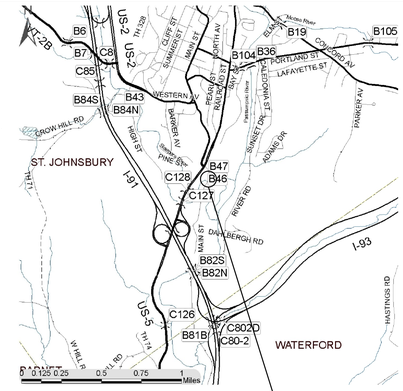
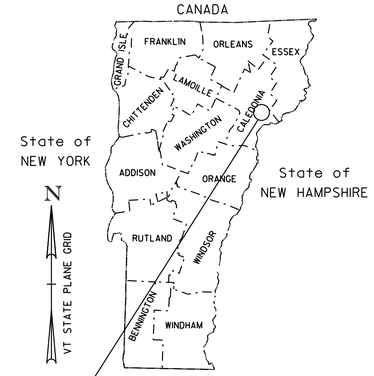
CONCEPTUAL PLAN REVIEWER NOTES

1. TRAFFIC WILL BE MAINTAINED ON A DOWNSTREAM ONE WAY TEMPORARY BRIDGE WITH TRAFFIC SIGNALS.
2. THE SUPERSTRUCTURE WILL BE PRECAST NEXT BEAMS. THE SUBSTRUCTURE TYPE WILL BE DETERMINED BASED ON SUBSURFACE CONDITIONS.
3. IT IS ANTICIPATED THAT RIGHT-OF-WAY WILL NEED TO BE ACQUIRED.
4. IT IS ANTICIPATED THAT AN OVERHEAD UTILITIES RELOCATION WILL BE NEEDED. THERE ARE UNDERGROUND TELEPHONE LINES ON THE UPSTREAM SIDE OF THE ROAD, WHICH ARE ATTACHED TO THE UPSTREAM FASCIA OF THE BRIDGE. THERE IS AN UNDERGROUND ABANDONED GAS LINE AND AN UNDERGROUND WATER LINE THAT PASS UNDER THE BRIDGE.
5. A SIMPLIFIED PAVEMENT DESIGN HAS BEEN DONE FOR THIS PROJECT.

STATE OF VERMONT
AGENCY OF TRANSPORTATION





ST. JOHNSBURY
BHO 1447(30)

PROPOSED IMPROVEMENT
BRIDGE PROJECT

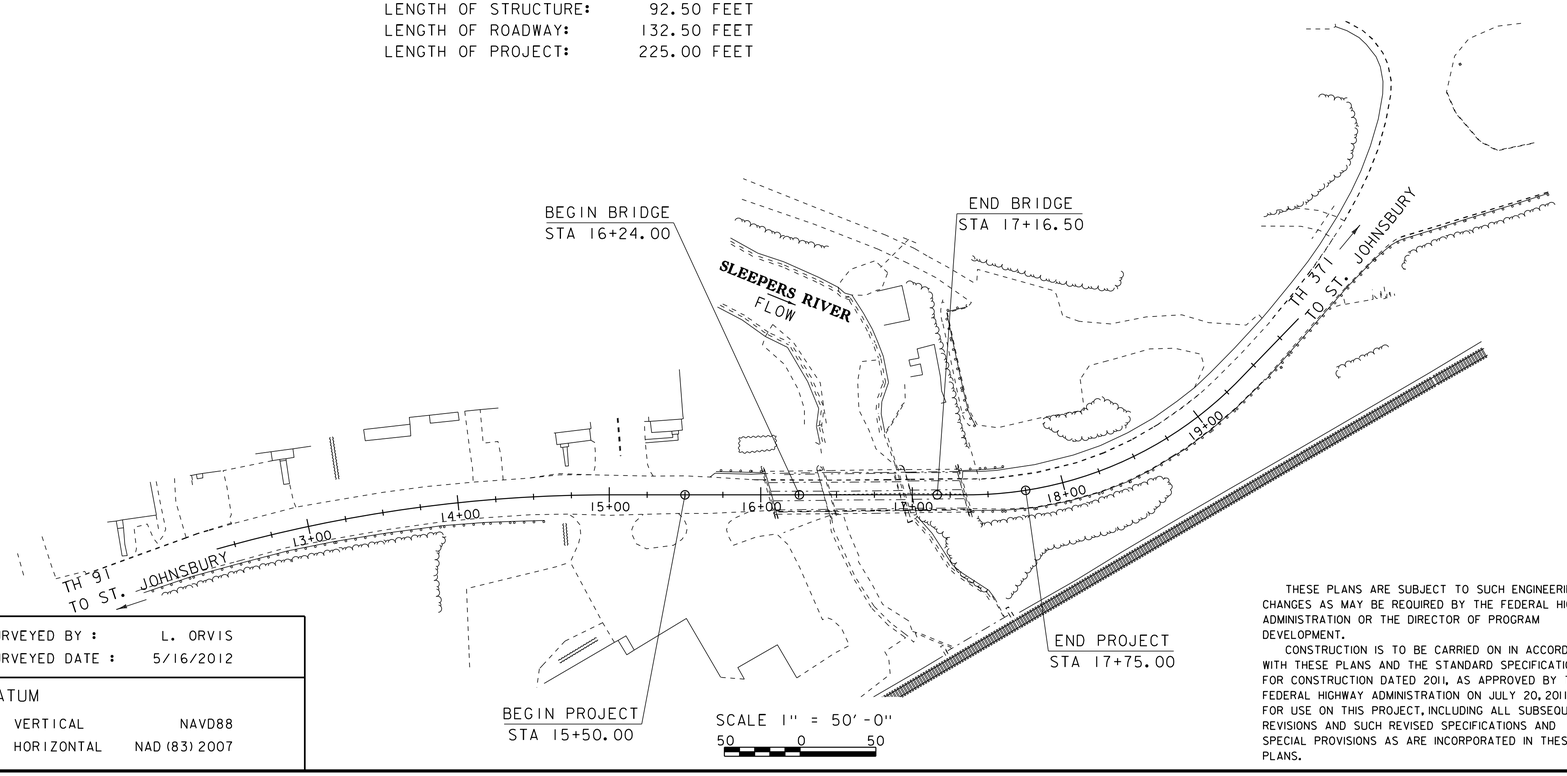
TOWN OF ST. JOHNSBURY
COUNTY OF CALEDONIA

ROUTE NO : TH 371, RURAL LOCAL ROAD, CLASS 3 TOWN HIGHWAY BRIDGE NO : 46

PROJECT LOCATION: 0.1 MILES SOUTH OF JUNCTION WITH US ROUTE 5

PROJECT DESCRIPTION: DEMOLITION OF EXISTING BRIDGE, AND REPLACEMENT WITH A NEW BRIDGE.

LENGTH OF STRUCTURE: 92.50 FEET
LENGTH OF ROADWAY: 132.50 FEET
LENGTH OF PROJECT: 225.00 FEET



QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

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

SURVEYED BY : L. ORVIS
SURVEYED DATE : 5/16/2012

DATUM
VERTICAL NAVD88
HORIZONTAL NAD (83) 2007

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.

CONCEPTUAL PLANS
09-MAY-2013

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE _____

PROJECT MANAGER : C.P. WILLIAMS

PROJECT NAME : ST. JOHNSBURY
PROJECT NUMBER : BHO 1447(30)

SHEET 1 OF 14 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 12.09.13

LRFD

INDEX OF SHEETS

PLAN SHEETS

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2	PRELIMINARY INFORMATION SHEET
3	TYPICAL SECTIONS
4	LEGEND SHEET
5	LAYOUT SHEET
6	PROFILE SHEET
7 - 10	MAINLINE CROSS SECTIONS
11 - 13	CHANNEL CROSS SECTIONS
14	EXISTING CONDITIONS

STANDARDS LIST

FINAL HYDRAULIC REPORT

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN ONE-WAY TRAFFIC ON A TEMPORARY BRIDGE.
2. INSTALL AND MAINTAIN TRAFFIC SIGNALS.
3. INSTALL SIDEWALKS ON THE RIGHT SIDE OF THE BRIDGE
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:	92.50 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	6.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	5.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	4.0 KSI
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:	3.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	- - -
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	4.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	10.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	- - -
20. PILE YIELD STRENGTH ASTM A572	f_y:	- - -
21. PILE SIZE		- - -
22. EST. PILE LENGTH	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	- - -
24. LATERAL PILE DEFLECTION	Δ:	- - -
25. BASIC WIND SPEED	V_{3s}:	- - -
26. MINIMUM GROUND SNOW LOAD	p_g:	- - -
27. SEISMIC DATA PGA: - - -	S_s:	- - -
	S_1:	- - -

LRFR LOAD RATING FACTORS

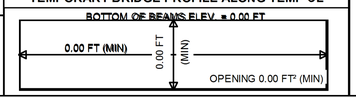
LOADING LEVELS	TRUCK						
	HL-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:							

AS BUILT "REBAR" DETAIL

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

TEMPORARY BRIDGE PROFILE ALONG TEMP CL

BOTTOM OF BEAMS ELEV. = 0.00 FT



TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2015	1200	160	54	5.5	160
2035	1200	160	54	6.9	200

20 year ESAL for flexible pavement from 2015 to 2035 : 552000

40 year ESAL for flexible pavement from 2015 to 2055 : 1141000

Design Speed : 30 mph

PROJECT NAME: **ST. JOHNSBURY**

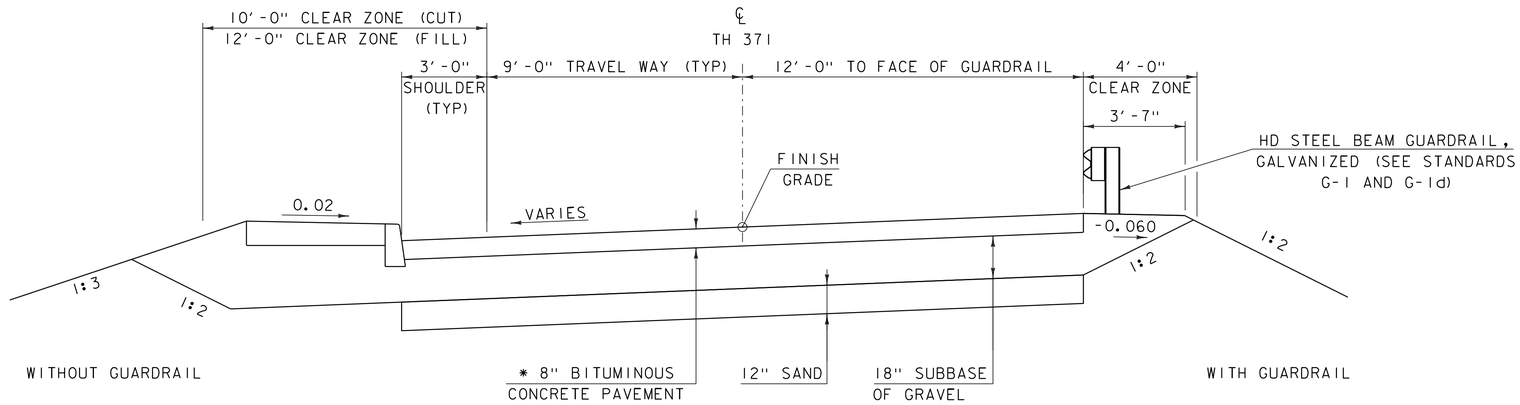
PROJECT NUMBER: **BHO 1447(30)**

FILE NAME: **12j164\s12j164excel.dgn** PLOT DATE: 5/7/2013

PROJECT LEADER: **C.P.WILLIAMS** DRAWN BY: **L.J.STONE**

DESIGNED BY: **L.J.STONE** CHECKED BY:

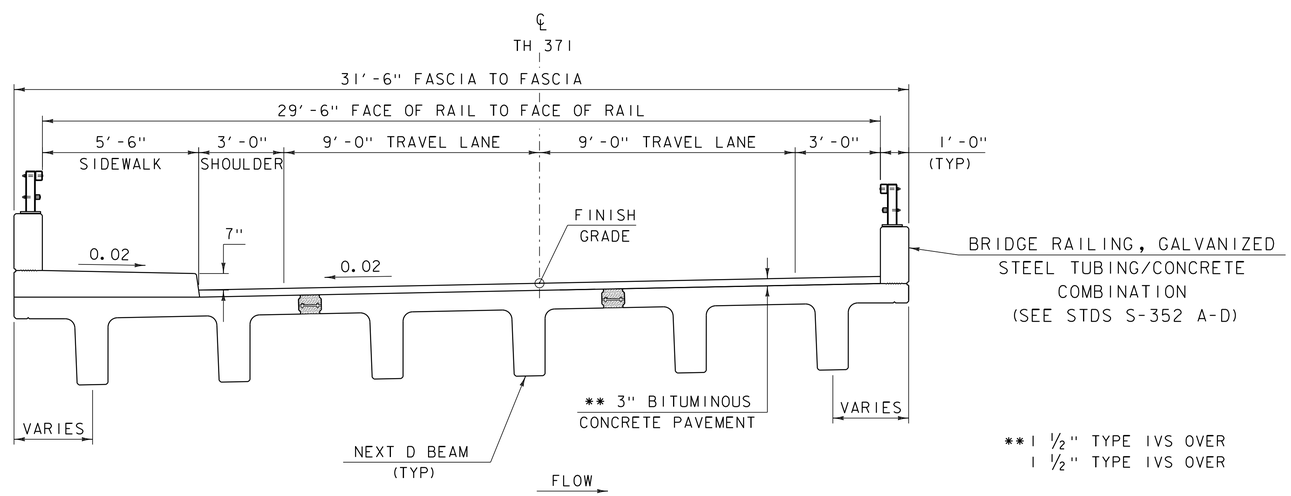
PRELIMINARY INFORMATION SHEET 1 SHEET 2 OF 14



TH 371 ROADWAY TYPICAL SECTION

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

*1 1/2" TYPE IVS OVER
1 1/2" TYPE IVS OVER
2 1/2" TYPE IIS OVER
2 1/2" TYPE IIS



BRIDGE TYPICAL SECTION

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

**1 1/2" TYPE IVS OVER
1 1/2" TYPE IVS OVER

MATERIAL TOLERANCES

(IF USED ON PROJECT)

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

PROJECT NAME: ST JOHNSBURY
PROJECT NUMBER: BHO 1447(30)

FILE NAME: s12j164typ.dgn
PROJECT LEADER: C.P.WILLIAMS
DESIGNED BY: L.STONE
TYPICAL SECTIONS

PLOT DATE: 09-MAY-2013
DRAWN BY: L.STONE
CHECKED BY:
SHEET 3 OF 14

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
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	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	CALCULATED ROW POINT
[DISTANCE]		DISTANCE 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

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)

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 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
H	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

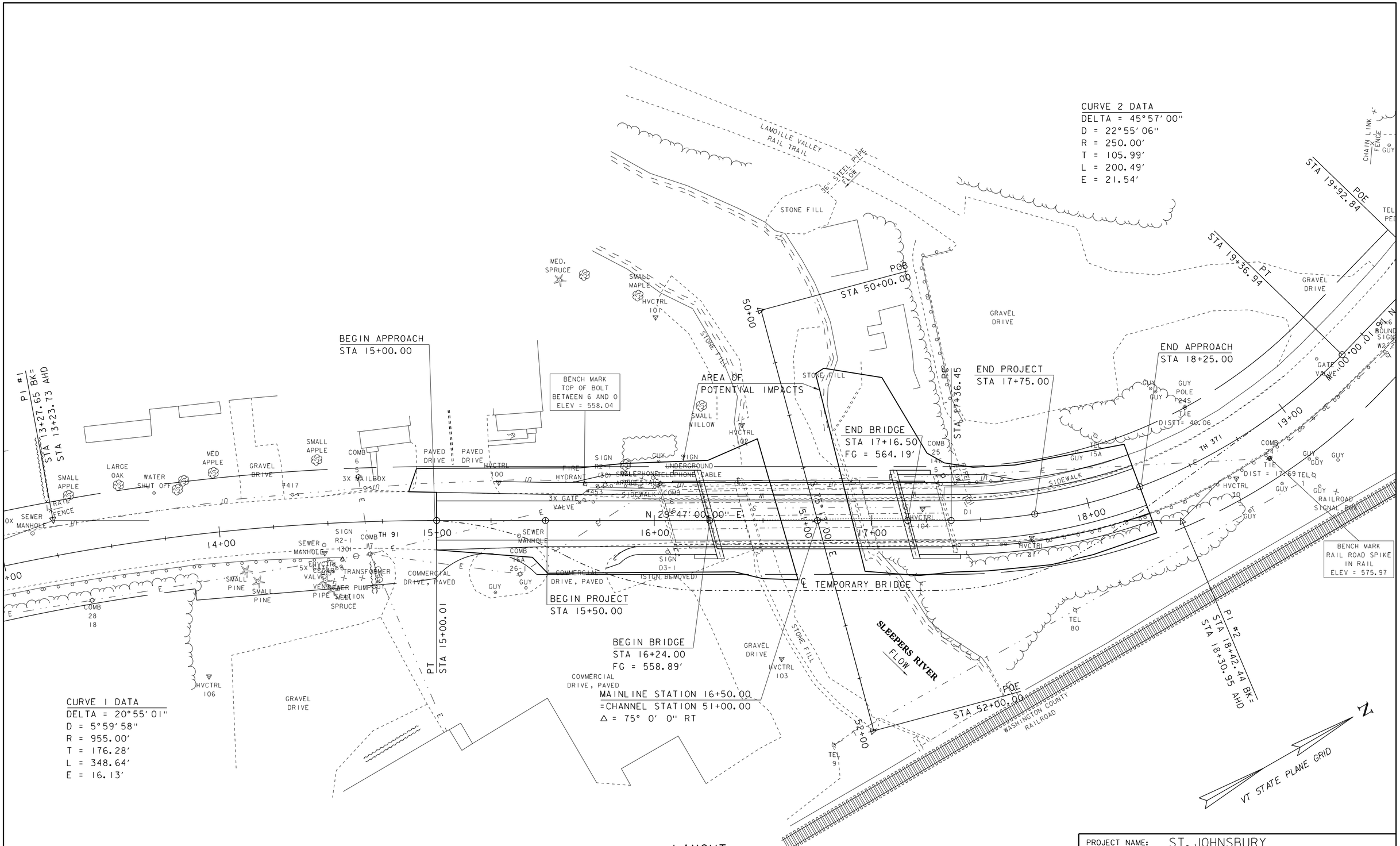
EXISTING FEATURES

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

PROJECT NAME: ST. JOHNSBURY
PROJECT NUMBER: BHO 1447(30)

FILE NAME: 12j164/sl2j164excel.dgn
PROJECT LEADER: C.P.WILLIAMS
DESIGNED BY: L.J.STONE
LEGEND SHEET

PLOT DATE: 09-MAY-2013
DRAWN BY: M.LONGSTREET
CHECKED BY: ------
SHEET 4 OF 14

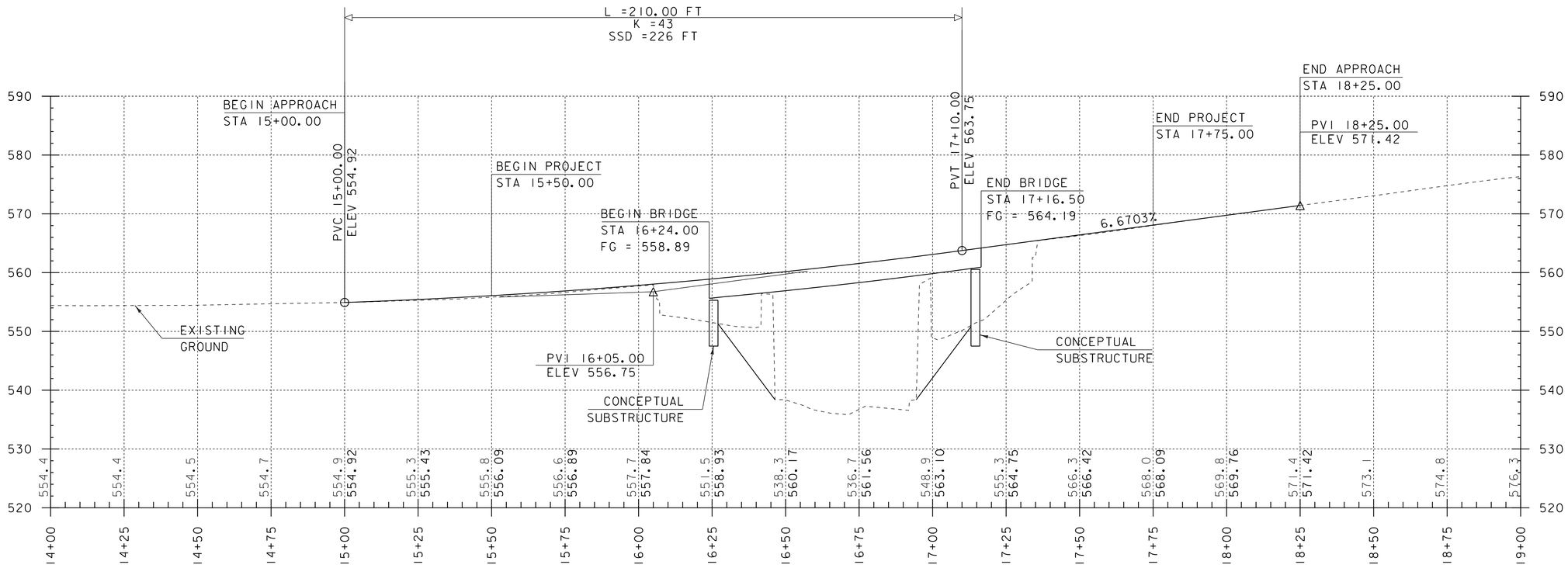


LAYOUT

SCALE 1" = 20'-0"

20 0 20

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BHO 1447(30)	
FILE NAME: s12j164bdr.dgn	PLOT DATE: 09-MAY-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: L.J.STONE
DESIGNED BY: ------	CHECKED BY: ------
LAYOUT SHEET	SHEET 5 OF 14



TH 371 (OLD US 5) PROFILE

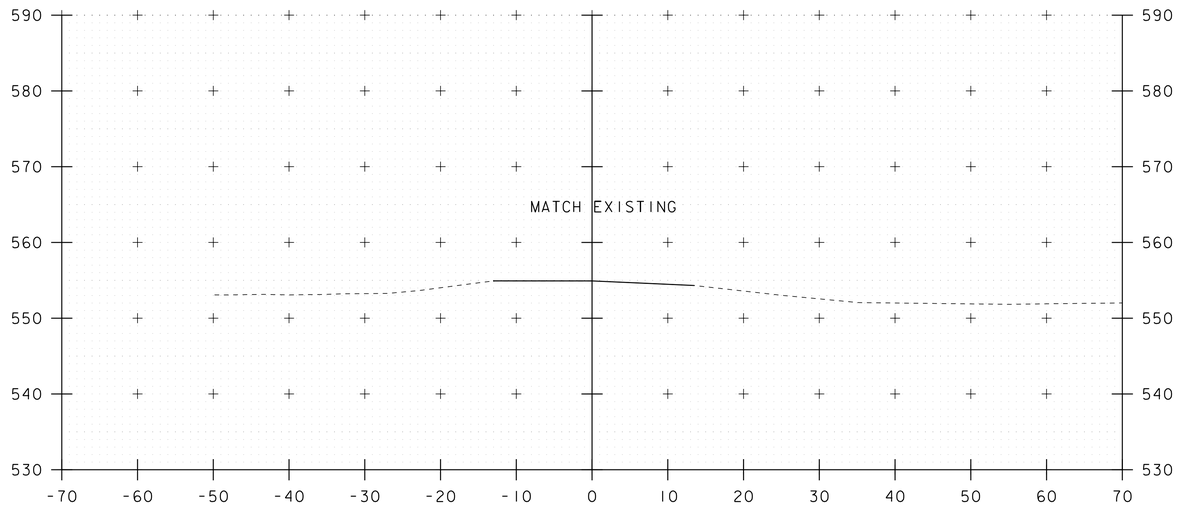
SCALE: HORIZONTAL 1"=20'
VERTICAL 1"=10'

NOTE:

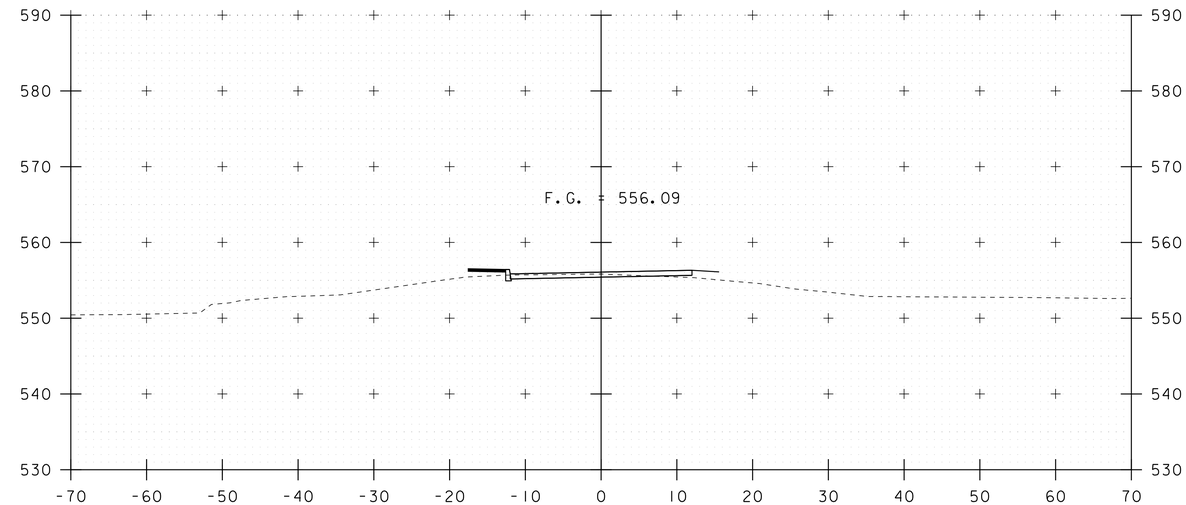
GRADES SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG ℄

GRADES SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG ℄

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BHO 1447(30)	
FILE NAME: s12j164profile.dgn	PLOT DATE: 09-MAY-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: L.J.STONE
DESIGNED BY: L.J.STONE	CHECKED BY: ------
PROFILE SHEET	SHEET 6 OF 14



15+00



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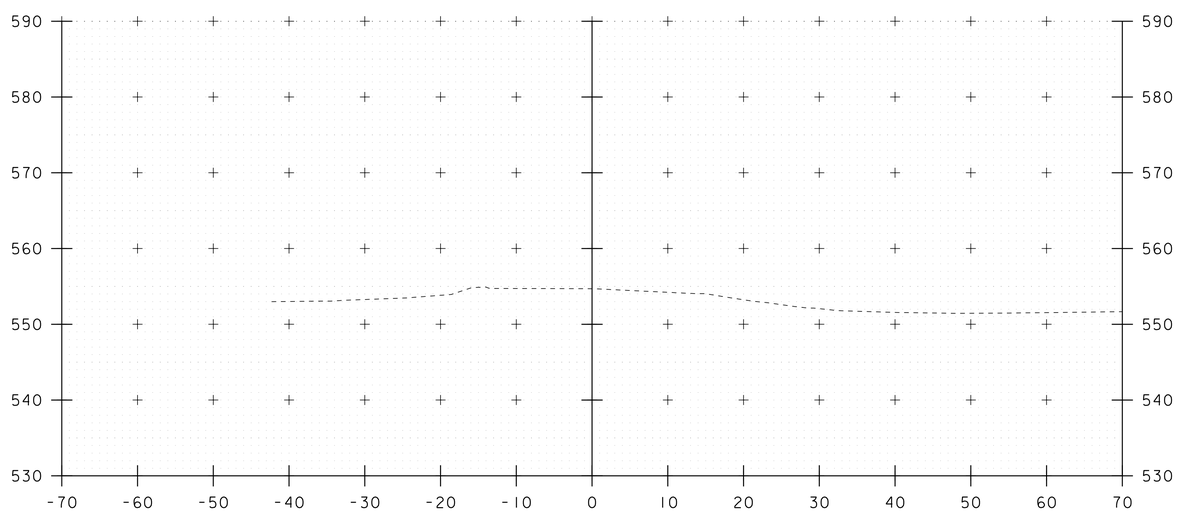
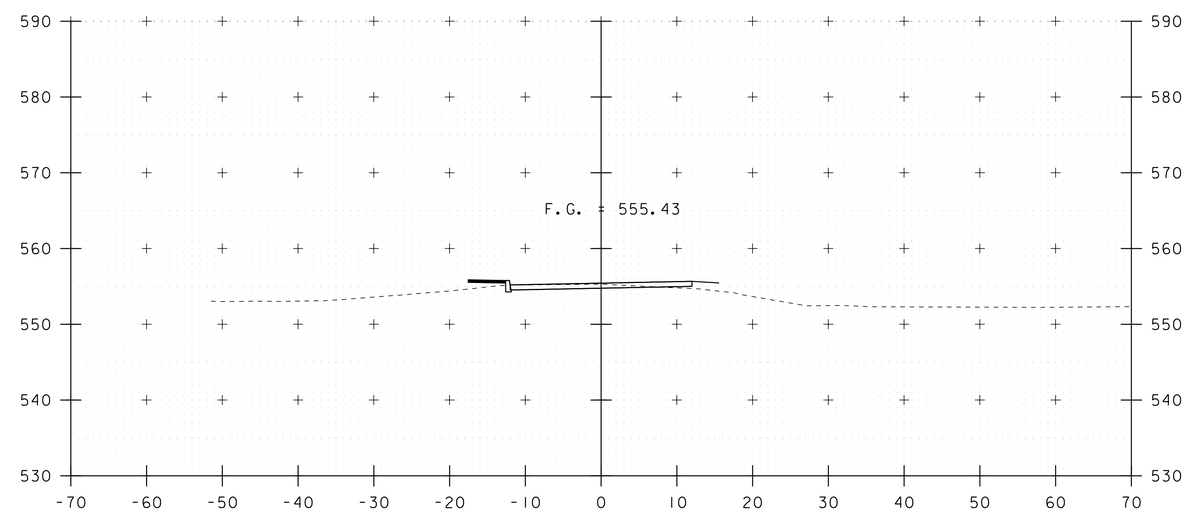


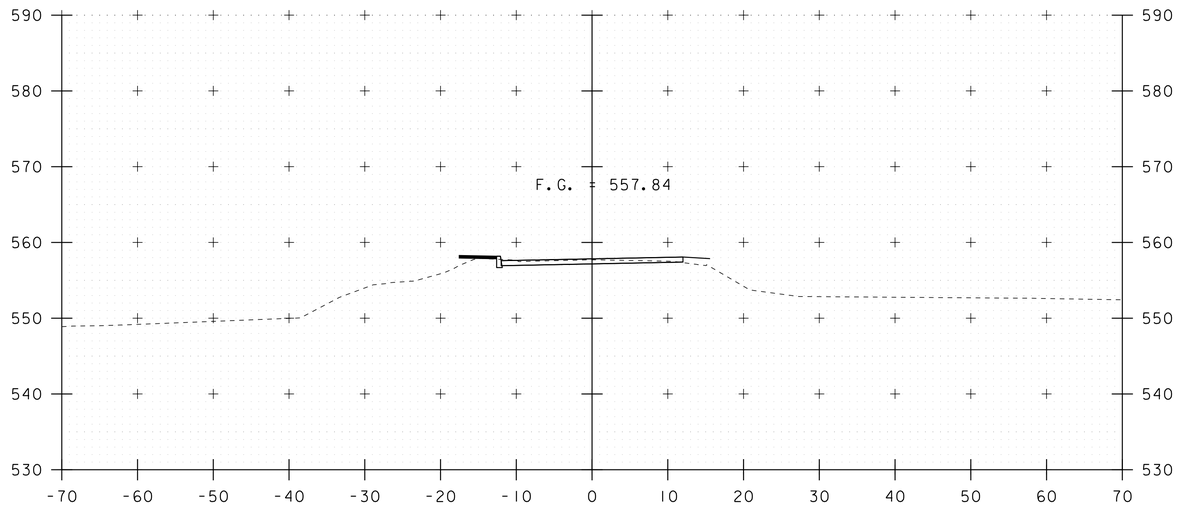
14+75



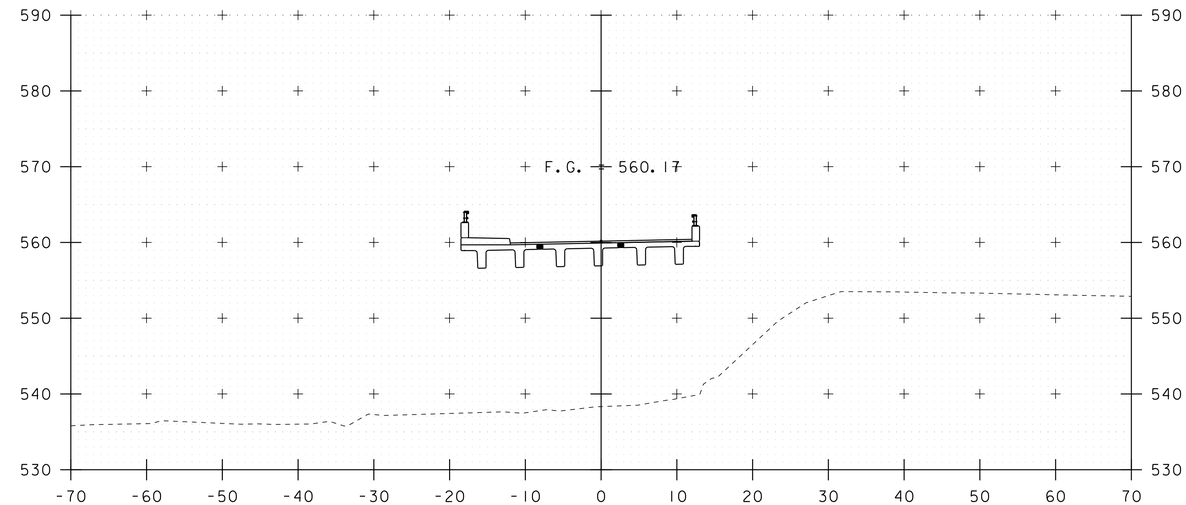
15+25

STA. 14+75 TO STA. 15+50

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BHO 1447(30)	
FILE NAME: s12j164xs.dgn	PLOT DATE: 09-MAY-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
MAINLINE CROSS SECTIONS 1	SHEET 7 OF 14



16+00



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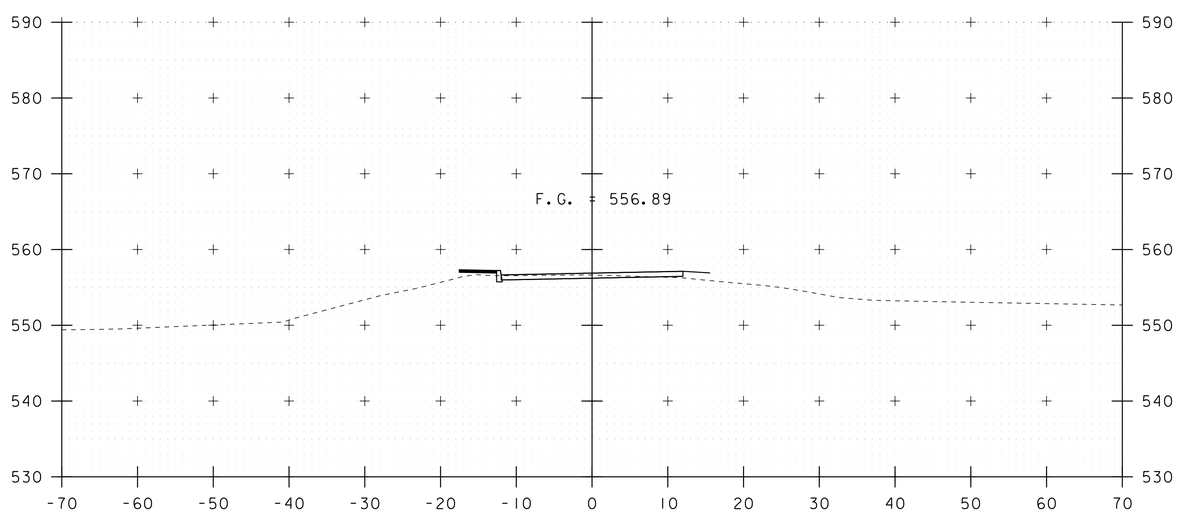
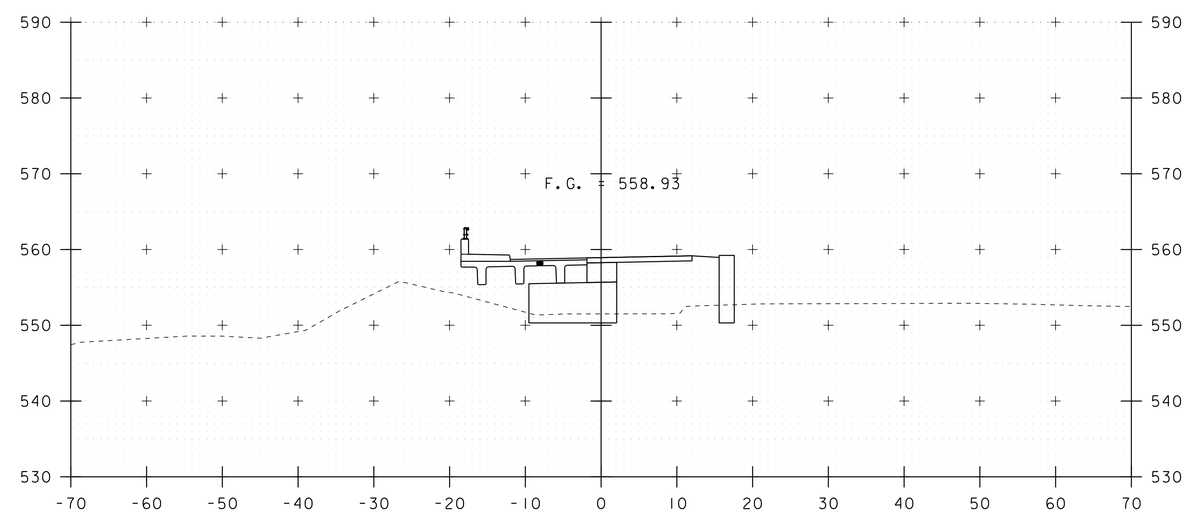


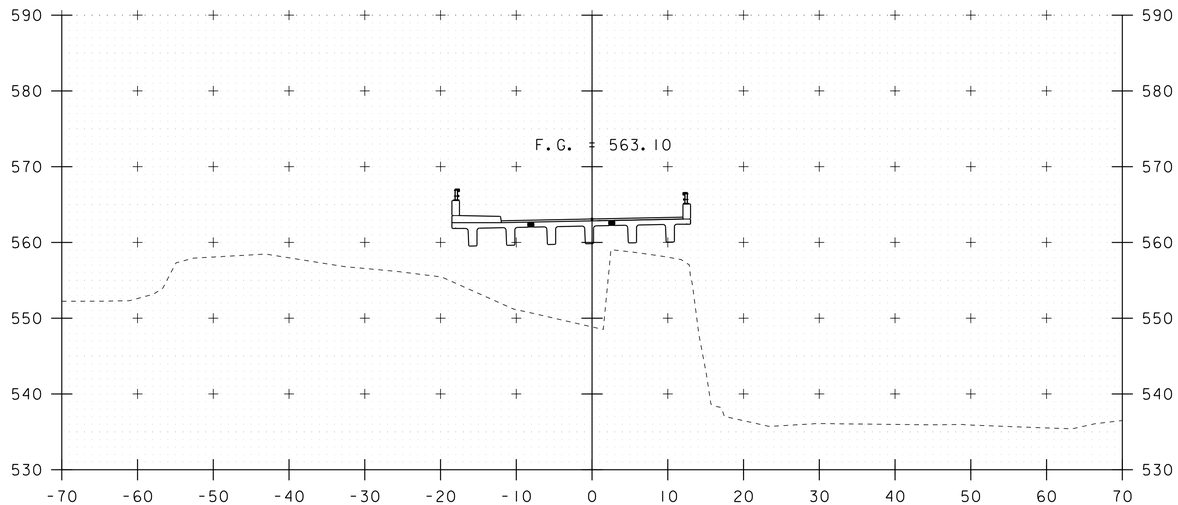
15+75



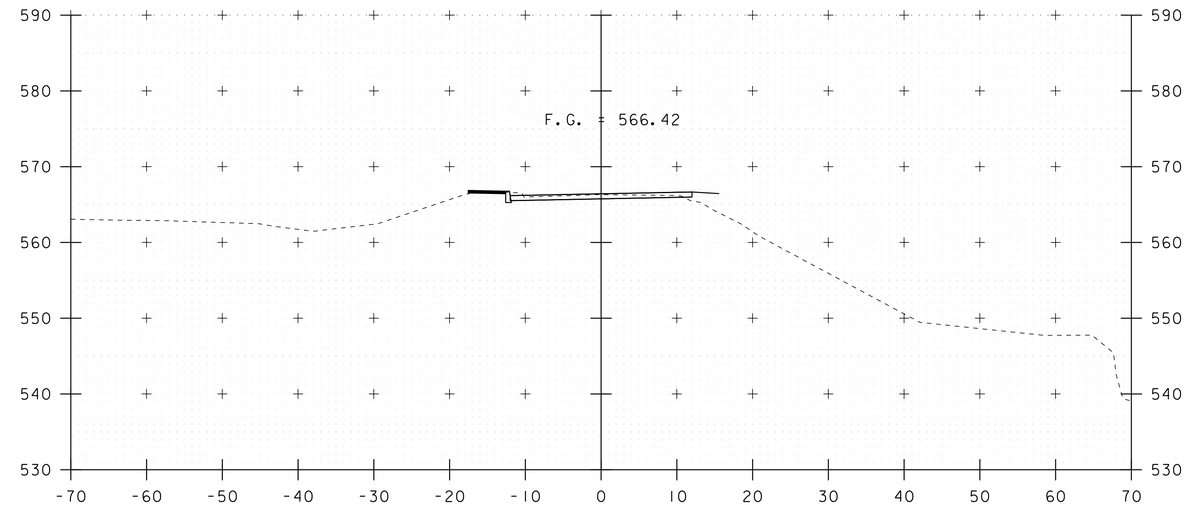
16+25

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BHO 1447(30)	
FILE NAME: s12j164xs.dgn	PLOT DATE: 09-MAY-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
MAINLINE CROSS SECTIONS 2	SHEET 8 OF 14

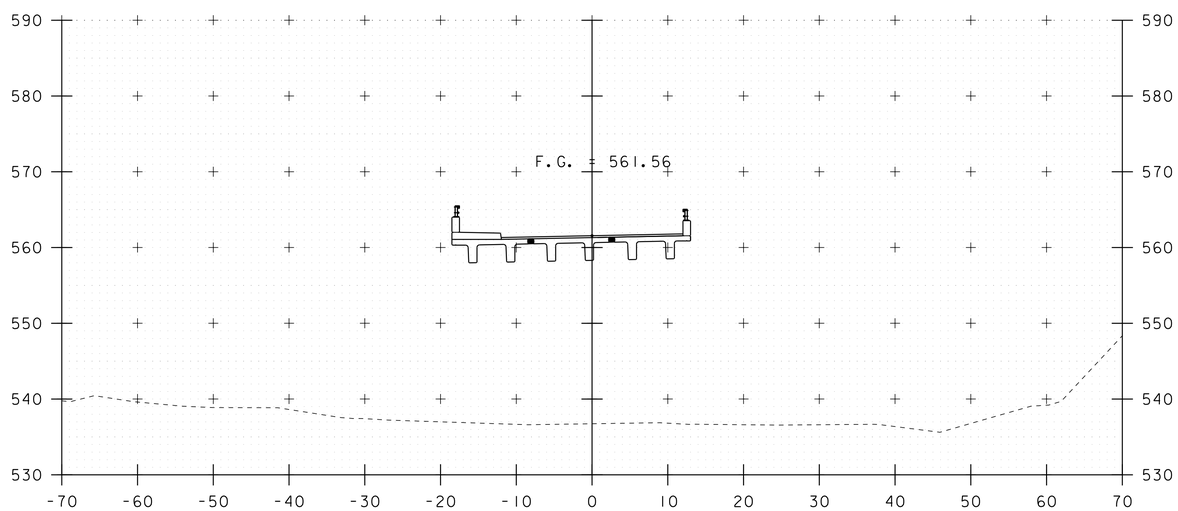
STA. 15+75 TO STA. 16+50



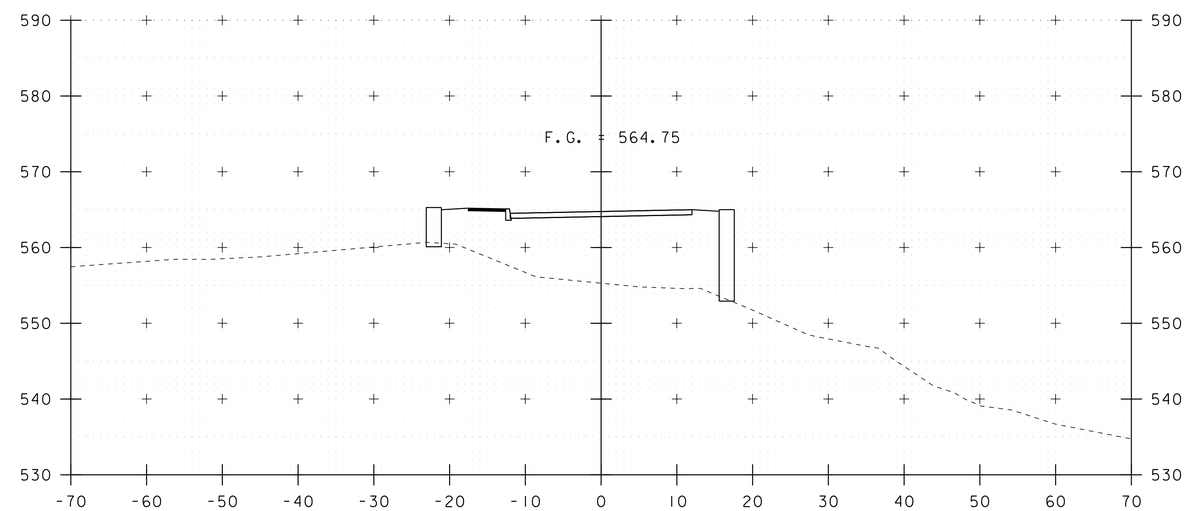
17+00



17+50



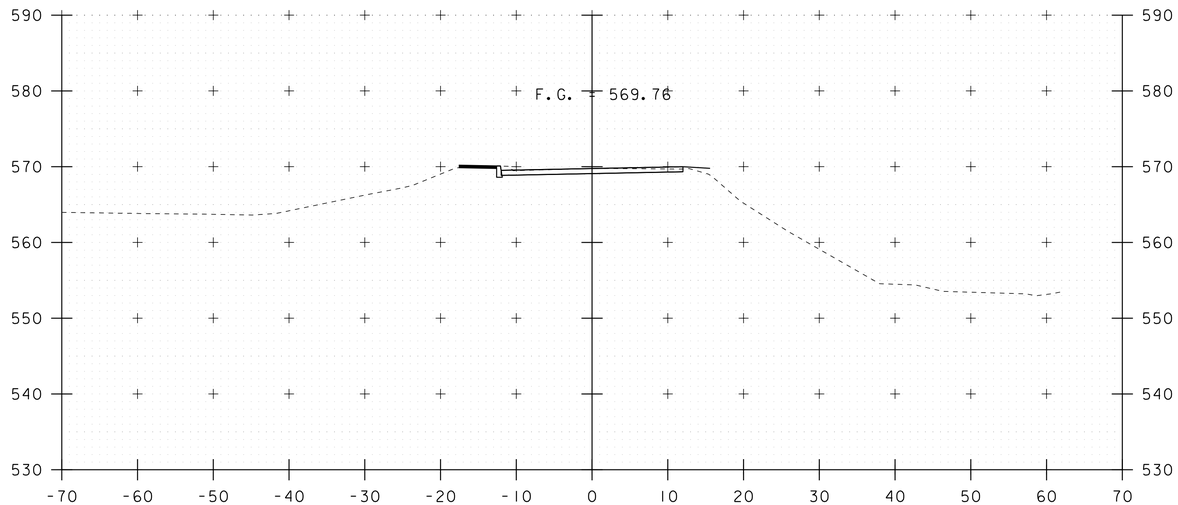
16+75



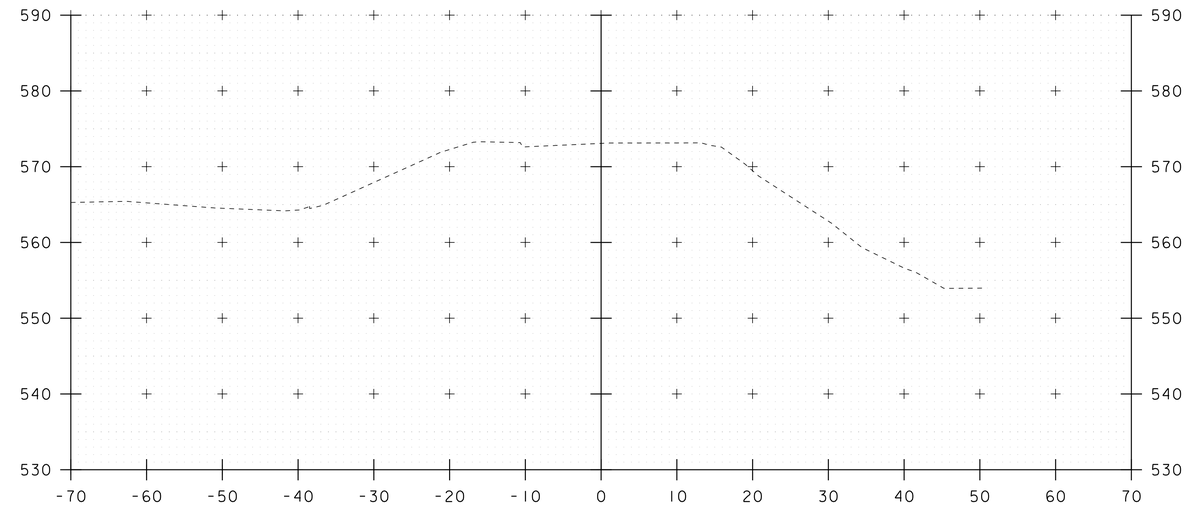
17+25

STA. 16+75 TO STA. 17+50

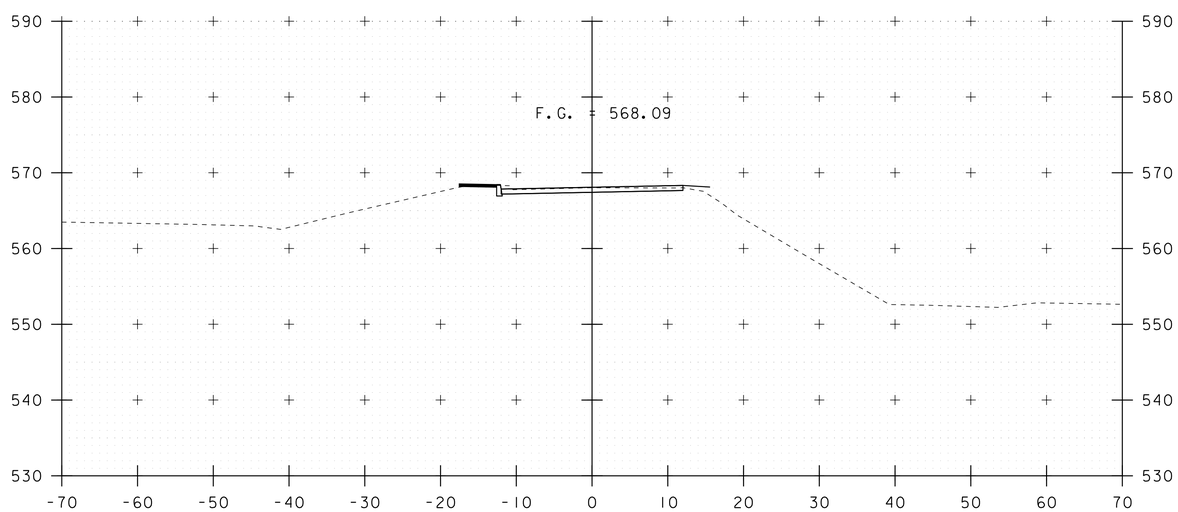
PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BHO 1447(30)	
FILE NAME: s12j164xs.dgn	PLOT DATE: 09-MAY-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
MAINLINE CROSS SECTIONS 3	SHEET 9 OF 14



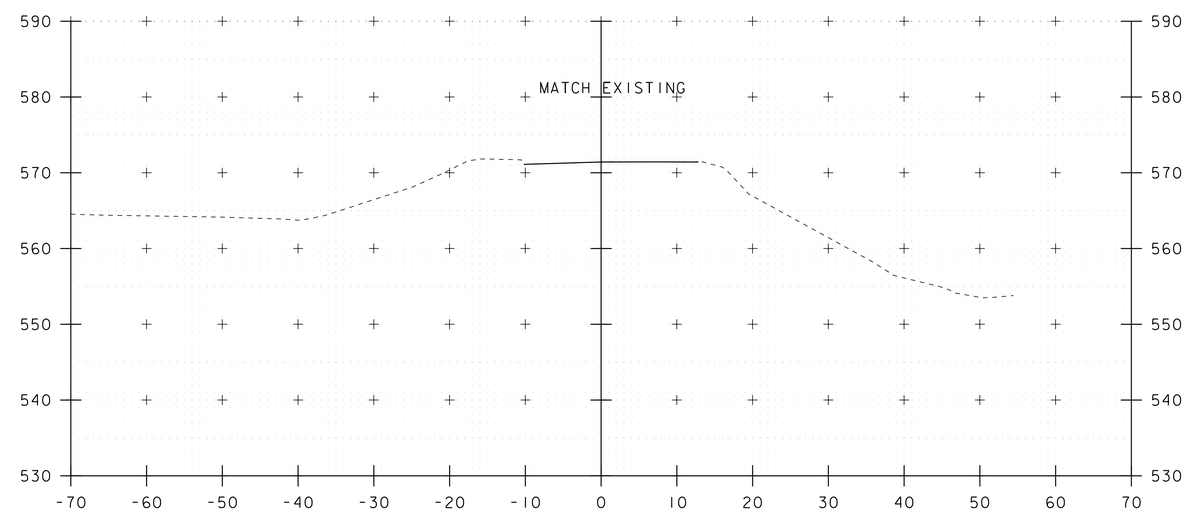
18+00



18+50



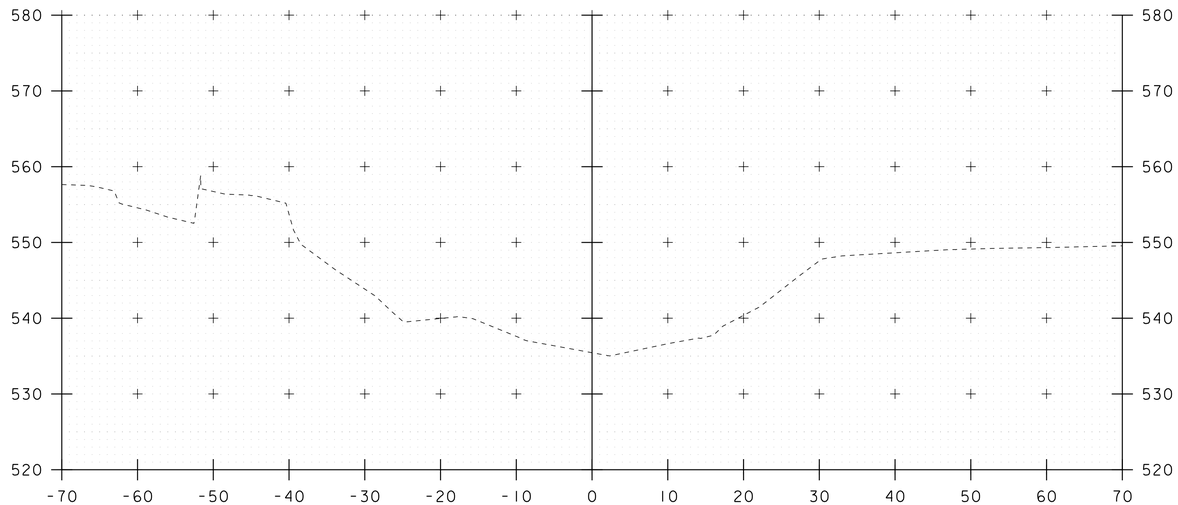
17+75



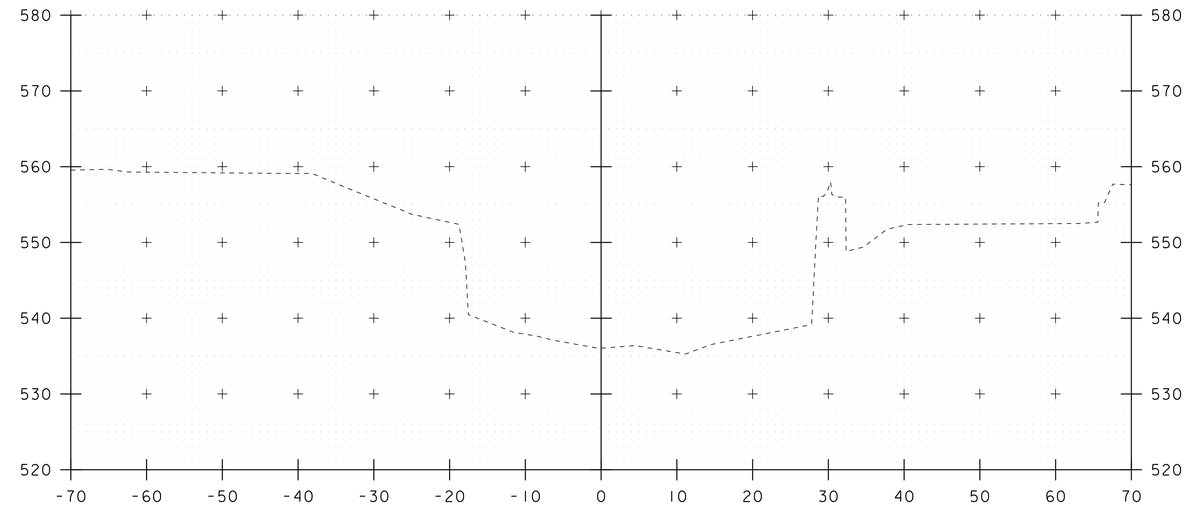
18+25

STA. 17+75 TO STA. 18+50

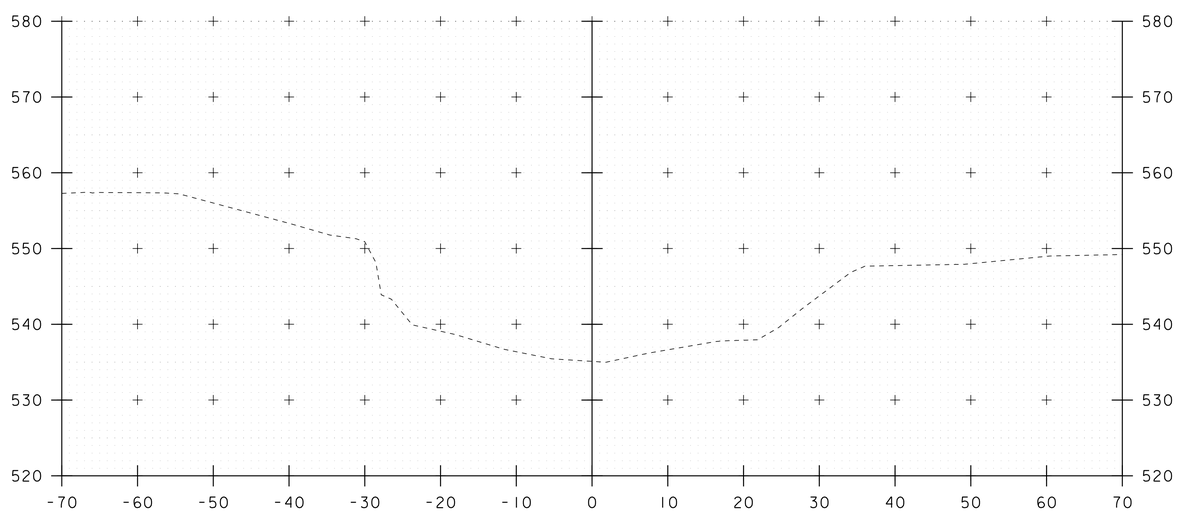
PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BHO 1447(30)	
FILE NAME: s12j164xs.dgn	PLOT DATE: 09-MAY-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
MAINLINE CROSS SECTIONS 4	SHEET 10 OF 14



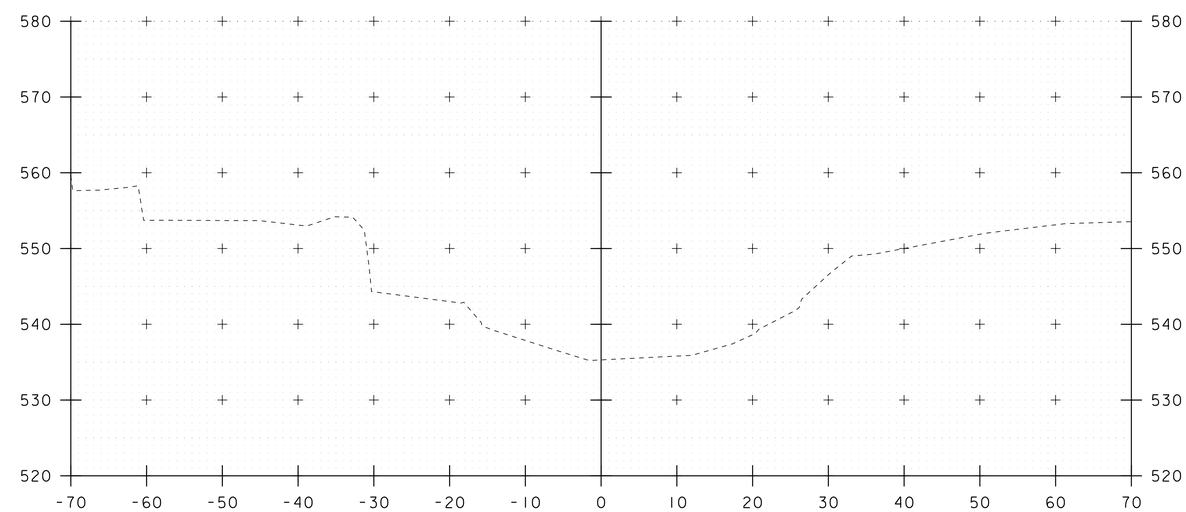
50+25



50+75



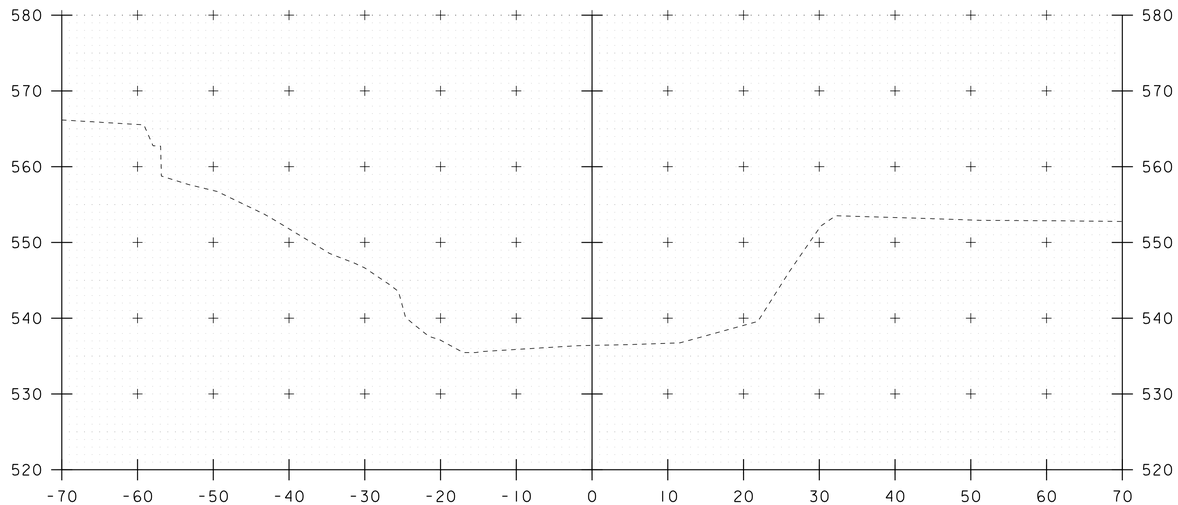
50+00



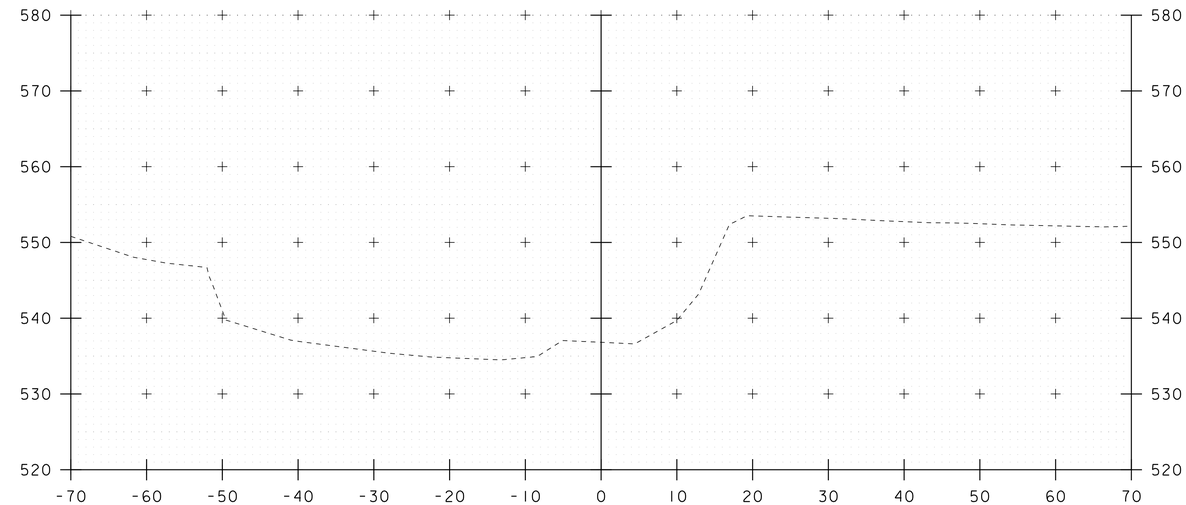
50+50

STA. 50+00 TO STA. 50+75

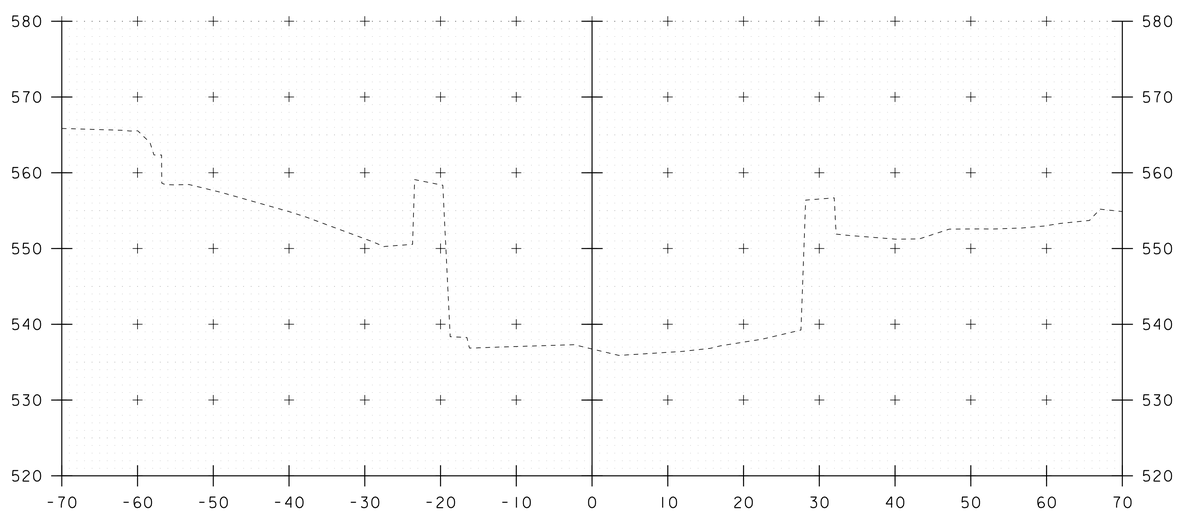
PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BHO 1447(30)	
FILE NAME: s12j164xs.dgn	PLOT DATE: 09-MAY-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
CHANNEL CROSS SECTIONS 1	SHEET 11 OF 14



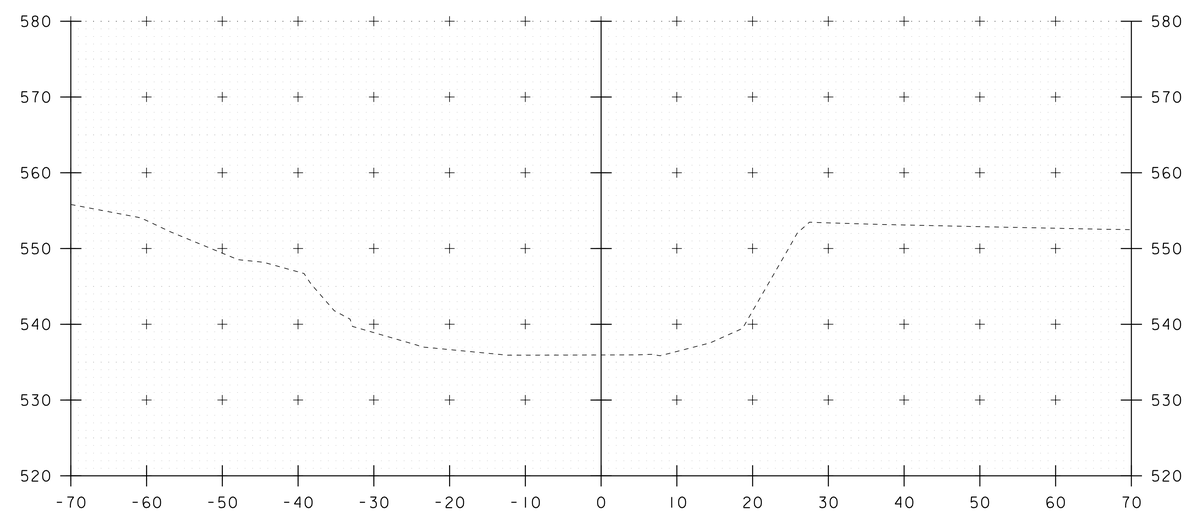
51+25



51+75



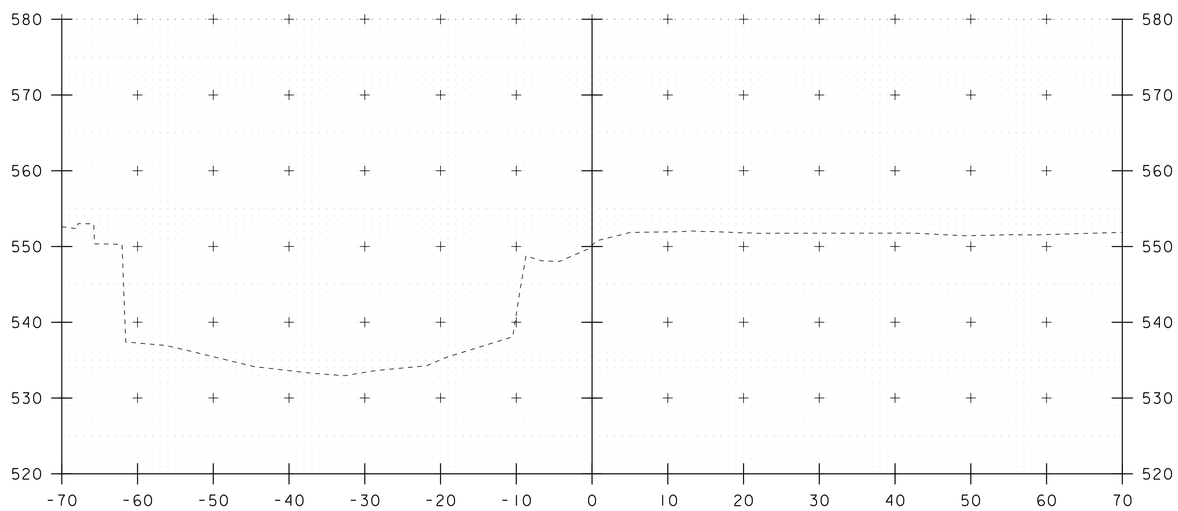
51+00



51+50

STA. 51+00 TO STA. 51+75

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BHO 1447(30)	
FILE NAME: s12j164xs.dgn	PLOT DATE: 09-MAY-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
CHANNEL CROSS SECTIONS 2	SHEET 12 OF 14



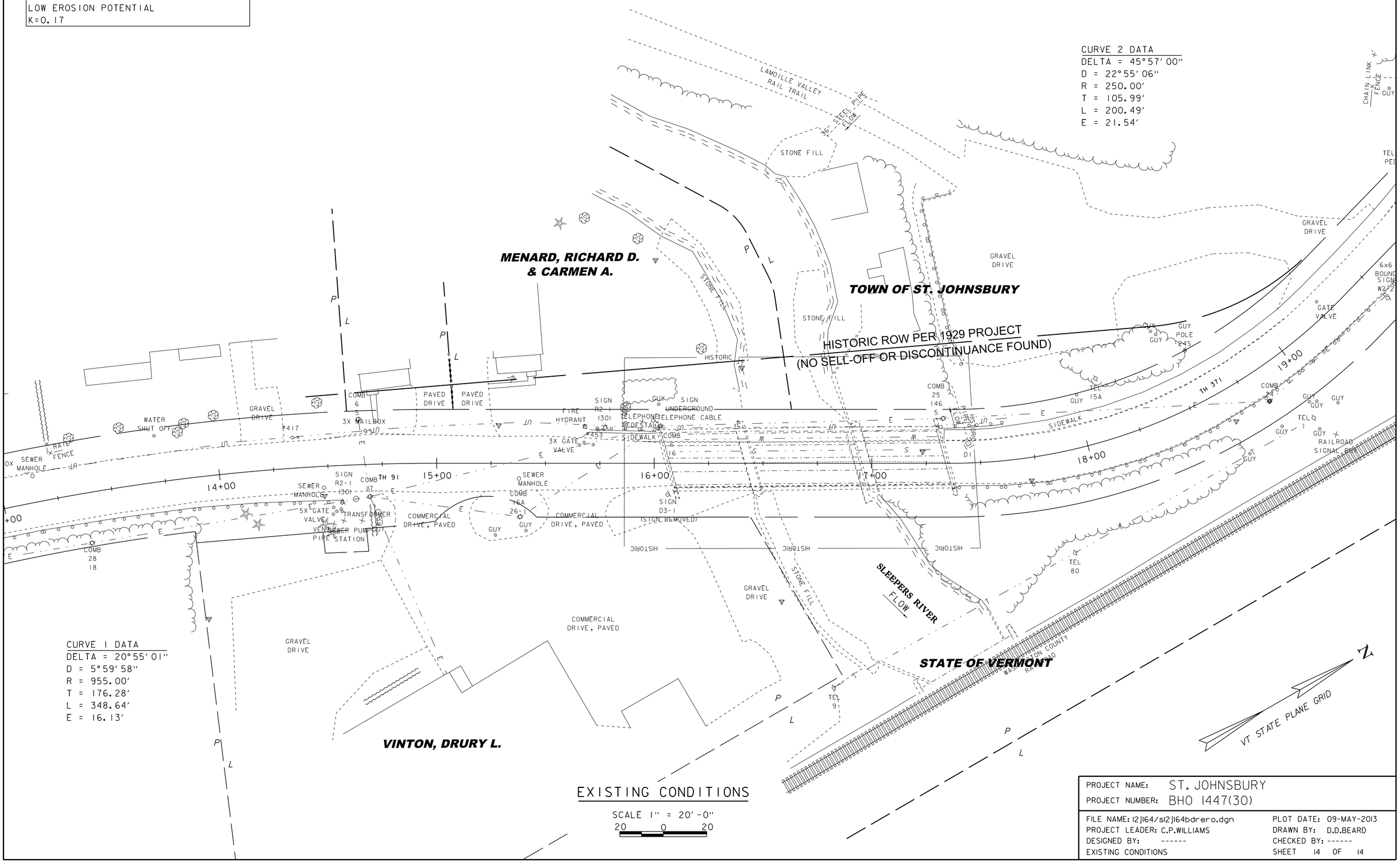
52+00

STA. 52+00 TO STA. 52+00

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BHO 1447(30)	
FILE NAME: s12j164xs.dgn	PLOT DATE: 09-MAY-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
CHANNEL CROSS SECTIONS 3	SHEET 13 OF 14

SOIL INFORMATION
URBAN LAND-ADAMS-NICHOLVILLE COMPLEX
0% - 8% SLOPES
LOW EROSION POTENTIAL
K=0.17

CURVE 2 DATA
DELTA = 45°57'00"
D = 22°55'06"
R = 250.00'
T = 105.99'
L = 200.49'
E = 21.54'



CURVE 1 DATA
DELTA = 20°55'01"
D = 5°59'58"
R = 955.00'
T = 176.28'
L = 348.64'
E = 16.13'

EXISTING CONDITIONS

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

PROJECT NAME: ST. JOHNSBURY	
PROJECT NUMBER: BHO 1447(30)	
FILE NAME: 12J164/s12J164bdrero.dgn	PLOT DATE: 09-MAY-2013
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
EXISTING CONDITIONS	SHEET 14 OF 14