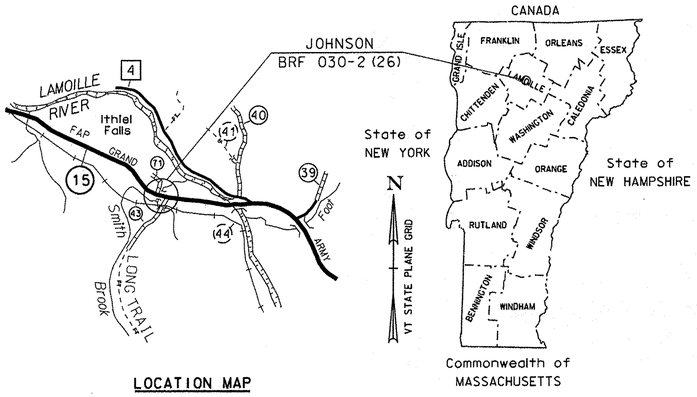
STATE OF VERMONT
AGENCY OF TRANSPORTATION



LOCATION MAP

PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF JOHNSON

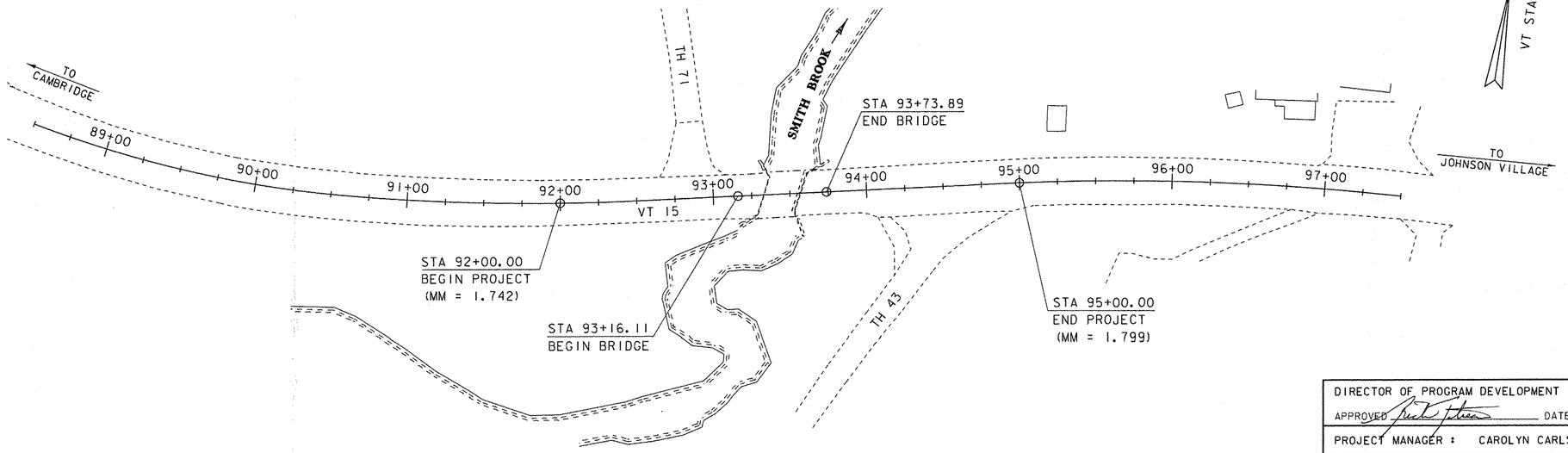
COUNTY OF LAMOILLE

ROUTE NO : VT 15 (MINOR ARTERIAL) BRIDGE NO : 32

PROJECT LOCATION : BEGINNING AT A POINT ON VT. ROUTE 15, APPROXIMATELY 1.75 MILES EASTERLY OF THE CAMBRIDGE/JOHNSON TOWN LINE, AND EXTENDING 0.057 MILES EASTERLY.

PROJECT DESCRIPTION : REPLACEMENT OF EXISTING BRIDGE ALONG WITH RELATED APPROACH ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE :	57.78 FEET
LENGTH OF ROADWAY :	242.22 FEET
LENGTH OF PROJECT :	300.00 FEET



RECORD PLANS

CONTRACTOR: A.L. ST. ONGE CONTRACTOR, INC. – MONTGOMERY, VT

RESIDENT ENGINEER: JEFF COTA

CONSTRUCTION BEGAN: OCTOBER 20, 2014

CONSTRUCTION COMPLETE: AUGUST 26, 2015

RECORD PLANS BY: JEFF COTA & KEVIN KING

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

BY _____ RESIDENT ENGINEER

DATE 7/11/16

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.

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 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2

SURVEYED BY : R. GILMAN

SURVEYED DATE : 10/28/09

DATUM

VERTICAL NAVD88

HORIZONTAL NAD83 (96)

DIRECTOR OF PROGRAM DEVELOPMENT

APPROVED _____ DATE 6-11-19

PROJECT MANAGER : CAROLYN CARLSON, P.E.

PROJECT NAME : JOHNSON

PROJECT NUMBER : BRF 030-2 (26)

SHEET 1 OF 69 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version
LRFD

INDEX OF SHEETS

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SD-516.10	BRIDGE JOINT ASHPALTIC PLUG	8/29/2011
SD-601.00	STRUCTURAL STEEL DETAILS AND NOTES	6/4/2010

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: November 2013

DRAINAGE AREA : 4.3 sq. mi.
CHARACTER OF TERRAIN : Mostly forested, mountainous
STREAM CHARACTERISTICS : Sinuous, steep and probably incised
NATURE OF STREAMBED : Mostly gravel and sand, some cobbles

PEAK FLOW DATA

Q 2.33 =	325 cfs	Q 50 =	1025 cfs
Q 10 =	650 cfs	Q 100 =	1200 cfs
Q 25 =	850 cfs	Q 500 =	1700 cfs

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 5.0 fps
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? No
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Possibly
IF YES, DESCRIBE: Backwater from Lamoille River

WATERSHED STORAGE: <1%
HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single span concrete T-beam
YEAR BUILT: 1926, Reconstructed in 1969
CLEAR SPAN(NORMAL TO STREAM): 22'
VERTICAL CLEARANCE ABOVE STREAMBED: 6.8'
WATERWAY OF FULL OPENING: 140 sq. ft.
DISPOSITION OF STRUCTURE: Replace
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	482.4'	VELOCITY =	6.0 fps
Q10 =	484.1'	"	8.2 fps
Q25 =	484.9'	"	9.7 fps
Q50 =	486.4'	"	9.9 fps
Q100 =	486.7'	"	11.0 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 488.7'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Johnson
DISTANCE: 2047'
HIGHWAY # : Lamoille Valley Rail-Trail
STRUCTURE #:
CLEAR SPAN:
CLEAR HEIGHT:
YEAR BUILT:
FULL WATERWAY:
STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Johnson
DISTANCE: 1000'
HIGHWAY # :
STRUCTURE #:
CLEAR SPAN:
CLEAR HEIGHT:
YEAR BUILT:
FULL WATERWAY:
STRUCTURE TYPE: Confluence with Lamoille River

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.39	1.32					
POSTING							
OPERATING	3.15	1.73	3.08	1.74	2.26	2.05	2.39
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span concrete bridge NEXT 24F

CLEAR SPAN(NORMAL TO STREAM): 50'
VERTICAL CLEARANCE ABOVE STREAMBED: ~9'
WATERWAY OF FULL OPENING: 380 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	482.2'	VELOCITY=	5.0 fps
Q10 =	483.6'	"	6.2 fps
Q25 =	484.3'	"	6.7 fps
Q50 =	484.7'	"	7.1 fps
Q100 =	485.1'	"	7.6 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 489.3'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 487.8'
VERTICAL CLEARANCE: @ Q50 = 3.1'

SCOUR: Contraction scour is 0' up to Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	10 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	5 cfs	0.5'
ORDINARY HIGH WATER:	140 cfs	3.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span bridge
CLEAR SPAN (NORMAL TO STREAM): 35'
VERTICAL CLEARANCE ABOVE STREAMBED: Low beam elevation 484.5'
WATERWAY AREA OF FULL OPENING: 160 sq. ft.

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY
4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_P:	3.0 INCH
3. DESIGN SPAN	L:	56.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	1.51 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	8.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	6.5 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	---
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	---
14. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
16. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	10.0 KSF
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
18. PILE RESISTANCE FACTOR	ϕ:	0.65
19. LATERAL PILE DEFLECTION	Δ:	0.16 INCH
20. BASIC WIND SPEED	V_{3s}:	---
21. MINIMUM GROUND SNOWLOAD	p_g:	---
22. EST. PILE LENGTHS (TWO SUBSTRUCTURES)	s_s:	---

(ABUTMENT 1 = 50 AND ABUTMENT 2 = 48) FT
6 PILES PER ABUTMENT

SEE REVISION: OCT-28-2014

TRAFFIC DATA

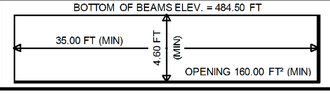
YEAR	ADT	DHV	% D	% T	ADTT
2012	5000	560	56	4	510
2032	5700	640	56	5.7	830

20 year ESAL for flexible pavement from 2012 to 2032 : 4615000
40 year ESAL for flexible pavement from 2012 to 2052 : 11448000
Design Speed : 50 mph

AS BUILT "REBAR" DETAIL

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

TEMPORARY BRIDGE PROFILE ALONG TEMP CL



PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193pi.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
PRELIMINARY INFORMATION SHEET

PLOT DATE: 7/11/2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 2 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

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Q 25 =	850 cfs	Q 500 =	1700 cfs

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ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 5.0 fps
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DEBRIS: Moderate
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IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Possibly
IF YES, DESCRIBE: Backwater from Lamoille River

WATERSHED STORAGE: <1%
HEADWATERS:
UNIFORM: X
IMMEDIATELY ABOVE SITE:

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YEAR BUILT: 1926, Reconstructed in 1969
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VERTICAL CLEARANCE ABOVE STREAMBED: 6.8'
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IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 488.7'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Johnson — DISTANCE: 2047'
HIGHWAY # : Lamoille Valley Rail Trail — STRUCTURE #:
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE:

DOWNSTRUCTURE STRUCTURE

TOWN: Johnson — DISTANCE: 1000'
HIGHWAY # : — STRUCTURE #:
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE: Confluence with Lamoille River

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.01	1.18					
POSTING							
OPERATING	2.79	1.53	2.73	1.54	2.00	1.81	1.18
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span concrete bridge NEXT 24F

CLEAR SPAN(NORMAL TO STREAM): 50'
VERTICAL CLEARANCE ABOVE STREAMBED: ~9'
WATERWAY OF FULL OPENING: 380 sq. ft.

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RELIEF ELEVATION: 489.3'
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PERMIT INFORMATION

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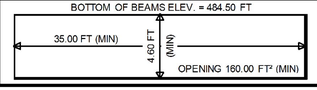
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TEMPORARY BRIDGE PROFILE ALONG TEMP CL



REVISION	DATE	DESCIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: **JOHNSON**
PROJECT NUMBER: **BRF 030-2(26)**

FILE NAME: s88b193pi.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
PRELIMINARY INFORMATION SHEET

PLOT DATE: 11/5/2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

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

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

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

COMMON TOPOGRAPHIC POINT SYMBOLS

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

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

PROPOSED GEOMETRY CODES

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

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

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

ABOVE GROUND UTILITIES (AERIAL)

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

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

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

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

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

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

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

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

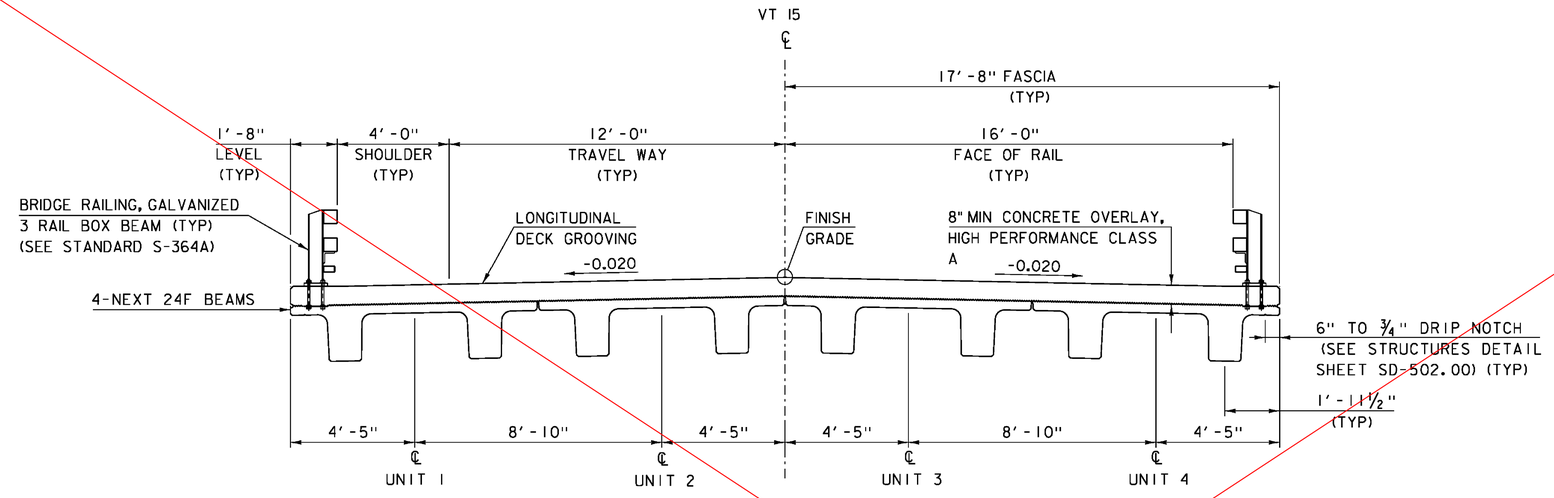
EXISTING FEATURES

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

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

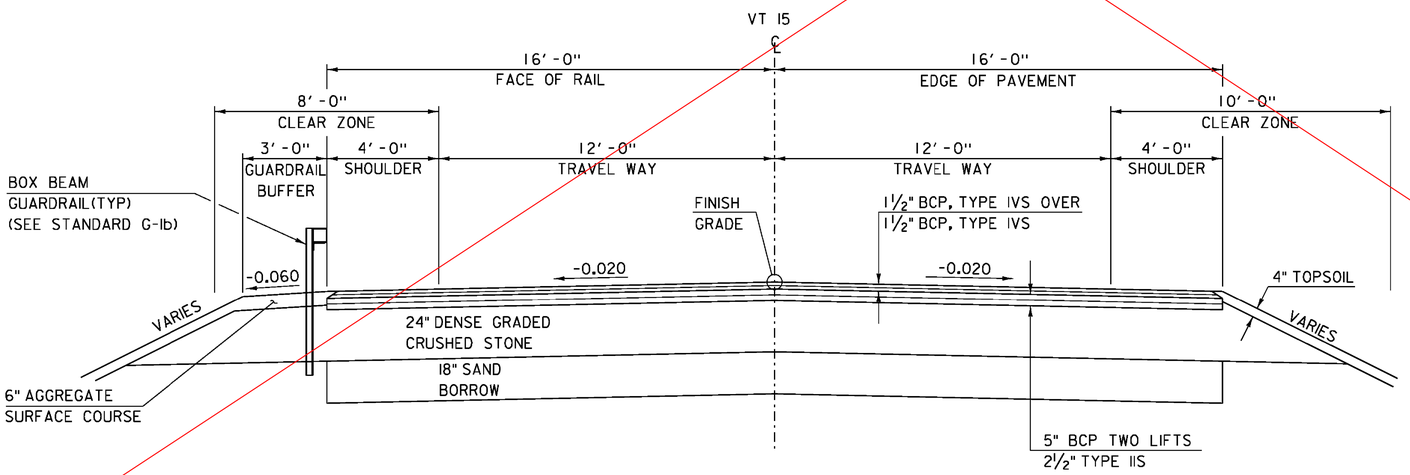
FILE NAME: s88b1931egend.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
CONVENTIONAL SYMBOLOGY-LEGEND

PLOT DATE: 10-JUN-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 3 OF 69



BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"



ROADWAY TYPICAL SECTION

SCALE 3/8" = 1'-0"

*BCP: BITUMINOUS CONCRETE PAVEMENT PAID FOR UNDER ITEM 900.680 "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".

MATERIAL TOLERANCES
(IF USED ON PROJECT)

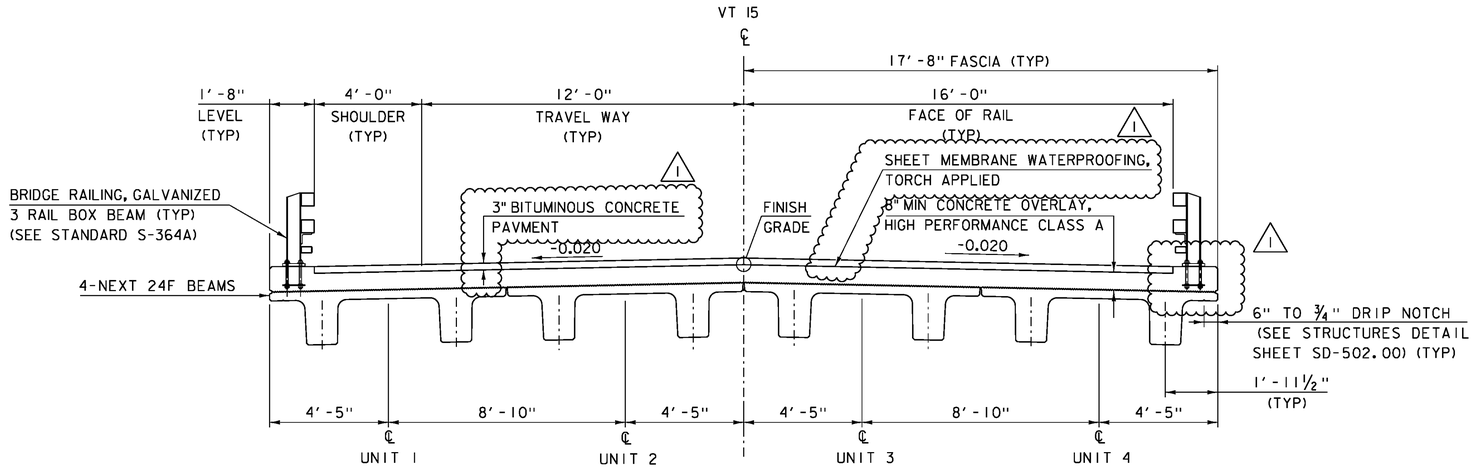
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

SEE REVISION: OCT-28-2014

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

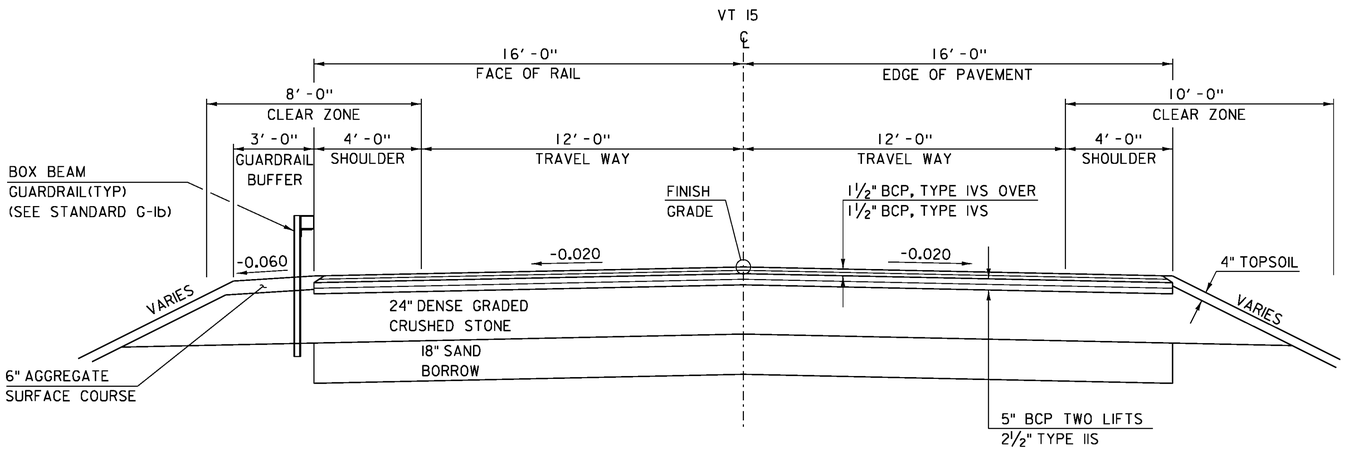
FILE NAME: s88bl93typ.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
TYPICAL SECTIONS (1)

PLOT DATE: 10-JUN-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 4 OF 69



BRIDGE TYPICAL SECTION

SCALE 3/8" = 1′-0"



ROADWAY TYPICAL SECTION

SCALE 3/8" = 1′-0"

△1
REMOVE
LONGITUDINAL DECK GROOVING

*BCP: BITUMINOUS CONCRETE PAVEMENT PAID FOR UNDER ITEM 900.680 "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".

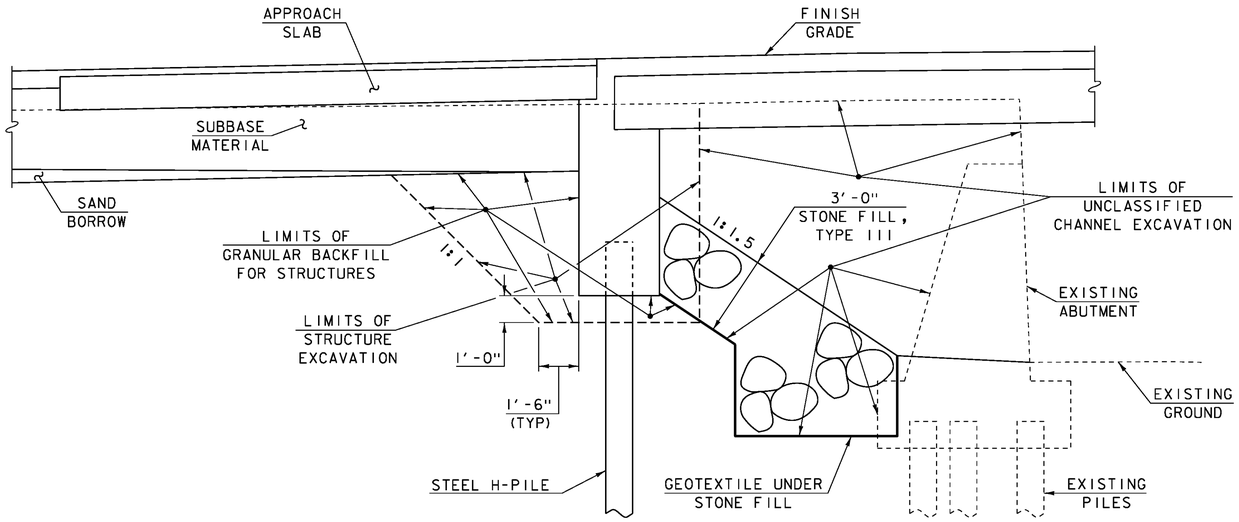
REVISION	DATE	DESCIPTION	BY
△1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

MATERIAL TOLERANCES
(IF USED ON PROJECT)

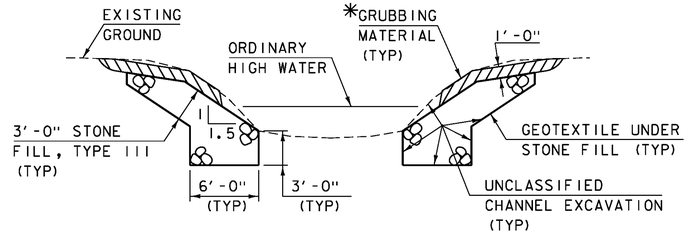
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193typ.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
TYPICAL SECTIONS (1)
PLOT DATE: 05-NOV-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 4 OF 69

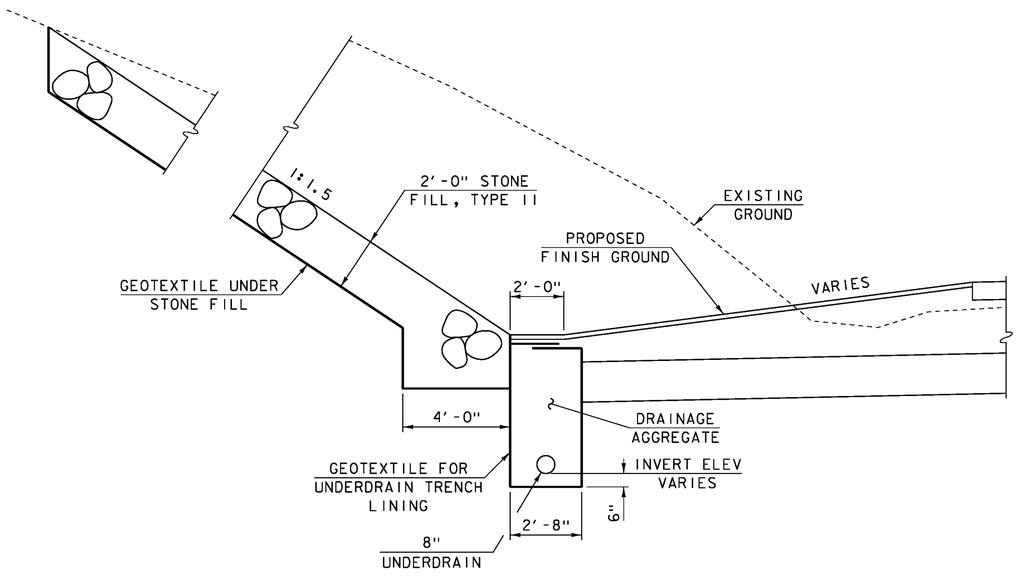


TYPICAL ABUTMENT SECTION
(NOT TO SCALE)

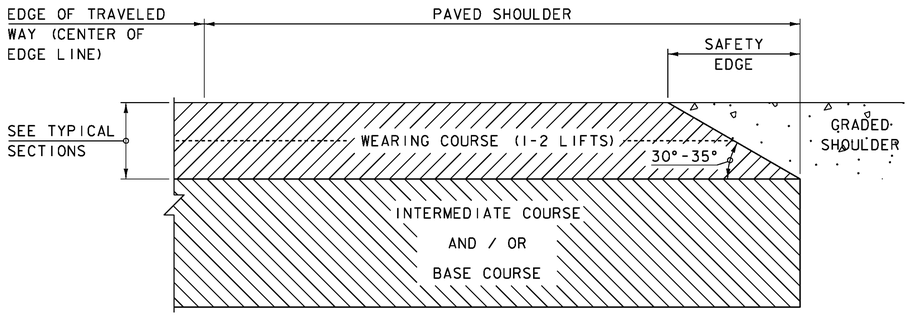


TYPICAL CHANNEL SECTION
(NOT TO SCALE)

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



BANK CUT AND UNDERDRAIN TYPICAL SECTION
(NOT TO SCALE)



SAFETY EDGE DETAIL
NOT TO SCALE

1. LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.
2. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
3. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88bl93typ.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: C. MOONEY	CHECKED BY: H. SALLS
TYPICAL SECTIONS (2)	SHEET 5 OF 69

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011 AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SIXTH EDITION, DATED 2012 AND ITS LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS THIRD EDITION, DATED 2010 AND ITS LATEST REVISIONS.

2. THE BRIDGE WAS DESIGNED FOR THE HL-93 LIVE LOADS.

3. ITEM 529.15 "REMOVAL OF STRUCTURE" SHALL BE USED FOR THE REMOVAL OF THE EXISTING STRUCTURE INCLUDING THE SUPERSTRUCTURE, ALONG WITH THE ABUTMENTS AND WINGWALLS OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION. THE EXISTING CONCRETE ABUTMENTS SHALL BE COMPLETELY REMOVED.

4. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS OTHERWISE NOTED.

EARTHWORK AND RELATED ITEMS

5. THE TEMPORARY BRIDGE AND ITS APPROACHES SHALL BE CONSTRUCTED AND PAID FOR IN ACCORDANCE WITH ITEM 528.11 "TWO-WAY TEMPORARY BRIDGE". THE APPROACHES TO THE TEMPORARY BRIDGE SHALL BE PAVED WITH 2 INCHES OF PAVEMENT.

6. TEMPORARY CONSTRUCTION FILLS WITHIN THE WATERCOURSE FOR ANY PURPOSE SHALL CONSIST OF CLEAN STONE FILL ONLY. NO OTHER FILLING IN THE STREAM SHALL OCCUR WITHOUT THE APPROVAL OF THE STREAM ALTERATION ENGINEER.

7. THE BACKFILL BEHIND THE ABUTMENTS SHALL NOT BE PLACED HIGHER THAN THE BRIDGE SEATS UNTIL THE ABUTMENTS AND DECK CONSTRUCTION IS COMPLETED.

8. THE "STONE FILL, TYPE III" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEXT BEAMS ARE SET.

PILES

9. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(f).

10. THE PILES SHALL BE DRIVEN TO A NOMINAL PILE DRIVING RESISTANCE OF 285 KIPS.

11. TO ENSURE THAT THE NOMINAL CAPACITY HAS BEEN ATTAINED AND TO PREVENT THE OVERSTRESSING OF THE PILE DURING DRIVING OPERATIONS, DYNAMIC PILE TESTING SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 505.04 OF THE STANDARD SPECIFICATIONS. PAYMENT FOR PILE TESTING SHALL BE MADE UNDER ITEM 505.45 "DYNAMIC PILE LOADING TEST". A MINIMUM OF ONE DYNAMIC PILE TEST SHALL BE CONDUCTED ON THE FIRST PILE AT EACH ABUTMENT FOR A TOTAL OF 2 TESTS. MORE TESTS MAY BE ORDERED BY THE ENGINEER. ADDITIONAL TESTS ORDERED BY THE ENGINEER WILL BE PAID FOR AT THE UNIT PRICE FOR CONTRACT ITEM 505.45.

12. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.

13. THE PILES SHALL BE HP 12 X 63.

14. ALL MATERIAL, LABOR, EQUIOMENT AND INCIDENTALS NECESSARY TO ITEM 505.155 "STEEL PILEING, HP 12 X 63". THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE METHOD OF DRIVING FOR APPROVAL BY THE ENGINEER.

CONCRETE

15. SUBSTRUCTURE (INCLUDING RETAINING WALL) AND APPROACH SLAB CONCRETE SHALL BE HIGH PERFORMANCE CLASS B AND SHALL BE PAID FOR UNDER ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B". THE OVERLAY AND ALL CONCRETE PLACED INTEGRALLY WITH THE SUPERSTRUCTURE SHALL BE ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A".

16. THE ABUTMENT AND WINGWALL CONCRETE ABOVE THE HORIZONTAL CONSTRUCTION JOINTS SHALL BE PLACED MONOLITHICALLY WITH THE DECK POUR.

17. INDIVIDUAL POURED SEGMENTS ARE TO BE PLACED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A CONSTRUCTION JOINT SHALL BE USED BETWEEN ADJACENT POURS. A MINIMUM 96 HOUR DELAY BETWEEN ADJACENT POURS SHALL BE OBSERVED.

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

19. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.

20. EXCLUDING REINFORCING STEEL IN WINGWALLS, ALL REINFORCING STEEL ABOVE THE CONSTRUCTION JOINT SHALL BE CORROSION PROTECTION LEVEL II AND ALL REINFORCING STEEL BELOW THE CONSTRUCTION JOINT, IN WINGWALLS AND IN THE APPROACH SLABS SHALL BE CORROSION PROTECTION LEVEL I. PAYMENT WILL BE MADE UNDER THE APPROPRIATE SECTION 507 CONTRACT ITEM. OVERLAY REINFORCING SHEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING AND WILL BE PAID FOR UNDER CONTRACT ITEM 507.12. F BEAM REINFORCING SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING AND WILL BE PAID FOR UNDER CONTRACT ITEM 900.640 SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT F BEAM).

21. LEVEL I REINFORCING STEEL IN THE ABUTMENTS SHALL BE EPOXY COATED.

TRAFFIC CONTROL

22. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

23. ANY TEMPORARY MEANS OF SUPPORTING FILL SHALL BE INCIDENTAL TO THE ITEM 528.11 "TWO-WAY TEMPORARY BRIDGE". TEMPORARY PAVEMENT MARKINGS ON APPROACHES TO THE TEMPORARY BRIDGE WILL BE INCLUDED FOR PAYMENT UNDER CONTRACT ITEM 528.11.

24. THE CONTRACTOR SHALL ADD SIGN G20-5AP TO THE TOP OF ALL TEMPORARY SPEED LIMIT SIGNS AS DETAILED IN THE MUTCD.

25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A DETAILED TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. NO WORK SHALL BEGIN UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED.

26. PAYMENT FOR ALL ON AND OFF-PROJECT CONSTRUCTION SIGNING AND TRAFFIC CONTROL DEVICES, INCLUDING DRUMS, TRAFFIC DIVIDERS AND BARRICADES, AND FOR ALL COSTS RELATED TO TRAFFIC CONTROL NOT OTHERWISE PAID UNDER A SEPARATE CONTRACT ITEM(S), INCLUDING PREPARATION OF AND IF NECESSARY REVISION(S) TO THE SITE-SPECIFIC TRAFFIC CONTROL PLAN, WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

NEXT F BEAMS

27. THE NEXT F BEAMS ARE A NON-PROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT HTTP://WWW.PCINE.ORG.

28. DESIGN VALUES
    a. CONCRETE COMPRESSIVE STRENGTH: f'c = 10,000 PSI
    b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f'c = 6,500 PSI
    c. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
    d. ASSUMED MODULUS OF ELASTICITY = 28,500 KSI
    e. JACKING FORCE PER STRAND = 47 KIPS
    f. SERVICE LOADS:

MEMBER MOMENT:	406 K-FT
SUPERIMPOSED DEAD LOAD MOMENT:	368 K-FT
LIVE LOAD AND IMPACT MOMENT:	1077 K-FT
DEAD LOAD REACTION:	58 K
LIVE LOAD AND IMPACT REACTION:	119 K
TOTAL REACTION:	184 K
FINAL CAMBER:	1.15 INCHES

SEE REVISION: OCT-28-2014

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88bl93gnotes.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
PROJECT NOTES

PLOT DATE: 11-JUL-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 6 OF 69

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011 AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SIXTH EDITION, DATED 2012 AND ITS LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS THIRD EDITION, DATED 2010 AND ITS LATEST REVISIONS.

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EARTHWORK AND RELATED ITEMS

5. THE TEMPORARY BRIDGE AND ITS APPROACHES SHALL BE CONSTRUCTED AND PAID FOR IN ACCORDANCE WITH ITEM 528.11 "TWO-WAY TEMPORARY BRIDGE". THE APPROACHES TO THE TEMPORARY BRIDGE SHALL BE PAVED WITH 2 INCHES OF PAVEMENT.

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PILES

9. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(f).

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12. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.

13. THE PILES SHALL BE HP 12 X 63.

14. ALL MATERIAL, LABOR, EQUIOMENT AND INCIDENTALS NECESSARY TO ITEM 505.155 "STEEL PILEING, HP 12 X 63". THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE METHOD OF DRIVING FOR APPROVAL BY THE ENGINEER.

CONCRETE

15. SUBSTRUCTURE (INCLUDING RETAINING WALL) AND APPROACH SLAB CONCRETE SHALL BE HIGH PERFORMANCE CLASS B AND SHALL BE PAID FOR UNDER ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B". THE OVERLAY AND ALL CONCRETE PLACED INTEGRALLY WITH THE SUPERSTRUCTURE SHALL BE ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A".

16. THE ABUTMENT AND WINGWALL CONCRETE ABOVE THE HORIZONTAL CONSTRUCTION JOINTS SHALL BE PLACED MONOLITHICALLY WITH THE DECK POUR.

17. INDIVIDUAL POURED SEGMENTS ARE TO BE PLACED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A CONSTRUCTION JOINT SHALL BE USED BETWEEN ADJACENT POURS. A MINIMUM 96 HOUR DELAY BETWEEN ADJACENT POURS SHALL BE OBSERVED.

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TRAFFIC CONTROL

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25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A DETAILED TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. NO WORK SHALL BEGIN UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED.

26. PAYMENT FOR ALL ON AND OFF-PROJECT CONSTRUCTION SIGNING AND TRAFFIC CONTROL DEVICES, INCLUDING DRUMS, TRAFFIC DIVIDERS AND BARRICADES, AND FOR ALL COSTS RELATED TO TRAFFIC CONTROL NOT OTHERWISE PAID UNDER A SEPARATE CONTRACT ITEM(S), INCLUDING PREPARATION OF AND IF NECESSARY REVISION(S) TO THE SITE-SPECIFIC TRAFFIC CONTROL PLAN, WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

NEXT F BEAMS

27. THE NEXT F BEAMS ARE A NON-PROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT HTTP://WWW.PCINE.ORG.

28. DESIGN VALUES
    a. CONCRETE COMPRESSIVE STRENGTH: f'c = 10,000 PSI
    b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f'c = 6,500 PSI
    c. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
    d. ASSUMED MODULUS OF ELASTICITY = 28,500 KSI
    e. JACKING FORCE PER STRAND = 47 KIPS
    f. SERVICE LOADS:

MEMBER MOMENT:	406 K-FT
SUPERIMPOSED DEAD LOAD MOMENT:	368 K-FT
LIVE LOAD AND IMPACT MOMENT:	1077 K-FT (1)
DEAD LOAD REACTION:	66.1 K
LIVE LOAD AND IMPACT REACTION:	119 K
TOTAL REACTION:	184 K (1)
FINAL CAMBER:	1.09 INCHES

REVISION	DATE	DESCIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193gnotes.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
PROJECT NOTES

PLOT DATE: 05-NOV-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 6 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES			TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				**EARTHWORKS SUMMARY**
5600				5600		CY	COMMON EXCAVATION	203.15				**FILL AVAILABLE**
		570		570		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		5600	CY	COMMON EXCAVATION (5600 x 1.0)
500				500		CY	SAND BORROW	203.31		171	CY	UNCLASSIFIED CHANNEL EXCAVATION (570 x 0.3)
190				190		CY	TRENCH EXCAVATION OF EARTH	204.20		114	CY	TRENCH EXCAVATION OF EARTH (190 x 0.6)
1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		87	CY	STRUCTURE EXCAVATION (290 x 0.3)
		290		290		CY	STRUCTURE EXCAVATION	204.25		8	CY	ROUNDING
		180		180		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		**5980**	**CY**	**TOTAL FILL AVAILABLE**
1110				1110		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				**FILL REQUIRED**
1240				1240		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		265	CY	FACTORED FILL (230 x 1.15)
60				60		CY	AGGREGATE SURFACE COURSE	401.10		5	CY	ROUNDING
19				19		CWT	EMULSIFIED ASPHALT	404.65		**270**	**CY**	**TOTAL FILL REQUIRED**
1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50		**5710**	**CY**	**TOTAL WASTE**
		82		82		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				**COMMON EXCAVATION**
		154		154		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34		5330	CY	VT 100
		1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10		220	CY	TH 71
		588		588		LF	STEEL PILING, HP 12 X 63	505.155		50	CY	TH 43
		2		2		EACH	DYNAMIC PILE LOADING TEST	505.45				**SUBBASE OF DENSE GRADED CRUSHED STONE**
		16424		16424		LB	REINFORCING STEEL, LEVEL I	507.11		1100	CY	VT 100
		17849		17849		LB	REINFORCING STEEL, LEVEL II	507.12		60	CY	TH 71
		206		206		SY	LONGITUDINAL DECK GROOVING	509.10		90	CY	TH 43
		28		28		GAL	WATER REPELLENT, SILANE	514.10				**EMULSIFIED ASPHALT**
		68		68		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10		16	CWT	VT 100
		68		68		LF	JOINT SEALER, HOT POURED	524.11		1	CWT	TH 71
		122		122		LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335		2	CWT	TH 43
		1		1		LS	TWO-WAY TEMPORARY BRIDGE (910 SF - EST.)	528.11				**SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)**
		1		1		EACH	REMOVAL OF STRUCTURE (755 SF - EST.)	529.15		604	TON	VT 100
		16		16		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17		18	TON	TH 71
							BEGIN OPTION AA			58	TON	TH 43
128				128		LF	18" CAAP .060 (2-2/3 X 1/2)	601.0215				
128				128		LF	18" PCCSP .064 (2-2/3 X 1/2)	601.0415				
128				128		LF	18" CPEP(SL)	601.2615				
							END OPTION AA					
348				348		LF	8 INCH UNDERDRAIN PIPE	605.11				
3				3		LF	6 INCH UNDERDRAIN CARRIER PIPE	605.20				
78				78		LF	8 INCH UNDERDRAIN CARRIER PIPE	605.21				
1				1		EACH	UNDERDRAIN FLUSHING BASIN	605.95				
	1			1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
60	10			70		CY	STONE FILL, TYPE I	613.10				
1330				1330		CY	STONE FILL, TYPE II	613.11				

SEE REVISION: OCT-28-2014

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88193qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
QUANTITY SHEET #1

PLOT DATE: 06/10/2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 7 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES / TOTALS / DESCRIPTIONS

ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
5600				5600		CY	COMMON EXCAVATION	203.15	
		570		570		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
500				500		CY	SAND BORROW	203.31	
190				190		CY	TRENCH EXCAVATION OF EARTH	204.20	
1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
		290		290		CY	STRUCTURE EXCAVATION	204.25	
		180		180		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
1110				1110		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	
1240				1240		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	
60				60		CY	AGGREGATE SURFACE COURSE	401.10	
19				19		CWT	EMULSIFIED ASPHALT	404.65	
1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	
		~~82~~	84 (revision 1)	~~82~~	84 (revision 1)	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	
		~~154~~	152 (revision 1)	~~154~~	152 (revision 1)	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	
		1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	
		588		588		LF	STEEL PILING, HP 12 X 63	505.155	
		2		2		EACH	DYNAMIC PILE LOADING TEST	505.45	
		16424		16424		LB	REINFORCING STEEL, LEVEL I	507.11	
		17849		17849		LB	REINFORCING STEEL, LEVEL II	507.12	
		~~206~~	(revision 1)	~~206~~	(revision 1)	~~SY~~	~~LONGITUDINAL DECK GROOVING~~	~~509.10~~	(revision 1)
		28		28		GAL	WATER REPELLENT, SILANE	514.10	
		68		68		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	
		68		68		LF	JOINT SEALER, HOT POURED	524.11	
		122		122		LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335	
		1		1		LS	TWO-WAY TEMPORARY BRIDGE (910 SF - EST.)	528.11	
		1		1		EACH	REMOVAL OF STRUCTURE (755 SF - EST.)	529.15	
		16		16		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	
							BEGIN OPTION AA		
128				128		LF	18" CAAP .060 (2-2/3 X 1/2)	601.0215	
128				128		LF	18" PCCSP .064 (2-2/3 X 1/2)	601.0415	
128				128		LF	18" CPEP(SL)	601.2615	
							END OPTION AA		
348				348		LF	8 INCH UNDERDRAIN PIPE	605.11	
3				3		LF	6 INCH UNDERDRAIN CARRIER PIPE	605.20	
78				78		LF	8 INCH UNDERDRAIN CARRIER PIPE	605.21	
1				1		EACH	UNDERDRAIN FLUSHING BASIN	605.95	
	1			1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15	
60	10			70		CY	STONE FILL, TYPE I	613.10	
1330				1330		CY	STONE FILL, TYPE II	613.11	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
		FILL AVAILABLE
5600	CY	COMMON EXCAVATION (5600 x 1.0)
171	CY	UNCLASSIFIED CHANNEL EXCAVATION (570 x 0.3)
114	CY	TRENCH EXCAVATION OF EARTH (190 x 0.6)
87	CY	STRUCTURE EXCAVATION (290 x 0.3)
8	CY	ROUNDING
5980	**CY**	**TOTAL FILL AVAILABLE**
		FILL REQUIRED
265	CY	FACTORED FILL (230 x 1.15)
5	CY	ROUNDING
270	**CY**	**TOTAL FILL REQUIRED**
5710	**CY**	**TOTAL WASTE**
		COMMON EXCAVATION
5330	CY	VT 100
220	CY	TH 71
50	CY	TH 43
		SUBBASE OF DENSE GRADED CRUSHED STONE
1100	CY	VT 100
60	CY	TH 71
90	CY	TH 43
		EMULSIFIED ASPHALT
16	CWT	VT 100
1	CWT	TH 71
2	CWT	TH 43
		SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)
604	TON	VT 100
18	TON	TH 71
58	TON	TH 43

REVISION	DATE	DESCIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88193qs.dgn
PLOT DATE: 06/10/2014
PROJECT LEADER: C. CARLSON
DRAWN BY: G. ROY
DESIGNED BY: H. SALLS
CHECKED BY: H. SALLS
QUANTITY SHEET #1

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES												TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
								ROADWAY		EROSION CONTROL		BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
												440		440		CY	STONE FILL, TYPE III	613.12				
								2						2		EACH	YIELDING MARKER POSTS	619.17				
								251						251		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21				
								232						232		LF	BOX BEAM GUARDRAIL	621.30				
								4						4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	621.725				
								687						687		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
								100						100		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
								1000						1000		HR	FLAGGERS	630.15				
													1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
													1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
													1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
													3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
								1						1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
								1560						1560		LF	4 INCH WHITE LINE	646.20				
								740						740		LF	4 INCH YELLOW LINE	646.21				
								26						26		LF	24 INCH STOP BAR	646.26				
								730				200		930		SY	GEOTEXTILE UNDER STONE FILL	649.31				
										170				170		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515				
										107				107		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
										30				30		LB	SEED	651.15				
										30				30		LB	SEED, WINTER RYE	651.17				
										190				190		LB	FERTILIZER	651.18				
										1				1		TON	AGRICULTURAL LIMESTONE	651.20				
										1				1		TON	HAY MULCH	651.25				
										100				100		CY	TOPSOIL	651.35				
										190				190		SY	GRUBBING MATERIAL	651.40				
										1				1		LS	EPSC PLAN	652.10				
										50				50		HR	MONITORING EPSC PLAN	652.20				
										1				1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
										1520				1520		SY	TEMPORARY EROSION MATTING	653.20				
										10				10		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
										30				30		CY	VEHICLE TRACKING PAD	653.35				
										2				2		EACH	INLET PROTECTION DEVICE, TYPE I	653.40				
										1630				1630		LF	PROJECT DEMARCATION FENCE	653.55				
								31.34						31.34		SF	TRAFFIC SIGNS, TYPE A	675.20				
								98						98		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
								8						8		EACH	REMOVING SIGNS	675.50				
								1						1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
								6						6		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620				
								71						71		LF	SPECIAL PROVISION (GUARDRAIL TRANSITION, STEEL BEAM TO BOX BEAM)	900.640				

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88193qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
QUANTITY SHEET #2

PLOT DATE: 06/10/2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 8 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES			TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	BRIDGE	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
		229	229		LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT F BEAMS)(NEXT 24 F)	900.640				
1			1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
1			1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650				
1			1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650				
680			680		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

SEE REVISION: OCT-28-2014

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88193qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
QUANTITY SHEET #3

PLOT DATE: 06/10/2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 9 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES				TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
		229		229		LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT F BEAMS)(NEXT 24 F)	900.640				
1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
1				1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650				
1				1	715 (1)	LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650				
680		35 (1)		~~680~~		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680	(1)			
		219 (1)		219 (1)		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20	(1)			

REVISION	DATE	DESCIPTION	BY
(1)	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88193qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
QUANTITY SHEET #3

PLOT DATE: 06/10/2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 9 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES

DECK	APPROACH SLAB #1	APPROACH SLAB #2	ABUTMENT #1	ABUTMENT #2	RETAINING WALL	CHANNEL	BRIDGE TOTAL
						570	570
			205	85			290
			130	50			180
55			14	13			82
	30	30	36	34	24		154
			0.5	0.5			1
			300	288			588
			1	1			2
	3720	3720	3622	3260	2102		16424
15189			1330	1330			17849
206							206
18			5	5			28
	34	34					68
	34	34					68
122							122
1							1
1							1
			8	8			16
						440	440
						200	200
229							229

TOTALS

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER
CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27
CY	STRUCTURE EXCAVATION	204.25
CY	GRANULAR BACKFILL FOR STRUCTURES	204.30
CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33
CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34
LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10
LF	STEEL PILING, HP 12 X 63	505.155
EACH	DYNAMIC PILE LOADING TEST	505.45
LB	REINFORCING STEEL, LEVEL I	507.11
LB	REINFORCING STEEL, LEVEL II	507.12
SY	LONGITUDINAL DECK GROOVING	509.10
GAL	WATER REPELLENT, SILANE	514.10
LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10
LF	JOINT SEALER, HOT POURED	524.11
LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335
LS	TWO-WAY TEMPORARY BRIDGE (910 SF - EST.)	528.11
EACH	REMOVAL OF STRUCTURE (755 SF - EST.)	529.15
EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17
CY	STONE FILL, TYPE III	613.12
SY	GEOTEXTILE UNDER STONE FILL	649.31
LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT F BEAMS)(NEXT 24 F)	900.640

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

SEE REVISION: OCT-28-2014

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88193qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
BRIDGE QUANTITY SHEET #1

PLOT DATE: 06/10/2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 10 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET 1

SUMMARY OF BRIDGE QUANTITIES							TOTALS	DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
DECK	APPROACH SLAB #1	APPROACH SLAB #2	ABUTMENT #1	ABUTMENT #2	RETAINING WALL	CHANNEL	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
						570	570	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27			
			205	85			290	CY	STRUCTURE EXCAVATION	204.25			
		15	130	50	14		180	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30			
55			~~14~~	~~13~~			~~82~~	CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33			
	30	30	~~36~~	~~34~~	24		~~154~~	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34			
		35	0.5	0.5	33		1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10			
			300	288			588	LF	STEEL PILING, HP 12 X 63	505.155			
			1	1			2	EACH	DYNAMIC PILE LOADING TEST	505.45			
	3720	3720	3622	3260	2102		16424	LB	REINFORCING STEEL, LEVEL I	507.11			
15189			1330	1330			17849	LB	REINFORCING STEEL, LEVEL II	507.12			
~~206~~							~~206~~	~~SY~~	~~LONGITUDINAL DECK GROOVING~~	~~509.10~~			
18			5	5			28	GAL	WATER REPELLENT, SILANE	514.10			
	34	34					68	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10			
	34	34					68	LF	JOINT SEALER, HOT POURED	524.11			
122							122	LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335			
1							1	LS	TWO-WAY TEMPORARY BRIDGE (910 SF - EST.)	528.11			
1							1	EACH	REMOVAL OF STRUCTURE (755 SF - EST.)	529.15			
			8	8			16	EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17			
						440	440	CY	STONE FILL, TYPE III	613.12			
						200	200	SY	GEOTEXTILE UNDER STONE FILL	649.31			
229							229	LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT F BEAMS)(NEXT 24 F)	900.640			
219							219	SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20			
35							35	TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680			

REVISION	DATE	DESCIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88193qs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
BRIDGE QUANTITY SHEET #1

PLOT DATE: 06/10/2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 10 OF 69

GPS CONTROL POINTS

HVCTRL #1

WILLOW JOHNSON

NORTH = 783529.516
EAST = 1576565.987
ELEV. = 468.400

JOHNSON, VT. SET 12 CM (5 INCHES) BELOW GROUND IN THE TOP OF A FENO STYLE MONUMENT. 6.5 M (21.3 FT) SOUTHWEST OF AND ABOUT 0.3 M (1.0 FT) LOWER THAN THE CL OF VT ROUTE 15, 12.7 M (41.7 FT) EAST NORTHEAST OF THE CL OF THE LAMOILLE VALLEY RAILROAD, 8.3 M (27.2 FT) EAST OF AN UNNUMBERED TELEGRAPH POLE, 40.8 M (133.9 FT) NORTHWEST OF POLE NO 1829, 49.4 M (162.1 FT) SOUTHEAST OF POLE NO 320T/1830, AND 0.3 M (1.0 FT) NORTHEAST OF A FIBERGLASS WITNESS. NOTE, MARK IS INTERVISIBLE WITH MARK A99012.

HVCTRL #2

A99012

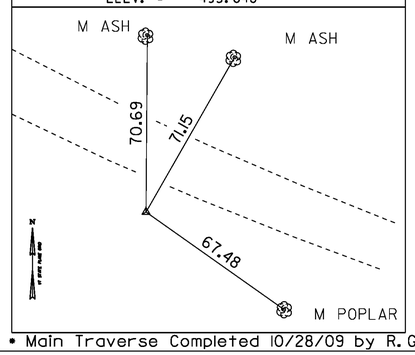
NORTH = 782485.886
EAST = 1579355.260
ELEV. = 517.970

JOHNSON, VT. THE MARK IS SET 5 CM (2 INCHES) BELOW GROUND, 9.2 M (30.2 FT) SOUTH OF AND ABOUT 0.2 M (0.7 FT) HIGHER THAN THE CENTERLINE OF VT ROUTE 15, 51.7 M (169.6 FT) SOUTHEAST OF POLE NO 1819, 62.2 M (204.1 FT) NORTHEAST OF THE NORTHEAST CORNER OF A ONE STORY HOUSE, AND 41.0 M (134.5 FT) SOUTHWEST OF POLE NO 1818 AND A FIBERGLASS WITNESS.
MARK IS INTERVISIBLE WITH MARK LIN DALE (LIN DALE IS NOT GPSABLE WITHOUT MAJOR BRUSH AND TREE CLEARING.) MARK IS INTERVISIBLE WITH MARK WILLOW JOHNSON.

TRAVERSE TIES

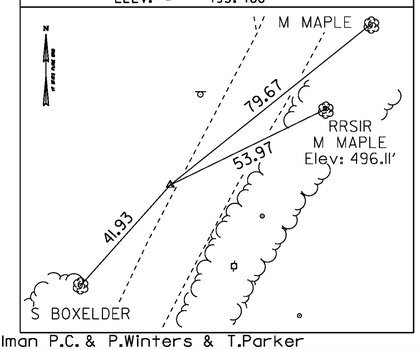
HVCTRL #5

NORTH = 780942.951
EAST = 1582022.517
ELEV. = 495.048



HVCTRL #6

NORTH = 780832.888
EAST = 1582778.814
ELEV. = 493.468



NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

• Main Traverse Completed 10/28/09 by R. Gilman P.C. & P.Winters & T.Parker

ALIGNMENT TIES

VT 15

	STATION	NORTHING	EASTING
PC	88+50.00	780891.1986	1582234.9167
PI	89+55.01	780868.9766	1582337.5490
PCC	90+58.63	780876.2129	1582442.3100
Delta:	16°10'07"	Left	
Degree of Curve:	7°45'00"		
Radius:	739.30		
Tangent:	105.01		
Length:	208.63		
External:	7.42		
PCC	90+58.63	780876.2129	1582442.3100
PI	91+53.84	780882.7744	1582537.3027
PT	92+48.78	780901.8520	1582630.5911
Delta:	7°36'23"	Left	
Degree of Curve:	4°00'00"		
Radius:	1432.39		
Tangent:	95.22		
Length:	190.16		
External:	3.16		

VT 15 (CONTINUED)

	STATION	NORTHING	EASTING
PC	94+90.43	780950.2674	1582867.3395
PI	96+09.05	780974.0323	1582983.5486
PT	97+27.25	780980.7966	1583101.9697
Delta:	8°17'19"	Right	
Degree of Curve:	3°30'00"		
Radius:	1637.02		
Tangent:	118.61		
Length:	236.81		
External:	4.29		
POE	97+50.00	780982.0941	1583124.6860

TH 71

	STATION	NORTHING	EASTING
POB	30+00.00	780909.3084	1582667.0525
PC	30+35.98	780944.5577	1582659.8440
PI	30+68.02	780975.9457	1582653.4251
PT	31+00.00	781006.5307	1582643.8875
Delta:	5°45'43"	Left	
Degree of Curve:	9°00'00"		
Radius:	636.62		
Tangent:	32.04		
Length:	64.02		
External:	0.81		

TH 43

	STATION	NORTHING	EASTING
POB	40+00.00	780939.1613	1582813.0313
PC	40+18.90	780920.6488	1582816.8171
PI	40+49.08	780891.0749	1582822.8650
PRC	40+76.62	780864.8774	1582807.8690
Delta:	41°20'43"	Right	
Degree of Curve:	71°37'11"		
Radius:	80.00		
Tangent:	30.19		
Length:	57.73		
External:	5.51		
PRC	40+76.62	780864.8774	1582807.8690
PI	41+13.32	780833.0284	1582789.6380
PT	41+50.00	780800.1824	1582773.2714
Delta:	3°18'05"	Left	
Degree of Curve:	4°29'58"		
Radius:	1273.41		
Tangent:	36.70		
Length:	73.38		
External:	0.53		

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)
ADJUSTMENT Compass

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193tie.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
TIE SHEET

PLOT DATE: 10-JUN-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 11 OF 69

VT 15 CURVE DATA NO. 1
Δ = 16° 10′ 07" LT
D = 7° 45′ 00"
R = 739.30′
T = 105.01′
L = 208.63′
E = 7.42′

VT 15 CURVE DATA NO. 2
Δ = 7° 36′ 23" LT
D = 4° 00′ 00"
R = 1432.39′
T = 95.22′
L = 190.16′
E = 3.16′

VT 15 CURVE DATA NO. 3
Δ = 8° 17′ 19" RT
D = 3° 30′ 00"
R = 1637.02′
T = 118.61′
L = 236.81′
E = 4.29′

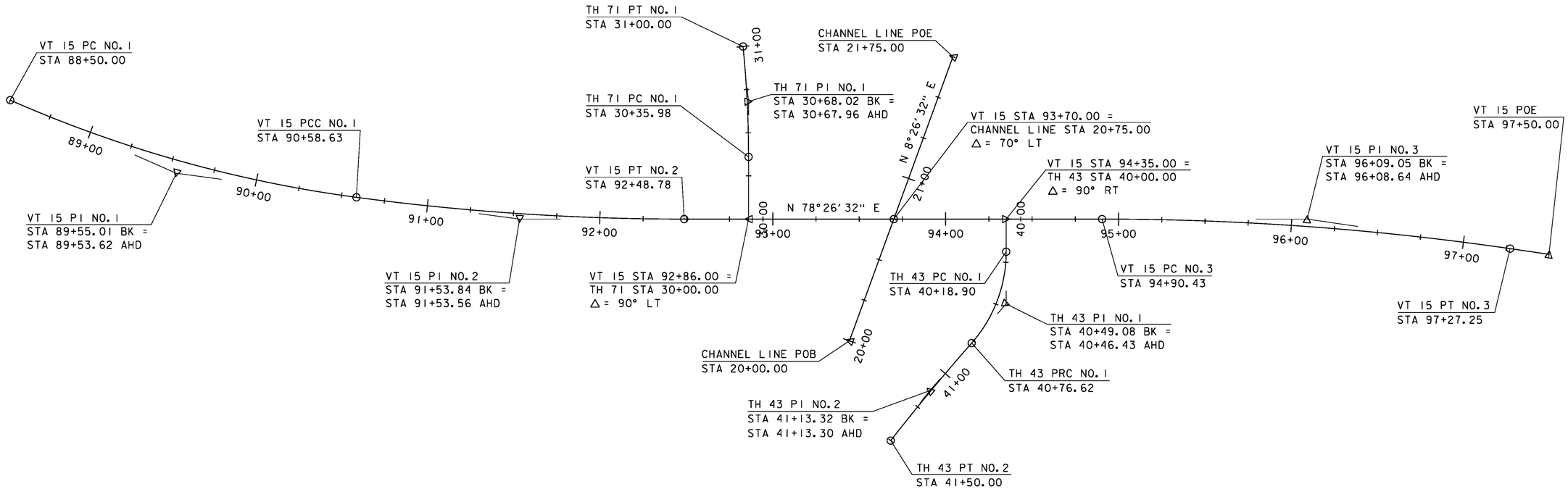
TH 71 CURVE DATA NO. 1
Δ = 5° 45′ 43" LT
D = 9° 00′ 00"
R = 636.62′
T = 32.04′
L = 64.02′
E = 0.81′

TH 43 CURVE DATA NO. 1
Δ = 41° 20′ 43" RT
D = 71° 37′ 11"
R = 80.00′
T = 30.19′
L = 57.73′
E = 5.51′

TH 43 CURVE DATA NO. 2
Δ = 3° 18′ 05" LT
D = 4° 29′ 58"
R = 1273.41′
T = 36.70′
L = 73.38′
E = 0.53′

N

VT STATE PLANE GRID



SCALE 1" = 30′-0"
30 0 30

PROJECT NAME: JOHNSON	
PROJECT NUMBER: BRF 030-2(26)	
FILE NAME: s88b193align.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
ALIGNMENT	SHEET 12 OF 69

CONSTRUCT STONE FILL, TYPE II BANK SLOPE

VT 15 STA 89+00.0 LT - VT 15 STA 92+00.0 LT

CONSTRUCT GRASS-LINED DITCH

VT 15 STA 89+00.0 LT - VT 15 STA 92+00.0 LT

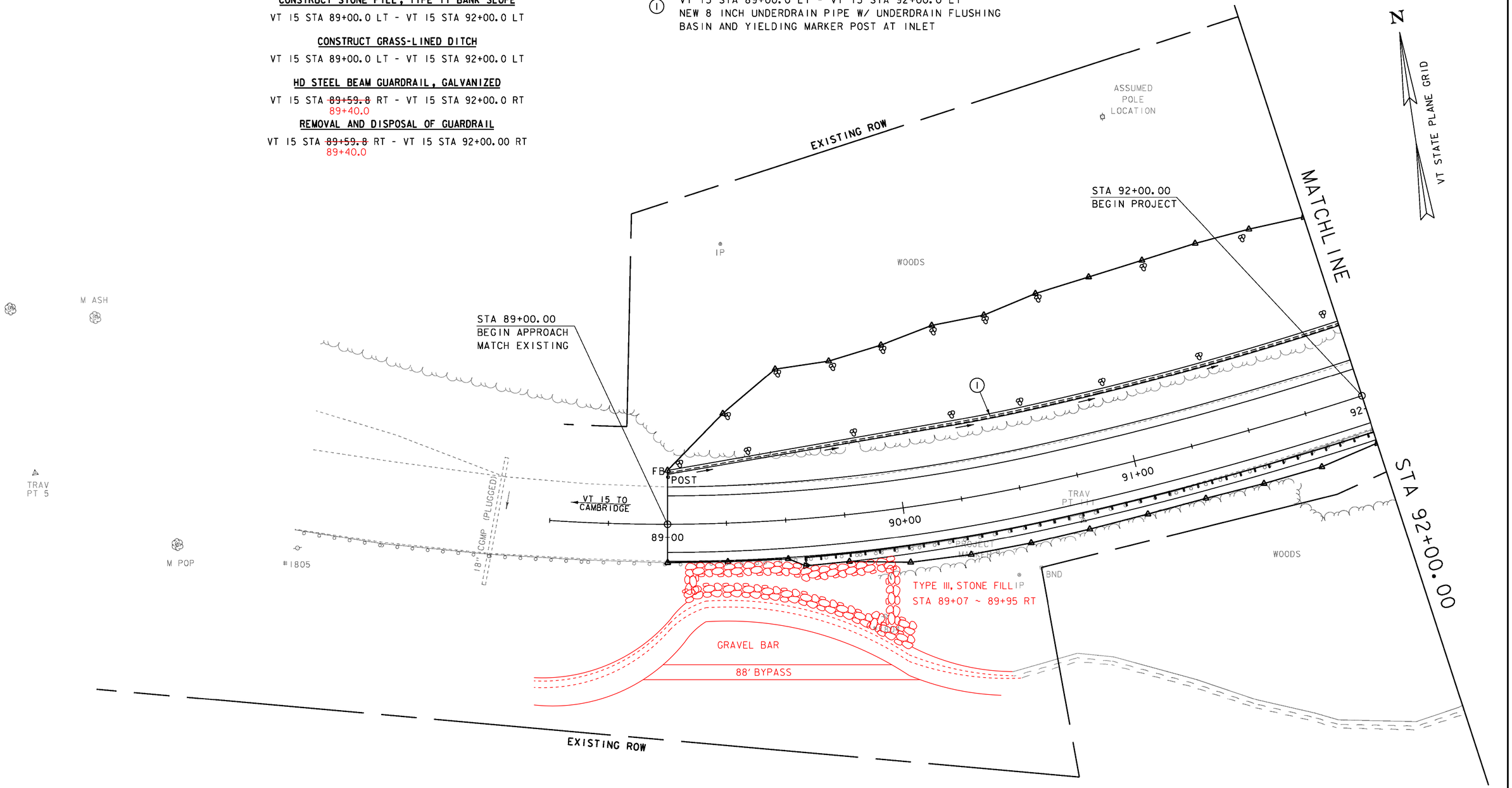
HD STEEL BEAM GUARDRAIL, GALVANIZED

VT 15 STA ~~89+59.8~~ RT - VT 15 STA 92+00.0 RT
89+40.0

REMOVAL AND DISPOSAL OF GUARDRAIL

VT 15 STA ~~89+59.8~~ RT - VT 15 STA 92+00.00 RT
89+40.0

(1) VT 15 STA 89+00.0 LT - VT 15 STA 92+00.0 LT
NEW 8 INCH UNDERDRAIN PIPE W/ UNDERDRAIN FLUSHING
BASIN AND YIELDING MARKER POST AT INLET



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

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88b193bdr.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: H. SALLS
LAYOUT (1)	SHEET 13 OF 69

② VT 15 STA 92+00.0 LT - VT 15 STA 92+58.0 LT
NEW 8 INCH UNDERDRAIN PIPE

③ VT 15 STA 92+58.0 LT - VT 15 STA 93+34.1 LT
NEW 8 INCH UNDERDRAIN CARRIER PIPE W/ YIELDING MARKER POST AT OUTLET

① TH 71 STA 30+32.23 LT - TH 71 STA 30+32.23 RT
NEW 18" X 74' CAAP(.060), PCCSP(.064) OR CPEP(SL)

② TH 43 STA 40+45.50 LT - TH 43 STA 40+54.49 RT
NEW 18" X 54' CAAP(.060), PCCSP(.064) OR CPEP(SL)
W/ 5'-6" X 13' STONE FILL, TYPE I PAD AT OUTLET

① REMOVE EXISTING 12" CGMP

② REMOVE EXISTING 15" CGMP

EXISTING BRIDGE DATA

SINGLE SPAN CONCRETE T-BEAMS WITH
ROLLED BEAMS ALONG FASCIAS
ABUTMENTS ARE CONCRETE ON TIMBER PILES
BUILT 1926, REHABILITATED 1969
OVERALL LENGTH: 24'-0"
SPAN LENGTH: 22'-6"
FASCIA TO FASCIA WIDTH: 33'-0"
ROADWAY WIDTH: 30'-10"

N
VT STATE PLANE GRID

STA 92+00.00

MATCHL INE

EXISTING ROW

EXISTING TOWN ROW
49.5' PER TOWN

TH 71
(SWEETSER RD)
(GRAVEL)

31+00

STA 30+75.00
END APPROACH
MATCH EXISTING

WOODS

SMITH BROOK

TRAV PT 121

TRAV PT 122

TEMPORARY CONSTRUCTION LIMITS

STA 93+73.89
END BRIDGE

TEMP ℄ DETOUR

POST

CZ

VT 15
(PAVED)

30+00

93+00

94+00

40+00

95+00

96+00

97+00

STA 96+00.00
END APPROACH
MATCH EXISTING

SHED (DO NOT DISTURB)

BND

GUY

#349

SHED

HOUSE

PORCH

GRAVEL DRIVE

#13

MAILBOX

#347

TRAV PT 101

VT 15 TO JOHNSON VILLAGE

#1803

3'-0" STONE FILL, TYPE III (TYP)

TRAV PT 120

20+00

M STUMP

STA 93+16.11
BEGIN BRIDGE

WOODS

S BOX ELDER

TRAV PT 6

41+00

EXISTING TOWN 49.5' ROW
3 RODS PER TOWN

#12

IP

TH 43
(N SETTLEMENT RD)
(PAVED)

LONG TRAIL

GUY POLE

#50A

STA 41+00.00
END APPROACH
MATCH EXISTING

#320T
#1802T

M CHERRY

M PINES

SHRUB

GARDEN

3 - M BOX ELDERS

4 - M BOX ELDERS

GUIDE POST

3 - S MAPLES

#42

HEDGE

M APPLE

BW IN BOULDER
USGS 1924 HS 505
RESET 1980
EL 505.016

M MAPLE

#350

STA 95+00.00
END PROJECT

CONSTRUCT STONE FILL, TYPE II BANK SLOPE

VT 15 STA 92+00.0 LT - VT 15 STA 92+52.7 LT
TH 71 STA 30+33.3 LT - TH 71 STA 30+75.0 LT

CONSTRUCT GRASS-LINED DITCH

VT 15 STA 92+00.0 LT - VT 15 STA 92+52.7 LT

CONSTRUCT STONE-LINED DITCH, TYPE I

TH 71 STA 30+29.2 LT - TH 71 STA 30+75.0 LT
TH 43 STA 40+45.6 LT - TH 43 STA 41+00.0 LT
VT 15 STA 94+46.9 RT - VT 15 STA 95+06.0 RT
~~VT 15 STA 95+52.3 LT - VT 15 STA 96+00.0 LT~~

BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM

VT 15 STA 93+08.6 RT - VT 15 STA 93+69.2 RT
VT 15 STA 93+20.8 LT - VT 15 STA 93+81.4 LT

HD STEEL BEAM GUARDRAIL, GALVANIZED

VT 15 STA 92+00.0 RT - VT 15 STA 92+03.5 RT

BOX BEAM GUARDRAIL

TH 71 STA 30+33.2 RT - TH 71 STA 30+42.6 RT
~~VT 15 STA 92+73.2 RT - VT 15 STA 92+76.6 RT~~
VT 15 STA 94+00.4 RT - TH 43 STA 40+71.7 RT
VT 15 STA 94+13.4 LT - VT 15 STA 95+83.9 LT

GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM

VT 15 STA 92+76.6 RT - VT 15 STA 93+08.6 RT
TH 71 STA 30+33.2 RT - VT 15 STA 93+20.8 LT
VT 15 STA 93+69.2 RT - VT 15 STA 94+00.4 RT
VT 15 STA 93+81.4 LT - VT 15 STA 94+13.4 LT

REMOVAL AND DISPOSAL OF GUARDRAIL

VT 15 STA 92+00.0 RT - VT 15 STA 93+22.4 RT
VT 15 STA 93+03.4 LT - VT 15 STA 93+33.2 LT
VT 15 STA 93+54.5 RT - VT 15 STA 94+08.1 RT
VT 15 STA 93+69.2 LT - VT 15 STA 95+88.3 LT

SPECIAL PROVISION (GUARDRAIL TRANSITION, STEEL BEAM TO BOX BEAM)

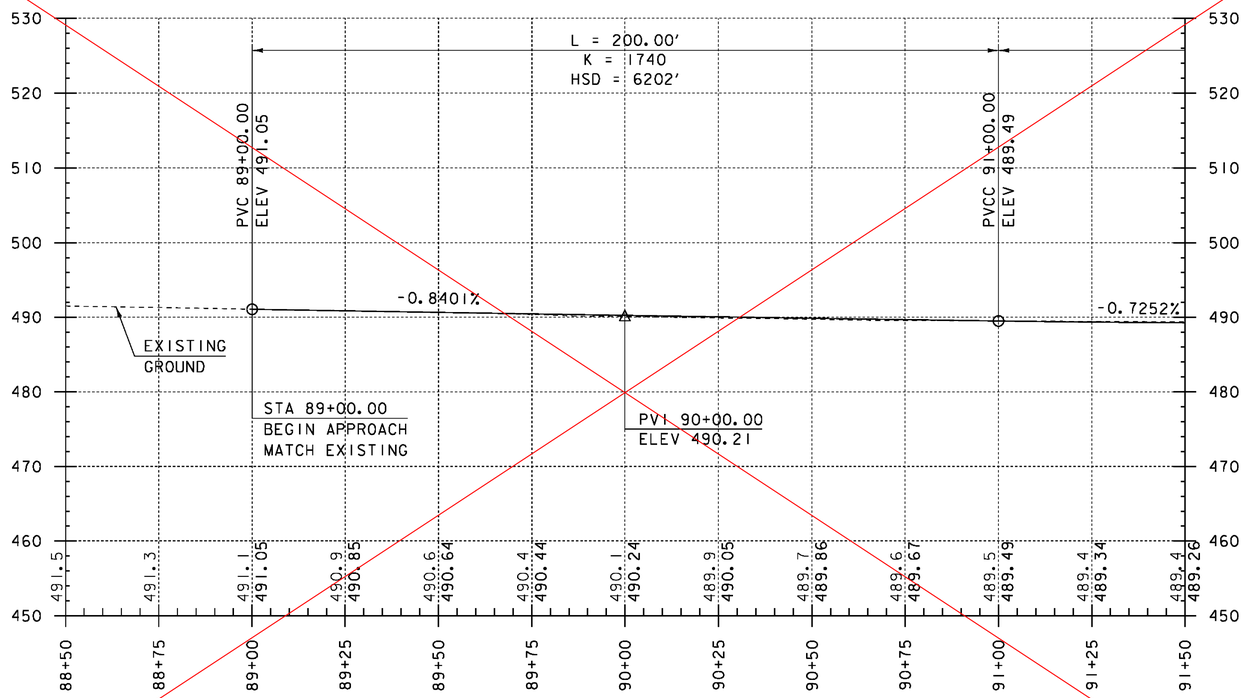
VT 15 STA 92+03.5 RT - VT 15 STA 92+73.2 RT

RETAINING WALL

VT 15 STA 92+83.1 RT - VT 15 STA 92+98.1 RT

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

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88b193bdr.dgn	PLOT DATE: 11-JUL-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: H. SALLS
LAYOUT (2)	SHEET 14 OF 69



PROFILE ALONG VT 15

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

NOTE:

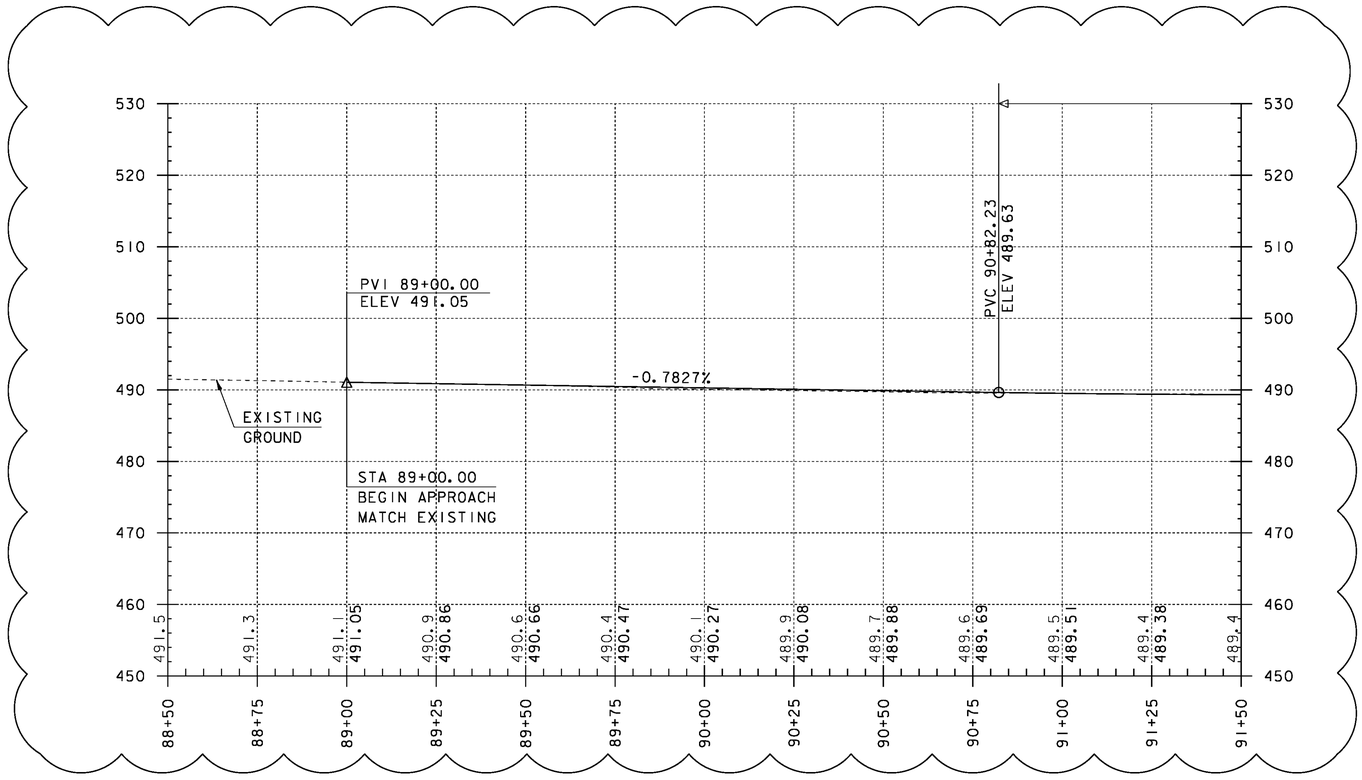
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

SEE REVISION: OCT-28-2014

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)

FILE NAME: s88b193pro.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
VT 15 PROFILE (1)	SHEET 15 OF 69



PROFILE ALONG VT 15

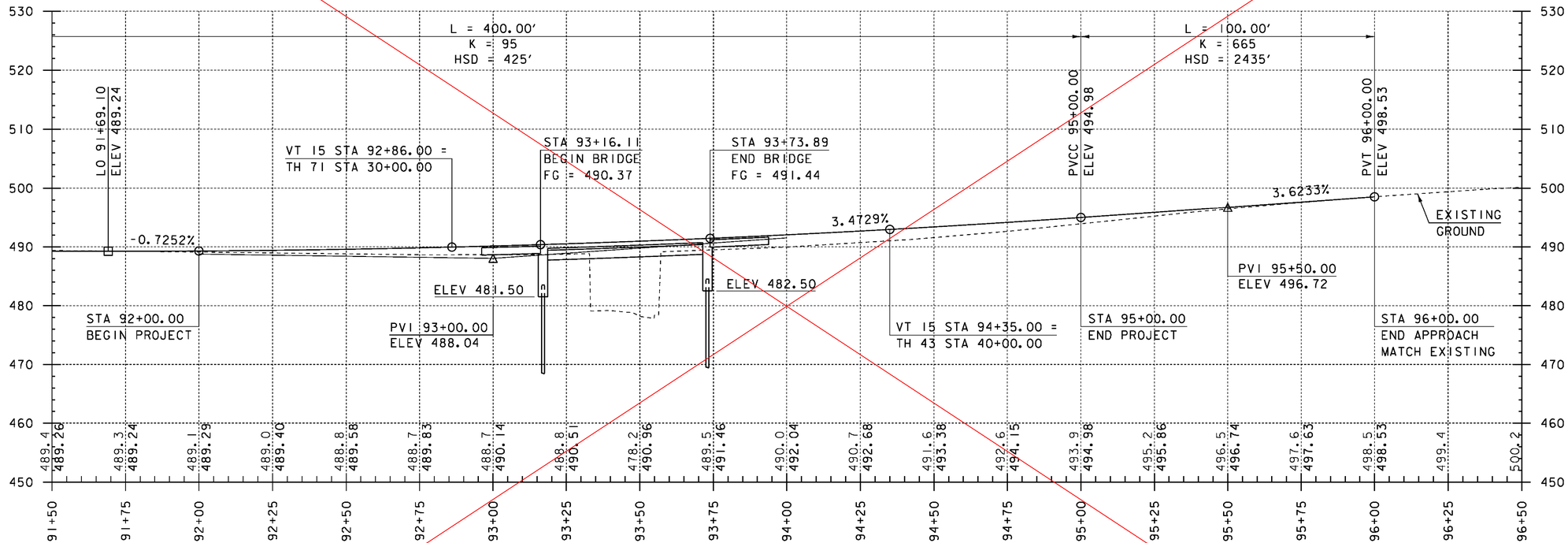
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

NOTE:

ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88b193pro.dgn	PLOT DATE: 16-JUN-2015
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
VT 15 PROFILE (1)	SHEET 15 OF 69



PROFILE ALONG VT 15

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

NOTE:

ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

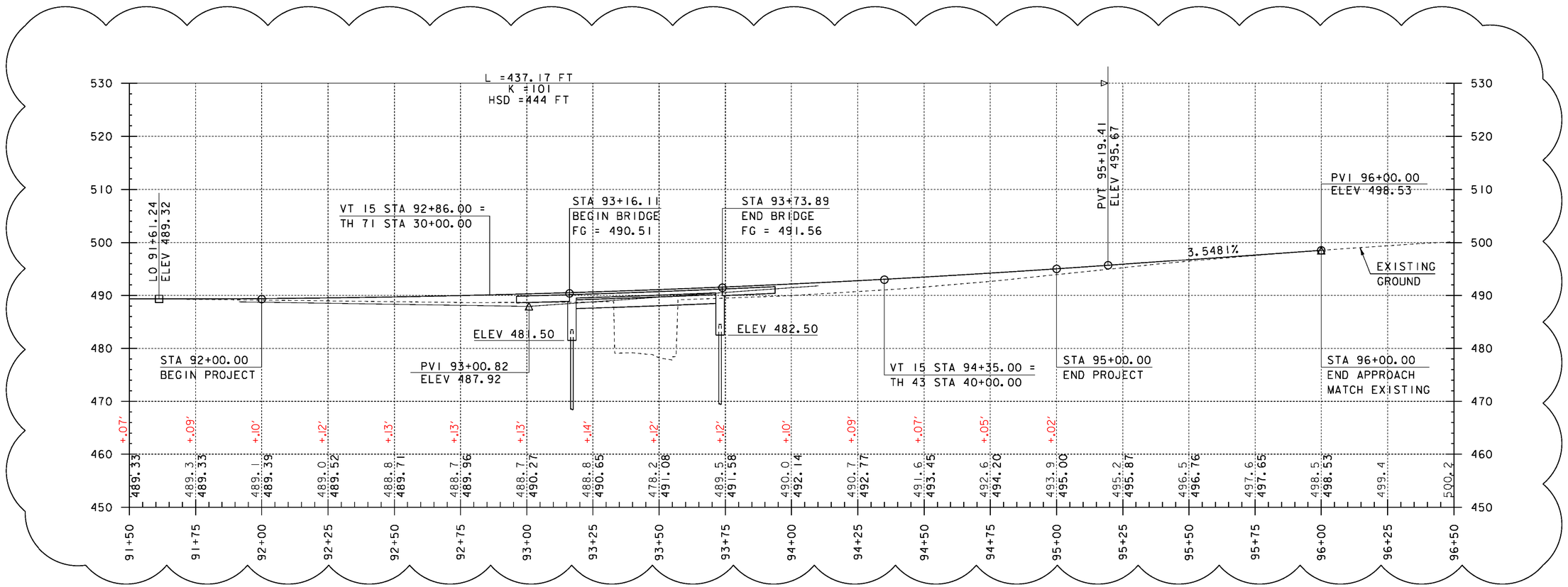
ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

SEE REVISION: OCT-28-2014

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88bl93pro.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
VT 15 PROFILE (2)

PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 16 OF 69



PROFILE ALONG VT 15

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

* FROM OLD PROFILE

NOTE:

ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

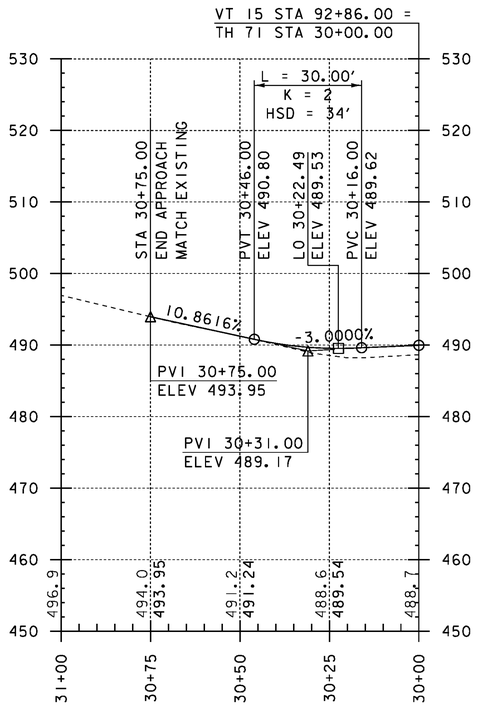
ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADES ALONG PROPOSED CENTERLINE.

REVISION	DATE	DESCIPTION	BY
1	06-16-2015	RAISED GRADE 0.13 FT OVER BRIDGE TANGENT REPLACED SAG BOTH ENDS	MCL

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

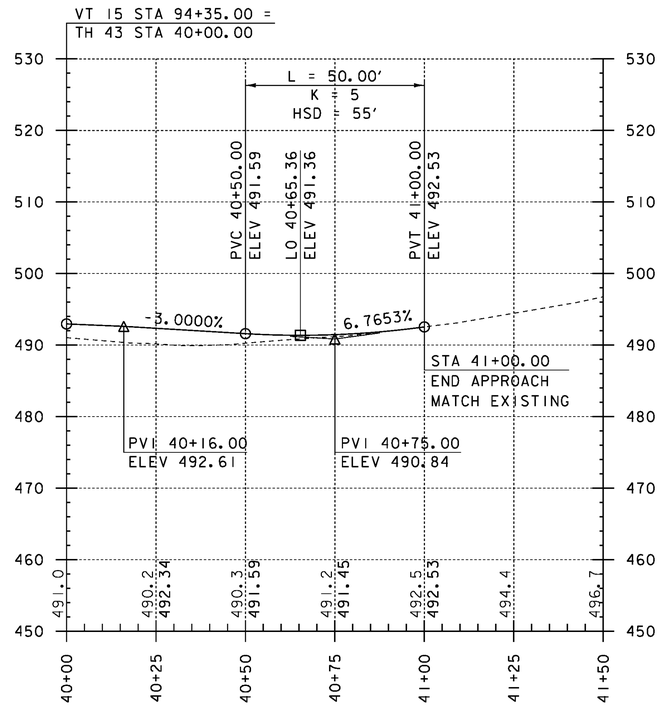
FILE NAME: s88bl93pro.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
VT 15 PROFILE (2)

PLOT DATE: 16-JUN-2015
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 16 OF 69



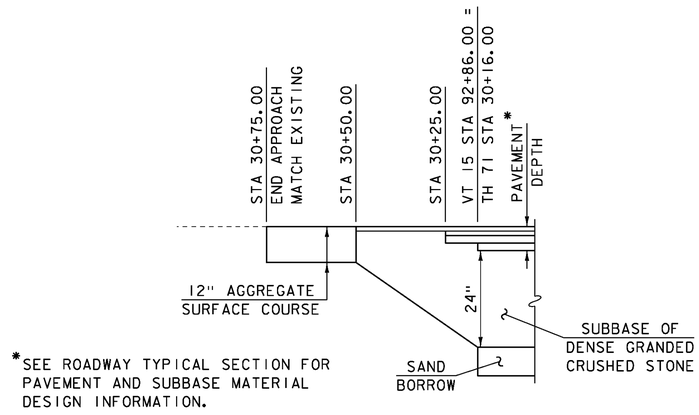
PROFILE ALONG TH 71

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



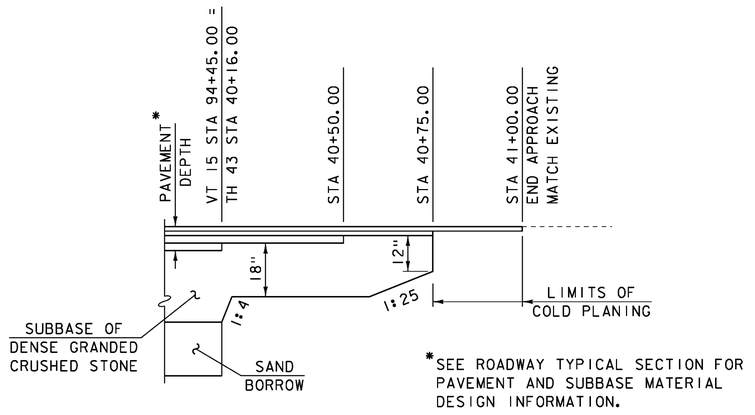
PROFILE ALONG TH 43

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



TH 71 MATERIAL TRANSITION

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 2'-0"

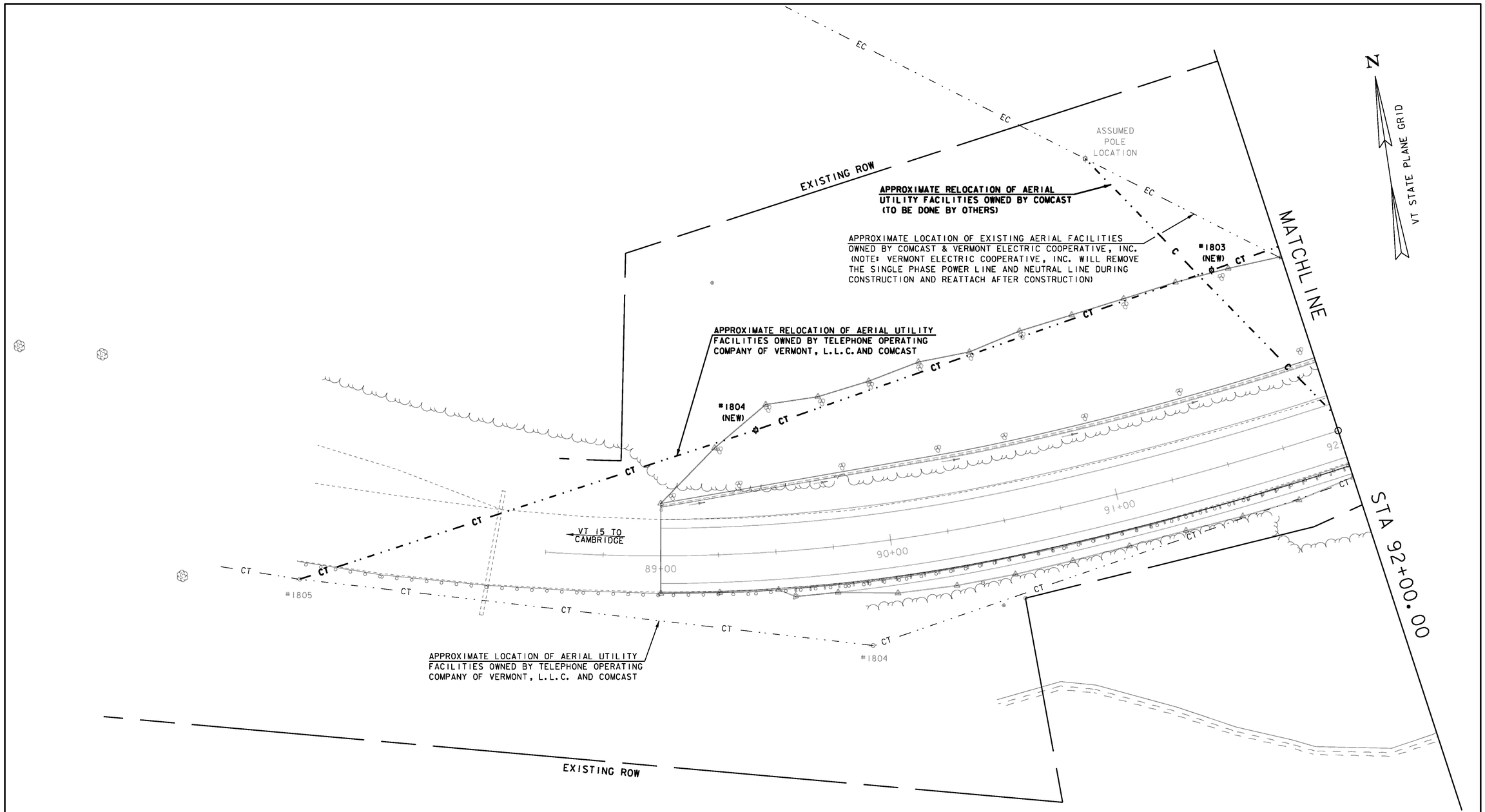


TH 43 MATERIAL TRANSITION

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 2'-0"

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)

FILE NAME: s88b193pro.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
TH 71 AND TH 43 PROFILES AND MATERIAL TRANSITIONS	SHEET 17 OF 69



20 0 20

SCALE: 1" = 20'-0"

NOTE: SEE THE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

PROJECT NAME: JOHNSON	
PROJECT NUMBER: BRF 030-2(26)	
FILE NAME: s88bl93bdr_utll.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: H. SALLS
UTILITY LAYOUT (1)	SHEET 18 OF 69

STA 92+00.00

MATCHLINE

EXISTING ROW

EXISTING ROW

TH 71
(SWEETSER RD)
(GRAVEL)

EXISTING ROW

NEW
25' GUY

#15
(NEW)

SMITH BROOK

APPROXIMATE LOCATION OF EXISTING AERIAL
UTILITY FACILITY OWNED BY JOHNSON VILLAGE AND
TELEPHONE OPERATING COMPANY OF VERMONT, L.L.C

APPROXIMATE RELOCATION OF AERIAL UTILITY
FACILITIES OWNED BY TELEPHONE OPERATING
COMPANY OF VERMONT, L.L.C. AND COMCAST

NEW
25' GUY

#14
(NEW)

EXISTING ROW

EXISTING ROW

VT 15
(PAVED)

VT 15 TO
JOHNSON VILLAGE

EXISTING ROW

EXISTING ROW

EXISTING ROW

3'-0" STONE
FILL, TYPE III
(TYP)

EXISTING ROW

EXISTING ROW

APPROXIMATE LOCATION OF AERIAL UTILITY
FACILITIES OWNED BY TELEPHONE OPERATING
COMPANY OF VERMONT, L.L.C. AND COMCAST

APPROXIMATE LOCATION OF EXISTING AERIAL FACILITIES
OWNED BY COMCAST & VERMONT ELECTRIC COOPERATIVE, INC.
(NOTE: VERMONT ELECTRIC COOPERATIVE, INC. WILL REMOVE
THE SINGLE PHASE POWER LINE AND NEUTRAL LINE DURING
CONSTRUCTION AND REATTACH AFTER CONSTRUCTION)

TH 43
(W SETTLEMENT RD)
(PAVED)

LONG TRAIL

GUY
POLE

APROXIMATE RELOCATION OF AERIAL
UTILITY FACILITIES OWNED BY COMCAST
(TO BE DONE BY OTHERS)

N

VT STATE PLANE GRID

20 0 20

SCALE: 1" = 20'-0"

NOTE: SEE THE UTILITY SPECIAL PROVISIONS
FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)

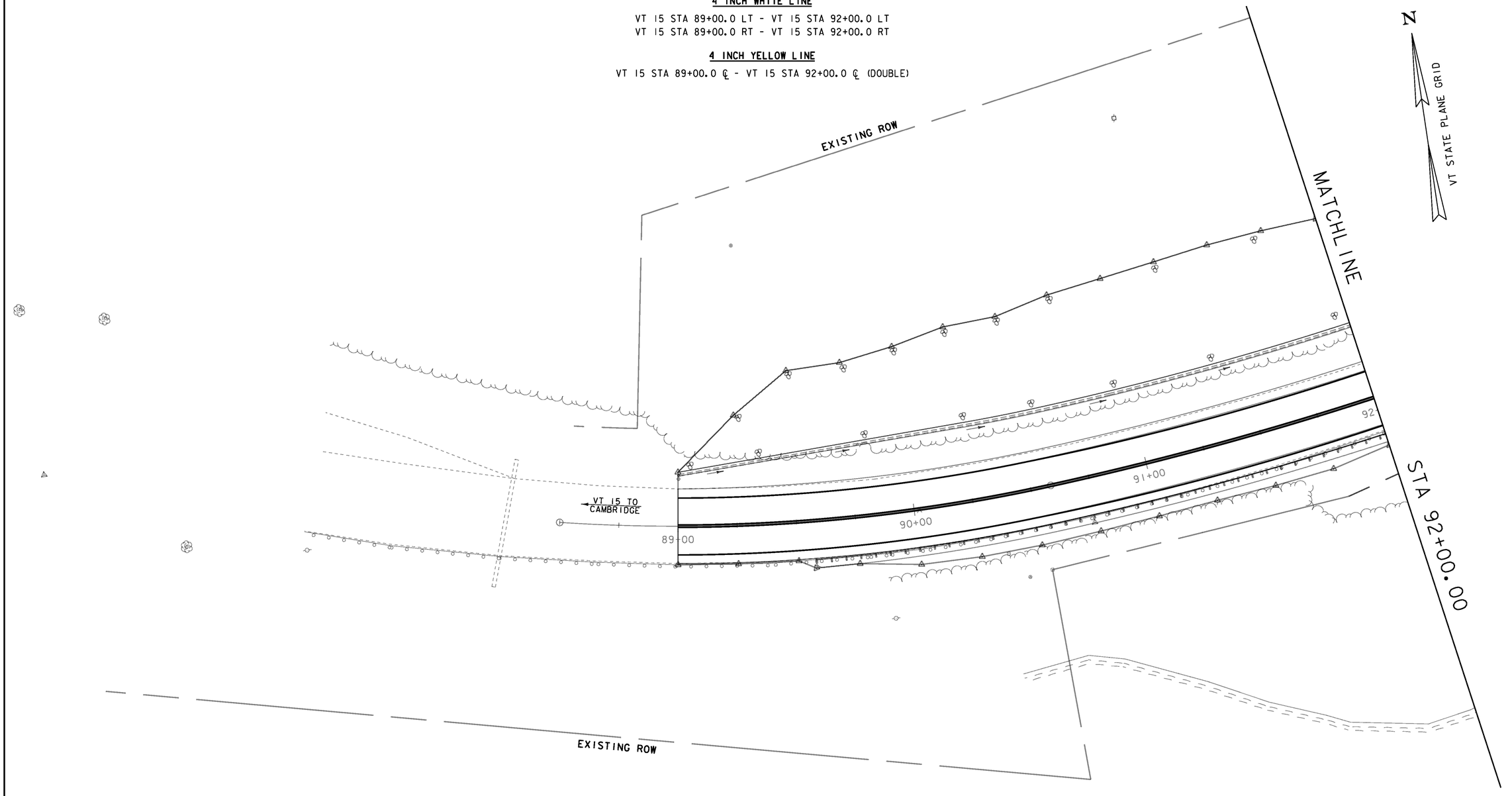
FILE NAME: s88bl93bdr_util.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: H. SALLS
UTILITY LAYOUT (2)	SHEET 19 OF 69

4 INCH WHITE LINE

VT 15 STA 89+00.0 LT - VT 15 STA 92+00.0 LT
VT 15 STA 89+00.0 RT - VT 15 STA 92+00.0 RT

4 INCH YELLOW LINE

VT 15 STA 89+00.0 ℄ - VT 15 STA 92+00.0 ℄ (DOUBLE)



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

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88b193sign.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
SIGNS & PAVEMENT MARKINGS (1)	SHEET 20 OF 69

STA 92+00.00

MATCHLINE

EXISTING ROW

EXISTING TOWN ROW
49.5' PER TOWN

TH 71 STA 30+40.7 LT

STOP
0150
0806
0175

TH 71
(SWEETSER RD)
(GRAVEL)

TH 71 STA 30+39.3 RT

LEGAL LOAD LIMIT 24,000 POUNDS

TH 71 STA 30+40.0 RT

LEGAL LOAD LIMIT 24,000 POUNDS

SMITH BROOK

TH 71 STA 30+35.0 RT

Sweetser Rd

TH 71 STA 30+34.9 RT

SWEETSER RD TH 71

TH 43 STA 40+32.0 RT

W Settlement Rd

TH 43 STA 40+47.8 RT

WEST SETTLEMENT RD TH 43

VT 15
(PAVED)

92+00 93+00 94+00 95+00 96+00 97+00

30+00 40+00

BORING B-5

BORING B-4

VT 15 TO
JOHNSON VILLAGE

EXISTING ROW

LONG TRAIL

TH 43
(W SETTLEMENT RD)
(PAVED)

EXISTING TOWN ROW
3 RODS PER TOWN
49.5' ROW

TH 71 STA 30+20.0 LT

STOP
0150
0806
0175

TH 43 STA 40+89.8 RT

LEGAL LOAD LIMIT 24,000 POUNDS

TH 43 STA 40+89.0 RT

LEGAL LOAD LIMIT 24,000 POUNDS

TH 43 STA 40+40.6 LT

STOP
0150
0806
0179

TH 43 STA 40+20.0 LT

STOP
0150
0806
0179

N

VT STATE PLANE GRID

4 INCH WHITE LINE

VT 15 STA 92+00.0 LT - TH 71 STA 30+32.0 LT
VT 15 STA 92+00.0 RT - TH 43 STA 40+32.0 RT
TH 71 STA 30+32.0 RT - VT 15 STA 96+00.0 LT
TH 43 STA 40+32.0 LT - VT 15 STA 96+00.0 RT

4 INCH YELLOW LINE

VT 15 STA 92+00.0 ℄ - VT 15 STA 92+66.0 ℄ (DOUBLE)
TH 71 STA 30+20.0 ℄ - TH 71 STA 30+32.0 ℄ (DOUBLE)
VT 15 STA 93+06.0 ℄ - VT 15 STA 94+19.0 ℄ (DOUBLE)
TH 43 STA 40+20.0 ℄ - TH 43 STA 40+32.0 ℄ (DOUBLE)
VT 15 STA 94+65.0 ℄ - VT 15 STA 96+00.0 ℄ (DOUBLE)

24 INCH STOP BAR

TH 71 STA 30+20.0 LT
TH 43 STA 40+20.0 LT

TRAFFIC SIGNS, TYPE A

TH 71 STA 30+20.0 LT (2 EA)
TH 71 STA 30+35.0 RT (1 EA)
TH 71 STA 30+40.0 RT (1 EA)
TH 43 STA 40+20.0 LT (2 EA)
TH 43 STA 40+32.0 RT (1 EA)
TH 43 STA 40+89.0 RT (1 EA)

REMOVING SIGNS

TH 71 STA 30+34.9 RT (1 EA)
TH 71 STA 30+39.3 RT (1 EA)
TH 71 STA 30+40.7 LT (2 EA)
TH 43 STA 40+40.6 LT (2 EA)
TH 43 STA 40+47.8 RT (1 EA)
TH 43 STA 40+89.8 RT (1 EA)

LEGEND

R: REMOVE
R&S: REMOVE AND SALVAGE
RET: RETAIN
N: NEW
S: SALVAGE

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

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

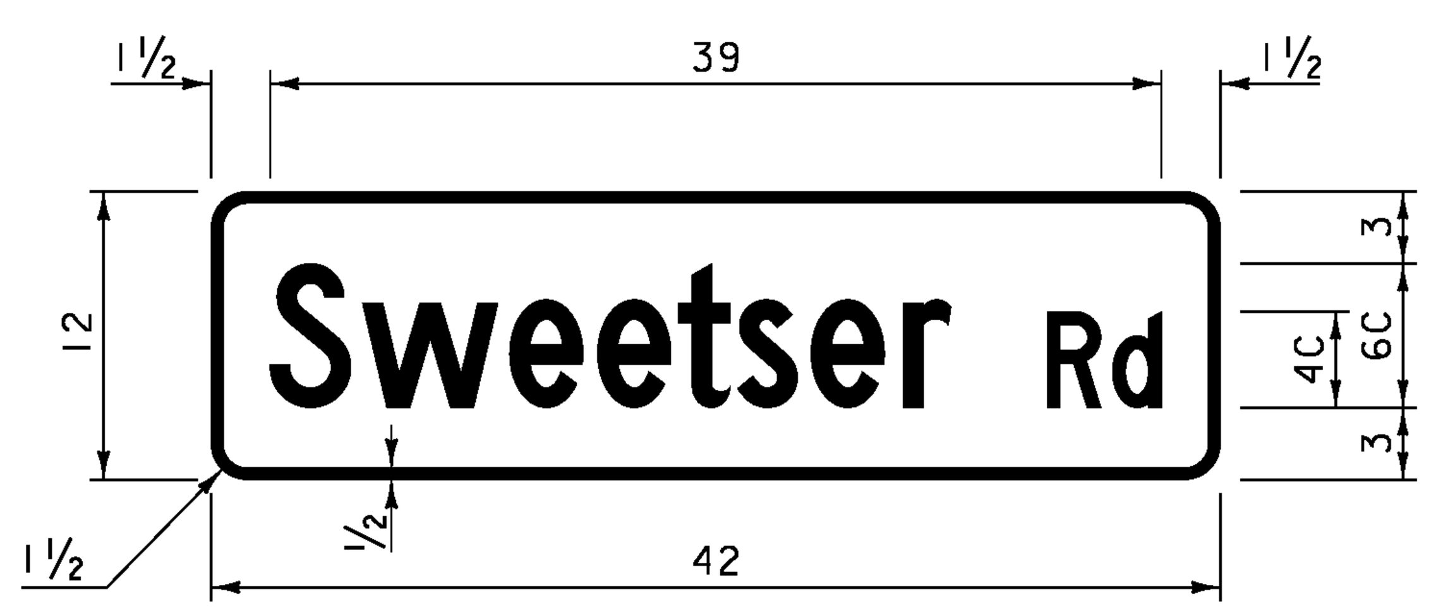
FILE NAME: s88bl93sign.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
SIGNS & PAVEMENT MARKINGS (2)

PLOT DATE: 10-JUN-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 21 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

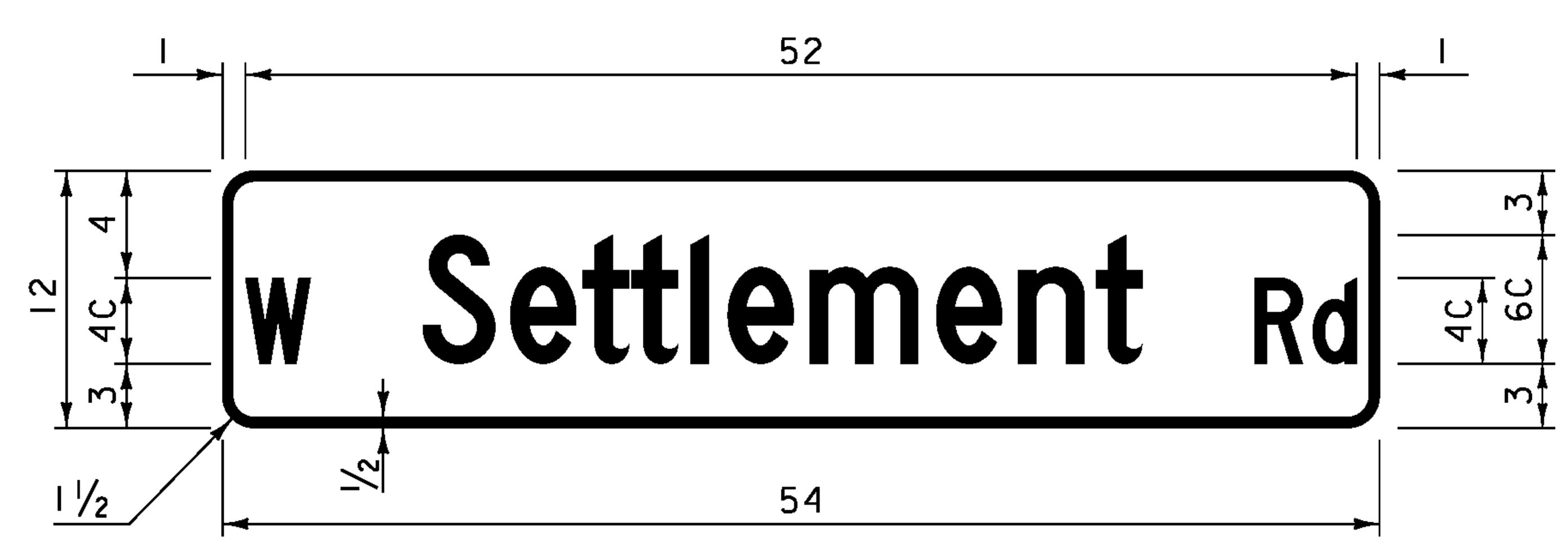
TRAFFIC SIGN SUMMARY SHEET

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NO. OF POSTS	NEW SIGN POSTS (OPTION ITEMS) FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	2.0 / 2.42	2.5 / 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	4.0 / 1.7	4.0 MOD / 1.7	FOUNDATION	TUBULAR STEEL Ø (in) 3.0 lb/ft 7.6	3.5 / 9.0	4.0 / 10.8	5.0 / 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL: DETAIL IN SHS	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
TH 71 30+20.0 LT	STOP	1	30	30	6.25						1					X		X															R1-1	X		
	0150 0806 0175	1	6	10	0.42																												VD-700 0150 / 0806 / 0175			T-44
TH 71 30+35.0 RT	Sweetser Rd	1	42	12	3.50						1					X		X															D3-1 Sweetser Rd (TWO SIDED PLAQUE)		SEE BELOW	
TH 71 30+40.0 RT	LEGAL LOAD LIMIT 24,000 POUNDS	1	24	30	5.00						1					X		X															VR-017 LINE 3: 24,000			E-141
TH 43 40+20.0 LT	STOP	1	30	30	6.25						1					X		X															R1-1	X		
	0150 0806 0179	1	6	10	0.42																												VD-700 0150 / 0806 / 0179			T-44
TH 43 40+32.0 RT	W Settlement Rd	1	54	12	4.50						2					X		X															D3-1 W Settlement Rd (TWO SIDED PLAQUE)		SEE BELOW	
TH 43 40+89.0 RT	LEGAL LOAD LIMIT 24,000 POUNDS	1	24	30	5.00						1					X		X															VR-017 LINE 3: 24,000			E-141



COLORS: LEGEND & BORDER - WHITE (RETROREFLECTIVE)
BACKGROUND - GREEN (RETROREFLECTIVE)

MATERIALS: 0.125" FLAT SHEET ALUMINUM



COLORS: LEGEND & BORDER - WHITE (RETROREFLECTIVE)
BACKGROUND - GREEN (RETROREFLECTIVE)

MATERIALS: 0.125" FLAT SHEET ALUMINUM

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND VTRANS "SIGN POST DESIGN GUIDELINE."
SHS = STANDARD HIGHWAY SIGNS

	NEW & SALVAGED SIGNS				FLANGED CHANNEL	SQUARE STEEL	ANCHOR	TUBULAR ALUMINUM	FOUNDATION	TUBULAR STEEL	W-SHAPE STEEL
POST TOTALS					FT / FT / FT	FT / FT 98 / FT	EA	LB / LB / LB		LB / LB / LB / LB	
SUB-TOTAL	SF 31.34	SF	EA	SF	FT	FT 98		LB	EA	LB	EA / EA / LB
TOTALS	SF 31.34	SF	EA	SF	FT	FT 98		LB	EA	LB	EA / EA / LB

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193sign.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. I. SALLS
TRAFFIC SIGN SUMMARY
PLOT DATE: 27-JUN-2014
DRAWN BY: R. PELLETT
CHECKED BY: G. ROY
SHEET 22 OF 69

SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

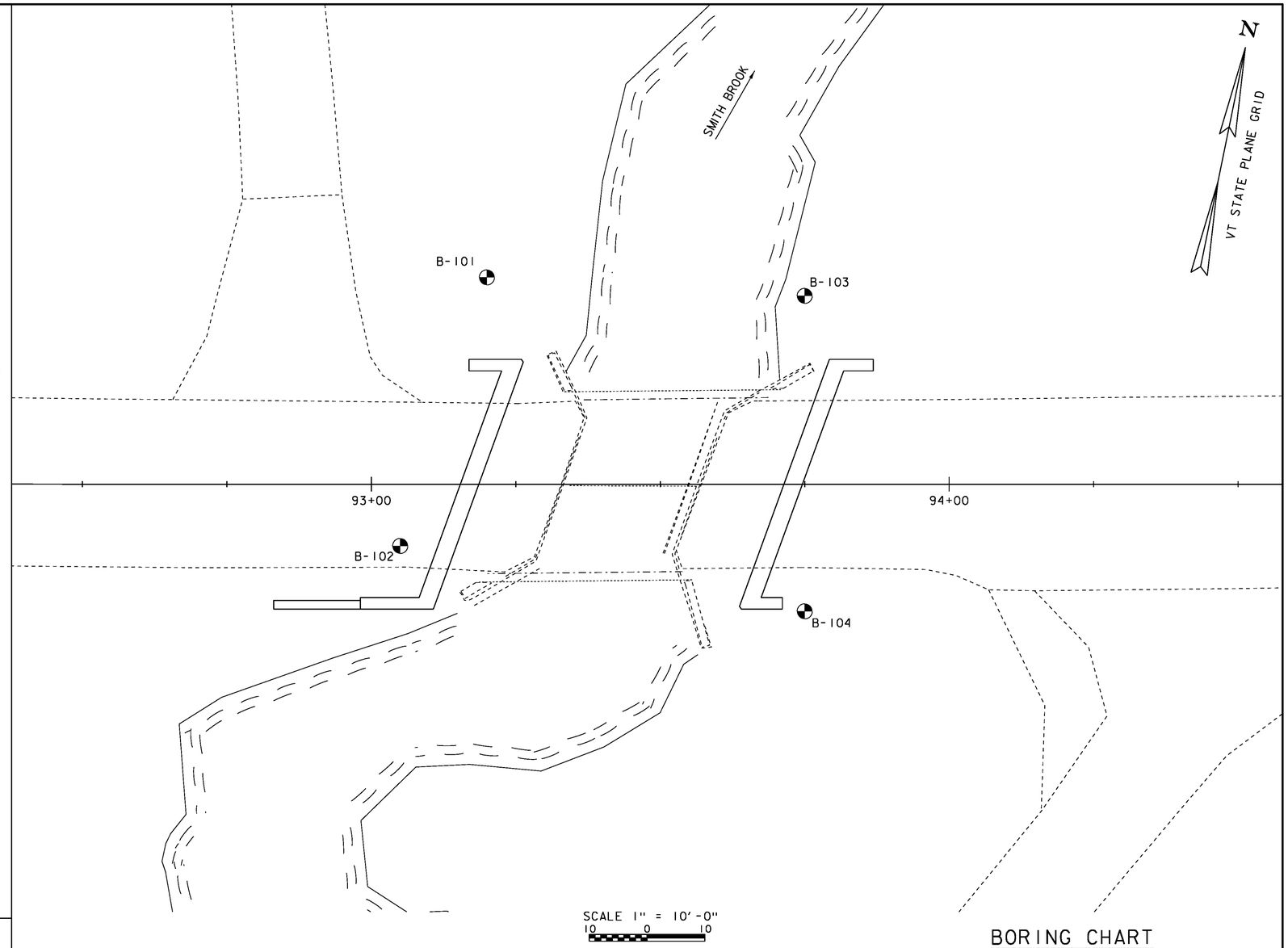
DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

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

COLOR

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



DEFINITIONS (AASHTO)

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

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

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

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

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

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

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

VARVED - Alternate layers of silt and clay.

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

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

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

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

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

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

1. The subsurface explorations shown herein were made between April 4, 2011 and June 20, 2011 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 judgment was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-101	93+20	-35.80	488.59	436.89
B-102	93+05	10.68	488.78	433.18
B-103	93+75	-32.60	484.34	436.94
B-104	93+75	22.00	488.10	456.90

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88bl93bor.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
BORING INFORMATION

PLOT DATE: 10-JUN-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 23 OF 69

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

BORING LOG

JOHNSON
BRF 030-2(26)
VT-15 BR-32

Boring No.: B-101
Page No.: 1 of 1
Pin No.: 88B193
Checked By: NSM

Boring Crew: PORTER, GARROW, WERNER
Date Started: 4/04/11 Date Finished: 4/06/11
VTSPG NAD83: N 780951.19 ft E 1582693.19 ft
Station: 93+20 Offset: -35.80
Ground Elevation: 488.59 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	3 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C TRACK	CE = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
04/05/11	8.8	AM
04/06/11	8.9	AM

ABUT. NO. 1
BOTTOM OF PILE CAP
ELEV. 481.50

EST. PILE TIP
ELEV. 436.89

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-2-4, SiSa, brn, Moist, Rec. = 0.8 ft				2-3-4-4 (7)	12.8	20.0	59.9	20.1
		A-1-b, GrSa, brn, Moist, Rec. = 0.9 ft				1-2-3-5 (5)	9.5	29.0	54.0	17.0
		A-4, SaSi, brn, Moist, Rec. = 1.5 ft				3-2-2-2 (4)	19.4	3.0	44.2	52.8
		A-2-4, SiSa, brn, Moist, Rec. = 1.8 ft				3-3-3-3 (6)	17.1	2.0	71.4	26.6
		A-2-4, GrSa, brn, Wet, Rec. = 1.0 ft				4-10-11-9 (21)	17.2	22.5	61.5	16.0
10		A-1-a, SaGr, brn, Wet, Rec. = 0.8 ft, Lab Note: Sample was rusty-orange color while washing.				4-5-5-6 (10)	13.2	57.8	32.9	9.3
		A-1-a, SaGr, brn, Wet, Rec. = 0.7 ft, Lab Note: Sample was rusty-orange color while washing.				8-9-10-10 (19)	10.3	66.8	24.0	9.2
		A-1-b, GrSa, brn, Wet, Rec. = 0.8 ft				9-8-5-5 (13)	14.7	38.8	51.4	9.8
		A-1-b, GrSa, brn, Wet, Rec. = 1.0 ft				6-5-6-7 (11)	13.0	41.1	49.2	9.7
		A-1-a, SaGr, brn, Wet, Rec. = 0.8 ft				8-9-13-13 (22)	10.4	52.9	36.4	10.7
20						15-12-12-12 (24)				
		Field Note:, No Recovery, Rock in end of sampler. Appears to be SaGr.								
		A-1-b, Sa, brn, MTW, Rec. = 1.0 ft				4-6-6-8 (12)	17.9	13.7	77.3	9.0
30		A-1-b, GrSa, brn, MTW, Rec. = 0.7 ft, Lab Note: Sample was mostly fine sand, but had two large stones that were included in the gradation.				8-12-9-14 (21)	18.9	24.0	72.9	3.1
		A-2-4, SiSa, brn, MTW, Rec. = 0.7 ft				5-8-10-12 (18)	24.6		65.0	35.0
40		A-4, SaSi, gry, MTW, Rec. = 1.0 ft					23.9		44.3	55.7
		A-4, Si, gry, MTW, Rec. = 1.1 ft				4-5-9-12 (14)	30.0		10.1	89.9
		A-4, GrSaSi, gry, MTW, Rec. = 0.6 ft					15.8	21.9	34.3	43.8
		A-2-4, SiSa, gry, Wet, Rec. = 0.7 ft				5-10-15-15 (25)	22.2	5.4	63.2	31.4
50										
		51.7 ft - 56.7 ft, Gray, Quartz-muscovite-chlorite Gneiss, Hard, Unweathered, Very good rock, BXDC	1 (40)	98 (88)	4 4 4 4 4	Top of Bedrock @ 51.7 ft				
		56.7 ft - 61.7 ft, Gray, Quartz-muscovite-chlorite Gneiss, Hard, Unweathered, Very good rock, BXDC	2 (40)	100 (98)	3 3 3 3 3					
60		Hole stopped @ 61.7 ft								

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

BORING LOG 2 JOHNSON BRF 030-2(26).GPJ VERMONT AOT.GDT 7/18/11

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

BORING LOG

JOHNSON
BRF 030-2(26)
VT-15 BR-32

Boring No.: B-102
Page No.: 1 of 1
Pin No.: 88B193
Checked By: NSM

Boring Crew: PORTER, GARROW
Date Started: 6/20/11 Date Finished: 6/20/11
VTSPG NAD83: N 780902.65 ft E 1582687.80 ft
Station: 93+05 Offset: 10.68
Ground Elevation: 488.78 ft

	Casing	Sampler
Type:	AUGER	AUGER
I.D.:		
Hammer Wt:	N.A.	N.A.
Hammer Fall:	N.A.	N.A.
Hammer/Rod Type:		
Rig:	CME 45C SKID	CE =

Groundwater Observations

Date	Depth (ft)	Notes
06/20/11	8.9	

ABUT. NO. 1
BOTTOM OF PILE CAP
ELEV. 481.50

EST. PILE TIP
ELEV. 433.18

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note:, Asphalt Pavement					
		Field Class:, GrSa, brn, Moist					
		Field Class:, SiSa, brn, Moist					
10							
		Field Class:, GrSiSa, brn, MTW					
		Field Class:, SiSa, brn, Wet					
20							
30		Field Class:, Cobbles, Wet					
		Field Class:, SiSa, brn, Wet					
40							
50		Field Class:, GrSa, brn, Wet					
		Field Note:, No Recovery					
60		Hole stopped @ 55.6 ft TLOB, CNPF					

Remarks:
1. 20 feet of solid stem auger was lost in hole.

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

BORING LOG 2 JOHNSON BRF 030-2(26).GPJ VERMONT AOT.GDT 7/18/11

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193bor.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
BORING LOG (1)

PLOT DATE: 10-JUN-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 24 OF 69

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

BORING LOG

JOHNSON
BRF 030-2(26)
VT-15 BR-32

Boring No.: B-103
Page No.: 1 of 1
Pin No.: 88B193
Checked By: NSM

Boring Crew: WERNER, WHITLOCK, HOLT
Date Started: 4/18/11 Date Finished: 4/25/11
VTSPG NAD83: N 780959.34 ft E 1582749.14 ft
Station: 93+75 Offset: -32.60
Ground Elevation: 484.34 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	3 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:		Auto/AWJ
Rig:	CME 45C TRACK	CE = 1.34

Groundwater Observations

Date	Depth (ft)	Notes

ABUT. NO. 2
BOTTOM OF PILE CAP
ELEV. 482.50

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-2-4, SiSa, brn, Moist, Rec. = 0.4 ft				WH-WH-WH-2 (WH)	27.3	13.3	60.0	26.7
		A-1-a, SaGr, brn, Wet, Rec. = 0.7 ft, Broken rock was within sample.				3-7-7-4 (14)	13.5	58.6	34.0	7.4
10		A-3, Sa, brn, Wet, Rec. = 1.6 ft				6-2-3-3 (5)	24.8	5.3	87.3	7.4
		A-2-4, SiSa, brn, Wet, Rec. = 2.0 ft				4-3-2-4 (5)	23.8	1.0	74.6	24.4
20		A-2-4, Sa, brn, Wet, Rec. = 2.0 ft				1-2-3-4 (5)	22.1	4.5	77.4	18.1
		A-1-b, GrSa, brn, Wet, Rec. = 2.0 ft				22-13-11-10 (24)	17.6	27.1	63.3	9.6
30		A-2-4, Sa, brn, Wet, Rec. = 2.0 ft				19-10-8-10 (18)	18.0	16.7	69.7	13.6
		A-2-4, SiSa, brn, Wet, Rec. = 1.2 ft				3-4-3-4 (7)	24.9	8.7	56.9	34.4
40		A-4, SiSa, gry, Wet, Rec. = 1.4 ft				1-4-4-4 (8)	25.0	8.3	52.9	38.8
		A-2-4, SiSa, gry, Wet, Rec. = 0.9 ft				1-3-4-7 (7)	23.5	2.0	73.5	24.5
EST. PILE TIP ELEV. 436.94		47.4 ft – 48.6 ft, Gray, Quartz-muscovite-chlorite Gneiss, Hard, Unweathered, Good rock, BXMDC, (RMR = 67)	1 (35)	67 (0)	6	Top of Bedrock @ 47.4 ft				
50		48.6 ft – 52.4 ft, Gray, Quartz-muscovite-chlorite Gneiss, Hard, Unweathered, Good rock, BXMDC, (RMR = 77)	2 (35)	63 (61)	4 4 7 6					
		Hole stopped @ 52.4 ft								

Remarks:
1. Called hole due to flash flood.

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

BORING LOG 2 JOHNSON BRF 030-2(26).GPJ VERMONT AOT.GDT 7/18/11

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

BORING LOG

JOHNSON
BRF 030-2(26)
VT-15 BR-32

Boring No.: B-104
Page No.: 1 of 1
Pin No.: 88B193
Checked By: NSM

Boring Crew: PORTER, GARROW, WERNER
Date Started: 4/07/11 Date Finished: 4/11/11
VTSPG NAD83: N 780905.41 ft E 1582757.69 ft
Station: 93+75 Offset: 22.00
Ground Elevation: 488.1 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	3 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:		Auto/AWJ
Rig:	CME 45C TRACK	CE = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
04/08/11	9.5	AM
04/12/11	7.8	AM, After hard rain

ABUT. NO. 2
BOTTOM OF PILE CAP
ELEV. 482.50

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft				2-2-3-4 (5)	8.5	40.0	49.0	11.0
		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft				2-6-5-3 (11)	9.8	33.7	50.1	16.2
5		Field Note:, No Recovery., Sand on tip of sampler.				3-5-6-5 (11)				
		A-1-b, SaGr, brn, Wet, Rec. = 0.9 ft				3-4-4-5 (8)	10.8	46.0	45.3	8.7
		Visual Classification, SaGr, brn, Wet, Rec. = 0.2 ft, Insufficient sample for testing. No water return at 9.5 ft.				9-6-4-2 (10)	13.9			
10		A-1-a, SaGr, gry, Wet, Rec. = 0.6 ft, Lots of broken rock was within sample.				2-14-26-24 (40)	11.8	63.2	23.9	12.9
		Field Note:, Sampler hit rock (cobble)				(NA)-3-2-2 (5)	19.5	18.8	68.1	13.1
		A-1-b, Sa, brn, Wet, Rec. = 0.4 ft, Lab Note: Sample was rusty-orange color.				2-4-4-4 (8)				
15		Field Note:, No Recovery.				2-3-8-9 (11)	16.5	32.4	55.4	12.2
		A-1-b, GrSa, brn, Wet, Rec. = 1.1 ft, Lab Note: Sample was rusty-orange color.				9-7-7-7 (14)	12.9	48.2	41.7	10.1
20		A-1-b, SaGr, brn, Wet, Rec. = 0.8 ft, Lab Note: Sample was rusty-orange color.								
25		A-2-4, SiSa, brn, Wet, Rec. = 1.0 ft				3-4-5-4 (9)	23.9		76.6	23.4
		A-4, SiSa, brn, Wet, Rec. = 1.4 ft				2-3-4-5 (7)	28.3		61.1	38.9
30										
EST. PILE TIP ELEV. 456.90		31.2 ft – 36.2 ft, Gray, Quartz-muscovite-chlorite Gneiss, Milky white Quartz vein from 31.6 to 33.5 ft.. Hard, Unweathered, Very good rock, BXDC	1 (40)	100 (84)	5 3 3 3 3	Top of Bedrock @ 31.2 ft				
35		36.2 ft – 41.2 ft, Gray, Quartz-muscovite-chlorite Gneiss, Hard, Unweathered, Very good rock, BXDC	2 (40)	96 (96)	4 4 4 4 4					
40		Hole stopped @ 41.2 ft								

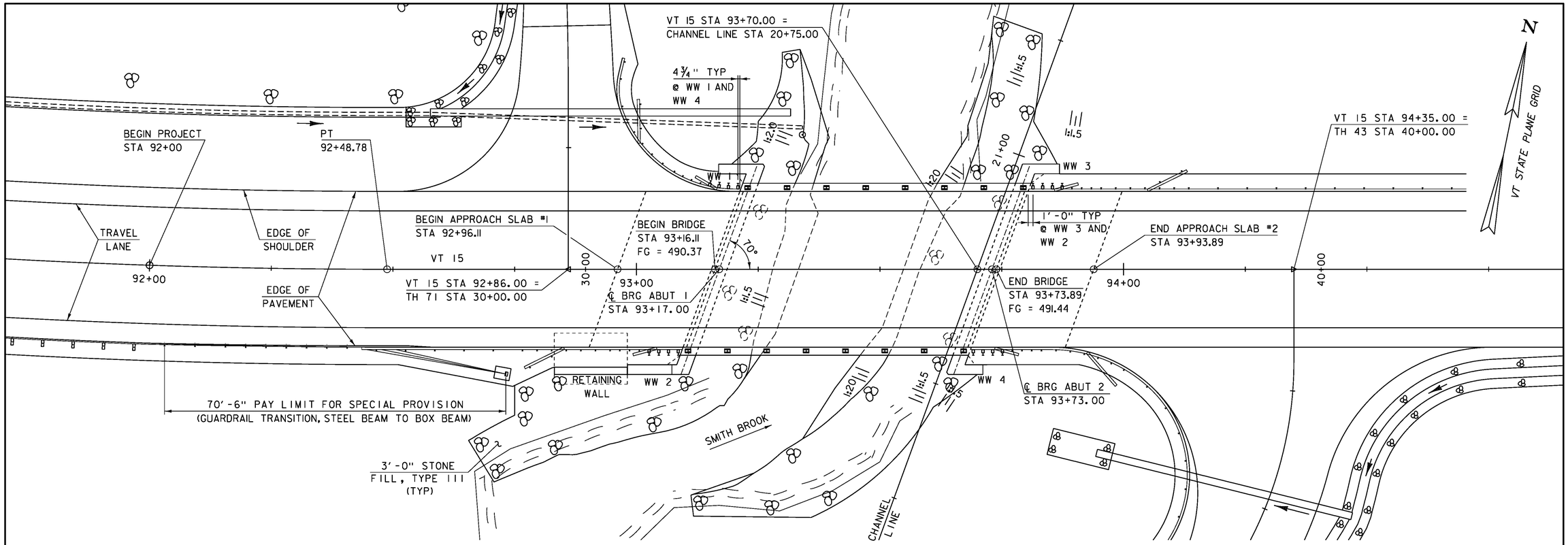
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations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

BORING LOG 2 JOHNSON BRF 030-2(26).GPJ VERMONT AOT.GDT 7/18/11

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

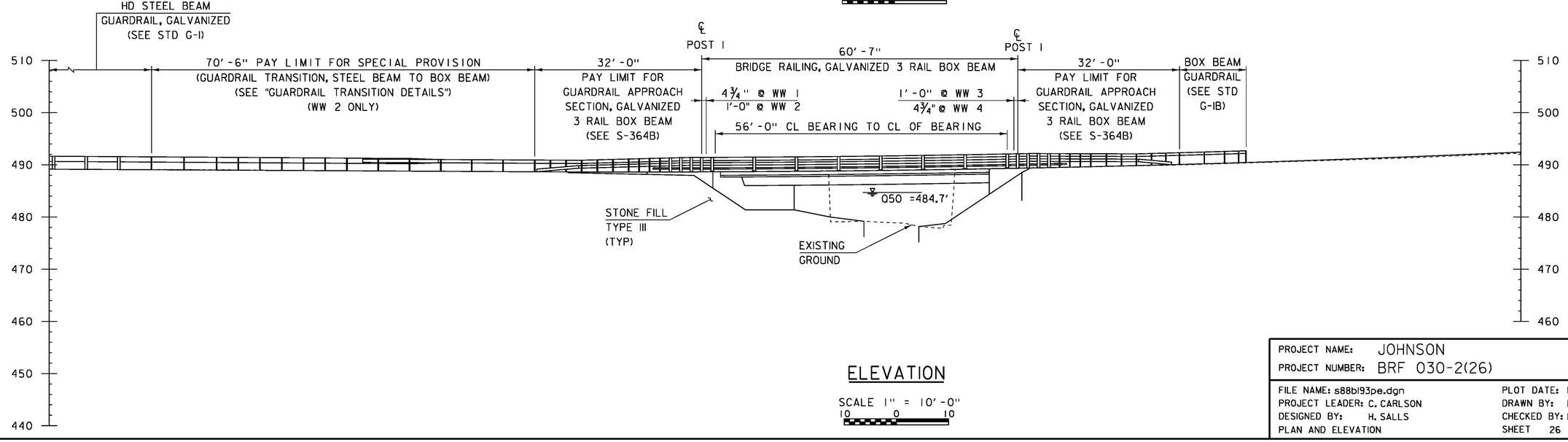
FILE NAME: s88b193bor.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
BORING LOG (2)

PLOT DATE: 10-JUN-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 25 OF 69



PLAN

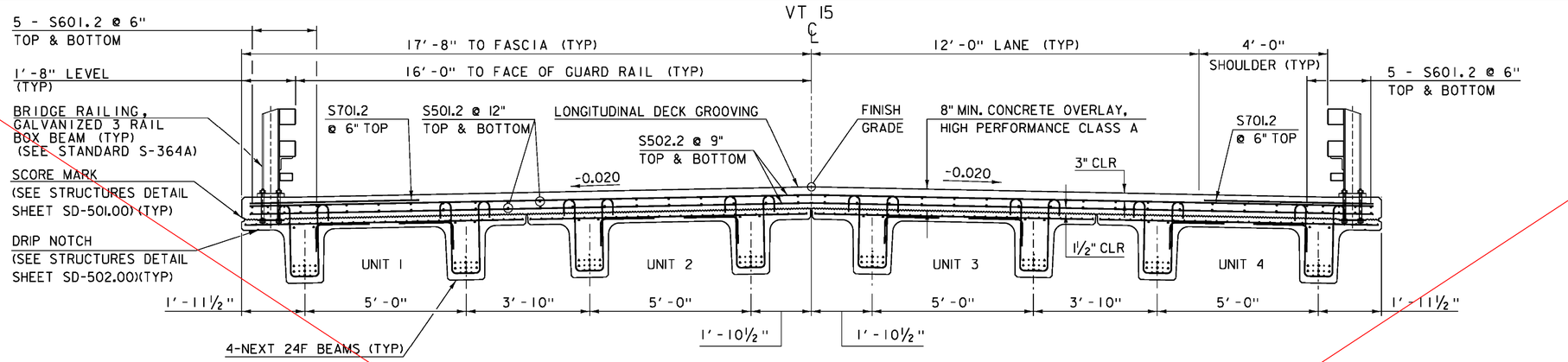
SCALE 1" = 10'-0"



ELEVATION

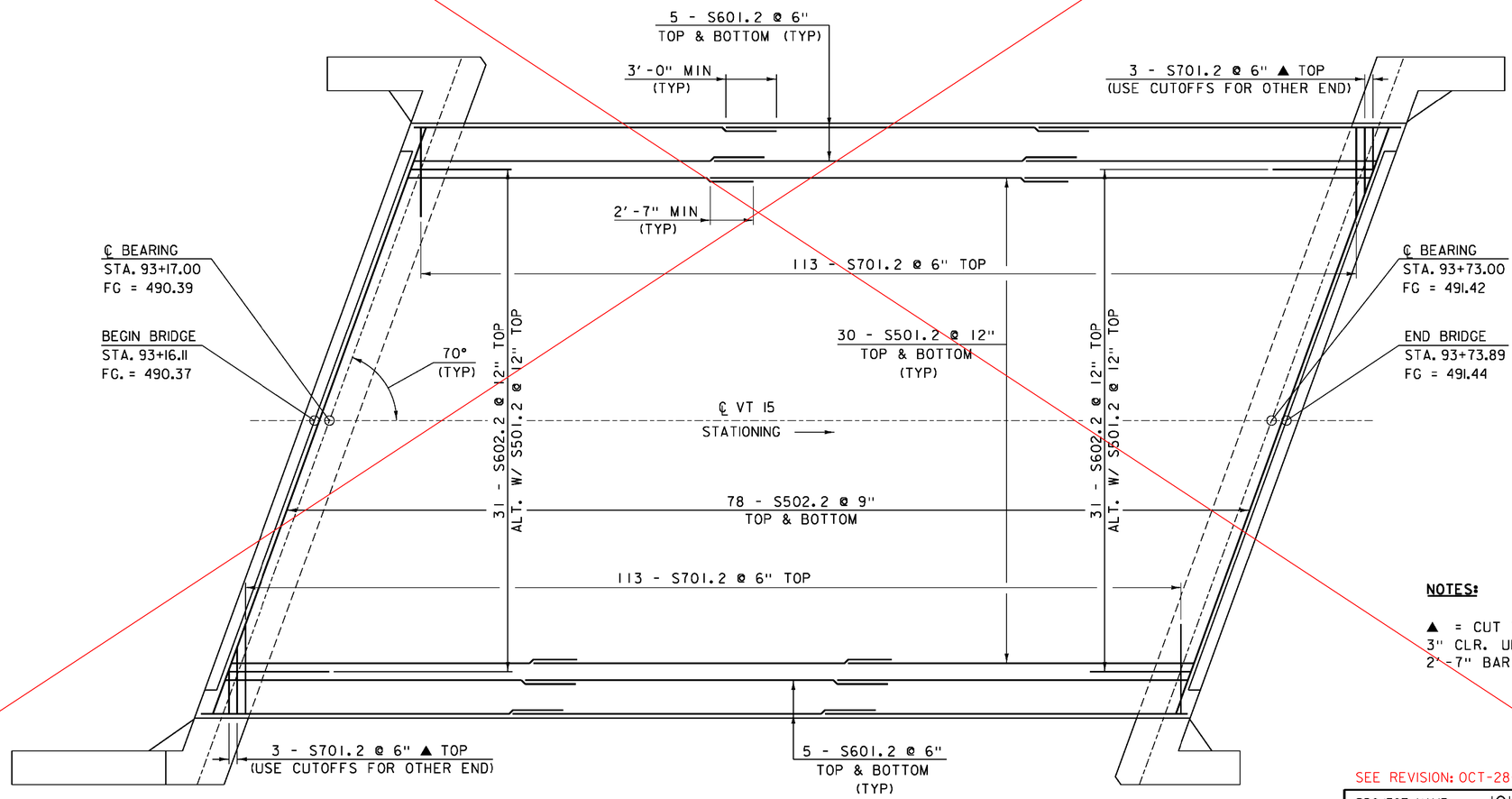
SCALE 1" = 10'-0"

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88bl93pe.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
PLAN AND ELEVATION	SHEET 26 OF 69



BRIDGE TYPICAL SECTION

SCALE: ½" = 1'-0"



OVERLAY REINFORCING PLAN

SCALE: ¼" = 1'-0"

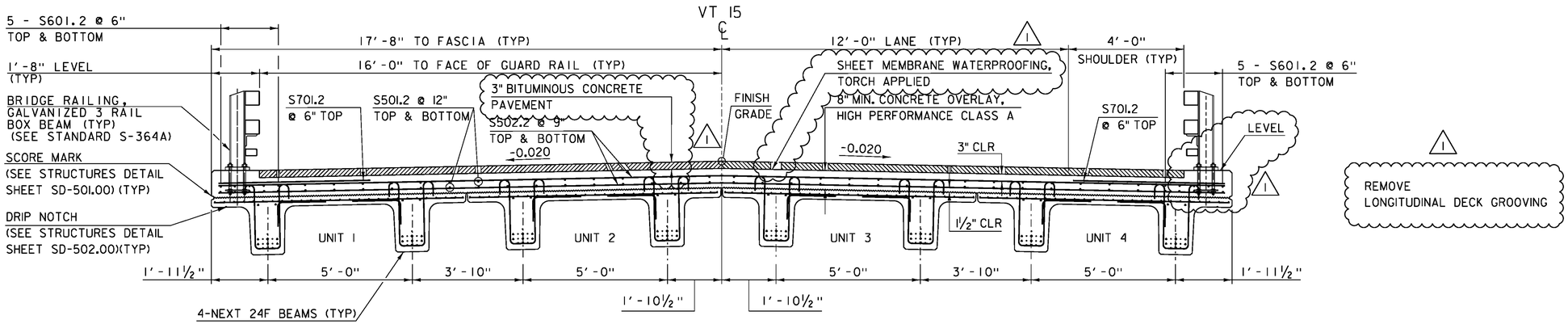
NOTES:

▲ = CUT TO FIT IN FIELD
3" CLR. UNLESS OTHERWISE NOTED
2'-7" BAR LAP UNLESS OTHERWISE NOTED

SEE REVISION: OCT-28-2014

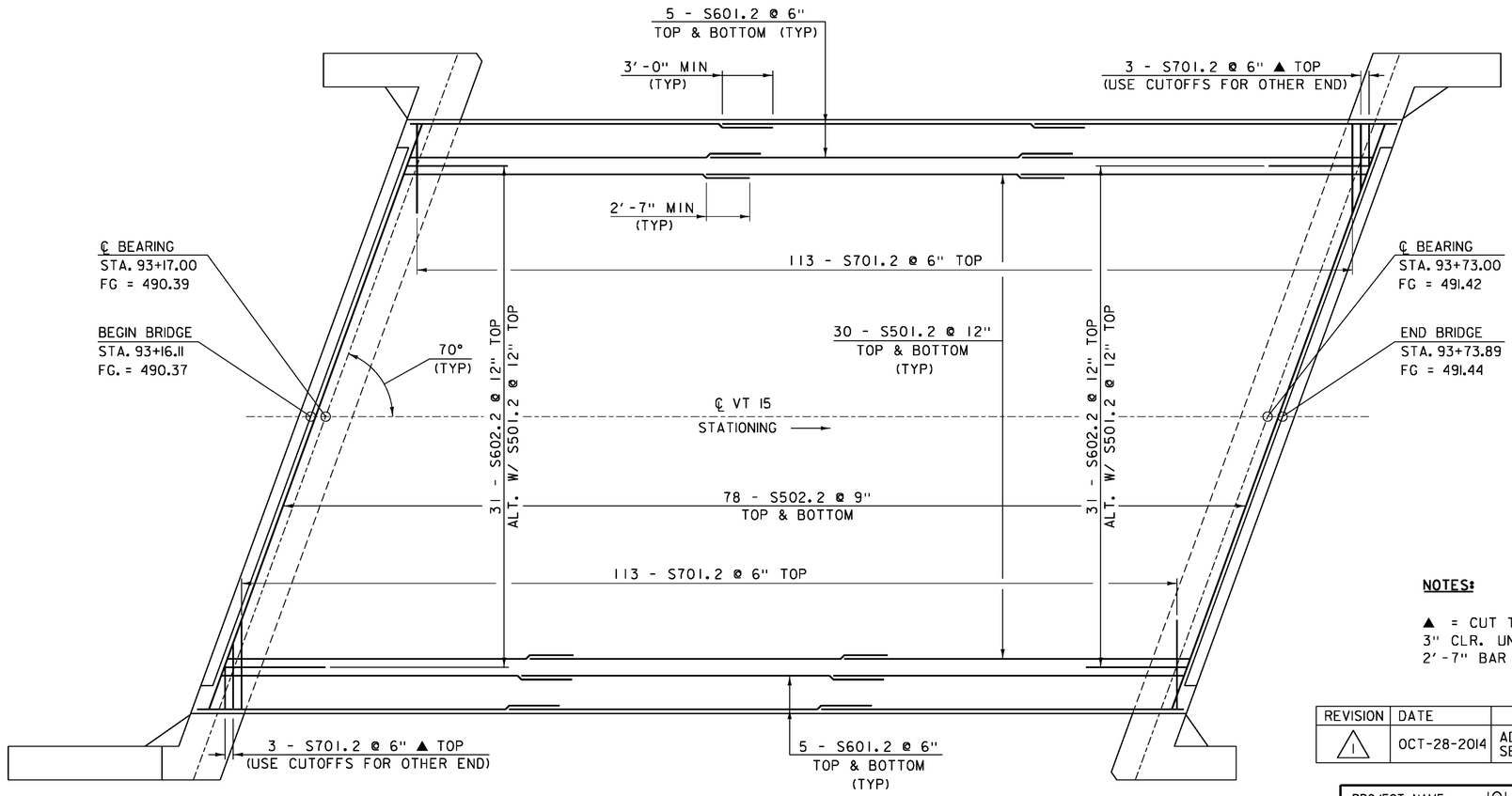
PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)

FILE NAME: s88bl93sup.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
BRIDGE DECK DETAILS	SHEET 27 OF 69



BRIDGE TYPICAL SECTION

SCALE: ½" = 1'-0"



OVERLAY REINFORCING PLAN

SCALE: ¼" = 1'-0"

NOTES:

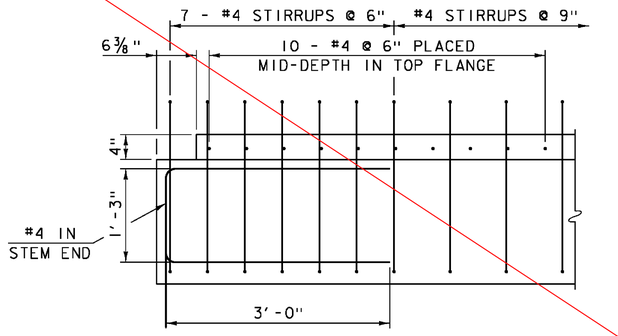
▲ = CUT TO FIT IN FIELD
3" CLR. UNLESS OTHERWISE NOTED
2'-7" BAR LAP UNLESS OTHERWISE NOTED

REVISION	DATE	DESCIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

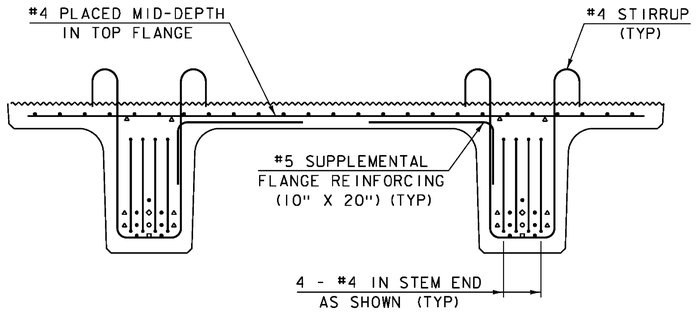
FILE NAME: s88bl93sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
BRIDGE DECK DETAILS

PLOT DATE: 05-NOV-2014
DRAWN BY: G. ROKES
CHECKED BY: H. SALLS
SHEET 27 OF 69



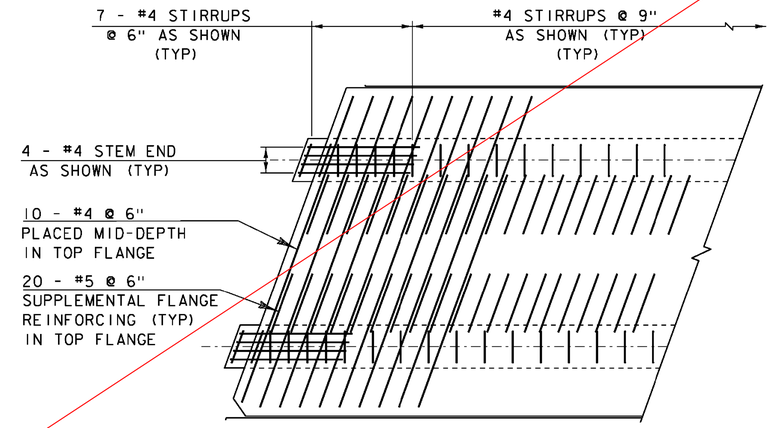
STEM END - SIDE ELEVATION

SCALE: 1" = 1'-0"



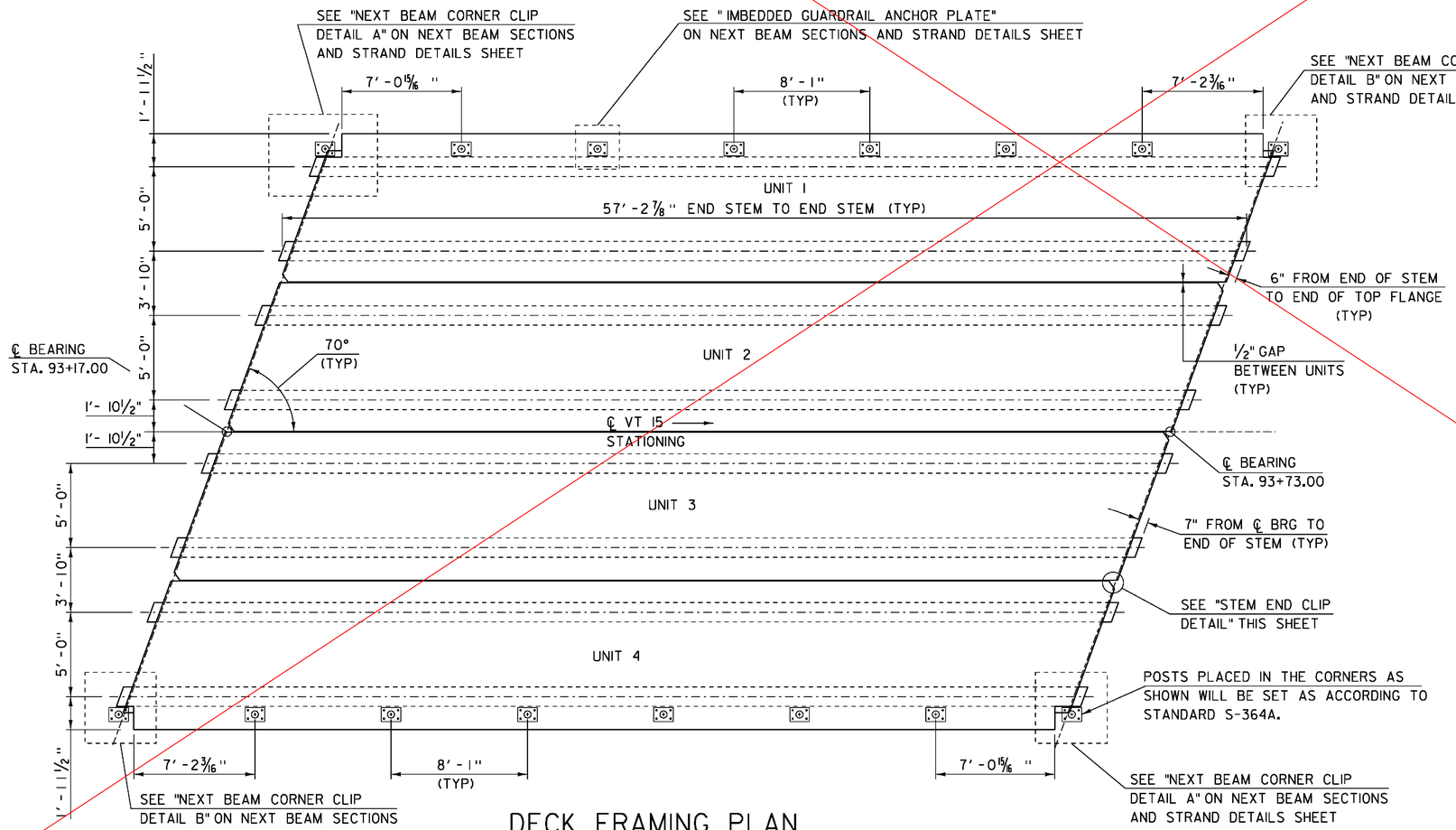
STEM END - END ELEVATION

SCALE: 1" = 1'-0"



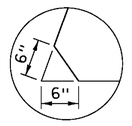
STEM END - PLAN

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



DECK FRAMING PLAN

SCALE: 1/4" = 1'-0"



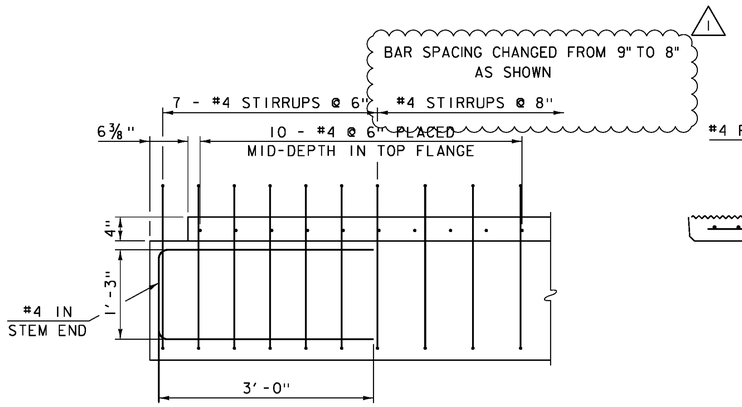
TOP FLANGE CLIP DETAIL

SCALE: 1" = 1'-0"

SEE REVISION: OCT-28-2014

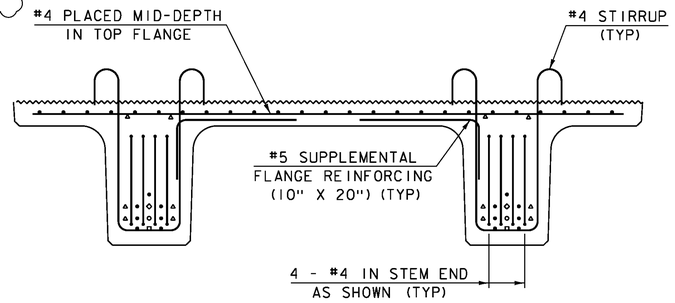
PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)

FILE NAME: s88bl93sup.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
FRAMING PLAN AND STEM END DETAILS	SHEET 28 OF 69



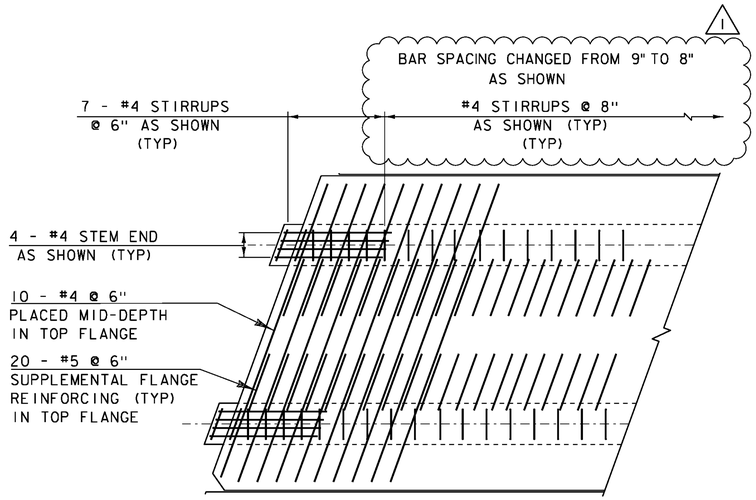
STEM END - SIDE ELEVATION

SCALE: 1" = 1'-0"



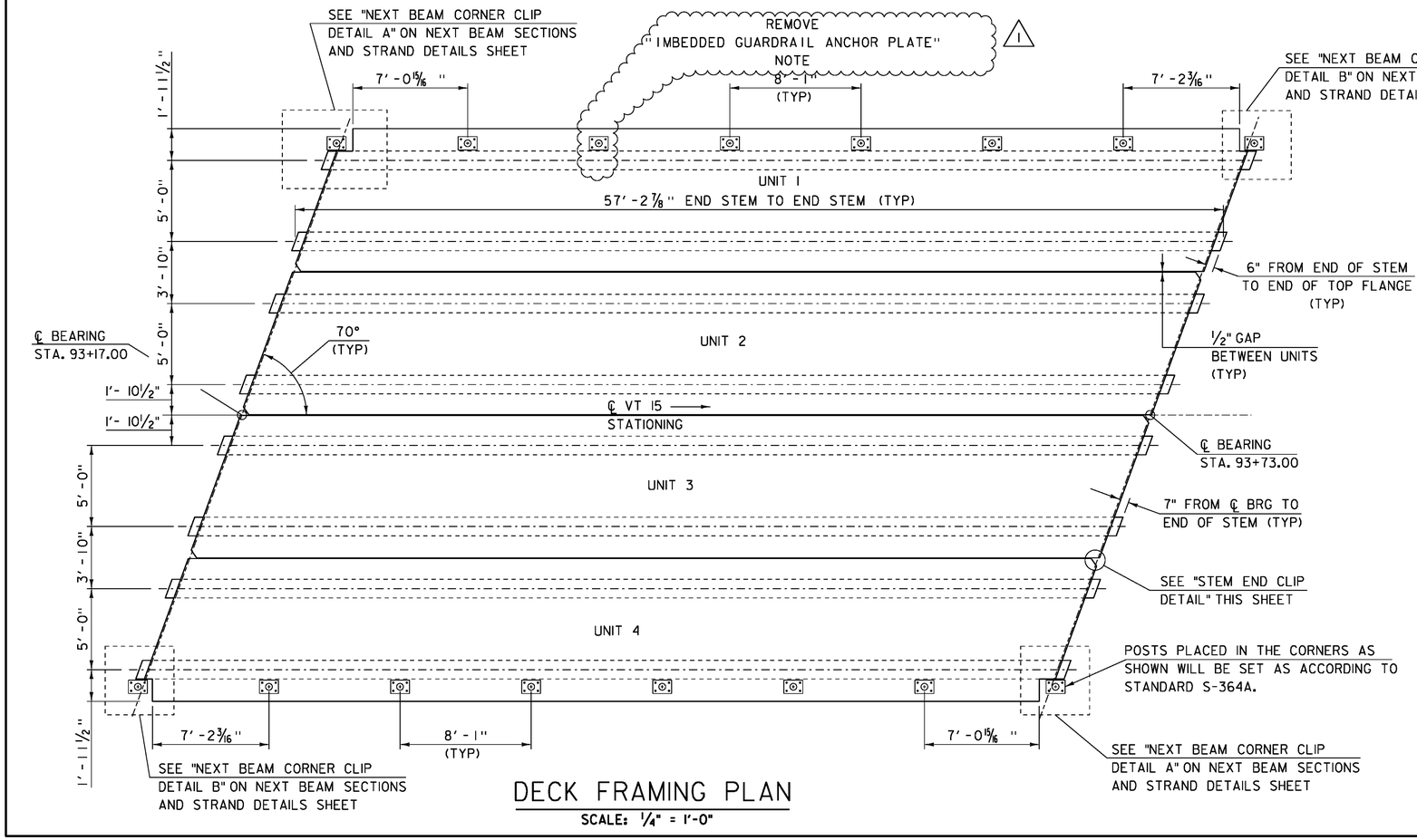
STEM END - END ELEVATION

SCALE: 1" = 1'-0"



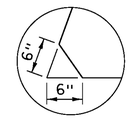
STEM END - PLAN

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



DECK FRAMING PLAN

SCALE: 1/4" = 1'-0"



TOP FLANGE CLIP DETAIL

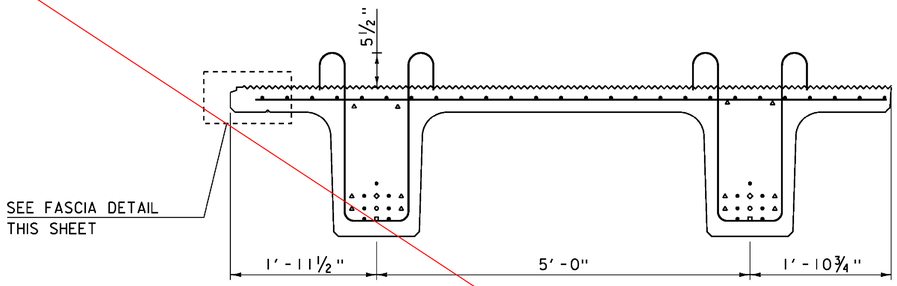
SCALE: 1" = 1'-0"

REVISION	DATE	DESCIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

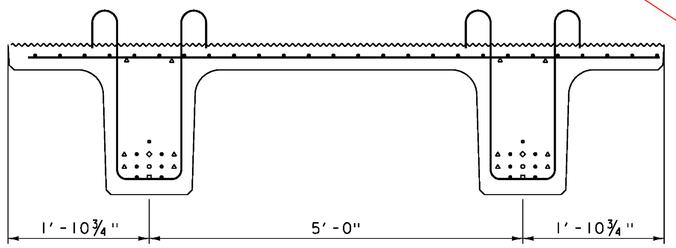
FILE NAME: s88bl93sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
FRAMING PLAN AND STEM END DETAILS

PLOT DATE: 05-NOV-2014
DRAWN BY: G. ROKES
CHECKED BY: H. SALLS
SHEET 28 OF 69



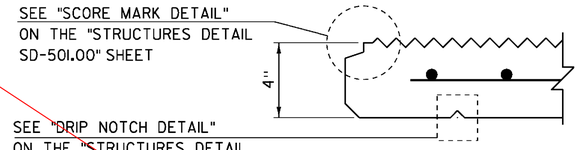
FASCIA UNITS 1 & 4

SCALE: 1" = 1'-0"



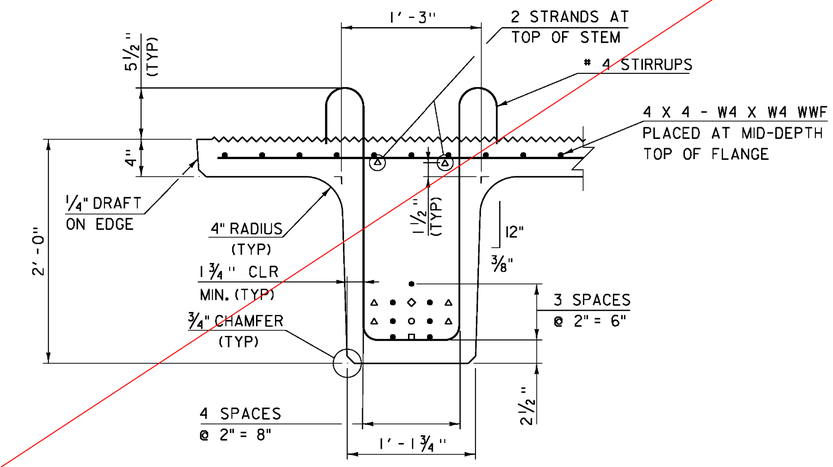
UNITS 2 & 3

SCALE: 1" = 1'-0"



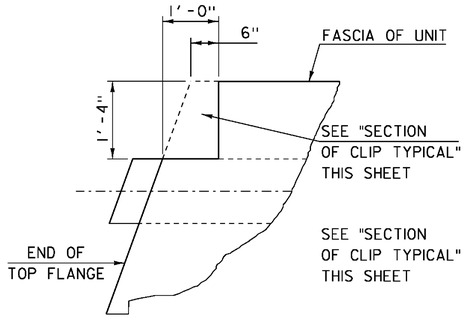
FASCIA DETAIL

SCALE: 3" = 1'-0"



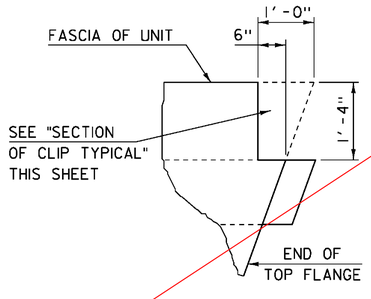
STEM TYPICAL SECTION

SCALE: 1½" = 1'-0"



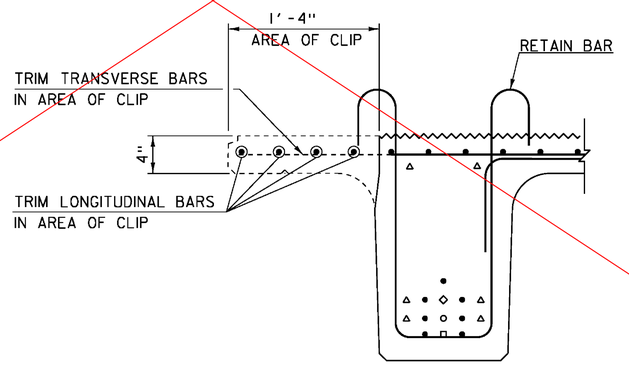
NEXT BEAM CORNER CLIP DETAIL A

SCALE: ¾" = 1'-0"



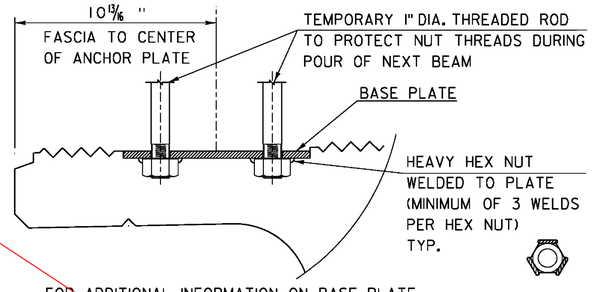
NEXT BEAM CORNER CLIP DETAIL B

SCALE: ¾" = 1'-0"



SECTION OF CLIP TYPICAL

SCALE: 1½" = 1'-0"



FOR ADDITIONAL INFORMATION ON BASE PLATE
AND BRIDGE GUARDRAIL HARDWARE SEE STANDARD S-364A

IMBEDDED GUARDRAIL ANCHOR PLATE

SCALE: 3" = 1'-0"

STRAND LEGEND

●	NOT DEBONDED
△	DEBONDED 0'-6"
◇	DEBONDED 4'-0"
○	DEBONDED 8'-0"
□	DEBONDED 10'-0"

NOTES:

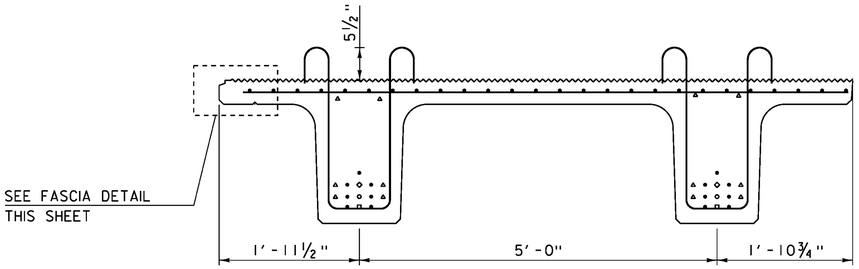
1. TOP SURFACE OF TOP FLANGE SHALL HAVE A RAKE FINISH. SEE STRUCTURES DETAIL SHEET SD-501.00.
2. STRANDS IN THE TOP AND BOTTOM ROWS THAT ARE NOT DEBONDED SHALL EXTEND 1'-6" FROM THE FINISHED END OF EACH BEAM STEM.

SEE REVISION: OCT-28-2014

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

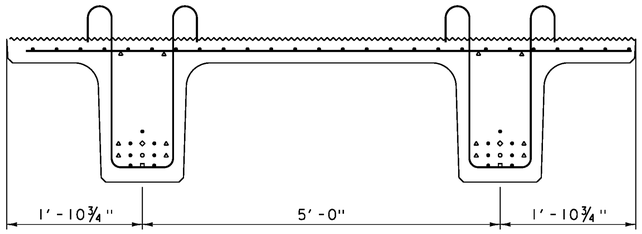
FILE NAME: s88bl93sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
NEXT BEAM SECTIONS AND STRAND DETAILS

PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROKES
CHECKED BY: H. SALLS
SHEET 29 OF 69



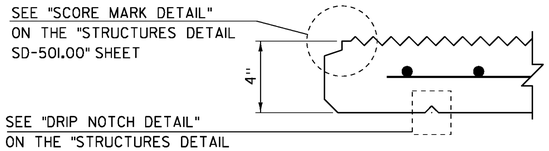
FASCIA UNITS 1 & 4

SCALE: 1" = 1'-0"



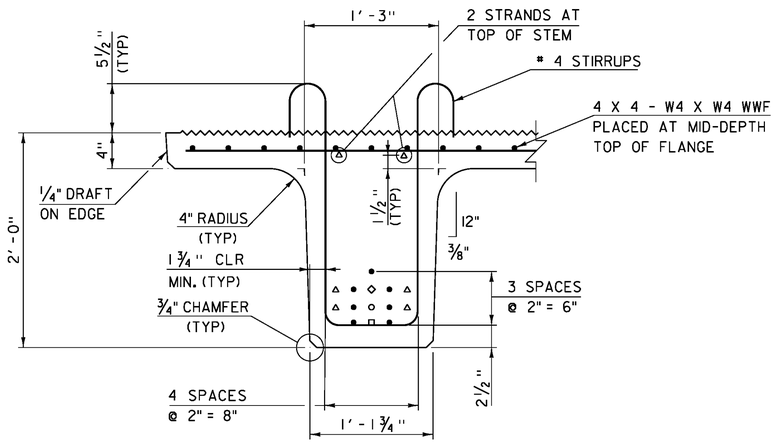
UNITS 2 & 3

SCALE: 1" = 1'-0"



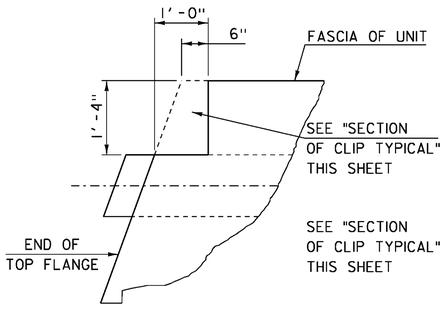
FASCIA DETAIL

SCALE: 3" = 1'-0"



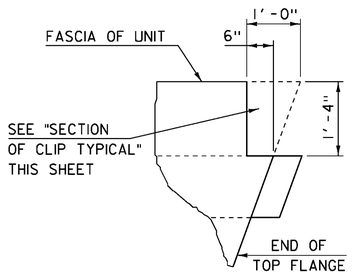
STEM TYPICAL SECTION

SCALE: 1½" = 1'-0"



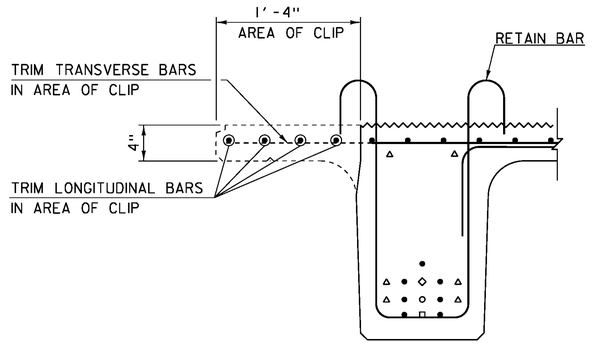
NEXT BEAM CORNER CLIP DETAIL A

SCALE: ¾" = 1'-0"



NEXT BEAM CORNER CLIP DETAIL B

SCALE: ¾" = 1'-0"



SECTION OF CLIP TYPICAL

SCALE: 1½" = 1'-0"

1

REMOVE
"IMBEDDED GUARDRAIL ANCHOR PLATE"
DETAIL

STRAND LEGEND

- ● NOT DEBONDED
- △ DEBONDED 0'-6"
- ◇ DEBONDED 4'-0"
- ○ DEBONDED 8'-0"
- □ DEBONDED 10'-0"

NOTES:

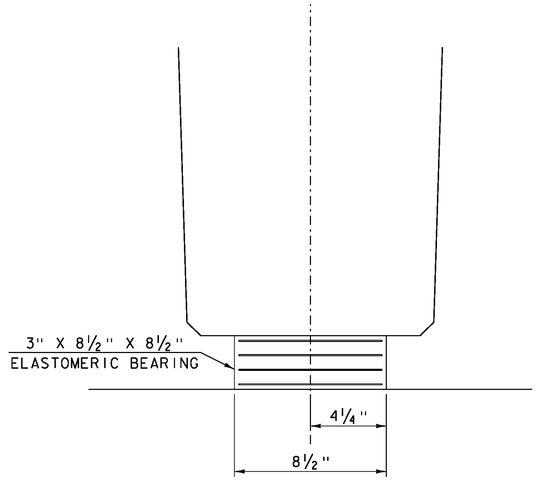
1. TOP SURFACE OF TOP FLANGE SHALL HAVE A RAKE FINISH. SEE STRUCTURES DETAIL SHEET SD-501.00.
2. STRANDS IN THE TOP AND BOTTOM ROWS THAT ARE NOT DEBONDED SHALL EXTEND 1'-6" FROM THE FINISHED END OF EACH BEAM STEM.

REVISION	DATE	DESCIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

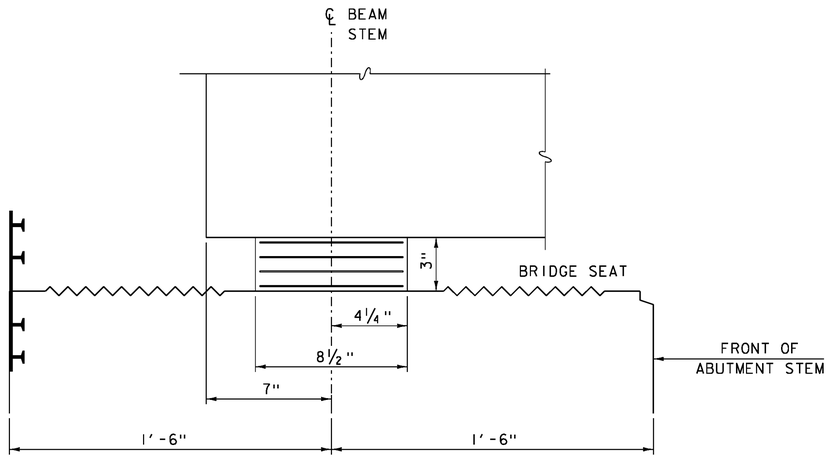
FILE NAME: s88bl93sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
PLOT DATE: 05-NOV-2014
DRAWN BY: G. ROKES
CHECKED BY: H. SALLS

NEXT BEAM SECTIONS AND STRAND DETAILS SHEET 29 OF 69



2 - ¼" EXTERIOR LAYERS OF ELASTOMER
3 - ¾" INTERIOR LAYERS OF ELASTOMER
4 - 1/16" STEEL REINFORCING PLATES

FRONT VIEW



SIDE VIEW

ELASTOMERIC BEARING DETAILS

SCALE: 3" = 1'-0"

BEARING NOTES

1. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF STANDARD SPECIFICATIONS SECTIONS 531 AND 731.
2. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMER SHALL BE STEEL AASHTO M270M/M270 GRADE 36. ALL INTERNAL STEEL PLATES SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
3. STEEL REINFORCED ELASTOMERIC BEARINGS SHALL HAVE A MINIMUM 1/8" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL PLATES.
4. THE ELASTOMER WAS DESIGNED WITH A SHEAR MODULUS OF 100 PSI +/- 15%
5. THE CONTRACTOR IS ADVISED TO HAVE SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED UNDER ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".

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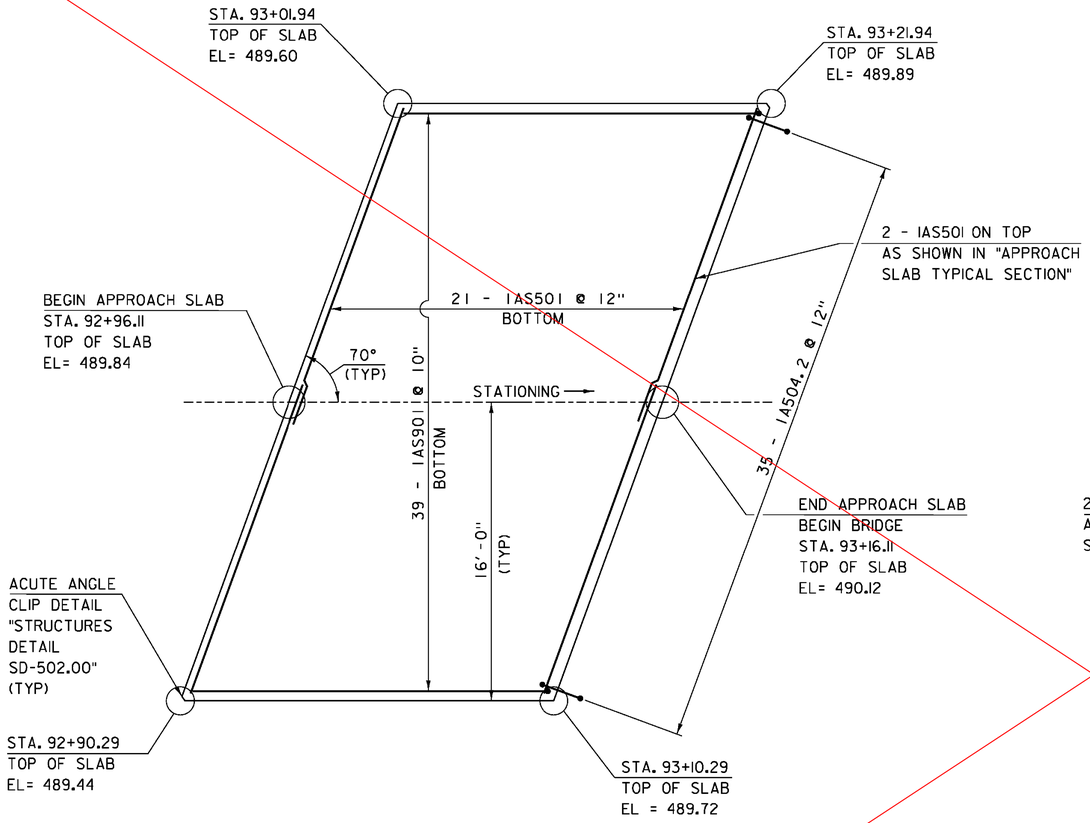
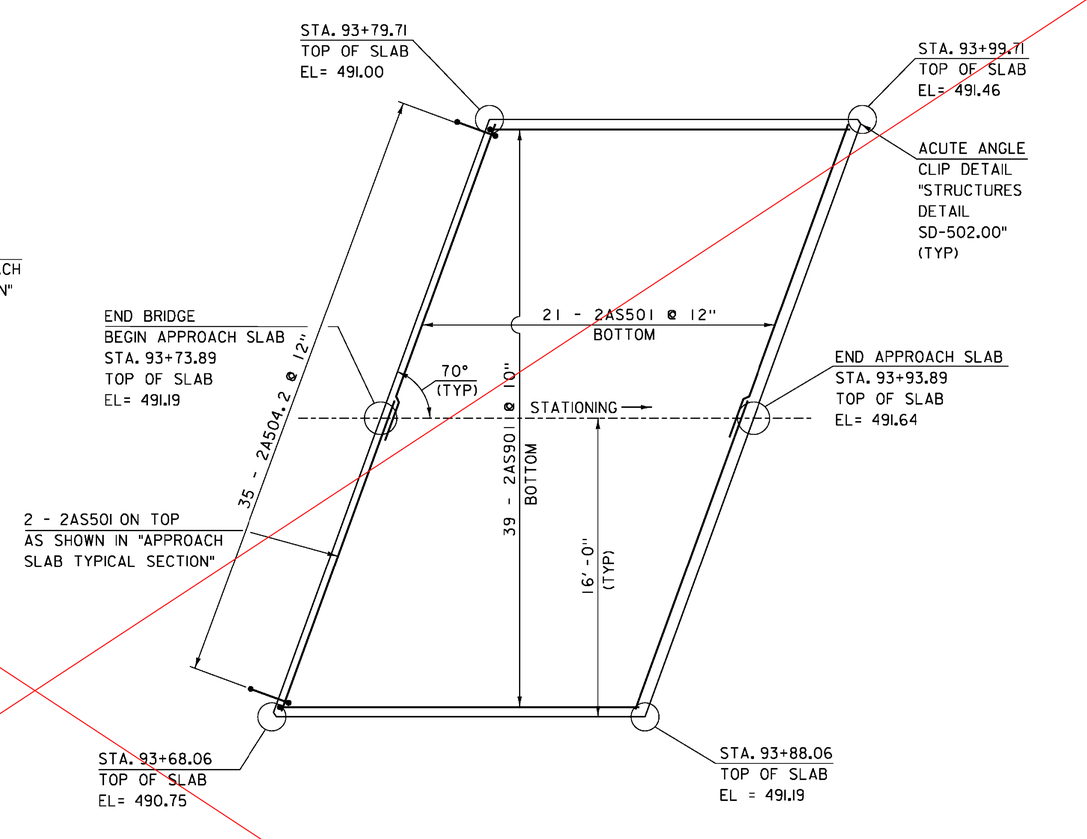
BEARING DETAILS	SHEET 30 OF 69



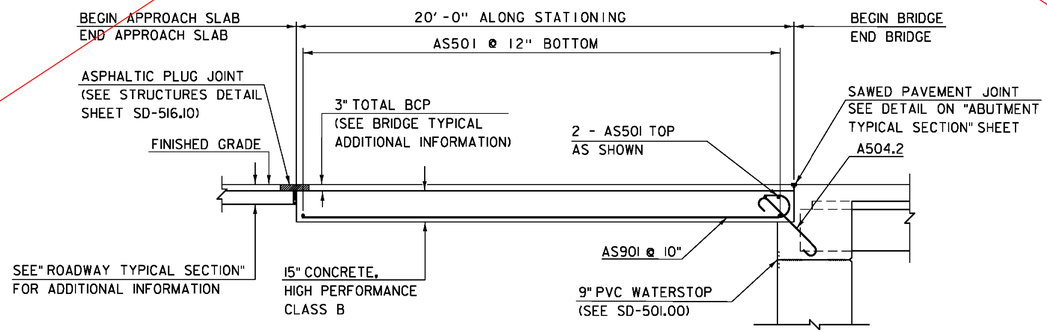
APPROACH SLAB # 1 PLAN

SCALE: 1/4" = 1'-0"



APPROACH SLAB # 2 PLAN

SCALE: 1/4" = 1'-0"



APPROACH SLAB TYPICAL SECTION

SCALE: 3/8" = 1'-0"

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

SEE REVISION: OCT-28-2014

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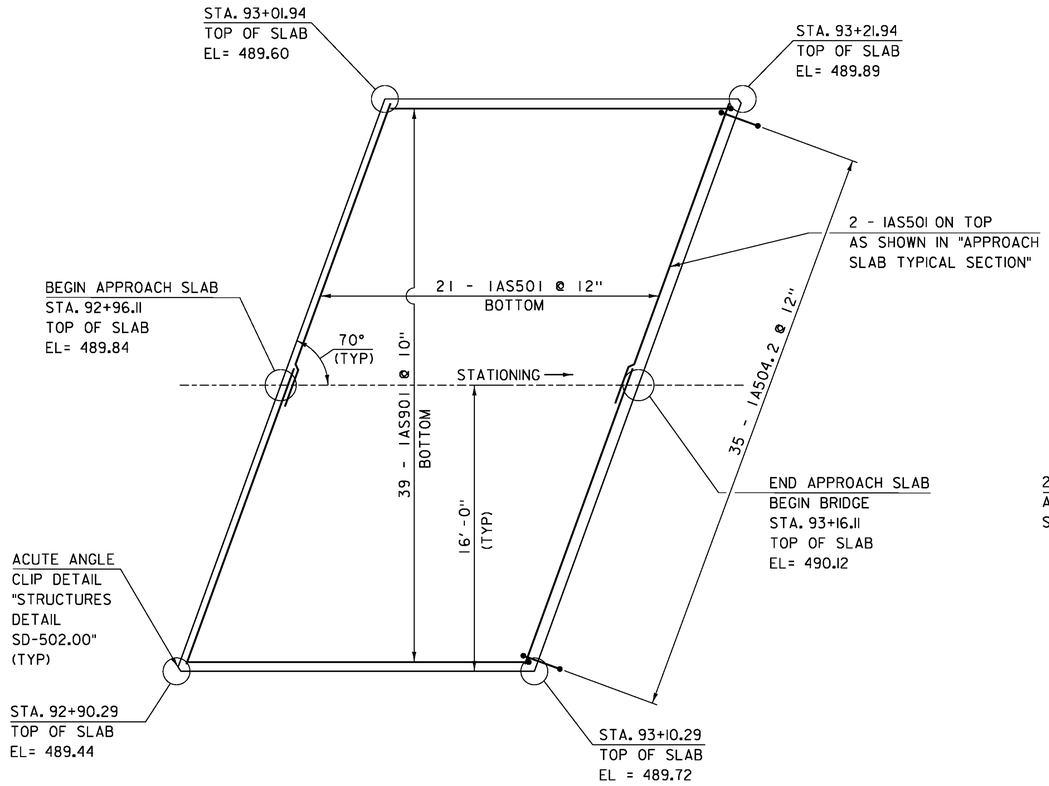
APPROACH SLAB PLAN AND TYPICAL SECTION	SHEET 31 OF 69



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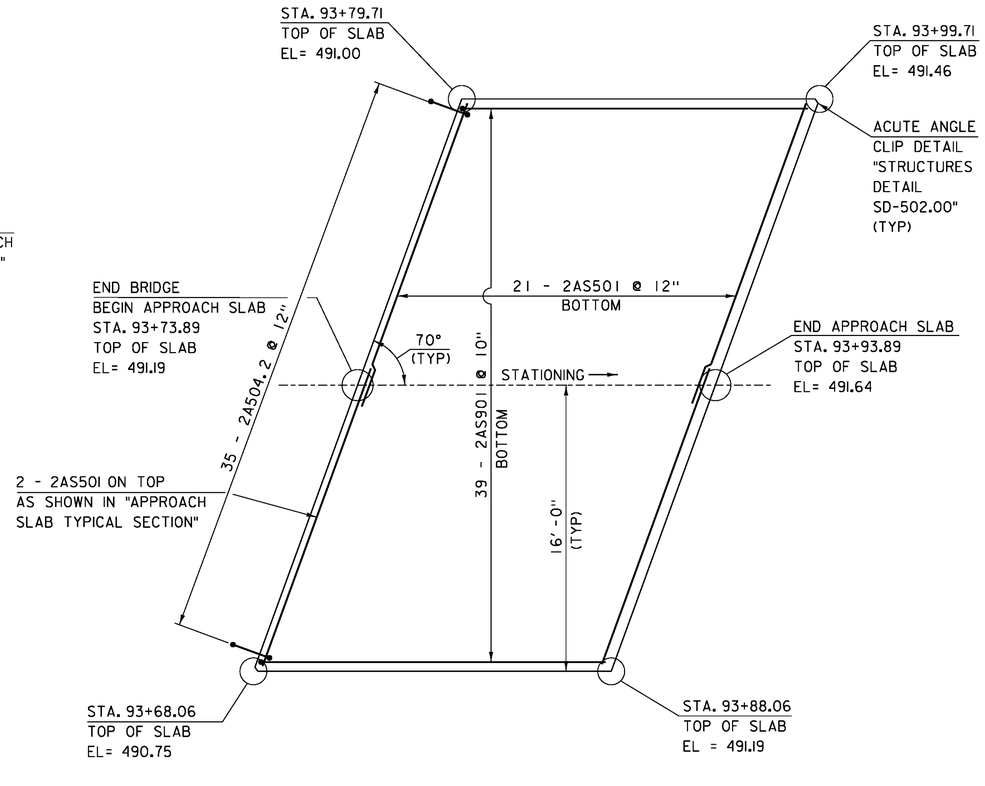

APPROACH SLAB # 2 PLAN

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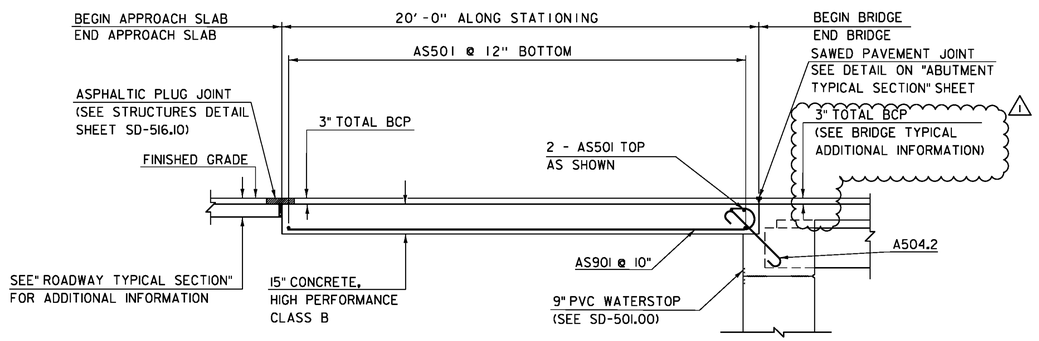

APPROACH SLAB TYPICAL SECTION

SCALE: 3/8" = 1'-0"

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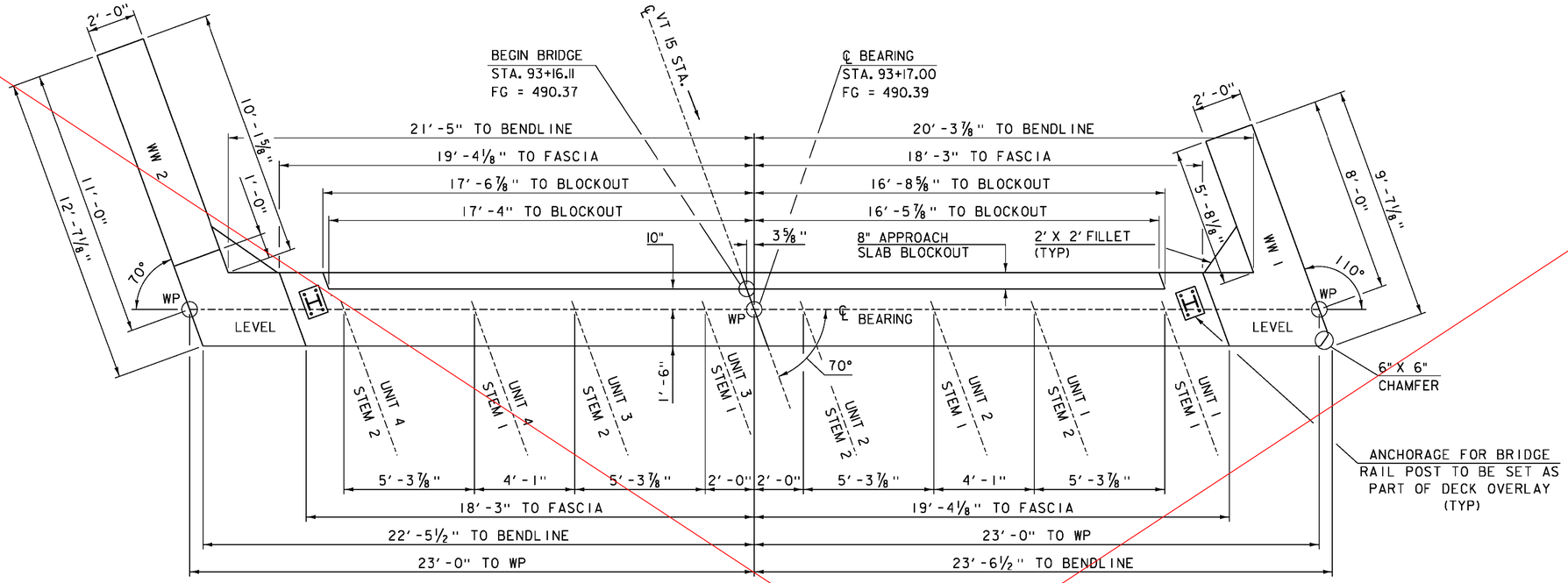
SHEET 31 OF 69



ABUTMENT #1 PLAN

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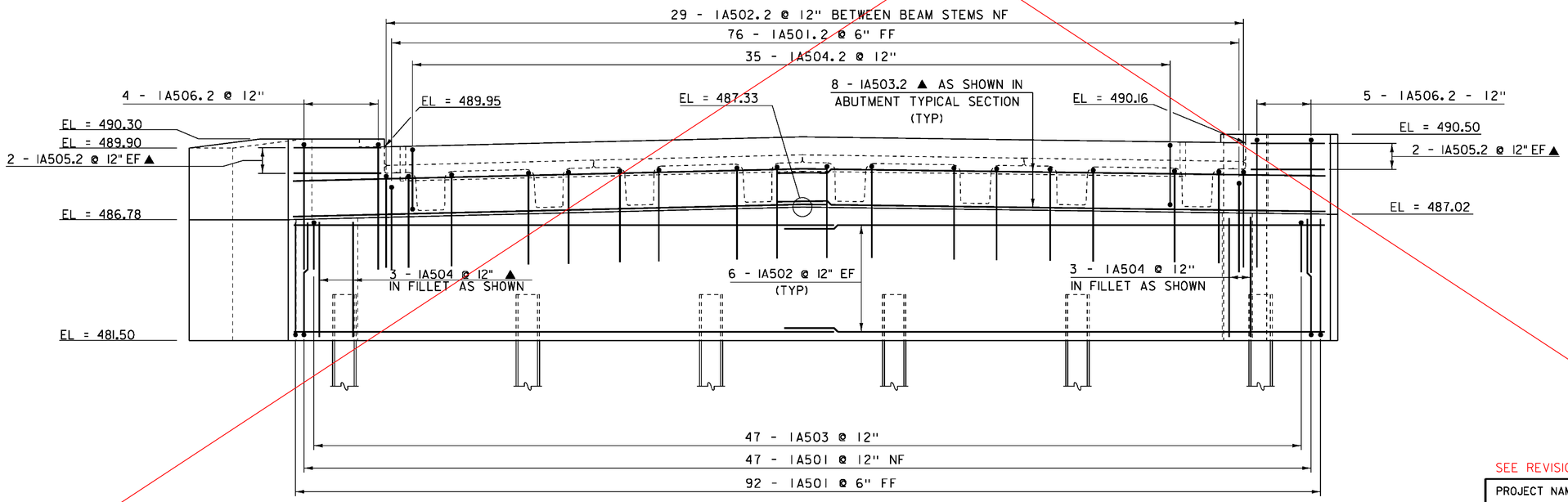

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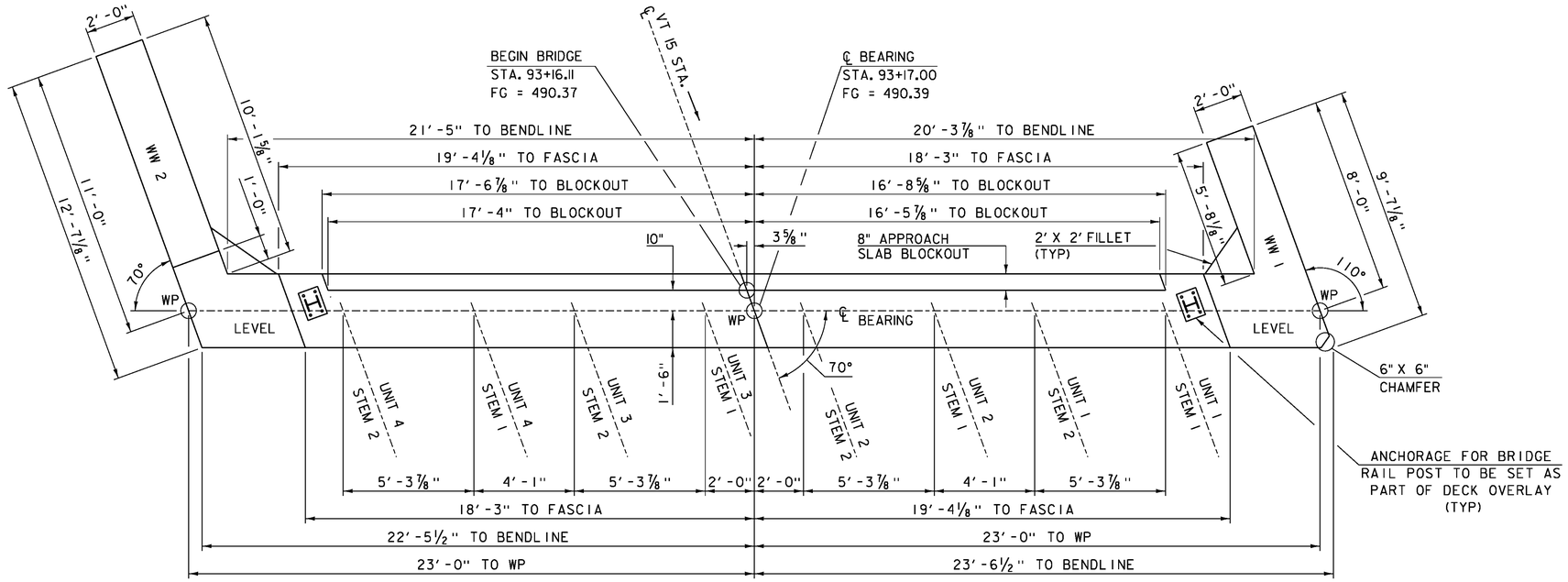
ABUTMENT #1 PLAN AND ELEVATION	SHEET 32 OF 69



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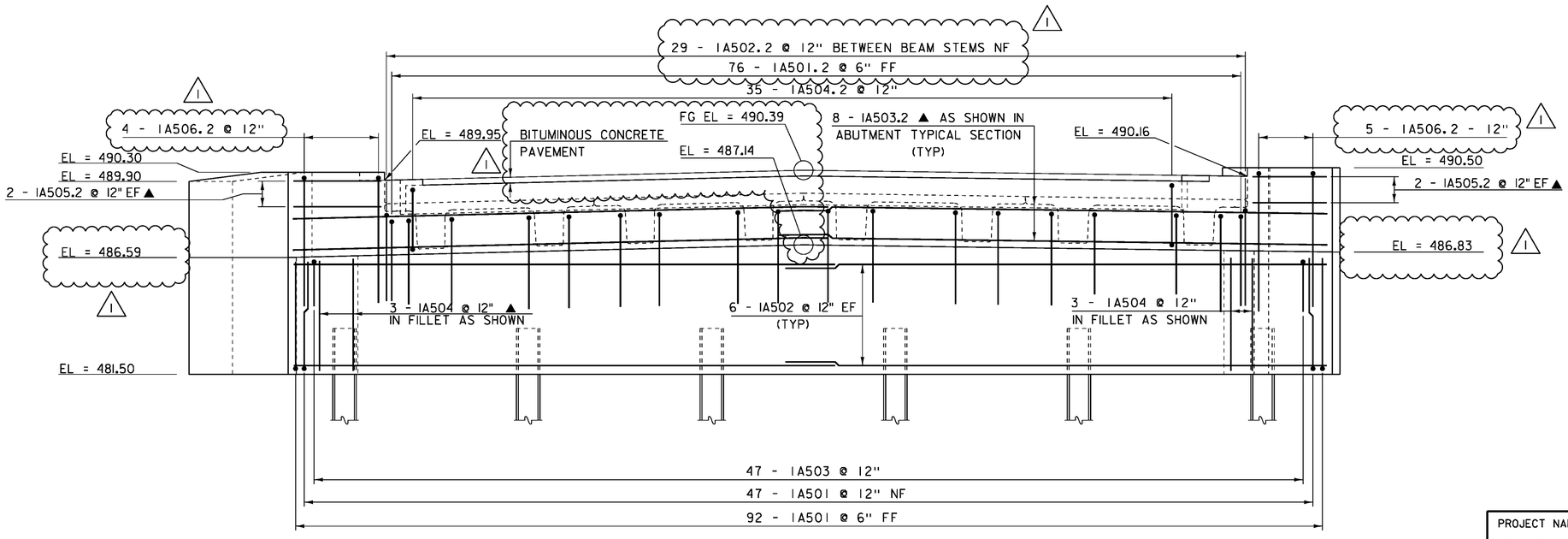

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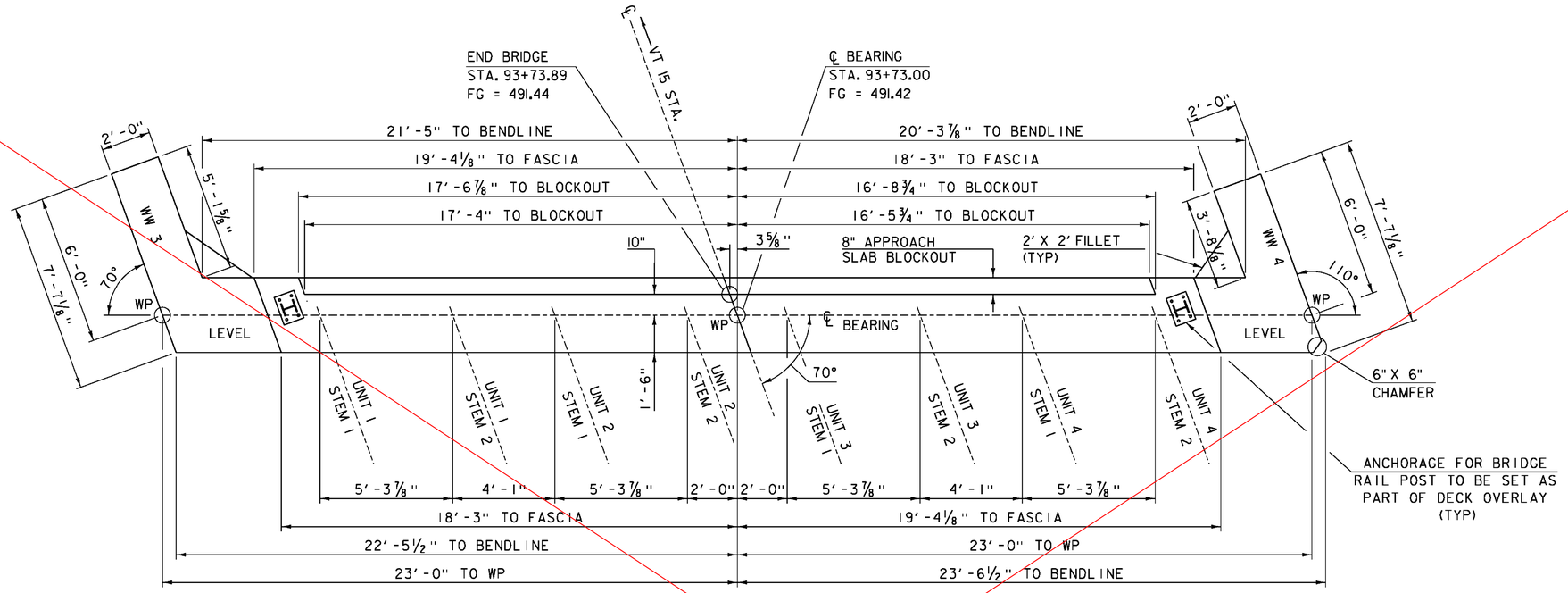
SHEET 32 OF 69



ABUTMENT #2 PLAN

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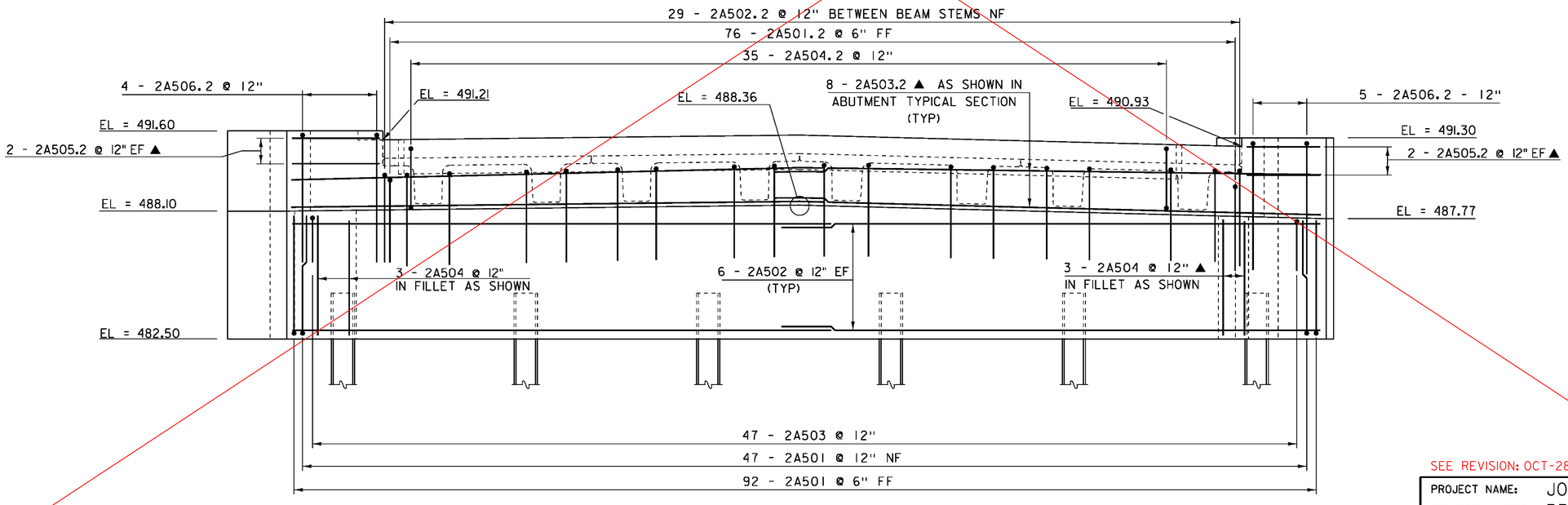

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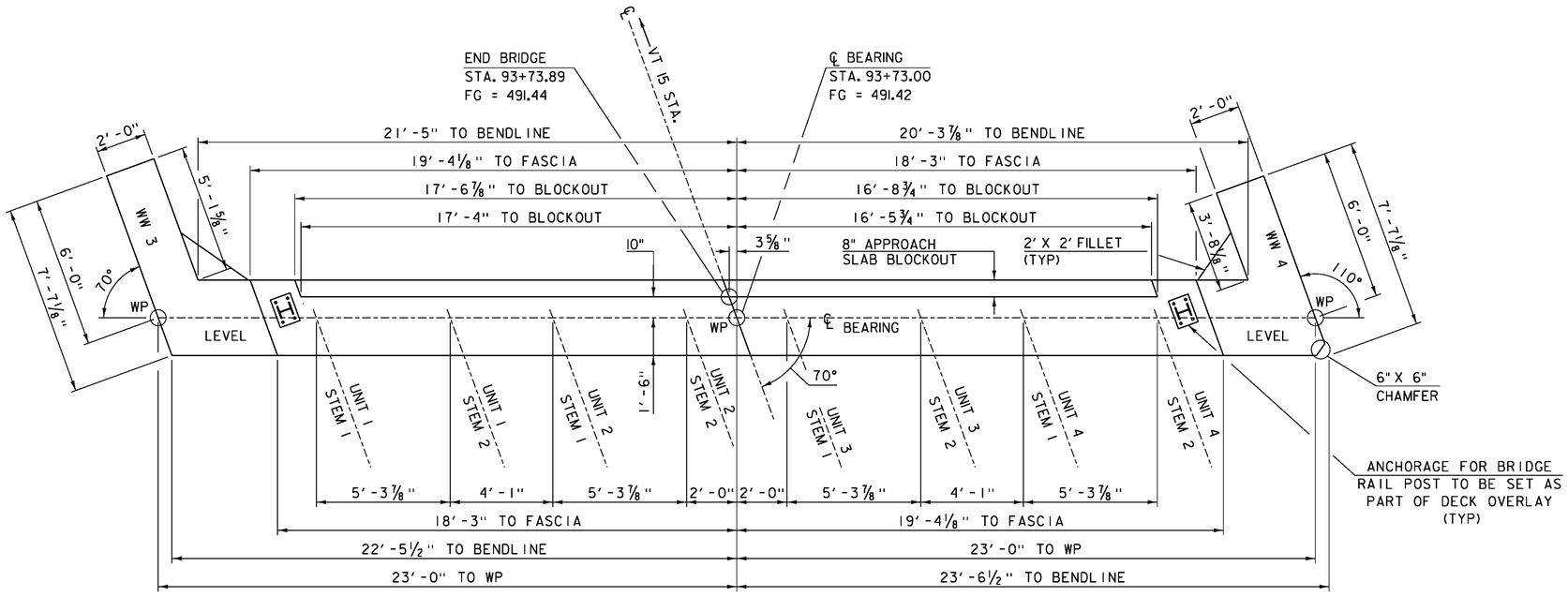
ABUTMENT #2 PLAN AND ELEVATION	SHEET 33 OF 69



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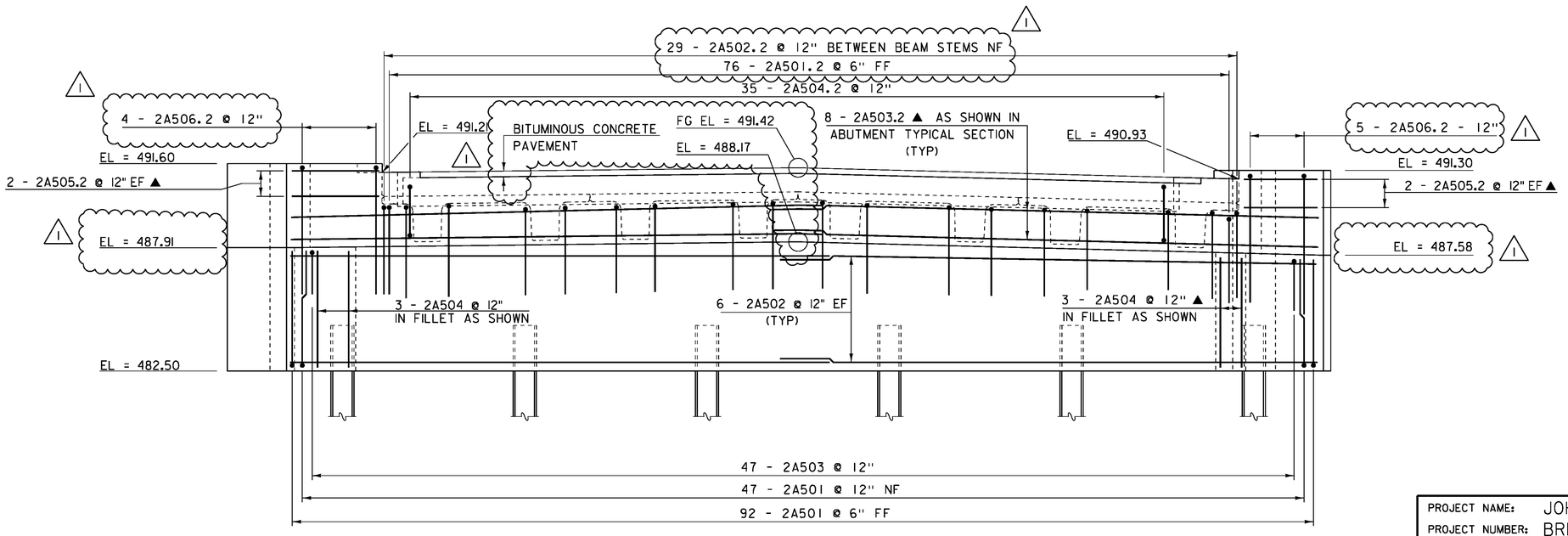

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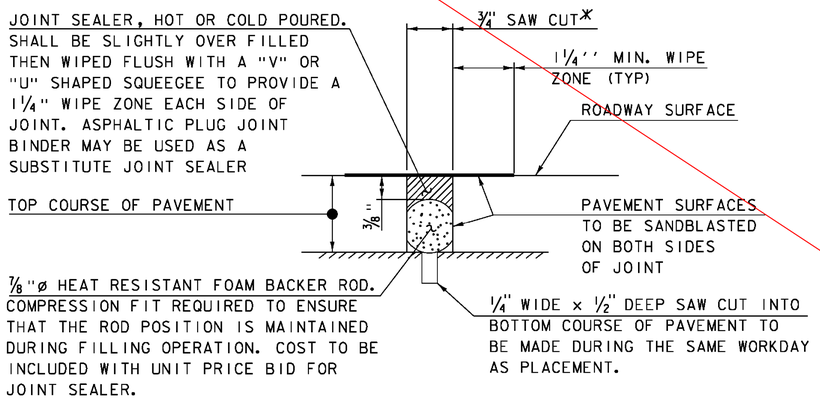
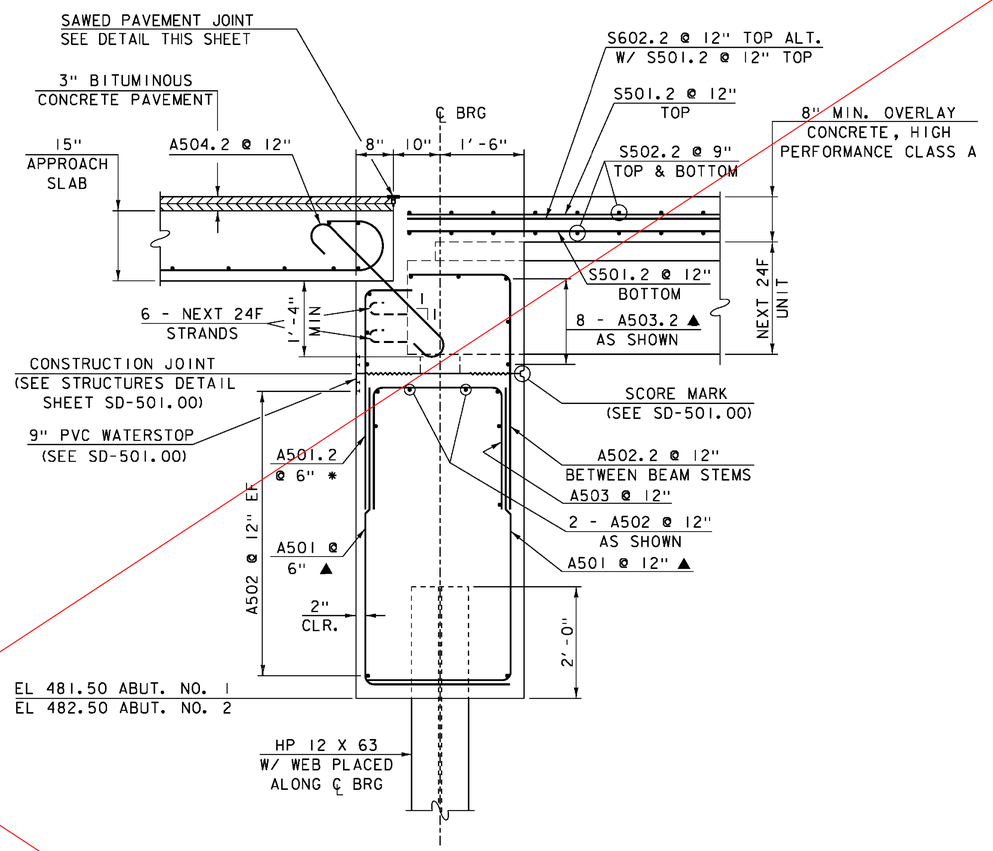


SAWED PAVEMENT JOINT DETAIL

(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 CONCRETE 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.



ABUTMENT TYPICAL SECTION

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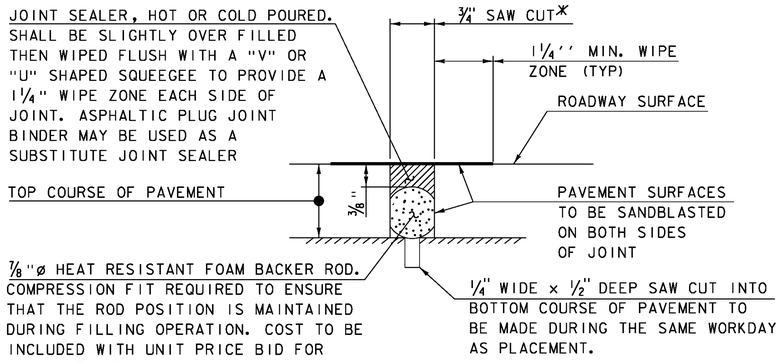

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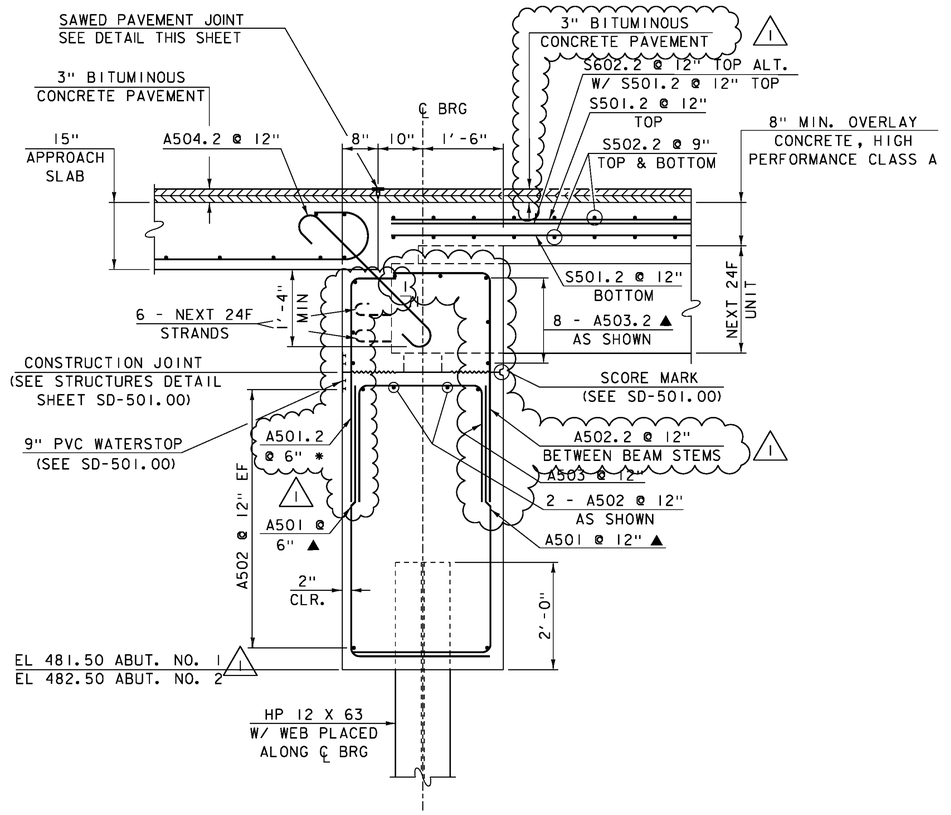

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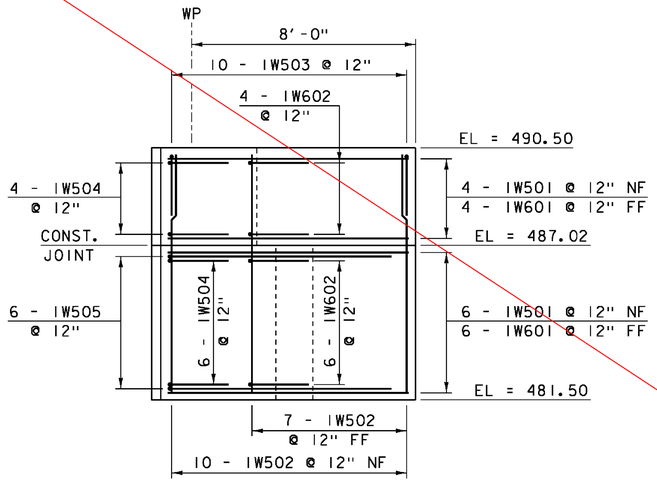
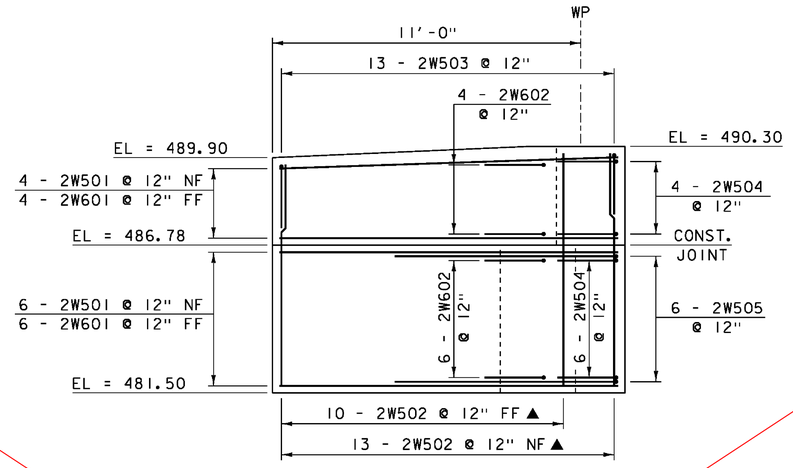


WINGWALL #1 ELEVATION

SCALE: 3/8" = 1'-0"



WINGWALL #2 ELEVATION

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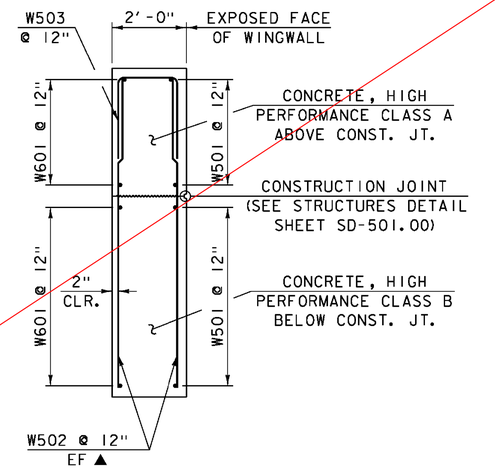
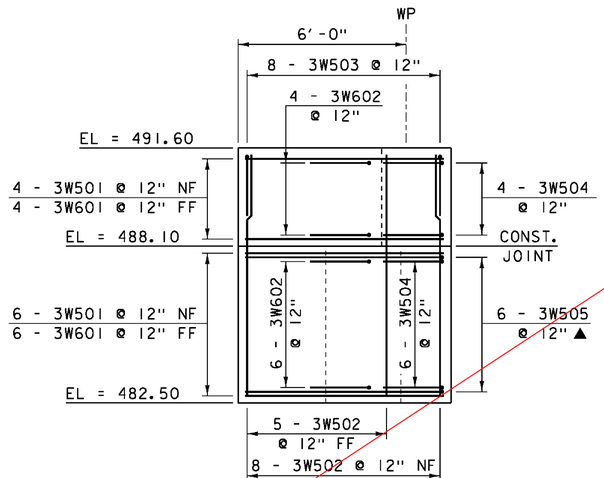


WINGWALL TYPICAL SECTION

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



WINGWALL #3 ELEVATION

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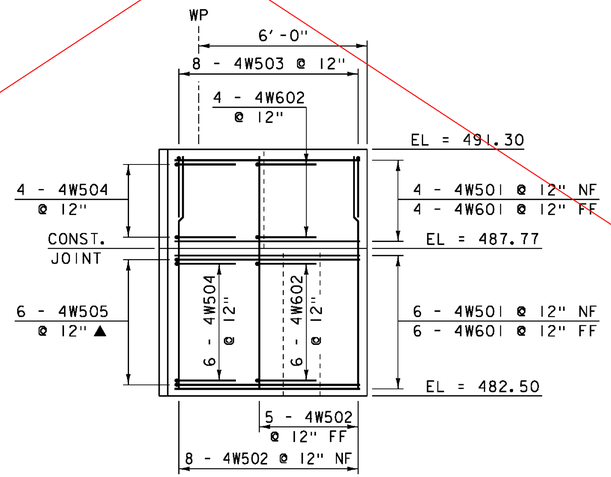

WINGWALL #4 ELEVATION

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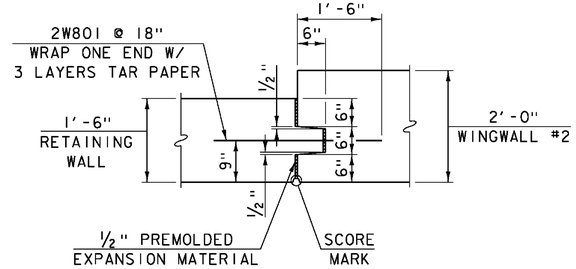

CONCRETE EXPANSION JOINT

(BETWEEN RETAINING WALL AND WINGWALL #2)

SCALE: 3/4" = 1'-0"

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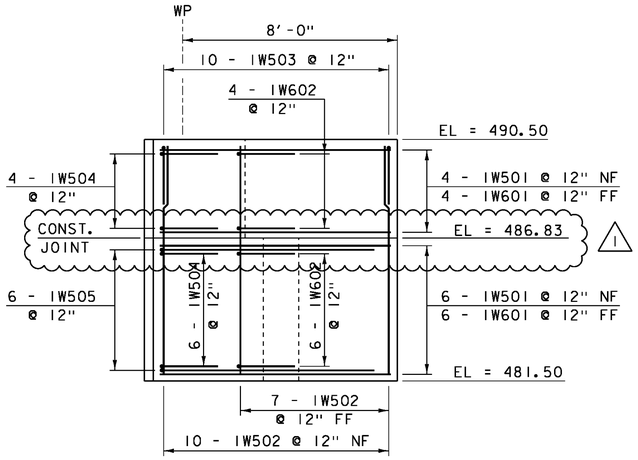
WINGWALL ELEVATIONS AND TYPICAL SECTION SHEET 35 OF 69



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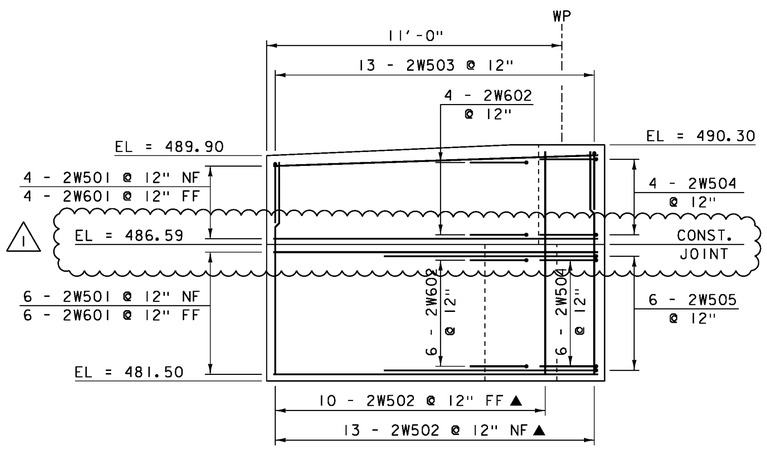

WINGWALL #2 ELEVATION

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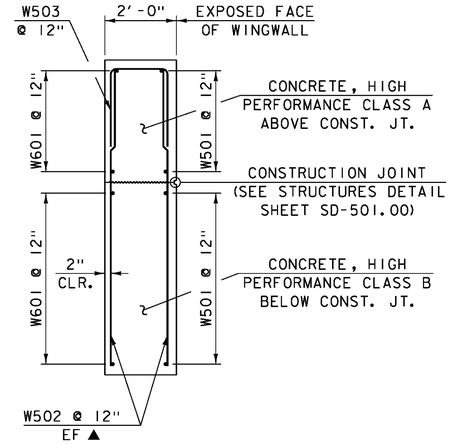

WINGWALL TYPICAL SECTION

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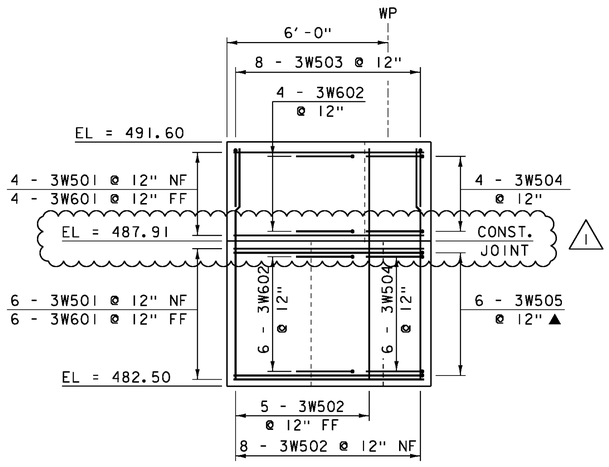

WINGWALL #3 ELEVATION

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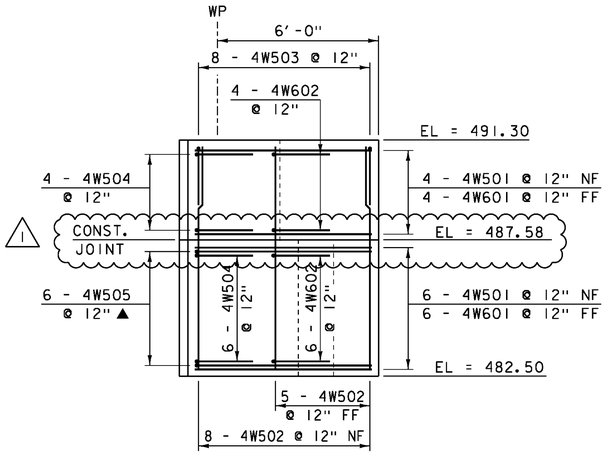

WINGWALL #4 ELEVATION

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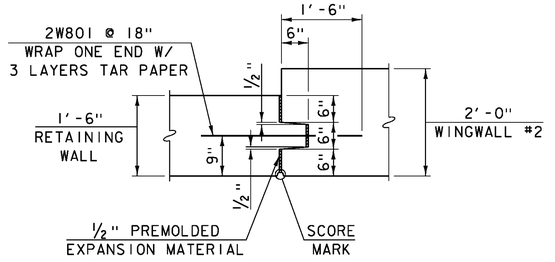

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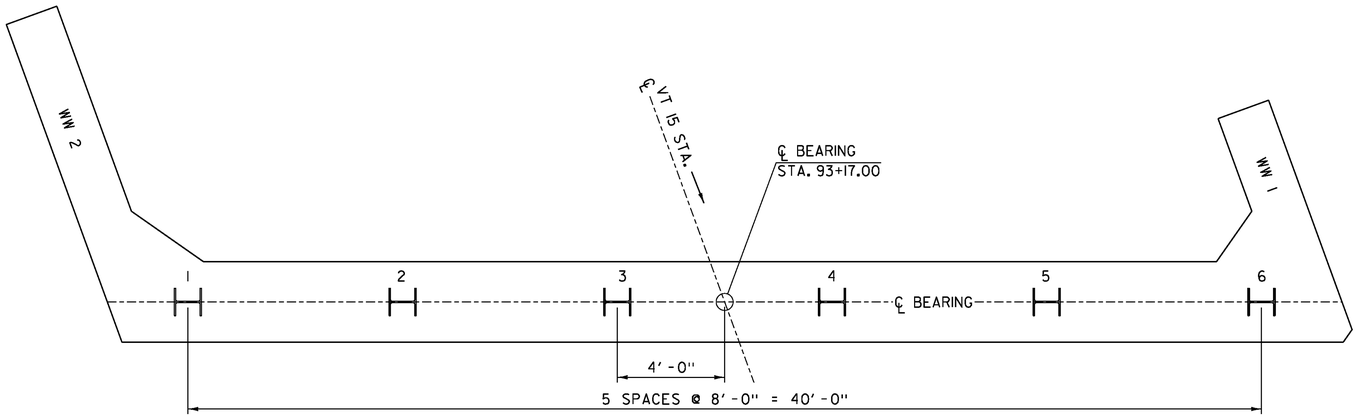
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

REVISION	DATE	DESCIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

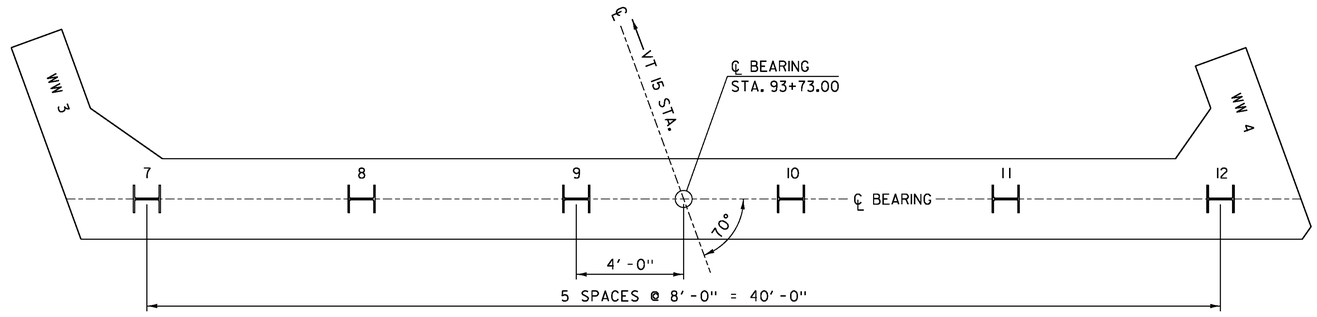
FILE NAME: s88bl93sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
WINGWALL ELEVATIONS AND TYPICAL SECTION

PLOT DATE: 05-NOV-2014
DRAWN BY: G. ROKES
CHECKED BY: H. SALLS
SHEET 35 OF 69



ABUTMENT #1 PILE LAYOUT

SCALE: 3/8" = 1'-0"



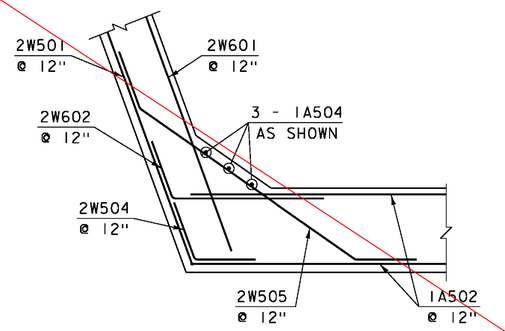
ABUTMENT #2 PILE LAYOUT

SCALE: 3/8" = 1'-0"

NOTE:

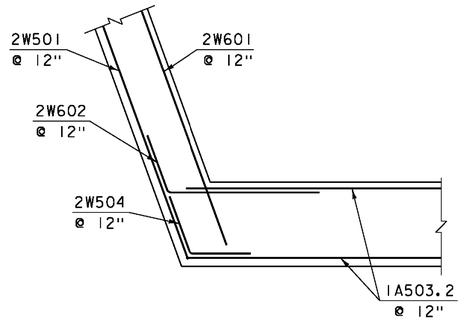
SEE STRUCTURES DETAIL SD-601.00
FOR PILE SPLICE DETAIL.

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88b193sub.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
ABUTMENT #1 AND #2 PILE LAYOUT	SHEET 36 OF 69



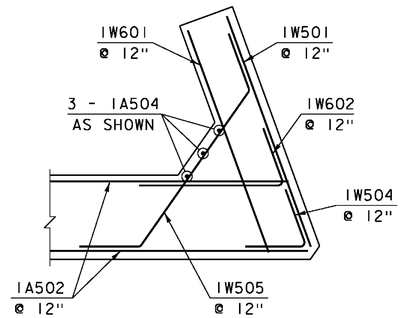
WINGWALL NO. 2 CORNER REINFORCING BELOW CONSTRUCTION JOINT

SCALE: 3/8" = 1'-0"
(WINGWALL 3 SIMILAR)



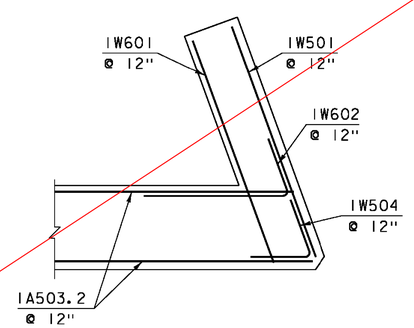
WINGWALL NO. 2 CORNER REINFORCING ABOVE CONSTRUCTION JOINT

SCALE: 3/8" = 1'-0"
(WINGWALL 3 SIMILAR)



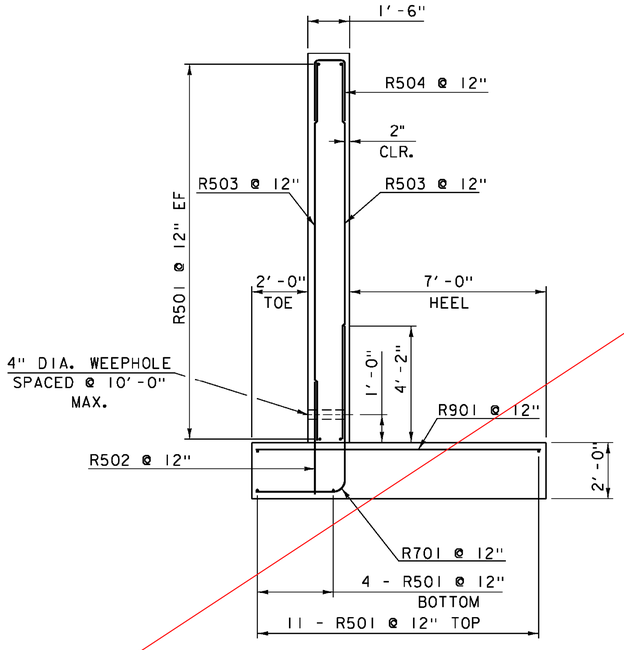
WINGWALL NO. 1 CORNER REINFORCING BELOW CONSTRUCTION JOINT

SCALE: 3/8" = 1'-0"
(WINGWALL 4 SIMILAR)



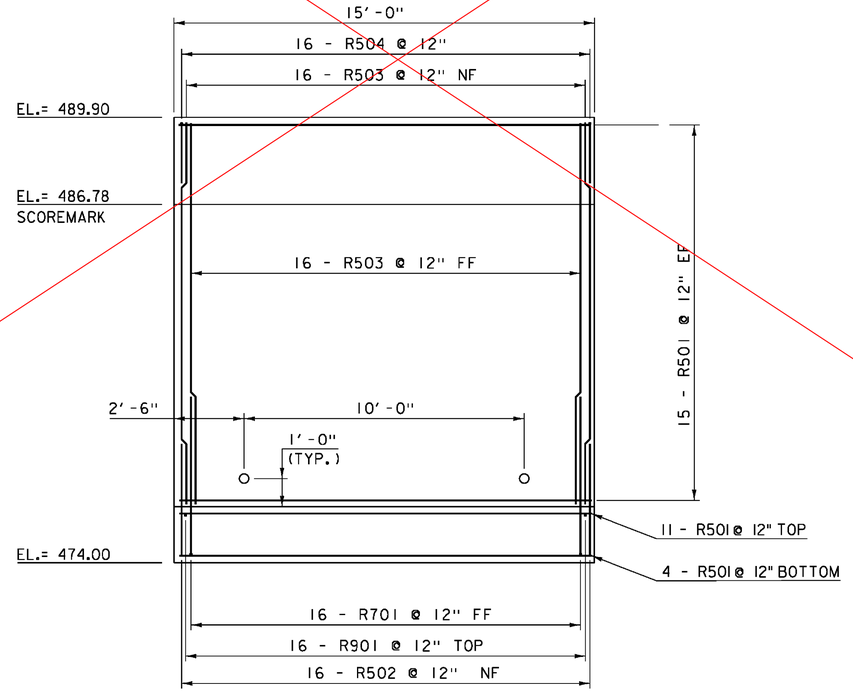
WINGWALL NO. 1 CORNER REINFORCING ABOVE CONSTRUCTION JOINT

SCALE: 3/8" = 1'-0"
(WINGWALL 4 SIMILAR)



RETAINING WALL TYPICAL

SCALE: 3/8" = 1'-0"



RETAINING WALL ELEVATION

SCALE: 3/8" = 1'-0"

NOTE: 1/2" EXPANSION MATERIAL SHALL BE PLACED BETWEEN WINGWALL #2 AND THE RETAINING WALL. IN ADDITION, 2 LAYERS OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINT ON THE BACK (EARTH) SIDE.

NOTE:

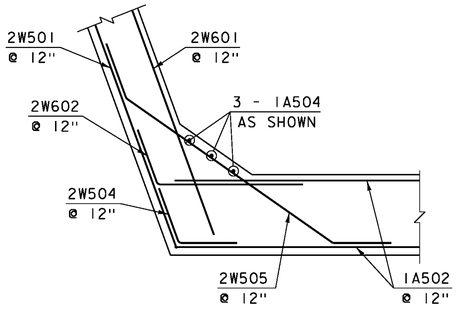
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

SEE REVISION: OCT-28-2014

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

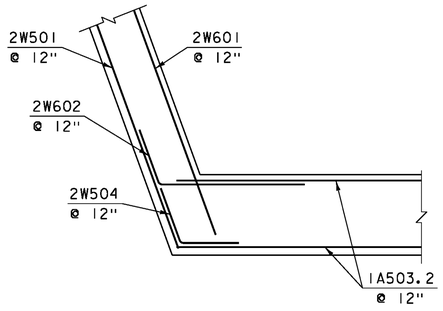
FILE NAME: s88b193sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROKES
CHECKED BY: H. SALLS

RETAINING WALL ELEVATION AND TYPICAL SECTION SHEET 37 OF 69



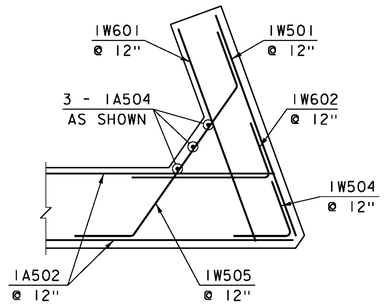
WINGWALL NO. 2 CORNER REINFORCING BELOW CONSTRUCTION JOINT

SCALE: 3/8" = 1'-0"
(WINGWALL 3 SIMILAR)



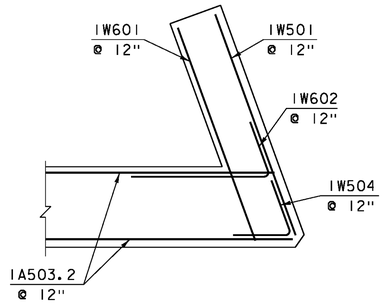
WINGWALL NO. 2 CORNER REINFORCING ABOVE CONSTRUCTION JOINT

SCALE: 3/8" = 1'-0"
(WINGWALL 3 SIMILAR)



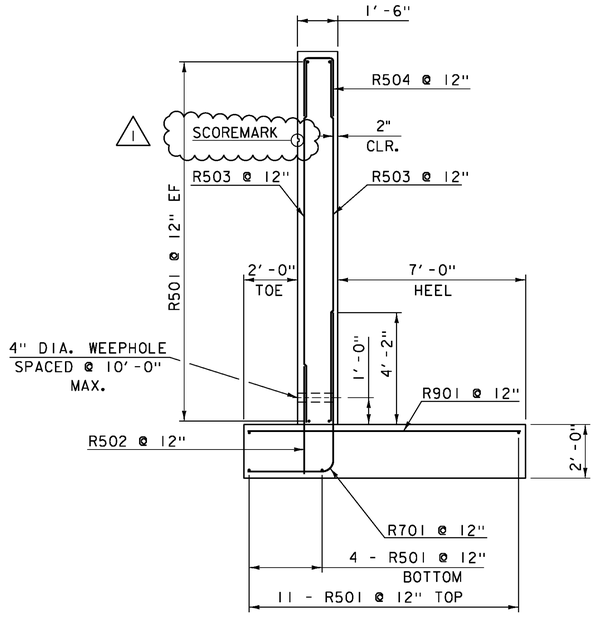
WINGWALL NO. 1 CORNER REINFORCING BELOW CONSTRUCTION JOINT

SCALE: 3/8" = 1'-0"
(WINGWALL 4 SIMILAR)



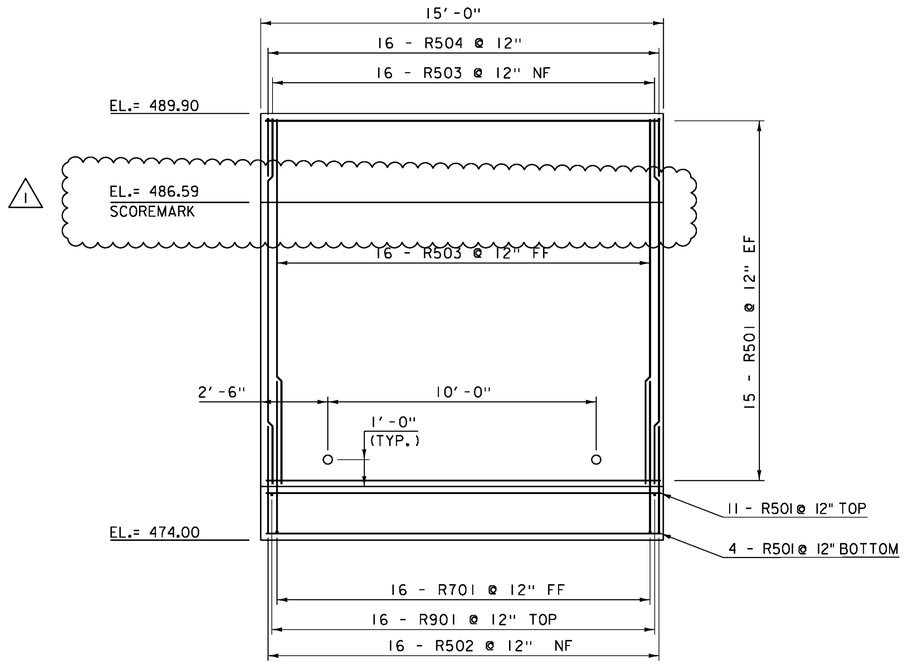
WINGWALL NO. 1 CORNER REINFORCING ABOVE CONSTRUCTION JOINT

SCALE: 3/8" = 1'-0"
(WINGWALL 4 SIMILAR)



RETAINING WALL TYPICAL

SCALE: 3/8" = 1'-0"



RETAINING WALL ELEVATION

SCALE: 3/8" = 1'-0"

REVISION	DATE	DESCIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

NOTE: 1/2" EXPANSION MATERIAL SHALL BE PLACED BETWEEN WINGWALL #2 AND THE RETAINING WALL. IN ADDITION, 2 LAYERS OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINT ON THE BACK (EARTH) SIDE.

NOTE:

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3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88bl93sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
RETAINING WALL ELEVATION AND TYPICAL SECTION

PLOT DATE: 05-NOV-2014
DRAWN BY: G. ROKES
CHECKED BY: H. SALLS
SHEET 37 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

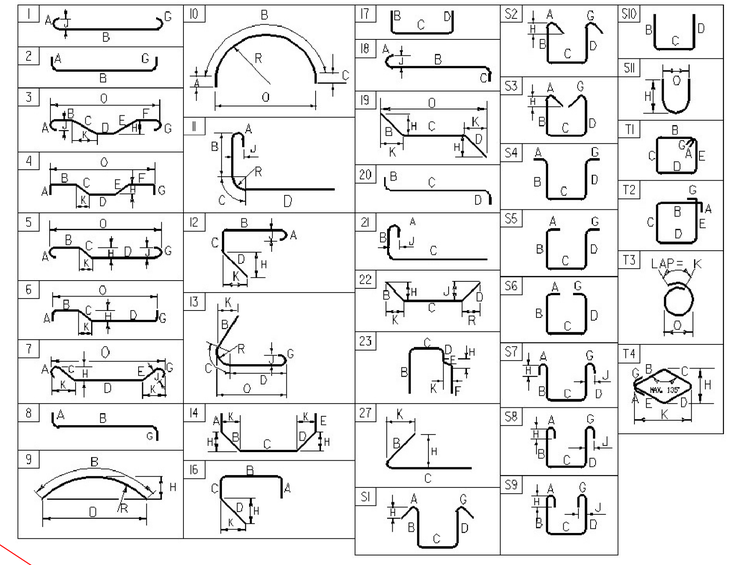
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
CONCRETE DECK OVERLAY																	
✳	181	5	21'- 4"	S501.2	STR												
✳	157	5	37'- 1"	S502.2	STR												
✳	61	6	21'- 7"	S601.2	STR												
✳	63	6	6'- 0"	S602.2	STR												
△ ▲	234	7	5'- 4"	S701.2	STR												
APPROACH SLAB #1																	
✳	47	5	17'- 11"	1AS501	STR												
✳	40	9	20'- 9"	1AS901	I	---	19'- 6"					1'- 3"		0'- 11"			
APPROACH SLAB #2																	
✳	47	5	17'- 11"	2AS501	STR												
✳	40	9	20'- 9"	2AS901	1	---	19'- 6"					1'- 3"		0'- 11"			
ABUTMENT # 1																	
	24	5	23'- 10"	1A502	STR												
✳ ▲	7	5	5'- 0"	1A504	STR												
	139	5	7'- 4"	1A501	S10		2'- 7"	4'- 9"	---								
	47	5	6'- 11"	1A503	S10		2'- 2"	2'- 7"	2'- 2"								
	16	5	23'- 10"	1A503.2	STR												
▲	8	5	3'- 8"	1A505.2	STR												
	76	5	5'- 2"	1A501.2	S10		4'- 4"	0'- 10"	---								
	29	5	6'- 5"	1A502.2	S10		4'- 7"	1'- 10"	---								
	35	5	4'- 4"	1A504.2	1	0'- 7"	3'- 2"					0'- 7"		0'- 5"			
	9	5	14'- 5"	1A506.2	S10		5'- 11"	2'- 7"	5'- 11"								
WINGWALL #1																	
✳	11	5	8'- 7"	1W501	STR												
	17	5	8'- 6"	1W502	STR												
✳	11	6	8'- 7"	1W601	STR												
	10	5	5'- 11"	1W503	S10		2'- 2"	1'- 7"	2'- 2"								
	10	5	4'- 4"	1W504	27		2'- 2"	2'- 2"					2'- 1"		0'- 9"		
	6	5	10'- 8"	1W505	22		2'- 2"	6'- 4"	2'- 2"				1'- 9"	1'- 9"	1'- 3"	1'- 3"	
✳	11	6	7'- 4"	1W602	27		2'- 2"	5'- 2"					2'- 1"		0'- 9"		
WINGWALL #2																	
✳	11	5	12'- 1"	2W501	STR												
▲	23	5	8'- 3"	2W502	STR												
✳	11	6	12'- 1"	2W601	STR												
	13	5	5'- 11"	2W503	S10		2'- 2"	1'- 7"	2'- 2"								
	10	5	4'- 4"	2W504	22		2'- 2"	2'- 2"	---				1'- 3"	---	1'- 9"	---	
	6	5	13'- 8"	2W505	22		2'- 2"	9'- 4"	2'- 2"				1'- 3"	1'- 3"	1'- 9"	1'- 9"	
✳	11	6	7'- 7"	2W602	22		2'- 2"	5'- 5"	0'- 0"				2'- 1"	---	0'- 9"	---	

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
ABUTMENT # 2																	
	24	5	23'- 10"	2A502	STR												
✳ ▲	7	5	5'- 1"	2A504	STR												
	139	5	7'- 4"	2A501	S10		2'- 7"	4'- 9"	---								
	47	5	6'- 11"	2A503	S10		2'- 2"	2'- 7"	2'- 2"								
	16	5	23'- 10"	2A503.2	STR												
▲	8	5	3'- 8"	2A505.2	STR												
	76	5	5'- 2"	2A501.2	S10		4'- 4"	0'- 10"	---								
	29	5	6'- 5"	2A502.2	S10		4'- 7"	1'- 10"	---								
	35	5	4'- 4"	2A504.2	1	0'- 7"	3'- 2"					0'- 7"		0'- 5"			
	9	5	14'- 7"	2A506.2	S10		6'- 0"	2'- 7"	6'- 0"								
WINGWALL # 3																	
✳	11	5	7'- 1"	3W501	STR												
	13	5	8'- 7"	3W502	STR												
✳	11	6	7'- 1"	3W601	STR												
	8	5	5'- 11"	3W503	S10		2'- 2"	1'- 7"	2'- 2"								
	10	5	4'- 4"	3W504	22		2'- 2"	2'- 2"	---				1'- 3"	---	1'- 9"	---	
▲	6	5	13'- 8"	3W505	22		2'- 2"	9'- 4"	2'- 2"				1'- 3"	1'- 3"	1'- 9"	1'- 9"	
✳	11	6	7'- 7"	3W602	22		2'- 2"	5'- 5"	---				2'- 1"	---	0'- 9"	---	
WINGWALL #4																	
✳	11	5	6'- 7"	4W501	STR												
	13	5	8'- 3"	4W502	STR												
✳	11	6	6'- 7"	4W601	STR												
	8	5	5'- 11"	4W503	S10		2'- 2"	1'- 7"	2'- 2"								
	10	5	4'- 4"	4W504	27		2'- 2"	2'- 2"					2'- 1"		0'- 9"		
▲	6	5	10'- 8"	4W505	22		2'- 2"	6'- 4"	2'- 2"				1'- 9"	1'- 9"	1'- 3"	1'- 3"	
✳	11	6	7'- 4"	4W602	27		2'- 2"	5'- 2"					2'- 1"		0'- 9"		
RETAINING WALL																	
	45	5	14'- 6"	R501	STR												
	16	5	3'- 11"	R502	STR												
✳	33	5	13'- 7"	R503	STR												
✳	17	9	10'- 0"	R901	STR												
	16	5	5'- 5"	R504	S10		2'- 2"	1'- 1"	2'- 2"								
✳	17	7	9'- 0"	R701	S10		5'- 11"	3'- 1"	---								

~ NOTES ~

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



ASTM STANDARD REINFORCING BARS

BAR DESIGNATION NO.	NOMINAL WT. PER FOOT	NOMINAL DIAMETER	NOMINAL AREA	PERIMETER
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.04	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.14
#9	3.400	1.13	1.00	3.54
#10	4.3	1.270	1.27	3.990
#11	5.31	1.410	1.56	4.430
#14	7.65	1.69	2.25	5.32
#18	13.60	2.26	4.00	7.09

~ REINFORCING STEEL CORROSION RESISTANCE LEVEL ~

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

SEE REVISION: OCT-28-2014

PROJECT NAME: **JOHNSON**
PROJECT NUMBER: **BRF 030-2(26)**

FILE NAME: **s88b193rss.xls**
PROJECT MANAGER: **C. CARLSON**
DESIGNED BY: **H. SALLS**
REINFORCING STEEL SCHEDULE

PLOT DATE: **10-JUN-2014**
DRAWN BY: **G. ROKES**
CHECKED BY: **H. SALLS**
SHEET **38** OF **69**

STATE OF VERMONT
AGENCY OF TRANSPORTATION

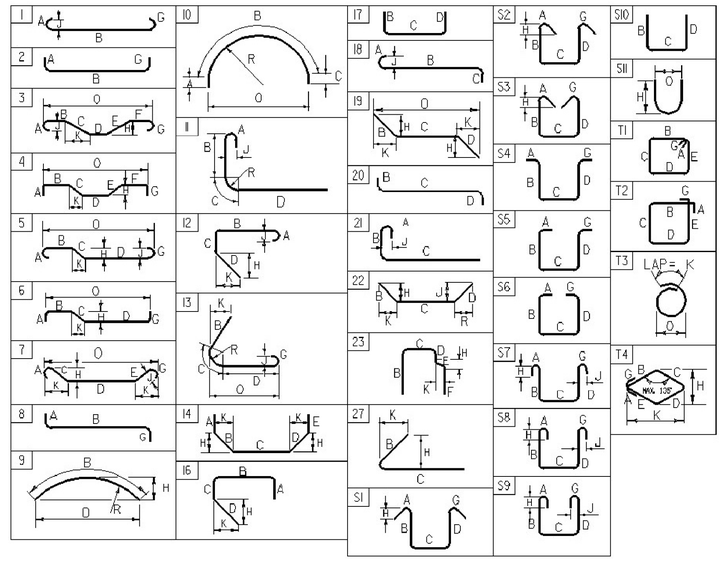
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
CONCRETE DECK OVERLAY																	
✳	181	5	21'- 4"	S501.2	STR												
✳	157	5	37'- 1"	S502.2	STR												
✳	61	6	21'- 7"	S601.2	STR												
✳	63	6	6'- 0"	S602.2	STR		TOTAL ~ 841.65 LBS LEVEL I FOR WINGWALLS										
△ ▲	234	7	5'- 4"	S701.2	STR		TOTAL ~ 16,239.26 LBS LEVEL II										
APPROACH SLAB #1																	
✳	47	5	17'- 11"	1AS501	STR												
✳	40	9	20'- 9"	1AS901	I	---	19'- 6"	TOTAL ~ 3,611.00 LBS			1'- 3"			0'- 11"			
APPROACH SLAB #2																	
✳	47	5	17'- 11"	2AS501	STR												
✳	40	9	20'- 9"	2AS901	1	---	19'- 6"	TOTAL ~ 3,611.00 LBS			1'- 3"			0'- 11"			
ABUTMENT # 1																	
	24	5	23'- 10"	1A502	STR												
✳ ▲	7	5	5'- 0"	1A504	STR					TOTAL LEVEL I 2,029.63 LBS							
	139	5	7'- 4"	1A501	S10		4'- 9"	2'- 7"	---								
	47	5	6'- 11"	1A503	S10		2'- 2"	2'- 7"	2'- 2"								
	16	5	23'- 10"	1A503.2	STR					TOTAL LEVEL II 756.26 LBS							
▲	8	5	3'- 8"	1A505.2	STR												
	76	5	5'- 4"	1A501.2	S10		4'- 6"	0'- 10"	---								
	29	5	6'- 6"	1A502.2	S10		4'- 8"	1'- 10"	---								
	35	5	4'- 4"	1A504.2	1	0'- 7"	3'- 2"					0'- 7"		0'- 5"			
	9	5	14'- 7"	1A506.2	S10		6'- 0"	2'- 7"	6'- 0"								
WINGWALL #1																	
✳	11	5	8'- 7"	1W501	STR												
	17	5	8'- 6"	1W502	STR												
✳	11	6	8'- 7"	1W601	STR					TOTAL 652.96 LBS							
	10	5	5'- 11"	1W503	S10		2'- 2"	1'- 7"	2'- 2"								
	10	5	4'- 4"	1W504	27		2'- 2"	2'- 2"					2'- 1"		0'- 9"		
	6	5	10'- 8"	1W505	22		2'- 2"	6'- 4"	2'- 2"				1'- 9"	1'- 9"	1'- 3"	1'- 3"	
✳	11	6	7'- 4"	1W602	27		2'- 2"	5'- 2"					2'- 1"		0'- 9"		
WINGWALL #2																	
✳	11	5	12'- 1"	2W501	STR												
▲	23	5	8'- 3"	2W502	STR												
✳	11	6	12'- 1"	2W601	STR					TOTAL 830.26 LBS							
	13	5	5'- 11"	2W503	S10		2'- 2"	1'- 7"	2'- 2"								
	10	5	4'- 4"	2W504	22		2'- 2"	2'- 2"	---				1'- 3"	---	1'- 9"	---	
	6	5	13'- 8"	2W505	22		2'- 2"	9'- 4"	2'- 2"				1'- 3"	1'- 3"	1'- 9"	1'- 9"	
✳	11	6	7'- 7"	2W602	22		2'- 2"	5'- 5"	0'- 0"				2'- 1"	---	0'- 9"	---	

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
ABUTMENT # 2																	
	24	5	23'- 10"	2A502	STR												
✳ ▲	7	5	5'- 1"	2A504	STR												
	139	5	7'- 4"	2A501	S10		4'- 9"	2'- 7"	---								
	47	5	6'- 11"	2A503	S10		2'- 2"	2'- 7"	2'- 2"								
	16	5	23'- 10"	2A503.2	STR												
▲	8	5	3'- 8"	2A505.2	STR												
	76	5	5'- 4"	2A501.2	S10		4'- 6"	0'- 10"	---								
	29	5	6'- 6"	2A502.2	S10		4'- 8"	1'- 10"	---								
	35	5	4'- 4"	2A504.2	1	0'- 7"	3'- 2"					0'- 7"		0'- 5"			
	9	5	14'- 11"	2A506.2	S10		6'- 2"	2'- 7"	6'- 2"								
WINGWALL # 3																	
✳	11	5	7'- 1"	3W501	STR												
	13	5	8'- 7"	3W502	STR												
✳	11	6	7'- 1"	3W601	STR												
	8	5	5'- 11"	3W503	S10		2'- 2"	1'- 7"	2'- 2"								
	10	5	4'- 4"	3W504	22		2'- 2"	2'- 2"	---				1'- 3"	---	1'- 9"	---	
▲	6	5	13'- 8"	3W505	22		2'- 2"	9'- 4"	2'- 2"				1'- 3"	1'- 3"	1'- 9"	1'- 9"	
✳	11	6	7'- 7"	3W602	22		2'- 2"	5'- 5"	---				2'- 1"	---	0'- 9"	---	
WINGWALL #4																	
✳	11	5	6'- 7"	4W501	STR												
	13	5	8'- 3"	4W502	STR												
✳	11	6	6'- 7"	4W601	STR												
	8	5	5'- 11"	4W503	S10		2'- 2"	1'- 7"	2'- 2"								
	10	5	4'- 4"	4W504	27		2'- 2"	2'- 2"					2'- 1"		0'- 9"		
▲	6	5	10'- 8"	4W505	22		2'- 2"	6'- 4"	2'- 2"				1'- 9"	1'- 9"	1'- 3"	1'- 3"	
✳	11	6	7'- 4"	4W602	27		2'- 2"	5'- 2"					2'- 1"		0'- 9"		
RETAINING WALL																	
	45	5	14'- 6"	R501	STR												
	16	5	3'- 11"	R502	STR												
✳	33	5	13'- 7"	R503	STR		TOTAL 2,128.77 LBS										
✳	17	9	10'- 0"	R901	STR												
	16	5	5'- 5"	R504	S10		2'- 2"	1'- 1"	2'- 2"								
✳	17	7	9'- 0"	R701	S10		5'- 11"	3'- 1"	---								

~ NOTES ~

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



ASTM STANDARD REINFORCING BARS

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

~ REINFORCING STEEL CORROSION RESISTANCE LEVEL ~

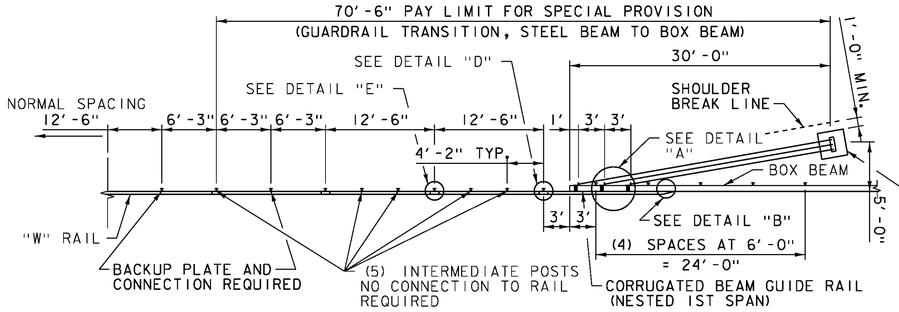
THE REINFORCING STEEL MARKS IN THIS SCHEDULE INDICATE THE REQUIRED BAR CORROSION RESISTANCE LEVEL. CORROSION RESISTANCE LEVEL IS DENOTED WITH A .2 FOR LEVEL TWO SUFFIX OR .3 FOR LEVEL THREE SUFFIX, .1 FOR LEVEL ONE IS TO BE OMITTED. THE BAR MATERIAL TYPE AND BAR STEEL GRADE PROVIDED FOR EACH CORRIOSION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

REVISION	DATE	DESCIPTION	BY
1	OCT-28-2014	ADD 3" PAYMENT, LOWER BRIDGE SEAT, ADD 3" CONCRETE PEDESTAL	GNR

PROJECT NAME: **JOHNSON**
PROJECT NUMBER: **BRF 030-2(26)**

FILE NAME: **s88b193rss.xls**
PROJECT MANAGER: **C. CARLSON**
DESIGNED BY: **H. SALLS**
REINFORCING STEEL SCHEDULE

PLOT DATE: **05-NOV-2014**
DRAWN BY: **G. ROKES**
CHECKED BY: **H. SALLS**
SHEET **38** OF **69**

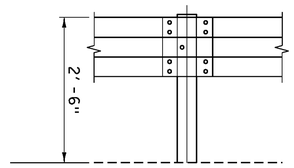


NOTE:
SEE BRIDGE APPROACH PLANS WHEN TRANSITION IS USED ADJACENT TO STRUCTURE

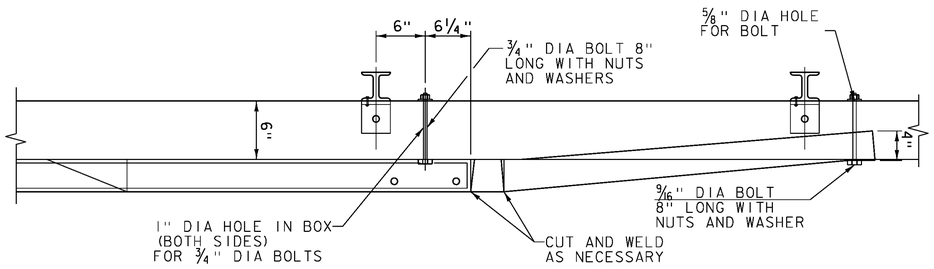
TYPICAL ANCHOR FOR STEEL TO BOX BEAM TRANSITION. SEE DETAILS IN "GUARDRAIL TRANSITION DETAILS" (2 OF 2). SPRING COMPENSATORS ARE NOT REQUIRED AT THIS LOCATION.

TWO WAY TRAFFIC

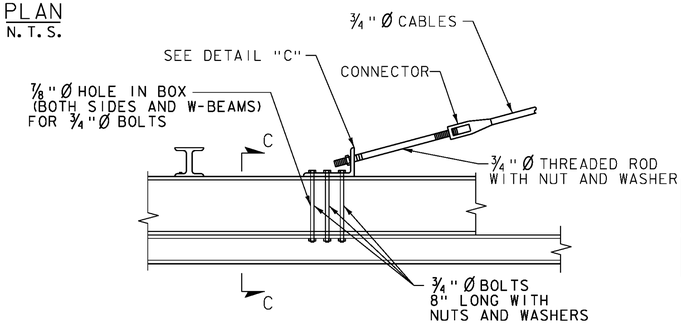
PLAN
N. T. S.



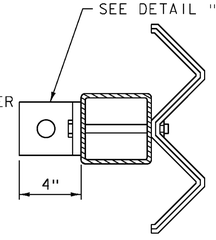
DETAIL "D"
N. T. S.



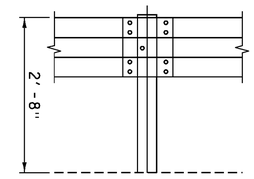
PLAN
DETAIL "B"
N. T. S.



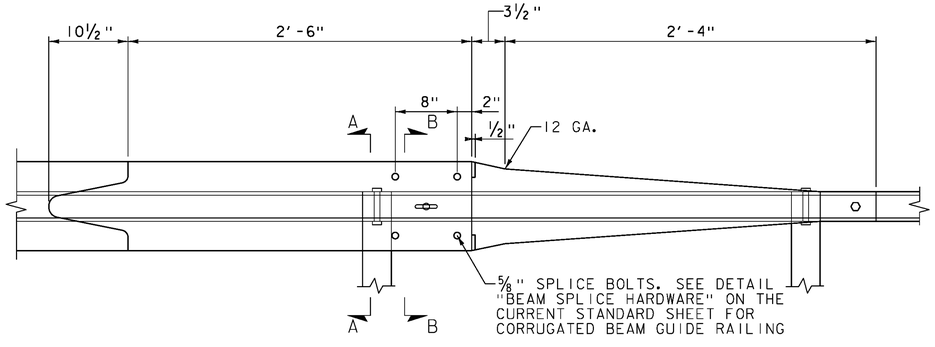
PLAN
DETAIL "A"
N. T. S.



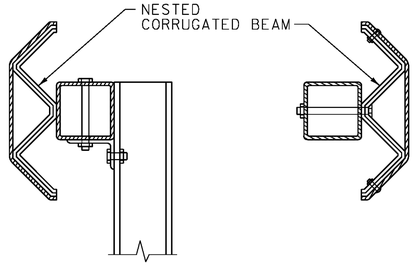
SECTION C-C
N. T. S.



DETAIL "E"
(FULL HEIGHT POST)

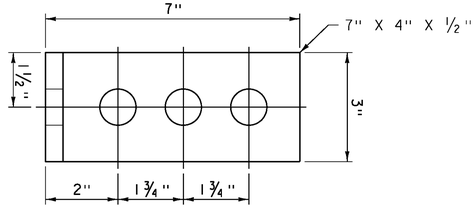


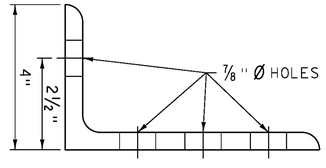
ELEVATION
DETAIL "B"
N. T. S.



SECTION A-A
N. T. S.

SECTION B-B
N. T. S.

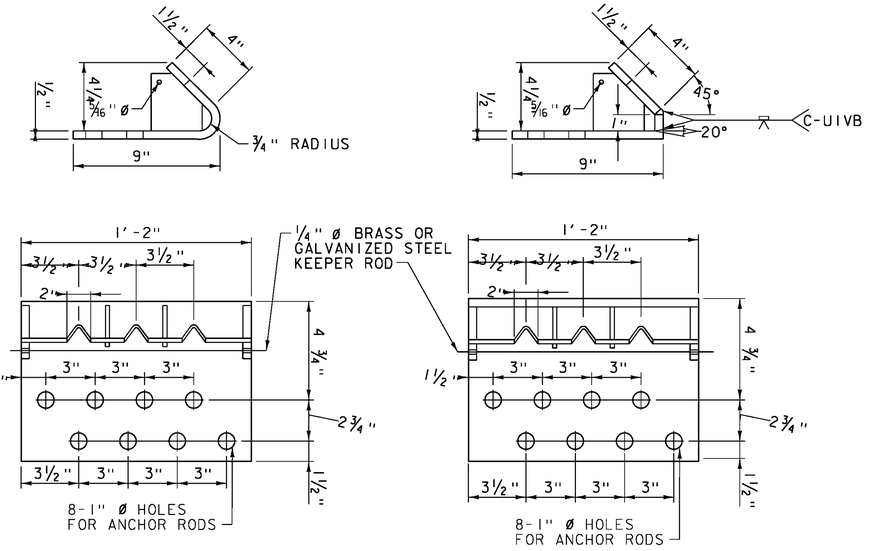




DETAIL "C"
N. T. S.

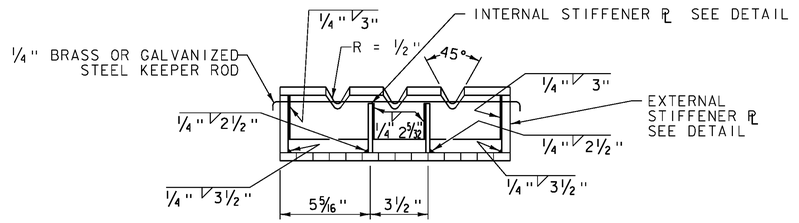
PROJECT NAME:	JOHNSON
BRF 030-2(26):	BRF 030-2(26)

FILE NAME: s88b193rail.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
GUARDRAIL TRANSITION DETAILS (1)	SHEET 39 OF 69

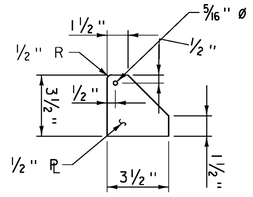


BENT PLATE
ANCHOR ANGLE DETAILS

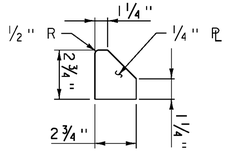
WELDED PLATE
ANCHOR ANGLE DETAILS



ANCHOR ANGLE DETAILS

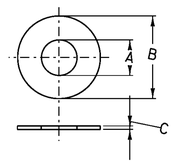


EXTERNAL STIFFENER ℄
ANCHOR ANGLE DETAILS

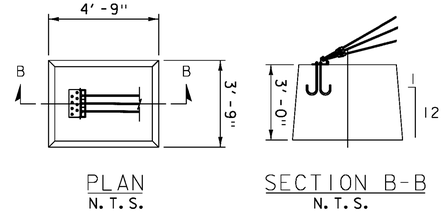


INTERNAL STIFFENER ℄
ANCHOR ANGLE DETAILS

WASHER	WASHER SERIES	INSIDE DIAMETER "A"			OUTSIDE DIAMETER "B"			THICKNESS "C"		
		BASIC	TOLERANCE PLUS	TOLERANCE MINUS	BASIC	TOLERANCE PLUS	TOLERANCE MINUS	BASIC	MAX.	MIN.
¾"	REGULAR	0.812	0.030	0.007	1.469	0.030	0.007	0.134	0.160	0.108
	WIDE	0.812	0.030	0.007	2.000	0.030	0.007	0.165	0.192	0.136
½"	NARROW	0.531	0.015	0.005	1.062	0.030	0.007	0.095	0.121	0.074



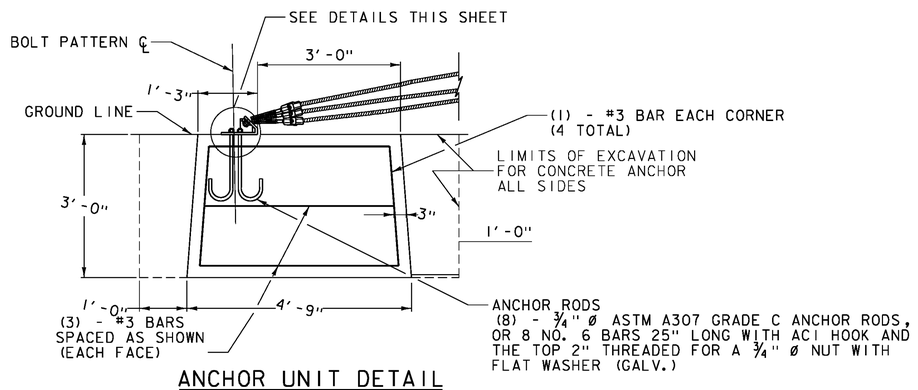
WASHER TABLE AND WASHER DETAIL



PLAN
N. T. S.

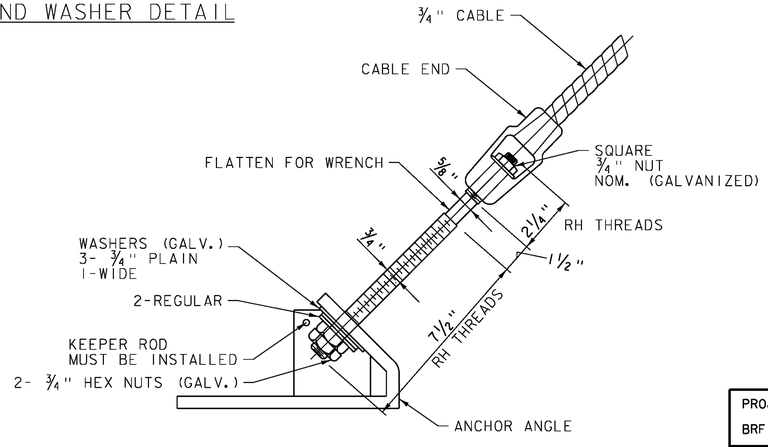
SECTION B-B
N. T. S.

CONCRETE ANCHOR



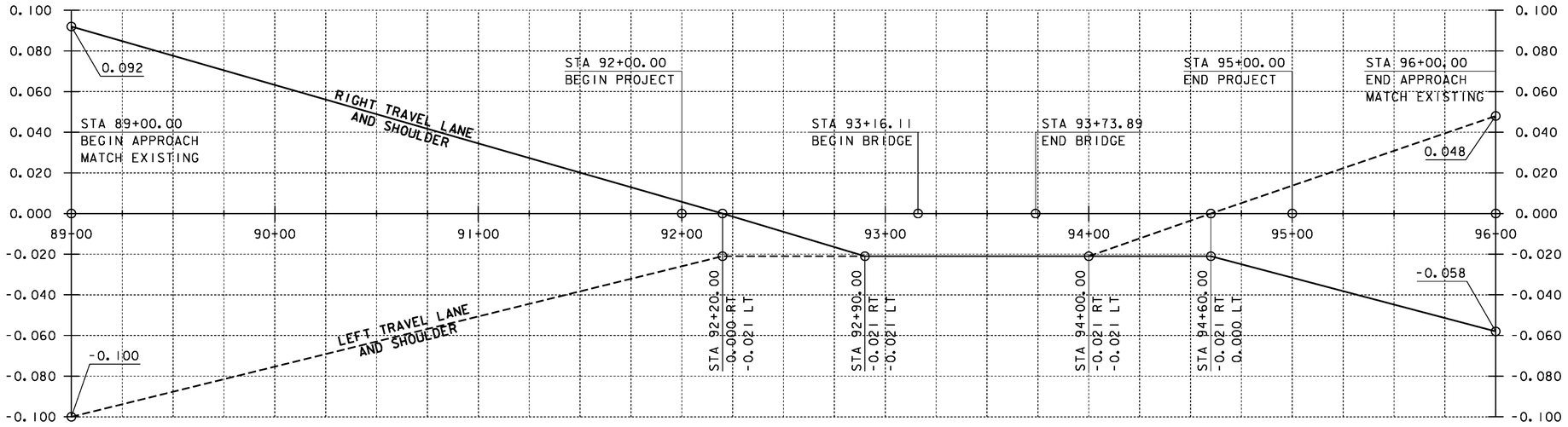
ANCHOR UNIT DETAIL

THE CONCRETE ANCHOR SHALL BE SET INTO THE EXCAVATION AS DETAILED. THE BOTTOM OF THE ANCHOR SHALL HAVE A FULL EVEN BEARING ON THE SURFACE UNDER IT.



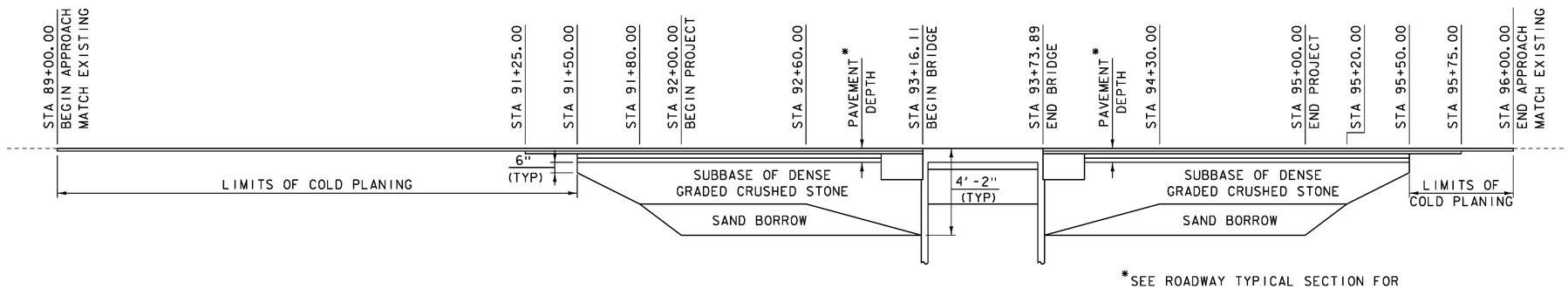
CABLE END ASSEMBLY TO
ANCHOR ANGLE DETAILS

PROJECT NAME:	JOHNSON
BRF 030-2(26):	BRF 030-2(26)
FILE NAME: s88b193rail.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROKES
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
GUARDRAIL TRANSITION DETAILS (2)	SHEET 40 OF 69



VT 15 BANKING DIAGRAM

HORIZONTAL SCALE: 1" = 30'-0"
VERTICAL SCALE: 1" = 0.030'/'

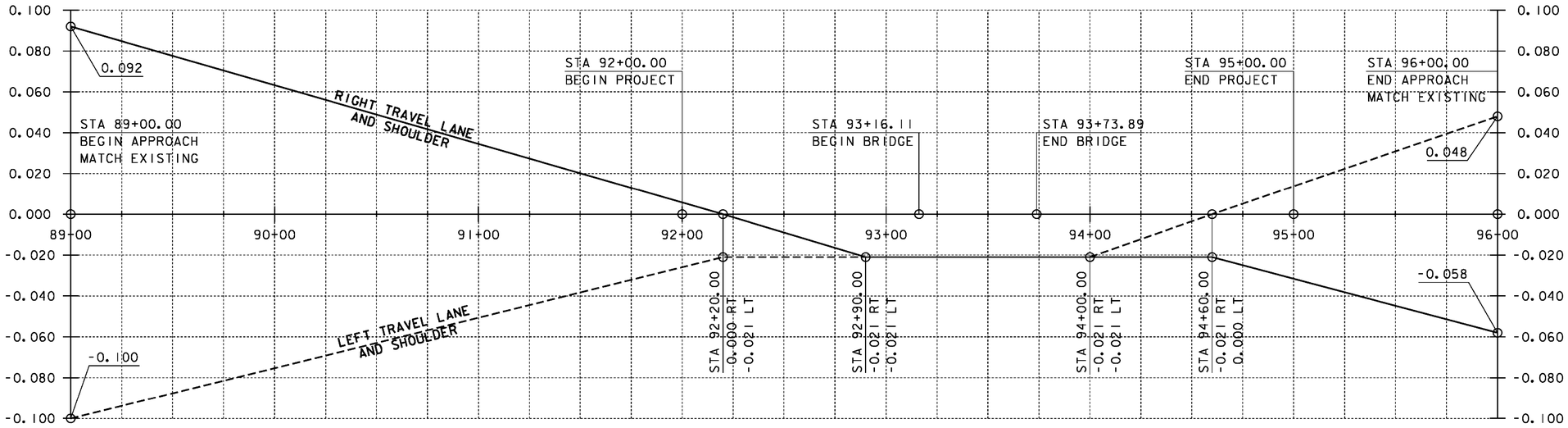


VT 15 MATERIAL TRANSITION

HORIZONTAL SCALE: 1" = 30'-0"
VERTICAL SCALE: 1" = 3'-0"

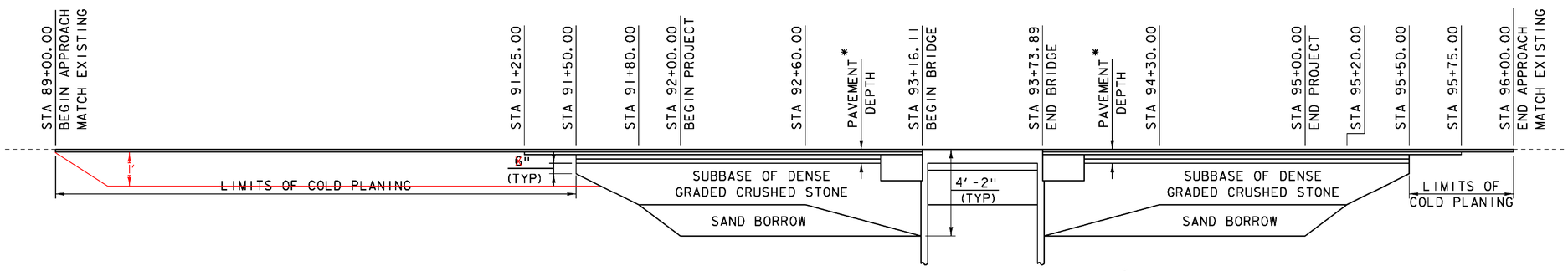
*SEE ROADWAY TYPICAL SECTION FOR PAVEMENT AND SUBBASE MATERIAL DESIGN INFORMATION.

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88bl93pro.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
VT 15 BANKING DIAGRAM AND MATERIAL TRANSITION	SHEET 41 OF 69



VT 15 BANKING DIAGRAM

HORIZONTAL SCALE: 1" = 30'-0"
VERTICAL SCALE: 1" = 0.030'/'

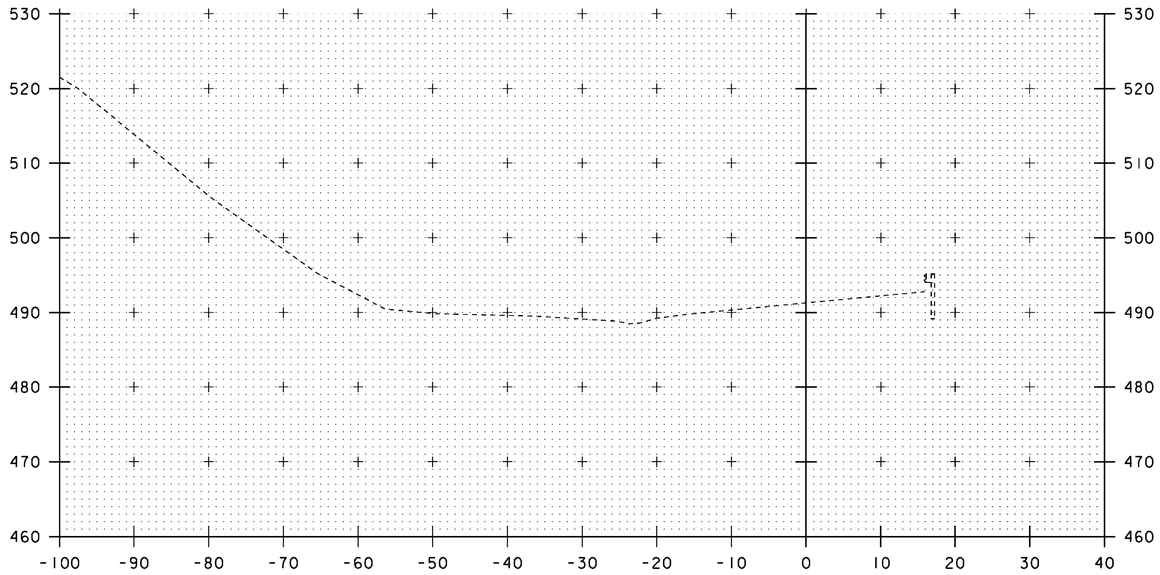


VT 15 MATERIAL TRANSITION

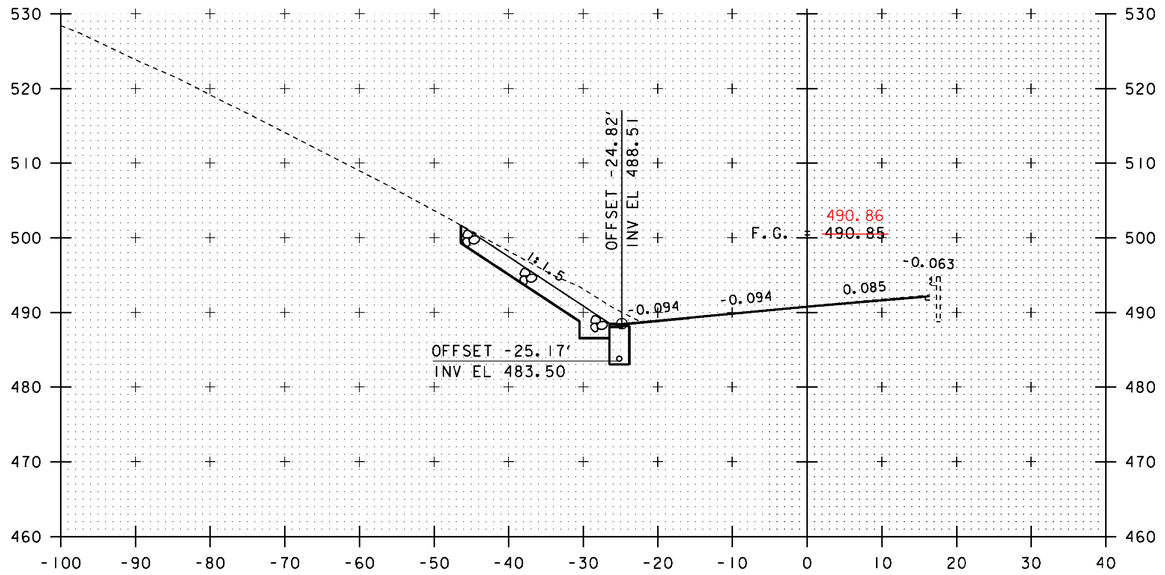
HORIZONTAL SCALE: 1" = 30'-0"
VERTICAL SCALE: 1" = 3'-0"

*SEE ROADWAY TYPICAL SECTION FOR PAVEMENT AND SUBBASE MATERIAL DESIGN INFORMATION.

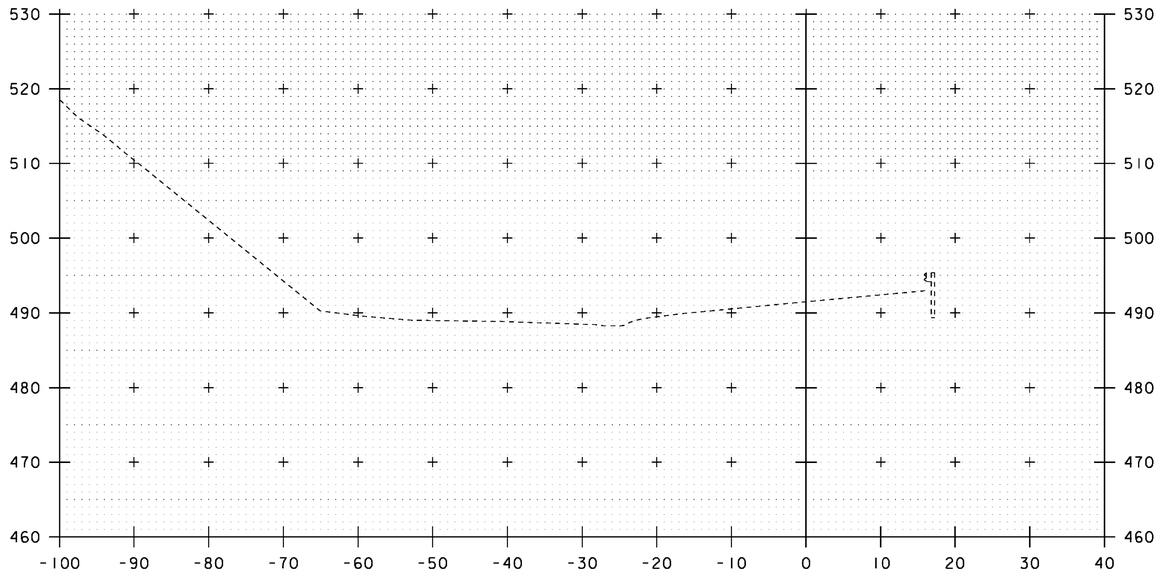
PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88b193pro.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
VT 15 BANKING DIAGRAM AND MATERIAL TRANSITION	SHEET 41 OF 69



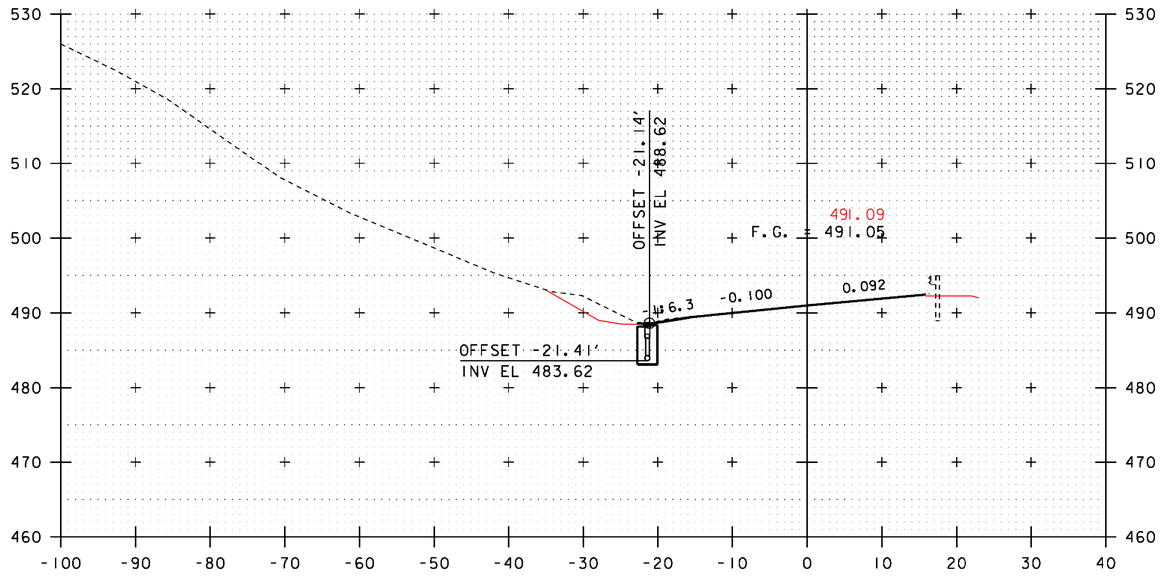
88+75



89+25



88+50



89+00

STA 89+00.0 LT - STA 92+53.0 LT
CONSTRUCT STONE FILL, TYPE II BANK SLOPE

STA 89+00.0 LT - STA 92+53.0 LT
CONSTRUCT GRASS-LINED DITCH

STA 89+00.0 LT - STA 92+58.0 LT
NEW 8 INCH UNDERDRAIN PIPE W/
UNDERDRAIN FLUSHING BASIN AND
YIELDING MARKER POST AT INLET

STA 89+00.00
BEGIN APPROACH
MATCH EXISTING

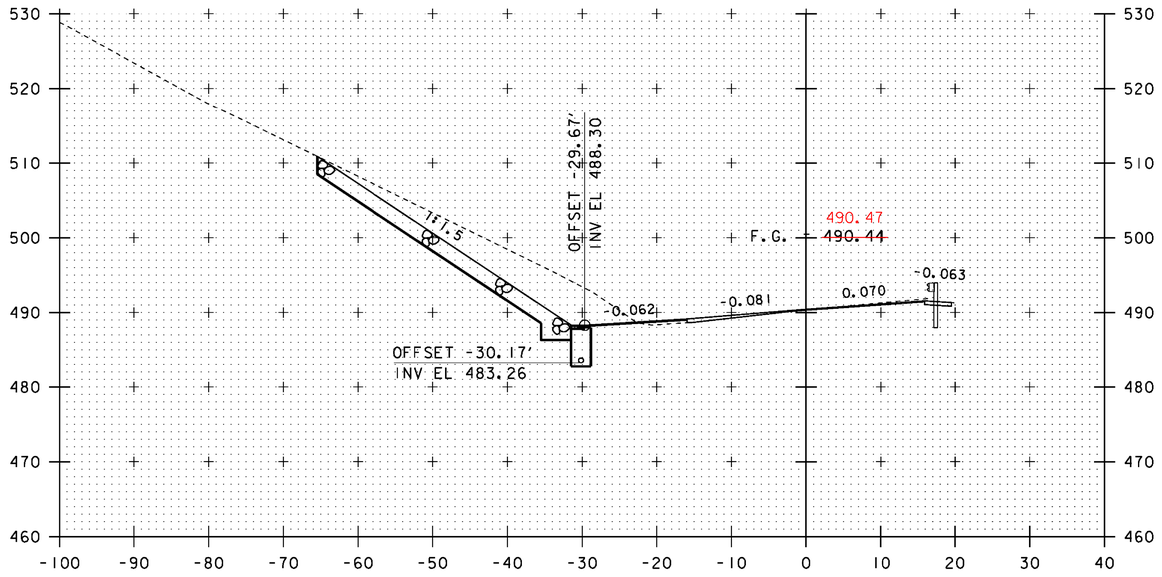
SCALE: 1" = 10'-0"
10 0 10

STA. 88+50 TO STA. 89+25

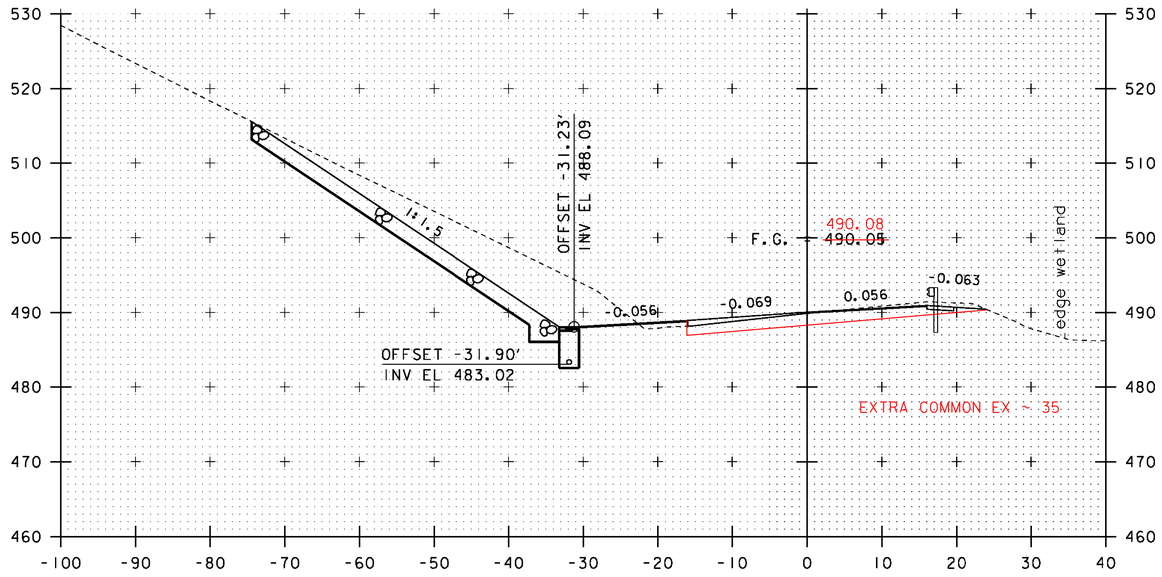
PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
VT 15 CROSS SECTIONS (1)

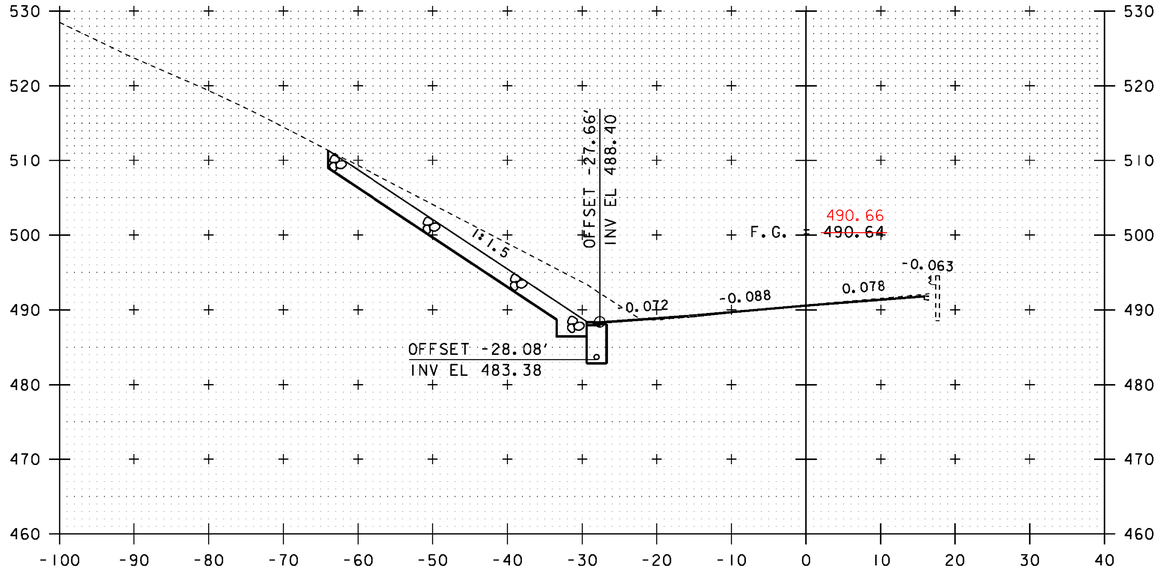
PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 42 OF 69



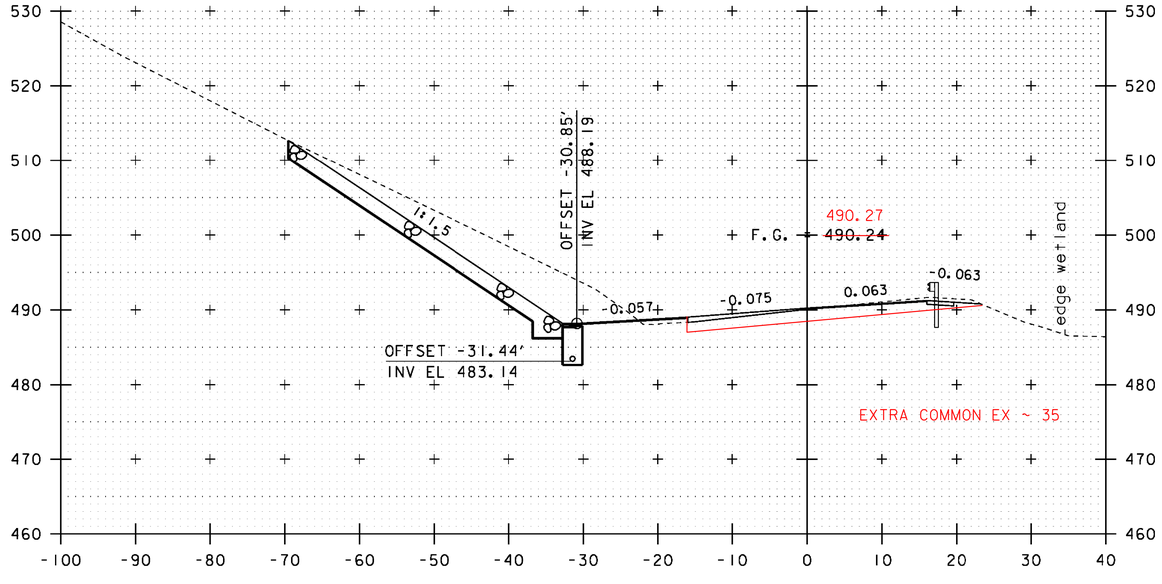
89+75



90+25



89+50



90+00

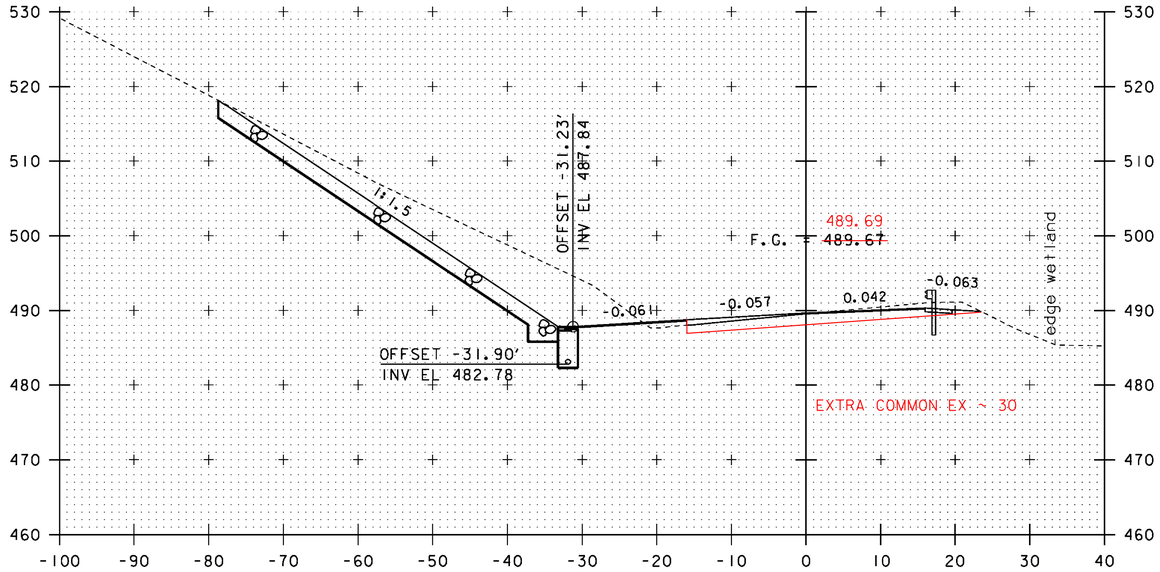
SCALE: 1" = 10'-0"
10 0 10

STA. 89+50 TO STA. 90+25

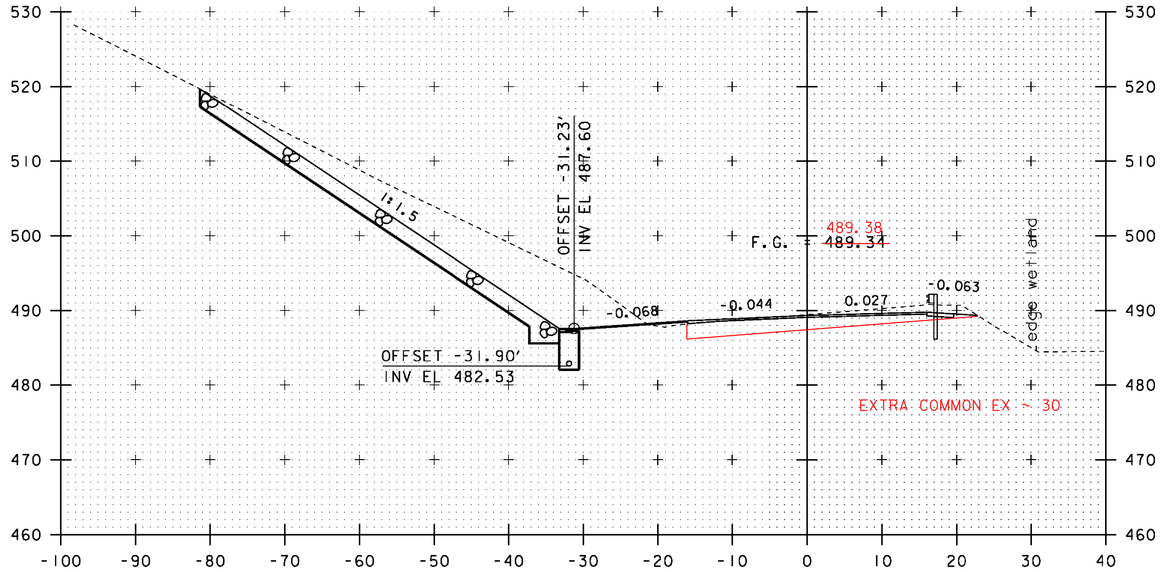
PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
VT 15 CROSS SECTIONS (2)

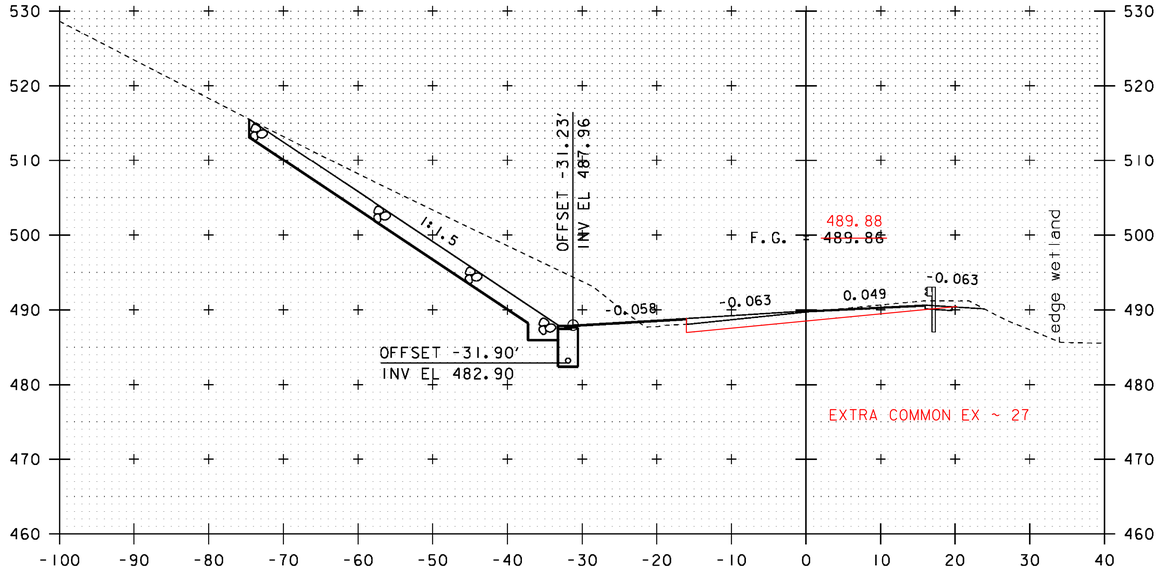
PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 43 OF 69



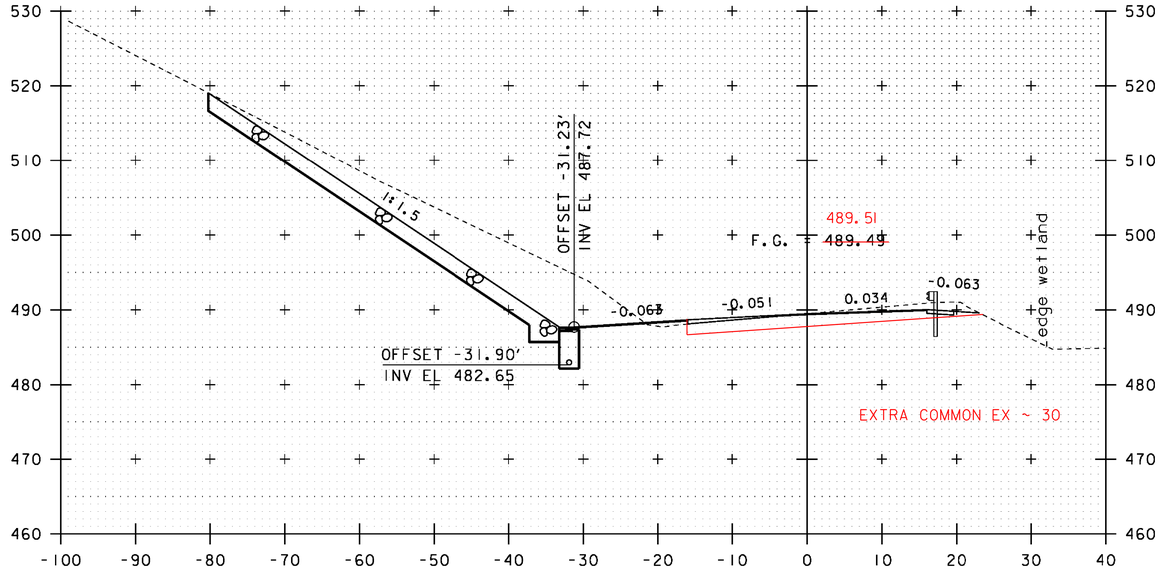
90+75



91+25



90+50



91+00

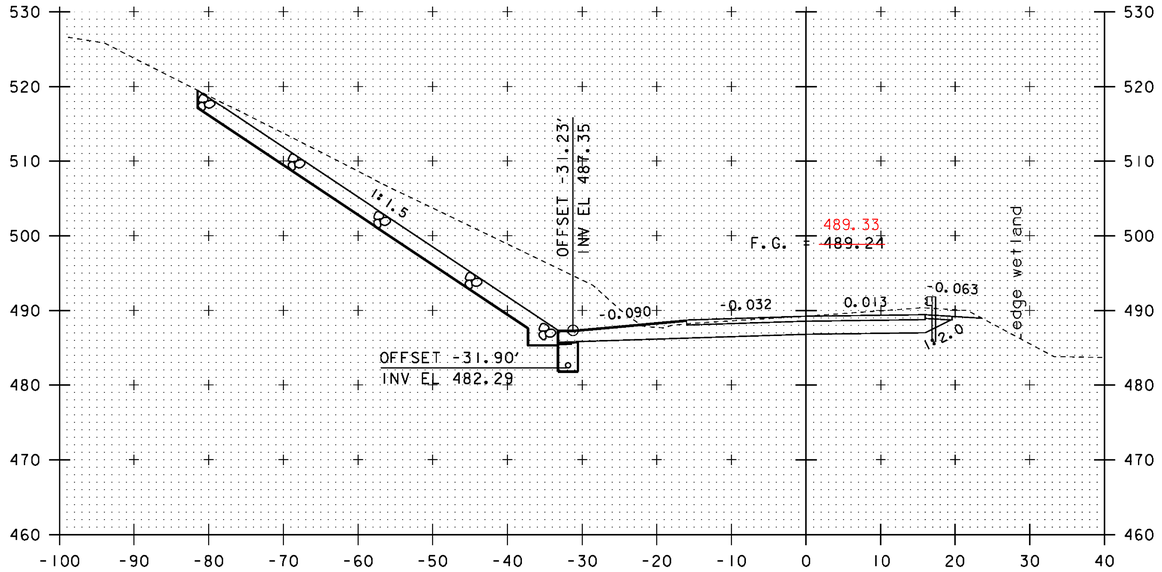
SCALE: 1" = 10'-0"
10 0 10

STA. 90+50 TO STA. 91+25

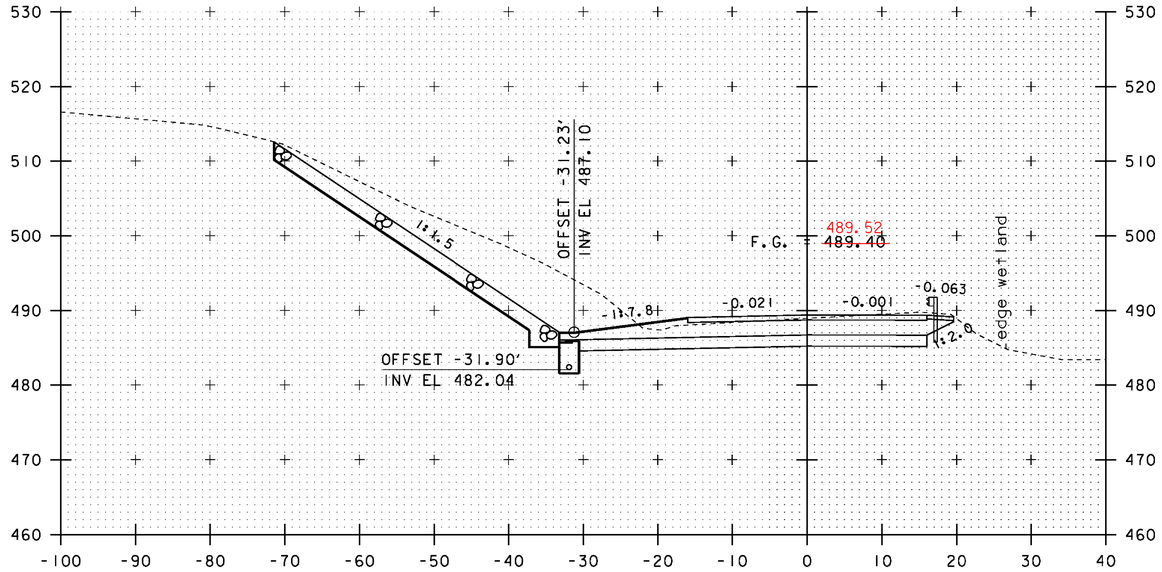
PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
VT 15 CROSS SECTIONS (3)

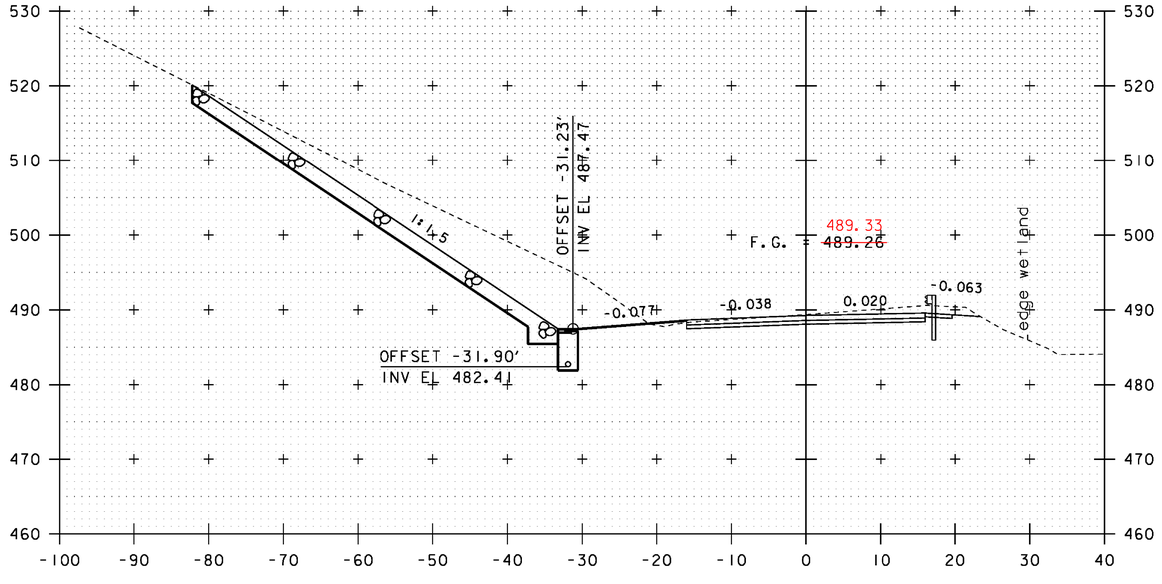
PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 44 OF 69



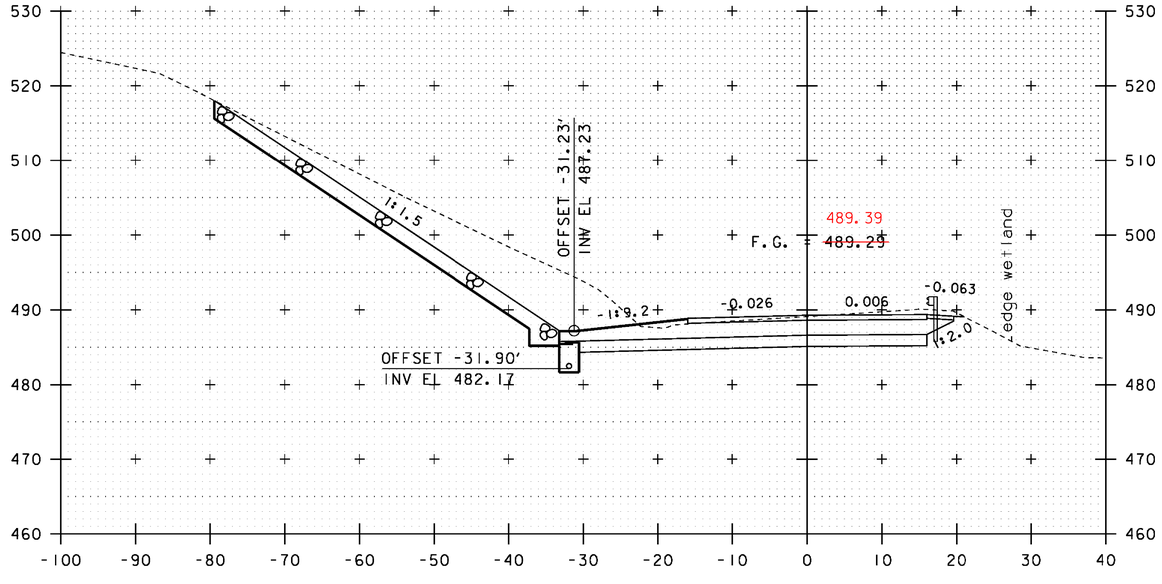
91+75



92+25



91+50



92+00

STA 92+00.00
END APPROACH
BEGIN PROJECT

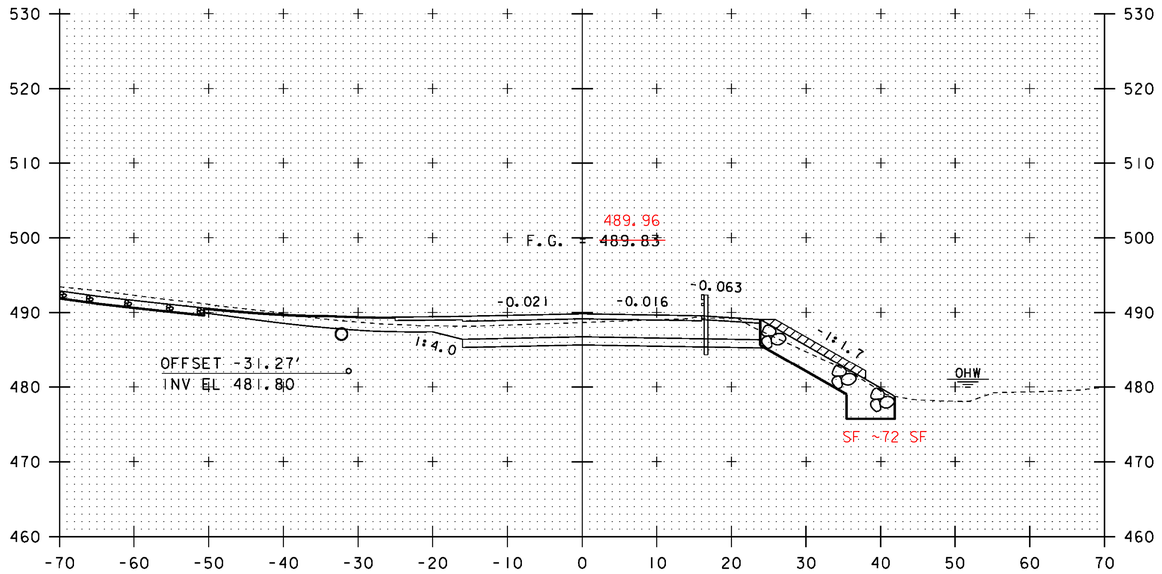
SCALE: 1" = 10'-0"
10 0 10

STA. 91+50 TO STA. 92+25

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
VT 15 CROSS SECTIONS (4)

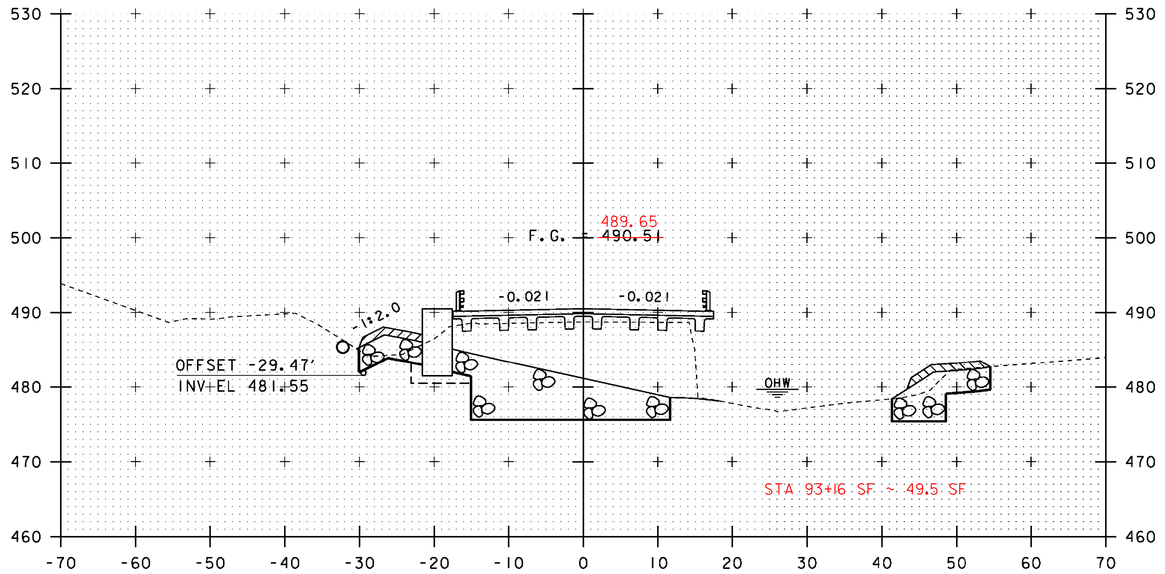
PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 45 OF 69



STA 92+58.0 LT - STA 93+34.1 LT
NEW 8 INCH UNDERDRAIN CARRIER PIPE
W/ YIELDING MARKER POST AT OUTLET

92+75

STA 92+68 RT
BEGIN SF TYPE III

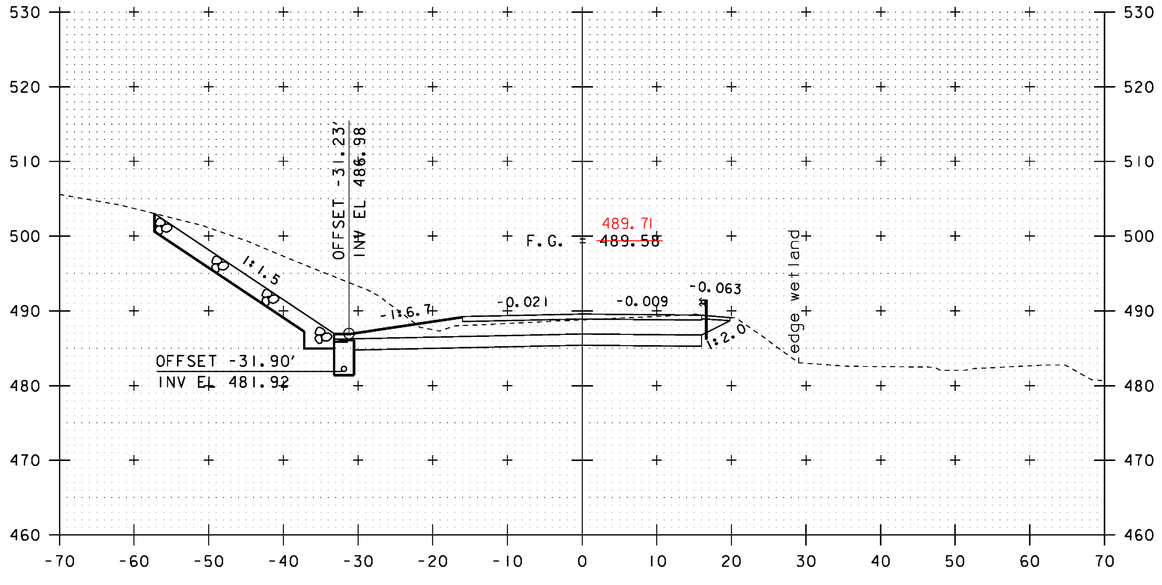


93+25

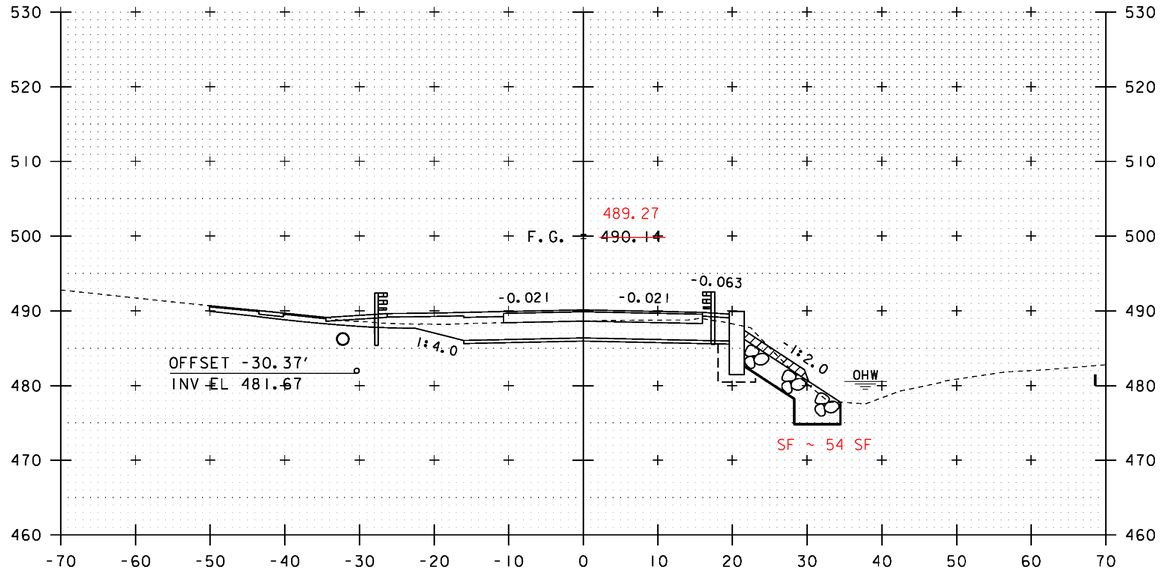
STA 93+16.11
STOP ROADWAY
BEGIN BRIDGE

END STONE FILL
TYPE III RT

STA 92+70 LT END SF TYPE III



92+50



93+00

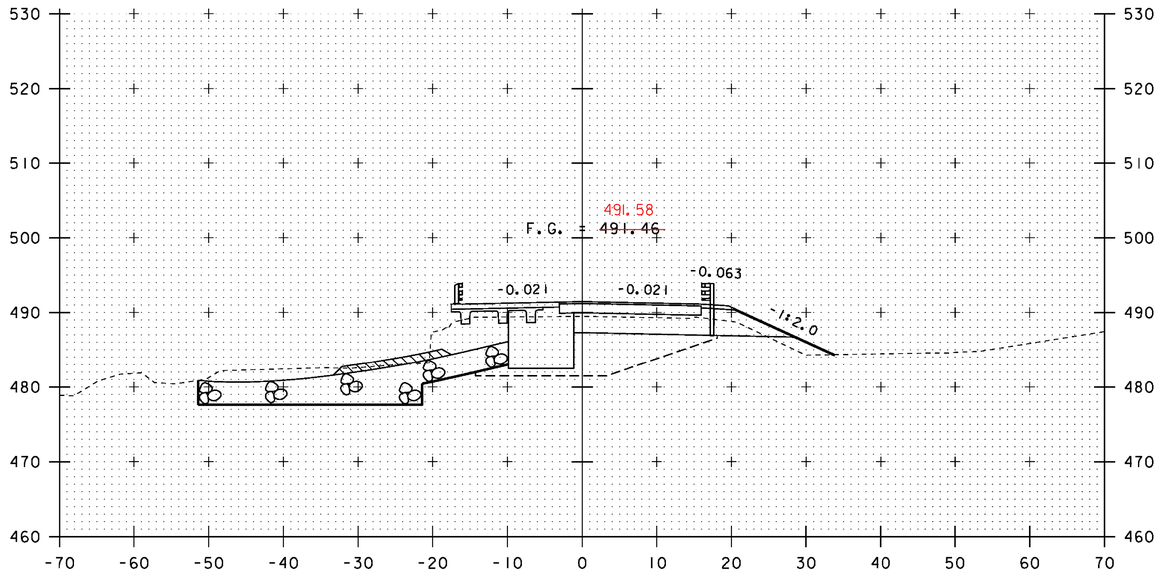
SCALE: 1" = 10'-0"
10 0 10

STA. 92+50 TO STA. 93+25

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

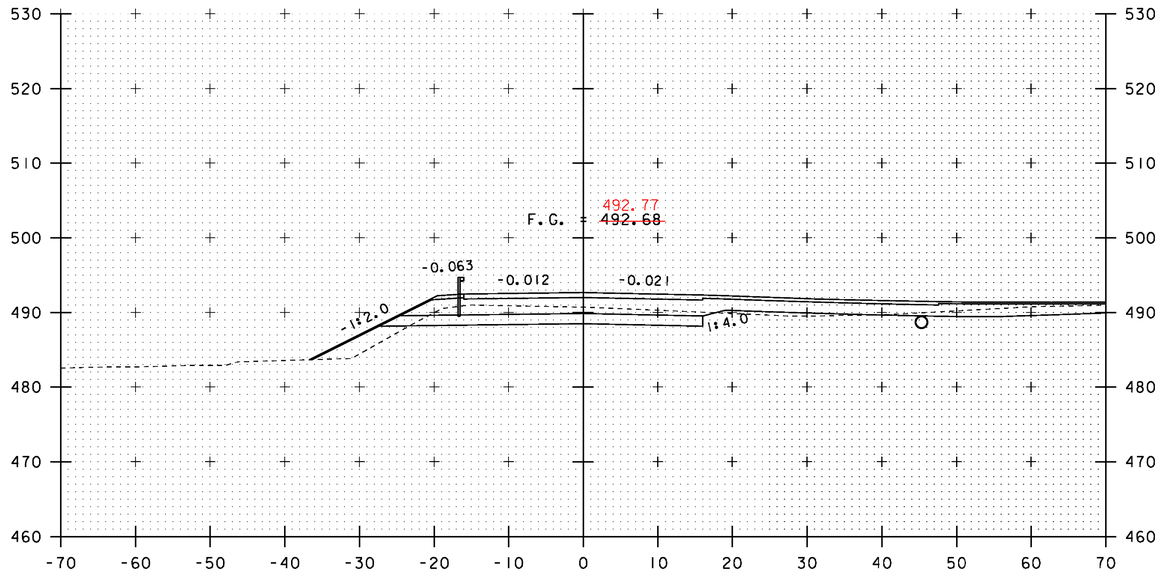
FILE NAME: s88b193xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
VT 15 CROSS SECTIONS (5)

PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 46 OF 69

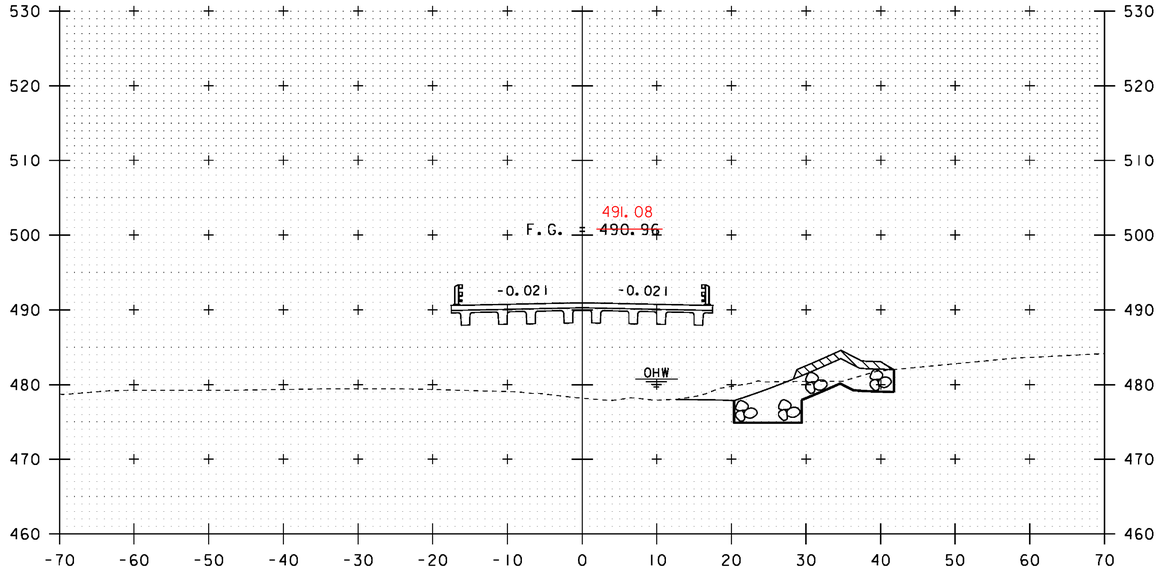


93+75

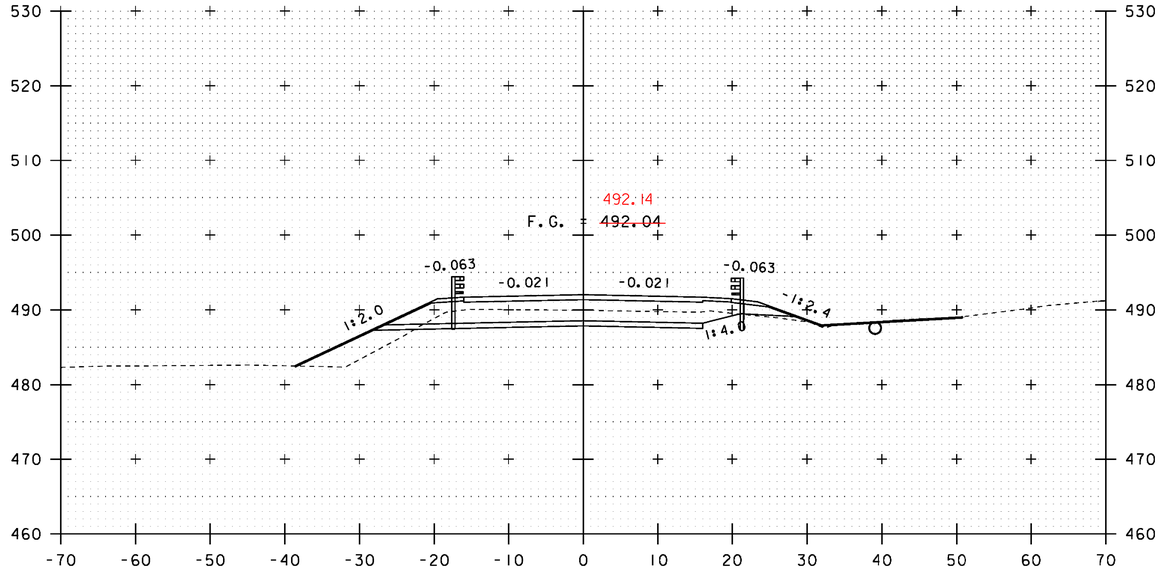
STA 93+73.89
END BRIDGE
RESUME ROADWAY



94+25



93+50



94+00

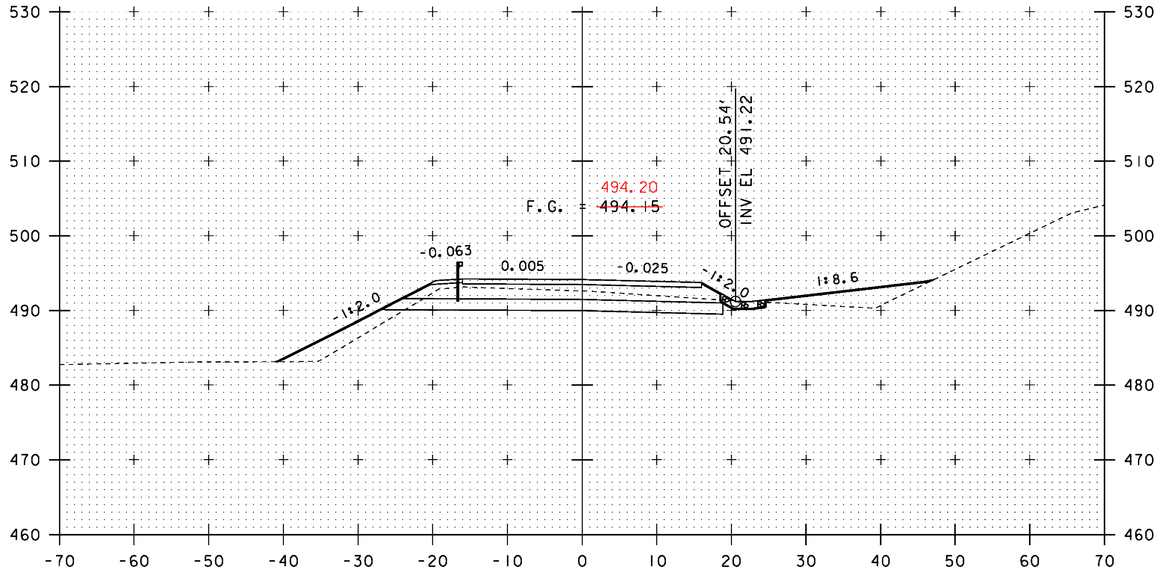
SCALE: 1" = 10'-0"
10 0 10

STA. 93+50 TO STA. 94+25

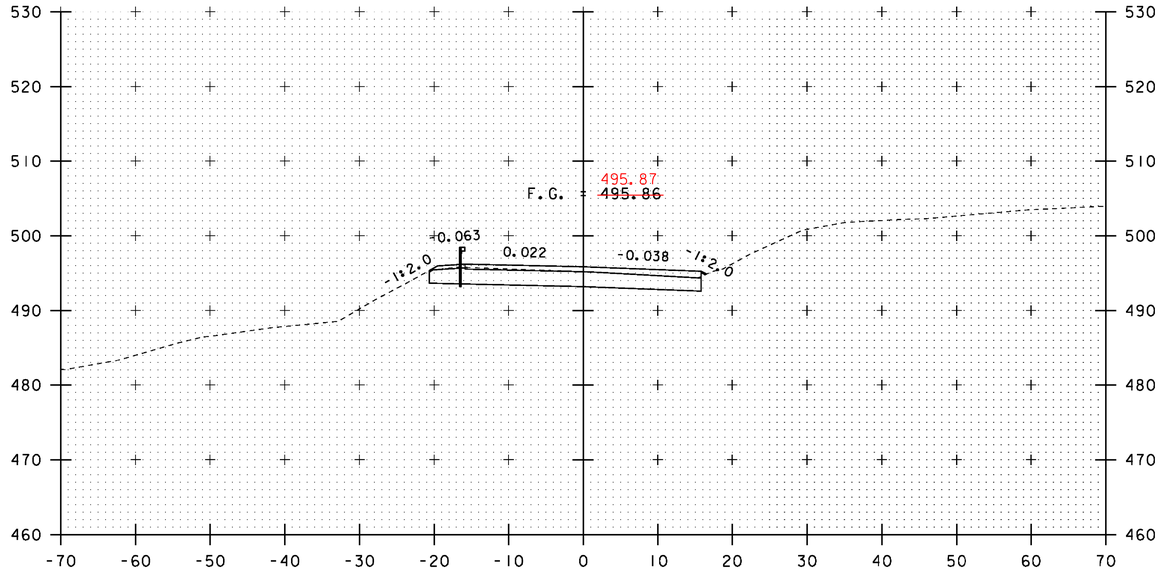
PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
VT 15 CROSS SECTIONS (6)

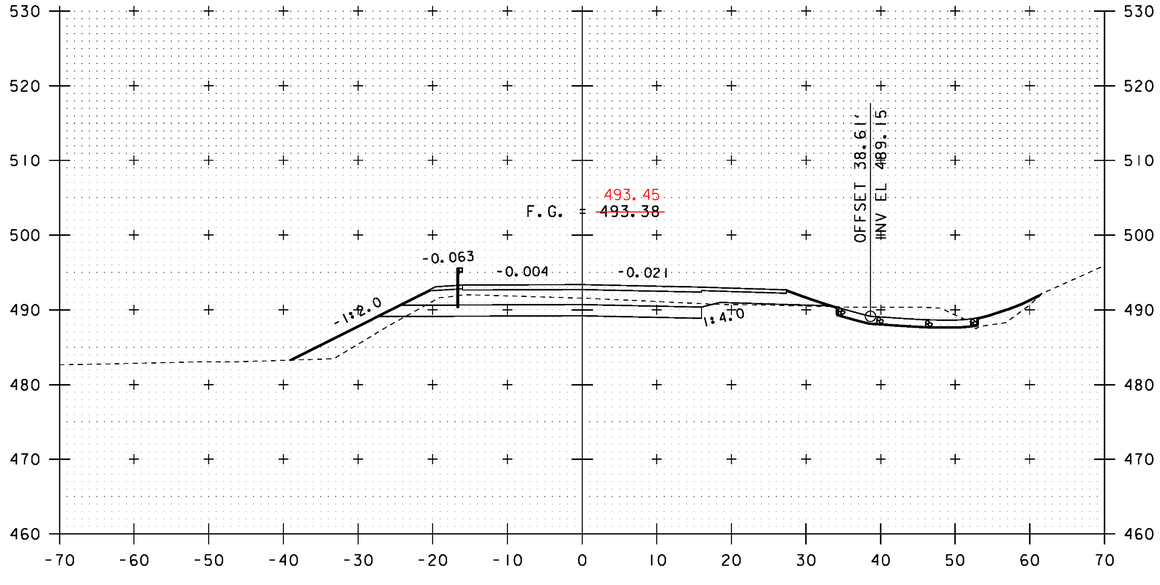
PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 47 OF 69



94+75

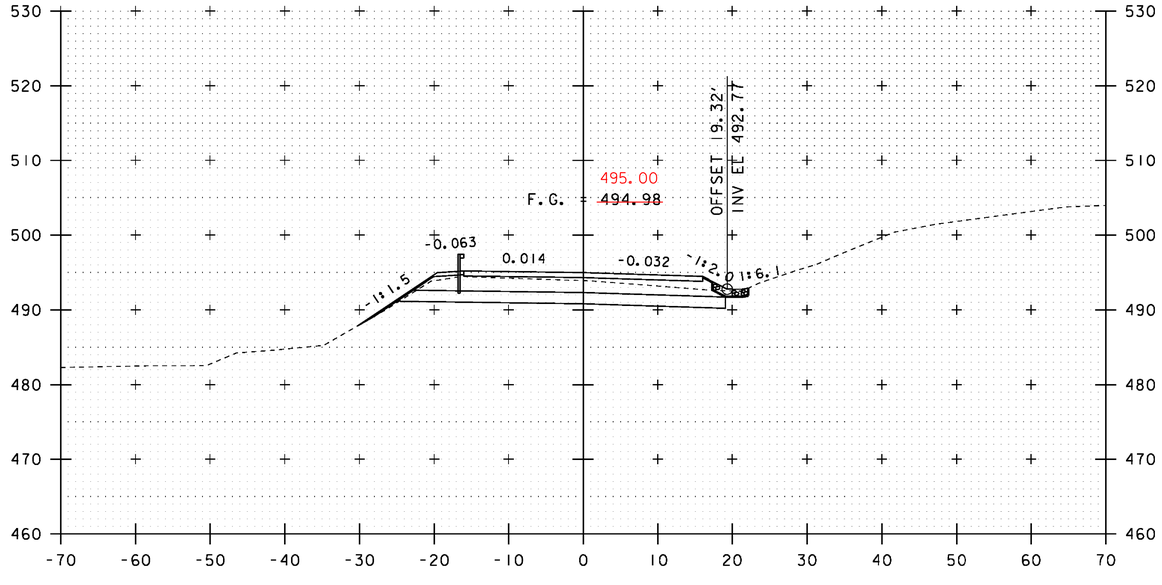


95+25



94+50

STA 94+47.0 RT - STA 95+06.0 RT
CONSTRUCT STONE-LINED DITCH, TYPE I



95+00

STA 95+00.00
END PROJECT
BEGIN APPROACH

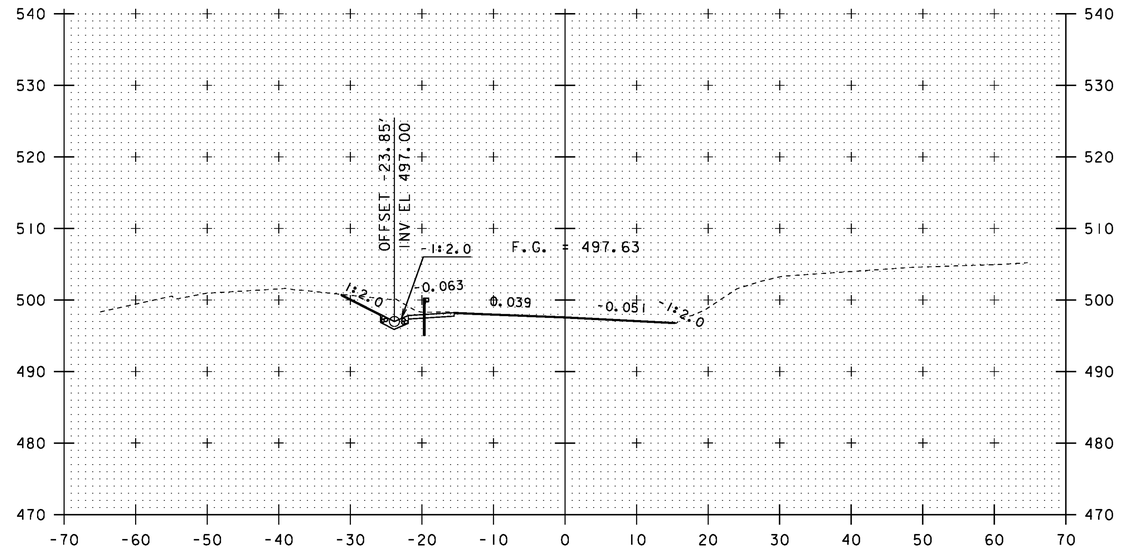
SCALE: 1" = 10'-0"
10 0 10

STA. 94+50 TO STA. 95+25

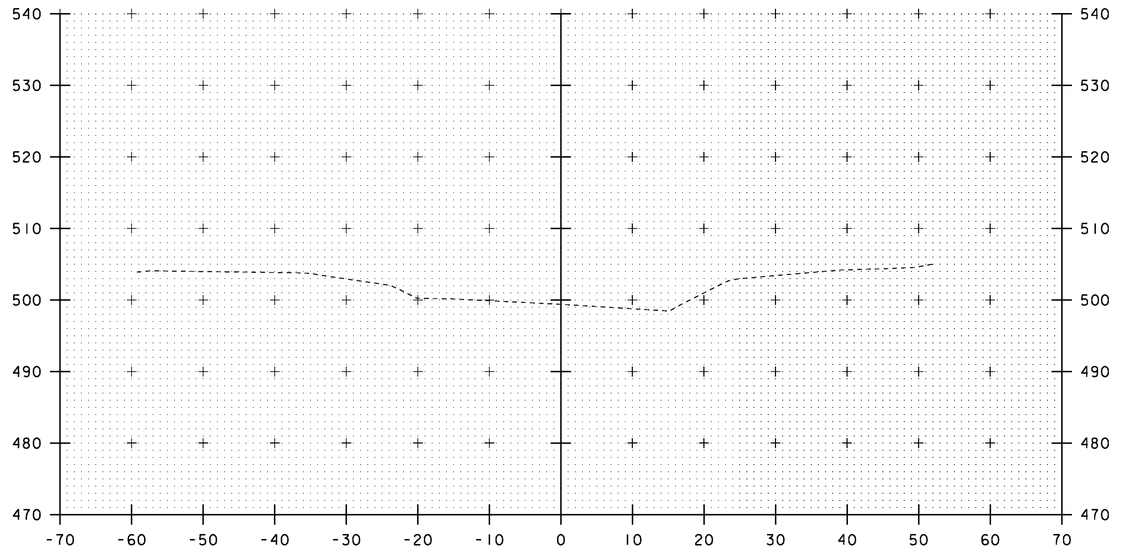
PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88bl93xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
VT 15 CROSS SECTIONS (7)

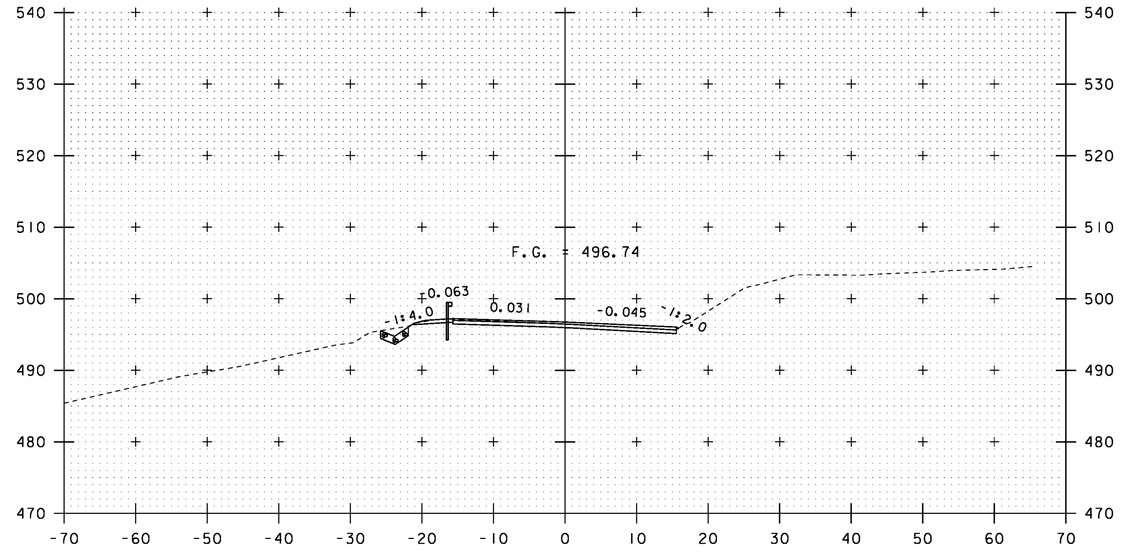
PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 48 OF 69



95+75

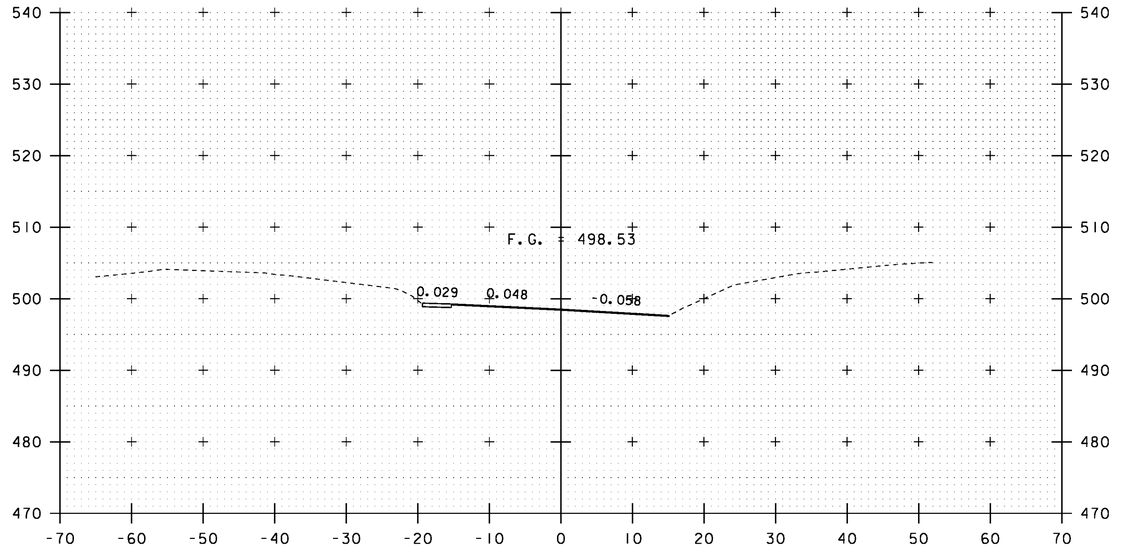


96+25



STA 95+50.0 LT - STA 96+00.0 LT
CONSTRUCT STONE-LINED DITCH, TYPE I

95+50



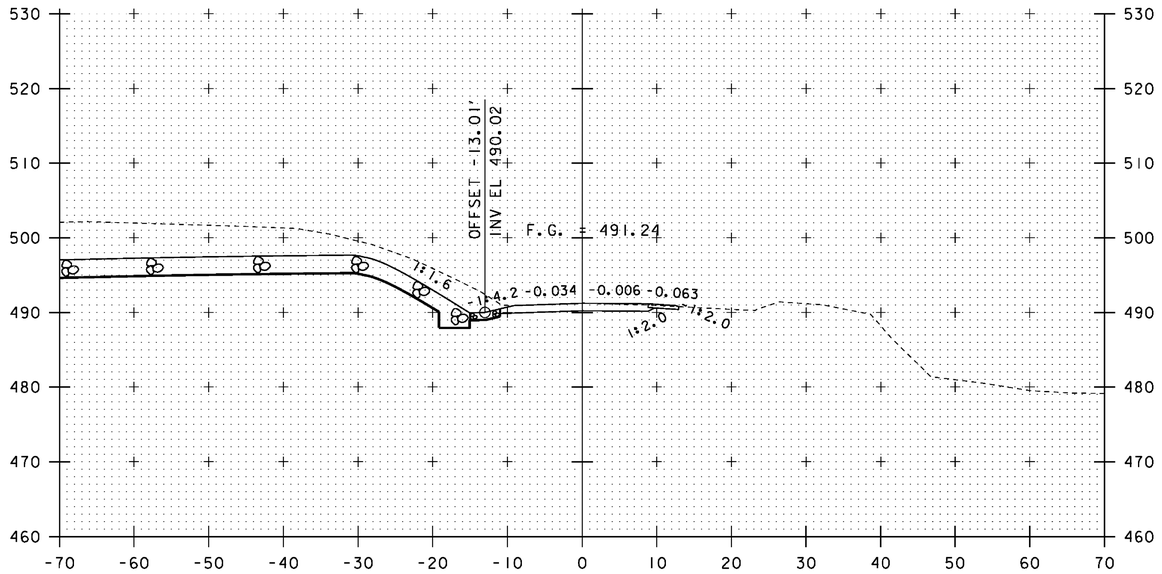
96+00

STA 96+00.00
END APPROACH
MATCH EXISTING

SCALE: 1" = 10'-0"
10 0 10

STA. 95+50 TO STA. 96+25

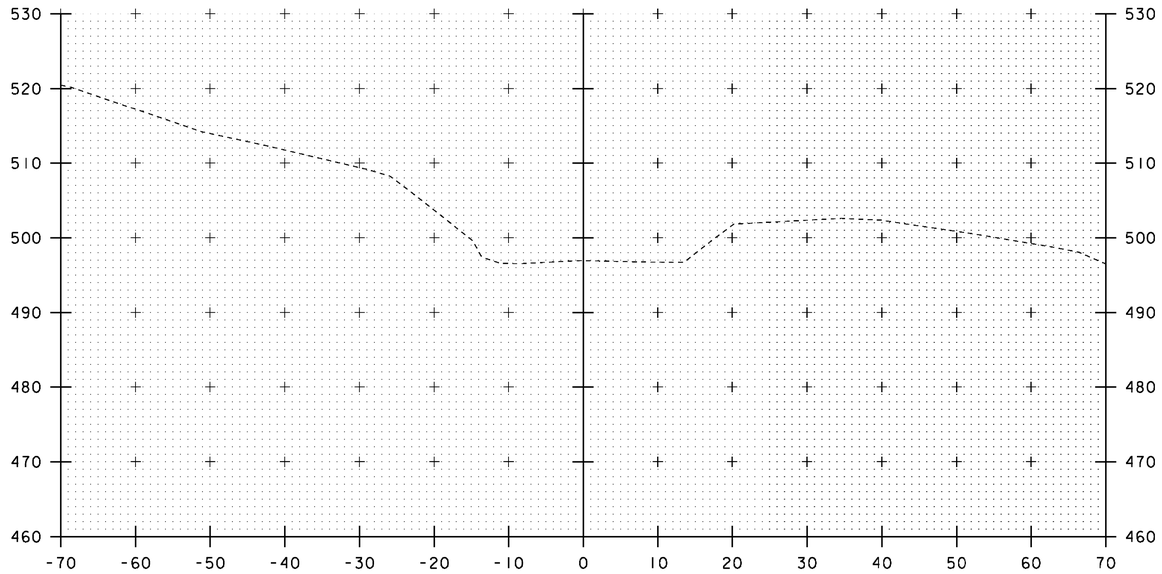
PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88bl93xsl.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
VT 15 CROSS SECTIONS (8)	SHEET 49 OF 69



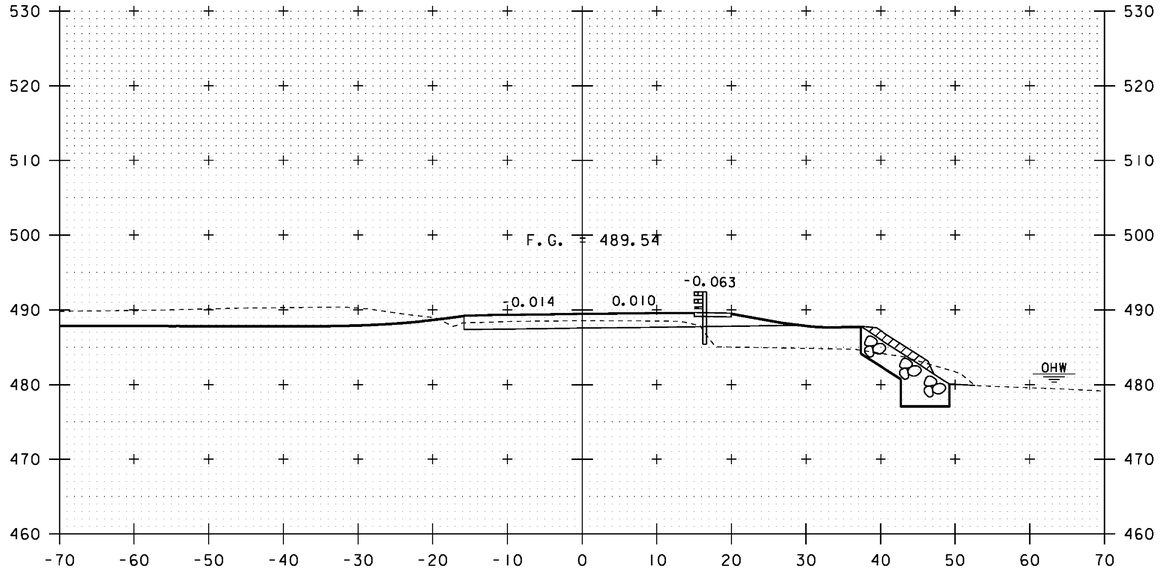
30+25.0
STA ~~30+29.2~~ LT - STA 30+75.0 LT
CONSTRUCT STONE-LINED DITCH, TYPE I

30+25.0
STA ~~30+33.3~~ LT - STA 30+75.0 LT
CONSTRUCT STONE FILL, TYPE II BANK SLOPE

30+50

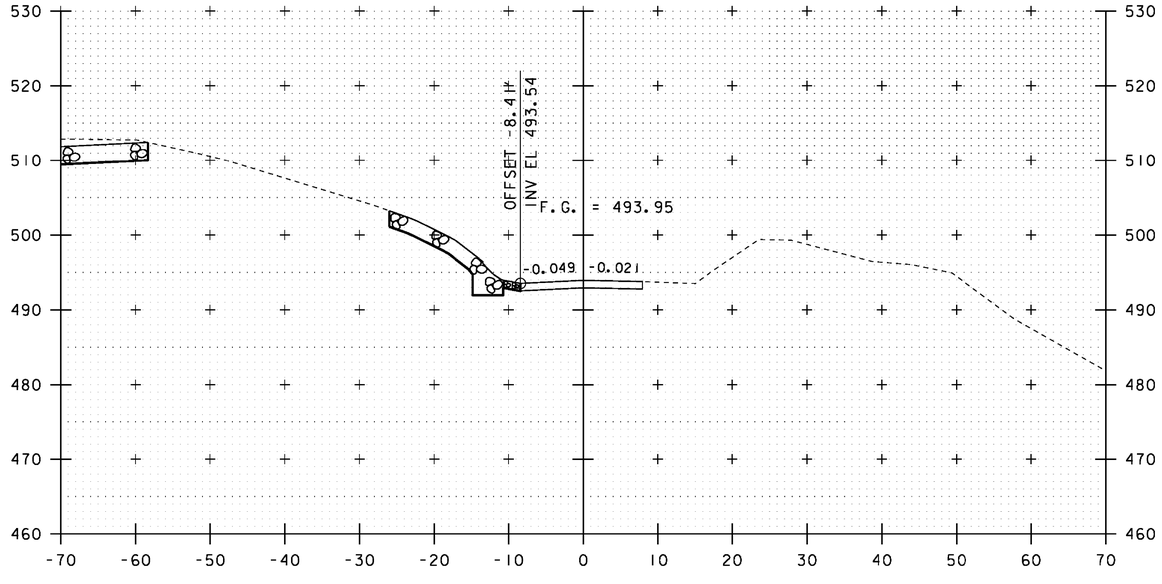


31+00



STA 30+16.00
BEGIN SIDELINE ROADWAY

30+25



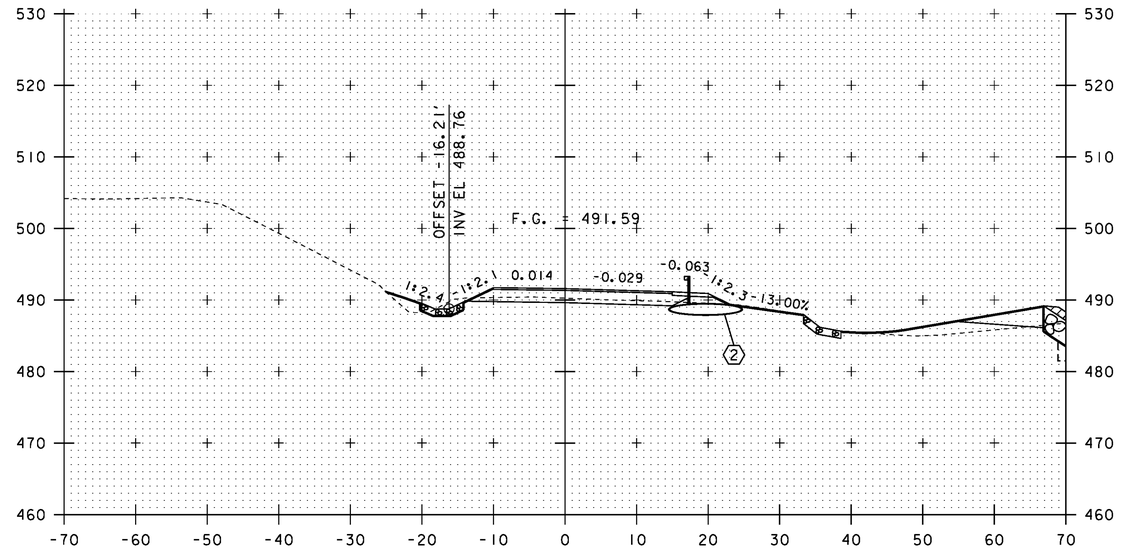
STA 30+75.00
END SIDELINE ROADWAY
MATCH EXISTING

30+75

SCALE: 1" = 10'-0"
10 0 10

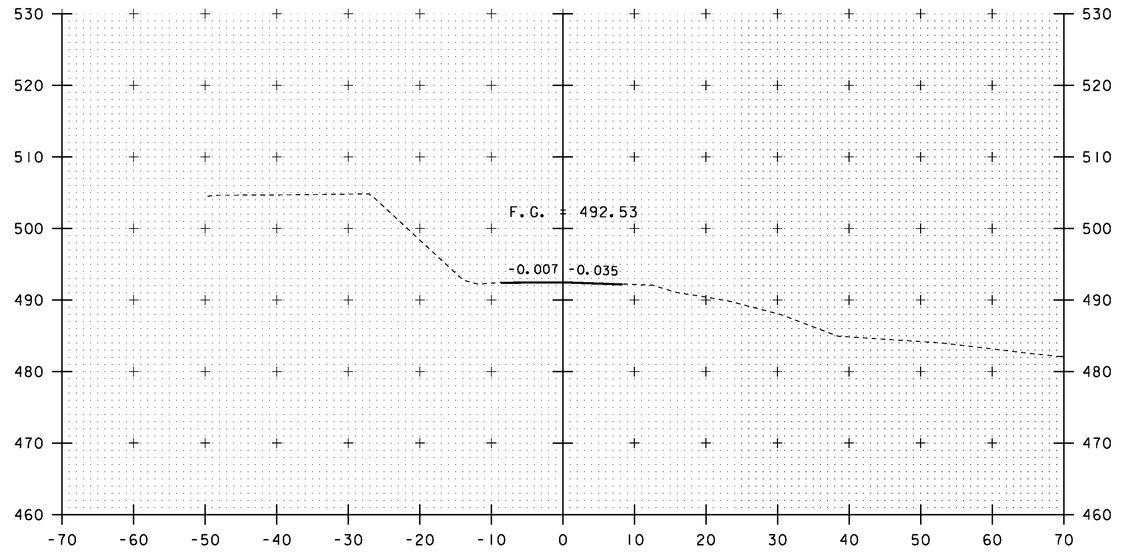
STA. 30+25 TO STA. 31+00

PROJECT NAME: JOHNSON	
PROJECT NUMBER: BRF 030-2(26)	
FILE NAME: s88b193xsl.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
TH 71 CROSS SECTIONS	SHEET 50 OF 69



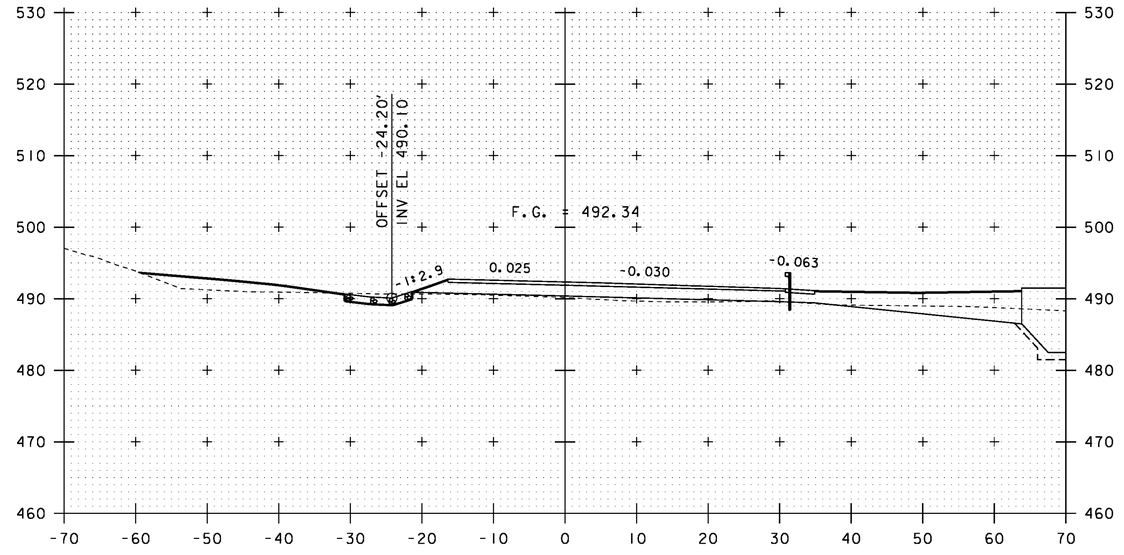
STA 40+45.6 LT - STA 40+90.0 LT
CONSTRUCT STONE-LINED DITCH, TYPE I

40+50



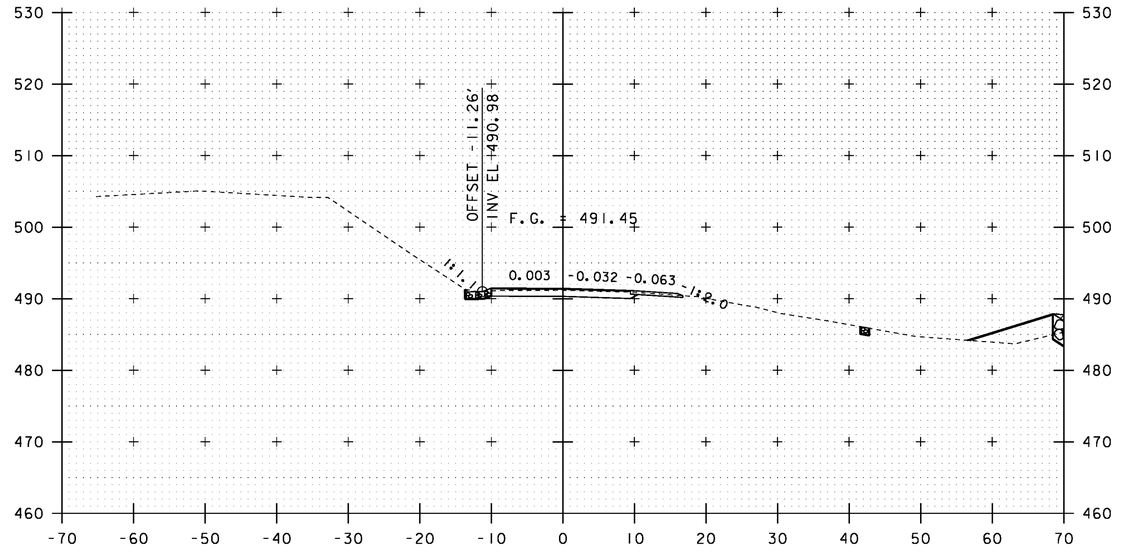
STA 41+00.00
END SIDELINE ROADWAY
MATCH EXISTING

41+00



STA 40+16.00
BEGIN SIDELINE ROADWAY

40+25

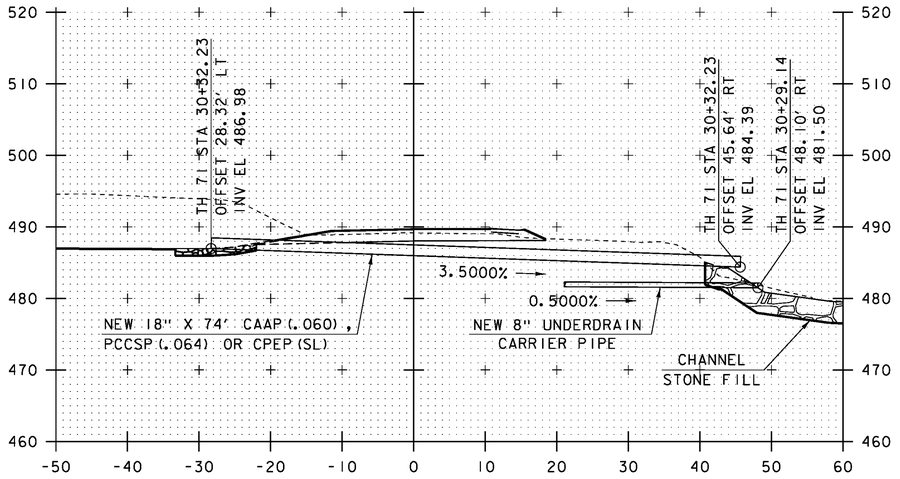


40+75

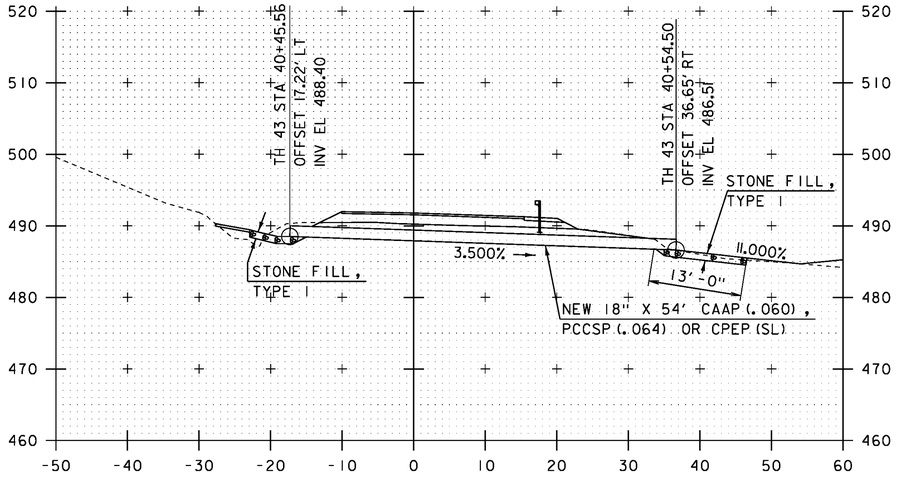
SCALE: 1" = 10'-0"
10 0 10

STA. 40+25 TO STA. 41+00

PROJECT NAME: JOHNSON	
PROJECT NUMBER: BRF 030-2(26)	
FILE NAME: s88b193xsl.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
TH 43 CROSS SECTIONS	SHEET 51 OF 69



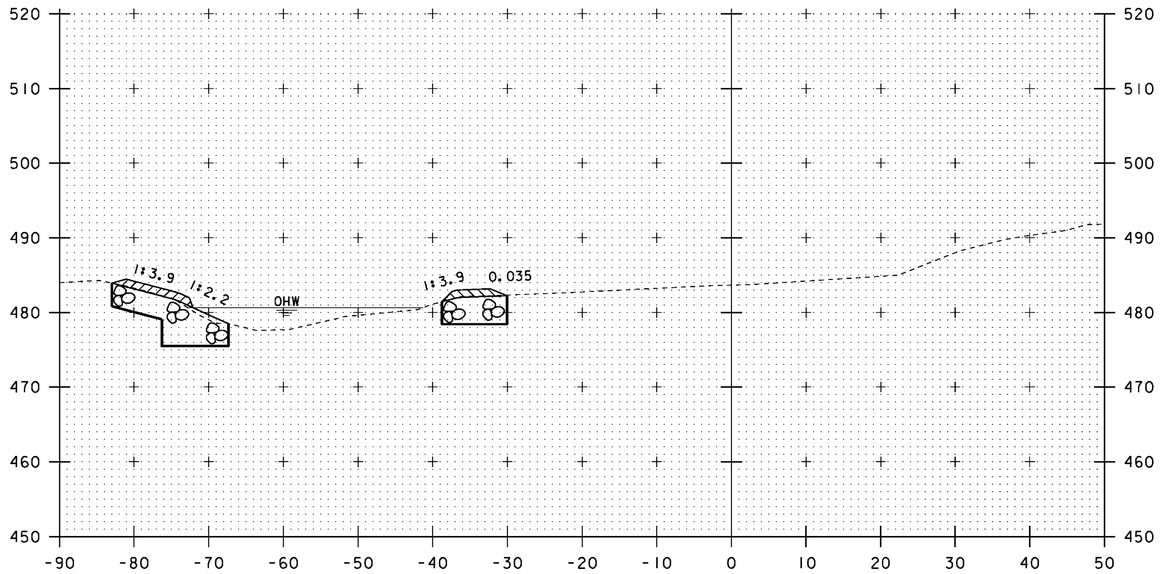
PIPE NO. 1 PROFILE



PIPE NO. 2 PROFILE

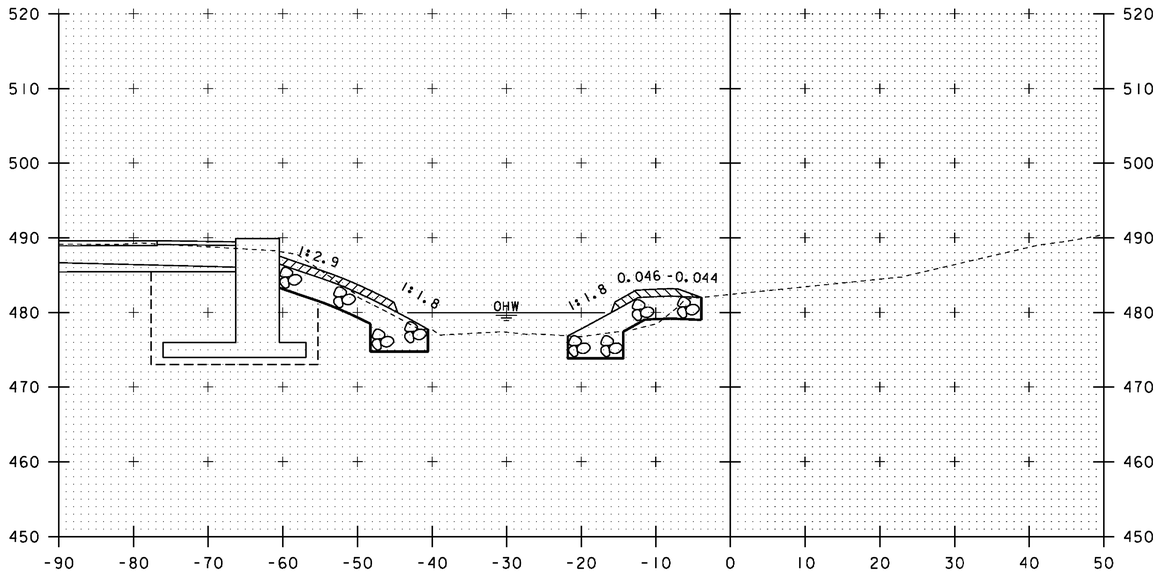
SCALE: 1" = 10'-0"
10 0 10

PROJECT NAME: JOHNSON	
PROJECT NUMBER: BRF 030-2(26)	
FILE NAME: s88b193xsl.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
PIPE PROFILES	SHEET 52 OF 69



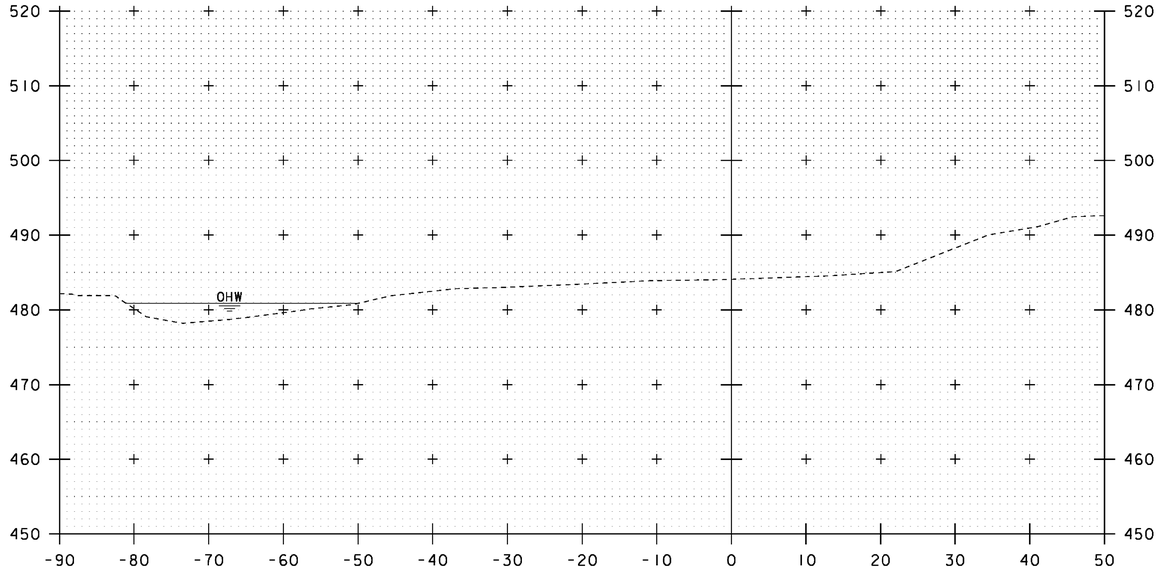
CHANNEL STA 20+00.00 FAR LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

20+10



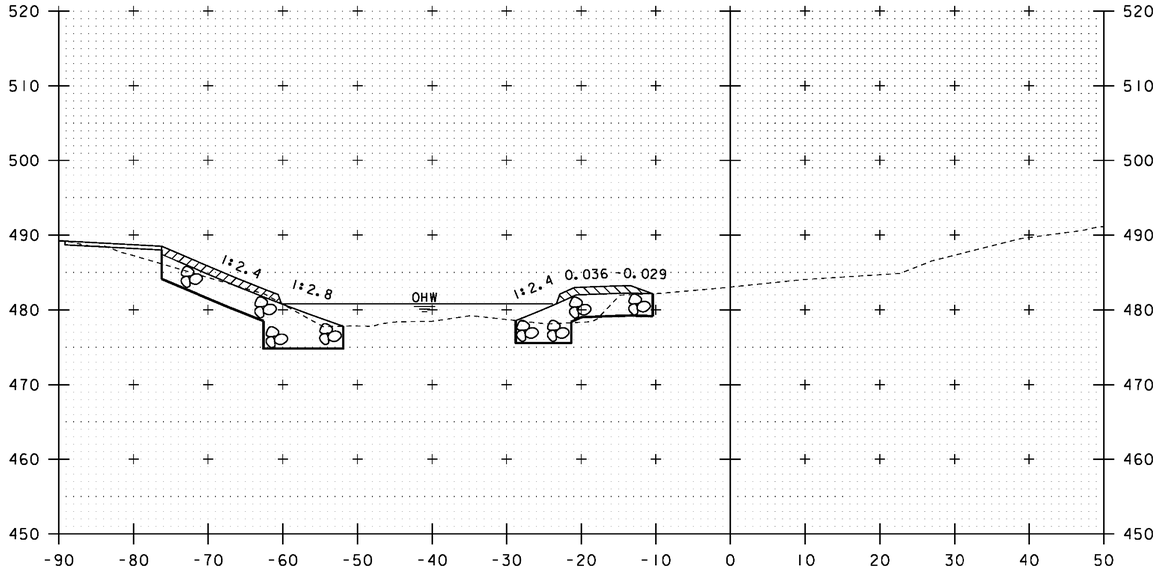
CHANNEL STA ~~20+21.2~~ 20+20.0 FAR LT
BEGIN STRUCTURE EXCAVATION
GRANULAR BACKFILL FOR STRUCTURES

20+30



CHANNEL STA ~~20+07.4~~ 20+05.0 LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

20+00



20+20

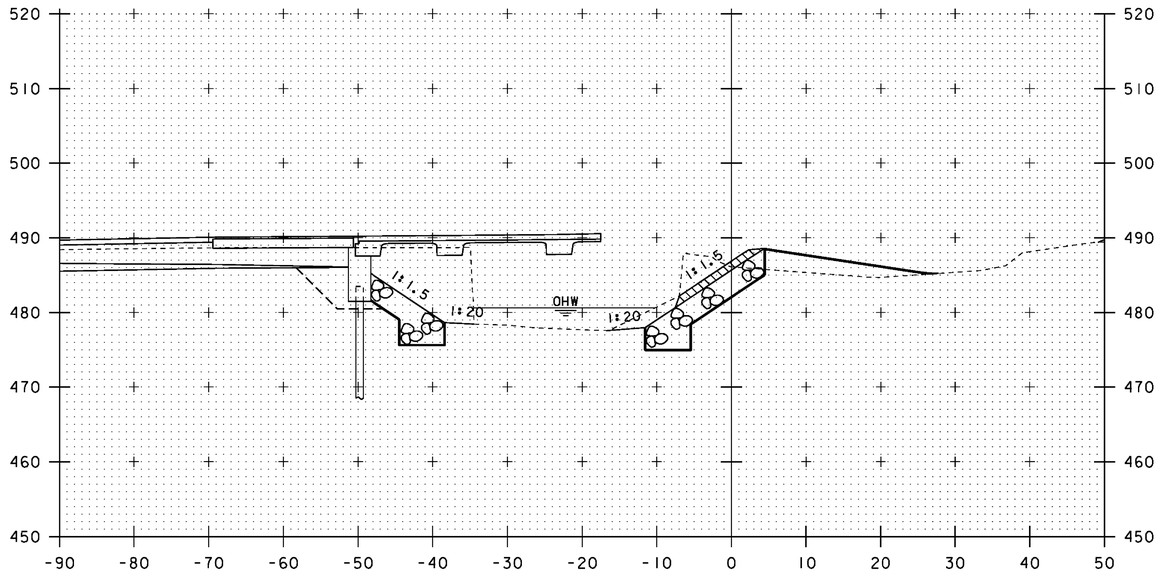
SCALE: 1" = 10'-0"
10 0 10

STA. 20+00 TO STA. 20+30

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

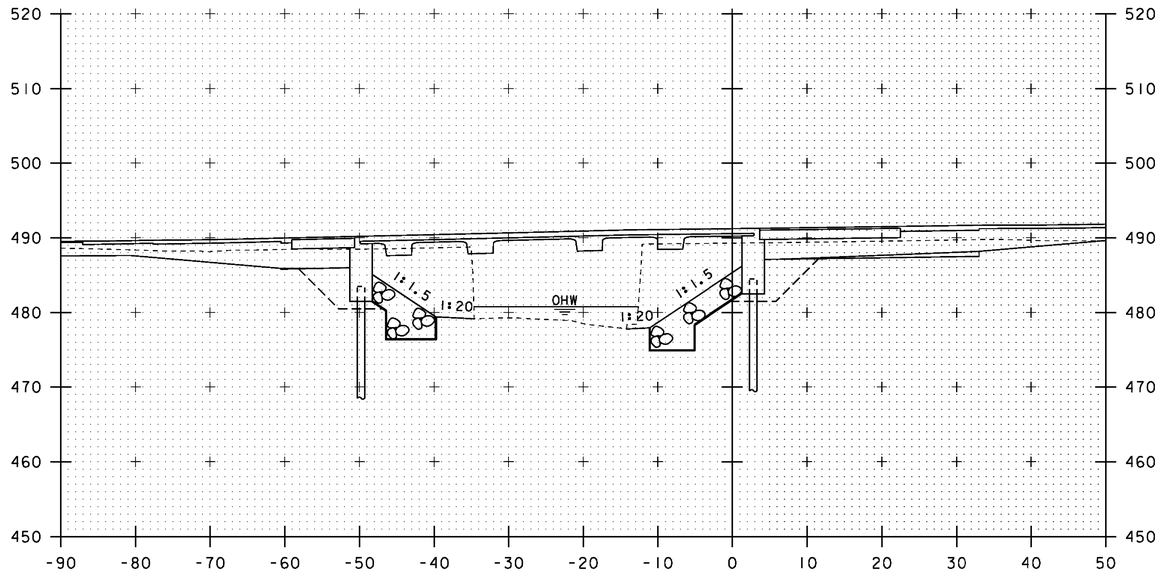
FILE NAME: s88b193xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
CHANNEL CROSS SECTIONS (1)

PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 53 OF 69

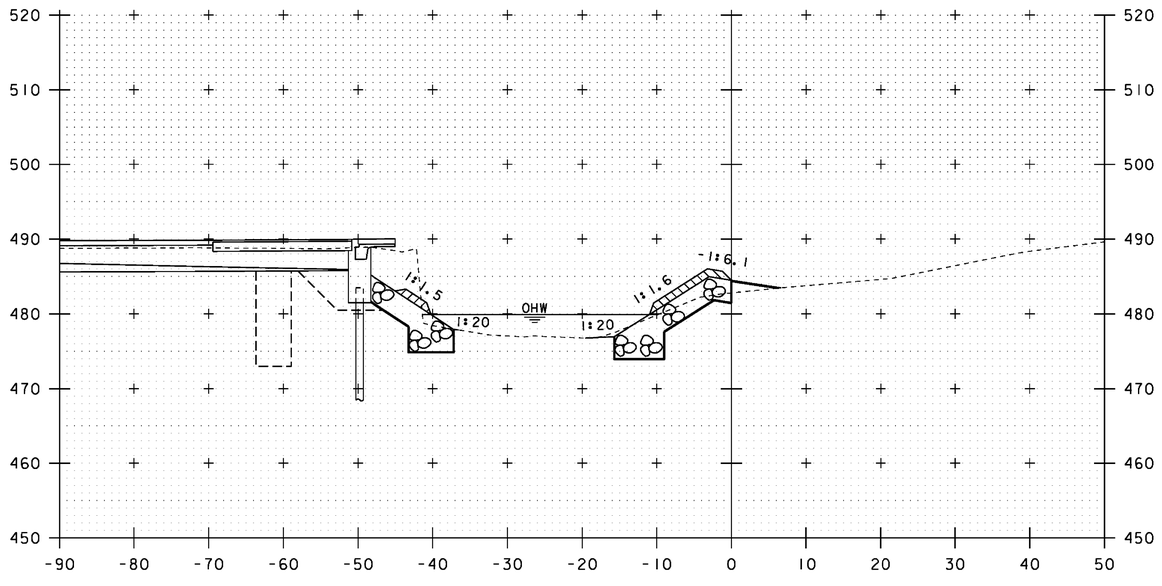


20+50

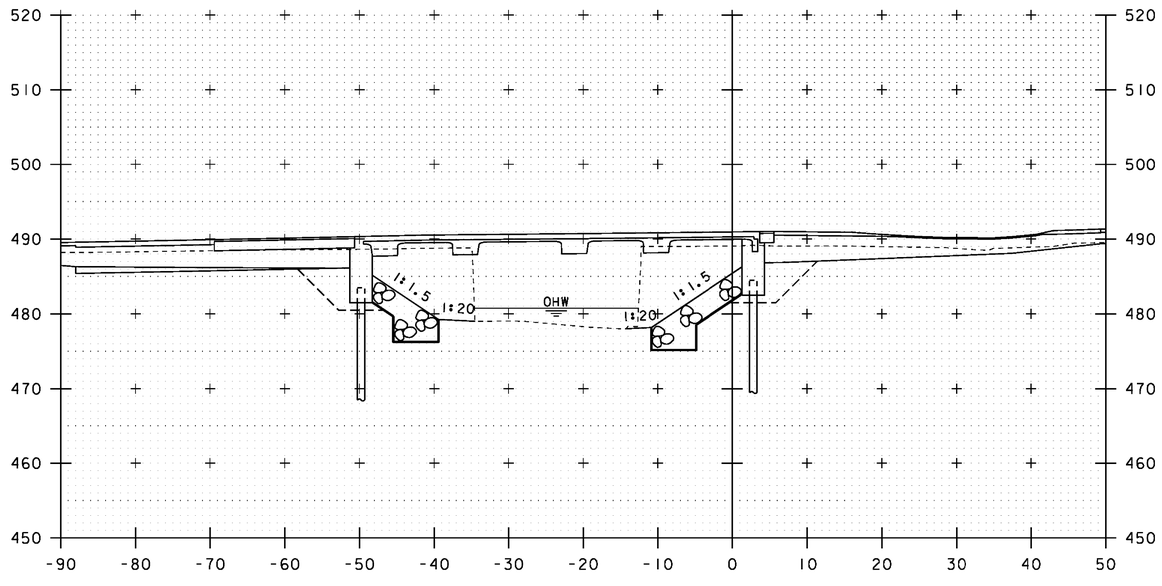
STA 20+50 BEGIN STRUCTURE EXCAVATION, RT



20+70



20+40



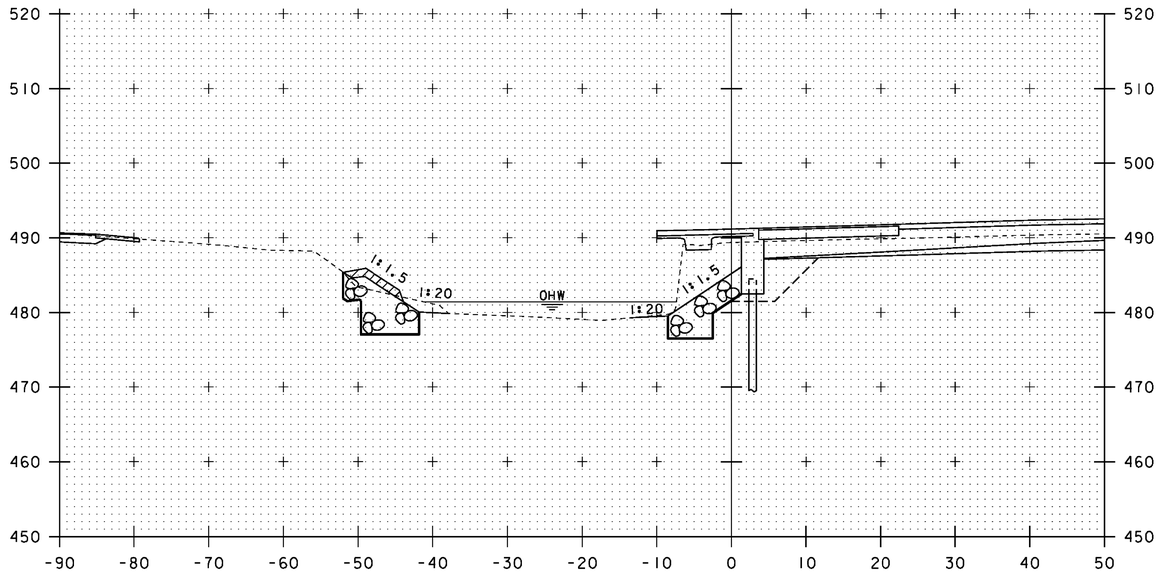
20+60

CHANNEL STA 20+50.0 LT
BEGIN STRUCTURE EXCAVATION
GRANULAR BACKFILL FOR STRUCTURES

SCALE: 1" = 10'-0"
10 0 10

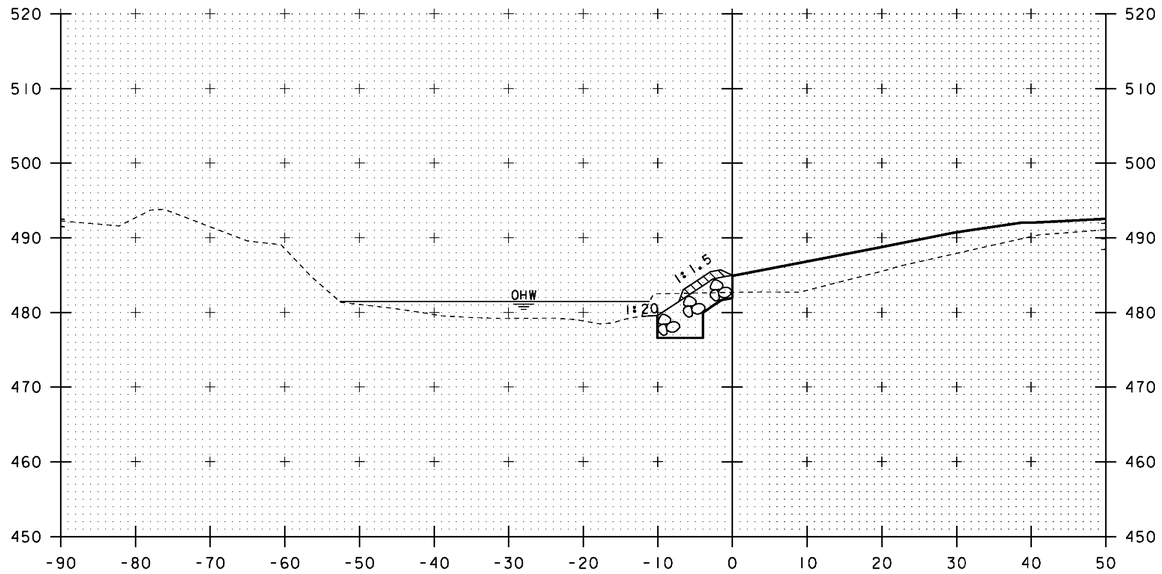
STA. 20+40 TO STA. 20+70

PROJECT NAME: JOHNSON	
PROJECT NUMBER: BRF 030-2(26)	
FILE NAME: s88b193xsl.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
CHANNEL CROSS SECTIONS (2)	SHEET 54 OF 69



CHANNEL STA 20+83.0 FAR LT
END STRUCTURE EXCAVATION
GRANULAR BACKFILL FOR STRUCTURES

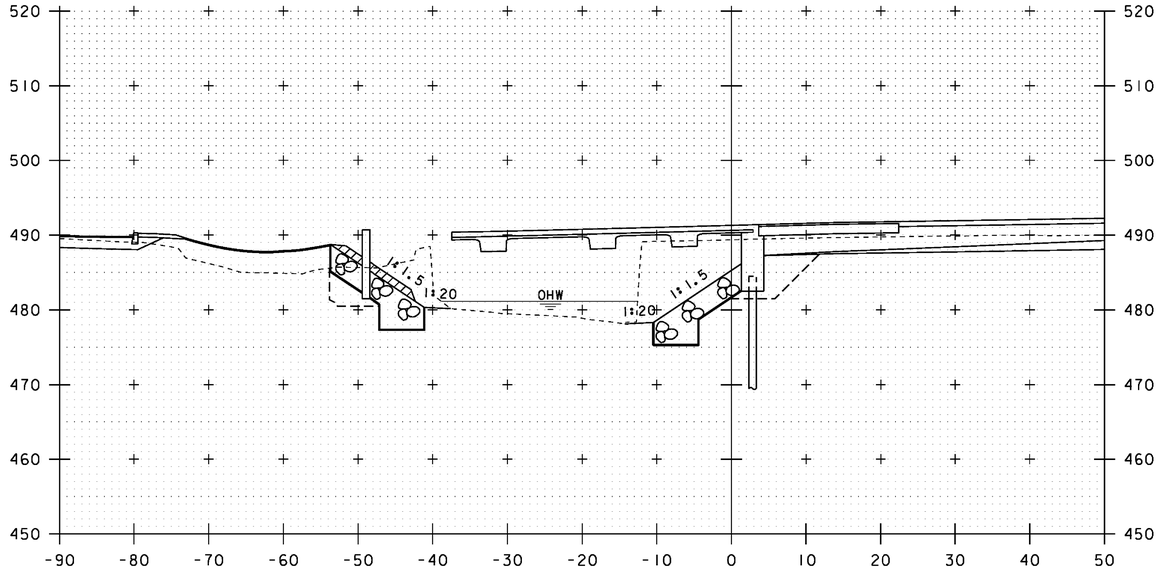
20+90



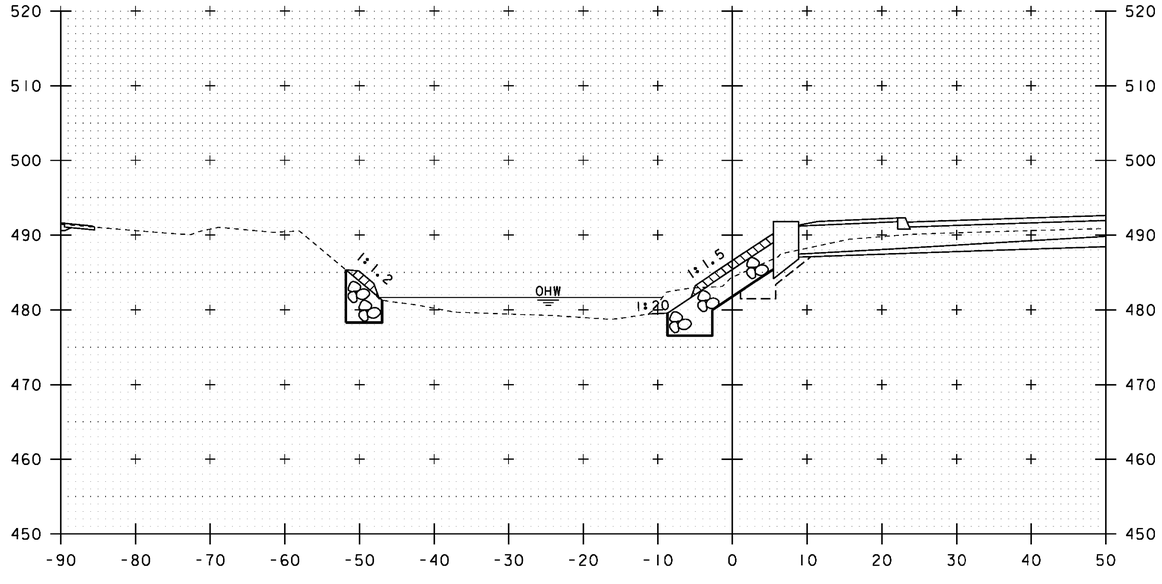
CHANNEL STA ~~21+05.0~~ 21+10.0 FAR LT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL

21+10

CHANNEL STA ~~21+03.0~~ 21+10.0 LT
END STRUCTURE EXCAVATION
GRANULAR BACKFILL FOR STRUCTURES



20+80

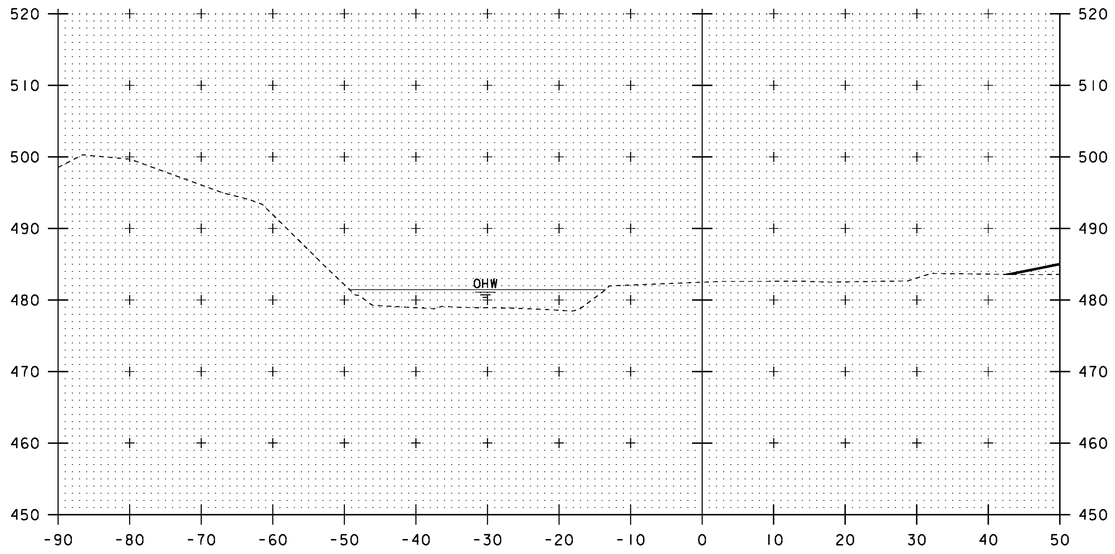


21+00

SCALE: 1" = 10'-0"
10 0 10

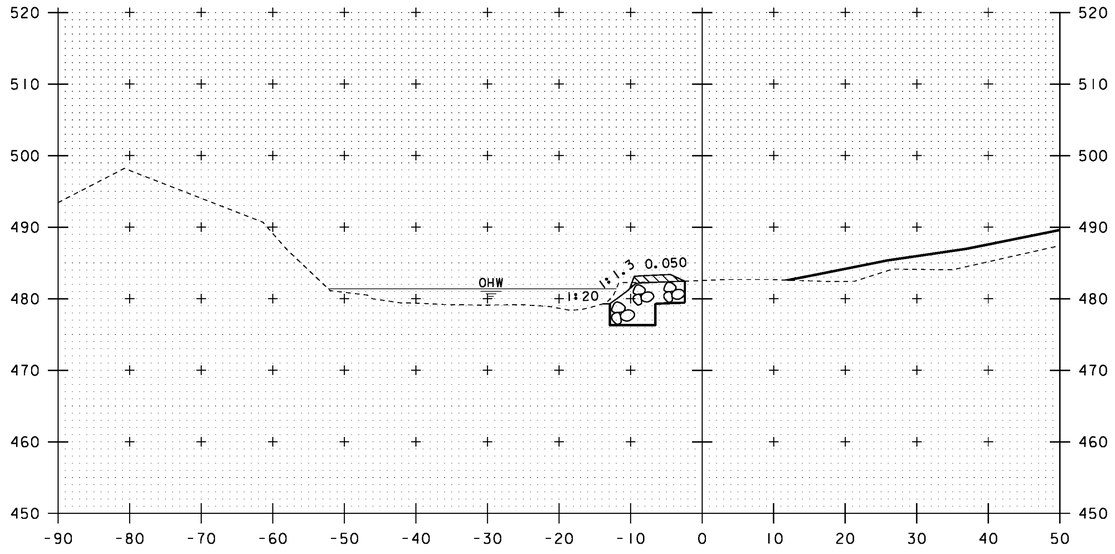
STA. 20+80 TO STA. 21+10

PROJECT NAME: JOHNSON	
PROJECT NUMBER: BRF 030-2(26)	
FILE NAME: s88b193xsl.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
CHANNEL CROSS SECTIONS (3)	SHEET 55 OF 69



21+30

CHANNEL STA 21+25.0 LT
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III
GRUBBING MATERIAL



21+20

SCALE: 1" = 10'-0"
10 0 10

STA. 21+20 TO STA. 21+30

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88bl93xsl.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
CHANNEL CROSS SECTIONS (4)

PLOT DATE: 10-JUN-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 56 OF 69

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

JOHNSON BRF 030-2(26) INVOLVES THE REPLACEMENT OF BRIDGE 32 CARRYING VT 15 OVER THE SMITH BROOK IN JOHNSON, VT. THE BRIDGE WILL BE REPLACED ON THE EXISTING ALIGHMENT WITH MINIMAL WIDENING AND APPROACH WORK NECESSARY TO MATCH IN TO THE EXISTING ROADWAY. TWO-WAY TRAFFIC WILL BE MAINTAINED DURING CONSTRUCTION ON A TEMPORARY BRIDGE TO BE CONSTRUCTED NORTH (DOWNSTREAM) OF THE EXISTING BRIDGE.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 1.33 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL OCCUR DURING TWO CONSTRUCTION SEASONS.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS A SADDLE THAT IS MOSTLY WELL ESTABLISHED FOREST WITH OCCASIONAL OPEN AREAS. VT ROUTE 15, SWEETSER RD (TH 71), AND WEST SETTLEMENT RD (TH 43) ARE WITHIN THE PROJECT SITE. THERE IS A RESIDENCE ON THE EAST SIDE OF THE PROJECT, AND A FEW HOUSES UP SLOPE TO THE WEST WITH GRASS AND TREE BUFFERS.

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

SMITH BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. AN ASSOCIATED CLASS III WETLAND IS LOCATED SOUTHWEST OF THE BRIDGE.

DRAINAGE DITCHES ARE LOCATED ON THE NORTHWEST AND SOUTHEAST SIDES OF VT ROUTE 15 IN THE PROJECT AREA. A 12-INCH AND A 15-INCH CGMP CARRY SURFACE WATER FROM THESE DRAINAGE DITCHES UNDER TH 71 AND TH 43, RESPECTIVELY, TO THE SMITH BROOK. THESE CULVERTS WILL BE REPLACED AS PART OF THIS PROJECT. DUE TO THE NATURE OF THE SURROUNDING TERRAIN, THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE, THE CONSTRUCTION OF THE TEMPORARY BRIDGE AND THE BANK CUT. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS AND THE NORTH WEST BANK WILL BE ARMORED WITH STONE FILL TYPE II. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES UNLESS OTHERWISE NOTED.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR LAMOILLE COUNTY, VERMONT. SOILS ON THE PROJECT SITE ARE ADAMS LOAMY FINE SAND, 2 TO 8 PERCENT SLOPES AND 25 TO 60 PERCENT SLOPES, K_W FACTOR = 0.17; AND PODUNK FINE SANDY LOAM, K_W FACTOR = 0.24.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
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: YES, FISH & WILDLIFE
HISTORICAL OR ARCHAELOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: SMITH BROOK
WETLANDS: YES, CLASS III WETLAND SOUTHWEST OF THE BRIDGE.

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 POLLUTION 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 SPECIFIC 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 APPROVED 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.

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 MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

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 AND PIPE INLET PROTECTION WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

FILTER CURTAIN WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

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.

THE PROJECT AREA IS REALTIVELY FLAT. THERFORE IT IS NOT ANTICPIATED THAT DIVERSION MEASURES WILL BE NECESSARY.

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 WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

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

NO PERMANENT CONTROLS ON THIS PROJECT.

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.

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.

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.

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

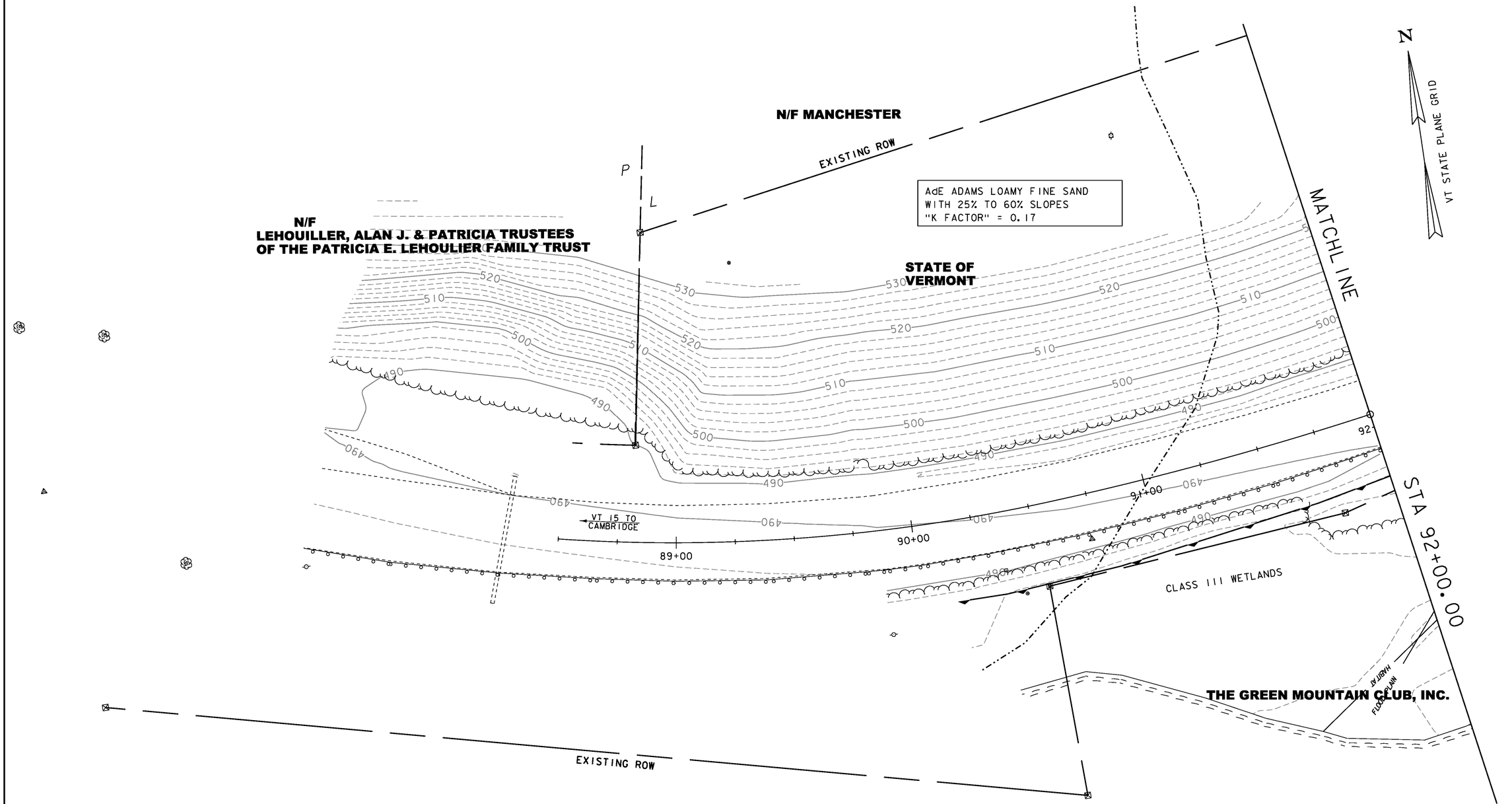
THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)

FILE NAME: s88bl93eronotes.dgn	PLOT DATE: 11-JUL-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: C. MOONEY	CHECKED BY: H. SALLS
EPSC NARRATIVE	SHEET 57 OF 69



20 0 20

SCALE: 1" = 20'-0"

NOTE: SEE EPSC DETAILS &
CONVENTIONAL SYMBOLOGY-LEGEND

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)

FILE NAME: s88bl93eroex.dgn	PLOT DATE: 27-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
EPSC EXISTING CONDITIONS (1)	SHEET 58 OF 69

Po PODUNK FINE SANDY LOAM
WITH 0% TO 3% SLOPES
"K FACTOR" = 0.24

AdB ADAMS LOAMY FINE SAND
WITH 2% TO 8% SLOPES
"K FACTOR" = 0.17

N

VT STATE PLANE GRID

STA 92+00.00

MATCHLINE

EXISTING ROW

EXISTING TOWN ROW
49.5' PER TOWN

TOWN OF JOHNSON

STATE OF VERMONT

LEHOUILLER, ALAN J. & LYNN

FEMA Floodplain Zone AE
Elevation 483'
See Hydraulics Prel. Report

SMITH BROOK

FLOOD PLAIN

HABITAT

DRAIN

HIGH WATER

TEMP DETOUR

VT 15
(PAVED)

VT 15 TO
JOHNSON VILLAGE

93+00

94+00

95+00

96+00

97+00

TOWN OF JOHNSON

41+00

EXISTING TOWN ROW 49.5' PER TOWN

THE GREEN MOUNTAIN CLUB, INC.

FERRARI, CARRI A.

TH 43
(W SETTLEMENT RD)
(PAVED)

LONG TRAIL

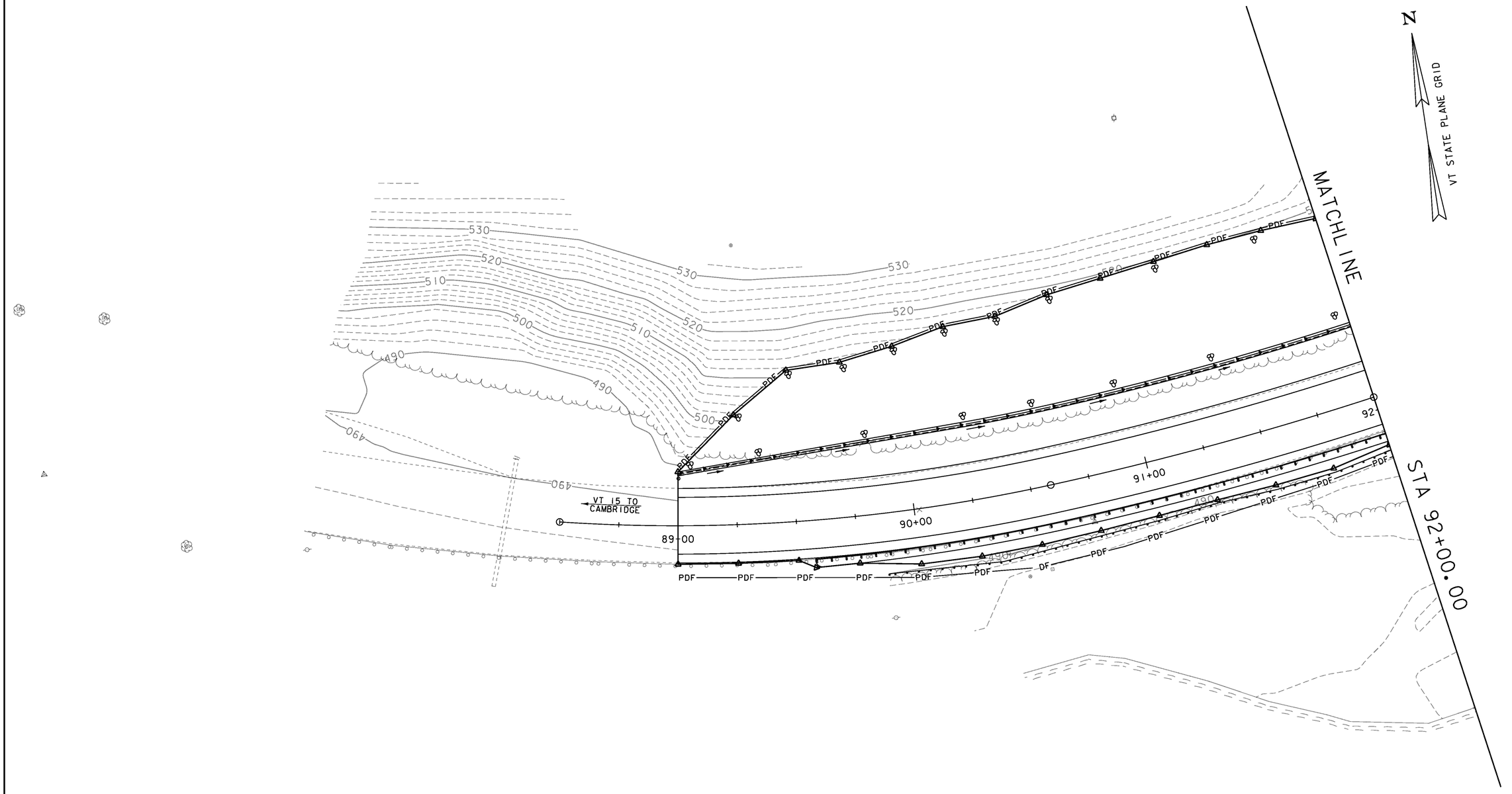
N/F
MANCHESTER, HENRY K.
& AMANDA

20 0 20

SCALE: 1" = 20'-0"

NOTE: SEE EPSC DETAILS &
CONVENTIONAL SYMBOLOGY-LEGEND

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88bl93eroex.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
EPSC EXISTING CONDITIONS (2)	SHEET 59 OF 69



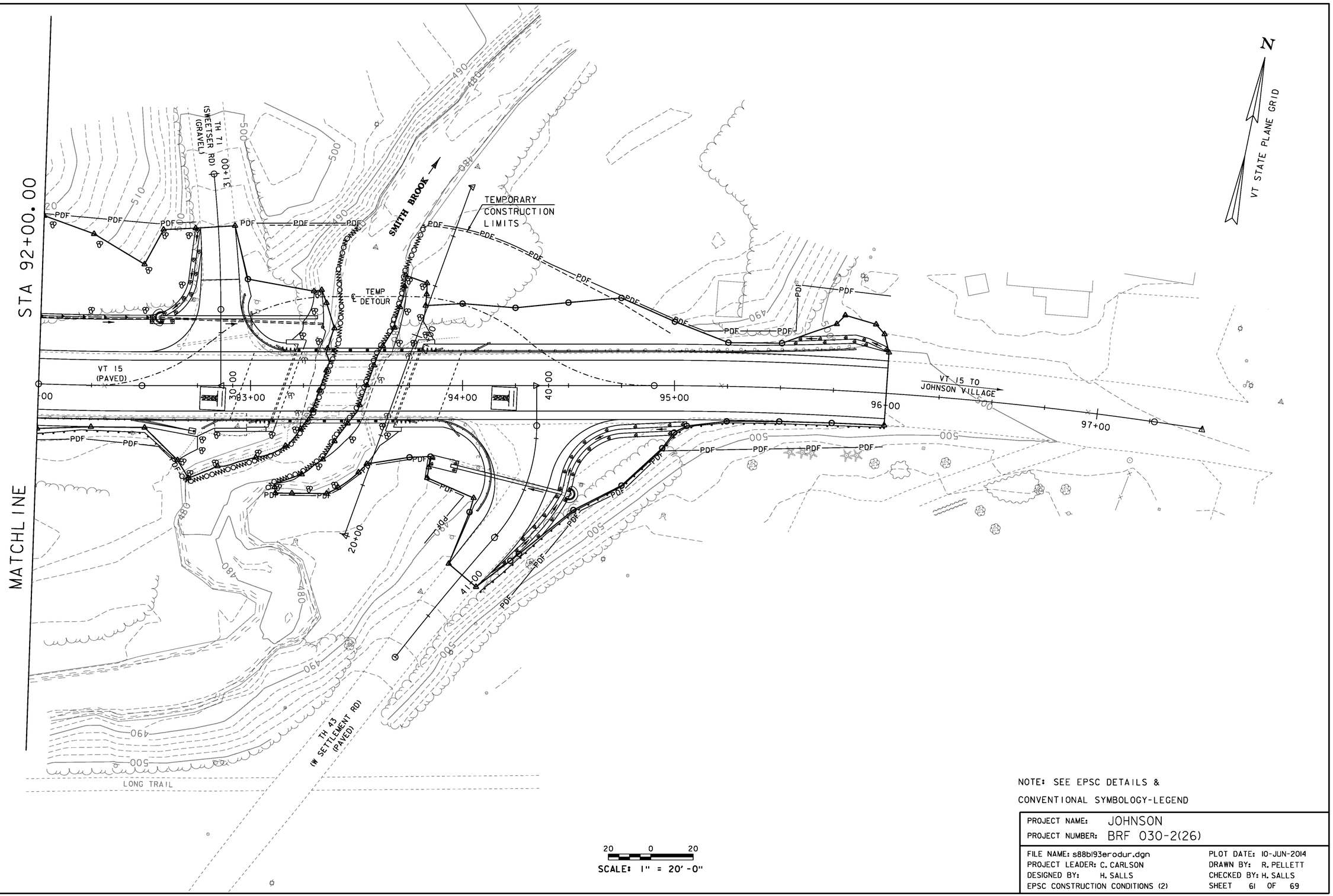
20 0 20

SCALE: 1" = 20'-0"

NOTE: SEE EPSC DETAILS &
CONVENTIONAL SYMBOLOGY-LEGEND

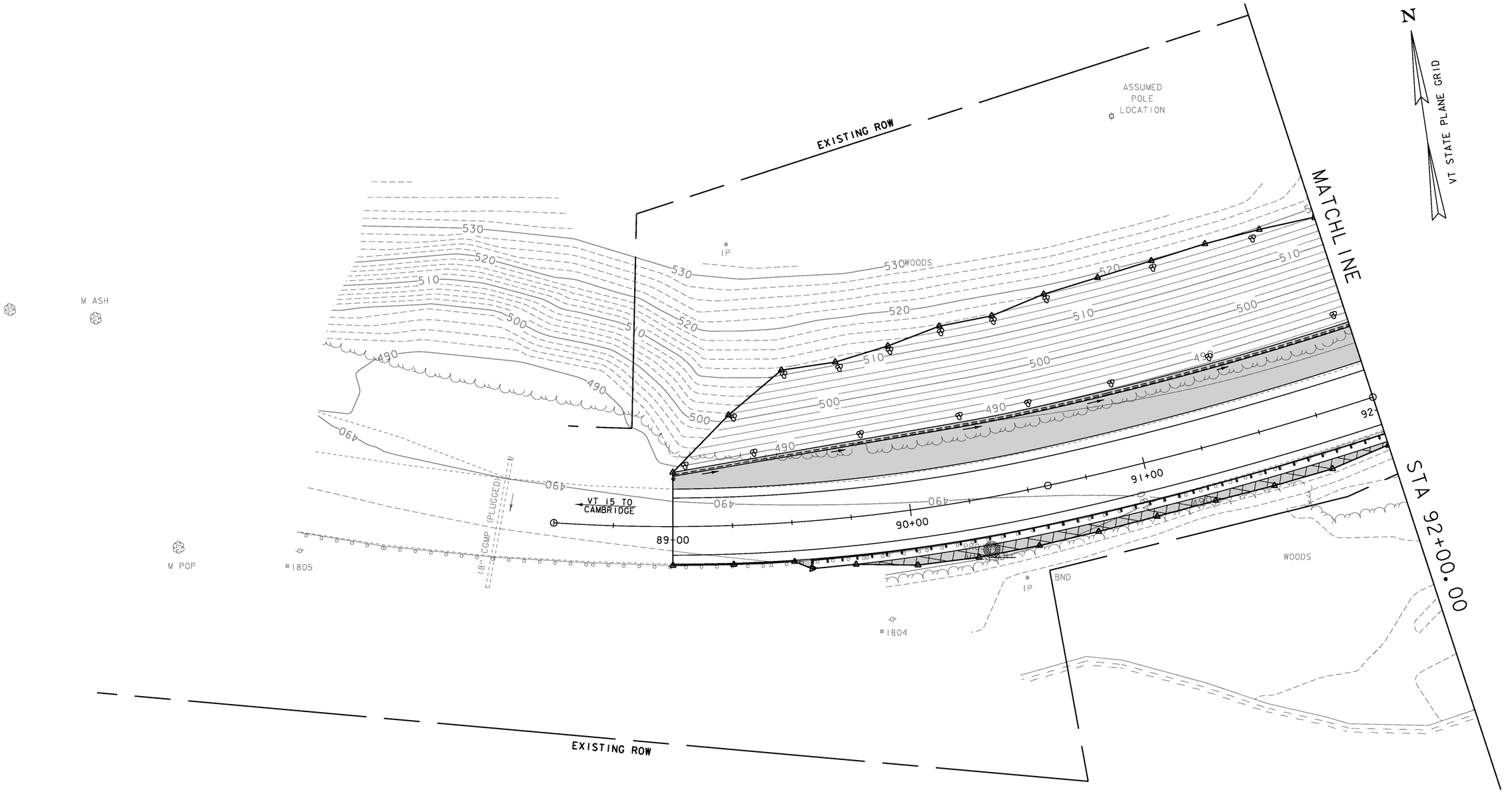
PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)

FILE NAME: s88bl93erodur.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
EPSC CONSTRUCTION CONDITIONS (1)	SHEET 60 OF 69



NOTE: SEE EPSC DETAILS &
CONVENTIONAL SYMBOLOGY-LEGEND

PROJECT NAME: JOHNSON	
PROJECT NUMBER: BRF 030-2(26)	
FILE NAME: s88b193erodur.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
EPSC CONSTRUCTION CONDITIONS (2)	SHEET 61 OF 69



20 0 20

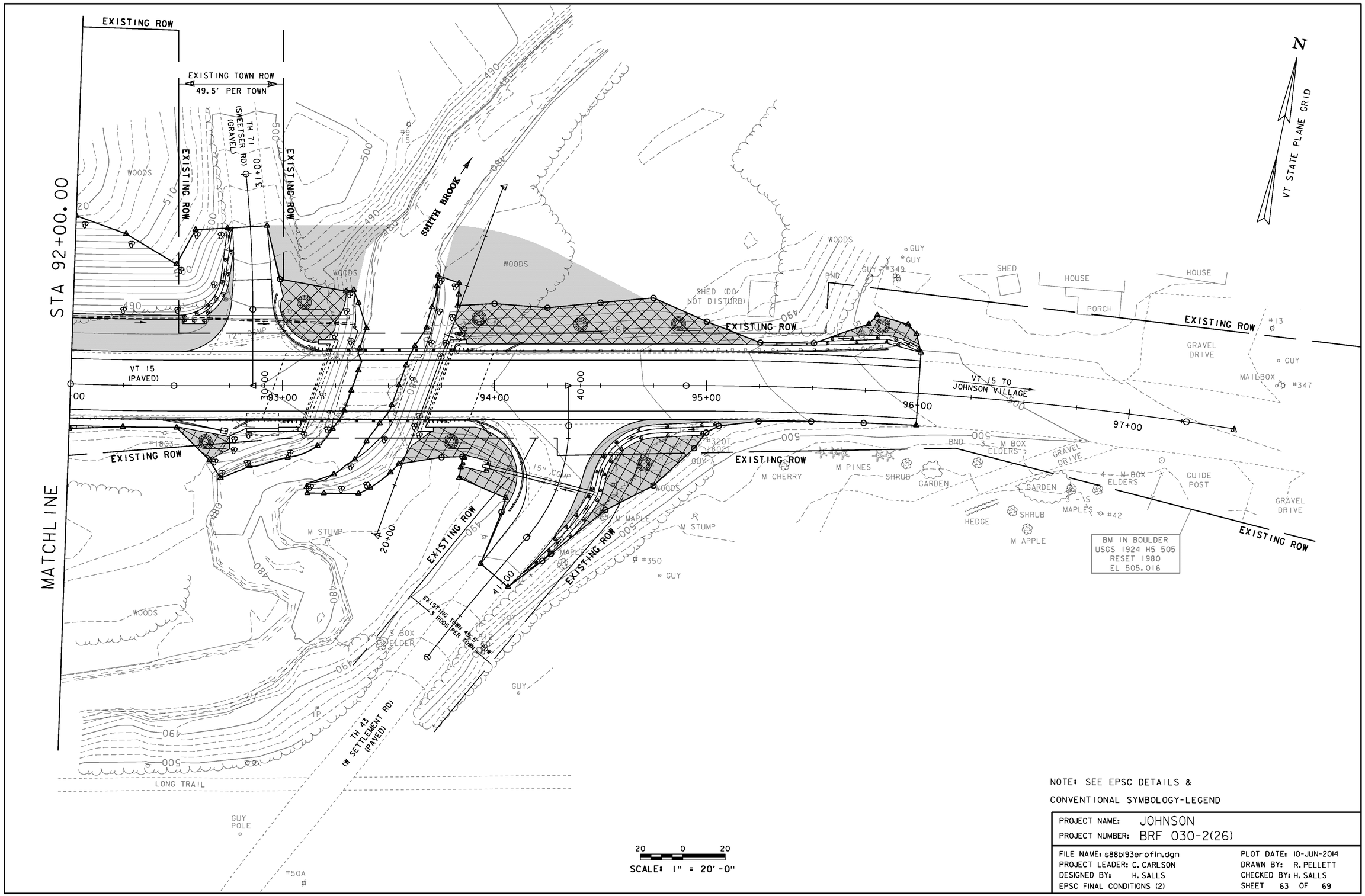
SCALE: 1" = 20'-0"

NOTE: SEE EPSC DETAILS &

CONVENTIONAL SYMBOLOGY-LEGEND

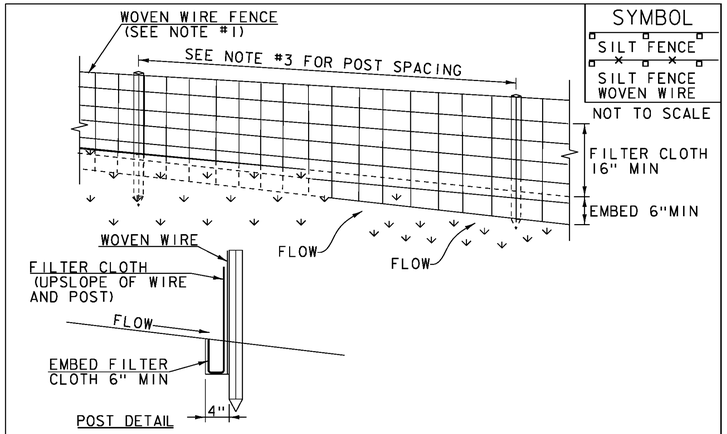
PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)

FILE NAME: s88b193erofin.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
EPSC FINAL CONDITIONS (1)	SHEET 62 OF 69



NOTE: SEE EPSC DETAILS &
CONVENTIONAL SYMBOLOGY-LEGEND

PROJECT NAME:	JOHNSON
PROJECT NUMBER:	BRF 030-2(26)
FILE NAME: s88b193erofln.dgn	PLOT DATE: 10-JUN-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: H. SALLS	CHECKED BY: H. SALLS
EPSC FINAL CONDITIONS (2)	SHEET 63 OF 69



SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

NOT TO SCALE

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.

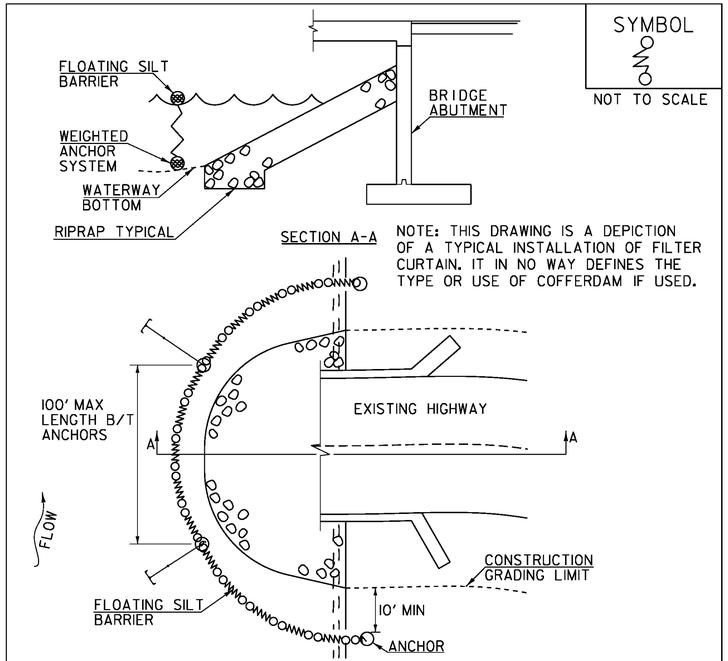
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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



SYMBOL

NOT TO SCALE

NOTE: THIS DRAWING IS A DEPICTION OF A TYPICAL INSTALLATION OF FILTER CURTAIN. IT IN NO WAY DEFINES THE TYPE OR USE OF COFFERDAM IF USED.

CONSTRUCTION SPECIFICATIONS

1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

FILTER CURTAIN

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF
SEPTEMBER 4, 2009	WHF

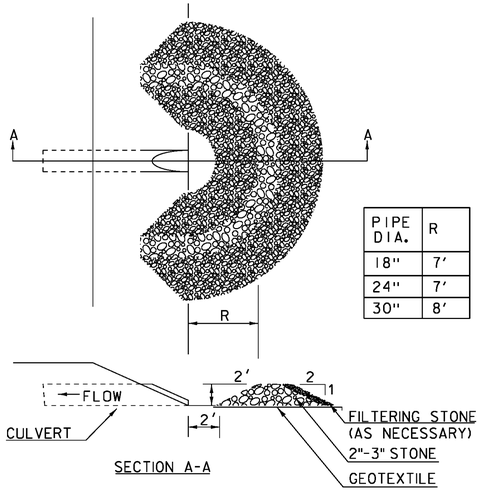
PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88bl93EPSC_details.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
EPSC DETAILS (1)

PLOT DATE: 10-JUN-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 64 OF 69

SYMBOL

NOT TO SCALE



SECTION A-A

PIPE DIA.	R
18"	7'
24"	7'
30"	8'

CONSTRUCTION SPECIFICATIONS

1. USE 2" TO 3" STONE. FILTERING STONE SHALL BE 3/4".
2. PLACE STONE OVER GEOTEXTILE.
3. ONCE THE AREAS UPSTREAM FROM THE CHECK DAM ARE STABILIZED WITH VEGETATION, THE SEDIMENT TRAPPED BEHIND THE DAM SHALL BE DISPOSED OF IN AN APPROVED WASTE AREA.
4. THE CHECK DAM(S) SHALL BE FLATTENED AND GRADED IN A MANNER WHICH PROTECTS THE AREA FROM EROSION AND CHANNEL BLOCKAGE . (GEOTEXTILE MUST BE REMOVED).
5. THE GEOTEXTILE MUST BE DISPOSED OF APPROPRIATELY.
6. THE AREA CONTRIBUTING TO THE CHECK DAM SHALL NOT EXCEED 4 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: ILLINOIS USDA-NRCS
ORIGINALLY DEVELOPED BY USDA-NRCS

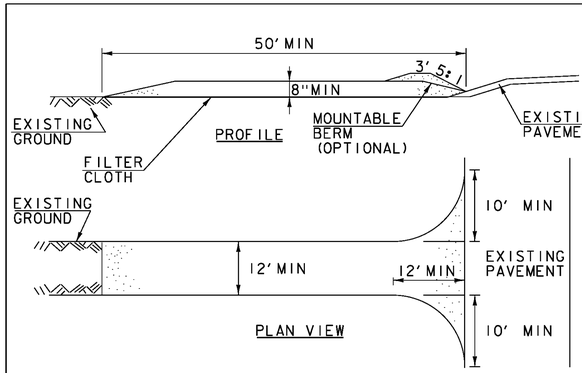
PIPE INLET PROTECTION

REVISIONS	
MARCH 6, 2008	WHF
JANUARY 13, 2009	WHF

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR INLET PROTECTION DEVICE, TYPE I (PAY ITEM 653.40).

SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

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

STABILIZED CONSTRUCTION ENTRANCE

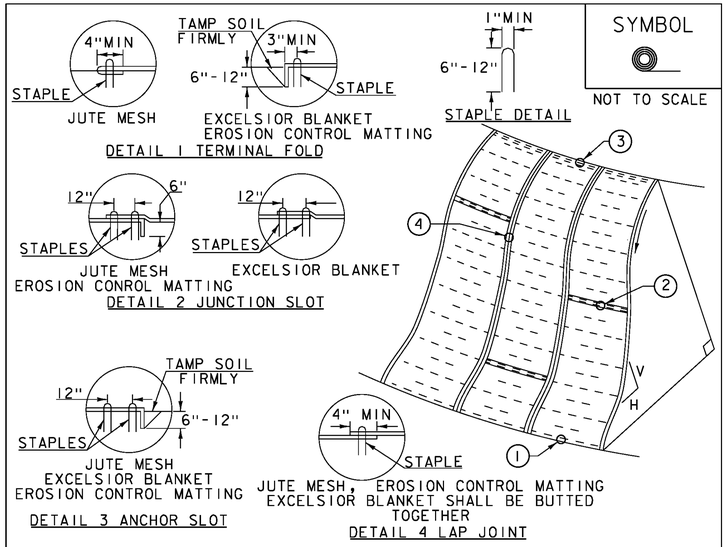
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

SYMBOL

NOT TO SCALE



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

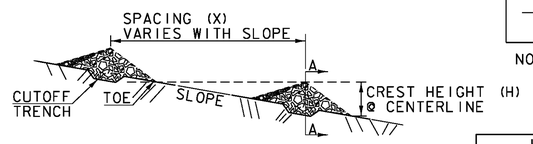
PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193EPSC_details.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H. SALLS
EPSC DETAILS (2)

PLOT DATE: 10-JUN-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 65 OF 69

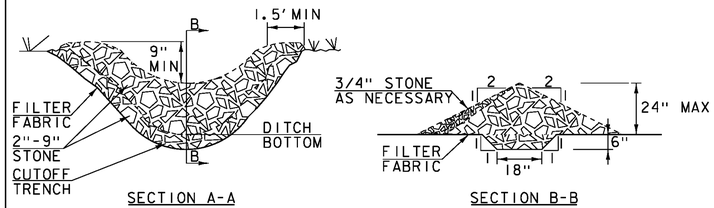
SYMBOL

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

VAOT RURAL AREA MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
37.5%	22.5	45	CREEPING RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
42.5%	34	68	CREEPING RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE

FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	*FOLLOW*	PELLETIZED	*FOLLOW*
500 LBS/AC	*MANUFACTURER*	2 TONS/AC	*MANUFACTURER*

CONSTRUCTION GUIDANCE

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

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651

REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF

PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)

FILE NAME: s88b193EPSC_details.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: H SALLS
EPSC DETAILS (3)

PLOT DATE: 11-JUL-2014
DRAWN BY: R. PELLETT
CHECKED BY: H. SALLS
SHEET 66 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA					REMARKS
					AREA±	AREA±	TYPE	(T)/(P)	AREA ±	TITLE	DATE	TOWN / CITY	BOOK	PAGE	
1	THE GREEN MOUNTAIN CLUB INC.	1,2	92+50 RT	94+19.61 RT	4,087 SF							JOHNSON			
			93+08 RT	93+37 RT			INSTALL	(T)							PDF
			93+11 RT	93+36 RT			CHANNEL	(T)	79 SF						INCL. STONE FILL
2	FERRARI, CARRI A.	2	94+57 RT	94+94 RT			CONST. EASE.	(T)	85 SF			JOHNSON			INCL. PDF & EC
			94+59 RT	94+92 RT			SLOPE	(T)	293 SF						
3	LeHOUILLER, ALAN J. & LYNN	2	93+00.46 LT	94+00.00 LT	2,812 SF										
			93+00.46 LT	96+27 LT			UTILITY EASEMENT	(P)	0.20 A			JOHNSON			8,904SF
			93+00.46 LT	95+55.37 LT			DETOUR	(T)	3,997 SF						INCL. PDF, EC & FILTER CURTAIN
			93+52 LT				INSTALL & MAINTAIN	(P)							GUY WIRE AND ANCHOR
			94+00.00 LT	95+14 LT			SLOPE	(T)	1,357 SF						
			95+91 LT				INSTALL & MAINTAIN	(P)							GUY WIRE AND ANCHOR
4	DELETED														
5A	TOWN OF JOHNSON	2	TH 71 30+24.75 CL	TH 71 30+75 CL			APPROACH	(T)				JOHNSON			TH #71 LENGTH = 50.25'
			TH 71 30+43 RT	93+00.46 LT			INSTALL & MAIN.	(P)							GUARDRAIL
			92+50.96 LT	92+74 LT			INSTALL	(T)							PDF
			92+50.96 LT	92+74 LT			SLOPE	(T)	706 SF						
			92+50.96 LT	93+00.46 LT			CULV., DITCH & DRAIN	(P)	400 SF						
			92+50.96 LT	93+00.46 LT			DETOUR	(T)	1,456 SF						
			92+53 LT	TH71 30+75 LT			DITCH	(T)	275 SF						
5B		2	TH 43 40+25.00 CL	TH 43 41+00.00 CL			APPROACH	(T)							TH # 43 LENGTH = 75.00'
			94+09 RT	94+51 RT			REMOVE	(T)							CULVERT
			94+08 RT	94+69.47 RT			CULV., DITCH & DRAIN	(P)	1,083 SF						
			94+10 RT	TH 43 40+72 RT			INSTALL & MAINTAIN	(P)							GUARDRAIL
			TH 43 40+46 LT	TH 43 40+90 LT			DITCH	(T)	346 SF						
			TH 43 40+69 RT	TH 43 41+00 RT			INSTALL	(T)							PDF
			TH 43 40+48 RT	TH 43 41+00 RT			CONST.	(T)	530 SF						INCL. PDF & EC
6	VERMONT ELECTRIC COOPERATIVE		92+50.96 LT	96+27 LT											UTILITY
7	TELEPHONE OPERATING COMPANY OF VERMONT, LLC		92+50.96 LT	96+27 LT											UTILITY
8	COMCAST OF CONNECTICUT/GEORGIA/ MASSACHUSETTS/NEW HAMPSHIRE/ NEW YORK/NORTH CAROLINA/VERMONT, LLC		92+50.96 LT	96+27 LT											UTILITY
	MAINTENANCE AGREEMENT #1 TH #71	2	TH 71 30+14.53 CL	TH 71 30+24.75 CL											LENGTH= 10.22'
	MAINTENANCE AGREEMENT #2 TH #43	2	TH 43 40+18.22 CL	TH 43 40+33.00 CL											LENGTH = 14.78'

TABLE OF REVISIONS

REVISION NO.	SHEET NO.	DESCRIPTION	DATE
1	5	PARCEL NO. 2 FERRARI. CHANGE AREA OF CONST. (T)	10/21/13
		FROM 377 SF± TO 85 SF±. PER C.O. 9833	
		MADE BY: MR APPROVED BY: RC	
2	3,5	PARCEL NO. 3 LEHOULLIER. ADJUST ROW LINE ON TH 71.	11/27/13
		CHANGE BEGINNING STA. OF TAKE AREA TO 93+00.46 LT.	
		CHANGE TAKE AREA TO 2,800 SF± PER C.O. 9847	
		MADE BY: JB APPROVED BY: RC	
3		PARCEL NO. 4 MANCHESTER. DELETE PARCEL	11/27/13
		PER C.O. 9848	
		MADE BY: JB APPROVED BY: RC	
4		PARCEL 5A TOWN OF JOHNSON. ADJUST ROW LINE ON TH 71.	11/27/13
		ADD DITCH (T) STA. VT 15 92+53 LT ~ TH 71 30+75 LT.	
		ADD SLOPE RIGHT (T) STA. 92+15 LT ~ 92+14 LT; 706 SF±.	
		ADD CULVERT, DITCH, & DRAINAGE (P) STA. 92+51 LT. ~	
		93+00.46 LT. CHANGE APPROACH LENGTH TO 50.25'	
		PER C.O. 9849	
		MADE BY: JB APPROVED BY: RC	
5		PARCEL 5B TOWN OF JOHNSON. ADD INSTALL & MAINTAIN	11/27/13
		(P) FOR GUARDRAIL STA. 94+10 RT ~ STA. TH 43 40+72 RT.	
		ADD DITCH (T) STA. TH 43 40+46 RT ~ TH 43 40+90 RT.	
		ADD CULVERT, DITCH & DRAINAGE (P) STA. 94+08 RT ~	
		94+84 RT. ADD REMOVE (T) FOR EXISTING CULVERT STA.	
		94+08 RT ~ 94+51 RT. CHANGE LENGTH OF APPROACH TO	
		75.00' PER C.O. 9850	
		MADE BY: JB APPROVED BY: RC	
6	5	PARCEL NO. 2 FERRARI. CHANGE BEGINNING OF SLOPE	12/17/13
		RIGHT TO 94+59 RT. CHANGE ENDING OF SLOPE RIGHT TO	
		STA. 94+92 RT. PER C.O. 9853	
		MADE BY: JB APPROVED BY: RC	
7	3,5	PARCEL NO. 3 LEHOUILLIER. CHANGE TAKING AREA TO	12/17/13
		2,812 SF±. CHANGE BEGINNING OF DETOUR TO STA. 93+00.46	
		LT. DELETE THE RIGHT FOR THE CHANNEL (P). CHANGE	
		ENDING STA. OF SLOPE RIGHT TO 95+14 LT. PER C.O. 9854	
		MADE BY: JB APPROVED BY: RC	
8	3,5	PARCEL 5A TOWN OF JOHNSON. ADD INSTALL (T) AT STA.	12/17/13
		92+50.96 LT ~ 92+74 LT., INCLUDES PDF. CHANGE	
		BEGINNING OF SLOPE RIGHT TO STA. 92+50.96 LT. CHANGE	
		BEGINNING OF CULV., DIT. & DR. TO STA. 92+50.96 LT. WITH AN	
		AREA OF 400 SF±. ADD AREA OF 275 SF± TO DITCH (T).	
		CHANGE STATIONING OF INSTALL & MAINTAIN TO TH 71 30+	
		43 RT ~ 93+00.46 LT. ADD DETOUR (T) AT STA. 92+50.96 ~	
		93+00.46; 50 SF±. PER C.O. 9855	
		MADE BY: JB APPROVED BY: RC	
9	3,5	PARCEL NO. 5B TOWN OF JOHNSON CHANGE BEGINNING	12/17/13
		STATION OF REMOVE (T) TO STA. 94+09 RT. CHANGE ENDING	
		STATION OF CULV., DIT. & DR. TO 94+69.47. CHANGE OFFSET	
		DIRECTION OF DITCH (T) TO BE LEFT NOT RT. ADD INSTALL (T)	
		STA. TH 43 40+69 RT ~ TH 43 41+00 RT; INCLUDES PDF & EC.	
		ADD CONST. (T) AT STA. TH 43 40+48 RT ~ TH 43 41+00 RT;	
		530 SF±. PER C.O. 9856	
		MADE BY: JB APPROVED BY: RC	
10	3,5	PARCEL NO. 3 LEHOUILLIER. ADD UE(P) STA. 93+00.46 LT. ~	02/14/14
		96+27 LT.; 0.20A±; 8,904 S.F.± ADD I&M(P) STA. 93+52 LT. ~	
		95+91 LT. FOR GUY WIRE & ANCHOR. CHANGE END OF	
		PROJECT TO 96+27; 45.69' LT. CHANGE LENGTH OF ROW	
		PROJECT TO 376.04' PER C.O. 9863	
		MADE BY: JB APPROVED BY: RC	

PLAN LEGEND

EXISTING RIGHT-OF-WAY	TOE OF SLOPE	EC	-EROSION CONTROL
TAKING WITH ACCESS	TOP OF CUT	(P)	-PERMANENT
TAKING WITHOUT ACCESS	SLOPE RIGHT	(T)	-TEMPORARY
CLEAR ZONE (CZ)	CONSTRUCTION RIGHT (CONST. (T))	DR.	-DRAINAGE RIGHT
PROPERTY LINE (P / L)	PROJECT DEMARCATION FENCE (PDF)	DIT.	-DITCHING RIGHT
		CH.	-CHANNEL RIGHT
		DRIVE	-DRIVE RIGHT
		CUL.	-CULVERT RIGHT
		C&T	-CLEARING & TRIMMING RIGHT
		SR	-SLOPE RIGHT
		UE	-UTILITY EASEMENT

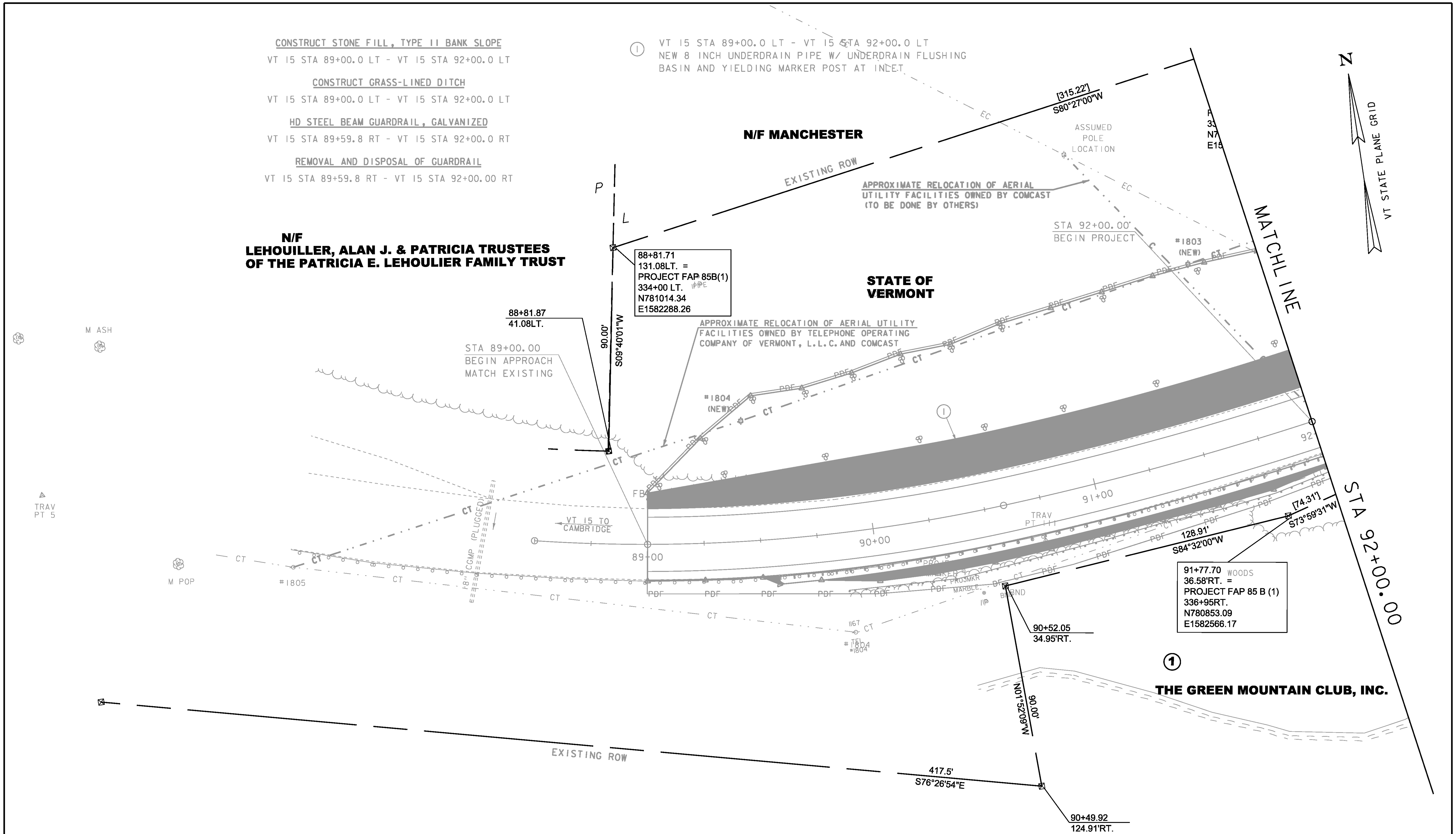
R & R - REMOVE & RESET
I & M - INSTALL & MAINTAIN

APPROVED: RYAN CLOUTIER DATE: 9-30-13
CHIEF, PLANS & TITLES

PLOT DATE 02/14/14

PROJECT NAME: **JOHNSON**
PROJECT NUMBER: **BRF 030-2 (26)**

FILE NAME: **r88B193detail.xls** PLOT DATE:
PROJECT LEADER: **C. CARLSON** DRAWN BY: **MR**
DESIGNED BY: **G. ROY** CHECKED BY: **BF**
R.O.W. DETAIL SHEET #1 SHEET **67** OF **69**

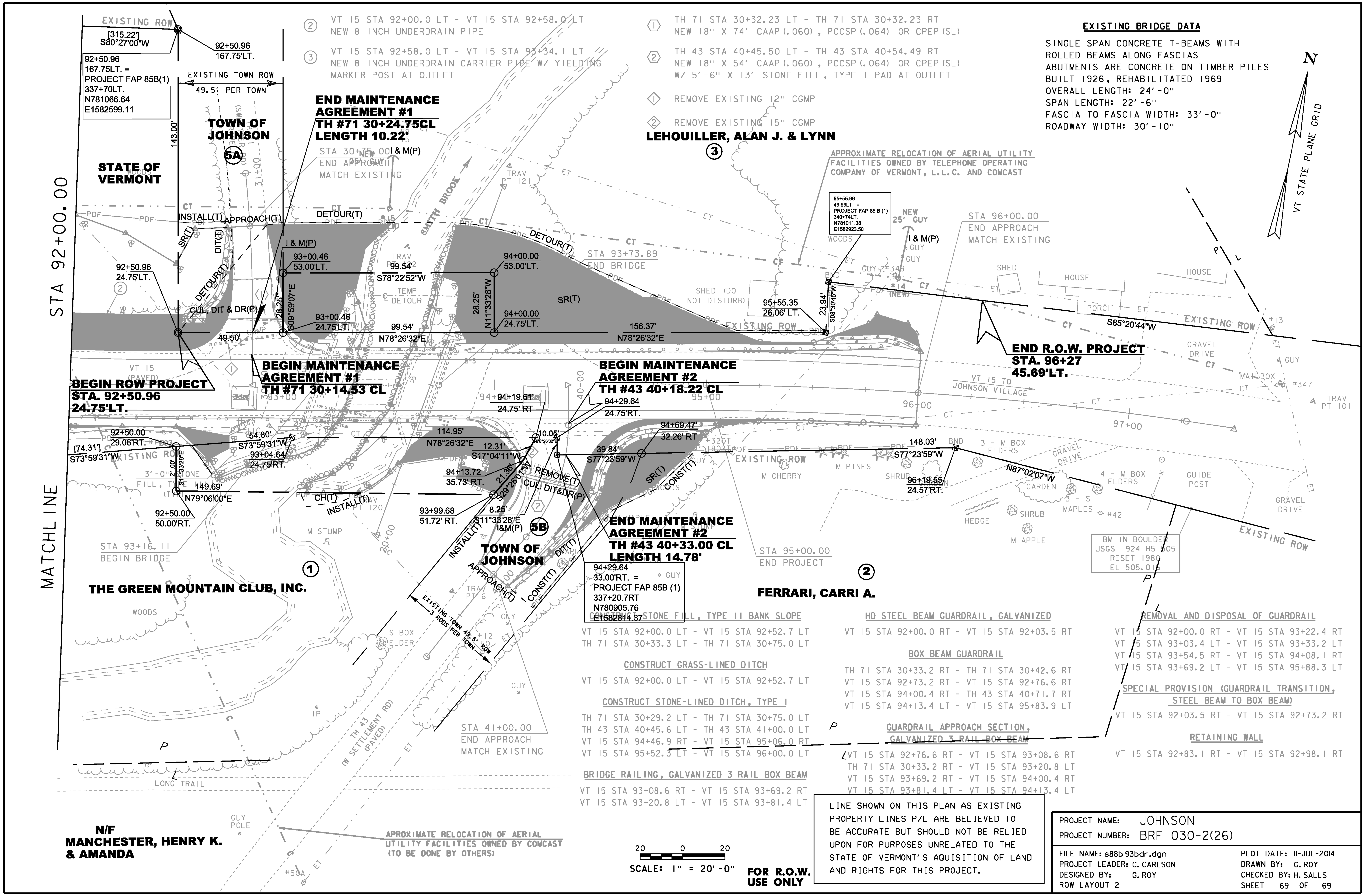

CONSTRUCT STONE FILL, TYPE II BANK SLOPE
VT 15 STA 89+00.0 LT - VT 15 STA 92+00.0 LT
CONSTRUCT GRASS-LINED DITCH
VT 15 STA 89+00.0 LT - VT 15 STA 92+00.0 LT
HD STEEL BEAM GUARDRAIL, GALVANIZED
VT 15 STA 89+59.8 RT - VT 15 STA 92+00.0 RT
REMOVAL AND DISPOSAL OF GUARDRAIL
VT 15 STA 89+59.8 RT - VT 15 STA 92+00.00 RT
1 VT 15 STA 89+00.0 LT - VT 15 STA 92+00.0 LT
NEW 8 INCH UNDERDRAIN PIPE W/ UNDERDRAIN FLUSHING
BASIN AND YIELDING MARKER POST AT INLET
N
VT STATE PLANE GRID
N/F MANCHESTER
[315.22']
S80°27'00"W
ASSUMED POLE LOCATION
EXISTING ROW
APPROXIMATE RELOCATION OF AERIAL UTILITY FACILITIES OWNED BY COMCAST (TO BE DONE BY OTHERS)
STA 92+00.00 BEGIN PROJECT
MATCHLINE
N/F LEHOUILLER, ALAN J. & PATRICIA TRUSTEES OF THE PATRICIA E. LEHOULIER FAMILY TRUST
88+81.71
131.08LT. =
PROJECT FAP 85B(1)
334+00 LT.
N781014.34
E1582288.26
STATE OF VERMONT
88+81.87
41.08LT.
90.00'
S09°40'01"W
APPROXIMATE RELOCATION OF AERIAL UTILITY FACILITIES OWNED BY TELEPHONE OPERATING COMPANY OF VERMONT, L.L.C. AND COMCAST
STA 89+00.00
BEGIN APPROACH
MATCH EXISTING
#1803 (NEW)
#1804 (NEW)
M ASH
TRAV PT 5
VT 15 TO CAMBRIDGE
18" CCMP (PLUGGED)
M POP
#1805
89+00
90+00
91+00
92
TRAV PT 111
STA 92+00.00
[74.31']
S73°59'31"W
128.91'
S84°32'00"W
91+77.70
36.58'RT. =
PROJECT FAP 85 B (1)
336+95RT.
N780853.09
E1582566.17
WOODS
90+52.05
34.95'RT.
1
THE GREEN MOUNTAIN CLUB, INC.
90.00'
N01°52'09"W
EXISTING ROW
417.5'
S76°26'54"E
90+49.92
124.91'RT.

FOR R.O.W. USE ONLY

LINE 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 STATE OF VERMONT'S AQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

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

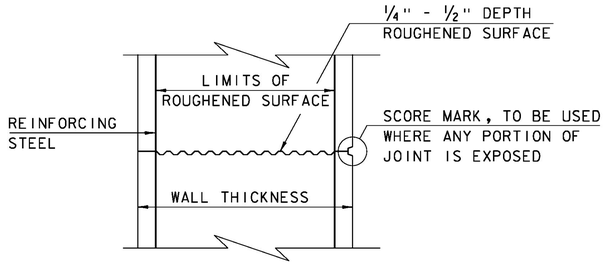
PROJECT NAME: JOHNSON	
PROJECT NUMBER: BRF 030-2(26)	
FILE NAME: s88b193bdr.dgn	PLOT DATE: 11-JUL-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: G. ROY	CHECKED BY: H. SALLS
ROW LAYOUT 1	SHEET 68 OF 69



2 VT 15 STA 92+00.0 LT - VT 15 STA 92+58.0 LT
NEW 8 INCH UNDERDRAIN PIPE
3 VT 15 STA 92+58.0 LT - VT 15 STA 93+34.1 LT
NEW 8 INCH UNDERDRAIN CARRIER PIPE W/ YIELDING MARKER POST AT OUTLET
1 TH 71 STA 30+32.23 LT - TH 71 STA 30+32.23 RT
NEW 18" X 74' CAAP (.060), PCCSP (.064) OR CPEP (SL)
2 TH 43 STA 40+45.50 LT - TH 43 STA 40+54.49 RT
NEW 18" X 54' CAAP (.060), PCCSP (.064) OR CPEP (SL)
W/ 5'-6" X 13' STONE FILL, TYPE I PAD AT OUTLET
1 REMOVE EXISTING 12" CGMP
2 REMOVE EXISTING 15" CGMP
EXISTING BRIDGE DATA
SINGLE SPAN CONCRETE T-BEAMS WITH
ROLLED BEAMS ALONG FASCIAS
ABUTMENTS ARE CONCRETE ON TIMBER PILES
BUILT 1926, REHABILITATED 1969
OVERALL LENGTH: 24'-0"
SPAN LENGTH: 22'-6"
FASCIA TO FASCIA WIDTH: 33'-0"
ROADWAY WIDTH: 30'-10"
N
VT STATE PLANE GRID
STA 92+00.00
MATCHLINE
EXISTING ROW
[315.22']
S80°27'00"W
92+50.96
167.75'LT.
92+50.96
167.75'LT. =
PROJECT FAP 85B(1)
337+70LT.
N781066.64
E1582599.11
EXISTING TOWN ROW
49.5' PER TOWN
143.00'
TOWN OF JOHNSON
5A
STATE OF VERMONT
END MAINTENANCE AGREEMENT #1
TH #71 30+24.75CL
LENGTH 10.22'
STA 30+75.00
END APPROACH
MATCH EXISTING
I & M(P)
LEHOUILLER, ALAN J. & LYNN
3
APPROXIMATE RELOCATION OF AERIAL UTILITY
FACILITIES OWNED BY TELEPHONE OPERATING
COMPANY OF VERMONT, L.L.C. AND COMCAST
95+55.66
49.99LT. =
PROJECT FAP 85 B (1)
340+74LT.
N781011.38
E1582923.50
NEW 25' GUY
I & M(P)
STA 96+00.00
END APPROACH
MATCH EXISTING
SMITH BROOK
INSTALL(T)
APPROACH(T)
DETOUR(T)
SR(T)
DIT(T)
DETOUR(T)
CUL, DIT & DR(P)
92+50.96
24.75'LT.
93+00.46
53.00'LT.
99.54'
S78°22'52"W
94+00.00
53.00'LT.
28.25'
S09°59'07"E
28.25'
N11°33'28"W
93+00.46
24.75'LT.
94+00.00
24.75'LT.
99.54'
N78°26'32"E
156.37'
N78°26'32"E
49.50'
TEMP DETOUR
STA 93+73.89
END BRIDGE
SHED (DO NOT DISTURB)
95+55.35
26.06' LT.
23.94'
S08°30'45"W
EXISTING ROW
S85°20'44"W
SHED
HOUSE
HOUSE
PORCH
EXISTING ROW
END R.O.W. PROJECT
STA. 96+27
45.69'LT.
GRAVEL DRIVE
VT 15 (PAVED)
BEGIN ROW PROJECT
STA. 92+50.96
24.75'LT.
BEGIN MAINTENANCE AGREEMENT #1
TH #71 30+14.53 CL
BEGIN MAINTENANCE AGREEMENT #2
TH #43 40+18.22 CL
94+19.81'
24.75' RT
94+29.64
24.75'RT.
VT 15 TO JOHNSON VILLAGE
92+50.00
29.06'RT.
[74.31']
S73°59'31"W
54.80'
S73°59'31"W
93+04.64
24.75'RT.
114.95'
N78°26'32"E
12.31'
S17°04'11"W
94+13.72
35.73' RT.
10.05'
39.84'
S77°23'59"W
94+69.47'
32.26' RT
148.03'
S77°23'59"W
96+19.55
24.57'RT.
N87°02'07"W
EXISTING ROW
21.00'
S11°33'28"E
149.69'
N79°06'00"E
92+50.00
50.00'RT.
CH(T)
INSTALL(T)
93+99.68
51.72' RT.
8.25'
S11°33'28"E
I&M(P)
21.36'
S29°26'01"W
REMOVE(T)
CUL, DIT&DR(P)
SR(T)
CONST(T)
5B
TOWN OF JOHNSON
INSTALL(T)
APPROACH(T)
CONST(T)
DIT(T)
END MAINTENANCE AGREEMENT #2
TH #43 40+33.00 CL
LENGTH 14.78'
94+29.64
33.00'RT. =
PROJECT FAP 85 (1)
337+20.7RT
N780905.76
E1582814.37
STA 93+16.11
BEGIN BRIDGE
1
THE GREEN MOUNTAIN CLUB, INC.
STA 95+00.00
END PROJECT
2
FERRARI, CARRI A.
BM IN BOULDER
USGS 1924 H5 505
RESET 1980
EL 505.015
EXISTING TOWN 49.5' ROW
3 RODS PER TOWN
TH 43 (W SETTLEMENT RD) (PAVED)
STA 41+00.00
END APPROACH
MATCH EXISTING
LONG TRAIL
N/F
MANCHESTER, HENRY K.
& AMANDA
APROXIMATE RELOCATION OF AERIAL
UTILITY FACILITIES OWNED BY COMCAST
(TO BE DONE BY OTHERS)
CONSTRUCT STONE FILL, TYPE II BANK SLOPE
VT 15 STA 92+00.0 LT - VT 15 STA 92+52.7 LT
TH 71 STA 30+33.3 LT - TH 71 STA 30+75.0 LT
CONSTRUCT GRASS-LINED DITCH
VT 15 STA 92+00.0 LT - VT 15 STA 92+52.7 LT
CONSTRUCT STONE-LINED DITCH, TYPE I
TH 71 STA 30+29.2 LT - TH 71 STA 30+75.0 LT
TH 43 STA 40+45.6 LT - TH 43 STA 41+00.0 LT
VT 15 STA 94+46.9 RT - VT 15 STA 95+06.0 RT
VT 15 STA 95+52.3 LT - VT 15 STA 96+00.0 LT
BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM
VT 15 STA 93+08.6 RT - VT 15 STA 93+69.2 RT
VT 15 STA 93+20.8 LT - VT 15 STA 93+81.4 LT
HD STEEL BEAM GUARDRAIL, GALVANIZED
VT 15 STA 92+00.0 RT - VT 15 STA 92+03.5 RT
BOX BEAM GUARDRAIL
TH 71 STA 30+33.2 RT - TH 71 STA 30+42.6 RT
VT 15 STA 92+73.2 RT - VT 15 STA 92+76.6 RT
VT 15 STA 94+00.4 RT - TH 43 STA 40+71.7 RT
VT 15 STA 94+13.4 LT - VT 15 STA 95+83.9 LT
GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM
VT 15 STA 92+76.6 RT - VT 15 STA 93+08.6 RT
TH 71 STA 30+33.2 RT - VT 15 STA 93+20.8 LT
VT 15 STA 93+69.2 RT - VT 15 STA 94+00.4 RT
VT 15 STA 93+81.4 LT - VT 15 STA 94+13.4 LT
REMOVAL AND DISPOSAL OF GUARDRAIL
VT 15 STA 92+00.0 RT - VT 15 STA 93+22.4 RT
VT 15 STA 93+03.4 LT - VT 15 STA 93+33.2 LT
VT 15 STA 93+54.5 RT - VT 15 STA 94+08.1 RT
VT 15 STA 93+69.2 LT - VT 15 STA 95+88.3 LT
SPECIAL PROVISION (GUARDRAIL TRANSITION, STEEL BEAM TO BOX BEAM)
VT 15 STA 92+03.5 RT - VT 15 STA 92+73.2 RT
RETAINING WALL
VT 15 STA 92+83.1 RT - VT 15 STA 92+98.1 RT
LINE 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 STATE OF VERMONT'S AQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.
SCALE: 1" = 20'-0"
FOR R.O.W. USE ONLY
PROJECT NAME: JOHNSON
PROJECT NUMBER: BRF 030-2(26)
FILE NAME: s88b193bdr.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: G. ROY
ROW LAYOUT 2
PLOT DATE: 11-JUL-2014
DRAWN BY: G. ROY
CHECKED BY: H. SALLS
SHEET 69 OF 69

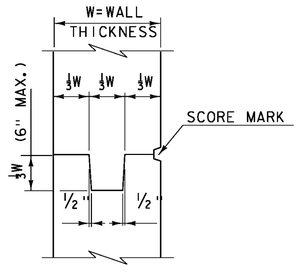
CONCRETE GENERAL NOTES

1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

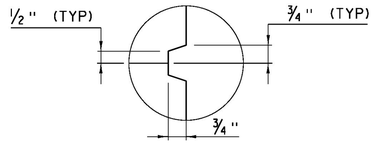


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

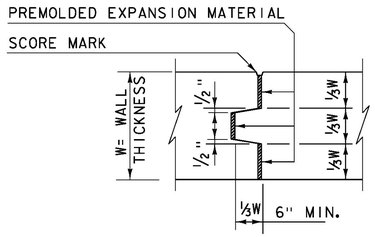
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



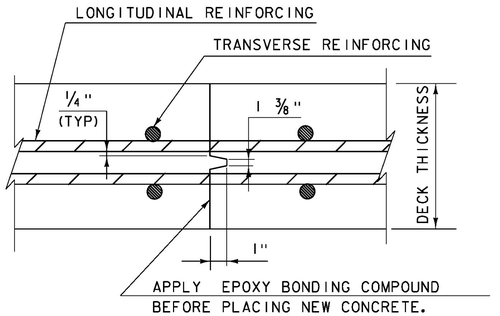
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



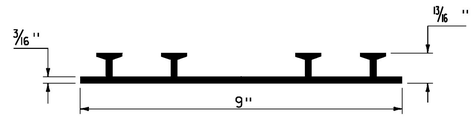
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



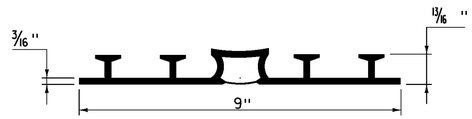
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

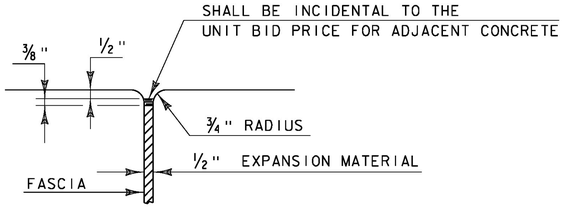
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



P.V.C. WATERSTOP FOR EXPANSION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



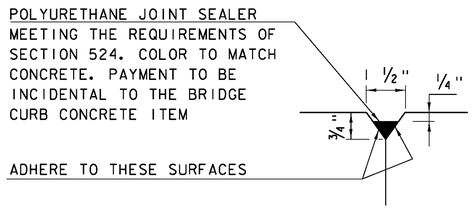
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
FEBRUARY 9, 2012	REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES.

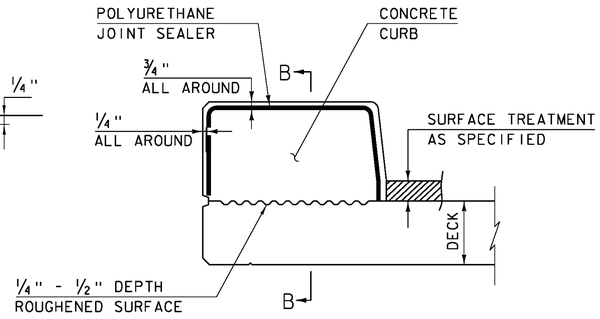
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

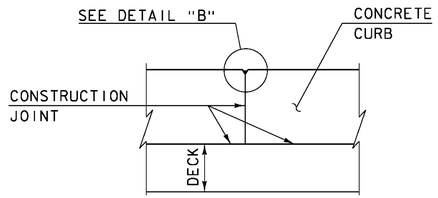
STRUCTURES DETAIL
SD-501.00



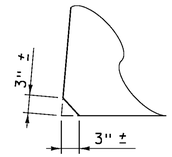
DETAIL "B"
(NOT TO SCALE)



CONCRETE CURB JOINT SECTION
(NOT TO SCALE)



SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION

CONCRETE CURB JOINT NOTES

1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.

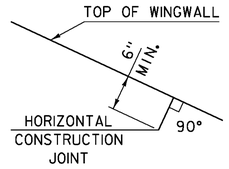
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.

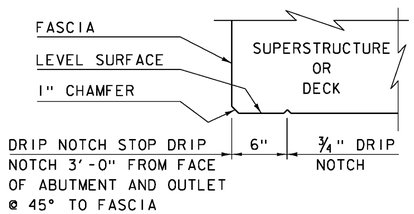
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.

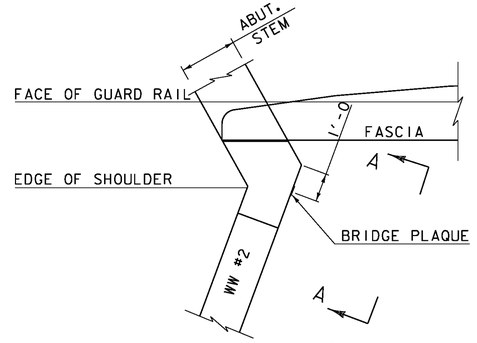
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



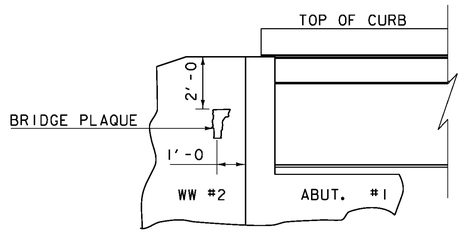
HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



PLAN



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

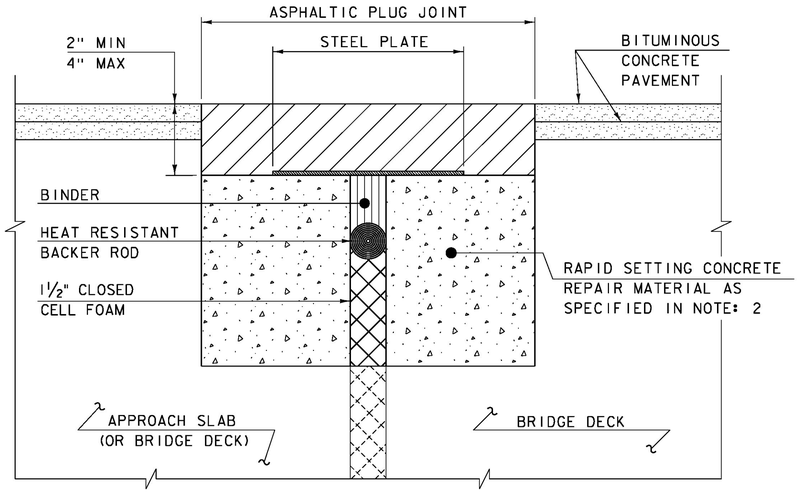
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED AND ADDED TWO DETAILS
OCTOBER 10, 2012	MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION

CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-502.00



ASPHALTIC PLUG JOINT DETAIL - REHAB

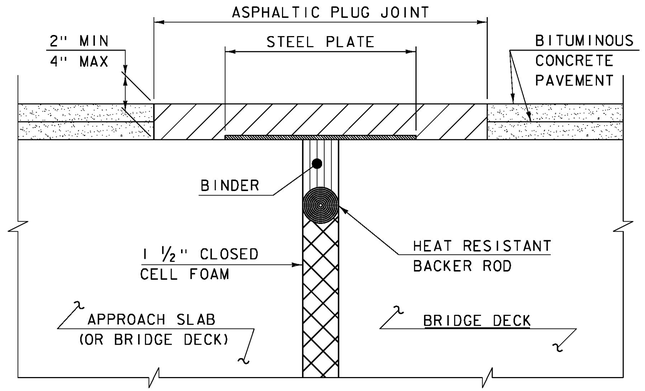
NOTES:

1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.

2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.

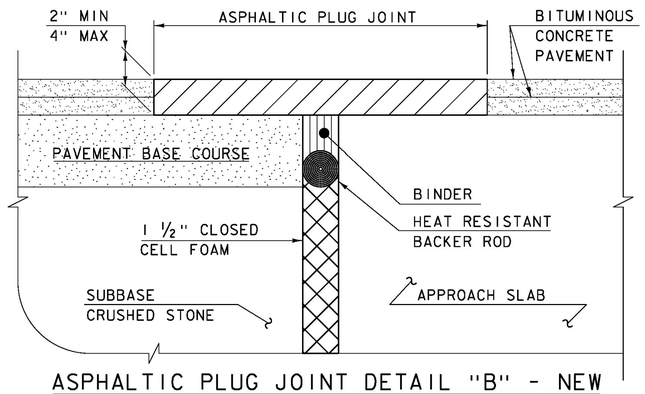
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.

4. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.



ASPHALTIC PLUG JOINT DETAIL "A" - NEW

NOTE:
PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER.



ASPHALTIC PLUG JOINT DETAIL "B" - NEW

ASPHALTIC PLUG JOINT NOTES

INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

DETAILS ON THIS SHEET ARE NOT TO SCALE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
AUGUST 29, 2011	ADD DETAIL "B" AND REV. NOTES

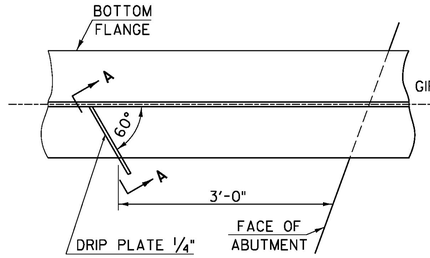
BRIDGE JOINT
ASPHALTIC PLUG

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - DIVISION

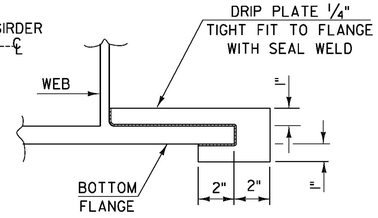
STRUCTURES DETAIL
SD-516.10

STRUCTURAL STEEL GENERAL NOTES:

1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.19, UNLESS OTHERWISE SPECIFIED.
2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19.
3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.
4. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
5. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
6. ENDS OF GIRDERS ARE TO BE VERTICAL IN THEIR FINAL POSITION.
7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.

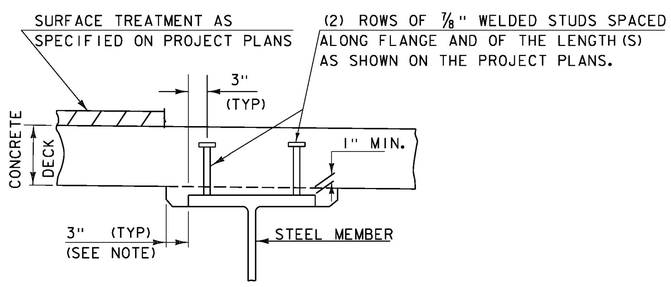


PLAN DRIP PLATE



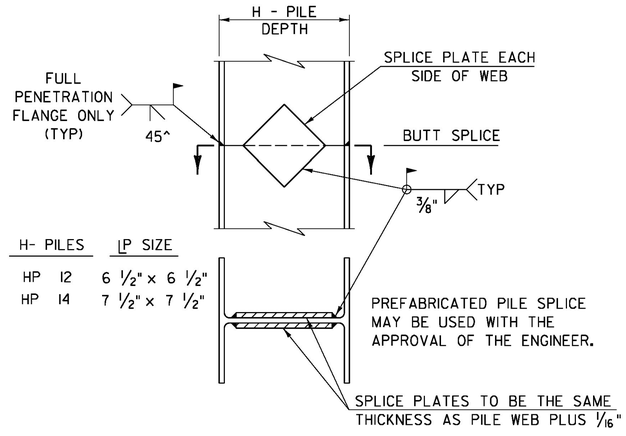
SECTION A - A

NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



NOTE:
THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

HAUNCH AND SHEAR CONNECTOR DETAIL



DETAIL OF PILE SPLICE

DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED NOTES

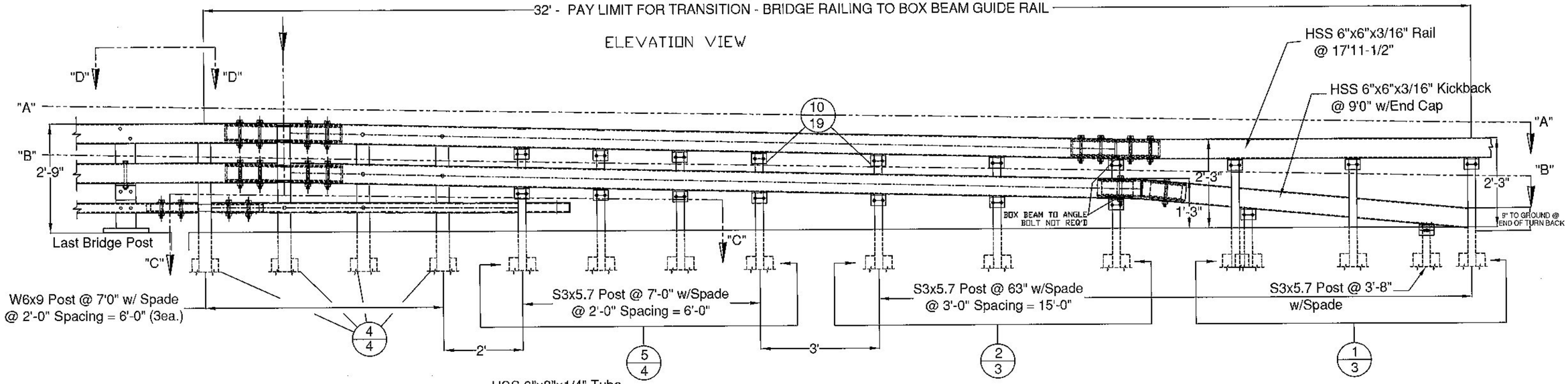
STRUCTURAL STEEL DETAILS & NOTES

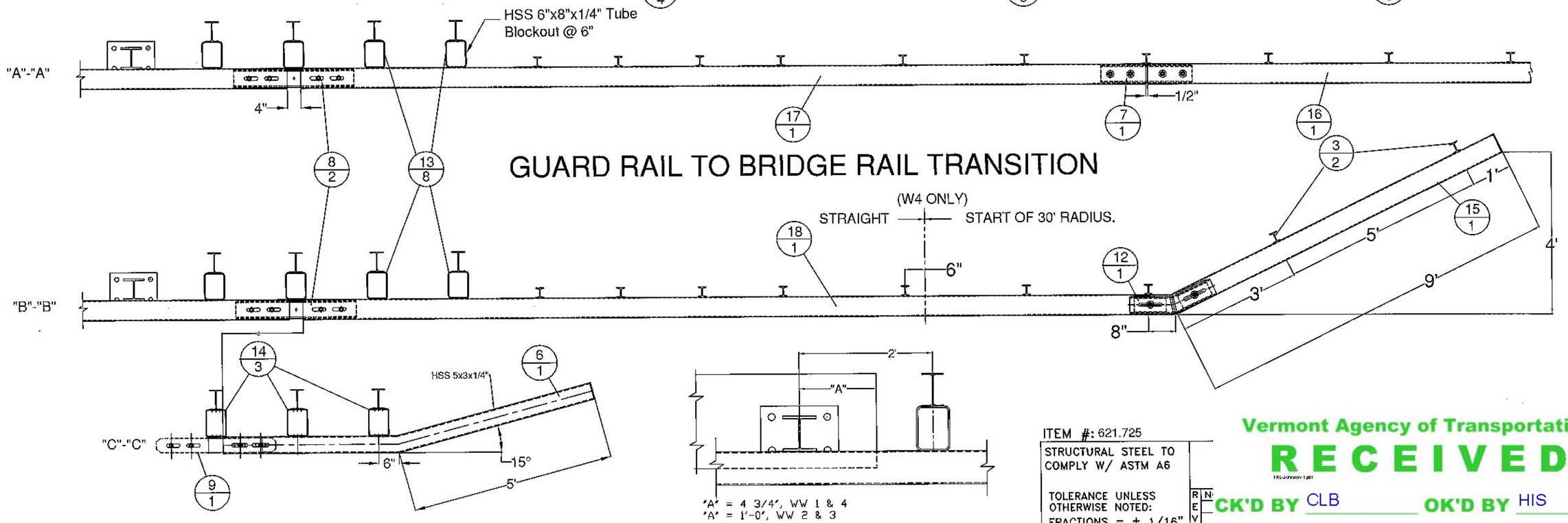
VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-601.00

32' - PAY LIMIT FOR TRANSITION - BRIDGE RAILING TO BOX BEAM GUIDE RAIL

ELEVATION VIEW





GUARD RAIL TO BRIDGE RAIL TRANSITION

VIEW "D"-"D"

ITEM #: 621.725

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

REVISIONS

Vermont Agency of Transportation

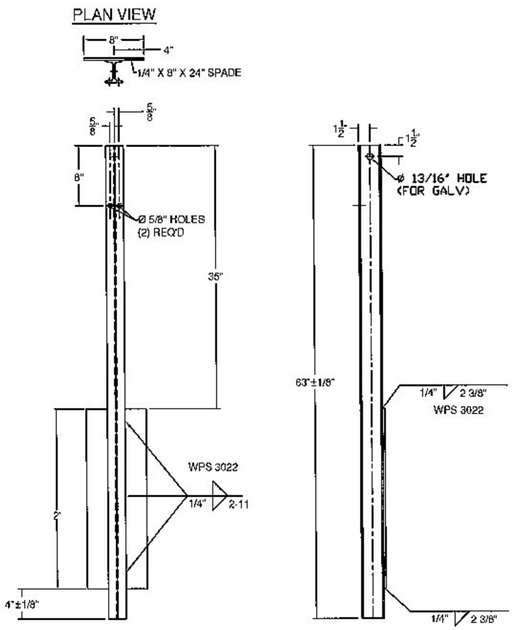
RECEIVED

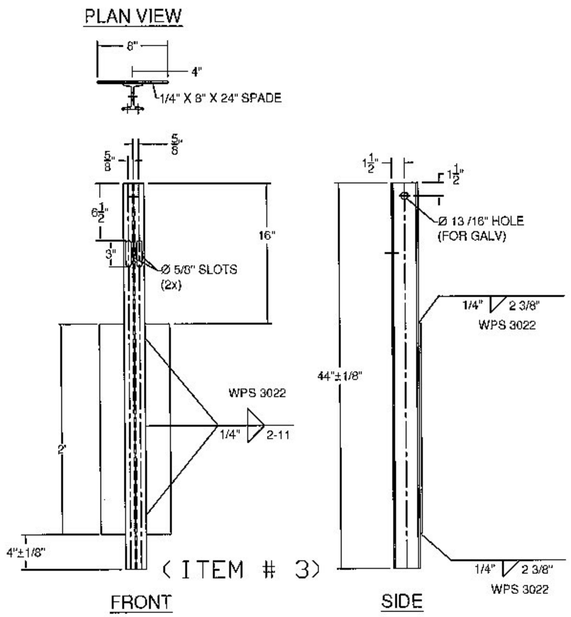
CK'D BY CLB OK'D BY HIS

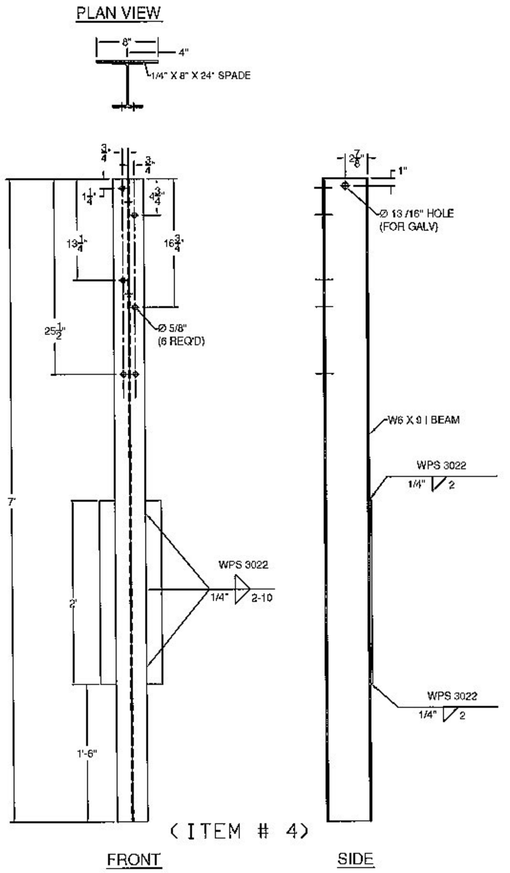
January 19, 2015

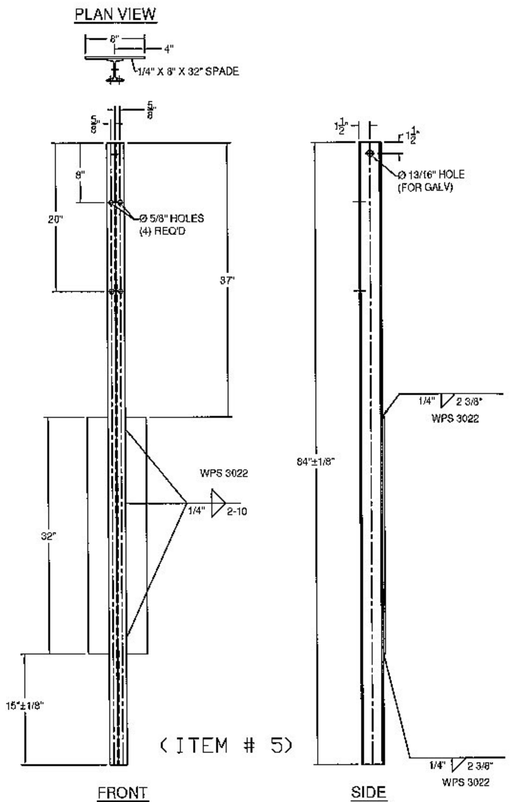
RESUBMIT NO Approved

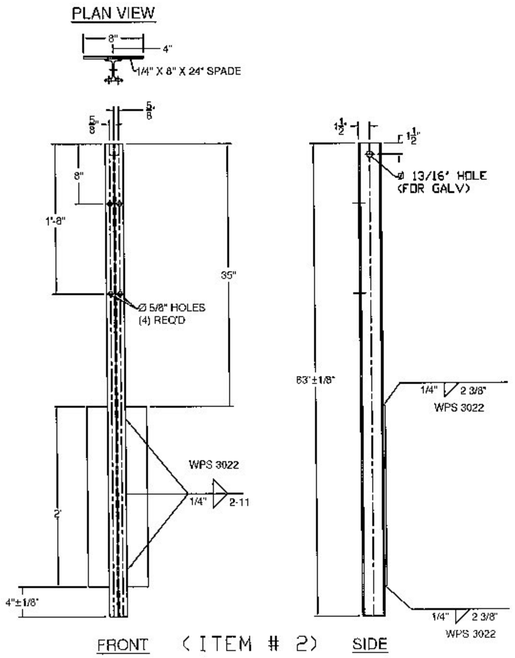
BY C. CARLSON DATE 01/20/15











HARDWARE NOTES	
ITEM #	FUNCTION
19	BOLT RAIL TO SHELF ANGLE (ITEM #10)
20	BOLT SHELF ANGLE (ITEM #'S 10 & 11) TO POST
21	BOLT BLOCK-OUTS (ITEM #'S 13 & 14) TO HEAVY POST
22	(4) PER SPLICE BAR (ITEM #9)
23	(4) PER SPLICE TUBING (ITEM #'S 7 & 8)
24	BOLT RAIL (ITEMS #'S 6,17, & 18 TO BLOCK-OUTS (ITEM #'S 13 & 14) (WHERE FASTENED)
25	BOLT DOUBLE BEND SPLICE TUBE (ITEM #12) TO RAIL (ITEM #18) & KICKBACK (ITEM #15)

BILL OF MATERIALS (EACH CORNER)

ITEM #	QTY.	COMPONENT #	DESCRIPTION	MATERIAL (ASTM)
1	3	0013.57021	3' I-POST, PUNCH 8" W/SPD @ 63" LG	ASTM A572 Gr. 50
2	3	0013.57025	3' I-POST, PUNCH 8", & 20" W/SPD @ 63" LG	ASTM A572 Gr. 50
3	2	0013.57060	3' I-END POST W/SPD @ 3'-8" LG	ASTM A572 Gr. 50
4	4	0013.09001	W6X9 POST @ 7' W/SPD & 5/8" HOLES	ASTM A572 Gr. 50
5	4	0013.57010	3' I-POST, PUNCH 8" & 80", W/BX38" SPADE @7'	ASTM A572 Gr. 50
6	1	0033.60403	3X5" BTM TRANS RAIL W/5'-0" KB, EXP END (WW2-4)	A500 Gr. B
6	1	0033.91349	3X5" BTM TRANS RAIL W/5'-0" KB, EXP END & 22° ANGLE (WW1)	A500 Gr. B
7	1	0033.00640	HSS 5X5 TUBE SPLICE @27" LG W/ 1/4" SHIMS (WW2-4)	A500 Gr. B / A572 Gr 50
7	1	0033.00606	HSS 5X5 TUBE SPLICE @27" LG W/ 1/4" SHIMS & 6" BEND (WW1)	A500 Gr. B / A572 Gr 50
8	2	0033.00730	HSS 5X5 EXP TUBE SPLICE @ 36" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
9	1	0033.00930	BR EXP BAR SPLICE 2-1/8" X 4-1/4" @ 36" LG	ASTM A572 Gr. 50
10	19	0054.00050	REG BB SHELF ANGLES @ 4-1/2"	ASTM A36
12	1	0054.00074	HSS 5X5 DBL BEND TUBE SPL @ 27" LG, (25° ANGLE WW2 & 3)	A500 Gr. B / A572 Gr 50
12	1	0033.90408	HSS 5X5 DBL BEND TUBE SPL @ 27" LG, (40° ANGLE WW1)	A500 Gr. B / A572 Gr 50
12	1	0033.90409	HSS 5X5 DBL BEND TUBE SPL @ 27" LG, (35° ANGLE WW4)	A500 Gr. B / A572 Gr 50
13	8	0054.00563	6X8" TRANS. TUBE B/O @ 6" LG	A500 Gr. B
14	3	0054.00565	6X8" TRANS. TUBE B/O @ 3" LG	A500 Gr. B
15	1	0054.09000	6X6" BB @ 9'-0" KICKBACK, W/ CAP, & 13° ANGLE (WW2 & 3)	A500 Gr. B / A36
15	1	0033.91350	6X6" BB @ 9'-0" KICKBACK, W/ CAP, & 20° ANGLE (WW1)	A500 Gr. B / A36
15	1	0033.91351	6X6" BB @ 9'-0" KICKBACK, W/ CAP, & 18° ANGLE (WW4)	A500 Gr. B / A36
16	0.5	0054.18000	6X6" BB @ 17'-11 1/2", DRILL 3" CC (STRAIGHT - WW2 & 3)	A500 Gr. B
16	0.5	0057.90059	6X6" BB @ 18'-11 1/2", DRILL 3" CC (25° RADIUS - WW1) & DROP END	A500 Gr. B
16	0.5	0057.90058	6X6" BB @ 17'-11 1/2", DRILL 3" CC (30° RADIUS - WW4)	A500 Gr. B
17	1	0054.90092	6X6" BB TOP TRANS @ 20'-9 5/8" LG W/EXP END (STRAIGHT - WW2 & 3)	A500 Gr. B
17	1	0033.91352	6X6" BB TOP TRANS @ 20'-9 5/8" LG W/EXP END (25° RADIUS - WW1)	A500 Gr. B
17	1	0033.91353	6X6" BB TOP TRANS @ 20'-9 5/8" LG W/EXP END (30° PARTIAL RADIUS - WW4)	A500 Gr. B
18	1	0054.90093	6X6" BB BTM TRANS @ 21'-4 5/8" LG W/EXP END (STRAIGHT - WW2 & 3)	A500 Gr. B
18	1	0033.91354	6X6" BB BTM TRANS @ 21'-4 5/8" LG W/EXP END (25° RADIUS - WW1)	A500 Gr. B
18	1	0033.91355	6X6" BB BTM TRANS @ 21'-4 5/8" LG W/EXP END (30° PARTIAL RADIUS - WW4)	A500 Gr. B
19	18	0080.03355	3/8" X 7 1/2" BOLT, NUT, & 2 FW	A307
20	19	0080.04100	1/2" x 1-1/2" BOLT, NUT, & FW	A307
21	22	0080.04120	1/2" x 1-1/2" BOLT, NUT, 2 FW & LW	A307
22	4	0080.06255	3/4" X 4-1/2" BOLT, NUT, 2 FW	A325, A563, F436
23	12	0080.06340	3/4" X 7-1/2" BOLT, NUT, 2 FW	A325, A563, F436
24	6	0080.06370	3/4" X 8" CARR BOLT, NUT, FW & LW	A307
25	2	0080.06400	3/4" X 8" BOLT, NUT, 2 FW, & LW	A325, A563, F436

GENERAL NOTES:

1) ALL RAILING IS TO BE FABRICATED AND ERECTED ACCORDING TO SECTION 525 OF THE STANDARD SPECIFICATIONS.
2) BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
3) PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
4) BOX BEAM TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
5) ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT. RADII GREATER THAN 16' TO BE CURVED ON A TUBE BENDING MACHINE. RADII LESS THAN 16' TO BE "PIE CUT" AND WELDED. CURVED RAILING WILL HAVE AN 18" LENGTH ON EACH END STRAIGHT TO ACCOMADATE SPLICES. "PIE CUTS ARE LOCATED SO AS TO NOT CONFLICT WITH POST FASTENING HOLES. PIE CUTS WILL BE WELDED ACCORDING TO PROCEDURE WPS-3026.

ITEM #: 621.725

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

Vermont Agency of Transportation

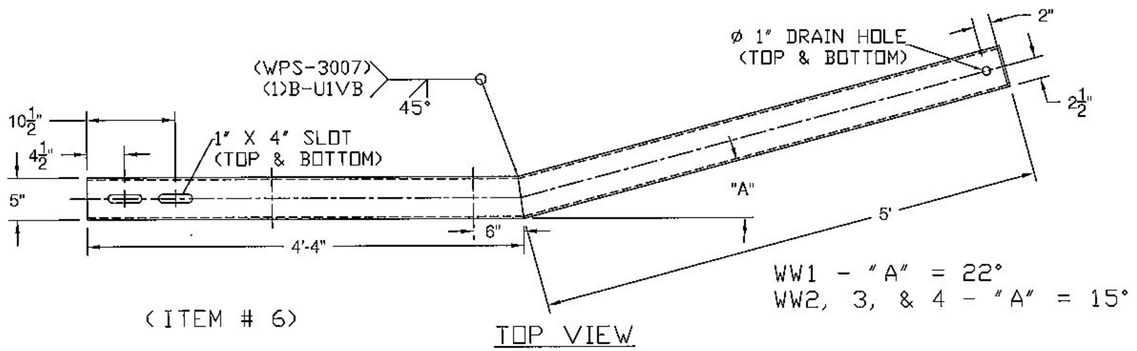
RECEIVED

CK'D BY CLB OK'D BY HIS

January 19, 2015

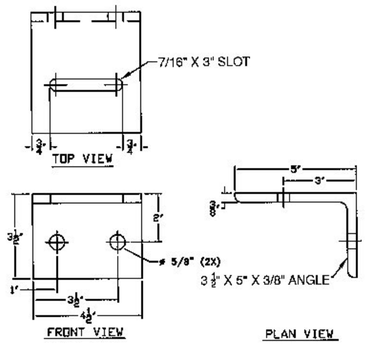
RESUBMIT NO Approved

BY C. CARLSON DATE 01/20/15

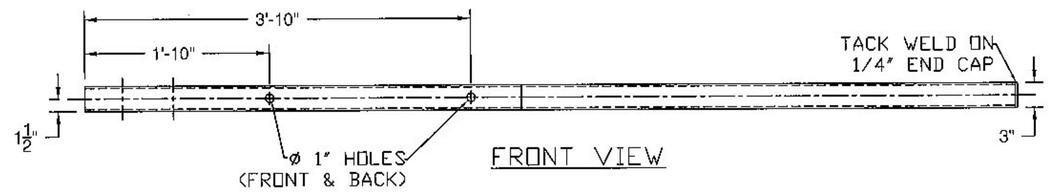


(ITEM # 6)

TOP VIEW

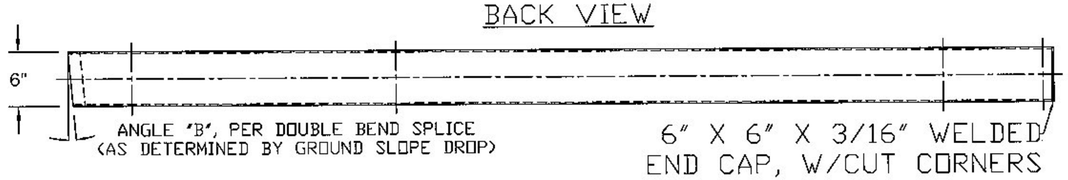


(ITEM # 10)

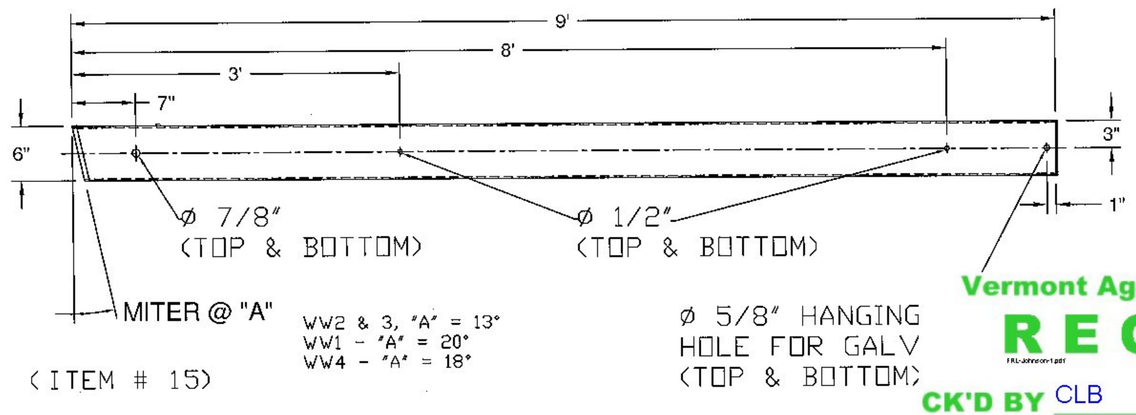


FRONT VIEW

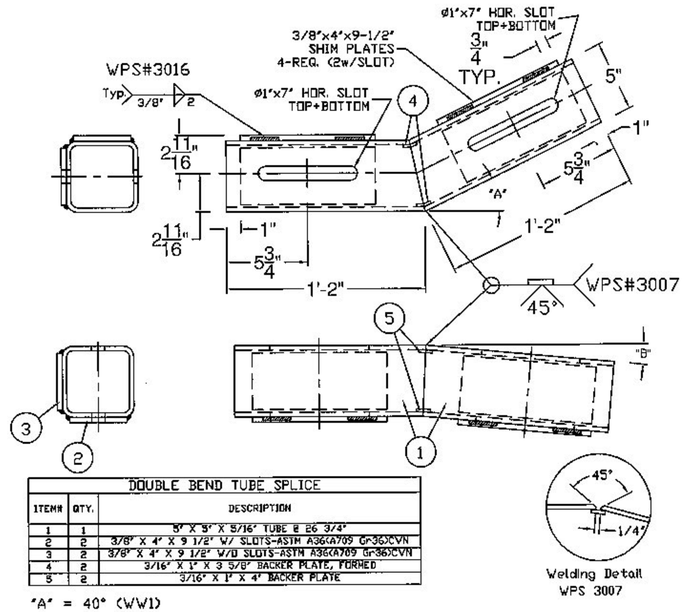
BACK VIEW



TOP VIEW



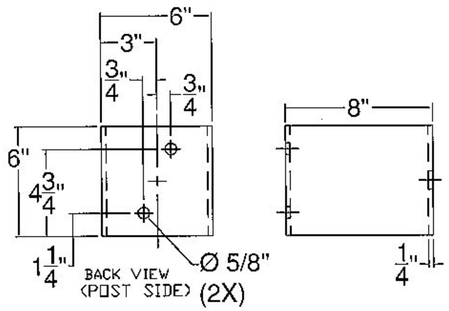
(ITEM # 15)



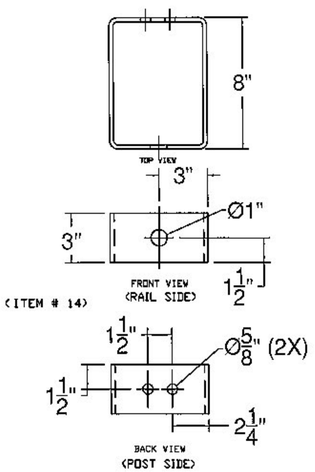
DOUBLE BEND TUBE SPLICE		
ITEM#	QTY.	DESCRIPTION
1	1	5" X 5" X 5/16" TUBE @ 26 3/4"
2	2	3/8" X 4" X 9 1/2" W/ SLOTS-ASTM A36(A709 Gr36)CVN
3	2	3/8" X 4" X 9 1/2" W/O SLOTS-ASTM A36(A709 Gr36)CVN
4	2	3/16" X 1" X 3 5/8" BACKER PLATE, FORMED
5	2	3/16" X 1" X 4" BACKER PLATE

"A" = 40° (WW1)
"A" = 26° (WW2 & 3)
"A" = 35° (WW4)
"B" - TURN DOWN ANGLE SET BY THE 9" MEASURMENT AT THE END OF THE BOX BEAM.

(ITEM # 12)



(ITEM # 13)



Vermont Agency of Transportation

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January 19, 2015

RESUBMIT NO Approved

BY C. CARLSON DATE 01/20/15

#: 621.725

UCTURAL STEEL TO
PLY W/ ASTM A6

ERANCE UNLESS
ERWISE NOTED:
CTIONS = ± 1/16"
LES = ± 1/2"
METERS = ± 1/32"

SHEET 3 OF 6

GRAS, GLV 3 RAIL BOX BEAM

JOHNSON BRF 030-2(26), VT ROUTE 15 (MINOR ARTERIAL) BRIDGE # 32
TOWN OF JOHNSON, COUNTY OF LAMOILLE, VT.

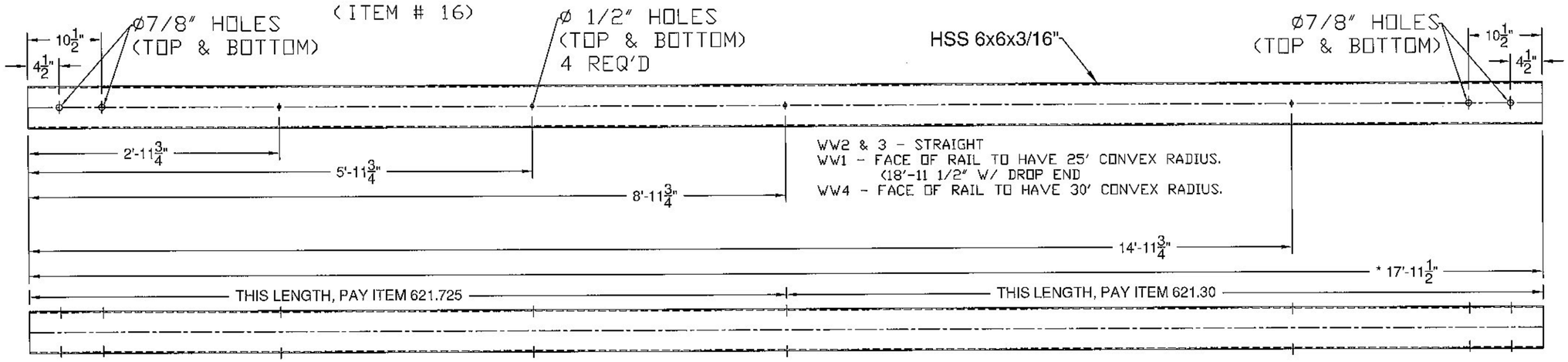
R E V	NO.	DATE	DESCRIPTION	BY
	1	1/16/15	UPDATED PER 1/8/15 MARK-UP	EP

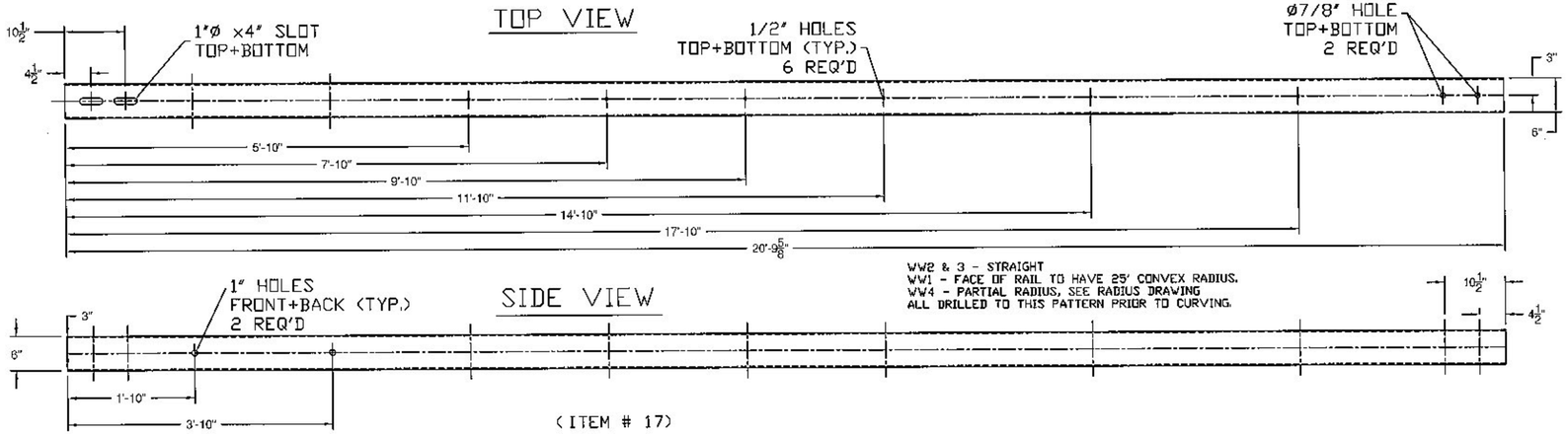
R E V	NO.	DATE	DESCRIPTION	BY

ELDERLEE, INC.
CERTIFIED FABRICATOR
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com / epeek@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

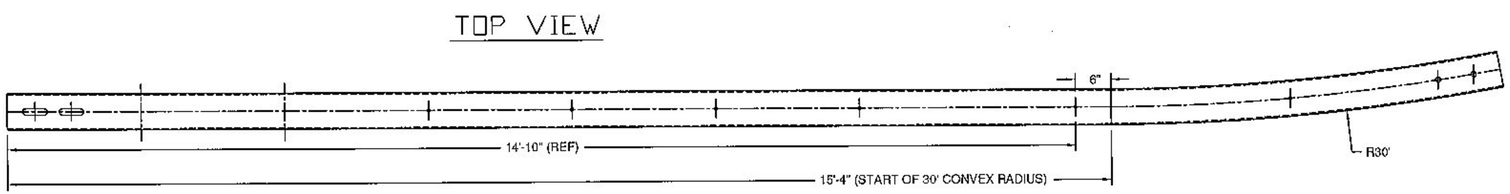
DRAWN	E.P.	12/23/14
CHECKED	D.L.	12/23/14
APPROVED		
SCALE	SCHEMATIC	
DRAWING NO.	F.R. LaFAYETTE-JOHNSON	

(ITEM # 16)

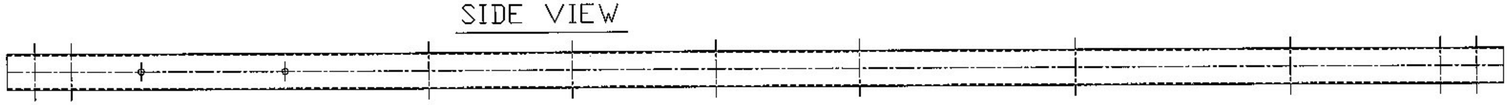




(ITEM # 17)



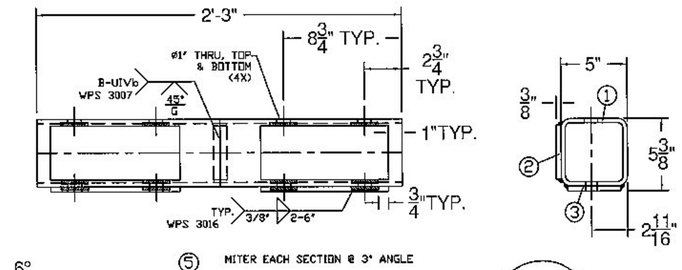
WW4 - PARTIAL RADIUS DETAIL



(ITEM # 17)

BILL OF MATERIALS			
ITEM #	PART #	QTY	DESCRIPTION
1	0053.74005	1	IN-PR 5x5x5/16" TUBE @ 27"
2	0053.74001	2	IN-PR SHIM PL 3/8x4x9 1/2"
3	0053.74004	2	IN-PR SHIM PL 3/8x4x9 1/2" W/ HOLES
4	0031.00002	3	IN-PR BACKER, 3/16"x1"x4"
5	0053.74002	1	IN-PR FORMED BACKER PLATE

NOTE: PART IS SYMETRICAL



(ITEM # 7, W/ 6° BEND)

ITEM #: 621.725

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

Vermont Agency of Transportation

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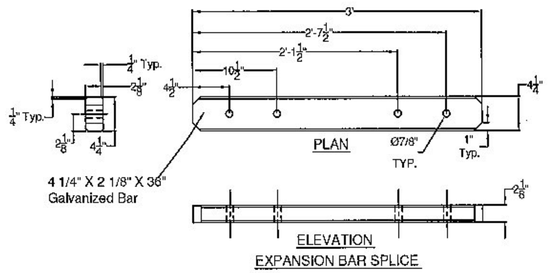
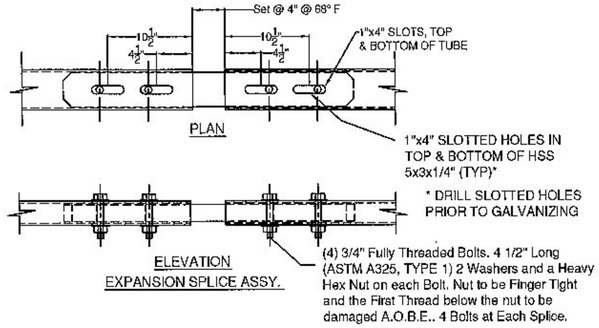
January 19, 2015

RESUBMIT NO Approved

BY C. CARLSON DATE 01/20/15

SPLICE BAR - EXPANSION





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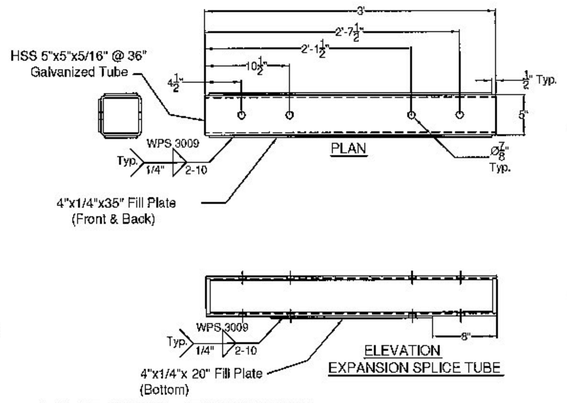
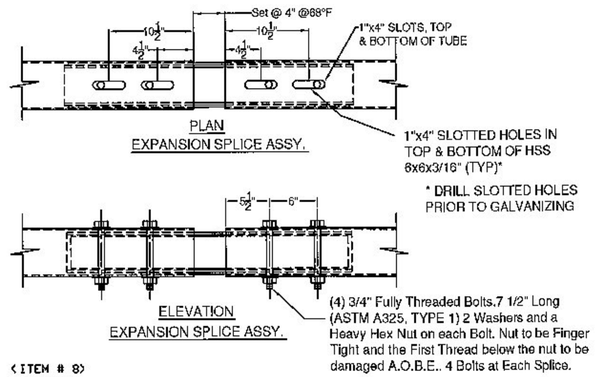


SPLICE TUBE - EXPANSION



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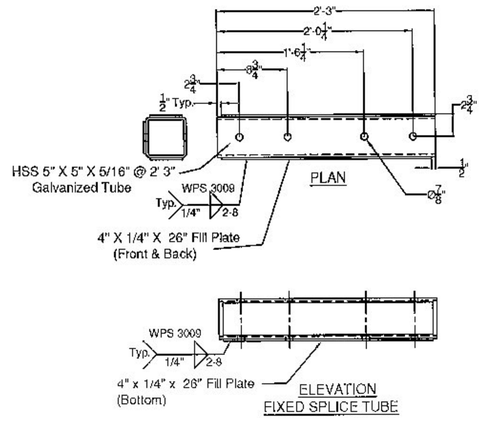

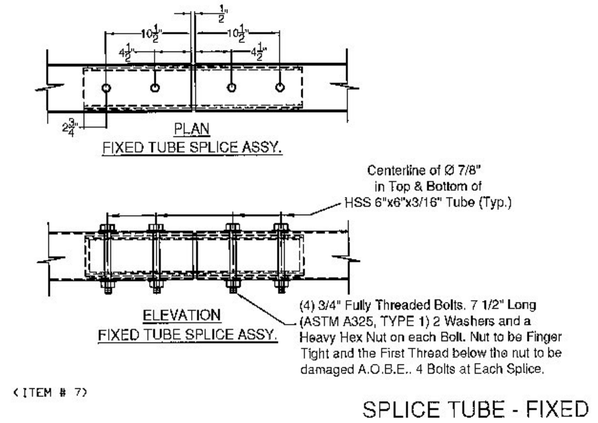

<ITEM # 7>

SPLICE TUBE - FIXED

Vermont Agency of Transportation

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January 19, 2015

RESUBMIT NO Approved

BY C. CARLSON DATE 01/20/15

ITEM #: 621.725

SHEET 5 OF 6

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

GRAS, GLV 3 RAIL BOX BEAM

JOHNSON BRF 030-2(26), VT ROUTE 15 (MINOR ARTERIAL) BRIDGE # 32
TOWN OF JOHNSON, COUNTY OF LAMOILLE, VT.

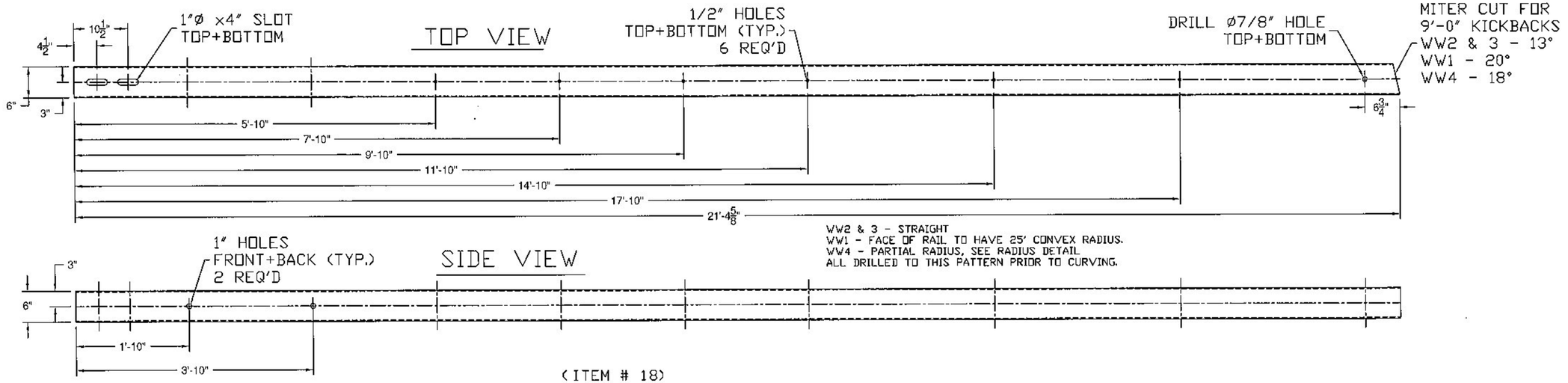
R E V	NO.	DATE	DESCRIPTION	BY
	1	1/15/15	UPDATED PER 1/8/15 MARK-UP	EP

R E V	NO.	DATE	DESCRIPTION	BY

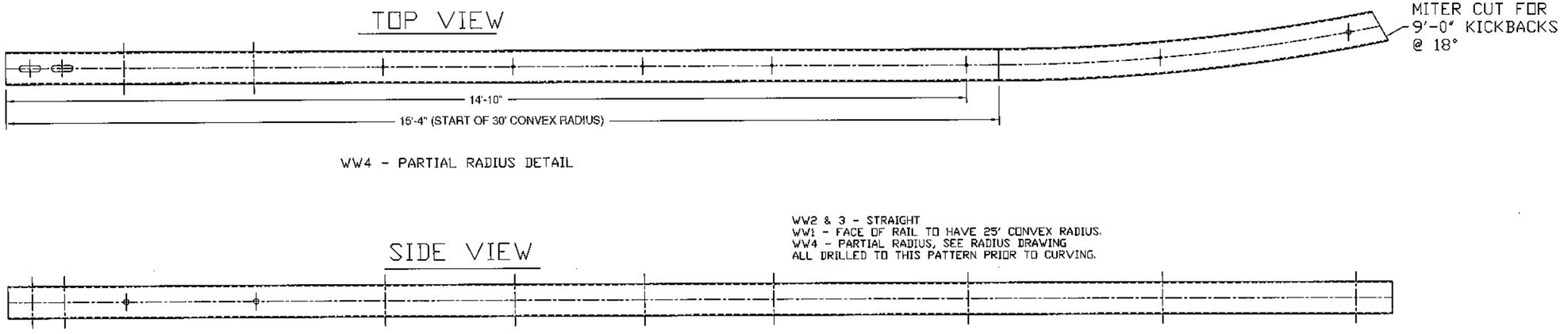
ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com / speck@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6616

CERTIFIED FABRICATOR

DRAWN	E.P.	12/23/14
CHECKED	D.L.	12/23/14
APPROVED		
SCALE	SCHEMATIC	
DRAWING NO.	F.R LaFAYETTE-JOHNSON	



(ITEM # 18)



(ITEM # 18)

Vermont Agency of Transportation

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CK'D BY CLB OK'D BY HIS

January 19, 2015

RESUBMIT NO Approved

BY C. CARLSON DATE 01/20/15

ITEM #: 621.725

SHEET 6 OF 6

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

GRAS, GLV 3 RAIL BOX BEAM

JOHNSON BRF 030-2(26), VT ROUTE 15 (MINOR ARTERIAL) BRIDGE # 32
TOWN OF JOHNSON, COUNTY OF LAMOILLE, VT.

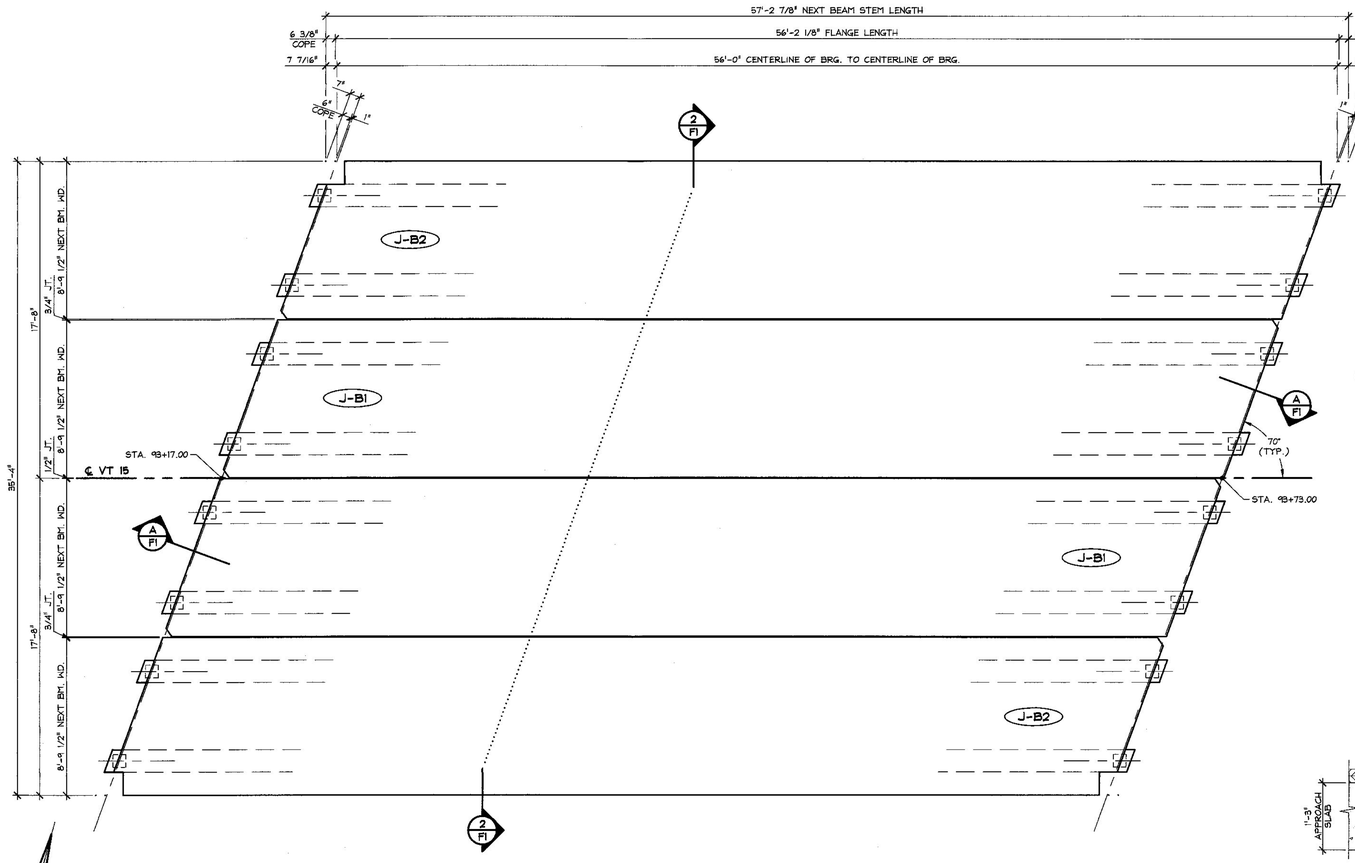
R	NO.	DATE	DESCRIPTION	BY	R	NO.	DATE	DESCRIPTION	BY
E	1	1/15/15	UPDATED PER 1/8/15 MARK-UP	EP	E				
V					V				

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com / epeek@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

CERTIFIED FABRICATOR

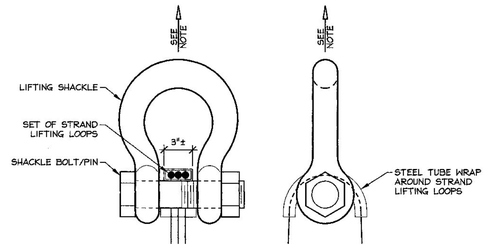
DRAWN	E.P.	12/23/14
CHECKED	D.L.	12/23/14
APPROVED	.	.
SCALE	SCHEMATIC	

DRAWING NO. F.R. LaFAYETTE-JOHNSON



1 F1 PRESTRESSED NEXT BEAM LAYOUT

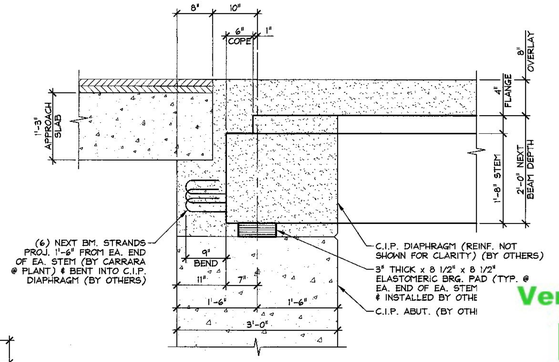
1/4" = 1'-0"



NOTE: BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. RIGGING SHALL BE CONFIGURED SUCH THAT EQUAL FORCES ARE APPLIED TO EACH SET OF LIFTING LOOPS AT EACH END OF THE BEAM. SHACKLE BOLT/PIN SHALL BE PLACED UNDER LIFT LOOPS AS SHOWN. DESIGN AND CONFIGURATION OF RIGGING BY PURCHASER.

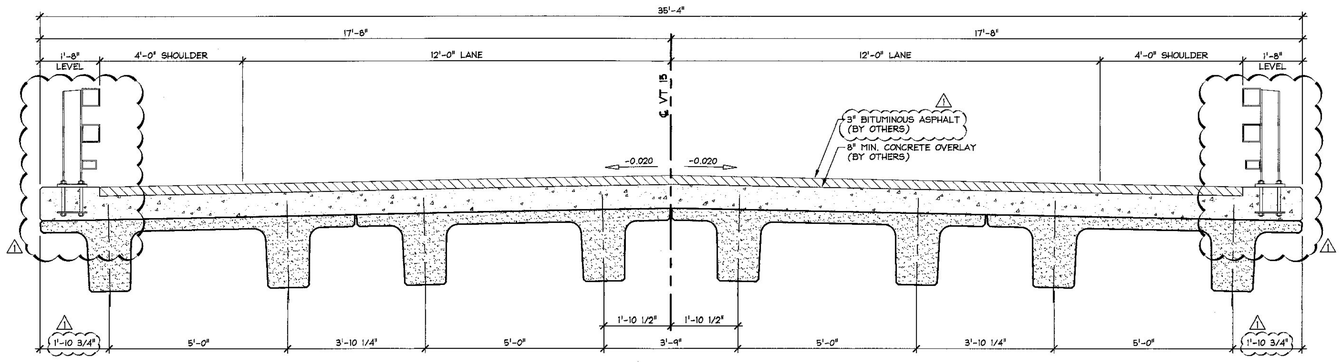
LIFTING SHACKLE DETAILS

N.T.S.



A F1 BEARING SECTION

1/4" = 1'-0"



2 F1 TRANSVERSE SECTION

1/2" = 1'-0"

GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 10,000 PSI.
2. MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 6,500 PSI.
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) AND SHALL BE LEVEL II (DUAL COATED).
4. PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M203) AND SHALL CONSIST OF 0.60"ø x 270 KSI 7-WIRE LOW RELAXATION STRANDS.
5. PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF 44.0 K AFTER ACCOUNTING FOR CHUCK SLIPPAGE. TENSION SHALL BE VERIFIED BY MEASURING STRAND ELONGATION. (SEE EXAMPLE ELONGATION CALCULATION AND TENSIONING PROCEDURE, THIS SHEET.)
6. ENDS OF PRESTRESSING STRANDS SHALL BE CUT 3"± FROM END OF BEAM STEMS (UNLESS NOTED AS PROJECTING STRANDS, SEE BEAM DETAILS).
7. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
8. THE TOP OF BEAMS SHALL RECEIVE A TRANSVERSE RAKE FINISH ROUGHENED TO 1/4" AMPLITUDE.
9. BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. **THE PINS OF THE SHACKLES SHALL BE PLACED THOUGH THE LIFTING LOOPS. SEE DETAIL, THIS SHEET.** BEAMS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS WITHIN 2'-0" OF THE BEAM ENDS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
10. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. FS10.02 AND FS10.05 RESPECTIVELY.

    DESIGN MIX: J.P.C. BRIDGE MIX #430M
11. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
12. CURING METHOD: AS SOON AS THE TOP OF BEAM IS FINISHED, AN INSULATED TARP WILL BE PLACED OVER THE BEAM. THE AMBIENT ENCLOSURE AND INTERNAL CONCRETE TEMPERATURE SHALL BE RECORDED BY AUTOMATIC SENSOR INSTRUMENTS ON GRAPH CHARTS, SPACED NOT MORE THAN 100' APART AND WILL CONTINUE UNTIL RELEASE STRENGTH IS ACHIEVED. RADIANT EXTERNAL HEAT SHALL BE APPLIED IF NECESSARY TO MAINTAIN CURING ENVIRONMENT TEMPERATURE AND/OR TO ACHIEVE THE NECESSARY DETENSIONING STRENGTH. EACH CHART SHALL BE MARKED.
13. COLD WEATHER STORAGE PROVISIONS: IN THE EVENT THAT AMBIENT TEMPERATURES IMMEDIATELY FOLLOWING DETENSIONING ARE MORE THAT 40°F BELOW THE INTERIOR CONCRETE TEMPERATURE AS MEASURED BY AUTOMATIC SENSORS, THE BEAMS SHALL BE RE-COVERED AND THE ENCLOSURE ENVIRONMENT MAINTAINED WITHIN 40°F OF THE BEAM TEMPERATURE FOR A MINIMUM OF 48 HOURS IN ACCORDANCE WITH PCI MNL 116 4.19.1.6 AND ACI 306 3.4.4.

EXAMPLE PRESTRESSING STRAND ELONGATION CALC. AND TENSIONING

(NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 0.60"ø x 270 KSI
AREA: 0.217 IN^2
TENSION: 44,000 LB. EACH STRANDS
GRIP-TO-GRIP: 252'-0" = 252.00'
Es = 28,600,000 PSI (ASSUMED FOR THESE CALCULATIONS; VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)

EXAMPLE:

$$\Delta = \frac{PL}{AE} = \frac{(44{,}000 - 3{,}000) \times 252.00 \times 12}{0.217 \times 28{,}600{,}000} = 19.98"$$

THEREFORE: (TOLERANCES ± 5%)
Δ UPPER LIMIT = 1.05 x 19.98" = 20.98" = 21"
Δ LOWER LIMIT = 0.95 x 19.98" = 18.98" = 18"

EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:

$$\Delta P = \frac{0.5 \times 41{,}000}{19.98} = 1{,}026 \text{ LBS.}$$

TOTAL TENSIONING FORCE = 44,000 + 1,026 = 45,026 LBS.

STRAND TENSIONING PROCEDURE:

1. PULL EACH STRAND INITIALLY TO 3,000# LBS. AND MARK STRAND.
2. THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,026# LBS. AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 18" & 21".

NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

CK'D BY CLB OK'D BY HIS

November 20, 2014

RESUBMIT NO Approved

BY C. CARLSON DATE 11/21/14

⚠ 11-5-14 REVISED AS NOTED

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

A.L. ST. ONGE
CONTRACTOR
MONTOMERY, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF LAMOILLE

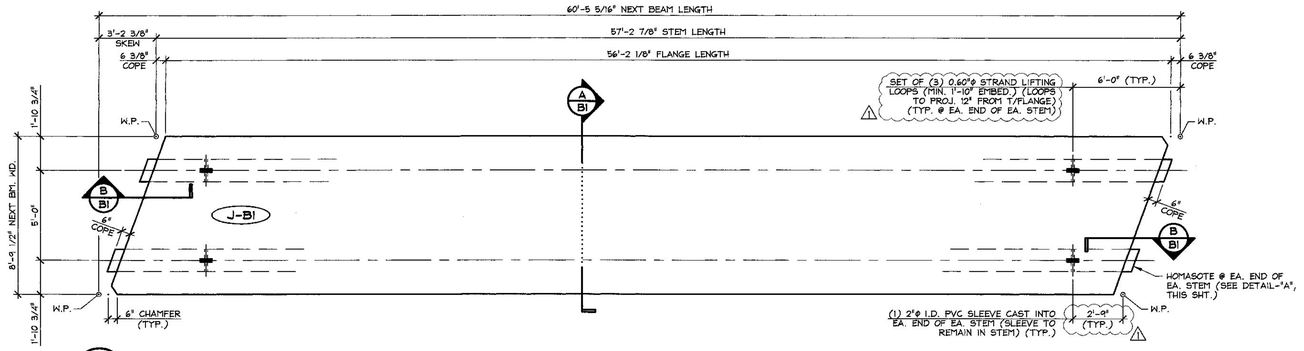
DATE: SEPT. 30, 2014
SCALE: NOTED

CITY OF JOHNSON
ROUTE NO: VT 15 (MINOR ARTERIAL)
BRIDGE NO.: 32 PROJECT NO.: BRF 030-2(26)

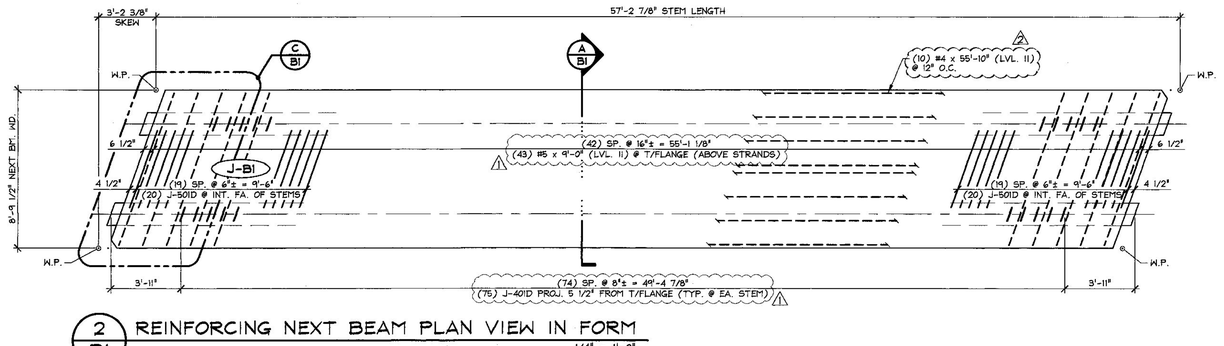
CHKD: - DFTM: B.L.
JOB NO: 23442-014

COVER SHEET

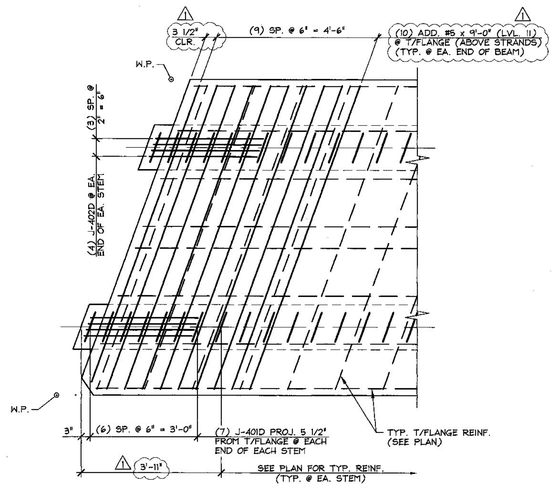
DWG. NO: F1



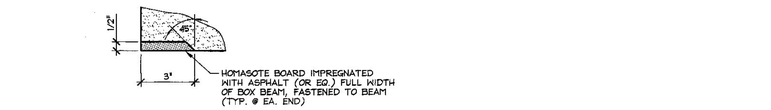
1/B1 DIMENSIONAL NEXT BEAM PLAN VIEW IN FORM
1/4" = 1'-0"



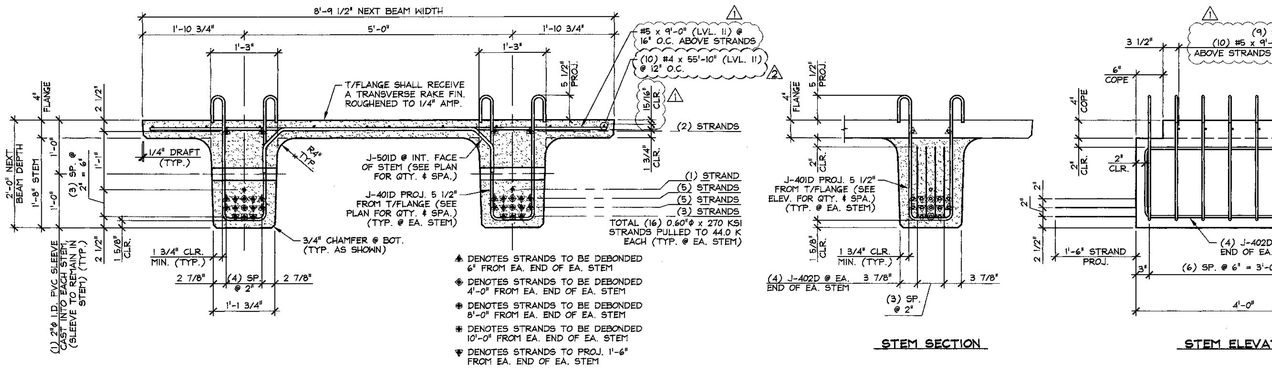
2/B1 REINFORCING NEXT BEAM PLAN VIEW IN FORM
1/4" = 1'-0"



C/B1 END BLOCK REINFORCING PLAN
(J-501D BARS NOT SHOWN FOR CLARITY) 1/2" = 1'-0"



DETAIL - "A"
3" = 1'-0"

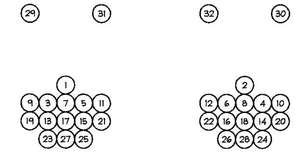


A/B1 DIMENSIONAL & REINFORCING SECTION
3/4" = 1'-0"

STEM SECTION

STEM ELEVATION

B/B1 END BLOCK STEM REINFORCING DETAILS
3/4" = 1'-0"



DETENSIONING SCHEDULE
N.T.S.

2 11-19-14 REVISED AS NOTED
1 11-5-14 REVISED AS NOTED

APPROVAL STAMP:

MARK: J-B1	QTY.: 2	WT.: 29.78 T	VOL.: 14.71 cy

MATERIAL LIST / NEXT BEAM

ITEM	MARK	DESCRIPTION	QTY.
1	J-401D	#4 BENT BAR (LEVEL II, DUAL COATED)	(178)
2	J-402D	#4 BENT BAR (LEVEL II, DUAL COATED)	16
3		#4 x 55'-10" (LEVEL II, DUAL COATED)	(10) 2
4			
5	J-501D	#5 BENT BAR (LEVEL II, DUAL COATED)	40
6		#5 x 9'-0" (LEVEL II, DUAL COATED) 1	63
7			
8			
9			
10			
11			
12			
13			
14		SET OF (3) 0.60"ϕ x 270 KSI STRAND LIFTING LOOPS	4
15			

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

A.L. St. ONGE
CONTRACTOR
MONTGOMERY, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF LAMOILLE

DATE: SEPT. 30, 2014
SCALE: NOTED

CITY OF JOHNSON
ROUTE NO: VT 15 (MINOR ARTERIAL)
BRIDGE NO.: 32 PROJECT NO.: BRF 030-2(26)

CHKD: - DFTM: B.L.
JOB NO: 23442-014

PRESTRESSED NEXT BEAM DETAILS

DWG. NO: B1

Vermont Agency of Transportation
RECEIVED
NEXT Beam Fabrication Resubmittal_Approved 11.21.14.pdf

CK'D BY CLB OK'D BY HIS
November 20, 2014
RESUBMIT NO Approved
BY C. CARLSON DATE 11/21/14

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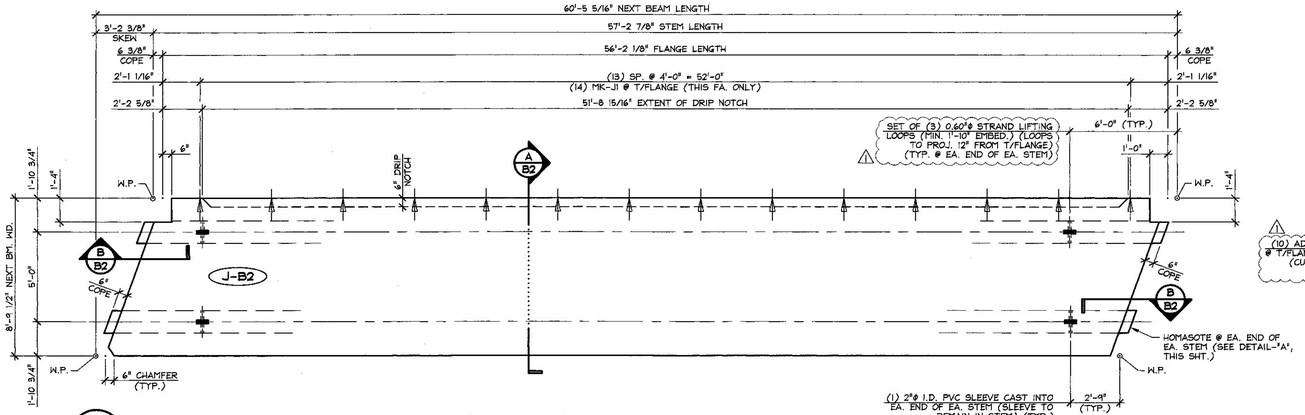
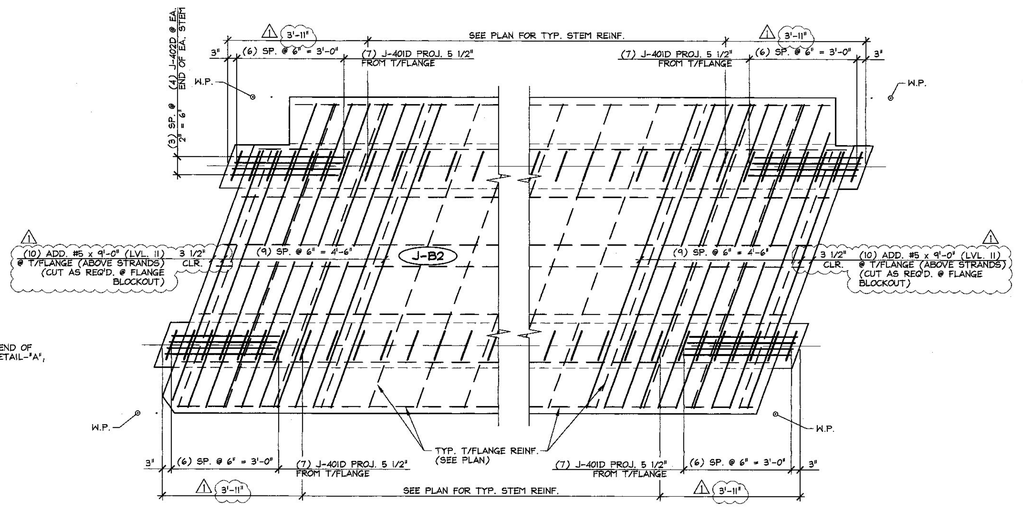
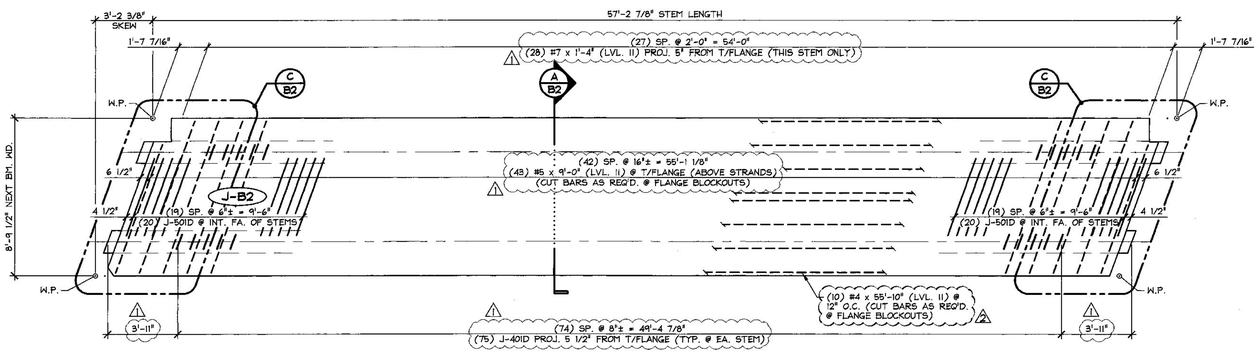


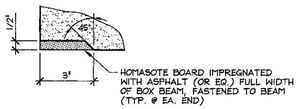
1 / B2 DIMENSIONAL NEXT BEAM PLAN VIEW IN FORM
1/4" = 1'-0"



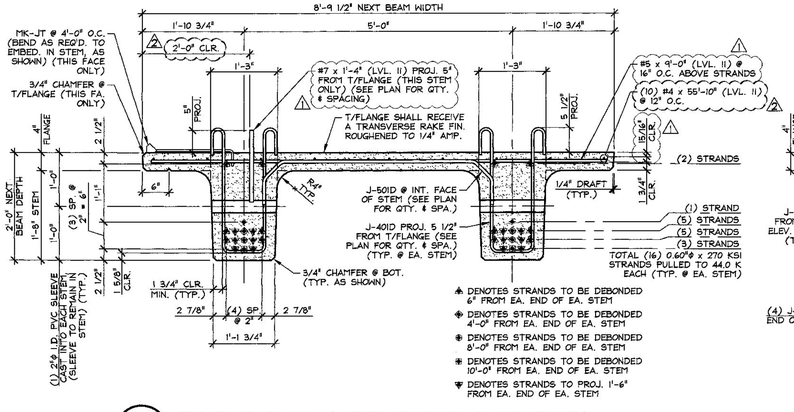
C / B2 END BLOCK REINFORCING PLAN
(J-501D BARS NOT SHOWN FOR CLARITY) 1/2" = 1'-0"



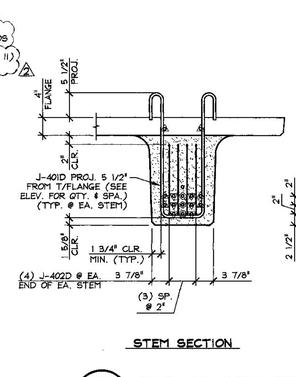
2 / B2 REINFORCING NEXT BEAM PLAN VIEW IN FORM
1/4" = 1'-0"



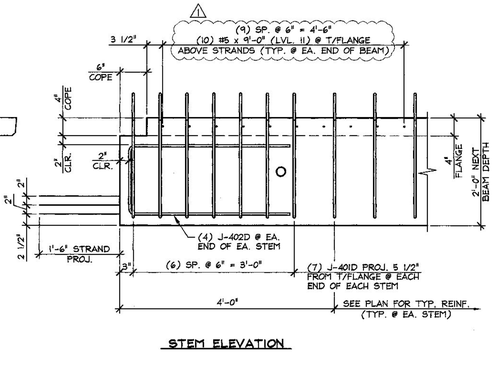
DETAIL - "A"
3" = 1'-0"



A / B2 DIMENSIONAL & REINFORCING SECTION
3/4" = 1'-0"

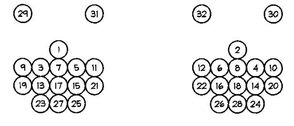


STEM SECTION



STEM ELEVATION

B / B2 END BLOCK STEM REINFORCING DETAILS
3/4" = 1'-0"



DETENSIONING SCHEDULE
N.T.S.

⚠2 11-19-14 REVISED AS NOTED
⚠1 11-5-14 REVISED AS NOTED

Vermont Agency of Transportation

RECEIVED

NEXT Beam Fabrication Resubmittal_Approved 11.21.14.pdf

CK'D BY CLB OK'D BY HIS

November 20, 2014

RESUBMIT NO Approved

BY C. CARLSON DATE 11/21/14

MARK: J-B2	QTY.: 2	WT.: 29.75 T	VOL.: 14.69 cy

MATERIAL LIST / NEXT BEAM

ITEM	MARK	DESCRIPTION	QTY.
1	J-401D	#4 BENT BAR (LEVEL II, DUAL COATED)	178
2	J-402D	#4 BENT BAR (LEVEL II, DUAL COATED)	16
3		#4 x 55'-10" (LEVEL II, DUAL COATED)	10 ⚠2
4			
5	J-501D	#5 BENT BAR (LEVEL II, DUAL COATED)	40
6		#5 x 9'-0" (LEVEL II, DUAL COATED) ⚠1	63
7			
8		⚠1 #7 x 1'-4" (LEVEL II, DUAL COATED)	28
9			
10			
11			
12	MK-J1	MODIFIED DAYTON SUPERIOR C-24 45° TYPE 4-APR HANGER (GALV.)	14
13	⚠1 MK-J2*	~~GUARD RAIL ANCHOR @ 5/8" x 10" x 1'-2" W/ (4) 1" HEX NUTS (GALV.)~~	~~6~~
14		SET OF (3) 0.60"ϕ x 270 KSI STRAND LIFTING LOOPS	4
15			

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

A.L. St. ONGE
CONTRACTOR
MONTGOMERY, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF LAMOILLE

CITY OF JOHNSON
ROUTE NO: VT 15 (MINOR ARTERIAL)
BRIDGE NO.: 32 PROJECT NO.: BRF 030-2(26)

PRESTRESSED NEXT BEAM DETAILS

DATE: SEPT. 30, 2014
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23442-014
DWG. NO: B2

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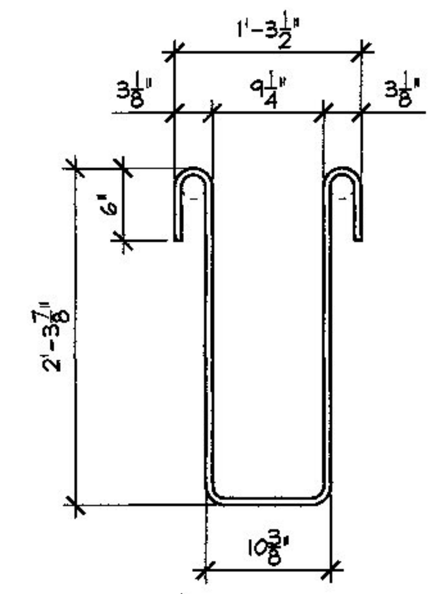
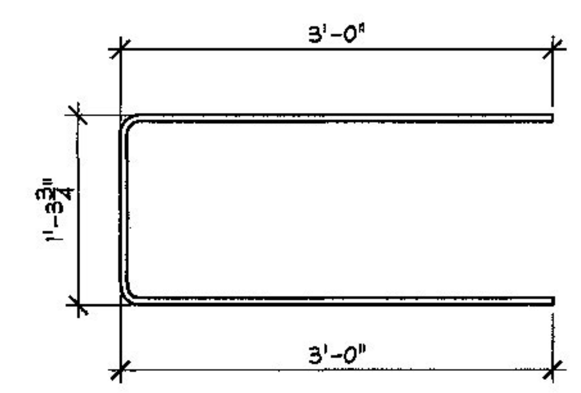
MISCELLANEOUS MATERIALS

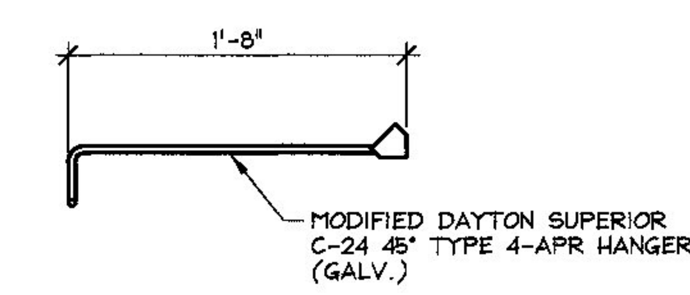
ITEM	MARK	QTY.	DESCRIPTION	REMARKS
1				
2		40	#4 x 55'-10" (LEVEL II, DUAL COATED)	
3				
4		252	#5 x 9'-0" (LEVEL II, DUAL COATED)	
5				
6		56	#7 x 1'-4" (LEVEL II, DUAL COATED)	
7				
8				
9				
10	MK-J1	28	MODIFIED DAYTON SUPERIOR C-24 45° TYPE 4-APR HANGER (GALV.)	SEE DETAIL THIS SHEET
11	~~MK-J2~~	~~12~~	~~GUARD RAIL ANCHOR ℄ 3/8" x 10" x 1'-2" W/ (4) 1"ϕ HEX NUTS (GALV.)~~	~~SUPPLIED BY OTHERS~~
12				
13				
14		16	SET OF (3) 0.60"ϕ x 270 KSI STRAND LIFTING LOOPS	
15				



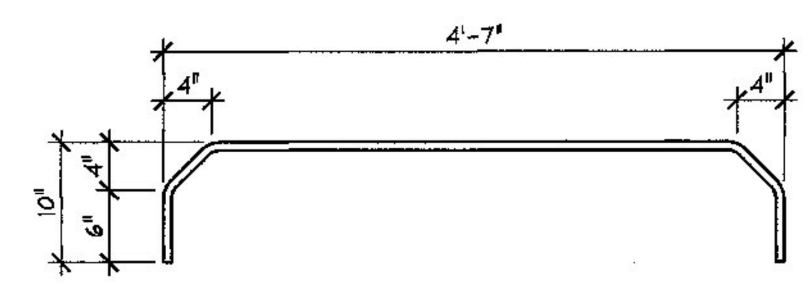
J-401D
#4 BENT BAR
LEVEL II, DUAL COATED
USE 2"ϕ [50 mm] PIN
(712) REQ'D.



J-402D
#4 BENT BAR
LEVEL II, DUAL COATED
USE 2"ϕ [50 mm] PIN
(64) REQ'D.



MK - J1
1" = 1'-0"



J-501D
#5 BENT BAR
LEVEL II, DUAL COATED
USE 2 3/4"ϕ [70 mm] PIN
(160) REQ'D.

Vermont Agency of Transportation
RECEIVED
NEXT Beam Fabrication Resubmittal_Approved 11.21.14.pdf
CK'D BY CLB OK'D BY HIS
November 20, 2014
RESUBMIT NO Approved
BY C. CARLSON DATE 11/21/14

2 11-19-14 REVISED AS NOTED
1 11-5-14 REVISED AS NOTED

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010	A.L. St. ONGE CONTRACTOR MONTOMERY, VERMONT	
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF LAMOILLE	DATE: SEPT. 30, 2014 SCALE: NOTED	
	CITY OF JOHNSON ROUTE NO: VT 15 (MINOR ARTERIAL) BRIDGE NO.: 32 PROJECT NO.: BRF 030-2(26)	CHKD: -	DFTM: B.L.
		JOB NO: 23442-014	
	MATERIALS LIST	DWG. NO: M1	

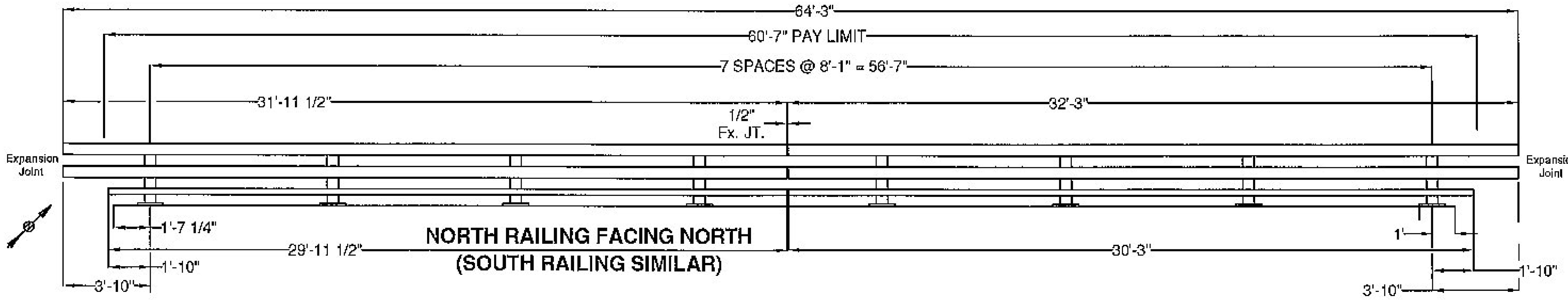
Vermont Agency of Transportation
RECEIVED

CK'D BY CLB OK'D BY HIS

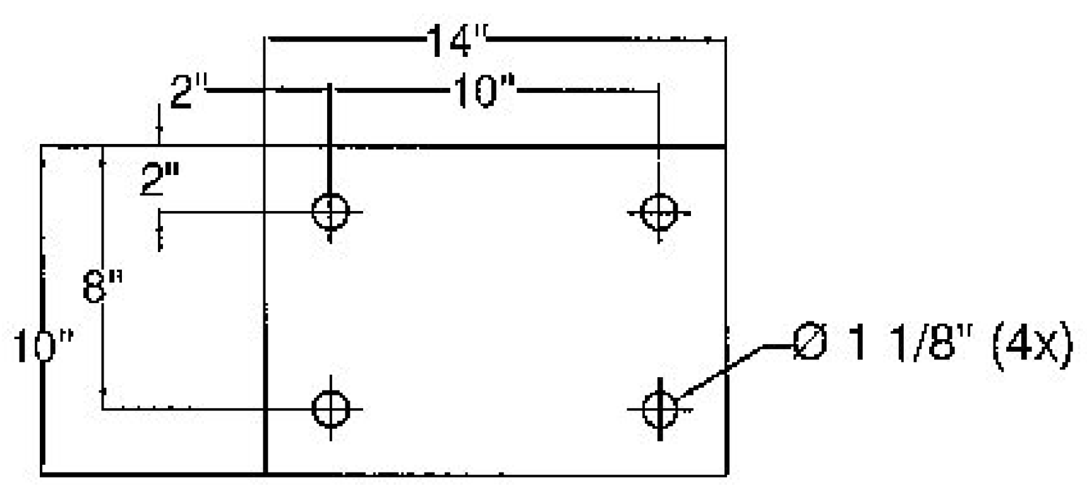
January 7, 2015

RESUBMIT NO Approved

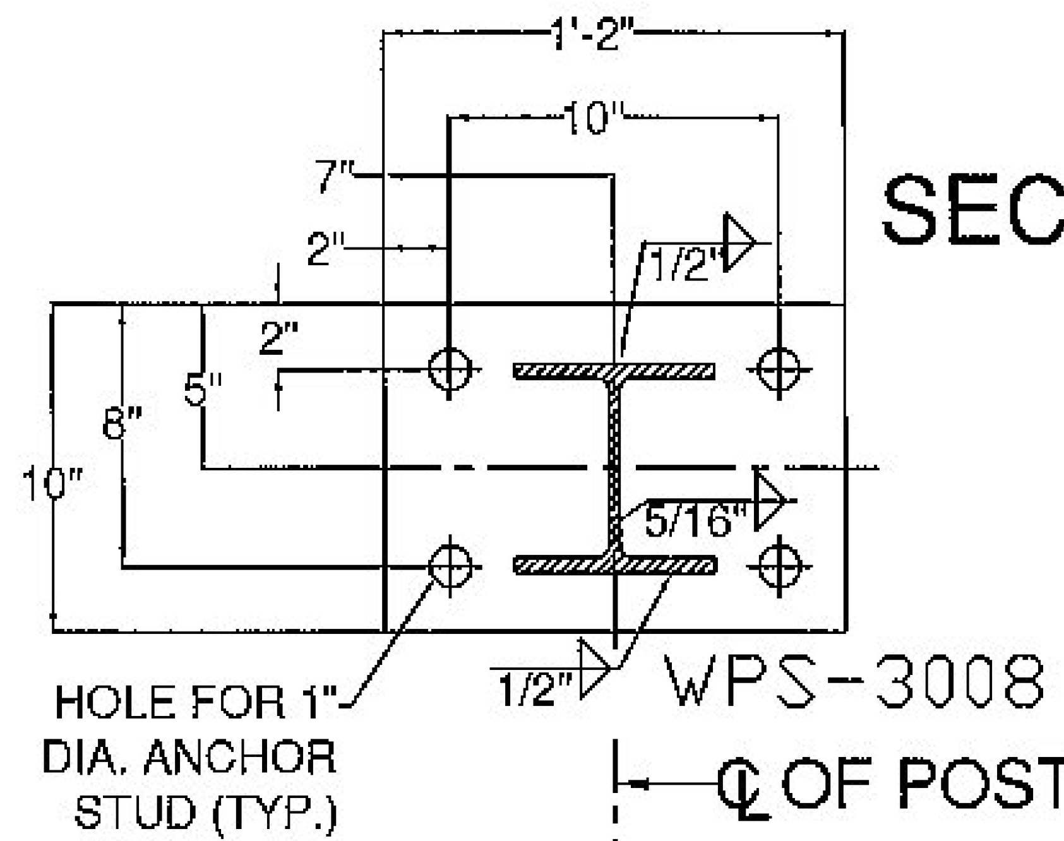
BY C. CARLSON DATE 01/07/15



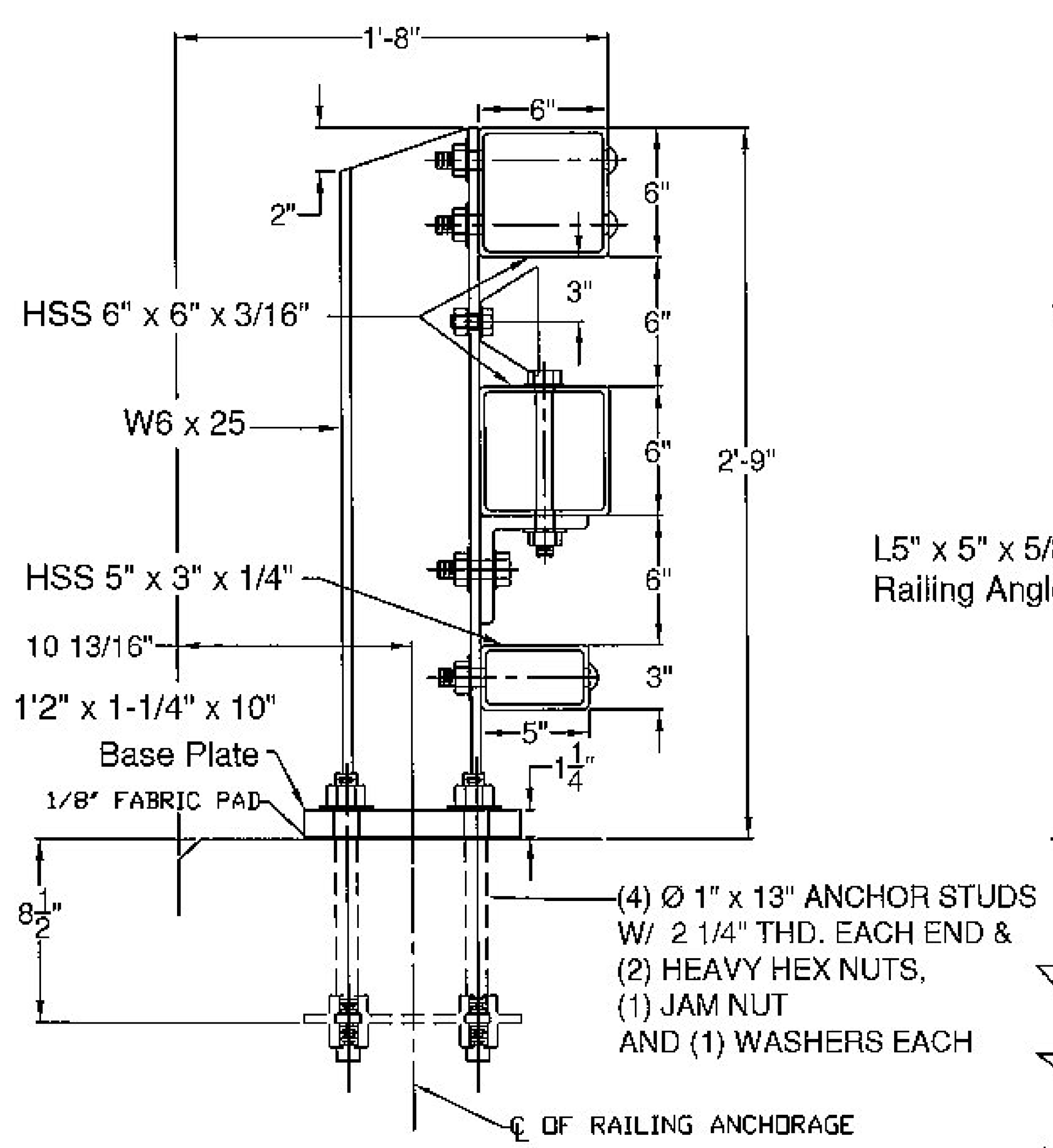
NORTH RAILING FACING NORTH
(SOUTH RAILING SIMILAR)



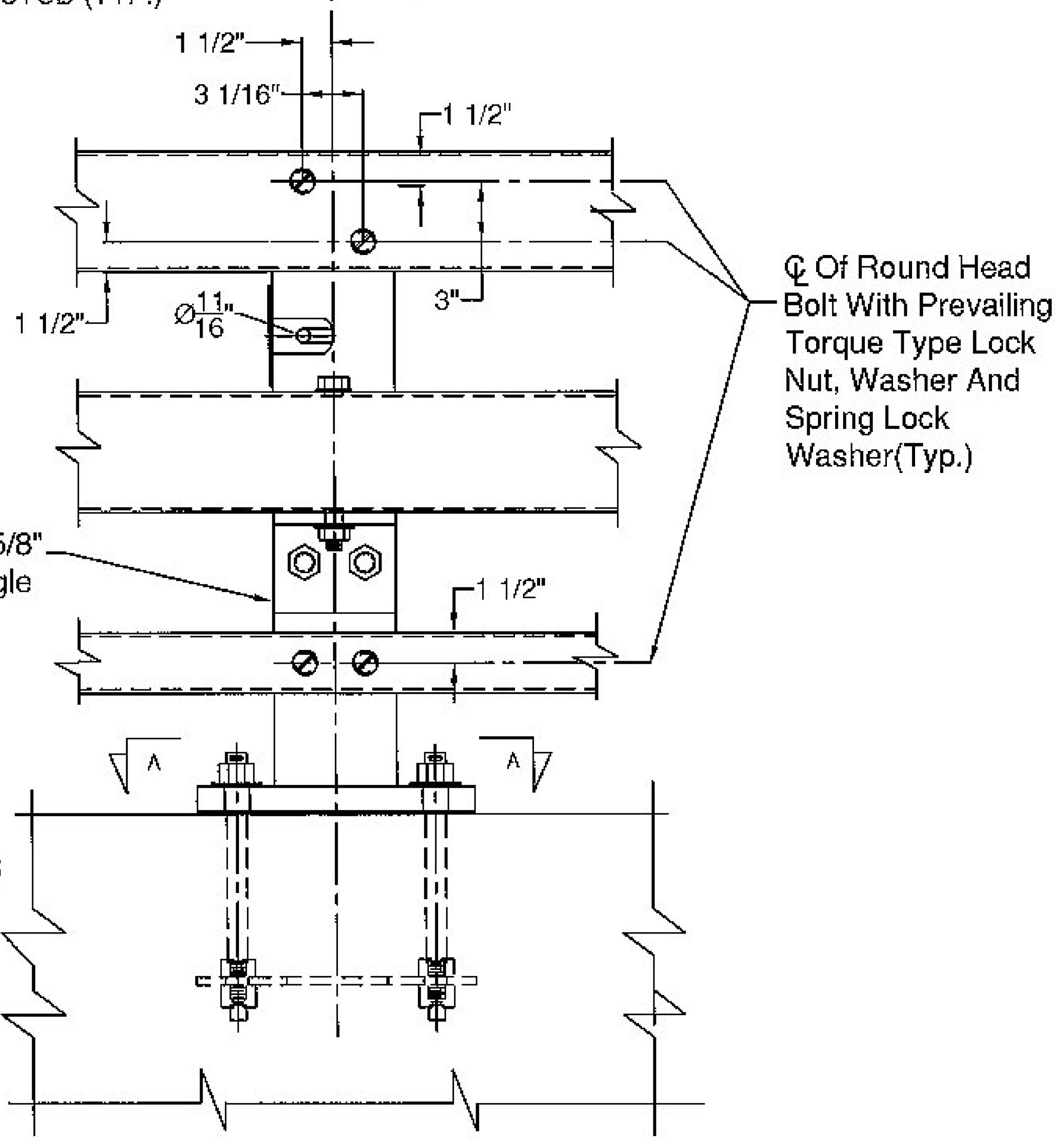
1/8" FABRIC PAD



SECTION A-A



SECTION



ELEVATION

STEEL BRIDGE RAILING

BILL OF MATERIAL				
ITEM #	QTY	PART #	DESCRIPTION	ASTM DESIGNATION
1	16	0033.03610	W6x25, THREE RAIL POST @ 2'-9" OA ON 1 1/4x10x1'-2" B.P.	A572 Gr. 50
2	2	0033.23000	HSS 3" X 5" X 1/4" RAIL @ 29'-11 1/2"	A500 Gr. B
3	2	0033.23003	HSS 3" X 5" X 1/4" RAIL @ 30'-3"	A500 Gr. B
5	4	0033.63200	HSS 6" X 6" X 3/16" RAIL @ 31'-11 1/2"	A500 Gr. B
6	4	0033.63203	HSS 6" X 6" X 3/16" RAIL @ 32'-3"	A500 Gr. B
8	2	0033.00840	2-1/8" X 4-1/4" FIX. SPLICE BAR @ 2'-3"	A572 Gr. 50
9	4	0033.00640	HSS 5" X 5" X 5/16" FIX. SPLICE TUBE @ 2'-3"	A500 Gr. B, A572 Gr. 50
10	16	0033.00220	3/8" X 10" X 14" ANCHOR PLATES	A572 Gr. 50
11	16	0033.90050	1/8" X 10" X 14" FABRIC PAD	AASHTO M251
12	66*	0042.21013	ø 1" X 13" ANCHOR STUDS, W/ 2 1/4" THD. EACH END	A449 TYPE 1
13	130*	0080.18901	ø 1" HEAVY HEX NUTS	A563
14	64	0080.18911	ø 1" FLAT WASHERS	F436
15	64	0080.18905	ø 1" HEX JAM NUTS	A563
16	64	0080.07500	ø 7/8" X 8" ROUND HEAD BOLT, NUT, SQ. WASHER, L.W.	A449, A563, F436, ASME D18.2
17	16	0080.06400	ø 3/4" X 8" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563, F436, & ASME D18.2
18	32	0080.06140	ø 3/4" X 2-3/4" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563, F436, & ASME D18.2
19	16	0080.06340	ø 3/4" X 7-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563, & F436
20	8	0080.06255	ø 3/4" X 4-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563, & F436
21	16	0033.00500	L5" X 5" X 5/8" RAILING ANGLE @ 6"	A572 Gr. 50
22	6		DELINEATORS - NOT SHOWN	(SUPPLIED BY CUSTOMER)

*-2 EXTRA FOR VOAT TESTING

GENERAL NOTES:

1) ALL RAILING IS TO BE FABRICATED AND ERECTED ACCORDING TO SECTION 525 OF THE STANDARD SPECIFICATIONS.
2) PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
3) ALL POST SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POST IS 8' 3".
4) SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
5) RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPER STRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4"@ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
6) STD. SPLICE HOLES ONLY IN BRIDGE RAIL TUBES. REST TO BE DRILLED BY CUSTOMER. FIELD DRILLED HOLES TO BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
7) BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
8) SEE STANDARD DRAWING G-IB FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT FOR DELINEATORS SHALL BE INCIDENTAL TO OTHER ITEMS.
9) ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
10) THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
11) PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
12) THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

ITEM #: 525.335

SHEET 1 OF 2

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

BRIDGE RAIL DETAILS SHEET

JOHNSON , VT ROUTE 15 (MINOR ARTERIAL) BRIDGE # 32
TOWN OF JOHNSON, COUNTY OF LAMOILLE, VT.

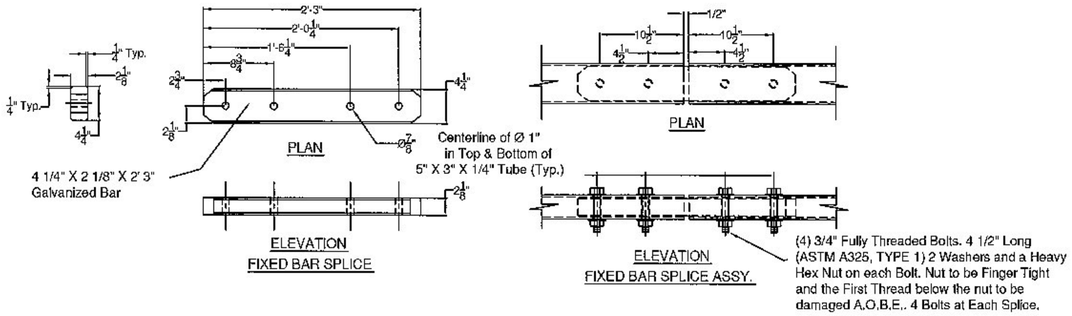
REV NO.	DATE	DESCRIPTION	BY	REV NO.	DATE	DESCRIPTION	BY
1	12/23/14	REVISED PER 12/22/14 MARK-UP	E.P.				

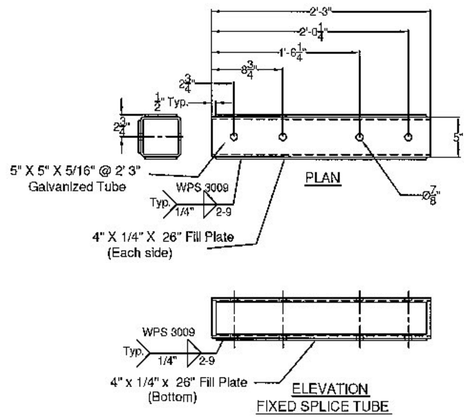
ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com, epeek@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

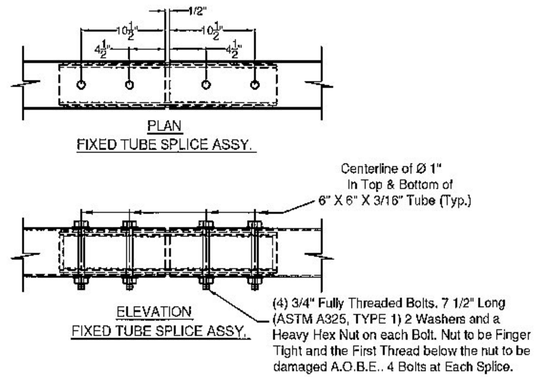
AISC CERTIFIED FABRICATOR

DRAWN	E.P.	11/11/14
CHECKED	D.L.	11/18/14
APPROVED		
SCALE	SCHEMATIC	
DRAWING NO.	F.R. LaFAYETTE-JOHNSON	

SPLICE BAR - FIXED

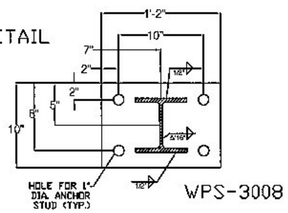


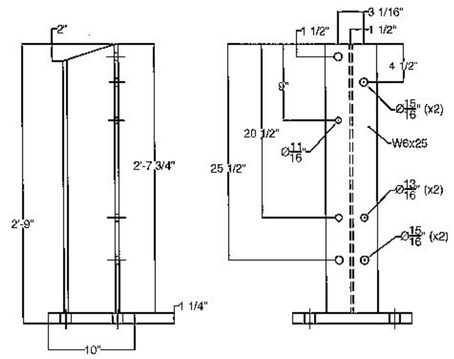


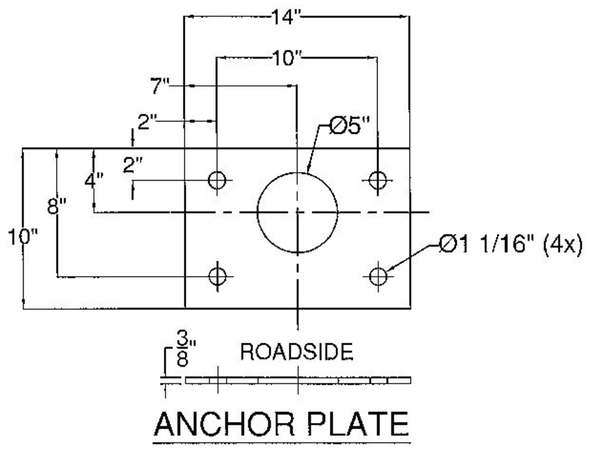


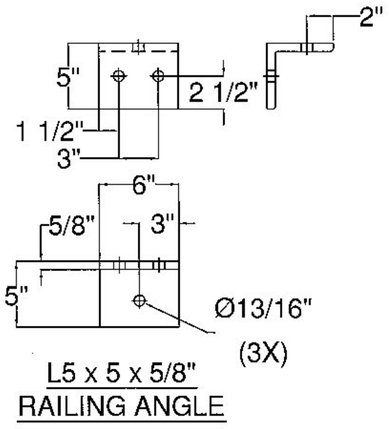
SPLICE TUBE - FIXED

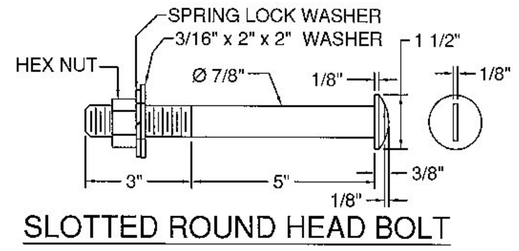
BRIDGE POST DETAIL











ITEM #: 525.335

SHEET 2 OF 2

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

BRIDGE RAIL DETAILS SHEET

JOHNSON, VT ROUTE 15 (MINOR ARTERIAL) BRIDGE # 32
TOWN OF JOHNSON, COUNTY OF LAMOILLE, VT.

R E V	NO.	DATE	DESCRIPTION	BY
	1	12/26/14	REVISED PER 12/22/14 MARK-UP	E.P.

R E V	NO.	DATE	DESCRIPTION	BY

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com, epeek@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

CERTIFIED FABRICATOR

DRAWN	E.P.	11/11/14
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