

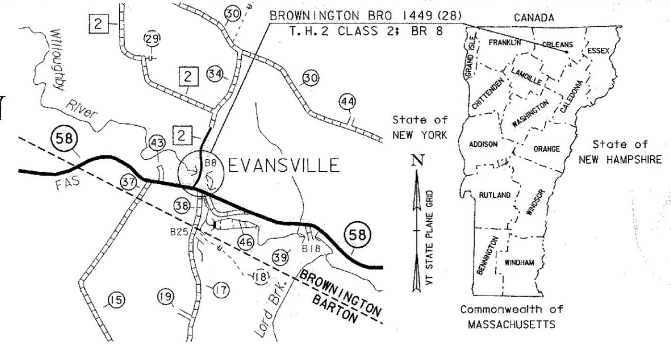
INDEX OF SHEETS

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STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT TOWN OF BROWNINGTON COUNTY OF ORLEANS



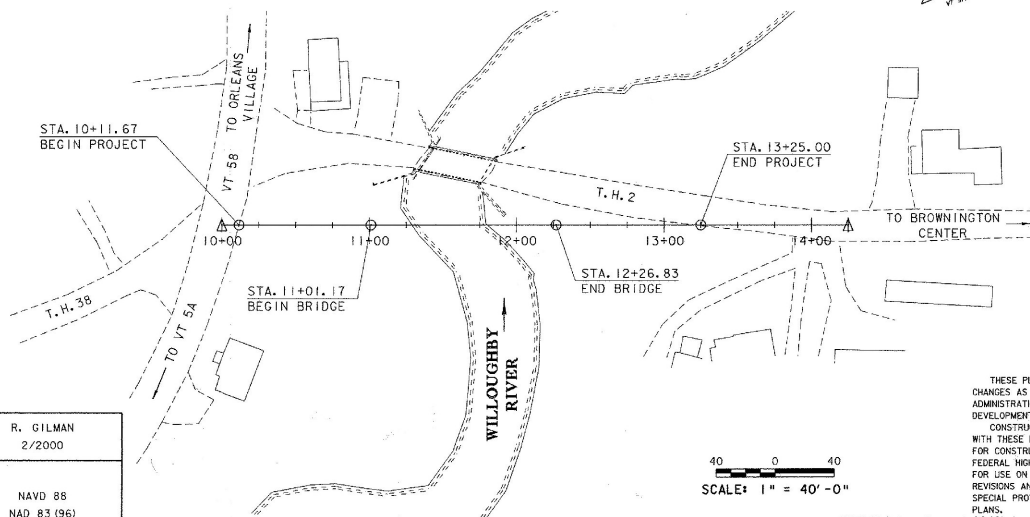
LOCATION MAP

ROUTE NO : T.H. 2 CL.2 BRIDGE NO : BR 8

PROJECT LOCATION : BEGINNING AT THE INTERSECTION OF T.H. 2 AND VT 58 AND
EXTENDING NORTHERLY ALONG T.H. 2 FOR 0.06 MILES.

PROJECT DESCRIPTION : REPLACEMENT OF THE EXISTING BRIDGE WITH A NEW STRUCTURE,
INCLUDING RELATED CHANNEL AND APPROACH ROADWAY WORK.

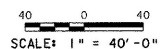
LENGTH OF STRUCTURE : 125.66 FEET.
LENGTH OF ROADWAY : 187.67 FEET.
LENGTH OF PROJECT : 313.33 FEET.



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 :	R. GILMAN
SURVEYED DATE :	2/2000
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)



RECORD PLANS	
CONTRACTOR:	AUSTIN CONSTRUCTION INC., CONCORD, VT
RESIDENT ENGINEER:	SHANE MORIN
CONSTRUCTION BEGAN:	JULY 1, 2009
CONSTRUCTION COMPLETE:	AUGUST 12, 2010
RECORD PLANS BY:	SHANE MORIN & AMOS KEMPTON
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY	RESIDENT ENGINEER
DATE	8/2/2011
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.	

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

DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED	DATE 12-28-08
PROJECT MANAGER : R. R. WHITCOMB	
PROJECT NAME : BROWNINGTON	
PROJECT NUMBER : BRO 1449 (28)	
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PRELIMINARY INFORMATION SHEET

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FINAL HYDRAULIC REPORT

HYDROLOGIC DATA Date: Jan. 2004

DRAINAGE AREA : 33.8 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous
 STREAM CHARACTERISTICS : Sinuous, probably incised and alluvial. Not braided.
 NATURE OF STREAMBED : Gravel and cobbles.

PEAK FLOW DATA

Q 2.33 = 700 cfs	Q 50 = 2,800 cfs
Q 10 = 1,700 cfs	Q 100 = 3,100 cfs
Q 25 = 2,200 cfs	Q 500 = 4,500 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q25 = 10.2 fps
 ICE CONDITIONS : Moderate
 DEBRIS : Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? : Yes
 IS ORDINARY RISE RAPID? : Yes
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? : Yes
 IF YES, DESCRIBE : Lake Willoughby, upstream, provides storage and affects flows.

WATERSHED STORAGE : 10.0% HEADWATERS:
 UNIFORM : X
 IMMEDIATELY ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : Single span steel beam bridge.
 YEAR BUILT : 1929
 CLEAR SPAN(NORMAL TO STREAM) : 40' maximum (36' effective due to skew)
 VERTICAL CLEARANCE ABOVE STREAMBED : 21' Min. beam elev. 1101.0'
 WATERWAY OF FULL OPENING : 725 sq. ft.
 DISPOSITION OF STRUCTURE : Remove
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See boring logs.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 1085.5'	VELOCITY = 8.6 fps
Q10 = 1087.0'	" 13.6 fps
Q25 = 1087.6'	" 15.5 fps
Q50 = 1089.1'	" 16.6 fps
Q100 = 1090.2'	" 17.8 fps

LONG TERM STREAMBED CHANGES : None noted.

IS THE ROADWAY OVERTOPPED BELOW Q100 : No
 FREQUENCY : Above Q100
 RELIEF ELEVATION : 1104.3'
 DISCHARGE OVER ROAD @Q100 : None

UPSTREAM STRUCTURE

TOWN : Brownington DISTANCE : 650'
 HIGHWAY# : VT 58 STRUCTURE # : 13
 CLEAR SPAN : 75' CLEAR HEIGHT : 14'
 YEAR BUILT : 1929 (reconstructed 1972) FULL WATERWAY : 1180 sq. ft.
 STRUCTURE TYPE : Three span concrete slab bridge.

DOWNSTREAM STRUCTURE

TOWN : Brownington - Barton DISTANCE : 4.0 mi.
 HIGHWAY# : T.H. 1 - T.H. 5 STRUCTURE # : 0
 CLEAR SPAN : 54' CLEAR HEIGHT : 12.5'
 YEAR BUILT : 1929 (reconstructed 1980) FULL WATERWAY : 600 sq. ft.
 STRUCTURE TYPE : Single span concrete T-beam bridge.

LOAD RATING (TONS)

LOADING LEVELS	TRUCK						
	H	HS	352	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
INVENTORY	73	47					
POSTED	79	51	96		81	82	60
OPERATING		61	115	129	97	99	

COMMENTS : LRFR Rating

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2005	340	30	68	8	15
2025	320	40	68	8	20

20 year ESAL for flexible pavement from 2005 to 2025 : 118,000
 40 year ESAL for flexible pavement from 2005 to 2045 : 265,000
 Design Speed : 25 mph

PROPOSED STRUCTURE

STRUCTURE TYPE : Single span plate girder bridge with conc. deck & integral abutments.

CLEAR SPAN(NORMAL TO STREAM) : 121'
 VERTICAL CLEARANCE ABOVE STREAMBED : 24'
 WATERWAY OF FULL OPENING : 1990 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 1084.4'	VELOCITY = 7.5 fps
Q10 = 1086.4'	" 10.3 fps
Q25 = 1087.2'	" 11.2 fps
Q50 = 1087.9'	" 11.7 fps
Q100 = 1088.6'	" 12.3 fps

IS THE ROADWAY OVERTOPPED BELOW Q100 : No
 FREQUENCY : Above Q100
 RELIEF ELEVATION : 1109.8'
 DISCHARGE OVER ROAD @Q100 : None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE : 1105.0' average (1103.9' min.)
 VERTICAL CLEARANCE : @ Q100, 16.4' average (15.3' minimum)

SCOUR : 1.0' of contraction scour up through Q500.

REQUIRED CHANNEL PROTECTION : Type I stone fill below elev. 1050, Type II above

PERMIT INFORMATION

AVERAGE DAILY FLOW : 70 cfs	DEPTH OR ELEVATION :
ORDINARY LOW WATER : 30 cfs	1.0'
ORDINARY HIGH WATER : 300 cfs	2.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE : Traffic will be maintained on the existing bridge.
 CLEAR SPAN (NORMAL TO STREAM) :
 VERTICAL CLEARANCE ABOVE STREAMBED :
 WATERWAY AREA OF FULL OPENING :

ADDITIONAL INFORMATION

DESIGN CRITERIA

- DESIGN LIVE LOAD : AASHTO HL-93
- DESIGN SPAN : 124.00 feet
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL : N/A
- KNOWLEDGE : N/A
- ALLOWABLE LOAD FOR PILING : See General Notes
- TYPE : STEEL PILING, HP 12 X 84 Fy = 50 ksi
- ESTIMATED LENGTH : Abutment 1 - 122 ft, Abutment 2 - 77 ft
- STRUCTURAL STEEL : AASHTO M420 GRADE 50W
- REINFORCING STEEL GRADE : 60 ksi
- CONCRETE CLASS A (HPC-A) 4" c : 4500 psi
- CONCRETE CLASS B (HPC-B) 4" c : 3500 psi
- SOIL UNIT WEIGHT : 140 pcf
- DESIGN LOAD FOR SPREAD FOOTINGS ON SOIL : N/A

TRAFFIC MAINTENANCE

1. IS TRAFFIC TO BE MAINTAINED? : YES
 IF YES, ON EXISTING STRUCTURE? : EXISTING STRUCTURE
 OR ON TEMPORARY BRIDGE?
 ONE OR TWO-WAY TRAVEL? : ONE-LANE
 2. TRAFFIC CONTROL SIGNALS REQUIRED? : NO
 3. ARE SIDEWALKS REQUIRED? : NO
 IF SO, ON WHAT SIDE? : N/A

PROJECT NAME : BROWNINGTON
 PROJECT NUMBER : BRO 1449 (28)

FILE NAME : 99\246\Structure\9246\p1.xls
 PROJECT MANAGER : R. WHITCOMB
 DESIGNED BY : T. LACKEY
 PRELIMINARY INFORMATION SHEET

PLOT DATE : 1/16/2009
 DRAWN BY : STR3
 CHECKED BY : R. WHITCOMB
 SHEET 2 OF 58

GENERAL

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2006 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 3RD EDITION, AND ITS LATEST REVISIONS.

- ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AT 68°F.

CONSTRUCTION

- IN-STREAM CONSTRUCTION, PERMITS DESIGNATE AND LIMIT THE PERIOD FOR IN-STREAM CONSTRUCTION, THE AGENCY OF NATURAL RESOURCES MUST APPROVE ANY DEVIATION FROM THIS PERIOD IN WRITING.
- ELLIS G. ANDERSON, PARCEL #4. SEE SPECIAL PROVISIONS FOR RIGHT OF WAY SPECIAL AGREEMENT WITH ANDERSON REGARDING FIREWOOD. ITEM 900.645 "SPECIAL PROVISION (REMOVE AND RELOCATE EXISTING TIMBER DECK AND STAIRWAY)" IS PROVIDED TO REMOVE ANDERSON'S 6'X6' DECK ON THE RIVERBANK AT STA. 12+23 RT 50'. RELOCATE THE DECK IN KIND ON NEW LOCATION OUTSIDE OF THE LIMIT OF THE NEW STONE FILL AS SHOWN IN THE LAYOUT PLAN.
- DEAN PROCTOR, PARCEL #2. ITEM 620.50 "REMOVING AND RESETTING FENCE" IS PROVIDED TO RELOCATE AN EXISTING STOCKADE FENCE AT THE END OF PROCTOR'S DRIVEWAY.
- ITEM 900.645 "SPECIAL PROVISION (REMOVE AND RELOCATE EXISTING TIMBER STAIRWAY)" IS PROVIDED TO RELOCATE EXISTING STEPS ON A DECK TO AVOID THE RESET STOCKADE FENCE. RELOCATE THE STAIRWAY ON NEW LOCATION AWAY FROM THE STOCKADE FENCE AS SHOWN IN THE LAYOUT PLAN. USE COMMERCIALY AVAILABLE MATERIAL TO MATCH THE EXISTING STEPS AND RAILING.

TRAFFIC CONTROL

- ITEM 641.10 "TRAFFIC CONTROL". THE CONTRACTOR SHALL DESIGN AND DETAIL A TRAFFIC CONTROL PLAN FOR THE RESIDENT ENGINEER'S APPROVAL. THE PLAN SHALL BE IN ACCORDANCE WITH PLAN SHEETS, STANDARD SHEETS, CURRENT MUTCD REQUIREMENTS, SUBSECTION 104.04, 105.03, AND SECTION 641. THE PLAN SHALL MAINTAIN A MINIMUM OF ONE-WAY TRAFFIC DURING CONSTRUCTION; INCLUDE MEANS OF SEPARATING TRAFFIC AND CONSTRUCTION AT DIFFERENT ELEVATIONS; AND MAINTAIN FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS AT ALL TIMES.

APPLY TEMPORARY PAVEMENT MARKINGS IN ACCORDANCE WITH SECTION 646. IF USED, TEMPORARY TRAFFIC BARRIER AND ENERGY ABSORPTION ATTENUATORS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SECTION 621.

INCLUDE ANY COSTS ASSOCIATED WITH THE DESIGN, CONSTRUCTION AND MAINTENANCE OF THE PLAN AND ANY OTHER TRAFFIC CONTROLS ON THE PROJECT. INCLUDE SIGNS, TRAFFIC CONTROL DEVICES, TEMPORARY PAVEMENT MARKINGS, ENERGY ABSORPTION ATTENUATORS, TEMPORARY TRAFFIC BARRIER, AND SOIL-RETAINING SYSTEMS.

FLAGGERS AND UNIFORMED TRAFFIC OFFICERS WILL BE PAID FOR BY THEIR RESPECTIVE CONTRACT ITEMS.

EARTHWORK

- ITEM 203.30 "EARTH BORROW". THE MAXIMUM SIZE OF ANY ROCK PARTICLES IN THE FILL THRU WHICH PILES ARE DRIVEN SHALL NOT EXCEED 6.0 IN.
- ITEM 301.35 "SUBBASE OF DENSE GRADED CRUSHED STONE". SEE SUBSECTION 301.06 "COMPACTION" OF THE STANDARD SPECIFICATIONS FOR TESTING REQUIREMENTS.
- ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE". REMOVE ALL OF THE SUPERSTRUCTURE. REMOVE THE SOUTH ABUTMENT TO ITS BRIDGE SEAT ELEVATION. REMOVE THE NORTH ABUTMENT TO THE TOP OF STONE FILL SHOWN IN THE CHANNEL CROSS SECTIONS.
- ARTESIAN GROUNDWATER WAS FOUND IN BORING B-3 WHEN IT WAS DRILLED. WHEN THE BORING WAS PLUGGED, GROUNDWATER CONTINUED TO FLOW NEAR THE TOE OF SLOPE. UNDERDRAIN IS PROVIDED IN THE QUANTITIES UNDER ITEM 605.10 TO HELP CONTROL THIS GROUNDWATER IF DEEMED NECESSARY BY THE ENGINEER.
- BACKFILL ABUTMENTS BY SIMULTANEOUSLY RAISING THE ELEVATIONS OF THE BACKFILL IN FRONT OF AND BEHIND THE ABUTMENTS.

UTILITIES

- THE CONTRACTOR SHALL PLACE THE EXISTING 12" WATERLINE IN A NEW 24" SLEEVE BETWEEN THE STATIONS AND OFFSETS SHOWN ON THE LAYOUT SHEET. THESE STATIONS AND THE LOCATION OF THE WATERLINE SHOWN ON THE LAYOUT SHEET ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING THE WATERLINE. COSTS FOR EXCAVATION TO LOCATE THE WATERLINE WILL BE PAID FOR UNDER ITEM 204.22 "TRENCH EXCAVATION OF EARTH, EXPLORATORY". COSTS FOR EXCAVATING FOR PLACEMENT OF THE SLEEVE WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 625.10.
- THE CONTRACTOR SHALL DISCONNECT THE WATERLINE AT EXISTING JOINTS CLOSEST TO OFFSETS GIVEN; PLACE THE WATERLINE WITHIN THE NEW SLEEVE AND RECONNECT THE WATERLINE. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 625.10 "SLEEVES FOR UTILITIES (1 X 24)".
- THE WATERLINE MAY BE SHUT-DOWN FOR A MAXIMUM OF THREE DAYS WHILE THE SLEEVE IS INSTALLED. CONTACT LARRY AUSTIN OF THE TOWN OF ORLEANS WATER DEPARTMENT AT (802) 754-2150 TO ARRANGE FOR THIS SHUT-DOWN AND FOR THE INSPECTION AND ACCEPTANCE OF THE WORK PRIOR TO BACKFILLING.

REINFORCED CONCRETE

- ITEM 900.608, SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT). USE THIS ITEM FOR THE DECK AND INTEGRAL ABUTMENT BACK WALL AND WING WALLS ABOVE THE PILE CAP CONSTRUCTION JOINT.
- ITEM 501.34 "CONCRETE, HIGH PERFORMANCE CLASS B". USE THIS ITEM FOR THE APPROACH SLABS, PILE CAPS, AND WING WALLS BELOW THE PILE CAP CONSTRUCTION JOINT.
- ITEM 507.17 "EPOXY COATED REINFORCING STEEL". USE THIS ITEM FOR ALL REINFORCING STEEL.
- CONCRETE JOINTS. CONSTRUCT CONCRETE JOINTS AS INDICATED ON THE PLANS OR DIRECTED BY THE RESIDENT ENGINEER. CONSTRUCT SHEAR KEYS MONOLITHICALLY AND CONTINUOUSLY UNLESS OTHERWISE INDICATED. TERMINATE SHEAR KEYS 6" (150 MM) FROM ENDS OF JOINTS. IN HORIZONTAL JOINTS, PLACE SHEAR KEYS UPWARD.
- CHAMFERS. CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH 1" X 1" (25 MM X 25 MM) CHAMFERS, UNLESS OTHERWISE NOTED.
- SCORE MARKS. CONSTRUCT SCORE MARKS AS INDICATED ON THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.
- ITEM 514.10 "WATER REPELLENT, SILANE". APPLY REPELLENT TO THE TOP SURFACE OF THE DECK AND ALL OTHER EXPOSED SURFACES OF CONCRETE ON THE BRIDGE, EXCEPT THE BOTTOM OF THE DECK BETWEEN THE FASCIA GIRDERS.

STEEL

- CHARPY V-NOTCH TEST. TEST STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
- BOLTS FOR ALL BOLTED FIELD CONNECTIONS SHALL BE 7/8" DIAMETER HIGH STRENGTH BOLTS IN 1 1/16" DIAMETER HOLES UNLESS OTHERWISE NOTED.
- CONNECTIONS NOT SHOWN IN THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL.
- ITEM 505.265 "STEEL PILING FOR INTEGRAL ABUTMENTS, HP 12 X 84". REINFORCE THE DRIVING TIP ACCORDING TO SUBSECTION 505.04(E) OF THE STANDARD SPECIFICATIONS.
- ITEM 505.45 "DYNAMIC PILE LOADING TEST". THE FACTORED AXIAL COMPRESSIVE LOAD FOR EACH PILE IS 263 KIPS. THE RESISTANCE FACTOR FOR DYNAMIC PILE LOADING TESTING IS 0.52 (EQUAL TO 0.8*0.65). USING THIS RESISTANCE FACTOR, DRIVE PILES TO A REQUIRED NOMINAL PILE DRIVING RESISTANCE OF 506 KIPS.
- GIRDER PROFILES. AFTER THE SUPERSTRUCTURE STEEL HAS BEEN SET ON THE ANCHOR BOLTS, TAKE ELEVATIONS ALONG THE TOP OF THE GIRDERS AS DIRECTED BY THE RESIDENT ENGINEER FOR DETERMINING HAUNCH DEPTHS.
- FLEMING BRACKETS OR SIMILAR FALSEWORK. SPACE FLEMING BRACKETS OR SIMILAR FALSEWORK AS REQUIRED BY DESIGN WITH A MAXIMUM SPACING OF 4' (1200 MM). THE DESIGN OF FALSEWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

- HOLES IN WEB. FILL ANY BOLT HOLES IN THE WEBS OF FASCIA GIRDERS NOT OTHERWISE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS MEETING AASHTO M164 TYPE 3. TIGHTEN THE BOLTS IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.

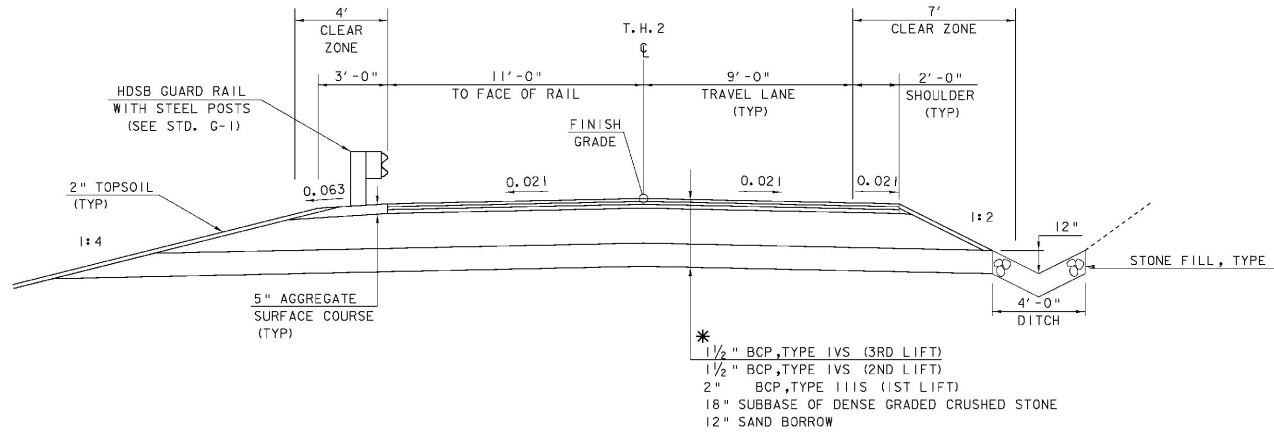
GENERAL NOTES

PROJECT NAME: BROWNINGTON
PROJECT NUMBER: BRO 1449(28)

FILE NAME: sJ246gen.1
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: T. LACKEY
99J246\str\6j246gen.dgn

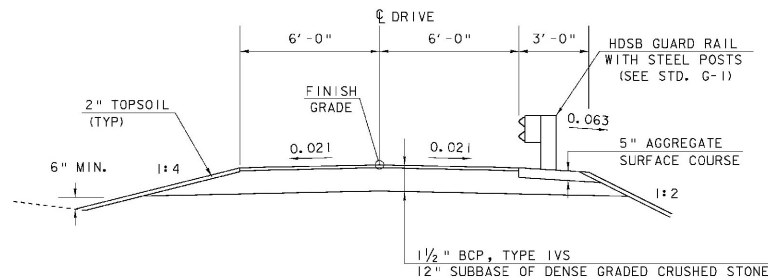
PLOT DATE: 16-JAN-2009
DRAWN BY: T. LACKEY
CHECKED BY: R. WHITCOMB
SHEET 3 OF 58

MATERIAL ITEM	TOLERANCE
PAVEMENT SURFACE COURSE	± 1/4" TOTAL THICKNESS
PAVEMENT BASE COURSE	± 1/2"
AGGREGATE SURFACE COURSE	± 1/2"
SUBBASE	± 1"
SAND BORROW	± 1"
GRANULAR BORROW	± 1"



ROADWAY TYPICAL SECTION

* BCP SHALL BE READ AS BITUMINOUS CONCRETE PAVEMENT AND SHALL BE PAID FOR UNDER SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)

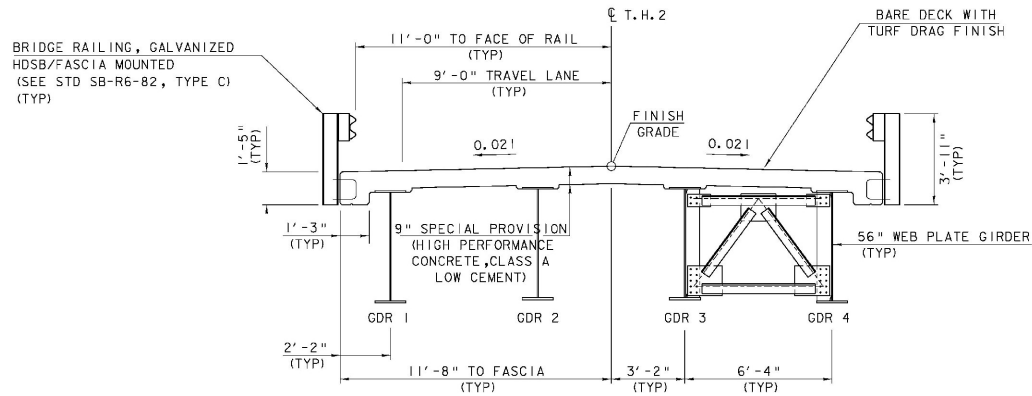


**DRIVEWAY STA 10+76
TYPICAL SECTION**

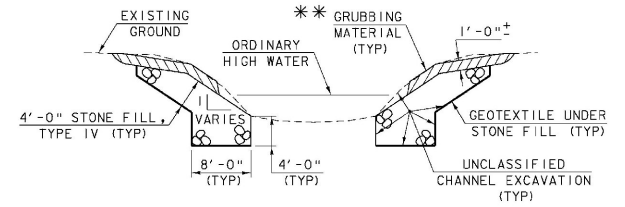
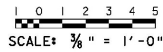
1 0 1 2 3 4 5
SCALE: 3/8" = 1'-0"

**TYPICAL SECTIONS
ROADWAY**

PROJECT NAME: BROWNINGTON	PLOT DATE: 19-DEC-2008
PROJECT NUMBER: BRO 1449 (28)	DRAWN BY: T. LACKEY
FILE NAME: s\j246\typ.dgn	DESIGNED BY: T. LACKEY
PROJECT MANAGER: R. WHITCOMB	CHECKED BY: R. WHITCOMB
DESIGNED BY: T. LACKEY	SHEET: 4 OF 58



BRIDGE TYPICAL SECTION



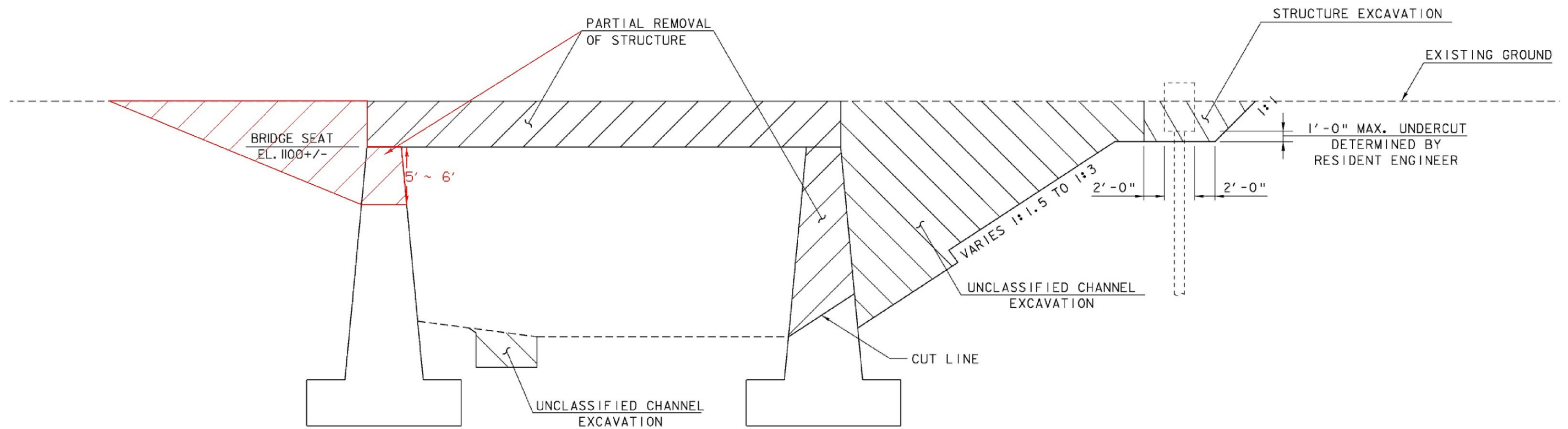
CHANNEL TYPICAL SECTION

NOT TO SCALE

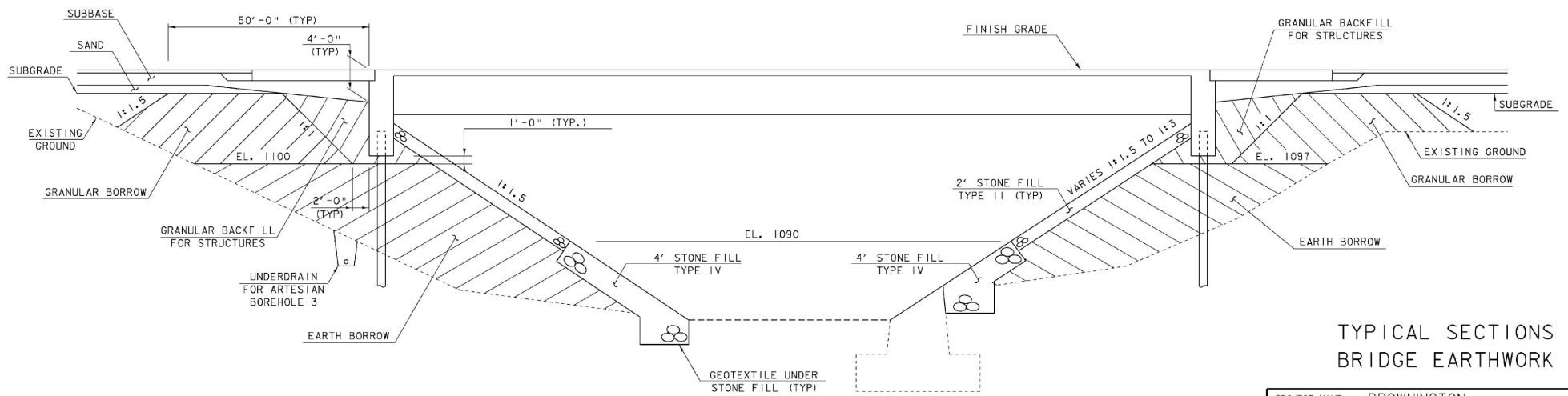
** GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

TYPICAL SECTIONS
BRIDGE

PROJECT NAME: BROWNINGTON	PLOT DATE: 19-DEC-2008
PROJECT NUMBER: BRO 1449 (28)	DRAWN BY: T. LACKEY
FILE NAME: s\j246\y2.1	DESIGNED BY: T. LACKEY
PROJECT MANAGER: R. WHITCOMB	CHECKED BY: R. WHITCOMB
DESIGNED BY: T. LACKEY	SHEET 5 OF 58
95\j246\str\s\j246\typ.dgn	



EXISTING ABUTMENT EXCAVATIONS & REMOVALS
(NOT TO SCALE)



TYPICAL SECTIONS
BRIDGE EARTHWORK

NEW ABUTMENT FILLS
(NOT TO SCALE)

PROJECT NAME: BROWNINGTON
PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sj246ty3.i
PROJECT MANAGER: R. WHITCOMB
DESIGNED BY: T. LACKEY
99J246/str/sj246typ.dgn

PLOT DATE: 19-DEC-2008
DRAWN BY: T. LACKEY
CHECKED BY: R. WHITCOMB
SHEET 6 OF 58

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
								570		570		CY	STONE FILL, TYPE II	613.11				
								770		770	676.37	CY	STONE FILL, TYPE IV	613.13				
						2				2	0	EACH	RELOCATE MAILBOX, SINGLE SUPPORT	617.10				
						5				5	0	EACH	WOOD MARKER POSTS	619.15				
						1				1	0	EACH	REMOVING AND RESETTING PROPERTY MARKERS	619.20				
						88				88	0	LF	CHAIN-LINK FENCE, 6 FEET	620.12				
						51				51	32	LF	REMOVING AND RESETTING FENCE	620.50				
						332.5				332.5	373.95	LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21				
						3				3	4	EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
						390				390		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.60				
						64				64	0	LF	SLEEVES FOR UTILITIES (1 X 24")	625.10				
						1				1	0	EACH	HYDRANT	629.28				
						1				1	0	EACH	REMOVE HYDRANT	629.30				
						100				100	0	HR	UNIFORMED TRAFFIC OFFICERS	630.10				
						700				700		HR	FLAGGERS	630.15				
									1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
									1	1	1	LS	TESTING EQUIPMENT, CONCRETE	631.16				
									1	1	1	LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
									1	1		LU	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.25				
						1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
						1				1	1	LS	TRAFFIC CONTROL	641.10				
						1020				1020	11.82	LF	4 INCH YELLOW LINE	646.21				
						28				28	21	LF	24 INCH STOP BAR	646.26				
						100				100	20	EACH	LINE STRIPING TARGETS	646.76				
						280				280	0	SF	REMOVAL OF EXISTING PAVEMENT MARKINGS	646.85				
						30		1300		1330	1276.26	SY	GEOTEXTILE UNDER STONE FILL	649.31				
								80		80	100	SY	GEOTEXTILE FOR UNDERDRAIN TRENCH LINING	649.41				
						40				40	0	SY	GEOTEXTILE FOR SILT FENCE	649.51				
						200				200	0	SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515				
						110				110	0	SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
						20				20	26	LB	SEED	651.15				
						10				10		LB	SEED, WINTER RYE	651.17				
						200				200	162.5	LB	FERTILIZER	651.18				
						1				1	0.85	TON	AGRICULTURAL LIMESTONE	651.20				
						1				1		TON	HAY MULCH	651.25				
						60				60	6.25	CY	TOPSOIL	651.35				
								780		780	1129.31	SY	GRUBBING MATERIAL	651.40				
						1				1	1	LS	EPSC PLAN	652.10				
						100				100		HR	MONITORING EPSC PLAN	652.20				
						1				1	1.043	LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				

PROJECT NAME:	BROWNINGTON		
PROJECT NUMBER:	BRO 1449 (28)		
FILE NAME:	sj246qty.xls	PLOT DATE:	01/05/2009
PROJECT MANAGER:	R. Whitcomb	DRAWN BY:	T. Lackey
DESIGNED BY:	T. Lackey	CHECKED BY:	R. Whitcomb
QUANTITY SHEET 42		SHEET	8 OF 58

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE	FULL C/E ITEMS	GRAND TOTAL	FAAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								420			420	1379.96	SY	TEMPORARY EROSION MATTING	653.20				
								30			30	0	CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
								100			100	112	CY	VEHICLE TRACKING PAD	653.35				
								2			2	2	EACH	INLET PROTECTION DEVICE, TYPE I	653.40				
								550			550	492	LF	BARRIER FENCE	653.50				
								225			225	111	LF	PROJECT DEMARCATION FENCE	653.55				
							35				35	34.16	SF	TRAFFIC SIGNS, TYPE A	675.20				
							96				96	111	LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
							7				7	6	EACH	REMOVING SIGNS	675.50				
									151		151	148.76	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT)	900.608				
											1	1	LS	SPECIAL PROVISION (REMOVE AND RELOCATE EXISTING TIMBER DECK AND STAIRWAY)	900.645				
											1	0	LS	SPECIAL PROVISION (REMOVE AND RELOCATE EXISTING TIMBER STAIRWAY)	900.645				
											1	0	LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650				
											1	-2286.04	LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650				
							224				224	325.55	TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

QUANTITY SHEET 4

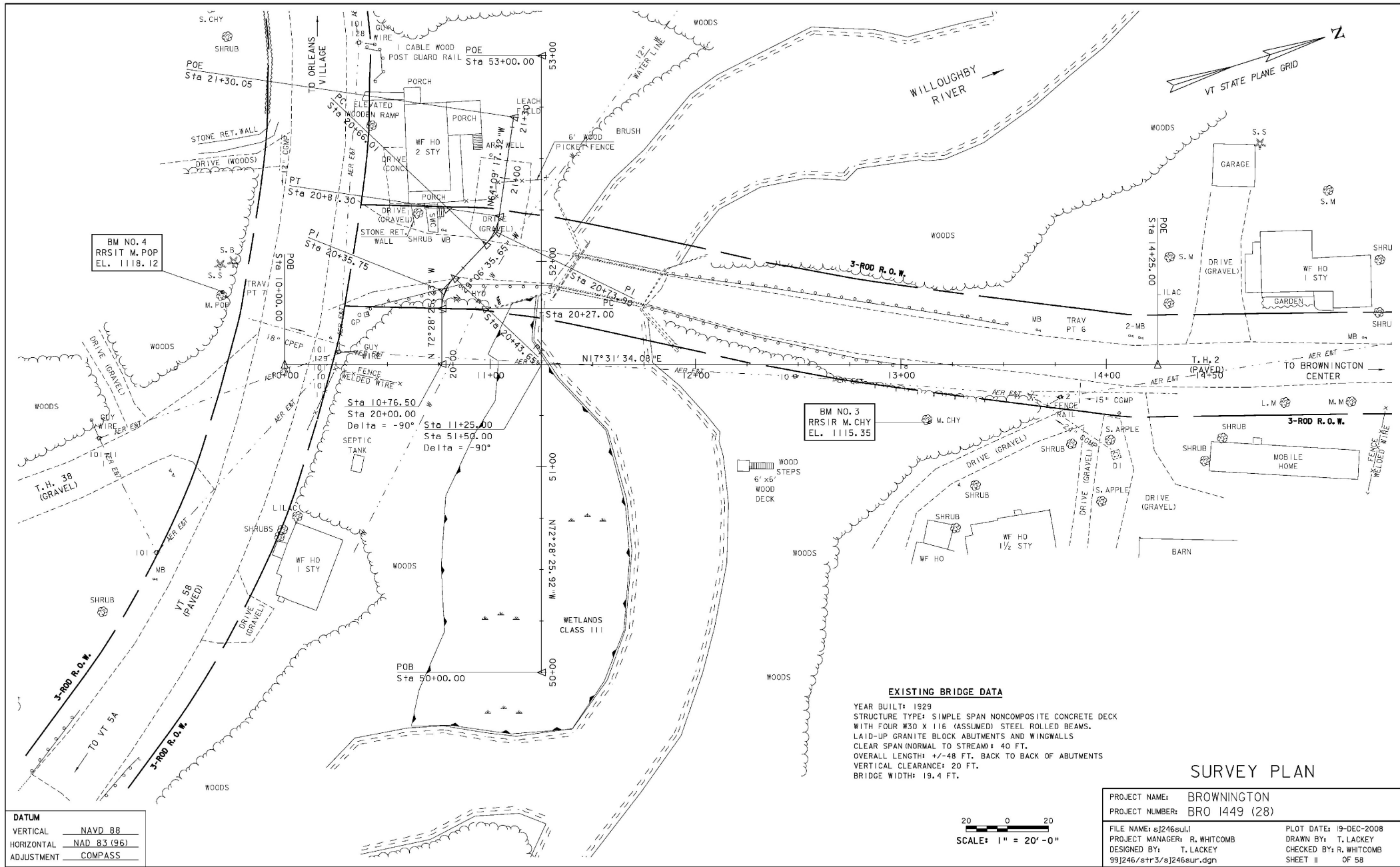
SUMMARY OF BRIDGE QUANTITIES

TOTALS

DESCRIPTIONS

DETAILED SUMMARY OF QUANTITIES

SUMMARY OF BRIDGE QUANTITIES						TOTALS		DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
DECK	APP SLAB 1	APP SLAB 2	ABUT 1	ABUT 2	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS		
			180	1140	1320	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27					
				80	80	CY	STRUCTURE EXCAVATION	204.25					
			100	120	220	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30					
	15	15	17	19	66	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34					
			1		61.3	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10					
			488	308	796	LF	STEEL PILING FOR INTEGRAL ABUTMENTS, HP 12 X 84	505.265					
			1	1	568.34	EACH	DYNAMIC PILE LOADING TEST	505.45					
115850					3	LB	STRUCTURAL STEEL, PLATE GIRDER	506.55					
26736	2155	2155	7663	7809	115850	LB	EPOXY COATED REINFORCING STEEL	507.17					
1					46941	LS	SHEAR CONNECTORS (752 - 7/8" DIA. x 7")	508.15					
27	3	3	4	4	45	GAL	WATER REPELLENT, SILANE	514.10					
	22	22			44	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10					
262.5					44	LF	BRIDGE RAILING, GALVANIZED HD STEEL BEAM/FASCIA MOUNTED	525.41					
90					262.5	SY	REMOVAL OF BRIDGE PAVEMENT	529.10					
1					89.56	EACH	PARTIAL REMOVAL OF STRUCTURE	529.20					
			280	310	590	CY	STONE FILL, TYPE II	613.11					
			340	430	770	CY	STONE FILL, TYPE IV	613.13					
			850	450	677.3	SY	GEOTEXTILE UNDER STONE FILL	649.31					
			80		1300	SY	GEOTEXTILE FOR UNDERDRAIN TRENCH LINING	649.41					
			350	410	80	SY	GRUBBING MATERIAL	651.40					
93			29	29	100	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, CLASS A LOW CEMENT)	900.608					
					1262.60								
					151								
					148.76								



BM NO. 4
RRS IT M. POP
EL. 1118.12

BM NO. 3
RRS I R M. CHY
EL. 1115.35

EXISTING BRIDGE DATA

YEAR BUILT: 1929
 STRUCTURE TYPE: SIMPLE SPAN NONCOMPOSITE CONCRETE DECK
 WITH FOUR W30 X 116 (ASSUMED) STEEL ROLLED BEAMS.
 LAID-UP GRANITE BLOCK ABUTMENTS AND WINGWALLS
 CLEAR SPAN NORMAL TO STREAM: 40 FT.
 OVERALL LENGTH: 47-48 FT. BACK TO BACK OF ABUTMENTS
 VERTICAL CLEARANCE: 20 FT.
 BRIDGE WIDTH: 19.4 FT.

SURVEY PLAN

PROJECT NAME:	BROWNINGTON	PLOT DATE:	19-DEC-2008
PROJECT NUMBER:	BRO 1449 (28)	DRAWN BY:	T. LACKEY
FILE NAME:	s1246eul.l	CHECKED BY:	R. WHITCOMB
PROJECT MANAGER:	R. WHITCOMB	SHEET	II OF 58
DESIGNED BY:	T. LACKEY		

SCALE: 1" = 20' - 0"

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (95)
ADJUSTMENT	COMPASS

GPS CONTROL POINTS

HVCTRL #1

STANDARD DISK STAMPED
EVANSVILLE 1999

N = 39240.657
E = 37263.576
ELEV. = 1166.76

To reach from the intersection of VT routes 5A and 58 in East Brownington go west along VT route 58 for 2.4 mi. to a house on the left and the intersection of a field drive right. Turn right and go north along the field drive for about 262.5-ft to the site of the mark on the right in an old pasture. To reach from the intersection of VT route 58 east and US route 5 in Orleans go east along VT 58 for 4.7 mi. to the intersection of a field drive left. The mark is set in the high point of a 10.5-ft x 5.9-ft rock outcrop, which projects about 1.3 ft above the ground surface. It is 257.9 ft north of and about 3.3 ft higher than the centerline of VT route 58, 78.4 ft east of the centerline of the field drive, 57.4 ft west of a 6 in clump apple, and 13 ft north by northwest of a fiberglass witness post in a wire fence.

- * TO ALLOW THE STATE PLANE COORDINATES TO FIT THE AGENCY DESIGN PLANE , SUBTRACT 800000 FROM THE NORTHING AND 1700000 FROM THE EASTING
- * DESCRIPTION PROVIDED BY VERMONT AGENCY OF TRANSPORTATION GEODETIC SURVEY UNIT

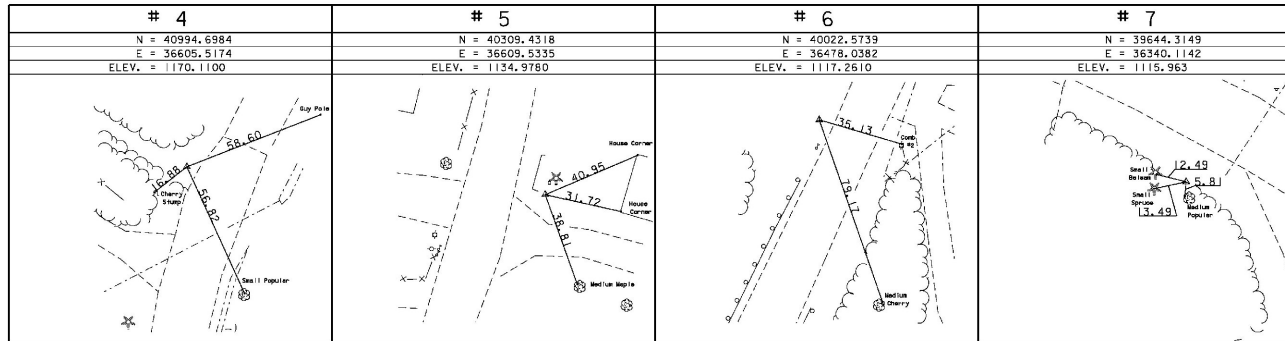
HVCTRL #2

STANDARD DISK STAMPED
EVANSVILLE AZ MK 1999

N = 43073.015
E = 37796.140
ELEV. = 1256.82

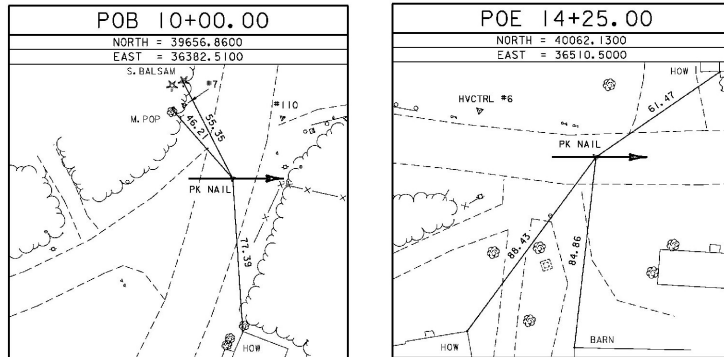
To reach from the intersection of VT routes 5A and 58 in East Brownington go west along VT route 58 for 2.6 mi. to the intersection of Hunt Hill Road right, in Evansville. Turn right and go north along Hunt Hill Rd for 0.7 mi. to the site of the mark on the right in a large field. It is about 0.1 mi. south of the Davignon Farm Complex. To reach from the intersection of VT route 58 east and US route 5 in Orleans go east along VT 58 for 4.5 mi. to the intersection of Hunt Hill Rd left. The mark is set in the high point of a 14.4-ft x 14.4-ft boulder, which projects about 5 ft above ground surface. It is 96.1-ft east of and 3.3 ft lower than the centerline of Hunt Hill Rd, 129.3-ft southeast of an 18 in ash and 11.5 ft east of a fiberglass witness post.

TRAVERSE TIES



* MAIN TRAVERSE COMPLETED Feb. 8, 2000 by Richard Gilman and Ralf Bullock

ALIGNMENT TIES



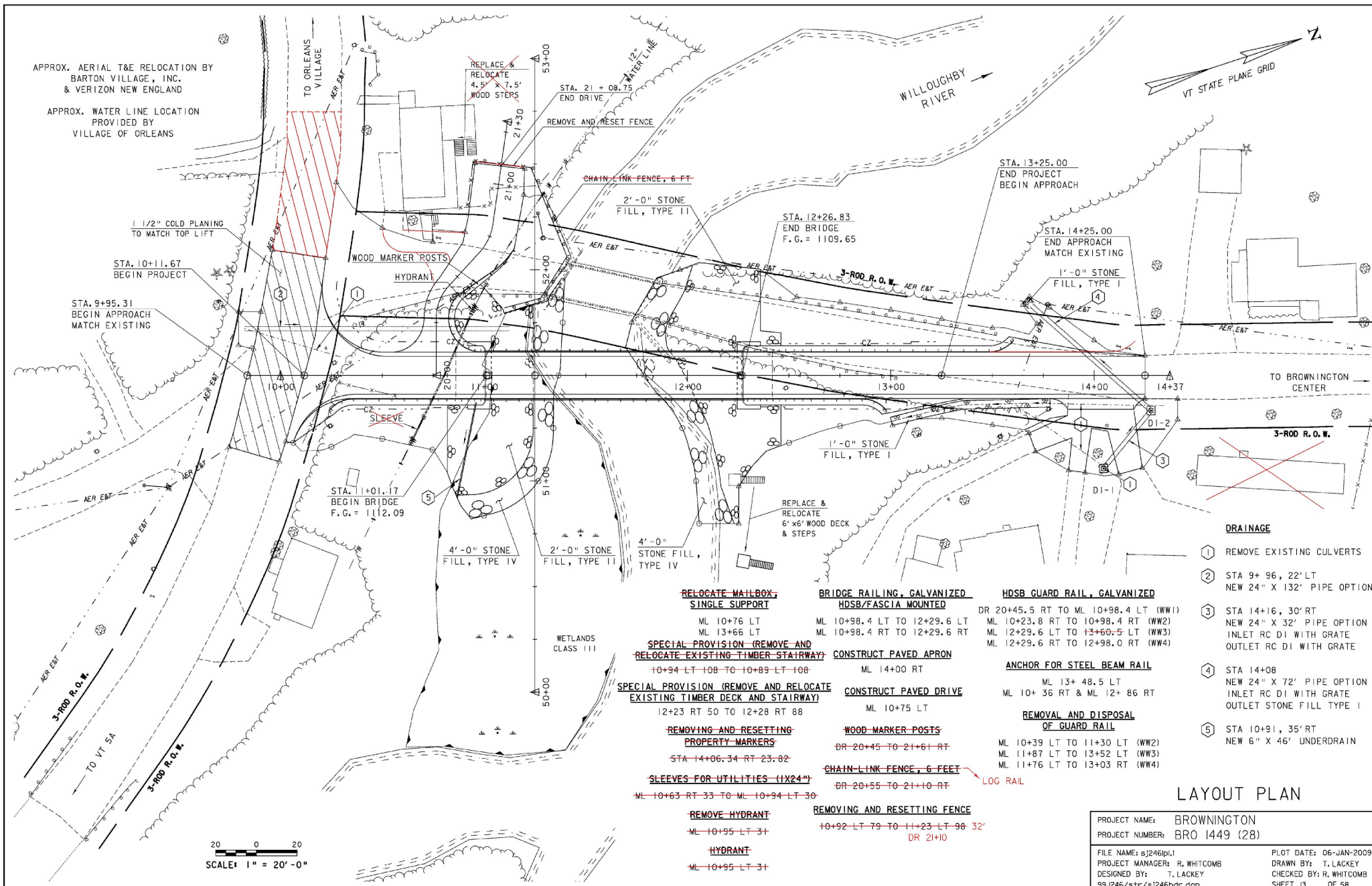
* ALIGNMENT STAKED BY R.GILMAN & P.WINTERS: APRIL 21, 2002

SURVEY TIES

PROJECT NAME: BROWNINGTON
PROJECT NUMBER: BRO 1449 (28)

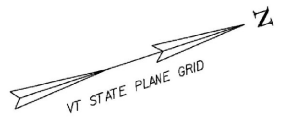
FILE NAME: s\j246su21	PLOT DATE: 19-DEC-2008
PROJECT MANAGER: R. WHITCOMB	DRAWN BY: R. BULLOCK
DESIGNED BY: G. ROY	CHECKED BY: P. HODGE
95J246/str 3/s\j246sur.dgn	SHEET 12 OF 58

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (96)
ADJUSTMENT COMPASS



APPROX. AERIAL T&E RELOCATION BY
BARTON VILLAGE, INC.
& VERIZON NEW ENGLAND

APPROX. WATER LINE LOCATION
PROVIDED BY
VILLAGE OF ORLEANS



WILLOUGHBY RIVER

- DRAINAGE**
- ① REMOVE EXISTING CULVERTS
 - ② STA 9+ 96, 22' LT
NEW 24" X 132' PIPE OPTION
 - ③ STA 14+16, 30' RT
NEW 24" X 32' PIPE OPTION
INLET RC DI WITH GRATE
OUTLET RC DI WITH GRATE
 - ④ STA 14+08
NEW 24" X 72' PIPE OPTION
INLET RC DI WITH GRATE
OUTLET STONE FILL TYPE I
 - ⑤ STA 10+91, 35' RT
NEW 6" X 46' UNDERDRAIN

**RELOCATE MAILBOX,
SINGLE SUPPORT**

ML 10+76 LT
ML 13+66 LT

**BRIDGE RAILING, GALVANIZED
HDSB/FASCIA MOUNTED**

ML 10+98.4 LT TO 12+29.6 LT
ML 10+98.4 RT TO 12+29.6 RT

HDSB GUARD RAIL, GALVANIZED

DR 20+45.5 RT TO ML 10+98.4 LT (WW1)
ML 10+23.8 RT TO 10+98.4 RT (WW2)
ML 12+29.6 LT TO 13+60.5 LT (WW3)
ML 12+29.6 RT TO 12+98.0 RT (WW4)

**SPECIAL PROVISION (REMOVE AND
RELOCATE EXISTING TIMBER STAIRWAY)**

10+94 LT 108 TO 10+89 LT 108

CONSTRUCT PAVED APRON

ML 14+00 RT

ANCHOR FOR STEEL BEAM RAIL

ML 13+ 48.5 LT
ML 10+ 36 RT & ML 12+ 86 RT

**SPECIAL PROVISION (REMOVE AND RELOCATE
EXISTING TIMBER DECK AND STAIRWAY)**

12+23 RT 50 TO 12+28 RT 88

CONSTRUCT PAVED DRIVE

ML 10+75 LT

**REMOVE AND DISPOSAL
OF GUARD RAIL**

ML 10+39 LT TO 11+30 LT (WW2)
ML 11+87 LT TO 13+52 LT (WW3)
ML 11+76 LT TO 13+03 RT (WW4)

**REMOVING AND RESETTING
PROPERTY MARKERS**

STA 14+06.34 RT 23.82

WOOD MARKER POSTS

DR 20+45 TO 21+61 RT

SLEEVES FOR UTILITIES (1X24")

ML 10+63 RT 33 TO ML 10+94 LT 30

CHAIN-LINK FENCE, 6 FEET

DR 20+55 TO 21+10 RT

LOG RAIL

REMOVE HYDRANT

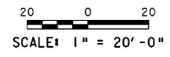
ML 10+95 LT 31

REMOVING AND RESETTING FENCE

10+92 LT 79 TO 11+23 LT 98 32'
DR 21+0

HYDRANT

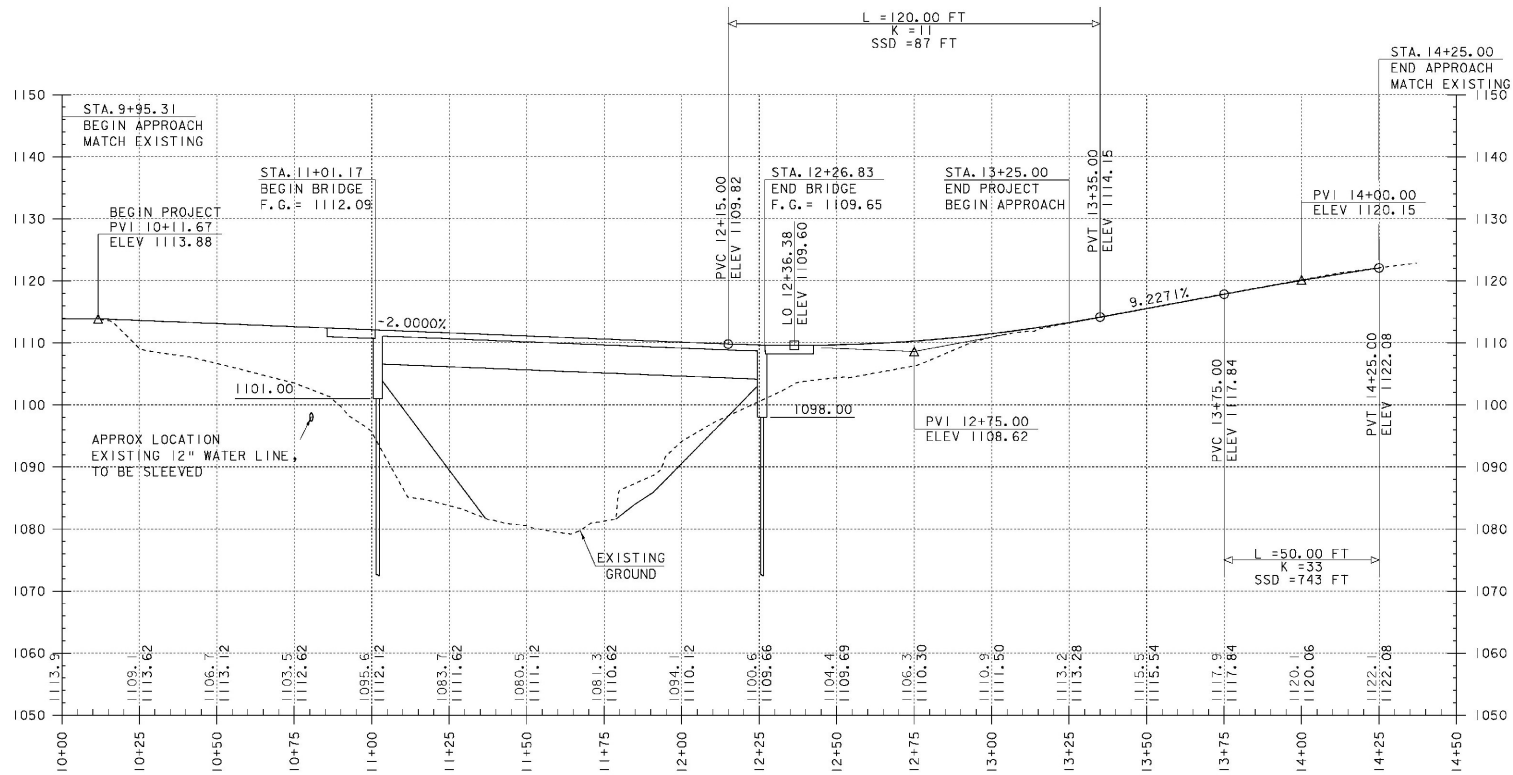
ML 10+95 LT 31



LAYOUT PLAN

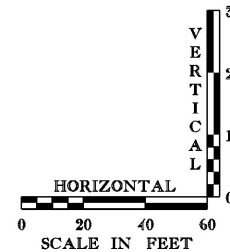
PROJECT NAME:	BROWNINGTON	PLOT DATE:	06-JAN-2009
PROJECT NUMBER:	BRO 1449 (28)	DRAWN BY:	T. LACKEY
FILE NAME:	sJ246ip1.i	CHECKED BY:	R. WHITCOMB
PROJECT MANAGER:	R. WHITCOMB	SHEET	13 OF 58
DESIGNED BY:	T. LACKEY		
99J246/str/sJ246bdr.dgn			

PROFILE



NOTE:

1. GRADES ARE SHOWN ALONG PROPOSED CENTERLINE.
2. GRADES SHOWN TO 0.1 FT ARE EXISTING GROUND.
3. GRADES SHOWN TO 0.10 FT ARE FINISH GRADE.



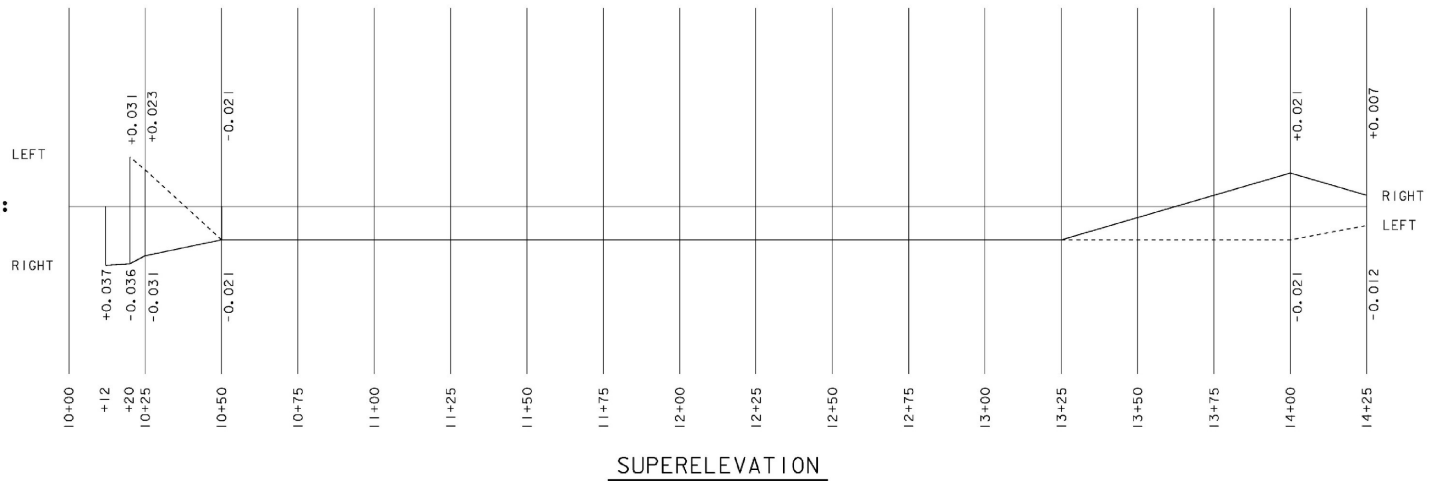
MAINLINE PROFILE

PROJECT NAME: BROWNINGTON
 PROJECT NUMBER: BRO 1449 (28)

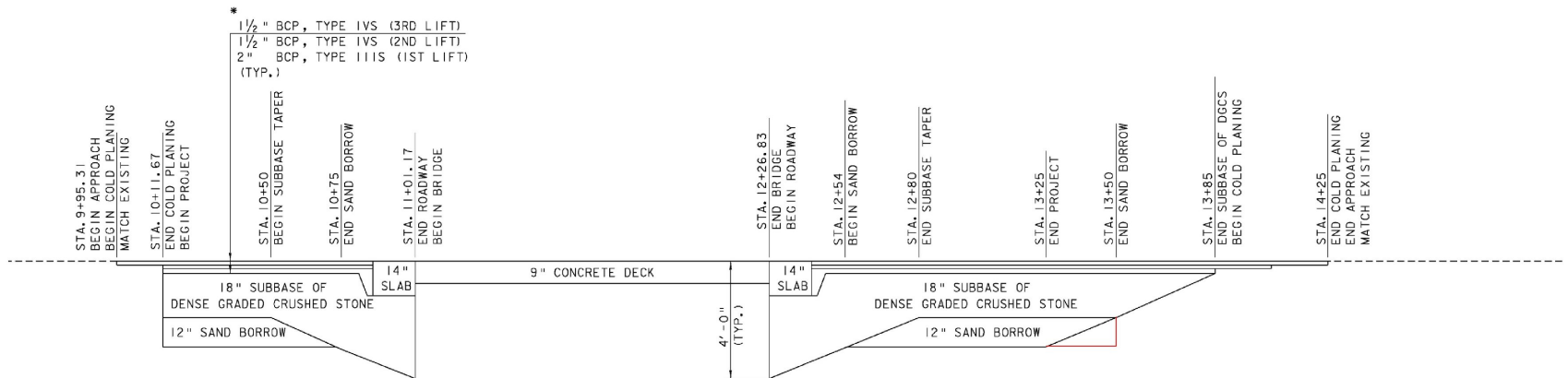
FILE NAME: s\246p\l\7
 PROJECT MANAGER: R. WHITCOMB
 DESIGNED BY: T. LACKEY
 95\246\str\s\246xs.dgn

PLOT DATE: 19-DEC-2008
 DRAWN BY: T. LACKEY
 CHECKED BY: R. WHITCOMB
 SHEET 14 OF 58

Superelevation:



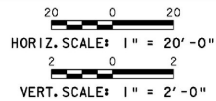
SUPERELEVATION



*
 1 1/2" BCP, TYPE IVS (3RD LIFT)
 1 1/2" BCP, TYPE IVS (2ND LIFT)
 2" BCP, TYPE IIIS (1ST LIFT)
 (TYP.)

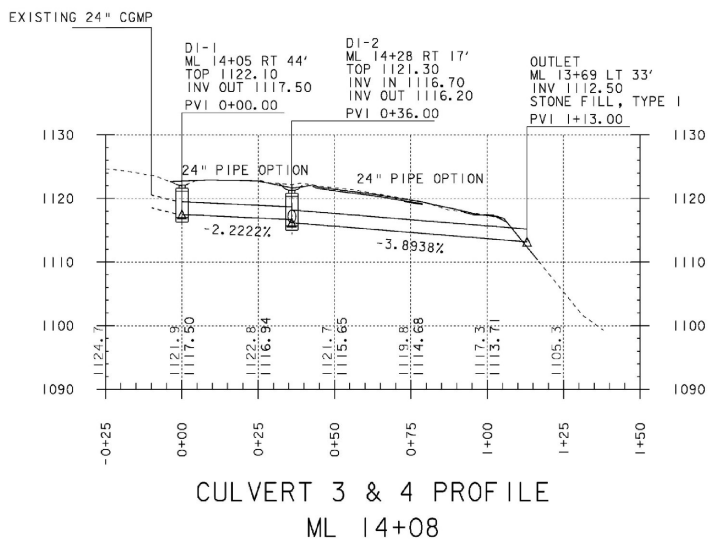
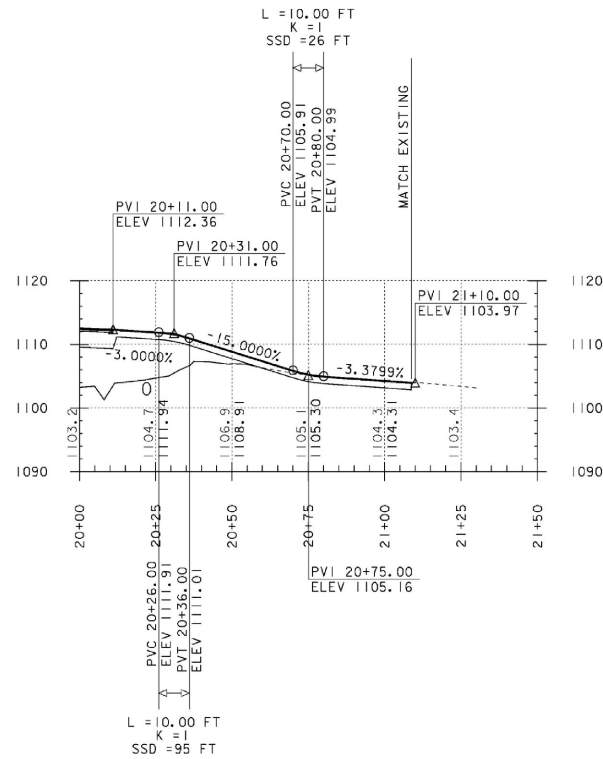
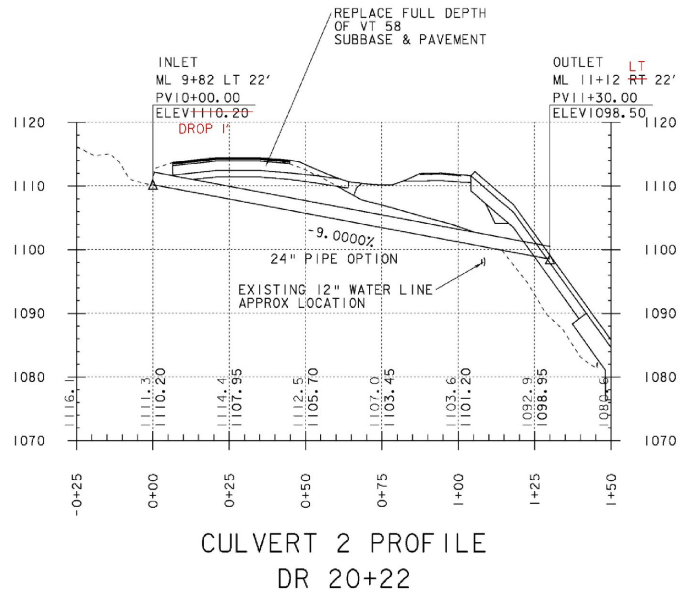
* BCP SHALL BE READ AS BITUMINOUS CONCRETE PAVEMENT AND SHALL BE PAID FOR UNDER SPECIAL PROVISION BITUMINOUS CONCRETE PAVEMENT, (SMALL QUANTITY)

MATERIAL TRANSITION DETAIL

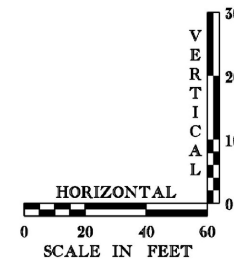


MAINLINE
 SUPERELEVATION &
 MATERIAL TRANSITION

PROJECT NAME: BROWNINGTON	PLOT DATE: 19-DEC-2008
PROJECT NUMBER: BRO 1449 (28)	DRAWN BY: T. LACKEY
FILE NAME: sJ246p+f2.1	CHECKED BY: R. WHITCOMB
DESIGNED BY: T. LACKEY	SHEET 15 OF 58
99J246/str/sJ246xs.dgn	

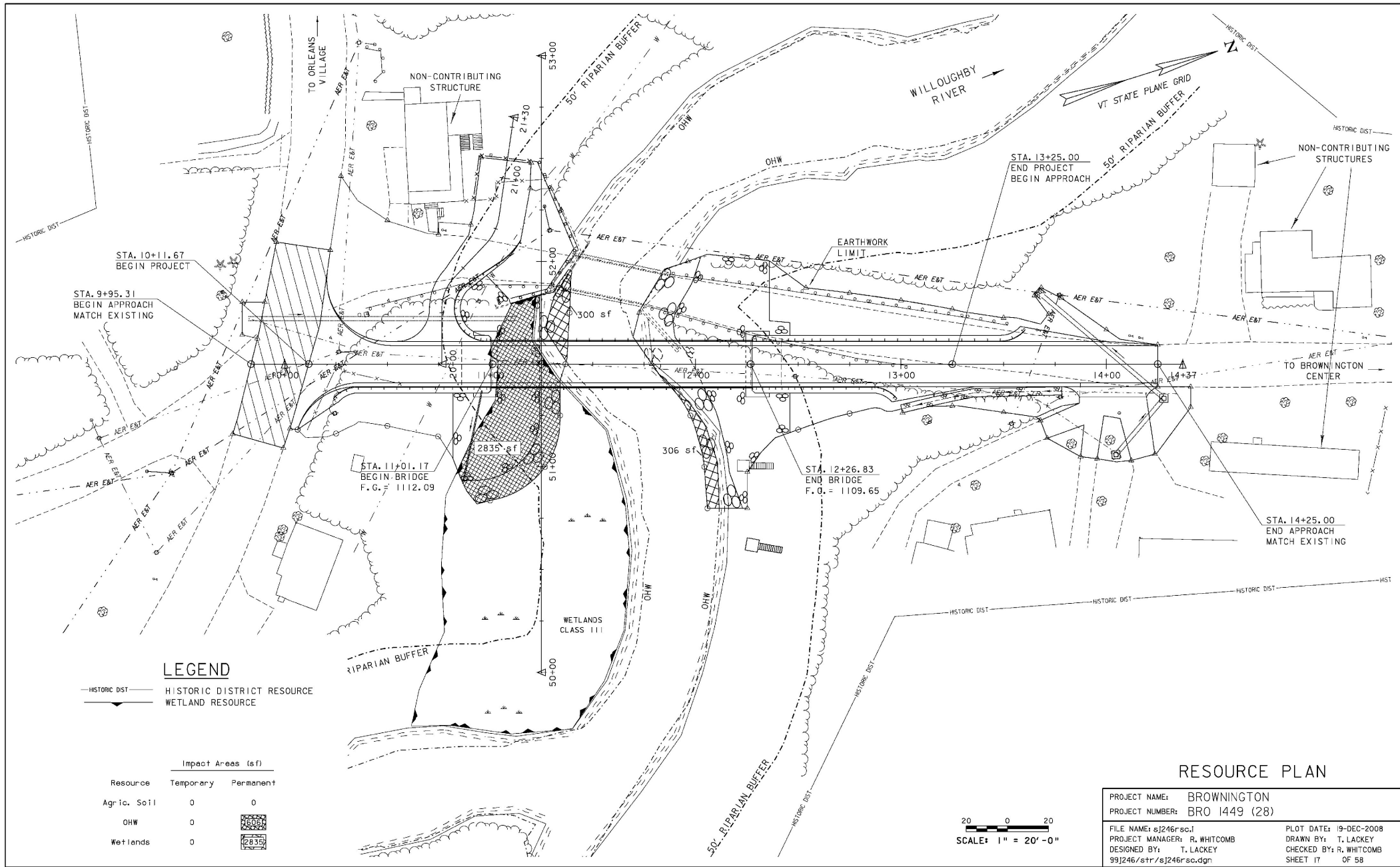


DRIVEWAY PROFILE
ML 10+76



**DRIVEWAY & CULVERT
PROFILES**

PROJECT NAME:	BROWNINGTON	FILE NAME:	sj246p+f3.1	PLOT DATE:	19-DEC-2008
PROJECT NUMBER:	BRO 1449 (28)	PROJECT MANAGER:	R. WHITCOMB	DRAWN BY:	T. LACKEY
		DESIGNED BY:	T. LACKEY	CHECKED BY:	R. WHITCOMB
			99j246/str/sj246xs.dgn	SHEET 16	OF 58



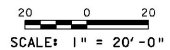
LEGEND

— HISTORIC DIST — HISTORIC DISTRICT RESOURCE
 ~~~~~ WETLAND RESOURCE

**Impact Areas (sf)**

| Resource    | Temporary | Permanent |
|-------------|-----------|-----------|
| Agric. Soil | 0         | 0         |
| OHW         | 0         | 2835      |
| Wetlands    | 0         | 2835      |

**RESOURCE PLAN**



|                         |               |             |             |
|-------------------------|---------------|-------------|-------------|
| PROJECT NAME:           | BROWNINGTON   | PLOT DATE:  | 19-DEC-2008 |
| PROJECT NUMBER:         | BRO 1449 (28) | DRAWN BY:   | T. LACKEY   |
| FILE NAME:              | sj246rsc.d    | CHECKED BY: | R. WHITCOMB |
| PROJECT MANAGER:        | R. WHITCOMB   | SHEET 17    | OF 58       |
| DESIGNED BY:            | T. LACKEY     |             |             |
| 99J246/str/sj246rsc.dgn |               |             |             |

## EROSION CONTROL NARRATIVE

### 1.1 PROJECT DESCRIPTION

BROWNINGTON BRO 1449 (28) WILL REPLACE BRIDGE 8 ON TOWN HIGHWAY 2 OVER THE WILLOUGHBY RIVER IN THE TOWN OF BROWNINGTON ON NEW ALIGNMENT. THE NEW ALIGNMENT WILL SHIFT THE BRIDGE 40 FT UPSTREAM. IT WILL SHIFT THE NEARBY INTERSECTION WITH VT 58 EAST 50 FT. THE NEW BRIDGE WILL BE A TWO LAINE, SINGLE SPAN, CONCRETE DECK ON STEEL GIRDER BRIDGE WITH INTEGRAL ABUTMENTS. THE PROJECT WILL MAINTAIN TRAFFIC ON THE EXISTING BRIDGE DURING CONSTRUCTION. FINALLY IT WILL REMOVE THE EXISTING BRIDGE AND APPROACHES. THE TOTAL LENGTH OF ROADWAY WORK, INCLUDING BOTH APPROACHES, DRIVES AND EXISTING ROADWAY IS APPROXIMATELY 415 FT.

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

TOTAL DISTURBED AREA (EXCLUDING WASTE, BORROW & STAGING AREAS) IS APPROX 0.91 ACRES.

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

### 1.2 SITE INVENTORY

#### 1.2.1 OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN-GRADIENT)

THE LAND IN THE PROJECT AREA IS GENTLY ROLLING VILLAGE AND FARMLAND. IT CONSISTS OF LAWNS, BRUSH, FIELDS, PASTURE AND WOODS WITH SOFTWOOD AND HARDWOOD TREES. THE SOIL IS VERY DEEP AND MODERATELY TO WELL DRAINED. THE SOILS FORMED IN GLACIAL TILL.

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

THE BRIDGE CROSSES THE WILLOUGHBY RIVER. THE RIVER CUTS DEEPLY THROUGH THE LAND. THE STREAM BANKS ARE STEEP AND TALL AND DENSELY VEGETATED WITH TREES. THE RIVER IS SINUOUS, PROBABLY INCISED AND ALLUVIAL, AND UNBRAIDED. THE STREAM BED IS GRAVEL AND COBBLES. THE RIVER AT THE NEW BRIDGE IS ABOUT 40 FT WIDE AND 1 FOOT DEEP. THE WATERSHED AREA IS 39 SQUARE MILES.

#### 1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE PROJECT SITE IS A DEEP AND STEEP RIVER CUTTING THROUGH A ROLLING COUNTRY VILLAGE. TH 2 IS A CLASS II PAVED TOWN HIGHWAY. VT 58 IS A PRINCIPAL ARTERIAL STATE HIGHWAY. ABOUT SEVEN HOMES ARE NEAR THE PROJECT. FIVE ARE WITHIN 100 FT OF THE PROJECT AREA. AERIAL UTILITY LINES RUN ALONG THE MAINLINE SOUTHEAST OF THE EXISTING ROAD AND IN THE PATH OF THE NEW ROAD. AN UNDERGROUND WATERLINE RUNS UNDER THE MAINLINE NEAR STA 10+75.

#### 1.2.4 VEGETATION

THE VEGETATION IS OLD FIELDS GROWING INTO BRUSH, HARDWOODS AND SOFTWOOD. CONSTRUCTION WILL REPLACE SOME BRUSH AND TREES. STONE FILL CAPPED WITH GRUBBING MATERIAL WILL STABILIZE SLOPES STEEPER THAN 66%. SEED & MULCH WILL STABILIZE SLOPES FLATTER THAN 66%.

#### 1.2.5 SOILS

THE SOIL CONSERVATION SERVICE SOIL SURVEY OF ORLEANS COUNTY IDENTIFIES TWO SOIL TYPES IN THE PROJECT SITE.

17C BUCKLAND VERY FINE SANDY LOAM 8 TO 15% SLOPE. THIS SOIL IS ON THE NORTH AND SOUTH APPROACHES TO THE BRIDGE. IT CONSISTS OF VERY DEEP, WELL DRAINED AND MODERATELY WELL DRAINED SOILS ON UPLANDS THAT FORMED IN GLACIAL TILL. THE SOIL PROFILE IS TYPICALLY: SURFACE LAYER OF VERY DARK GRAYISH BROWN, FRIABLE LOAM; 7 TO 15" SUBSOIL OF VERY DARK GRAYISH BROWN OR OLIVE BROWN, FRIABLE LOAM OR SILT LOAM; 15 TO 65" SUBSTRATUM OF OLIVE GRAY, FIRM, CHAINERY LOAM FRAGIPAN WITH DISTINCT DARK YELLOWISH BROWN MOTTLES. ITS ERODIBILITY RATING IS MODERATE (KW = 0.28). THE MODERATE SLOPE SUGGESTS MODERATE ERODIBILITY.

18E BUCKLAND VERY FINE SANDY LOAM, VERY STONY 25 TO 50% SLOPE. THIS SOIL IS ON BANKS OF THE WILLOUGHBY RIVER AROUND THE BRIDGE. IT IS SIMILAR TO 17C BUCKLAND EXCEPT IS MUCH STEEPER AND STONES COVER 0 TO 15% OF THE SURFACE. ITS ERODIBILITY RATING IS HIGH (KW = 0.37). THE STEEP SLOPE SUGGESTS HIGH ERODIBILITY.

#### 1.2.6 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: THE RIVER IS CRITICAL SPAWNING AND NURSERY HABITAT FOR MIGRATORY STEELHEAD RAINBOW TROUT FROM LAKE MEMPHREMOGOG. HISTORICAL OR ARCHEOLOGICAL AREAS: THE PROJECT IS LOCATED IN THE BROWNINGTON HISTORIC DISTRICT, BUT WILL HAVE NO ADVERSE AFFECT ON CONTRIBUTING PROPERTIES. PRIME AGRICULTURAL LAND: NO THREATENED AND ENDANGERED SPECIES: NO WATER RESOURCE: THE WILLOUGHBY RIVER RUNS THROUGH THE PROJECT AREA. THE PROJECT IMPACTS IT AT THE BRIDGE SITE IT IS A POPULAR FISHING AREA. WETLANDS: A CLASS III WETLAND IS LOCATED ON THE SOUTH SIDE OF THE RIVER EAST OF THE BRIDGE.

PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES:

THE WILLOUGHBY RIVER IS AT THE BRIDGE SITE.  
EXISTING DITCH FROM TH 2 12+00 TO 13+75 RT AND CULVERT FROM TH 2 13+75 TO 14+25 RT.  
EXISTING CULVERT FROM TH 2 9+75 TO 10+25 LT.

### 1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 BASED ON THE PROJECT IMPACT AREA. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VAIR VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

### 1.4 EROSION PREVENTION AND SEDIMENT CONTROL (EPSC)

THIS EROSION CONTROL PLAN IS MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. 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.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. REMOVE SEDIMENT BUILD-UP WHEN THE LEVEL OF SEDIMENT REACHES ONE-HALF THE HEIGHT OF THE CONTROL MEASURE. SEDIMENT SHALL BE DISPOSED AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

(REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR EACH PRACTICE REQUIRED ON THE PROJECT TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING.)

#### 1.4.1 MARK SITE BOUNDARIES

PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS, IS USED TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION.

#### 1.4.2 LIMIT DISTURBANCE AREA

EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION PROCEEDS. ADDITIONAL MEASURES MAY BE HEDED DUE TO THE PHASING OF THE PROJECT AND AS DIRECTED BY THE ENGINEER.

#### 1.4.3 STABILIZE CONSTRUCTION EXIT

STABILIZED CONSTRUCTION ENTRANCES WILL CONTROL TRACKING OF SEDIMENT ONTO PUBLIC ROADS. THE ENTRANCE IS A STABILIZED PAD OF CRUSHED STONE LOCATED WHEREVER CONSTRUCTION VEHICLES LEAVE CONSTRUCTION AREAS. THE SITES INCLUDE: THE PROJECT SITE; STAGING AREAS; AND WASTE AND BORROW AREAS. THE MINIMUM AREA IS 12' X 50'. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARDS A CONSTRUCTION ENTRANCE UNDER THE STONE. SIZE PIPES FOR THEIR WATERSHEDS. THE MINIMUM PIPE DIAMETER IS 6".

#### 1.4.4 INSTALL SILT FENCE

SILT FENCE PLACED LEVEL ON SLOPES WILL CONTROL SHEET FLOW SEDIMENT TRANSPORT. PLACE LEVEL SILT FENCE 5'-10' FROM THE TOE OF SLOPES. TURN THE ENDS OF SILT FENCE SLIGHTLY UPHILL TO STOP CONCENTRATED WATER FROM FLOWING AROUND THE ENDS. THE MAXIMUM SLOPE LENGTH BETWEEN SEPARATE RUNS OF SILT FENCE IS 100'. PLACE SILT FENCE AS SHOWN ON PLANS BEFORE BEGINNING UPSLOPE EARTHWORK.

#### 1.4.5 DIVERT UPLAND RUNOFF

SWALE (STORM WATER FROM STREET COLLECTIONS DRAINAGE SYSTEM)

#### 1.4.6 SLOW DOWN CHANNELIZED RUNOFF

STONE CHECK DAMS PLACED IN DITCHES WILL REDUCE FLOW VELOCITIES AND PREVENT EROSION. PLACE DAMS IN DITCHES SO THAT THE ELEVATION OF THE TOP OF A CHECK DAM IS LEVEL WITH THE TOE OF THE NEXT UPSLOPE CHECK DAM. THE CHECK DAMS MAY BE REMOVED ONCE THE STONE LINING OF THE DITCHES IS COMPLETE AND THE SURROUNDING AREA STABILIZED.

#### 1.4.7 CONSTRUCT PERMANENT CONTROLS

TYPE I, II, IV STONE FOR SLOPE LINING AND CHANNEL PROTECTION  
SEED AND MULCH  
DRAINAGE INLETS AND PIPING

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

#### 1.4.8 STABILIZE EXPOSED SOILS

SEED AND MULCH  
EROSION MATTING

#### 1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER (SEE LOW RISK HANDBOOK)

#### 1.4.10 STABILIZE SOIL AT FINAL GRADE

SEEDING & MULCHING WILL STABILIZE SLOPES RANGING FROM 0% TO 66%. ADD BIODEGRADABLE EROSION CONTROL MATTING (OR EQUIVALENT) TO SLOPES RANGING FROM 33% TO 66%. USE SEEDING FOR LONG TERM EXPOSED SLOPES. GRASS TAKES 2 WEEKS TO ESTABLISH ITSELF. STABILIZE SLOPES WITHIN 48 HOURS OF REACHING FINAL GRADE OR SOONER CONSIDERING RAIN.

ML 40+017 to 40+119 left and right  
Drive 6+010 to 6+040 left and right  
Channel 50+025 to 50+130 left and right

#### ROADWAY TYPICAL SECTION

BITUMINOUS CONCRETE PAVEMENT ON THE ROAD SURFACE WILL PREVENT EROSION. GRAVEL OR CRUSHED STONE SUBBASE BENEATH THE SURFACE WILL PREVENT EROSION.

SAND BENEATH THE SUBBASE WILL PREVENT EROSION.

#### 1.4.11 DE-WATERING ACTIVITIES

#### 1.4.12 INSPECT YOUR SITE

INSPECT SITE BASED ON PERMIT AUTHORIZATION OR SPECIAL PROVISION REQUIREMENTS.

#### 1.4.13 TEMPORARY EPSC MEASURES

TRACKING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING INTERMEDIATE PHASES OF CONSTRUCTION OR FORECASTED RAIN.

INLET PROTECTION DEVICES WILL BE USED AT THE INLETS OF ALL DROP INLET STRUCTURES.

HAY BALES ARE UNACCEPTABLE ALTERNATIVES TO SILT FENCES OR CHECK DAMS.

#### 1.4.14 FINAL EPSC MEASURES

SEEDING & MULCHING WILL ESTABLISH VEGETATION ON SIDE SLOPES LESS THAN 66% THAT WILL PREVENT EROSION AND CONTROL SEDIMENT TRANSPORT. ADD BIODEGRADABLE EROSION CONTROL MATTING (OR EQUIVALENT) TO SLOPES RANGING FROM 33% TO 66%.

ROADWAY DITCHES BESIDE THE ROAD WILL CONTROL CONCENTRATED FLOWS AND PREVENT EROSION. STONE FILL, TYPE I IN ROADWAY DITCHES WILL PREVENT EROSION AND CONTROL SEDIMENT TRANSPORT.

CULVERTS WILL CONVEY CONCENTRATED FLOW UNDER ROADS AND PREVENT EROSION. STONE FILL, TYPE I AT CULVERT OUTLETS WILL DISSIPATE WATER VELOCITIES AND PREVENT EROSION AND CONTROL SEDIMENT TRANSPORT.

#### CHANNEL TYPICAL SECTION

STONE FILL, TYPE I AT THE ENDS OF THE WING WALLS WILL PREVENT EROSION AND CONTROL SEDIMENT TRANSPORT.

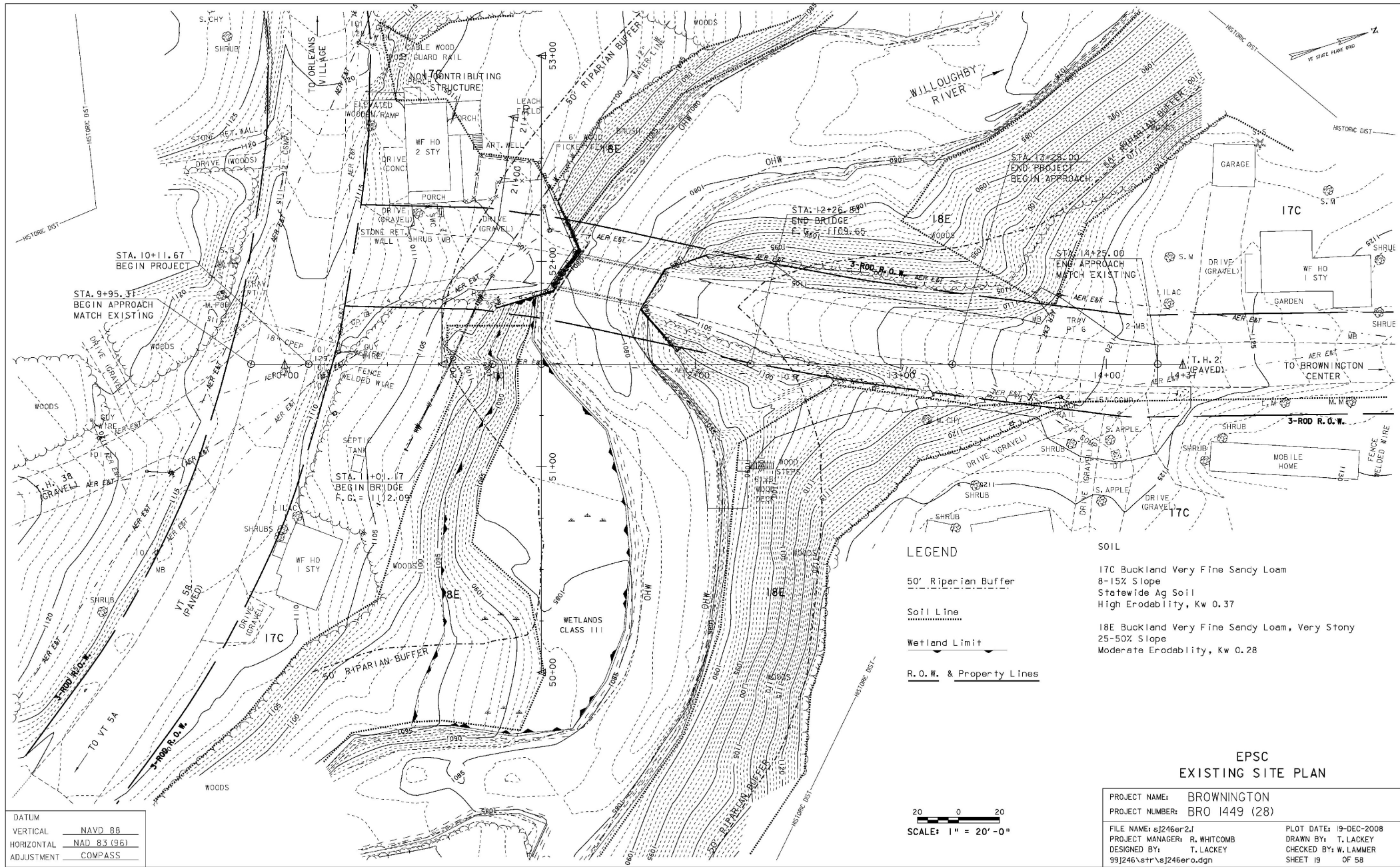
STONE FILL, TYPE II AROUND THE ABUTMENTS ON SLOPES GREATER THAN 66% WILL PREVENT EROSION AND CONTROL SEDIMENT TRANSPORT. GEOTEXTILE UNDER STONE FILL WILL PREVENT EROSION AND CONTROL SEDIMENT TRANSPORT.

## EPSC NARRATIVE

PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449(28)

FILE NAME: 99j246\sj246er1j  
PROJECT LEADER: R. R. WHITCOMB  
DESIGNED BY: W. LAMMER  
99j246\sj246ern.dgn

PLOT DATE: 19-DEC-2008  
DRAWN BY: W. LAMMER  
CHECKED BY: T. LACKEY  
SHEET 18 OF 58



|            |             |
|------------|-------------|
| DATUM      |             |
| VERTICAL   | NAVD 88     |
| HORIZONTAL | NAD 83 (96) |
| ADJUSTMENT | COMPASS     |

- LEGEND**
- 50' Riparian Buffer
  - Soil Line
  - Wetland Limit
  - R.O.W. & Property Lines

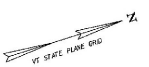
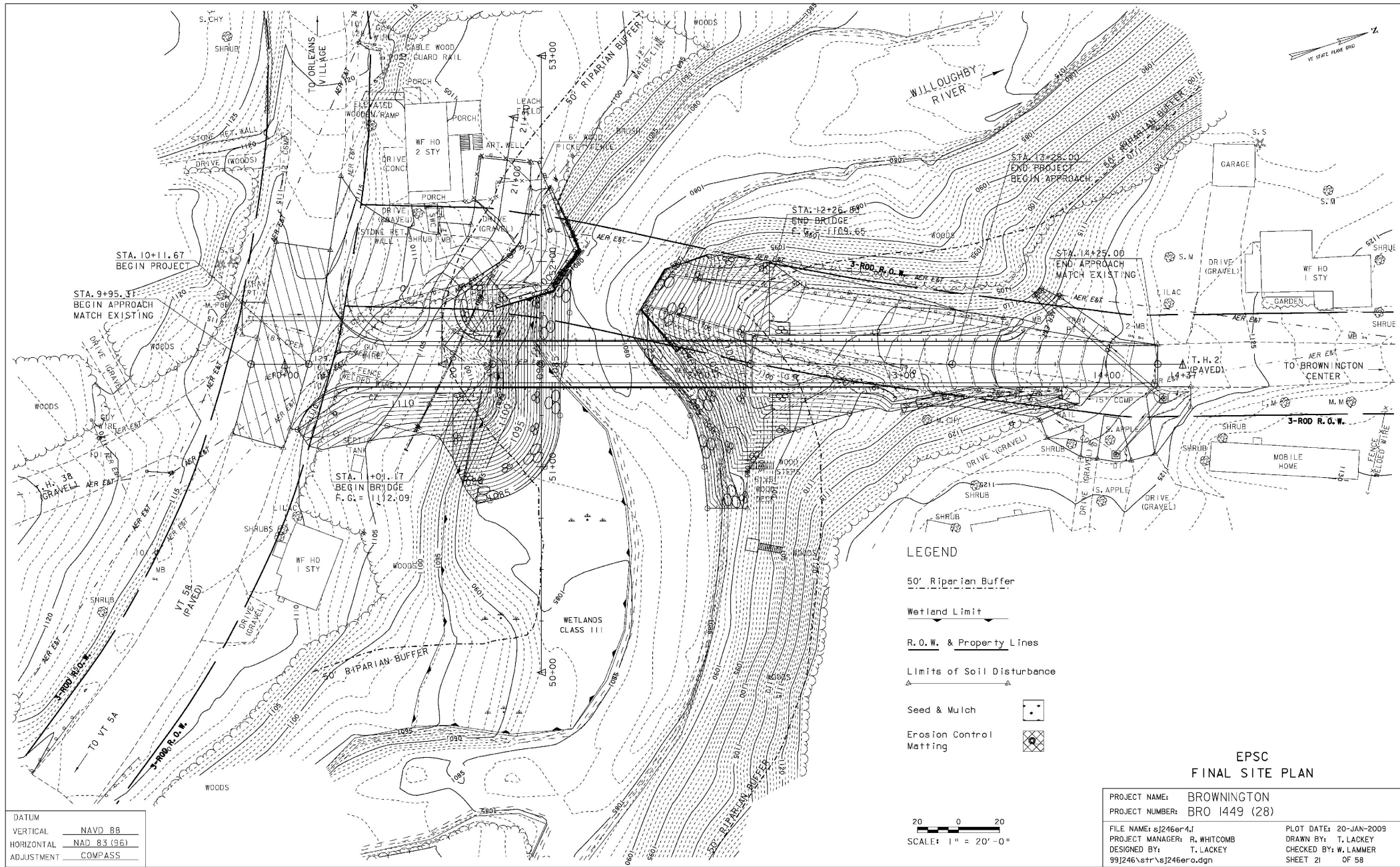
- SOIL**
- 17C Buckland Very Fine Sandy Loam  
8-15% Slope  
Statewide Ag Soil  
High Erodability, Kw 0.37
  - 18E Buckland Very Fine Sandy Loam, Very Stony  
25-50% Slope  
Moderate Erodability, Kw 0.28

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

**EPSC  
EXISTING SITE PLAN**

|                 |               |                         |             |           |
|-----------------|---------------|-------------------------|-------------|-----------|
| PROJECT NAME:   | BROWNINGTON   | PLOT DATE:              | 19-DEC-2008 |           |
| PROJECT NUMBER: | BRO 1449 (28) | PROJECT MANAGER:        | R. WHITCOMB |           |
|                 |               | DESIGNED BY:            | T. LACKEY   |           |
|                 |               | 991246\str\sj246ero.dgn | CHECKED BY: | W. LAMMER |
|                 |               |                         | SHEET 19    | OF 58     |





- LEGEND**
- 50' Riparian Buffer
  - Wetland Limit
  - R.O.W. & Property Lines
  - Limits of Soil Disturbance
  - Seed & Mulch
  - Erosion Control Matting

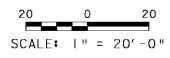
**EPSC  
FINAL SITE PLAN**

PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

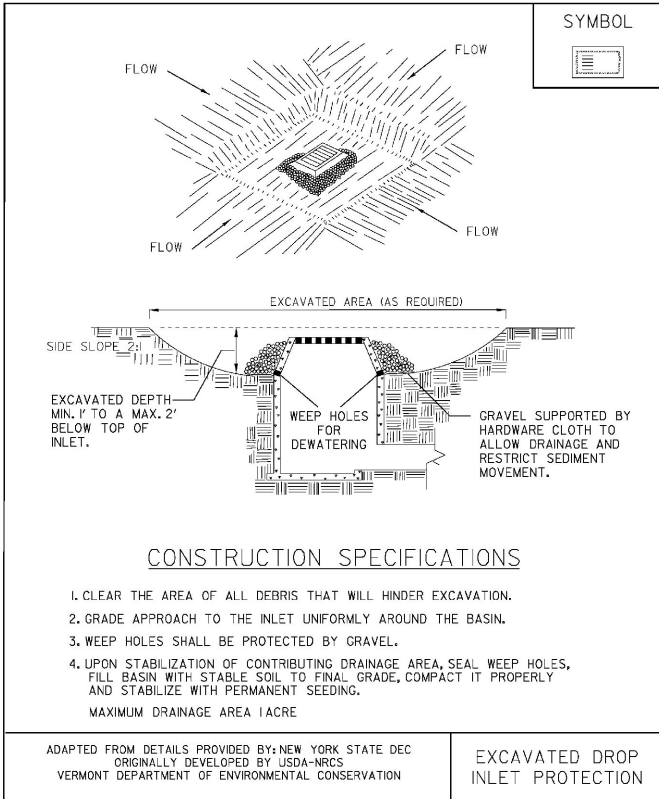
FILE NAME: sj246r4J  
 PROJECT MANAGER: R. WHITCOMB  
 DESIGNED BY: T. LACKEY  
 99J246\str\sj246ero.dgn

PLOT DATE: 20-JAN-2009  
 DRAWN BY: T. LACKEY  
 CHECKED BY: W. LAMMER  
 SHEET 21 OF 58

|            |             |
|------------|-------------|
| DATUM      |             |
| VERTICAL   | NAVD 88     |
| HORIZONTAL | NAD 83 (96) |
| ADJUSTMENT | COMPASS     |

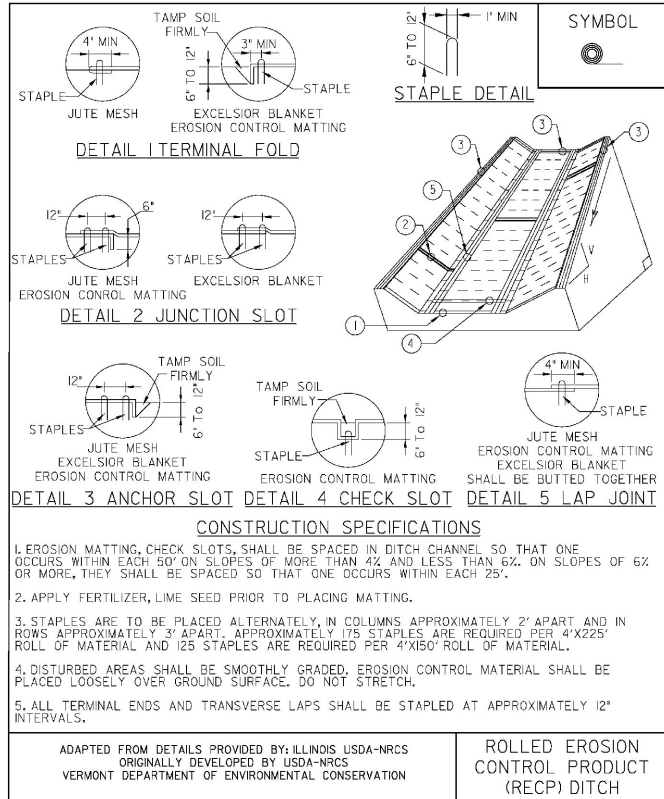






NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

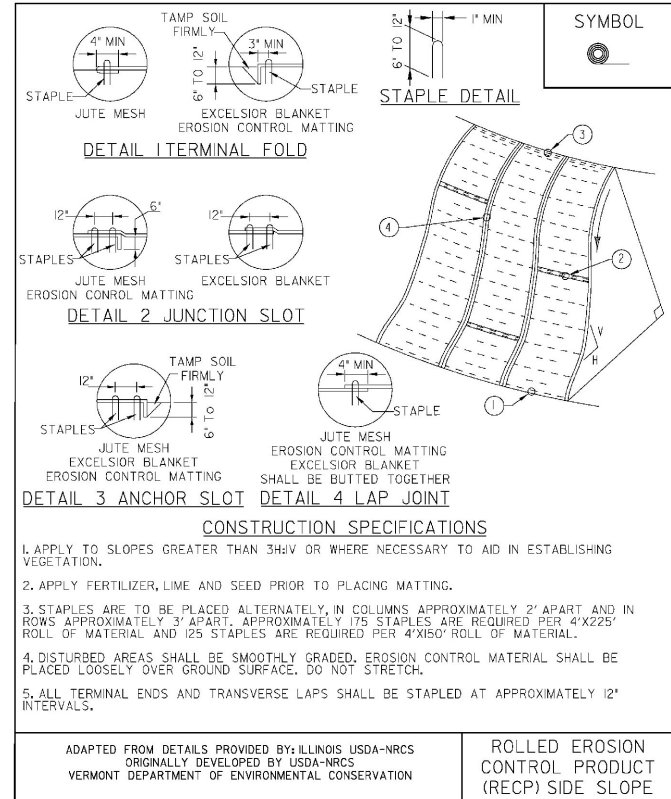
THIS ITEM SHALL BE PAID FOR UNDER ITEM  
653.40 INLET PROTECTION DEVICE, TYPE 1



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

THIS ITEM SHALL BE PAID FOR UNDER ITEM  
653.20 TEMPORARY EROSION MATTING  
USE ONLY MATTING WITH 100% NATURAL FIBERS

| REVISIONS      |     |
|----------------|-----|
| MARCH 8, 2007  | JMF |
| APRIL 16, 2007 | WHF |
|                |     |
|                |     |



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

THIS ITEM SHALL BE PAID FOR UNDER ITEM  
653.20 TEMPORARY EROSION MATTING  
USE ONLY MATTING WITH 100% NATURAL FIBERS

| REVISIONS      |     |
|----------------|-----|
| APRIL 16, 2007 | WHF |
|                |     |
|                |     |

**EPSC  
DETAILS 2**

|                         |               |
|-------------------------|---------------|
| PROJECT NAME:           | BROWNINGTON   |
| PROJECT NUMBER:         | BRO 1449 (28) |
| FILE NAME:              | sj246er6.j    |
| PROJECT MANAGER:        | R. WHITCOMB   |
| DESIGNED BY:            | T. LACKEY     |
| 99J246\str\sj246ero.dgn |               |
| PLOT DATE:              | 19-DEC-2008   |
| DRAWN BY:               | T. LACKEY     |
| CHECKED BY:             | W. LAMMER     |
| SHEET                   | 23 OF 58      |

**SEEDING FORMULA  
URBAN AREAS**

| % WT.  | LBS./A. | NAME                | PUR. % | GERM |
|--------|---------|---------------------|--------|------|
| 42.5   | 34.0    | CREeping RED FESCUE | 98     | 85   |
| 10.0   | 8.0     | PERENNIAL RYE GRASS | 95     | 90   |
| 42.5   | 34.0    | KENTUCKY BLUE GRASS | 85     | 85   |
| 5.0    | 4.0     | ANNUAL RYE GRASS    | 95     | 85   |
| 100.00 | 80.0    |                     |        |      |

**GENERAL NOTES**

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

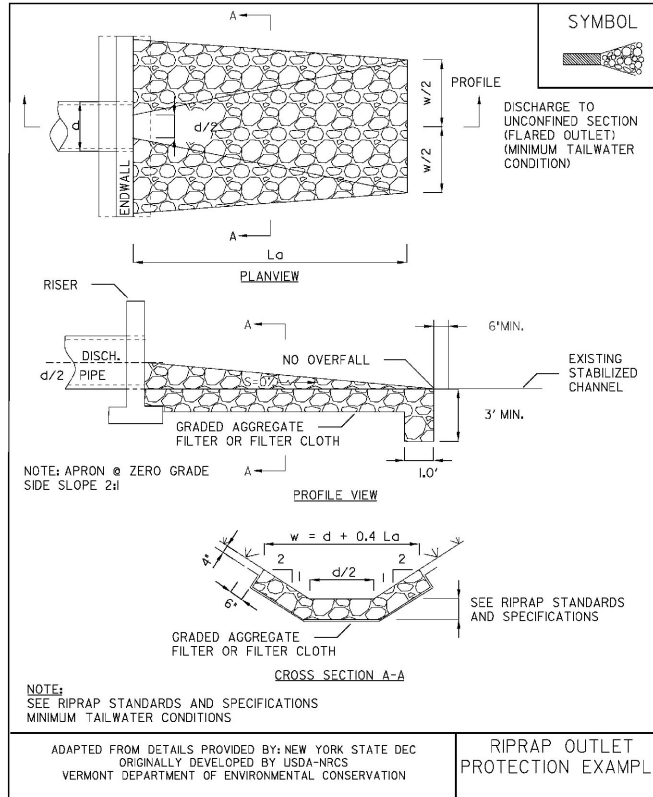
SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-0, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

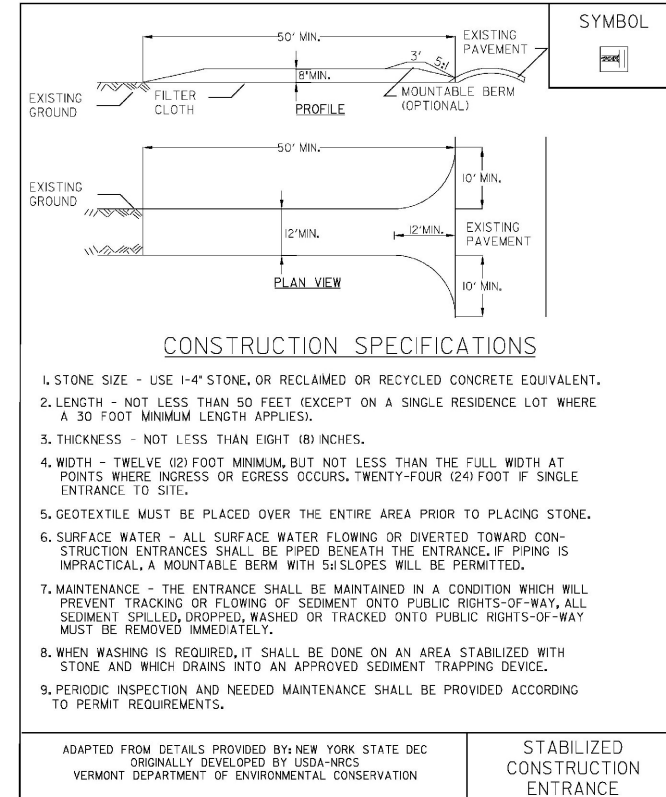
HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

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



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

THIS ITEM SHALL BE PAID FOR UNDER ITEM 613J0 STONE FILL, TYPE I



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






THIS ITEM SHALL BE PAID FOR UNDER ITEM 653.35 VEHICLE TRACKING PAD

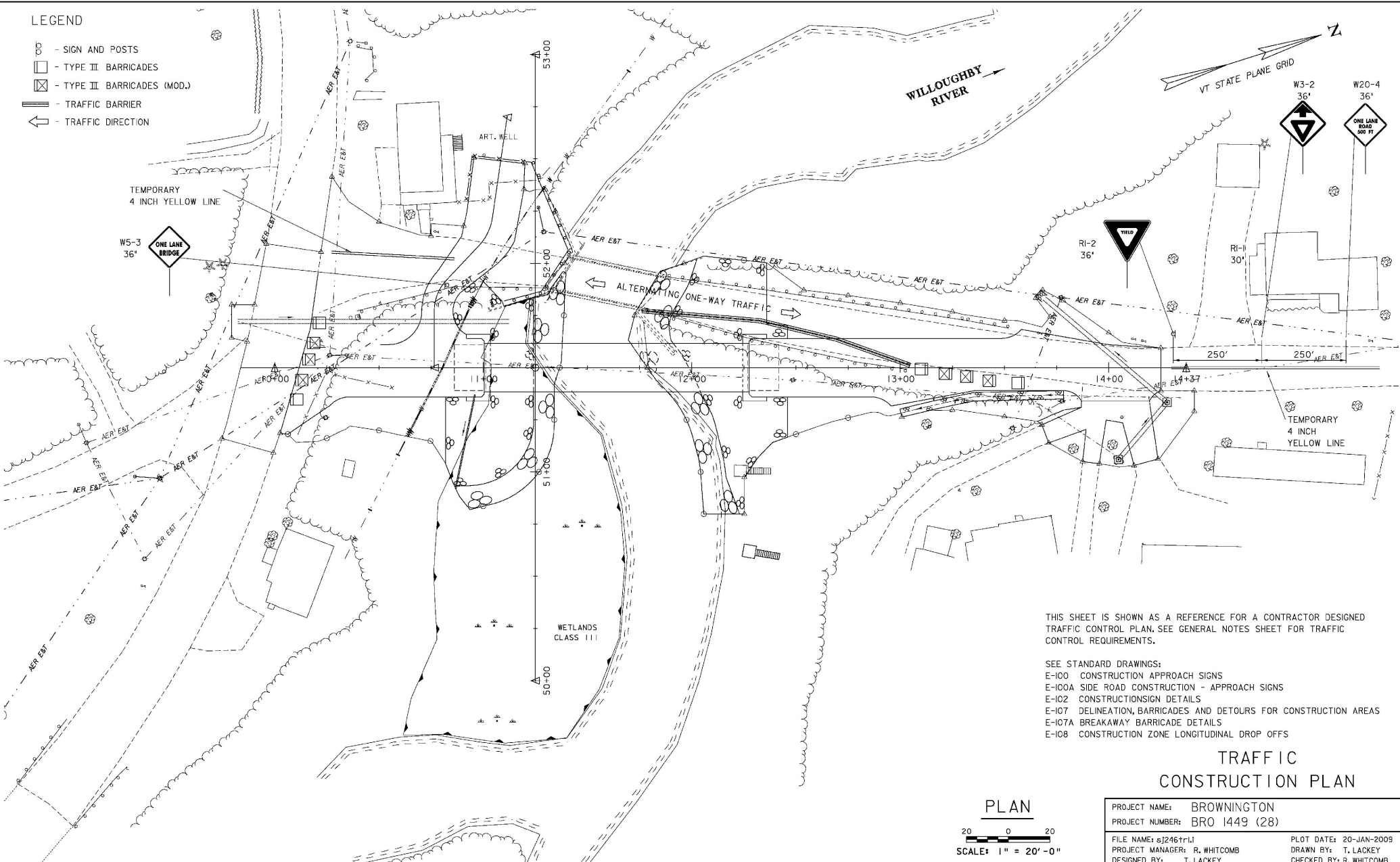
| REVISIONS        |     |
|------------------|-----|
| FEBRUARY 9, 2007 | WHF |
| MARCH 8, 2007    | JMF |
|                  |     |
|                  |     |

**EPSC  
DETAILS 3**

|                        |               |
|------------------------|---------------|
| PROJECT NAME:          | BROWNINGTON   |
| PROJECT NUMBER:        | BRO 1449 (28) |
| FILE NAME:             | sj246e7.1     |
| PROJECT MANAGER:       | R. WHITCOMB   |
| DESIGNED BY:           | T. LACKEY     |
| 99J246\str\sj246e7.dgn |               |
| PLOT DATE:             | 19-DEC-2008   |
| DRAWN BY:              | T. LACKEY     |
| CHECKED BY:            | W. LAMMER     |
| SHEET                  | 24 OF 58      |

**LEGEND**

-  - SIGN AND POSTS
-  - TYPE III BARRICADES
-  - TYPE III BARRICADES (MOD.)
-  - TRAFFIC BARRIER
-  - TRAFFIC DIRECTION



THIS SHEET IS SHOWN AS A REFERENCE FOR A CONTRACTOR DESIGNED TRAFFIC CONTROL PLAN. SEE GENERAL NOTES SHEET FOR TRAFFIC CONTROL REQUIREMENTS.

- SEE STANDARD DRAWINGS:
- E-100 CONSTRUCTION APPROACH SIGNS
  - E-100A SIDE ROAD CONSTRUCTION - APPROACH SIGNS
  - E-102 CONSTRUCTION SIGN DETAILS
  - E-107 DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS
  - E-107A BREAKAWAY BARRICADE DETAILS
  - E-108 CONSTRUCTION ZONE LONGITUDINAL DROP OFFS

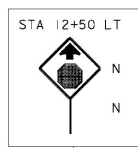
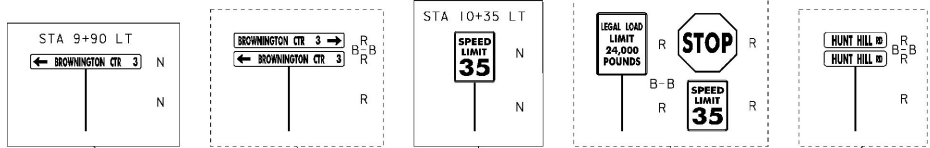
**TRAFFIC  
CONSTRUCTION PLAN**

**PLAN**

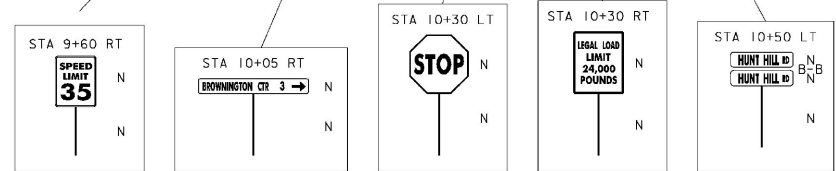
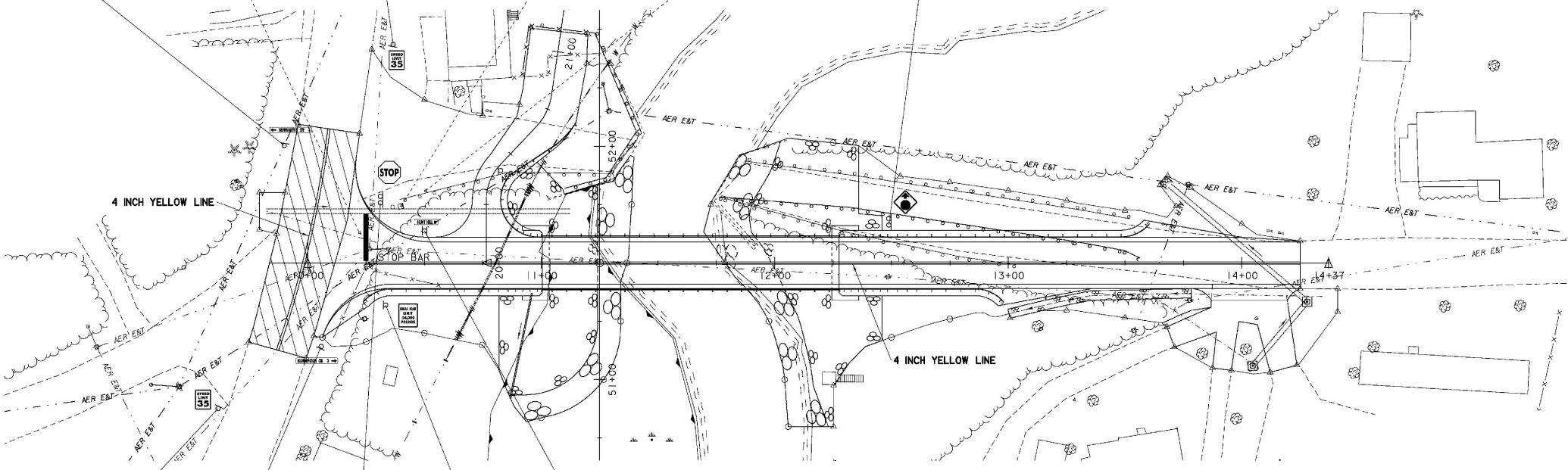
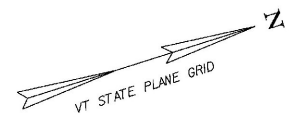
20 0 20

SCALE: 1" = 20' - 0"

|                           |               |             |             |
|---------------------------|---------------|-------------|-------------|
| PROJECT NAME:             | BROWNINGTON   | PLAT DATE:  | 20-JAN-2009 |
| PROJECT NUMBER:           | BRO 1449 (28) | DRAWN BY:   | T. LACKEY   |
| FILE NAME:                | s\246\tr\l    | CHECKED BY: | R. WHITCOMB |
| PROJECT MANAGER:          | R. WHITCOMB   | SHEET       | 25 OF 58    |
| DESIGNED BY:              | T. LACKEY     |             |             |
| 99\246\str\s\246\tr\l.dgn |               |             |             |



WILLOUGHBY RIVER



LEGEND

- ⊘ SIGN AND POSTS
- B-B BACK TO BACK
- R REMOVE
- N NEW
- 4 INCH YELLOW LINE  
10+25 TO 14+25 LT  
10+25 TO 14+25 RT  
VT 58 100' LT  
VT 58 100' RT
- 24 INCH STOP BAR  
10+25 LT

SEE STANDARD DRAWINGS:  
E-193 PAVEMENT MARKING DETAILS

TRAFFIC  
FINAL PLAN



|                  |               |             |             |
|------------------|---------------|-------------|-------------|
| PROJECT NAME:    | BROWNINGTON   | PLOT DATE:  | 06-JAN-2009 |
| PROJECT NUMBER:  | BRO 1449 (28) | DRAWN BY:   | T. LACKEY   |
| FILE NAME:       | s\246tr\21    | CHECKED BY: | R. WHITCOMB |
| PROJECT MANAGER: | R. WHITCOMB   | SHEET       | 26 OF 58    |
| DESIGNED BY:     | T. LACKEY     |             |             |



### SOIL CLASSIFICATION

#### AASHTO

|    |                                   |
|----|-----------------------------------|
| A1 | Gravel and Sand                   |
| A2 | Fine Sand                         |
| A3 | 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                      |
| ⊗        | Sample                            |
| N        | Standard Penetration Test         |
|          | Blow Count Per Foot For:          |
|          | 2" O.D. Sampler                   |
|          | 1 1/2" 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                      |
| WD       | Mud Drill                         |
| W        | Wash Ahead                        |
| NSA      | Hollow Stem Auger                 |
| AX       | Core Size 1 1/2"                  |
| BX       | Core Size 1 3/8"                  |
| 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                              |
| Sl       | Silt                              |
| Cl       | Clay                              |
| HP       | Hardpan                           |
| Le       | Ledge                             |
| NLTD     | No Ledge To Depth                 |
| CNPF     | Can Not Penetrate Further         |
| TLOB     | To Ledge Or Boulder               |
| NR       | No Recovery                       |
| Rec.     | Recovery                          |
| 1/2 Rec. | Percent Recovery                  |
| ROD      | Rock Quality Designation          |
| CBR      | California Bearing Ratio          |
| >        | Less Than                         |
| <        | Greater Than                      |
| R        | Refusal (N > 100)                 |

|     | COLOR  |      | COLOR        |
|-----|--------|------|--------------|
| blk | Black  | pnk  | Pink         |
| bl  | Blue   | pu   | Purple       |
| brn | Brown  | rd   | Red          |
| dk  | Dark   | tn   | Tan          |
| gry | Gray   | wh   | White        |
| gn  | Green  | yl   | Yellow       |
| lf  | 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 > 0.075" (#10 sieve).

**SAND** - Particles of rock < 0.075" (#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.

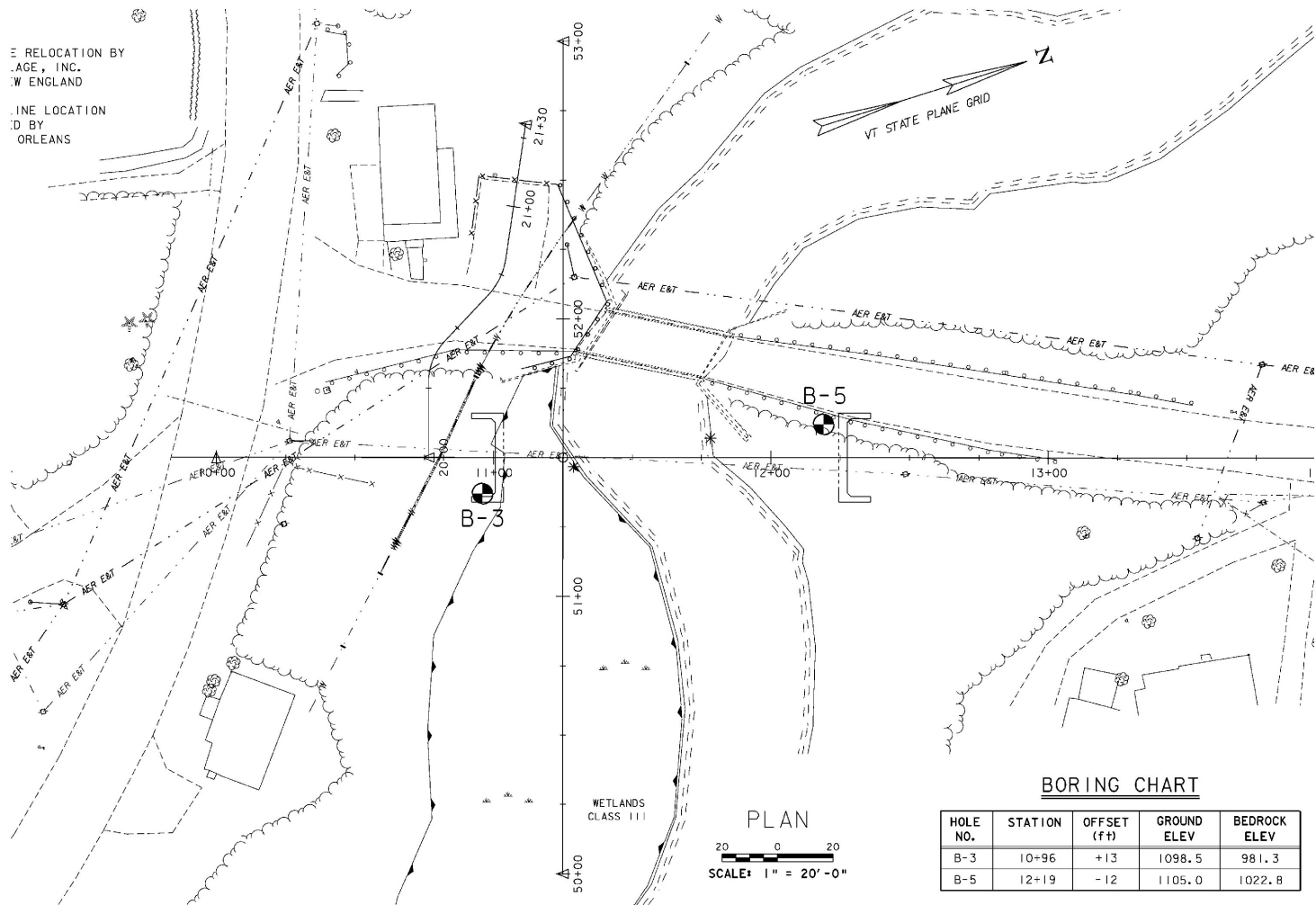
**FLOWING SAND** - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

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

**DIP** - Inclination of bed with a horizontal plane.

RELOCATION BY  
PAGE, INC.  
NEW ENGLAND

LINE LOCATION  
D BY  
ORLEANS



### BORING CHART

| HOLE NO. | STATION | OFFSET (ft) | GROUND ELEV | BEDROCK ELEV |
|----------|---------|-------------|-------------|--------------|
| B-3      | 10+96   | +13         | 1098.5      | 981.3        |
| B-5      | 12+19   | -12         | 1105.0      | 1022.8       |

### GENERAL NOTES

- The subsurface explorations shown herein were made between 02/27/03 and 03/25/03 by the Agency.
- 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.
- 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.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
- 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.
- 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.

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### STATE OF VERMONT AGENCY OF TRANSPORTATION

|                   |             |                          |               |
|-------------------|-------------|--------------------------|---------------|
| Town Of           | BROWNINGTON | Bridge No.               | BR 6          |
| Highway No.       | TH 2        | Log Sta.                 |               |
|                   |             | Surv. Sta.               | 11+25         |
| GEOTECHNICAL PLAN |             |                          |               |
| Designed By       | T. LACKEY   | Drawn By                 | T. LACKEY     |
| Checked By        | R. WHITCOMB | Date                     |               |
|                   |             | Bridge Design Supervisor | R. WHITCOMB   |
|                   |             | Date                     |               |
| PROJECT           | BROWNINGTON | PROJECT NO.              | BRO 1449 (28) |
| I.R.C. Info.      |             |                          |               |
| Bridge Sheet No.  |             | Sheet 28 of 58           |               |

| STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH DIVISION<br>SUBSURFACE INFORMATION |        |                                                     |                      |           |                                                                                                      |           |            |    |    | HOLE NO.: B-3<br>SHEET 3 OF 3<br>DATE STARTED: 02/27/03<br>DATE COMPLETED: 03/18/03 |  |
|---------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------|----------------------|-----------|------------------------------------------------------------------------------------------------------|-----------|------------|----|----|-------------------------------------------------------------------------------------|--|
| PROJECT NAME: BROWNINGTON<br>SITE NAME: BR 8<br>STATION: 10+96.00<br>GROUND EL.: 1098.51                |        |                                                     |                      |           | PROJECT NUMBER: BRO 1449 (28)<br>SITE NO.: TH 2<br>OFFSET: 13.0<br>G.W. DEPTH: Hole caved in @ 12.0' |           |            |    |    |                                                                                     |  |
| BORING CREW<br>CREW CHIEF: YOUNG<br>DRILLER: YOUNG<br>LOGGER: SOMERS                                    |        |                                                     |                      |           | BORING RIG: TRACK RIG<br>BORING TYPE: WASH BORE<br>SAMPLE TYPE: SPLIT BARREL                         |           |            |    |    |                                                                                     |  |
| DEPTH                                                                                                   | SYMBOL | CLASSIFICATION OF MATERIALS<br>(Description)        | BLOWS<br>PER<br>FOOT | M.C.<br>% | GRAVEL<br>%                                                                                          | SAND<br>% | FINES<br>% | LL | PI |                                                                                     |  |
| 1098.51                                                                                                 |        |                                                     |                      |           |                                                                                                      |           |            |    |    | 1101.00<br>FTG                                                                      |  |
| 1.25'-2.0'                                                                                              | BXDC   | Cleaned casing                                      |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 2                                                                                                       | A-2-4  | SiSa, brn, Moist<br>Rec. = 1.4'                     | 2                    | 45.9      | 7.6                                                                                                  | 63.6      | 26.8       |    |    |                                                                                     |  |
| 5                                                                                                       | A-2-4  | SiSa, brn, Moist<br>Rec. = 1.1'                     | 5                    | 44.2      | 10                                                                                                   | 67.9      | 22.1       |    |    |                                                                                     |  |
| 3                                                                                                       |        | Visual Class A-2-4, Wood<br>with SiSa, Rec. = 0.65' | 3                    | 95.4      |                                                                                                      |           |            |    |    |                                                                                     |  |
| 10                                                                                                      | A-4    | SiSa, brn, Moist<br>Rec. = 0.70'                    | 12                   | 48.5      | 14.2                                                                                                 | 46.9      | 38.9       |    |    |                                                                                     |  |
| 14                                                                                                      | A-4    | SaSi, gry, Moist<br>Rec. = 1.15'                    | 14                   | 12.9      | 9.9                                                                                                  | 25.7      | 64.4       |    |    |                                                                                     |  |
| 24                                                                                                      | A-4    | Si, gry, Moist<br>Rec. = 1.3'                       | 24                   | 13.1      | 17.4                                                                                                 | 18.6      | 64         |    |    |                                                                                     |  |
| 15                                                                                                      |        | No sample at 14.0',<br>Boulder                      |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 66                                                                                                      | A-4    | SaSi HP, gry, Moist<br>Rec. = 1.8'                  | 66                   | 12.4      | 14.3                                                                                                 | 27.1      | 58.6       |    |    |                                                                                     |  |
| 92                                                                                                      | A-4    | SaSi HP, gry, Moist<br>Rec. = 1.4'                  | 92                   | 13.6      | 15.6                                                                                                 | 26.2      | 58.2       |    |    |                                                                                     |  |
| 10.5                                                                                                    | A-4    | GrSaSi HP, gry, Moist<br>Rec. = 0.9'                | R                    | 10.5      | 25                                                                                                   | 31.3      | 43.7       |    |    |                                                                                     |  |
| 12.7                                                                                                    | A-4    | SaSi HP, gry, Moist<br>Rec. = 1.6'                  | 94                   | 12.7      | 16.3                                                                                                 | 26.4      | 57.3       |    |    |                                                                                     |  |
| 25                                                                                                      |        | BXDC, Boulder<br>No sample 24.0'-26.0'              |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 98                                                                                                      | A-4    | SaSi HP, gry, Moist<br>Rec. = 1.8'                  | 98                   | 12.3      | 5.8                                                                                                  | 29.3      | 64.9       |    |    |                                                                                     |  |
| 89                                                                                                      | A-4    | SaSi HP, gry, Moist<br>Rec. = 1.8'                  | 89                   | 12.3      | 12.8                                                                                                 | 32        | 55.2       |    |    |                                                                                     |  |
| 65                                                                                                      | A-4    | SaSi HP, gry, Moist<br>Rec. = 2.0'                  | 65                   | 14.6      | 0.9                                                                                                  | 31.4      | 67.7       |    |    |                                                                                     |  |
| 35                                                                                                      | A-4    | SiSa, gry, Moist<br>Rec. = 2.0'                     | 71                   | 13.9      | 6.5                                                                                                  | 53.6      | 39.9       |    |    |                                                                                     |  |
| 40                                                                                                      | A-4    | SaSi HP, gry, Moist<br>Rec. = 1.95'                 | 71                   | 11.1      | 4.8                                                                                                  | 26.1      | 69.1       |    |    |                                                                                     |  |
| 45                                                                                                      | A-4    | SaSi HP, gry, Moist<br>Rec. = 1.95'                 | 91                   | 12.8      | 5.9                                                                                                  | 29.4      | 64.7       |    |    |                                                                                     |  |
| 48.5'                                                                                                   | BXDC   | Cleaned out casing                                  |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |

| STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH DIVISION<br>SUBSURFACE INFORMATION |        |                                                                    |                      |           |                                                                                                      |           |            |    |    | HOLE NO.: B-3<br>SHEET 2 OF 3<br>DATE STARTED: 02/27/03<br>DATE COMPLETED: 03/18/03 |  |
|---------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------|----------------------|-----------|------------------------------------------------------------------------------------------------------|-----------|------------|----|----|-------------------------------------------------------------------------------------|--|
| PROJECT NAME: BROWNINGTON<br>SITE NAME: BR 8<br>STATION: 10+96.00<br>GROUND EL.: 1098.51                |        |                                                                    |                      |           | PROJECT NUMBER: BRO 1449 (28)<br>SITE NO.: TH 2<br>OFFSET: 13.0<br>G.W. DEPTH: Hole caved in @ 12.0' |           |            |    |    |                                                                                     |  |
| BORING CREW<br>CREW CHIEF: YOUNG<br>DRILLER: YOUNG<br>LOGGER: SOMERS                                    |        |                                                                    |                      |           | BORING RIG: TRACK RIG<br>BORING TYPE: WASH BORE<br>SAMPLE TYPE: SPLIT BARREL                         |           |            |    |    |                                                                                     |  |
| DEPTH                                                                                                   | SYMBOL | CLASSIFICATION OF MATERIALS<br>(Description)                       | BLOWS<br>PER<br>FOOT | M.C.<br>% | GRAVEL<br>%                                                                                          | SAND<br>% | FINES<br>% | LL | PI |                                                                                     |  |
| 48                                                                                                      | A-4    | SiSa, gry, Moist<br>Rec. = 2.0'                                    | 48                   | 23.5      | 1                                                                                                    | 99        | 35         | 10 |    |                                                                                     |  |
| 55                                                                                                      | BXDC   | 53.5'-55.0',<br>Cleaned out casing                                 |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 46                                                                                                      | A-6    | SiCl, gry, Moist<br>Rec. = 2.0'                                    | 46                   | 24.1      | 0.7                                                                                                  | 99.3      | 36         | 11 |    |                                                                                     |  |
| 60                                                                                                      | BXDC   | 58.75'-60.0',<br>Cleaned out casing                                |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 44                                                                                                      | A-6    | SiCl, gry, Moist<br>Rec. = 1.1'                                    | 44                   | 24.1      | 0.1                                                                                                  | 3.1       | 96.8       | 37 | 13 |                                                                                     |  |
| 23.3                                                                                                    | A-4    | SaSi, gry, Moist<br>Rec. = 0.9'                                    |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 32                                                                                                      | A-4    | Si, gry, Moist<br>Rec. = 2.0'                                      | 32                   | 24.5      | 13.7                                                                                                 | 86.3      |            |    |    |                                                                                     |  |
| 70                                                                                                      | A-6    | SiCl, gry, Moist<br>Rec. = 1.5'                                    | 33                   | 26        | 2.2                                                                                                  | 97.8      | 34         | 11 |    |                                                                                     |  |
| 26.3                                                                                                    | A-4    | Si, gry, Moist<br>Rec. = 0.5'                                      |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 30                                                                                                      | A-6    | SiCl, gry, Moist<br>Rec. = 1.7'                                    | 30                   | 28        | 6.8                                                                                                  | 93.2      | 37         | 12 |    |                                                                                     |  |
| 20.1                                                                                                    | A-1-b  | Sa, gry, Moist<br>Rec. = 0.3'                                      |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 37                                                                                                      | A-6    | SiCl, gry, Moist<br>Rec. = 1.1'                                    | 37                   | 25.2      | 1.2                                                                                                  | 11.9      | 86.9       | 37 | 14 |                                                                                     |  |
| 11.0                                                                                                    | A-1-a  | SaGr, gry, Moist<br>Rec. = 0.9'                                    |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 85                                                                                                      | BXDC   | Advanced casing to 83.0'<br>BXDC, 82.5'-87.0'<br>Boulders & Gravel |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 88.75'-90.75'                                                                                           | BXDC   | Advanced casing to 90.0'                                           |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 15                                                                                                      | A-4    | GrSaSi HP, gry,<br>Moist, Rec. = 1.2'                              | R                    | 15        | 25                                                                                                   | 37.5      | 37.5       |    |    |                                                                                     |  |
| 6.8                                                                                                     | A-1-b  | SiGr HP, gry,<br>Moist, Rec. = 0.5'                                | R                    | 6.8       | 65.7                                                                                                 | 12.4      | 21.9       |    |    |                                                                                     |  |
| 99.0'-103.0'                                                                                            | BXDC   |                                                                    |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |

| STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH DIVISION<br>SUBSURFACE INFORMATION                                                                                                                                                                              |        |                                                                                  |                      |           |                                                                                                      |           |            |    |    | HOLE NO.: B-3<br>SHEET 3 OF 3<br>DATE STARTED: 02/27/03<br>DATE COMPLETED: 03/18/03 |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------|----------------------|-----------|------------------------------------------------------------------------------------------------------|-----------|------------|----|----|-------------------------------------------------------------------------------------|--|
| PROJECT NAME: BROWNINGTON<br>SITE NAME: BR 8<br>STATION: 10+96.00<br>GROUND EL.: 1098.51                                                                                                                                                                                             |        |                                                                                  |                      |           | PROJECT NUMBER: BRO 1449 (28)<br>SITE NO.: TH 2<br>OFFSET: 13.0<br>G.W. DEPTH: Hole caved in @ 12.0' |           |            |    |    |                                                                                     |  |
| BORING CREW<br>CREW CHIEF: YOUNG<br>DRILLER: YOUNG<br>LOGGER: SOMERS                                                                                                                                                                                                                 |        |                                                                                  |                      |           | BORING RIG: TRACK RIG<br>BORING TYPE: WASH BORE<br>SAMPLE TYPE: SPLIT BARREL                         |           |            |    |    |                                                                                     |  |
| DEPTH                                                                                                                                                                                                                                                                                | SYMBOL | CLASSIFICATION OF MATERIALS<br>(Description)                                     | BLOWS<br>PER<br>FOOT | M.C.<br>% | GRAVEL<br>%                                                                                          | SAND<br>% | FINES<br>% | LL | PI |                                                                                     |  |
| 99.0'-103.0'                                                                                                                                                                                                                                                                         | BXDC   | Boulders, Cleaned out<br>casing.                                                 |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 103.8'-108.8'                                                                                                                                                                                                                                                                        | BXDC   | Broke through Boulder at<br>107.3', Cleaned casing.<br>Advanced casing to 110.0' |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 113.0'-115.0'                                                                                                                                                                                                                                                                        | BXDC   | Cleaned out casing.                                                              |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 13.2                                                                                                                                                                                                                                                                                 | A-4    | SiGr, gry, Moist<br>Rec. = 0.2'                                                  | R                    | 13.2      | 43.3                                                                                                 | 17.8      | 38.9       |    |    |                                                                                     |  |
| 113.0'-115.0'                                                                                                                                                                                                                                                                        | BXDC   | Cleaned out casing.                                                              |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 113.0'-116.75'                                                                                                                                                                                                                                                                       | BXDC   | No sample, Boulder                                                               |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 117.2'                                                                                                                                                                                                                                                                               |        | Top of bedrock @ 117.2'                                                          |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| 117.2'-122.2'                                                                                                                                                                                                                                                                        | Run#1  | BXDC, 117.2'-122.2'<br>Rec. = 4.8'                                               | 1                    | 96        | 52                                                                                                   | 40        |            |    |    |                                                                                     |  |
| 122.2'-127.2'                                                                                                                                                                                                                                                                        | Run#2  | BXDC, 122.2'-127.2'<br>Rec. = 5.0'                                               | 2                    | 100       | 64                                                                                                   | 40        |            |    |    |                                                                                     |  |
| 127.2'                                                                                                                                                                                                                                                                               |        | Hole stopped @ 127.2'                                                            |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| GEOLOGIST'S REPORT:                                                                                                                                                                                                                                                                  |        |                                                                                  |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| Run#1: Gray phyllite and phyllitic schist with occasional zones of biotite porphyroblasts aligned parallel with foliation, Moderately hard, Unweathered, Competent.                                                                                                                  |        |                                                                                  |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |
| Run#2: 122.2'-124.4', Gray phyllite and phyllitic schist with occasional zones of biotite porphyroblasts aligned parallel with foliation, Moderately hard, Unweathered, Competent.<br>124.4'-127.2', Light gray siliceous limestone, Hard to moderately hard, Unweathered, Competent |        |                                                                                  |                      |           |                                                                                                      |           |            |    |    |                                                                                     |  |

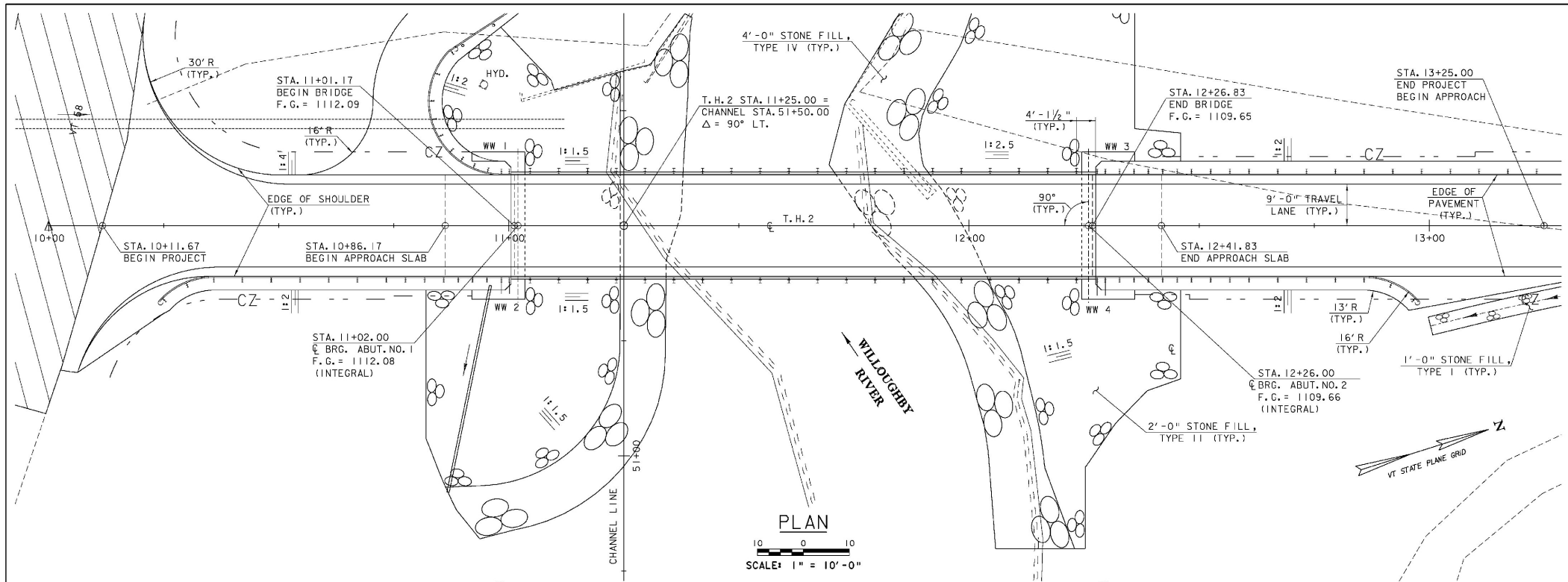
| STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH DIVISION<br>SUBSURFACE INFORMATION |        |                                                                              |                      | HOLE NO.: B-5<br>SHEET 1 OF 2<br>DATE STARTED: 03/20/03<br>DATE COMPLETED: 03/25/03 |             |           |            |    |    |
|---------------------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|-------------|-----------|------------|----|----|
| PROJECT NAME: BROWNINGTON                                                                               |        | PROJECT NUMBER: BRO 1449 (28)                                                |                      |                                                                                     |             |           |            |    |    |
| SITE NAME: BR 8                                                                                         |        | SITE NO.: TH 2                                                               |                      |                                                                                     |             |           |            |    |    |
| STATION: 12+19.00                                                                                       |        | OFFSET: -12.0                                                                |                      |                                                                                     |             |           |            |    |    |
| GROUND EL.: 1105.05                                                                                     |        | G.W. DEPTH: 7.70                                                             |                      | 03/26/03                                                                            |             |           |            |    |    |
| BORING CREW<br>CREW CHIEF: YOUNG<br>DRILLER: YOUNG<br>LOGGER: SOMERS                                    |        | BORING RIG: TRACK RIG<br>BORING TYPE: WASH BORE<br>SAMPLE TYPE: SPLIT BARREL |                      |                                                                                     |             |           |            |    |    |
| DEPTH                                                                                                   | SYMBOL | CLASSIFICATION OF MATERIALS<br>(Description)                                 | BLOWS<br>PER<br>FOOT | M.C.<br>%                                                                           | GRAVEL<br>% | SAND<br>% | FINES<br>% | LL | PI |
| 1105.0                                                                                                  |        |                                                                              |                      |                                                                                     |             |           |            |    |    |
| 5                                                                                                       | BXDC   | 4.4'-5.0', Cleaned out casing.                                               |                      |                                                                                     |             |           |            |    |    |
|                                                                                                         |        | A-1-b, Sa, brn, Moist, Rec. = 0.4'                                           | WH                   | 17                                                                                  | 19.8        | 69        | 11.2       |    |    |
|                                                                                                         |        | 7.0'-10.0', Voids                                                            |                      |                                                                                     |             |           |            |    |    |
| 10                                                                                                      |        | 10.0'-12.0', No Rec.                                                         | 12                   |                                                                                     |             |           |            |    |    |
| 15                                                                                                      |        | A-1-b, GrSa, brn, Moist, Rec. = 1.1'                                         | 3 Wood               | 82                                                                                  | 36.9        | 45.3      | 17.8       |    |    |
|                                                                                                         |        |                                                                              |                      |                                                                                     |             |           |            |    |    |
| 20                                                                                                      |        | Boulder, No sample                                                           | R                    |                                                                                     |             |           |            |    |    |
| 25                                                                                                      |        | BXDC, 24.6'-25.0' Cleaned out casing                                         | 52                   | 13.6                                                                                | 2.7         | 26.8      | 70.5       |    |    |
|                                                                                                         |        | A-4, SaSt, gry, Moist Rec. = 1.77'                                           |                      |                                                                                     |             |           |            |    |    |
| 30                                                                                                      |        | A-4, SaSt, gry, Moist Rec. = 1.65'                                           | 55                   | 14                                                                                  | 3.6         | 20.8      | 75.6       |    |    |
| 35                                                                                                      |        | No Sample, Stone in end of sample barrel.                                    | 93                   |                                                                                     |             |           |            |    |    |
|                                                                                                         |        |                                                                              |                      |                                                                                     |             |           |            |    |    |
| 40                                                                                                      |        | A-4, SaSt, gry, Moist Rec. = 1.5'                                            | 62                   | 11.2                                                                                | 4.2         | 33.2      | 62.6       |    |    |
| 45                                                                                                      |        | A-4, Si, gry, Moist Rec. = 1.65'                                             | 80                   | 13.5                                                                                | 2.2         | 16        | 81.8       |    |    |

1098.00  
FTG

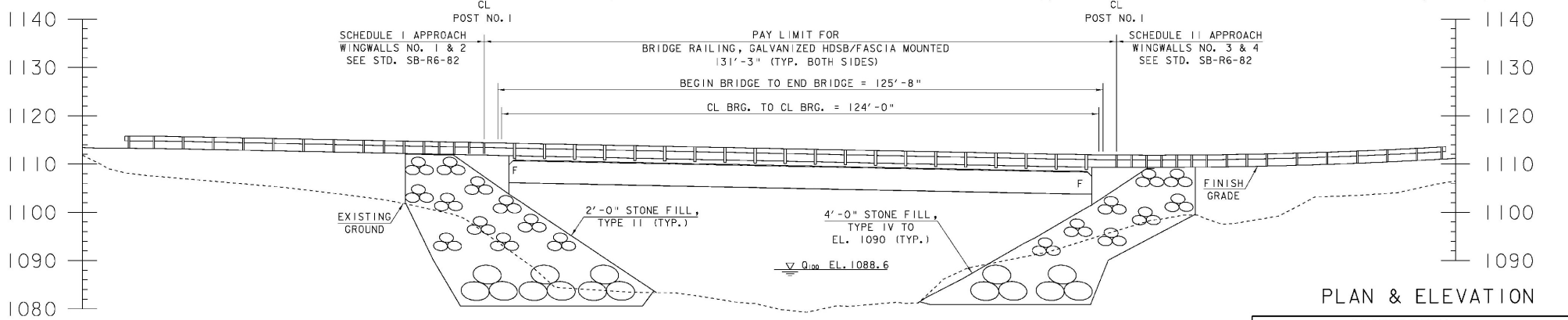
| STATE OF VERMONT<br>AGENCY OF TRANSPORTATION<br>MATERIALS & RESEARCH DIVISION<br>SUBSURFACE INFORMATION                                                                                                                                                                                                               |        |                                                                              |                      | HOLE NO.: B-5<br>SHEET 2 OF 2<br>DATE STARTED: 03/20/03<br>DATE COMPLETED: 03/25/03 |             |           |            |    |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|-------------|-----------|------------|----|----|
| PROJECT NAME: BROWNINGTON                                                                                                                                                                                                                                                                                             |        | PROJECT NUMBER: BRO 1449 (28)                                                |                      |                                                                                     |             |           |            |    |    |
| SITE NAME: BR 8                                                                                                                                                                                                                                                                                                       |        | SITE NO.: TH 2                                                               |                      |                                                                                     |             |           |            |    |    |
| STATION: 12+19.00                                                                                                                                                                                                                                                                                                     |        | OFFSET: -12.0                                                                |                      |                                                                                     |             |           |            |    |    |
| GROUND EL.: 1105.05                                                                                                                                                                                                                                                                                                   |        | G.W. DEPTH: 7.70                                                             |                      | 03/26/03                                                                            |             |           |            |    |    |
| BORING CREW<br>CREW CHIEF: YOUNG<br>DRILLER: YOUNG<br>LOGGER: SOMERS                                                                                                                                                                                                                                                  |        | BORING RIG: TRACK RIG<br>BORING TYPE: WASH BORE<br>SAMPLE TYPE: SPLIT BARREL |                      |                                                                                     |             |           |            |    |    |
| DEPTH                                                                                                                                                                                                                                                                                                                 | SYMBOL | CLASSIFICATION OF MATERIALS<br>(Description)                                 | BLOWS<br>PER<br>FOOT | M.C.<br>%                                                                           | GRAVEL<br>% | SAND<br>% | FINES<br>% | LL | PI |
|                                                                                                                                                                                                                                                                                                                       |        | A-4, SaSt, gry, Moist Rec. = 2.0'                                            | 94                   | 14                                                                                  | 3.2         | 20.9      | 75.9       |    |    |
| 55                                                                                                                                                                                                                                                                                                                    | BXDC   | 53.0'-55.0', Cleaned out casing.                                             |                      |                                                                                     |             |           |            |    |    |
|                                                                                                                                                                                                                                                                                                                       |        | A-4, Si, gry, Moist Rec. = 2.0'                                              | 54                   | 20.6                                                                                | 0.9         | 12.9      | 86.2       | 24 | 6  |
| 60                                                                                                                                                                                                                                                                                                                    |        | A-4, Si, gry, Moist, Rec. = 2.0'                                             | 37                   | 24.8                                                                                |             | 4.2       | 95.8       |    |    |
| 65                                                                                                                                                                                                                                                                                                                    |        | A-4, SaSt, gry, Moist, Rec. = 1.9'                                           | R                    | 10                                                                                  | 18.3        | 34.4      | 47.3       |    |    |
| 70                                                                                                                                                                                                                                                                                                                    |        | A-1-a, Gr, gry, Dry Rec. = 0.25'                                             | R                    | 8.2                                                                                 | 83          | 13.8      | 3.2        |    |    |
| 75                                                                                                                                                                                                                                                                                                                    |        | A-1-a, SaGr, gry, Moist Rec. = 0.8'                                          | R                    | 9.2                                                                                 | 67.2        | 25.8      | 7          |    |    |
| 80                                                                                                                                                                                                                                                                                                                    |        | No Sample, Boulders                                                          | R                    |                                                                                     |             |           |            |    |    |
|                                                                                                                                                                                                                                                                                                                       |        | Top of bedrock @ 82.2'                                                       |                      |                                                                                     |             |           |            |    |    |
| 85                                                                                                                                                                                                                                                                                                                    |        | Run#1: BXDC, 82.2'-87.2' Rec. = 5.0' See Geologist's Report.                 | RUN                  | REC                                                                                 | RDD         | Dip       |            |    |    |
|                                                                                                                                                                                                                                                                                                                       |        |                                                                              | 1                    | 100                                                                                 | 64          | 40        |            |    |    |
| 90                                                                                                                                                                                                                                                                                                                    |        | Run#2: BXDC, 87.2'-92.2' Rec. = 5.0' See Geologist's Report.                 | RUN                  | REC                                                                                 | RDD         | Dip       |            |    |    |
|                                                                                                                                                                                                                                                                                                                       |        |                                                                              | 2                    | 100                                                                                 | 90          | 40        |            |    |    |
| GEOLOGIST'S REPORT:<br>Hole stopped @ 92.2'<br>Run#1: Gray phyllite & phyllitic schist with occasional zones of biotite porphyroblasts aligned parallel with foliation, Grades to light gray siliceous limestone, Moderately hard, Competent.<br>Run#2: Light gray siliceous limestone, Hard, Unweathered, Competent. |        |                                                                              |                      |                                                                                     |             |           |            |    |    |

PILE TIP

SURVEYED BY: J. TOUCHETTE DATE: 03/03  
 DRAWN BY: C.C. BENDA  
 SQUAD LEADER: C.C. BENDA  
 DESIGN FILE NO.: /MAR/99/246/mj246bor.dgn  
 IPARM FILE: s246b03.1 DATE PLOTTED: 19-DEC-2008  
 PROJ. NAME: BROWNINGTON  
 PROJ. NO.: BRO 1449 (28)  
 SHEET 30 OF 58 SHEETS



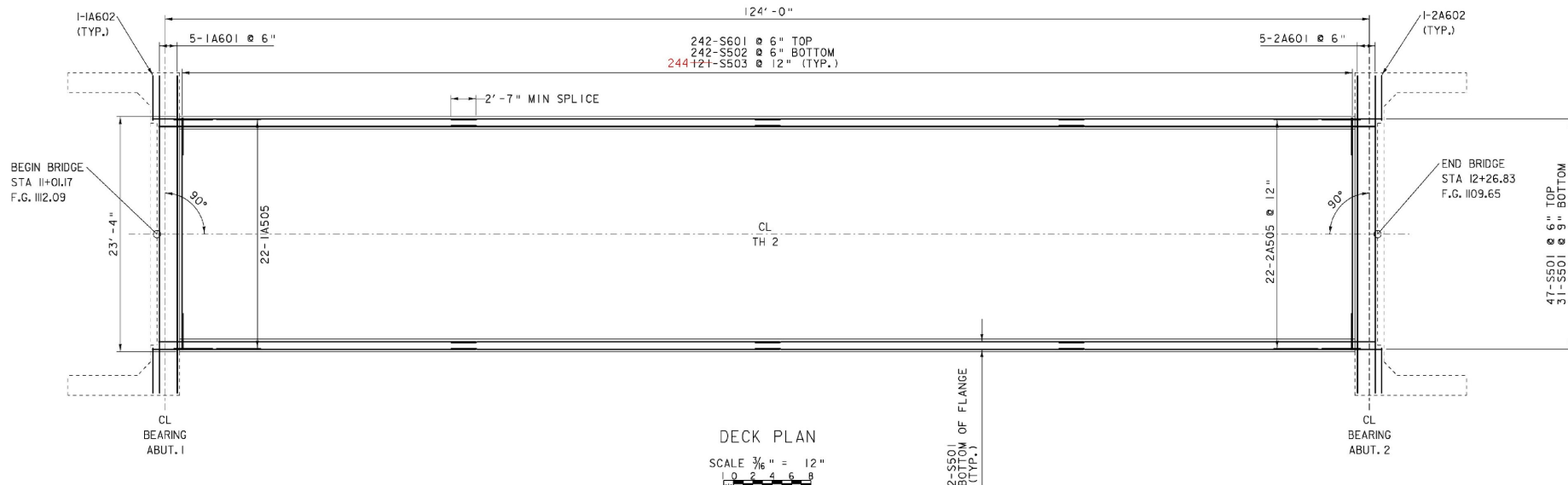
**PLAN**  
 10 0 10  
 SCALE: 1" = 10'-0"



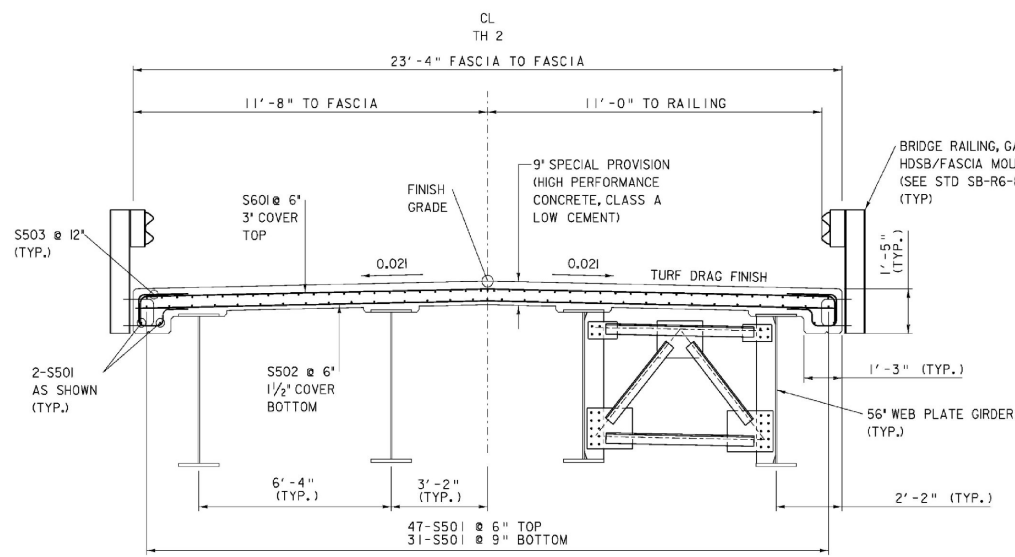
**ELEVATION**  
 10 0 10  
 SCALE: 1" = 10'-0"

**PLAN & ELEVATION**

|                               |                         |
|-------------------------------|-------------------------|
| PROJECT NAME: BROWNINGTON     | PLOT DATE: 19-DEC-2008  |
| PROJECT NUMBER: BRO 1449 (28) | DRAWN BY: T. LACKEY     |
| FILE NAME: sj246pe.dgn        | CHECKED BY: R. WHITCOMB |
| PROJECT MANAGER: R. WHITCOMB  | SHEET 31 OF 58          |
| DESIGNED BY: T. LACKEY        |                         |

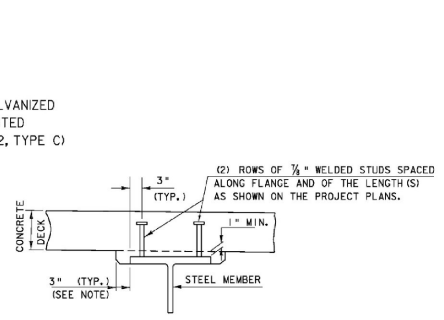


DECK PLAN  
SCALE 3/16" = 12"



DECK TYPICAL SECTION

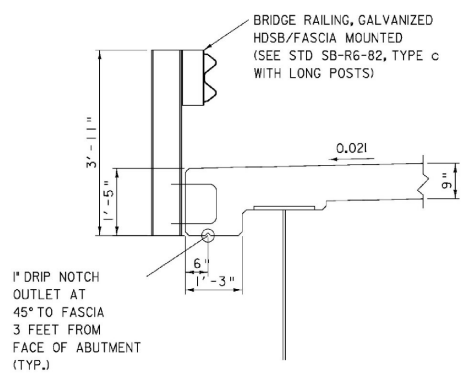
SCALE 1/2" = 12"



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  
(NOT TO SCALE)

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

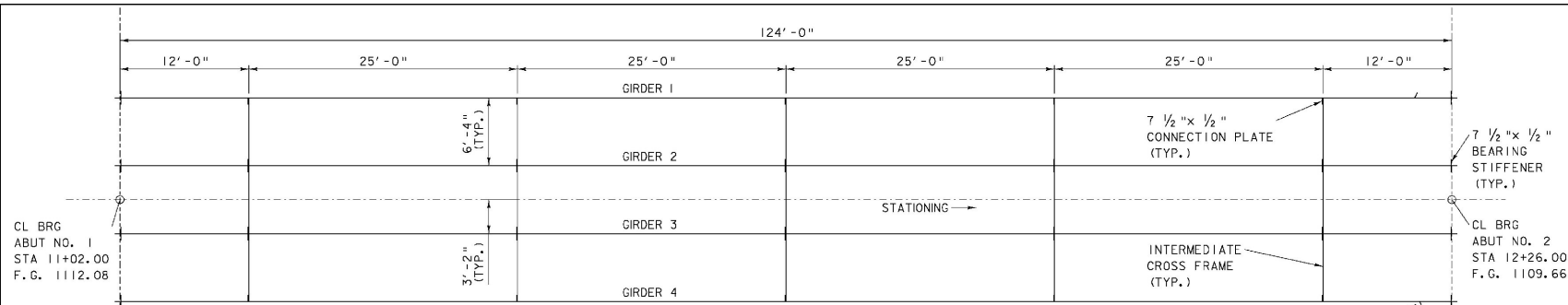


OVERHANG & RAIL DETAIL

SCALE 3/4" = 12"

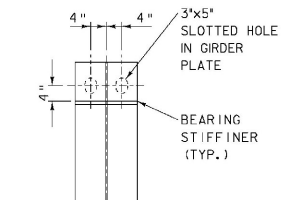
SUPERSTRUCTURE DECK

|                         |               |              |                |
|-------------------------|---------------|--------------|----------------|
| PROJECT NAME:           | BROWNINGTON   | PLLOT DATE:  | 19-DEC-2008    |
| PROJECT NUMBER:         | BRO 1449 (28) | DRAWN BY:    | C. MOONEY      |
| FILE NAME:              | sJ246s01      | DESIGNED BY: | T. LACKEY      |
| PROJECT LEADER:         | R. WHITCOMB   | CHECKED BY:  | R. WHITCOMB    |
| 99J246/str/sJ246str.dgn |               |              | SHEET 32 OF 58 |



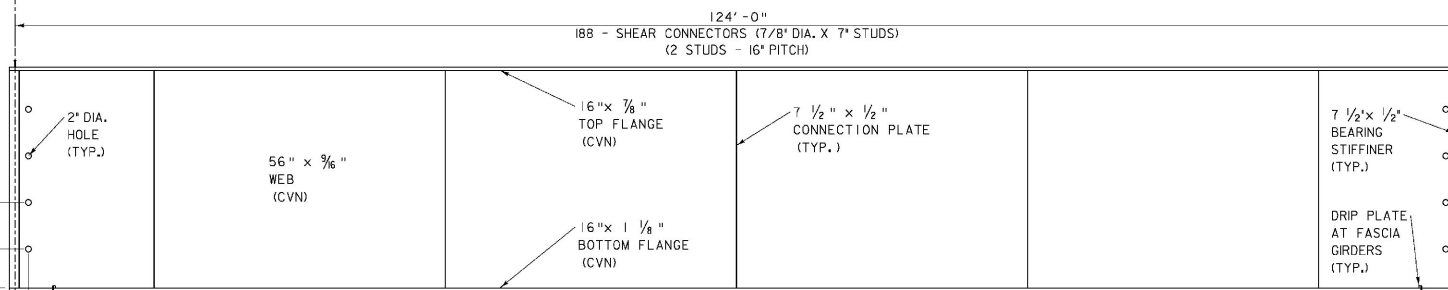
FRAMING PLAN

SCALE  $\frac{3}{16}'' = 12''$



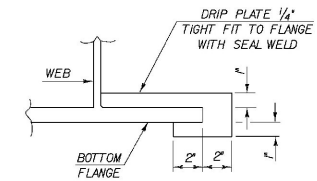
GIRDER END PLAN

SCALE  $\frac{3}{4}'' = 12''$

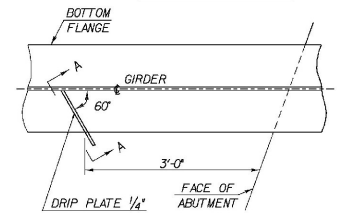


GIRDER ELEVATION

VERTICAL SCALE  $\frac{3}{4}'' = 12''$   
 HORIZONTAL SCALE  $\frac{3}{16}'' = 12''$

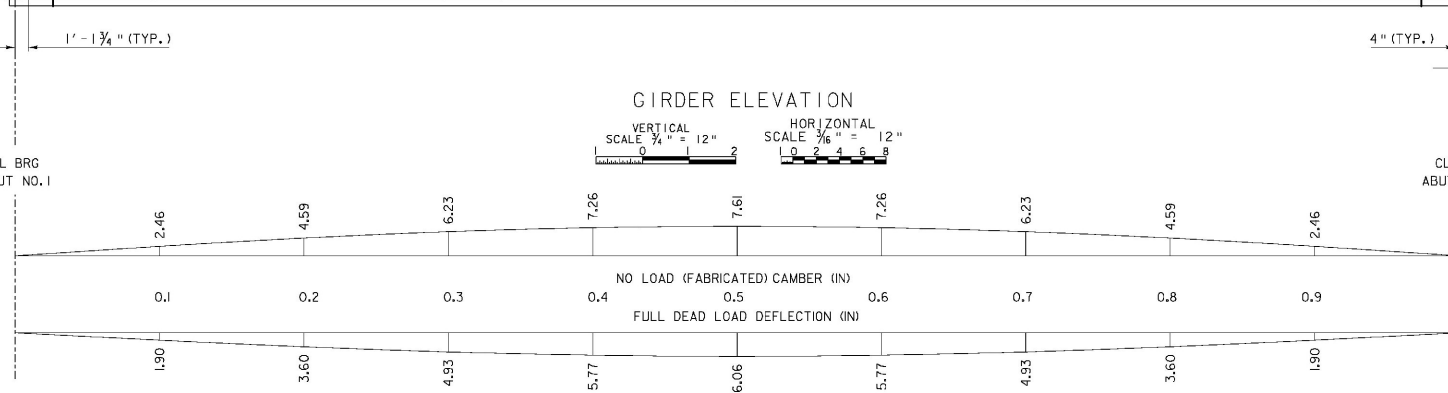


SECTION A - A



PLAN DRIP PLATE

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.

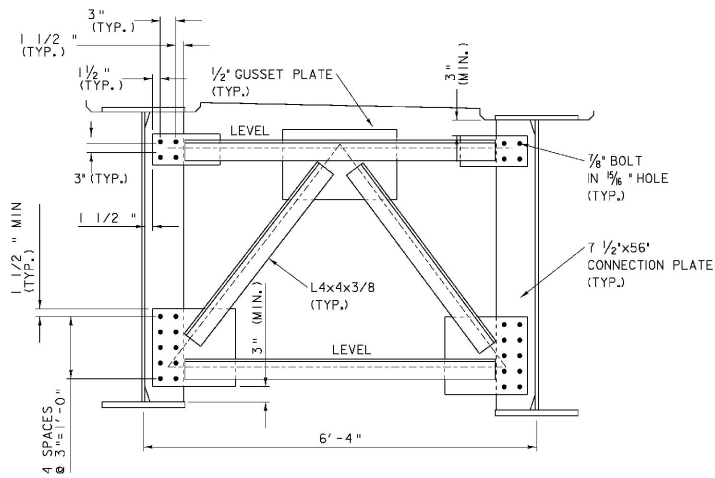


CAMBER & DEAD LOAD DEFLECTION DIAGRAM

VERTICAL SCALE  $\frac{3}{4}'' = 12''$   
 HORIZONTAL SCALE  $\frac{3}{16}'' = 12''$

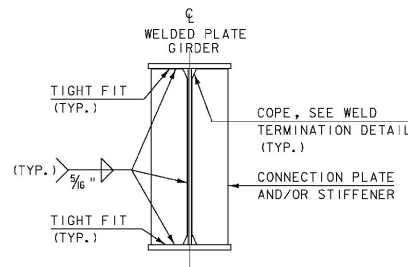
SUPERSTRUCTURE FRAMING PLAN

|                 |             |                 |               |                           |             |             |                |
|-----------------|-------------|-----------------|---------------|---------------------------|-------------|-------------|----------------|
| PROJECT NAME:   | BROWNINGTON | PROJECT NUMBER: | BRO 1449 (28) | FILE NAME:                | s\j246s02.j | PLOT DATE:  | 20-JAN-2009    |
| PROJECT LEADER: | R. WHITCOMB | DESIGNED BY:    | T. LACKEY     | DRAWN BY:                 | C. MOONEY   | CHECKED BY: | R. WHITCOMB    |
|                 |             |                 |               | 99\j246\str\s\j246str.dgn |             |             | SHEET 33 OF 58 |

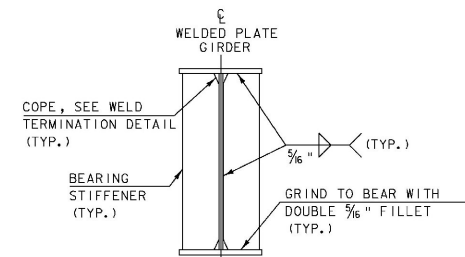


INTERMEDIATE CROSS FRAME

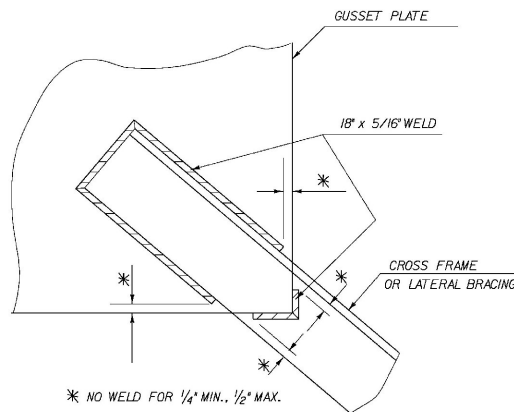
SCALE 1" = 12"  
 1 2 3 4 5 6 7 8 9 10 11 12



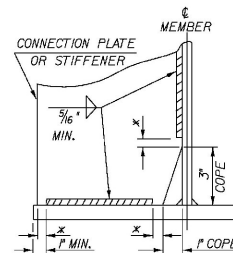
INTERMEDIATE CONNECTION PLATES  
 AND/OR STIFFENERS FOR WELDED  
 PLATE GIRDERS  
 (NOT TO SCALE)



ABUTMENT BEARING STIFFENERS  
 FOR WELDED PLATE GIRDERS  
 (NOT TO SCALE)



WELD LOCATION DETAIL  
 AT CROSS FRAMES AND  
 LATERAL BRACING



WELD TERMINATION AND COPING  
 DETAILS FOR STEEL MEMBERS

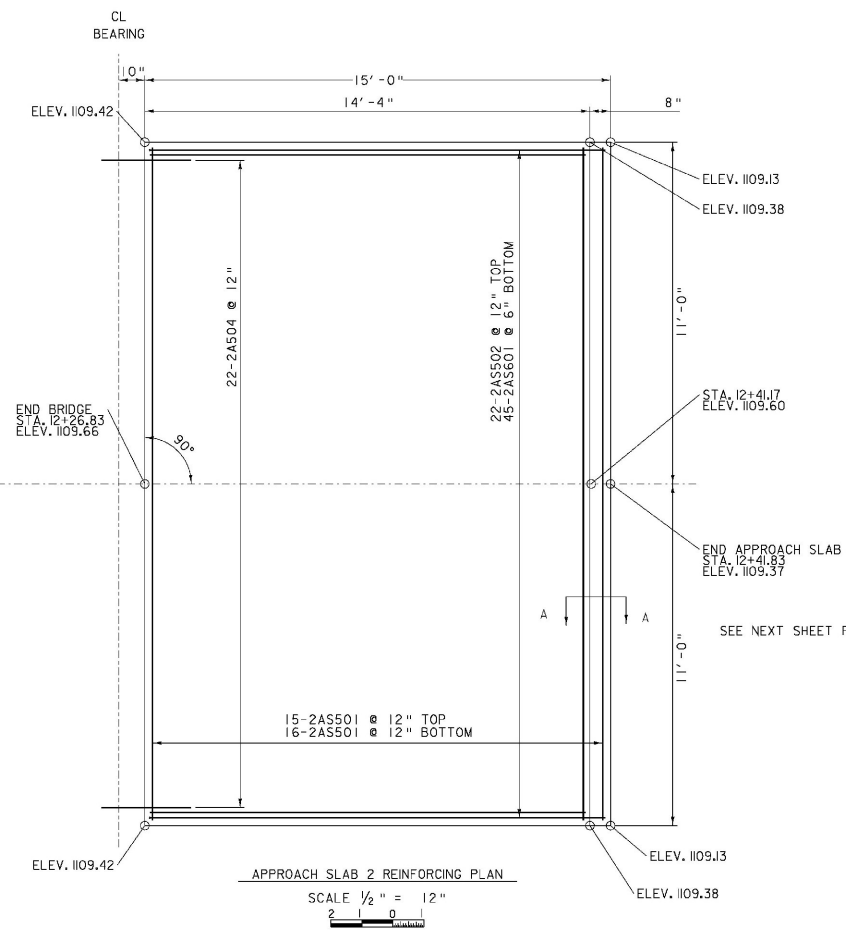
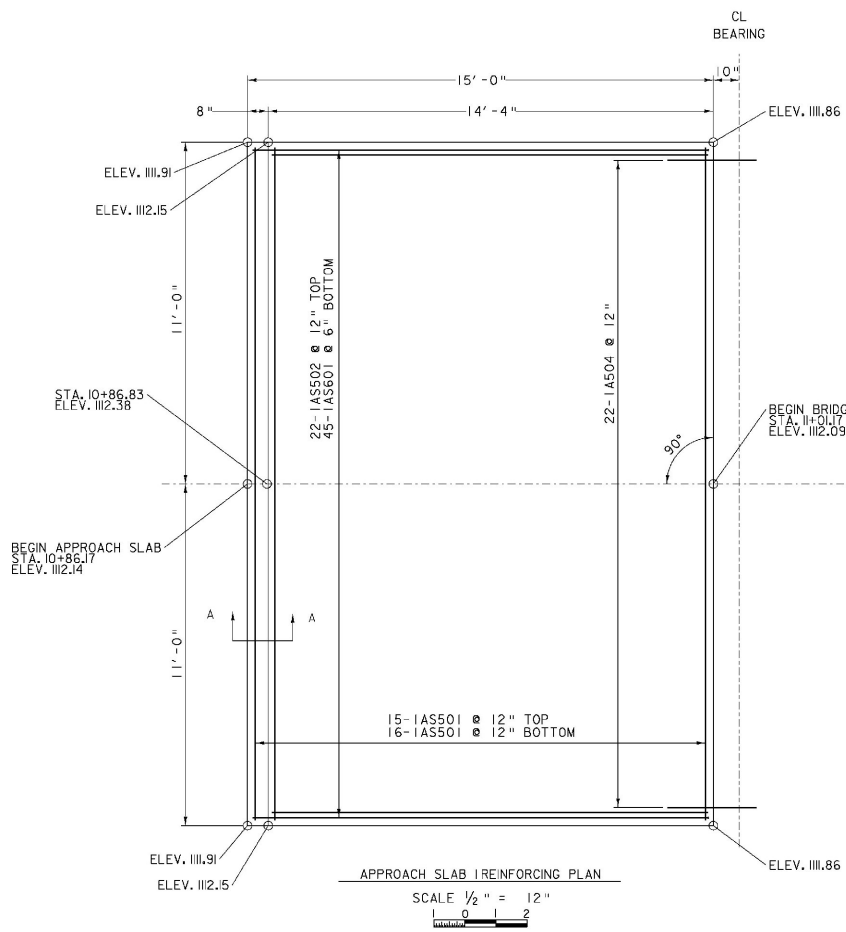
\* NO WELD FOR 3/8" MIN., 7/8" MAX. (EXCEPT MUST  
 MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

SUPERSTRUCTURE CROSS FRAMES

PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sj246s03.rvt  
 PROJECT LEADER: R. WHITCOMB  
 DESIGNED BY: T. LACKEY  
 99j246/str/sj246str.dgn

PLOT DATE: 19-DEC-2008  
 DRAWN BY: C.MOONEY  
 CHECKED BY: R. WHITCOMB  
 SHEET 34 OF 58



SEE NEXT SHEET FOR SECTION A - A

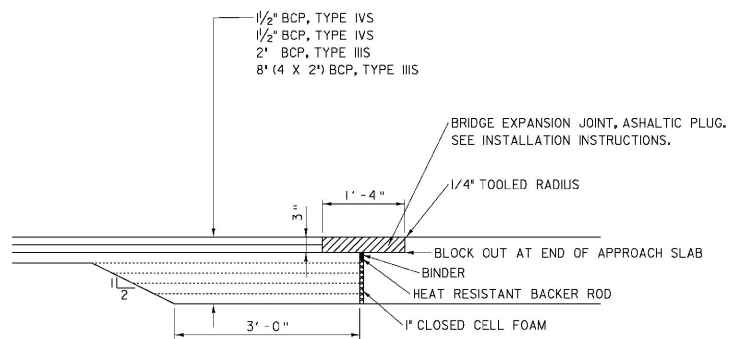
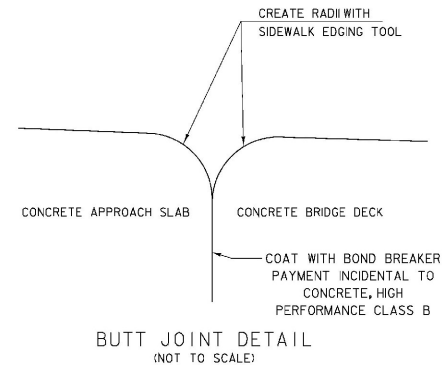
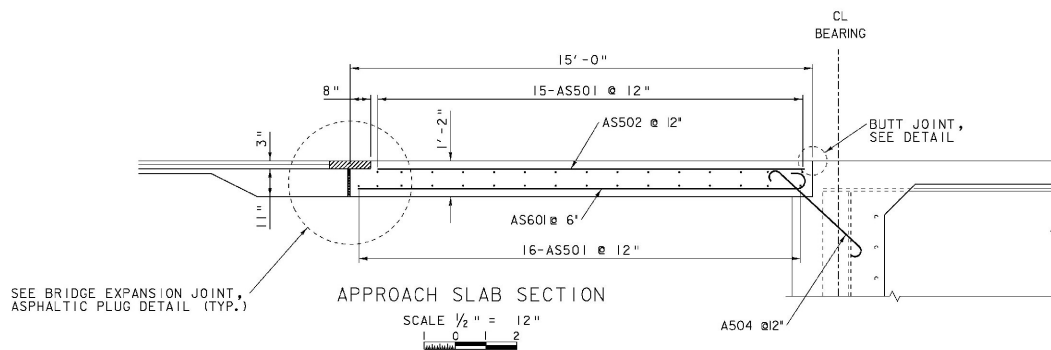
**APPROACH SLAB NOTES**

1. POLYETHYLENE SHEETING. MATERIAL FOR POLYETHYLENE SHEETING SHALL MEET THE REQUIREMENTS OF SUB SECTION 725.01(c) OF THE STANDARD SPECIFICATIONS. THE SHEETING THICKNESS SHALL BE 10 MIL. PLACE THE SHEETING ON TOP OF THE FINISHED SUBBASE FOR THE FULL LENGTH AND WIDTH OF THE APPROACH SLAB EXCEPT IN THE BRACKET AREA AT THE ABUTMENT. LAP SHEETING AT LEAST 24". PAYMENT FOR ITEM 501.34 \*CONCRETE, HIGH PERFORMANCE CLASS B\* SHALL INCLUDE THIS SHEETING.
2. CONCRETE. POUR APPROACH SLAB CONCRETE IN THE EARLY MORNING BEFORE THE SUPERSTRUCTURE EXPANDS.
3. BOND BREAKER. APPLY 2 COATS TAR EMULSION. PAYMENT FOR ITEM 501.34 \*CONCRETE, HIGH PERFORMANCE CLASS B\* SHALL INCLUDE THIS BOND BREAKER.

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

**SUPERSTRUCTURE APPROACH SLABS 1**

|               |             |                 |               |                           |             |             |                |
|---------------|-------------|-----------------|---------------|---------------------------|-------------|-------------|----------------|
| PROJECT NAME: | BROWNINGTON | PROJECT NUMBER: | BRO 1449 (28) | FILE NAME:                | s\j246s04.t | PLOT DATE:  | 19-DEC-2008    |
| DESIGNED BY:  | T. LACKEY   | CHECKED BY:     | R. WHITCOMB   | DESIGNED BY:              | T. LACKEY   | CHECKED BY: | R. WHITCOMB    |
|               |             |                 |               | 99\j246\str\s\j246str.dgn |             |             | SHEET 35 OF 58 |



BRIDGE EXPANSION JOINT, ASPHALTIC PLUG DETAIL  
SECTION A - A (From previous sheet)

SCALE 1" = 12"

ASPHALTIC PLUG BRIDGE JOINT INSTALLATION NOTES

1. LOCATE THE JOINT CENTRALLY OVER THE APPROACH SLAB-PAVEMENT EXPANSION GAP MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. EXCAVATE THE JOINT AS SHOWN ON THE PLANS WITH SAWS AND PNEUMATIC HAMMER OR A HAMMER AND CHISEL.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS AND ASPHALT. THOROUGHLY DRY THE JOINT AREA WITH HOT COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. REPAIR SPALLED AND DEFECTIVE CONCRETE WITH AN APPROVED MATERIAL AS AGREED UPON BY THE ENGINEER.
5. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.
6. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
7. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
8. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 125°F (51°C) ±
9. WEATHER LIMITATIONS. APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL: THE AMBIENT AIR TEMPERATURE IS AT LEAST 50°F (10°C) AND RISING; THE ROAD SURFACE IS SUFFICIENTLY DRY; AND WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

NOTE:

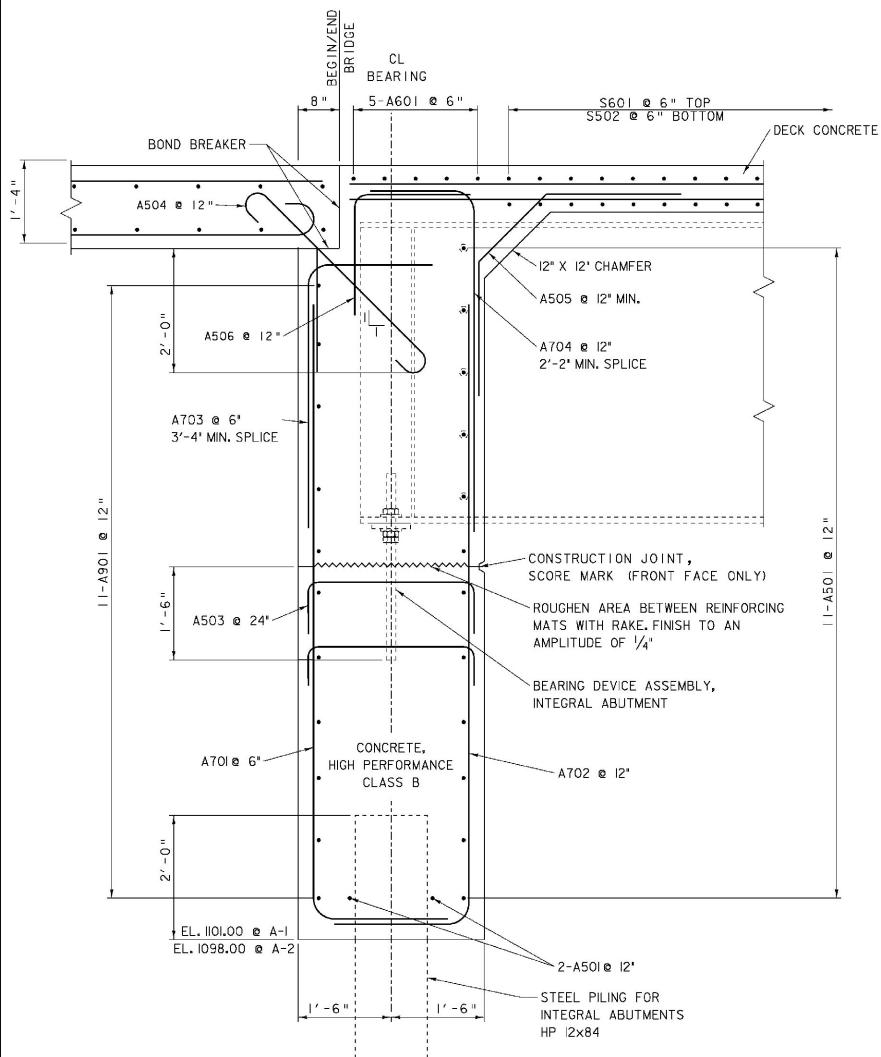
- NF = NEAR FACE  
 FF = FAR FACE  
 EF = EACH FACE  
 ▲ = CUT TO FIT IN FIELD  
 3" COVER UNLESS OTHERWISE SPECIFIED ON THE PLANS.  
 2' - 2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

SUPERSTRUCTURE APPROACH SLABS 2

PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

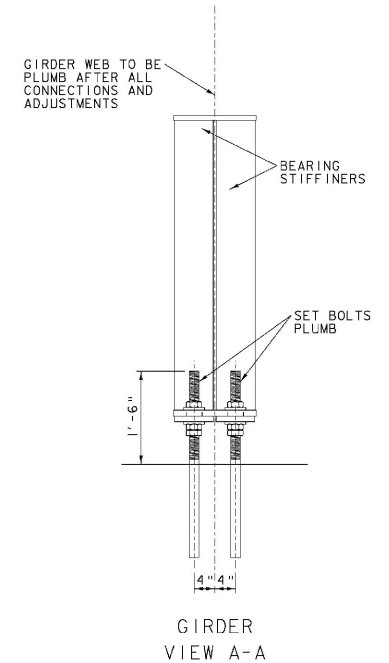
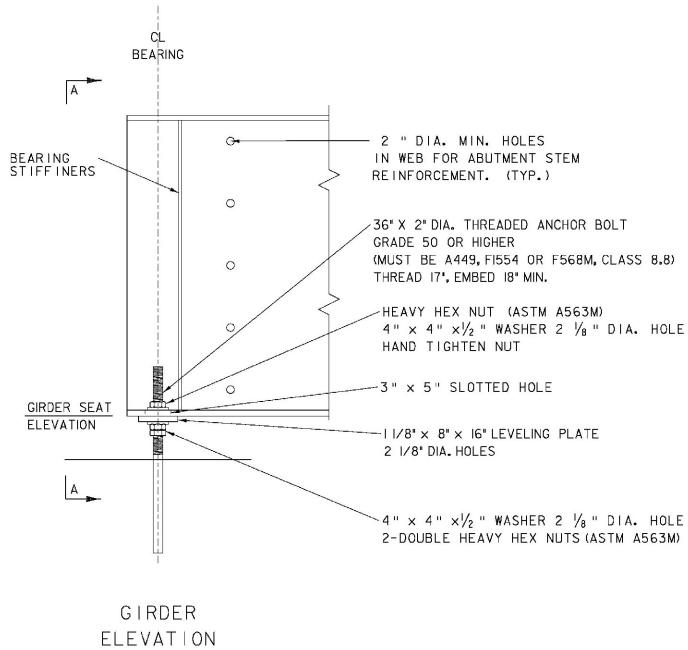
FILE NAME: sj246e05.1  
 PROJECT LEADER: R. WHITCOMB  
 DESIGNED BY: T. LACKEY  
 99J246/str/sj246str.dgn

PLOT DATE: 19-DEC-2008  
 DRAWN BY: C. MOONEY  
 CHECKED BY: R. WHITCOMB  
 SHEET 36 OF 58



INTEGRAL ABUTMENT TYPICAL

SCALE 1" = 12"  
1 9 6 3 0 2



**BEARING ASSEMBLY NOTES**

1. ALL COMPONENTS OF BEARING ASSEMBLY, INCLUDING ANCHOR BOLTS, NUTS, WASHERS, AND LEVELING PLATES, SHALL BE PAID FOR UNDER ITEM 506.55 "STRUCTURAL STEEL, PLATE GIRDER".
2. COMPONENTS DO NOT HAVE TO BE GALVANIZED OR METALIZED.

**NOTE:**

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

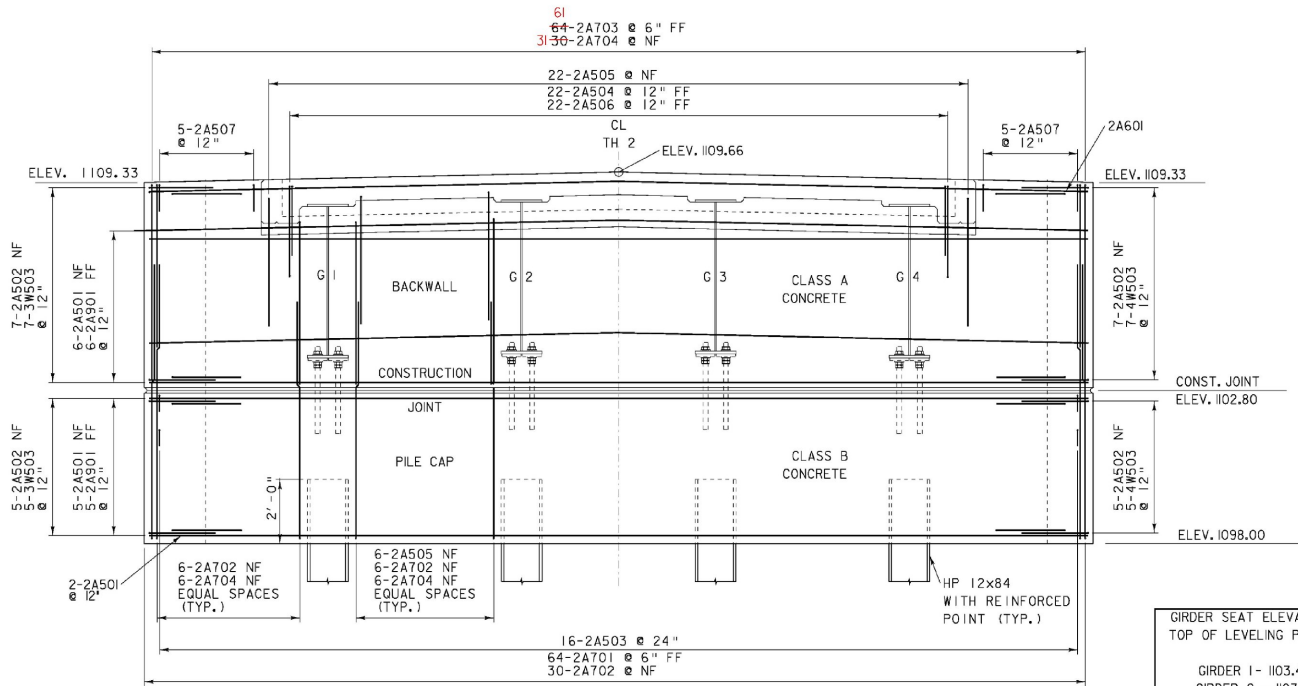
**SUPERSTRUCTURE BRIDGE ENDS**

PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449 (28)

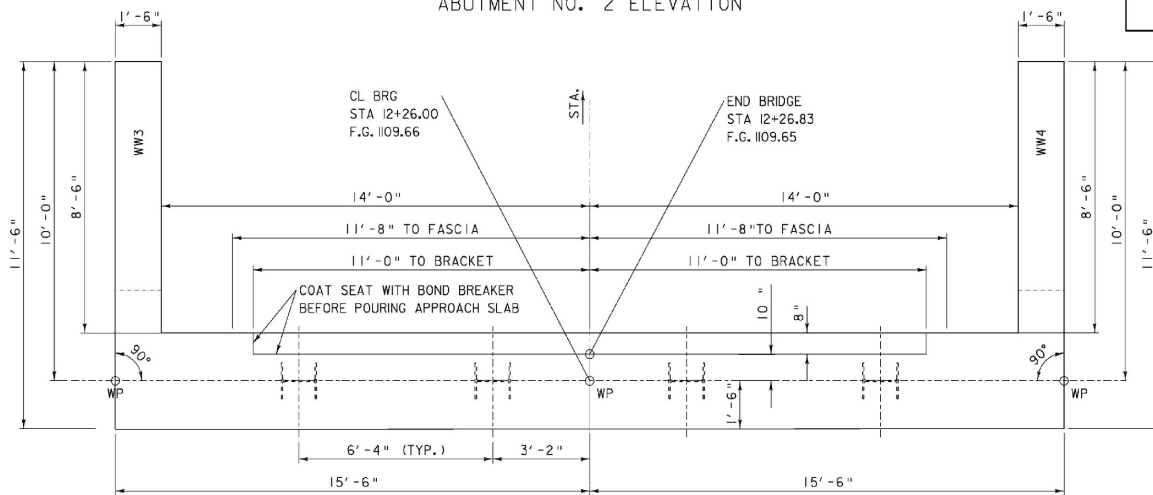
FILE NAME: sj246s06.1  
PROJECT LEADER: R. WHITCOMB  
DESIGNED BY: T. LACKEY  
99j246/str/sj246str.dgn

PLOT DATE: 19-DEC-2008  
DRAWN BY: C.MOONEY  
CHECKED BY: R. WHITCOMB  
SHEET 37 OF 58



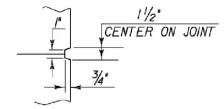
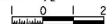


ABUTMENT NO. 2 ELEVATION

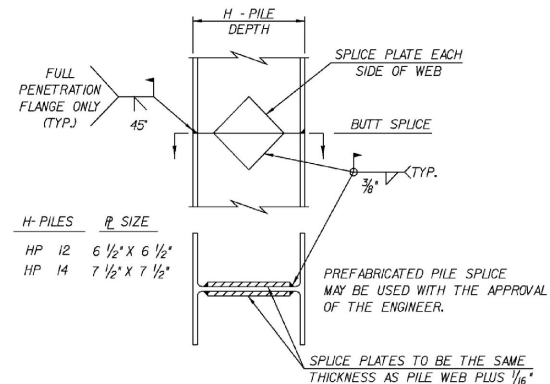


ABUTMENT NO. 2 PLAN

SCALE 1/2" = 12"



SCORE MARK DETAIL



DETAIL OF PILE SPLICE

NOTE:

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

SUBSTRUCTURE ABUTMENT 2

PROJECT NAME: BROWNINGTON

PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sj246e08.J

PROJECT LEADER: R. WHITCOMB

DESIGNED BY: T. LACKEY

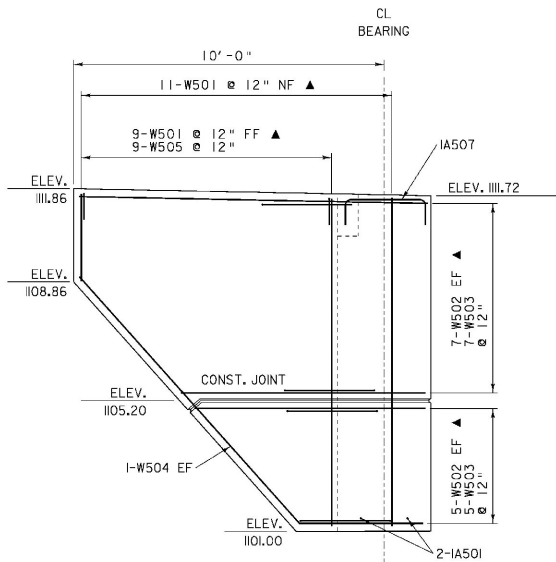
99j246/str/sj246str.dgn

PLOT DATE: 06-JAN-2009

DRAWN BY: C. MOONEY

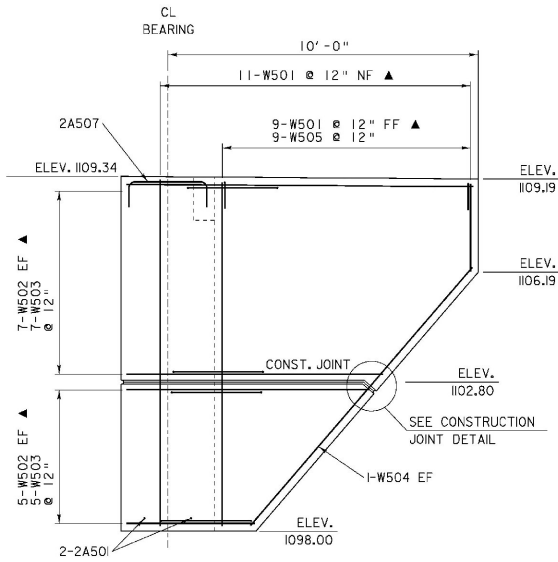
CHECKED BY: R. WHITCOMB

SHEET 39 OF 58



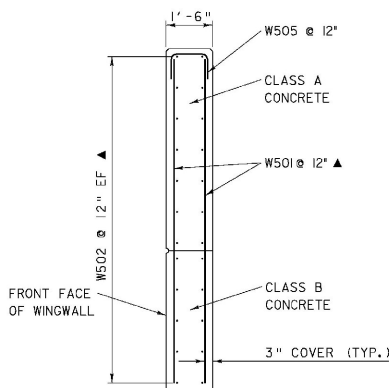
WINGWALLS NO. 1 & NO. 2 ELEVATION

SCALE 1/2" = 12"



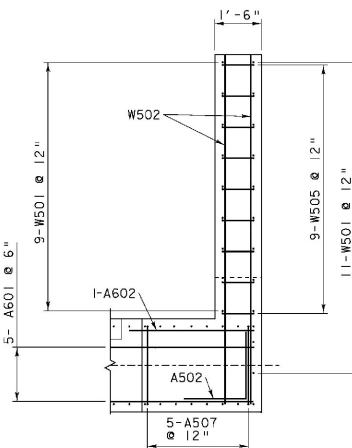
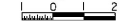
WINGWALLS NO. 3 & NO. 4 ELEVATION

SCALE 1/2" = 12"



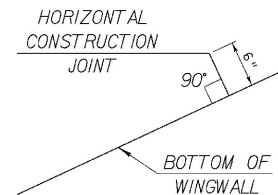
WINGWALL TYPICAL SECTION

SCALE 1/2" = 12"



WINGWALL TYPICAL PLAN

SCALE 1/2" = 12"



CONSTRUCTION JOINT DETAILS

**NOTE:**

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

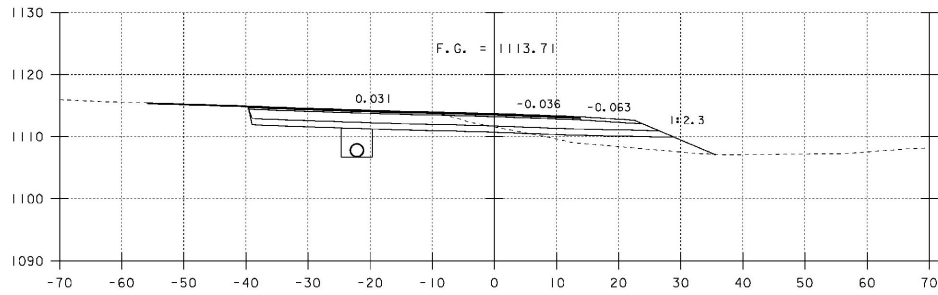
**SUBSTRUCTURE WINGWALLS**

PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449 (28)

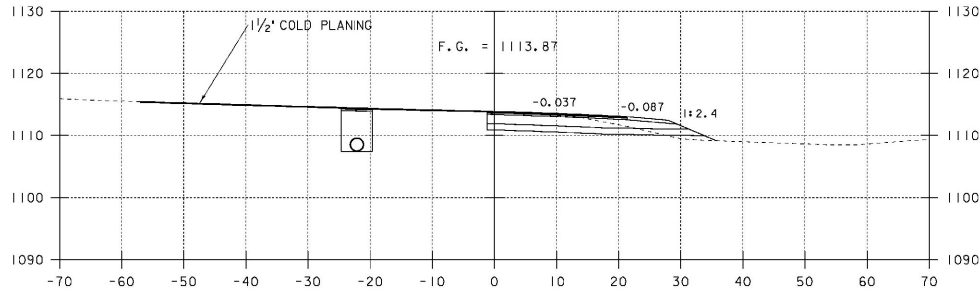
FILE NAME: sj246s09.j  
PROJECT LEADER: R. WHITCOMB  
DESIGNED BY: T. LACKEY  
99j246/str/sj246str.dgn

PLOT DATE: 20-JAN-2009  
DRAWN BY: C.MOONEY  
CHECKED BY: R. WHITCOMB  
SHEET 40 OF 58



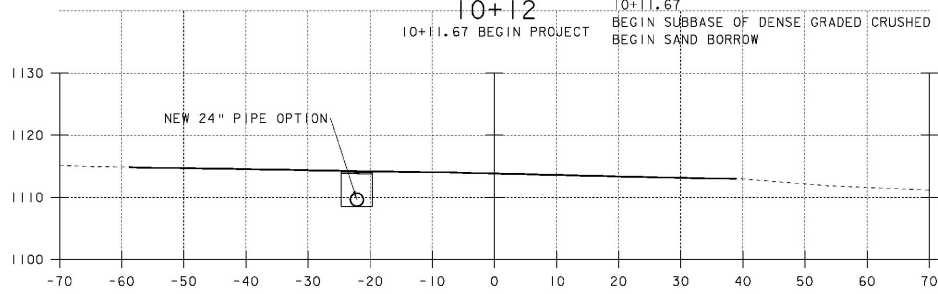


10+20



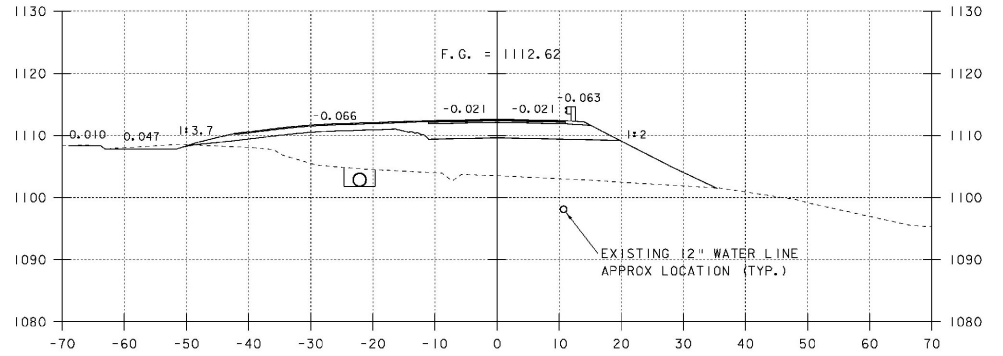
10+12

10+11.67 BEGIN PROJECT  
 10+11.67 BEGIN SUBBASE OF DENSE GRADED CRUSHED STONE  
 10+11.67 BEGIN SAND BORROW



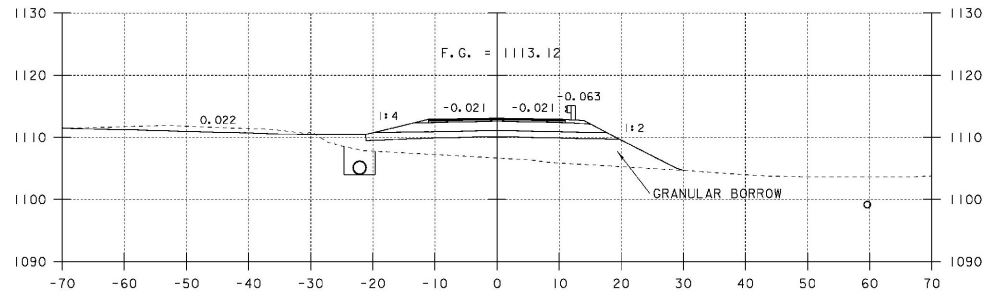
10+00

9+95.31 BEGIN APPROACH  
 BEGIN COLD PLANING  
 MATCH EXISTING



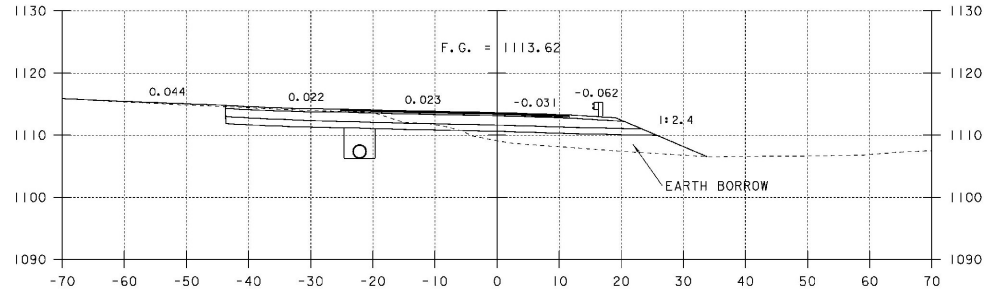
10+75

10+76.5 DRIVE  
 10+75 END SAND BORROW



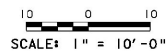
10+50

10+46 BEGIN GRANULAR BORROW



10+25

ROADWAY CROSS SECTIONS I

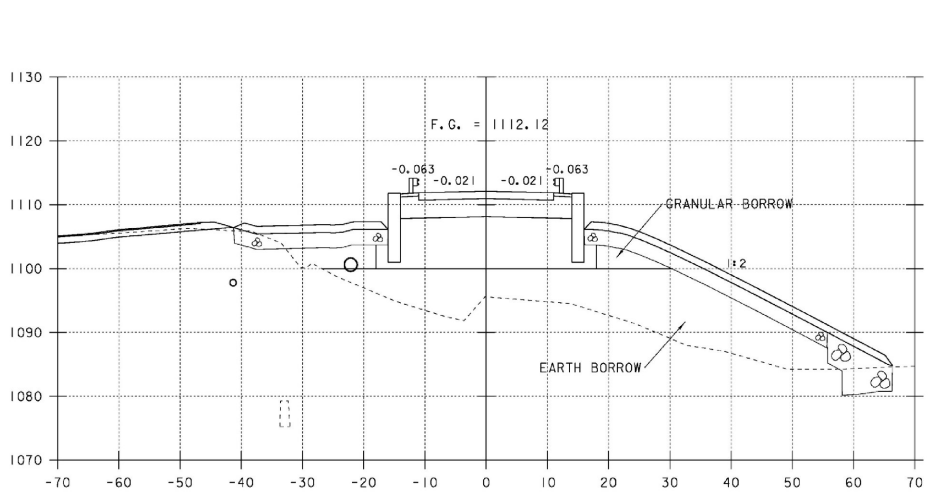


STA. 10+00 TO STA. 10+75

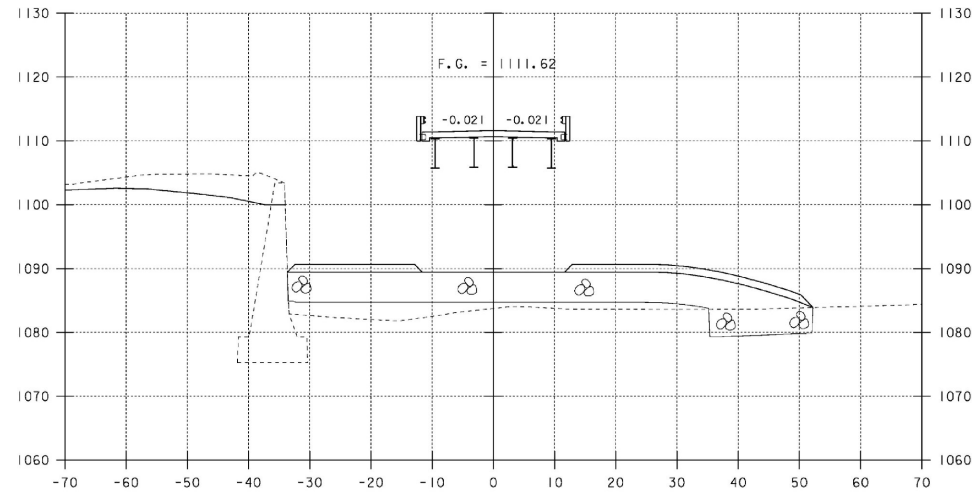
PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

FILE NAME: s\j246m\l\l  
 PROJECT LEADER: R. WHITCOMB  
 DESIGNED BY: T. LACKEY  
 99\246\str\sj246xs.dgn

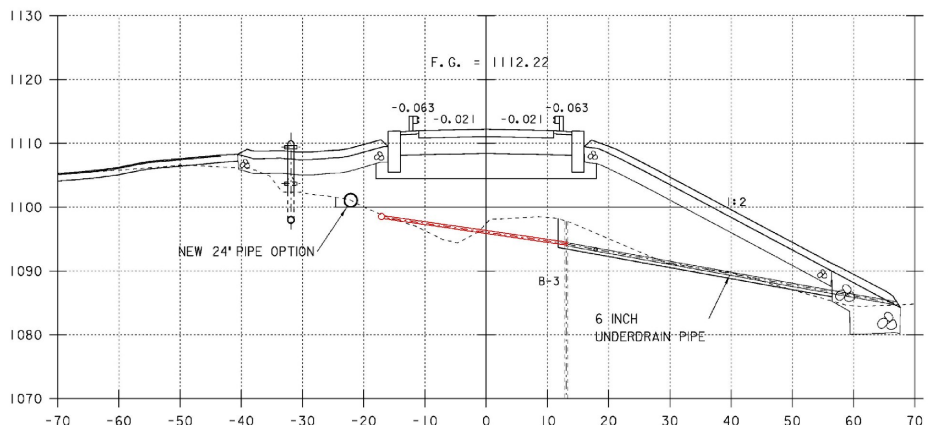
PLOT DATE: 19-DEC-2008  
 DRAWN BY: T. LACKEY  
 CHECKED BY: R. WHITCOMB  
 SHEET 42 OF 58



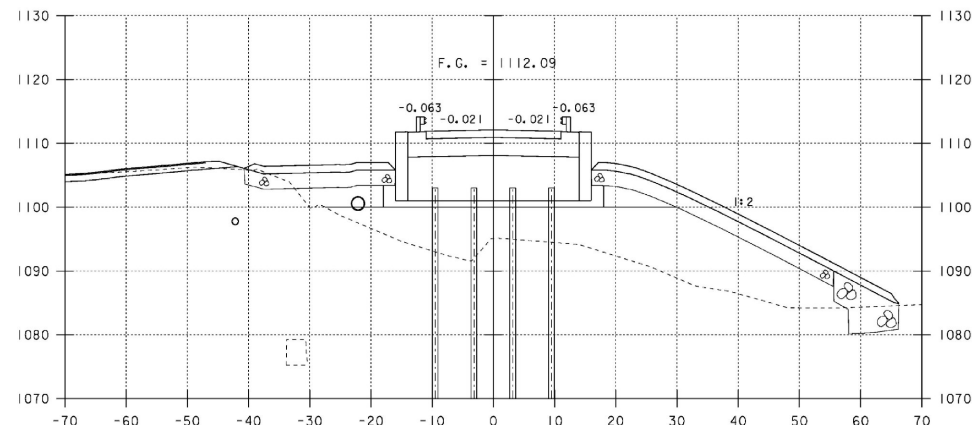
11+00



11+25



10+95

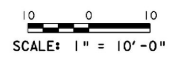


11+01.17

ROADWAY CROSS SECTIONS 2

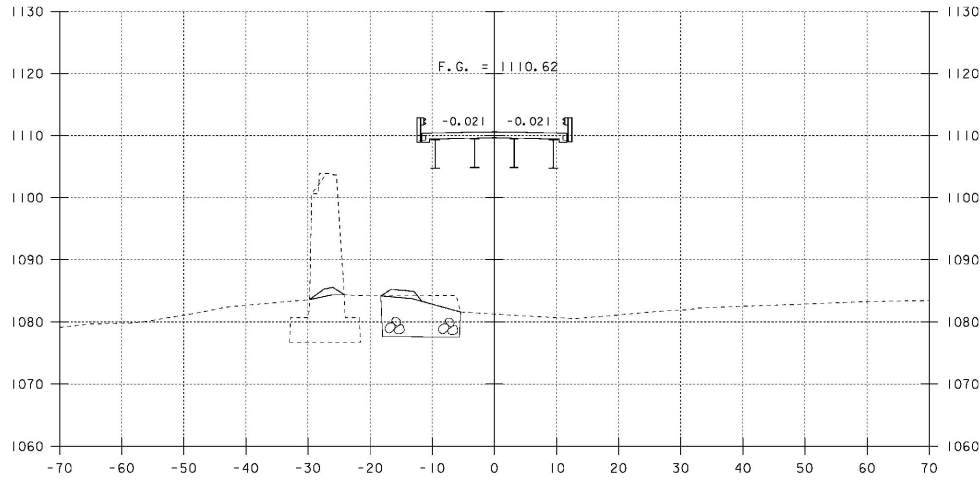
NEW HYDRANT STA 10+95  
 10+87 TO 10+96  
 6 INCH UNDERDRAIN PIPE FOR ARTESIAN BORE HOLE 3

11+01.17 BEGIN BRIDGE

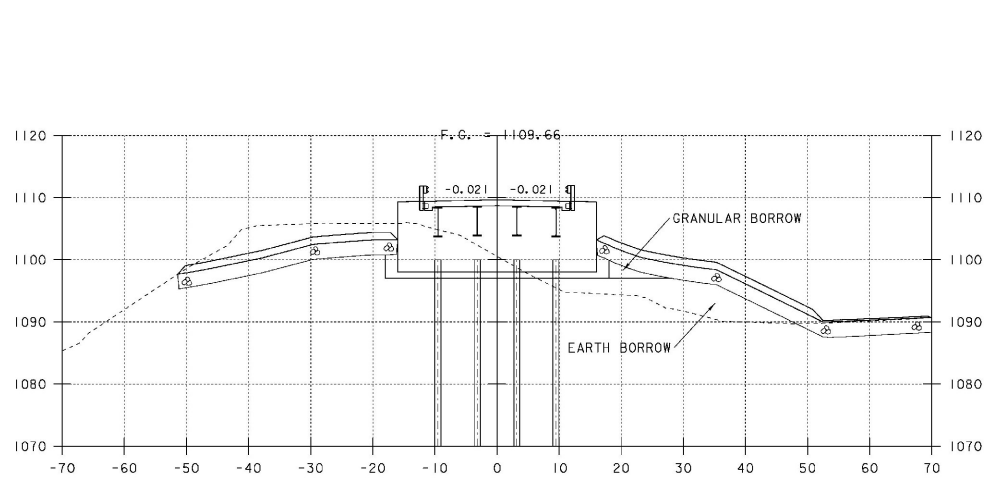


STA. 10+95 TO STA. 11+25

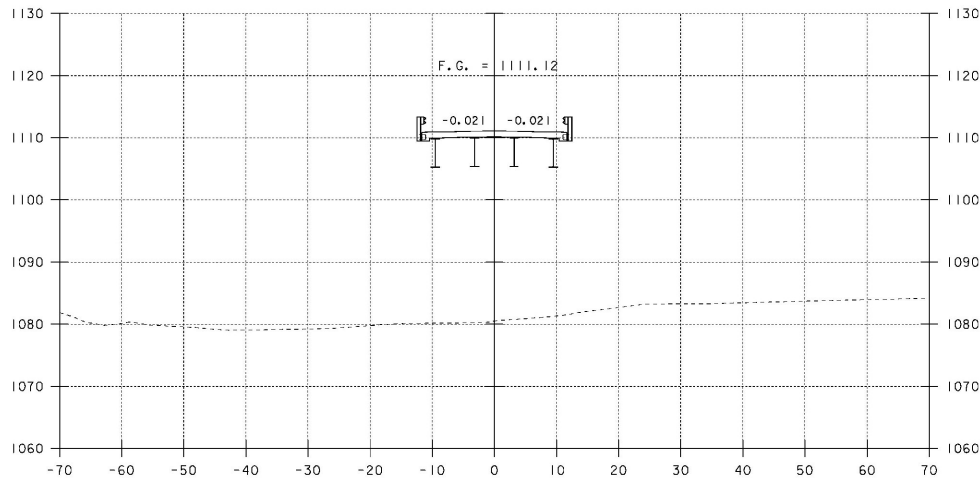
|                               |                         |
|-------------------------------|-------------------------|
| PROJECT NAME: BROWNINGTON     | PLOT DATE: 19-DEC-2008  |
| PROJECT NUMBER: BRO 1449 (28) | DRAWN BY: T. LACKEY     |
| FILE NAME: sj246m02.j         | CHECKED BY: R. WHITCOMB |
| PROJECT LEADER: R. WHITCOMB   | SHEET 43 OF 58          |
| DESIGNED BY: T. LACKEY        |                         |
| 99j246/str/sj246xs.dgn        |                         |



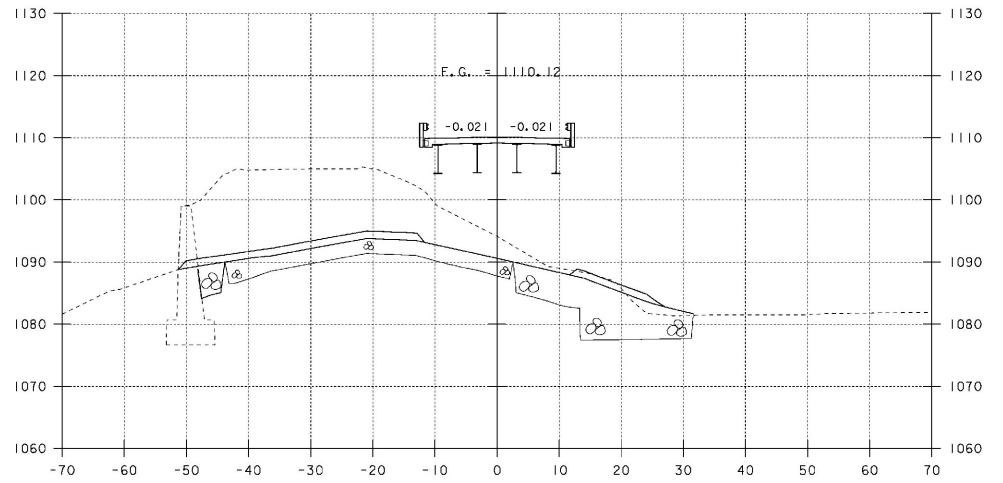
11+75



12+25

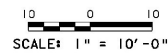


11+50



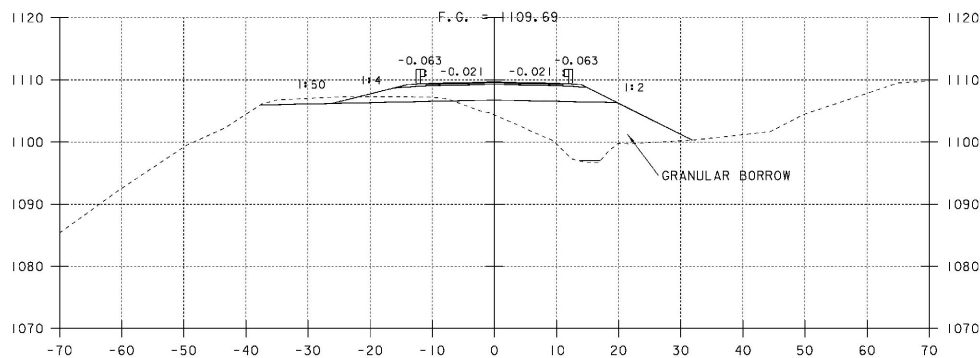
12+00

ROADWAY CROSS SECTIONS 3

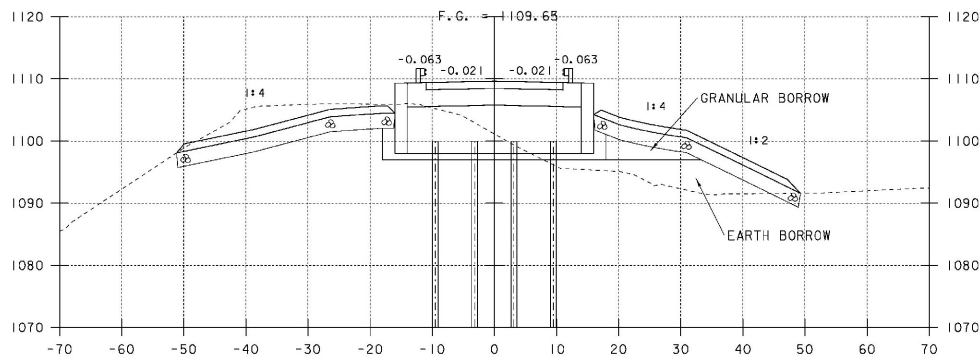


STA. 11+50 TO STA. 12+25

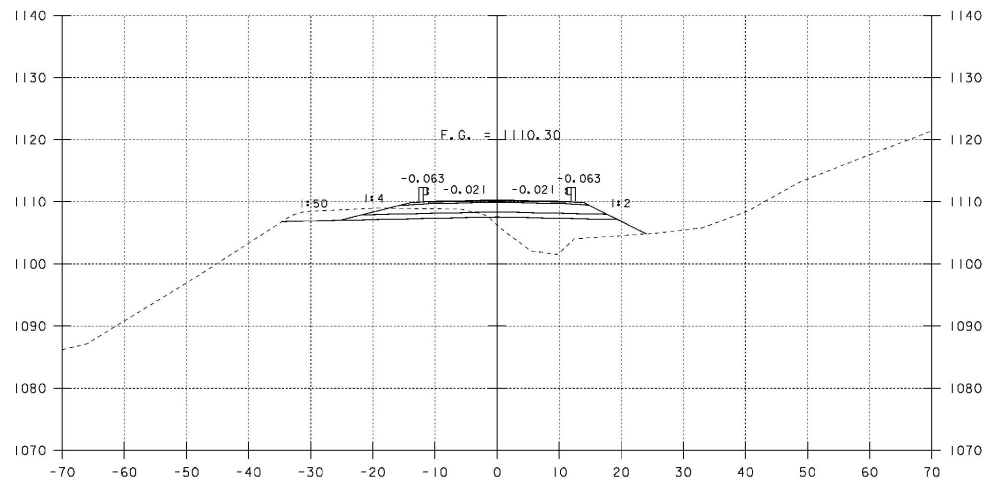
|                         |               |              |             |
|-------------------------|---------------|--------------|-------------|
| PROJECT NAME:           | BROWNINGTON   | PLOT DATE:   | 19-DEC-2008 |
| PROJECT NUMBER:         | BRO 1449 (28) | DRAWN BY:    | T. LACKEY   |
| FILE NAME:              | s\j246m03.l   | DESIGNED BY: | T. LACKEY   |
| PROJECT LEADER:         | R. WHITCOMB   | CHECKED BY:  | R. WHITCOMB |
| DESIGNED BY:            | T. LACKEY     | SHEET 44     | OF 58       |
| 99\j246\str\sj246xs.dgn |               |              |             |



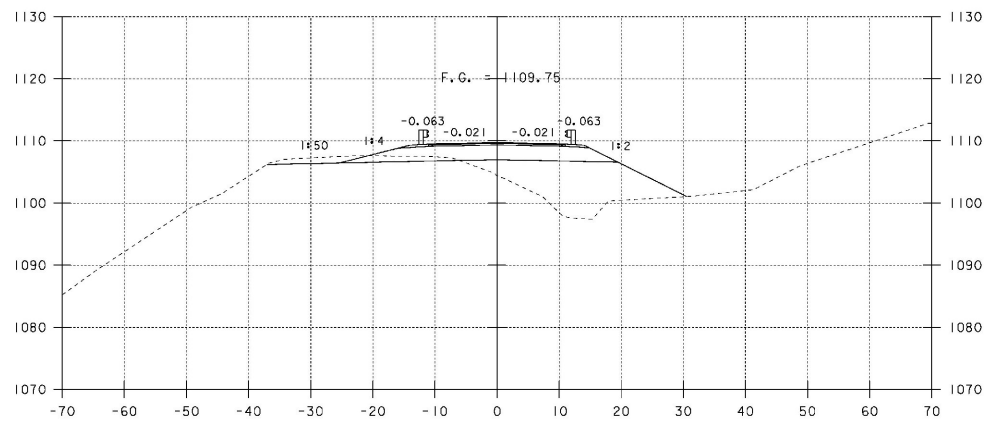
12+50



12+26.83  
12+26.83 END BRIDGE



12+75



12+54  
12+54 BEGIN SAND BORROW

ROADWAY CROSS SECTIONS 4

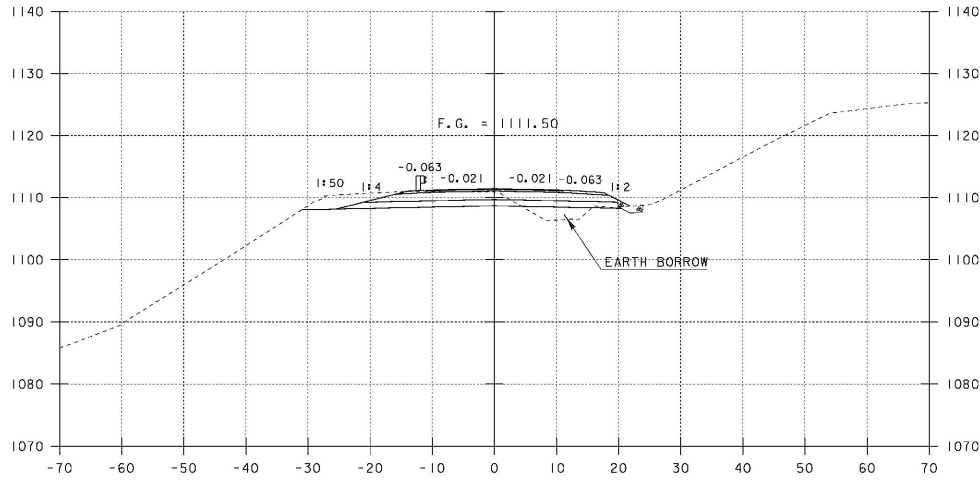
10 0 10  
SCALE: 1" = 10'-0"

STA. 12+26.83 TO STA. 12+75

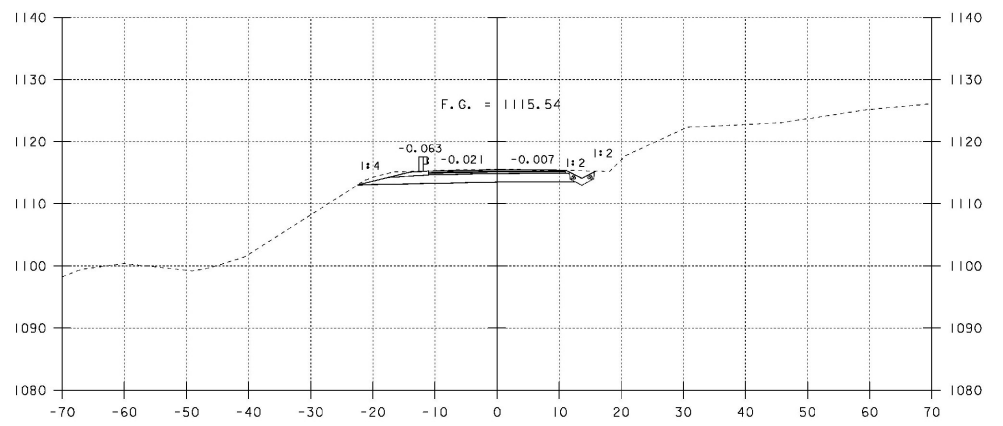
PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449 (28)

FILE NAME: s\j246m04.l  
PROJECT LEADER: R. WHITCOMB  
DESIGNED BY: T. LACKEY  
99\j246\str\sj246xs.dgn

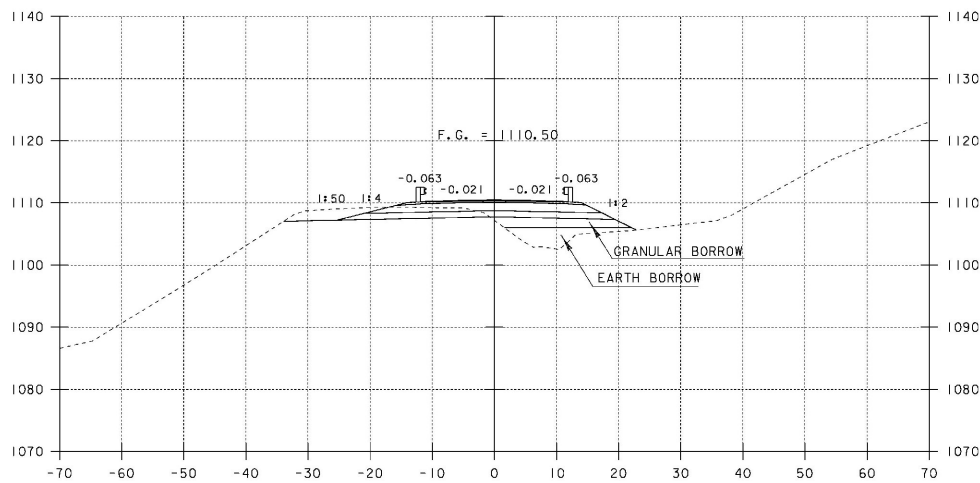
PLOT DATE: 19-DEC-2008  
DRAWN BY: T. LACKEY  
CHECKED BY: R. WHITCOMB  
SHEET 45 OF 58



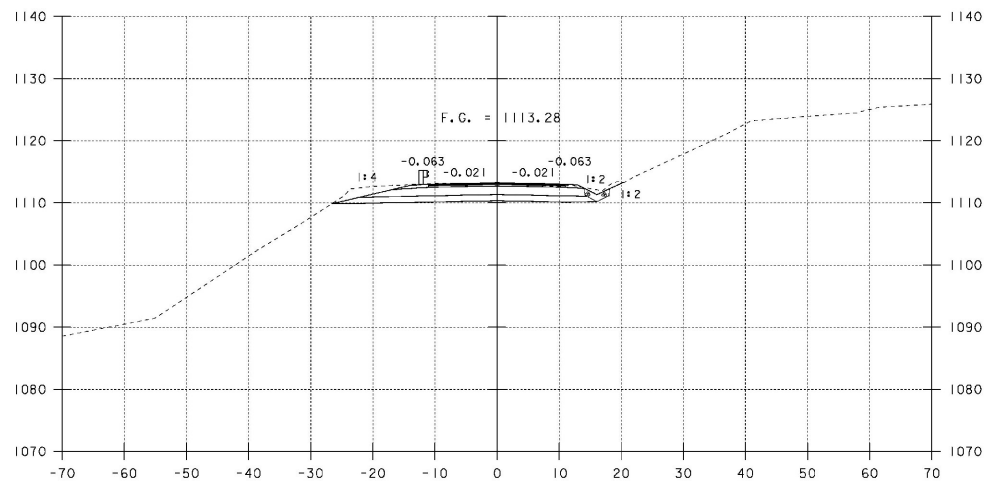
13+00



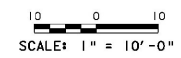
13+50  
13+50 END SAND BORROW



12+80  
12+83 END GRANULAR BORROW

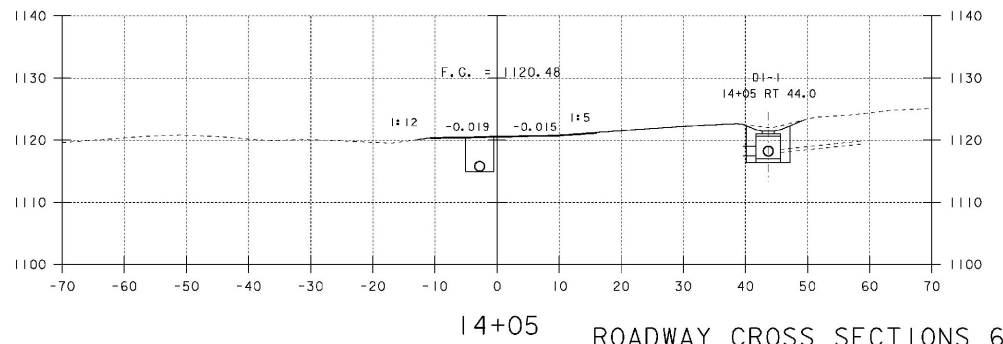
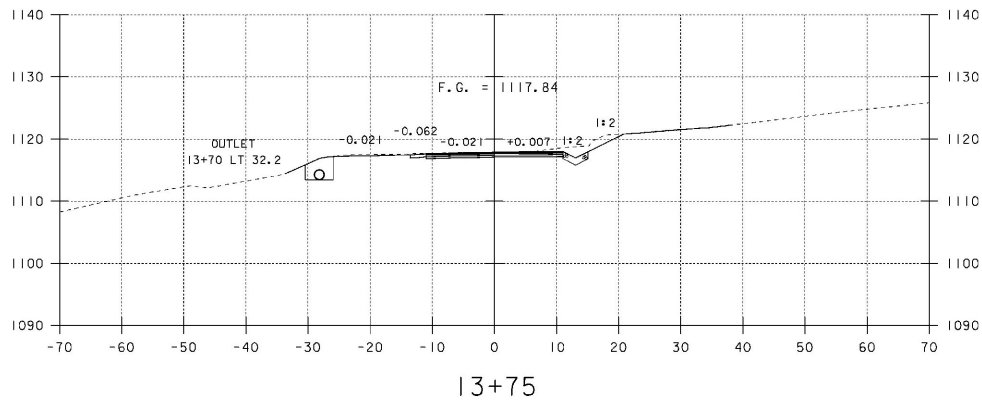
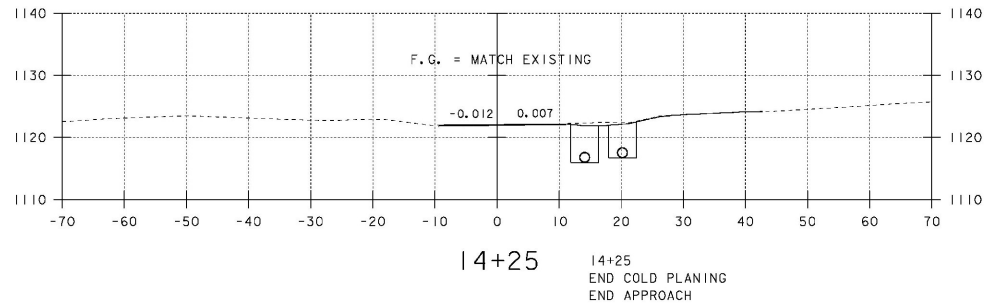
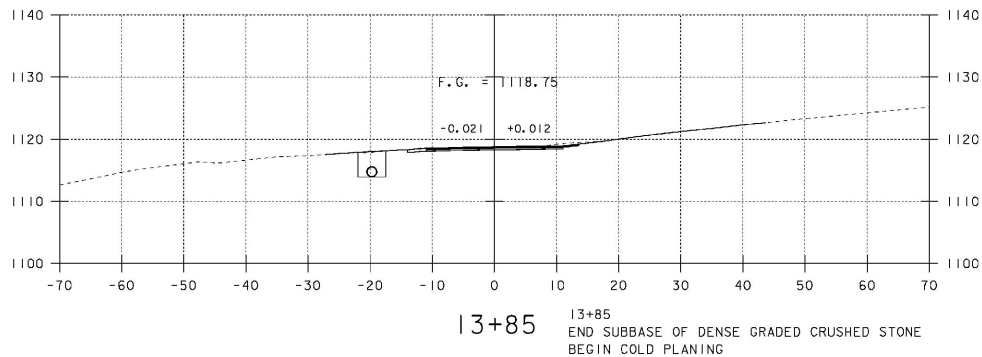
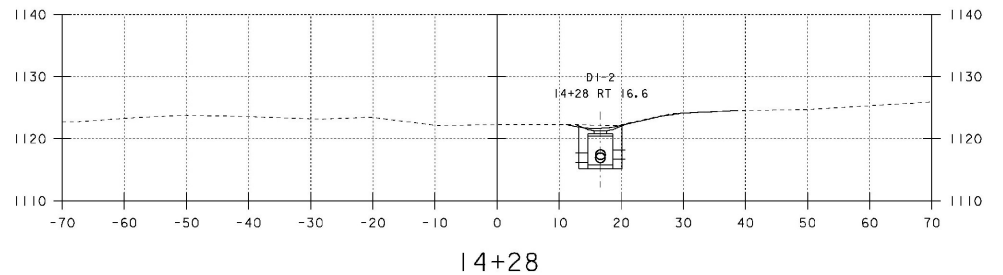
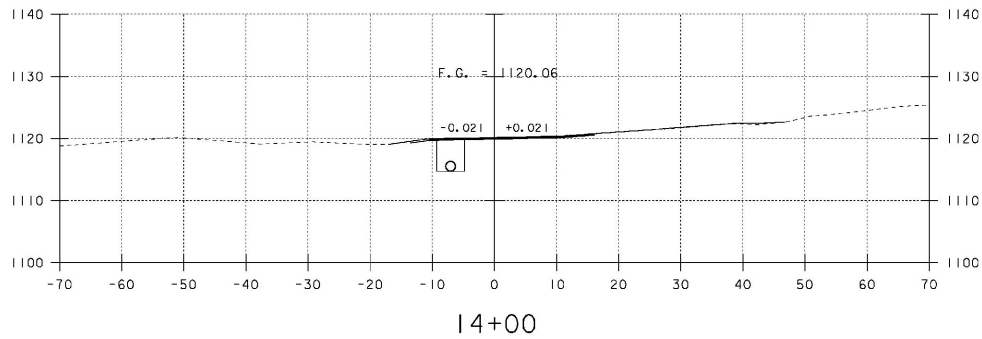


13+25  
13+25 END PROJECT  
ROADWAY CROSS SECTIONS 5



STA. 12+80 TO STA. 13+50

|                         |               |             |             |
|-------------------------|---------------|-------------|-------------|
| PROJECT NAME:           | BROWNINGTON   | PLOT DATE:  | 19-DEC-2008 |
| PROJECT NUMBER:         | BRO 1449 (28) | DRAWN BY:   | T. LACKEY   |
| FILE NAME:              | s\j246m05.l   | CHECKED BY: | R. WHITCOMB |
| PROJECT LEADER:         | R. WHITCOMB   | SHEET       | 46 OF 58    |
| DESIGNED BY:            | T. LACKEY     |             |             |
| 99\j246\str\sj246xs.dgn |               |             |             |



ROADWAY CROSS SECTIONS 6

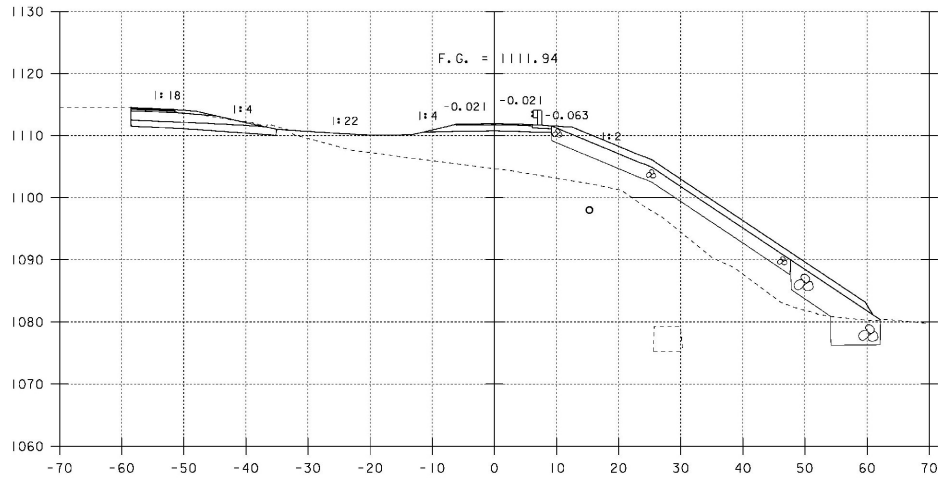
SCALE: 1" = 10'-0"

STA. 13+75 TO STA. 14+28

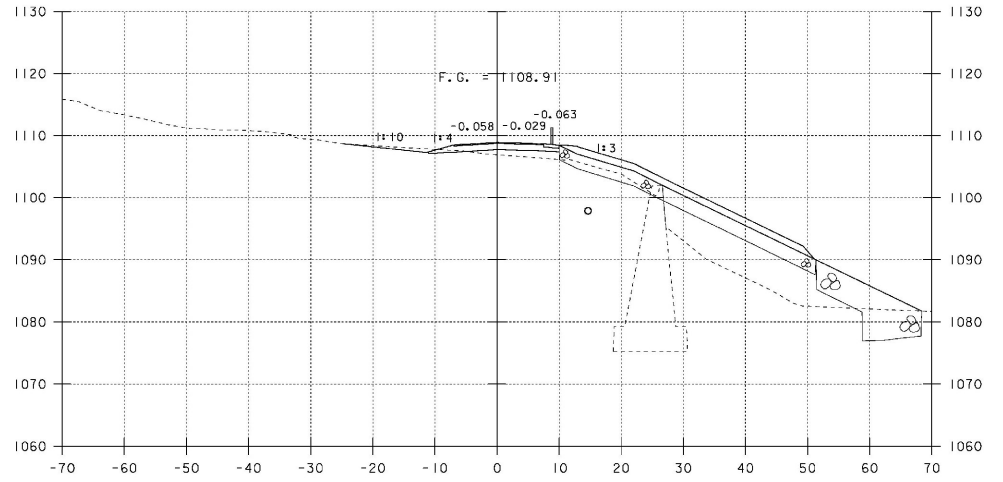
PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sJ246m06.1  
PROJECT LEADER: R. WHITCOMB  
DESIGNED BY: T. LACKEY  
99J246/str/sj246xs.dgn

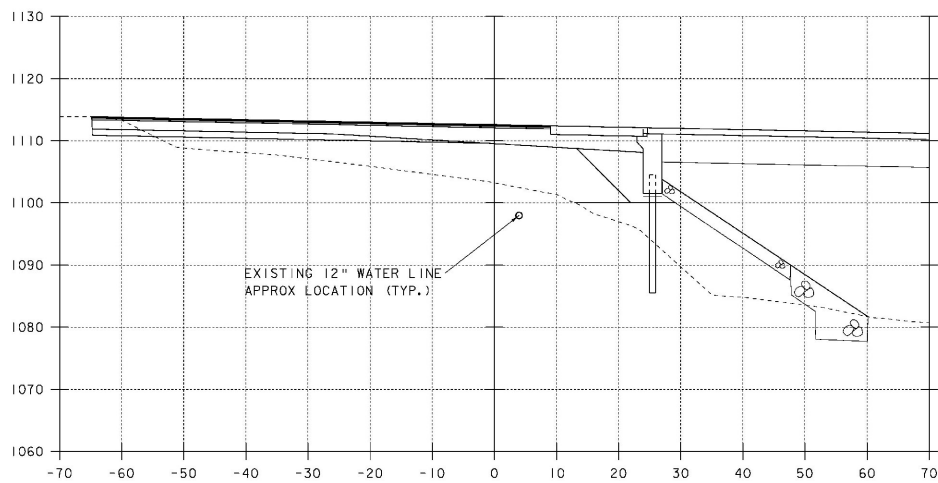
PLOT DATE: 19-DEC-2008  
DRAWN BY: T. LACKEY  
CHECKED BY: R. WHITCOMB  
SHEET 47 OF 58



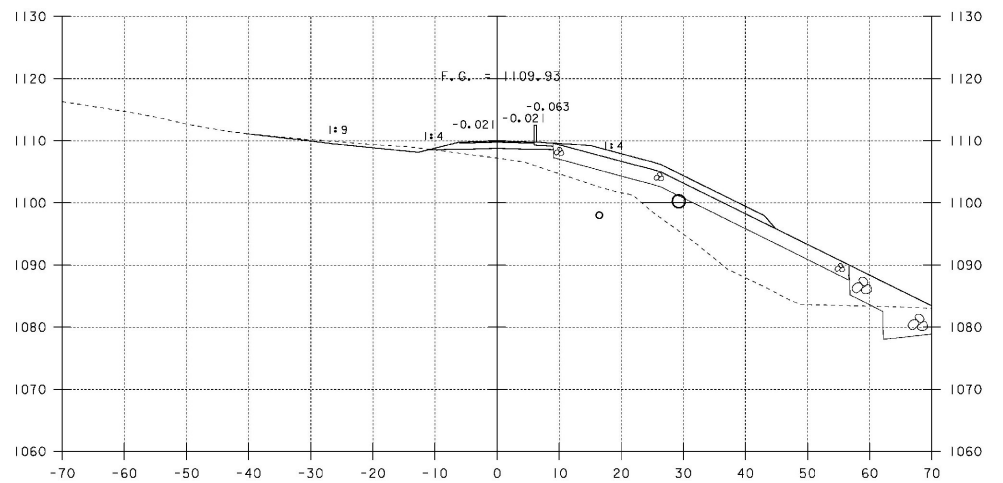
20+25



20+50

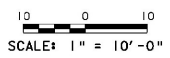


20+00

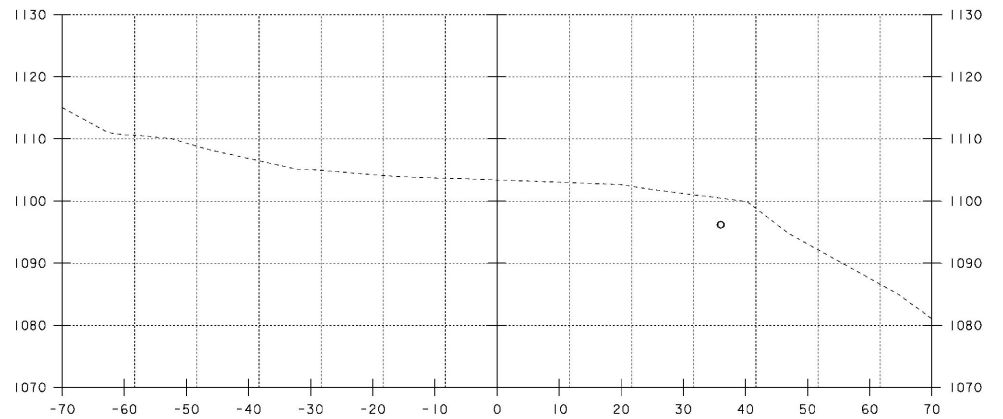
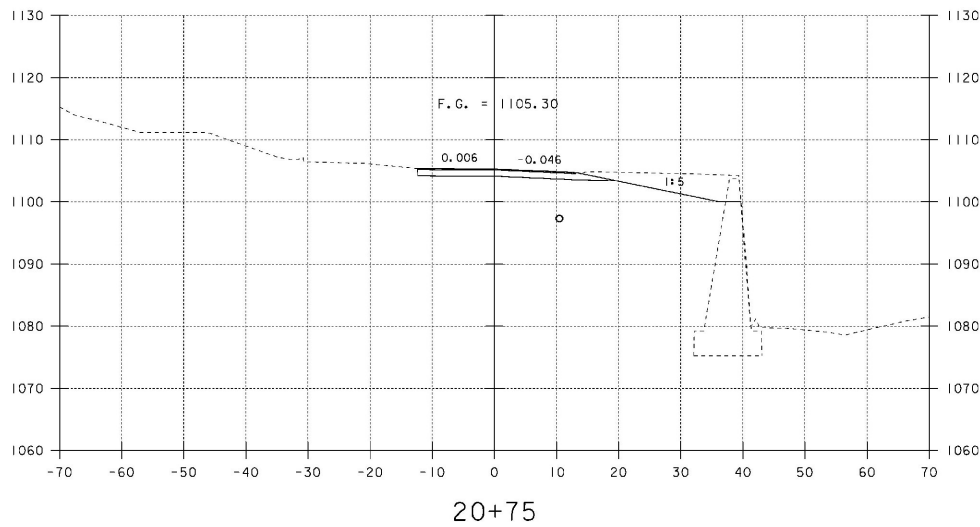
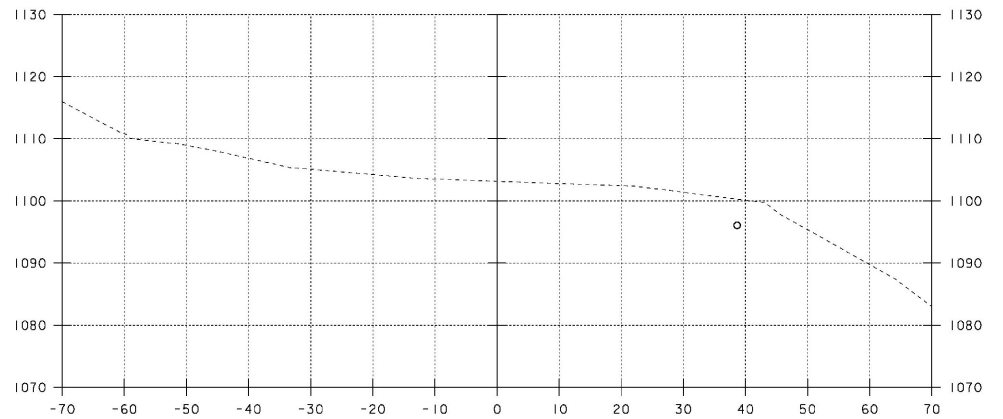
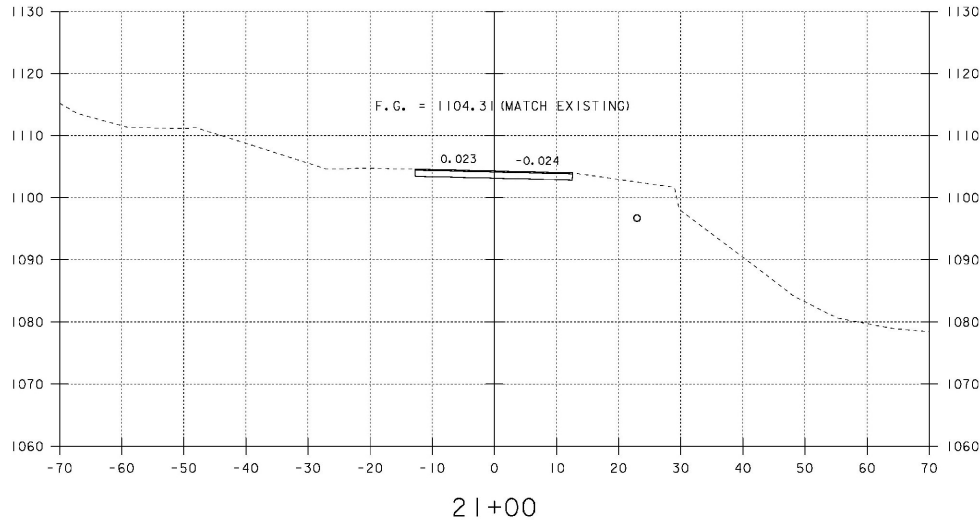


20+43

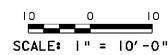
DRIVEWAY CROSS SECTIONS I



|                         |               |              |             |
|-------------------------|---------------|--------------|-------------|
| PROJECT NAME:           | BROWNINGTON   | PLOT DATE:   | 19-DEC-2008 |
| PROJECT NUMBER:         | BRO 1449 (28) | DRAWN BY:    | T. LACKEY   |
| FILE NAME:              | s\j246\d0\l   | DESIGNED BY: | T. LACKEY   |
| PROJECT LEADER:         | R. WHITCOMB   | CHECKED BY:  | R. WHITCOMB |
| 99\j246\str\sj246xs.dgn |               | SHEET        | 48 OF 58    |



DRIVEWAY CROSS SECTIONS 2

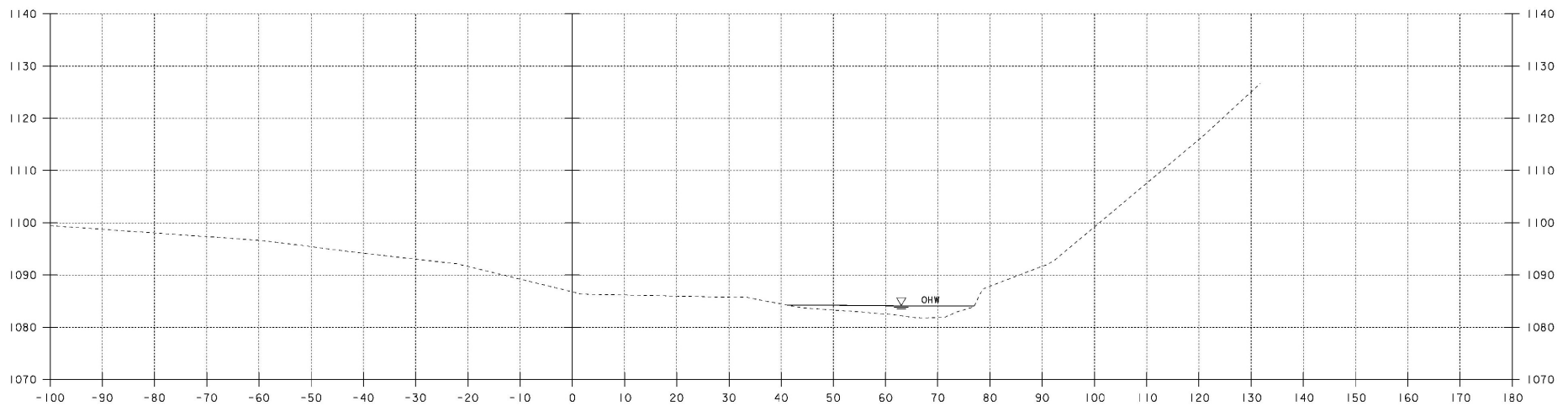
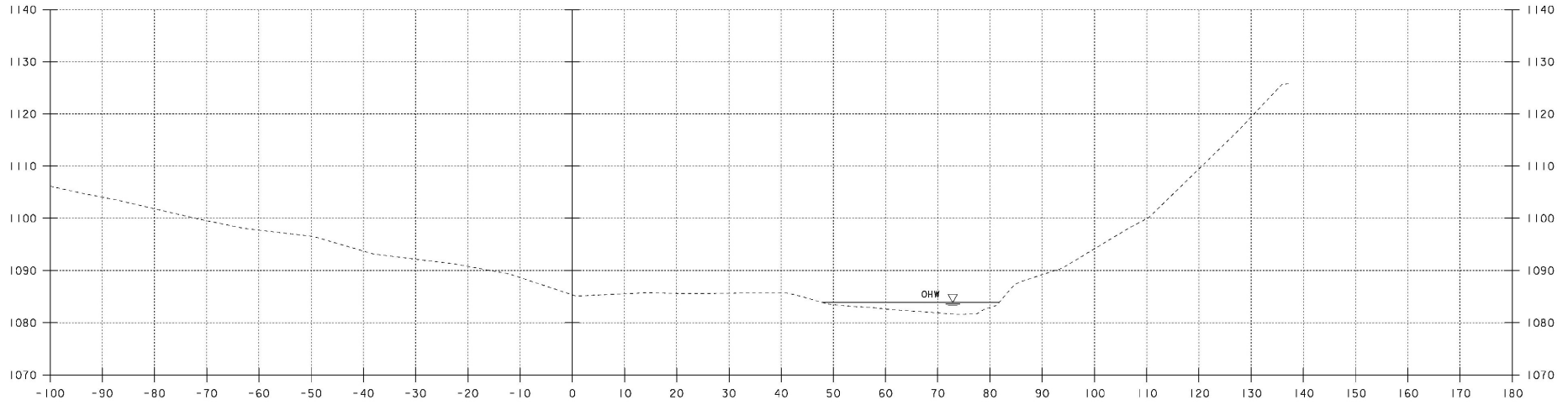


STA. 20+75 TO STA. 21+30

PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sj246d02.d  
PROJECT LEADER: R. WHITCOMB  
DESIGNED BY: T. LACKEY  
99j246/str/sj246xs.dgn

PLOT DATE: 19-DEC-2008  
DRAWN BY: T. LACKEY  
CHECKED BY: R. WHITCOMB  
SHEET 49 OF 58

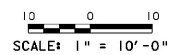


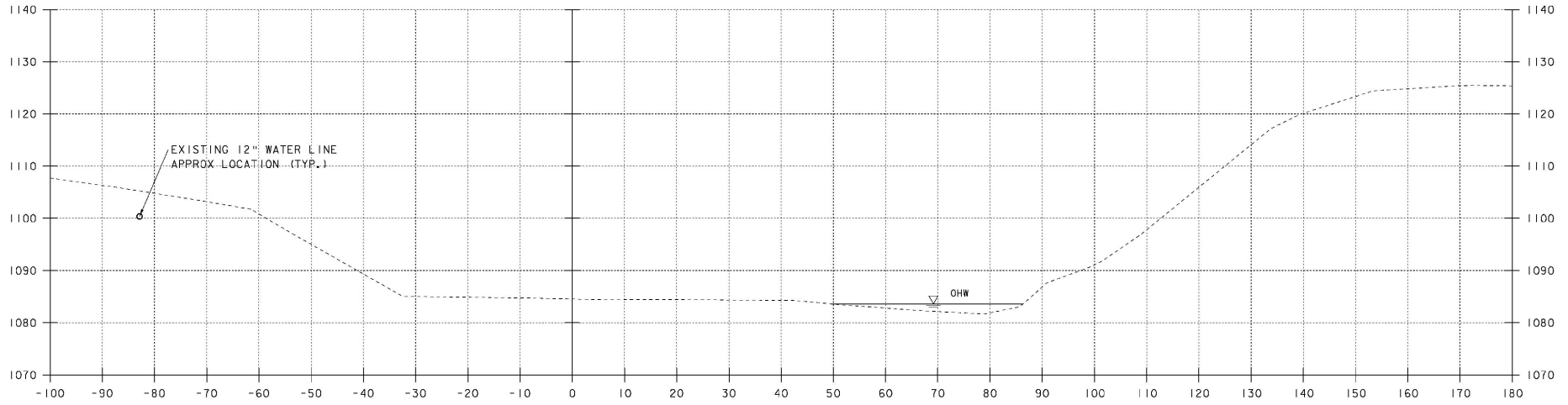
CHANNEL CROSS SECTIONS I

PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

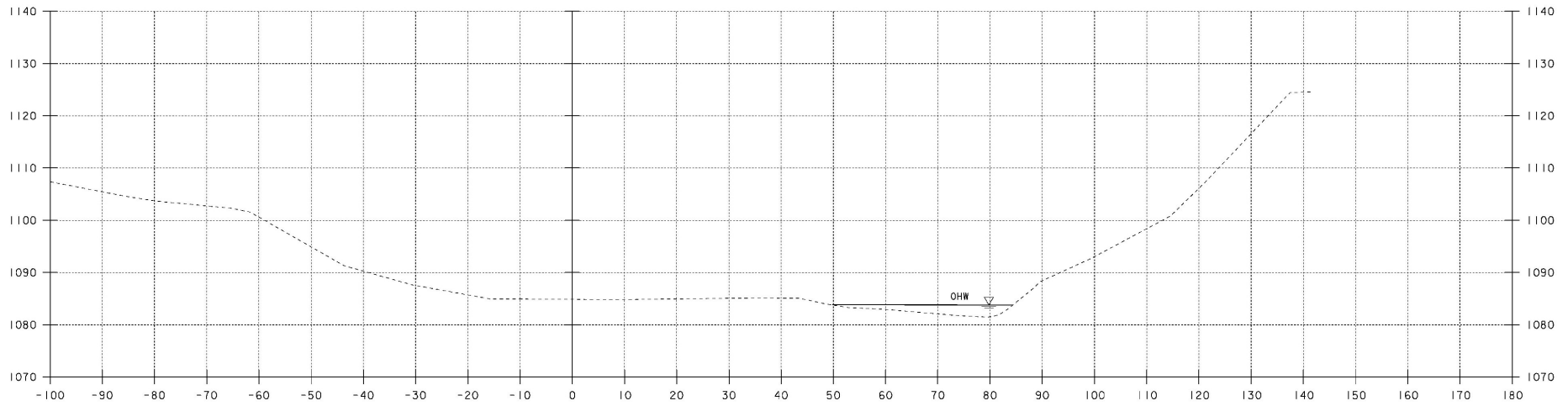
FILE NAME: s\j246c01\I  
 PROJECT LEADER: R. WHITCOMB  
 DESIGNED BY: T. LACKEY  
 99\j246\str\s\j246xs.dgn

PLOT DATE: 19-DEC-2008  
 DRAWN BY: T. LACKEY  
 CHECKED BY: R. WHITCOMB  
 SHEET 50 OF 58



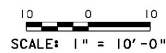


50+75



50+50

CHANNEL CROSS SECTIONS 2

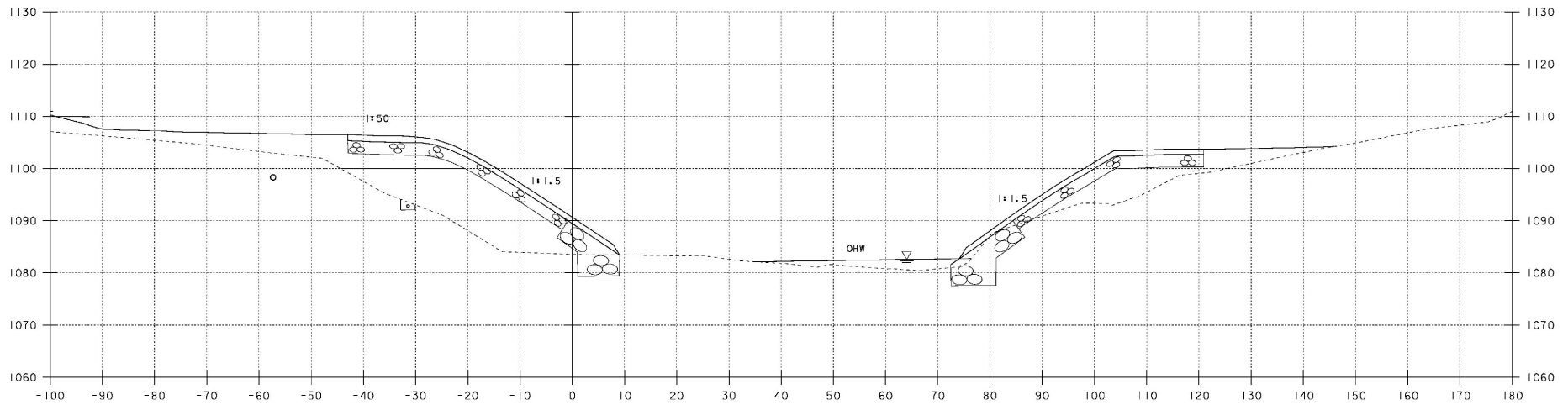


STA. 50+50 TO STA. 50+75

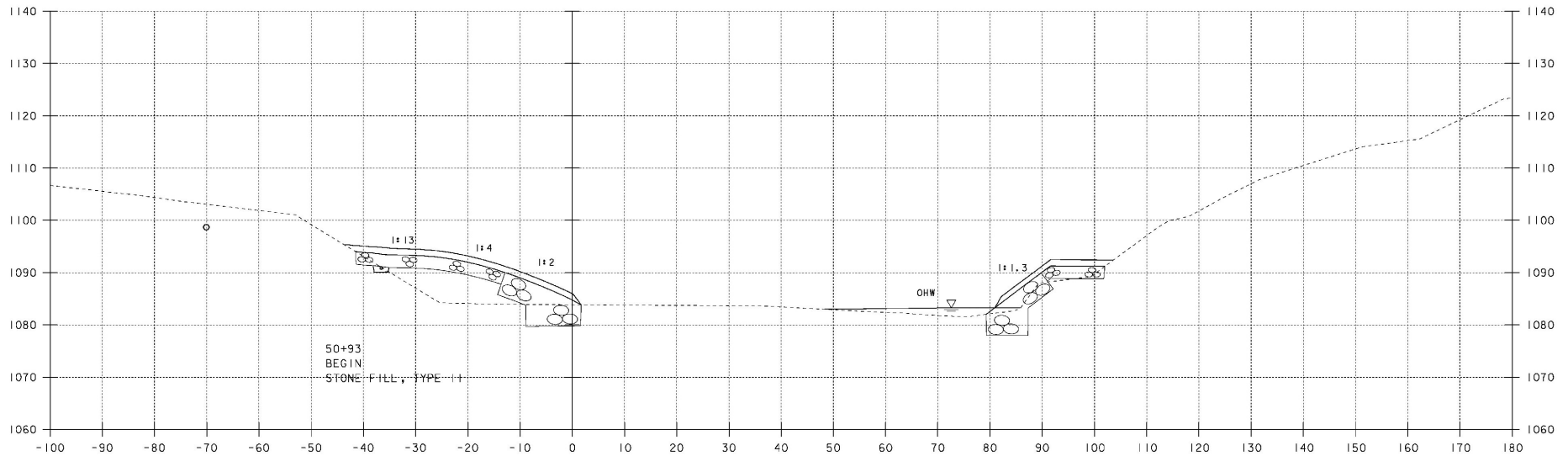
PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sj246c02.i  
 PROJECT LEADER: R. WHITCOMB  
 DESIGNED BY: T. LACKEY  
 99j246/str/sj246xs.dgn

PLOT DATE: 19-DEC-2008  
 DRAWN BY: T. LACKEY  
 CHECKED BY: R. WHITCOMB  
 SHEET 51 OF 58



51+25



51+00

50+93  
BEGIN  
STONE FILL, TYPE II

50+82  
BEGIN  
UNCLASSIFIED CHANNEL EXCAVATION  
STONE FILL, TYPE IV  
GEOTEXTILE UNDER STONE FILL  
GRUBBING MATERIAL

50+80  
BEGIN  
UNCLASSIFIED CHANNEL EXCAVATION  
STONE FILL, TYPE II  
STONE FILL, TYPE IV  
GEOTEXTILE UNDER STONE FILL  
GRUBBING MATERIAL

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

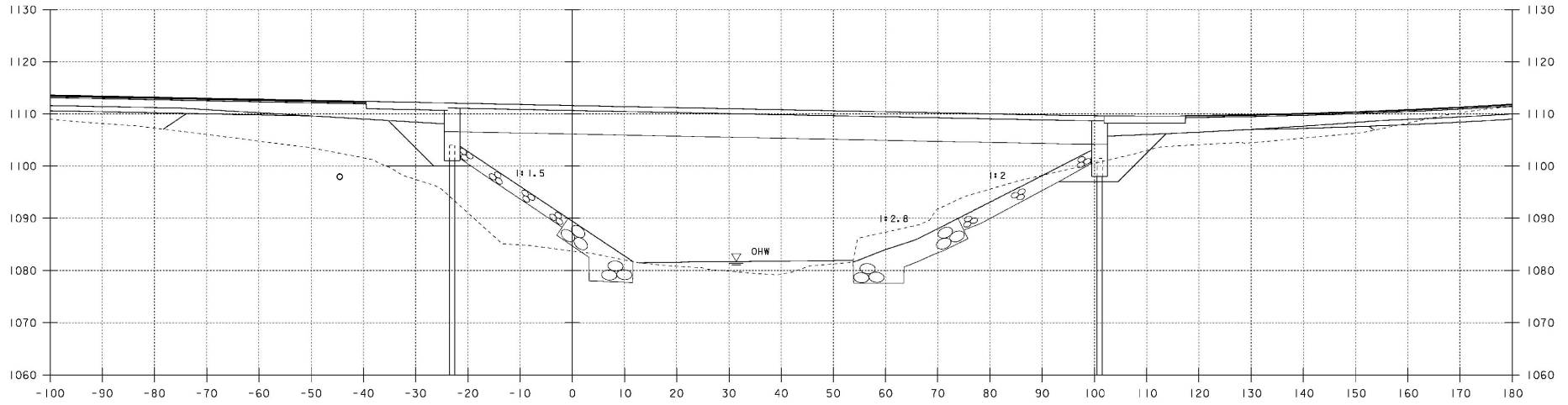
CHANNEL CROSS SECTIONS 3

PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449 (28)

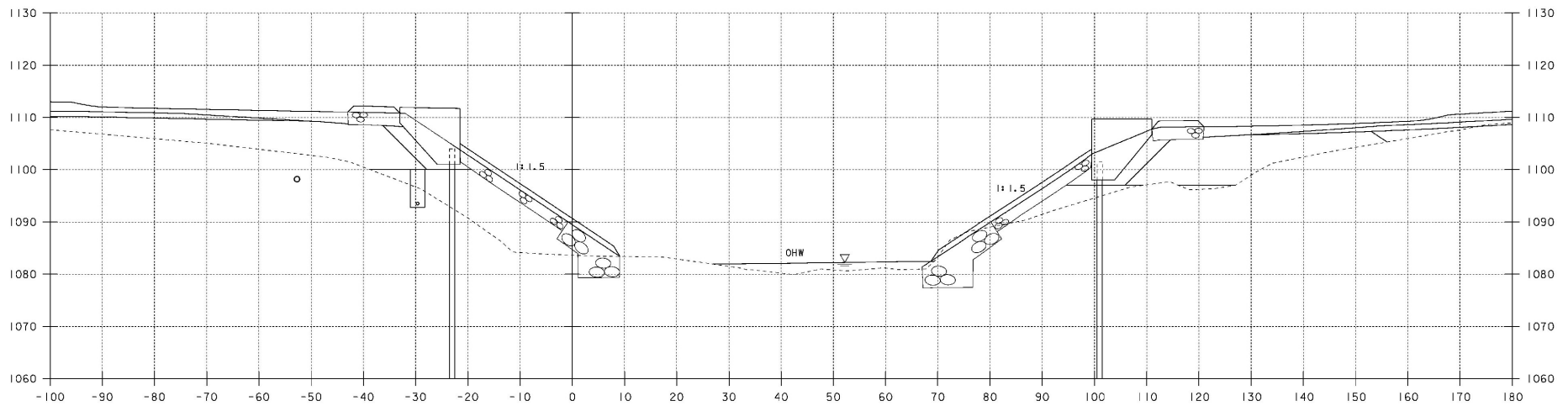
FILE NAME: sj246c03.1  
PROJECT LEADER: R. WHITCOMB  
DESIGNED BY: T. LACKEY  
99j246/str/sj246xs.dgn

PLOT DATE: 19-DEC-2008  
DRAWN BY: T. LACKEY  
CHECKED BY: R. WHITCOMB  
SHEET 52 OF 58

STA. 51+00 TO STA. 51+25



51+50



51+34

CHANNEL CROSS SECTIONS 4

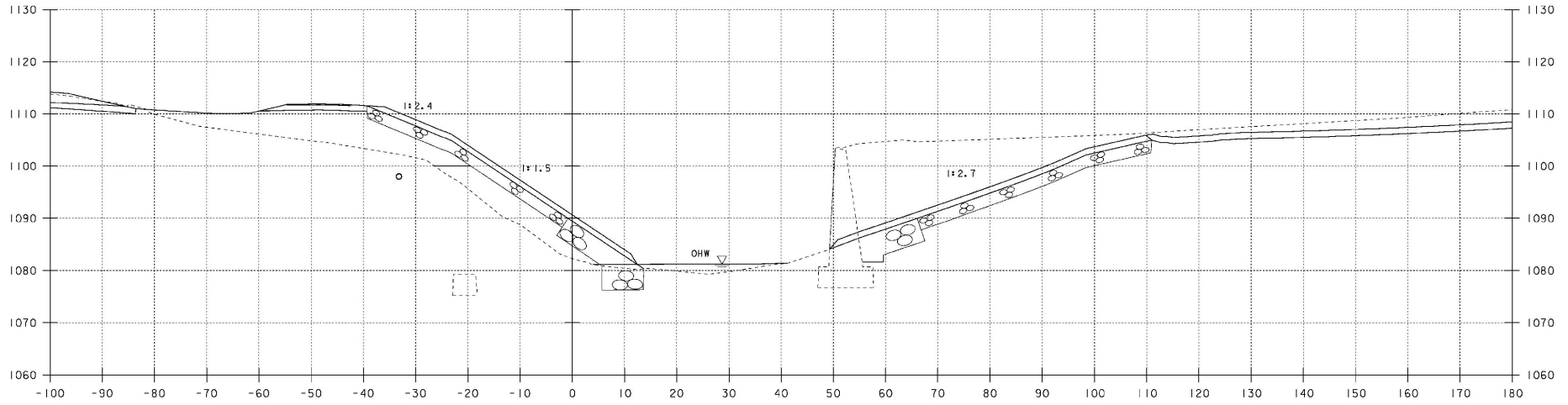
10 0 10  
SCALE: 1" = 10'-0"

STA. 51+34 TO STA. 51+50

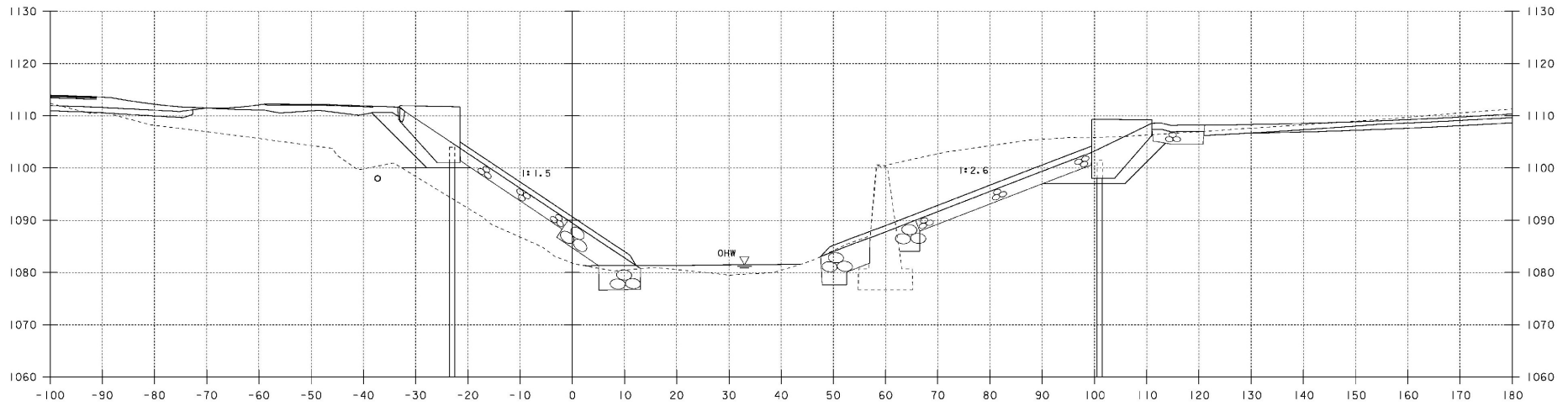
PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sj246c04.1  
PROJECT LEADER: R. WHITCOMB  
DESIGNED BY: T. LACKEY  
99j246/str/sj246xs.dgn

PLOT DATE: 19-DEC-2008  
DRAWN BY: T. LACKEY  
CHECKED BY: R. WHITCOMB  
SHEET 53 OF 58

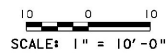


51+75



51+66

CHANNEL CROSS SECTIONS 5

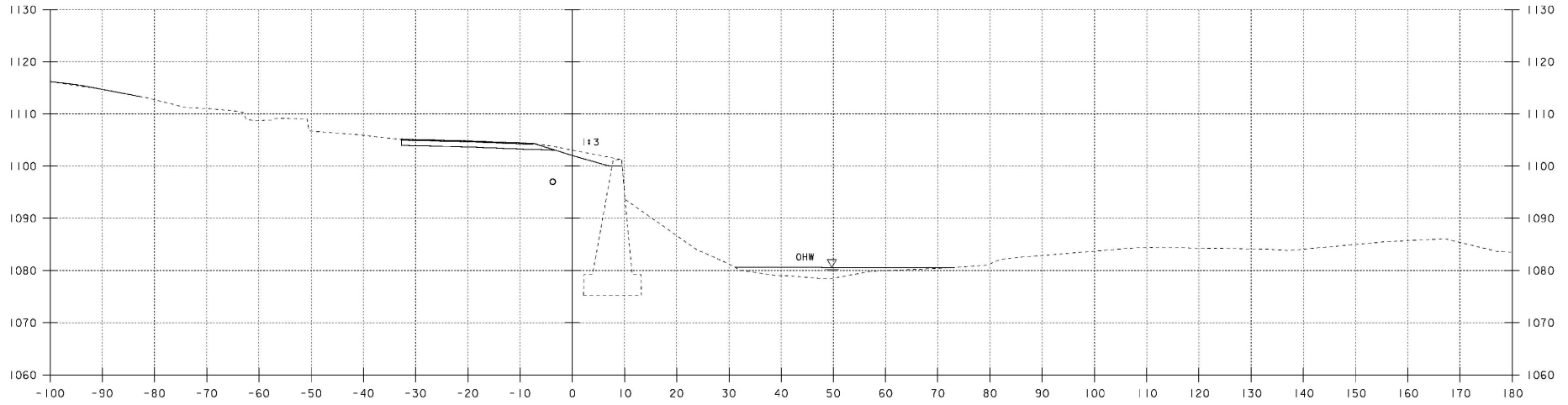


STA. 51+66 TO STA. 51+75

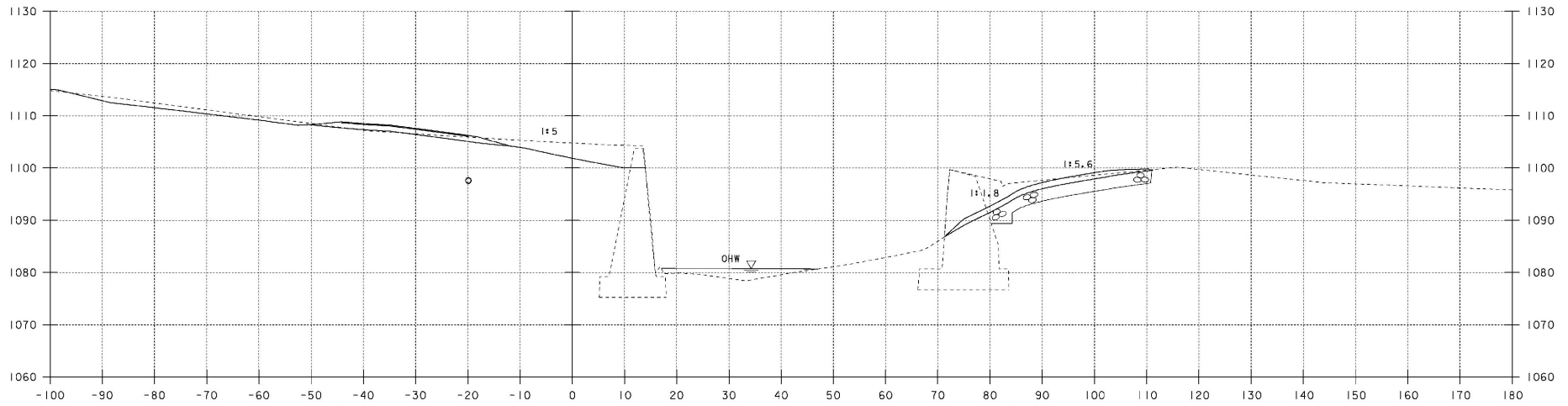
PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

FILE NAME: s\j246c05.1  
 PROJECT LEADER: R. WHITCOMB  
 DESIGNED BY: T. LACKEY  
 99\j246\str\s\j246xs.dgn

PLOT DATE: 19-DEC-2008  
 DRAWN BY: T. LACKEY  
 CHECKED BY: R. WHITCOMB  
 SHEET 54 OF 58



52+25

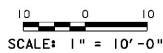


52+00

51+96  
 END  
 UNCLASSIFIED CHANNEL EXCAVATION  
 STONE FILL, TYPE II  
 STONE FILL, TYPE IV  
 GEOTEXTILE UNDER STONE FILL  
 GRUBBING MATERIAL

52+02  
 END  
 UNCLASSIFIED CHANNEL EXCAVATION  
 STONE FILL, TYPE II  
 STONE FILL, TYPE IV  
 GEOTEXTILE UNDER STONE FILL  
 GRUBBING MATERIAL

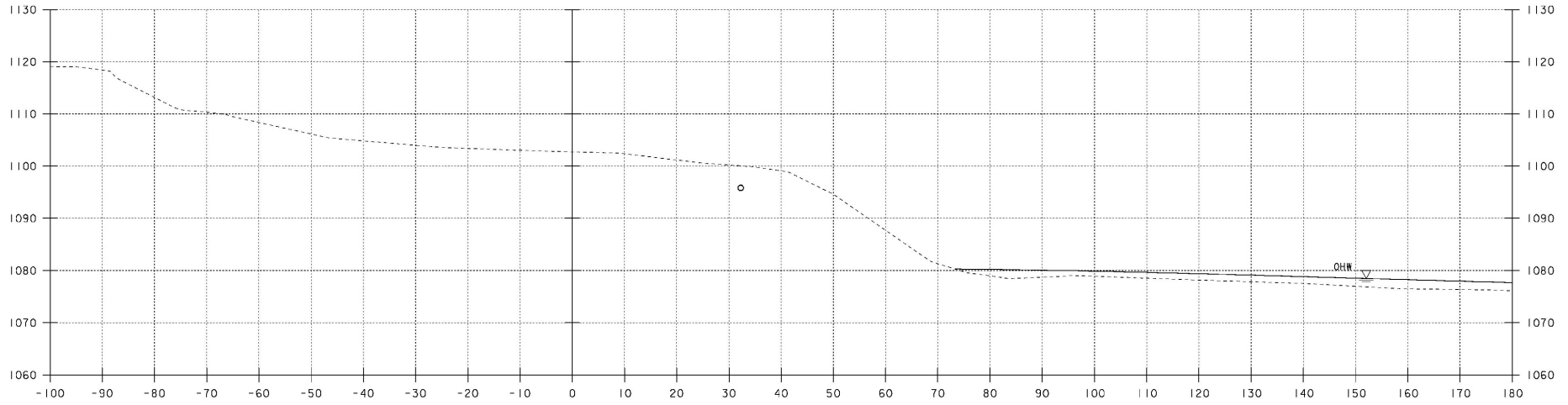
CHANNEL CROSS SECTIONS 6



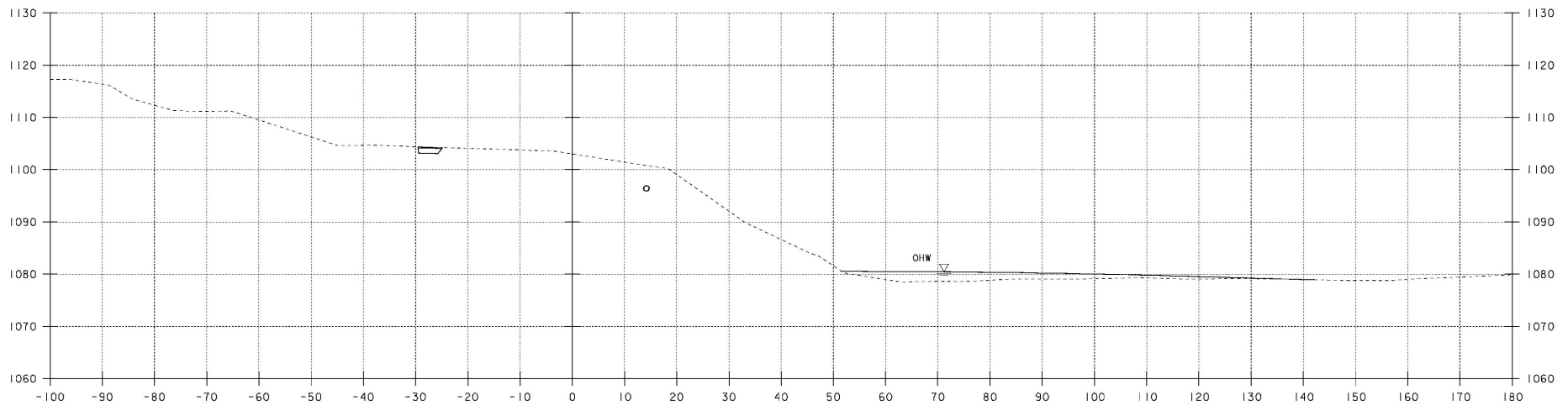
PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sj246c06.d  
 PROJECT LEADER: R. WHITCOMB  
 DESIGNED BY: T. LACKEY  
 99j246/str/sj246xs.dgn

PLOT DATE: 19-DEC-2008  
 DRAWN BY: T. LACKEY  
 CHECKED BY: R. WHITCOMB  
 SHEET 55 OF 58

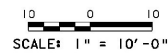


52+75



52+50

CHANNEL CROSS SECTIONS 7



STA. 52+50 TO STA. 52+75

PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

FILE NAME: s\j246c07.1  
 PROJECT LEADER: R. WHITCOMB  
 DESIGNED BY: T. LACKEY  
 99\j246\str\s\j246xs.dgn

PLOT DATE: 19-DEC-2008  
 DRAWN BY: T. LACKEY  
 CHECKED BY: R. WHITCOMB  
 SHEET 56 OF 58

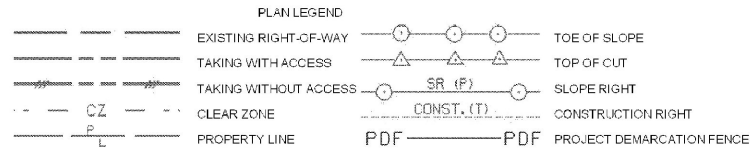
# RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

| PARCEL NO. | PROPERTY OWNER                             | SHEET NO. | BEGINNING STATION                                                                            | ENDING STATION                                                               | TAKE     | REMAINDER | RIGHT           |         | AREA ±   | RECORDING DATA |          |             |      | REMARKS |                                                                       |                                                                                                     |
|------------|--------------------------------------------|-----------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------|-----------|-----------------|---------|----------|----------------|----------|-------------|------|---------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
|            |                                            |           |                                                                                              |                                                                              | AREA ±   | AREA ±    | TYPE            | (T)/(P) |          | TITLE          | DATE     | TOWN / CITY | BOOK |         | PAGE                                                                  |                                                                                                     |
| 1          | SIMARD, JENNIFER L.                        | 15        | 10+18.89 RT.<br>10+09.82 RT.<br>10+11.73 RT.<br>10+06.45 RT.<br>10+81.93 RT.                 | 11+76.01 RT.<br>11+43.79 RT.<br>10+31.82 RT.<br>10+31.82 RT.<br>11+33.82 RT. | 0.16 A   |           |                 |         |          | WD             | 06/30/06 | BROWNINGTON | 49   | 369-370 | INCLUDES EROSION CONTROL & PDF                                        |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | CONST.          | (T)     | 1,765 SF |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | SLOPE           | (P)     | 902 SF   |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | CUL., DIT & DR. | (P)     |          |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | CHANNEL         | (P)     | 1,755 SF |                |          |             |      |         |                                                                       |                                                                                                     |
| 2          | PROCTOR, DEAN                              | 15        | 10+76.50 LT.<br>10+91.86 LT.<br>10+84.16 LT.<br>11+26.55 LT.<br>11+19.20 LT.                 | 11+26.59 LT.<br>11+34.10 LT.<br>11+43.50 LT.                                 |          |           | DRIVE           | (T)     |          |                |          |             |      |         |                                                                       | ML 20+11 TO 21+09<br>STOCKADE FENCE<br>STAIRS<br>CHAIN LINK FENCE<br>INCLUDES EROSION CONTROL & PDF |
|            |                                            |           |                                                                                              |                                                                              |          |           | REMOVE & RESET  | (T)     |          |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | REMOVE & RESET  | (T)     |          |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | INSTALL         | (T)     |          |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | CONST.          | (T)     | 492 SF   |                |          |             |      |         |                                                                       |                                                                                                     |
| 3          | FALCONER, GEOFFREY & FLEURETTE             | 15        | 12+15.40 LT.<br>13+09.16 LT.<br>12+25.56 LT.                                                 | 14+06.03 LT.<br>13+85.00 LT.<br>12+38.00 LT.                                 |          |           | CONST.          | (T)     | 1,226 SF | WD             | 02/13/07 | BROWNINGTON | 47   | 333-334 | INCLUDES EROSION CONTROL & PDF                                        |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | CUL. & DR.      | (P)     | 69 SF    |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | CHANNEL         | (P)     | 3 SF     |                |          |             |      |         |                                                                       |                                                                                                     |
| 4          | ANDERSON, ELLIN G.                         | 15        | 11+47.41 LT.<br>11+97.74 RT.<br>11+92.20 RT.<br>12+23.00 RT.<br>12+48.35 RT.<br>12+94.71 RT. | 13+31.78 RT.<br>12+46.36 RT.<br>13+31.78 RT.<br>12+29.00 RT.<br>12+71.70 RT. | 3,896 SF |           | CHANNEL         | (P)     | 1,325 SF |                |          | BROWNINGTON |      |         |                                                                       | INCLUDES EROSION CONTROL & PDF<br>WOODEN DECK & STEPS                                               |
|            |                                            |           |                                                                                              |                                                                              |          |           | CONST.          | (T)     | 1,595 SF |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | REMOVE & RESET  | (T)     |          |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | SLOPE           | (P)     | 109 SF   |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | DRAINAGE        | (P)     |          |                |          |             |      |         |                                                                       |                                                                                                     |
| 5          | MACEachERN, ANNEMARIE                      | 15        | 13+31.75 RT.<br>13+31.75 RT.<br>13+72.02 RT.<br>13+96.00 RT.<br>14+06.34 RT.                 | 14+00.00 RT.<br>13+54.05 RT.<br>14+00.75 RT.                                 | 303 SF   |           | INSTALL         | (T)     | 255 SF   | WDOE           | 06/30/06 | BROWNINGTON | 49   | 371-372 | PDF<br>CULVERT<br>PAVED APRON IN COMMON WITH<br>PARCEL #4<br>IRON PIN |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | REMOVE & RESET  | (T)     |          |                |          |             |      |         |                                                                       |                                                                                                     |
| 6          | SOULIERE, SCOTT D.                         | 15        | 14+04.63 RT.<br>14+08.00 RT.<br>14+00.75 RT.                                                 | 14+20.44 RT.<br>14+03.70 RT.                                                 |          |           | CULVERT         | (P)     |          | WD             | 06/30/06 | BROWNINGTON | 49   | 375-376 | INCLUDES DROP INLET<br>PAVED APRON<br>CULVERT & DROP INLET            |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | DRIVE           | (T)     |          |                |          |             |      |         |                                                                       |                                                                                                     |
|            |                                            |           |                                                                                              |                                                                              |          |           | REMOVE          | (T)     |          |                |          |             |      |         |                                                                       |                                                                                                     |
| 7          | BARTON VILLAGE INC.<br>ELECTRIC DEPARTMENT |           |                                                                                              |                                                                              |          |           |                 |         |          |                |          |             |      |         |                                                                       | UTILITY                                                                                             |
| 8          | VERIZON NEW ENGLAND, INC.                  |           |                                                                                              |                                                                              |          |           |                 |         |          |                |          |             |      |         |                                                                       | UTILITY                                                                                             |
| 9          | VILLAGE OF ORLEANS<br>WATER DEPARTMENT     |           |                                                                                              |                                                                              |          |           |                 |         |          |                |          |             |      |         |                                                                       | UTILITY                                                                                             |

TABLE OF REVISIONS

| REVISION NO. | SHEET NO. | DESCRIPTION                                                                                                                                                                                           | DATE     |
|--------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1            | 14.15     | PARCEL NO. 3 FALCONER, CHANGE ENDING STATION ON CHANNEL (P) TO 12+38.00 LT. INCREASE AREA TO 8 SF ±. DELETE SLOPE (P) FROM DETAIL SHEET AND LAYOUT SHEET. PER C.O. 9471. MADE BY: MR. APPROVED BY: RD | 09/14/06 |
| 2            | 14.15     | PARCEL NO. 6 SOULIERE, CHANGE TITLE TO SCOTT D. SOULIERE. PER C.O. 9475. MADE BY: JB. APPROVED BY: EP                                                                                                 | 09/15/06 |
| 3            | 14        | PARCEL NO. 1 SIMARD, CHANGE STATION OF CUL., DIT. & DR. (P) TO 10+86.48 RT. NO ENDING STATION. PER C.O. 9477. MADE BY: MR. APPROVED BY: HP                                                            | 10/17/06 |
| 4            | 14        | PARCEL NO. 5 MACEachERN, CHANGE ENDING STATION OF INSTALL (T) TO 13+54.05 RT. PER C.O. 9479. MADE BY: MR. APPROVED BY: HP                                                                             | 10/17/06 |
| 5            | 14        | PARCEL NO. 5 SOULIERE, CHANGE ENDING STATION OF CULVERT (P) TO 14+20.44 RT. CHANGE ENDING STATION OF REMOVE (T) TO 14+03.70 RT. PER C.O. 9478. MADE BY: MR. APPROVED BY: HP                           | 10/17/06 |
| 6            | 14        | PARCEL NO. 4 ANDERSON, CHANGE STATION OF DRAINAGE (P) TO 12+94.71 RT. PER C.O. 9481. MADE BY: JAB. APPROVED BY: FM                                                                                    | 11/02/06 |



- EC - EROSION CONTROL
- (P) - PERMANENT
- (T) - TEMPORARY
- DR. - DRAINAGE RIGHT
- DIT. - DITCHING RIGHT
- CH. - CHANNEL RIGHT
- DRIVE - DRIVE RIGHT
- CUL. - CULVERT RIGHT
- C&T - CLEARING & TRIMMING RIGHT
- SR - SLOPE RIGHT
- UE - UTILITY EASEMENT

APPROVED: ROGER P. DUMAS, DATE: 09-01-07  
TITLE: PLANS & TITLES

PLOT DATE 09/15/08

PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449(28)

FILE NAME: 99246.dwg  
PROJECT LEADER: R. WHITCOMB  
DESIGNED BY: T. LACKEY  
R.O.W. SHEET 14 OF 15

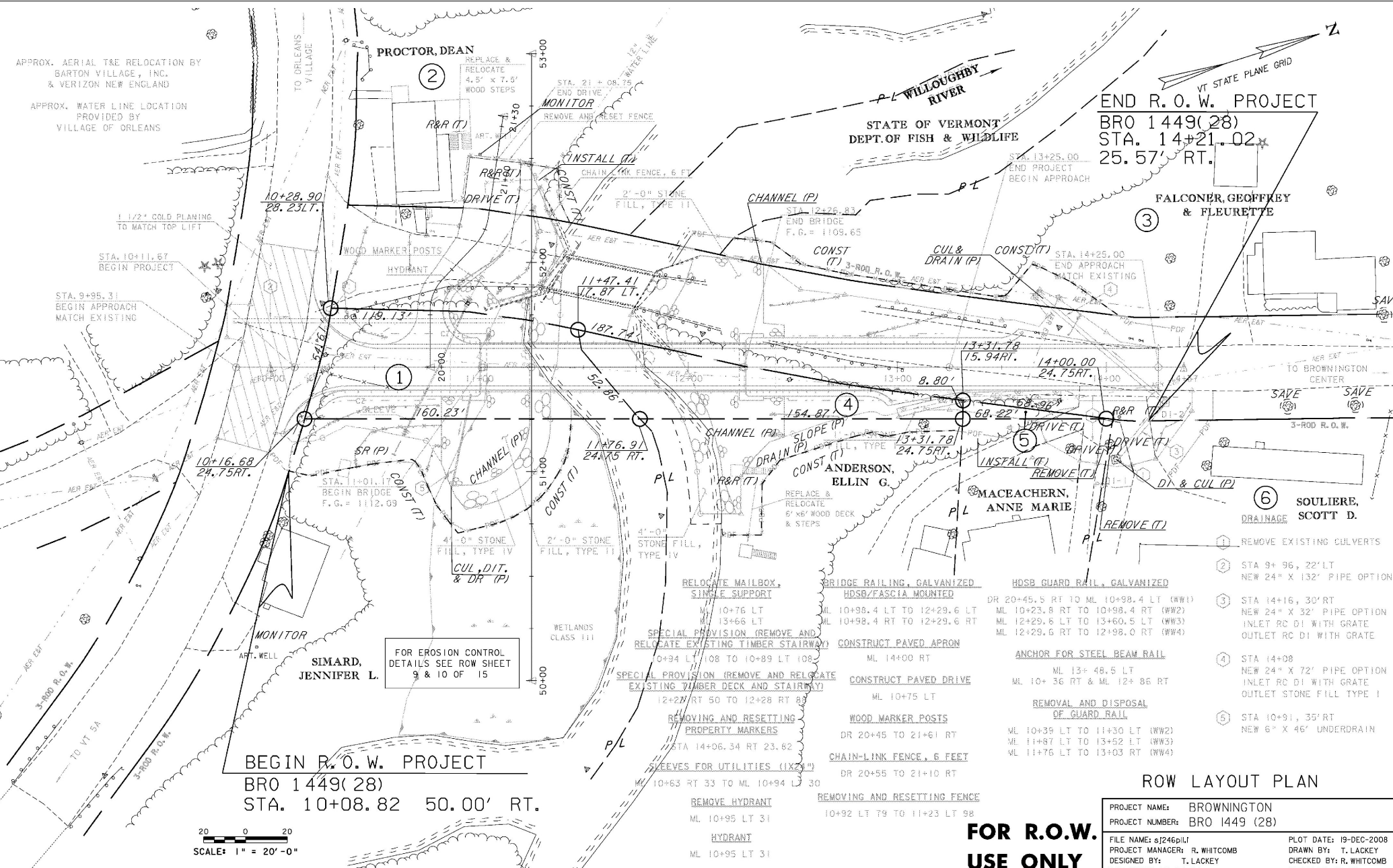
PLOT DATE:  
DRAWN BY: MR  
CHECKED BY: BF  
SHEET 57 OF 58

APPROX. AERIAL T&E RELOCATION BY  
BARTON VILLAGE, INC.  
& VERIZON NEW ENGLAND

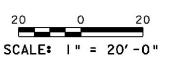
APPROX. WATER LINE LOCATION  
PROVIDED BY  
VILLAGE OF ORLEANS



**END R.O.W. PROJECT**  
BRO 1449(28)  
STA. 14+21.02  
25.57' RT.



**BEGIN R.O.W. PROJECT**  
BRO 1449(28)  
STA. 10+08.82 50.00' RT.



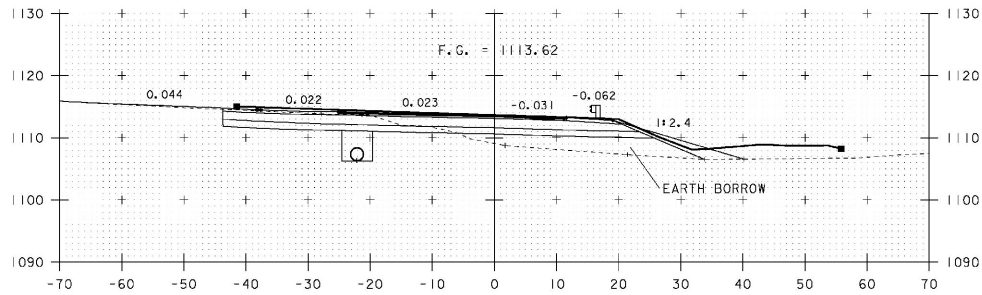
- 1 REMOVE EXISTING CULVERTS
- 2 STA 9+96, 22' LT  
NEW 24" X 132" PIPE OPTION
- 3 STA 14+16, 30' RT  
NEW 24" X 32" PIPE OPTION  
INLET RC DI WITH GRATE  
OUTLET RC DI WITH GRATE
- 4 STA 14+08  
NEW 24" X 72" PIPE OPTION  
INLET RC DI WITH GRATE  
OUTLET STONE FILL TYPE I
- 5 STA 10+91, 35' RT  
NEW 6" X 46" UNDERDRAIN

PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449 (28)

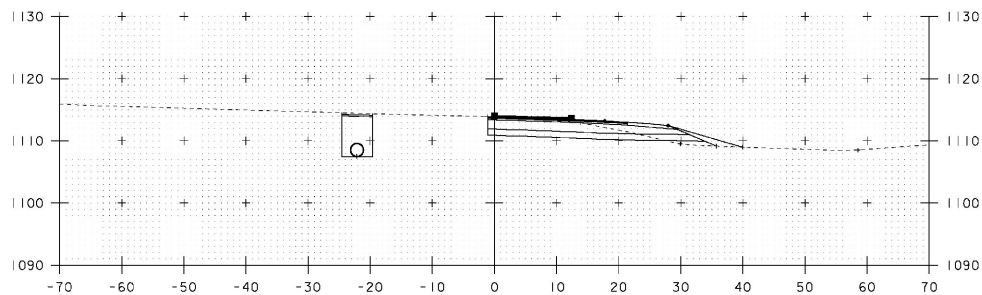
FILE NAME: s\246p\1  
PROJECT MANAGER: R. WHITCOMB  
DESIGNED BY: T. LACKEY  
ROW SHEET 15 OF 15

PLOT DATE: 19-DEC-2008  
DRAWN BY: T. LACKEY  
CHECKED BY: R. WHITCOMB  
SHEET 58 OF 58

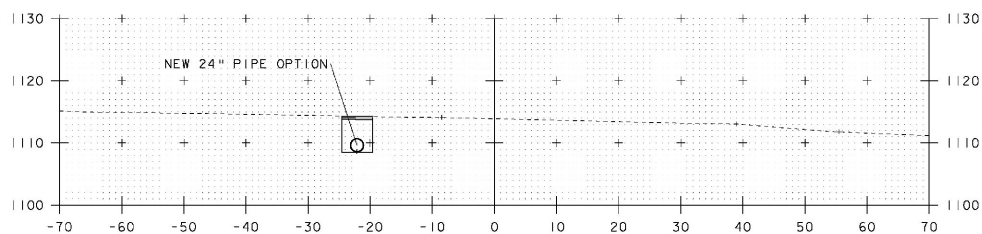
**FOR R.O.W.  
USE ONLY**



10+25

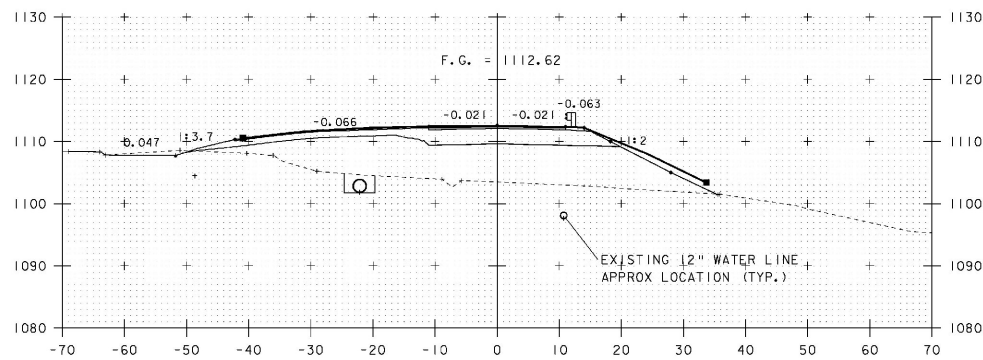


10+12

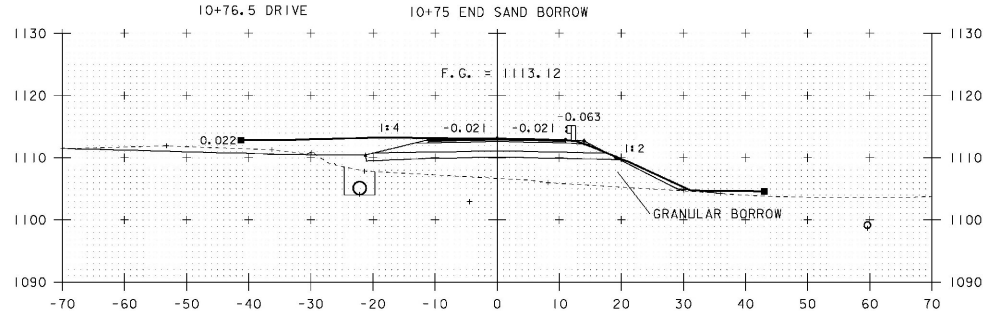


10+00

9+95.31 BEGIN APPROACH  
 BEGIN COLD PLANNING  
 MATCH EXISTING



10+75



10+50

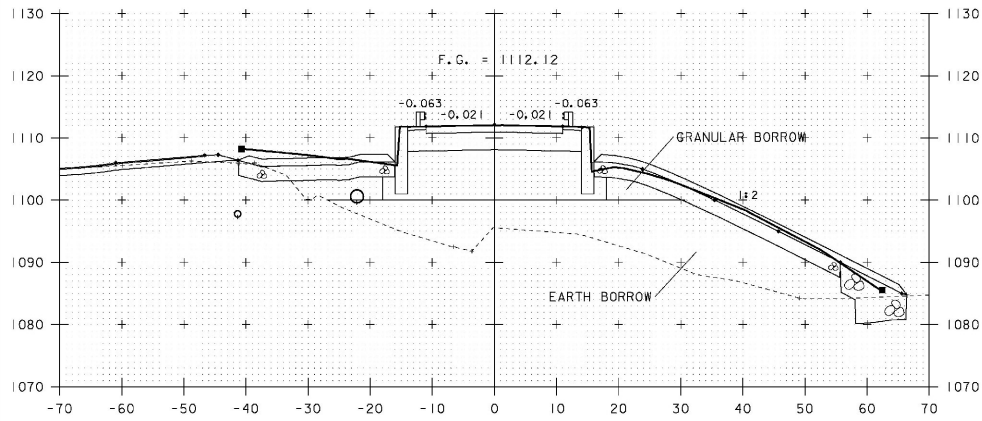
10+46 BEGIN GRANULAR BORROW

STA. 10+00 TO STA. 10+75

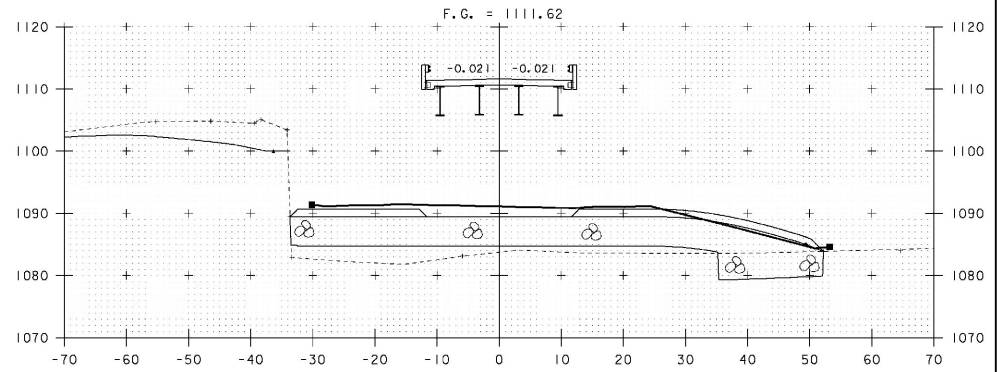
PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

FILE NAME: s\j246\final  
 PROJECT LEADER: C. MOONEY  
 DESIGNED BY: T. LACKEY  
 ROADWAY SECTIONS - 1

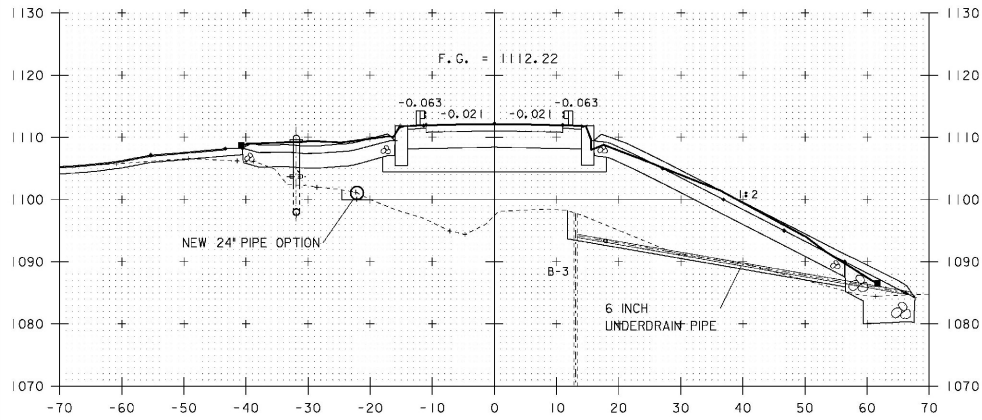
PLOT DATE: 23-FEB-2010  
 DRAWN BY: C. MOONEY  
 CHECKED BY: -----  
 SHEET 1 OF 14



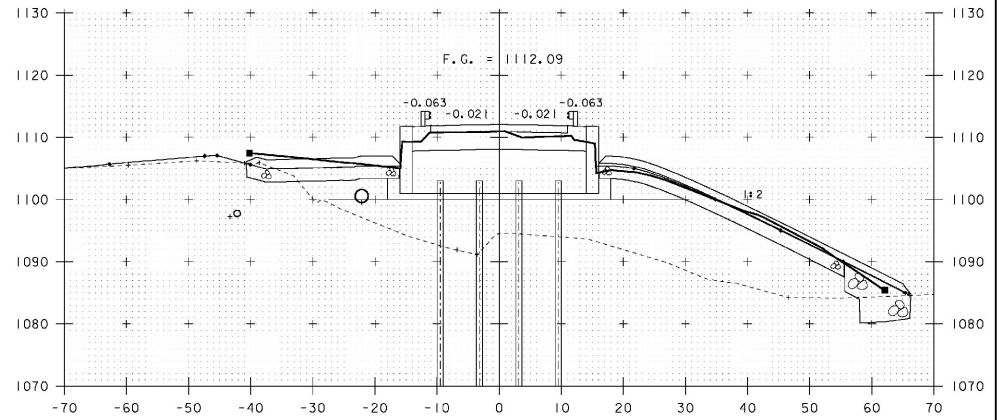
11+00



11+25



10+95



11+01.77 BEGIN BRIDGE

NEW HYDRANT  
STA 10+95

10+87 TO 10+96  
6 INCH UNDERDRAIN PIPE  
FOR ARTESIAN BORE HOLE 3

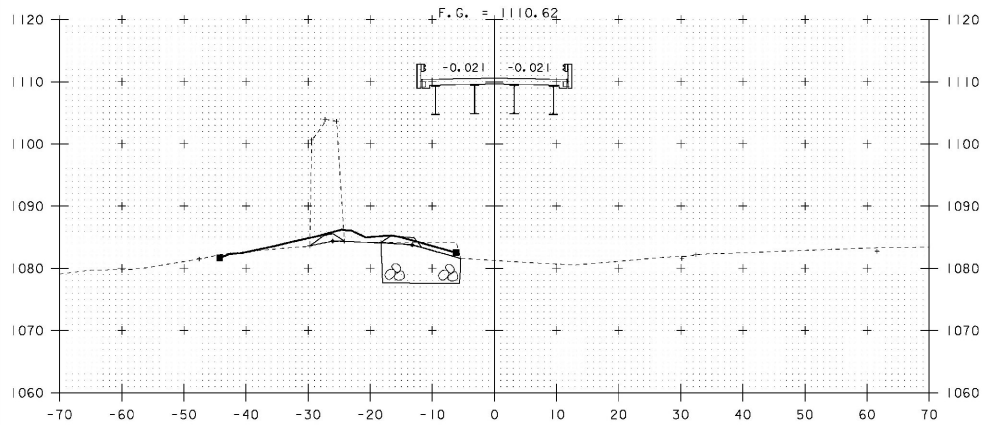
10 0 10  
SCALE: 1" = 10'-0"

STA. 10+95 TO STA. 11+25

PROJECT NAME: BROWNINGTON  
PROJECT NUMBER: BRO 1449 (28)

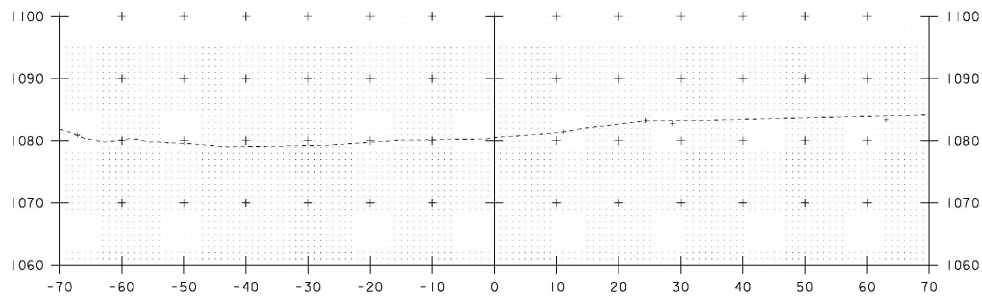
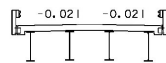
FILE NAME: sj2461.incl  
PROJECT LEADER: C. MOONEY  
DESIGNED BY: T. LACKEY  
ROADWAY SECTIONS - 2

PLOT DATE: 23-FEB-2010  
DRAWN BY: C. MOONEY  
CHECKED BY: -----  
SHEET 2 OF 14

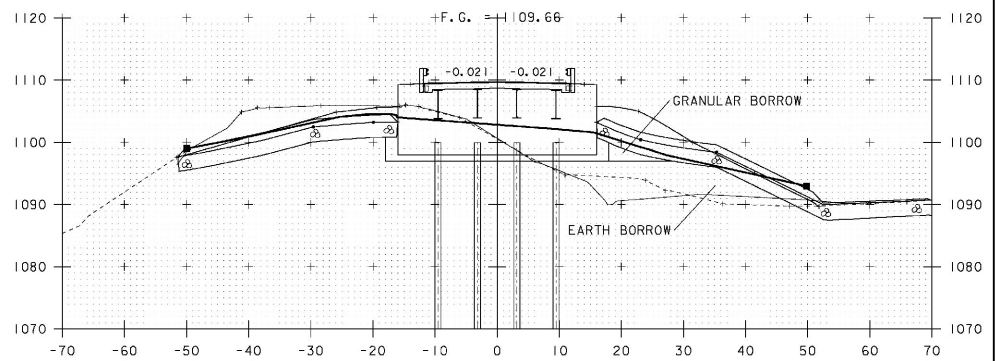


11+75

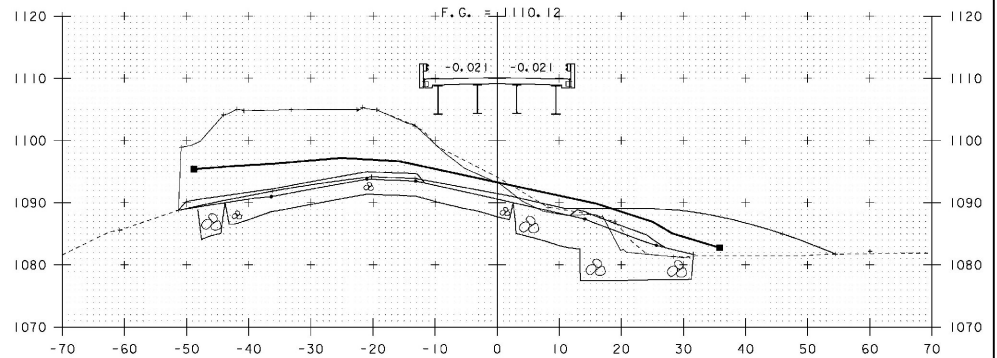
F.G. = 1111.12



11+50



12+25

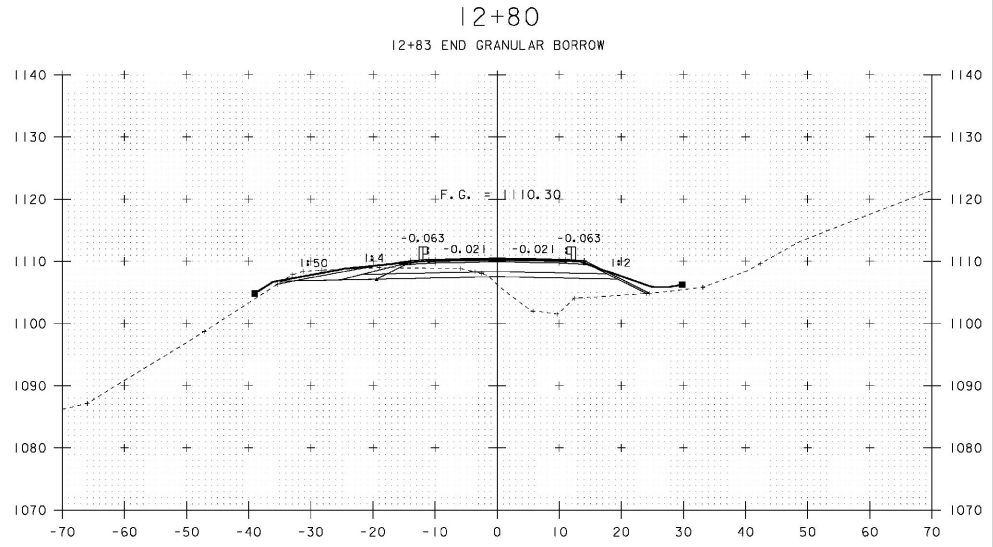
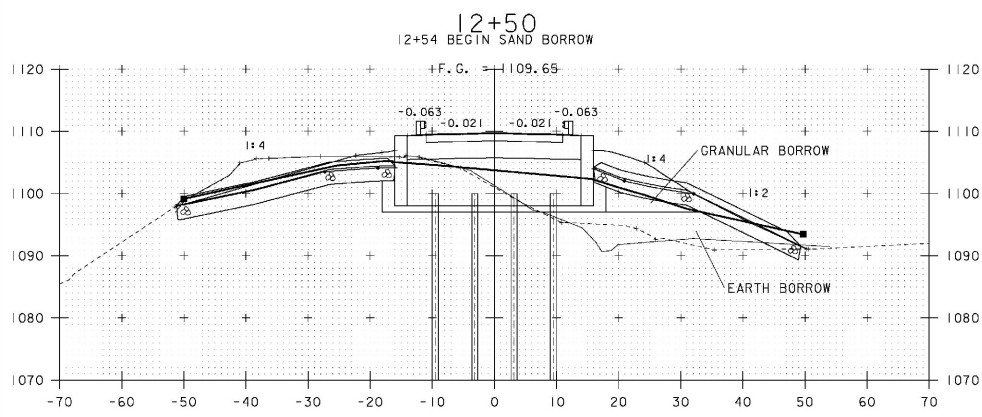
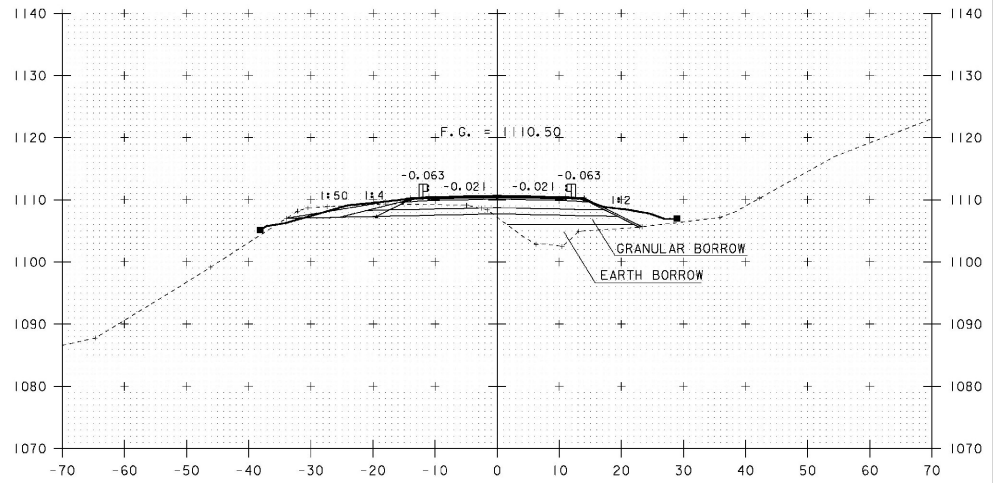
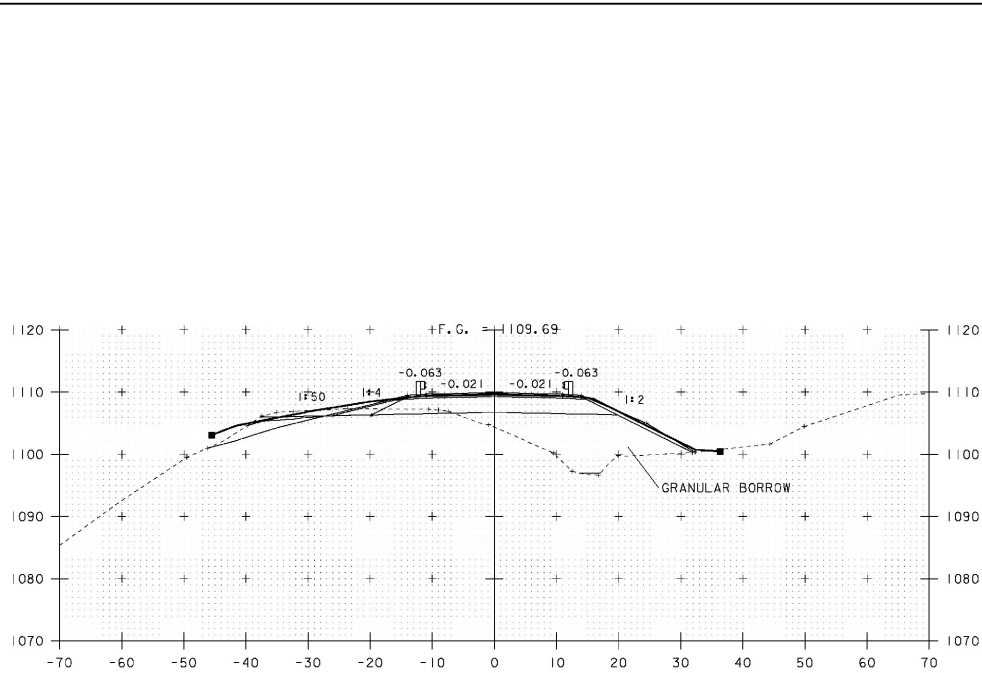


12+00

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

STA. 11+50 TO STA. 12+25

|                               |                        |
|-------------------------------|------------------------|
| PROJECT NAME: BROWNINGTON     | PLOT DATE: 23-FEB-2010 |
| PROJECT NUMBER: BRO 1449 (28) | DRAWN BY: C. MOONEY    |
| FILE NAME: sj246-final        | CHECKED BY: -----      |
| PROJECT LEADER: C. MOONEY     | SHEET 3 OF 14          |
| DESIGNED BY: T. LACKEY        |                        |
| ROADWAY SECTIONS - 3          |                        |



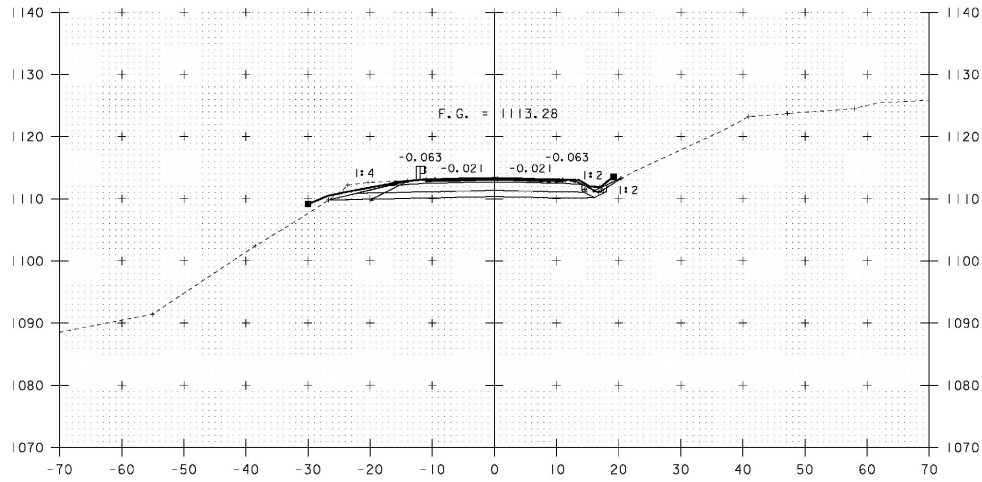
12+27

12+75

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SCALE: 1" = 10'-0"

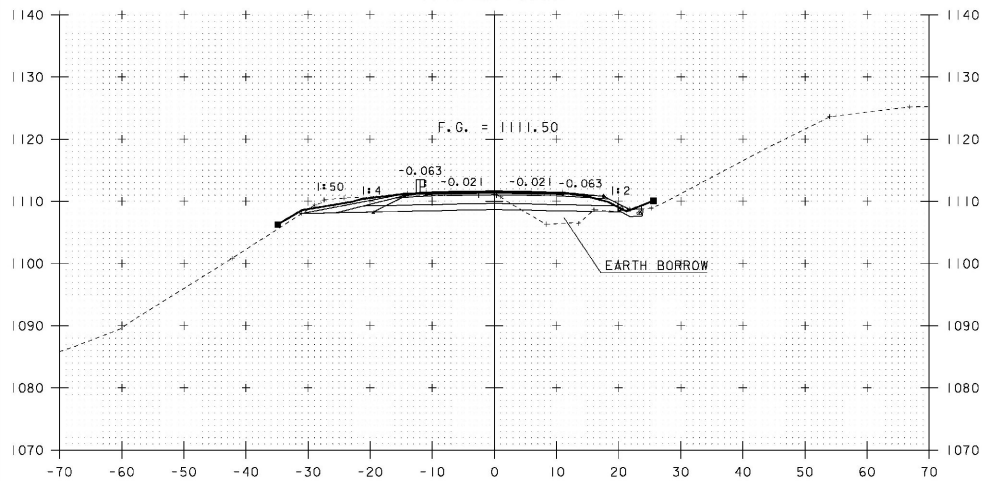
STA. 12+27 TO STA. 12+80

|                   |               |              |             |
|-------------------|---------------|--------------|-------------|
| PROJECT NAME:     | BROWNINGTON   | PLOT DATE:   | 23-FEB-2010 |
| PROJECT NUMBER:   | BRO 1449 (28) | DRAWN BY:    | C. MOONEY   |
| FILE NAME:        | sj246-final   | DESIGNED BY: | T. LACKEY   |
| PROJECT LEADER:   | C. MOONEY     | CHECKED BY:  |             |
| ROADWAY SECTIONS: | - 4           | SHEET:       | 4 OF 14     |

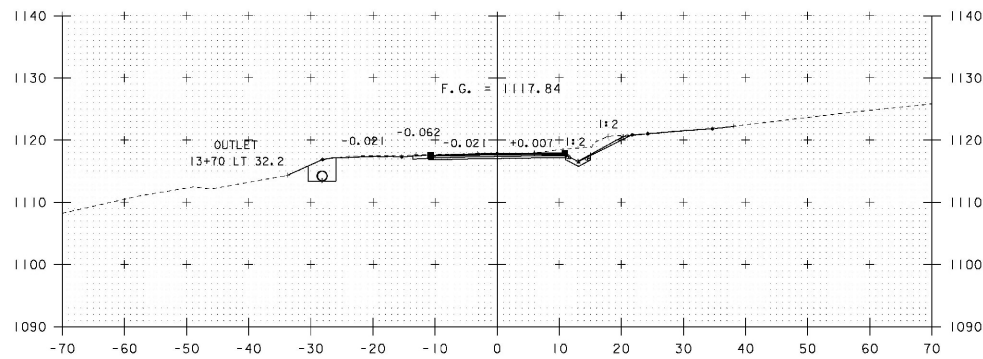


13+25

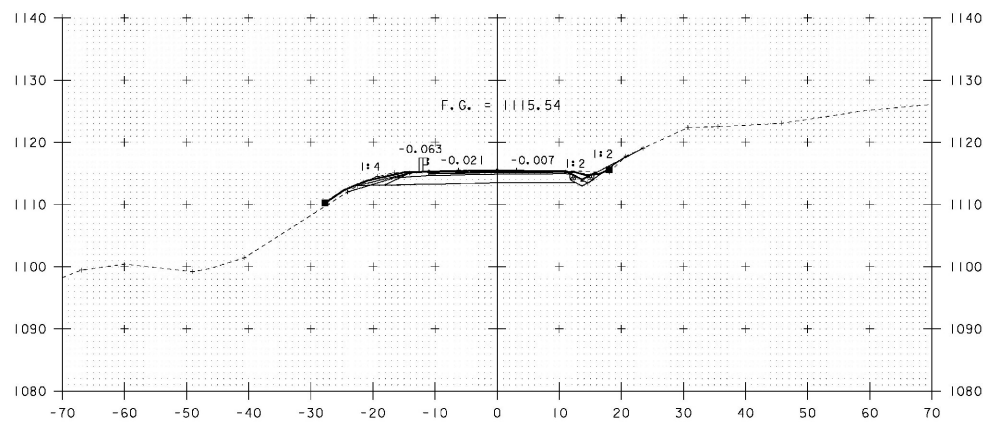
13+25 END PROJECT



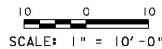
13+00



13+75

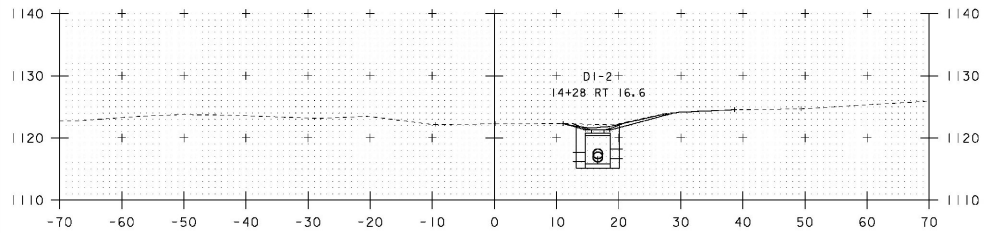


13+50

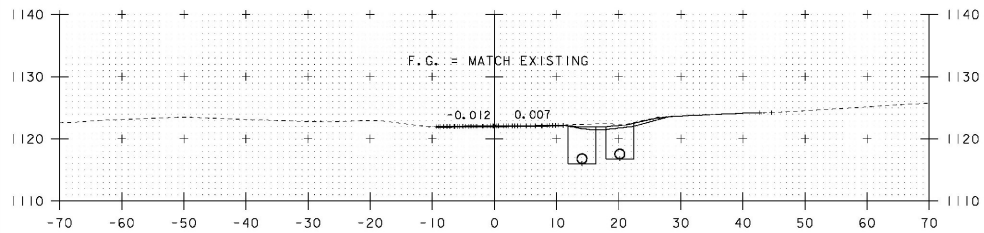


STA. 13+00 TO STA. 13+75

|                      |               |              |             |
|----------------------|---------------|--------------|-------------|
| PROJECT NAME:        | BROWNINGTON   | PLOT DATE:   | 23-FEB-2010 |
| PROJECT NUMBER:      | BRO 1449 (28) | DRAWN BY:    | C. MOONEY   |
| FILE NAME:           | sj2461.incl   | DESIGNED BY: | T. LACKEY   |
| PROJECT LEADER:      | C. MOONEY     | CHECKED BY:  | -----       |
| ROADWAY SECTIONS - 5 |               | SHEET        | 5 OF 14     |

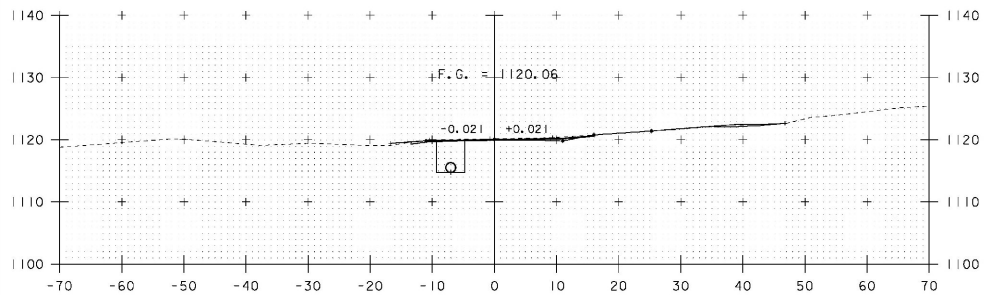


14+28

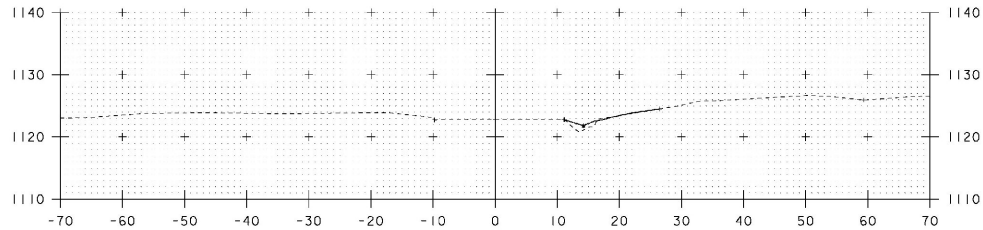


14+25

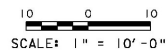
END COLD PLANING  
END APPROACH



14+00

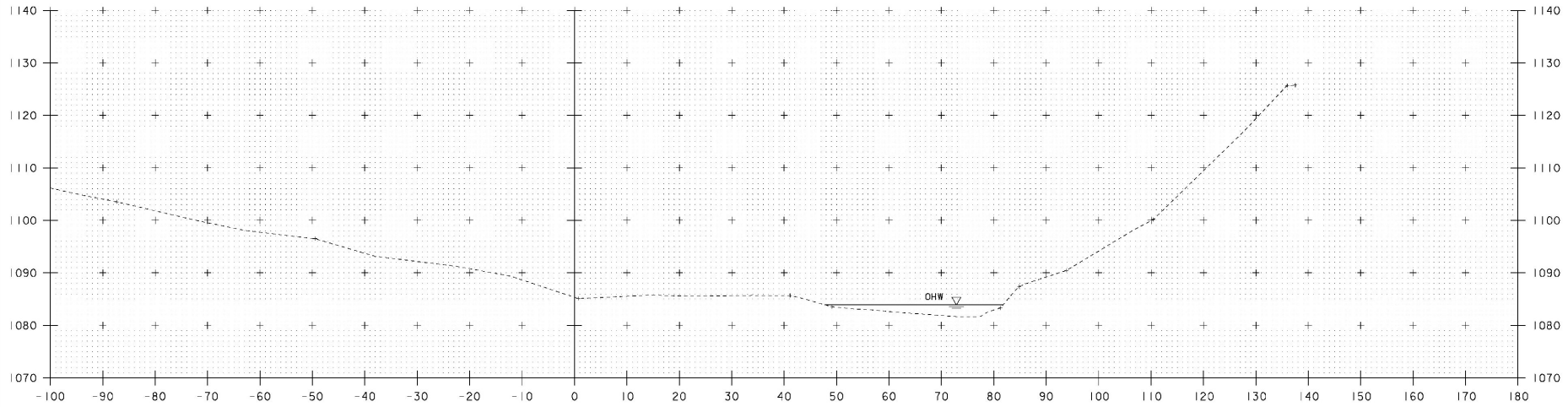


14+37

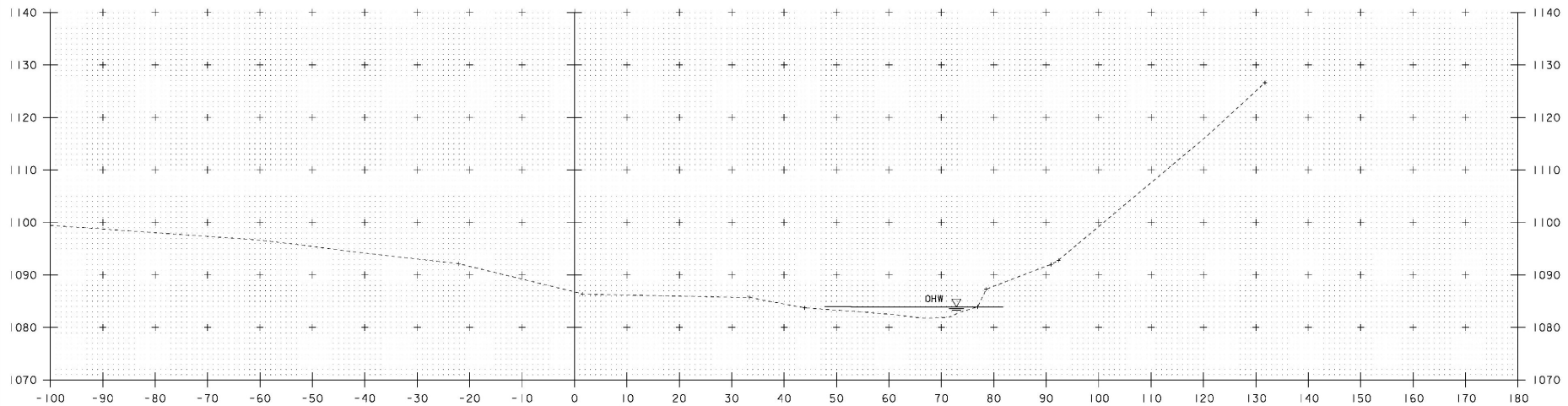


STA. 14+00 TO STA. 14+37

|                               |                        |
|-------------------------------|------------------------|
| PROJECT NAME: BROWNINGTON     | PLOT DATE: 23-FEB-2010 |
| PROJECT NUMBER: BRO 1449 (28) | DRAWN BY: C. MOONEY    |
| FILE NAME: sj2461.incl        | CHECKED BY: -----      |
| PROJECT LEADER: C. MOONEY     | SHEET 6 OF 14          |
| DESIGNED BY: T. LACKEY        |                        |
| ROADWAY SECTIONS - 6          |                        |



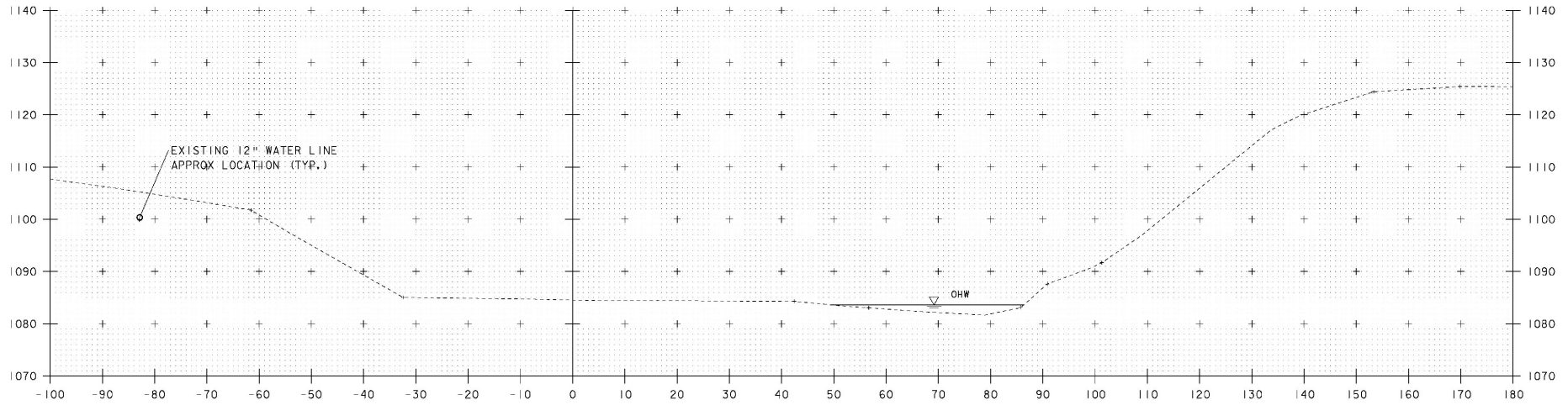
50+25



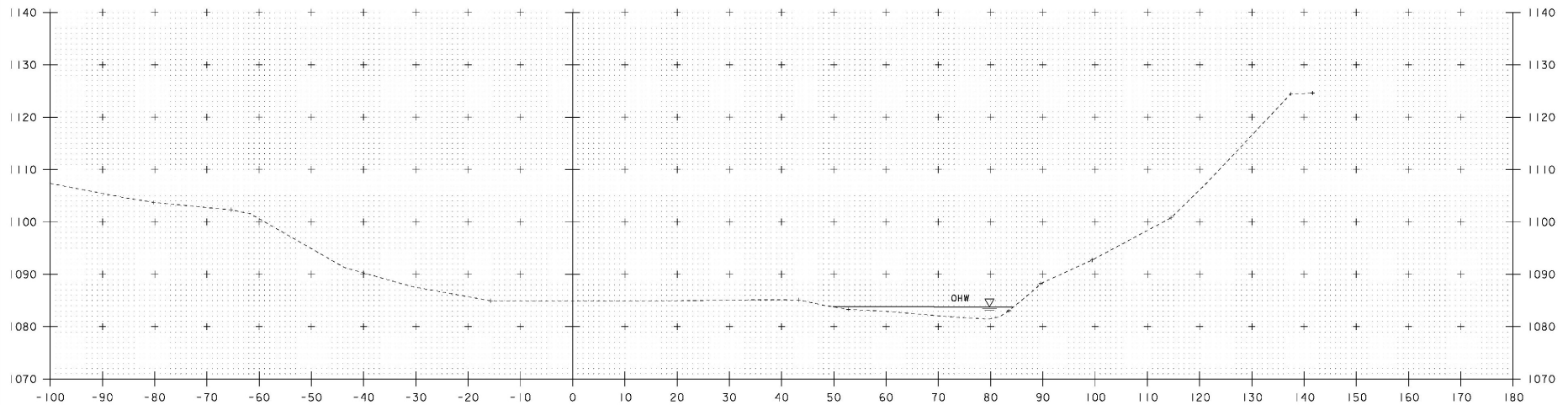
50+00

STA. 50+00 TO STA. 50+25

|                      |               |              |             |
|----------------------|---------------|--------------|-------------|
| PROJECT NAME:        | BROWNINGTON   | PLLOT DATE:  | 23-FEB-2010 |
| PROJECT NUMBER:      | BRO 1449 (28) | DRAWN BY:    | C. MOONEY   |
| FILE NAME:           | sj2461.incl   | DESIGNED BY: | T. LACKEY   |
| PROJECT LEADER:      | C. MOONEY     | CHECKED BY:  | -----       |
| CHANNEL SECTIONS - 1 |               | SHEET        | 7 OF 14     |



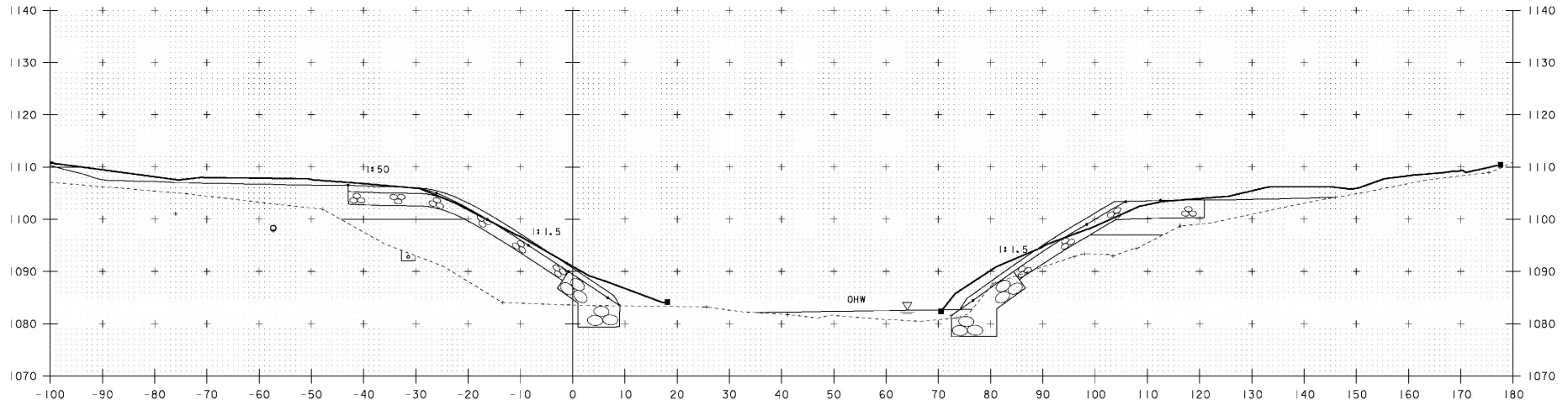
50+75



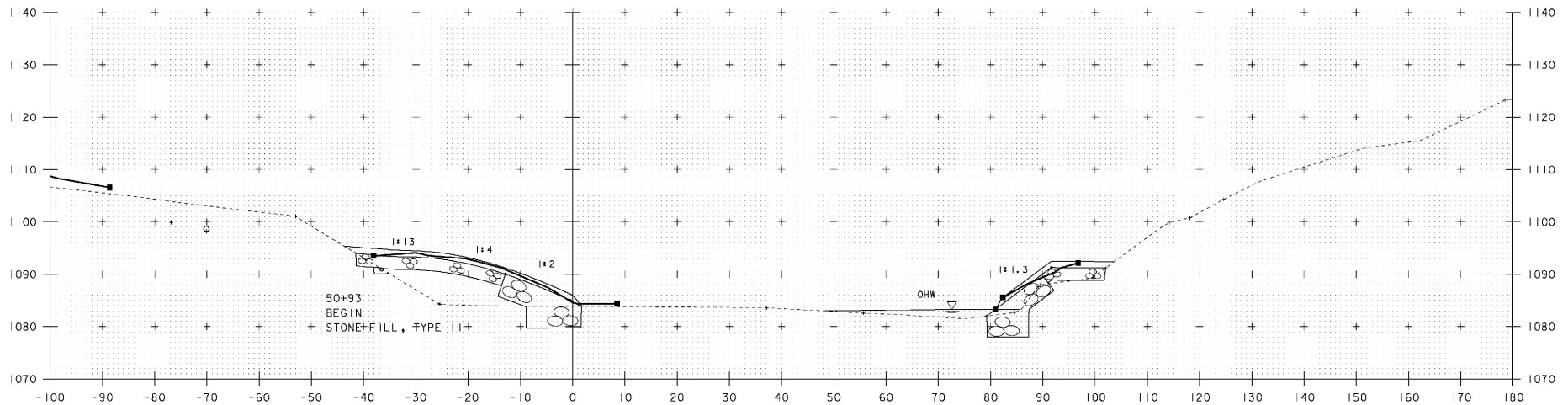
50+50

STA. 50+50 TO STA. 50+75

|                      |               |              |             |
|----------------------|---------------|--------------|-------------|
| PROJECT NAME:        | BROWNINGTON   | PLLOT DATE:  | 23-FEB-2010 |
| PROJECT NUMBER:      | BRO 1449 (28) | DRAWN BY:    | C. MOONEY   |
| FILE NAME:           | sj2461.incl   | DESIGNED BY: | T. LACKEY   |
| PROJECT LEADER:      | C. MOONEY     | CHECKED BY:  | -----       |
| CHANNEL SECTIONS - 1 |               | SHEET        | 8 OF 14     |



51+25



51+00

50+82  
 BEGIN  
 UNCLASSIFIED CHANNEL EXCAVATION  
 STONE FILL, TYPE IV  
 GEOTEXTILE UNDER STONE FILL  
 GRUBBING MATERIAL

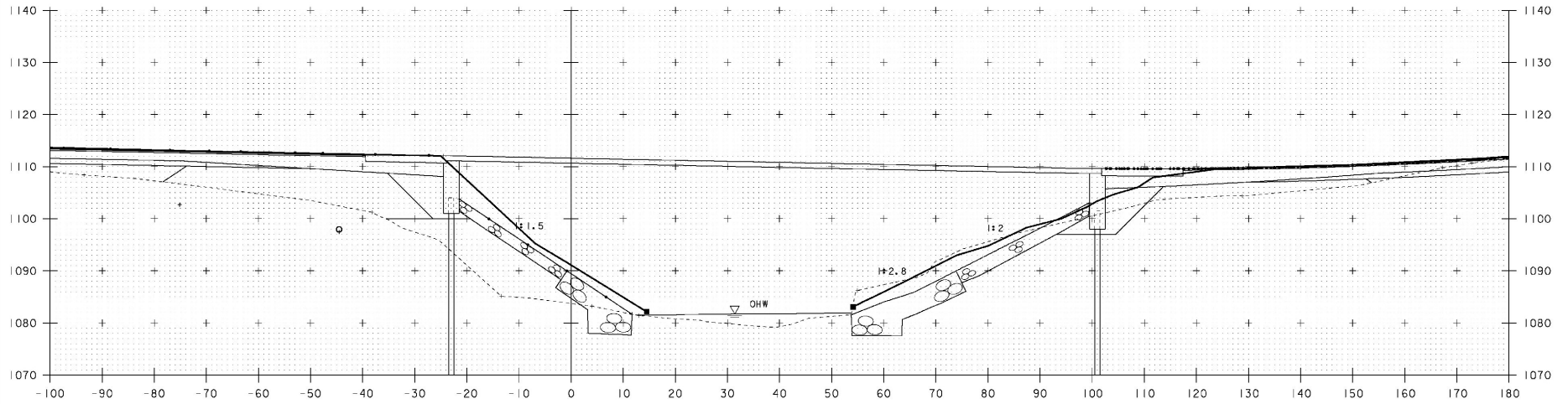
50+80  
 BEGIN  
 UNCLASSIFIED CHANNEL EXCAVATION  
 STONE FILL, TYPE II  
 STONE FILL, TYPE IV  
 GEOTEXTILE UNDER STONE FILL  
 GRUBBING MATERIAL

STA. 51+00 TO STA. 51+25

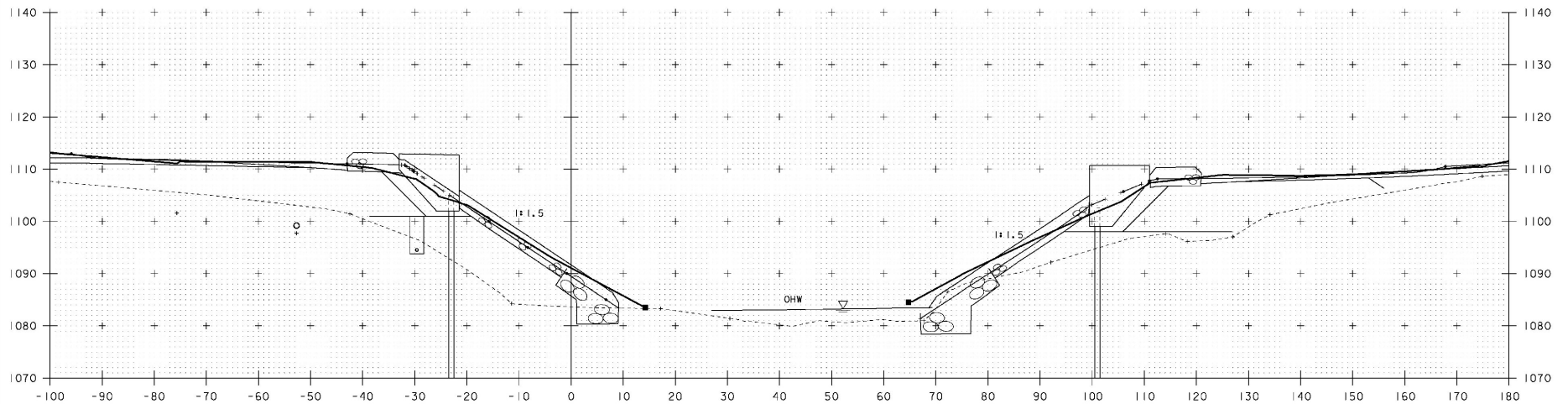
PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sj246final  
 PROJECT LEADER: C. MOONEY  
 DESIGNED BY: T. LACKEY  
 CHANNEL SECTIONS - 1

PLOT DATE: 23-FEB-2010  
 DRAWN BY: C. MOONEY  
 CHECKED BY: -----  
 SHEET 9 OF 14



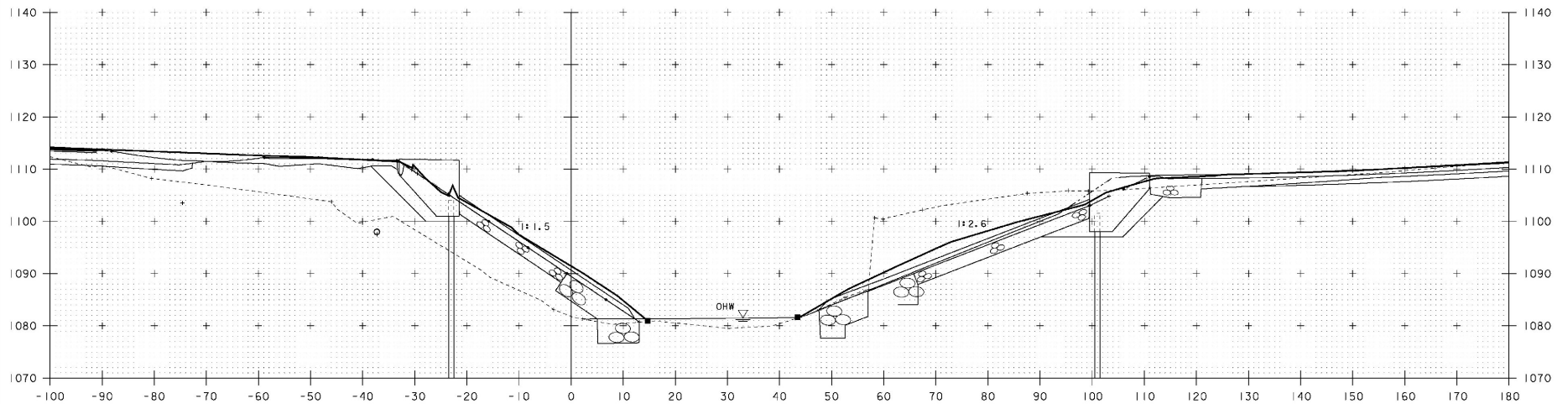
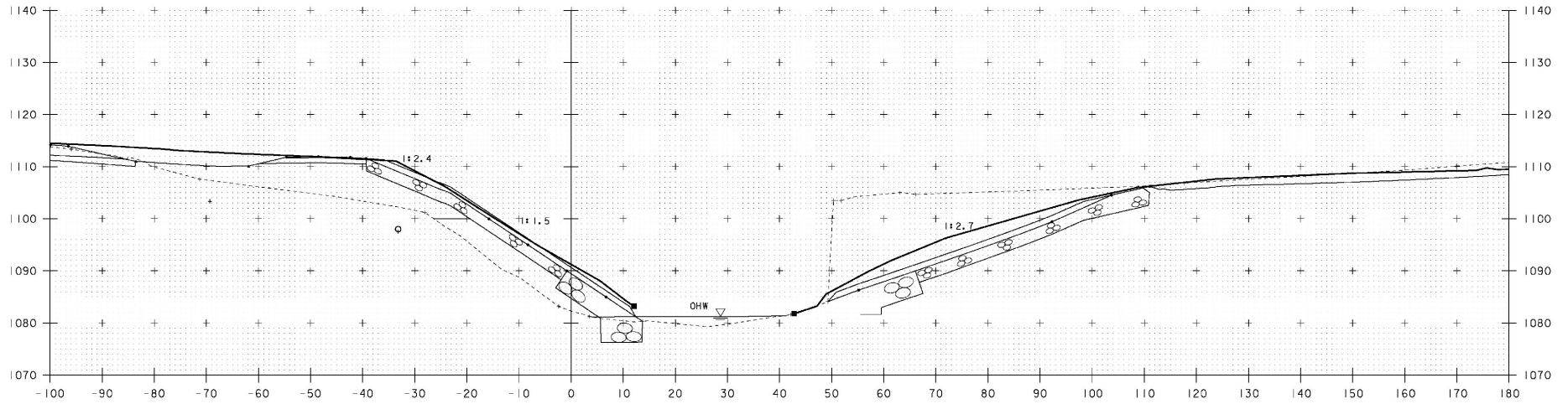
51+50



51+34

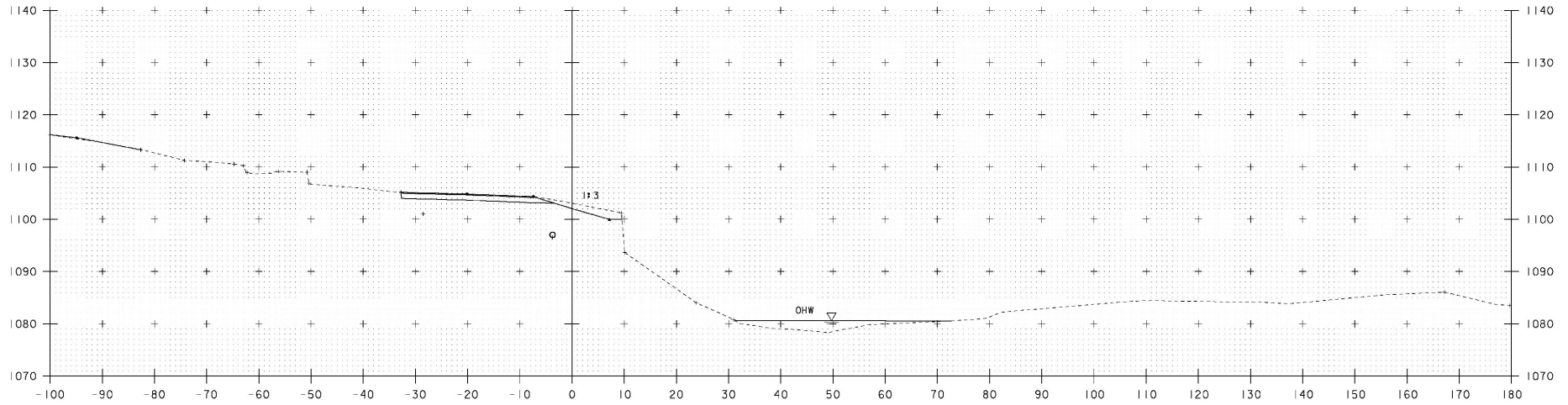
STA. 51+34 TO STA. 51+50

|                 |               |                      |             |             |             |
|-----------------|---------------|----------------------|-------------|-------------|-------------|
| PROJECT NAME:   | BROWNINGTON   | FILE NAME:           | sj2461.incl | PLOT DATE:  | 23-FEB-2010 |
| PROJECT NUMBER: | BRO 1449 (28) | PROJECT LEADER:      | C. MOONEY   | DRAWN BY:   | C. MOONEY   |
|                 |               | DESIGNED BY:         | T. LACKEY   | CHECKED BY: | -----       |
|                 |               | CHANNEL SECTIONS - 1 |             | SHEET       | 10 OF 14    |

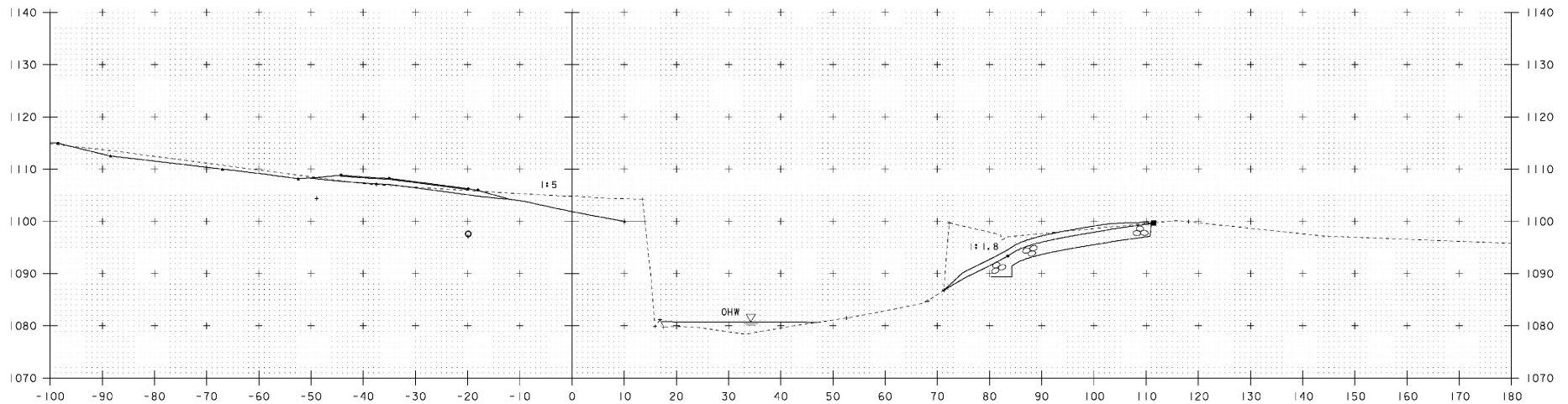


STA. 51+66 TO STA. 51+75

|                      |               |              |             |
|----------------------|---------------|--------------|-------------|
| PROJECT NAME:        | BROWNINGTON   | PLLOT DATE:  | 23-FEB-2010 |
| PROJECT NUMBER:      | BRO 1449 (28) | DRAWN BY:    | C. MOONEY   |
| FILE NAME:           | sj2461.incl   | DESIGNED BY: | T. LACKEY   |
| PROJECT LEADER:      | C. MOONEY     | CHECKED BY:  | -----       |
| CHANNEL SECTIONS - 1 |               | SHEET        | 11 OF 14    |



52+25



52+00

51+96  
 END  
 UNCLASSIFIED CHANNEL EXCAVATION  
 STONE FILL, TYPE II  
 STONE FILL, TYPE IV  
 GEOTEXTILE UNDER STONE FILL  
 GRUBBING MATERIAL

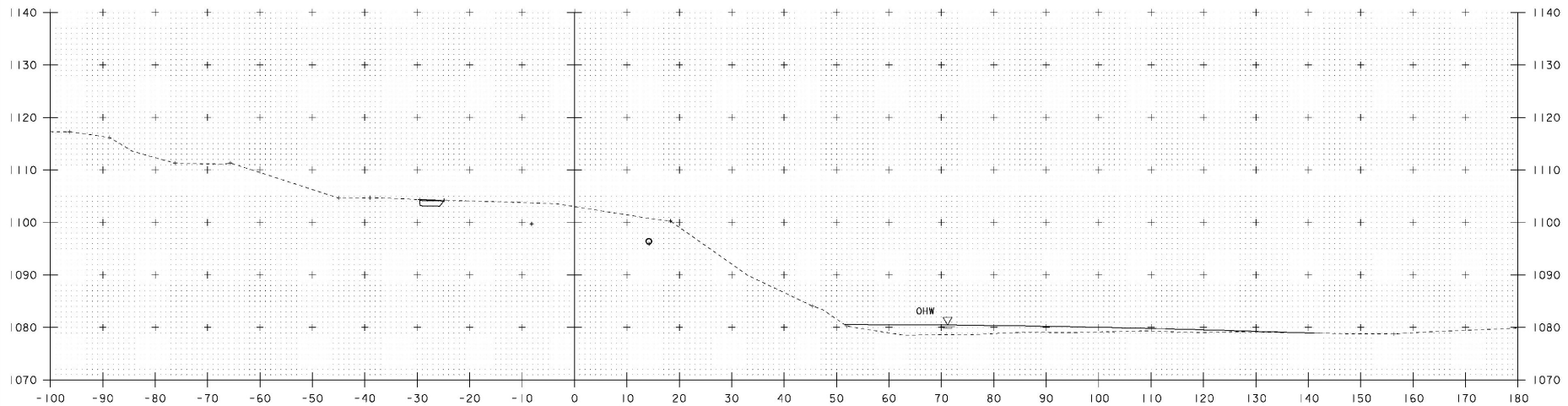
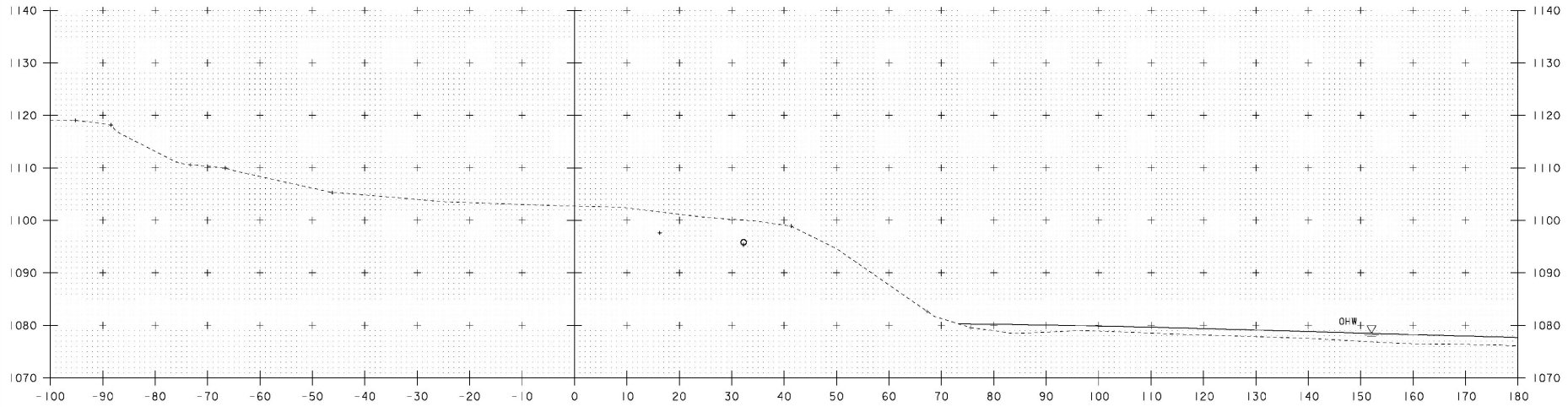
52+02  
 END  
 UNCLASSIFIED CHANNEL EXCAVATION  
 STONE FILL, TYPE II  
 STONE FILL, TYPE IV  
 GEOTEXTILE UNDER STONE FILL  
 GRUBBING MATERIAL

STA. 52+00 TO STA. 52+25

PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sj2461.mxd  
 PROJECT LEADER: C. MOONEY  
 DESIGNED BY: T. LACKEY  
 CHANNEL SECTIONS - 1

PLOT DATE: 23-FEB-2010  
 DRAWN BY: C. MOONEY  
 CHECKED BY: -----  
 SHEET 12 OF 14

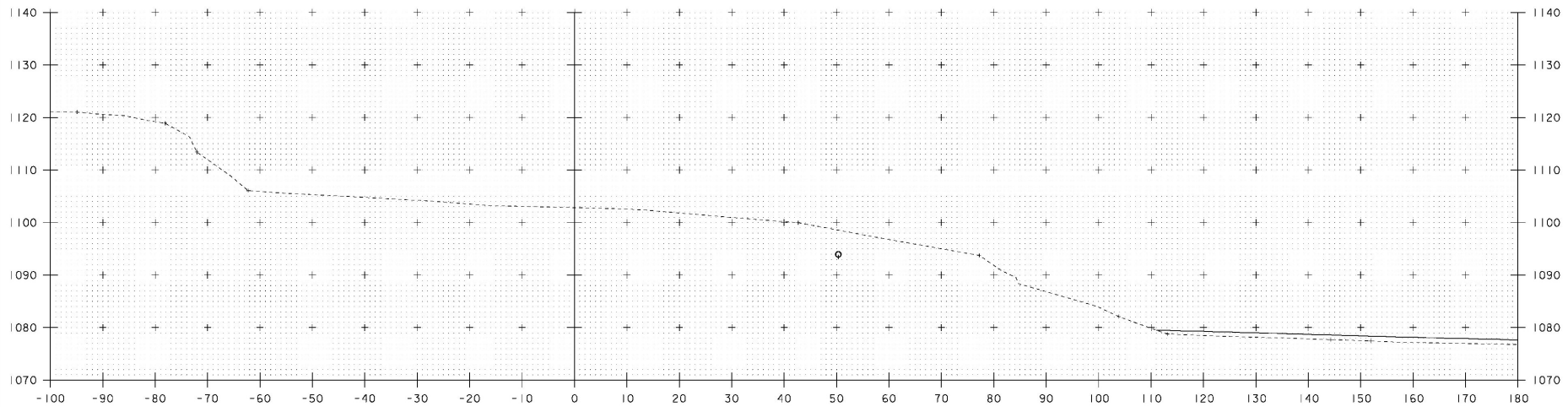


STA. 52+50 TO STA. 52+75

PROJECT NAME: BROWNINGTON  
 PROJECT NUMBER: BRO 1449 (28)

FILE NAME: sj2461.incl  
 PROJECT LEADER: C. MOONEY  
 DESIGNED BY: T. LACKEY  
 CHANNEL SECTIONS - 1

PLOT DATE: 23-FEB-2010  
 DRAWN BY: C. MOONEY  
 CHECKED BY: -----  
 SHEET 13 OF 14



53+00

STA. 53+00 TO STA. 53+00

|                               |                        |
|-------------------------------|------------------------|
| PROJECT NAME: BROWNINGTON     | PLOT DATE: 23-FEB-2010 |
| PROJECT NUMBER: BRO 1449 (28) | DRAWN BY: C. MOONEY    |
| FILE NAME: sj2461.incl        | DESIGNED BY: T. LACKEY |
| PROJECT LEADER: C. MOONEY     | CHECKED BY: -----      |
| CHANNEL SECTIONS - 1          | SHEET 14 OF 14         |

# Casco Bay Steel Structures, Inc.

5 Industry Road  
South Portland, Maine 04106

Phone: (207) 772-2533

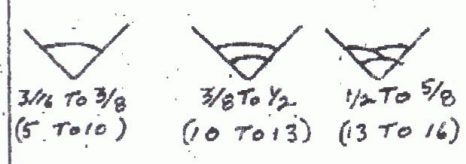
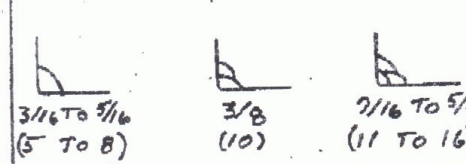
Fax: (207) 772-0580

## WELDING PROCEDURE SPECIFICATION

Material specification ASTM A709 Gr 36-50-50W (250-345-345W)  
 Welding process Shielded Metal Arc Welding (SMAW)  
 Manual or machine Manual  
 Position of welding Fillet (F), Horizontal (2F)  
 Filler metal specification AST/AWS A5.1 - A5.5  
 Filler metal classification E7018 - R018 <sup>2</sup>/<sub>3</sub> - 7028  
 Flux NA  
 Shielding gas NA Flow rate NA  
 Single or multiple pass Single and multiple  
 Single or multiple arc single  
 Welding current AC/DC  
 Polarity STRAIGHT / Reverse  
 Welding progression \_\_\_\_\_  
 Root treatment MEET AWS SPECIFICATION  
 Preheat and interpass temperature To 3/4(9) 50°(10°) 3/4(11) To 1 1/2(38) 70°(20°) 1 1/2(38) To 2 1/2(63.5) 150°(65°)  
 Postheat temperature NA  
 Heat Input Min NA Max NA

### WELDING PROCEDURE

VT ACT  
Brownington  
Bridg-Prod # BR0444962E  
CBS5-396

| Pass no.    | Electrode size               | Welding current |       | Travel speed | AWS D1.5 | Joint detail                                                                                                                                                                |
|-------------|------------------------------|-----------------|-------|--------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |                              | Amperes         | Volts |              |          |                                                                                                                                                                             |
| AS.<br>REQ. | <u>7018</u><br>1/8<br>(3.2)  | 70-170          | 22-26 | AS<br>REQ    | 1F       | <br>3/16 To 3/8<br>(5 To 10)      3/8 To 1/2<br>(10 To 13)      1/2 To 5/8<br>(13 To 16) |
|             | <u>5/32</u><br>(3.9)         | 120-225         | 22-26 |              |          |                                                                                                                                                                             |
|             | <u>3/16</u><br>(4.8)         | 170-300         | 24-27 |              |          |                                                                                                                                                                             |
|             | <u>R018</u><br>1/8<br>(3.2)  | 90-160          | 22-26 |              |          |                                                                                                                                                                             |
|             | <u>5/32</u><br>(3.9)         | 120-225         | 22-26 |              |          |                                                                                                                                                                             |
|             | <u>3/16</u><br>(4.8)         | 180-290         | 24-27 |              |          |                                                                                                                                                                             |
|             | <u>7028</u><br>5/32<br>(3.9) | 170-270         | 22-26 |              | 2F       | <br>3/16 To 5/16<br>(5 To 8)      3/8<br>(10)      7/16 To 5/8<br>(11 To 16)            |
|             | <u>3/16</u><br>(4.8)         | 210-330         | 24-27 |              |          |                                                                                                                                                                             |

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable AWS codes or contract specifications

Procedure no. 401

Revision no. TRANS

Form III-2

CRD BY JWC OK'D BY JWC

MAY 1 2009

RESUBMIT APPROVED

Contractor Casco Bay Steel

Authorized By Paul E. Hoodale

Date 3/2/00



# Casco Bay Steel Structures, Inc.

75 Spring Hill Road  
Saco, Maine 04072

Phone: (207) 282-7360

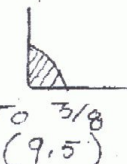
Fax: (207) 282-1179

## WELDING PROCEDURE SPECIFICATION

Material specification ASTM A709/A709M Gr 36 (250) -50 (345) -50W (345w)  
 Welding process Flux Cored Arc welding  
 Manual or machine Semi-Auto  
 Position of welding Flat (1F) - Horizontal (2F)  
 Filler metal specification AWS-A5-29  
 Filler metal classification E81T1-Ni1  
 Flux NA  
 Shielding gas 75% AR / 25% CO<sub>2</sub> Flow rate 35 CFH ± 8.6  
 Single or multiple pass Single and Multiple  
 Single or multiple arc Single  
 Welding current Direct  
 Polarity Reverse Electrode Positive  
 Welding progression \_\_\_\_\_  
 Root treatment To meet AWS D1.5 Specification  
 Preheat and interpass temperature To 3/4 (19) 50° (104) - 3/4 (19) to 1/2 (12.7) 70° (158) to 2/2 (64) 150° (659)  
 Postheat temperature NA over 2 1/2 (64) 225° F (110°)  
 Heat Input Min 28.6 Max 45.0 PQR # 2 = 40.9 (1.15)  
 (1.1 KJ/mm) (1.8 KJ/mm)

### (Metric) WELDING PROCEDURE

VT AOT  
Brownington  
Br # 5 - Proj # BR04492-E  
CBS5-396  
Filler

| Pass no. | Electrode size | Welding current |              | Travel speed    | AWS D1.5 Joint detail                                                               |
|----------|----------------|-----------------|--------------|-----------------|-------------------------------------------------------------------------------------|
|          |                | Amperes         | Volts        |                 |                                                                                     |
| AS Req   | 1/16           | 275             | 28.8         | 11.6            | 1F                                                                                  |
|          |                | 247 TO 302.5    | 26.8 TO 30.8 | 10.4 TO 12.8    |                                                                                     |
|          |                | 275             | 28.8         | 294.6           |                                                                                     |
|          | 1.6            | 247 TO 302.5    | 26.8 TO 30.8 | 264.2 TO 325.12 |                                                                                     |
|          |                |                 |              |                 |  |
|          |                |                 |              |                 |                                                                                     |

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 101-A

Revision no. 1

Form III-2

**TRANS RECEIVED**

CK'D BY JWC

MAY 1 2009

RESUBMIT APPROVED

Contractor Casco Bay Steel  
 Authorized [Signature]  
 Date 9/20/02  
 CWI

75 Spring Hill Road  
Saco, Maine 04072

Phone: (207) 282-7360

Fax: (207) 282-1179

WELDING PROCEDURE SPECIFICATION

Material specification ASTM A36-50-50W / A209M-Gr250-345-345W  
 Welding process Submerged Arc welding (SAW)  
 Manual or machine Machine  
 Position of welding Flat  
 Filler metal specification AWS A5-23  
 Filler metal classification E8A2-EMILK-Mil  
 Flux Lincoln 960 with LA75 Elec. - Elec Ex.  
 Shielding gas NA Flow rate NA  
 Single or multiple pass \_\_\_\_\_  
 Single or multiple arc \_\_\_\_\_  
 Welding current DC  
 Polarity DC EN  
 Welding progression See details  
 Root treatment wire brush area to be free of loose scale, slag, rust and moisture  
 Preheat and interpass temperature To 20" (3/4) 10 (3/8), 20" (3/4) To 40 (1/2) 20 (1/2), 40 (1/2) To 60 (3/4) 65 (150) over 60 (3/8) 110 (225)  
 Postheat temperature NA  
 Heat Input Min 41.1 Max 64.5 P.Q.R-FCM 3A-58.7 KJ/m

WELDING PROCEDURE

VT AOT  
Brownington  
Br 25-Prj # BR0449(2E)  
CB 55-396

| Pass no. | Electrode size | Welding current |       | Travel speed | AWS      |
|----------|----------------|-----------------|-------|--------------|----------|
|          |                | Amperes         | Volts |              |          |
|          | 5/32           | 597             | 29.5  | 18 IPM       | AWS 5-13 |
|          |                | 567             | 27    | 16           | AWS D1-5 |
|          |                | 627             | 31    | 21           | Side-1   |

Joint detail B-12C-5

T1 1/2 to 1" P 1/4 min  
 over 1 1/2 to 2 1/4 min  
 over 1 1/2 to 2 1/4 min

Backgouge side-2 Max heat 420 F

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 202

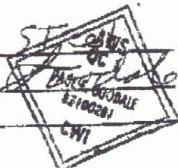
Revision no. 1-Root of

Form III-2 **VT TRANS RECEIVED**

Contractor Casco Bay Steel

Authorized By Paul E. [Signature]

Date 12-6-06



CK'D BY \_\_\_\_\_ OK'D BY JWC

MAY 1 2009

RESUBMIT \_\_\_\_\_ APPROVED [Signature]

# Casco Bay Steel Structures, Inc.

75 Spring Hill Road  
Saco, Maine 04072

Phone: (207) 282-7360

Fax: (207) 282-1179

## WELDING PROCEDURE SPECIFICATION

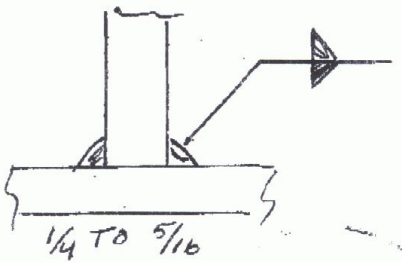
Material specification ASTM A 709 Gr 250-345-345W  
 Welding process Submerged Arc Welding (SAW)  
 Manual or machine Machine  
 Position of welding Flat 1F - Horizontal 2F  
 Filler metal specification AWS A5-23  
 Filler metal classification Lincoln LA 75 PBA2-EM1-M1  
 Flux Lincoln 960 Elec. EX 1/8 ± 3/4  
 Shielding gas NA Flow rate NA  
 Single or multiple pass single and multiple pass  
 Single or multiple arc single  
 Welding current DC  
 Polarity D.C.E.N.  
 Welding progression See joint details  
 Root treatment To meet AWS specification  
 Preheat and interpass temperature To 34-50, +34 to 112-110, 1/2 to 2 1/2-160° over 2 1/2 225  
 Postheat temperature NA  
 Heat Input Min 30 KJ/in Max 47.1 KJ/in PQR-FCM #9 42.8 KJ/in

## WELDING PROCEDURE

VT.A.O.T.  
Brownington  
Br 28- Proj # BR0444962E  
CB55-396

| Pass no. | Electrode size | Welding current |       | Travel speed |
|----------|----------------|-----------------|-------|--------------|
|          |                | Amperes         | Volts |              |
| 1        | 3/32           | 293             | 32    | 13 IPM       |
|          |                | 264             | 80    | 11           |
|          |                | TO              | TO    | TO           |
|          |                | 322             | 34    | 15           |

AWS D1-5 Jci




This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variations given in applicable A.W.S. codes or contract specifications

Procedure no. 250

Revision no. 1 new PQR

Form III-2

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CK'D BY \_\_\_\_\_ OK'D BY JWC

MAY 1 2009

RESUBMIT \_\_\_\_\_ APPROVED \_\_\_\_\_

Contractor Casco Bay Steel

Authorized By Paul E. Goodale

Date 11-1-06



**GENERAL NOTES**

CONSTRUCTION SPECIFICATIONS

1. ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006 WITH LATEST REVISIONS AND THE SPECIAL PROVISIONS.

MATERIAL SPECIFICATIONS

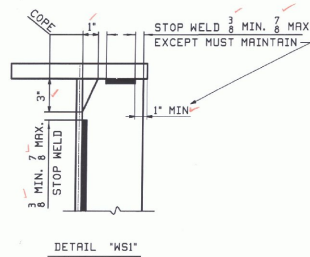
1. UNLESS OTHERWISE NOTED, ALL STEEL TO BE AASHTO M270M/M270, GRADE 50W. (UNPAINTED)
2. MATERIAL NOTED 'CVN' OR 'H2-3' ON DETAIL DRAWINGS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS SECTION 714.01.
3. HIGH STRENGTH BOLTS: AASHTO M164 7/8" DIAMETER TYPE 3 IN 15/16" DIAMETER HOLES, UNLESS NOTED OTHERWISE. BOLTS & NUTS SHALL BE ROTATIONAL CAPACITY TESTED. DO NOT MIX NUTS & BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL BOLTS & NUTS HAVE THE SAME LOT NUMBER.

FABRICATION

1. ALL HOLES SHALL BE PUNCHED OR DRILLED FULL SIZE (UN).

WELDING

1. THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH AASHTO/ARMS D1.5-02 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.
2. WELDING OF MAIN LOAD CARRYING MEMBERS AND ATTACHMENTS SHALL BE PERFORMED USING THE AUTOMATIC SUBMERGED ARC & SHIELDED METAL ARC PROCESSES. ALL WELDS ARE CONTINUOUS U.N.
3. NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.
4. SEE DETAIL 'WS1' ON THIS DRAWING FOR WELD TERMINATION DETAIL.



CLEANING & PAINTING:

1. ALL STEEL SHALL BE BLAST CLEANED AS PER SSPC-SP-10 PER SPEC. 506.14(a)
2. ALL STEEL SHALL BE UNPAINTED.

FIELD CONNECTIONS

1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH AASHTO M164 BOLTS (UN), INSTALLED PER SECTION 506.19(c). SEE DNG E1 FOR FIELD BOLT SIZES.
2. BOLTS SHALL HAVE HEAVY HEX NUT, HEX HEAD, AND AT LEAST ONE FLAT WASHER EACH. WASHER TO BE PLACED UNDER TURNED ELEMENT.
3. PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS.

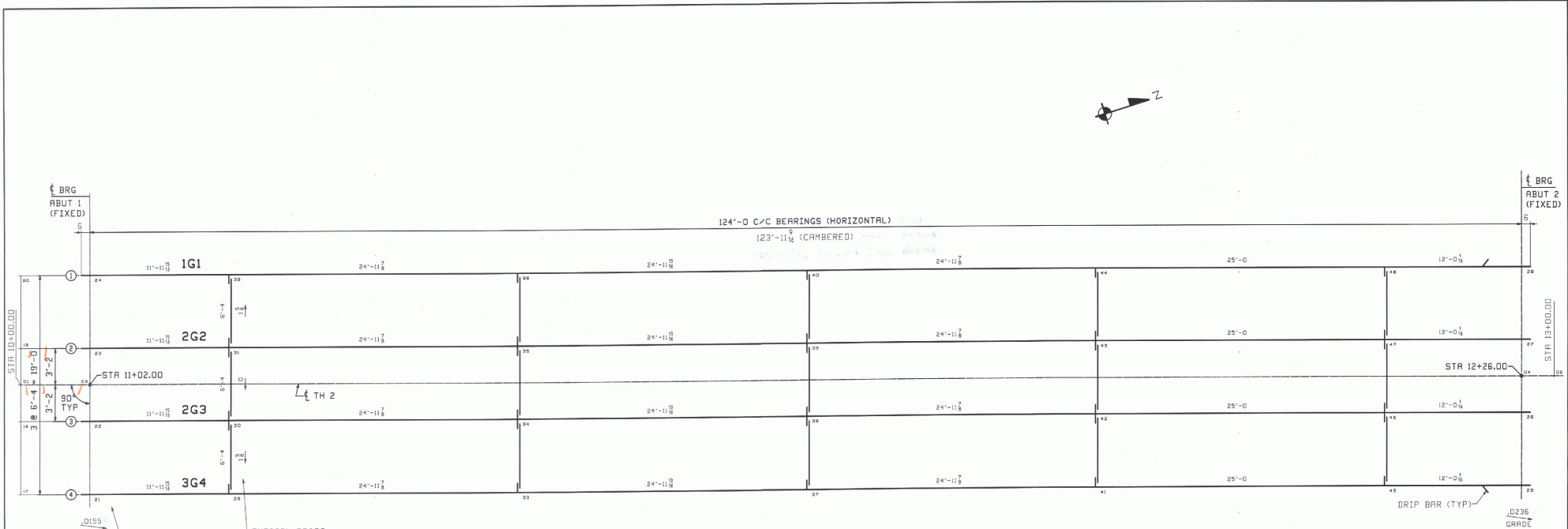
NOTE TO ENGINEER:  
THESE NOTES ARE NOT INTENDED TO BE ALL INCLUSIVE AND COMPLIANCE WITH RELEVANT SPECIFICATIONS REMAIN UNCHANGED.

STRUCTURES COPY

RECEIVED  
CDD BY CBA OKD BY TAL  
MAY 1 2009  
RESUBMIT APPROVED SS 04/14  
BY RLW DATE 5-12-09

| 0                                                                                                                     |                                       | APR 23 2009            |                         |
|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------|------------------------|-------------------------|
| REV.                                                                                                                  | DATE                                  | REMARKS                | DWN   CHK   RPVL   SHOP |
| MATERIAL:                                                                                                             |                                       | SURFACE PREP. & PAINT: | HOLES:                  |
|                                                                                                                       |                                       |                        | SHOP BOLTS:             |
| DESCRIPTION: GENERAL NOTES                                                                                            |                                       |                        |                         |
| CASCO BAY STEEL STRUCTURES, INC.<br>75 SPRING HILL ROAD SARC, MAINE 04072<br>PHONE (207) 282-7360 FAX. (207) 282-1179 |                                       |                        |                         |
| STRUCTURE:                                                                                                            | TOWN HIGHWAY #2 OVER WILLOUGHBY RIVER | DRAWN:                 | DATE:                   |
|                                                                                                                       | BRIDGE NO. BR 8                       | LWD                    | 03/10                   |
|                                                                                                                       | TOWN OF BRONNINGTON                   | CHKD:                  | DATE:                   |
|                                                                                                                       | COUNTY OF ORLEANS, VERMONT            | PCP                    | 04/16                   |
|                                                                                                                       | CONTRACTOR: AUSTIN CONSTRUCTION       |                        |                         |
| LOCATION:                                                                                                             | Town of Braunington                   | JOB NO.                | DWG NO.                 |
| PROJ NO.                                                                                                              | BRD 1449 (2B)                         | 396                    | GNI                     |
| CUSTOMER:                                                                                                             | VERMONT ROT                           |                        | REV. $\Delta$           |





**CALCULATION PLAN**

DETAILER NOTE:  
HOLES IN WEB FOR  
RE-BAR, TYPICAL  
BOTH ENDS ALL GIRDERS.

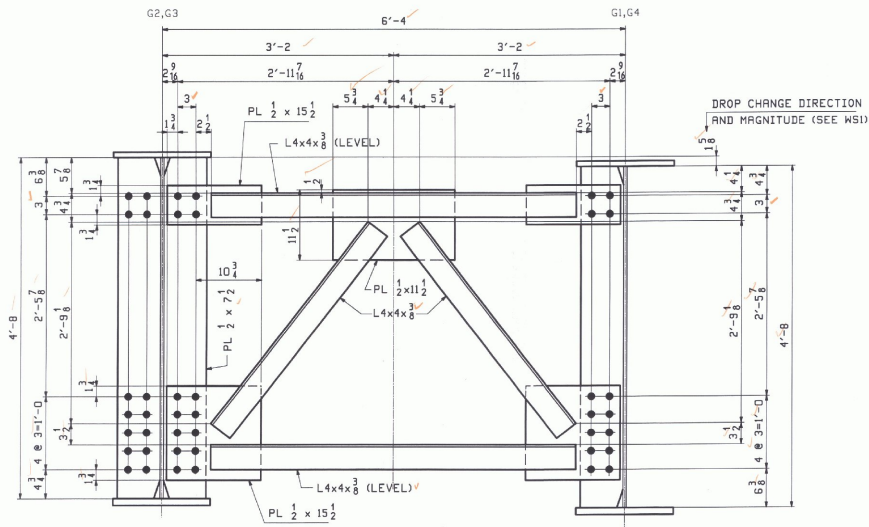
Circle Slope =  $1:1.0173$   
 Flat Slope =  $2.16 \times 193' = 418.68'$   
 12' x 4' = 2.46'  
 Flat Slope =  $1:1.90$   
 Circle Slope =  $1:1.90$

**\*\* NOTE \*\***  
 THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

- NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTTOM OF WEBS WITH CORRECTIONS MADE FOR DL CAMBER & VERT. CURVE (UN).
  2. TRANSVERSE DIMENSIONS ARE IN A HORIZONTAL PLANE (UN).
  3. ARROW POINTS TOWARD LOW END OF MEMBER.
  4. ENDS OF GIRDERS ARE VERTICAL AFTER DL ROTATION.
  5. CROSSFRAME STIFFENERS ARE NORMAL TO GRADE.
  6. BOTTOM POINT NUMBERS = TOP POINT NUMBERS + 100
  7. FOR LAYOUTS SEE DRAWING TDI.

RECEIVED  
 APR 29 2009  
 MAY 1 2009  
 RESUBMIT APPROVED  
 BY: [Signature] DATE 5-12-09

| REV.                                                                                                                 | DATE | REMARKS                         | DWN | CHK                 | APVL        | SHOP        |
|----------------------------------------------------------------------------------------------------------------------|------|---------------------------------|-----|---------------------|-------------|-------------|
| 0                                                                                                                    |      |                                 |     |                     |             |             |
| MATERIAL:                                                                                                            |      | SURFACE PREP. & PAINT:          |     | HOLES:              | SHOP BOLTS: |             |
| M270-50W                                                                                                             |      | SEE GNI                         |     | 15" x 16" Ø         | NONE        |             |
| DESCRIPTION: CALCULATION PLAN                                                                                        |      |                                 |     |                     |             |             |
| CASCO BAY STEEL STRUCTURES, INC.<br>75 SPRING HILL ROAD SACO, MAINE 04072<br>PHONE (207) 282-7360 FAX (207) 282-1179 |      |                                 |     |                     |             |             |
| STRUCTURE:                                                                                                           |      | BRIDGE NO.:                     |     | BRWN:               | LWD         | DATE:       |
| TOWN HIGHWAY #2 OVER WILLOUGHBY RIVER                                                                                |      | BR 8                            |     | TOWN OF BROWNINGTON | PCP         | 03/10       |
| COUNTY OF ORLEANS, VERMONT                                                                                           |      | CONTRACTOR: AUSTIN CONSTRUCTION |     | CHKD:               | PCP         | DATE: 04/16 |
| LOCATION: Town of Brownington                                                                                        |      | JOB NO.:                        |     | DWG NO.:            |             |             |
| PROJ NO. BRO 1449 (2B)                                                                                               |      | 396                             |     | WS1                 |             |             |
| CUSTOMER: VERMONT DOT                                                                                                |      |                                 |     | REV. [Signature]    |             |             |

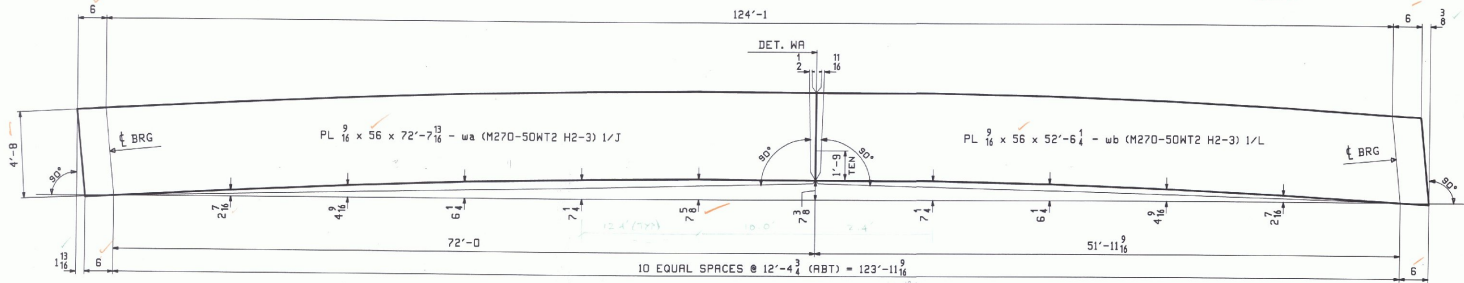


**TYPICAL INT. CROSSFRAME**  
LOOKING BACK STATION (RE: DES 34/58)

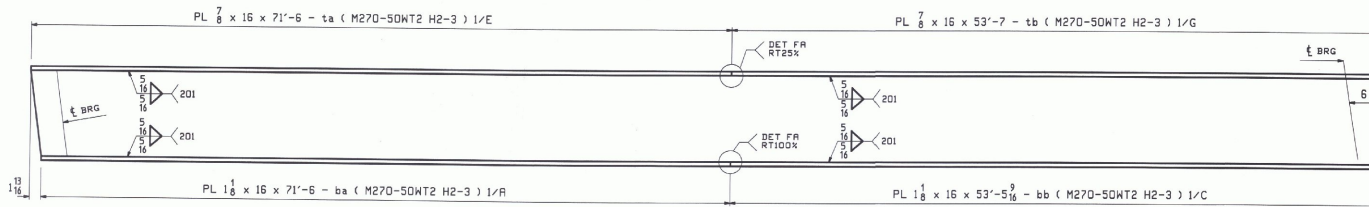
**\*\* NOTE \*\***  
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION AND CONNECTION SPACING. THIS DNG IS SUBMITTED FOR INFORMATION ONLY & IS NOT INTENDED FOR SHOP FABRICATION. DETAIL DNGS WILL SHOW ALL WELDING AND DIMENSIONS REQ'D FOR FABRICATION.

RECEIVED  
OCD BY: *SAH* WSD BY: *TUL*  
MAY 1 2009  
REQUEST APPROVED BY: *RKAW* DATE

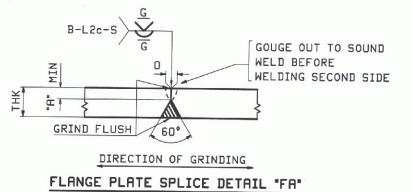
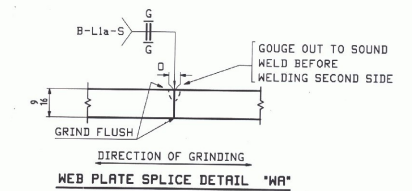
|                                                                                                                                                               |                                |                            |                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------|---------------------------|
| D                                                                                                                                                             |                                | APR 22 2009                |                           |
| REV. DATE                                                                                                                                                     | REMARKS                        | DWN CHK                    | APVL SHOP                 |
| M270-SDW                                                                                                                                                      | SURFACE PREP. & PAINT: SEE GNI | HOLES: 15/16" Ø            | SHOP BOLTS: NONE          |
| DESCRIPTION: LAYOUTS                                                                                                                                          |                                |                            |                           |
| CASCO BAY STEEL STRUCTURES, INC.<br>75 SPRING HILL ROAD SACO, MAINE 04072<br>PHONE (207) 282-7350 FAX. (207) 282-1179                                         |                                |                            |                           |
| STRUCTURE: TOWN HIGHWAY #2 OVER HILLGLOUGHBY RIVER<br>BRIDGE NO. BR 8<br>TOWN OF BROWNINGTON<br>COUNTY OF ORLEANS, VERMONT<br>CONTRACTOR: RUSTIN CONSTRUCTION | DRWN: LWD<br>CHKD: PCP         | DATE: 03/10<br>DATE: 04/15 | REV. 03/10<br>DATE: 04/15 |
| LOCATION: Town of Brownington                                                                                                                                 | JOB NO. 396                    | DWG NO. TDI                | REV. 1                    |
| PROJ NO. BRO 1449 (28)                                                                                                                                        |                                |                            |                           |
| CUSTOMER: VERMONT ROT                                                                                                                                         |                                |                            |                           |



CAMBER DIAGRAM FOR 1G1A, 2G2A, 2G3A AND 3G4A



FLANGE DIAGRAM FOR 1G1A, 2G2A, 2G3A AND 3G4A



| FLG THK | "R" |
|---------|-----|
| 7       | 1   |
| 8       | 4   |
| 1 1/8   | 3   |
| 8       | 6   |

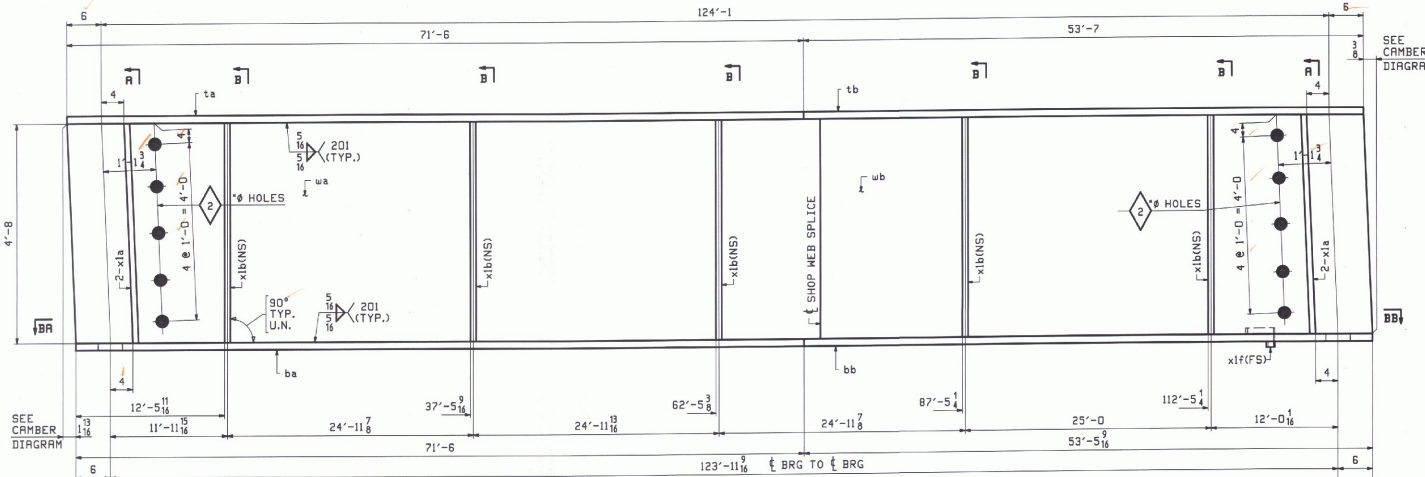
RECEIVED  
 CND BY: SEM QND BY: TAL  
 MAY 1 2003  
 REGUMENT APPROVED BY: FLW DATE: 5-12-09

| REV.                                                                                                                  | DATE | REMARKS                | DMN     | CHK     | APVL | SHOP        |
|-----------------------------------------------------------------------------------------------------------------------|------|------------------------|---------|---------|------|-------------|
| 0                                                                                                                     |      |                        |         |         |      |             |
|                                                                                                                       |      |                        |         |         |      | APR 22 2008 |
| MATERIAL:                                                                                                             |      | SURFACE PREP. & PAINT: |         | HOLES:  |      | SHOP BOLTS: |
| AS NOTED                                                                                                              |      | SEE GNI                |         | NONE    |      | NONE        |
| DESCRIPTION: CAMBER AND FLANGE DIAGRAM                                                                                |      |                        |         |         |      |             |
| CASCO BAY STEEL STRUCTURES, INC.<br>75 SPRING HILL ROAD SRCO, MAINE 04072<br>PHONE (207) 282-7360 FAX. (207) 282-1179 |      |                        |         |         |      |             |
| STRUCTURE: TOWN HIGHWAY #2 OVER MULLOUGHBY RIVER                                                                      |      |                        | DRWNG   | DATE:   |      |             |
| BRIDGE NO. BR 8                                                                                                       |      |                        | LWD     | 03/10   |      |             |
| TOWN OF BROWNINGTON                                                                                                   |      |                        | CHKD:   | DATE:   |      |             |
| COUNTY OF GREENS, VERMONT                                                                                             |      |                        | PCP     | 04/16   |      |             |
| CONTRACTOR: AUSTIN CONSTRUCTION                                                                                       |      |                        |         |         |      |             |
| LOCATION: Town of Brownington                                                                                         |      |                        | JOB NO. | DWG NO. |      |             |
| PROJ NO. BRO 1449 (28)                                                                                                |      |                        | 396     | C1      |      |             |
| CUSTOMER: VERMONT ROT                                                                                                 |      |                        | REV.    |         |      |             |

NOTES:

1. FOR GENERAL NOTES SEE DWG GNI.
2. H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TEST AT H FREQ. FOR ZONE 2



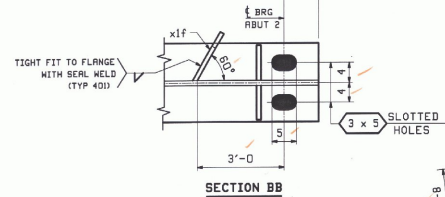


SEE CAMBER DIAGRAM

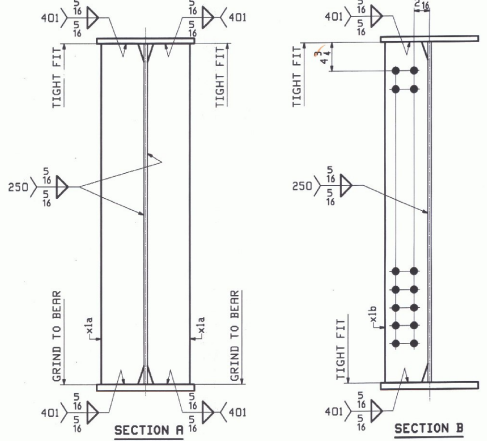
SEE CAMBER DIAGRAM

**ONE - GIRDER - IG1A**

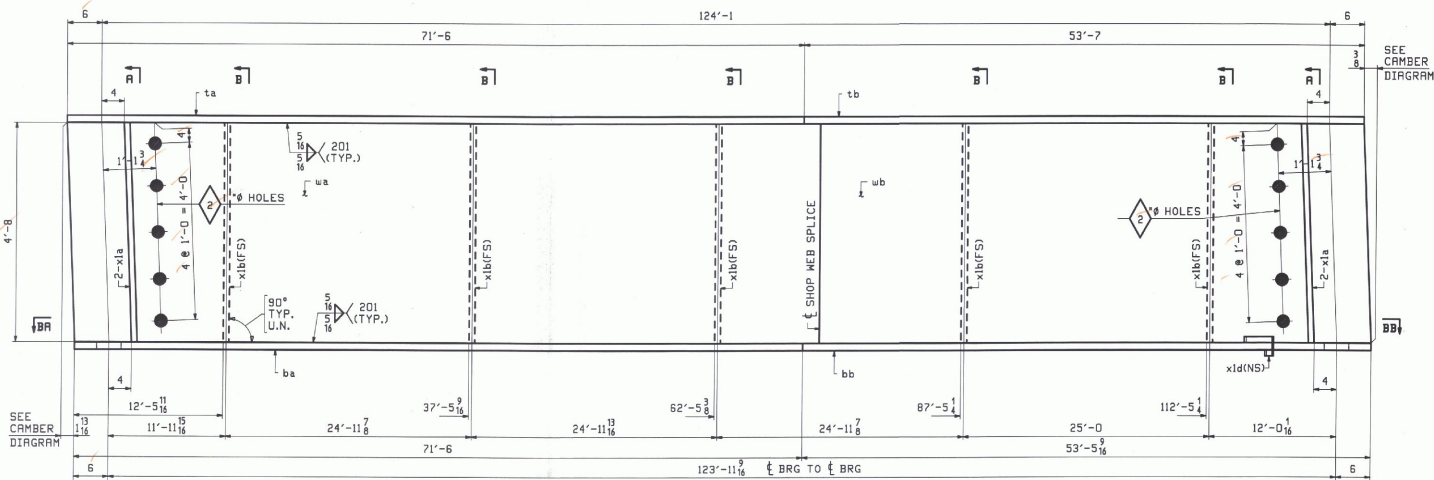
FOR GIRDER STANDARDS SEE DRAWINGS X1  
 FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.  
 FOR GENERAL NOTES & WELD PROCEDURES SEE DRAWING GNI.  
 H2-3 DENOTES MATERIAL SUBJECT TO CHARTY V-NOTCH TESTING.



SECTION BA







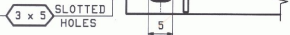
SEE CAMBER DIAGRAM

SEE CAMBER DIAGRAM

**ONE - GIRDER - 3G4A**

FOR GIRDER STANDARDS SEE DRAWINGS X1  
 FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.  
 FOR GENERAL NOTES & WELD PROCEDURES SEE DRAWING G1.  
 H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

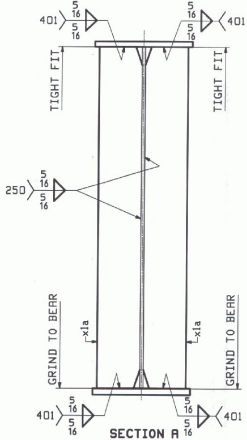
TIGHT FIT TO FLANGE WITH SEAL WELD (TYP 401)



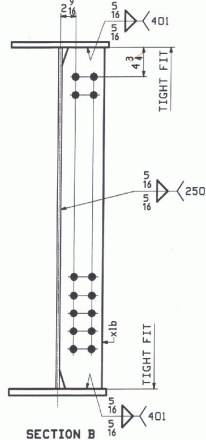
SECTION BA



SECTION BB

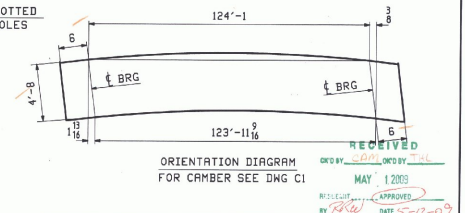


SECTION A

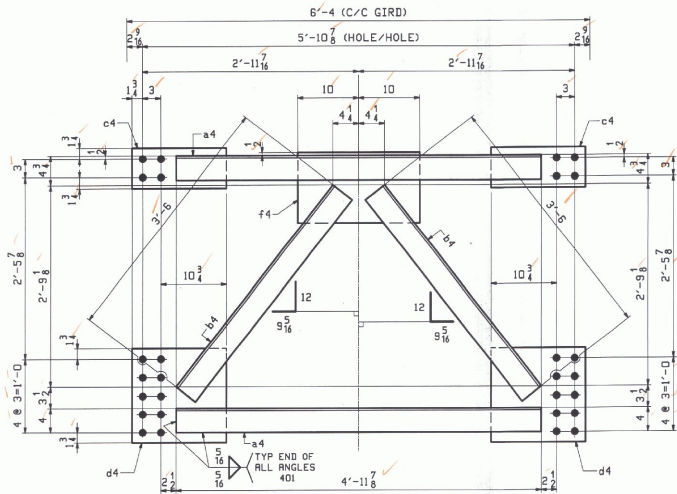


SECTION B

| JOB NO.  |      | DRAWING NO.      |     | REV. |           |           |        |                   |
|----------|------|------------------|-----|------|-----------|-----------|--------|-------------------|
| 3        |      | 3                |     | 3    |           |           |        |                   |
| ASH INFO | SHIP | BILL OF MATERIAL |     |      |           | REMARKS   | WT     | PROCUREMENT NOTES |
| PAGE     | LINE | MARK             | QTY | MARK | MATERIAL  | LENGTH FT | INCHES |                   |
|          |      | 3G4A             | 1   |      | GIRDER    |           |        | 27568             |
| 1        | Z    | 1                | wa  | PL   | 5/16x56   | 72        | 7 1/2  | H270-SOHMA (H2-3) |
| 1        | L    | 1                | wb  | PL   | 5/16x56   | 52        | 6 1/2  | H270-SOHMA (H2-3) |
| 1        | E    | 1                | ta  | PL   | 5/16x18   | 71        | 6      | H270-SOHMA (H2-3) |
| 1        | G    | 1                | tb  | PL   | 5/16x18   | 53        | 7      | H270-SOHMA (H2-3) |
| 1        | H    | 1                | ba  | PL   | 1 1/2x18  | 71        | 6      | H270-SOHMA (H2-3) |
| 1        | C    | 1                | bb  | PL   | 1 1/2x18  | 53        | 7      | H270-SOHMA (H2-3) |
| 2        | B    | 4                | x1a | PL   | 3/4x7 1/2 | 4         | 8      | WIC               |
| 2        | C    | 5                | x1b | PL   | 3/4x7 1/2 | 4         | 8      |                   |
| 2        | F    | 1                | x1d | PL   | 1x3 1/2   | 0         | 11     | SHIP BAR          |



| REV.                                             | DATE | REMARKS                | DWN     | CHK                             | APVL        | SHOP        |
|--------------------------------------------------|------|------------------------|---------|---------------------------------|-------------|-------------|
| 0                                                |      |                        |         |                                 |             |             |
| MATERIAL:                                        |      | SURFACE PREP. & PRINT: | HOLES:  |                                 | SHOP BOLTS: |             |
| H270-SOH                                         |      | SEE G1                 | 15/16 φ |                                 | NONE        |             |
| DESCRIPTION: GIRDER - 3G4A                       |      |                        |         |                                 |             |             |
| CASCO BAY STEEL STRUCTURES, INC.                 |      |                        |         |                                 |             |             |
| 75 SPRING HILL ROAD SACO, MAINE 04072            |      |                        |         |                                 |             |             |
| PHONE (207) 282-7360 FAX. (207) 282-1179         |      |                        |         |                                 |             |             |
| STRUCTURE: TOWN HIGHWAY #2 OVER WILLOUGHBY RIVER |      |                        |         | DRAWN: LWD                      |             | DATE: 03/11 |
| BRIDGE NO. BR 5                                  |      |                        |         | CHKD: PCP                       |             | DATE: 04/16 |
| TOWN OF BROWNINGTON                              |      |                        |         | CONTRACTOR: RUSTIN CONSTRUCTION |             |             |
| COUNTY OF ORLEANS, VERMONT                       |      |                        |         | JOB NO. 396                     |             | DWG NO. 3   |
| CONTRACTOR: RUSTIN CONSTRUCTION                  |      |                        |         | REV. 1                          |             |             |
| LOCATION: Town of Brownington                    |      | JOB NO. 396            |         | DWG NO. 3                       |             |             |
| PROJ. NO. BRG 1449 (20)                          |      | CUSTOMER: VERMONT ROT  |         | REV. 1                          |             |             |



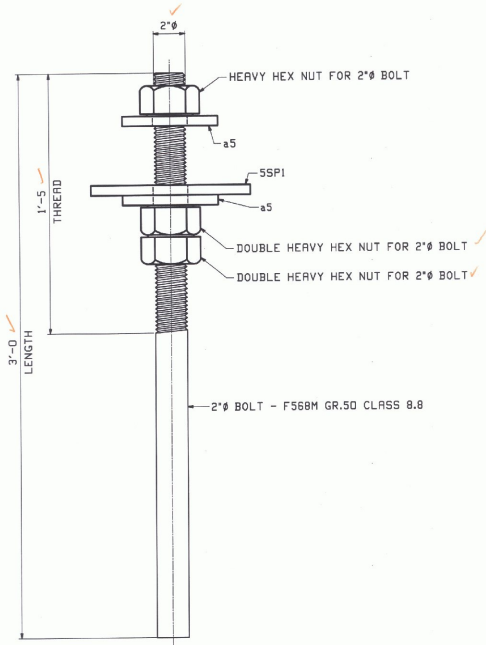
15 ~ CROSSFRAMES - 4CF1

| BILL OF MATERIAL |      | JOB NO. | DRAWING NO. | REV. |             |                     |         |     |                      |
|------------------|------|---------|-------------|------|-------------|---------------------|---------|-----|----------------------|
| PRG              | LINE | MARK    | QTY         | MARK | MATERIAL    | LENGTH<br>FT INCHES | REMARKS | WT  | PROCUREMENT<br>NOTES |
|                  | 4CF1 | 15      |             |      | CROSSFRAMES |                     |         | 302 |                      |
| 2                | H    | 30      | b4          | L    | 4x4x3/8     | 4 11/16             |         |     |                      |
| 2                | J    | 30      | b4          | L    | 4x4x3/8     | 3 6                 |         |     |                      |
| 2                | K    | 30      | c4          | PL   | 3/8x1       | 1 3/2               |         |     |                      |
| 2                | M    | 30      | d4          | PL   | 3/8x15/2    | 1 3/2               |         |     |                      |
| 2                | N    | 15      | f4          | PL   | 3/8x11/2    | 1 8                 |         |     |                      |

NOTE:  
FOR STANDARD DETAILS SEE SHEET M1.

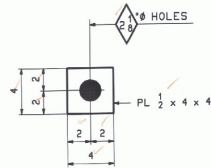
RECEIVED  
 COPY: SAM, MURPHY, TX  
 MAY 12 2009  
 BY: APV  
 DATE: 5-12-09

|                                                                                                                                                             |  |                         |        |         |             |       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------|--------|---------|-------------|-------|
| REV. DATE                                                                                                                                                   |  | REMARKS                 | DWN    | CHK     | APVL        | SHOP  |
| MATERIAL:                                                                                                                                                   |  | SURFACE PREP. & FINISH: | HOLES: |         | SHOP BOLTS: |       |
| M270-50W                                                                                                                                                    |  | SEE GNI                 | 5/16 Ø |         | NONE        |       |
| DESCRIPTION: CROSSFRAMES                                                                                                                                    |  |                         |        |         |             |       |
| CASCO BAY STEEL STRUCTURES, INC.<br>75 SPRING HILL ROAD SACO, MAINE 04072<br>PHONE (207) 282-7360 FAX. (207) 282-1179                                       |  |                         |        |         |             |       |
| STRUCTURE: TOWN HIGHWAY #2 OVER WILLOUGHBY RIVER<br>BRIDGE NO. BR 8<br>TOWN OF BROWNINGTON<br>COUNTY OF ORLEANS, VERMONT<br>CONTRACTOR: JUSTIN CONSTRUCTION |  |                         |        | DRWN:   | LWD         | DATE: |
|                                                                                                                                                             |  |                         |        | CHKD:   | PCP         | DATE: |
| LOCATION: Town of Brownington                                                                                                                               |  |                         |        | JOB NO. | 4           |       |
| PROJ NO. BRO 1448 (28)                                                                                                                                      |  |                         |        | 396     | REV. 4      |       |
| CUSTOMER: VERMONT ROT                                                                                                                                       |  |                         |        |         | REV. 4      |       |

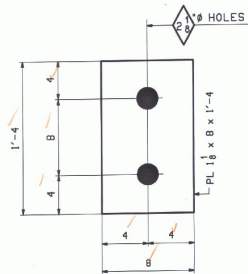


17 ~ ANCHOR BOLTS - 5AB1

1 - EXTRA FOR TESTING  
NO NUTS OR WASHERS REQ'D



32 - PLATE WASHERS ~ b5



8 16 - SOLE PLATE ~ 5SP1  
(LEVELING PLATE)

| ABM INFO |      | SHOP |     | BILL OF MATERIAL |              |        |                      | JOB NO. |                   | DRAWING NO. |  | REV. |
|----------|------|------|-----|------------------|--------------|--------|----------------------|---------|-------------------|-------------|--|------|
| PRICE    | LINE | MARK | QTY | MARK             | MATERIAL     | LENGTH | REMARKS              | MT      | 5                 |             |  |      |
|          |      |      |     |                  |              | FT     |                      |         | PROCUREMENT NOTES |             |  |      |
|          |      |      |     |                  | ANCHOR BOLTS |        |                      |         |                   |             |  |      |
| 3        | F    |      | 17  | 5AB1             | 2 # ROD      | 3 0    | CLASS 8.8 1/2" THRD  |         |                   |             |  |      |
| 3        | C    |      | 32  | a5               | PL 1/2 x 4   | 0 4    | PL WASH              |         |                   |             |  |      |
| 3        | G    |      | 16  |                  | 2 # HNN      |        | GR. D13              |         |                   |             |  |      |
| 3        | H    |      | 32  |                  | 2 # HNN      |        | GR. D13 (DOUBLE HWY) |         |                   |             |  |      |
|          |      |      |     |                  | SOLE PLATE   |        |                      |         |                   |             |  |      |
| 3        | B    |      | 16  | 5SP1             | PL 1 1/8 x 8 | 1 4    | LEVELING PLATE       |         |                   |             |  |      |

RECEIVED  
 CHECKED BY: *AM* DATE BY: *TKL*  
 MAY 12 2009  
 REQUESTED BY: *RKL* APPROVED BY: *as not a*  
 DATE: *5-20-09*

| REV.                                                                                                                                                        | DATE | REMARKS                | DNW    | CHK           | RPVL           | SHOP        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------|--------|---------------|----------------|-------------|
| 0                                                                                                                                                           |      |                        |        |               |                | APR 22 2009 |
| MATERIAL:                                                                                                                                                   |      | SURFACE PREP. & PRINT: | HOLES: |               | SHOP BOLTS:    |             |
| M270-50W                                                                                                                                                    |      | SEE GNI                | NOTED  |               | NONE           |             |
| DESCRIPTION: ANCHOR BOLT DETAILS                                                                                                                            |      |                        |        |               |                |             |
| CASCO BAY STEEL STRUCTURES, INC.<br>75 SPRING HILL ROAD SACO, MAINE 04072<br>PHONE (207) 282-7360 FAX. (207) 282-1179                                       |      |                        |        |               |                |             |
| STRUCTURE: TOWN HIGHWAY #2 OVER HILLOUGHBY RIVER<br>BRIDGE NO. BR 8<br>TOWN OF BROWNINGTON<br>COUNTY OF ORLEANS, VERMONT<br>CONTRACTOR: RUSTIN CONSTRUCTION |      |                        |        | DRAWN:<br>LWD | DATE:<br>03/11 |             |
| LOCATION: Town of Brownington                                                                                                                               |      |                        |        | CHKD:<br>PCP  | DATE:<br>04/16 |             |
| PROJ NO. BRO 1449 (28)                                                                                                                                      |      |                        |        | JOB NO. 395   | DWG NO. 5      |             |
| CUSTOMER: VERMONT ROT                                                                                                                                       |      |                        |        |               | REV. $\Delta$  |             |