.dgn
PROJECT LEADER: T. CARD
DESIGNED BY: D. VERTIYEV
EXISTING CONDITIONS SHEET 1

PLOT DATE: 7/14/2021
DRAWN BY: J. LABRECQUE
CHECKED BY: E. ATKINS
SHEET 52 OF 53

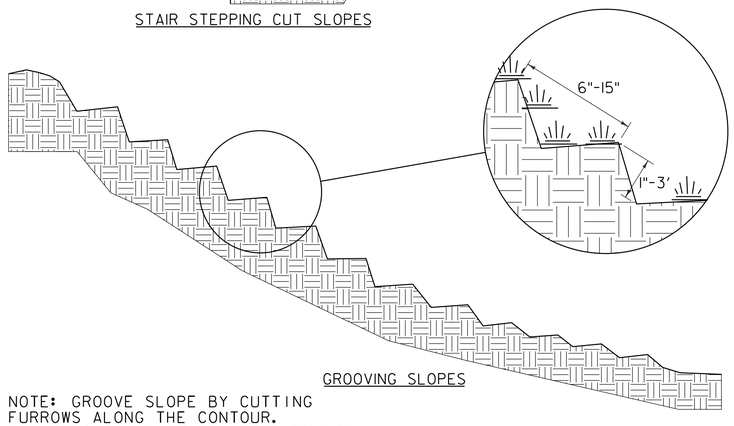
SYMBOL

NOT TO SCALE



NOTE: RUN MUST BE GREATER THAN RISE

STAIR STEPPING CUT SLOPES



GROOVING SLOPES

NOTE: GROOVE SLOPE BY CUTTING FURROWS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND RETAIN LIME, FERTILIZER AND SEED.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	SURFACE ROUGHENING

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2020- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

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

GREEN INTERNATIONAL AFFILIATES, INC.
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME:	LUDLOW VILLAGE
PROJECT NUMBER:	NH DECK(49)

FILE NAME: z18j009erodet.dgn	PLOT DATE: 7/14/2021
PROJECT LEADER: T. CARD	DRAWN BY: J. LABRECQUE
DESIGNED BY: D. VERTIYEV	CHECKED BY: E. ATKINS
EPSC DETAIL SHEET 1	SHEET 53 OF 53