STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF RIPTON
COUNTY OF ADDISON

ROUTE NO: TH 18 CLASS 3 BRIDGE NO: 17

PROJECT LOCATION: APPROXIMATELY 100 M SOUTH OF THE INTERSECTION OF VT RTE 125 AND TH 18.

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REHABILITATION AND WIDENING OF THE EXISTING BRIDGE USING DETOURED TRAFFIC WITH NECESSARY ROADWAY APPROACH WORK.

LENGTH OF ROADWAY 111.700 METERS

LENGTH OF BRIDGE 18.300 METERS

LENGTH OF PROJECT 130.000 METERS

INDEX OF SHEETS

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D-3	6-1-94
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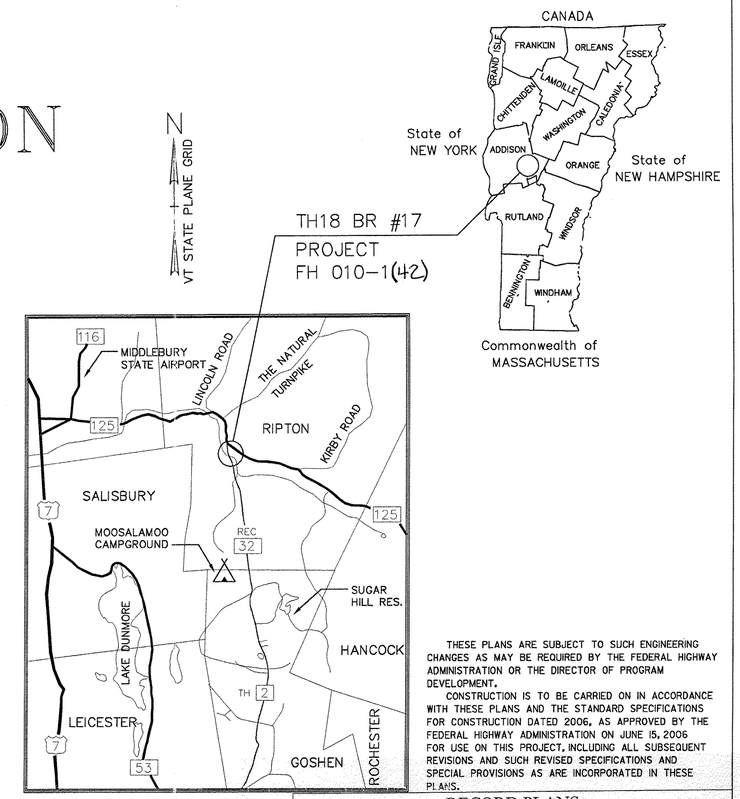
E-100A	1-2-04
E-101	5-30-03
E-102	6-30-03
E-102A	5-1-04
E-106	3-1-04
E-107	6-30-03
E-107A	6-8-09
E-108	6-8-09
E-108A	6-8-09
E-110	8-8-95
E-119	3-1-04
E-121	8-8-95
E-143	6-15-04
E-160	5-20-99
G-1	1-3-00
G-1D	1-3-00
G-18	6-1-94
SB-R6-82M	7-10-97



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

RECORD PLANS

CONTRACTOR: CCS CONSTRUCTORS LLC- MORRISVILLE, VT

RESIDENT ENGINEER: JOSH HULETT

CONSTRUCTION BEGAN: JULY 7, 2010

CONSTRUCTION COMPLETE: JUNE 6, 2011

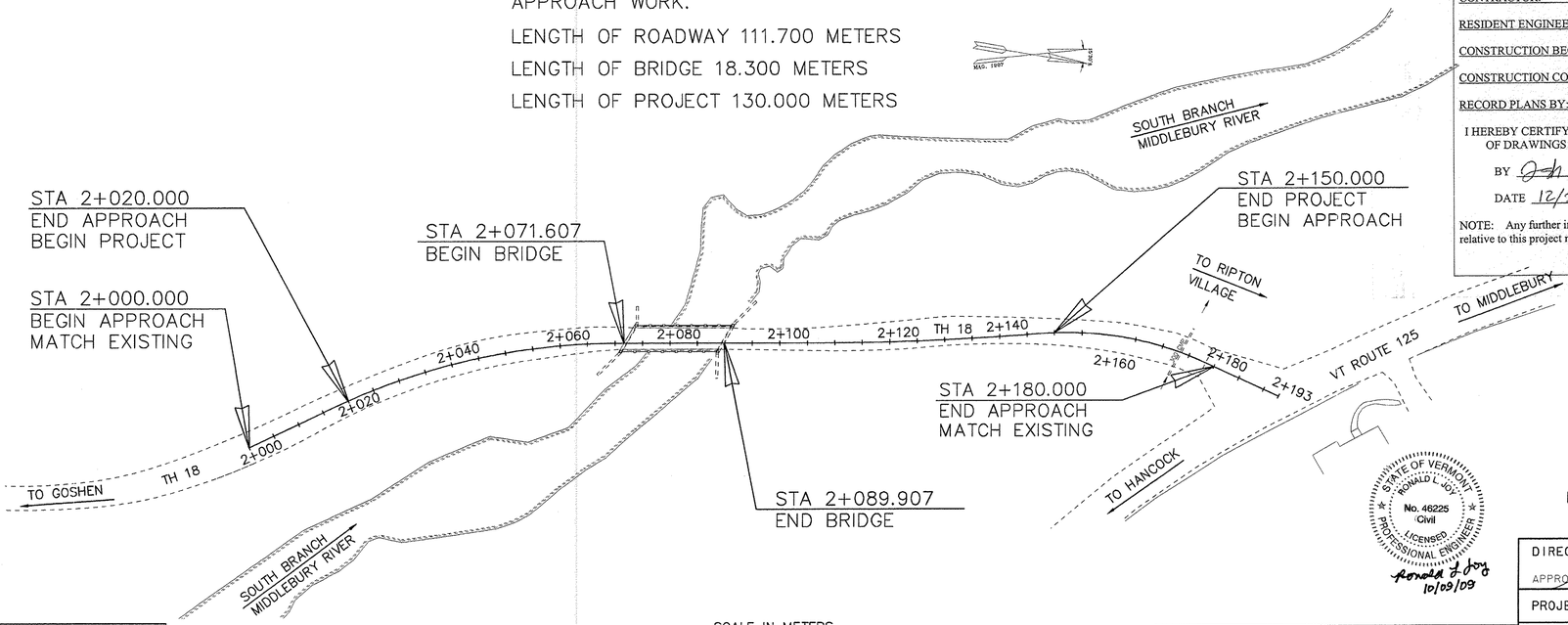
RECORD PLANS BY: JOSH HULETT & AMOS KEMPTON

I HEREBY CERTIFY THAT ALL THE CONSTUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY Josh Hulett RESIDENT ENGINEER

DATE 12/21/2011

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.



CONVENTIONAL SYMBOLS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS
TOP OF CUT
TOE OF SLOPE

DATUM
VERTICAL NGVD 29 (1929)
HORIZONTAL ASSUMED

SCALE IN METERS
0 10 20 30 40 50
1:500

LAST Metric

UNLESS NOTED OTHERWISE
STATIONS ARE IN KILOMETERS
ELEVATIONS ARE IN METERS
DIMENSIONS ARE IN MILLIMETERS

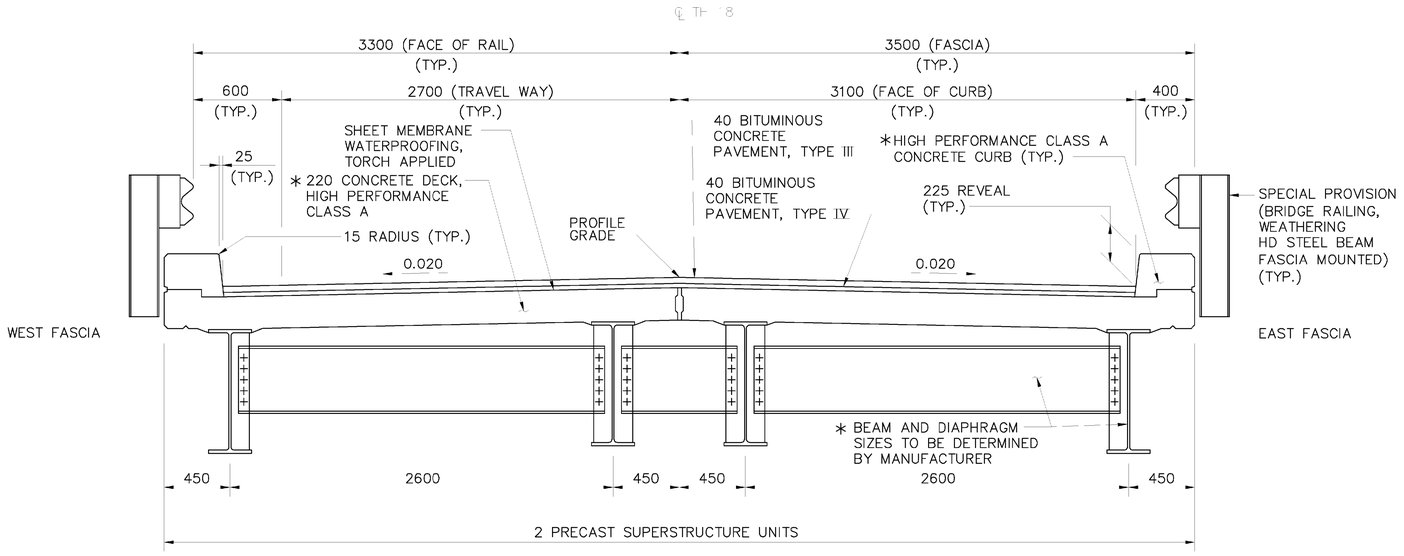
DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Richard Stewart DATE 10-13-09

PROJECT MANAGER : DANNY R. LANDRY

PROJECT NAME : RIPTON
PROJECT NUMBER : FH 010-1(42)

SHEET 1 OF 26 SHEETS

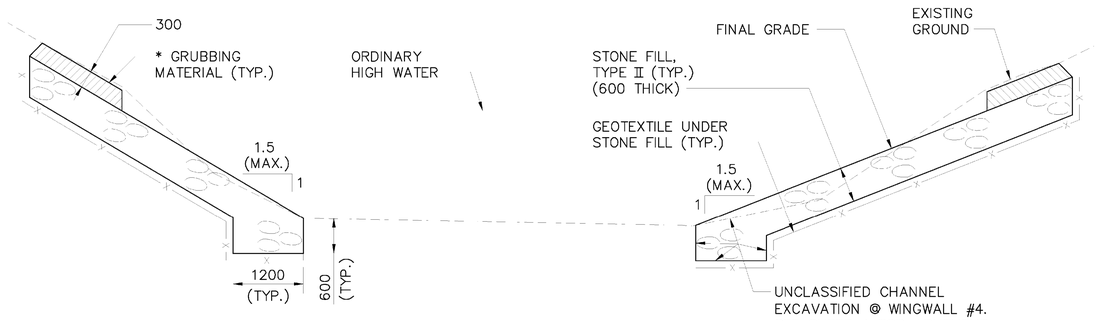
McFarland Johnson



TYPICAL BRIDGE SECTION
(INTEGRAL BACKWALL NOT SHOWN FOR CLARITY)
SCALE 1:20

0 .50 1 1.5
SCALE IN METERS

* PAYMENT INCLUDED UNDER ITEM 900.675, SPECIAL PROVISION (PRECAST PRECOMPRESSED CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)



TYPICAL CHANNEL SECTION
SCALE 1:50

0 1 2 3
SCALE IN METERS

* GRUBBING MATERIAL SHALL NOT BE PLACED ON STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF THE SUBBASE.

McFarland Johnson

FINAL HYDRAULICS REPORT

Metric

HYDROLOGIC DATA

DRAINAGE AREA= 39.6 km^2
CHARACTER OF TERRAIN: MOUNTAINOUS
CHARACTER & TYPE OF STREAM: PERENNIAL BUT FLASHY

NATURE OF STREAMBED: COBBLES AND BOULDERS

Q2.33=	17.4 cms	Q50=	41.7 cms
Q10=	25.0 cms	Q100=	55.2 cms
Q25=	37.0 cms	Q500=	

DATE OF FLOOD OF RECORD: UNKNOWN
WATER SURFACE ELEV.: ESTIMATED DISCHARGE:
NATURAL STREAM VELOCITY @ Q 25 = 2.4 m/s
ICE CONDITIONS: MODERATE DEBRIS: LOW
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? YES
IS ORDINARY RISE RAPID? YES
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO
IF YES, DESCRIBE.

WATERSHED STORAGE YES HEADWATERS NO UNIFORM THROUGHOUT WATERSHED YES
IMMEDIATELY ABOVE SITE NO

EXISTING STRUCTURE

STRUCTURE TYPE: STEEL STRINGERS SUPPORTING CONCRETE DECK YEAR BUILT: 1940
CLEAR SPAN (NORMAL TO STREAM): 15 m
VERTICAL CLEARANCE ABOVE STREAMBED: 2.6 m
WATERWAY OF FULL OPENING: 39 m^2
DISPOSITION OF STRUCTURE: SUBSTANDARD WIDTH – REMOVE EXISTING SUPERSTRUCTURE
TYPE OF MATERIAL UNDER SUBSTRUCTURE: UNKNOWN

WATER SURFACE ELEV. @ Q2.33=	360.72 m	VELOCITY=	2.39 m/s
Q10=	360.90 m	"	2.73 m/s
Q25=	361.15 m	"	2.94 m/s
Q50=	361.23 m	"	3.02 m/s
Q100=	361.45 m	"	3.36 m/s

LONG TERM STREAM BED CHANGES: UNKNOWN

IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY: N/A
RELIEF ELEVATION: N/A DISCHARGE OVER ROAD @ Q100: N/A

UPSTREAM STRUCTURE: TOWN: RIPTON DISTANCE: 4.4 km
HIGHWAY NO.: TH 21 STRUCTURE NO.: 11
STRUCTURE TYPE: CONCRETE SLAB BRIDGE
CLEAR SPAN: 5.5 M CLEAR HEIGHT: 3 M
YEAR BUILT: 1975 FULL WATERWAY:

DOWNSTREAM STRUCTURE: TOWN: RIPTON DISTANCE: 1.6 km
HIGHWAY NO.: VT 125 STRUCTURE NO.: 14
STRUCTURE TYPE: TWIN CELL REINFORCED CONCRETE BOX
CLEAR SPAN: 12.2 M CLEAR HEIGHT: 3.7 M
YEAR BUILT: 1978 FULL WATERWAY: 44.6 m^2

PROPOSED STRUCTURE

STRUCTURE TYPE: PRECAST PRECOMPRESSED CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE

CLEAR SPAN (NORMAL TO STREAM): 15 m
VERTICAL CLEARANCE ABOVE STREAMBED: 2.6 m
WATERWAY OF FULL OPENING: 34 m^2

WATER SURFACE ELEV. @ Q2.33=	360.72 m	VELOCITY=	2.61 m/s	
Q10=	360.90 m	"	=	2.88 m/s
Q25=	361.15 m	"	=	3.18 m/s
Q50=	361.23 m	"	=	3.27 m/s
Q100=	361.45 m	"	=	3.50 m/s

IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY: N/A
RELIEF ELEVATION: N/A DISCHARGE OVER ROAD @ Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 363.2 m
VERTICAL CLEARANCE @ Q 25 = 1.3 m

SCOUR: SCOUR DEPTH NOT CALCULATED
REQUIRED CHANNEL PROTECTION: STONE FILL, TYPE II

PERMIT INFORMATION

AVERAGE DAILY FLOW: 10.5 cms
ORDINARY LOW WATER: 1.0 cms DEPTH: 0.12 m
ORDINARY HIGH WATER: 22.3 cms DEPTH: 0.80 m

ADDITIONAL COMMENTS

DESIGN CRITERIA:
1. DESIGN LIVE LOAD AASHTO MS 22.5
2. DESIGN SPAN 17.723 METERS ℄ BRG TO ℄ BRG
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE 480 kPa
4. ALLOWABLE LOAD FOR PILING N/A TYPE N/A ESTIMATED LENGTH N/A
5. ALLOWABLE STRESS FOR STRUCTURAL STEEL AASHTO M 270M/M 270 GRADE 345W TENSION 190 MPa
6. ALLOWABLE STRESS FOR REINFORCING STEEL GRADE 420 TENSION 165 MPa
7. ALLOWABLE STRESS FOR CONCRETE, HIGH PERFORMANCE CLASS A f'_c 30 MPa f_c 12 MPa
   HIGH PERFORMANCE CLASS B f'_c 25 MPa f_c 10 MPa

TRAFFIC MAINTENANCE:
1. TRAFFIC WILL BE MAINTAINED ON THE EXISTING STRUCTURE DURING WIDENING OF THE UPSTREAM SIDE OF THE ABUTMENTS AND CONSTRUCTION OF THE NEW WINGWALLS.
2. TRAFFIC WILL BE DETOURED VIA AN ALTERNATE ROUTE FOR A MAXIMUM OF THREE (3) WEEKS DURATION DURING REMOVAL OF THE EXISTING SUPERSTRUCTURE, CONSTRUCTION OF THE NEW BRIDGE SEAT AND PLACEMENT OF THE PREFABRICATED SUPERSTRUCTURE.
3. PHASE 2 PEDESTRIAN AND EMERGENCY PERSONNEL PEDESTRIAN TRAFFIC WILL BE MAINTAINED WITH A 1.5 m WIDE x 23 m LONG PEDESTRIAN BRIDGE LOCATED UPSTREAM OF THE PROPOSED VEHICLE BRIDGE (SEE PHASE 2 TRAFFIC CONTROL PLAN FOR APPROXIMATE PEDESTRIAN BRIDGE LOCATION).

LOAD FACTOR LOAD RATING (TONS) *

LOADING LEVELS (LOAD FACTOR)	TRUCK M	MS	3S2	6 AXLE	3A.STR.	4A.STR.	5A.SEMI
INVENTORY A=2.17; B=1.00							
POSTED A=1.55; B=1.40							
OPERATING A=1.30; B=1.67							

STRENGTH RF= $\frac{\emptyset M_u - 1.3\,M_{DL}}{A \times M_{LL+I}}$

SERVICEABILITY RF= B $\left[\frac{.95\,F_y S_{LL+I} - M_{DL}\frac{S_{LL+I}}{S_{DL}} - M_{SDL}\frac{S_{LL+I}}{S_{SDL}}}{1.67\,M_{LL+I}}\right]$

TRAFFIC DATA

CONSTRUCTION YEAR 2010 AADT = 220
DESIGN YEAR 2030 AADT = 250
DESIGN YEAR 2030 DHV = 30
DESIGN YEAR 2030 T = 8%
DESIGN YEAR 2030 D = 57%
DESIGN YEAR 2030 V = 50 KM/H
2010–2030 ESAL = 41,900

* SEE SUPERSTRUCTURE NOTE 11 ON SHEET 16.

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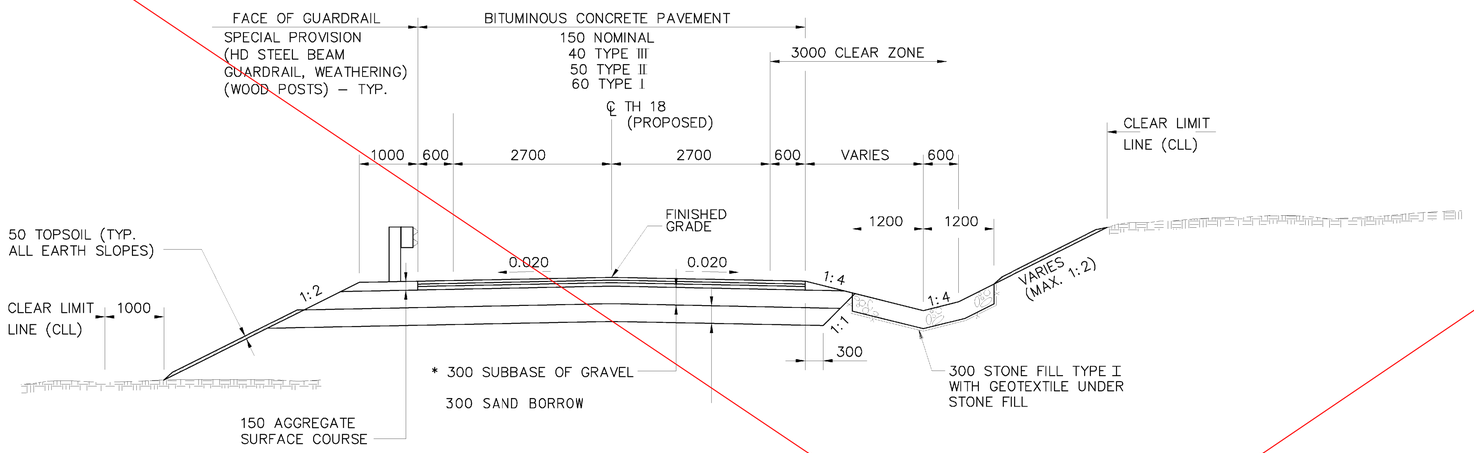
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER
PRELIMINARY INFORMATION & BRIDGE TYP. SECT.

Designed By	B P GUZAS	Drawn By	W J GAYNOR
Checked By	Date	Bridge Design Supervisor	
Y I LIU	8/09	R L JOY	Date 10/09

PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 2 of 26



FILL SECTION

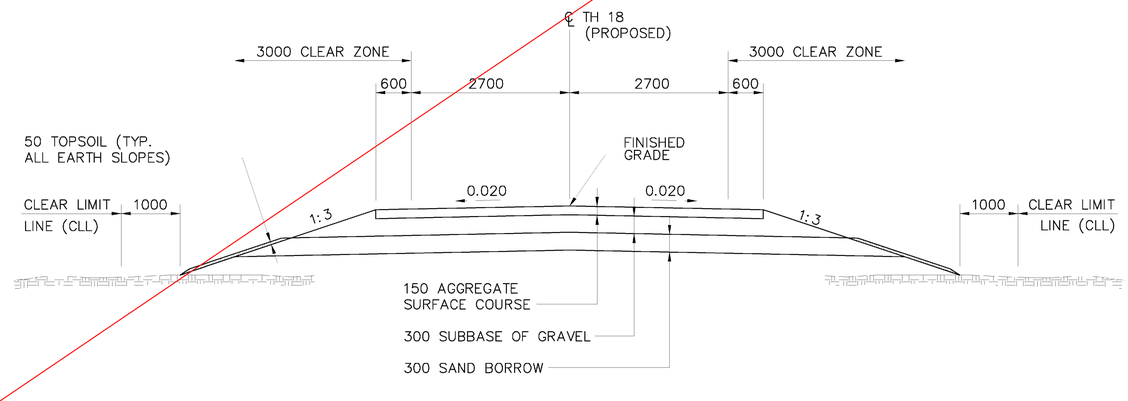
ROADWAY SECTION (PAVED SURFACE)
STA 2+056.500 TO STA 2+071.607
STA 2+089.907 TO STA 2+180.000
SCALE 1:50

0 1 2 3
SCALE IN METERS

CUT SECTION

* 750 BEHIND ABUTMENTS, SEE SUBBASE DETAIL AT ABUTMENTS ON SHEET 24 OF 26.

MATERIAL ITEM	THICKNESS TOLERANCE
AGGREGATE SURFACE COURSE	±10
SUBBASE GRAVEL	±30
SAND BORROW	±30
PAVEMENT	±5



ROADWAY SECTION (AGGREGATE SURFACE)
STA 2+020.000 TO STA 2+056.500
SCALE 1:50

0 1 2 3
SCALE IN METERS

SEE REVISED SHEET

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON — Bridge No. BRIDGE #17
Log Sta.
Highway No. TH 18 — Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

TYPICAL ROADWAY SECTIONS

Designed By B P GUZAS — Drawn By W J GAYNOR
Checked By Y I LIU — Date 8/09
Bridge Design Supervisor R L JOY — Date 10/09

PROJECT RIPTON — PROJECT NO. FH 010-1(2)
I.G.C. Info.
Bridge Sheet No. — Sheet 3 of 26

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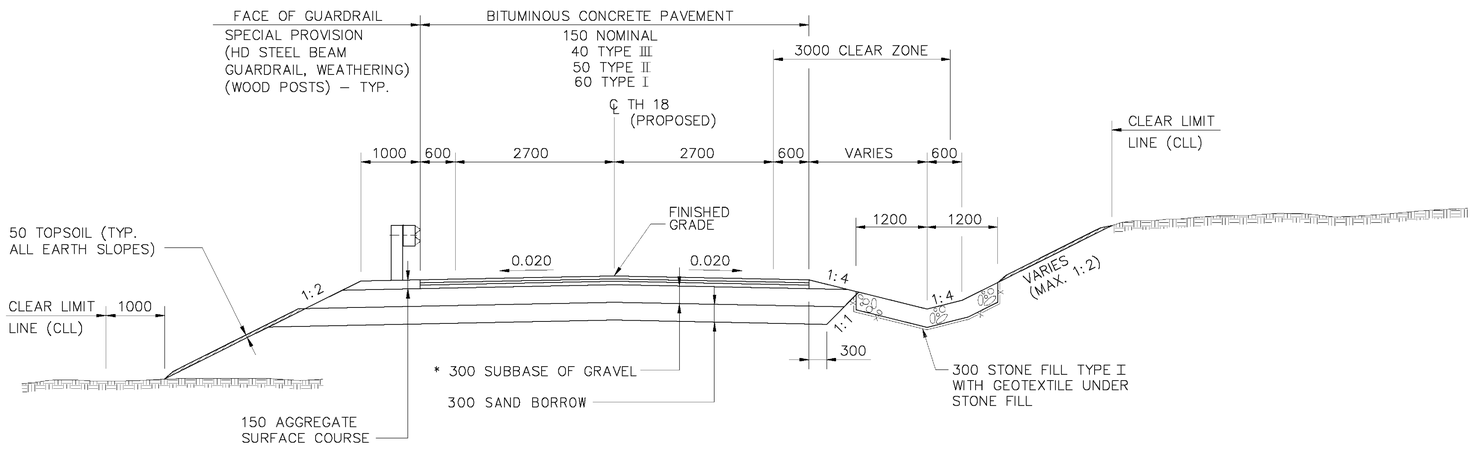


FILL SECTION

* 750 BEHIND ABUTMENTS, SEE SUBBASE DETAIL AT ABUTMENTS ON SHEET 24 OF 26.

ROADWAY SECTION (PAVED SURFACE)

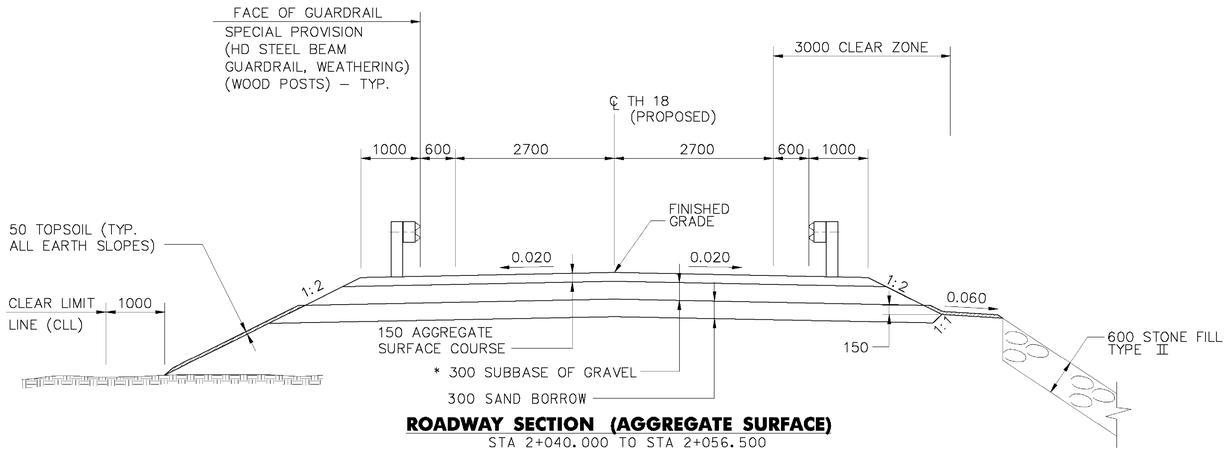
STA 2+089.907 TO STA 2+180.000

SCALE 1:50

0 1 2 3

SCALE IN METERS

CUT SECTION



ROADWAY SECTION (AGGREGATE SURFACE)

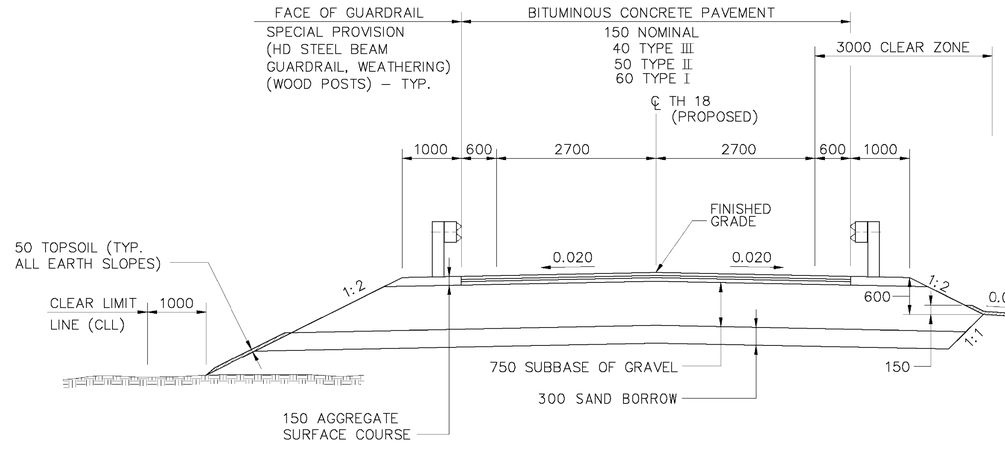
STA 2+040.000 TO STA 2+056.500

SCALE 1:50

0 1 2 3

SCALE IN METERS

* 750 BEHIND ABUTMENTS, SEE SUBBASE DETAIL AT ABUTMENTS ON SHEET 24 OF 26.



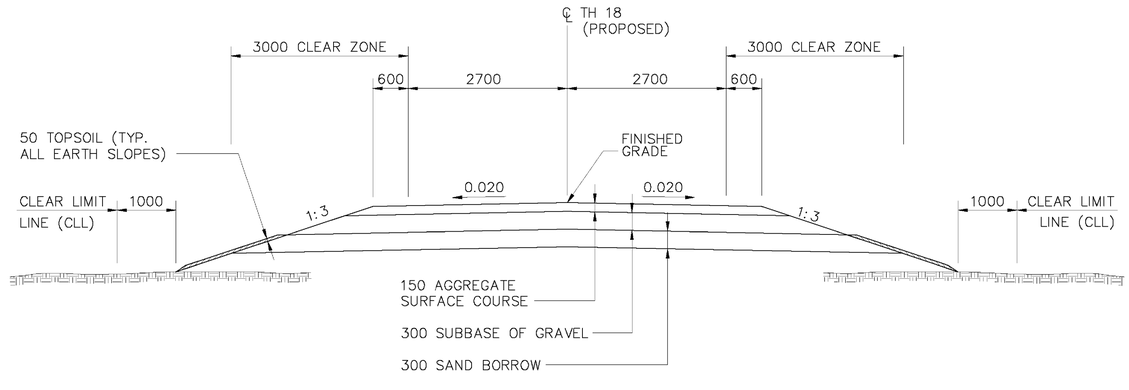
ROADWAY SECTION (PAVED SURFACE)

STA 2+056.500 TO STA 2+071.607

SCALE 1:50

0 1 2 3

SCALE IN METERS



ROADWAY SECTION (AGGREGATE SURFACE)

STA 2+020.000 TO STA 2+040.000

SCALE 1:50

0 1 2 3

SCALE IN METERS

MATERIAL ITEM	THICKNESS TOLERANCE
AGGREGATE SURFACE COURSE	±10
SUBBASE GRAVEL	±30
SAND BORROW	±30
PAVEMENT	±5

REVISIONS

ADDED ADDITIONAL TYPICAL SECTIONS.
REVISED ROADWAY SLOPES FOR GUARDRAIL AND STONE FILL.

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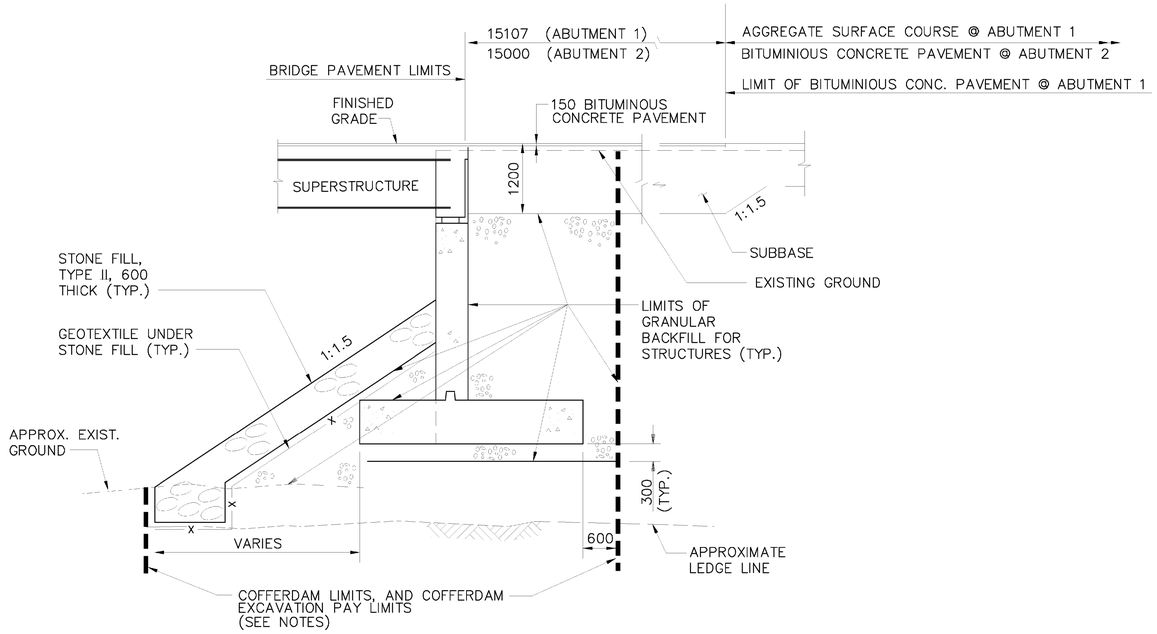
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER	
TYPICAL ROADWAY SECTIONS	
Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 3 R of 26



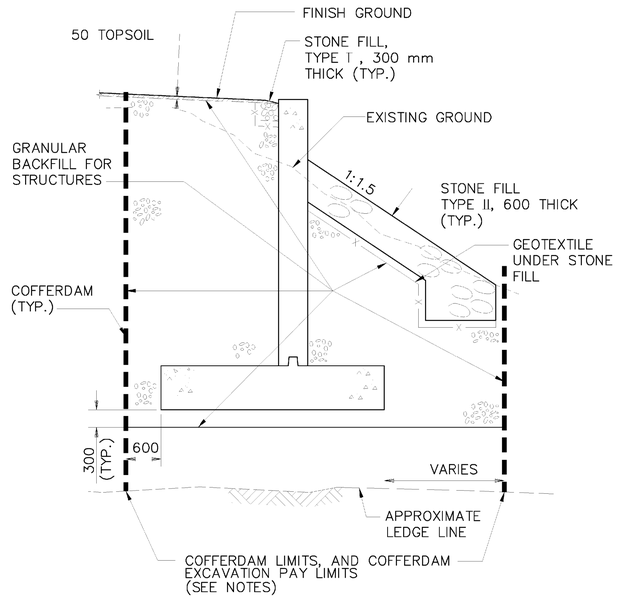
TYPICAL ABUTMENT WIDENING EARTHWORK SECTION

(ABUTMENT 2 SHOWN - ABUTMENT 1 SIMILAR)

SCALE 1:50

0 1 2 3

SCALE IN METERS



TYPICAL WINGWALL NO. 2 AND NO. 4 EARTHWORK SECTION

(WING 2 SHOWN – WING 4 SIMILAR)

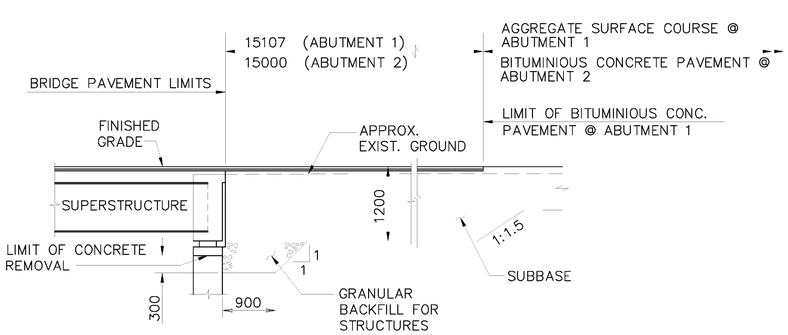
SCALE: 1:50

0 1 2 3

SCALE IN METERS

COFFERDAM NOTES

1. COFFERDAM SIZE TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 600mm OUTSIDE THE PERIMETER OF THE FOOTING UNLESS NOTED OTHERWISE.
3. 300mm UNDERCUT AS DETERMINED NECESSARY BY THE RESIDENT ENGINEER.
4. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM EXCAVATION PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.



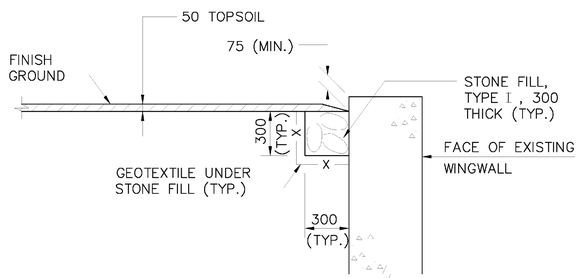
TYPICAL EXISTING ABUTMENT EARTHWORK SECTION

(ABUTMENT 2 SHOWN - ABUTMENT 1 SIMILAR)

SCALE 1:50

0 1 2 3

SCALE IN METERS

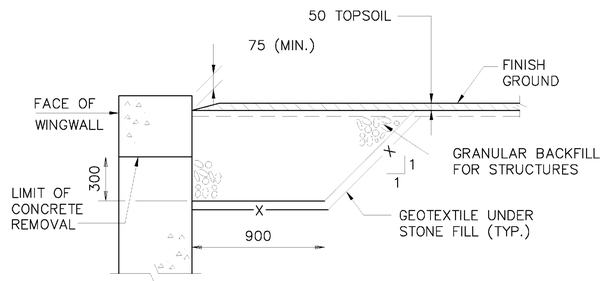


WINGWALL NO. 1 EARTHWORK SECTION

SCALE 1:20

0 .50 1 1.5

SCALE IN METERS



WINGWALL NO. 3 EARTHWORK SECTION

SCALE 1:20

0 .50 1 1.5

SCALE IN METERS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	RIPTON	Bridge No.	BRIDGE #17
		Log Sta.	
Highway No.	TH 18	Surv. Sta.	

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

ABUTMENT & WINGWALL EARTHWORK SECTIONS

Designed By	B P GUZAS	Drawn By	W J GAYNOR
Checked By	Date	Bridge Design Supervisor	
Y I LIU	8/09	R L JOY	Date 10/09

PROJECT	RIPTON	PROJECT NO.	FH 010-1(2)
I.G.C. Info.			
Bridge Sheet No.		Sheet 4 of 26	

McFarland Johnson

FOREST SERVICE U S DEPARTMENT OF AGRICULTURE

M:\173-SGC Riptor 17\ERDG\Z59203@AEW4_01.DGN

EARTHWORKS

% GDE	VERT CUR	STATION	GRADES ELEVATION ON TAN.	ON V.C.	CORR. V.C.	DIST.	COMMON EXC. AREA	COMMON EXC. VOLUME	GRAVEL AREA	GRAVEL VOLUME	SAND AREA	SAND VOLUME
		BEGIN APPROACH										
		2+000	365.440	365.440	0.000		0.89		0.00		0.00	
						5.00		3.54		2.28		0.00
		2+005	365.287	365.287	0.000		0.53		0.91		0.00	
		BEGIN PROJECT				15.00		41.39		25.88		20.15
−4.8910%	PVC1	2+020	364.588	364.588	0.000		5.00		2.54		2.69	
						20.00		86.38		53.20		59.73
−4.8909%		2+040	363.610	363.885	0.275		3.63		2.78		3.29	
PVI1						15.00		70.02		45.68		48.50
		2+055	363.662	363.718	0.096		5.70		3.31		3.18	
						1.00		8.05		5.54		3.14
		2+056	363.674	363.717	0.043		10.40		7.76		3.11	
						4.00		41.42		31.00		12.39
		2+060	363.720	363.731	0.011		10.31		7.74		3.09	
	PVT1	BEGIN BRIDGE				11.00		105.24		74.76		29.39
		2+071	363.846	363.846	0.000		8.82		5.85		2.26	
1.1523%												
		END BRIDGE										
		2+089	364.054	364.054	0.000		4.58		4.78		1.73	
						11.00		159.13		74.56		29.74
		2+100	364.180	364.180	0.000		24.36		8.78		3.68	
						4.00		101.95		35.89		14.55
		2+104	364.226	364.226	0.000		26.62		9.17		3.59	
						1.00		23.89		6.33		3.70
		2+105	364.238	364.238	0.000		21.17		9.17		3.6	
	PVC2					15.00		266.30		46.43		48.98
		2+120	364.411	364.367	−0.044		14.34		2.69		2.72	
PVI2						20.00		263.71		53.51		54.61
		2+140	364.293	364.249	−0.044		12.03		2.66		2.74	
		END PROJECT				10.00		111.48		26.75		27.64
−2.3300%	PVT2	2+150	364.060	364.060	0.000		10.27		2.69		2.79	
						10.00		67.28		25.29		26.28
−2.3000%		2+160	363.830	363.830	0.000		3.19		2.37		2.47	
						5.00		8.98		6.83		6.17
−2.1000%		2+165	363.717	363.717	0.000		0.40		0.37		0.00	
		END APPROACH				15.00		6.14		2.74		0.00
+1.2000%		2+180	363.740	363.740	0.000		0.42		0.00		0.00	
					SUBTOTOAL =			1364.99		562.01		383.32

SUBTOTOAL =	1364.99	562.01	383.32
ROUNDED TOTAL=	1370	570	390

EARTHWORK SUMMARY

MATERIAL REQUIRED:	PLANIMETERED FILL =	80
	FILL FACTOR (0.15) =	12
	TOTAL MATERIAL REQUIRED =	92
MATERIAL AVAILABLE:	COMMON EXCAVATION =	1370
	COFFERDAM EXC., EARTH X 30% =	150
	UNCLASS. CHANNEL EXC. X 30% =	30
	TOTAL MATERIAL AVAILABLE =	1550
BORROW OR WASTE:	MATERIAL AVAILABLE =	1550
	MATERIAL REQUIRED =	92
	WASTE =	1458

QUANTITY SHEET

ITEM NO.	ITEM	UNIT	BRIDGE QUANTITY BREAKDOWN SUPERSTR.	ABUT. 1	ABUT. 2	CHANNEL	BRIDGE	ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	ROUNDING	TOTAL	FINAL
201.10	CLEARING AND GRUBBING, INCLUDING	LS						1				1	
	INDIVIDUAL TREES & STUMPS												
203.15	COMMON EXCAVATION	CM						1370				1370	
203.27	UNCLASSIFIED CHANNEL EXCAVATION	CM				177	177					177	
203.31	SAND BORROW	CM						390				390	
204.22	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	CM						1				1	
204.30	GRANULAR BACKFILL FOR STRUCTURES	CM		351	195		546					546	
208.30	COFFERDAM EXCAVATION, EARTH	CM		411	255		666					666	
208.35	COFFERDAM EXCAVATION, ROCK	CM		40	30		70					70	
208.40	COFFERDAM (STA 2+071.607)	LS		1			1					1	
208.40	COFFERDAM (STA 2+089.907)	LS			1		1					1	
210.10	COLD PLANNING, BITUMINOUS PAVEMENT	SM						100				100	
301.15	SUBBASE OF GRAVEL	CM						570				570	
401.10	AGGREGATE SURFACE COURSE	CM						140				140	
406.25	BITUMINOUS CONCRETE PAVEMENT	T	21				21	244				265	
406.50	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	LU						1				1	
501.34	CONCRETE, HIGH PERFORMANCE CLASS B	CM		97	50		147					147	
507.15	REINFORCING STEEL	KG		6820	3290		10110					10110	
507.16	DRILLING AND GROUTING DOWELS	M		14	27		41					41	
514.10	WATER REPELLENT, SILANE	L	14	8	8		30					30	
519.20	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	SM	114				114					114	
524.13	JOINT SEALER, COLD POURED	M	8.5				8.5					8.5	
528.12	TEMPORARY PEDESTRIAN BRIDGE (34.5 SM-EST)	LS	1				1					1	
529.20	PARTIAL REMOVAL OF STRUCTURE	EACH	1				1					1	
531.11	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	EACH	8				8					8	
613.10	STONE FILL, TYPE I	CM						50				50	
613.11	STONE FILL, TYPE II	CM				363	363					363	
621.56	ENERGY ABSORPTION ATTENUATOR	EACH						3				3	
621.60	ANCHOR FOR STEEL BEAM RAIL	EACH						4				4	
621.90	TEMPORARY TRAFFIC BARRIER	M						60				60	
630.15	FLAGGERS	HR						2000				2000	
631.10	FIELD OFFICE, ENGINEERS	LS								1		1	
631.16	TESTING EQUIPMENT, CONCRETE	LS								1		1	
631.17	TESTING EQUIPMENT, BITUMINOUS	LS								1		1	
631.25	FIELD OFFICE TELEPHONE (N.A.B.I.)	LU								1		1	
635.11	MOBILIZATION/DEMOBILIZATION	LS						1				1	
641.10	TRAFFIC CONTROL	LS						1				1	
641.17	PORTABLE CHANGEABLE MESSAGE SIGN RENTAL	DAY						70				70	
649.31	GEOTEXTILE UNDER STONE FILL	SM				693	693	160				853	
649.515	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	SM							330			330	
649.61	GEOTEXTILE FOR FILTER CURTAIN	SM							60			60	
651.15	SEED	KG							10			10	
651.17	SEED, WINTER RYE	KG							5			5	
651.18	FERTILIZER	KG							80			80	
651.20	AGRICULTURAL LIMESTONE	T							1			1	
651.25	HAY MULCH	T							1			1	
651.35	TOPSOIL	CM							35			35	
651.40	GRUBBING MATERIAL	SM							240			240	
652.10	EPSC PLAN	LS							1			1	
652.20	MONITORING EPSC PLAN	HR							10			10	
652.30	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	LU							1			1	
653.20	TEMPORARY EROSION MATTING	SM							700			700	
653.25	TEMPORARY STONE CHECK DAM, TYPE I	CM							10			10	
653.50	BARRIER FENCE	M							400			400	
675.50	REMOVING SIGNS	EACH						3				3	
675.60	ERECTING SALVAGED SIGNS	EACH						3				3	
675.61	SETTING SALVAGED POSTS	EACH						3				3	
678.40	TEMPORARY TRAFFIC SIGNAL SYSTEM	EACH						1				1	
900.608	SPECIAL PROVISION (GROUT BAGS)	CM				1	1					1	
900.640	SPECIAL PROVISION (HD STEEL BEAM GUARDRAIL, WEATHERING) (WOOD POSTS)	M						142				142	
900.640	SPECIAL PROVISION (BRIDGE RAILING, WEATHERING HD STEEL BEAM/FASCIA MOUNTED)	M	42				42					42	
900.675	SPECIAL PROVISION (PRECAST PRECOMPRESSED CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)	SM	129				129					129	

SEE REVISED SHEET

McFarland Johnson

BRIDGE(S) AT STATION(S) TH 18 OVER SOUTH BRANCH
LOCATION(S) MIDDLEBURY RIVER

PREPARED BY: W J GAYNOR
CHECKED BY: Y I LIU
SUPERVISOR: R L JOY

PROJECT: RIPTON
BR OF
PROJECT NO: FH 010-1(2)
SHEET NO: 5 OF 26

M:\1734300 Ripton 17\BRDG\Z89E039QS_01.DGN

EARTHWORKS

% GDE	VERT CUR	STATION	GRADES ELEVATION ON TAN.	ON V.C.	CORR. V.C.	DIST.	COMMON EXC. AREA	COMMON EXC. VOLUME	GRAVEL AREA	GRAVEL VOLUME	SAND AREA	SAND VOLUME
		BEGIN APPROACH										
		2+000	365.440	365.440	0.000		0.88		0.00		0.00	
						5.00		4.53		0.00		0.00
		2+005	365.287	365.287	0.000		0.93		0.00		0.00	
-4.8910%		BEGIN PROJECT				15.00		90.47		16.89		17.38
	PVC1	2+020	364.588	364.588	0.000		10.21		2.35		2.36	
-4.8909%						20.00		219.35		52.31		56.36
		2+040	363.610	363.885	0.275		10.80		2.98		3.32	
PVI1						15.00		139.59		42.55		45.59
		2+055	363.662	363.718	0.096		7.81		2.70		2.76	
						1.00		9.54		4.74		2.64
		2+056	363.674	363.717	0.043		11.27		6.79		2.53	
						4.00		44.14		27.44		10.76
		2+060	363.720	363.731	0.011		10.79		6.93		2.85	
	PVT1	BEGIN BRIDGE				11.00		93.70		66.52		26.20
1.1523%		2+071	363.846	363.846	0.000		6.24		5.16		1.91	
		END BRIDGE										
		2+089	364.054	364.054	0.000		4.58		4.78		1.73	
						11.00		159.13		74.56		29.74
		2+100	364.180	364.180	0.000		24.36		8.78		3.68	
						4.00		101.95		35.89		14.55
		2+104	364.226	364.226	0.000		26.62		9.17		3.59	
						1.00		23.89		6.33		3.70
		2+105	364.238	364.238	0.000		21.17		9.17		3.60	
	PVC2					15.00		266.30		88.97		47.42
		2+120	364.411	364.367	-0.044		14.34		2.69		2.72	
PVI2						20.00		263.71		53.51		54.61
-2.3300%		2+140	364.293	364.249	-0.044		12.03		2.66		2.74	
		END PROJECT				10.00		111.48		26.75		27.64
	PVT2	2+150	364.060	364.060	0.000		10.27		2.69		2.79	
-2.3000%						10.00		67.28		25.29		26.28
		2+160	363.830	363.830	0.000		3.19		2.37		2.47	
-2.1000%						5.00		8.98		6.83		6.17
		2+165	363.717	363.717	0.000		0.40		0.37		0.00	
+1.2000%		END APPROACH				15.00		6.14		2.74		0.00
		2+180	363.740	363.740	0.000		0.42		0.00		0.00	

SUBTOTOAL =	1594.08	535.89	369.75
ROUNDED TOTAL=	1600	540	370

EARTHWORK SUMMARY

MATERIAL REQUIRED:	PLANIMETERED FILL =	70
	FILL FACTOR (0.15) =	11
	TOTAL MATERIAL REQUIRED =	81
MATERIAL AVAILABLE:	COMMON EXCAVATION =	1600
	COFFERDAM EXC., EARTH X 30% =	216
	UNCLASS. CHANNEL EXC. X 30% =	47
	TOTAL MATERIAL AVAILABLE =	1863
BORROW OR WASTE:	MATERIAL AVAILABLE =	1863
	MATERIAL REQUIRED =	81
	WASTE =	1782

QUANTITY SHEET

ITEM NO.	ITEM	UNIT	BRIDGE QUANTITY BREAKDOWN SUPERSTR.	ABUT. 1	ABUT. 2	CHANNEL	BRIDGE	ROADWAY	EROSION CONTROL	FULL C.E. ITEMS	ROUNDING	TOTAL	FINAL
201.10	CLEARING AND GRUBBING, INCLUDING	LS						1				1	
	INDIVIDUAL TREES & STUMPS												
203.15	COMMON EXCAVATION	CM						1600				1600	
203.27	UNCLASSIFIED CHANNEL EXCAVATION	CM				155	155					155	
203.31	SAND BORROW	CM						370				370	
204.22	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	CM						1				1	
204.30	GRANULAR BACKFILL FOR STRUCTURES	CM		300	195		495					495	
208.30	COFFERDAM EXCAVATION, EARTH	CM		465	255		720					720	
208.35	COFFERDAM EXCAVATION, ROCK	CM		40	30		70					70	
208.40	COFFERDAM (STA 2+071.607)	LS		1			1					1	
208.40	COFFERDAM (STA 2+089.907)	LS			1		1					1	
210.10	COLD PLANNING, BITUMINOUS PAVEMENT	SM						100				100	
301.15	SUBBASE OF GRAVEL	CM						540				540	
401.10	AGGREGATE SURFACE COURSE	CM						140				140	
406.25	BITUMINOUS CONCRETE PAVEMENT	T	21				21	244				265	
406.50	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	LU						1				1	
501.34	CONCRETE, HIGH PERFORMANCE CLASS B	CM		90	50		140					140	
507.15	REINFORCING STEEL	KG		6290	3290		9580					9580	
507.16	DRILLING AND GROUTING DOWELS	M		14	27		41					41	
514.10	WATER REPELLENT, SILANE	L	14	8	8		30					30	
519.20	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	SM	114				114					114	
524.13	JOINT SEALER, COLD POURED	M	8.5				8.5					8.5	
528.12	TEMPORARY PEDESTRIAN BRIDGE (34.5 SM-EST)	LS	1				1					1	
529.20	PARTIAL REMOVAL OF STRUCTURE	EACH	1				1					1	
531.11	BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD	EACH	8				8					8	
613.10	STONE FILL, TYPE I	CM						50				50	
613.11	STONE FILL, TYPE II	CM				290	290					290	
621.56	ENERGY ABSORPTION ATTENUATOR	EACH						3				3	
621.60	ANCHOR FOR STEEL BEAM RAIL	EACH						4				4	
621.90	TEMPORARY TRAFFIC BARRIER	M						60				60	
630.15	FLAGGERS	HR						2000				2000	
631.10	FIELD OFFICE, ENGINEERS	LS								1		1	
631.16	TESTING EQUIPMENT, CONCRETE	LS								1		1	
631.17	TESTING EQUIPMENT, BITUMINOUS	LS								1		1	
631.25	FIELD OFFICE TELEPHONE (N.A.B.I.)	LU								1		1	
635.11	MOBILIZATION/DEMOBILIZATION	LS						1				1	
641.10	TRAFFIC CONTROL	LS						1				1	
641.17	PORTABLE CHANGEABLE MESSAGE SIGN RENTAL	DAY						70				70	
649.31	GEOTEXTILE UNDER STONE FILL	SM				560	560	160				720	
649.515	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	SM							330			330	
649.61	GEOTEXTILE FOR FILTER CURTAIN	SM							60			60	
651.15	SEED	KG							10			10	
651.17	SEED, WINTER RYE	KG							5			5	
651.18	FERTILIZER	KG							80			80	
651.20	AGRICULTURAL LIMESTONE	T							1			1	
651.25	HAY MULCH	T							1			1	
651.35	TOPSOIL	CM							40			40	
651.40	GRUBBING MATERIAL	SM							310			310	
652.10	EPSC PLAN	LS							1			1	
652.20	MONITORING EPSC PLAN	HR							10			10	
652.30	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	LU							1			1	
653.20	TEMPORARY EROSION MATTING	SM							700			700	
653.25	TEMPORARY STONE CHECK DAM, TYPE I	CM							10			10	
653.50	BARRIER FENCE	M							400			400	
675.50	REMOVING SIGNS	EACH						3				3	
675.60	ERECTING SALVAGED SIGNS	EACH						3				3	
675.61	SETTING SALVAGED POSTS	EACH						3				3	
678.40	TEMPORARY TRAFFIC SIGNAL SYSTEM	EACH						1				1	
900.608	SPECIAL PROVISION (GROUT BAGS)	CM				1	1					1	
900.640	SPECIAL PROVISION (HD STEEL BEAM GUARDRAIL, WEATHERING) (WOOD POSTS)	M						142				142	
900.640	SPECIAL PROVISION (BRIDGE RAILING, WEATHERING HD STEEL BEAM/FASCIA MOUNTED)	M	42				42					42	
900.675	SPECIAL PROVISION (PRECAST PRECOMPRESSED CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)	SM	129				129					129	

McFarland Johnson

REVISIONS
REVISED QUANTITIES.

BRIDGE(S) AT STATION(S) TH 18 OVER SOUTH BRANCH
LOCATION(S) MIDDLEBURY RIVER

PREPARED BY: W J GAYNOR
CHECKED BY: Y I LIU
SUPERVISOR: R L JOY

PROJECT: RIPTON
BR OF
PROJECT NO: FH 010-1(2)
SHEET NO: 5R OF 26

Metric

STATE OF VERMONT
AGENCY OF TRANSPORTATION
RIGHT OF WAY PLANS
DETAIL SHEET

TABLE OF PROJECT PROPERTY ACQUISITION

PARCEL NO.	GRANTOR	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKING	REM.	RIGHTS	TITLE TAKEN	DATE	TOWN OR CITY RECORDED	BK.	PG.	REMARKS
1	MIDDLEBURY COLLEGE	10	2+029.2 RT.	2+074.5 RT.	141 SM±			WDOE	04-27-01	RIPTON	34	292	1,518 S.F.±
2	REICHERT, JONATHAN	10	2+068.0 RT.	2+147.2 RT.	238 SM±			WDOE	08-06-01	RIPTON	34	444-445	2,562 S.F.±
			2+071.4 RT.	2+154.0 RT.			CONST. (T) 254 SM±						2,734 S.F.± INCLUDES EROSION CONTROL
			2+083.8 RT.	2+090.7 RT.			CHANNEL (P) 36 SM±						388 S.F.±
			2+088.5 RT.	2+122.1 RT.			SLOPE (P) 93 SM±						1,001 S.F.±
			2+126.3 RT.				INSTALL & MAINTAIN (P)						GUY ANCHOR
3	SCHLEY, MARGARET ANNE SCHLEY, MIRIAM H.	10	2+096.1 LT.	2+113.6 LT.			CONST. (T) 36 SM±	WDOE	06-04-01	RIPTON	34	329	388 S.F.± INCLUDES EROSION CONTROL
			2+143.2 LT.	2+171.0 LT.			CONST. (T) 129 SM±						1,389 S.F.± INCLUDES EROSION CONTROL
			2+148.2 LT.	2+168.8 LT.			SLOPE (P) 60 SM±						646 S.F.±
4	CENTRAL VERMONT PUBLIC SERVICE CORPORATION												UTILITY
5	NEW ENGLAND TELEPHONE & TELEGRAPH COMPANY D/B/A/ BELL ATLANTIC-NEW ENGLAND												UTILITY

REVISION NO.	SHEET	DESCRIPTION OF REVISION	DATE	MADE BY	APPROVED BY

ACCT.GFunk
\\vaot_cadd\filingcabinet$\89E039\RightOfWay\re039d.dgn
DATE PLOTTED 15-NOV-2001

DR.(P)- DRAINAGE RIGHT
DIT.(P)- DITCHING RIGHT
CH.(P)- CHANNEL RT.
DRIVE (T)- DRIVE RIGHT
CUL.(P)- CULVERT RIGHT
[W]- WATER SOURCES

PRESENT R.O.W.
TAKING WITHOUT ACCESS
TAKING WITHOUT ACCESS ALONG PROPERTY LINE
TAKING WITH ACCESS
(P) PERMANENT EASEMENT
(T) TEMPORARY EASEMENT

LEGEND
C&T (P) CLEARING & TRIMMING
CZ (P) CLEAR ZONE
CONST.(T) CONSTRUCTION EASEMENT
SR SR SLOPE RIGHTS
P L PROPERTY LINE
TOP OF CUT
TOE OF SLOPE
UE (P) PERMANENT UTILITY EASEMENT

APPROVED: ROGER P. DUMAS DATE: 7-13-00
CHIEF, PLANS & TITLES

R. O. W. PLANS

RIPTON
FH 010-1(2)

SHEET 6 OF 26

ALIGNMENT DATA

CONSTRUCTION CENTERLINE	SURVEY BASELINE STATION	SURVEY BASELINE OFFSET	NORTHING	EASTING
BEGIN PROJECT STA 2+020.000	1+042.887	6116 LT	4829.0966	9993.6156
PI CURVE 1 STA 2+043.636 BK. = STA 2+042.676 AH.	1+066.399	8537 LT	4851.1937	9985.2230
PI CURVE 2 STA 2+126.878 BK. = STA 2+126.856 AH.	1+148.680	1487 LT	4935.0177	9993.2034
PI CURVE 3 STA 2+163.053 BK. = STA 2+162.343 AH.	1+184.783	3941 LT	4971.2112	9993.6961
END PROJECT STA 2+150.000	1+171.764	2990 LT	4958.1589	9993.5841

CURVE 1	CURVE 2	CURVE 3
Δ = 26°03'45"	Δ = 04°39'30"	Δ = 29°36'45"
R = 120.000	R = 500.000	R = 60.000
T = 27.773	T = 20.337	T = 15.860
L = 54.586	L = 40.652	L = 31.010
E = 3.172	E = 0.413	E = 2.061

COORDINATES

POINT	STATION	NORTHING	EASTING
BEGIN APPROACH	2+000.000	4810.3540	10000.5934
PC	2+015.863	4825.2004	9995.0058
PT	2+070.449	4878.8420	9987.8552
BEGIN BRIDGE	2+071.607	4879.9953	9987.9650
END BRIDGE	2+089.907	4898.2130	9989.6994
PC	2+106.541	4914.7720	9991.2759
PRC	2+147.193	4955.3530	9993.4802
PT	2+178.203	4984.8914	10001.7198
END APPROACH	2+180.000	4986.4414	10002.6290

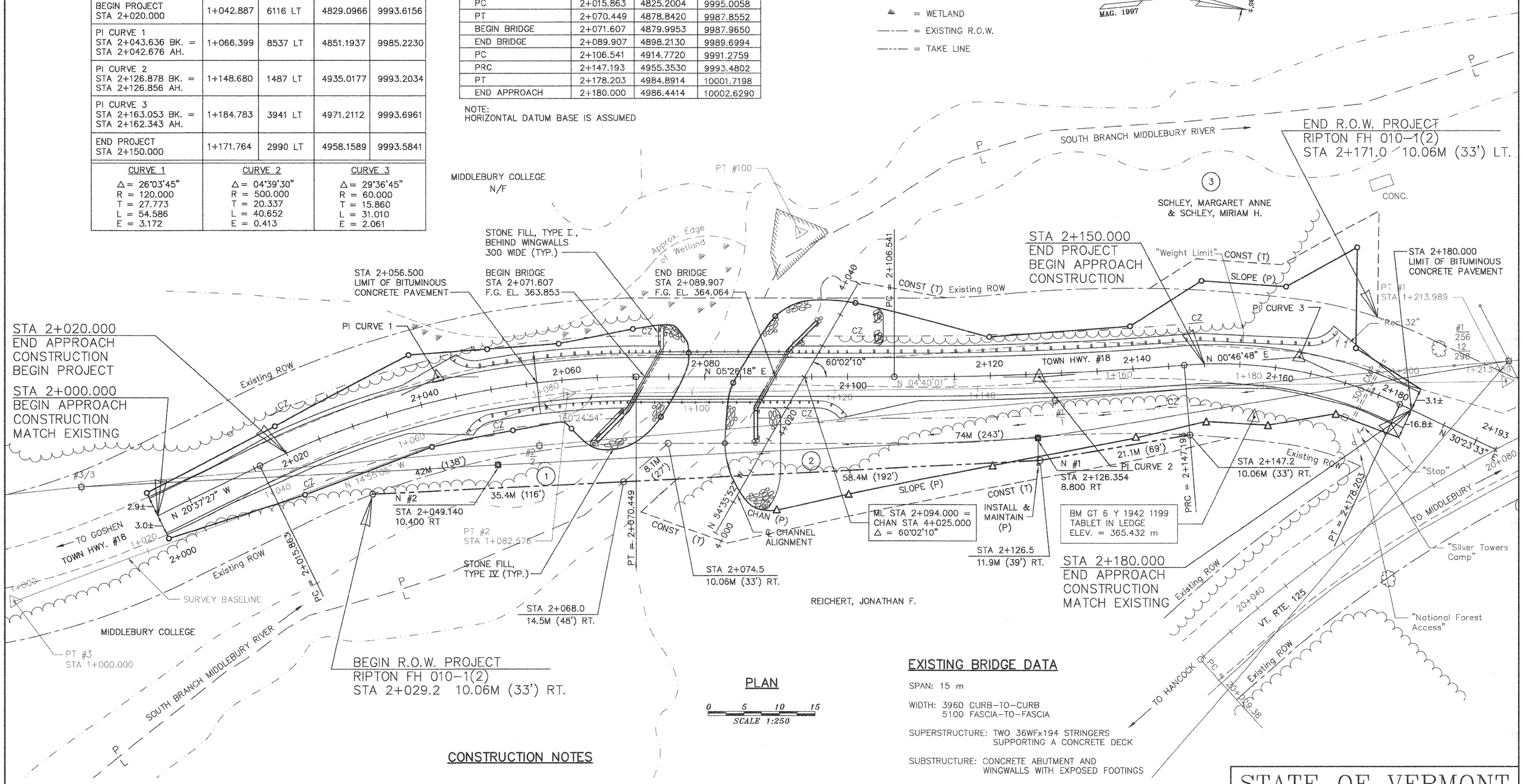
NOTE:
HORIZONTAL DATUM BASE IS ASSUMED

LEGEND

CZ = CLEAR ZONE
= WETLAND
= EXISTING R.O.W.
= TAKE LINE

MAG. 1997

VAOT Metric



BEGIN R.O.W. PROJECT
RIPTON FH 010-1(2)
STA 2+029.2 10.06M (33') RT.

PLAN

0 5 10 15
SCALE 1:250

EXISTING BRIDGE DATA

SPAN: 15 m

WIDTH: 3960 CURB-TO-CURB
5100 FASCIA-TO-FASCIA

SUPERSTRUCTURE: TWO 36WFx194 STRINGERS SUPPORTING A CONCRETE DECK

SUBSTRUCTURE: CONCRETE ABUTMENT AND WINGWALLS WITH EXPOSED FOOTINGS

CONSTRUCTION NOTES

REMOVE AND RESET EXISTING SIGNS

STA 2+167.4, 5.3 LT REMOVE AND RESET
STA 2+168.5, 5.5 LT REMOVE AND RESET
STA 2+155.0, 3.9 LT REMOVE
REMOVAL PAID UNDER ITEM 675.50
RESETTING PAID UNDER ITEM 675.60

BRIDGE RAIL, HEAVY DUTY STEEL BEAM, AASHTO M180, TYPE IV, (FASCIA MOUNTED WITH STEEL POSTS)

STA 2+073.250, 3.300 LT – STA 2+092.300, 3.300 LT
STA 2+069.179, 3.300 RT – STA 2+088.264, 3.300 RT

HEAVY DUTY STEEL BEAM APPROACH RAIL, AASHTO M180, TYPE IV, SCHEDULE I (WITH STEEL POSTS)

STA 2+065.759, 3.300 LT – STA 2+073.250, 3.300 LT
STA 2+092.300, 3.300 LT – STA 2+099.920, 3.300 LT
STA 2+061.344, 3.300 RT – STA 2+069.179, 3.300 RT
STA 2+088.264, 3.300 RT – STA 2+095.884, 3.300 RT

GUARDRAIL HEAVY DUTY STEEL BEAM, AASHTO M180, TYPE IV, (WITH WOOD POSTS)

STA 2+049.072, 3.300 LT – STA 2+065.759, 3.300 LT
STA 2+099.920, 3.300 LT – STA 2+164.000, 3.812 LT
STA 2+049.591, 3.300 RT – STA 2+061.344, 3.300 RT

HEAVY DUTY STEEL BEAM GUARDRAIL APPROACH END TERMINAL, AASHTO M180, TYPE IV

STA 2+049.072, 3.300 LT – STA 2+045.639, 4.800 LT
STA 2+164.000, 3.812 LT – STA 2+167.005, 5.922 LT
STA 2+045.801, 4.800 RT – STA 2+049.591, 3.300 RT
STA 2+095.884, 3.300 RT – STA 2+099.851, 4.800 RT

NOTE: CONSTRUCTION NOTE OFFSETS ARE IN METERS.

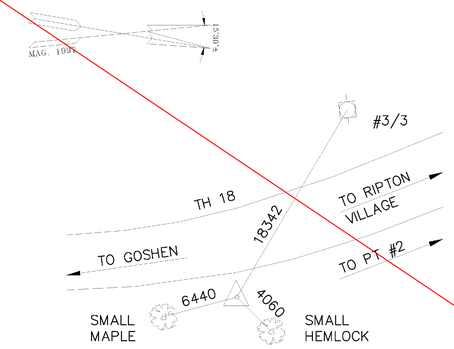
LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE TOWN OF RIPTON'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

RFS RIST-FROST SHUMWAY
Rist-Frost-Shumway Engineering, P.C.
Consulting Engineers
71 Water Street, Laconia, NH 03246

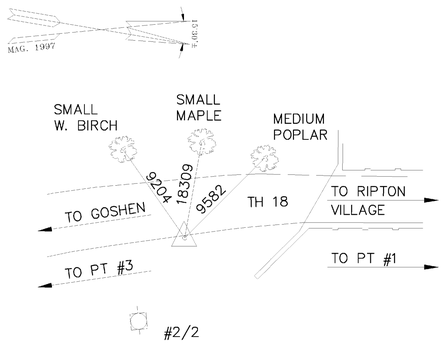
FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

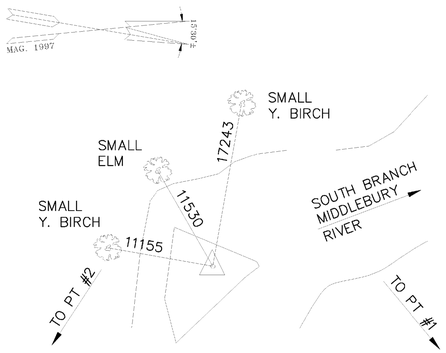
Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER	
ROADWAY PLAN	
Designed By J C WEALE	Drawn By C L CILLEY
Checked By M J SERVETAS Date 5/98	Bridge Design Supervisor E G WEINGARTNER Date 10/99
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. info.	
Bridge Sheet No.	R.O.W. Sheet 7 of 26



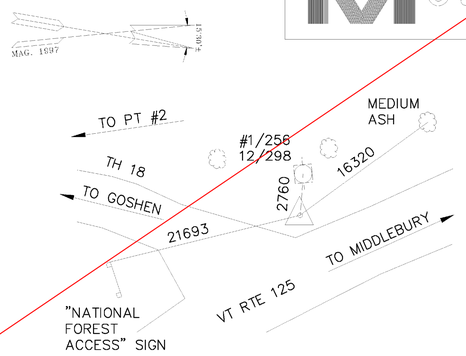
PT #3
STA 1+000.000



PT #2
STA 1+082.576



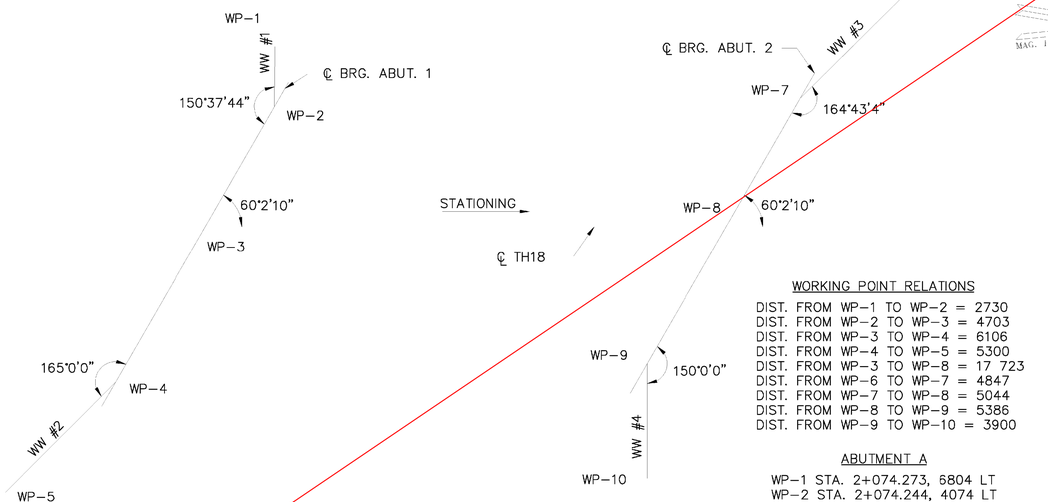
PT #100 (NAIL IN LEDGE)
STA 1+115.424, LT 21.970



PT #1
STA 1+213.989

SWING TIES TO SURVEY BASELINE

NOT TO SCALE



SURVEY LAYOUT

0 2 4 6 8 10
SCALE 1 : 100

WORKING POINT RELATIONS

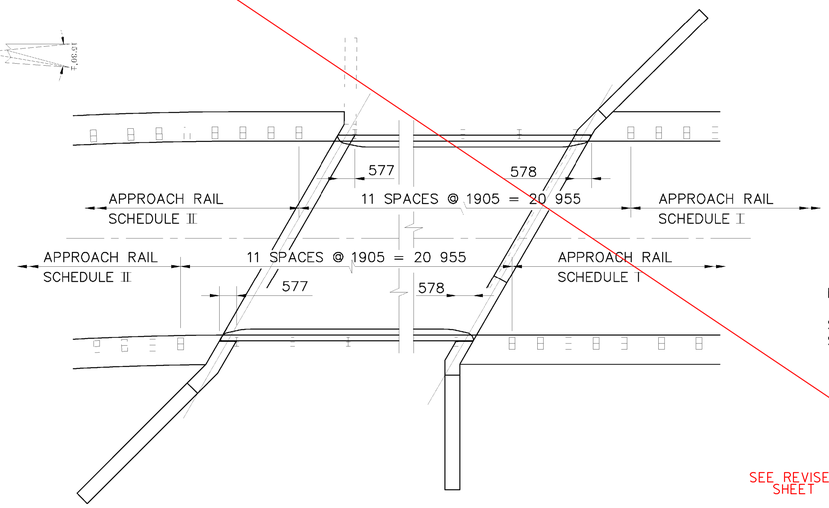
DIST. FROM WP-1 TO WP-2 = 2730
DIST. FROM WP-2 TO WP-3 = 4703
DIST. FROM WP-3 TO WP-4 = 6106
DIST. FROM WP-4 TO WP-5 = 5300
DIST. FROM WP-3 TO WP-8 = 17 723
DIST. FROM WP-6 TO WP-7 = 4847
DIST. FROM WP-7 TO WP-8 = 5044
DIST. FROM WP-8 TO WP-9 = 5386
DIST. FROM WP-9 TO WP-10 = 3900

ABUTMENT A

WP-1 STA. 2+074.273, 6804 LT
WP-2 STA. 2+074.244, 4074 LT
WP-3 STA. 2+071.896, 0
WP-4 STA. 2+068.772, 5279 RT
WP-5 STA. 2+064.669, 8911 RT

ABUTMENT B

WP-6 STA. 2+095.579, 7782 LT
WP-7 STA. 2+092.138, 4369 LT
WP-8 STA. 2+089.619, 0
WP-9 STA. 2+086.928, 4666 RT
WP-10 STA. 2+086.931, 8566 RT



BRIDGE RAIL LAYOUT

0 2 4 6
SCALE 1:100

SEE REVISED SHEET

SURVEY BASELINE POINTS

POINT DESCRIPTION	NORTHING	EASTING	ELEVATION
PT #3	4789.230	10010.566	366.126
PT #2	4869.023	9989.308	363.591
PT #100	4903.549	9970.087	359.984
PT #1	5000.000	10000.000	363.211

NOTE:

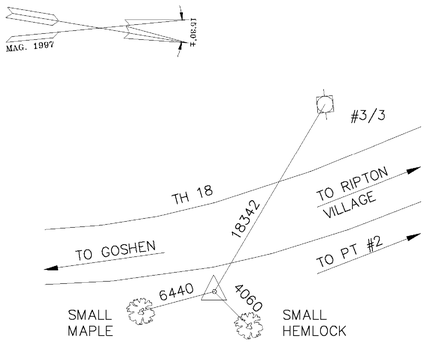
SURVEY NORTHING AND EASTING ARE BASED UPON THE LOCALIZED SURVEY OF THIS PROJECT, NOT THE VERMONT GRID SYSTEM.

McFarland Johnson

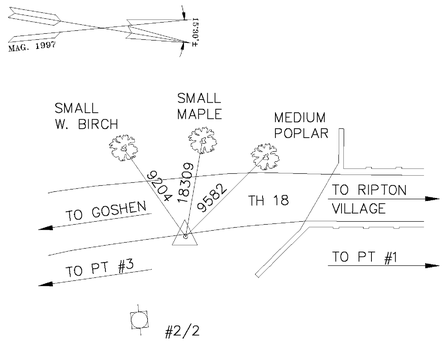
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER	
SURVEY LAYOUT, BRIDGE RAIL LAYOUT & TIE SHEET	
Designed By W J GAYNOR	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 8 of 26

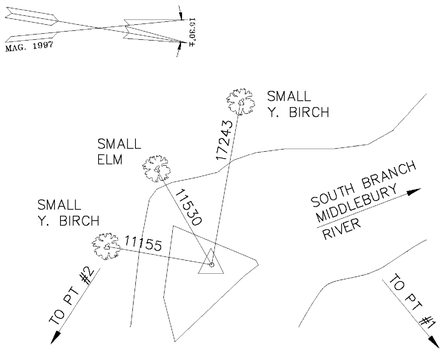
M:\1734300 Ripton 17\HIGHWAY\Z89E039TE_C1.DGN



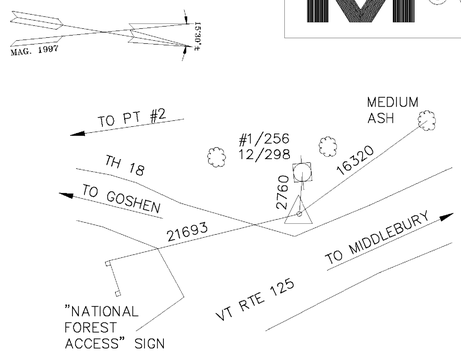
PT #3
STA 1+000.000



PT #2
STA 1+082.576



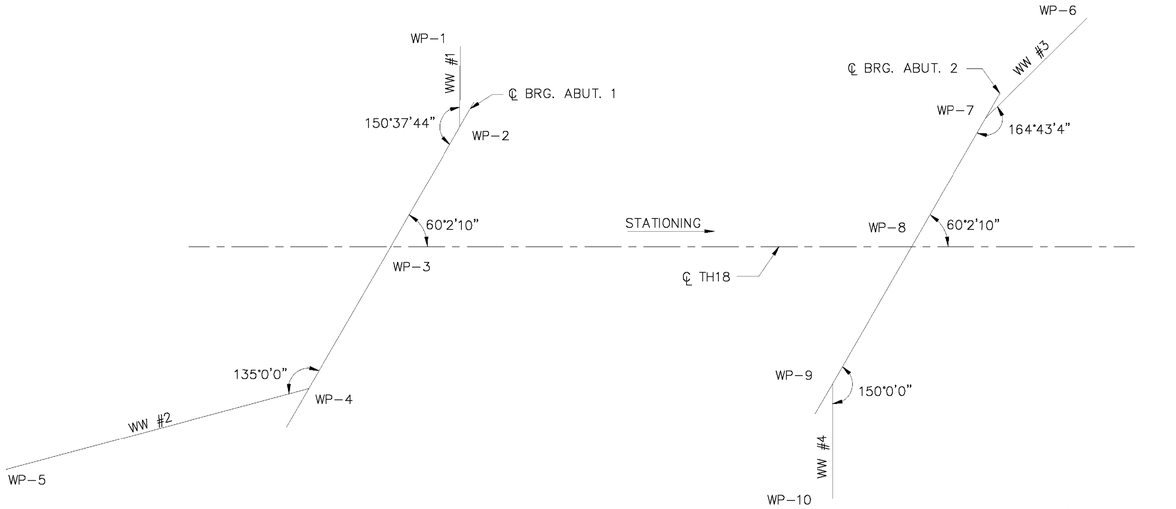
PT #100 (NAIL IN LEDGE)
STA 1+115.424, LT 21 970



PT #1
STA 1+213.989

SWING TIES TO SURVEY BASELINE

NOT TO SCALE



SURVEY LAYOUT

0 2 4 6 8 10

SCALE 1 : 100

WORKING POINT RELATIONS

DIST. FROM WP-1 TO WP-2 = 2730
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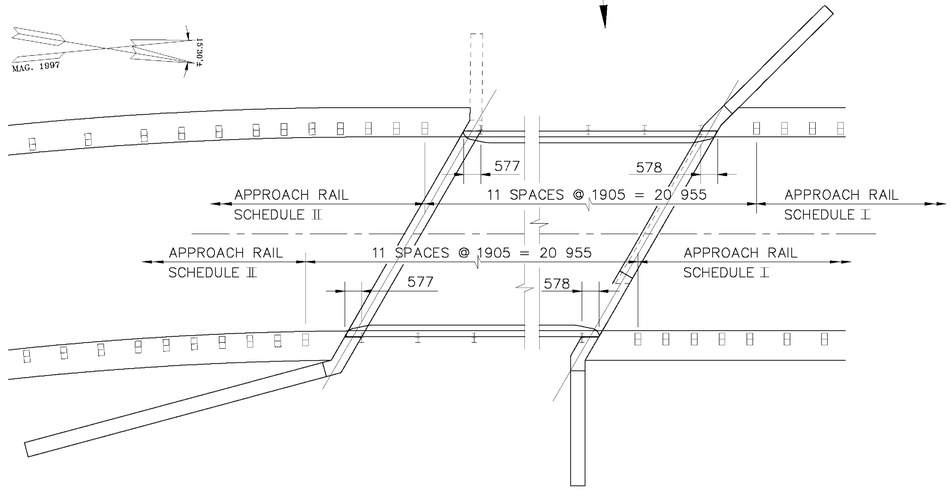
WP-2 STA. 2+074.244, 4074 LT
WP-3 STA. 2+071.896, 0
WP-4 STA. 2+069.061, 4813 RT
WP-5 STA. 2+058.087, 6986 RT

ABUTMENT B

WP-6 STA. 2+095.579, 7782 LT
WP-7 STA. 2+092.138, 4369 LT
WP-8 STA. 2+089.619, 0
WP-9 STA. 2+086.928, 4666 RT
WP-10 STA. 2+086.931, 8566 RT



BRIDGE RAIL LAYOUT

0 2 4 6

SCALE 1:100

SURVEY BASELINE POINTS

POINT DESCRIPTION	NORTHING	EASTING	ELEVATION
PT #3	4789.230	10010.566	366.126
PT #2	4869.023	9989.308	363.591
PT #100	4903.549	9970.087	359.984
PT #1	5000.000	10000.000	363.211

NOTE:

SURVEY NORTHING AND EASTING ARE BASED UPON THE LOCALIZED SURVEY OF THIS PROJECT, NOT THE VERMONT GRID SYSTEM.

REVISIONS

REVISED WINGWALL 2.

McFarland Johnson

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
	Log Sta.
Highway No. TH 18	Surv. Sta.
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER	
SURVEY LAYOUT, BRIDGE RAIL LAYOUT & TIE SHEET	
Designed By W J GAYNOR	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 8 R of 26

ALIGNMENT DATA

CONSTRUCTION CENTERLINE	SURVEY BASELINE STATION	SURVEY BASELINE OFFSET	NORTHING	EASTING
BEGIN PROJECT STA 2+020.000	1+042.887	6116 LT	4829.0966	9993.6156
PI CURVE 1 STA 2+043.636 BK. = STA 2+042.676 AH.	1+066.399	8537 LT	4851.1937	9985.2230
PI CURVE 2 STA 2+126.878 BK. = STA 2+126.856 AH.	1+148.680	1487 LT	4935.0177	9993.2034
PI CURVE 3 STA 2+163.053 BK. = STA 2+162.343 AH.	1+184.783	3941 LT	4971.2112	9993.6961
END PROJECT STA 2+150.000	1+171.764	2990 LT	4958.1589	9993.5841

CURVE 1	CURVE 2	CURVE 3
Δ = 26°03'45"	Δ = 04°39'30"	Δ = 29°36'45"
R = 120.000	R = 500.000	R = 60.000
T = 27.773	T = 20.337	T = 15.860
L = 54.586	L = 40.652	L = 31.010
E = 3.172	E = 0.413	E = 2.061

COORDINATES

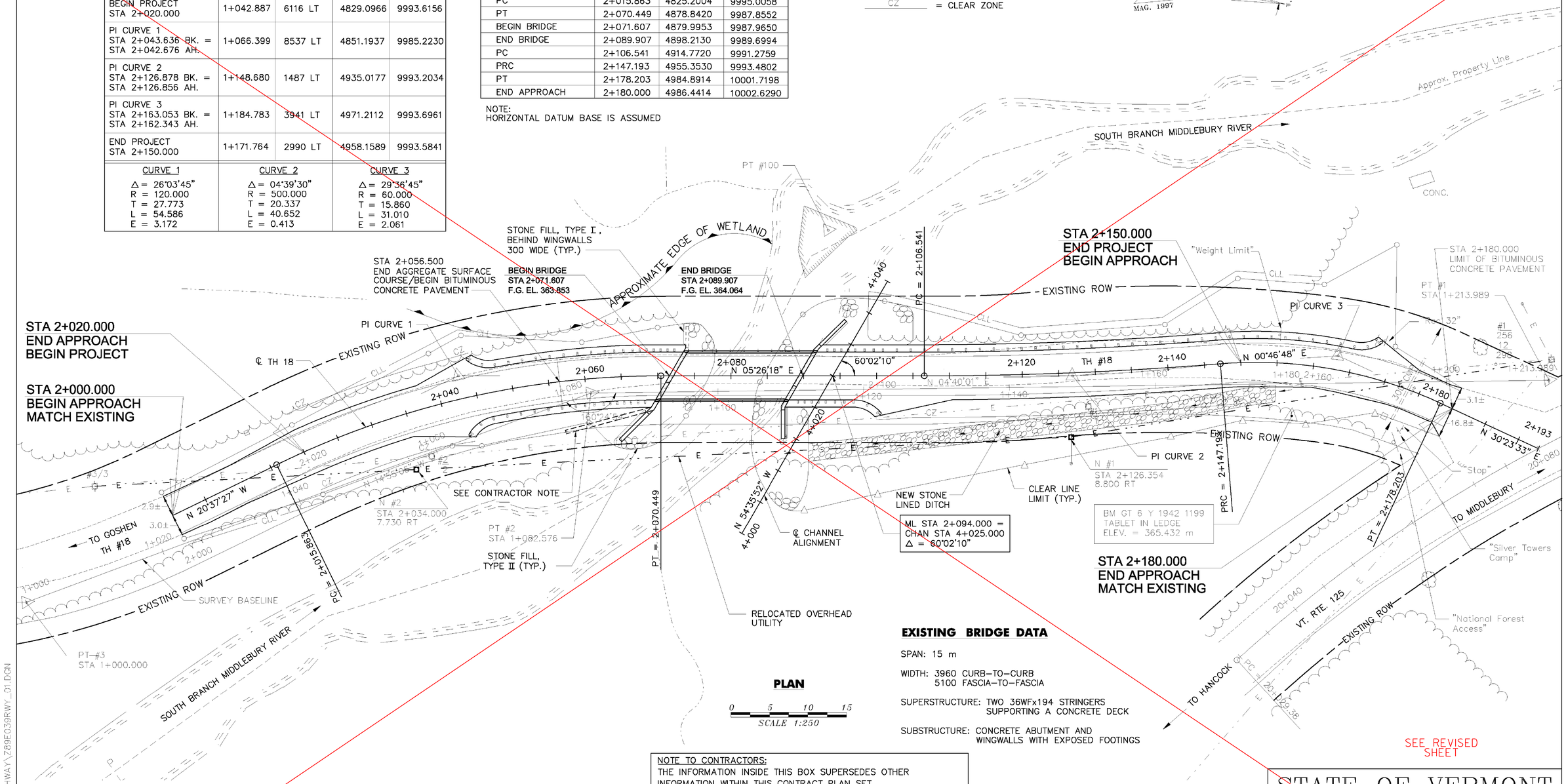
POINT	STATION	NORTHING	EASTING
BEGIN APPROACH	2+000.000	4810.3540	10000.5934
PC	2+015.863	4825.2004	9995.0058
PT	2+070.449	4878.8420	9987.8552
BEGIN BRIDGE	2+071.607	4879.9953	9987.9650
END BRIDGE	2+089.907	4898.2130	9989.6994
PC	2+106.541	4914.7720	9991.2759
PRC	2+147.193	4955.3530	9993.4802
PT	2+178.203	4984.8914	10001.7198
END APPROACH	2+180.000	4986.4414	10002.6290

NOTE:
HORIZONTAL DATUM BASE IS ASSUMED

LEGEND

CLL = CLEAR LINE LIMIT
CZ = CLEAR ZONE

MAG. 1997



PLAN

0 5 10 15
SCALE 1:250

EXISTING BRIDGE DATA

SPAN: 15 m

WIDTH: 3960 CURB–TO–CURB
5100 FASCIA–TO–FASCIA

SUPERSTRUCTURE: TWO 36WFx194 STRINGERS SUPPORTING A CONCRETE DECK

SUBSTRUCTURE: CONCRETE ABUTMENT AND WINGWALLS WITH EXPOSED FOOTINGS

CONSTRUCTION NOTES

REMOVING SIGNS
SETTING SALVAGED POSTS
ERECTING SALVAGED SIGN
STA 2+167.4, 5.3 LT REMOVE AND RESET
STA 2+168.5, 5.5 LT REMOVE AND RESET
STA 2+155.0, 3.9 LT REMOVE AND RESET
REMOVING SIGNS PAID UNDER ITEM 675.50
SETTING SALVAGED POSTS PAID UNDER ITEM 675.61
ERECTING SALVAGED SIGNS PAID UNDER ITEM 675.60

SPECIAL PROVISION (BRIDGE RAILING, WEATHERING HD STEEL BEAM/FASCIA MOUNTED)
STA 2+072.299, 3.300 LT – STA 2+093.252, 3.300 LT
STA 2+068.200, 3.300 RT – STA 2+089.217, 3.300 RT
(PAID UNDER 900.640)

SPECIAL PROVISION (HD STEEL GUARDRAIL, WEATHERING) (WOOD POSTS)
STA 2+044.098, 4.800 LT – STA 2+072.299, 3.300 LT
STA 2+093.252, 3.300 LT – STA 2+168.075, 4.800 LT
STA 2+042.943, 4.800 RT – STA 2+068.200, 3.300 RT
STA 2+089.217, 3.300 RT – STA 2+100.393, 4.800 RT
(PAID UNDER ITEM 900.640)

ANCHOR FOR STEEL BEAM RAIL
STA 2+046.400, 3.400 LT
STA 2+166.700, 3.400 LT
STA 2+044.800, 3.400 RT
STA 2+098.600, 3.400 RT
(PAID UNDER ITEM 621.60)

NOTE: CONSTRUCTION NOTE OFFSETS ARE IN METERS.

NOTE TO CONTRACTORS:
THE INFORMATION INSIDE THIS BOX SUPERSEDES OTHER INFORMATION WITHIN THIS CONTRACT PLAN SET.

1. WINGWALL #2, STAT. 2+065 RT. (UPSTREAM RIGHT SIDE) IS GOING TO BE LENGTHENED (APPROX. 6m) ONCE ADDITIONAL SURVEY IS TAKEN. YOU SHALL ASSUME THAT THE BOTTOM OF FOOTING ELEVATION WILL STAY THE SAME. SEE ESTIMATED LOCATION ON THIS SHEET. ESTIMATED QUANTITIES HAVE ALREADY BEEN ADDED TO THE QUANTITY SHEET AND ESTIMATE TO REFLECT THIS.
2. WE ANTICIPATE ADDITIONAL STONE FILL TYPE II FOR 30m ALONG THE SLOPE WILL BE USED. ADDITIONAL QUANTITIES OF UNCLASSIFIED CHANNEL, STONE FILL, TYPE II AND GEOTEXTILE UNDER STONE FILL HAVE ALREADY BENN ADDED TO THE QUANTITY SHEET AND ESTIMATE.
3. THE TEMPORARY PEDESTRIAN BRIDGE WILL NOW BE LOCATED ON THE DOWN STREAM SIDE, INSIDE THE EXISTING ROW, AND SPANNING BEHIND THE EXISTING WINGWALLS WITHOUT IMPACTING WETLANDS NEAR WINGWALL #1.

McFarland Johnson

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER	
ROADWAY PLAN	
Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By W R MERWARTH Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 9 of 26

M:\1718302 Stratton\Bridg\RIPTON\HIGHWAY\789E039RWY_01.DGN

ALIGNMENT DATA

CONSTRUCTION CENTERLINE	SURVEY BASELINE STATION	SURVEY BASELINE OFFSET	NORTHING	EASTING
BEGIN PROJECT STA 2+020.000	1+042.887	6116 LT	4829.0966	9993.6156
PI CURVE 1 STA 2+043.636 BK. = STA 2+042.676 AH.	1+066.399	8537 LT	4851.1937	9985.2230
PI CURVE 2 STA 2+126.878 BK. = STA 2+126.856 AH.	1+148.680	1487 LT	4935.0177	9993.2034
PI CURVE 3 STA 2+163.053 BK. = STA 2+162.343 AH.	1+184.783	3941 LT	4971.2112	9993.6961
END PROJECT STA 2+150.000	1+171.764	2990 LT	4958.1589	9993.5841

CURVE 1	CURVE 2	CURVE 3
Δ = 26°03'45"	Δ = 04°39'30"	Δ = 29°36'45"
R = 120.000	R = 500.000	R = 60.000
T = 27.773	T = 20.337	T = 15.860
L = 54.586	L = 40.652	L = 31.010
E = 3.172	E = 0.413	E = 2.061

COORDINATES

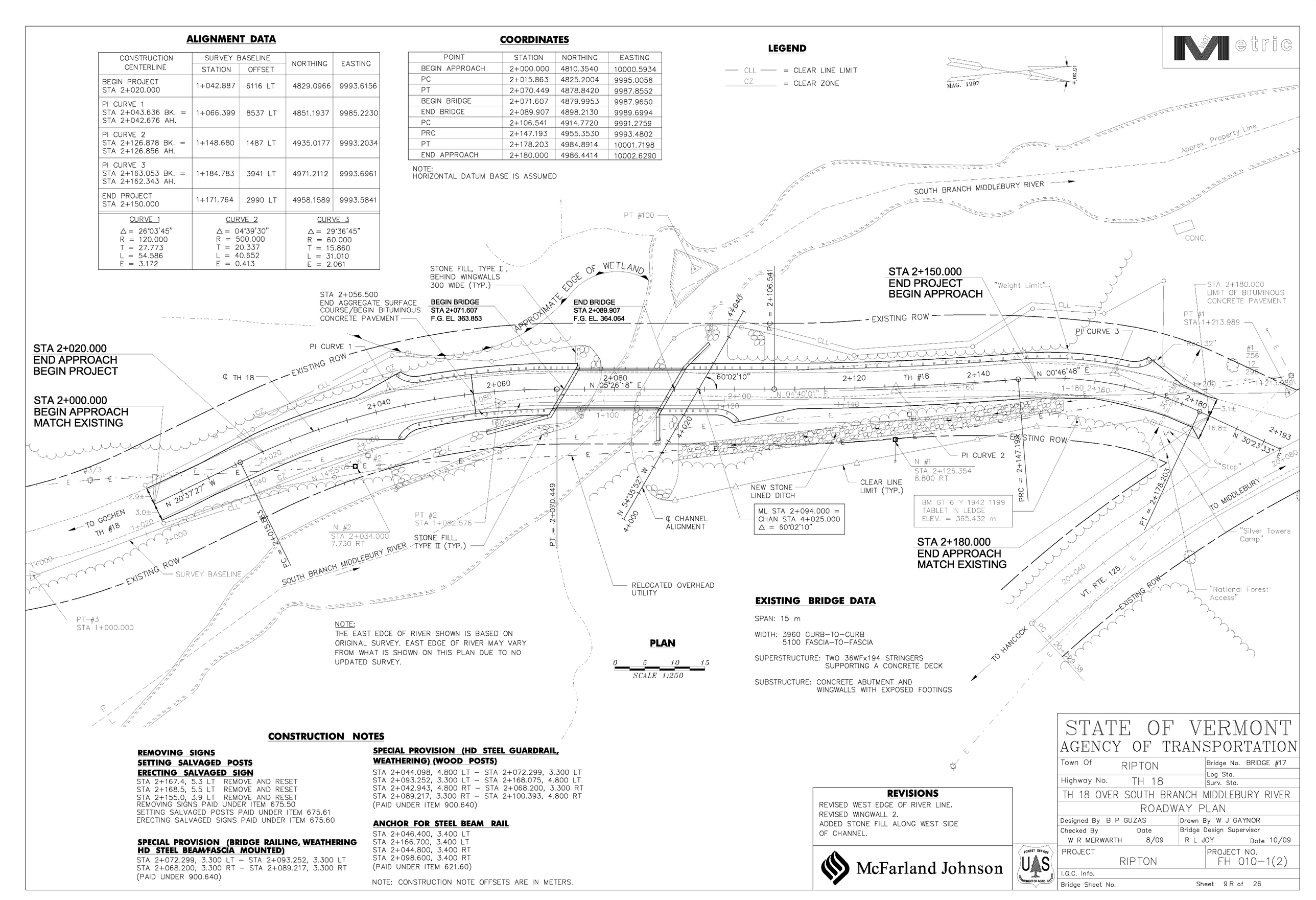
POINT	STATION	NORTHING	EASTING
BEGIN APPROACH	2+000.000	4810.3540	10000.5934
PC	2+015.863	4825.2004	9995.0058
PT	2+070.449	4878.8420	9987.8552
BEGIN BRIDGE	2+071.607	4879.9953	9987.9650
END BRIDGE	2+089.907	4898.2130	9989.6994
PC	2+106.541	4914.7720	9991.2759
PRC	2+147.193	4955.3530	9993.4802
PT	2+178.203	4984.8914	10001.7198
END APPROACH	2+180.000	4986.4414	10002.6290

NOTE:
HORIZONTAL DATUM BASE IS ASSUMED

LEGEND

CLL = CLEAR LINE LIMIT
CZ = CLEAR ZONE

MAG. 1997



NOTE:
THE EAST EDGE OF RIVER SHOWN IS BASED ON ORIGINAL SURVEY. EAST EDGE OF RIVER MAY VARY FROM WHAT IS SHOWN ON THIS PLAN DUE TO NO UPDATED SURVEY.

PLAN

0 5 10 15
SCALE 1:250

EXISTING BRIDGE DATA

SPAN: 15 m

WIDTH: 3960 CURB–TO–CURB
5100 FASCIA–TO–FASCIA

SUPERSTRUCTURE: TWO 36WFx194 STRINGERS SUPPORTING A CONCRETE DECK

SUBSTRUCTURE: CONCRETE ABUTMENT AND WINGWALLS WITH EXPOSED FOOTINGS

CONSTRUCTION NOTES

REMOVING SIGNS
SETTING SALVAGED POSTS
ERECTING SALVAGED SIGN
STA 2+167.4, 5.3 LT REMOVE AND RESET
STA 2+168.5, 5.5 LT REMOVE AND RESET
STA 2+155.0, 3.9 LT REMOVE AND RESET
REMOVING SIGNS PAID UNDER ITEM 675.50
SETTING SALVAGED POSTS PAID UNDER ITEM 675.61
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SPECIAL PROVISION (BRIDGE RAILING, WEATHERING HD STEEL BEAM/FASCIA MOUNTED)
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SPECIAL PROVISION (HD STEEL GUARDRAIL, WEATHERING) (WOOD POSTS)
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ANCHOR FOR STEEL BEAM RAIL
STA 2+046.400, 3.400 LT
STA 2+166.700, 3.400 LT
STA 2+044.800, 3.400 RT
STA 2+098.600, 3.400 RT
(PAID UNDER ITEM 621.60)

NOTE: CONSTRUCTION NOTE OFFSETS ARE IN METERS.

REVISIONS
REVISED WEST EDGE OF RIVER LINE.
REVISED WINGWALL 2.
ADDED STONE FILL ALONG WEST SIDE OF CHANNEL.

McFarland Johnson

USDA FOREST SERVICE — US DEPARTMENT OF AGRIC. USFS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER	
ROADWAY PLAN	
Designed By B P GUZAS	Drawn By W J GAYNOR
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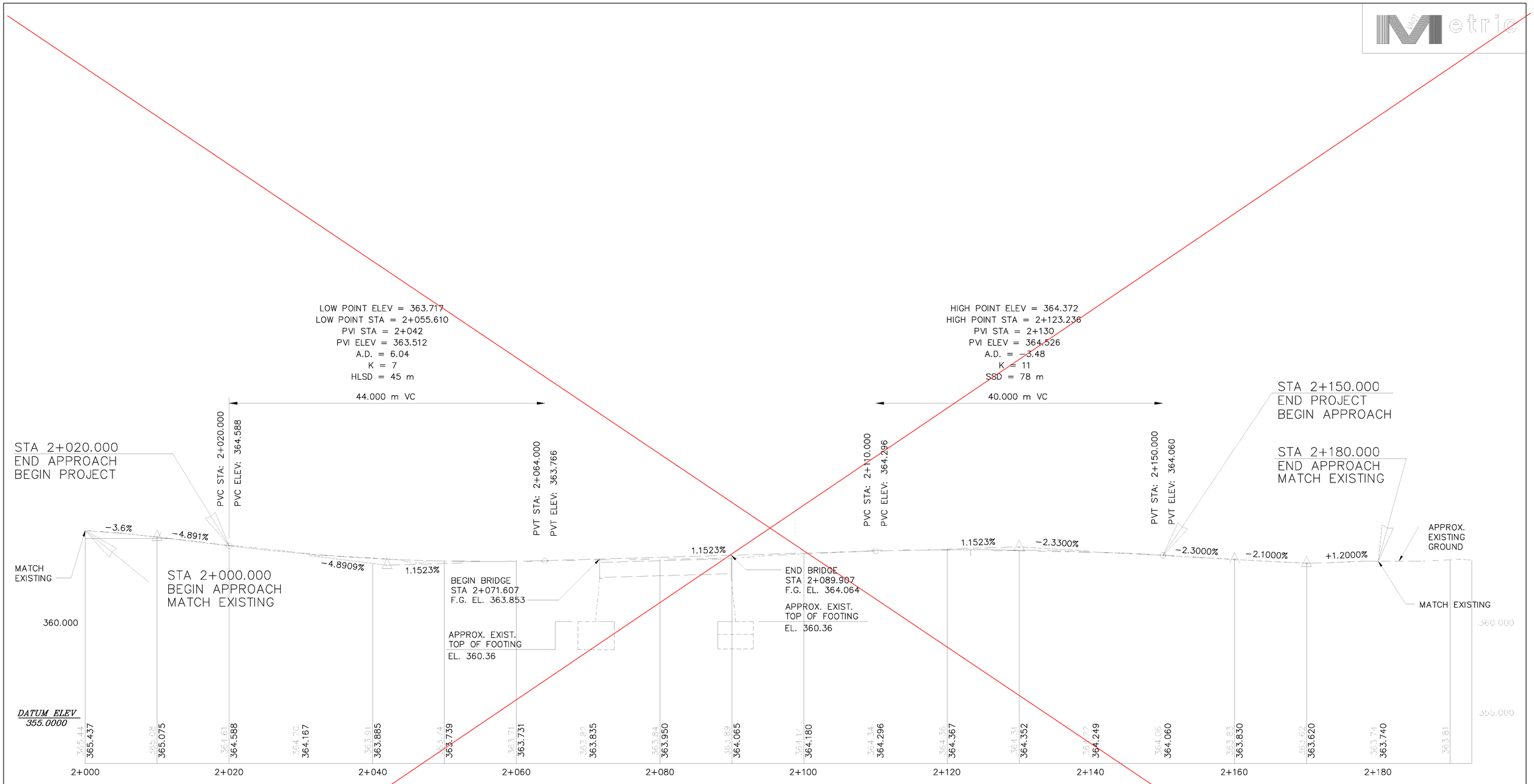
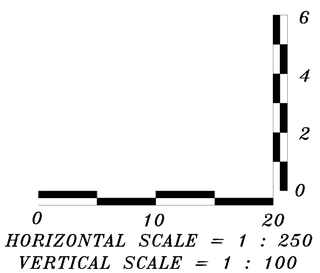
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 9R of 26



PROFILE



HORIZONTAL SCALE = 1 : 250
VERTICAL SCALE = 1 : 100

NOTE:
GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

GRADES SHOWN TO THE NEAREST THOUSANDTH ARE THE FINISHED GRADES ALONG THE PROPOSED ALIGNMENT.

SEE REVISED SHEET

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	RIPTON	Bridge No.	BRIDGE #17
Highway No.	TH 18	Log Sta. / Surv. Sta.	

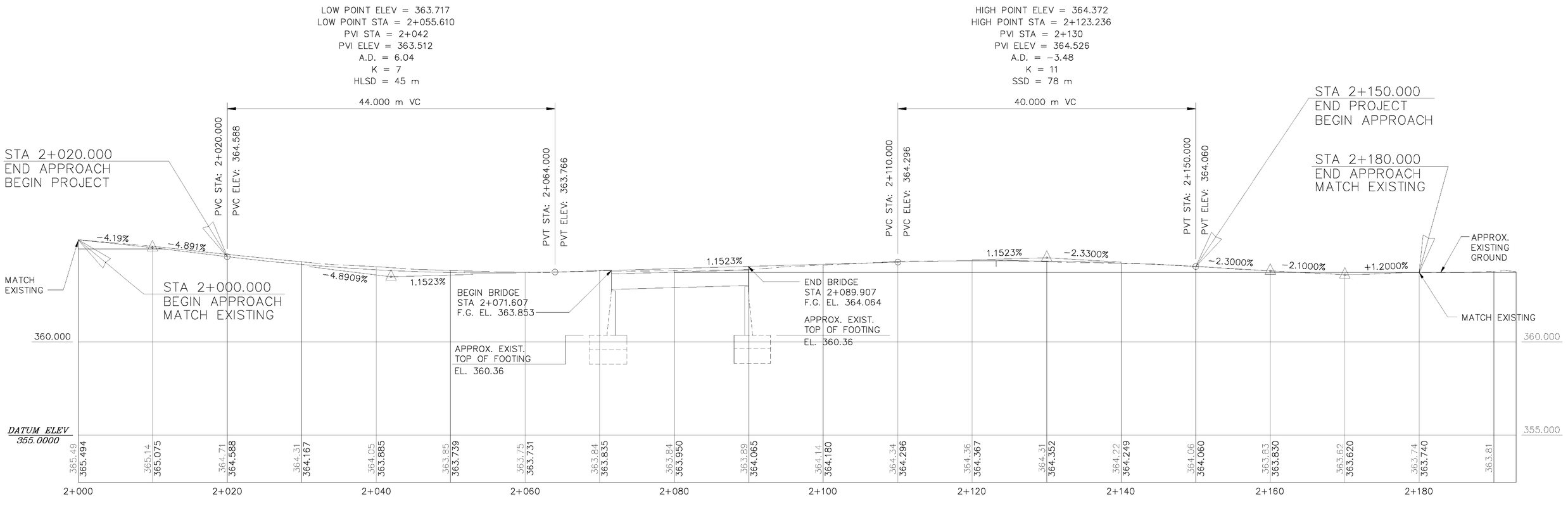
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

ROADWAY PROFILE

Designed By	B P GUZAS	Drawn By	W J GAYNOR
Checked By	W R MERWARTH	Date	8/09
Bridge Design Supervisor	R L JOY	Date	10/09
PROJECT	RIPTON	PROJECT NO.	FH 010-1(2)
I.G.C. Info.			
Bridge Sheet No.		Sheet	10 of 26

McFarland Johnson

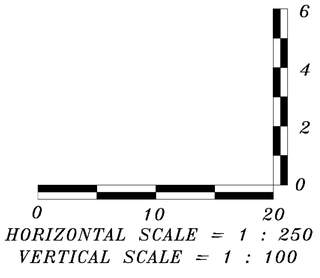
M:\1734300 Riptor 17\HGHWA\Z69E039PR0_0.DGN



PROFILE

NOTE:
GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

GRADES SHOWN TO THE NEAREST THOUSANDTH ARE THE FINISHED GRADES ALONG THE PROPOSED ALIGNMENT.



HORIZONTAL SCALE = 1 : 250
VERTICAL SCALE = 1 : 100

REVISIONS

REVISED BEGIN APPROACH GRADE AND EXISTING ELEVATIONS.

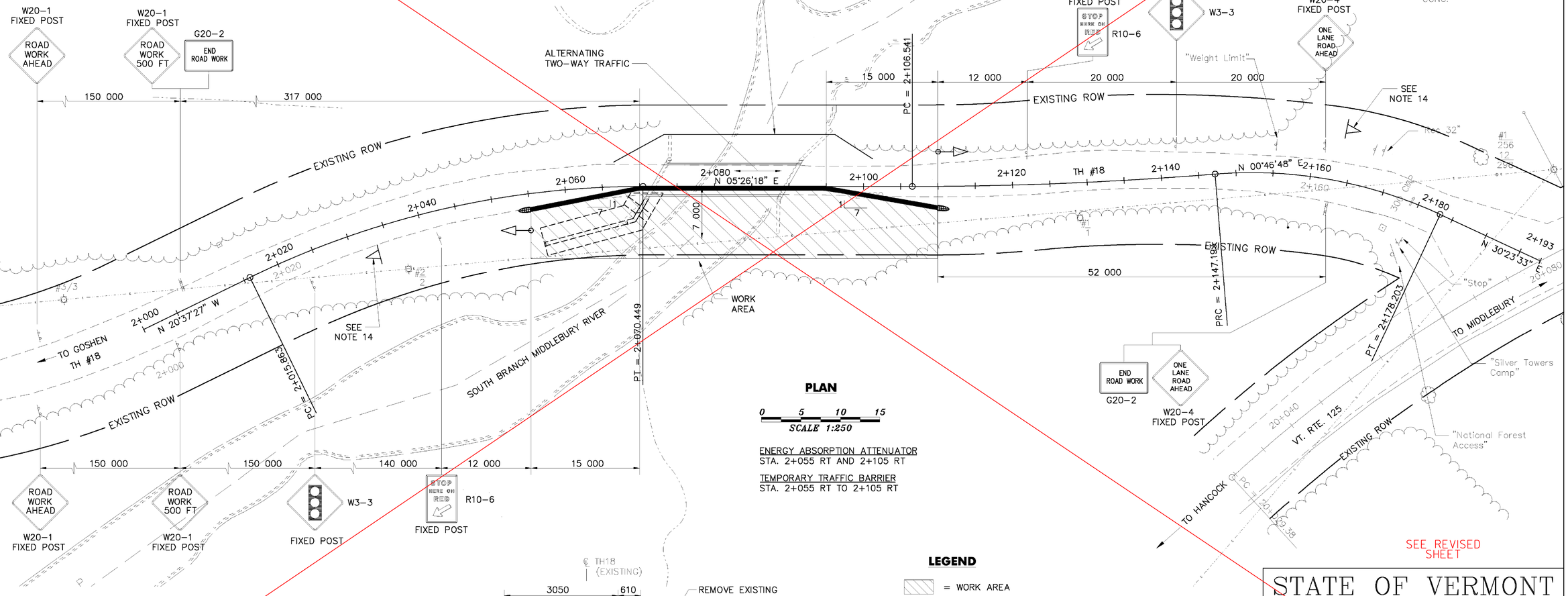
McFarland Johnson

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER	
ROADWAY PROFILE	
Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By W R MERWARTH Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010−1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 10R of 26

NOTES

1. THIS TRAFFIC CONTROL SHEET IS TO BE USED AS AN EXAMPLE OF THE MINIMUM REQUIREMENTS FOR ONE–WAY TRAFFIC WITH TEMPORARY TRAFFIC SIGNAL CONTROL. MODIFICATION OF, OR ADDITIONS TO, THE TRAFFIC CONTROL DEVICES SHOWN HERE MAY BE REQUIRED BY THE RESIDENT ENGINEER BASED ON FIELD CONDITIONS.
2. THE CONTRACTOR SHALL FURNISH FLAG PERSONS AT THE DIRECTION OF THE ENGINEER AND PROVIDE THE APPROPRIATE SIGNING FOR THIER PROTECTION, REFER TO STANDARD E–110 FOR DETAILS. ANY SUCH SIGNING SHALL BE COVERED OR REMOVED WHEN FLAG PEOPLE ARE NO LONGER CONTROLLING TRAFFIC.
3. REFER TO STANDARD SHEET E–100, E–100A, E–101, E–102, E–102A, E–106, E–107 AND E–107A FOR ADDITIONAL DETAILS OF SIGNING AND TRAFFIC CONTROL DEVICES.
4. THE EXPOSED END OF THE TEMPORARY TRAFFIC BARRIER SHALL BE PLACED BEYOND THE "CLEAR ZONE" OR PROTECTED BY AN APPROPRIATE CRASH CUSHION OR IMPACT ATTENUATOR AS OUTLINED IN AASHTO'S "ROADSIDE DESIGN GUIDE". COST FOR IMPACT ATTENUATOR SHALL BE PAID FOR UNDER ITEM 621.56, ENERGY ABSORPTION ATTENUATOR.
5. ANY FILL REQUIRED TO EXTEND THE TEMPORARY TRAFFIC BARRIER OUTSIDE THE CLEAR ZONE SHALL BE NEATLY PLACED AND COMPACTED FOR THE SUPPORT OF THE BARRIER AND SHALL BE PROVIDED WITH ADEQUATE COVER TO PREVENT EROSION. THE RESIDENT ENGINEER SHALL APPROVE THE FILL MATERIAL PRIOR TO PLACEMENT. SIDE SLOPES OF THE FILL SHALL NOT BE STEEPER THAN 1 ON 4.
6. ANY EXCAVATION REQUIRED TO EXTEND THE TEMPORARY TRAFFIC BARRIER SHALL BE LIMITED TO THE POINT AT WHICH THE END OF BARRIER IS FULLY BURIED OR BEYOND THE CLEAR ZONE LIMIT, WHICH–EVER IS SHORTER. ONCE THE BARRIER HAS BEEN PLACED, IT SHALL BE PROPERLY BACKFILLED IN ORDER TO PROVIDE A SMOOTH CONTINUOUS TRANSITION FROM THE EMBANKMENT TO THE BARRIER.
7. ALL TEMPORARY FILL OR EXCAVATION REQUIRED TO INSTALL TEMPORARY BARRIER SHALL BE REMOVED OR REPLACED TO THE PRE–CONSTRUCTION CONDITION AFTER THE BARRIER IS NO LONGER REQUIRED FOR A PARTICULAR PHASE OF CONSTRUCTION.
8. THE COST OF FURNISHING, PLACING, REMOVING OR REPLACING TEMPORARY FILL MATERIAL AND EXCAVATION SHALL BE INCIDENTAL TO TEMPORARY TRAFFIC BARRIER, ITEM 621.90.
9. PAYMENT FOR CONSTRUCTION APPROACH SIGNING WILL BE MADE UNDER ITEM 641.10 – TRAFFIC CONTROL.
10. CONSTRUCTION ZONE SIGN LAYOUT SHALL BE IN ACCORDANCE WITH SECTION 6 OF THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
11. DIAMOND SHAPED SIGNS SHALL BE 4'x4' WITH BLACK LEGEND ON FLUORESCENT ORANGE BACKGROUND.
12. CONSTRUCTION ZONE SIGNS SHALL BE INSTALLED ON TWO POSTS EACH OR AS AN NCHRP REPORT 350 COMPLIANT SIGN/STAND SYSTEM.
13. INSTALLATION OF CONSTRUCTION ZONE SIGNING SHALL NOT BLOCK EXISTING SIGN ASSEMBLIES.
14. PORTABLE CHANGEABLE MESSAGE SIGNS ARE TO BE PLACED TWO WEEKS BEFORE CONSTRUCTION BEGINS AND ARE TO BE USED AS DIRECTED BY THE RESIDENT ENGINEER.
15. DESIGN OF TEMPORARY SIGNAL SUPPORTS AND ANY REQUIRED GUYING IS THE RESPONSIBILITY OF THE CONTRACTOR.

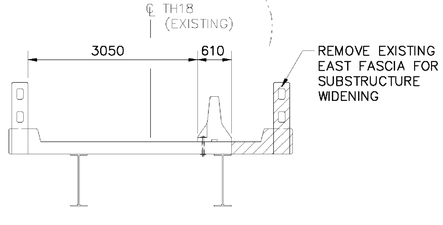


PLAN

0 5 10 15
SCALE 1:250

ENERGY ABSORPTION ATTENUATOR
STA. 2+055 RT AND 2+105 RT

TEMPORARY TRAFFIC BARRIER
STA. 2+055 RT TO 2+105 RT



EXISTING BRIDGE SECTION

0 1 2 3
SCALE 1:50

LEGEND

- = WORK AREA
- = TEMPORARY TRAFFIC BARRIER
- = TEMPORARY TRAFFIC LIGHT
- = ENERGY ABSORPTION ATTENUATOR
- = PORTABLE CHANGEABLE MESSAGE SIGN

SUGGESTED PHASE 1 CONSTRUCTION SEQUENCE

1. PLACE TRAFFIC CONTROL SIGNS AND BARRIERS.
2. BEGIN UPSTREAM SUBSTRUCTURE WIDENING. MAINTAIN ALTERNATING TWO–WAY TRAFFIC WITH FLAGGERS DURING CONSTRUCTION WORK–DAY AND WITH PROPOSED SIGNS DURING NON–CONSTRUCTION HOURS.
3. CONSTRUCT TEMPORARY PEDESTRIAN BRIDGE OVER NEW UPSTREAM WINGWALLS AFTER COMPLETION OF PHASE 1 WORK, PRIOR TO REMOVAL OF SUPERSTRUCTURE DURING PHASE 2.

McFarland Johnson

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER	
PHASE 1 TRAFFIC CONTROL SHEET	
Designed By B P GUZAS	Drawn By J R BRAUNGARD
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 11 of 26

M:\1734300 Ripton 17\HIGHWAY\Z89E0391C_01.DGN

NOTES

1. THIS TRAFFIC CONTROL SHEET IS TO BE USED AS AN EXAMPLE OF THE MINIMUM REQUIREMENTS FOR ONE–WAY TRAFFIC WITH TEMPORARY TRAFFIC SIGNAL CONTROL. MODIFICATION OF, OR ADDITIONS TO, THE TRAFFIC CONTROL DEVICES SHOWN HERE MAY BE REQUIRED BY THE RESIDENT ENGINEER BASED ON FIELD CONDITIONS.
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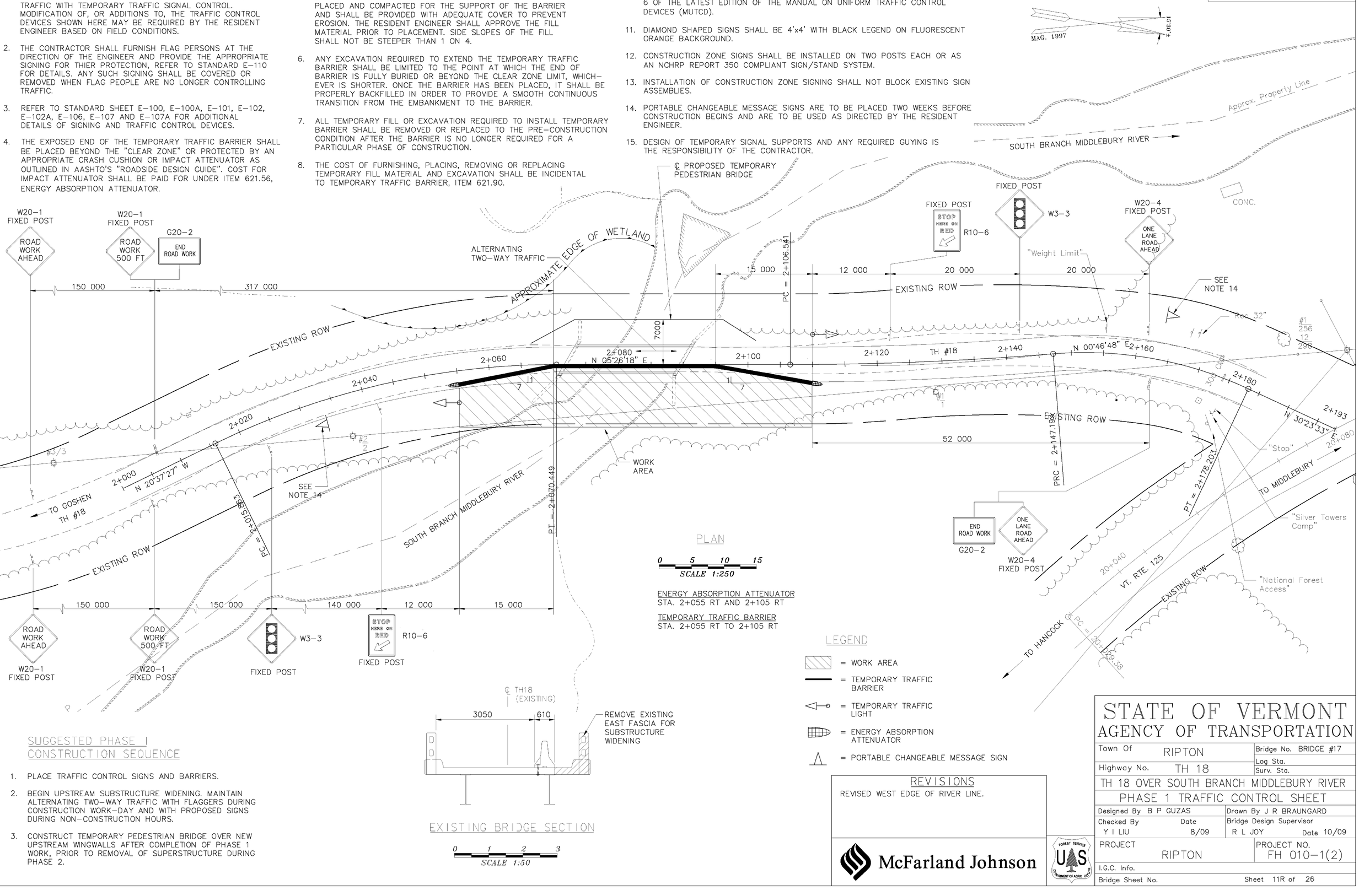


PLAN

0 5 10 15
SCALE 1:250

ENERGY ABSORPTION ATTENUATOR
STA. 2+055 RT AND 2+105 RT

TEMPORARY TRAFFIC BARRIER
STA. 2+055 RT TO 2+105 RT

EXISTING BRIDGE SECTION

0 1 2 3
SCALE 1:50

SUGGESTED PHASE I CONSTRUCTION SEQUENCE

1. PLACE TRAFFIC CONTROL SIGNS AND BARRIERS.
2. BEGIN UPSTREAM SUBSTRUCTURE WIDENING. MAINTAIN ALTERNATING TWO–WAY TRAFFIC WITH FLAGGERS DURING CONSTRUCTION WORK–DAY AND WITH PROPOSED SIGNS DURING NON–CONSTRUCTION HOURS.
3. CONSTRUCT TEMPORARY PEDESTRIAN BRIDGE OVER NEW UPSTREAM WINGWALLS AFTER COMPLETION OF PHASE 1 WORK, PRIOR TO REMOVAL OF SUPERSTRUCTURE DURING PHASE 2.

LEGEND

- = WORK AREA
- = TEMPORARY TRAFFIC BARRIER
- = TEMPORARY TRAFFIC LIGHT
- = ENERGY ABSORPTION ATTENUATOR
- = PORTABLE CHANGEABLE MESSAGE SIGN

REVISIONS

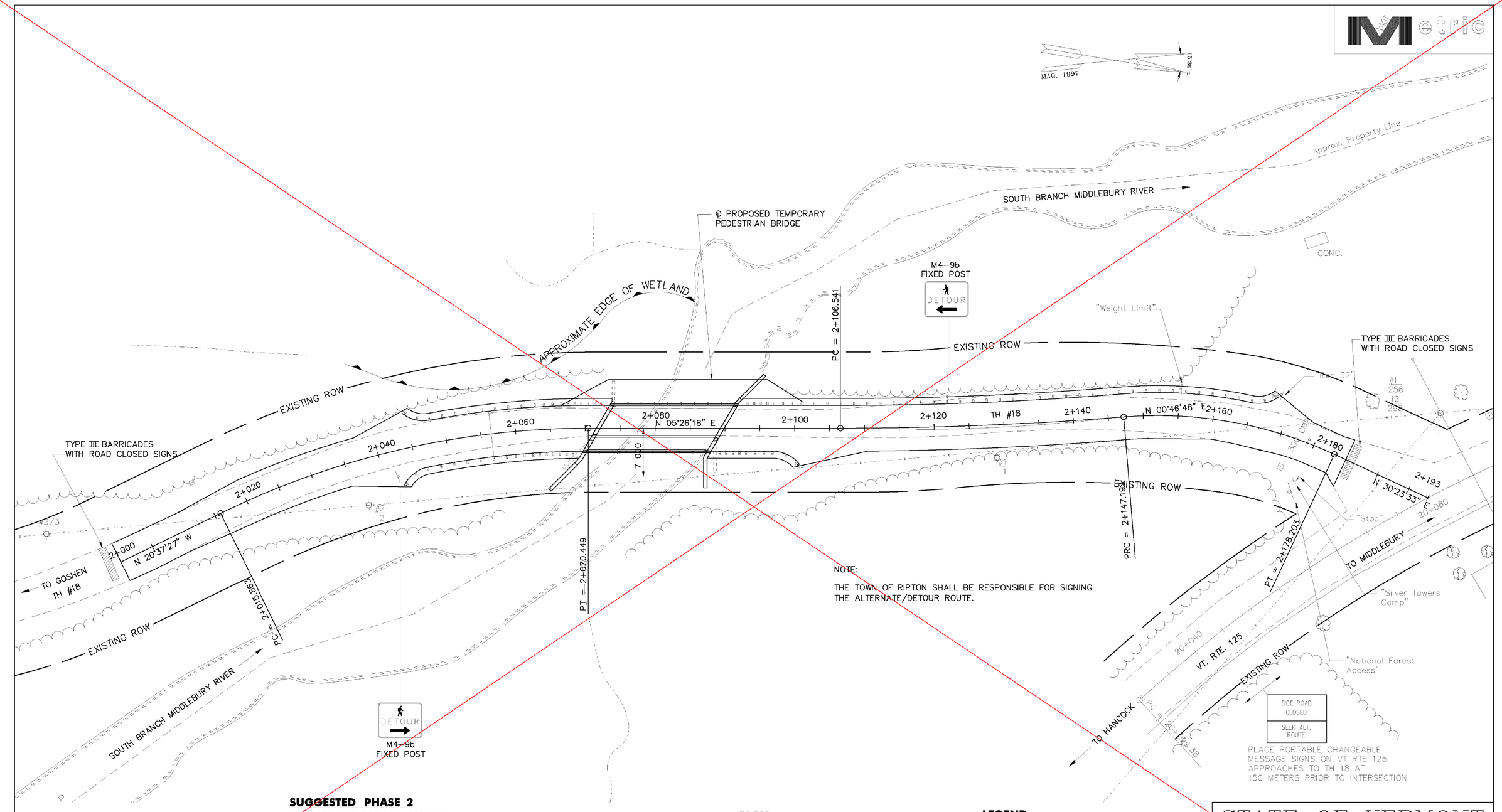
REVISED WEST EDGE OF RIVER LINE.

McFarland Johnson

FOREST SERVICE U.S. DEPARTMENT OF AGRIC.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER	
PHASE 1 TRAFFIC CONTROL SHEET	
Designed By B P GUZAS	Drawn By J R BRAUNGARD
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 11R of 26



NOTE:

THE TOWN OF RIPTON SHALL BE RESPONSIBLE FOR SIGNING THE ALTERNATE/DETOUR ROUTE.

SUGGESTED PHASE 2 CONSTRUCTION SEQUENCE

1. CLOSE TOWN HWY. #18.
2. RECONSTRUCT BRIDGE SEATS AND CAP EXISTING DOWNSTREAM WINGWALL #3.
3. RECONSTRUCT ROADWAY APPROACHES.
4. SET PREFABRICATED SUPERSTRUCTURE.
5. REMOVE TEMPORARY PEDESTRIAN BRIDGE.
6. OPEN TOWN HWY. #18 TO TRAFFIC.
7. COMPLETE GRADING AND PAVING.
8. THE CONTRACTOR SHALL LIMIT THE ROAD CLOSURE TO THREE WEEKS.

PLAN

0 5 10 15

SCALE 1:250

LEGEND

= TEMPORARY TRAFFIC BARRIER

SEE REVISED SHEET

McFarland Johnson

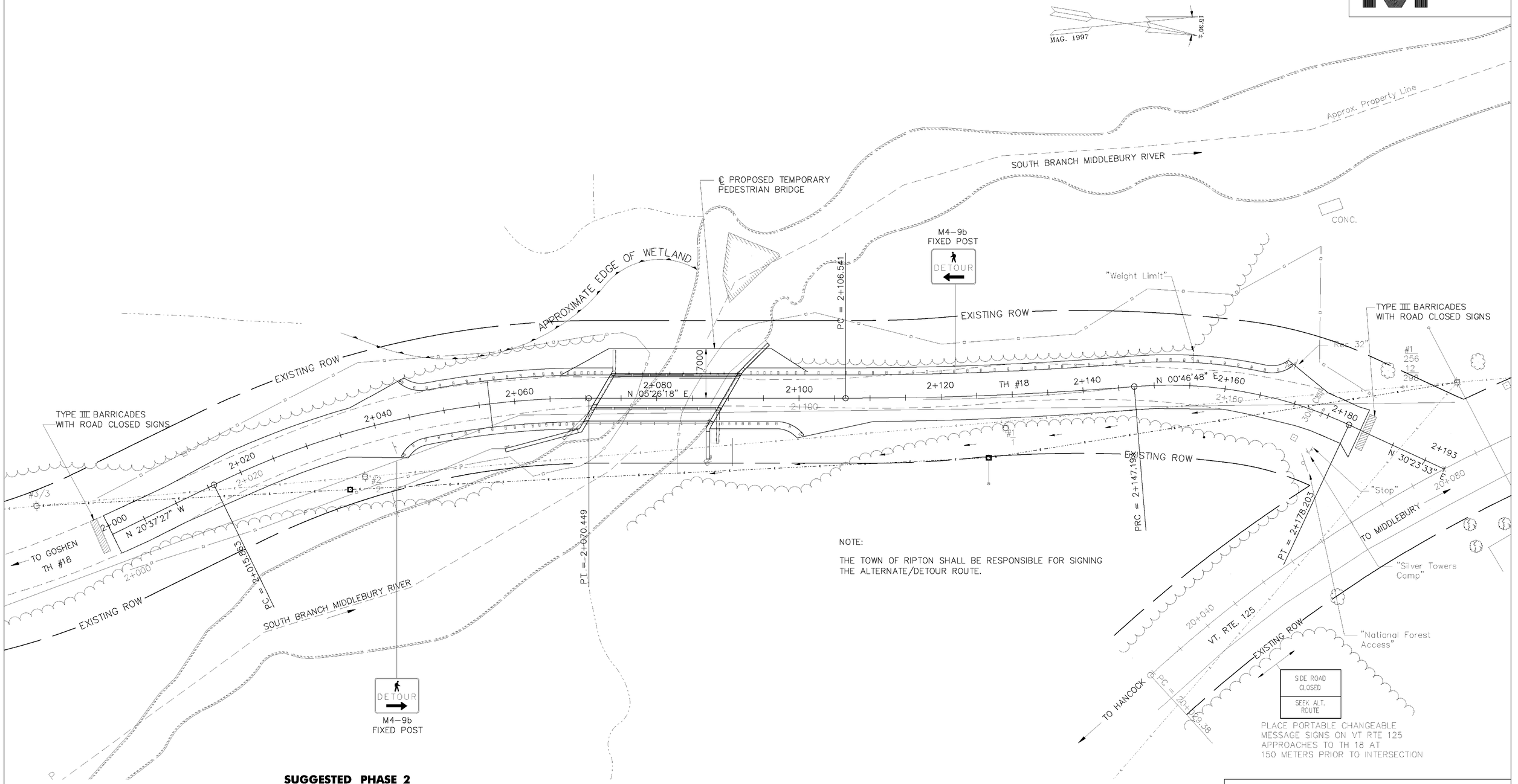
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

PHASE 2 TRAFFIC CONTROL SHEET

Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 12 of 26



PLACE PORTABLE CHANGEABLE MESSAGE SIGNS ON VT RTE 125 APPROACHES TO TH 18 AT 150 METERS PRIOR TO INTERSECTION

NOTE:

THE TOWN OF RIPTON SHALL BE RESPONSIBLE FOR SIGNING THE ALTERNATE/DETOUR ROUTE.

SUGGESTED PHASE 2 CONSTRUCTION SEQUENCE

1. CLOSE TOWN HWY. #18.
2. RECONSTRUCT BRIDGE SEATS AND CAP EXISTING DOWNSTREAM WINGWALL #3.
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8. THE CONTRACTOR SHALL LIMIT THE ROAD CLOSURE TO THREE WEEKS.

PLAN

0 5 10 15

SCALE 1:250

LEGEND

= TEMPORARY TRAFFIC BARRIER

REVISIONS

REVISED WEST EDGE OF RIVER LINE.
REVISED WINGWALL 2.

McFarland Johnson

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

PHASE 2 TRAFFIC CONTROL SHEET

Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By Y I LIU — Date 8/09	Bridge Design Supervisor R L JOY — Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 12R of 26

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 28.5 mm
BX	Core Size 41.2 mm
NX	Core Size 52.1 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
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)

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		

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.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO.: B1
SHEET 1 OF 1
DATE STARTED: 7/23/98
DATE COMPLETED: 7/29/98

PROJECT NAME: RIPTON
SITE NAME: BR-17
STATION: 1+088.00
OFFSET: 6.00
GROUND EL.: 360.317
G.W. DEPTH:

PROJECT NUMBER: FH 010-1(2)
SITE NO.: TH-18

BORING CREW
CREW CHIEF:
DRILLER: WILLIS
LOGGER: MURPHY
ADDITIONAL CREW:

BORING RIG: SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		No rec. Boulders.	R						
		A-1-b, GRSA, M, brn rec.=3.10m	R	5.4	37.4	46.5	10.7		
		A-1-b, SISaGr, M, brn rec.=3.03m	79	11.8	49.1	30.8	20.1		
			Run	Rec. %	RQD %	Dip°			
5		Run #1: DXMDC 4.60m–5.52m, rec.=1.25m See Geologist's Report	1	83	66	30			
		Run #2: BXMDC 5.62m–7.02m, rec.=1.37m See Geologist's Report	2	91	85	DC–60			
		Hole stopped @ 7.62m							
10									

TOP OF FOOTING ELEV. = 358.42

GEOLOGIST'S REPORT:

Run #1: Gray quartz–chlorite muscovite schist. Hard. Unweathered. Competent.

Run #2: Same as Run #1.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO.: B2
SHEET 1 OF 1
DATE STARTED: 7/17/98
DATE COMPLETED: 7/22/98

PROJECT NAME: RIPTON
SITE NAME: BR-17
STATION: 1+092.00
OFFSET: 2.00
GROUND EL.: 360.412
G.W. DEPTH:

PROJECT NUMBER: FH 010-1(2)
SITE NO.: TH-18

BORING CREW
CREW CHIEF:
DRILLER: WILLIS
LOGGER: MURPHY
ADDITIONAL CREW:

BORING RIG: SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		BXDC 1.22m–2.50m, Coarse Grave & Boulders	R						
			Run	Rec. %	RQD %	Dip°			
		Run #1: 2.50m–3.47m rec. = 0.94m See Geologist's Report	1	49	49	50			
5		Run #2: BXDC 3.47m–4.80m rec. = 1.40m, See Geologist's Report	2	67	67	50			
		Run #3: BXDC 4.80m–6.30m rec. = 1.50m See Geologist's Report	3	87	87	50			
		Hole stopped @ 6.30m							
10									

Top of Rock @ 2.70m

TOP OF FOOTING ELEV. = 358.42

GEOLOGIST'S REPORT:

Run #1: Gray quartz–chlorite muscovite schist. Hard. Unweathered. Fair to poor recovery. Rock recovered is competent.

Run #2: Same as Run #1, except with a greater amount of muscovite.

Run #3: Upper 0.3m is the same as Run #2. The remainder of the run is the same as Run #1.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO.: B3
SHEET 1 OF 1
DATE STARTED: 7/30/98
DATE COMPLETED: 8/4/98

PROJECT NAME: RIPTON
SITE NAME: BR-17
STATION: 1+111.00
OFFSET: 2.50
GROUND EL.: 362.25
G.W. DEPTH:

PROJECT NUMBER: FH 010-1(2)
SITE NO.: TH-18

BORING CREW
CREW CHIEF:
DRILLER: WILLIS
LOGGER: MURPHY
ADDITIONAL CREW:

BORING RIG: SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		No rec. Boulders.	R						
		No rec. Boulders.							
5		A-1-b, SaGr, Dry, gry rec.=3.15m	R	9.2	30	32.6	17.4		
			Run	Rec. %	RQD %	Dip°			
		Run #1: BXDC 6.72m–8.22m, rec.=1.32m See Geologist's Report	1	88	74	50			
10		Run #2: BXDC 8.22m–9.72m, rec.=1.30m See Geologist's Report	2	100	83	50			
		Hole stopped @ 9.77m							

Top of Rock @ 6.72m

TOP OF FOOTING ELEV. = 358.42

GEOLOGIST'S REPORT:

Run #1: Gray quartz–chlorite muscovite schist. Hard. Unweathered. Competent.

Run #2: Same as Run #1, except with a greater amount of muscovite.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO.: B4
SHEET 1 OF 1
DATE STARTED: 8/5/98
DATE COMPLETED: 8/10/98

PROJECT NAME: RIPTON
SITE NAME: TH-18
STATION: 1+109.50
OFFSET: 6.50
GROUND EL.: 353.341
G.W. DEPTH:

PROJECT NUMBER: FH 010-1(2)
SITE NO.: TH-18

BORING CREW
CREW CHIEF:
DRILLER: WILLS
LOGGER: MURPHY
ADDITIONAL CREW:

BORING RIG: SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		No rec. Boulders.	R						
		A-1-b, SaGr, Dry, brn, rec.=3.10m	33	5.3	30.6	42.5	6.9		
5		No rec. Boulders.	R						
		A-1-a, SiSaGr, Dry, brn rec. = 0.20m	R	5.4	47.6	31.4	21		
			Run	Rec. %	RQD %	Dip°			
		Run #1: BXMDC 7.20m–7.80m rec.=0.28m, See Geologist's Report	1	47	40	50			
		Run #2: BXMDC 7.80m–8.70m, rec.=0.83m See Geologist's Report	2	56	37	60			
10		Run #3: BXMDC 8.70m–10.20m, rec.= 30m See Geologist's Report	3	100	33	50			
		Hole stopped @ 10.20m							

Top of Rock @ 7.20m

TOP OF FOOTING ELEV. = 358.42

GEOLOGIST'S REPORT:

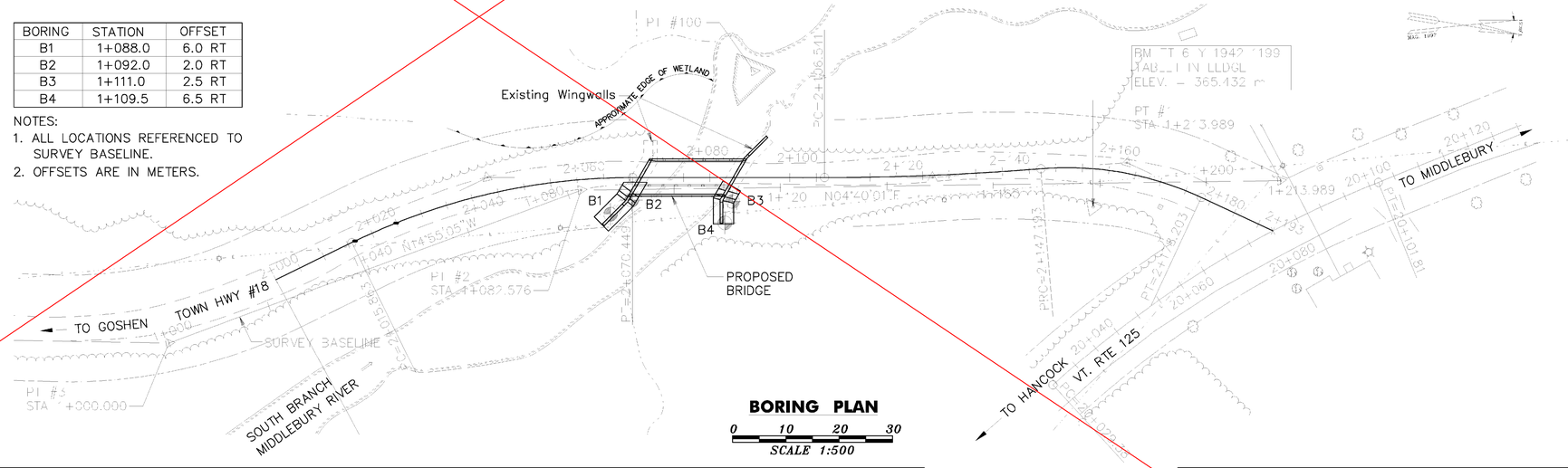
Run #1: Gray quartz–chlorite muscovite schist. Hard. Unweathered. Competent.

Run #2: Same as Run #1, except that the upper 0.20m contains a greater amount of muscovite.

Run #3: Same as Run #1. Joints are open, weathered and rough. Vertical joint from 9.1 meters to 10.0 meters.

BORING	STATION	OFFSET
B1	1+088.0	6.0 RT
B2	1+092.0	2.0 RT
B3	1+111.0	2.5 RT
B4	1+109.5	6.5 RT

NOTES:
1. ALL LOCATIONS REFERENCED TO SURVEY BASELINE.
2. OFFSETS ARE IN METERS.



BORING PLAN

0 10 20 30

SCALE 1:500

GENERAL NOTES

1. The subsurface explorations shown herein were made between July 23, and August 10, 1998 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.

SEE REVISED SHEET

McFarland Johnson

FOREST SERVICE U S DEPARTMENT OF AGRIC. USDA

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

BORING INFORMATION SHEET

Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 13 of 26

M:\1464-508 R\con / AE-BDS\ V89E-0.59B04-_01.DGN

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 28.5 mm
BX	Core Size 41.2 mm
NX	Core Size 52.1 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
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)

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		

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.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO. : B1
SHEET : 1 OF 1
DATE STARTED: 7/23/98
DATE COMPLETED: 7/29/98

PROJECT NAME: RIPTON
SITE NAME: BR-17
STATION: 1+088.00
GROUND EL. : 366.317

PROJECT NUMBER: FH 010-1(2)
SITE NO. : TH-18
OFFSET: 6.00
G.W. DEPTH:

BORING CREW
CREW CHIEF:
DRILLER: WILLIS
LOGGER: MERRILL, .
ADDITIONAL CREW:

BORING RIG: SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		No rec. Boulders.	R						
		A-1-b, GrSa,M,brn rec.=0.10m	R	5.4	37.4	40.5	13.1		
		A-1-b, SiSaGr, M, brn rec.=0.30m	79	11.8	49.1	30.8	20.1		
				Top of Rock @ 4.02m					
			Run	Rec %	RQD %	Dip °			
5		Run #1: BXMDC 4.02m–5.52m, rec.=1.25m See Geologist's Report	1	83	66	30			
		Run #2: BXMDC 5.52m–7.02m, rec.=1.37m See Geologist's Report	2	91	85	30–60			
10				Hole stopped @ 7.02m					

TOP OF FOOTING ELEV. = 358.421

GEOLOGIST'S REPORT:

Run #1: Gray quartz–chlorite muscovite schist. Hard. Unweathered. Competent.

Run #2: Same as Run #1.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO. : B2
SHEET : 1 OF 1
DATE STARTED: 7/17/98
DATE COMPLETED: 7/22/98

PROJECT NAME: RIPTON
SITE NAME: BR-17
STATION: 1+092.00
GROUND EL. : 360.412

PROJECT NUMBER: FH 010-1(2)
SITE NO. : TH-18
OFFSET: 2.00
G.W. DEPTH:

BORING CREW
CREW CHIEF:
DRILLER: WILLIS
LOGGER: MERRILL, .
ADDITIONAL CREW:

BORING RIG: SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		BXDC 1.02m–2.59m, Coarse Gravel & Boulders	R						
				Top of Rock @ 2.70m					
			Run	Rec %	RQD %	Dip °			
		Run #1: BXMDC 2.70m–4.20m rec. = 0.74m See Geologist's Report	1	49	49	60			
5		Run #2: BXMDC 4.20m–4.80m rec. = 0.40m, See Geologist's Report	2	67	67	60			
		Run #3: BXMDC 4.80m–6.30m rec. = 1.30m See Geologist's Report	3	87	87	60			
10				Hole stopped @ 6.30m					

TOP OF FOOTING ELEV. = 358.421

GEOLOGIST'S REPORT:

Run #1: Gray quartz–chlorite muscovite schist. Hard. Unweathered. Fair to poor recovery. Rock recovered is competent.

Run #2: Same as Run #1, except with a greater amount of muscovite.

Run #3: Upper 0.3m is the same as Run #2. The remainder of the run is the same as Run #1.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO. : B3
SHEET : 1 OF 1
DATE STARTED: 7/31/98
DATE COMPLETED: 8/4/98

PROJECT NAME: RIPTON
SITE NAME: BR-17
STATION: 1+111.00
GROUND EL. : 363.125

PROJECT NUMBER: FH 010-1(2)
SITE NO. : TH-18
OFFSET: 2.50
G.W. DEPTH:

BORING CREW
CREW CHIEF:
DRILLER: WILLIS
LOGGER: MERRILL, .
ADDITIONAL CREW:

BORING RIG: SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		No rec. Boulders.	R						
		No rec. Boulders.							
5		A-1-b,SaGr,Dry,gry rec.=0.15m	R	9.2	50	32.6	17.4		
				Top of Rock @ 6.72m					
			Run	Rec %	RQD %	Dip °			
		Run #1: BXMDC 6.72m–8.22m, rec.=1.30m See Geologist's Report	1	88	74	50			
		Run #2: BXMDC 8.22m–9.72m, rec.=1.50m See Geologist's Report	2	100	80	50			
10				Hole stopped @ 9.72m					

TOP OF FOOTING ELEV. = 358.421

GEOLOGIST'S REPORT:

Run #1: Gray quartz–chlorite muscovite schist. Hard. Unweathered. Competent.

Run #2: Same as Run #1, except with a greater amount of muscovite.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH DIVISION
SUBSURFACE INFORMATION

HOLE NO. : B4
SHEET : 1 OF 1
DATE STARTED: 8/5/98
DATE COMPLETED: 8/10/98

PROJECT NAME: RIPTON
SITE NAME: BR-17
STATION: 1+109.50
GROUND EL. : 363.341

PROJECT NUMBER: FH 010-1(2)
SITE NO. : TH-18
OFFSET: 6.50
G.W. DEPTH:

BORING CREW
CREW CHIEF:
DRILLER: WILLIS
LOGGER: MERRILL, .
ADDITIONAL CREW:

BORING RIG: SKID RIG
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL

DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER 0.3 m	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
		No rec. Boulders.							
		A-1-a,SaGr, Dry, brn, rec. = 0.15m	33	9.3	50.6	42.5	6.9		
		No rec. Boulders.	R						
5		A-1-a,SiSaGr, Dry, brn rec. = 0.20m	R	9.4	47.6	31.4	21		
				Top of Rock @ 7.20m					
			Run	Rec %	RQD %	Dip °			
		Run #1: BXMDC 7.20m–7.80m rec.=0.28m, See Geologist's Report	1	47	40	50			
		Run #2: BXMDC 7.80m–8.70m, rec.=0.53m See Geologist's Report	2	59	37	60			
		Run #3: BXMDC 8.70m–10.20m, rec.=1.50m See Geologist's Report	3	100	33	50			
10				Hole stopped @ 10.20m					

TOP OF FOOTING ELEV. = 358.421

GEOLOGIST'S REPORT:

Run #1: Gray quartz–chlorite muscovite schist. Hard. Unweathered. Competent.

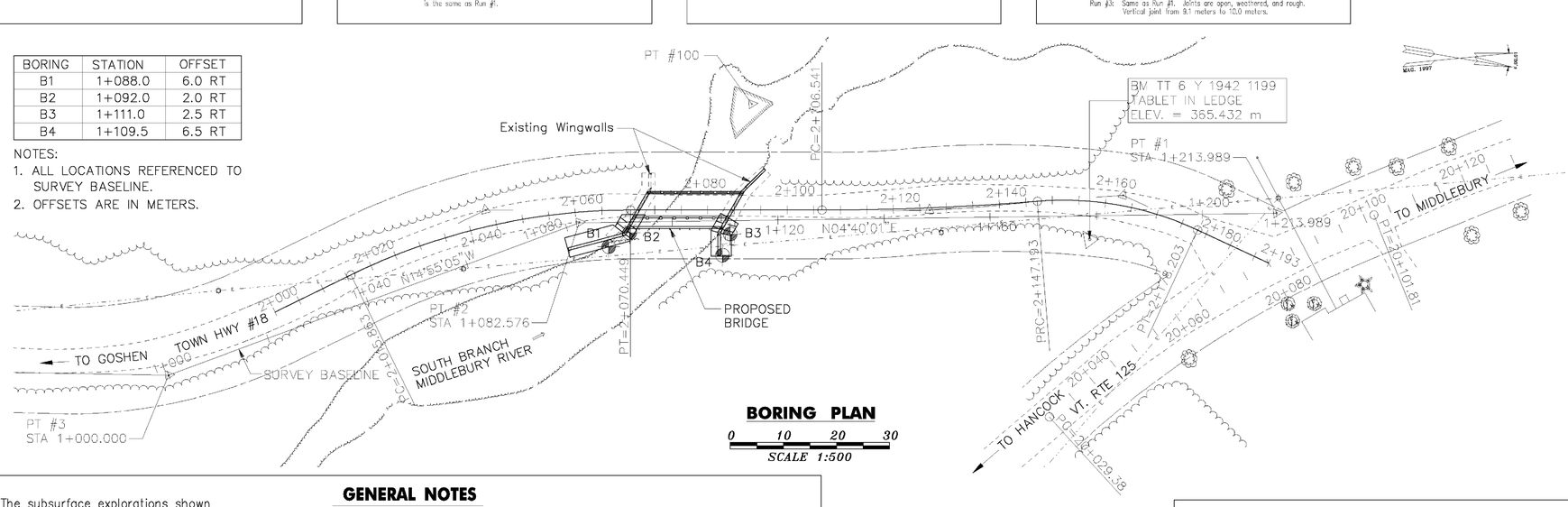
Run #2: Same as Run #1, except that the upper 0.20m contains a greater amount of muscovite.

Run #3: Same as Run #1. Joints are open, weathered, and rough. Vertical joint from 9.1 meters to 10.0 meters.

Not Metric

BORING	STATION	OFFSET
B1	1+088.0	6.0 RT
B2	1+092.0	2.0 RT
B3	1+111.0	2.5 RT
B4	1+109.5	6.5 RT

NOTES:
1. ALL LOCATIONS REFERENCED TO SURVEY BASELINE.
2. OFFSETS ARE IN METERS.



BORING PLAN

0 10 20 30

SCALE 1:500

GENERAL NOTES

1. The subsurface explorations shown herein were made between July 23, and August 10, 1998 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 iAgency 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.

REVISIONS

REVISED WEST EDGE OF RIVER LINE.
REVISED WINGWALL 2

McFarland Johnson

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER	
BORING INFORMATION SHEET	
Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 13R of 26

STONE FILL, TYPE I ,
BEHIND WINGWALLS
300 WIDE x
300 DEEP (TYP.)

℄ BRG. ABUT. 1
STA 2+071.896
F.G. EL. 363.857

APPROX. EDGE OF WETLAND

STA 2+056.500
END AGGREGATE SURFACE
COURSE/BEGIN BITUMINOUS
CONCRETE PAVEMENT

EXISTING ROW

BEGIN BRIDGE
STA 2+071.607
F.G. EL. 363.853

END BRIDGE
STA 2+089.907
F.G. EL. 364.064

℄ BRG. ABUT. 2
STA 2+089.619
F.G. EL. 364.061

MAG. 1997

PC = 2+106.541

EXISTING ROW

PI CURVE 1

WINGWALL #1

WINGWALL #3

WINGWALL #4

WINGWALL #2

1:2

1:1.5

1:4

60°02'10"
(TYP.)

60°02'10"

160°24'54"

2+040

2+060

2+080

2+100

2+120

1+060

1+080

1+100

1+120

1+140

4+020

4+040

N 14°55'05" W

N 04°40'01" E

N 05°26'18"

ML STA 2+094.000 =
CHAN STA 4+025.000
△ = 60°02'10"

Existing ROW

Existing ROW

PT = 2+070.449

RELOCATED
OVERHEAD
ELECTRIC

SEE CONTRACTOR
NOTE, THIS SHEET

PT #2
STA 1+082.576

SOUTH BRANCH
MIDDLEBURY RIVER

STONE FILL,
TYPE II ,
600 THICK (TYP.)

N 54°35'52" W

4+000

℄ CHANNEL
ALIGNMENT

NOTE TO CONTRACTORS:
SEE NOTE IN BOX ON SHEET 9 OF 26 IN REFERENCE TO WINGWALL #2 AND ADDITIONAL 30 METERS OF STONE FILL ALONG STREAM BANK, UPSTREAM RIGHT SIDE.

PLAN

0 2 4 6

SCALE 1:100

LEGEND

STONE FILL, TYPE I

STONE FILL, TYPE II

℄ BRG.
ABUT. 1 (FIXED)

℄ BRG.
ABUT. 2 (EXPANSION)

17 723 ℄ BRG. TO ℄ BRG.

℄ POST 1

℄ POST 1

APPROACH RAIL
SCHEDULE II (TYP.)

SPECIAL PROVISION (BRIDGE RAILING,
WEATHERING HD STEEL BEAM/FASCIA MOUNTED)

APPROACH RAIL
SCHEDULE I (TYP.)

365

360

Q100 = 361.450

APPROX. EXISTING
GROUND LINE

STONE FILL, TYPE II ,
600 THICK (TYP.)

ELEVATION ALONG UPSTREAM FASCIA

0 2 4 6

SCALE 1:100

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
	Log Sta.
Highway No. TH 18	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

GENERAL PLAN AND ELEVATION

Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 14 of 26

McFarland Johnson

M:\1734300 Ripton 17\BRDG\789E039GPE_01.DGN

Metric

MAG. 1997

STONE FILL, TYPE I ,
BEHIND WINGWALLS
300 WIDE x
300 DEEP (TYP.)

℄ BRG. ABUT. 1
STA 2+071.896
F.G. EL. 363.857

STA 2+056.500
END AGGREGATE SURFACE
COURSE/BEGIN BITUMINOUS
CONCRETE PAVEMENT

BEGIN BRIDGE
STA 2+071.607
F.G. EL. 363.853

APPROX. EDGE OF WETLAND

EXISTING ROW

END BRIDGE
STA 2+089.907
F.G. EL. 364.064

℄ BRG. ABUT. 2
STA 2+089.619
F.G. EL. 364.061

PC = 2+106.541

PI CURVE 1

WINGWALL #1

WINGWALL #3

WINGWALL #2

WINGWALL #4

1:2

1:1.5

1:4

60°02'10" (TYP.)

160°24'54"

N 14°55'05" W

N 05°26'18"

N 04°40'01" E

2+040

2+060

2+080

2+100

2+120

1+060

1+080

1+100

1+120

1+140

4+020

4+040

4+000

Existing ROW

ML STA 2+094.000 =
CHAN STA 4+025.000
△ = 60°02'10"

PT = 2+070.449

RELOCATED
OVERHEAD
ELECTRIC

PT #2
STA 1+082.576

STONE FILL ENDS
2+050 RT - BLEND
INTO EXISTING STONE

SOUTH BRANCH
MIDDLEBURY RIVER

STONE FILL,
TYPE II ,
600 THICK (TYP.)

N 54°35'52" W

℄ CHANNEL
ALIGNMENT

PLAN

0 2 4 6

SCALE 1:100

℄ BRG.
ABUT. 1 (FIXED)

℄ BRG.
ABUT. 2 (EXPANSION)

17 723 ℄ BRG. TO ℄ BRG.

℄ POST 1

℄ POST 1

APPROACH RAIL
SCHEDULE II (TYP.)

SPECIAL PROVISION (BRIDGE RAILING,
WEATHERING HD STEEL BEAM/FASCIA MOUNTED)

APPROACH RAIL
SCHEDULE I (TYP.)

370

365

360

Q100 = 361.450

APPROX. EXISTING
GROUND LINE

STONE FILL, TYPE II ,
600 THICK (TYP.)

ELEVATION ALONG UPSTREAM FASCIA

0 2 4 6

SCALE 1:100

LEGEND

STONE FILL, TYPE I

STONE FILL, TYPE II

REVISIONS

REVISED WEST EDGE OF RIVER LINE.
REVISED WINGWALL 2.

McFarland Johnson

FOREST SERVICE
U.S.
DEPARTMENT OF AGRICULTURE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

GENERAL PLAN AND ELEVATION

Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 14R of 26

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT, LOCATED APPROXIMATELY 0.1 KM SOUTH OF THE INTERSECTION OF VT. ROUTE 125 AND TOWN HIGHWAY 18, INVOLVES THE REHABILITATION AND WIDENING OF THE EXISTING BRIDGE #17 USING DETOURED TRAFFIC WITH NECESSARY ROADWAY APPROACH WORK.

NOTE: AREA OF DISTURBANCE SHALL INCLUDE LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, INCLUDING ANY WASTE, STAGING AND BORROW AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 1.22 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS MOUNTAINOUS AND WOODED. THE RIVER IS CONTAINED BY STONE LINED BANKS AND/OR LEDGE OUTCROPPINGS ALONG EACH SIDE. TH 18, ALSO KNOWN AS THE GOSHEN RIPTON ROAD, IS THE ONLY ROAD WITHIN THE PROJECT AREA. THIS PROJECT DOES NOT ENCROACH UPON RESIDENCES OR ANY OTHER BUILDINGS. 2 ACTIVE UTILITY POLES ARE CURRENTLY INSIDE THE PROJECT CONSTRUCTION LIMITS, AND ARE SCHEDULED TO BE RELOCATED.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE SOUTH BRANCH OF THE MIDDLEBURY RIVER IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE STREAM IS CLASSIFIED AS PERENNIAL BUT FLASHY WITH A STREAM BED CONSISTING OF COBBLES AND BOULDERS. THE EXISTING DRAINAGE CHARACTERISTICS OF THIS LOCATION WILL BE IMPROVED UPON BUT NOT CHANGED.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD AND SOFTWOOD TREES OF ALL SIZES. TREE REMOVAL AND IMPACT TO VEGETATION WILL BE LIMITED DUE TO THE PROJECT'S INCLUSION IN THE GREEN MOUNTAIN NATIONAL FOREST. FOLLOWING CONSTRUCTION, DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF ADDISON, VERMONT. THE SOIL ON THE PROJECT SITE IS PERU, EXTREMELY STONY LOAM (PSC), 0% TO 20% SLOPES, WITH A "K VALUE" = 0.20. THE PERU SERIES CONSISTS OF MODERATELY WELL DRAINED LOAMY SOILS THAT HAVE A HARD LAYER BEGINNING AT A DEPTH OF 1 TO 2.5 FEET. WATER FLOWS READILY ON TOP OF IT, BUT MOVES MORE SLOWLY THROUGH THE HARDER LAYER. THE SOIL IS COSIDERED TO HAVE LOW EROSION POTENTIAL.

NOTE: K-VALUES GENERALLY INDICATE THEFOLLOWING: 0.0-0.23 = LOW EROSION POTENTIAL; 0.24-0.36 = MODERATE EROSION POTENTIAL: 0.37 AND HIGHER = HIGH EROSION POTENTIAL.

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: SOUTH BRANCH, MIDDLEBURY RIVER
WETLANDS: YES (PROJECT AS DESIGNED WILL NOT IMPACT WETLANDS)

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC).

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MNIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

NOT APPLICABLE TO THIS SITE.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCITON SITE.

DIVERSION IS GENERALLY NOT NECESSARY GIVEN THE GRADING OF THE PROJECT SITE EXCEPT THE SWALE (STORM WATER FROM STREET COLLECTIONS DRAINAGE SYSTEM).

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

STONE CHECK DAMS TO BE USED AS NECESSARY.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

MEASURES TO INCLUDE:
TYPE I, II STONE FOR SLOPE LINING AND CHANNEL PROTECTION
SEED AND MULCH
DRAINAGE INLETS AND PIPING

STREAM BANK VEGETATION WILL BE INTRODUCED IN THE GRUBBING MATERIAL THAT IS TO BE PLACED OVER THE STREAM BANK STONE FILL.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

ANTICIPATED MEASURES INCLUDE SEED AND MULCH AND EROSION MATTING.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

TREATMENT OF DISCHARGE FROM DEWATERING COFFERDAM IS ANTICIPATED. A LOCATION FOR TREATMENT HAS BEEN PROPOSED AND IS SHOWN ON THE PLANS. HOWEVER THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST AND IN THE ANR LOW-RISK SITE HANDBOOK FOR EROSION PREVENTION AND SEDIMENT CONTROL.

EROSION CONTROL NARRATIVE

PROJECT NAME: RIPTON
PROJECT NUMBER: FH 010-1(2)

FILE NAME: z89e039narrative.dgn
PROJECT LEADER: S. FARNSWORTH
DESIGNED BY: S. FARNSWORTH
PLOT DATE: 02-OCT-2009
DRAWN BY: C. WEEBER
CHECKED BY: S. FARNSWORTH
SHEET 15a OF 26

VAOT Metric

MAG. 1997

3.08°E

Approx. Property Line

CONC.

BEGIN BRIDGE
STA 2+071.607
FG EL 363.853

END BRIDGE
STA 2+089.907
FG EL 364.064

APPROXIMATE EDGE OF WETLAND

EXISTING ROW

TH #18

2+000 N20°37'27"W

2+020

2+040

2+060

2+080

2+100

2+120

2+140

2+160

2+180

BL - 20.0' RT

TO GOSHEN

BM GT 6 Y
1942 1199
TABLET IN LEDGE
EL 365.432m

SOUTH BRANCH
MIDDLEBURY RIVER

20+040

20+080

VT RTE 125

TO MIDDLEBURY

TO HANCOCK

SEE REVISED SHEET

EPSC – EXISTING CONDITIONS

0 10 20

SCALE IN METERS

PROJECT NAME: RIPTON
PROJECT NUMBER: FH 010-1(2)

FILE NAME: z89e039border.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: Farnsworth
z89e039excond.i

PLOT DATE: $$$$DATE$$$
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 15b OF 26

Metric

BsE (Berkshire & Marlowe Extremely Stony Loam)

MAG. 1997

15.30°E

PsC (Peru Extremely Stony Loam)

Approx. Property Line

PsC

CONC.

BEGIN BRIDGE
STA 2+071.607
FG EL 363.853

END BRIDGE
STA 2+089.907
FG EL 364.064

APPROXIMATE EDGE OF WETLAND

EXISTING ROW

TH #18

2+060
2+080
2+100
2+120
2+140
2+160
2+180

2+040
2+020
2+000 N20°37'27"W

TO GOSHEN

EXISTING ROW

EXISTING ROW

EXISTING ROW

D = 300 CMP

BM GT 6 Y
1942 1199
TABLET IN LEDGE
EL 365.432m

20+080

TO MIDDLEBURY

VT. RTE. 125

20+040

TO HANCOCK

EXISTING ROW

SOUTH BRANCH
MIDDLEBURY RIVER

PsC

CbC (Cabot Extremely Stony Loam)

0 10 20
SCALE IN METERS

EPSC – EXISTING CONDITIONS

PROJECT NAME: RIPTON
PROJECT NUMBER: FH 010-1(2)

REVISIONS
REVISED WEST EDGE OF RIVER LINE.

FILE NAME: z89e039border.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: Farnsworth
z89e039excond.1

PLOT DATE: $$$$DATE$$$
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 15bR OF 26

Metric

EROSION PREVENTION & SEDIMENT CONTROL LEGEND

BsE	SOIL TYPE
----------	SOIL BOUNDARY
	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED
	TEMPORARY EROSION MATTING
	RIPRAP OUTLET PROTECTION
B F	BARRIER FENCE
	RUNOFF FLOW DIRECTION
△	CUT SYMBOL
⊙	FILL SYMBOL

MAG. 1997

153.3'

STA 2+000.00
BEGIN APPROACH
MATCH EXISTING

STA 2+020.00
END APPROACH
BEGIN PROJECT

STONE FILL, TYPE I
BEHIND WINGWALLS
300 WIDE TYP

BEGIN BRIDGE
STA 2+071.607
FG EL 363.853

APPROXIMATE EDGE OF WETLAND

END BRIDGE
STA 2+089.907
FG EL 364.064

STA 2+150.00
END PROJECT
BEGIN APPROACH

STA 2+180.00
END APPROACH
MATCH EXISTING

Approx. Property Line

CONC.

EXISTING ROW

TH #18

NEW AERIAL UTILITY

POTENTIAL DEWATERING AREA

STONE FILL, TYPE II

N #2
STA 2+034.000
7.730 RT

N #1
STA 2+126.354
8.80' RT

BM GT 6 Y
1942 1199
TABLET IN LEDGE
EL 365.432m

TO GOSHEN
2+000 N20°37'27"W

TO MIDDLEBURY

TO HANCOCK

VT. RTE. 125

SOUTH BRANCH
MIDDLEBURY RIVER

NEW STONE LINED DITCH TYPE I

SEE REVISED SHEET

0 10 20
SCALE IN METERS

EROSION PREVENTION & SEDIMENT CONTROL PLAN

PROJECT NAME: RIPTON
PROJECT NUMBER: FH 010-1(2)

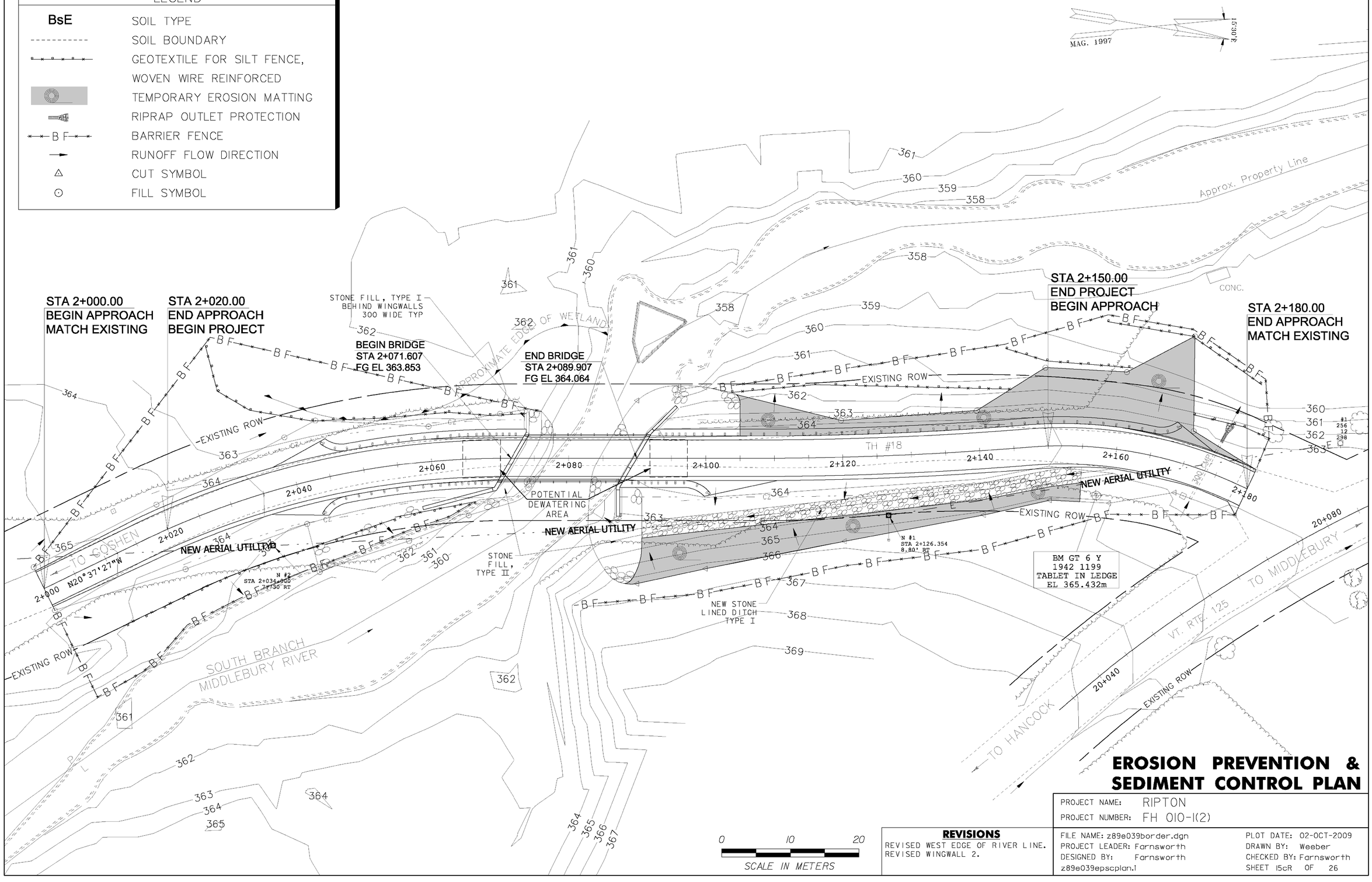
FILE NAME: z89e039border.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: Farnsworth
z89e039epscplan.1

PLOT DATE: 02-OCT-2009
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 15c OF 26

Metric

EROSION PREVENTION & SEDIMENT CONTROL LEGEND

BsE	SOIL TYPE
----------	SOIL BOUNDARY
	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED
	TEMPORARY EROSION MATTING
	RIPRAP OUTLET PROTECTION
B F	BARRIER FENCE
	RUNOFF FLOW DIRECTION
△	CUT SYMBOL
⊙	FILL SYMBOL



EROSION PREVENTION & SEDIMENT CONTROL PLAN

REVISIONS

REVISED WEST EDGE OF RIVER LINE.
REVISED WINGWALL 2.

PROJECT NAME: RIPTON
PROJECT NUMBER: FH 010-1(2)

FILE NAME: z89e039border.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: Farnsworth
z89e039epscplan.1

PLOT DATE: 02-OCT-2009
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 15cR OF 26

Metric

STA 2+000.00
BEGIN APPROACH
MATCH EXISTING

STA 2+020.00
END APPROACH
BEGIN PROJECT

STONE FILL, TYPE I
BEHIND WINGWALLS
300 WIDE TYP

BEGIN BRIDGE
STA 2+071.607
FG EL 363.853

END BRIDGE
STA 2+089.907
FG EL 364.064

STA 2+150.00
END PROJECT
BEGIN APPROACH

STA 2+180.00
END APPROACH
MATCH EXISTING

APPROXIMATE EDGE OF WETLAND

Approx. Property Line

CONC.

EXISTING ROW

TH #18

2+000 N20°37'27"W

2+020

2+040

2+060

2+080

2+100

2+120

2+140

2+160

2+180

NEW AERIAL UTILITY

N #2
STA 2+034.000
7.730 RT

STONE
FILL,
TYPE II

NEW STONE
LINED DITCH
TYPE I

N #1
STA 2+126.354
8.80' RT

BM GT 6 Y
1942 1199
TABLET IN LEDGE
EL 365.432m

#1
256
12
298

20+080

20+040

TO SOSHEN

TO MIDDLEBURY

TO HANCOCK

VT. RTE. 125

SOUTH BRANCH
MIDDLEBURY RIVER

SEE REVISED SHEET

0 10
SCALE IN METERS

EPSC – FINAL CONDITIONS

PROJECT NAME: RIPTON
PROJECT NUMBER: FH 010-1(2)

FILE NAME: z89e039border.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: Farnsworth
z89e039epscfin.i

PLOT DATE: 02-OCT-2009
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 15d OF 26

VAOT Metric

STA 2+000.00
BEGIN APPROACH
MATCH EXISTING

STA 2+020.00
END APPROACH
BEGIN PROJECT

STONE FILL, TYPE I
BEHIND WINGWALLS
300 WIDE TYP

BEGIN BRIDGE
STA 2+071.607
FG EL 363.853

END BRIDGE
STA 2+089.907
FG EL 364.064

STA 2+150.00
END PROJECT
BEGIN APPROACH

STA 2+180.00
END APPROACH
MATCH EXISTING

Approx. Property Line

CONC.

APPROXIMATE EDGE OF WETLAND

EXISTING ROW

TH #18

2+000 N20°37'27"W

TO GOSHEN

2+020

2+040

2+060

2+080

2+100

2+120

2+140

2+160

2+180

NEW AERIAL UTILITY

N #2
STA 2+034.900
7.730 RT

STONE
FILL,
TYPE II

N #1
STA 2+126.354
8.80' RT

BM GT 6 Y
1942 1199
TABLET IN LEDGE
EL 365.432m

NEW STONE
LINED DITCH
TYPE I

SOUTH BRANCH
MIDDLEBURY RIVER

TO MIDDLEBURY

VT. RTE. 125

TO HANCOCK

20+040

20+080

0 10
SCALE IN METERS

EPSC – FINAL CONDITIONS

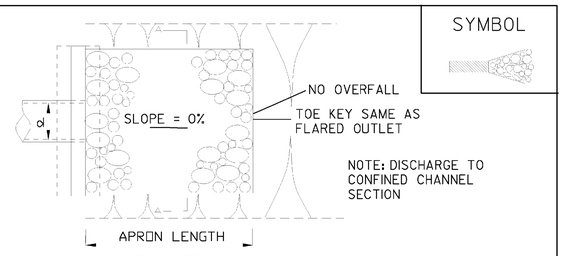
REVISIONS
REVISED WEST EDGE OF RIVER LINE.
REVISED WINGWALL 2.

PROJECT NAME: RIPTON
PROJECT NUMBER: FH 010-1(2)

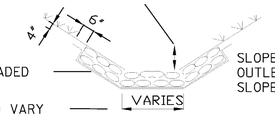
FILE NAME: z89e039border.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: Farnsworth
z89e039epscfin1

PLOT DATE: 02-OCT-2009
DRAWN BY: Weeber
CHECKED BY: Farnsworth
SHEET 15dR OF 26

SYMBOL



MINIMUM DEPTH OF RIPRAP = MAXIMUM DEPTH OF FLOW (DOWNSTREAM NORMAL DEPTH OR DISCHARGE DEPTH, WHICHEVER IS GREATER).



FILTER CLOTH OR GRADED AGGREGATE FILTER

WIDTH OF BOTTOM TO VARY FROM 1/2 PIPE DIAMETER AT PIPE OUTLET TO EXISTING CHANNEL BOTTOM AT END OF APRON.

SLOPE TO VARY FROM 2:1 AT PIPE OUTLET TO EXISTING CHANNEL SLOPE AT END OF APRON.

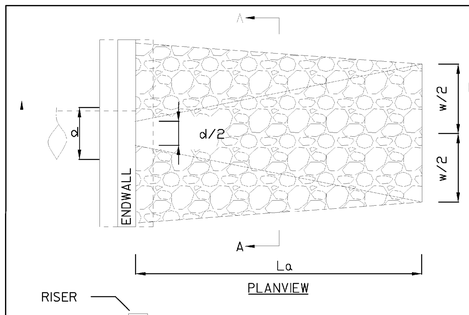
CROSS SECTION A-A

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	RIPRAP OUTLET PROTECTION EXAMPLE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE V AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS ITEM SHALL BE PAID FOR UNDER ITEM 613.11 STONE FILL TYPE I

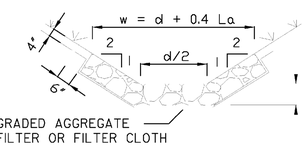
SYMBOL



PROFILE

DISCHARGE TO UNCONFINED SECTION (FLARED OUTLET) (MINIMUM TAILWATER CONDITION)

NOTE: APRON @ ZERO GRADE SIDE SLOPE 2:1



SEE RIPRAP STANDARDS AND SPECIFICATIONS

GRADED AGGREGATE FILTER OR FILTER CLOTH

CROSS SECTION A-A

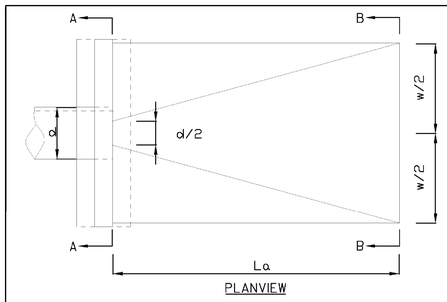
NOTE:
SEE RIPRAP STANDARDS AND SPECIFICATIONS
MINIMUM TAILWATER CONDITIONS

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	RIPRAP OUTLET PROTECTION EXAMPLE

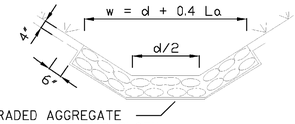
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS ITEM SHALL BE PAID FOR UNDER ITEM 613.12 STONE FILL TYPE II

SYMBOL

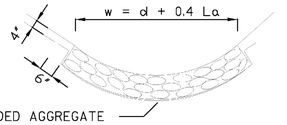


DISCHARGE TO SEMI-CONFINED SECTION (MAXIMUM TAILWATER CONDITION)



GRADED AGGREGATE FILTER OR FILTER CLOTH

SECTION A-A
(AT END OF CULVERT)



GRADED AGGREGATE FILTER OR FILTER CLOTH

SECTION B-B
(AT END OF APRON)

NOTE:
SEE RIPRAP STANDARDS AND SPECIFICATIONS
MAXIMUM TAILWATER CONDITIONS

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	RIPRAP OUTLET PROTECTION EXAMPLE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS ITEM SHALL BE PAID FOR UNDER ITEM 613.12 STONE FILL TYPE II

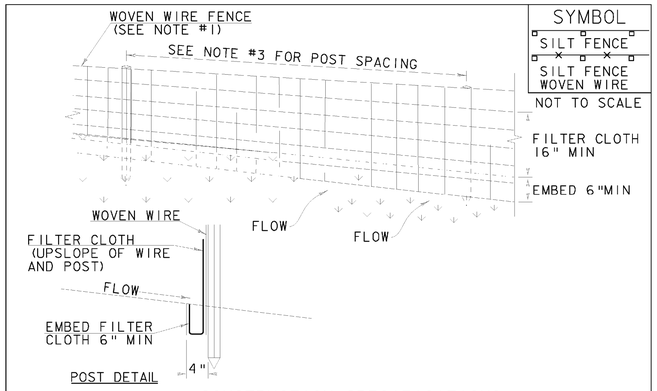
EPSC DETAILS (1)

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

PROJECT NAME: RIPTON
PROJECT NUMBER: FH 010-1(2)

FILE NAME: z89e039epscdet.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: Farnsworth
se039epscdet1.1

PLOT DATE: 08-OCT-2009
DRAWN BY: WEEBER
CHECKED BY: Farnswoth
SHEET 15e OF 26



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

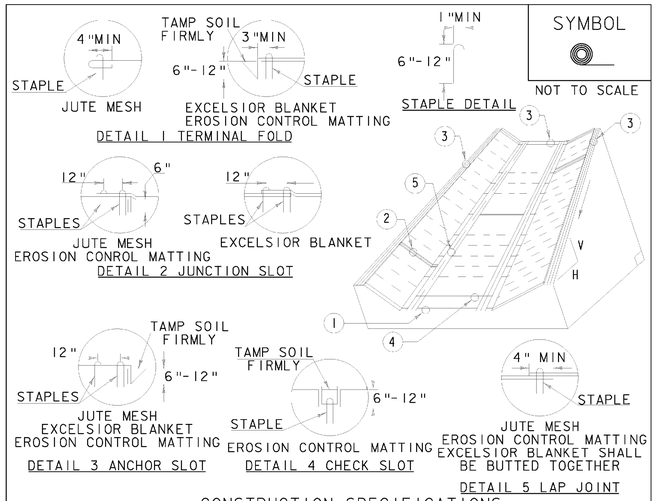
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR ~~GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR~~ GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF



CONSTRUCTION SPECIFICATIONS

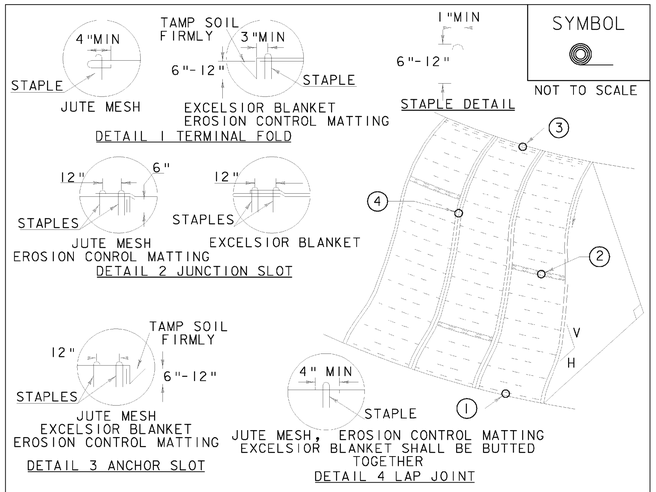
1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

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

ROLLED EROSION CONTROL PRODUCT (RECP) DITCH

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) ~~OR PERMANENT EROSION MATTING (PAY ITEM 653.21).~~

REVISIONS	
MARCH 8, 2007	JMF
APRIL 16, 2007	WHF
JANUARY 13, 2009	WHF



CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

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

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) ~~OR PERMANENT EROSION MATTING (PAY ITEM 653.21).~~

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

EPSC DETAILS (2)

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

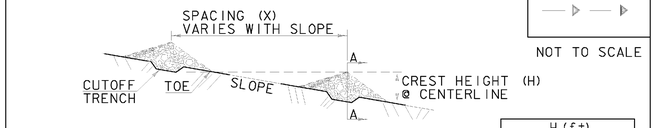
PROJECT NAME: RIPTON
PROJECT NUMBER: FH 010-1(2)

FILE NAME: z89e039epscdet.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: Farnsworth
se039epscdet2.1

PLOT DATE: 08-OCT-2009
DRAWN BY: WEEBER
CHECKED BY: Farnsworth
SHEET 15f OF 26

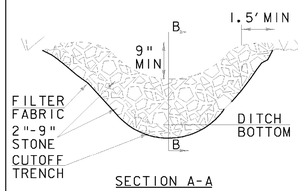
SYMBOL

NOT TO SCALE

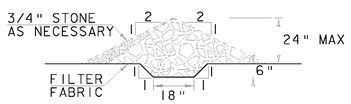


PROFILE

$$X = \frac{H\,(ft)}{SLOPE\,(ft/ft)}$$



SECTION A-A



SECTION B-B

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OFTHE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

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

CHECK DAM

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF

EPSC DETAILS (3)

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

PROJECT NAME: RIPTON
PROJECT NUMBER: FH 010-1(2)

FILE NAME: z89e039epscdet.dgn
PROJECT LEADER: Farnsworth
DESIGNED BY: Farnsworth
se039epscdet3.i

PLOT DATE: 08-OCT-2009
DRAWN BY: WEEBER
CHECKED BY: Farnswoth
SHEET 15g OF 26

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SEVENTEENTH EDITION, DATED 2002 AND ITS LATEST REVISIONS.

2. IN-STREAM CONSTRUCTION SHALL BE RESTRICTED TO JUNE 1 TO OCTOBER 1, UNLESS THE CONTRACTOR OBTAINS WRITTEN PERMISSION FROM THE AGENCY OF NATURAL RESOURCES TO DO WORK OUTSIDE THAT TIME FRAME.

3. DIMENSIONS, ANGLES AND ELEVATIONS SHOWN ON THESE CONTRACT PLANS HAVE BEEN OBTAINED FROM SURVEY INFORMATION AND LIMITED FIELD INVESTIGATION AND MAY NOT ACCURATELY REFLECT ACTUAL FIELD CONDITIONS. ACCORDINGLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING FIELD MEASUREMENTS FOR ALL STRUCTURE COMPONENTS IMPACTED BY THE WORK (EXISTING OR PROPOSED) TO ASSURE CONSISTENCY WITH THE PROPOSED MODIFICATIONS. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER OR EXTENT OF THE EXISTING FEATURES SHALL BE BROUGHT TO ATTENTION OF THE ENGINEER BEFORE ADVANCING THE WORK. FABRICATION DRAWINGS REQUIRED FOR VARIOUS ITEMS OF THE WORK SHALL INDICATE THE ACTUAL FIELD MEASUREMENTS AND SHALL BE SO NOTED.

4 THE CONTRACTOR SHOULD NOTE THAT ALL QUANTITIES SHOWN IN THE CONTRACT DOCUMENTS ARE BASED ON DIMENSIONS AND ELEVATIONS TAKEN FROM FIELD MEASUREMENTS. THE STREAM BANKS MAY HAVE SHIFTED FROM THE LOCATIONS SHOWN ON THE PLANS; THE ACTUAL ASSOCIATED QUANTITIES MAY VARY.

5. COFFERDAMS (ITEM 208.40) SHALL BE USED AT STA. 2+071.607 (ABUT. 1) AND STA. 2+089.907 (ABUT. 2). THE DESIGN AND SUBMITTAL PROCEDURE SHALL BE AS PER SUBSECTION 208.07. THE COFFERDAMS SHALL ENCOMPASS THE STONE FILL, BUT SHALL NOT EXTEND BEYOND THE LATERAL LIMITS OF STONE FILL, AS STIPULATED BY THE U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT. SHOULD COFFERDAMS BE NECESSARY OUTSIDE THESE LIMITS, THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING PERMITS FOR THIS ACTIVITY.

6. ITEM 900.608 SPECIAL PROVISON (GROUT BAGS) SHALL BE PLACED AT THE UNDERMINED AREAS OF THE EXISTING ABUTMENTS (TO REMAIN) AS DIRECTED BY THE ENGINEER.

7. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION OR POLLUTION, ESPECIALLY THE DISCHARGE OF RAW CONCRETE, INTO THE SOUTH BRANCH MIDDLEBURY RIVER, AS DIRECTED BY THE ENGINEER AND STANDARD SPECIFICATION, SECTION 105.

8. ITEM 529.20, PARTIAL REMOVAL OF STRUCTURE, INCLUDES REMOVAL OF THE SUPERSTRUCTURE AND REMOVAL OF PORTIONS OF THE EXISTING ABUTMENTS NOT REMOVED UNDER THE COFFERDAM ITEMS, TO THE LIMITS SHOWN ON THE PLANS.

9. THE FOLLOWING WEIGHTS APPLY TO THESE PLANS FOR DESIGN PURPOSES:

   SOIL UNIT WEIGHT: 22 kN/m.

10. MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE 50 mm ALONG BACK FACES OF WALLS AGAINST EARTH AND 75 mm ELSEWHERE UNLESS OTHERWISE NOTED.

11. REINFORCING PLACEMENT TOLERANCES SHALL BE:

    SPACING: +/- 25 mm
    CLEARANCE: +/- 6 mm

12. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.

13. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

14. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25 mm BY 25 mm UNLESS OTHERWISE DIMENSIONED.

15. NO CONCRETE ABOVE BRIDGE SEAT ELEVATION SHALL BE PLACED UNTIL THE SUPERSTRUCTURE PANELS ARE IN PLACE.

16. ALL ABUTMENT AND WINGWALL CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B.

17. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES.

18. ALL DIMENSIONS ARE HORIZONTAL AND VERTICAL AND ARE GIVEN AT 20°C.

19. THE FINAL BRIDGE SEAT ELEVATIONS SHALL BE DETERMINED BY THE CONTRACTOR, CONSIDERING THE SUPERSTRUCTURE DEPTHS PROVIDED BY THE MANUFACTURER. THE ABUTMENT SEAT SHALL BE LEVEL TO WITHIN 1.6mm OVER THE FULL DIAMETER OF THE BEARING PADS.

20. THE SUBSTRUCTURE HAS BEEN DESIGNED FOR THE FOOTING ELEVATIONS SHOWN ON THE DRAWINGS. IF, AFTER THE LEDGE HAS BEEN EXPOSED, IT IS SIGNIFICANTLY DIFFERENT (600mm OR MORE) IN ELEVATION FROM THAT SHOWN ON THE DRAWINGS, THEN NO FURTHER WORK SHALL BE DONE ON THE SUBSTRUCTURE UNTIL THE STRUCTURES ENGINEER HAS BEEN CONTACTED AND HAS SUBMITTED A REPLY AUTHORIZING AN ADJUSTMENT TO THE SUBSTRUCTURE.

21. THE CONTRACTOR SHALL EXCAVATE THE LEDGE TO PROVIDE A LEVEL SURFACE OR AS DIRECTED BY THE ENGINEER. THE COST OF ALL THIS EXCAVATION SHALL BE PAID FOR UNDER ITEM 208.35, "COFFERDAM EXCAVATION, ROCK."

SUPERSTRUCTURE NOTES

1. THE PRE-FABRICATED SUPERSTRUCTURE, INCLUDING PRECAST END WALLS, AND PRECAST BRUSH CURBS SHALL BE PAID UNDER ITEM 900.675, SPECIAL PROVISION (PRECAST PRECOMPRESSED CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE).

2. THE PRE-FABRICATED SUPERSTRUCTURE SHALL BE DESIGNED FOR AASHTO MS22.5 DESIGN LIVE LOAD AND ALL DEAD LOADS AS SHOWN ON THE PLANS, AND DETAILED, FABRICATED AND TRANSPORTED TO THE SITE BY THE MANUFACTURER/CONTRACTOR.

3. FABRICATION METHODS THAT UTILIZE PRESTRESS IN THE STRINGERS CAN BE USED. A PROCEDURE FOR A FUTURE CAST-IN-PLACE DECK REHABILITATION, INDICATING THE AMOUNT OF PRESTRESS REQUIRED AND A METHOD TO ACHIEVE IT IN THE FIELD, SHALL BE INCLUDED ON THE FABRICATION DRAWINGS.

4. LIVE LOAD DEFLECTION SHALL BE LIMITED TO L/1000.

5. THE DESIGN CALCULATIONS AND FABRICATION DRAWINGS SHALL BE SIGNED, STAMPED AND DATED BY A PROFESSIONAL ENGINEER (STRUCTURAL OR CIVIL) REGISTERED IN THE STATE OF VERMONT.

6. ALL REINFORCING STEEL SHALL BE EPOXY COATED.

7. MINIMUM SIZE OF REINFORCING STEEL WILL BE #16.

8. FABRICATION DRAWINGS SHALL BE SUBMITTED (6 WEEKS PRIOR TO FABRICATION OF THE SUPERSTRUCTURE) TO THE STRUCTURES ENGINEER IN ACCORDANCE WITH STANDARD SPECIFICATION SUBSECTION 105.03(b). STRUCTURES ENGINEER MUST APPROVE BEFORE FABRICATION COMMENCES.

9. THE FABRICATOR OF THE UNITS SHALL SUBMIT DETAILS TO THE STRUCTURES ENGINEER FOR APPROVAL SHOWING HOW TO RECTIFY THE SITUATION, IF THE ELEVATION DIFFERENCE BETWEEN ADJACENT UNITS, AT ANY POINT ALONG THE UNIT, IS GREATER THAN 3mm.

10. A 25 mm CAMBER SHALL REMAIN IN THE BEAMS AFTER ALL DEAD LOADS HAVE BEEN APPLIED. THE CAMBER SHALL APPROXIMATE A SIMPLE CURVE.

11. THE FABRICATOR SHALL SUPPLY LOAD RATINGS FOR THE SUPERSTRUCTURE BASED ON VERMONT'S SEVEN STANDARD TRUCKS. COMPLETED LOAD RATING TABLE AND CALCULATIONS SHALL BE INCLUDED WITH THE FABRICATION DRAWINGS AND SIGNED, STAMPED AND DATED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT. TRUCK WEIGHTS AND CONFIGUATIONS WILL BE SUPPLIED UPON REQUEST.

12. MINIMUM CONCRETE COVER FOR DECK REINFORCING STEEL SHALL BE 65mm ON TOP AND 40mm ON BOTTOM UNLESS OTHERWISE NOTED.

13. ALL MATERIAL CAST INTO THE UNITS AND ALL REINFORCING STEEL MECHANICALLY CONNECTED TO THE UNITS SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 900.675 SPECIAL PROVISION (PRECAST PRECOMPRESSED CONCRETE/STEEL SUPERSTRUCTURE). PREPARATION OF THE ENDS OF REINFORCING STEEL FOR ATTACHMENT TO MECHANICAL CONNECTORS SHALL ALSO BE INCLUDED IN THIS BID PRICE.

14. STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270M/M 270 GRADE 345W.

15. THE END OF DECK DETAIL SHALL BE AS SHOWN ON SHEET 17.

16. THE PREFABRICATED SUPERSTRUCTURE UNIT SHALL BE FABRICATED TO ACCOUNT FOR THE ROADWAY CROSS SLOPE.

BEARING NOTES

1. STEEL REINFORCED ELASTOMERIC BEARINGS SHALL BE PAID UNDER ITEM 531.11, BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD.

2. BEARING DESIGN CRITERIA:

   AASHTO DESIGN METHOD = B
   SHORE "A" DUROMETER HARDNESS = 50
   DESIGN LOAD PER BEARING = 78 KIPS
   DEAD LOAD = 29 KIPS
   LIVE LOAD = 49 KIPS
   LIVE LOAD ROTATION = 0.004 RADIANS
   CONSTRUCTION TOLERANCE ROTATION = 0.01 RADIANS

3. THE ACTUAL DESIGN LOADING AND ROTATION SHALL BE DETERMINED PRIOR TO FABRICATION OF THE BEARINGS. THE STRUCTURES ENGINEER SHALL BE NOTIFIED SHOULD THE ACTUAL DESIGN LOADING AND ROTATION BE DIFFERENT THAN THE LOADS AND CRITERIA LISTED IN NOTE 2.

4. ALTERNATE CONFIGURATIONS FOR THE ELASTOMERIC BEARINGS AND ANCHORAGE MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE ACTUAL DESIGN LOADS AND CRITERIA. THE DESIGN CALCULATIONS AND FABRICATION DRAWINGS FOR ALTERNATE CONFIGURATIONS SHALL BE SIGNED, STAMPED AND DATED BY A LICENSED PROFESSIONAL ENGINEER (STRUCTURAL OR CIVIL) IN THE STATE OF VERMONT.

5. ALL MATERIALS AND FABRICATION SHALL BE PER AASHTO DIVISION II SECTION 18, BEARINGS.

SEEDING FORMULA
RURAL AREAS

% WT.	kg/ha	NAME	PUR %	GERM %
37.5	26.0	CREEPING RED FESCUE	98	85
37.5	26.0	TALL FESCUE	95	90
5.0	4.0	RED TOP	95	90
15.0	10.0	BIRDSFOOT TREFOIL	98	85
5.0	4.0	ANNUAL RYE GRASS	95	85
100.0	70.0			

SEEDING NOTES

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

Metric

McFarland Johnson

FOREST SERVICE U.S. DEPARTMENT OF AGRIC.

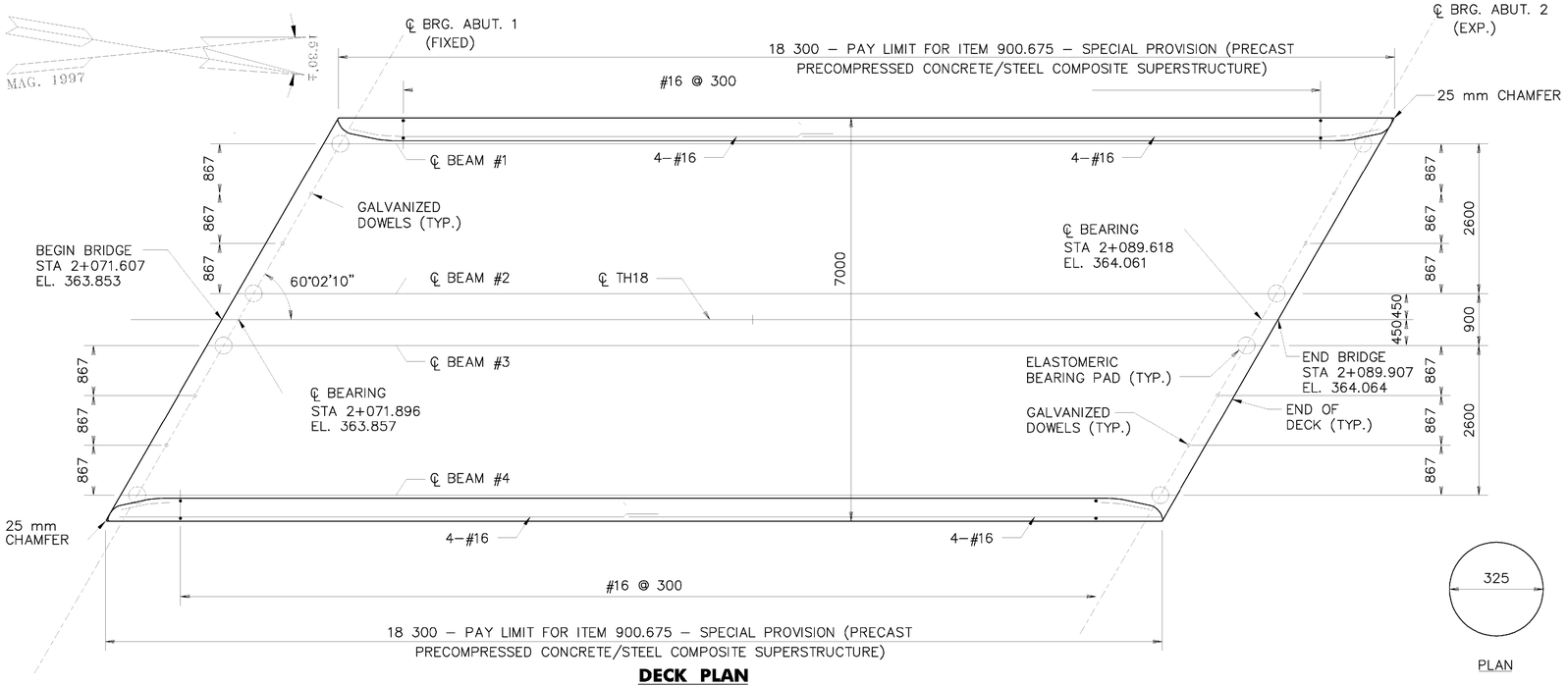
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta.
	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

GENERAL NOTES

Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 16 of 26



DECK PLAN

SCALE IN METERS 0 1 2 3

SCALE: 1:50

PLAN

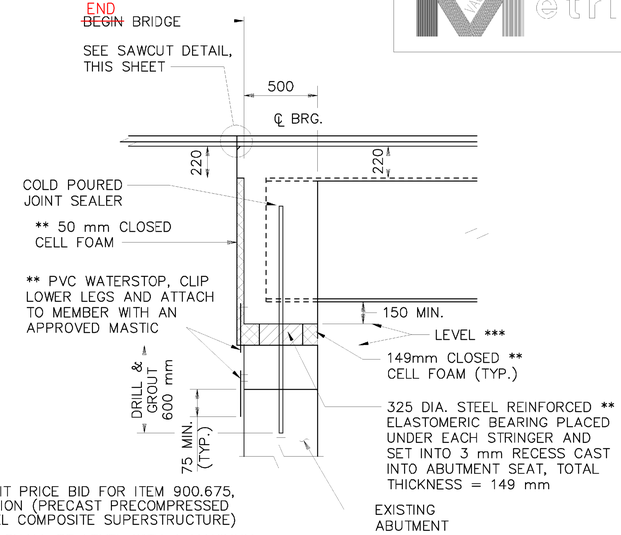
ELEVATION

* 2–6 mm COVER LAYERS, 9–13 mm LAYERS OF RUBBER ALTERNATING WITH 10 LAYERS OF 2mm STEEL PLATE REINFORCEMENT

BEARING PAD

SCALE IN METERS 0 .25 .5 .75

SCALE: 1:10



** INCLUDED IN UNIT PRICE BID FOR ITEM 900.675, SPECIAL PROVISION (PRECAST PRECOMPRESSED CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE)

*** BEARING AREAS SHALL BE LEVEL WITH A MAXIMUM TOLERANCE OF 1.6mm OVER THE FULL DIAMETER OF THE BEARING PAD.

EXPANSION END DETAIL

SCALE IN METERS 0 .50 1 1.5

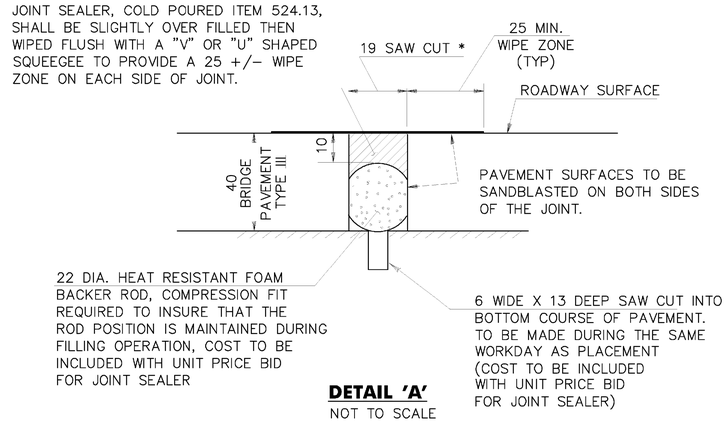
SCALE: 1:20

NOTE:
ELASTOMERIC BEARING UNDER GIRDER NOT SHOWN.

FIXED END DETAIL

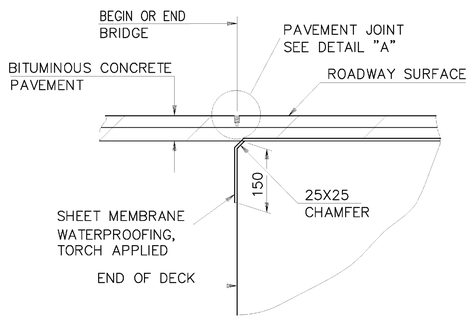
SCALE IN METERS 0 .50 1 1.5

SCALE: 1:20



DETAIL 'A'

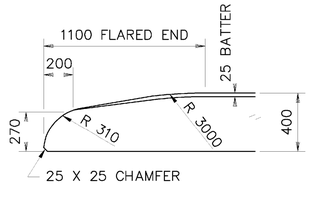
NOT TO SCALE



SAWCUT JOINT DETAIL

NOT TO SCALE

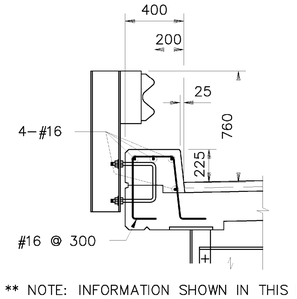
* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF THE BRIDGE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER. SEE VERMONT SPECIFICATION 524.



FLARED END CURB DETAIL

SCALE IN METERS 0 .50 1 1.5

SCALE: 1:20



** NOTE: INFORMATION SHOWN IN THIS DETAIL IS FOR REFERENCE ONLY. THE MANUFACTURER SHALL PROVIDE EQUIVALENT REINFORCING AND POST ANCHORAGES.

BRUSH CURB DETAIL

SCALE IN METERS 0 .50 1 1.5

SCALE: 1:20

McFarland Johnson

FOREST SERVICE U.S. DEPARTMENT OF AGRIC. U.S.

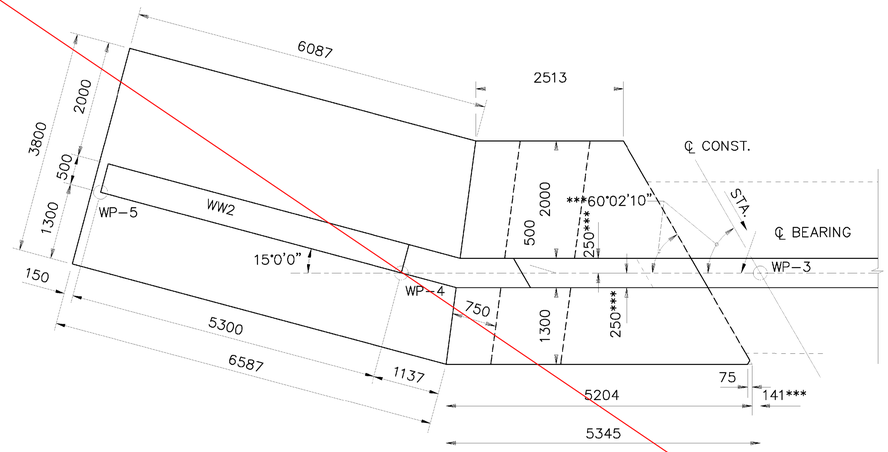
STATE OF VERMONT
AGENCY OF TRANSPORTATION

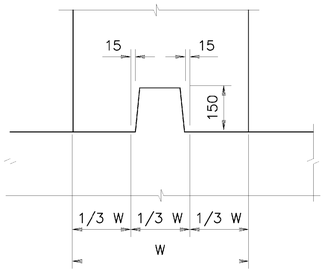
Town Of	RIPTON	Bridge No.	BRIDGE #17
		Log Sta.	
Highway No.	TH 18	Surv. Sta.	

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER
SUPERSTRUCTURE DETAILS

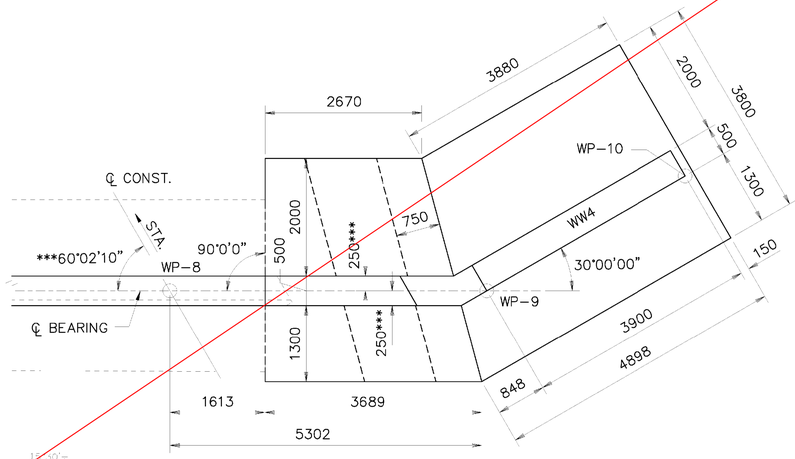
Designed By	B P GUZAS	Drawn By	W J GAYNOR
Checked By	Date	Bridge Design Supervisor	
Y I LIU	8/09	R L JOY	Date 10/09

PROJECT	RIPTON	PROJECT NO.	FH 010–1(2)
I.G.C. Info.			
Bridge Sheet No.		Sheet 17 of 26	





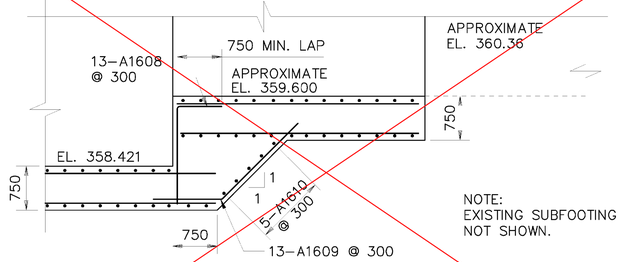
CONSTRUCTION JOINT DETAIL
SCALE: 1:10
0 .25 .5 .75
SCALE IN METERS



*** SEE GENERAL NOTE 3 ON SHEEET 16 OF 26.

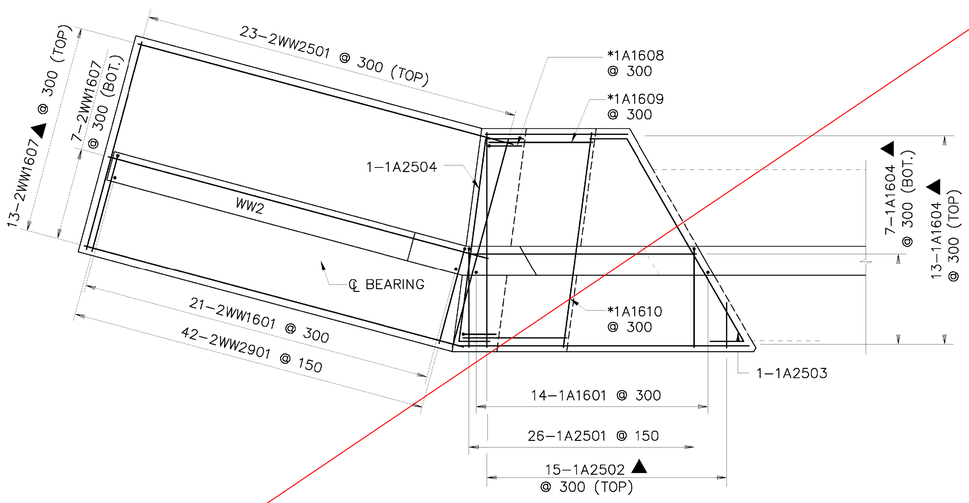
ABUTMENT 1 MASONRY
SCALE: 1:50
0 1 2 3
SCALE IN METERS

ABUTMENT 2 MASONRY
SCALE: 1:50
0 1 2 3
SCALE IN METERS



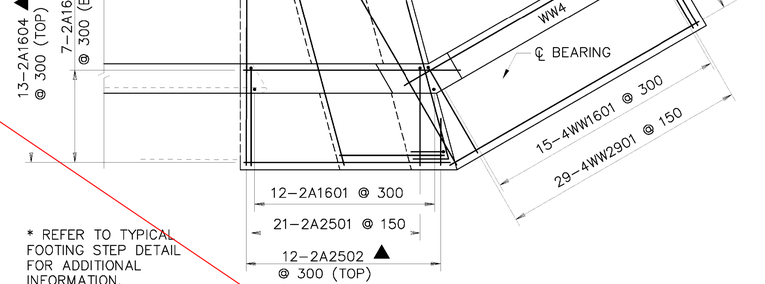
NOTE:
EXISTING SUBFOOTING
NOT SHOWN.

TYPICAL FOOTING STEP
(ABUTMENT 1 SHOWN – ABUTMENT 2 SIMILAR)
SCALE: 1:50
0 1 2 3
SCALE IN METERS



ABUTMENT 1 REINFORCEMENT
SCALE: 1:50
0 1 2 3
SCALE IN METERS

* REFER TO TYPICAL FOOTING STEP DETAIL FOR ADDITIONAL INFORMATION.



* REFER TO TYPICAL FOOTING STEP DETAIL FOR ADDITIONAL INFORMATION.

ABUTMENT 2 REINFORCEMENT
SCALE: 1:50
0 1 2 3
SCALE IN METERS

SEE REVISED SHEET

NOTE:
SEE TYPICAL ABUTMENT SECTION, SHEET 20
AND TYPICAL WINGWALL SECTION, SHEET 21

▲ = CUT TO FIT IN FIELD
E = EPOXY COATED
EE = EACH END
EF = EACH FACE
FF = FAR FACE
NF = NEAR FACE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	RIPTON	Bridge No.	BRIDGE #17
		Log Sta.	
Highway No.	TH 18	Surv. Sta.	

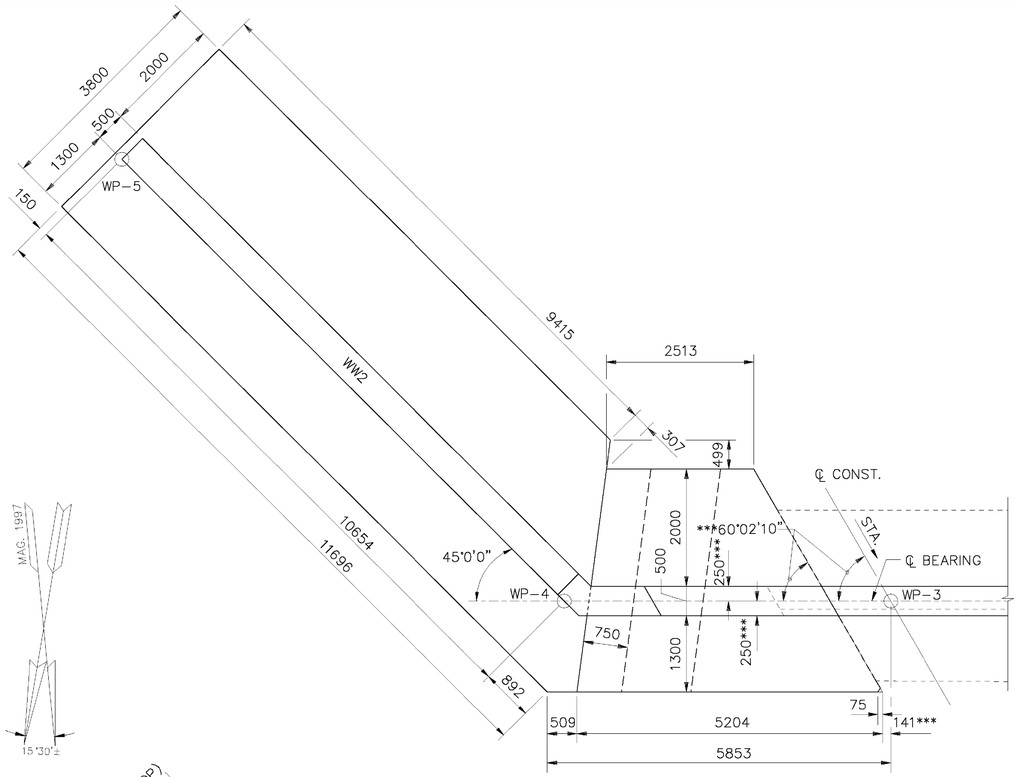
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER
FOOTING DETAILS

Designed By	B P GUZAS	Drawn By	W J GAYNOR
Checked By	Date	Bridge Design Supervisor	
Y I LIU	8/09	R L JOY	Date 10/09

PROJECT	RIPTON
PROJECT NO.	FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 18 of 26

McFarland Johnson

M:\1734300 Ripton 17\BRDG\Z89E039FTGDT_01.DGN



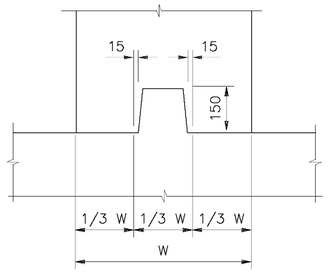
ABUTMENT 1 MASONRY

SCALE: 1:50

0 1 2 3

SCALE IN METERS

*** SEE GENERAL NOTE 3 ON SHEEET 16 OF 26.

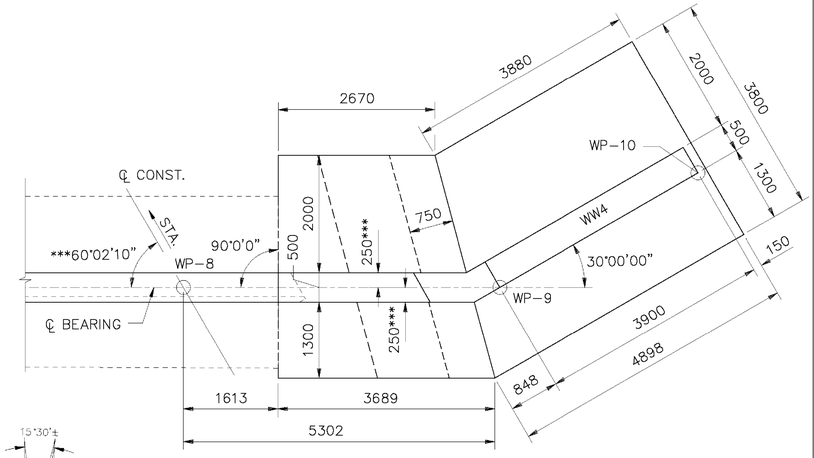


CONSTRUCTION JOINT DETAIL

SCALE: 1:10

0 .25 .5 .75

SCALE IN METERS



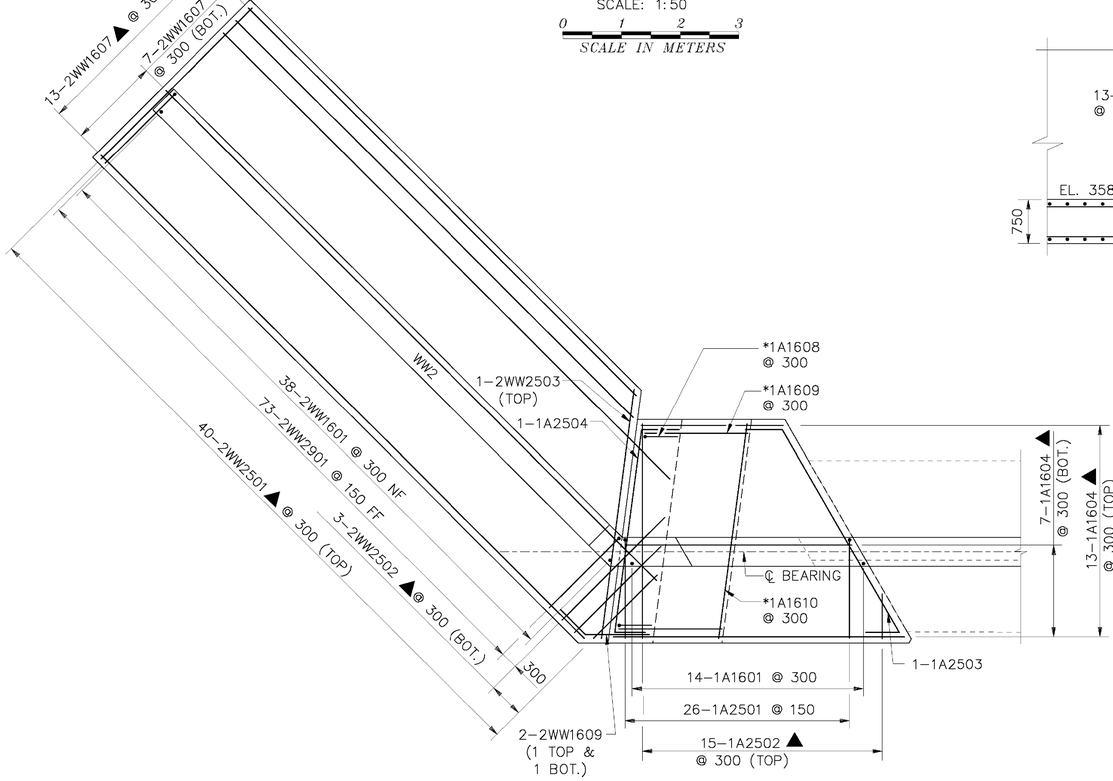
~~**ABUTMENT 2 MASONRY**~~

SCALE: 1:50

0 1 2 3

SCALE IN METERS

*SEE REVISED ABUTMENT #2 PLANS ATTACHED BY S. FARNSWORTH



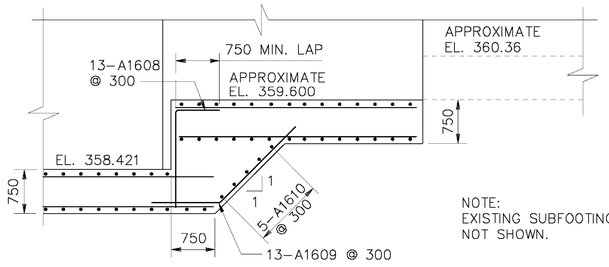
ABUTMENT 1 REINFORCEMENT

SCALE: 1:50

0 1 2 3

SCALE IN METERS

* REFER TO TYPICAL FOOTING STEP DETAIL FOR ADDITIONAL INFORMATION.



NOTE:
EXISTING SUBFOOTING NOT SHOWN.

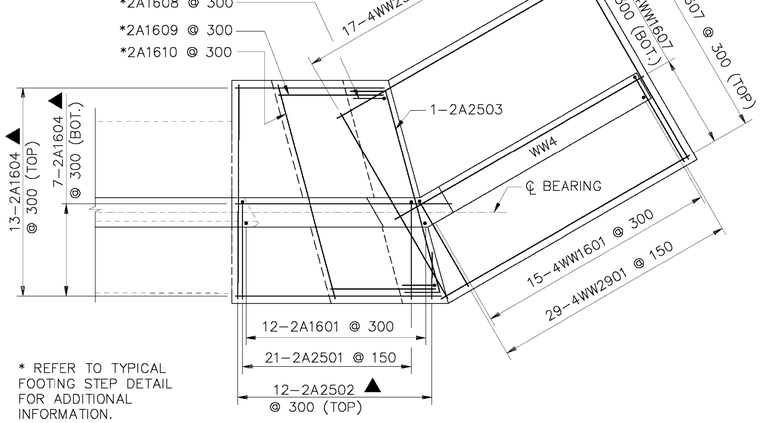
TYPICAL FOOTING STEP

(ABUTMENT 1 SHOWN – ~~ABUTMENT 2 SIMILAR~~)

SCALE: 1:50

0 1 2 3

SCALE IN METERS



* REFER TO TYPICAL FOOTING STEP DETAIL FOR ADDITIONAL INFORMATION.

~~**ABUTMENT 2 REINFORCEMENT**~~

SCALE: 1:50

0 1 2 3

SCALE IN METERS

*SEE REVISED ABUTMENT #2 PLANS ATTACHED BY S. FARNSWORTH

NOTE:
SEE TYPICAL ABUTMENT SECTION, SHEET 20
AND TYPICAL WINGWALL SECTION, SHEET 21

▲ = CUT TO FIT IN FIELD
E = EPOXY COATED
EE = EACH END
EF = EACH FACE
FF = FAR FACE
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REVISIONS

REVISED WINGWALL 2.

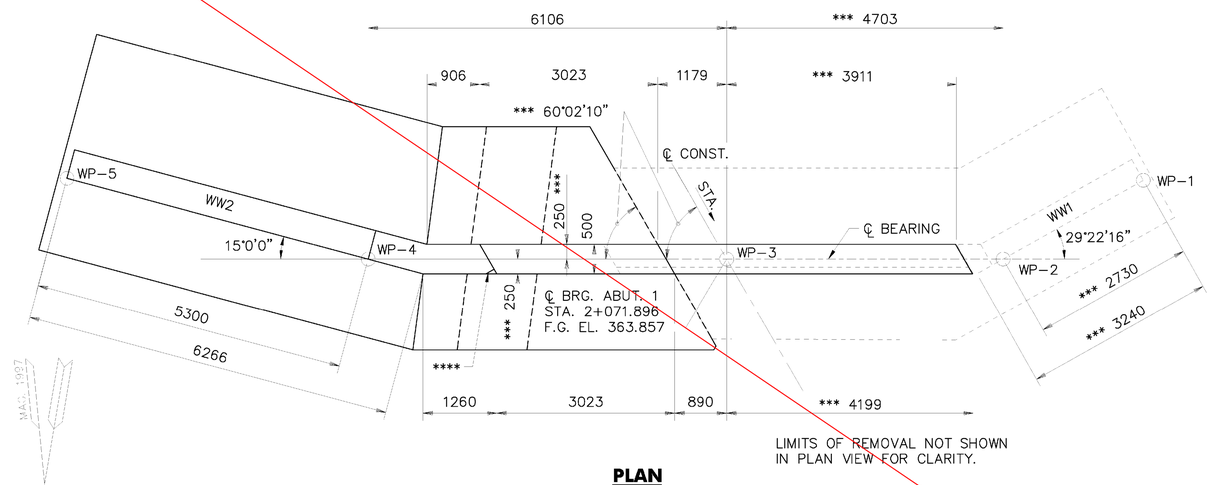
McFarland Johnson

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.

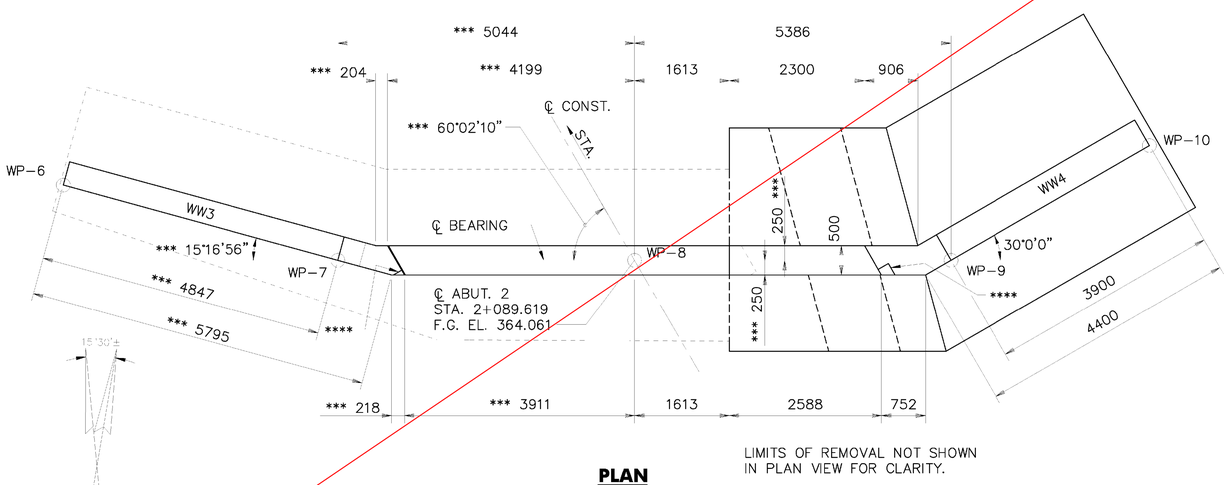
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER
FOOTING DETAILS

Designed By B P GUZAS	Drawn By W J GAYNOR
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 18R of 26



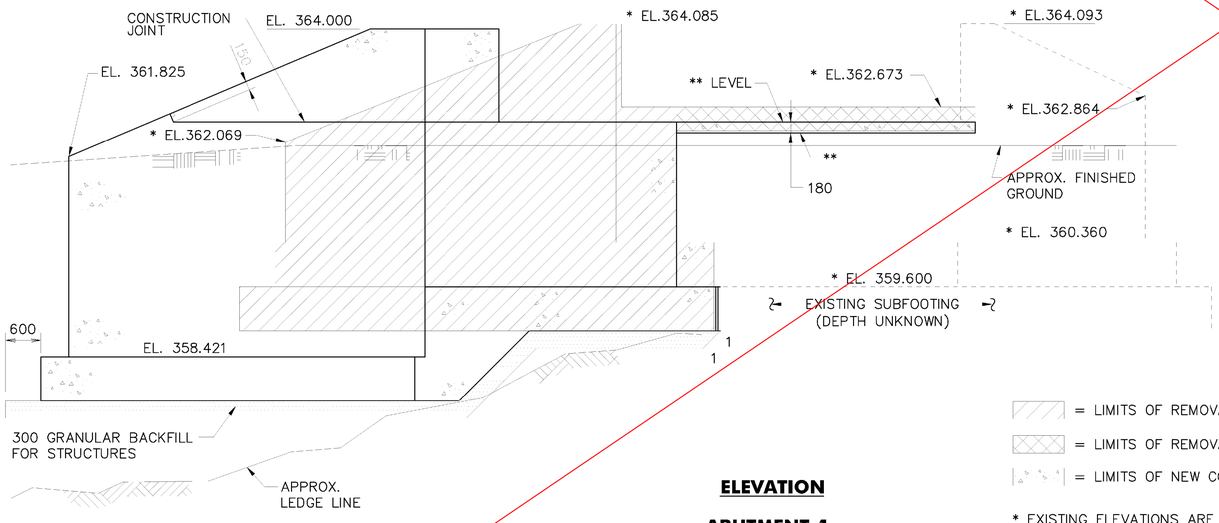
LIMITS OF REMOVAL NOT SHOWN IN PLAN VIEW FOR CLARITY.

PLAN



LIMITS OF REMOVAL NOT SHOWN IN PLAN VIEW FOR CLARITY.

PLAN



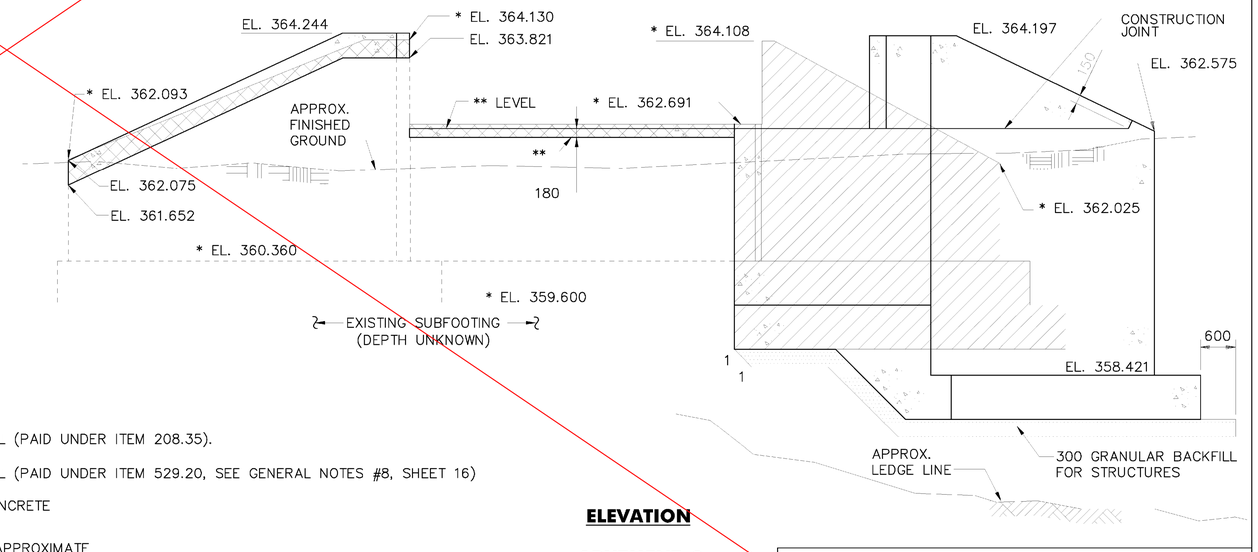
ELEVATION

ABUTMENT 1

SCALE: 1:50

0 1 2 3

SCALE IN METERS



ELEVATION

ABUTMENT 2

SCALE: 1:50

0 1 2 3

SCALE IN METERS

= LIMITS OF REMOVAL (PAID UNDER ITEM 208.35).

= LIMITS OF REMOVAL (PAID UNDER ITEM 529.20, SEE GENERAL NOTES #8, SHEET 16)

= LIMITS OF NEW CONCRETE

* EXISTING ELEVATIONS ARE APPROXIMATE
** SEE GENERAL NOTE #19, SHEET 16.
*** SEE GENERAL NOTE # 3, SHEET 16.
**** BLOCKOUT WINGWALL AS REQUIRED TO ACCOMODATE BRIDGE RAIL POST.

SEE REVISED SHEET

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	RIPTON	Bridge No.	BRIDGE #17
		Log Sta.	
Highway No.	TH 18	Surv. Sta.	

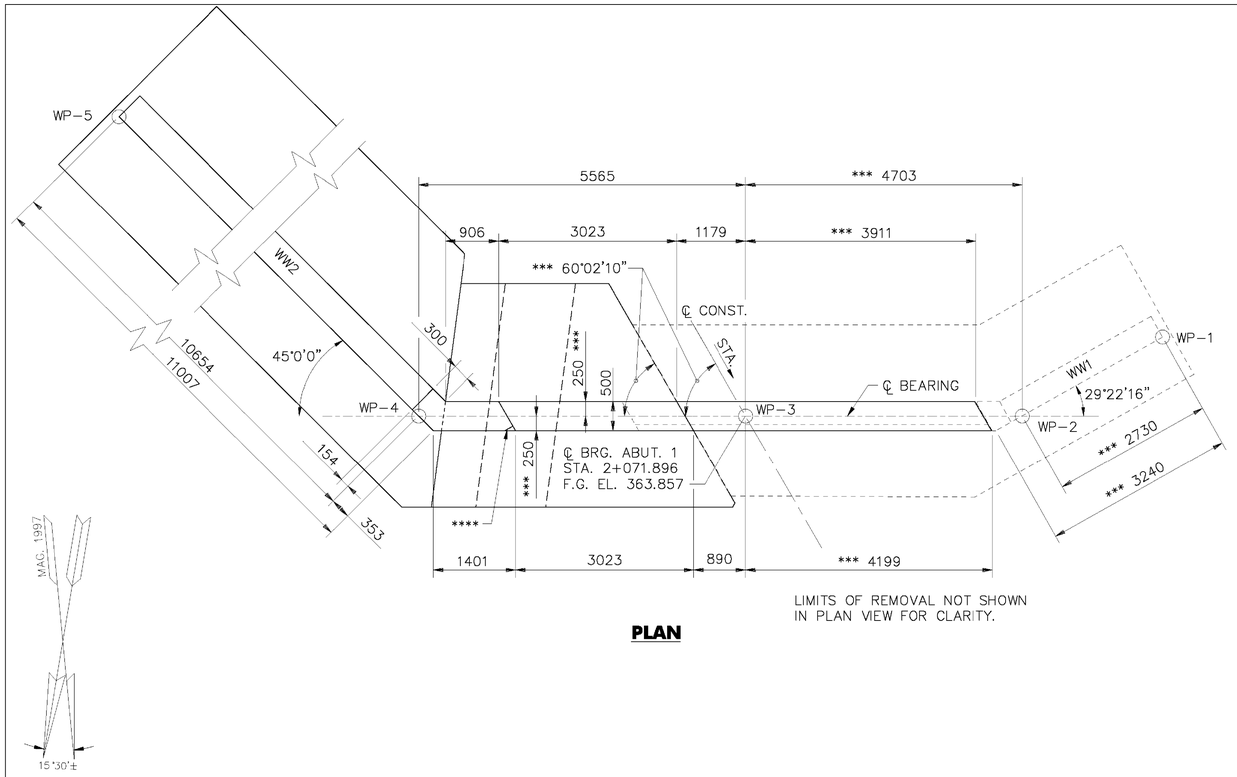
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER
ABUTMENT MASONRY

Designed By	Y I LIU	Drawn By	W J GAYNOR
Checked By	B P GUZAS	Bridge Design Supervisor	R L JOY
Date	8/09	Date	10/09

PROJECT	RIPTON
PROJECT NO.	FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 19 of 26

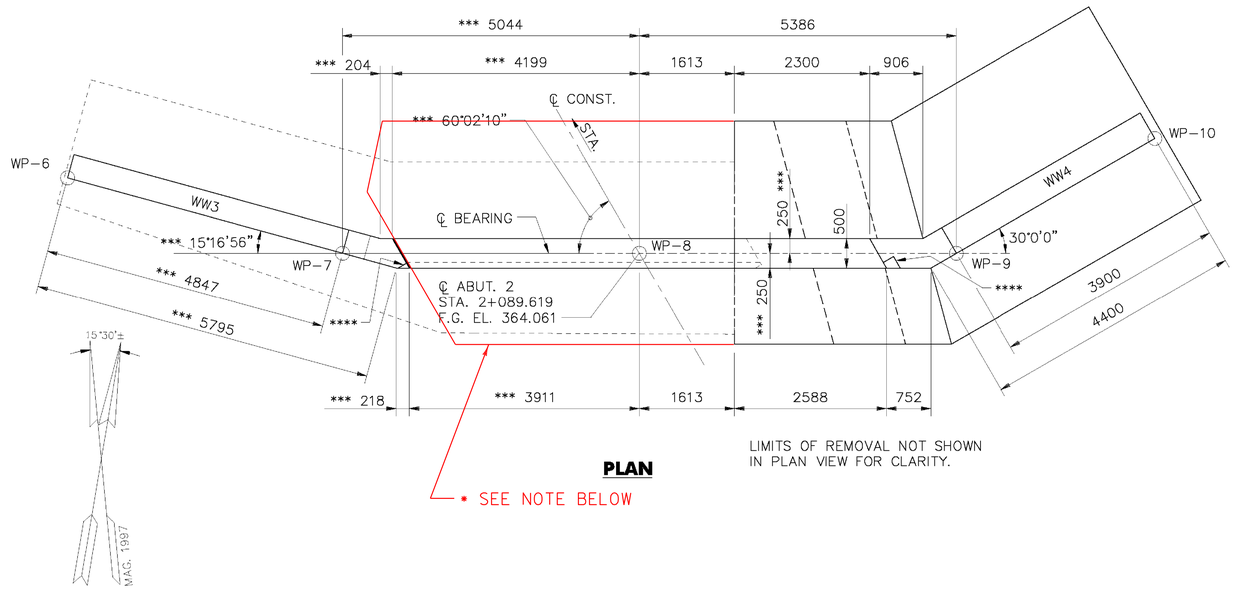
McFarland Johnson

FOREST SERVICE U S DEPARTMENT OF AGRIC. U.S.



LIMITS OF REMOVAL NOT SHOWN IN PLAN VIEW FOR CLARITY.

PLAN

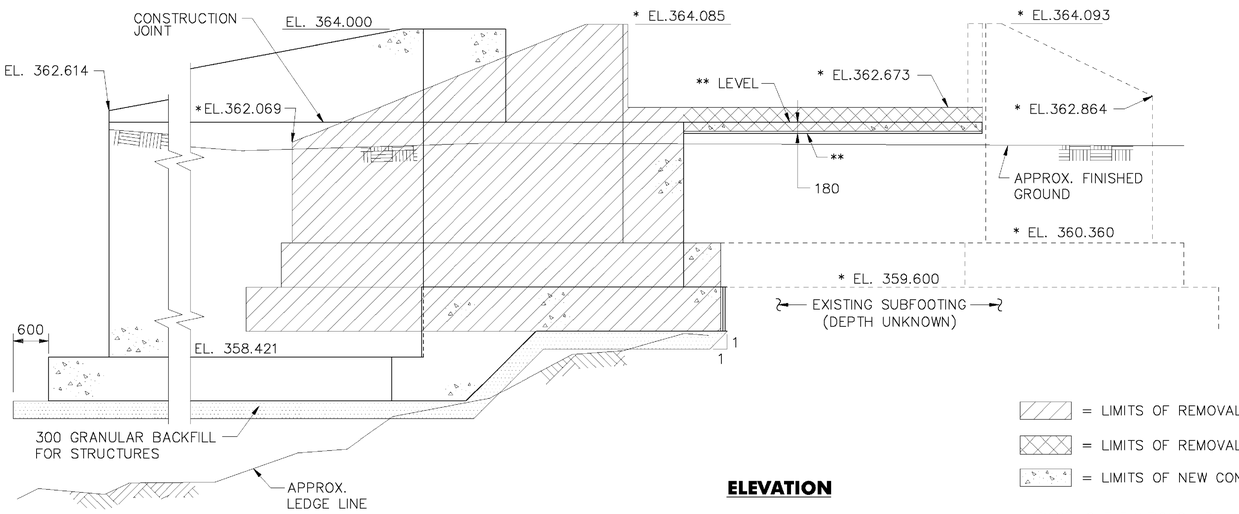


LIMITS OF REMOVAL NOT SHOWN IN PLAN VIEW FOR CLARITY.

PLAN

* SEE NOTE BELOW

* WW #3 WORK DEEMED UNNECESSARY



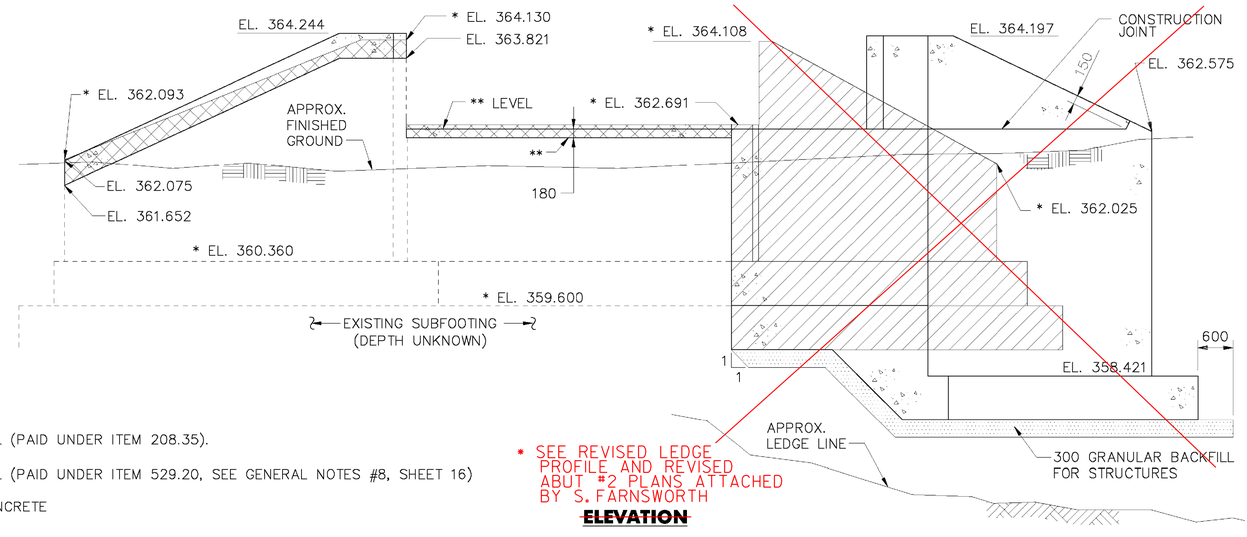
ELEVATION

ABUTMENT 1

SCALE: 1:50

0 1 2 3

SCALE IN METERS



* SEE REVISED LEDGE PROFILE AND REVISED ABUT #2 PLANS ATTACHED BY S. FARNSWORTH

ELEVATION

ABUTMENT 2

SCALE: 1:50

0 1 2 3

SCALE IN METERS

= LIMITS OF REMOVAL (PAID UNDER ITEM 208.35).

= LIMITS OF REMOVAL (PAID UNDER ITEM 529.20, SEE GENERAL NOTES #8, SHEET 16)

= LIMITS OF NEW CONCRETE

* EXISTING ELEVATIONS ARE APPROXIMATE
** SEE GENERAL NOTE #19, SHEET 16.
*** SEE GENERAL NOTE # 3, SHEET 16.
**** BLOCKOUT WINGWALL AS REQUIRED TO ACCOMODATE BRIDGE RAIL POST.

REVISIONS

REVISED WINGWALL 2.

McFarland Johnson

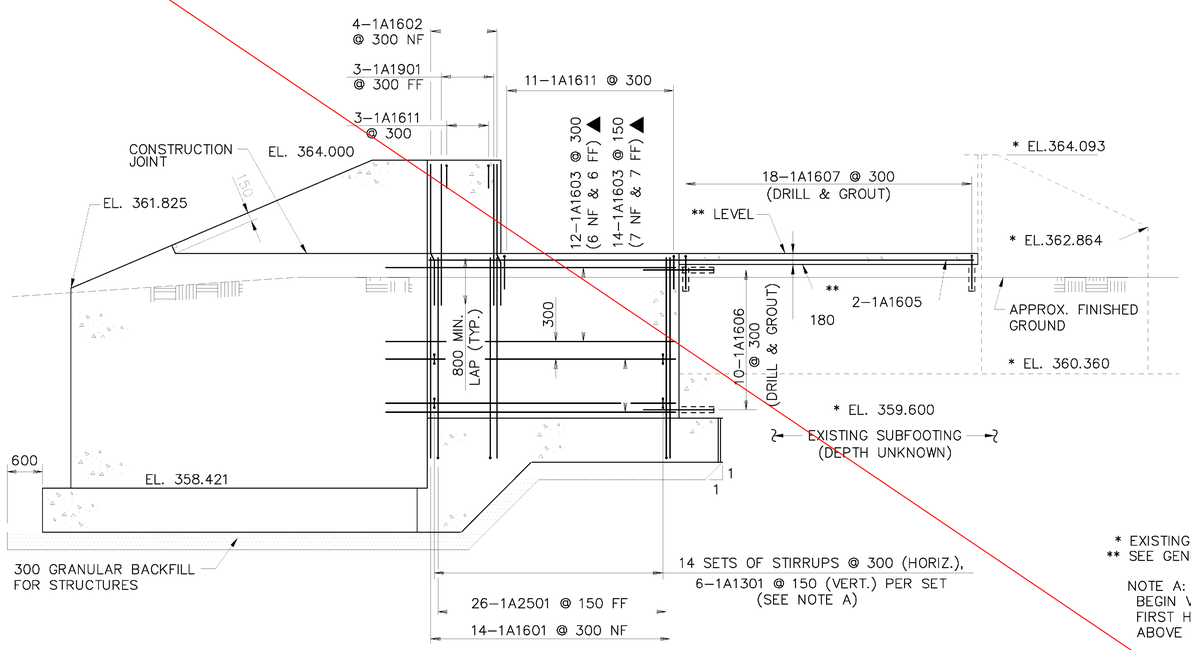
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

ABUTMENT MASONRY

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 19R of 26

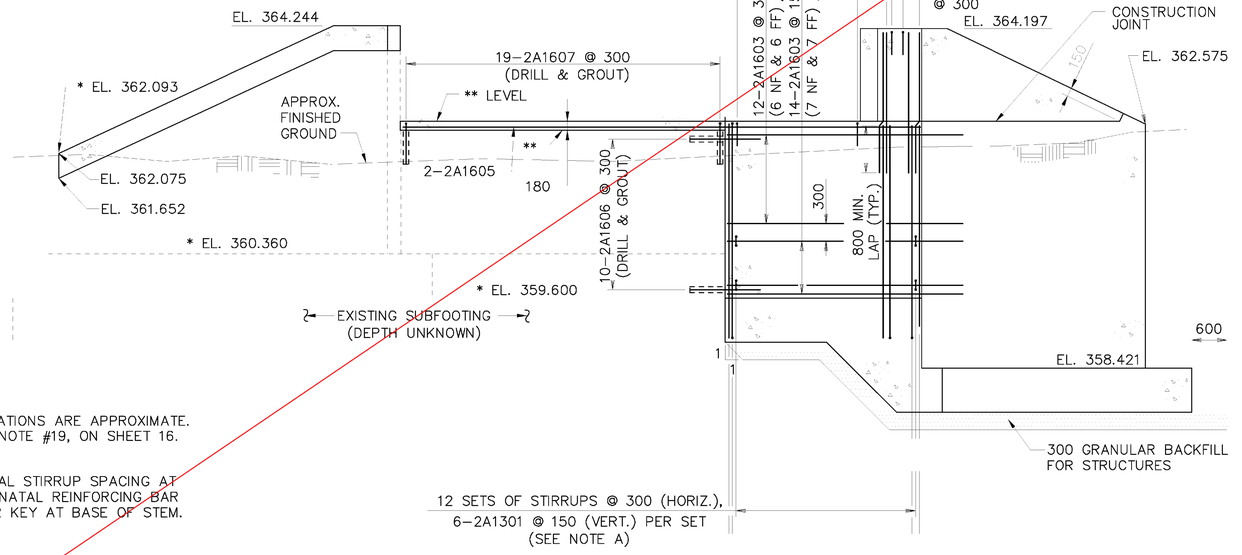


ABUTMENT 1 ELEVATION

SCALE: 1:50

0 1 2 3

SCALE IN METERS



ABUTMENT 2 ELEVATION

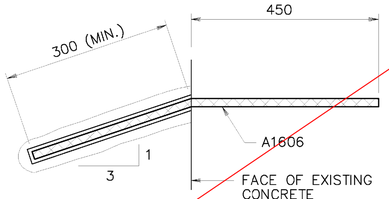
SCALE: 1:50

0 1 2 3

SCALE IN METERS

* EXISTING ELEVATIONS ARE APPROXIMATE.
** SEE GENERAL NOTE #19, ON SHEET 16.

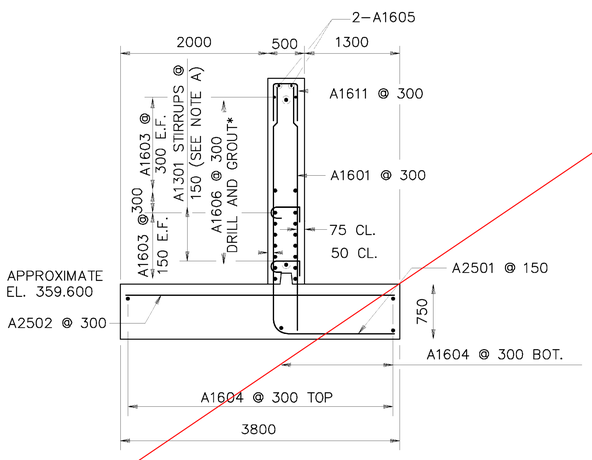
NOTE A:
BEGIN VERTICAL STIRRUP SPACING AT FIRST HORIZONATAL REINFORCING BAR ABOVE SHEAR KEY AT BASE OF STEM.



VERTICAL SURFACES

DRILL AND GROUT DETAIL

N.T.S.



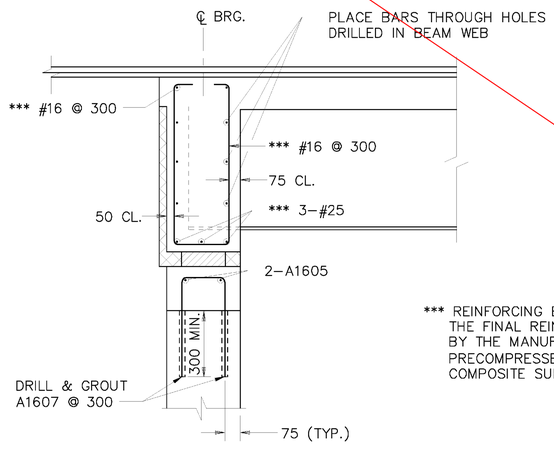
* SEE DRILL AND GROUT DETAIL THIS SHEET

TYPICAL ABUTMENT SECTION

SCALE: 1:40

0 1 2 3

SCALE IN METERS



*** REINFORCING BARS SHOWN ARE APPROXIMATE, THE FINAL REINFORCING SHALL BE DESIGNED BY THE MANUFACTURER OF THE PRECAST PRECOMPRESSED CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE.

TYPICAL DECK END REINFORCING

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

▲ = CUT TO FIT IN FIELD
E = EPOXY COATED
EE = EACH END
EF = EACH FACE
FF = FAR FACE
NF = NEAR FACE

SEE REVISED SHEET

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.

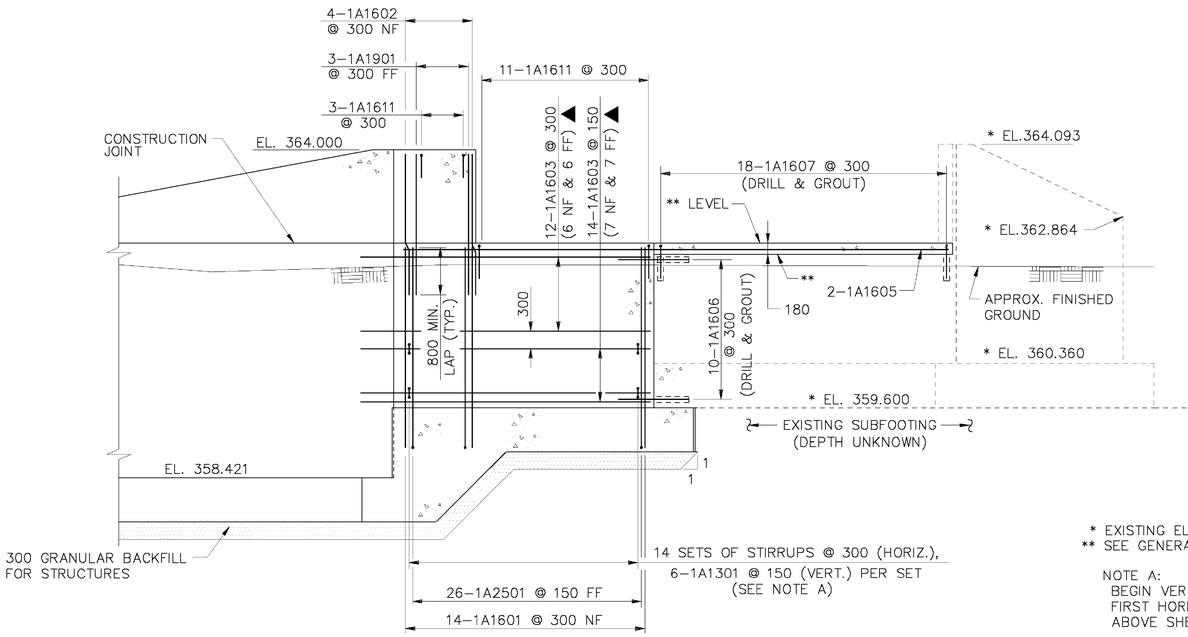
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

ABUTMENT REINFORCING

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 20 of 26

McFarland Johnson

FOREST SERVICE U S DEPARTMENT OF AGRIC. USDA



ABUTMENT 1 ELEVATION

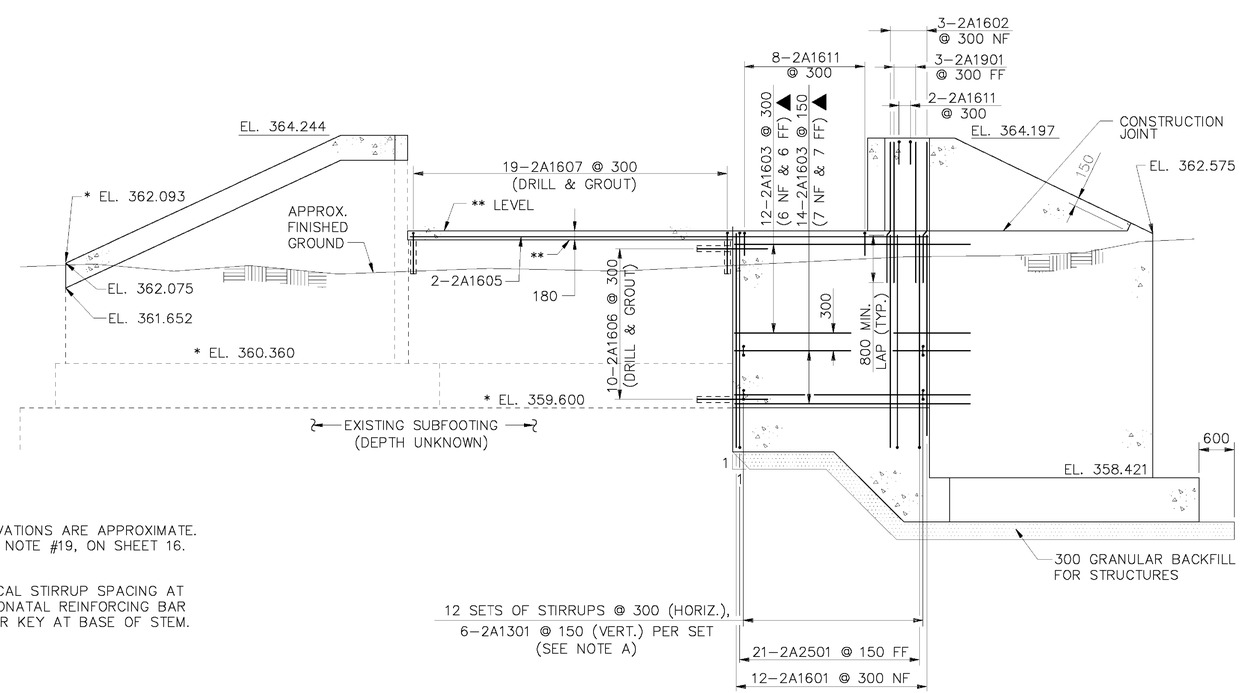
SCALE: 1:50

0 1 2 3

SCALE IN METERS

* EXISTING ELEVATIONS ARE APPROXIMATE.
** SEE GENERAL NOTE #19, ON SHEET 16.

NOTE A:
BEGIN VERTICAL STIRRUP SPACING AT FIRST HORIZONATAL REINFORCING BAR ABOVE SHEAR KEY AT BASE OF STEM.

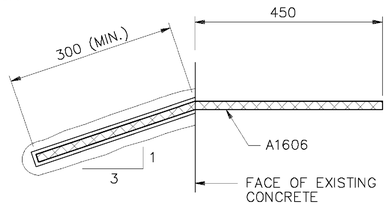


~~ABUTMENT 2 ELEVATION~~ * SEE REVISED ABUT #2 PLANS ATTACHED BY S. FARNSWORTH

SCALE: 1:50

0 1 2 3

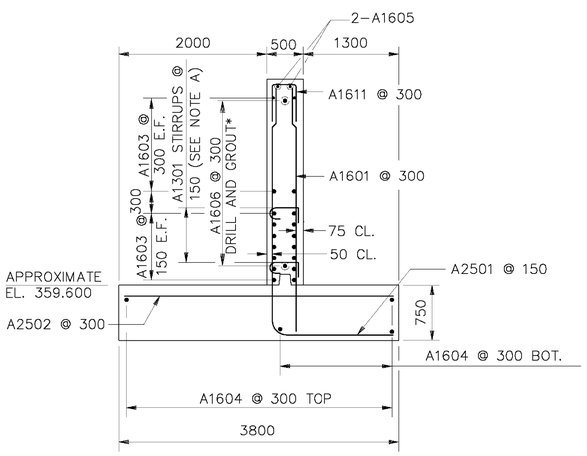
SCALE IN METERS



VERTICAL SURFACES

DRILL AND GROUT DETAIL

N.T.S.



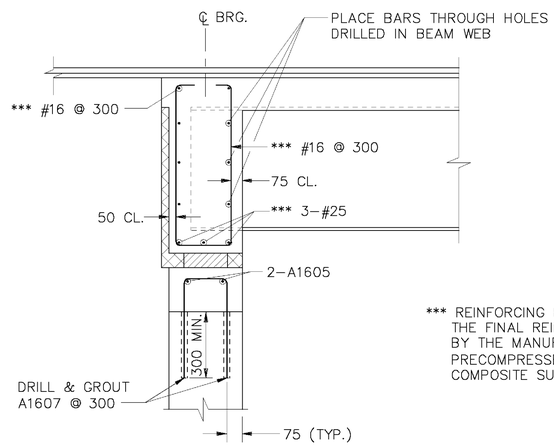
* SEE DRILL AND GROUT DETAIL THIS SHEET

TYPICAL ABUTMENT SECTION

SCALE: 1:40

0 1 2 3

SCALE IN METERS



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TYPICAL DECK END REINFORCING

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

▲ = CUT TO FIT IN FIELD
E = EPOXY COATED
EE = EACH END
EF = EACH FACE
FF = FAR FACE
NF = NEAR FACE

REVISIONS

REVISED WINGWALL 2.

McFarland Johnson

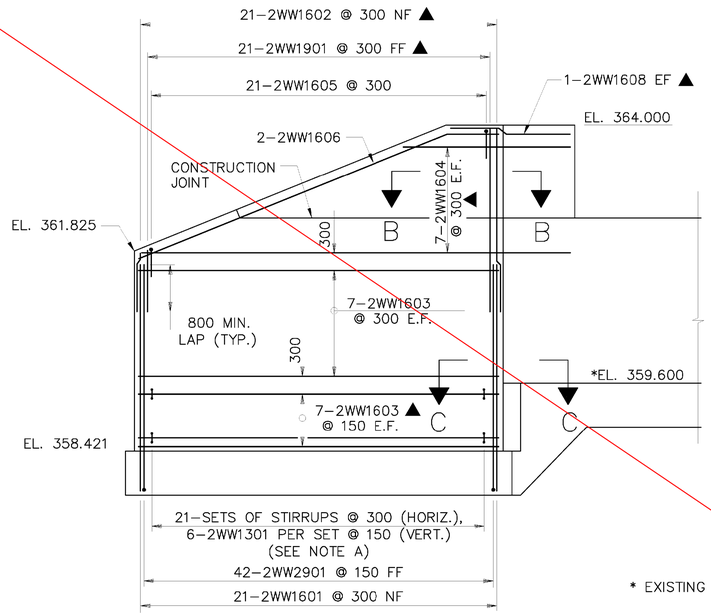
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

ABUTMENT REINFORCING

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 20R of 26

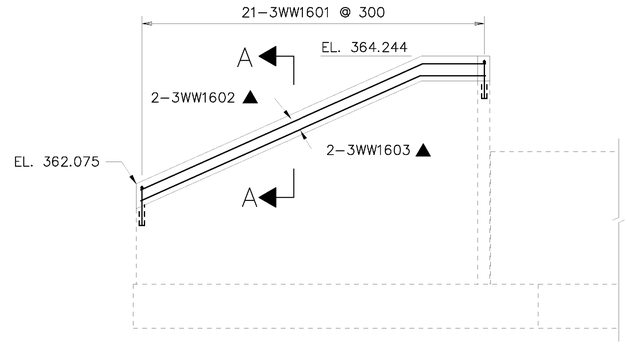


WINGWALL 2 ELEVATION

SCALE: 1:50

0 1 2 3

SCALE IN METERS

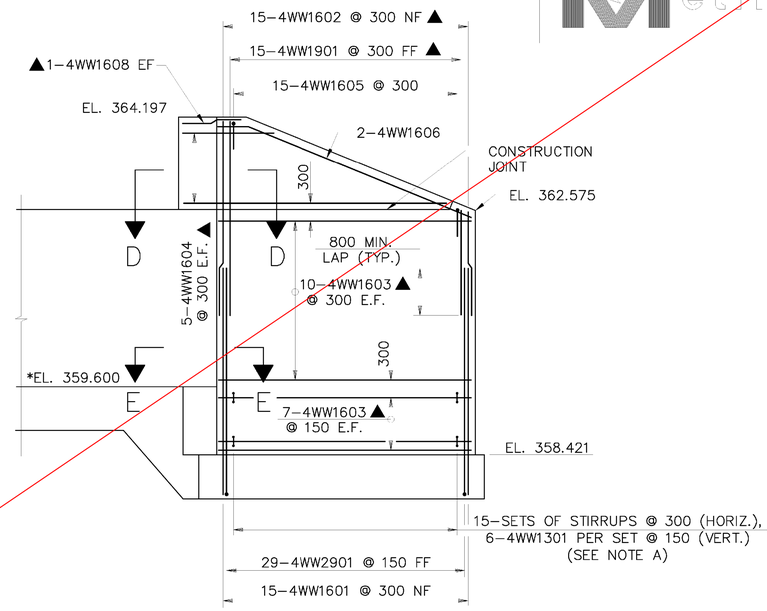


WINGWALL 3 ELEVATION

SCALE: 1:50

0 1 2 3

SCALE IN METERS



WINGWALL 4 ELEVATION

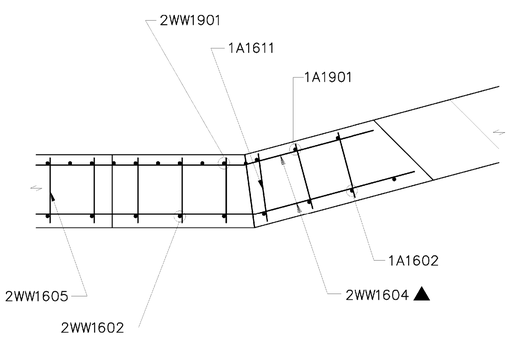
SCALE: 1:50

0 1 2 3

SCALE IN METERS

* EXISTING ELEVATIONS ARE APPROXIMATE

NOTE A:
BEGIN VERTICAL STIRRUP SPACING AT FIRST HORIZONATAL REINFORCING BAR ABOVE SHEAR KEY AT BASE OF STEM.

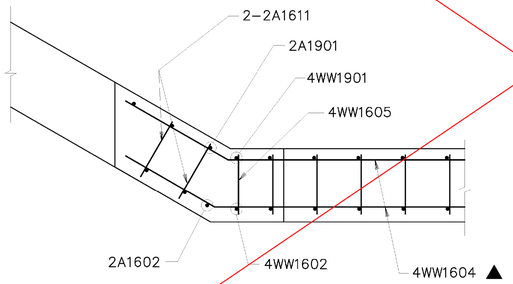


SECTION B–B

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

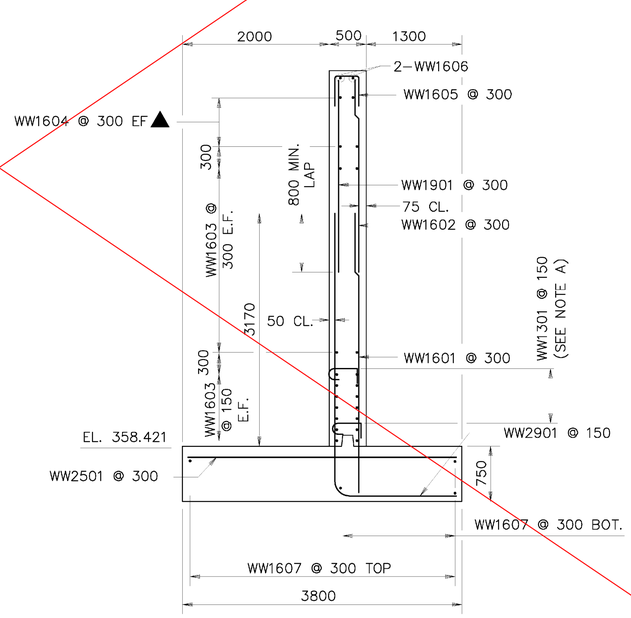


SECTION D–D

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

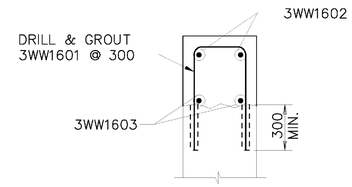


TYPICAL WINGWALL SECTION

SCALE: 1:40

0 1 2 3

SCALE IN METERS

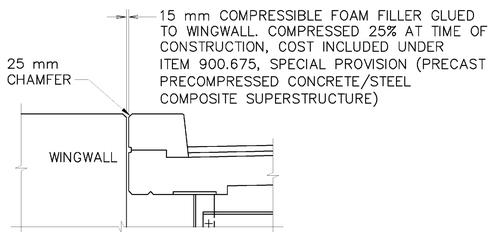


SECTION A–A

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS



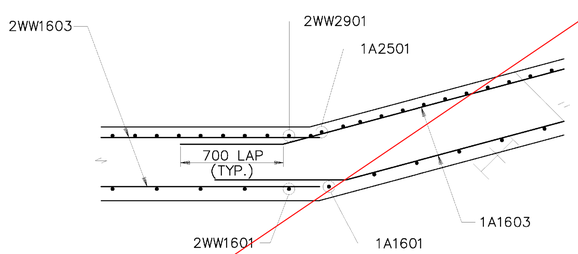
TYPICAL JOINT DETAIL BETWEEN DECK AND WINGWALL

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

SEE REVISED SHEET

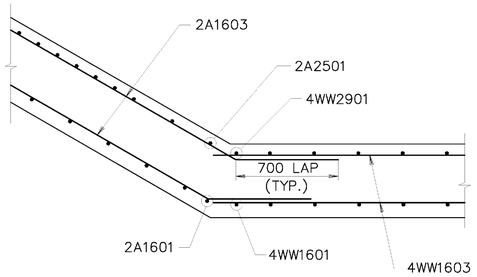


SECTION C–C

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS



SECTION E–E

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

▲ = CUT TO FIT IN FIELD
E = EPOXY COATED
EE = EACH END
EF = EACH FACE
FF = FAR FACE
NF = NEAR FACE

McFarland Johnson

FOREST SERVICE U S DEPARTMENT OF AGRIC. U.S. DEPT

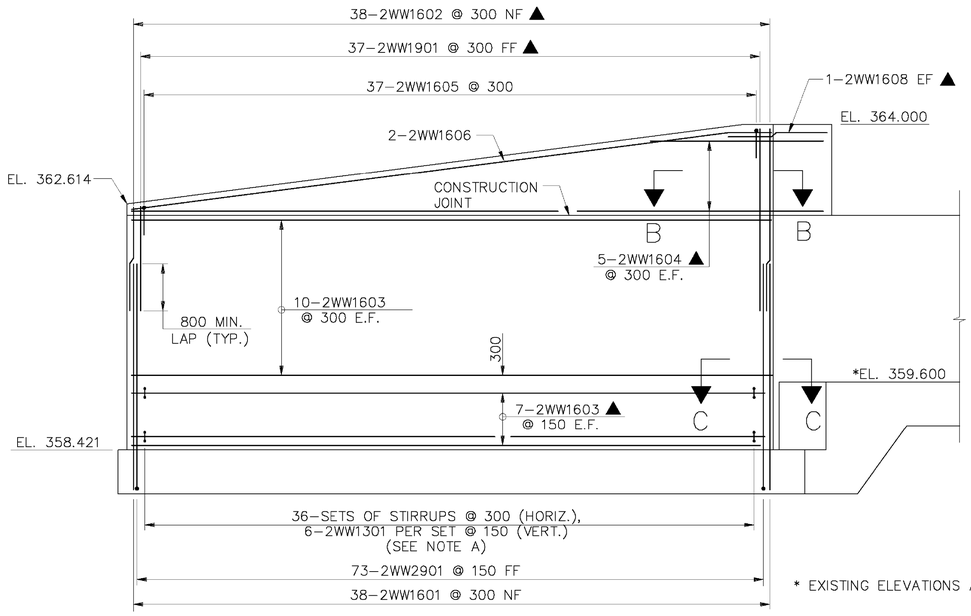
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	RIPTON	Bridge No.	BRIDGE #17
Highway No.	TH 18	Log Sta. / Surv. Sta.	

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

WINGWALL DETAILS

Designed By	Y I LIU	Drawn By	W J GAYNOR
Checked By	B P GUZAS	Date	8/09
Bridge Design Supervisor	R L JOY	Date	10/09
PROJECT	RIPTON	PROJECT NO.	FH 010–1(2)
I.G.C. Info.			
Bridge Sheet No.		Sheet	21 of 26



WINGWALL 2 ELEVATION

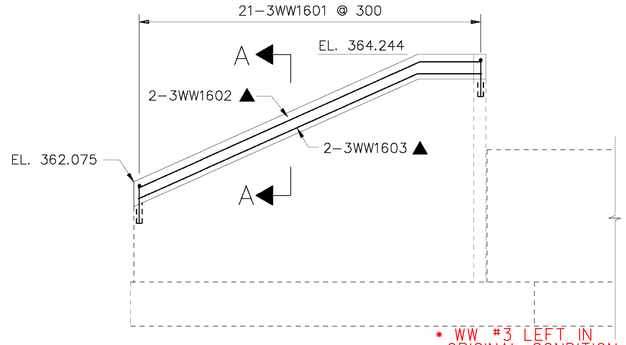
SCALE: 1:50

0 1 2 3

SCALE IN METERS

* EXISTING ELEVATIONS ARE APPROXIMATE

NOTE A:
BEGIN VERTICAL STIRRUP SPACING AT FIRST HORIZONATAL REINFORCING BAR ABOVE SHEAR KEY AT BASE OF STEM.



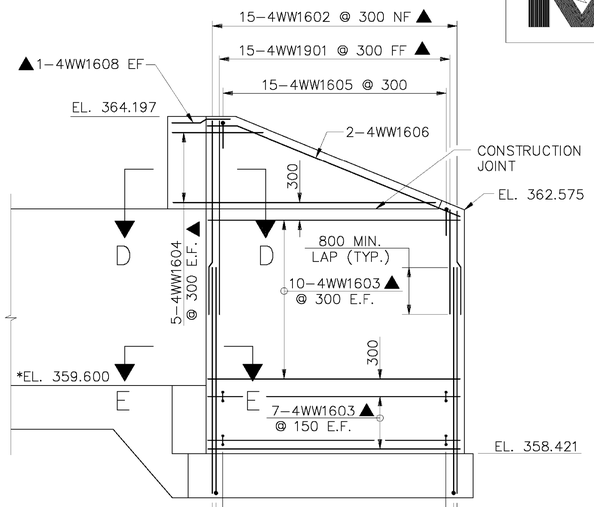
* WW #3 LEFT IN ORIGINAL CONDITION NOT CAPPED AS SHOWN ABOVE

WINGWALL 3 ELEVATION

SCALE: 1:50

0 1 2 3

SCALE IN METERS



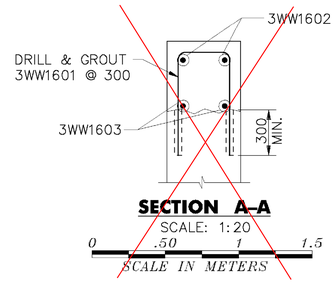
~~**WINGWALL 4 ELEVATION**~~

SCALE: 1:50

0 1 2 3

SCALE IN METERS

* SEE REVISED ABUT #2 PLANS ATTACHED BY S. FARNSWORTH

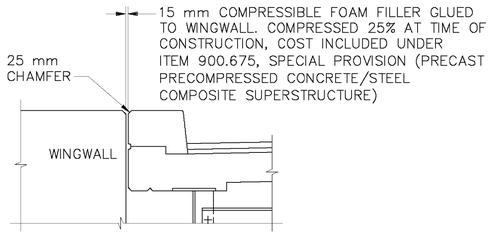


SECTION A–A

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

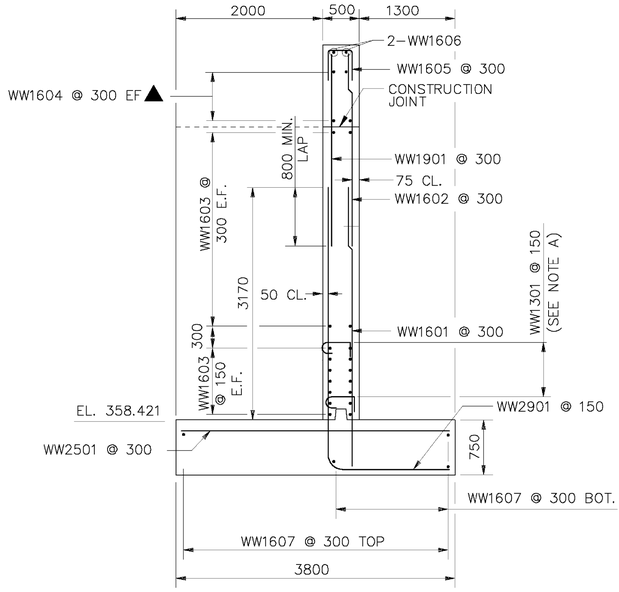


TYPICAL JOINT DETAIL BETWEEN DECK AND WINGWALL

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

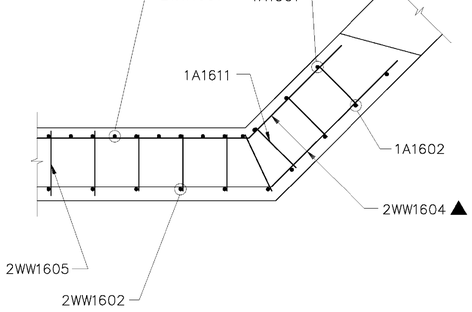


TYPICAL WINGWALL SECTION

SCALE: 1:40

0 1 2 3

SCALE IN METERS

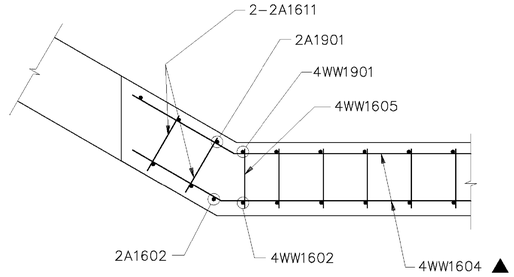


SECTION B–B

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

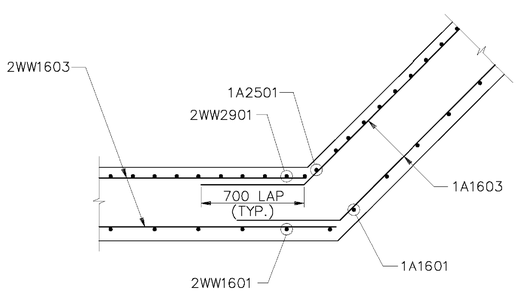


SECTION D–D

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

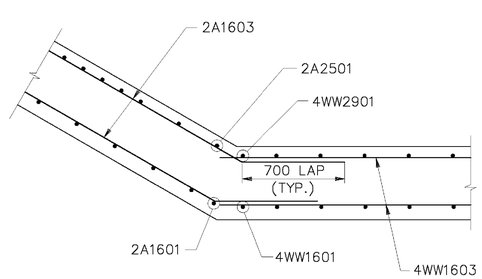


SECTION C–C

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS



SECTION E–E

SCALE: 1:20

0 .50 1 1.5

SCALE IN METERS

▲ = CUT TO FIT IN FIELD
E = EPOXY COATED
EE = EACH END
EF = EACH FACE
FF = FAR FACE
NF = NEAR FACE

REVISIONS

REVISED WINGWALL 2.

McFarland Johnson

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
	Log Sta.
Highway No. TH 18	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

WINGWALL DETAILS

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 21R of 26

ABUTMENT 1

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
4	84	13	700	1A1301	21	150	350	200						105			
6	15	16	3405	1A1601	STR	*											
7	4	16	2400	1A1602	STR												
8	26	16	4855	1A1603	19	▲		4155	700				181		676		
9	20	16	4960	1A1604	STR	▲											
10	2	16	9225	1A1605	STR												
11	10	16	750	1A1606	19			450	300				95		285		
12	18	16	1160	1A1607	17		405	350	405								
13	13	16	2530	1A1608	17		1780	750									
14	13	16	3025	1A1609	19			1975	1050				742		742		
15	5	16	3680	1A1610	STR												
16	14	16	1160	1A1611	17		405	350	405								
18	3	19	2400	1A1901	STR												
20	26	25	5080	1A2501	17		3405	1675									
21	15	25	3650	1A2502	STR	▲											
22	1	25	5675	1A2503	28		750	4175	750				650	700	375	375	
23	1	25	5150	1A2504	28		750	3650	750				744	744	98	98	

WINGWALL 2

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
29	126	13	700	2WW1301	21	150	350	200						105			
31	21	16	3850	2WW1601	STR												
32	21	16	3105	2WW1602	STR	▲											
33	28	16	6125	2WW1603	STR	▲											
34	14	16	7260	2WW1604	19	▲		6125	1135				294		1099		
35	21	16	1160	2WW1605	17		405	350	405								
36	2	16	6505	2WW1606	19			850	5655				2123		5243		
37	20	16	6700	2WW1607	STR	▲											
38	2	16	1985	2WW1608	19	▲		850	1135				294		1096		
40	22	19	3105	2WW1901	STR	*▲											
42	23	25	3650	2WW2501	STR												
44	42	29	5520	2WW2901	17		3845	1675									

ABUTMENT 2

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
103	72	13	700	2A1301	21	150	350	200						105			
105	12	16	3610	2A1601	STR												
106	3	16	2400	2A1602	STR												
107	26	16	3965	2A1603	19	▲		3265	700				350		606		
108	20	16	3510	2A1604	STR	▲											
109	2	16	8850	2A1605	STR												
110	10	16	750	2A1606	19			450	300				95		285		
111	19	16	1160	2A1607	17		405	350	405								
112	13	16	2530	2A1608	17		1780	750									
113	13	16	3025	2A1609	19			1975	1050								
114	5	16	3780	2A1610	STR												
115	10	16	1160	2A1611	17		405	350	405								
117	3	19	2400	2A1901	STR												
119	21	25	5285	2A2501	17		3610	1675									
120	13	25	3650	2A2502	STR	*▲											
121	1	25	5230	2A2503	22		750	3730	750				724	724	194	194	

WINGWALL 3

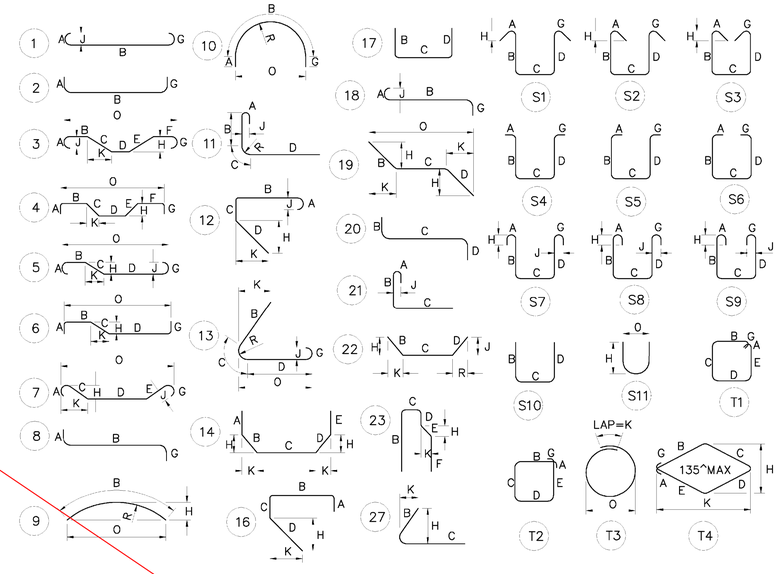
ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
124	21	16	1650	3WW1601	17			650	350	650							
125	2	16	6225	3WW1602	19	▲		975	5250				2144		4791		
126	2	16	6220	3WW1603	19	▲		1015	5205				2127		4753		

WINGWALL 4

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
143	90	13	700	4WW1301	21	150	350	200						105			
145	15	16	3850	4WW1601	STR												
146	15	16	3305	4WW1602	STR	▲											
147	34	16	4305	4WW1603	STR												
148	10	16	4680	4WW1604	19	▲		3880	800				400		693		
149	15	16	1160	4WW1605	17		405	350	405								
150	2	16	4610	4WW1606	19			460	4150				1570		3843		
151	20	16	4820	4WW1607	STR												
152	2	16	1260	4WW1608	19	▲		460	800				400		693		
154	15	19	3305	4WW1901	STR	▲											
160	17	25	3650	4WW2501	STR												
168	29	29	5520	4WW2901	17		3845	1675									

NOTES

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING 55M SHALL CONFORM TO THE REQUIREMENT OF THE "SPECIFICATIONS FOR DEFORMED BILLET–STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31M (ASTM A 615M–S1). ALL BARS SHALL BE GRADE 400, 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 PRACTICE 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 ARE TO BE SHOWN ONLY WHEN NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS ARE TO BE SHOWN ONLY WHEN NECCESSARY 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 PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



SEE REVISED SHEET

BAR SIZE DESIGNATION	NOMINAL MASS kg/m	NOMINAL DIMENSIONS ROUND SECTION DIAMETER mm	CROSS SECTIONAL AREA mm²	PERIMETER mm
10	0.560	9.5	71	29.84
13	0.994	12.7	129	39.90
16	1.552	15.9	199	49.95
19	2.235	19.1	284	60.00
22	3.042	22.2	387	69.74
25	3.973	25.4	510	79.80
29	5.060	28.7	645	90.16
32	6.404	32.3	819	101.47
36	7.907	35.8	1006	112.47
43	11.380	43.0	1452	135.09
57	20.240	57.3	2581	180.01

McFarland Johnson

FOREST SERVICE US DEPARTMENT OF AGRIC. USDA

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta.
	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

REINFORCING STEEL SCHEDULE

Designed By W J GAYNOR	Drawn By W J GAYNOR
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 22 of 26

ABUTMENT 1

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
4	84	13	700	1A1301	21	150	350	200						105			
6	15	16	3405	1A1601	STR	*											
7	4	16	2400	1A1602	STR												
8	26	16	4855	1A1603	19	▲		4155	700				181		676		
9	20	16	4960	1A1604	STR	▲											
10	2	16	9225	1A1605	STR												
11	10	16	750	1A1606	19			450	300				95		285		
12	18	16	1160	1A1607	17		405	350	405								
13	13	16	2530	1A1608	17		1780	750									
14	13	16	3025	1A1609	19			1975	1050				742		742		
15	5	16	3680	1A1610	STR												
16	14	16	1160	1A1611	17		405	350	405								
17																	
18	3	19	2400	1A1901	STR												
19																	
20	26	25	5080	1A2501	17		3405	1675									
21	15	25	3650	1A2502	STR	▲											
22	1	25	5675	1A2503	28		750	4175	750				650	650	375	375	
23	1	25	5150	1A2504	28		750	3650	750				744	744	98	98	

WINGWALL 2

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
29	216	13	700	2WW1301	21	150	350	200						105			
31	38	16	3850	2WW1601	STR												
32	38	16	3135	2WW1602	STR	▲											
33	34	16	10915	2WW1603	STR	▲											
34	10	16	12115	2WW1604	19	▲		10890	1225				866		866		
35	37	16	1160	2WW1605	17		405	350	405								
36	2	16	11000	2WW1606	19			10515	485				62		481		
37	20	16	11800	2WW1607	STR	▲											
38	2	16	1685	2WW1608	19	▲		1225	460				325		325		
39	2	16	1765	2WW1609	19			1155	610				431		431		
40																	
41	38	19	3135	2WW1901	STR	*▲											
42																	
43	40	25	3650	2WW2501	STR	▲											
44	3	25	2475	2WW2502	STR	▲											
45	1	25	4275	2WW2503	STR												
46																	
47	73	29	5520	2WW2901	17		3845	1675									

ABUTMENT 2

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
103	72	13	700	2A1301	21	150	350	200						105			
105	12	16	3610	2A1601	STR												
106	3	16	2400	2A1602	STR												
107	26	16	3965	2A1603	19	▲		3265	700				350		606		
108	20	16	3510	2A1604	STR	▲											
109	2	16	8850	2A1605	STR												
110	10	16	750	2A1606	19			450	300				95		285		
111	19	16	1160	2A1607	17		405	350	405								
112	13	16	2530	2A1608	17		1780	750									
113	13	16	3025	2A1609	19			1975	1050								
114	5	16	3780	2A1610	STR												
115	10	16	1160	2A1611	17		405	350	405								
116																	
117	3	19	2400	2A1901	STR												
118																	
119	21	25	5285	2A2501	17		3610	1675									
120	13	25	3650	2A2502	STR	*▲											
121	1	25	5230	2A2503	22		750	3730	750				724	724	194	194	

WINGWALL 3

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
124	21	16	1650	3WW1601	17			650	350	650							
125	2	16	6225	3WW1602	19	▲		975	5250				2144		4791		
126	2	16	6220	3WW1603	19	▲		1015	5205				2127		4753		
127																	
128																	
129																	
130																	
131																	
132																	
133																	
134																	
135																	
136																	
137																	
138																	
139																	
140																	
141																	
142																	

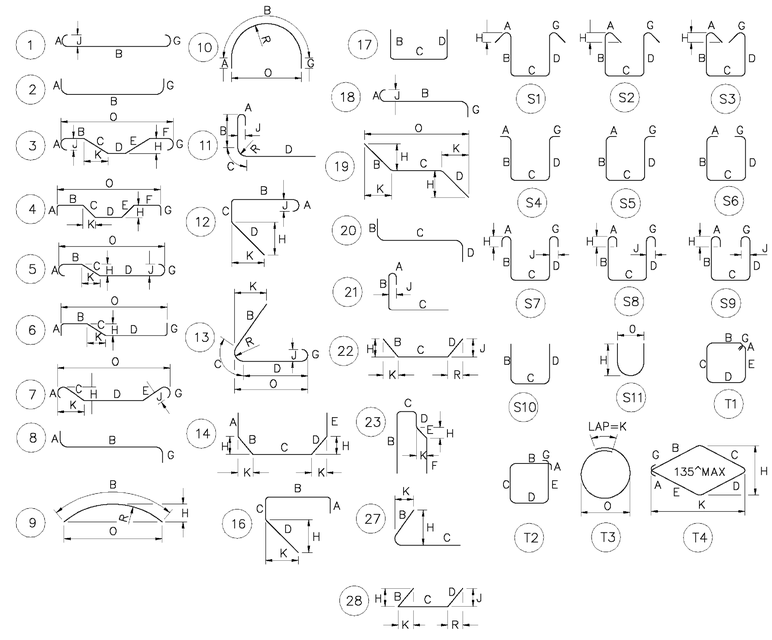
~~WINGWALL 4~~

* SEE REVISED REBAR SCHEDULE IN REVISED ABUT #2 PLANS ATTACHED BY S. FARNSWORTH

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
143	90	13	700	4WW1301	21	150	350	200						105			
145	15	16	3850	4WW1601	STR												
146	15	16	3305	4WW1602	STR	▲											
147	34	16	4305	4WW1603	STR												
148	10	16	4680	4WW1604	19	▲		3880	800				400		693		
149	15	16	1160	4WW1605	17		405	350	405								
150	2	16	4610	4WW1606	19			460	4150				1570		3843		
151	20	16	4820	4WW1607	STR												
152	2	16	1260	4WW1608	19	▲		460	800				400		693		
154	15	19	3305	4WW1901	STR	▲											
158																	
168	17	25	3650	4WW2501	STR												
167																	
168	29	29	5520	4WW2901	17		3845	1675									
163																	
164																	
165																	
166																	
167																	

NOTES

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING 55M SHALL CONFORM TO THE REQUIREMENT OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31M (ASTM A 615M-S1). ALL BARS SHALL BE GRADE 400, 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 PRACTICE 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 ARE TO BE SHOWN ONLY WHEN NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS ARE TO BE SHOWN ONLY WHEN NECCESSARY 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 PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



BAR SIZE DESIGNATION	NOMINAL MASS kg/m	NOMINAL DIMENSIONS ROUND SECTION DIAMETER mm	CROSS-SECTIONAL AREA mm²	PERIMETER mm
10	0.560	9.5	71	29.84
13	0.994	12.7	129	39.90
16	1.552	15.9	199	49.95
19	2.235	19.1	284	60.00
22	3.042	22.2	387	69.74
25	3.973	25.4	510	79.80
29	5.060	28.7	645	90.16
32	6.404	32.3	819	101.47
36	7.907	35.8	1006	112.47
43	11.380	43.0	1452	135.09
57	20.240	57.3	2581	180.01

REVISIONS

REVISED WINGWALL 2.

McFarland Johnson

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

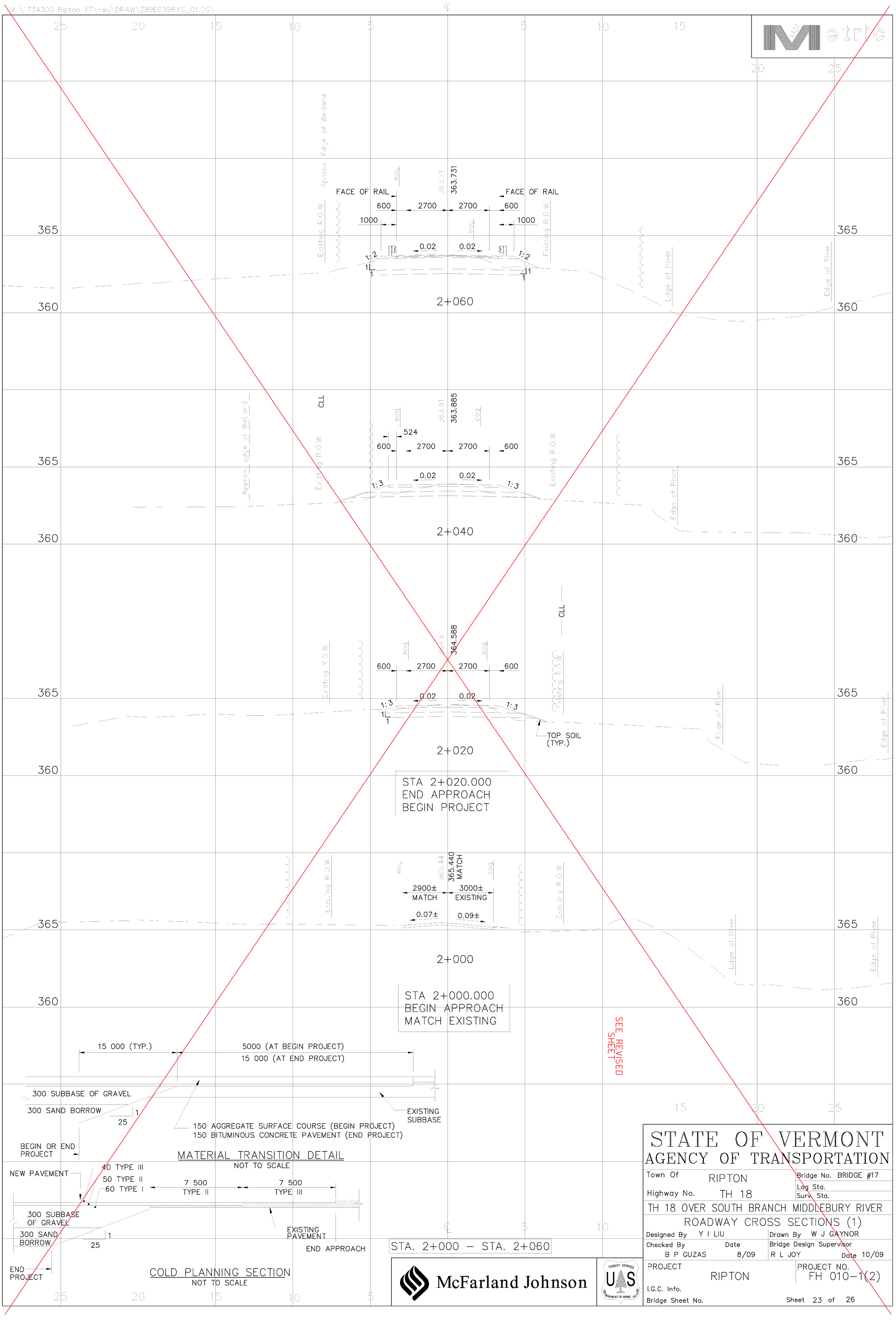
Town Of RIPTON	Bridge No. BRIDGE #17
	Log Sta.
Highway No. TH 18	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

REINFORCING STEEL SCHEDULE

Designed By W J GAYNOR	Drawn By W J GAYNOR
Checked By Y I LIU Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 22R of 26

M:\734300 Ripton 17\-wy\DRAW\Z89EC39RXS_01.DGN



STA. 2+000 – STA. 2+060

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STATE OF VERMONT
AGENCY OF TRANSPORTATION

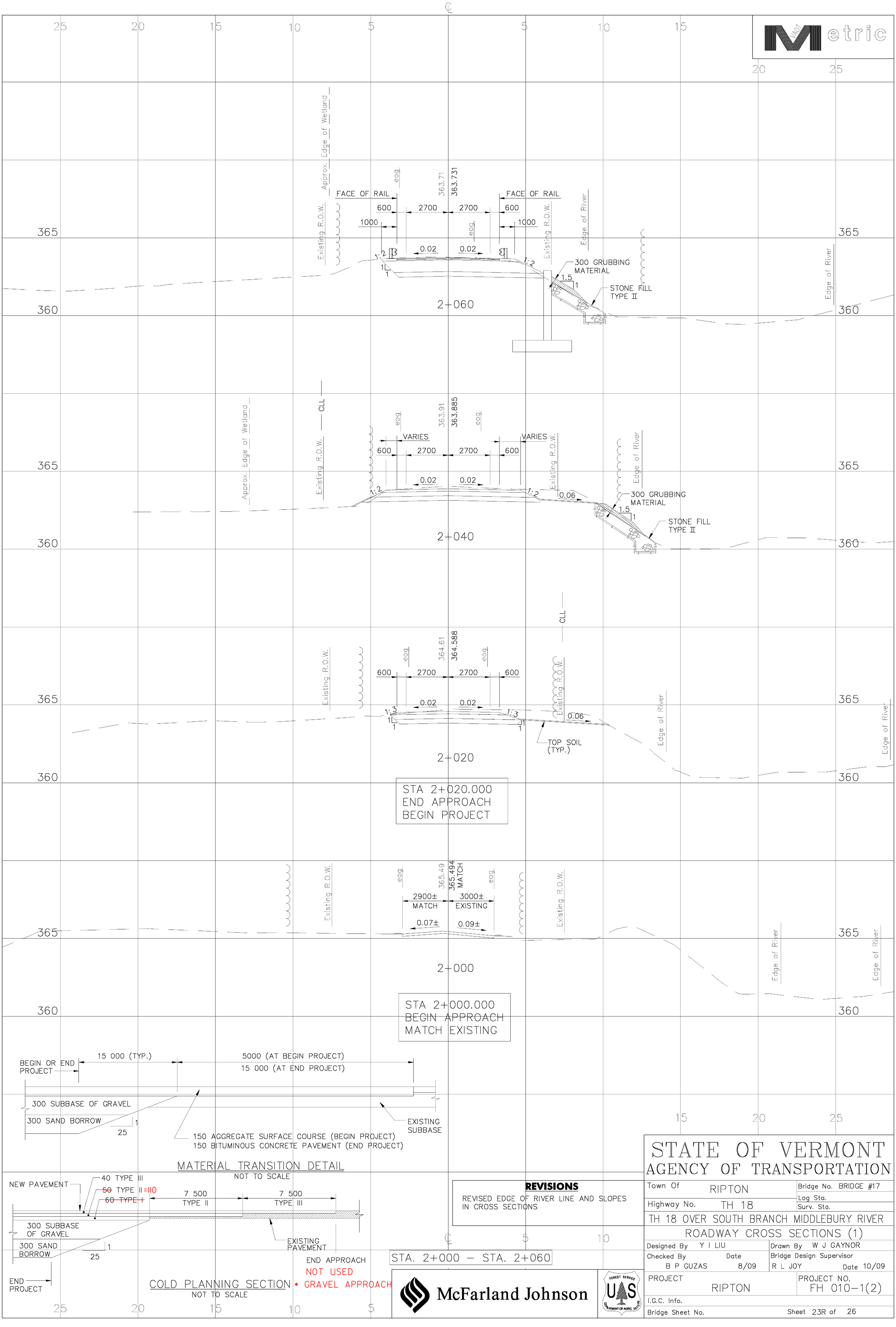
Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta.
	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

ROADWAY CROSS SECTIONS (1)

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 23 of 26

Metric



MATERIAL TRANSITION DETAIL
NOT TO SCALE

COLD PLANNING SECTION
NOT TO SCALE

REVISIONS

REVISED EDGE OF RIVER LINE AND SLOPES IN CROSS SECTIONS

℄ 5 10

STA. 2+000 – STA. 2+060

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STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta. / Surv. Sta.

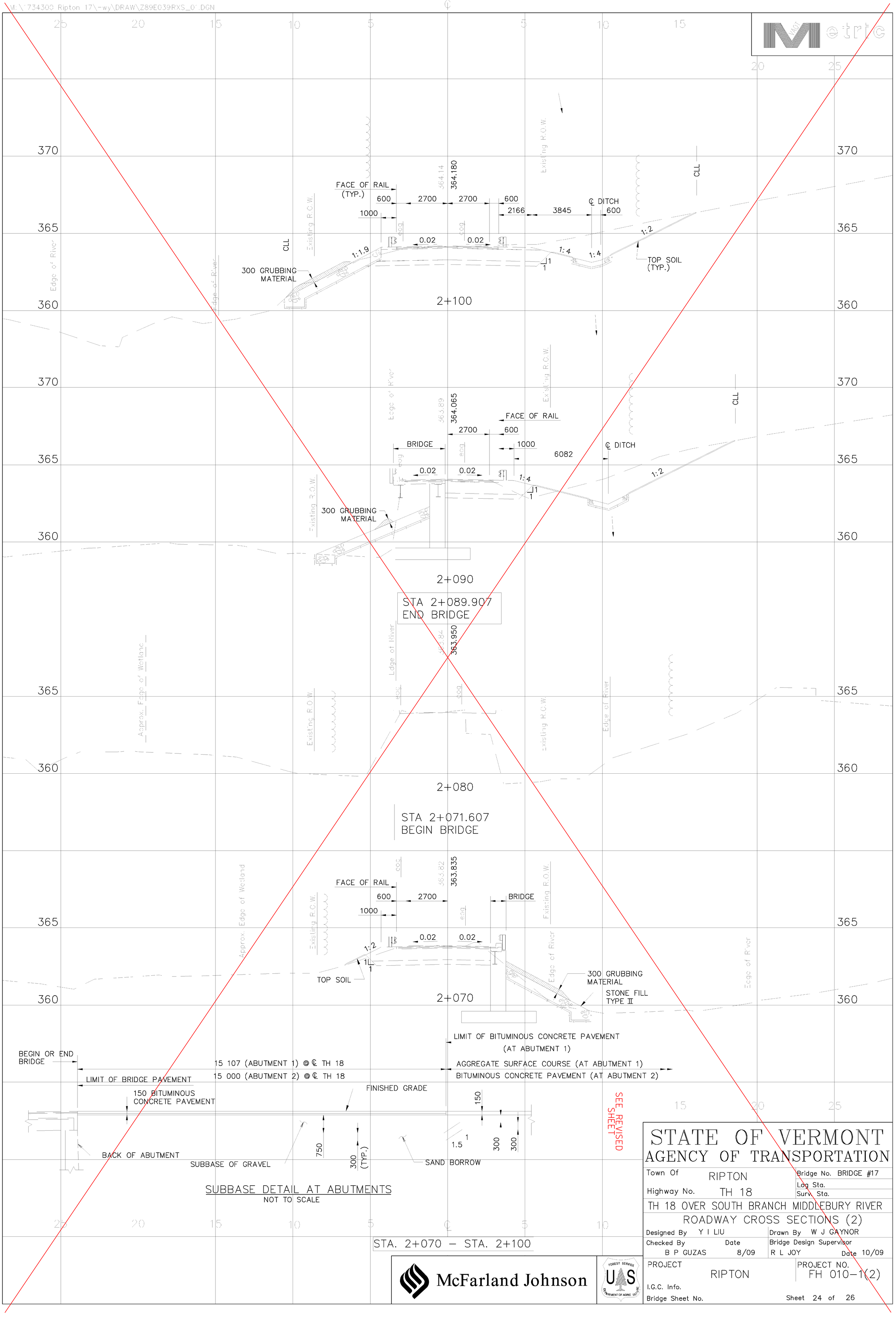
TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

ROADWAY CROSS SECTIONS (1)

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 23R of 26

M:\734300 Ripton 17\-wy\DRAW\Z89EC39RXS_0'.DGN

Metric



BEGIN OR END BRIDGE

15 107 (ABUTMENT 1) @ ℄ TH 18

15 000 (ABUTMENT 2) @ ℄ TH 18

LIMIT OF BRIDGE PAVEMENT

150 BITUMINOUS CONCRETE PAVEMENT

FINISHED GRADE

LIMIT OF BITUMINOUS CONCRETE PAVEMENT (AT ABUTMENT 1)

AGGREGATE SURFACE COURSE (AT ABUTMENT 1)

BITUMINOUS CONCRETE PAVEMENT (AT ABUTMENT 2)

BACK OF ABUTMENT

SUBBASE OF GRAVEL

750

300 (TYP.)

SAND BORROW

1.5 1

300

300

150

SEE REVISED SHEET

SUBBASE DETAIL AT ABUTMENTS

NOT TO SCALE

STA. 2+070 – STA. 2+100

McFarland Johnson

FOREST SERVICE U S DEPARTMENT OF AGRICULTURE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta.
	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

ROADWAY CROSS SECTIONS (2)

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 24 of 26

℄

25 20 15 10 5 5 10 15 20 25

370 365 360

Edge of River

CLL

Existing R.O.W.

FACE OF RAIL (TYP.)

600 2700 2700 600

1000

364.14 364.180

eog eog

0.02 0.02

1:1.9

300 GRUBBING MATERIAL

1:4 1:4 1:2

℄ DITCH 600

2166 3845

1 1

TOP SOIL (TYP.)

2+100

Edge of River 363.89 364.065

Existing R.O.W.

FACE OF RAIL

2700 600

BRIDGE 1000 6082

℄ DITCH

eog eog

0.02 0.02

1:4 1:2

1 1

300 GRUBBING MATERIAL

2+090

STA 2+089.907
END BRIDGE

Edge of River 363.84 363.950

Approx. Edge of Wetland

Existing R.O.W.

eog eog

2+080

STA 2+071.607
BEGIN BRIDGE

Approx. Edge of Wetland

Existing R.O.W. 363.82 363.835

FACE OF RAIL

600 2700

1000

BRIDGE

eog

0.02 0.02

1:2

1 1

Edge of River

300 GRUBBING MATERIAL

1.5 1

STONE FILL TYPE II

2+070

LIMIT OF BITUMINOUS CONCRETE PAVEMENT (AT ABUTMENT 1)

BEGIN OR END BRIDGE

15 107 (ABUTMENT 1) @ ℄ TH 18

15 000 (ABUTMENT 2) @ ℄ TH 18

AGGREGATE SURFACE COURSE (AT ABUTMENT 1)

BITUMINOUS CONCRETE PAVEMENT (AT ABUTMENT 2)

LIMIT OF BRIDGE PAVEMENT

150 BITUMINOUS CONCRETE PAVEMENT

FINISHED GRADE

150 300 300

1.5 1

BACK OF ABUTMENT

SUBBASE OF GRAVEL

750

300 (TYP.)

SAND BORROW

SUBBASE DETAIL AT ABUTMENTS
NOT TO SCALE

STA. 2+070 – STA. 2+100

REVISIONS

REVISED EDGE OF RIVER LINE AND SLOPES IN CROSS SECTIONS

McFarland Johnson

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STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
	Log Sta.
Highway No. TH 18	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

ROADWAY CROSS SECTIONS (2)

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010–1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 24R of 26

M:\734300 Ripton 17\-wy\DRAW\Z89EC39RXS_0'.DGN

℄

Metric

2+180

363.740 MATCH

3100± MATCH | 4200± EXISTING

0.08± | 0.08±

Existing R.O.W.

eog

STA 2+180.000
END APPROACH
MATCH EXISTING

2+160

363.830

1000 | 3300

FACE OF RAIL | 2500± MATCH | 2900± EXISTING

0.02 | 0.02 | 0.02

1:4 | 1:2 | 1:1

TOP SOIL (TYP.)

Edge of River

Existing R.O.W.

CLL

2+150

364.060

FACE OF RAIL

600 | 2700 | 2700 | 600

1000 | 1350 | 600

℄ DITCH

0.02 | 0.02

1:4 | 1:4 | 1:2 | 1:2 | 1:1

STA 2+150.000
END PROJECT
BEGIN APPROACH

2+140

364.249

FACE OF RAIL

600 | 2700 | 2700 | 600

1000 | 2530 | 600

℄ DITCH

0.02 | 0.02

1:4 | 1:4 | 1:2 | 1:2 | 1:1

2+120

364.367

FACE OF RAIL

600 | 2700 | 2700 | 600

1000 | 3885 | 600

℄ DITCH

0.02 | 0.02

1:2 | 1:2 | 1:4 | 1:4 | 1:2 | 1:1 | 1:1

TOP SOIL (TYP.)

STA. 2+120 – STA. 2+180

McFarland Johnson

FOREST SERVICE US DEPARTMENT OF AGRICULTURE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta.
	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

ROADWAY CROSS SECTIONS (3)

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 25 of 26

M:\734300 Ripton 17\-wy\DRAW\Z89EC39CXSC_01.DGN

℄

Metric

STA 4+035, LT
END GRUBBING MATERIAL
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
UNCLASSIFIED CHANNEL EXCAVATION

4+040

STA 4+024, LT
RESUME GRUBBING MATERIAL

4+030

STA 4+022, FAR LT
END GRUBBING MATERIAL
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
UNCLASSIFIED CHANNEL EXCAVATION

STA 4+018, FAR LT
RESUME GRUBBING MATERIAL

STA 4+010, FAR LT
STOP GRUBBING MATERIAL

STA 4+016, LT
STOP GRUBBING MATERIAL

4+020

STA 4+016, LT
END UNCLASSIFIED CHANNEL EXCAVATION

STA 4+006, LT
BEGIN GRUBBING MATERIAL
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
UNCLASSIFIED CHANNEL EXCAVATION

4+010

STA 4+002, FAR LT
BEGIN GRUBBING MATERIAL
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
UNCLASSIFIED CHANNEL EXCAVATION

4+000

℄ TH18 (PROPOSED)

Edge of River
EDGE OUTCROP
O H W
359.92
CLL
Existing R.O.W.
Existing R.O.W.
Edge of River
O H W
363.61
ecg
ecg
FACE OF EXISTING WINGWALL TO BE CAPPED
O H W
Edge of River
Existing R.O.W.
Edge of River
363.60
FACE OF PROPOSED ABUTMENT
O H W
FACE OF EXISTING WINGWALL TO BE REMOVED
O H W
Edge of River
Existing R.O.W.
O H W
363.96
TOP SOIL (TYP.)
300 GRUBBING MATERIAL (TYP.)
SEE REVISED SHEET
356.40
1-3
O H W
Edge of River
Edge of River
O H W

0 2 4 6 8 10
SCALE 1 : 100

O H W Denotes Ordinary High Water

McFarland Johnson

FOREST SERVICE US DEPARTMENT OF AGRIC. UC ZONE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta.
	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

CHANNEL CROSS SECTIONS

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 26 of 26

CXSC_01.DGN

℄

Metric

25 20 15 10 5 ℄ 5 10 15 20 25

370 365 360

O H W

Edge of River

LEDGE OUTCROP

359.92

Edge of River

O H W

CLL

Existing R.O.W.

STA 4+035, LT
END GRUBBING MATERIAL
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
UNCLASSIFIED CHANNEL EXCAVATION

4+040

Existing R.O.W.

Edge of River

363.61

℄ TH18 (PROPOSED)

eog

eog

O H W

Edge of River

FACE OF EXISTING
WINGWALL TO BE CAPPED

O H W

0.725

STA 4+024, LT
RESUME GRUBBING MATERIAL

4+030

STA 4+022, FAR LT
END GRUBBING MATERIAL
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
UNCLASSIFIED CHANNEL EXCAVATION

Edge of River

Edge of River

363.60

Existing R.O.W.

FACE OF EXISTING
WINGWALL TO BE CAPPED

O H W

0.861

FACE OF PROPOSED
ABUTMENT

O H W

0.546

STA 4+018, FAR LT
RESUME GRUBBING MATERIAL

STA 4+016, LT
STOP GRUBBING MATERIAL

4+020

STA 4+010, FAR LT
STOP GRUBBING MATERIAL

STA 4+016, LT
END UNCLASSIFIED CHANNEL EXCAVATION

Edge of River

Existing R.O.W.

Edge of River

O H W

363.96

3.596

TOP SOIL
(TYP.)

4.029

300 GRUBBING
MATERIAL (TYP.)

3.5567

FACE OF EXISTING
WINGWALL TO BE REMOVED

O H W

0.785

STA 4+006, LT
BEGIN GRUBBING MATERIAL
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
UNCLASSIFIED CHANNEL EXCAVATION

4+010

366.40

STA 4+002, FAR LT
BEGIN GRUBBING MATERIAL
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
UNCLASSIFIED CHANNEL EXCAVATION

Edge of River

O H W

Edge of River

O H W

15 20 25

360

0 2 4 6 8 10
SCALE 1 : 100

4+000

25 20 15 10 5 ℄ 5 10

O H W Denotes Ordinary High Water

REVISIONS

REVISED EDGE OF RIVER LINES AND SLOPES IN CROSS SECTIONS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of RIPTON	Bridge No. BRIDGE #17
Highway No. TH 18	Log Sta.
	Surv. Sta.

TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER

CHANNEL CROSS SECTIONS

Designed By Y I LIU	Drawn By W J GAYNOR
Checked By B P GUZAS Date 8/09	Bridge Design Supervisor R L JOY Date 10/09
PROJECT RIPTON	PROJECT NO. FH 010-1(2)
I.G.C. Info.	
Bridge Sheet No.	Sheet 26R of 26

McFarland Johnson

FOREST SERVICE U S DEPARTMENT OF AGRICULTURE

RECORD PLANS
R.E. JOSH HULETT

RIPTON FH 010-1(42)

REVISED ABUTMENT # 2 DETAILS

INCLUDING PRE-CAST

BURIED APPROACH SLAB

Sheet Index

1. Cover sheet
2. Revised Abutment # 2 Section
3. Revised Abutment #2 Plan
4. Revised Abutment # 2 Elev.
5. Precast Approach Slab Details
6. Reinforcing Steel Schedule
7. Score Mark Detail (English)

General Notes:

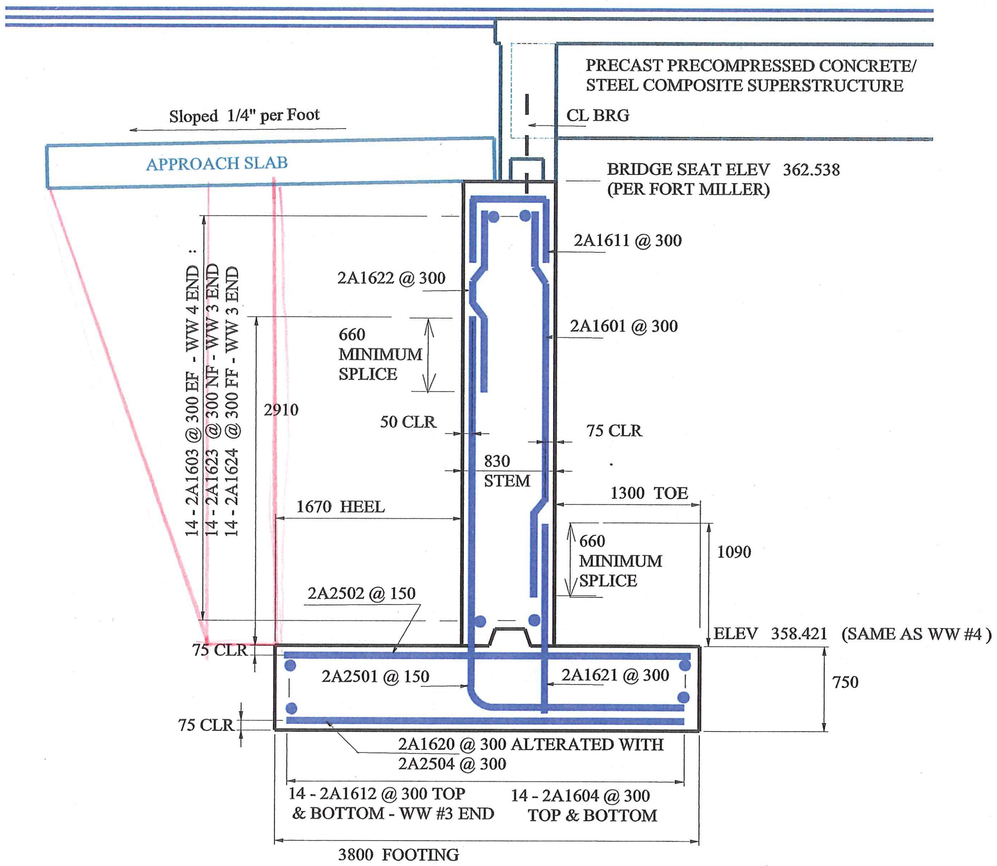
1. These plans call for the removal and replacement of existing Abutment # 2 between the Bridge Fascia with WW #3 and WW #4 while retaining existing WW #3.
2. "Concrete, Class C" shall be placed under existing WW #3 footing after dewatering.
3. The footing width of the new abutment # 2 is the same as the contract plans, but the stem width has been increased and footing lowered to the same elevation as WW #4.
4. The step in the abutment footing is approximate and will be located once the ledge is exposed. The reinforcing steel schedule includes bars long enough if an abutment step was not needed.
5. A pair of buried approach slabs, to be installed behind abutment #2, have been added and are detailed so they can be pre-cast and set after back fill to bridge seat to expedite construction using item 501.34 "Concrete High Performance Class B" and grade 400 rebars.

==========

By

Sherward Farnsworth
VTrans Structures Section
September 9, 2010

1 OF 7

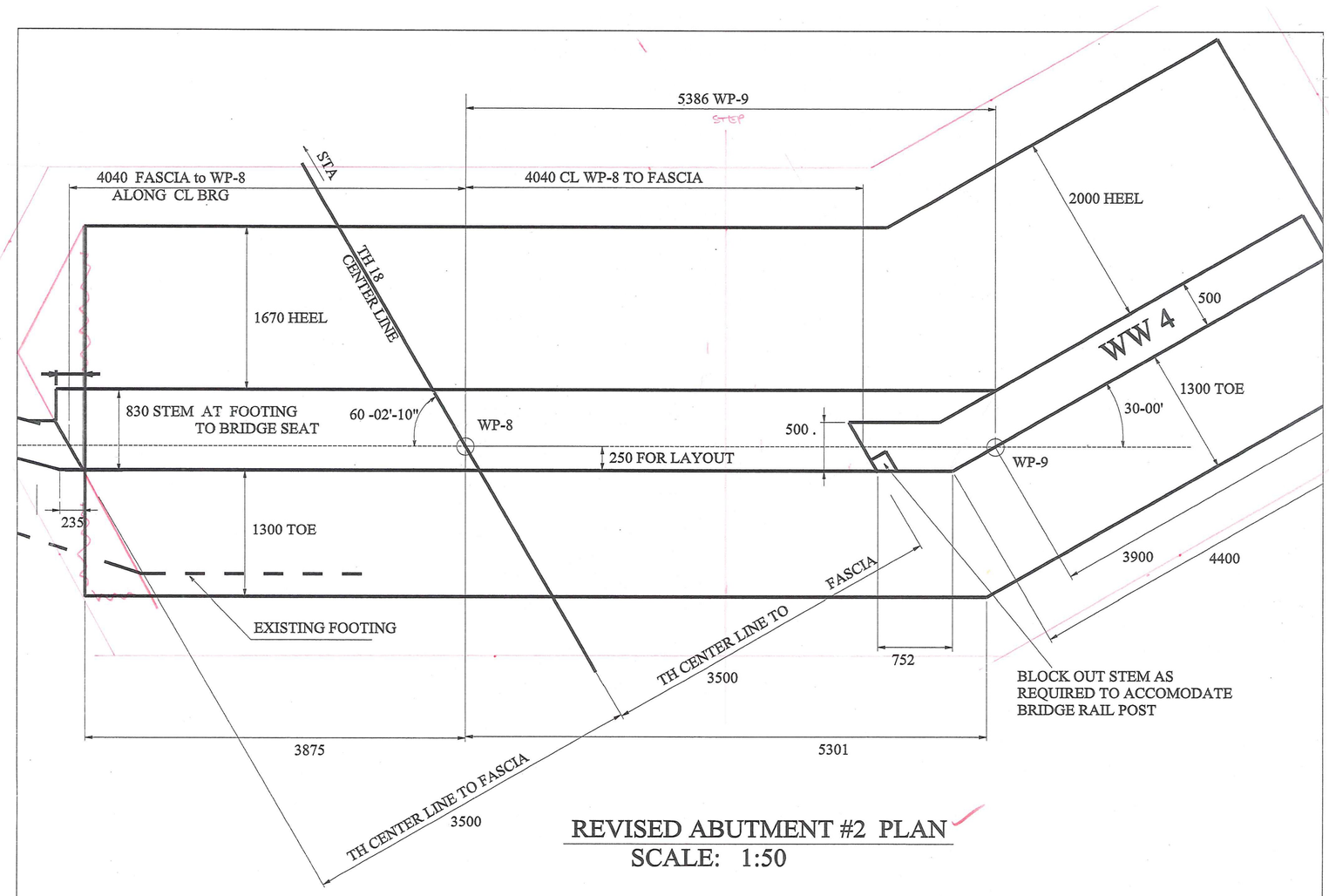


REVISED ABUTMENT #2 SECTION
SCALE: 1:50

NOTES:

1. REBAR MARK "A1606 @ 300" SHALL BE DRILLED AND GROUTED INTO WINGWALL #3 AT LEFT END OF ABUTMENT AS CALLED FOR IN OCT 2009 PLANS SHEET 20R OF 26.
2. AFTER THE SUPERSTRUCTURE IS SET THE TWO PRECAST APPROACH SLABS SHALL BE SET WITH THE 25 mm GAP AND THEN HOLES DRILLED INTO THE ABUTMENT STEM FOR THE 600 mm REBAR.

RIPTON FH 010-1(42)
VTRANS - SEPT. 9, 2010
BY S.FARNSWORTH



REVISED ABUTMENT #2 PLAN
SCALE: 1:50

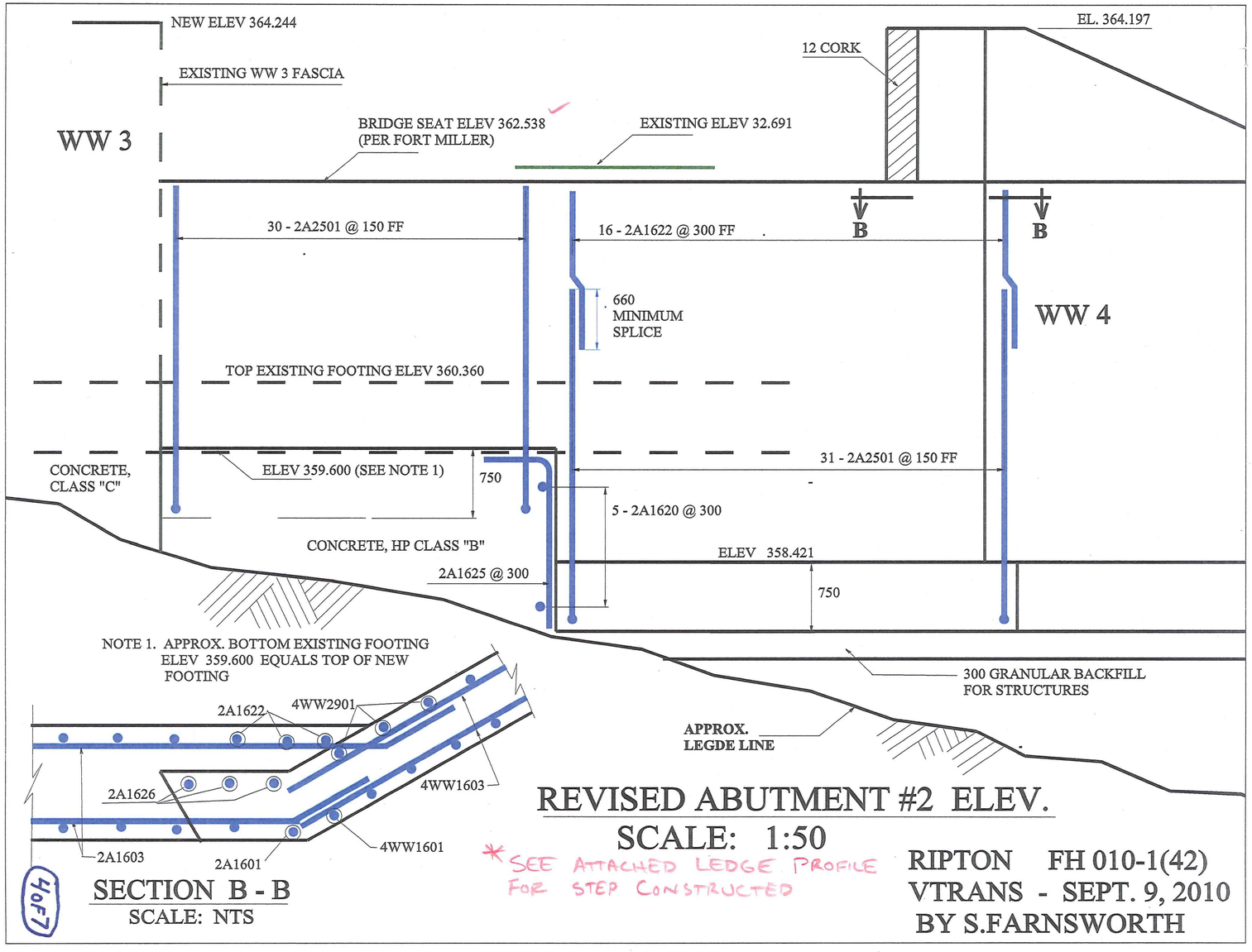
NOTES: 1. THE WORKING POINTS (WP) LAYOUT HAVE NOT CHANGED. WW #4 IS IN THE SAME LOACTION.

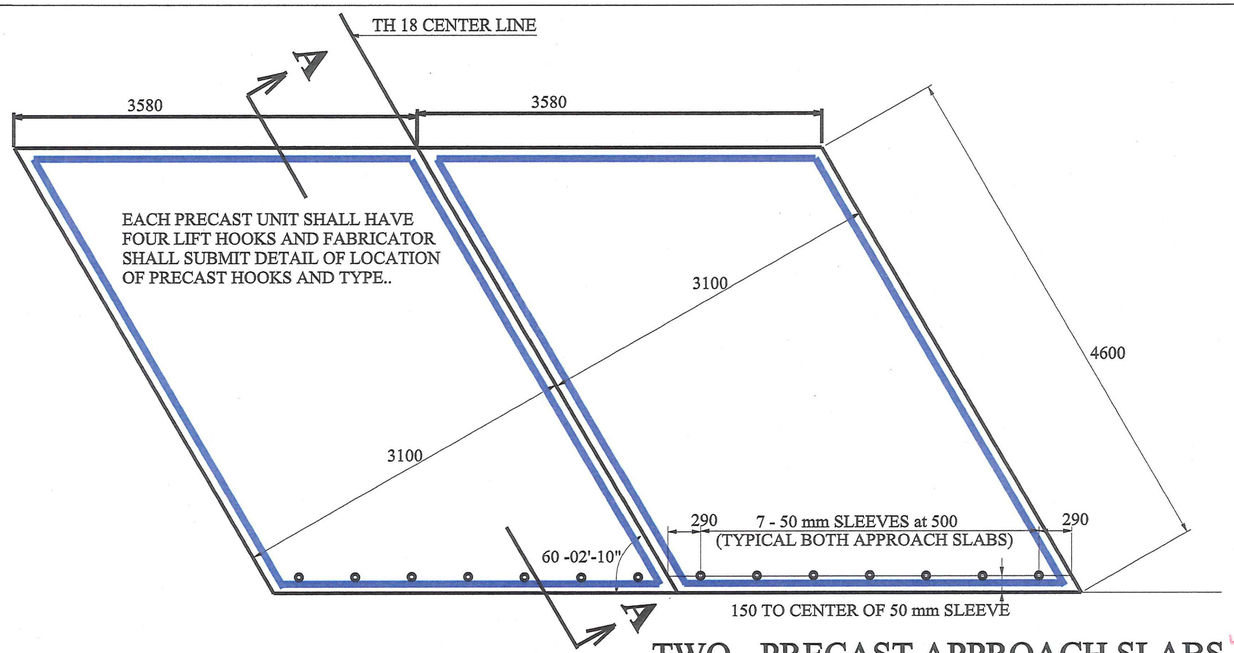
2. THERE HAVE BEEN NO CHANGES TO WINGWALL #4.

3. RETAIN WINGWALL #3. DEWATER AND PUMP CONCRETE, CLASS "C" UNDER FOOTING.

3 of 7

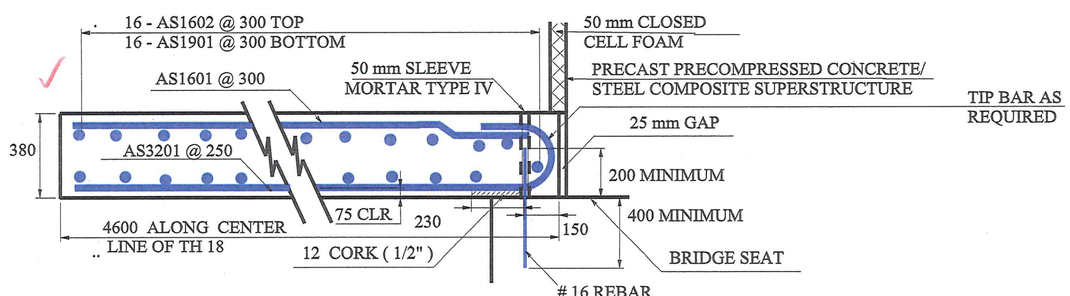
RIPTON FH 010-1(42)
VTRANS - SEPT. 9, 2010
BY S.FARNSWORTH


NEW ELEV 364.244
EXISTING WW 3 FASCIA
WW 3
BRIDGE SEAT ELEV 362.538
(PER FORT MILLER)
EXISTING ELEV 32.691
12 CORK
EL. 364.197
30 - 2A2501 @ 150 FF
16 - 2A1622 @ 300 FF
B
B
660
MINIMUM
SPLICE
WW 4
TOP EXISTING FOOTING ELEV 360.360
CONCRETE,
CLASS "C"
ELEV 359.600 (SEE NOTE 1)
750
31 - 2A2501 @ 150 FF
5 - 2A1620 @ 300
CONCRETE, HP CLASS "B"
ELEV 358.421
2A1625 @ 300
750
NOTE 1. APPROX. BOTTOM EXISTING FOOTING
ELEV 359.600 EQUALS TOP OF NEW
FOOTING
300 GRANULAR BACKFILL
FOR STRUCTURES
APPROX.
LEGDE LINE
2A1622
4WW2901
2A1626
4WW1603
2A1603
2A1601
4WW1601
SECTION B - B
SCALE: NTS
4 OF 7
REVISED ABUTMENT #2 ELEV.
SCALE: 1:50
*SEE ATTACHED LEDGE PROFILE
FOR STEP CONSTRUCTED
RIPTON FH 010-1(42)
VTRANS - SEPT. 9, 2010
BY S.FARNSWORTH



TWO - PRECAST APPROACH SLABS

SCALE: 1:50



SECTION A - A THROUGH APPROACH SLAB

SCALE: NTS

RIPTON FH 010-1(42)
VTRANS - SEPT. 8, 2010
BY S.FARNSWORTH

5 of 7

REINFORCING STEEL SCHEDULE

Project: RIPTON FH010-1(42) Sheet: 1 of 1

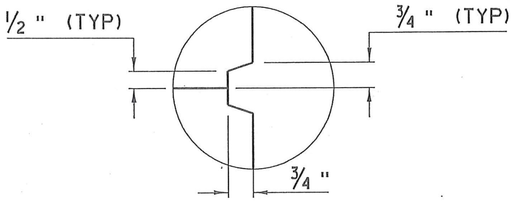
By: S. G. FARNSWORTH Date: 9/9/2010

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	G	H	J	K
1		ADDITIONAL REBARS FOR ABUTMENT # 2 PLUS APPROACH SLABS											
2													
3			APPROACH SLAB										
4	22	16	4450	AS1601	STR								
5	32	16	3430	AS1602	STR								
6	14	16	380	AS1603	STR								
7	32	19	3430	AS1901	STR								
8	26	32	4875	AS3201	1	325	4450	--					
9													
10			ABUTMENT # 2 - ADDITIONAL REBAR										
11	20	16	3610	2A1601	STR								
12	2	16	3965	2A1603	19			3265	700		350		606
13	31	16	1160	2A1611	17		405	350	405				
14	14	16	6500	2A1612	STR								
15	21	16	3650	2A1620	STR								
16	21	16	2000	2A1621	STR								
17	21	16	2000	2A1622	STR								
18	14	16	7000	2A1623	STR								
19	14	16	6500	2A1624	STR								
20	5	16	2500	2A1625	17		700	1800	--				
21	3	16	2300	2A1626	STR								
22													
23	40	25	5285	2A2501	17		3610	1675	--				
24	48	25	3650	2A2502	STR								
25	16	25	3650	2A2504	STR								
26													
27													
28													

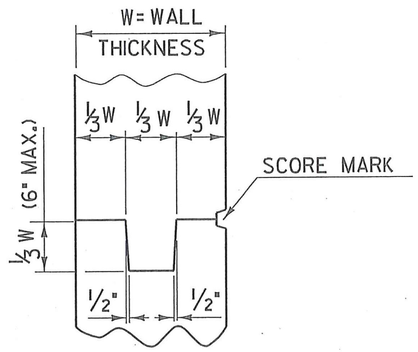
Estimated Weight = 4050 KG

6 OF 7

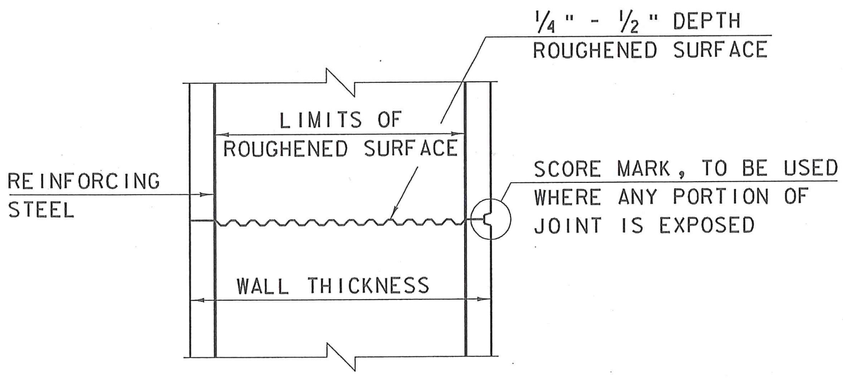
CONCRETE CONSTRUCTION JOINTS AND SCORE MARK DETAILS - NOT TO SCALE



SCORE MARK DETAIL
NOT TO SCALE



TYPICAL CONCRETE CONSTRUCTION JOINT



TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.

2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.

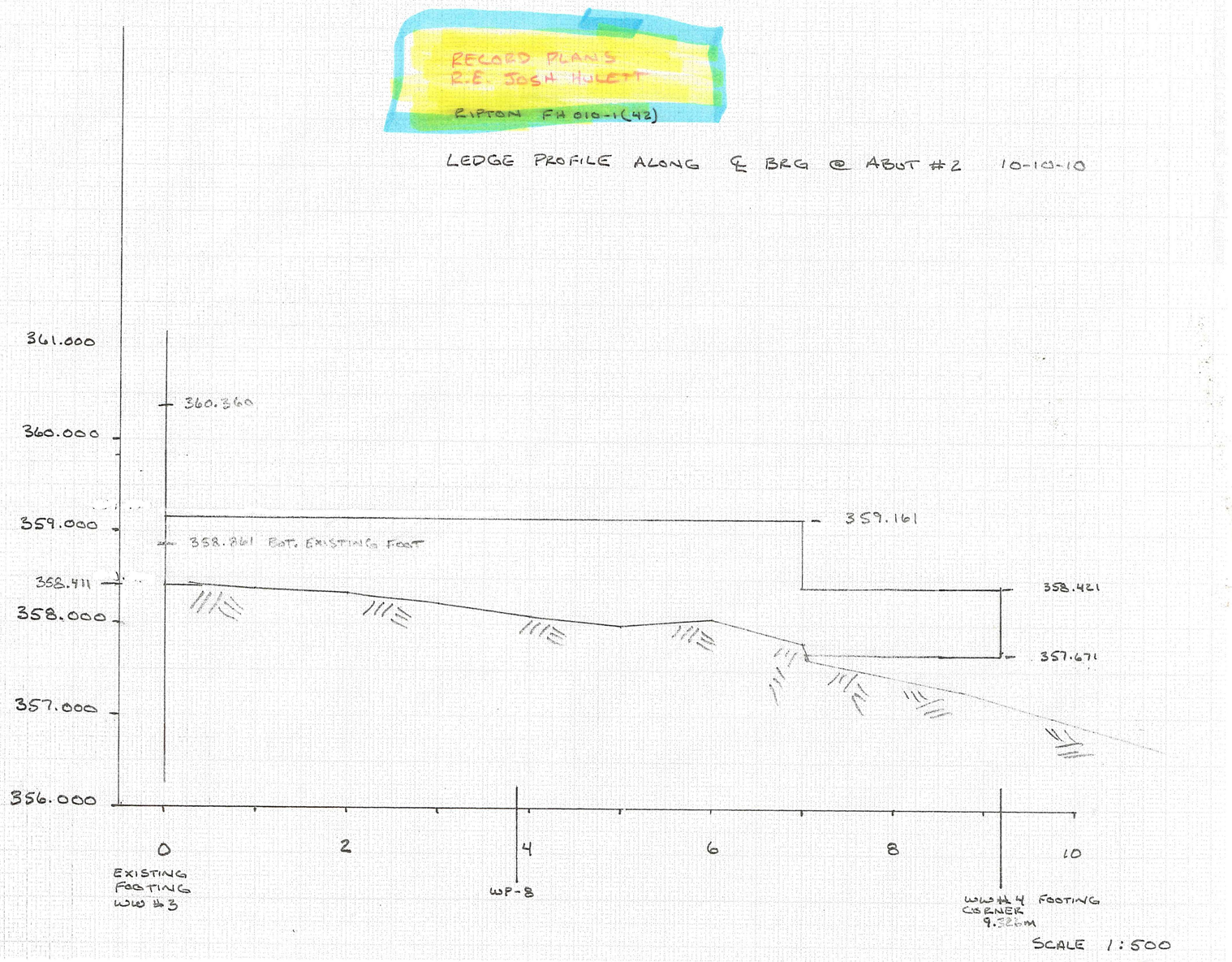
RIPTON FH 010-1(42)
Sherward Farnsworth
Sept. 9, 2010
- Score Mark Detail -

7 OF 7

RECORD PLANS
R.E. JOSH HULETT

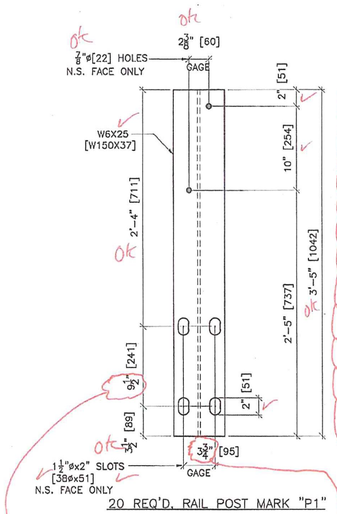
RIPTON FH 010-1(42)

LEDGE PROFILE ALONG ℄ BRG @ ABUT #2 10-10-10



SCALE 1:500

REVISED BRIDGE POST DETAIL



20 REQ'D. RAIL POST MARK "P1"

NOTE:
DIMENSIONS IN BRACKETS [ ] ARE METRIC (mm)

From: Andy White [mailto:andy@ccscraneservice.com]
Sent: Wednesday, March 16, 2011 3:28 PM
To: Mackintosh, Mark
Cc: Chris Chauvin; Hulett, Josh
Subject: FW: Ripton Post

Hi Mark,

Please find a revised shop drawing attached for the Ripton bridge rail posts. We have verified that the vertical spacing between anchors in the field is closer to 9 ½" than it is to 10". Also, the gage of anchors in the field varies somewhat and tends to be slightly larger than 3 5/8". I had the fabricator include both metric (SI) and US Customary units so that people can easily verify dimensions in the field with readily available tape measures, and so that structures can easily compare dimensions to the standard.

Thanks,
Andy

Andrew White, P.E.
CCS Constructors, LLC
138 Munson Ave.
Morrisville, VT 05661
802-888-7701 ext. 217
andy@ccscraneservice.com

RECEIVED
CK'D BY SGF OK'D BY SGF
MAR 18 2011
RESUBMIT ____ APPROVED AS NOTED
BY Shemund G. Fraser DATE 3-18-2010

APPROVED AS NOTED PER ANDY'S EMAIL TO MARK MACKINTOSH ON MARCH 16, 2011 @ 3:28 PM
COPY IN CLOUD ABOVE.
Shemund G Fraser
3-18-2011

BILL OF MATERIAL

SHP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	MAT'L
	P1	20		W 6 X 25	3'-5	A709, GR. 50W	
				[W150X37]	[1042]		

ERECTION BOLTS W/NAIL				WASHERS		FINISH
QUAN.	SIZE	LENGTH	TYPE	FLAT	BEV.	

FINISH:
MATERIAL: A709, GR. 50W
HOLES: AS NOTED
ELECTRODES:
WELDS:
SURFACE PREP:

NO	DATE	DESCRIPTION	BY
1	3/16/11	PER APPROVAL	JAC

REVISIONS

ARC
RUTLAND, VT.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2848 ~ FAX: (207) 265-4034

DRAWN	JAC	POST DETAILS	PROJECT NO.
DATE	3/3/11	RIPTON	11010-1(62)
CHECKED	MTD	CCS CONSTRUCTORS, LLC	DWG. NO. 1 OF 1
JOB #			

GENERAL SHOP NOTES

SPECIFICATIONS:

VERMONT AGENCY OF TRANSPORTATION (VAOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SEVENTEENTH EDITION, DATED 2002 AND ITS LATEST REVISIONS

ALL FABRICATION TO BE IN ACCORDANCE WITH SECTION 506 OF THE VAOT STANDARD SPECIFICATIONS

MATERIALS:

ALL STEEL SHALL BE OF DOMESTIC ORIGIN.

ALL STEEL SHALL BE AASHTO M 270M/M 270 OR 345W (ASTM A709 OR 50W) UNO IN SHOP BILL

PROVIDE TYPE C CERTIFICATION TO VAOT INSPECTOR PRIOR TO FABRICATION AS PER VAOT 506.07e & 700.2a

ALL MAIN LOAD CARRYING MEMBERS AND COMPONENTS OF ROLLED OR WELDED SECTIONS SUBJECT TO TENSILE STRESS SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH (CVN) IMPACT REQUIREMENTS SPECIFIED IN AASHTO M 270M/M 270 (ASTM A709), SUPPLEMENTARY REQUIREMENT TABLES FOR NONFRACTURE CRITICAL STEEL FOR ZONE 2. IMPACT TEST SAMPLING AND TESTING PROCEDURES SHALL BE IN ACCORDANCE WITH AASHTO T243 (ASTM A673)

MATERIAL ON THESE DWGS. SHALL BE FURNISHED UNDER ITEM NUMBER 900.675

PRIOR TO USE OF ALL BOLT, NUT, & WASHER ASSEMBLIES, TYPE(S) D, A, & C CERTIFICATIONS SHALL BE PROVIDED AND APPROVED PER 714.05 AND 700.2a OF THE VAOT STANDARD SPEC.

BOLTS: 7/8"ø AASHTO M164 (ASTM A325) TYPE 3
NUTS: 7/8"ø AASHTO M291 (ASTM A563) (DR - DH3)
WASHERS: 7/8"ø AASHTO M293 (ASTM F436) TYPE 3

SHEAR CONNECTORS: 7/8"ø x 8" AASHTO M169 (ASTM A108) GRADES 1015, 1018, OR 1020

MEET REQUIREMENTS OF 714.05

SHOP PROCEDURES:

MAINTAIN MATERIAL TRACEABILITY FOR ALL STEEL (VAOT 506.07(b))

ALL DIMENSIONS ARE GIVEN IN MILLIMETERS UNO
BOLTS, HOLES, AND SHEAR STUD UNITS ARE GIVEN IN INCHES

ALL RE-ENTRANT CUTS TO HAVE 3/4"(19.05mm) MIN. RADIUS ON MAIN MATL. 2"(50.8mm) MIN. RADIUS

REMOVE ANY BURRS, AND EASE SHARP EDGES

A 25mm CAMBER SHALL REMAIN IN THE BEAMS AFTER ALL DEAD LOADS HAVE BEEN APPLIED. THE CAMBER SHALL APPROXIMATE A SIMPLE CURVE

CONNECTION/STIFFENER PLATE LENGTHS ARE THEORETICAL, AND SHALL BE ADJUSTED TO SUIT MILL TOLERANCE AND FIT-UP TOLERANCE OF WIDE FLANGE SHAPES

PIECE MARKS: USE LOW STRESS STEEL STENCILS

WELDING:

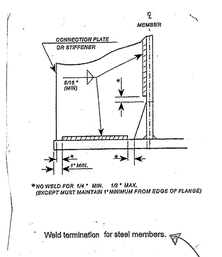
ALL WELDING IS TO CONFORM TO THE REQUIREMENTS OF AWS D1.5 (PER APPROVED WELDING PROCEDURES)

FINISH:

CLEANING:
ALL STEEL SHALL BE PREPARED FOR BLASTING BY REMOVING OIL, GREASE, DIRT, SALT OR OTHER CONTAMINANTS BY THE METHODS SPECIFIED IN SSPC-SP1, SOLVENT CLEANING.

BLAST CLEAN ALL STEEL TO SSPC-SP10 (COMMERCIAL) AFTER FABRICATION.

PAINTING:
THIS IS AN UNPAINTED BRIDGE.



*NO WELD FOR 1/4" MIN. 10" MAX. (EXCEPT MUST MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

Weld termination for steel members.

ADD VTRANS WELD TERMINATION DETAIL TO DRAWINGS

DIMENSIONAL TOLERANCES: (PER SECTION 3.5 OF AASHTO/AWS D1.5)

BEFORE WELDING, DIMENSIONS OF SHAPES AND PLATES SHALL CONFORM TO THE TOLERANCES DESCRIBED IN ASTM DESIGNATION AASHTO M160 (ASTM A6). AFTER WELDING, ALL MEMBERS SHALL CONFORM TO THE DIMENSIONS AND TOLERANCES OF SECTION 3.5 OF AWS D1.5, AWS D1.5 SECTION 7.4.5, AND FORT MILLER PREFABRICATED SUPERSTRUCTURE UNIT TOLERANCES.

ALL MEASUREMENTS SHALL BE COMPARED TO THE DIMENSIONS SHOWN ON THE APPROVED SHOP DRAWINGS.

ALL MEMBERS MAY VARY FROM THE DETAILED LENGTH BY +/- 1/4"(6.35mm) MAXIMUM, AS PER FORT MILLER PREFABRICATED SUPERSTRUCTURE UNIT TOLERANCES, UNLESS OTHERWISE APPROVED.

CAMBER TOLERANCE = SEE CAMBER DIAGRAMS ON GIRDERS

INTERMEDIATE CONNECTION PLATES AND STIFFENERS MAY VARY +/- 1/2"(12.7mm) FROM THE DETAILED LOCATION.
THE DEVIATION FROM STRAIGHTNESS OF INTERMEDIATE CONNECTION PLATES AND STIFFENERS SHALL NOT EXCEED 1/2"(12.7mm) IN THE LENGTH OF THE PLATE.
THE EDGE OF THE PLATE THAT IS WELDED TO THE WEB OF THE GIRDER SHALL BE STRAIGHT AND, WHEN FIT TO THE WEB, SHALL HAVE NO GAPS IN EXCESS OF 3/32"(2.38mm) BETWEEN THE WEB AND THE PLATE.
WHERE TIGHT FIT OF CONNECTION OR STIFFENER PLATES IS SPECIFIED, A GAP OF UP TO 1/16"(1.59mm) BETWEEN PLATE AND FLANGE IS ALLOWED.

INSPECTION:

SHOP INSPECTION BY: [ ]

☐ Reviewed
☐ Rejected
☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

QC - PLEASE PROVE

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performing all Work in a safe and satisfactory manner.

McFarland-Johnson, Inc.

Date 7/9/2010

By RMR

RETURN TO Sheard

NO.	DATE	BY	REVISION

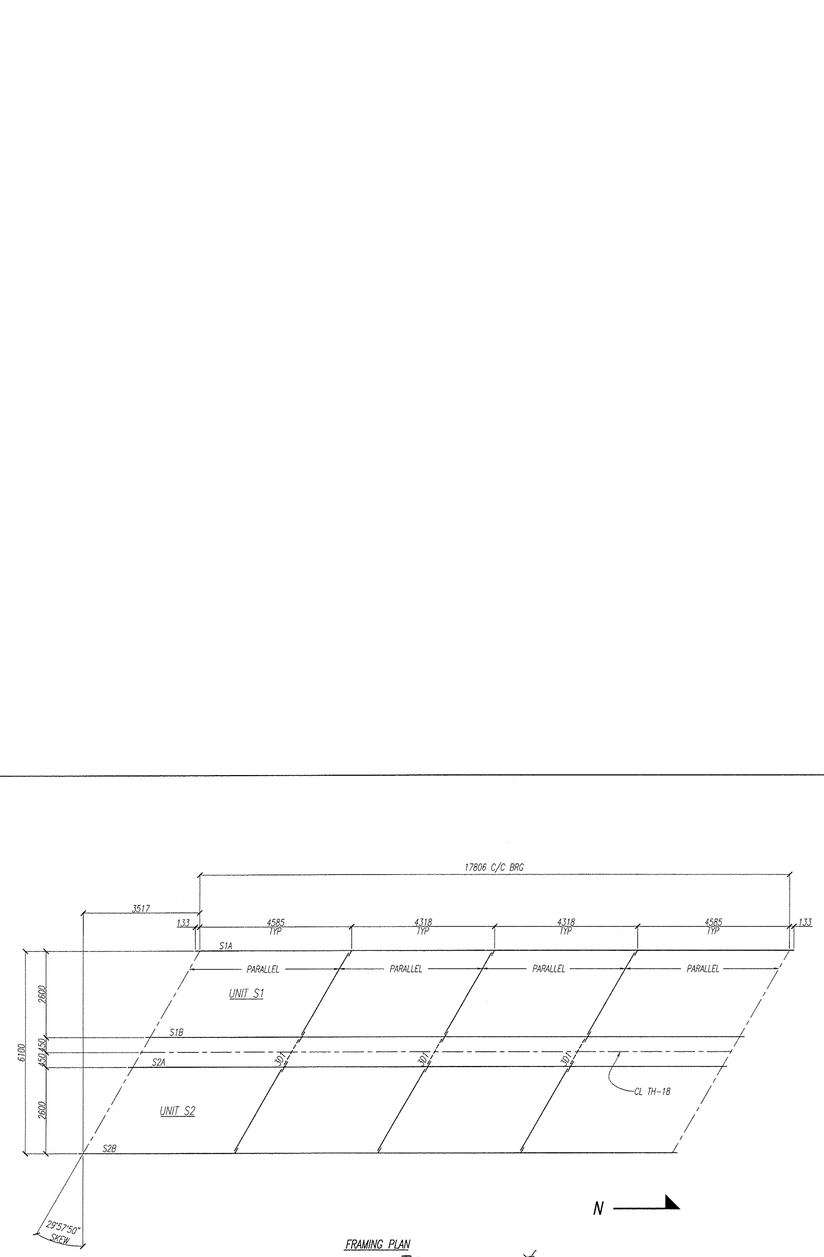
STS STEEL, INC.
ENGINEERS • FABRICATORS • ERECTORS
PH: (518) 370-3693 FAX: (518) 370-2698

DRAWING TITLE:
GENERAL NOTES

ARCHITECT: VERMONT AGENCY OF TRANSPORTATION
OWNER: THE FORT MILLER CO., INC.
PROJECT: REPLACE I.D. 69-03 TH 12 OVER SOUTH BRANCH AMMONOOSUC RIVER
TOWN OF RIPTON, STATE OF VERMONT

WELD:	AS NOTED	CHKD:	AS NOTED	DATE:	5-11-10
BOLTS:	AS NOTED	DRAFT:	MWH	JOB NO:	1060
MARK:	AS NOTED	DWG NO:	GT 5-11-10	DWG NO:	GN1

5/14/2010 10:10:08 AM



NOTES:

1) FOR GENERAL NOTES SEE DWG
2) ------ REPRESENTS FIELD-INSTALLED DIAPHRAGMS
3) ONE END OF ALL FIELD INSTALLED DIAPHS SHALL BE FIELD-DRILLED (13/16ø) USING CONN PL AS TEMPLATE
4) BOLT FIELD DIAPHS. W/ 3/4" ASTM F3125 GR A325 TC BOLTS, NUTS, WASHERS
5) INSTALL ALL DIAPHS LEVEL

FRAMING PLAN

☐ Reviewed
☐ Rejected
☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc.

Date 7/9/2010

By RMR

LIST OF FIELD BOLTS & CONNECTIONS (1 INCH = 25MM) NO SCALE

MK	NOM. Ø (IN.)	BOLT No.	BOLT LENGTH	PLY CONN.	# OF CONN.	DIP	PROJECTION OF BOLTS BEYOND NUT FACE (IN.)		REMARKS & SKETCH
1	24	56	2 1/2"	4	6	33.9	12.7	19.2	DIAPHS @ CONN PLs
2									
3									
4									

NO.	DATE	BY	REVISIONS

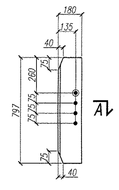
STS STEEL, INC.
ENGINEERS • FABRICATORS • ERECTORS
PH: (518) 370-2693 FAX: (518) 370-2698

DRAWING TITLE:
FRAMING PLAN

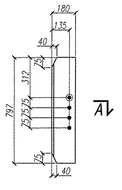
ARCHITECT: VERMONT AGENCY OF TRANSPORTATION
CUSTOMER: THE FORT MILLER CO., INC.
PROJECT: BRIDGE 15 (SFN 15 BR 53) 76 LB INCE SOUTH BRANCH MISSISQUOI RIVER
TOWN OF BRYDEN, STATE OF VERMONT

MADE:	SEE DWG	FINISH:	SEE DWG	DATE:	5-11-10
MAT'L:	SEE DWG	DRAWN:	TMWN	JOB NO.	1060
WELDS:	SEE DWG	CHK'D:	DT 6-17-10	DWG NO.	E1

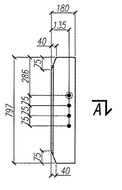
6/14/2010 10:09:04 AM



6 – PL12.7x180x797 – 1p1



6 – PL12.7x180x797 – 1p2



6 – PL12.7x180x797 – 1p3

SECTION A

NOTES:

1.) FOR GENERAL NOTES SEE DWG GN1

2.) LENGTH OF PLs **1p1-1p3** AND HOLE DIMENSIONS ARE THEORETICAL AND MAY NEED TO BE ADJUSTED TO SUIT ACTUAL BEAM DEPTH

3.) HARDWARE DEPT. CHECK ALL PARTS BEFORE RELEASING

4.) ● DENOTES REFERENCE HOLE

5.) LOCATE ON DWGS S1A/B – S2A/B

☐ Reviewed
☐ Rejected

☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc. _____

Date 7/9/2010

By BMR

NO.	DATE	BY	REVISION

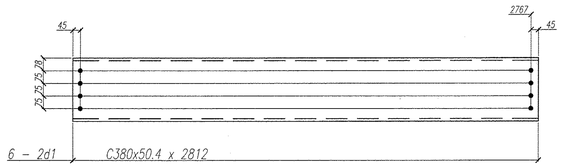
STS STEEL, INC.
ENGINEERS • FABRICATORS • ERECTORS
PH: (518) 370-2693 FAX: (518) 370-2698

DRAWING TITLE
HARDWARE

ARCHITECT :	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER :	THE FORT MILLER CO., INC.
PROJECT :	BRIDGE BF50A IN ISLE LA MOTTE TOWN OF BERLIN, STATE OF VERMONT

ENGR:	12/16TH EN	DWN:	STS DW	DATE:	5-11-10
DATE:	------	JOB:	WAIN	JOB NO.	1060
REVS:	------	DRWG:	ST 6-18-10	DWG NO.	1

6/14/2010 10:52:02 AM



☐ Reviewed
☐ Rejected

☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc. _____

Date 7/9/2010

By RMR

NOTES:
1.) FOR GENERAL NOTES SEE SN1
2.) SHOP PUNCH HOLES
3.) ASSEMBLE DRY. CHECK ALL PARTS BEFORE WELDING
4.) LOCATE ON SHEET SN4.0 - SN4.1

NO.	DATE	BY	VERSION

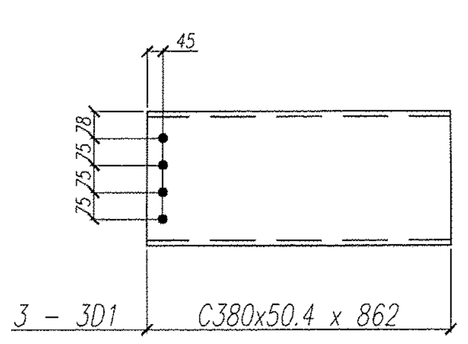
STS STEEL, INC.
ENGINEERS • FABRICATORS • ERECTORS
PH: (518) 370-2693 FAX: (518) 370-2698

DRAWING TITLE:
SHOP DIAGRAMS

ARCHITECT : VERMONT AGENCY OF TRANSPORTATION
CUSTOMER : THE FORT MILLER CO., INC.
PROJECT : BRTDA 19 SIX-SIX 19 16 BRS SIXTH BRANCH WATERCURY BRS
TOWN OF BRISTOL, STATE OF VERMONT

MACH.	15/16" DIA	DWG.	SDC CM1	DATE:	5-11-10
MATL	------	DRN:	MWH	JOB NO.	1060
WELD	------	CHK'D:	DT 6-18-10	SHT. NO.	2

6/15/2010 10:14:06 AM



THESE DIAPHS SHIP LOOSE
AND ARE FIELD-INSTALLED

☐ Reviewed
☐ Rejected

☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc. ____________

Date 7/9/2010

By RMR

BILL OF MATERIALS

SHOP BILL									MATERIAL ASTM A709M GR 345W UN			
SHIPPING PCS	ASSEMBLY PCS	MARK	SHAPE	DESCRIPTION	LENGTH M	LENGTH mm	REMARKS END EDGE DESCR	REMARKS	MATL GRADE	MATL REMARK	ITEM WEIGHT (kg)	HEAT NO
3		3D1	C	380x50.4	–	862					130	
				FIELD BOLTS								
24		FB7-225	BOLT	7/8"ø	–	2 1/4"			A325 T3	N + W	10	

NOTES:

1.) FOR GENERAL NOTES SEE GN1
2.) SHOP PUNCH HOLES
3.) HARDWARE DEPT: CHECK ALL PARTS BEFORE RELEASING
4.) LOCATE ON DWG E1

NO.	DATE	BY	REVISION

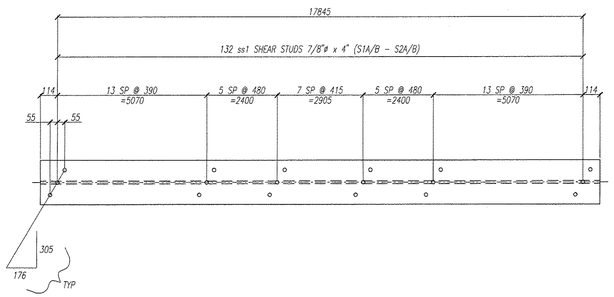
STS STEEL, INC.
ENGINEERS • FABRICATORS • ERECTORS
PH: (518) 370-2693 FAX: (518) 370-2696

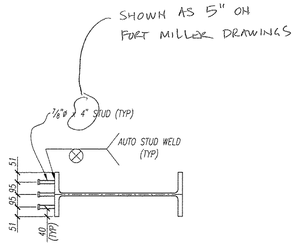
DRAWING TITLE
FIELD DIAPHRAGMS

ARCHITECT : VERMONT AGENCY OF TRANSPORTATION
CUSTOMER : THE FORT MILLER CO., INC.
PROJECT : RIPTON FH 010-1(2) TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER
TOWN OF RIPTON, STATE OF VERMONT

HOLES:	15/16"ø UN	FINISH:	SEE GN1	DATE:	5-11-10
BOLTS:	-----	DR.BY:	WMN	JOB NO.	1060
WELDS:	-----	CHK.BY:	DT 6-18-10	DWG NO.	3

6/18/2010 10:19:58 AM





TOP FLANGE SHEAR STUD SPACING

☐ Reviewed
☐ Rejected

☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc. _____

Date 7/9/2010

By RMR

NO.	DATE	BY	REVISION

STS STEEL, INC.
ENGINEERS • FABRICATORS • ERECTORS
PH: (518) 370-2690 FAX: (518) 370-2698

DRAWING TITLE
TOP FLANGE SHEAR STUDS

ARCHITECT :	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER :	THE FORT MILLER CO., INC.
PROJECT :	BRTCM IS 091-2(2) IN S MID 2010 BRANCH ASBURY MID
	TOWN OF BRYTON, STATE OF VERMONT

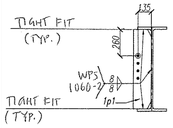
MODEL	------	FINISH	SEE CAT.	DATE	5-11-10
MASS	------	SHOP	WELDS	JOB NO.	1090
WEIGHT	SEE CAT.	DWG.NO.	DF 6-18-10	DWG NO.	4

6/18/2010 10:53:02 AM

ONE - S1A W840x193 x 18073

SECTION A-A

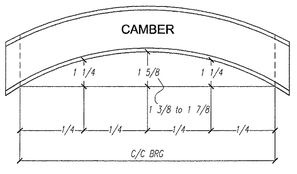
DETAIL 2



SECTION B-B

CTR PUNCH BOTT FLG
3 PLACES CL OF BRG
(TYP BOTH ENDS)

DETAIL 1



BILL OF MATERIALS

SHOP BILL										MATERIAL		ASTM A709M OR 345W GR	
PIECE MARK	NO. OF PIECES	MARK	SHAPE	DESCRIPTION	LENGTH M	LENGTH mm	CUT ANGLE	REMARKS		MATL GRADE	MATL REMARK	ITEM WEIGHT (kg)	HEAT NO
1		S1		FRAME								7941	
	1	S1A	W	840x193	18	073				DIN		2488	
	3	1p1	PL	12.5x180	–	787						43	
	132	as1	STUD	7/8" ø	–	4"						43	
	1	S1B	W	840x193	18	073				DIN		2488	
	3	1p2	PL	12.5x180	–	787						43	
	3	1p3	PL	12.5x180	–	787						43	
	132	as1	STUD	7/8" ø	–	4"						43	
	3	2s1	C	380x50.4	2	812						425	
	24	as7-225	BOLT	7/8"ø	–	2 1/4"				A325M	R+W	10	

McFarland-Johnson, Inc.

Date 7/9/2010

By RMVP

Reviewed
Rejected

Furnish as Corrected
Revise and Resubmit
Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performing all Work in a safe and satisfactory manner.

WORK THIS DWG WITH DWG S1B

NOTES:
1. FOR GENERAL NOTES SEE DWG GN1
2. ALL DIMENSIONS (RD's) ARE ALONG BOTT FLG. PRIOR TO CAMBER
3. CLEAN PER GN1 PRIOR TO FRAME ASSEMBLY
4. LOCATE ON DWG E1

NO.	DATE	BY	REVISION

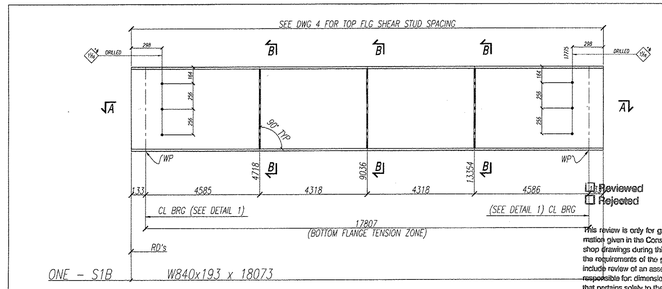
STS STEEL, INC.
ENGINEERS • FABRICATORS • ERECTORS
PH: (518) 270-2693 FAX: (518) 270-2696

DRAWING TITLE
ORDER S1A

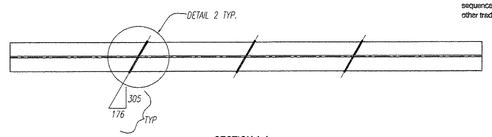
ARCHITECT :	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER :	THE FORT MILLER CO., INC.
PROJECT :	BRIDGE ID #10-10 'A' OVER DEPOT BRANCH RAILROAD BRIDGE
	TOWN OF BRITON, STATE OF VERMONT

MILD	13/16"ø A325 SC	WELD	SEE GN	DATE	5-11-10
MILL	SEE GN	DRUM	DF E-18-10	DWG NO.	S1A

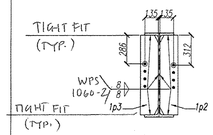
5/18/2010 11:45:02 AM



ONE – S1B W840x193 x 18073



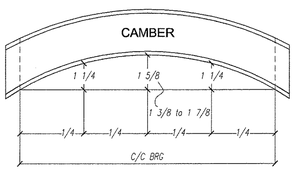
SECTION A-A



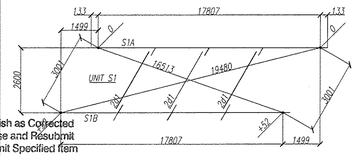
SECTION B-B

CTR PUNCH BOTT FLG
3 PLACES CL OF BRG
(TYP BOTH ENDS)

DETAIL 1

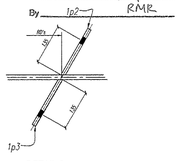


SHOP BOLT DIAPHS WITH
7/8"ø A325T3 x 2 1/4" (sb7-225) TYP



FRAME S1

DIMENSIONS ARE FROM BEARING POINTS AT BOTTOM FLANGE
SEE E1 FOR LOCATION



DETAIL 2

WORK THIS DWG WITH DWG S1A

NOTES:
1. FOR GENERAL NOTES SEE DWG GN1
2. ALL DIMENSIONS (RD's) ARE ALONG BOTT FLG. PRIOR TO CAMBER
3. CLEAN PER GN1 PRIOR TO FRAME ASSEMBLY
4. LOCATE ON DWG E1

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☒ Reviewed
☐ Rejected

☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

McFarland-Johnson, Inc.
Date 7/9/2010
By 1p2 RMR

NO.	DATE	BY	REVISION

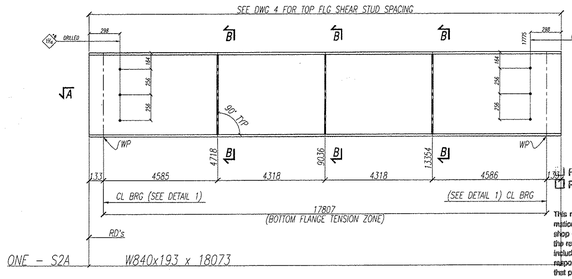
STS STEEL, INC.
ENGINEERS • FABRICATORS • ERECTORS
PH: (518) 370-3913 FAX: (518) 370-3958

DRAWING TITLE
GIRDER S1B

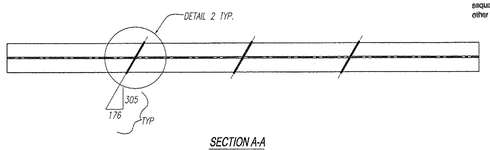
ARCHITECT :	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER :	THE FORT MILLER CO., INC.
PROJECT :	BRTLK BRIDGE 23 (23-12) 31 TO NOT 2011 BRIDGE ASSISTANT RMD TOWN OF BURTON, STATE OF VERMONT

MARK:	12/13"x 24"	FINISH:	SEE DWG	DATE:	5-11-10
MATL:	STR A572	BY:	SHAPE:	WGHT:	JOB NO: 1060
WELDS:	SEE DWG		DRAWN: OT 6-18-10	DWG NO:	S1B

6/18/2010 11:48:00 AM



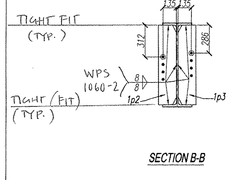
ONE - S2A W840x193 x 18073



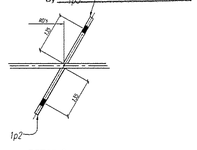
SECTION A-A

CTR PUNCH BOTT FLG 3 PLACES CL OF BRG (TYP BOTH ENDS)

DETAIL 1



SECTION B-B



DETAIL 2

BILL OF MATERIALS

PIECE MARK	NO. PIECES	MARK	SHAPE	DESCRIPTION	LENGTH FT	LENGTH IN/FRAC	REMARKS	MATL ORDER	MATL GRADE	MATL REMARKS	ITEM WEIGHT (lbs)	HEAT NO
				SHOP BILL								
1		S2		FRAME							7841	
	1	S2A	W	W840x193	18	073				DIR	2481	
	3	1p3	PL	12.5x180	–	767					43	
	3	1p2	PL	12.5x180	–	767					43	
	132	ss1	STUD	7/8" ø	–	4"					48	
	1	S2B	W	W840x193	18	072				DIR	2481	
	3	1p1	PL	12.5x180	–	767					43	
	132	ss1	STUD	7/8" ø	–	4"					48	
	3	2d1	C	380x84	2	892					425	
	24	sb7-223	BOLT	7/8"ø	–	2 1/4		A325	TYP		10	

☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

☒ Reviewed
☐ Rejected

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McFarland-Johnson, Inc. _____

Date 7/9/2010

By 1p3 RMR

WORK THIS DWG WITH DWG S2B

NOTES:
1. FOR GENERAL NOTES SEE DWG GN1
2. ALL DIMENSIONS (RD's) ARE ALONG BOTT FLG. PRIOR TO CAMBER
3. CLEAN PER GN1 PRIOR TO FRAME ASSEMBLY
4. LOCATE ON DWG E1

NO.	DATE	BY	REVISION

STS STEEL, INC.
ENGINEERS • FABRICATORS • ERECTORS
PH: (518) 370-2883 FAX: (518) 370-2886

DRAWING TITLE
GIRDER S2A

ARCHITECT / VERMONT AGENCY OF TRANSPORTATION
CUSTOMER / THE FORT MILLER CO., INC.
PROJECT / BRTM 19 (13)+(2) "E 13 ISO 3313 BRIDGE ASSEMBLY 1002
TOWN OF BRYTON, STATE OF VERMONT

WELD	15/16"ø E6	FINISH	SEE GN1	DATE	5-11-10
BOLTS	7/8"ø A325 SBI	DRAWN	MWH	JOB NO.	1060
MARK	SEE GN1	CHKD BY	DF 6-16-10	DWG NO.	S2A

6/18/2010 11:08:18 AM

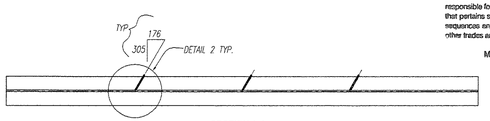
ONE - S2B WB40x193 x 18073

DIMENSIONS ARE FROM BEARING POINTS AT BOTTOM FLANGE
SEE E1 FOR LOCATION

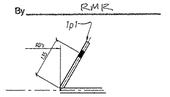
Reviewed
Rejected
Furnish as Corrected
Revise and Resubmit
Submit Specified Item

This review is only for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the shop drawings during this review do not relieve the contractor from compliance with the requirements of the plans and specifications. Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication process or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performing all Work in a safe and satisfactory manner.

McFarland-Johnson, Inc.
Date 7/9/2010
By RME



SECTION A-A



WORK THIS DWG WITH DWG S2A

NOTES:
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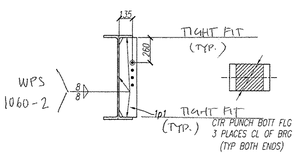
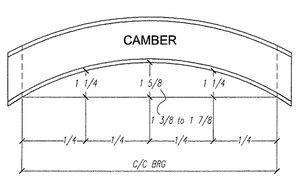


SECTION B-B



DETAIL 1

DETAIL 2

NO.	DATE	BY	REVISION

STS STEEL, INC.
ENGINEERS • FABRICATORS • ERECTORS
PH. (518) 370-2883 FAX. (518) 370-2898

DRAWING TITLE
GIRDER S2B

ARCHITECT :	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER :	THE FORT MILLER CO., INC.
PROJECT :	BRIDGE NO. 19 ON US-7 OVER SOUTH BRANCH MOUNTAIN BROOK
	TOWN OF DORSET, STATE OF VERMONT

MARK:	13/16"ø STR	FINISH:	SEE GN1	DATE:	5-11-10
HOLES:	13/16"ø A325 SC	RELIEF:	SMOOTH	JOB NO.	11060
WELDS:	SEE GN1	CHECKED:	OF 5-18-10	DWG NO.	S2B

6/16/2010 11:55:18 AM

NOTE: **THE REQUIREMENTS OF ITEM 900.675 – PRECAST PRECOMPRESSED CONCRETE/STEEL COMPOSITE SUPERSTRUCTURE – AND SECTION 510 (EXCEPTING SUBSECTIONS 510.07, 510.09, & 510.12) OF THE VAOT 2006 STANDARD SPECIFICATIONS FOR CONSTRUCTION SHALL APPLY TO THIS WORK.**

FABRICATION SHALL NOT OCCUR BEFORE VTRANS APPROVES THE MIX DESIGN & NOTES ON THIS SHEET

DESCRIPTION OF FABRICATING FACILITIES FOR UNIT PRODUCTION:

1. ALL CONCRETE TO BE SUPPLIED BY THE FORT MILLER CO., INC. AUTOMATED BATCH PLANT, AN NPCA & PCI CERTIFIED FACILITY.
2. CONCRETE TO BE DELIVERED TO FORM FROM BATCH PLANT USING A MIXER TRUCK AND PLACED USING CONCRETE BUCKETS.
3. ALL CONCRETE TO BE CONSOLIDATED USING INTERNAL VIBRATION.
4. QUALITY CONTROL EQUIPMENT: A) COMPRESSION TESTER: TEST MARK INDUSTRIES MODEL CM–5000 DB
   DATE OF LAST CALIBRATION: SEPTEMBER 17, 2009
   B) HIGH PRESSURE AIR METER – FORNEY PRESS–AIR METER MODEL LA–316

CONCRETE DATA

STRIPPING STRENGTH: 21 MPa (MINIMUM)
UNIT INVERTING STRENGTH: 35 MPa (MINIMUM)
28–DAY STRENGTH: 35 MPa (MINIMUM)

MIX DESIGN SHOWN DOESN'T MATCH MIX DESIGN SUBMITTED TO VTRANS

MIX DESIGN (YIELD: 1.0 CUBIC METER): MIX CODE SP206

CEMENT:	380 Kg	LaFARGE NORTH AMERICA I/II
FLY ASH:	95 Kg	
COARSE AGGREGATE:	996 Kg	ASTM C33 SIZE 67
FINE AGGREGATE:	694 Kg	ASTM C33
WATER CONTENT:	160 Kg	
HIGH RANGE WATER REDUCER:	2.8 L	ASTM C494
AIR ENTRAINING AGENT:	300 ml	ASTM C260
	2,324 Kg TOTAL	

UNIT WEIGHT: 2,324 kg/m³ (APPROX.)
28–DAY STRENGTH: 35 MPa (MIN.)
STRIPPING STRENGTH: 21.0 MPa (MIN.)
WATER–CEMENT RATIO: 0.34 (APPROX.)
AIR CONTENT: 5.0% TO 9.0%

PRIMARY MATERIAL SOURCE:

CEMENT: LAFARGE NORTH AMERICA I/II NYSDOT BRAND CODE 05
FLY ASH: HEADWATER RESOURCES NYSDOT BRAND CODE 18
COARSE AGGREGATE: PECKHAM MATERIALS; GREENFIELD, NY NYSDOT SOURCE 1–39R TEST 09AR27
FINE AGGREGATE: PECKHAM MATERIALS; WEST FORT ANN, NY NYSDOT SOURCE 1–85F TEST 09AF85
HIGH RANGE WATER REDUCER: BASF ADMIXTURES, GLENIUM 3030SNS NYSDOT BRAND CODE 4036
AIR ENTRAINING AGENT: BASF ADMIXTURES; MB AE 90 NYSDOT BRAND CODE 1037

⚠ CONCRETE TESTING/QUALITY ASSURANCE

A) THE CONCRETE STRENGTH SHALL BE DETERMINED FROM CONCRETE TEST CYLINDERS (100mmø X 200mm) MADE IN CONFORMANCE WITH AASHTO T23, (1) SET PER LOT. (1 SET = 6 CYLS. MIN., 1 LOT = 1 BRIDGE UNIT MAX). ALL CYLINDERS SHALL BE TESTED IN CONFORMANCE WITH AASHTO T23 ON AN APPROVED TESTING MACHINE. ALL CYLINDERS SHALL BE MADE AND TESTED IN THE PRESENCE OF THE AGENCY INSPECTOR. ALL CYLINDERS USED TO TEST FOR CONCRETE STRENGTH SHALL BE CURED IN THE SAME MANNER AS THE UNITS THAT THEY REPRESENT AND IN CONFORMANCE WITH AASHTO T23.

B) THE MANUFACTURER SHALL CAST A SUFFICIENT NUMBER OF CONCRETE TEST CYLINDERS TO FULFILL THE CONCRETE STRENGTH TEST REQUIREMENTS AS STATED IN SECTION 'C' BELOW.

C) TESTING FOR CONCRETE COMPRESSIVE STRENGTH.
THE STRENGTH REQUIREMENTS FOR EACH UNIT SHALL BE CERTIFIED BY THE MANUFACTURER, AS FOLLOWS, BEFORE THE UNIT IS ACCEPTED FOR STRENGTH.

1. LIFTING STRENGTH: TWO CYLINDERS FROM EACH UNIT SHALL BE TESTED IN IMMEDIATE SUCCESSION TO VERIFY LIFTING STRENGTH. THE STRENGTH OF EACH CYLINDER SHALL BE AT LEAST 95 PERCENT OF THE REQUIRED LIFTING STRENGTH. THE AVERAGE STRENGTH OF THE TWO CYLINDERS SHALL BE EQUAL TO OR GREATER THAN THE REQUIRED LIFTING STRENGTH AS SPECIFIED HEREIN (21 MPa).
2. 28–DAY STRENGTH: TWO CYLINDERS FROM EACH UNIT SHALL BE TESTED IN IMMEDIATE SUCCESSION AT 28 DAYS OF AGE TO VERIFY THE REQUIRED 28–DAY STRENGTH OF THE CONCRETE. THE AVERAGE STRENGTH OF THE TWO CYLINDERS SHALL BE EQUAL TO OR GREATER THAN THE REQUIRED 28–DAY STRENGTH. IF THIS REQUIREMENT IS NOT MET, ANY REMAINING CYLINDERS REPRESENTING THE UNIT SHALL BE TESTED AT 28 DAYS OF AGE. THE AVERAGE STRENGTH OF ALL CYLINDERS REPRESENTING THE 28–DAY STRENGTH OF ANY ONE UNIT SHALL BE EQUAL TO OR GREATER THAN THE REQUIRED 28–DAY STRENGTH (35 MPa).
3. OPTION: THE MANUFACTURER MAY ELECT TO TEST TWO CYLINDERS FROM EACH UNIT IN IMMEDIATE SUCCESSION, PRIOR TO THE 28–DAY AGE LIMIT. IF THIS OPTION IS EXERCISED, SUFFICIENT CYLINDERS SHALL BE MADE TO ENSURE THAT AT LEAST TWO CYLINDERS ARE AVAILABLE FOR THE 28 DAY TEST. EACH CYLINDER SHALL HAVE A STRENGTH OF AT LEAST 95% OF THE REQUIRED 28–DAY STRENGTH. THE AVERAGED STRENGTH OF THE TWO CYLINDERS MUST BE EQUAL TO OR GREATER THAN THE REQUIRED 28–DAY STRENGTH. IF THESE REQUIREMENTS ARE MET, THE CYLINDER TEST AT 28–DAYS OF AGE SHALL BE WAIVED.

D) THE FOLLOWING QUALITY CONTROL TESTS SHALL BE PERFORMED BY THE MANUFACTURE, IN THE PRESENCE OF THE INSPECTOR, FROM THE SAME CONCRETE SAMPLE AS THAT USED FOR THE CONCRETE COMPRESSIVE STRENGTH REQUIREMENTS: 1) COMPRESSIVE STRENGTH AASHTO T23 2) AIR CONTENT ASTM C231 3) TEMPERATURE 4) UNIT MASS ASTM C138 5) WATER–CEMENT RATIO AASHTO T318 6) SLUMP ASTM C143

INSPECTION VERMONT AGENCY OF TRANSPORTATION

MATERIALS FURNISHED & WORK PERFORMED UNDER SECTION 510 SHALL BE INSPECTED BY THE AGENCY. ADVANCE NOTIFICATION OF AT LEAST ONE WEEK SHALL BE PROVIDED BY THE FABRICATOR TO THE AGENCY'S ENGINEER AND STRUCTURAL CONCRETE ENGINEER INDICATING THE FABRICATION START DATE.

REINFORCING STEEL

BAR REINFORCEMENT IN CONFORMANCE WITH VAOT 713.01 (ASTM A615M GRADE 420, CONFORMING TO AASHTO M 31M INCL. SUPPLEMENTARY REQUIREMENTS) AND EPOXY COATED (WHERE REQUIRED) IN CONFORMANCE WITH VAOT 713.07 AS SUPPLIED BY:

a. NUCOR STEEL AUBURN – AUBURN, NY (SUPPLIER)
b. GERDAU AMERISTEEL SAYREVILLE STEEL MILL DIVISION – SAYREVILLE, NJ (SUPPLIER)
c. CORROSION CONTROL, INC. – AUBURN, NY (EPOXY COATING)

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL MEET THE MATERIAL REQUIREMENTS OF VAOT 714.01–714.05.
2. STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270M GRADE 345W AND SHALL AND BE FABRICATED IN CONFORMANCE WITH VAOT SECTION 506.
3. STRUCTURAL STEEL FABRICATION DRAWINGS PREPARED BY STS STEEL INC., SCHENECTADY, NY & SUBMITTED UNDER SEPARATE COVER SHALL BE USED IN CONJUCTION WITH THESE PRECAST CONCRETE FABRICATION DRAWINGS.

PRODUCTION SCHEDULE

UNITS SHALL BE FABRICATED ON A FIVE DAY SCHEDULE. NUMBER OF UNITS TO BE PRODUCED PER WEEK SHALL BE (1)±

UNIT MARKING

EACH UNIT SHALL BE CLEARLY AND PERMANENTLY LABELED ON THE UNDERSIDE OF THE DECK (IN THE VICINITY OF THE END DIAPHRAGM) WITH THE FOLLOWING INFORMATION:

THE FORT MILLER CO., INC.
FMC JOB #11579 MARK NO.: _____
DATE CAST: _____ LOAD RATING: HS25–44

FABRICATION PROCEDURE

1. SIDE BULKHEADS AND REINFORCING STEEL ARE PLACED ON THE DECK FORM.
2. STRUCTURAL STEEL FRAMES ARE SUPPORTED (FROM ABOVE) OVER THE DECK FORM & ADJUSTED TO THE CORRECT LOCATION & ELEVATION.
3. CROSS–FORM TRANSFER BEAMS ARE INSTALLED AT APPROX. 2.44m – 3.05m INTERVALS TO SUPPORT THE DECK FORM. REINFORCING STEEL IS HUNG FROM THE STRUCTURAL STEEL FRAME.
4. TRANSFER BEAMS ARE ADJUSTED TO OBTAIN THE REQ'D VERTICAL DISTANCE BETWEEN THE STEEL FRAME AND THE DECK, WITH THE APPROPRIATE REINFORCEMENT CLEARANCE.
5. FINAL ELEVATION CHECKS ARE MADE AT FIELD BEARING LOCATIONS. BEAM DEFLECTIONS ARE CHECKED AND DEFLECTION STOPS ARE SET.
6. CONCRETE IS PLACED, VIBRATED AND SCREEDED TO THE PROPER LEVEL. BEAM DEFLECTIONS ARE CHECKED AND ADJUSTED TO CONFORM TO REQ'D DESIGN DEFLECTIONS.
7. THE BRIDGE UNIT AND TEST CYLINDERS ARE CURED ACCORDING TO PROCEDURE OUTLINED BELOW.
8. AT THE POINT THAT 2 CONSECUTIVE CYLINDER BREAKS INDICATE THAT CONCRETE STRENGTH HAS REACHED 21 MPa, TRANSFER BEAMS ARE REMOVED AND THE UNIT IS LIFTED FROM FORM. THE FINAL CURING PHASE CONTINUES.
9. AT THE POINT THAT 2 CONSECUTIVE CYLINDER BREAKS INDICATE THAT CONCRETE STRENGTH HAS REACHED 35 MPa (AND A MINIMUM OF 72 HRS. HAVE ELAPSED SINCE CONCRETE PLACEMENT), THE UNIT MAY BE INVERTED TO THE UPRIGHT POSITION. THE FINAL CURING PHASE CONTINUES UNTIL THE CONCRETE HAS ATTAINED THE SPECIFIED 28–DAY COMPRESSIVE STRENGTH (35 MPa).

CONCRETE PLACEMENT

CONCRETE SHALL NOT BE DEPOSITED IN THE FORMS UNTIL THE AGENCY REPRESENTATIVE HAS APPROVED PLACEMENT OF REINFORCEMENT AND INSERTS. THE CONCRETE SHALL BE VIBRATED INTERNALLY, EXTERNALLY, OR A COMBINATION THEREOF TO THE REQUIRED CONSOLIDATION. THE VIBRATING SHALL BE DONE WITH CARE AND IN SUCH A MANNER THAT:

1. CONCRETE IS UNIFORMLY CONSOLIDATED.
2. DISPLACEMENT OF REINFORCEMENT AND INSERTS IS AVOIDED.
3. ACCEPTABLE SURFACE FINISHES ARE PRODUCED.

CURING (NON–ACCELERATED CURE / SATURATED COVER):

1. INITIAL CURING PHASE
   THE INITIAL CURING PHASE FOR EACH UNIT SHALL BE THAT PERIOD BEGINNING FROM THE TIME THAT EACH UNIT IS COMPLETELY FINISHED AND CONTINUING UNTIL THE FINAL CURING PHASE COMMENCES. DURING THIS PHASE THE ENCLOSURE (FORM) TEMPERATURE SHALL BE MAINTAINED AT APPROXIMATELY THE CONCRETE PLACEMENT TEMPERATURE WITH ARTIFICIAL HEAT APPLIED AS NECESSARY. TO PREVENT DAMAGE TO THE TOP–IN–FORM SURFACE, THE PLASTIC CONCRETE OF EACH UNIT CAST SHALL BE ALLOWED TO ATTAIN INITIAL SET BEFORE THE FINAL CURING PHASE BEGINS. THE INITIAL CURING PHASE SHALL BE APPROXIMATELY 1–4 HOURS DURATION BUT SHALL NOT EXCEED 8 HOURS.
2. FINAL CURING PHASE
   THE FINAL CURING PHASE MAY BEGIN AT ANY TIME AFTER THE INITIAL CONCRETE SET HAS BEEN ACHIEVED. EACH UNIT SHALL BE COVERED WITH HEAVY, WATER–SATURATED BURLAP (OR OTHER MATERIAL ACCEPTABLE TO THE ENGINEER IN CHARGE). THE BURLAP SHALL BE KEPT SATURATED AND THE CONCRETE SURFACE TEMPERATURE NOT ALLOWED TO FALL BELOW 20°C. THESE CONDITIONS SHALL BE MAINTAINED UNTIL DESIGN STRENGTH (35 MPa) HAS BEEN ATTAINED. UNITS MAY THEN BE EXPOSED TO AMBIENT TEMPERATURES LESS THATN 20°C
3. FALL/WINTER CURING
   ALL CONCRETE PLACEMENT WILL TAKE PLACE IN HEATED PRODUCTION BUILDINGS WHERE AMBIENT AIR TEMPERATURES ARE ABOVE 7°C. SHOULD THE NECESSITY ARISE FOR PLACING CONCRETE AT A TEMPERATURE LESS THAN 7°C, A SEPARATE CURING PROCEDURE WILL BE SUBMITTED FOR APPROVAL.

SURFACE FINISHES

1. TOP OF DECK FINISH TO BE COARSE SANDBLAST FORMLINER EQUIVALENT (L) TO SCOTT SYSTEMS FLEX–LINER SANDBLAST NO. 3
2. UNDERSIDE OF DECK TO RECEIVE A MEDIUM BROOM FINISH. (LB)
3. INTERIOR JOINT KEYWAYS TO RECEIVE A MEDIUM SANDBLAST PRIOR TO SHIPPING (SB3)
4. FASCIAS TO RECEIVE A FORMICA FORM FINISH. FASCIA INSERTS. FOR PRECAST CURB FORMWORK, TO BE PATCHED PRIOR TO APPLICATION OF FINAL RUB FINISH. (W1)

DIMENSIONAL TOLERANCES

1. GEOMETRY OF CONCRETE DECK
   A. LENGTH (EACH UNIT), ±20mm (ADJACENT UNIT LENGTHS SHALL NOT VARY BY MORE THAN 20mm)
   B. WIDTH, ±10mm
   C. DECK THICKNESS, +10mm, –6mm
   D. DEVIATION FROM DIAGONALS, ±20mm (HORIZONTAL)
   E. DEVIATION FROM END SQUARENESS OR SKEW, ±20mm (HORIZONTAL)
   F. STRINGER SPACING, ±13mm (WITHIN A UNIT)
   G. HORIZONTAL ALIGNMENT, ±10mm (DEVIATION FROM STRAIGHT LINE PARALLEL TO THE CENTERLINE OF THE UNIT)
   H. INSERT LOCATION, ±10mm
2. REINFORCING
   A. SPACING, ±50mm (NON–CUMULATIVE)
   B. COVER, (EA. MAT) ±10mm
3. BEAM CAMBER
   A. INVERTED (AT TIME OF CASTING), ±6mm (MEASURED AT TENSION FLANGE, MID–SPAN)
   B. UPRIGHT DESIGN CAMBER, ±10mm
4. FIELD INSTALLATION
   A. VERTICAL DEVIATION BETWEEN UNITS, PRIOR TO GROUTING, SHALL NOT EXCEED 10mm (AFTER FINISHING OPERATIONS ARE COMPLETE)
   B. JOINT WIDTH BETWEEN UNITS SHALL BE 20mm ±13mm

☐ Reviewed ☐ Furnish as Corrected
☐ Rejected ☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc.
Date 7/9/2010
By MID–SPAN) RMR

NOTE TO CONTRACTOR:

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⚠ TABLE OF CONTENTS

SHEET No.	DRAWING No.	TITLE	REVISION No.
1	B1	PRODUCTION NOTES	1
2	B2	BRIDGE LAYOUT	0
3	B3	UNIT S1 DETAILS	0
4	B4	UNIT S2 DETAILS	0
5	B5	PRECAST CURB DETAILS	0
6	B6	LIFTING	0

UNIT REJECTION CRITERIA

INDIVIDUAL PRECAST UNITS MAY BE REJECTED FOR ANY OF THE FOLLOWING REASONS:

1. FRACTURES OR CRACKS PASSING THROUGH THE DECK.
2. CAMBER THAT DOES NOT MEET THE REQUIREMENTS IN THESE APPROVED FABRICATION DRAWINGS.
3. HONEYCOMBED, OPEN TEXTURE.
4. DIMENSIONS NOT WITHIN THE ALLOWABLE TOERANCES SPECIFIED HEREIN.
5. SEPARATION OF THE CONCRETE DECK FORM THE STEEL STRINGERS.
6. DEFECTS THAT INDICATE PROPORTIONING, MIXING, AND MOLDING NOT IN COMPLIANCE WITH THE SPECIFICATIONS.
7. DAMAGED ENDS WHERE SUCH DAMAGE WOULD PREVENT MAKING A SATISFACTORY JOINT.
8. UNITS WITH CRACK(S) WITHIN ANY PART OF THE CONCRETE THIS GREATER THAN 0.8mm IN WIDTH.
9. SIGNIFICANT DAMAGE TO THE UNITS DURING TRANSPORTATION, ERECTION, OR CONSTRUCTION AS DETERMINED BY THE ENGINEER.
10. UNITS NOT FABRICATED IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.

REPAIRS

UNITS THAT CONTAIN MINOR DEFECTS CAUSED BY MANUFACTURE OR HANDLING MAY BE REAIRED AT THE MANUFACTURING SITE. REPAIR PRCEDURES SHALL BE IN ACCORDANCE WITH THE APPROVED QUALITY CONTROL PLAN AND REQUIRE APPROVAL BY THE ENGINEER. MINOR DEFECTS ARE DEFINED AS HOLES, HONEYCOMBING, OR SPALLS WHICH ARE 150mm OR LESS IN DIAMETER AND DO NOT PENETRATE DEEPER THAN 25mm INTO CONCRETE. SURFACE VOIDS OR "BUGHOLES" THAT ARE LESS THAN 16mm IN DIAMETER AND LESS THAN 6mm DEEP NEED NOT BE REPAIRED. REPAIRS SHALL BE MADE USING AN OVERHEAD AND VERTICAL CONCRETE REPAIR MATERIAL SATISFACTORY TO THE ENGINEER. THE REPAIR MATERIAL SHALL BE CURED AS SPECIFIED BY THE MANUFACTURER. THE ENGINEER SHALL APPROVE FINAL REPAIRS.

CRACKING

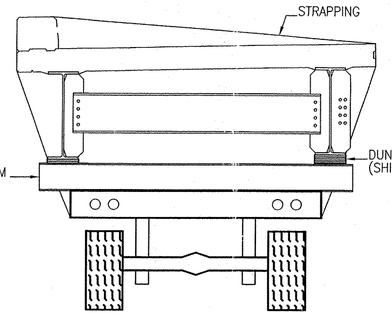
CRACK WIDTHS LESS THAN 0.3mm SHALL BE SEALED WITH A PENETRATING SEALER USING AGENCY APPROVED MATERIALS AND PROCEDURES. CRACK WIDTHS MEASURING 0.3mm TO 0.8mm SHALL BE EPOXY INJECTED USING AGENCY APPROVED MATERIALS AND PROCEDURES. AT THE ENGINEER'S DISCRETION, CRACKED MEMBERS SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.

PRE–ASSEMBLY

THE UNITS SHALL BE PRE–ASSEMBLED AT THE FABRICATOR'S PLANT TO ASSURE PROPER MATCH BETWEEN UNITS BEFORE SHIPMENT TO THE PROJECT SITE, TO THE SATISFACTION OF THE AGENCY. A REPRESENTATIVE FOR THE CONTRACTOR WILL BE PRESENT TO WITNESS THE PRE–ASSEMBLY AND TO SECURE GEOMETRIC CONTROL INFORMATION FOR COORDINATION OF WORK AT THE PROJECT SITE.

SHIPPING

UNITS SHALL NOT BE SHIPPED UNTIL THE MINIMUM 28–DAY CONCRETE STRENGTH IS ATTAINED AND THEY HAVE RECEIVED THE STAMP OF APPROVAL BY THE AGENCY. A 48–HOUR ADVANCE NOTICE OF THE LOADING AND SHIPPING SCHEDULE SHALL BE PROVIDED. THE UNITS SHALL BE SECURED ON A VEHICLE IN ORDER THAT NO FATIGUE CRACKING WILL OCCUR DURING TRANSPORT. UNITS SHALL BE SHIPPED ON WOOD DUNNAGE LOCATED AS CLOSE TO BEARING AS POSSIBLE. UNITS SHALL BE SECURED WITH CHAINS AT A MINIMUM OF TWO LOCATIONS PER END. CHAIN GUARDS WILL BE EMPLOYED TO PROTECT VULNERABLE CONCRETE EDGES FROM DAMAGE.



⚠ SHIPPING DETAIL

⚠ SHIP LOOSE

NOTE: ITEMS DESIGNATED AS "TO BE RETURNED" SHALL BE RETURNED VIA COMMON CARRIER BY AND AT THE SOLE EXPENSE OF THE CONTRACTOR.

1. (6) 21T COFFEE POT LIFTING SLINGS (ITEM 5362)
2. TECHNICAL SERVICE (ITEM 7026)
3. (24) 22mmø x 57mm ASTM A325 TYPE 3 BOLT
4. (24) 22mmø ASTM A563 GR DH3 HEX NUTS
5. (24) 22mmø ASTM F436 TYPE 3

TABLE OF UNITS

UNIT MK#	QTY REQ'D	MASS (kg)	VOLUME (m³)	AREA (m²)
S1	1	61900	21.4	64.0
S2	1	61900	21.4	64.0

WARNING:

THE VOLUMES & WEIGHTS LISTED ARE BASED ON DESIGN THICKNESSES. ACTUAL VALUES CAN & DO VARY IN ACCORDANCE WITH ALLOWABLE TOLERANCES. IT IS NECESSARY TO SIZE ALL LIFTING EQUIPMENT TAKING THIS FACT INTO CONSIDERATION !

VAOT PROJECT FH 010–1(2): ITEM NO. 900.675

NO.	DATE	BY	REVISIONS
⚠	6–25–10	MAW	SHIP LOOSE, CONCRETE TESTING, SHIPPING DETAIL

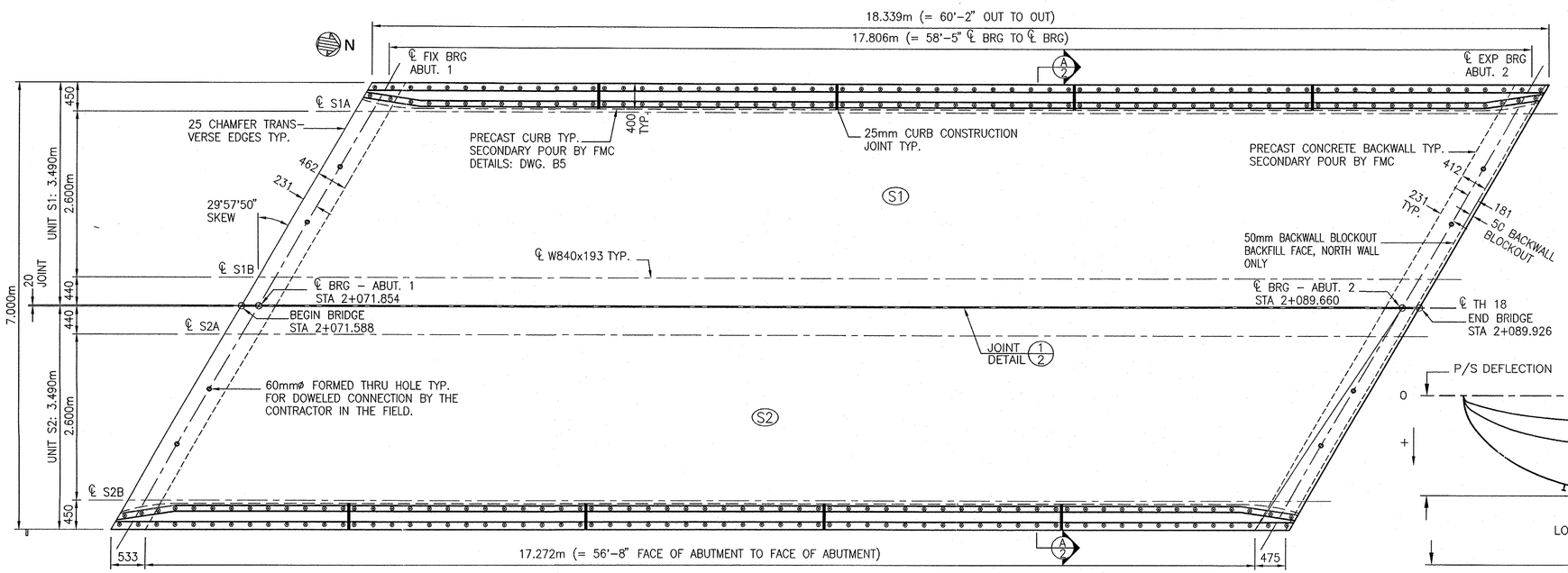
WENDY HAUGETO
STATE OF VERMONT PE LICENSE 66451
AREA ENGINEERING, INC.
186 HOLLOW ROAD
SKILLMAN, NJ 08558

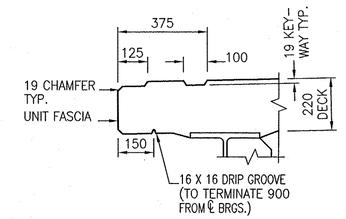
THE FORT MILLER Co., Inc.
P.O. BOX 98
SCHUYLERVILLE, NY 12871
(518) 695–5000
(518) 695–4970 FAX

F.M. JOB NO. 11579
SHEET NO. 1
DATE: 6–1–10
DRN. BY: M. WERN
CHK. BY: S. HARRIGAN
SCALE: NONE

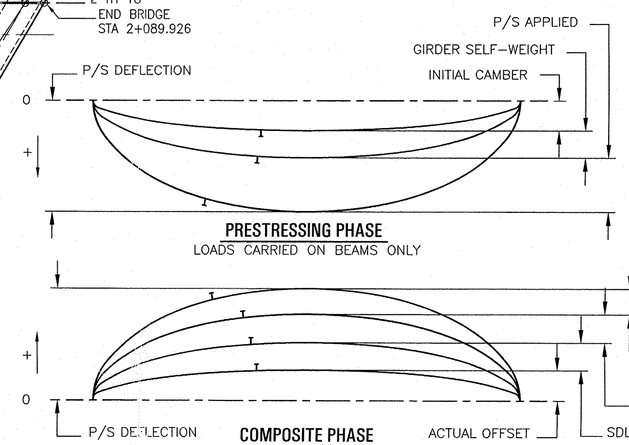
PROJECT: TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER TOWN OF RIPTON, COUNTY OF ADDISON, VT
SUBJECT: PRODUCTION NOTES
CONTRACTOR: CCS CONSTRUCTORS, LLC
ENGINEER/ARCHITECT VERMONT AGENCY OF TRANSPORTATION

DWG. NO. B1





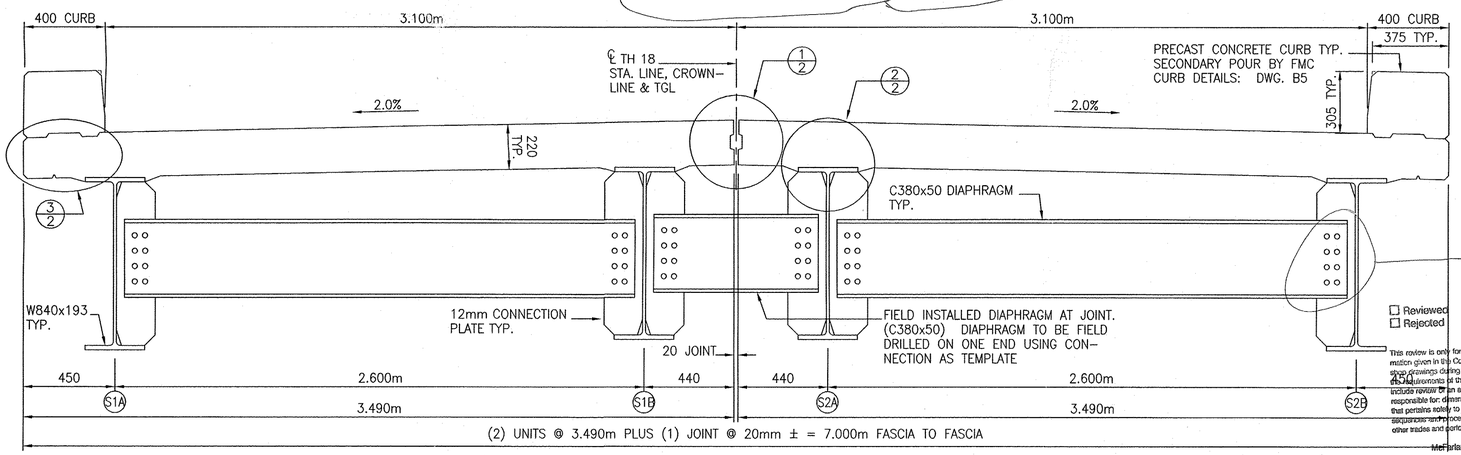
FASCIA DETAIL 3/2
TYP. EA. UNIT
(PRECAST CURB NOT SHOWN FOR CLARITY)



TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER - PLAN

PER CONTRACTOR'S FIELD MEASUREMENTS

CONTRACTOR SHALL CONFIRM ALL FIELD MEASUREMENTS PRIOR TO FABRICATION



SINGLE ROW PER STRUCTURAL STEEL DRAWINGS

☐ Reviewed
☐ Rejected

☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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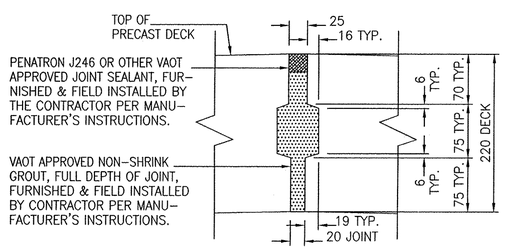
McFarland-Johnson, Inc.
Date 7/9/2010
By RMR

TABLE OF THEORETIC DEFLECTIONS

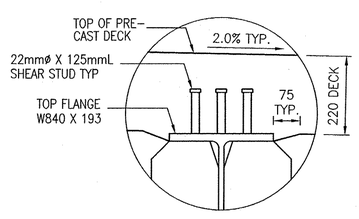
CONDITION	TOTAL MIDSPAN DEFLECTION (mm – TYP. EA. UNIT)
INITIAL BEAM CAMBER	41.3
GIRDER SELF WEIGHT	45.9
FORM WEIGHT (400 PLF)	52.8
CONCRETE WEIGHT	74.0
PRESTRESSING FORCE	39.6
DESIGN CAMBER (UPRIGHT)	29.8
SET IN PLACE W/DEAD LOAD	25.4

NOTES:
PRESTRESSING PHASE CONSISTS OF ALL LOADS REQUIRED TO PRESTRESS BEAMS WITH LOADS CARRIED BY BEAMS ONLY
COMPOSITE PHASE CONSISTS OF REMOVAL OF ADDITIONAL P/S LOADS, REMOVAL OF FORMS INVERTING UNIT AND SUPERIMPOSED DEAD LOADS.
ACTUAL OFFSET IS THE DISTANCE BETWEEN A STRAIGHT LINE DATUM AND THE ROADWAY PROFILE
P/S REMOVAL CONSISTS OF REMOVING ADDITIONAL P/S LOADS AND REMOVAL OF FORMS
P/S APPLIED CONSISTS OF PLASTIC CONCRETE WEIGHT, FORM WEIGHT AND ADDITIONAL P/S LOADS

SECTION A/2



JOINT DETAIL 1/2
LONGITUDINAL JOINT DETAIL
TYP. BETWEEN UNITS



HAUNCH DETAIL 2/2
TYP. EA. STRINGER

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VAOT PROJECT FH 010-1(2): ITEM NO. 900.675

Wendy Haugeto
WENDY HAUGETO
STATE OF VERMONT PE LICENSE 66451
AREA ENGINEERING, INC.
186 HOLLOW ROAD
SKILLMAN, NJ 08558

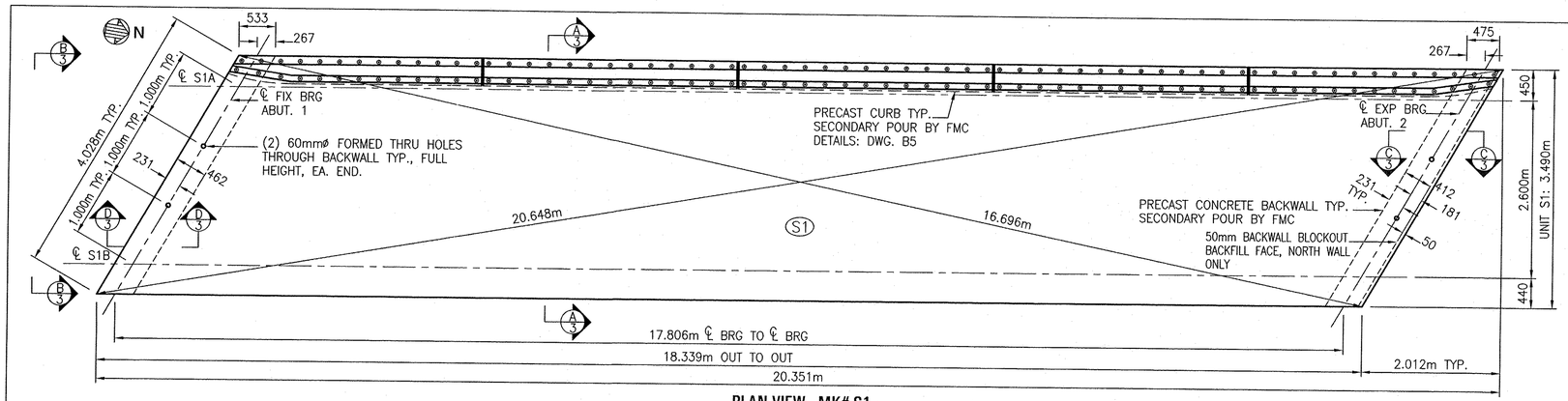
NO.	DATE	BY	REVISIONS

THE FORT MILLER Co., Inc.
P.O. BOX 98
SCHUYLERVILLE, NY 12871
(518) 695-5000
(518) 695-4970 FAX

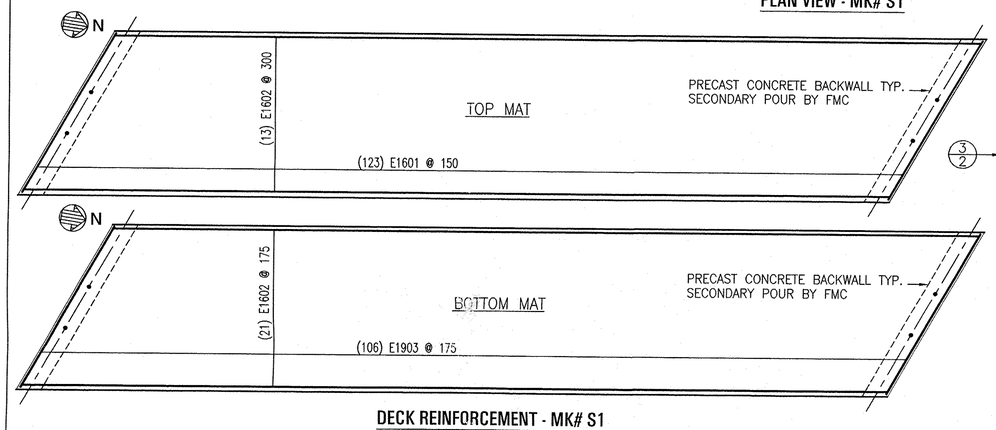
F.M. JOB NO. 11579
SHEET NO. 2
DATE: 6-1-10
DRN. BY: M. WERN
CHK. BY: S. HARRIGAN
SCALE: NONE

PROJECT: TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER TOWN OF RIPTON, COUNTY OF ADDISON, VT
SUBJECT: LAYOUT
CONTRACTOR: CCS CONSTRUCTORS, LLC
ENGINEER/ARCHITECT: VERMONT AGENCY OF TRANSPORTATION

DWG. NO. B2



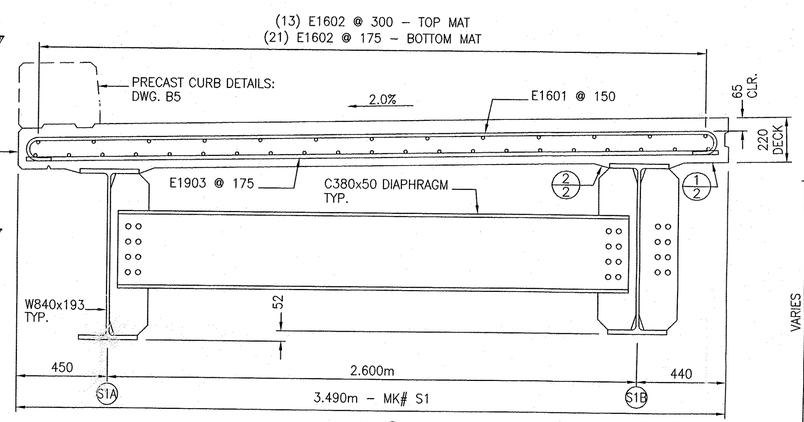
PLAN VIEW - MK# S1



DECK REINFORCEMENT - MK# S1

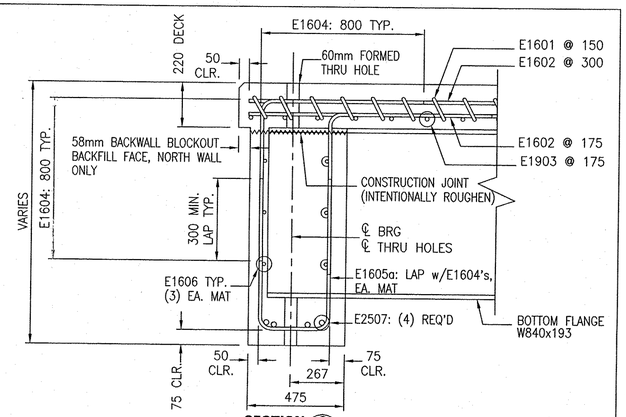
PLAN VIEW
PREFIX 'E' DENOTES EPOXY-COATED REINFORCEMENT
40mm CLEAR COVER UNLESS NOTED OTHERWISE

REINFORCEMENT SCHEDULE: SEE DWG. B6



SECTION A/3

MK# S1
FACING NORTH

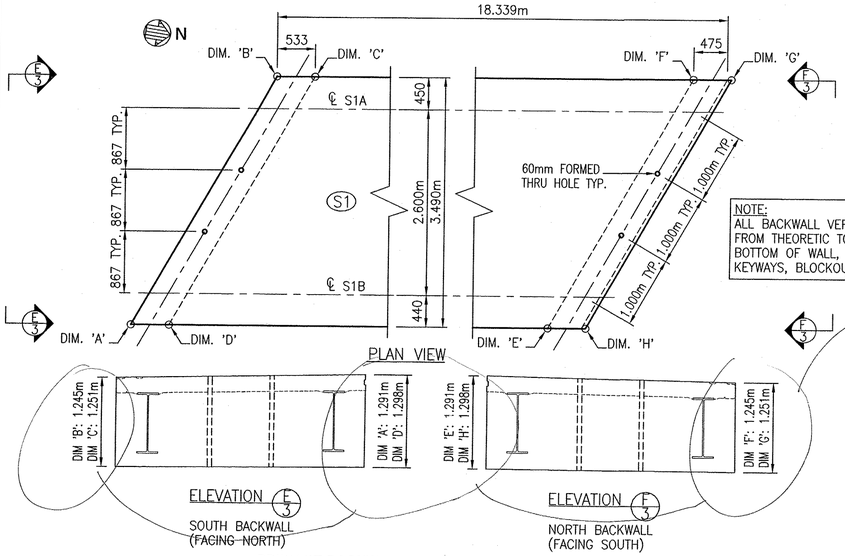


SECTION C/3

MK# S1
NORTH BACKWALL
(SECONDARY POUR BY FMC)

SECTION D/3

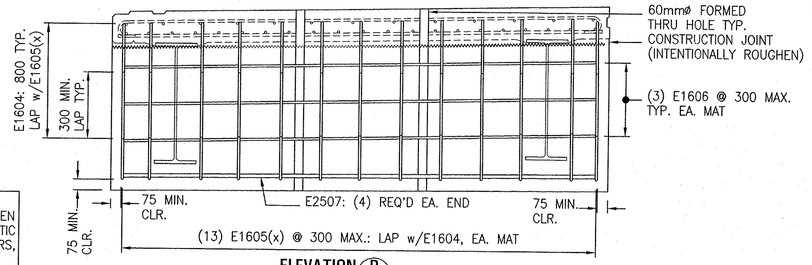
MK# S1
SOUTH BACKWALL
(SECONDARY POUR BY FMC)



NOTE:
ALL BACKWALL VERTICAL DIMENSIONS TAKEN FROM THEORETIC TOP OF SLAB TO THEORETIC BOTTOM OF WALL, EXCLUSIVE OF CHAMFERS, KEYWAYS, BLOCKOUTS, ETC.

CONTRACTOR SHALL CONFIRM DIMENSIONS USING FIELD MEASUREMENTS

PRECAST BACKWALL GEOMETRY - MK# S1



ELEVATION B/3

MK# S1
SCHEMATIC: PRECAST BACKWALL REINFORCEMENT
SOUTH END SHOWN, NORTH WALL SIMILAR

VAOT PROJECT FH 010-1(2): ITEM NO. 900.675

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☐ Reviewed
☐ Rejected
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McFarland-Johnson, Inc.
Date 7/9/2010
By RMR

WENDY HAUGETO
STATE OF VERMONT PE LICENSE 66451
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186 HOLLOW ROAD
SKILLMAN, NJ 08558

NO.	DATE	BY	REVISIONS

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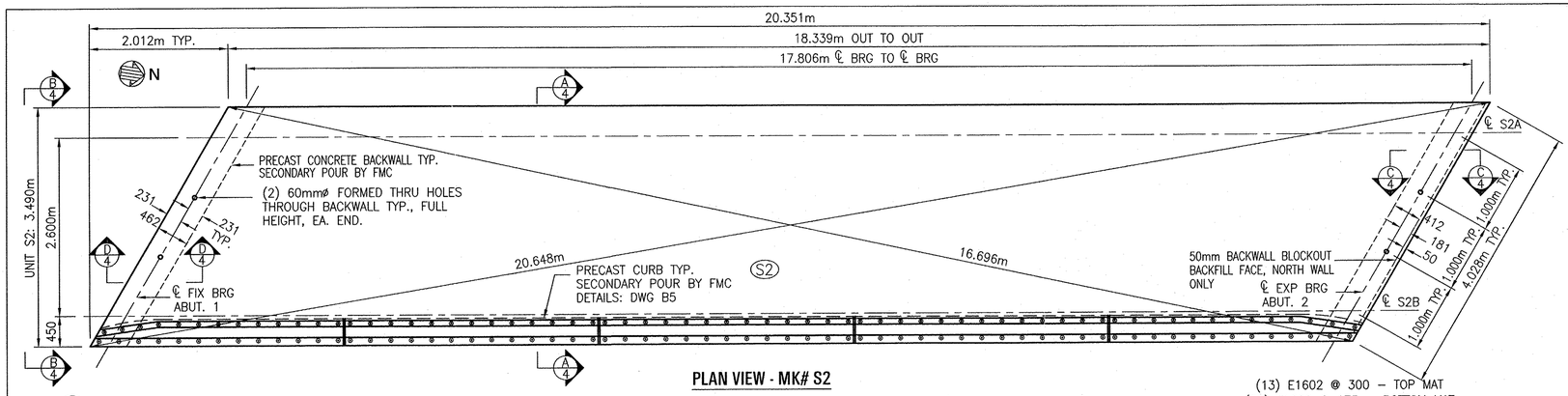
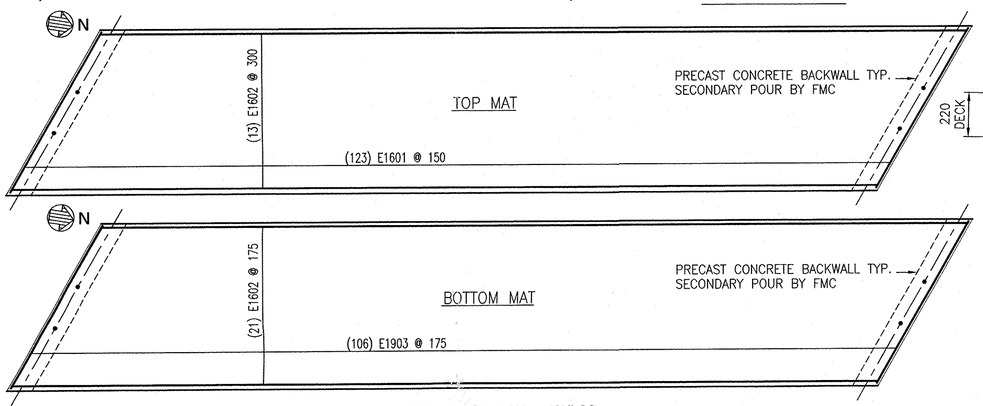
F.M. JOB NO. 11579
SHEET NO. 3
DATE: 6-1-10
DRN. BY: M. WERN
CHK. BY: S. HARRIGAN
SCALE: NONE

PROJECT: TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER TOWN OF RIPTON, COUNTY OF ADDISON, VT
SUBJECT: DETAILS: MK# S1
CONTRACTOR: CCS CONSTRUCTORS, LLC
ENGINEER/ARCHITECT: VERMONT AGENCY OF TRANSPORTATION

DWG. NO. B3

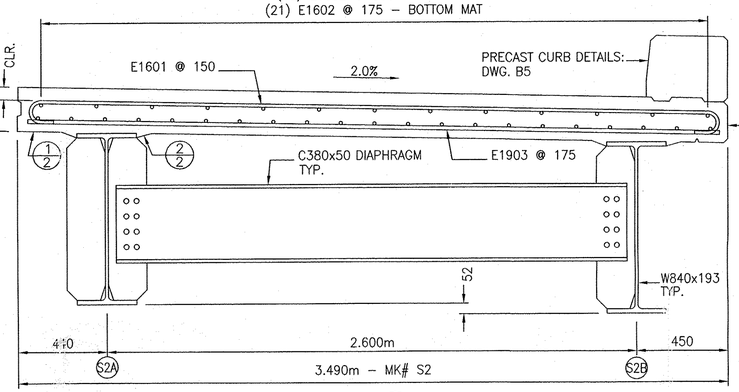


PLAN VIEW - MK# S2



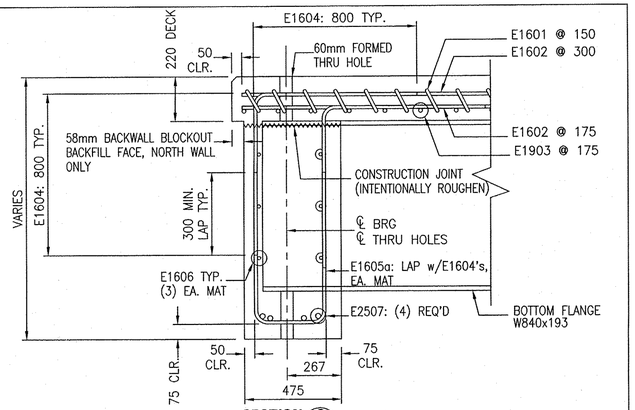
DECK REINFORCEMENT - MK# S2

PLAN VIEW
PREFIX 'E' DENOTES EPOXY-COATED REINFORCEMENT
40mm CLEAR COVER UNLESS NOTED OTHERWISE



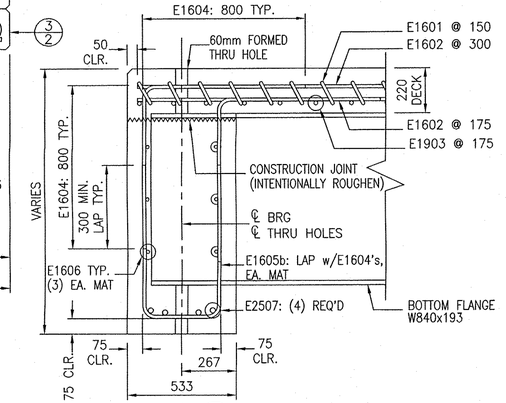
SECTION A/4

MK# S2
FACING NORTH



SECTION C/4

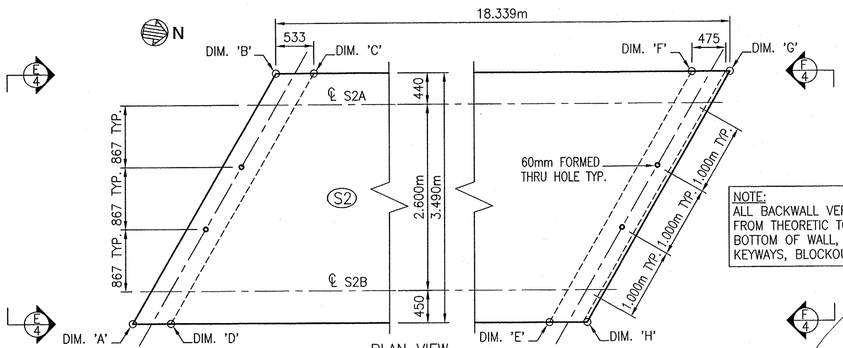
MK# S2
NORTH BACKWALL
(SECONDARY POUR BY FMC)



SECTION D/4

MK# S2
SOUTH BACKWALL
(SECONDARY POUR BY FMC)

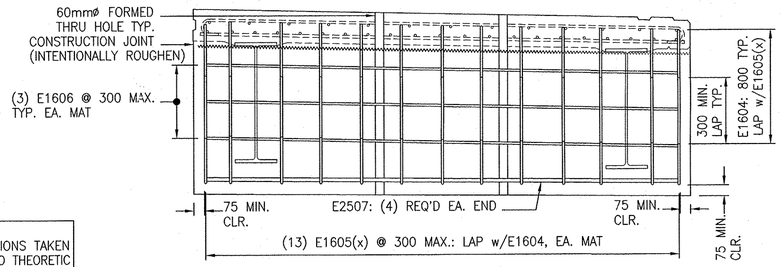
REINFORCEMENT SCHEDULE: SEE DWG. B6



NOTE:
ALL BACKWALL VERTICAL DIMENSIONS TAKEN FROM THEORETIC TOP OF SLAB TO THEORETIC BOTTOM OF WALL, EXCLUSIVE OF CHAMFERS, KEYWAYS, BLOCKOUTS, ETC.

CONTRACTOR SHALL CONFIRM DIMENSIONS USING FIELD MEASUREMENTS

PRECAST BACKWALL GEOMETRY - MK# S2



ELEVATION B/4

MK# S2
SCHEMATIC: PRECAST BACKWALL REINFORCEMENT
SOUTH END SHOWN, NORTH WALL SIMILAR

☐ Reviewed
☐ Rejected
☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc.
Date 7/9/2010
By RMR

VAOT PROJECT FH 010-1(2): ITEM NO. 900.675

NOTE TO CONTRACTOR:

THIS SHOP DRAWING REPRESENTS OUR INTERPRETATION OF THE PLANS AND SPECIFICATIONS, AND OUR CONTRACT REQUIREMENTS FOR THIS PROJECT. PRIOR TO THE MANUFACTURE OF ANY ITEM FOR THIS PROJECT, ALL DIMENSIONS, METHODS OF CONSTRUCTION AND EXISTING CONDITIONS MUST BE CHECKED, CORRECTED AND/OR APPROVED BY OUR CUSTOMER. NO ITEM WILL BE SCHEDULED FOR PRODUCTION UNTIL WE HAVE BEEN NOTIFIED IN WRITING THAT OUR DRAWINGS HAVE BEEN APPROVED FOR FABRICATION. APPROVAL DELAYS WILL RESULT IN FABRICATION DELAYS. ANY ITEM THAT IS FABRICATED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS THAT DOES NOT FIT THE CUSTOMER'S REQUIREMENTS WILL BE REMADE AND SHIPPED TO THE PROJECT ONLY AT THE CUSTOMER'S EXPENSE, AND ONLY AFTER RECEIPT OF A PURCHASE ORDER TO COVER THE ADDED EXPENSE. WE ASSUME NO RESPONSIBILITY FOR THE ALTERING OF OUR PRODUCTS TO ACCOMMODATE OTHER TRADES UNLESS REQUIRED INFORMATION IS FURNISHED AND SHOWN ON OUR SHOP DRAWINGS AT THE TIME THEY ARE APPROVED FOR FABRICATION BY OUR CUSTOMER.

ALL DATA CONTAINED HEREIN IS PROPRIETARY TO AND OWNED BY THE FORT MILLER CO., INC. AND IS SUBMITTED IN CONFIDENCE FOR EVALUATION PURPOSES ONLY. THIS DATA CANNOT BE DISCLOSED OR COPIED WITHOUT EXPRESS WRITTEN PERMISSION FROM FORT MILLER. FM COPYRIGHT (C) 2010.

WENDY HAUGETO
STATE OF VERMONT PE LICENSE 66451
AREA ENGINEERING, INC.
186 HOLLOW ROAD
SKILLMAN, NJ 08558

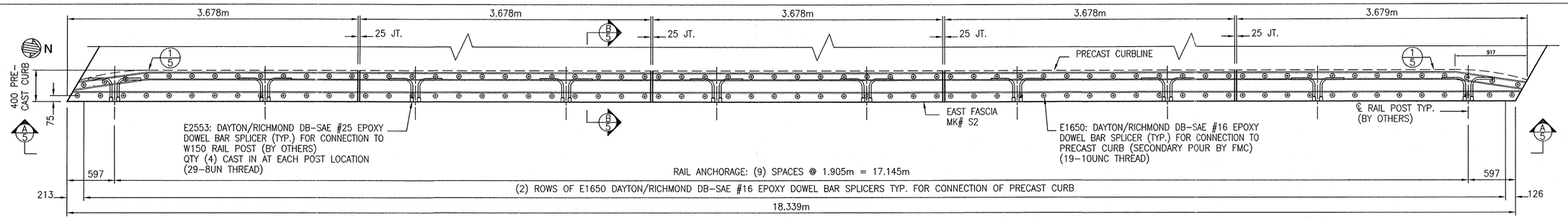
NO.	DATE	BY	REVISIONS
⚠	6-25-10	MAW	BACKWALL DIMENSIONS

THE FORT MILLER Co., Inc.
P.O. BOX 98
SCHUYLERVILLE, NY 12871
(518) 695-5000
(518) 695-4970 FAX

F.M. JOB NO. 11579
SHEET NO. 4
DATE: 6-1-10
DRN. BY: M. WERN
CHK. BY: S. HARRIGAN
SCALE: NONE

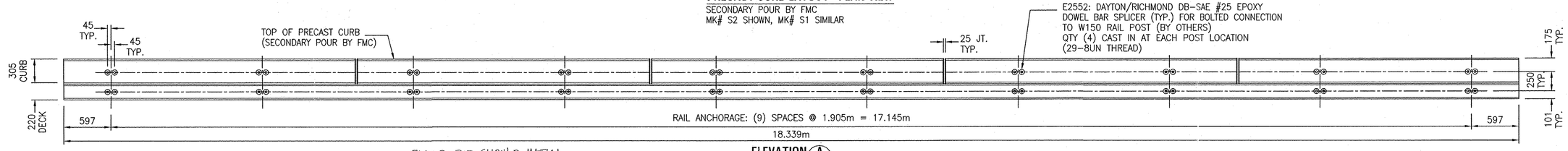
PROJECT: TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER
TOWN OF RIPTON, COUNTY OF ADDISON, VT
SUBJECT: DETAILS: MK# S2
CONTRACTOR: CCS CONSTRUCTORS, LLC
ENGINEER/ARCHITECT VERMONT AGENCY OF TRANSPORTATION

DWG. NO. B4



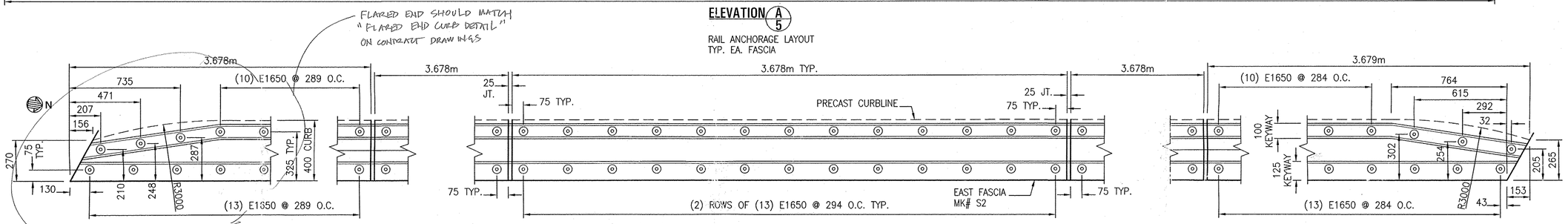
PRECAST CURB LAYOUT - PLAN VIEW

SECONDARY POUR BY FMC
MK# S2 SHOWN, MK# S1 SIMILAR



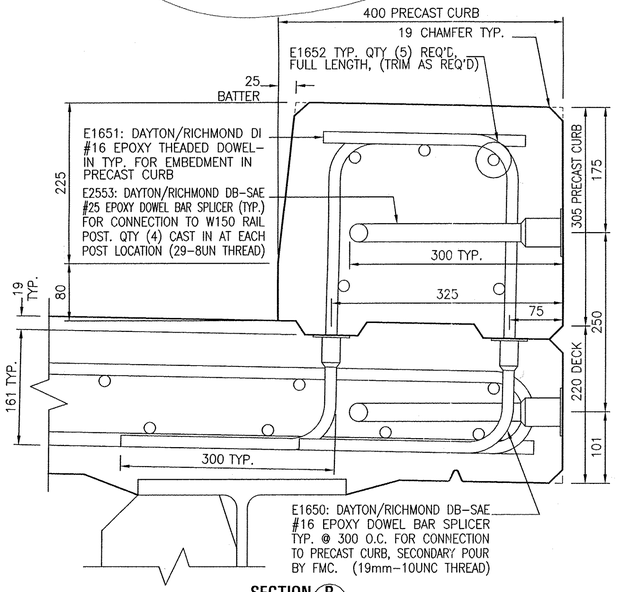
ELEVATION (A/5)

RAIL ANCHORAGE LAYOUT
TYP. EA. FASCIA



CURB / COUPLER LAYOUT DETAIL (1/5)

PLAN VIEW
MK# S2 SHOWN, MK# S1 SIMILAR



SECTION (B/5)

PRECAST CURB DETAIL
TYP. EA. UNIT FASCIA
40mm CLEAR COVER U.N.O.

CURB/RAIL NOTES

1. PRECAST CURB TO BE POURED IN ALTERNATING SECTIONS WITH A MINIMUM 48 HOUR DELAY BETWEEN ADJACENT POURS. JOINTS TO BE FILLED IN THE FIELD, BY THE CONTRACTOR, WITH A VAOT APPROVED JOINT SEALER.
2. ALL RAIL HARDWARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR INCLUDING BOLTS. WASHERS, SPACERS, ETC. AS MAY BE NECESSARY FOR BOLTED CONNECTION TO CAST-IN #25 EPOXY SPLICERS (29-8UN THREAD).
3. CONTRACTOR TO VERIFY RAIL POST DIMENSIONS TO MAINTAIN REQUIRED RAIL CLEARANCES.

☐ Reviewed
☐ Rejected
☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc.
Date 7/9/2010
By RMR

VAOT PROJECT FH 010-1(2): ITEM NO. 900.675

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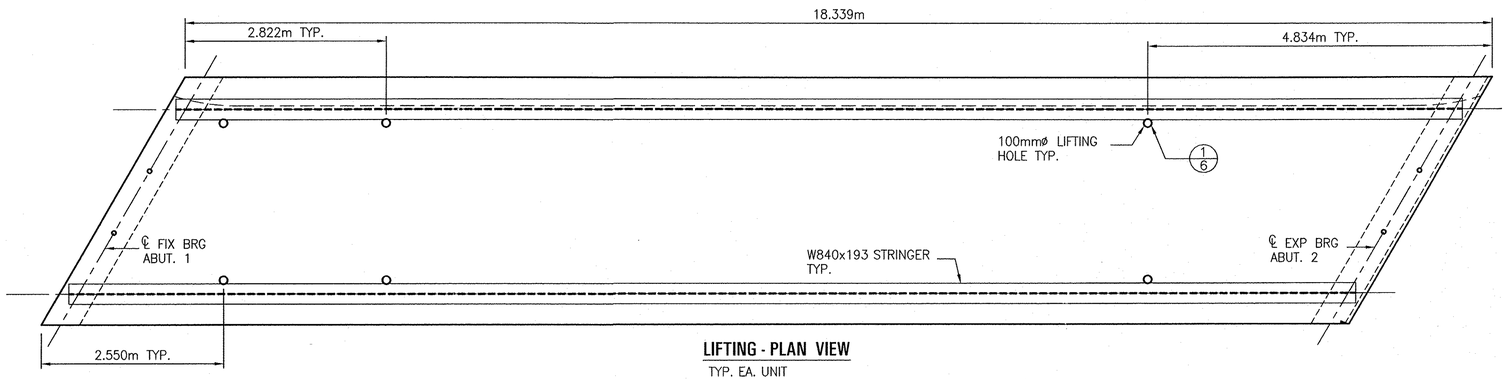
Wendy Haugeto
WENDY HAUGETO
STATE OF VERMONT PE LICENSE 66451
AREA ENGINEERING, INC.
186 HOLLOW ROAD
SKILLMAN, NJ 08558

NO.	DATE	BY	REVISIONS

THE FORT MILLER Co., Inc.
P.O. BOX 98
SCHUYLERVILLE, NY 12871
(518) 695-5000
(518) 695-4970 FAX

PROJECT: TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER TOWN OF RIPTON, COUNTY OF ADDISON, VT
SUBJECT: PRECAST CURB DETAILS
CONTRACTOR: CCS CONSTRUCTORS, LLC
ENGINEER/ARCHITECT: VERMONT AGENCY OF TRANSPORTATION

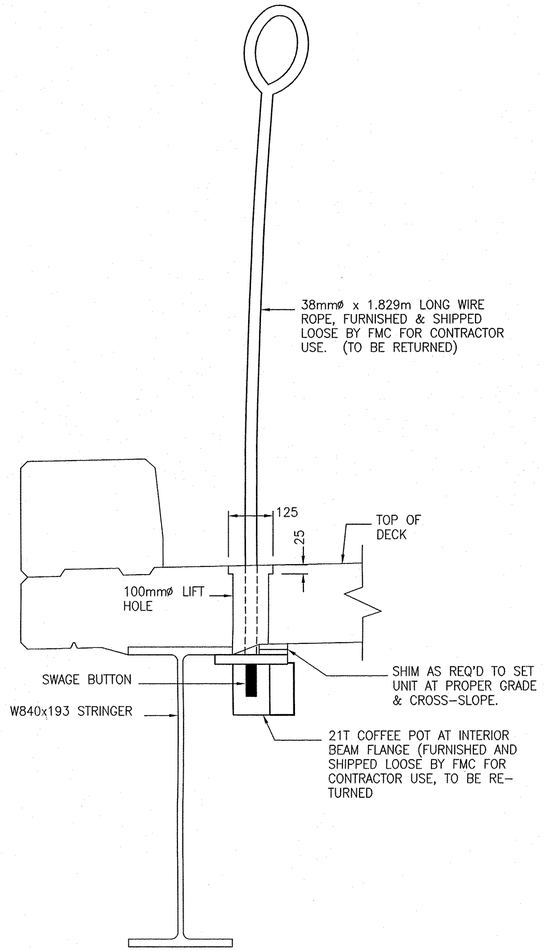
F.M. JOB NO. 11579
SHEET NO. 5
DATE: 6-1-10
DRN. BY: M. WERN
CHK. BY: S. HARRIGAN
SCALE: NONE
DWG. NO. B5



LIFTING - PLAN VIEW

TYP. EA. UNIT

ERECTION PLAN SHALL BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION OF UNITS



LIFTING DETAIL 1/6

TYP. EA. UNIT
FORMED LIFTING HOLES TO BE PATCHED BY CONTRACTOR USING APPROVED MATERIALS & METHODS

MK #: S1 — REINFORCEMENT SCHEDULE

Bar Mark	Qty	Size	Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'O'	'R'
E1601	123	#16	4264	1	175	3914					175					
E1602	34	#16	18247			18247										
E1903	106	#19	3922			3922										
E1604	52	#16	1600	17		800	800									
E1605a	13	#16	1830	17		750	330	750								
E1605b	13	#16	1860	17		750	360	750								
E1606	12	#16	3875			3875										
E2507	8	#25	3875			3875										
E1650	130	#16	461	BC	161	300										
E1651	130	#16	559	DI	284	275										
E1652	25	#16	3600			3600										
E2553	40	#25	600	BC	300	300										

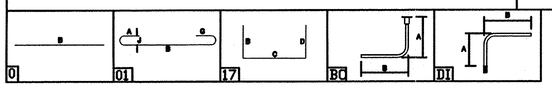
MK #: S2 — REINFORCEMENT SCHEDULE

Bar Mark	Qty	Size	Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'O'	'R'
E1601	123	#16	4264	1	175	3914					175					
E1602	34	#16	18247			18247										
E1903	106	#19	3922			3922										
E1604	52	#16	1600	17		800	800									
E1605a	13	#16	1830	17		750	330	750								
E1605b	13	#16	1860	17		750	360	750								
E1606	12	#16	3875			3875										
E2507	8	#25	3875			3875										
E1650	130	#16	461	BC	161	300										
E1651	130	#16	559	DI	284	275										
E1652	25	#16	3600			3600										
E2553	40	#25	600	BC	300	300										

ALL DIMENSIONS ARE OUT TO OUT
ALL STEEL A615M Grade 420 Epoxy

FOR TYPICAL BAR BENDS REFER TO CRSI MANUAL OF STANDARD PRACTICE

NOTE: SOME DIMENSIONS SHOWN EXCEED CRSI MINIMUMS



☐ Reviewed
☐ Rejected

☒ Furnish as Corrected
☐ Revise and Resubmit
☐ Submit Specified Item

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McFarland-Johnson, Inc.
Date 7/9/2010
By RMR

VAOT PROJECT FH 010-1(2): ITEM NO. 900.675

NOTE TO CONTRACTOR:

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Wendy Haugeto

WENDY HAUGETO
STATE OF VERMONT PE LICENSE 66451
AREA ENGINEERING, INC.
186 HOLLOW ROAD
SKILLMAN, NJ 08558

NO.	DATE	BY	REVISIONS

THE FORT MILLER Co., Inc.
P.O. BOX 98
SCHUYLERVILLE, NY 12871
(518) 695-5000
(518) 695-4970 FAX

F.M. JOB NO. 11579
SHEET NO. 6
DATE: 6-1-10
DRN. BY: M. WERN
CHK. BY: S. HARRIGAN
SCALE: NONE

PROJECT: TH 18 OVER SOUTH BRANCH MIDDLEBURY RIVER TOWN OF RIPTON, COUNTY OF ADDISON, VT
SUBJECT: LIFTING
CONTRACTOR: CCS CONSTRUCTORS, LLC
ENGINEER/ARCHITECT VERMONT AGENCY OF TRANSPORTATION

DWG. NO. B6

REINFORCED ELASTOMERIC BEARING FABRICATION SHEET 1103- Page #: 1

Project #: 29346-1103-1 (8 OF 8) Customer: CCS CONSTRUCTORS

County: ADDISON State: VT Structure: #17

Pad I.D./Loc.: ABUTMENT 1 & 2 Quantity (Including Full Size Sample(s) - If Req'd): 8

Certifications Are Required — Testing Req'd: ☑ YES, see below ☐ NO, random in-house only — Sample Req'd: ☐ YES - (If not full size, create another sheet) ☑ NO

State D.O.T. Spec. Number (If Specified): VAOT 531 Project # (req'd for cert.s) RIPTON FH-010-1(2)

Special Notes: METHOD 'B' DESIGN, AASHTO M251-MATERIALS

Shim Steel Spec. (Circle One): A709 GR.36(250) (A1011 GR.36(250)-Type 1) Other: ____

Durometer Requirement (Circle One): (50±5) 60±5 Other: — Shear Modulus Requirement: —

Neoprene Grade (Circle One): (3) 4 Other Grade or Natural Rubber: —

☑ Approved ☐ Furnish as Corrected
☐ Rejected ☐ Revise and Resubmit
☐ Submit Specified Item

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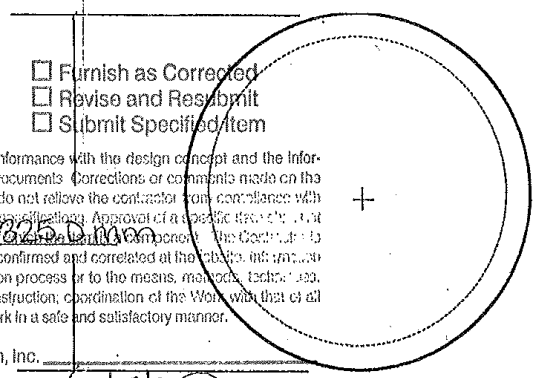
McFarland-Johnson, Inc.

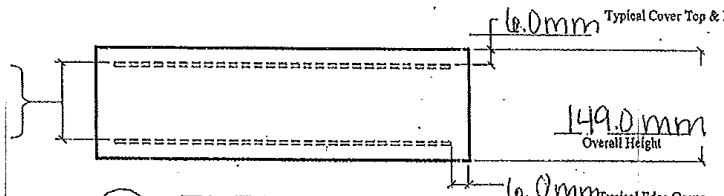
Date 6/17/10

By RWC

LOADS
DL - 29 Kips
LL - 49 Kips
TOTAL - 78 Kips



(A) PLAN
NOT TO SCALE



# of Reinforcing Plates: 10

Plate Thickness: 14GA

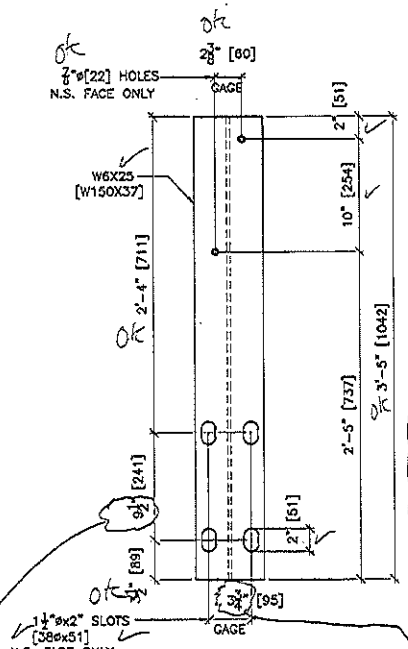
9 # of Inner Rubber Layers @ 13.1mm = 117.9mm

(B) ELEVATION
NOT TO SCALE

Name: Natasha Cross Date: 4-5-10

This shop drawing was prepared in accordance with the contract plans and specifications. The D.S. Brown Company does not accept liability for the design of the products detailed in the shop drawings.

The D.S. Brown Company • 300 East Cherry Street • North Baltimore, Ohio 45872-0158
Phone: (419) 257-3561 • Fax: (419) 257-2200



20 REQ'D. RAIL POST MARK "P1"

NOTE:
DIMENSIONS IN BRACKETS [ ] ARE METRIC (mm)

From: Andy White [mailto:andy@ccscraneservice.com]
Sent: Wednesday, March 16, 2011 3:28 PM
To: Mackintosh, Mark
Cc: Chris Chauvin; Hulett, Josh
Subject: FW: Ripton Post

Hi Mark,

Please find a revised shop drawing attached for the Ripton bridge rail posts. We have verified that the vertical spacing between anchors in the field is closer to 9 ½" than it is to 10". Also, the gage of anchors in the field varies somewhat and tends to be slightly larger than 3 5/8". I had the fabricator include both metric (SI) and US Customary units so that people can easily verify dimensions in the field with readily available tape measures, and so that structures can easily compare dimensions to the standard.

Thanks,
Andy

Andrew White, P.E.
CCS Constructors, LLC
138 Munson Ave.
Morrisville, VT 05661
802-888-7701 ext. 217
andy@ccscraneservice.com

RECEIVED
CK'D BY SGF OK'D BY SGF
MAR 18 2011
RESUBMIT_____ APPROVED AS NOTED
BY Shennard G. Hunt DATE 3-18-2010

APPROVED AS NOTED PER ANDY'S EMAIL TO MARK MACKINTOSH ON MARCH 16, 2011 @ 3:28 PM COPY IN CLOUD ABOVE.
Shennard G Hunt
3-18-2011

BILL OF MATERIAL

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	REMARKS	MAT'L
	P1	20		W 6 X 25 (W150X37)	3'-5 [1042]	A709, GR. 50W	

DRILLING DATA W/MKH.				WASHERS		FINISH
GAGE	SIZE	LENGTH	TYPE	FLAT	BEV.	

FINISH:
MATERIAL: A709, GR. 50W
HOLES: AS NOTED
ELECTRODES:
WELDS:
SURFACE PREP:

NO	DATE	DESCRIPTION	BY
1	3/16/11	REVISIONS PER APPROVAL	JAC

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 RICHFIELD, MC 04947
PHONE (207) 265-2848 -- FAX (207) 265-4054

DRAWN JAC	POST DETAILS		PROJECT NO. FM010-1(42)
DATE 3/2/11	RIPTON		
CHECKED MTD	CCS CONSTRUCTORS, LLC		DWG. NO. 1 OF 1
JOB#			

FM010-1(2)
RIPTON