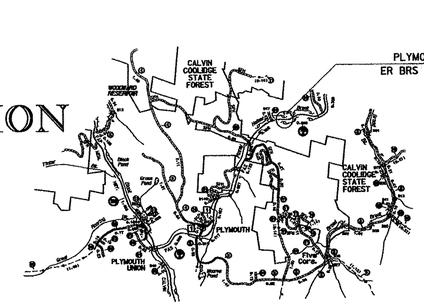
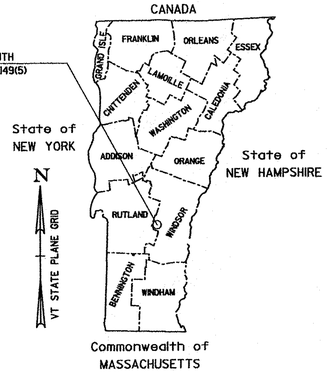
SEE SHEET 2 FOR INDEX OF SHEETS AND LIST OF STANDARDS

STATE OF VERMONT
AGENCY OF TRANSPORTATION



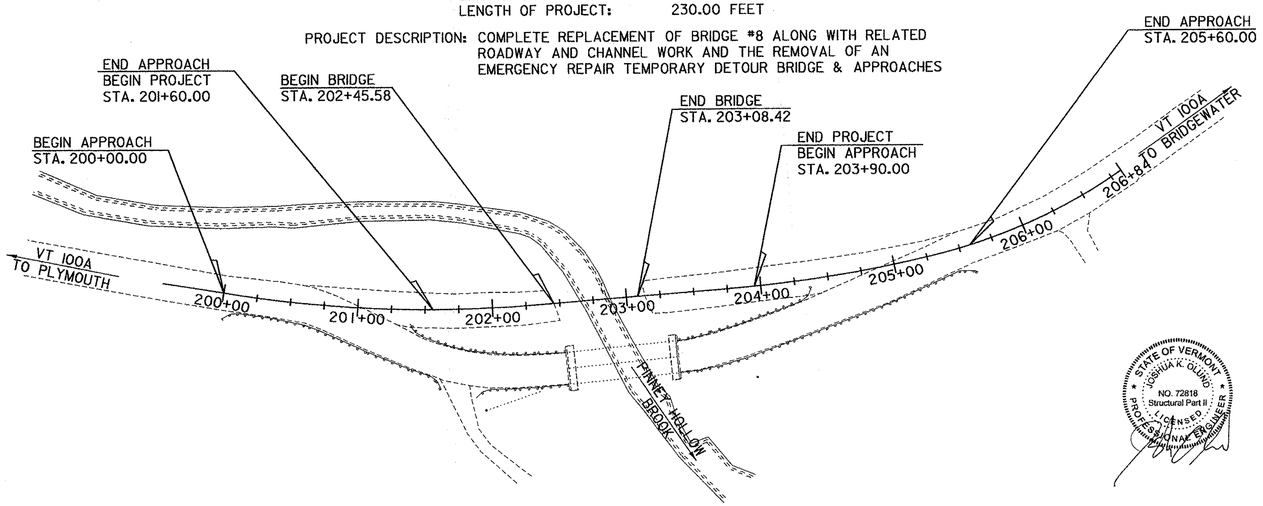


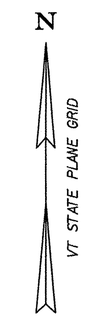
PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF PLYMOUTH
COUNTY OF WINDSOR
VT 100A (MAJOR COLLECTOR)
BRIDGE NO. 8

PROJECT LOCATION: ON VT 100A APPROXIMATELY ONE MILE SOUTH OF THE BRIDGEWATER TOWN LINE IN THE TOWN OF PLYMOUTH

LENGTH OF STRUCTURE:	62.84 FEET
LENGTH OF ROADWAY:	167.16 FEET
LENGTH OF PROJECT:	230.00 FEET

PROJECT DESCRIPTION: COMPLETE REPLACEMENT OF BRIDGE #8 ALONG WITH RELATED ROADWAY AND CHANNEL WORK AND THE REMOVAL OF AN EMERGENCY REPAIR TEMPORARY DETOUR BRIDGE & APPROACHES





SCALE 1" = 50'-0"
50 0 50

RECORD PLANS

CONTRACTOR: COLD RIVER BRIDGES, LLC- KEENE, NH

RESIDENT ENGINEER: TOM CHASE

CONSTRUCTION BEGAN: APRIL 30, 2013

CONSTRUCTION COMPLETE: OCTOBER 3, 2013

RECORD PLANS BY: TOM CHASE & CRAIG PIERCE

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

BY Thomas A. Chase RESIDENT ENGINEER

DATE 8/4/15

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.

QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

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

SURVEYED BY : Vermont Survey & Engineering, Inc.

SURVEYED DATE : 12/2011

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83

STATE OF VERMONT
JOSHUA K. OLUM
NO. 72818
Structural Part II
LICENSED
PROFESSIONAL ENGINEER

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

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

TYLININTERNATIONAL

DIRECTOR OF PROGRAM DEVELOPMENT

APPROVED Richard Peterson DATE 7/25/12

PROJECT MANAGER : ROB YOUNG

PROJECT NAME : PLYMOUTH

PROJECT NUMBER : ER BRS 0149 (5)

SHEET 1 OF 46 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 12.01.01c

LRFD

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7	BRIDGE QUANTITY SHEET
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16	BORING INFORMATION & LAYOUT SHEET
17	BORING LOGS
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19	FRAMING PLAN
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35 - 36	EPSC CONSTRUCTION CONDITION LAYOUTS
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STRUCTURES DETAILS SHEETS

SD-501.00	CONCRETE DETAILS AND NOTES	05-07-2010
SD-502.00	CONCRETE DETAILS AND NOTES	06-04-2010
SD-516.10	BRIDGE JOINT, ASPHALTIC PLUG	05-07-2010
SD-601.00	STRUCTURAL STEEL, DETAILS & NOTES	06-04-2010

STANDARDS LIST

C-10	CURBING	02-11-2008
E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-101	CONSTRUCTION SIGN DETAILS	05-30-2003
E-102	CONSTRUCTION SIGN DETAILS	06-30-2003
E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004
E-106	TRAFFIC CONTROL- MISCELLANEOUS DETAILS	03-01-2004
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06-30-2003
E-107A	BREAKAWAY BARRICADE DETAILS	06-08-2009
E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	06-08-2009
E-108A	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS FOR PAVING	06-08-2009
E-110	MAJOR MAINTENANCE OPERATION LANE CLOSURE	08-08-1995
E-121	STANDARD SIGN PLACEMENT CONVENTIONAL ROAD	08-08-1995
E-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-151	WARNING SIGN DETAILS	05-01-2004
E-155	WARNING SIGN DETAILS	05-01-2004
E-164	SQUARE STEEL SIGN POST	06-08-2009
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000
G-19	GENERIC PLANS FOR GUARDRAIL END TERMINALS	11-15-2002
S-363	THRIE BEAM TO STANDARD BEAM TRANSITION SECTION	04-23-2012
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	04-23-2012

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2014	680	95	58	7	25
2034	720	100	58	10.2	35

20 year ESAL for flexible pavement from 2014 to 2034 : 125000

40 year ESAL for flexible pavement from 2014 to 2054 : 287000

Design Speed : 50 mph

AS BUILT "REBAR" DETAILS

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

TEMPORARY BRIDGE PROFILE ALONG TEMP CL

BOTTOM OF BEAMS ELEV = 1044.60 FT

73.50 FT (MIN) — 6.00 FT (MIN) — OPENING 441.00 FT² (MIN)

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

DATE:

DRAINAGE AREA: 8.6 sq. mi.
CHARACTER OF TERRAIN: Rolling, Mountainous, Narrow floodplain
STREAM CHARACTERISTICS: Meandering; Bend at bridge
NATURE OF STREAMBED: Cobbles, Gravel

Q 2.33 =	500 cfs	Q50 =	1550 cfs
Q 10 =	1000 cfs	Q 100 =	1800 cfs
Q 25 =	1300 cfs	Q 500 =	2500 cfs

DATE OF FLOOD OF RECORD: August 28, 2011
ESTIMATED DISCHARGE: 1800 cfs
WATER SURFACE ELEVATION: Unknown
NATURAL STREAM VELOCITY: 6.1 fps
ICE CONDITIONS: High Potential
DEBRIS: High Potential
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? No
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE N/A

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single Span, Vertical Abutments
YEAR BUILT: 1947
CLEAR SPAN (NORMAL TO STREAM): 27
VERTICAL CLEARANCE ABOVE STREAMBED: 6.5 ft
WATERWAY OF FULL OPENING: Unknown
DISPOSITION OF STRUCTURE: Unstable/Compromised; Removed
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Unknown

WATER SURFACE ELEVATIONS AT:

Q 2.33 =	1039.9 ft	VELOCITY =	8.5 fps
Q 10 =	1041.2 ft	"	10.7 fps
Q 25 =	1041.9 ft	"	11.6 fps
Q50 =	1042.4 ft	"	12.3 fps
Q 100 =	1042.9 ft	"	12.9 fps

LONG TERM STREAMBED CHANGES: Abutment Scour, Bank Erosion

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

UPSTREAM STRUCTURE

TOWN: Plymouth — DISTANCE: 2100 ft
HIGHWAY #: T.H. 54 — STRUCTURE #: 47
CLEAR SPAN: 28 ft — CLEAR HEIGHT: N/A
YEAR BUILT: 1974 — FULL WATERWAY: N/A
STRUCTURE TYPE: Prestressed Concrete Slab

DOWNSTREAM STRUCTURE

TOWN: Plymouth — DISTANCE: 1100 ft
HIGHWAY #: VT 100A — STRUCTURE #: 9
CLEAR SPAN: 29 ft — CLEAR HEIGHT: N/A
YEAR BUILT: 1984 — FULL WATERWAY: N/A
STRUCTURE TYPE: Concrete Slab

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
INVENTORY	2.25	1.20					
POSTING							
OPERATING	3.09	1.65	2.40	1.47	1.90	1.38	1.95
COMMENTS:	Service III not considered for Legal Loads						

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY — Rndr: **400.00 KIP**
2. PILE TEST RESISTANCE FACTOR — ϕ: **0.65**
3. MAXIMUM PILE TIP ELEVATION — **See Below**
4. PILES SHALL BE DRIVEN A MINIMUM OF 24 FEET BELOW THE BOTTOM OF ABUTMENT ELEVATIONS.

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span prestressed precast beam supported by integral abutments

CLEAR SPAN (NORMAL TO STREAM): 51.6 ft
VERTICAL CLEARANCE ABOVE STREAMBED: 7.5 ft
WATERWAY OF FULL OPENING: 270 sq ft

WATER SURFACE ELEVATIONS AT:

Q 2.33 =	1040.3 ft	VELOCITY =	11.4 fps
Q 10 =	1041.0 ft	"	14.6 fps
Q 25 =	1041.4 ft	"	15.3 fps
Q50 =	1041.8 ft	"	15.8 fps
Q 100 =	1042.1 ft	"	16.2 fps

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

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1044.2 ft
VERTICAL CLEARANCE: Q50 = 1.9 ft Avg; 1.3 ft Min.

SCOUR: Q100 = 6.6 ft (Abut. No. 1); 16.8 ft (Abut. No. 2) - No Contraction Scour
Q500 = 8.6 ft (Abut. No. 1); 18.8 ft (Abut. No. 2) - No Contraction Scour
REQUIRED CHANNEL PROTECTION: Stone Fill Class IV at Abutments

PERMIT INFORMATION

AVERAGE DAILY FLOW:	Unknown	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	10 cfs	EL. 0.4 ft
ORDINARY HIGH WATER:	250 cfs	EL. 2.4 ft

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

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

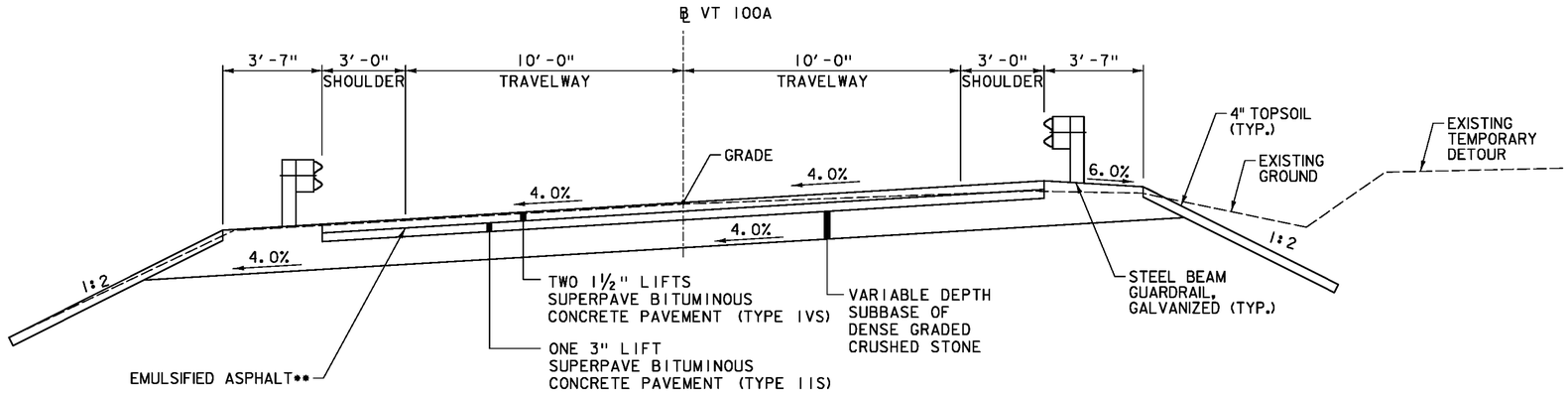
DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	0.0 INCH
3. DESIGN SPAN	L:	60.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	1.38 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	8.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	6.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	---
9. SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)	f'_c:	7.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS SCC	f'_c:	4.0 KSI
11. CONCRETE, CLASS C	f'_c:	---
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	---
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	545.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 12X74
22. EST. PILE LENGTHS (TWO SUBSTRUCTURES) (ABUTMENT 1 = 59 AND ABUTMENT 2 = 38) FT	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	0.50
24. LATERAL PILE DEFLECTION	Δ:	0.26 INCH
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	p_g:	---
27. SEISMIC DATA PGA: 8 %g	S_s:	16 %g
	S_1:	5 %g

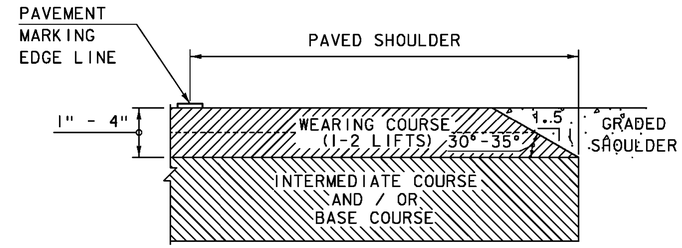
PROJECT NAME: **PLYMOUTH**
PROJECT NUMBER: **ER BRS 0149(5)**

FILE NAME: **z11c330pi.dgn**
PROJECT LEADER: **JOSH OLUND**
DESIGNED BY: **DANIEL MYERS**
PRELIMINARY INFORMATION SHEET

PLOT DATE: 9/19/2012
DRAWN BY: **SCOTT MORGAN**
CHECKED BY: **JOSH OLUND**
SHEET 2 OF 46



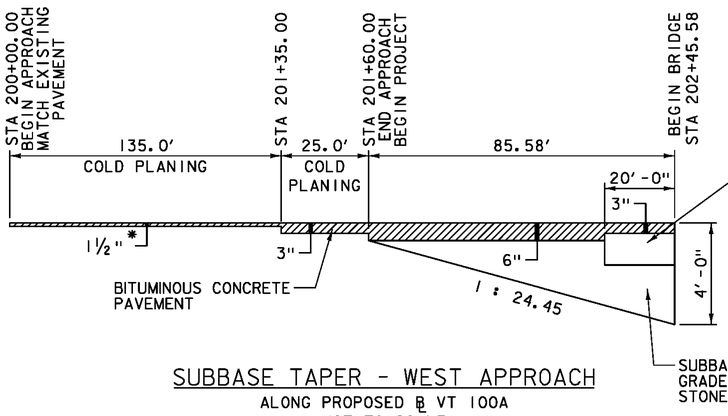
FULL DEPTH WITH GUARDRAIL
TYPICAL ROADWAY SECTION - VT 100A
NOT TO SCALE



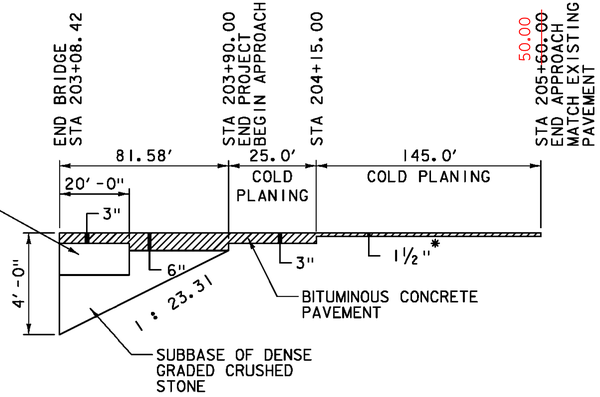
SAFETY EDGE DETAIL
NOT TO SCALE

NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTORS CHOICE.

** EMULSIFIED ASPHALT SHALL BE APPLIED TO THE COLD PLANED BITUMINOUS CONCRETE PAVEMENT SURFACE AT THE RATE OF 0.025 GAL/S.Y. OR AS DIRECTED BY THE ENGINEER. EMULSIFIED ASPHALT SHALL ALSO BE APPLIED BETWEEN ALL LIFTS OF PAVEMENT. THE COST SHALL BE PAID UNDER ITEM 404.65, "EMULSIFIED ASPHALT".

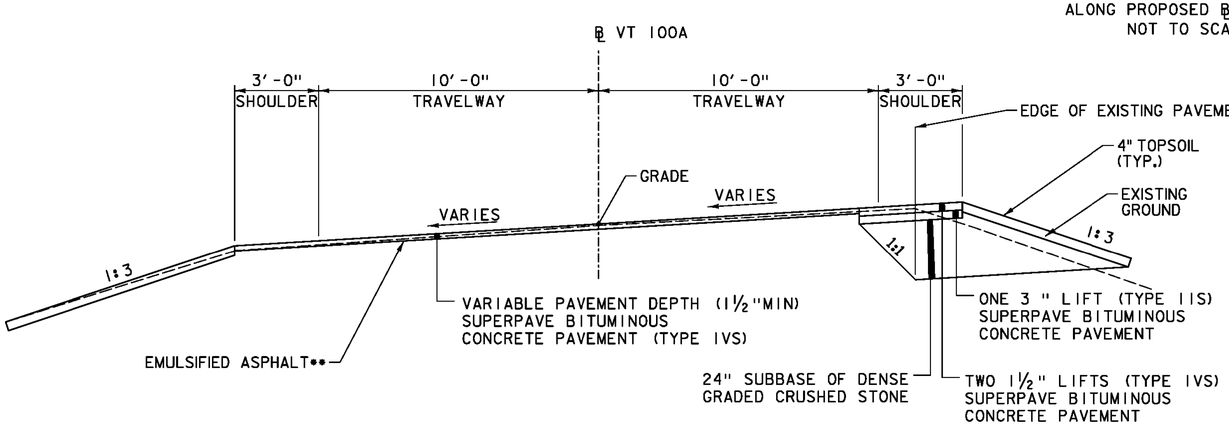


SUBBASE TAPER - WEST APPROACH
ALONG PROPOSED ℄ VT 100A
NOT TO SCALE



SUBBASE TAPER - EAST APPROACH
ALONG PROPOSED ℄ VT 100A
NOT TO SCALE

* ALL EXISTING TEMPORARY DETOUR PAVEMENT SHALL BE REMOVED AND ORIGINAL PAVEMENT COLD PLANED TO A MINIMUM OF 1½" BELOW PROPOSED ELEVATIONS. SHIM AS NEEDED TO RESTORE PAVEMENT TO PROPOSED ELEVATIONS.



MILL AND OVERLAY
TYPICAL ROADWAY SECTION - VT 100A
NOT TO SCALE

MATERIAL TOLERANCES
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

SHOULDER WIDENING STATION RANGE

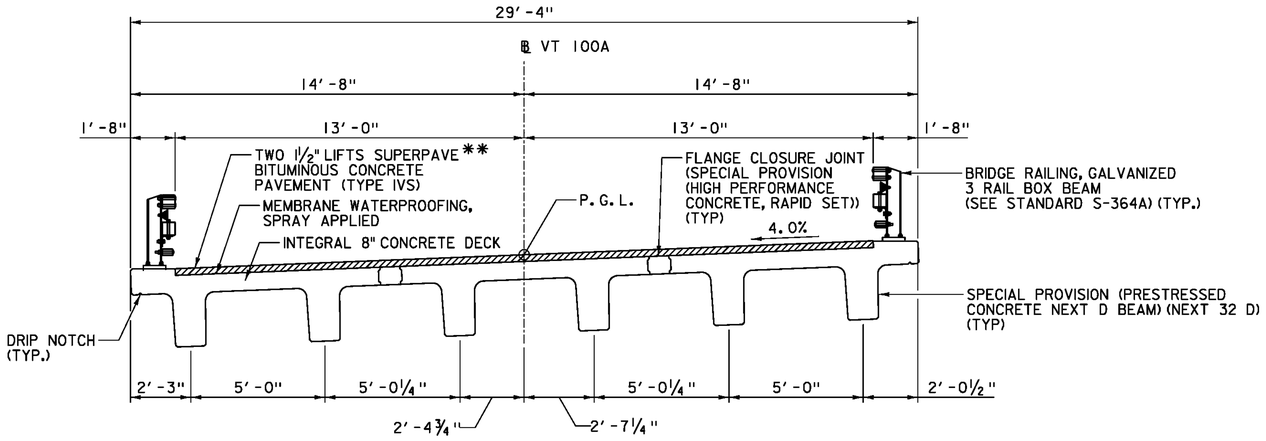
STA 203+57 RT TO STA 205+26.85 RT
STA 204+74.80 LT TO STA. 205+60 LT

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330typ_road_01.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: A. GREENLAW
TYPICAL ROADWAY SECTIONS

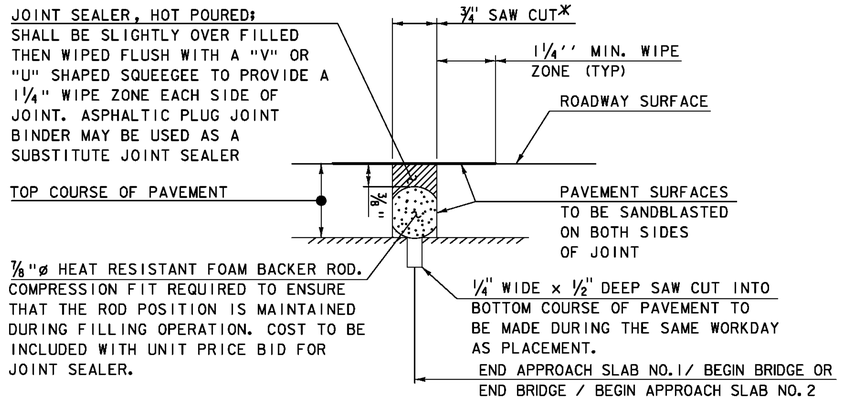
PLOT DATE: 9/20/2012
DRAWN BY: S. MORGAN
CHECKED BY: J. HOWE
SHEET 3 OF 46



BRIDGE TYPICAL SECTION

SCALE: ⅜" = 1'-0"

** COMPACTED PAVEMENT SHALL BE ⅛" HIGHER THAN ADJACENT CONCRETE CURB ON EXTERIOR BEAMS

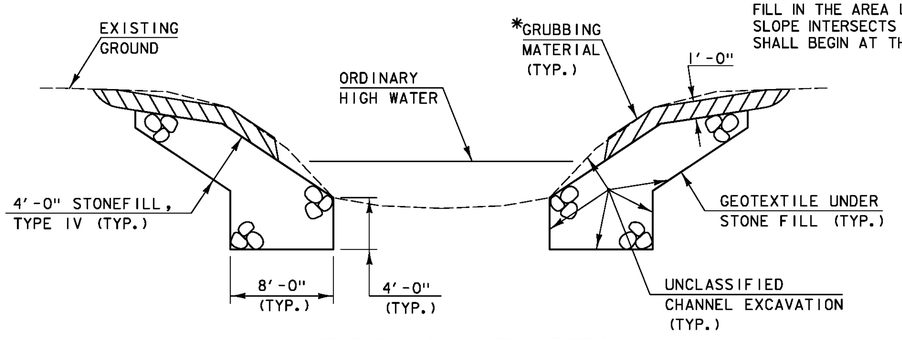


ITEM 524.11, "JOINT SEALER, HOT POURED"

SAWED PAVEMENT JOINT DETAIL

(NOT TO SCALE)

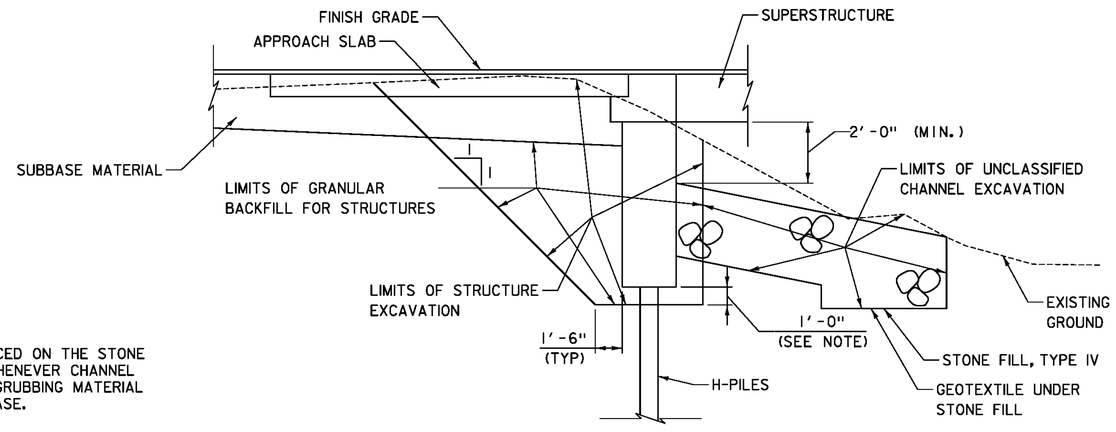
* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING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



* 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 CHANNEL SECTION

(NOT TO SCALE)



EARTHWORK TYPICAL SECTION

NOT TO SCALE

NOTES:

1. 1 FT UNDERCUT AS DETERMINED NECESSARY BY RESIDENT ENGINEER.

2. ACTUAL LIMITS OF STRUCTURE EXCAVATION TO BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION." EXCAVATION BY THE CONTRACTOR OUTSIDE THESE LIMITS WILL BE AT THE EXPENSE OF THE CONTRACTOR.

PROJECT NAME: PLYMOUTH

PROJECT NUMBER: ER BRS 0149(5)

TYLIN INTERNATIONAL

FILE NAME: z11c330bdr_typical_01.dgn | PLOT DATE: 9/20/2012
PROJECT LEADER: J. OLUND | DRAWN BY: S. MORGAN
DESIGNED BY: D. MYERS | CHECKED BY: S. KELLER
BRIDGE, EARTHWORK, & CHANNEL SECTIONS | SHEET 4 OF 46

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES							TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				NOTE:
424					424		CY	COMMON EXCAVATION	203.15				
			550		550		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
			580		580		CY	STRUCTURE EXCAVATION	204.25				
			210		210		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
960					960		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
375					375		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
4.5			0.7		5.2		CWT	EMULSIFIED ASPHALT	404.65				
1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
			1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
			390		390		LF	STEEL PILING, HP 12 X 74	505.16				
			2		2		EACH	DYNAMIC PILE LOADING TEST	505.45				
			2700		2700		LB	REINFORCING STEEL, LEVEL I	507.11				
			15		15		GAL	WATER REPELLENT, SILANE	514.10				
			56		56		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
			185		185		SY	SHEET MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10				
			56		56		LF	JOINT SEALER, HOT POURED	524.11				
			108		108		LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335				
			1		1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10				
			12		12		EACH	BEARING DEVICE ASSEMBLY, PLAIN ELASTOMERIC PAD	531.16				
			1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)	540.10				
			1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)	540.10				
			1		1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)	540.10				
			1		1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 2)	540.10				
		20			20		HR	POWER GRADER RENTAL	608.15				
		20			20		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
		20			20		HR	TRUCK RENTAL	608.37				
		20			20		HR	LOADER RENTAL, TYPE I	608.40				
70					70		MGAL	DUST CONTROL WITH WATER	609.10				
			530		530		CY	STONE FILL, TYPE IV	613.13				
48					48		LF	PRECAST REINFORCED CONCRETE CURB, TYPE B	616.26				
625					625		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20				
1					1		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51				
5					5		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
4					4		EACH	GUARDRAIL APPROACH SECTION TO CONCRETE BRIDGE RAILING, TL-3	621.747				
80					80		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
500					500		HR	FLAGGERS	630.15				
				1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
				1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				

REVISION	DESCRIPTION	DATE
ADDENDUM #1	CHANGE REINFORCING STEEL TO LEVEL I	11/05/2012

TY·LIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330.xls
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
QUANTITY SHEET #1

PLOT DATE: 11/05/2012
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 5 OF 46

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES							TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
				1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
				3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
	520				520		HR	EMPLOYEE TRAINEESHIP	634.10				
1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
1					1		LS	TRAFFIC CONTROL	641.10				
1120					1120		LF	4 INCH WHITE LINE	646.20				
1120					1120		LF	4 INCH YELLOW LINE	646.21				
			395		395		SY	GEOTEXTILE UNDER STONE FILL	649.31				
		100			100		SY	GEOTEXTILE FOR SILT FENCE	649.51				
		50			50		LB	SEED	651.15				
		2			2		LB	SEED, WINTER RYE	651.17				
		246			246		LB	FERTILIZER	651.18				
		1			1		TON	AGRICULTURAL LIMESTONE	651.20				
		1			1		TON	HAY MULCH	651.25				
		135			135		CY	TOPSOIL	651.35				
230					230		SY	GRUBBING MATERIAL	651.40				
		1			1		LS	EPSC PLAN	652.10				
		160			160		HR	MONITORING EPSC PLAN	652.20				
		1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
		820			820		SY	TEMPORARY EROSION MATTING	653.20				
		5			5		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
		1			1		EACH	INLET PROTECTION DEVICE, TYPE I	653.40				
		1230			1230		LF	PROJECT DEMARCATION FENCE	653.55				
8.5					8.5		SF	TRAFFIC SIGNS, TYPE A	675.20				
18					18		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
			35		35		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608				
			4		4		EACH	SPECIAL PROVISION (BRIDGE RAILING CONCRETE TRANSITION BARRIER)	900.620				
			186		186		LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS) (NEXT 32 D)	900.640				
			1		1		LS	SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES)	900.645				
1					1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650				
1					1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650				
257			60		317		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

TY LIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330.xls
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
QUANTITY SHEET #2

PLOT DATE: 09/20/2012
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 6 OF 46

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET

SUMMARY OF BRIDGE QUANTITIES

APPROACH SLABS	ABUTMENT #1	ABUTMENT #2	SUPERSTRUCTURE	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER
	250	300		550	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27
20	275	285		580	CY	STRUCTURE EXCAVATION	204.25
	100	110		210	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30
0.3			0.4	0.7	CWT	EMULSIFIED ASPHALT	404.65
	0.5	0.5		1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10
	240	150		390	LF	STEEL PILING, HP 12 X 74	505.16
	1	1		2	EACH	DYNAMIC PILE LOADING TEST	505.45
	1350	1350		2700	LB	REINFORCING STEEL, LEVEL I	507.11
	5	5	5	15	GAL	WATER REPELLENT, SILANE	514.10
56				56	LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10
			185	185	SY	SHEET MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10
			56	56	LF	JOINT SEALER, HOT POURED	524.11
			108	108	LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335
			1	1	LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10
			12	12	EACH	BEARING DEVICE ASSEMBLY, PLAIN ELASTOMERIC PAD	531.16
	1			1	LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)	540.10
		1		1	LS	PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)	540.10
1				1	LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)	540.10
1				1	LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 2)	540.10
	230	300		530	CY	STONE FILL, TYPE IV	613.13
	170	225		395	SY	GEOTEXTILE UNDER STONE FILL	649.31
	17.5	17.5		35	CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608
			4	4	EACH	SPECIAL PROVISION (BRIDGE RAILING CONCRETE TRANSITION BARRIER)	900.620
			186	186	LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS) (NEXT 32 D)	900.640
			1	1	LS	SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES)	900.645
24			36	60	TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

REVISION	DESCRIPTION	DATE
ADDENDUM #1	CHANGE REINFORCING STEEL TO LEVEL I	11/05/2012

TY LIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330.xls
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
BRIDGE QUANTITY SHEET

PLOT DATE: 11/05/2012
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 7 OF 46

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, WITH ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION WITH INTERIMS THROUGH 2011, AND THE PCI NORTHEAST NEXT D BEAM STANDARDS DATED JANUARY 2010.

2. ALL PRECAST CONCRETE ELEMENTS TO BE FABRICATED TO THE SPECIFIED DIMENSIONS WITHIN THE TOLERANCES DICTATED IN THE PRECAST/PRESTRESSED CONCRETE INSTITUTE TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION, MNL 135-00, AND ITS LATEST REVISIONS.

3. THE STONE FILL, TYPE IV UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE SUPERSTRUCTURE IS SET.

4. A PORTION OF THE ORIGINAL EASTERN BRIDGE ABUTMENT FOUNDATION IS IN STILL PLACE. THE REMOVAL OF THIS NOTED REMNANT AND THE REMOVAL OF OTHER POTENTIAL FOUNDATION REMNANTS SHALL BE INCIDENTAL TO ITEM 203.27, "UNCLASSIFIED CHANNEL EXCAVATION."

5. NO ADJUSTMENTS TO THE BITUMINOUS WEARING SURFACE ON THE BRIDGE SHALL BE MADE TO ACCOUNT FOR THE DIFFERENCE BETWEEN BEAM CAMBER AND THE THEORETICAL ROADWAY PROFILE. THE WEARING SURFACE ON THE BRIDGE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF ADJACENT BEAMS.

TRAFFIC AND DETOUR

6. THE EXISTING TEMPORARY DETOUR ROADWAY AND BRIDGE SHALL BE USED TO MAINTAIN TRAFFIC DURING CONSTRUCTION. TEMPORARY SIGNING IS CURRENTLY IN PLACE FOR THE TEMPORARY DETOUR. CONTRACTOR SHALL SUPPLEMENT EXISTING TEMPORARY APPROACH SIGNING AS NECESSARY PER THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF EXISTING TEMPORARY BRIDGE AND APPROACHES AND BOTH EXISTING AND NEW TEMPORARY SIGNS DURING CONSTRUCTION. TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 641 OF THE STANDARD SPECIFICATION, THE MUTCD, ITS REVISIONS AND AMENDMENTS, ANY PROVISIONS IN THE PLANS AND/OR PROPOSAL OF THIS PROJECT, AND STATE OF VERMONT STANDARDS. WHERE CONFLICTS EXIST BETWEEN THE STANDARDS AND THE MUTCD, THE MUTCD SHALL GOVERN.

7. A TEMPORARY BRIDGE IS IN PLACE DOWNSTREAM OF THE EXISTING, FAILED STRUCTURE. AFTER CONSTRUCTION OF THE NEW BRIDGE AND APPROACH ROADWAY IS COMPLETED, THE EXISTING TEMPORARY BRIDGE AND APPROACHES SHALL BE REMOVED. THE ESTIMATED SOIL VOLUME TO BE REMOVED WITHIN THE TEMPORARY DETOUR APPROACHES IS NOTED ON THE EARTHWORKS SHEET AND IS BOUND BY THE EXISTING DETOUR ROAD SURFACE, THE PROPOSED SIDE SLOPE SURFACE, AND THE APPROXIMATED PRE-DETOUR GROUND SURFACE SHOWN IN THE CROSS SECTIONS. CONTRACTOR SHALL RE-GRADE THE AREA UNDER THE TEMPORARY ROADWAY TO REPLICATE CONDITIONS PRIOR TO ITS CONSTRUCTION TO THE EXTENT POSSIBLE, INCLUDING REESTABLISHMENT OF THE FIELD DRIVE. PAYMENT FOR REMOVAL OF TEMPORARY BRIDGE AND APPROACHES (INCLUDING BUT NOT LIMITED TO EMBANKMENT, PAVEMENT, SUBBASE, GUARDRAIL, AND BRIDGE) AND REESTABLISHMENT OF THE PRE-EXISTING CONDITIONS SHALL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES)".

8. THE CONTRACTOR SHALL SUBMIT SITE SPECIFIC TRAFFIC CONTROL PLANS SHOWING THE PROPOSED TRAFFIC CONTROL MEASURES THAT ARE TO BE IMPLEMENTED IN ADDITION TO THE EXISTING TEMPORARY MEASURES TO THE ENGINEER ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE.

9. INSTALL SIGNS AND ANY NECESSARY PAVEMENT MARKINGS PRIOR TO OPENING ANY PORTION OF THE PROJECT TO FINAL AND/OR DETOUR TRAFFIC. CARE MUST BE TAKEN TO ENSURE THAT FINAL SIGNS AND PAVEMENT MARKINGS DO NOT CONFLICT WITH PROPOSED TRAFFIC PATTERNS IN ANY ONE STAGE. FINAL SIGNS THAT ARE IN PLACE BUT ARE NOT BEING USED SHALL BE COVERED.

10. THE COVERING AND REMOVAL OF EXISTING SIGNS SHALL BE AS ORDERED BY THE RESIDENT ENGINEER. PAYMENT FOR COVERING SIGNS WILL BE INCLUDED IN THE PRICE BID FOR ITEM 641.10, "TRAFFIC CONTROL". PAYMENT FOR REMOVAL OF EXISTING SIGNS RELATED TO THE EXISTING TEMPORARY DETOUR WILL ALSO BE INCLUDED IN THE PRICE BID FOR ITEM 641.10, "TRAFFIC CONTROL".

11. CONSTRUCTION SIGNS WITH YIELDING POSTS AND ALL OTHER TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE INCLUDED IN ITEM 641.10, "TRAFFIC CONTROL". TEMPORARY STRIPING WHICH MAY BE REQUIRED WHEN CONSTRUCTING THE INTERFACE BETWEEN THE TEMPORARY DETOUR AND FINAL ALIGNMENT SHALL BE INCLUDED IN ITEM 641.10, "TRAFFIC CONTROL".

12. THE CONTRACTOR SHALL SCHEDULE OPERATIONS IN A MANNER THAT LIMITS THE AMOUNT OF TIME THAT NORMAL TRAFFIC FLOWS ARE DISRUPTED.

13. SIGNS SHALL ONLY BE VISIBLE AT THE TIMES WHEN THE MESSAGE IS PERTINENT, I.E. A "FLAGGER AHEAD" SIGN SHALL ONLY BE VISIBLE TO MOTORISTS WHEN THE FLAGGER IS ACTUALLY DIRECTING TRAFFIC.

14. CONTRACTOR SHALL ASSUME LIABILITY OF EXISTING TEMPORARY BRIDGE AND APPROACHES AND EXISTING DETOUR SIGNS UPON CONTRACT AWARD AND MAINTAIN THESE ITEMS IN ACCORDANCE WITH SECTION 527.

15. CONTRACTOR SHALL MAINTAIN DRAINAGE IN COMPLIANCE WITH EPSC STANDARD PRACTICES.

CONCRETE

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

17. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".

18. ALL REINFORCING STEEL SHALL BE LEVEL I, EPOXY COATED, IN ACCORDANCE WITH SECTION 507 OF THE GENERAL SPECIAL PROVISIONS. MINIMUM CLEAR COVER SHALL BE AS FOLLOWS:

ALONG BACK FACES OF WALLS AGAINST EARTH	2.0 INCHES
ALONG TOP SURFACE OF DECK SLAB	2.5 INCHES
ALONG BOTTOM SURFACE OF DECK SLAB	1.5 INCHES
ELSEWHERE, UNLESS NOTED OTHERWISE	3.0 INCHES

PILE FOUNDATIONS

19. THE PILES SHALL BE HP 12 X 74.

20. PILE SHOES ARE BE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(F) OF THE STANDARD SPECIFICATIONS.

21. THE TOPS OF PILES AFTER DRIVING SHALL NOT VARY FROM THE PLAN POSITION BY MORE THAN 3 INCHES. THE CONTRACTOR SHALL DEMONSTRATE TO THE SATISFACTION OF THE RESIDENT ENGINEER HOW THE TOLERANCES WILL BE MET REGARDLESS OF INSTALLATION METHOD AND BEFORE COMMENCING PILE INSTALLATION.

22. THE PILES SHALL BE DRIVEN TO A NOMINAL RESISTANCE OF 400 KIPS AS DETERMINED BY THE RESULTS OF DYNAMIC TESTING, AS INTERPRETED BY THE RESIDENT ENGINEER.

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

24. TO ENSURE THAT THE NOMINAL RESISTANCE HAS BEEN ATTAINED AND TO PREVENT THE OVERSTRESSING OF THE PILES DURING DRIVING OPERATIONS, DYNAMIC TESTING SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 505.04(d)-2 OF THE STANDARD SPECIFICATIONS. ONE PILE TEST SHALL BE CONDUCTED ON THE FIRST PILE DRIVEN AT EACH ABUTMENT, FOR A TOTAL OF 2 TESTS. MORE TESTS MAY BE REQUIRED BY THE RESIDENT ENGINEER.

PRECAST ABUTMENTS AND POST-TENSIONING

25. IF VERTICAL CONSTRUCTION JOINTS ARE USED BY THE CONTRACTOR TO FACILITATE SHIPMENT AND INSTALLATION OF THE ABUTMENTS, THEN THE SECTIONS SHALL BE KEYED, EPOXY GROUTED, AND MATCH CAST. A JOINT DETAIL SHALL BE SHOWN ON THE FABRICATION DRAWINGS.

26. POST-TENSIONING STRANDS AND CONDUIT SHALL ADHERE TO THE REQUIREMENTS OF SECTION 510 OF THE STANDARD SPECIFICATIONS.

27. CONDUIT SHALL BE GROUTED AFTER POST-TENSIONING. THE GROUT SHALL BE A NON-BLEEDING GROUT MEETING THE REQUIREMENTS OF ASTM C 1107 (GRADE C). GROUTING SHALL BE PERFORMED BY QUALIFIED PERSONNEL WITH PREVIOUS EXPERIENCE.

28. CONTRACTOR SHALL BE RESPONSIBLE FOR POST-TENSIONING ELEMENTS IN THE ANCHORAGE ZONE, INCLUDING ADDITIONAL REINFORCEMENT WITHIN THE LOCAL ZONE (REGION IMMEDIATELY SURROUNDING THE POST-TENSIONING ANCHOR ASSEMBLY). DESIGN SHALL CONFORM TO AASHTO LRFD.

29. DESIGN VALUES
    A. PRECAST CONCRETE COMPRESSIVE STRENGTH: f`c = 5000 PSI.
    B. POST-TENSIONING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS; NUMBER OF STRANDS PER CONDUIT NOTED IN THE PLANS.
    C. APPARENT MODULUS OF ELASTICITY: 28,500 KSI.
    D. JACKING FORCE PER STRAND = 44 KIPS.

30. THE CONCRETE FOR ABUTMENT PILE CAVITIES SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".

31. THE CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01.

32. ALL COSTS ASSOCIATED WITH INSTALLING THE CORRUGATED STEEL PIPE, GALVANIZED ANCHOR HEADS AND TRUMPETS, CONDUIT, GROUT, AND POST-TENSIONING STRANDS SHALL BE INCIDENTAL TO ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 1)" AND/OR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT NO. 2)".

33. PROPOSED SEQUENCE OF CONSTRUCTION
    A. PREPARE AND GRADE FOUNDATION TO REQUIRED ELEVATION.
    B. DRIVE PILES.
    C. PLACE PRECAST ABUTMENTS, GROUT VERTICAL SHEAR KEYS, AND INSTALL TRANSVERSE STRANDS (IF MORE THAN 1 UNIT). USE A CALIBRATED JACK TO TENSION STRANDS TO 3 KIPS EACH TO REMOVE SAG.
    D. FILL PILE CAVITIES WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".
    E. STRESS POST-TENSIONING STRANDS USING A CALIBRATED JACK, OPERATED BY QUALIFIED PERSONNEL WHO HAVE PREVIOUS EXPERIENCE IN POST-TENSIONING.
    F. GROUT CONDUITS.

ALTERNATE CONSTRUCTION SEQUENCES MAY BE SUBMITTED TO THE VTRANS PROJECT MANAGER FOR APPROVAL.

NEXT D BEAMS

34. NEXT D BEAMS ARE A NONPROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT WWW.PCINE.ORG.

35. DESIGN VALUES
    A. CONCRETE COMPRESSIVE STRENGTH: f`c = 8000 PSI.
    B. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f`ci = 6000 PSI.
    C. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW RELAXATION, 7-WIRE STRANDS.
    D. APPARENT MODULUS OF ELASTICITY = 28,500 KSI.
    E. THE JACKING FORCE PER STRAND IS 44 KIPS.
    F. SERVICE LOADS

MEMBER MOMENT (MIDSPAN)	772	KIP-FT
SUPERIMPOSED DEAD LOAD MOMENT (MIDSPAN)	72	KIP-FT
LIVE LOAD AND IMPACT MOMENT (MIDSPAN)	1295	KIP-FT
DEAD LOAD REACTION	66	KIP
LIVE LOAD AND IMPACT REACTION	80	KIP
TOTAL REACTION	146	KIP
MIDSPAN CAMBER AT RELEASE	1.38	INCH
MIDSPAN CAMBER AT END OF CONSTRUCTION	2.21	INCH
LONG-TERM MIDSPAN CAMBER	2.47	INCH

36. FLANGE EDGES AND BEAM STEMS IN CONTACT WITH HPC RAPID SET CONCRETE SHALL BE SANDBLASTED PRIOR TO DELIVERY AND POWER WASHED WITH WATER PRIOR TO ERECTION OF THE BEAMS.

37. FILL FLANGE CLOSURE POURS WITH HPC RAPID SET CONCRETE IN ACCORDANCE WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)". CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 7000 PSI.

38. METHOD OF FORMING THE FLANGE CONNECTION SHALL BE DETERMINED BY THE CONTRACTOR. THE FORMS SHALL BE REMOVABLE AND ABLE TO ACCOMMODATE DIFFERENTIAL CAMBER. FORM SUPPORTS SHALL NOT PENETRATE THROUGH THE TOP OF THE POUR UNLESS APPROVED BY THE ENGINEER.

39. THE FABRICATOR MAY ALTER THE DESIGN DETAILED WITHIN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT AND MEET THE ABOVE CRITERIA.

40. PROPOSED SEQUENCE OF CONSTRUCTION
    A. LAY OUT WORKING LINES FOR THE ENTIRE BRIDGE WIDTH ALONG CENTERLINE OF BEARING AT EACH ABUTMENT MEASURED FROM A SINGLE WORK POINT.
    B. VERIFY BEAM SEAT ELEVATIONS AND TAKE CORRECTIVE ACTION IF NECESSARY.
    C. PLACE TEMPORARY BEARINGS.
    D. ERECT THE BEAMS ALONG WORKING LINES DETERMINED IN STEP A.
    E. CONSTRUCT FORMS FOR THE FLANGE CONNECTIONS AND BACKWALL/DIAPHRAGMS.
    F. PLACE HPC, RAPID SET AND CURE.
    G. BACKFILL AND PREPARE GRADE FOR APPROACH SLABS.

ALTERNATE CONSTRUCTION SEQUENCES MAY BE SUBMITTED TO THE VTRANS PROJECT MANAGER FOR APPROVAL.

ABUTMENT CLOSURE/END DIAPHRAGM

41. THE ABUTMENT CLOSURE POUR SHALL BE MADE WITH HPC RAPID SET CONCRETE IN ACCORDANCE WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)". CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 7000 PSI.

APPROACH SLABS

42. PRECAST CONCRETE COMPRESSIVE STRENGTH: f`c = 5000 PSI.

43. SLAB EDGES IN CONTACT WITH HPC RAPID SET CONCRETE SHALL BE SANDBLASTED PRIOR TO DELIVERY AND POWER WASHED WITH WATER PRIOR TO INSTALLATION.

44. FILL CLOSURE POURS WITH HPC RAPID SET CONCRETE IN ACCORDANCE WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)". CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 7000 PSI.

45. THE FABRICATOR MAY ALTER THE DESIGN DETAILED WITHIN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT AND MEET THE ABOVE CRITERIA.

REVISION	DESCRIPTION	DATE
ADDENDUM #1	CHANGE REINFORCING STEEL TO LEVEL I	11/05/2012

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330notes.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
PROJECT NOTES

PLOT DATE: 11/5/2012
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

EARTHWORKS

STATION	DIST	TOTAL EXCAVATION EARTH AND ROCK AREA	TOTAL EXCAVATION EARTH AND ROCK VOLUME	ROCK EXCAVATION AREA	ROCK EXCAVATION VOLUME	EMBANKMENT AREA	EMBANKMENT VOLUME	AREA	VOLUME
	FT.	S.F.	C.Y.	S.F.	C.Y.	S.F.	C.Y.	S.F.	C.Y.
200+00.00		0.0		0.0		9.3			
200+50.00	50	0.0	0.0	0.0	0.0	8.0	16.0		
201+00.00	50	0.0	0.0	0.0	0.0	0.2	7.6		
201+50.00	50	0.0	0.0	0.0	0.0	3.7	3.6		
202+00.00	50	69.8	64.6	0.0	0.0	0.6	3.9		
202+50.00	50	20.4	83.6	0.0	0.0	0.0	0.5		
								CUT	424
203+08.00		0.0		0.0		0.0		ROCK	0
203+25.00	17	38.5	12.1	0.0	0.0	0.0	0.0	R.FAC	0.495
203+50.00	25	76.9	53.4	0.0	0.0	2.1	1.0	FILL	37
204+00.00	50	18.4	88.3	0.0	0.0	0.0	1.9	F.FAC	1.15
204+50.00	50	19.2	34.9	0.0	0.0	1.3	1.2	EX. C	382
205+00.00	50	26.7	42.6	0.0	0.0	0.0	1.2		
205+50.00	50	18.1	41.5	0.0	0.0	0.0	0.0		
205+60.00	10	0.0	3.4	0.0	0.0	0.0	0.0		

STATION	DIST	TOTAL EXCAVATION EARTH AND ROCK AREA	TOTAL EXCAVATION EARTH AND ROCK VOLUME	ROCK EXCAVATION AREA	ROCK EXCAVATION VOLUME	EMBANKMENT AREA	EMBANKMENT VOLUME	AREA	VOLUME
	FT.	S.F.	C.Y.	S.F.	C.Y.	S.F.	C.Y.	S.F.	C.Y.

STATION	DIST	TOTAL EXCAVATION EARTH AND ROCK AREA	TOTAL EXCAVATION EARTH AND ROCK VOLUME	ROCK EXCAVATION AREA	ROCK EXCAVATION VOLUME	EMBANKMENT AREA	EMBANKMENT VOLUME	AREA	VOLUME
	FT.	S.F.	C.Y.	S.F.	C.Y.	S.F.	C.Y.	S.F.	C.Y.

SUMMARY AND BALANCES

STATION TO STATION		TOT EXC. EARTH & ROCK C.Y.	ROCK EXCAV C.Y.	EMBANK C.Y.	EXCESSES CUT	EXCESSES FILL	ACUMULATIVE EXCESSES CUT	ACUMULATIVE EXCESSES FILL
200+00	202+50	148	0	32	117		117	
203+08	205+60	276	0	5	271		388	
TOTAL		424	0	37				

REMARKS

EARTH AND ROCK EXCAVATION	424
SOLID ROCK EXCAVATION	0
EARTH EXCAVATION	424
PLANIMETERED FILL	37
LESS FACTORED SOLID ROCK	0
LESS DISPLACEMENT OF ANY LARGE STRUCTURES	0
NET PLANIMETERED FILL	37
FACTOR	1.15
PLANIMETERED FILL INCLUDING FACTOR	43
MATERIALS AVAILABLE FOR FILLS	
EARTH EXCAVATION	424
CHANNEL EXCAVATION	550
UNDERDRAIN EXCAVATION	0
STRUCTURE EXCAVATION	580
TOTAL MATERIAL AVAILABLE FOR FILL	1554
TOTAL FILL INCLUDING FACTOR	43
TOTAL MATERIAL FOR FILL	1554
BORROW	0
EXCESS EXCAVATION (NOT INCL. TEMP. DETOUR REM.)	1512
EXCAVATION FOR TEMPORARY DETOUR REMOVAL (PAID UNDER 900.645)	2381
EXCESS EXCAVATION (INCL. TEMP. DETOUR REM.)	3893

PROJECT NAME: **PLYMOUTH**

PROJECT NUMBER: **ER BRS 0149(5)**

FILE NAME: **z11c330ews.XLS**
PROJECT LEADER: **J. OLUND**
DESIGNED BY: **A. GREENLAW**
EARTHWORKS

PLOT DATE: **08/29/2012**
DRAWN BY: **A. GREENLAW**
CHECKED BY: **T. KELLEY**
SHEET **9** OF **46**

GPS CONTROL POINTS

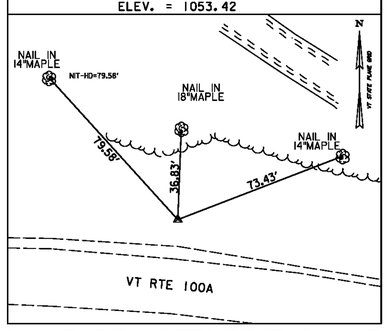
DANBY CORS ARP

PID DL2318
N = 310162.27
E = 1508688.75
ELLIP HEIGHT = 636.40

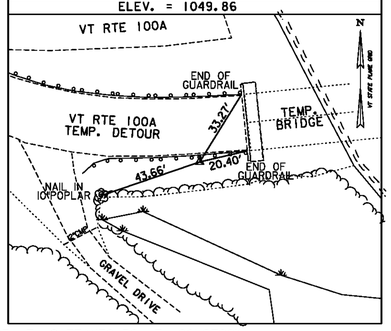
STATION IS A GPS CONTINOUSLY OPERATING REFERENCE STATION. STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA. LOCATED AT THE DANBY, VERMONT CURRIER MEMORIAL SCHOOL, THE MONUMENT IS ATTACHED TO A TWO STORY CONCRETE & BRICK BUILDING WITH AN 8 FT CONCRETE FOUNDATION BUILT IN 1966. THE MAST IS A 1.75 INCH DIA. GALV PIPE THAT IS 108 INCHES LONG. THE MAST IS ATTACHED TO A STEEL MOUNTING FRAME WITH THREE ATTACHMENTS CONSISTING OF 3/8 INCH SS THROUGH BOLTS. THE MOUNTING FRAME IS ATTACHED TO THE BUILDING USING 8 ATTACHMENT POINTS. ALL 8 ATTACHMENTS ARE THROUGH BOLTED AND CONSIST OF 1/2 INCH SS THREADED ROD AND NUTS.

TRAVERSE TIES

HVCTRL #30 5/8"REBAR SET FLUSH W/ YELLOW VSE CONTROL CAP
NORTH = 387411.95
EAST = 1588526.27
ELEV. = 1053.42



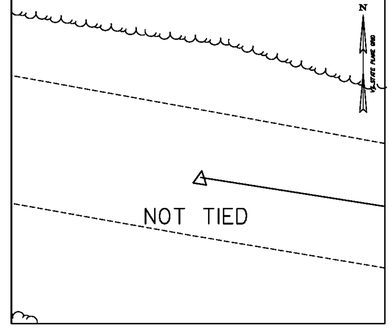
HVCTRL #31 5/8"REBAR SET FLUSH W/ YELLOW VSE CONTROL CAP
NORTH = 387259.24
EAST = 1589069.07
ELEV. = 1049.86



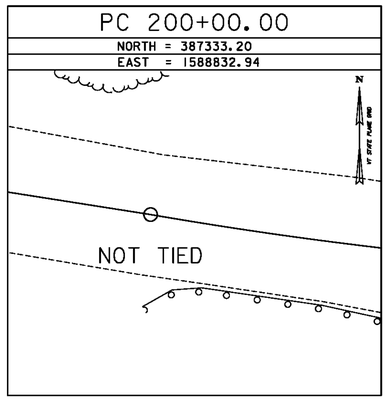
* MAIN TRAVERSE COMPLETED: DECEMBER 13, 2011 BY VSE, T. CATTANEO-PC, T. COMSTOCK

ALIGNMENT TIES

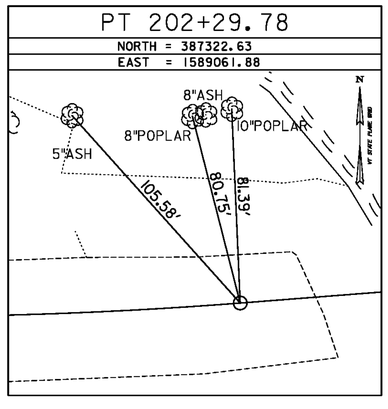
POB 199+54.62
NORTH = 387340.2544
EAST = 1588788.1092



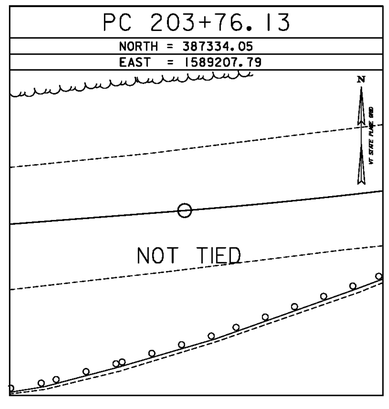
PC 200+00.00
NORTH = 387333.20
EAST = 1588832.94



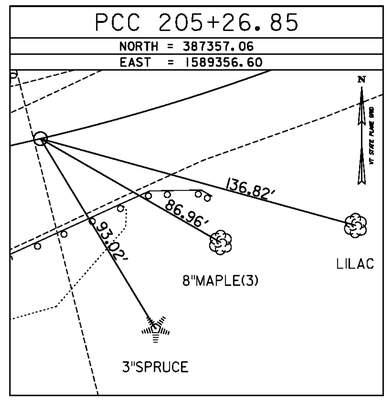
PT 202+29.78
NORTH = 387322.63
EAST = 1589061.88



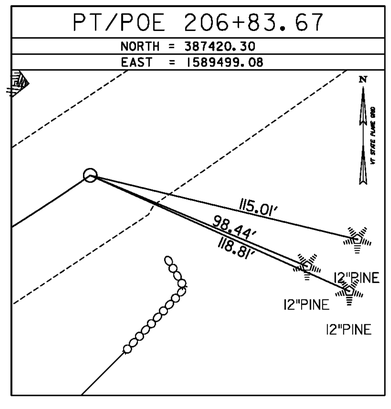
PC 203+76.13
NORTH = 387334.05
EAST = 1589207.79



PCC 205+26.85
NORTH = 387357.06
EAST = 1589356.60



PT/POE 206+83.67
NORTH = 387420.30
EAST = 1589499.08



DATUM
VERTICAL NAVD 88(GEOID09) FT
HORIZONTAL NAD 83(CORS) sFT
ADJUSTMENT LSQ

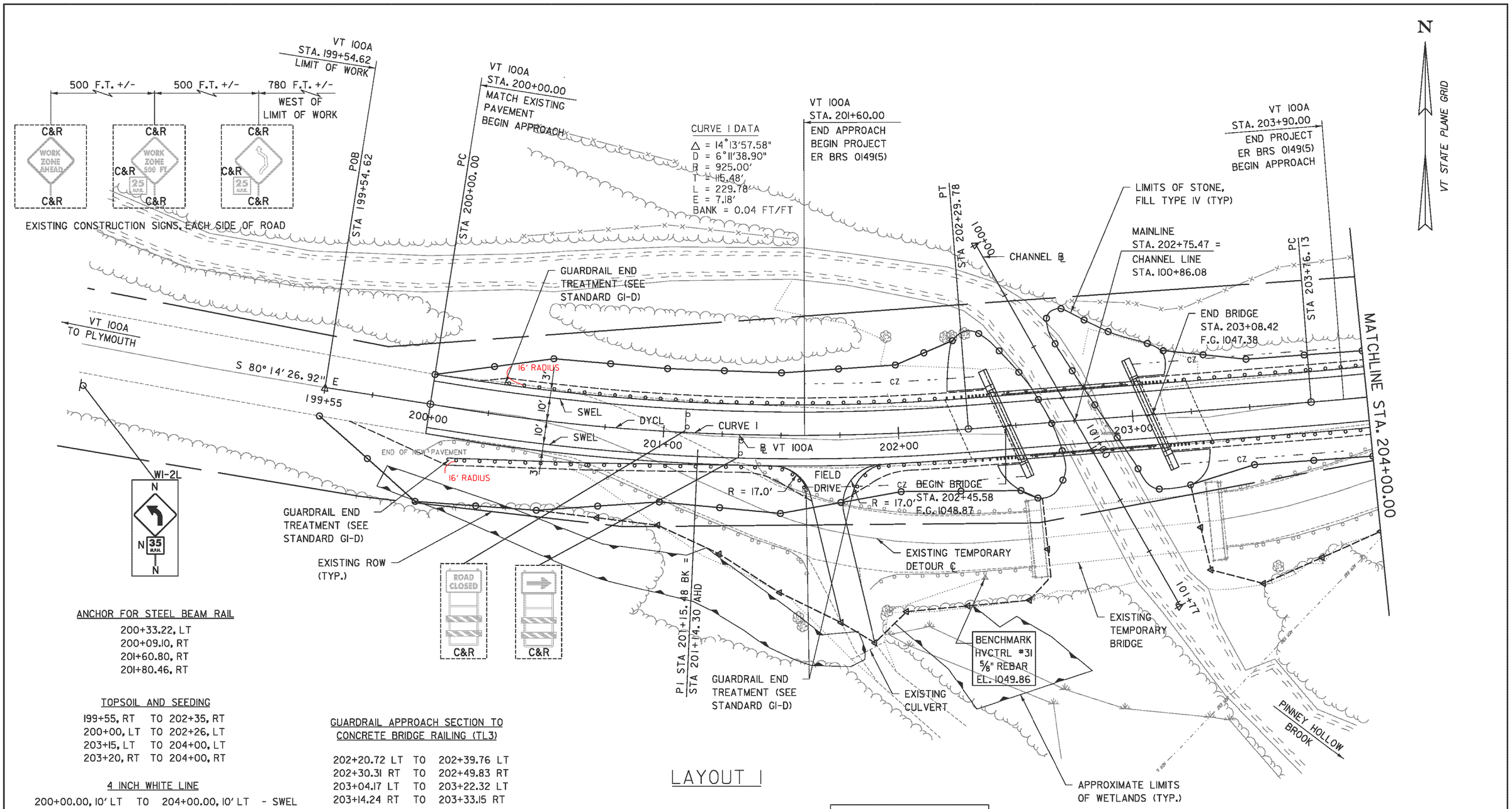
VERMONT SURVEY AND ENGINEERING

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: zllc3301t.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: A. GREENLAW
TIE SHEET

PLOT DATE: 9/20/2012
DRAWN BY: T. KELLEY
CHECKED BY: D. BRYANT
SHEET 10 OF 46



ANCHOR FOR STEEL BEAM RAIL

200+33.22, LT
200+09.10, RT
201+60.80, RT
201+80.46, RT

TOPSOIL AND SEEDING

199+55, RT TO 202+35, RT
200+00, LT TO 202+26, LT
203+15, LT TO 204+00, LT
203+20, RT TO 204+00, RT

4 INCH WHITE LINE

200+00.00, 10' LT TO 204+00.00, 10' LT - SWEL
200+00.00, 10' RT TO 204+00.00, 10' RT - SWEL

4 INCH YELLOW LINE

200+00.00, CL TO 204+00.00, CL - DYCL

CONSTRUCT DRIVE

201+62.60, RT - 12' FIELD DRIVE

GUARDRAIL APPROACH SECTION TO CONCRETE BRIDGE RAILING (TL3)

202+20.72 LT TO 202+39.76 LT
202+30.31 RT TO 202+49.83 RT
203+04.17 LT TO 203+22.32 LT
203+14.24 RT TO 203+33.15 RT

STEEL BEAM GUARDRAIL, GALVANIZED

200+33.22 LT TO 202+20.72 LT
200+09.10 RT TO 201+60.80 RT
201+80.46 RT TO 202+30.31 RT
203+22.32 LT TO ~~204+00.00 LT~~ 203+84 LT
203+33.15 RT TO 204+00.00 RT

PRECAST REINFORCED CONCRETE CURB, TYPE B

202+27.76 LT TO 202+39.76 LT
202+37.83 RT TO 202+49.83 RT
203+04.17 LT TO 203+16.17 LT
203+14.24 RT TO 203+26.24 RT

LAYOUT 1

SIGN LEGEND:

C&R: CONSTRUCTION, RETURN
R: REMOVE
RET: RETAIN
N: NEW

EXISTING TEMPORARY ACROW BRIDGE

80' SINGLE SPAN STEEL TRUSS
ON SPREAD FOOTING, STUB ABUTMENTS
24' BETWEEN RAILS
STEEL TRUSS OWNED BY STATE

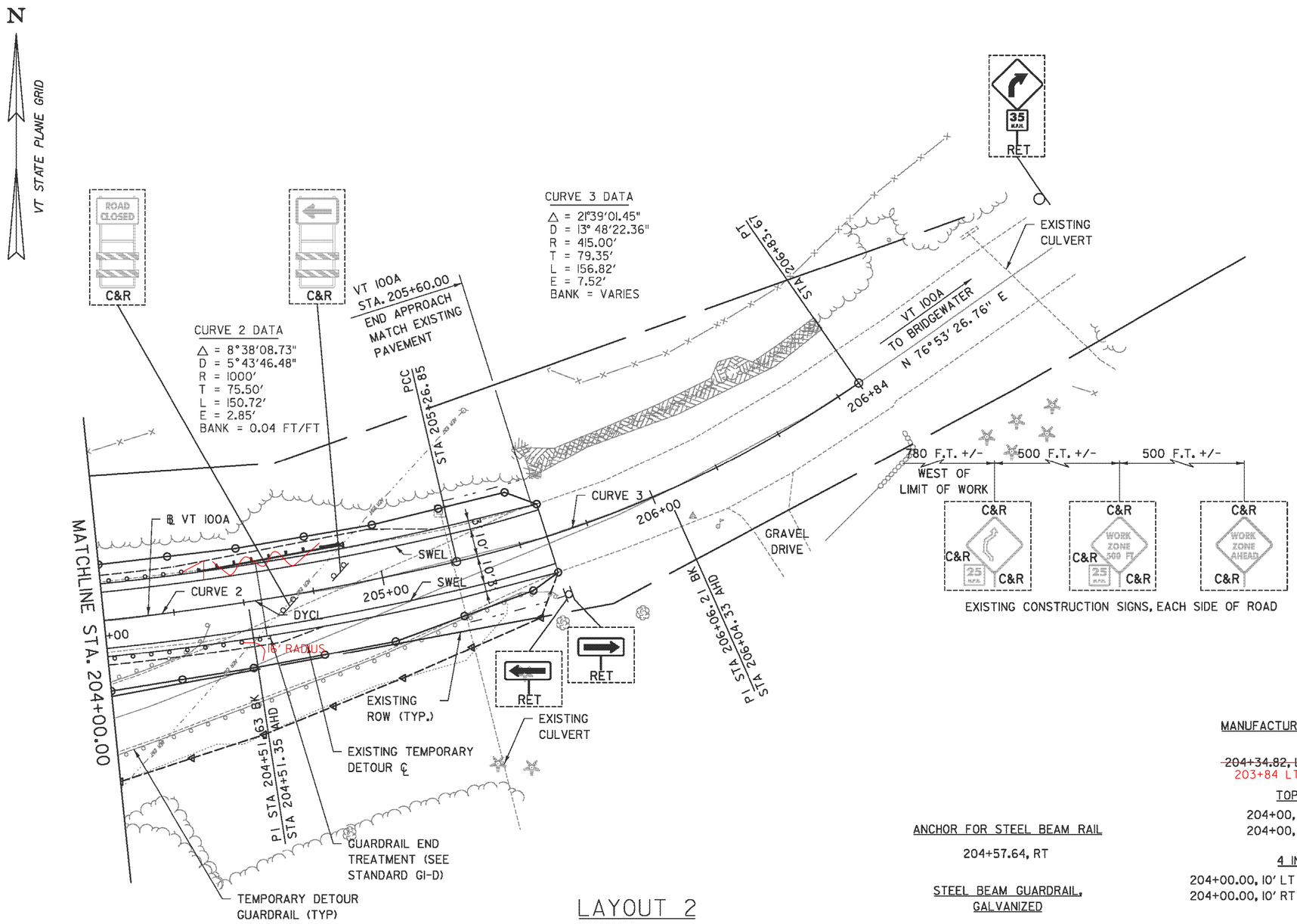
SCALE 1" = 20'-0"
20 0 20

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_pl_01.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: A. GREENLAW
LAYOUT 1

PLOT DATE: 9/20/2012
DRAWN BY: S. MORGAN
CHECKED BY: J. HOWE
SHEET 11 OF 46



LAYOUT 2

EXISTING CONSTRUCTION SIGNS, EACH SIDE OF ROAD

SIGN LEGEND:
C&R: CONSTRUCTION, RETURN
R: REMOVE
RET: RETAIN
N: NEW

ANCHOR FOR STEEL BEAM RAIL

204+57.64, RT

STEEL BEAM GUARDRAIL, GALVANIZED

~~204+00.00 LT TO 204+34.82 LT~~
204+00.00 RT TO 204+57.64 RT

MANUFACTURED TERMINAL SECTION, TANGENT

~~204+34.82, LT TO 204+88.82, LT~~
203+84 LT TO 204+39 LT

TOPSOIL AND SEED

204+00, LT TO 205+60, LT
204+00, RT TO 205+60, RT

4 INCH WHITE LINE

204+00.00, 10' LT TO 205+60.00, 10' LT - SWEL
204+00.00, 10' RT TO 205+60.00, 10' RT - SWEL

4 INCH YELLOW LINE

204+00.00, CL TO 205+60.00, CL - DYCL

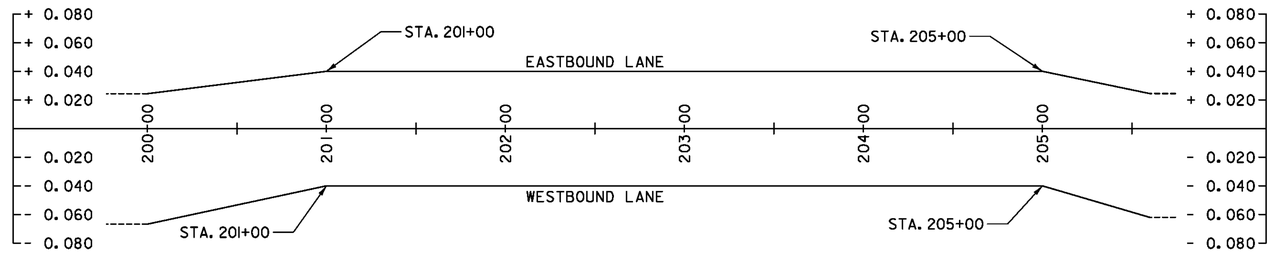
SCALE 1" = 20'-0"
20 0 20

T-Y LIN INTERNATIONAL

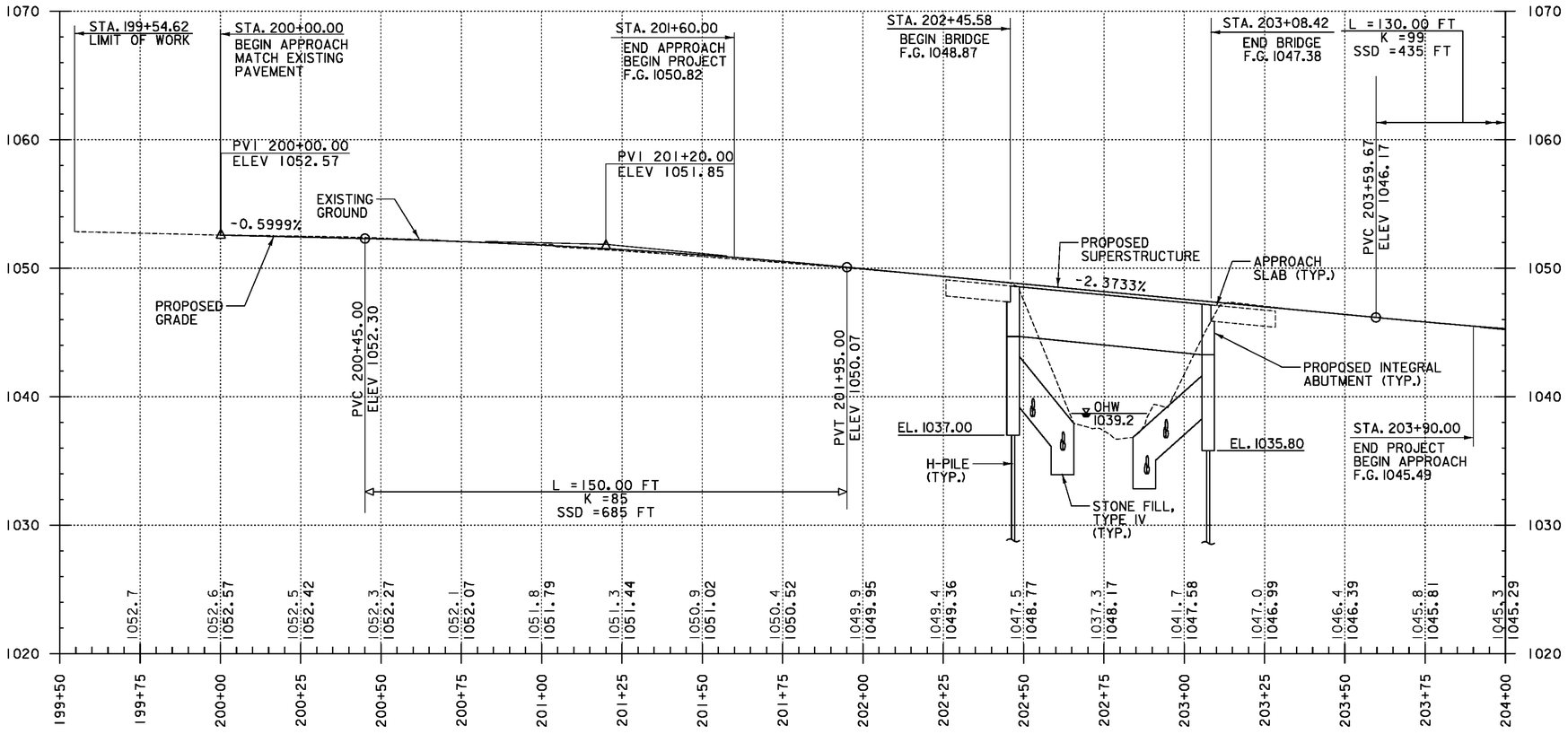
PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_pl_02.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: A. GREENLAW
LAYOUT 2

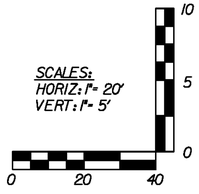
PLOT DATE: 9/20/2012
DRAWN BY: S. MORGAN
CHECKED BY: J. HOWE
SHEET 12 OF 46



BANKING DIAGRAM



PROFILE - VT 100A



THE GRADES SHOWN TO THE NEAREST TENTH ARE THE EXISTING GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT

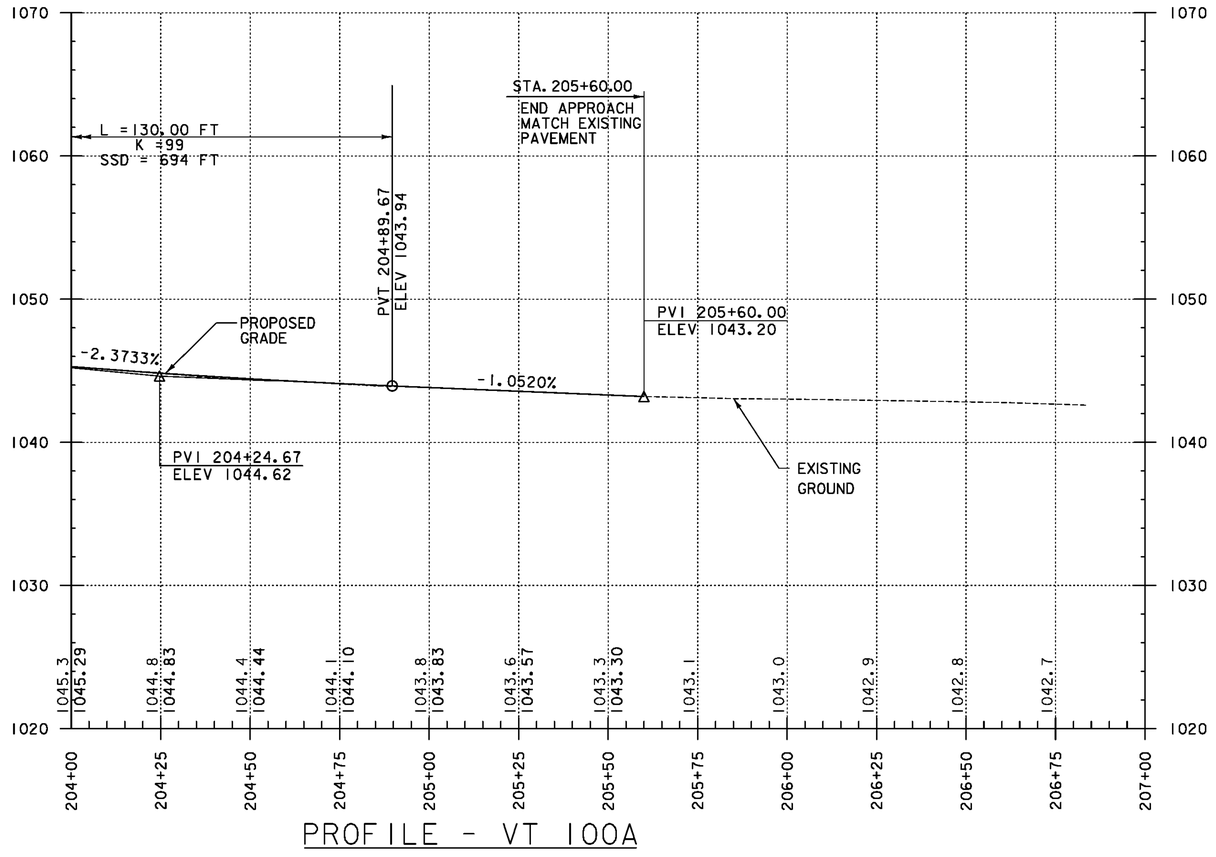
THE GRADES SHOWN TO THE NEAREST HUNDRETH ARE THE PROPOSED GRADES FOR THE NEW ALIGNMENT

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_pro_01.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: A. GREENLAW
PROFILE 1

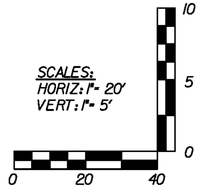
PLOT DATE: 9/20/2012
DRAWN BY: S. MORGAN
CHECKED BY: J. HOWE
SHEET 13 OF 46



PROFILE - VT 100A

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE EXISTING GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT

THE GRADES SHOWN TO THE NEAREST HUNDRETH ARE THE PROPOSED GRADES FOR THE NEW ALIGNMENT



TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_pro_02.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: A. GREENLAW
PROFILE 2

PLOT DATE: 9/20/2012
DRAWN BY: S. MORGAN
CHECKED BY: J. HOWE
SHEET 14 OF 46

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS			NEW & SALVAGED SIGNS				EXIST POST		NEW SIGN POSTS																						REMARKS	SIGN DETAIL	
											NO. OF POSTS	FLANGED CHANNEL			SQUARE STEEL (In)			ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (In)			FOUNDATION	TUBULAR STEEL Ø (In)				W-SHAPE STEEL				SIGN FRAME REQUIRED		DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
		EA	WIDTH (In)	HEIGHT (In)	"A"	"B"	SALV SIGN	SALV TIS	RETAIN	SALVAGE		lb/ft			1.75	2.0	2.5			3.0	4.0	4.0 MOD		3.0	3.5	4.0	5.0	FTG. SIZE		WEIGHT	POST SIZE				
												1.12	2.0	3.0	lb/ft					lb/ft				lb/ft				24"	30"						
															1.88	2.42	3.35			1.3	1.7	1.7		7.6	9.0	10.8	14.6								
												OPTION ITEMS																							
APPROX. 770 FT WEST OF LIMIT OF WORK, RT.		1	30	30	6.25						1					"X"		1															W1-2L		E-151
APPROX. 770 FT WEST OF LIMIT OF WORK, RT.		1	18	18	2.25																												W13-1P (MOUNT WITH W1-2L)		E-155
					8.5							FT	FT	FT	FT	FT 19	FT	▨	EA	LB	LB	LB		LB	LB	LB	LB								
TOTALS					SF 8.5	SF	EA.	SF	▨			FT			FT 19					LB			EA.	LB				EA.	EA.	LB					

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

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: zllc330ss.dgn	PLOT DATE: 9/20/2012
PROJECT LEADER: J. OLUND	DRAWN BY: J. BLANCHARD
DESIGNED BY: A. GREENLAW	CHECKED BY: D. BRYANT
TRAFFIC SIGN SUMMARY SHEET	SHEET 15 OF 46

SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

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

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

DEFINITIONS (AASHTO)

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

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

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

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

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

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

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

VARVED - Alternate layers of silt and clay.

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

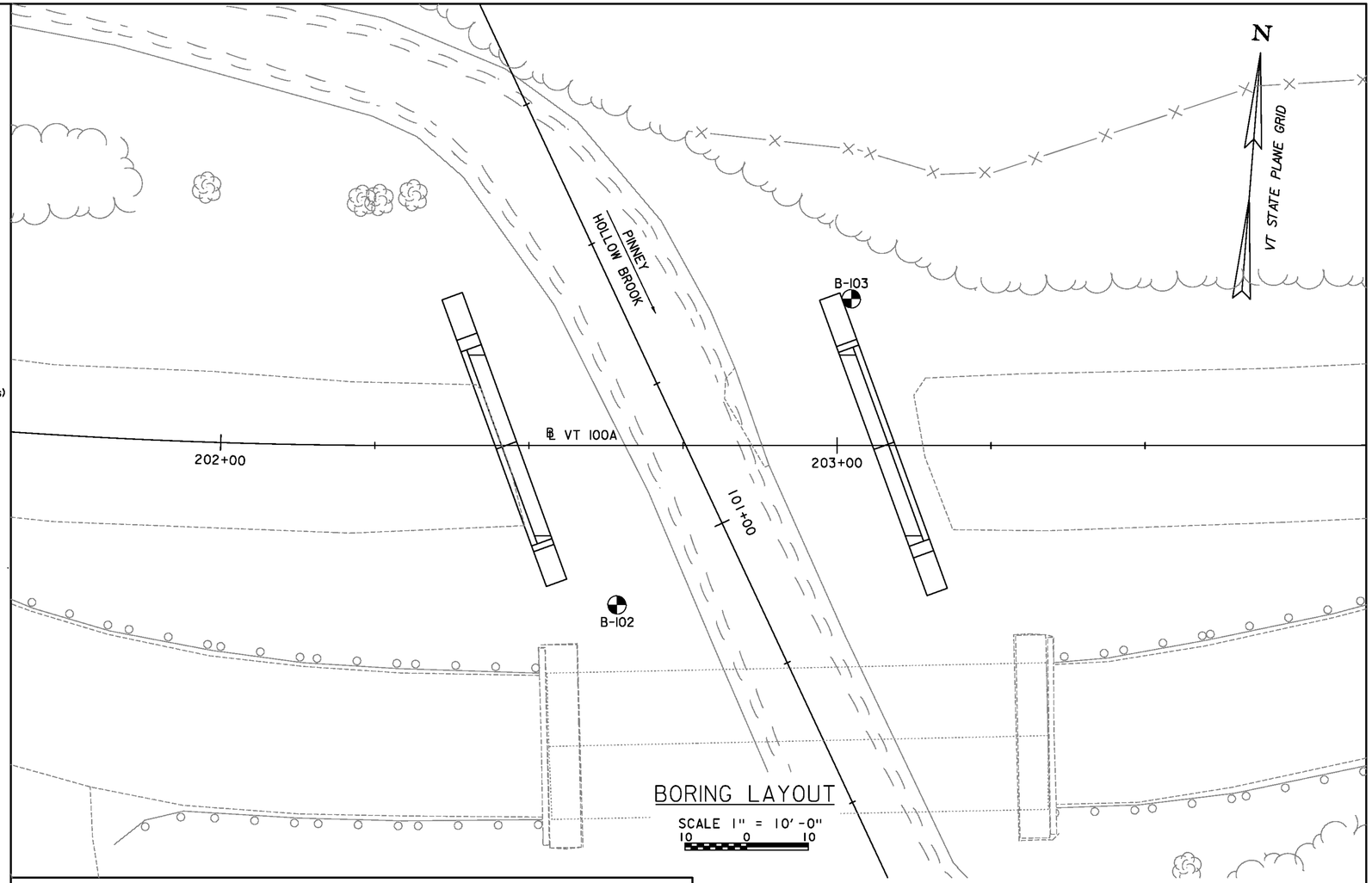
MUCK - Soft organic soil (containing > 10% organic material.

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

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

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

DIP - Inclination of bed with a horizontal plane.



BORING LAYOUT

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

GENERAL NOTES

1. The subsurface explorations shown herein were made between April 4, 2007 and May 8, 2007 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

BORING LAYOUT

HOLE NO.	STATION	OFFSET	NORTHING	EASTING	GROUND ELEVATION	ELEVATION TLOB
B- 102	202+64.30	25.88' RT	387299.52	1589098.32	1039.84	980.14
B- 103	203+02.32	23.80' LT	387352.02	1589132.35	1045.30	1000.10

TY·LIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bor.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING INFORMATION & LAYOUT SHEET

PLOT DATE: 9/20/2012
DRAWN BY: T. KELLEY
CHECKED BY: D. MYERS
SHEET 16 OF 46

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

BORING NUMBER: B-102
SHEET 1 of 1
DATE STARTED: 4/20/07
DATE COMPLETED: 5/08/07

PROJECT NAME: PLYMOUTH
SITE NAME: VT 100A
STATION: 202+64.30
OFFSET: 25.88' RT
VTSPG: N 387299.52 ft E 1589098.32 ft

PROJECT NUMBER: BRS 0149(3)S
SITE NUMBER: BR-8
GROUND ELEVATION: 1039.84 ft
GROUNDWATER DEPTH: 5.3 ft 5/09/07
PROJECT PIN NUMBER: 84E057

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: CARRIERE

BORING RIG: LARGE SKID RIG w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CAA

Bottom of Abut. #1 Elev. = 1037.00

Approx. Pile Tip @ Abut. #1 Elev. 979.8

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
		A-1-b, GrSa with root and wood material., brn, Moist, Rec. = 1.4 ft	4	38.6	30.3	56.1	13.6
		NXDC, Boulders, Cleaned out casing., 3.5 ft – 4.5 ft					
		NXDC, Boulders, Cleaned out casing., 4.5 ft – 6.0 ft					
10		No Sample, 10.0 ft – 12.0 ft	12				
		A-1-b, SaGr, brn-gry, Moist, Rec. = 1.0 ft	44	12.1	51.1	38.3	10.6
20		A-2-4, SiGrSa, brn, Moist, Rec. = 1.8 ft	11	15.8	22.2	57.0	20.8
		NXDC, Boulders, Cleaned out casing., 24.3 ft – 25.0 ft	43	13.0	38.1	43.3	18.6
		A-1-b, GrSa, gry-brn, Moist, Rec. = 1.7 ft					
30		NXDC, Boulders, Cleaned out casing., 29.1 ft – 30.0 ft	24				
		No Sample, 30.0 ft – 32.0 ft, Used drilling mud to advance casing, Flowing sand.					
17.4		A-4, SaSi, brn, Moist, Rec. = 0.4 ft	R	23.9	1.0	45.8	53.2
		A-1-b, SiSaGr, brn, Moist, Rec. = 1.0 ft		11.2	42.8	36.7	20.5
40		NXDC, Boulders, Cleaned out casing., 37.5 ft – 50.0 ft, Sleeved 4.5" casing to 3.5" casing.					
50		A-1-b, GrSa, gry-brn, Moist, Rec. = 1.2 ft	80	13.5	32.4	50.2	17.4
		BXDC, Boulders, Cleaned out casing., 52.5 ft – 59.51 ft					
		Top of Bedrock @ 59.7 ft					
60		Gray, Dolomite, with numerous highly weathered calcite veins along jointing. Dolomite is unweathered while the calcite joint infilling is severely weathered. Poor competency. Massively bedded. No discernable dip., Hard, BXMDC, 59.7 ft – 60.7 ft, Rec. = 0.3 ft	1	30	0		15
			2	100	0		10
			3	100	16		12
							16
		Gray, Dolomite, with numerous highly weathered calcite veins along jointing. Dolomite is unweathered while the calcite joint infilling is severely weathered. Poor competency. Massively bedded. No discernable dip., Hard, BXMDC, 60.7 ft – 63.4 ft, Rec. = 2.7 ft					8
70							10
							10
							14
		Gray, Dolomite, with numerous highly weathered calcite veins along jointing. Dolomite is unweathered while the calcite joint infilling is severely weathered. Poor competency. Massively bedded. No discernable dip., Hard, BXMDC, 63.4 ft – 68.4 ft, Rec. = 5.0 ft					14
80		Hole stopped @ 68.4 ft					

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

BORING NUMBER: B-103
SHEET 1 of 1
DATE STARTED: 4/04/07
DATE COMPLETED: 4/11/07

PROJECT NAME: PLYMOUTH
SITE NAME: VT 100A
STATION: 203+02.32
OFFSET: 23.80' LT
VTSPG: N 387352.02 ft E 1589132.35 ft

PROJECT NUMBER: BRS 0149(3)S
SITE NUMBER: BR-8
GROUND ELEVATION: 1045.3 ft
GROUNDWATER DEPTH: 10.2 ft 4/12/07
PROJECT PIN NUMBER: 84E057

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: CARRIERE

BORING RIG: LARGE SKID RIG w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CAA

Bottom of Abut. #2 Elev. = 1035.80

Approx. Pile Tip @ Abut. #2 Elev. 999.8

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
		A-1-b, GrSa, brn, Moist, Rec. = 1.5 ft	36	15.1	37.4	46.2	16.4
		NXDC, Cleaned out casing., 4.0 ft – 5.0 ft	4	14.4			
		Visual Class:, A-1-b, Sa Gr, brn, Moist, Rec. = 0.6 ft, Insufficient sample for testing.					
10		NXDC, Cleaned out casing., 9.8 ft – 10.0 ft	19	14.2	33.7	51.6	14.7
		A-1-b, GrSa, brn, Moist, Rec. = 1.3 ft					
		A-1-b, SaGr, brn, Moist, Rec. = 1.5 ft	22	12.6	46.1	36.5	
		NXDC, Cleaned out casing., 18.2 ft – 19.2 ft					
20		Visual Class:, A-1-b, Sa Gr, Rec. = 0.4 ft, Rock in sampler. Insufficient sample for testing.	26				
		No Sample., 25.0 ft – 27.0 ft	26				
30		A-1-b, Sa, brn, Moist, Rec. = 1.5 ft	18	16.7	18.5	68.0	13.5
		A-1-b, SiGrSa, brn, Moist, Rec. = 0.9 ft	19	10.7	38.6	40.2	21.2
40		NXDC, Cleaned out casing., 39.5 ft – 40.0 ft	30	11.1	44.2	40.5	15.3
		A-1-b, SaGr, brn, Moist, Rec. = 1.3 ft					
		Top of Bedrock @ 45.2 ft	R				
50		Visual Class:, Broken Rock, Rec. = 0.2 ft	1	100	53	40	18
		Gray, Biotite-Quartz Schist, Low RQD may be due to mechanical breakage along foliation., Moderately hard, Unweathered, NXMDC, 45.2 ft – 49.9 ft, Rec. = 4.7 ft	2	100	50	40	18
							14
							15
							13
		Gray, Dolomite, with numerous highly weathered calcite veins along jointing. Dolomite is unweathered while the calcite joint infilling is severely weathered. Poor competency. Massively bedded. No discernable dip., Hard, BXMDC, 49.9 ft – 54.9 ft, Rec. = 5.0 ft					8
60							9
							8
							8
							8
70		Hole stopped @ 54.9 ft					

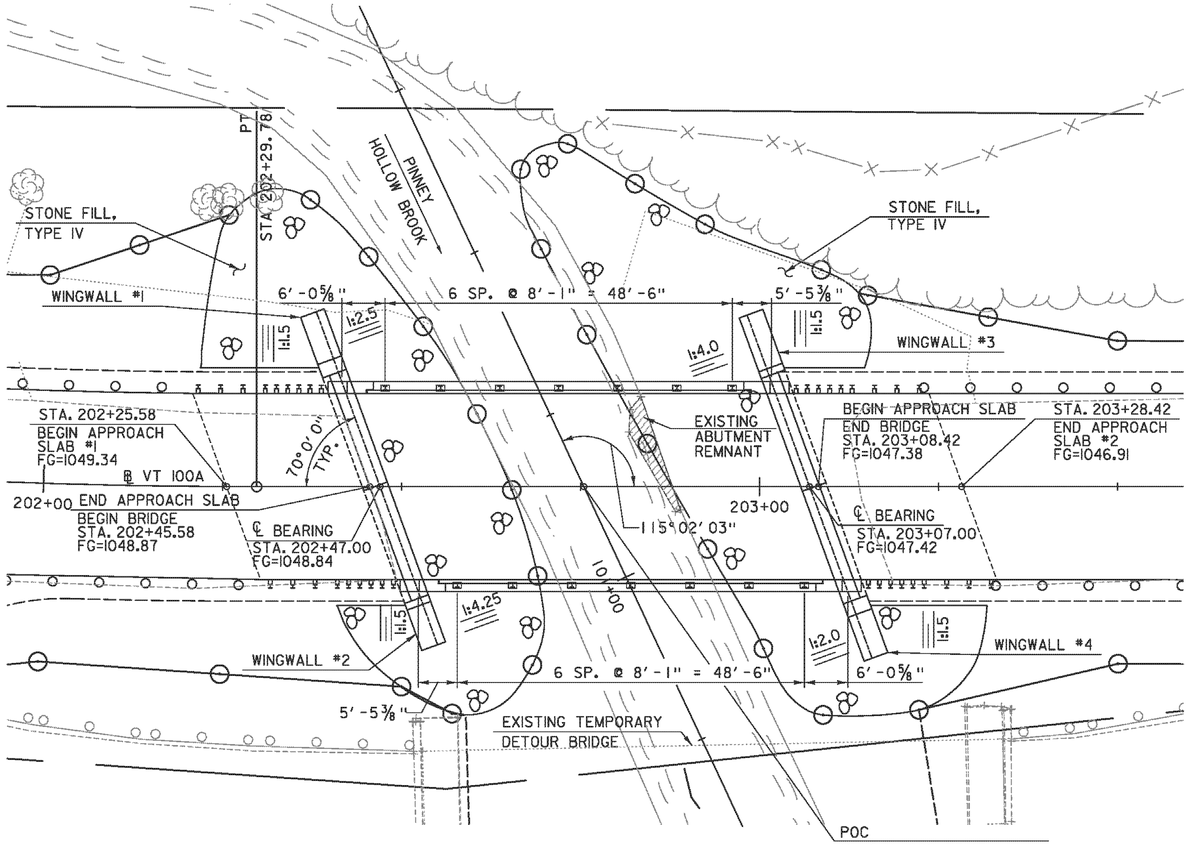
NOTE: BORING LOGS SHOWN WERE PREPARED UNDER A PREVIOUS PROJECT NUMBER AND ARE PROVIDED HERE FOR INFORMATIONAL PURPOSES.

T.Y.LIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

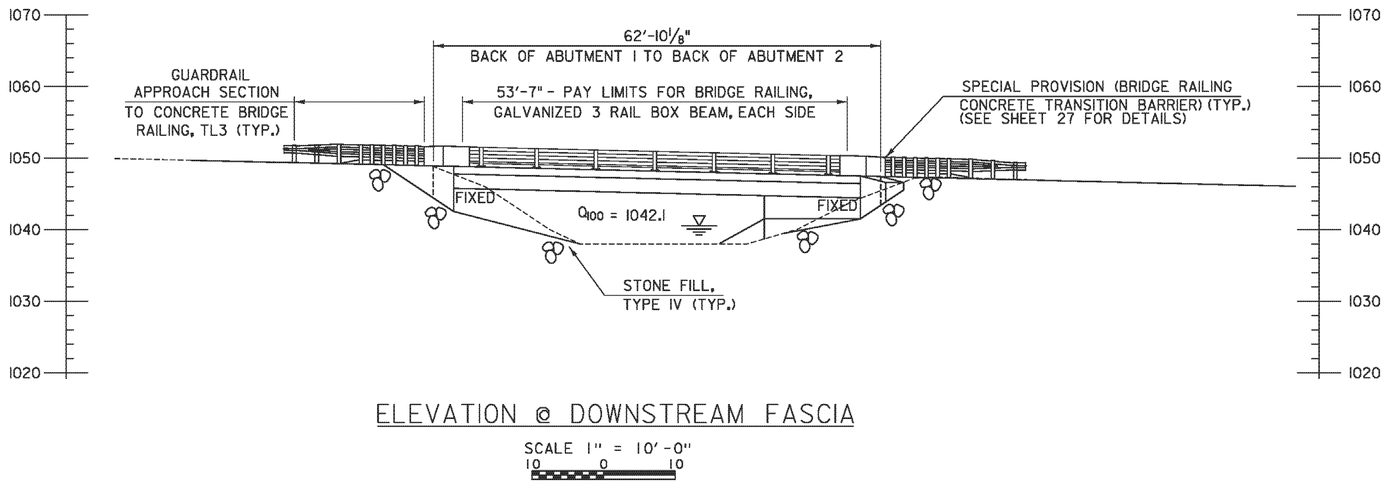
FILE NAME: z11c330bor.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING LOGS

PLOT DATE: 9/20/2012
DRAWN BY: T. KELLEY
CHECKED BY: D. MYERS
SHEET 17 OF 46



PLAN

SCALE 1" = 10'-0"



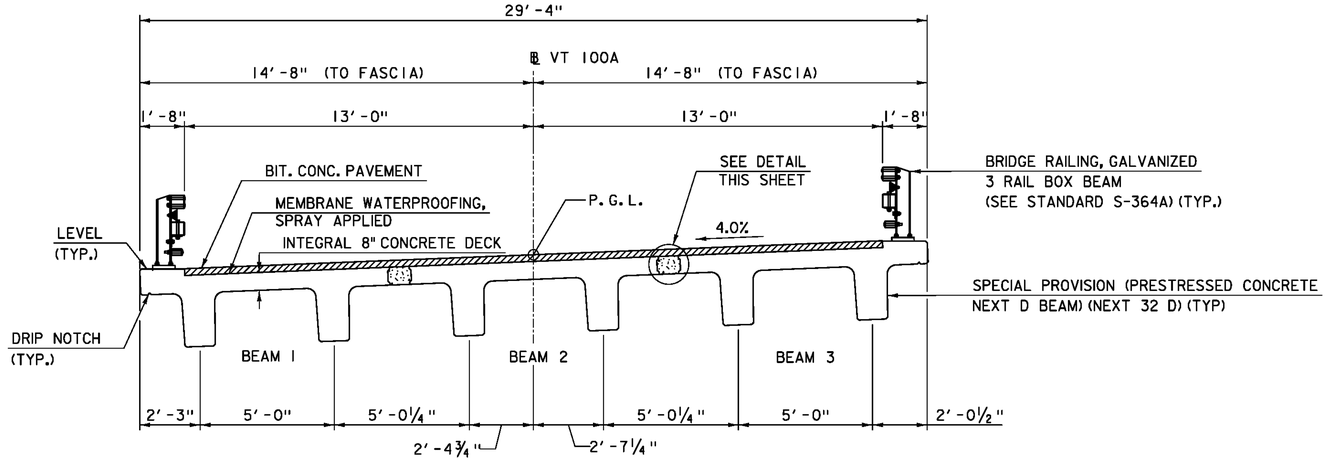
ELEVATION @ DOWNSTREAM FASCIA

SCALE 1" = 10'-0"

N

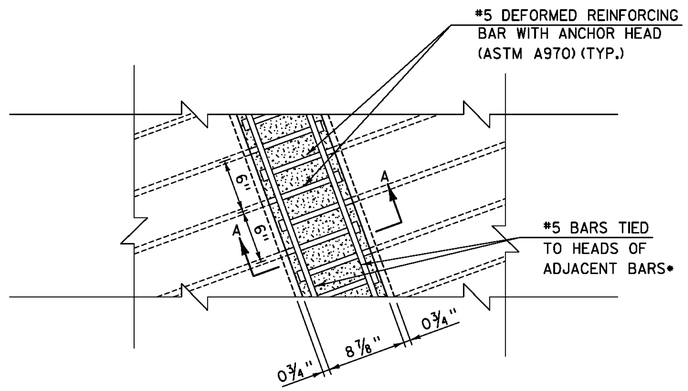
VT STATE PLANE GRID

PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	ER BRS 0149(5)
TYLIN INTERNATIONAL	
FILE NAME: z11c330bdr_pe_01.dgn	PLOT DATE: 9/20/2012
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: D. MYERS	CHECKED BY: J. OLUND
BRIDGE PLAN & ELEVATION	SHEET 18 OF 46

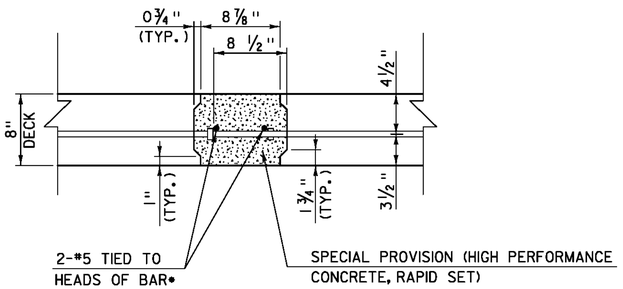


BRIDGE TYPICAL SECTION

SCALE: ⅜" = 1′-0"



PLAN

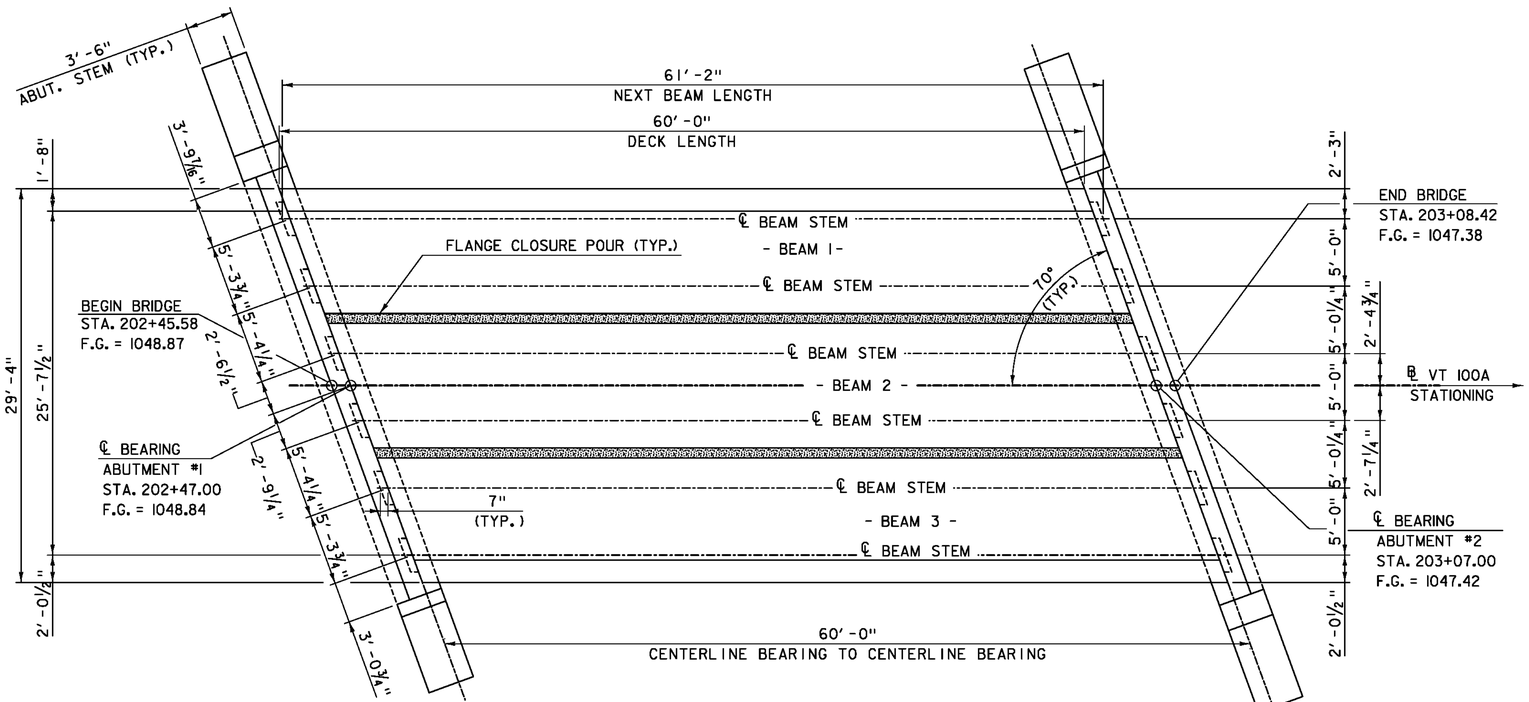


SECTION A-A

FLANGE CLOSURE POUR DETAILS

SCALE: 1 ½" = 1′-0"

• TWO LONGITUDINAL #5 BARS SHALL BE PLACED AS SHOWN ALONG ENTIRE LENGTH OF EACH FLANGE CLOSURE POUR AND TERMINATED WITH A STANDARD HOOK IN THE CAST IN-PLACE PORTION OF THE ABUTMENTS. PAYMENT SHALL BE INCIDENTAL TO SPECIAL PROVISION (PRESTRESSED CONCRETE, NEXT D BEAM) (NEXT 32 D).



BRIDGE PLAN

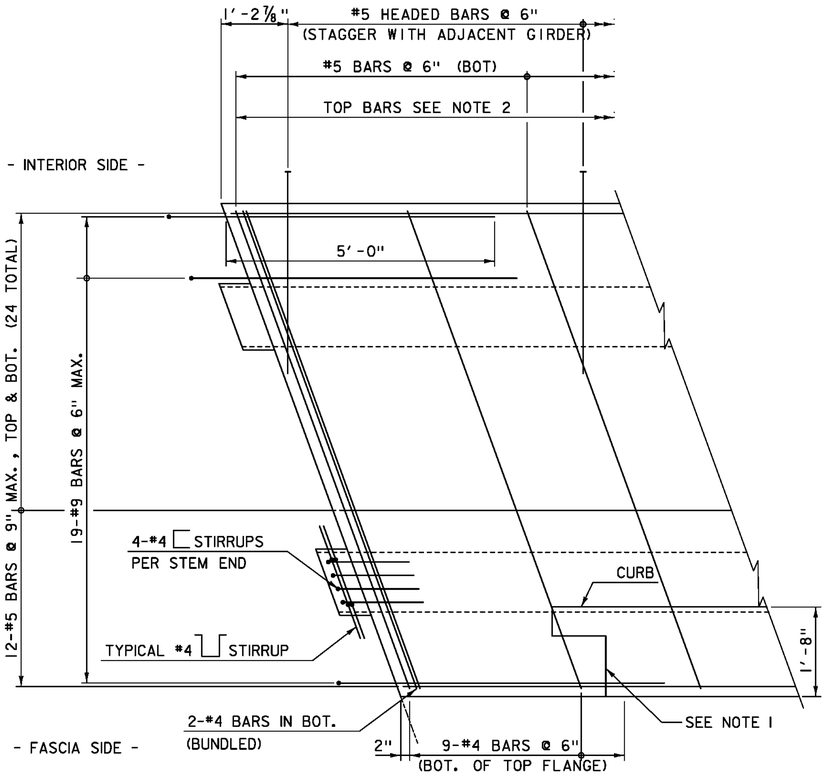
SCALE: 3/16" = 1′-0"

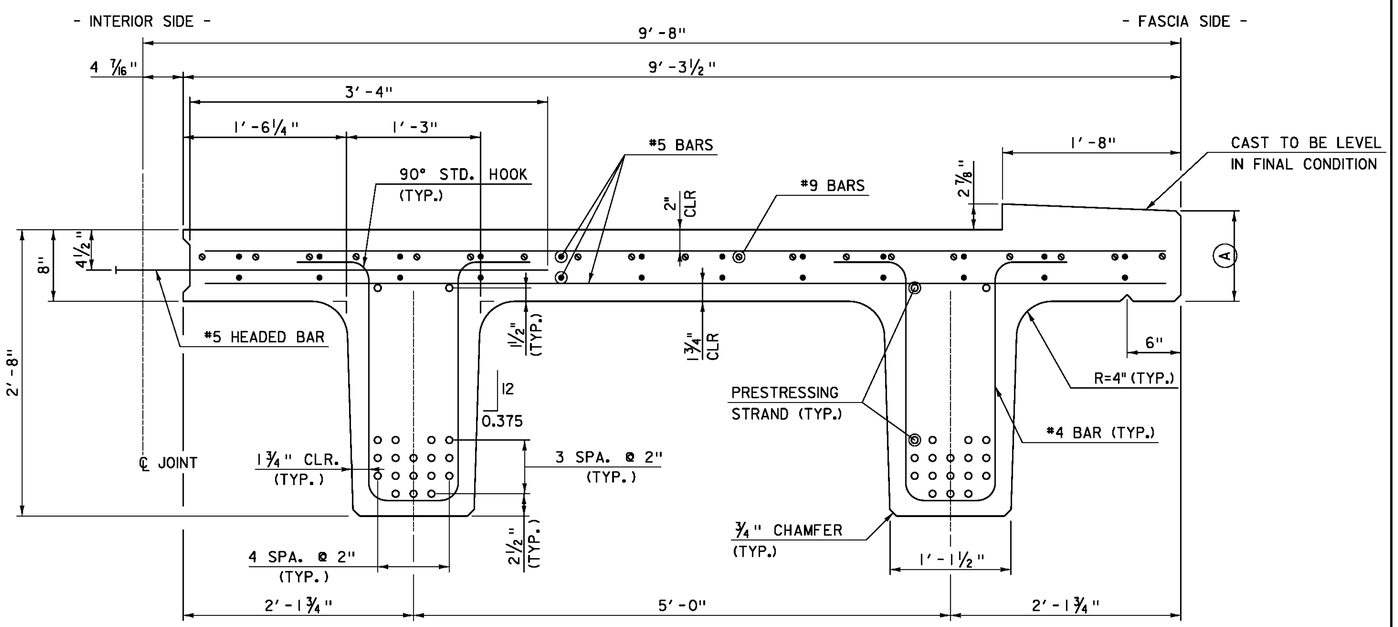
SCALE ⅜" = 1′-0"
1 0 1 2 3 4

SCALE 3/16" = 1′-0"
1 0 2 4 6 8

SCALE 1 ½" = 1′-0"
1 9 6 3 0 1

TY·LIN INTERNATIONAL	PROJECT NAME: PLYMOUTH
	PROJECT NUMBER: ER BRS 0149(5)
	FILE NAME: z11c330sup.dgn
	PROJECT LEADER: J. OLUND
	DESIGNED BY: D. MYERS
	FRAMING PLAN
	PLOT DATE: 9/20/2012
	DRAWN BY: T. KELLEY
	CHECKED BY: S. KELLER
	SHEET 19 OF 46





TYPICAL NEXT BEAM SECTION

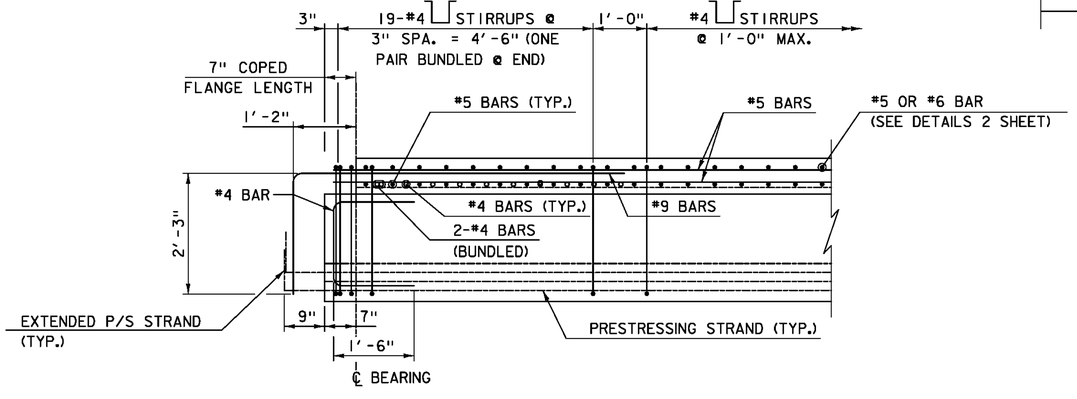
(BETWEEN RAILING POSTS)
SCALE: 1½" = 1'-0"

BEAM FLANGE DIMENSIONS

	BEAM 1 (UPSTREAM)	BEAM 3 (DOWNSTREAM)
Ⓐ	11⅝"	10⅛"

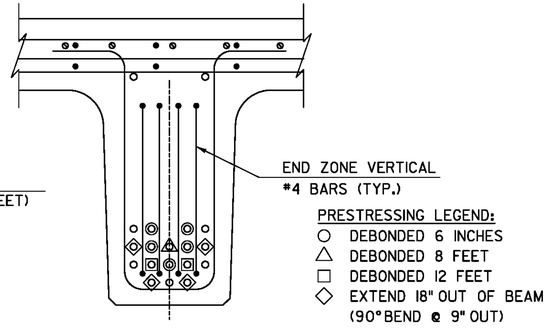
NEXT BEAM REINFORCEMENT PLAN

SCALE: ¾" = 1'-0"



NEXT BEAM REINFORCEMENT ELEVATION

SCALE: ¾" = 1'-0"
NOTE: #5 HEADED BARS NOT SHOWN FOR CLARITY



TYPICAL END SECTION

SCALE: 1½" = 1'-0"

SCALE ¾" = 1'-0"
0 1 2

SCALE 1 ½" = 1'-0"
1 9 6 3 0

NOTES:

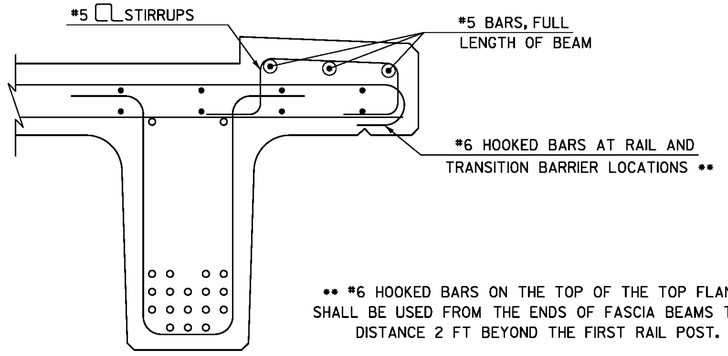
1. FOR DETAILS OF CURB BLOCKOUT & REINFORCING AT CONCRETE END POSTS, SEE SHEET "NEXT BEAM DETAILS 2".
2. FOR DETAILS OF NEXT BEAM TOP FLANGE TRANVERSE CURB REINFORCING, SEE SHEET "NEXT BEAM DETAILS 2".
3. BEAM REINFORCEMENT SHOWN IN PLAN AND ELEVATION IS TYPICAL ABOUT MIDSPAN OF THE BEAM.

T.Y.LIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

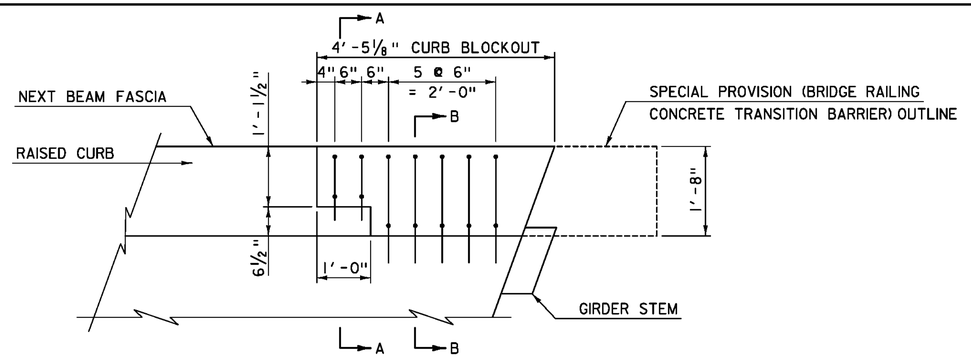
FILE NAME: z11c330d1001.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
NEXT D BEAM DETAILS 1

PLOT DATE: 9/20/2012
DRAWN BY: T. KELLEY
CHECKED BY: S. KELLER
SHEET 20 OF 46

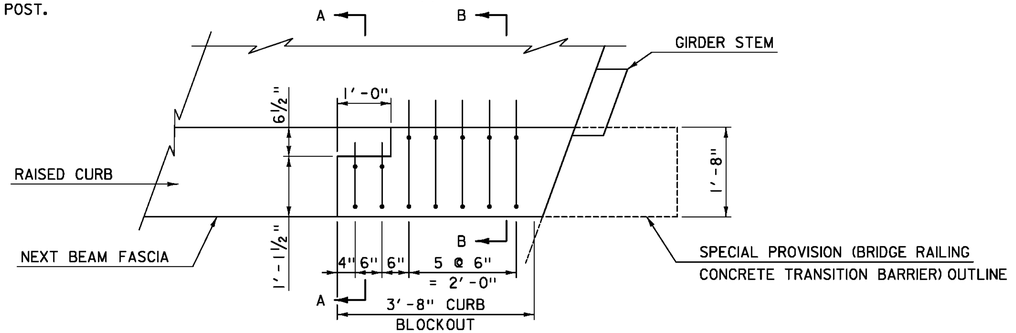


SECTION C-C
SCALE: 1½" = 1'-0"

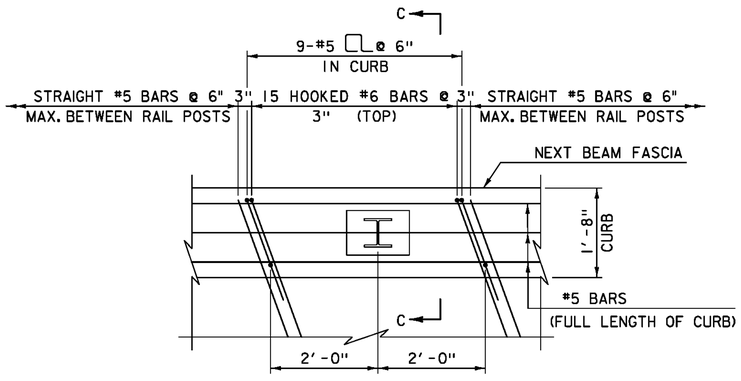
** #6 HOOKED BARS ON THE TOP OF THE TOP FLANGE SHALL BE USED FROM THE ENDS OF FASCIA BEAMS TO A DISTANCE 2 FT BEYOND THE FIRST RAIL POST.



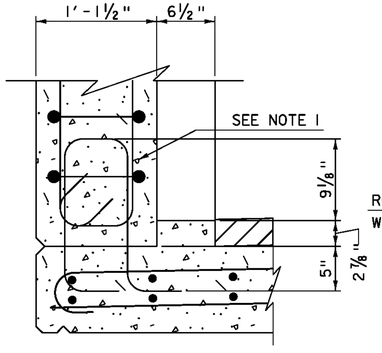
NEXT BEAM TRANSITION DETAILS AT TRANSITION BARRIER LOCATIONS
(ACUTE CORNERS)
SCALE: ¾" = 1'-0"



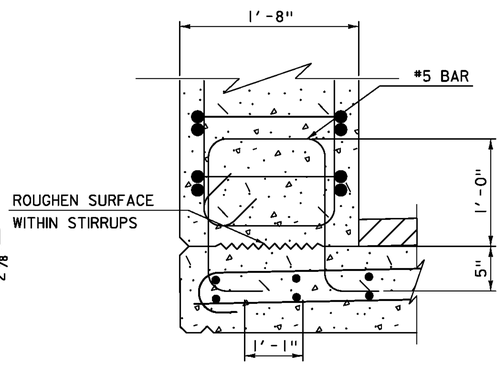
NEXT BEAM TRANSITION DETAILS AT TRANSITION BARRIER LOCATIONS
(OBTUSE CORNERS)
SCALE: ¾" = 1'-0"



NEXT BEAM TOP FLANGE REINFORCEMENT PLAN AT RAIL POST LOCATIONS
(TOP FLANGE LONGITUDINAL @ BOTTOM REINFORCEMENT NOT SHOWN FOR CLARITY)
SCALE: ¾" = 1'-0"



SECTION A-A
SCALE: 1½" = 1'-0"



SECTION B-B
SCALE: 1½" = 1'-0"

SCALE ¾" = 1'-0"
0 1 2

SCALE 1½" = 1'-0"
9 6 3 0

NOTES:

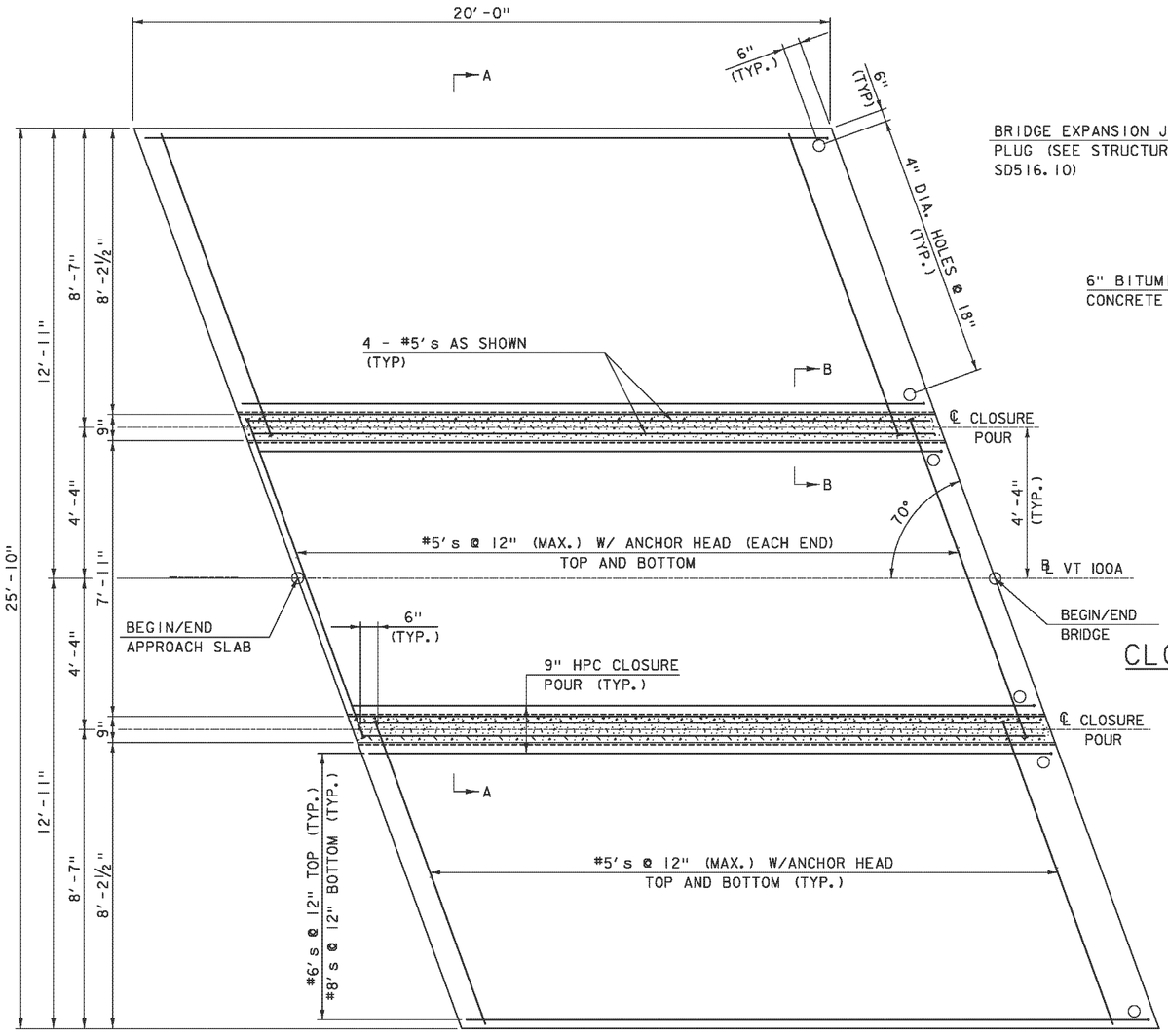
1. FOR DETAILS OF CONCRETE TRANSITION BARRIER, SEE SHEET "TRANSITION BARRIER DETAILS".
2. FOR DETAILS OF NEXT BEAM, SEE SHEET "NEXT D BEAM DETAILS 1".
3. CURB BLOCKOUT AND SURFACE ROUGHENING BETWEEN TRANSITION BARRIER STIRRUPS SHALL BE MADE BY THE PRECAST NEXT D BEAM FABRICATOR.

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

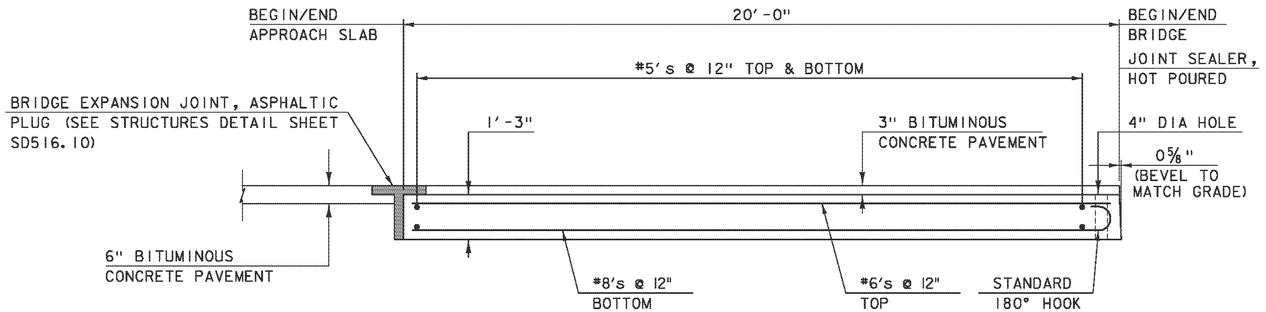
FILE NAME: z11c330d11002.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
NEXT D BEAM DETAILS 2

PLOT DATE: 9/20/2012
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS
SHEET 21 OF 46



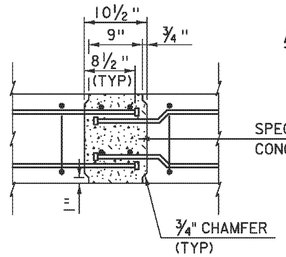
APPROACH SLAB PLAN VIEW

SCALE ½" = 1'-0



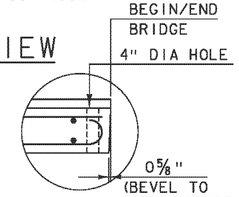
APPROACH SLAB ELEVATION VIEW

(APPROACH SLAB NO. 1 SHOWN)
SCALE ½" = 1'-0

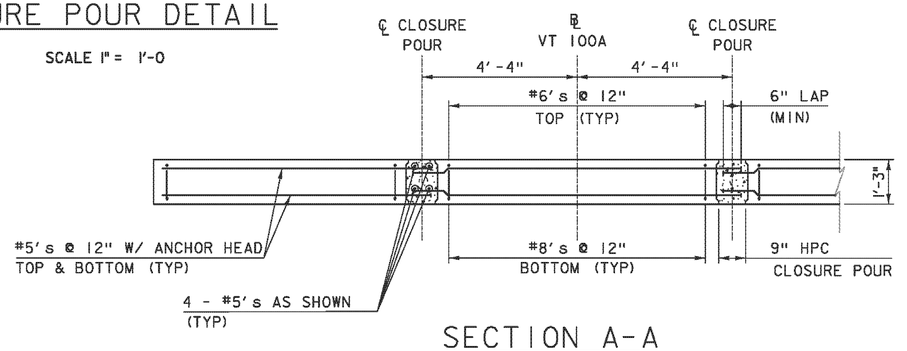


SECTION B-B
CLOSURE POUR DETAIL

SCALE 1" = 1'-0



APPROACH SLAB NO. 2 END DETAIL



SECTION A-A

SCALE ½" = 1'-0

APPROACH SLAB ELEVATIONS

(ALL ELEVATIONS ARE TOP OF SLAB)

	LT EDGE	B VT 100A	RT EDGE
BEGIN A.S.#1	1048.69	1049.10	1049.51
END A.S.#1	1048.22	1048.65	1049.03
BEGIN A.S.#2	1046.72	1047.13	1047.54
END A.S.#2	1046.25	1046.66	1047.06

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

NOTES:

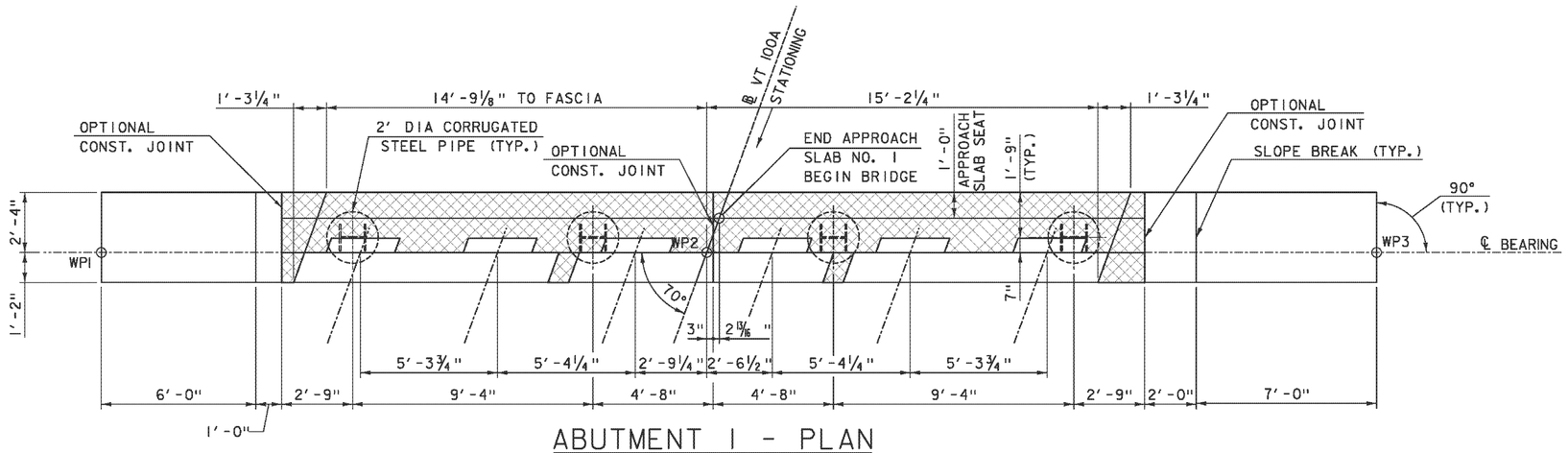
1. LIFTING DEVICES AND ANY ASSOCIATED REINFORCEMENT SHALL BE DETERMINED BY THE FABRICATOR AND SHOWN IN THE FABRICATION DRAWINGS. LIFTING DEVICES SHALL BE LIMITED TO FOUR (4) PER PANEL AND BE RECESSED AND GROUTED AFTER INSTALLATION OF THE SLABS.
2. THE LOCATION OF THE FOUR INCH DIAMETER HOLES CAST THROUGH THE BRIDGE-END OF THE APPROACH SLABS SHALL BE COORDINATED WITH REINFORCING STEEL EXTENDING FROM THE ABUTMENTS. SEE SHEET 25 FOR ABUTMENT REINFORCING STEEL LAYOUT.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING UNIFORM CONTACT BETWEEN THE APPROACH SLAB AND THE SUBBASE MATERIAL TO THE SATISFACTION OF THE ENGINEER. THE FABRICATION DRAWINGS SHALL INDICATE THE MEANS AND METHODS NECESSARY TO INSTALL THE APPROACH SLABS TO THE ELEVATIONS SPECIFIED.
4. PAYMENT FOR APPROACH SLABS, THE #5 REINFORCING BARS WITHIN THE CLOSURE POURS, AND ALL LABOR AND TOOLS NECESSARY TO INSTALL THE SLABS SHALL BE MADE UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 1)" AND/OR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (APPROACH SLAB NO. 2)".
5. PAYMENT FOR HPC CONCRETE CLOSURE POURS SHALL BE MADE UNDER ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

T.Y.LIN INTERNATIONAL

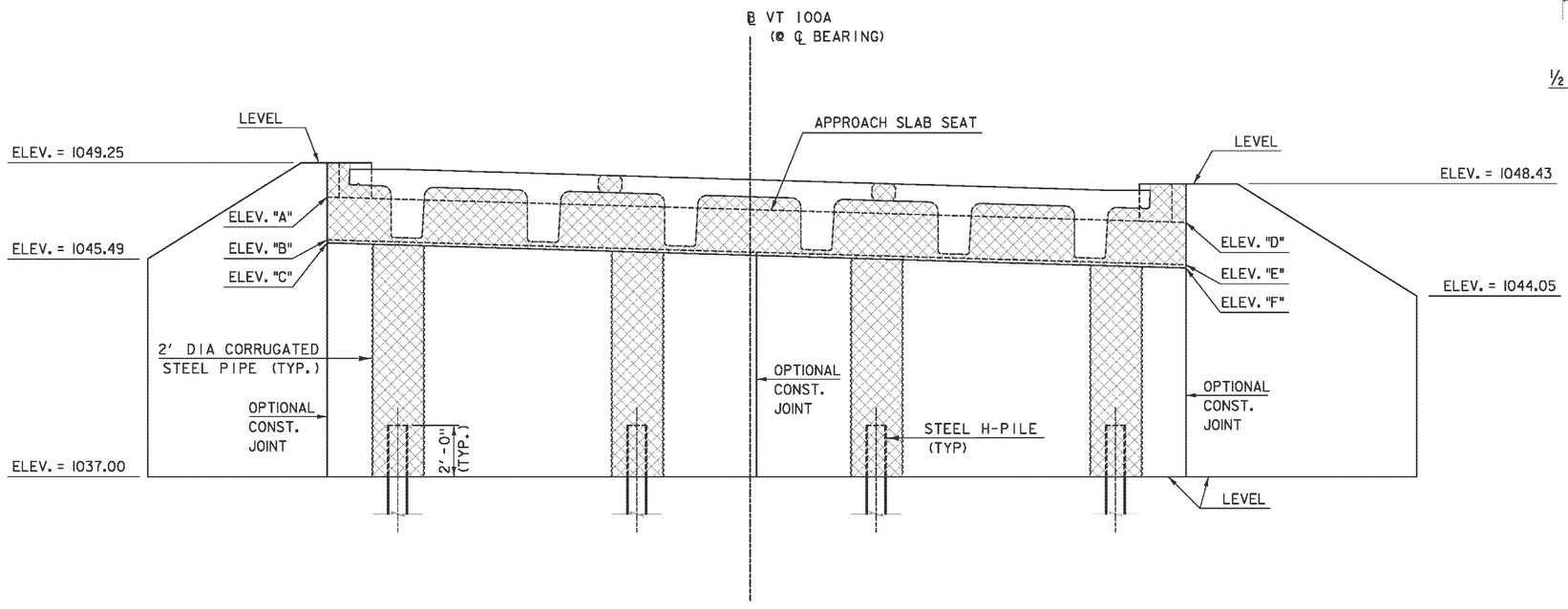
FILE NAME: zllc330slab.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
APPROACH SLAB DETAILS

PLOT DATE: 9/20/2012
DRAWN BY: T. KELLEY
CHECKED BY: D. MYERS
SHEET 22 OF 46



ABUTMENT 1 - PLAN

SCALE: 3/8" = 1'-0



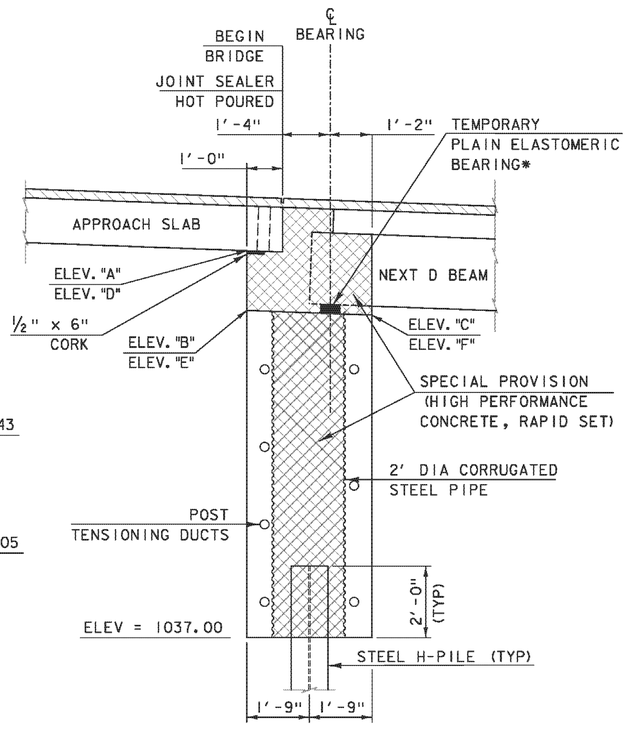
ABUTMENT 1 - ELEVATION

SCALE: 3/8" = 1'-0

ABUTMENT 1 - ELEVATIONS

ELEV "A"	1047.91
ELEV "B"	1046.24
ELEV "C"	1046.12
ELEV "D"	1046.92
ELEV "E"	1045.26
ELEV "F"	1045.13

*TEMPORARY BEARING SHALL BE 9"X9"X3" THICK AND BE CENTERED AT THE INTERSECTION OF ℄ BEARING AND STEM CENTER. ORIENT BEARINGS ALONG STEMS.



ABUTMENT 1 - TYPICAL SECTION

SCALE: ½" = 1'-0

SCALE ⅜" = 1'-0"
0 1 2 3 4

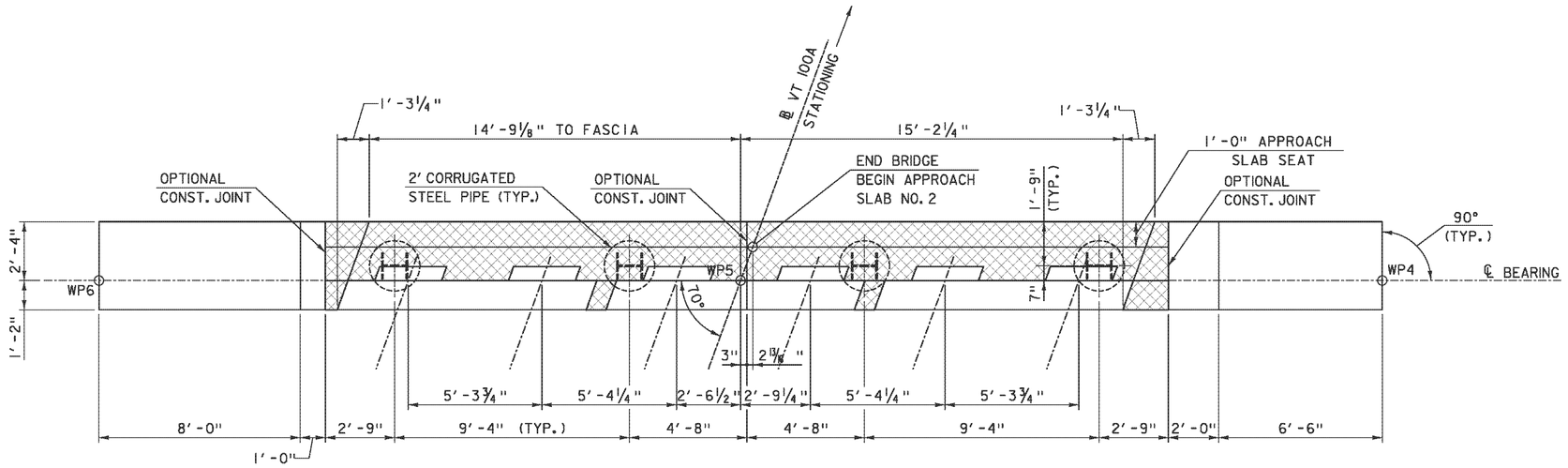
SCALE ½" = 1'-0"
0 1 2

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

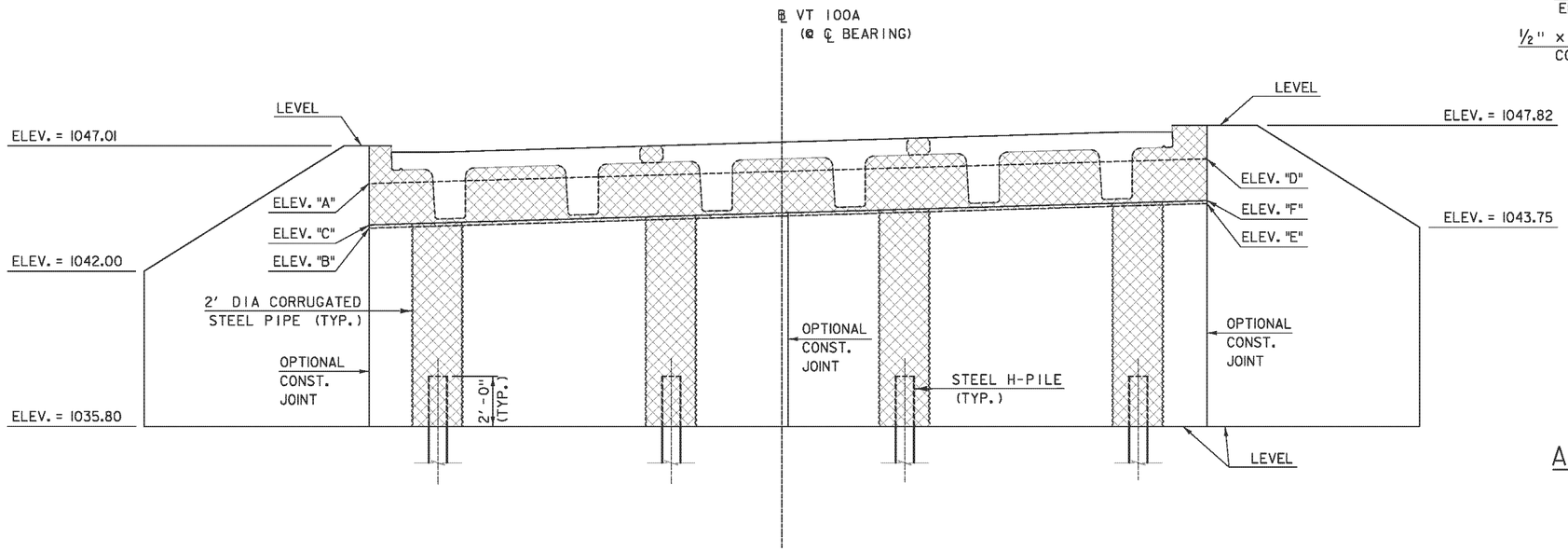
FILE NAME: zllc330sub_01.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
ABUTMENT 1 PLAN, ELEVATION & SECTION

PLOT DATE: 9/20/2012
DRAWN BY: T. KELLEY
CHECKED BY: D. MYERS
SHEET 23 OF 46



ABUTMENT 2 - PLAN

SCALE: 3/8" = 1'-0



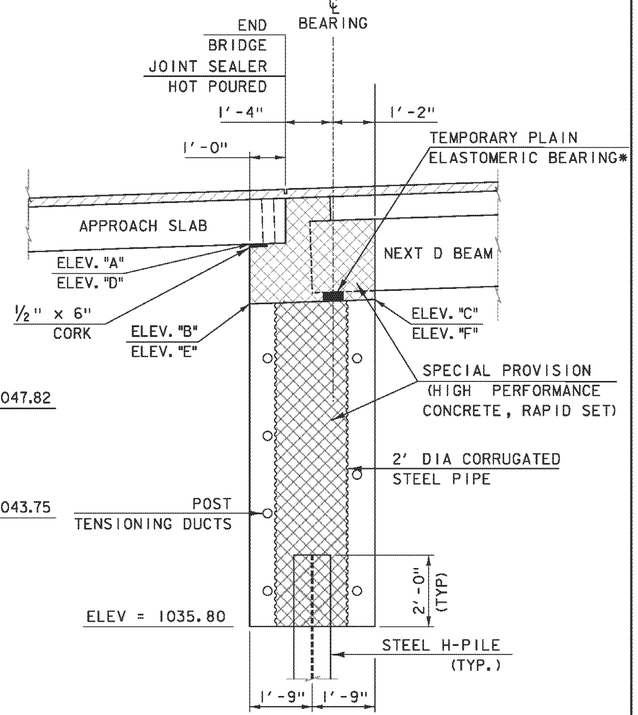
ABUTMENT 2 - ELEVATION

SCALE: 3/8" = 1'-0

ABUTMENT 2 - ELEVATIONS

ELEV "A"	1045.34
ELEV "B"	1043.68
ELEV "C"	1043.80
ELEV "D"	1046.33
ELEV "E"	1044.67
ELEV "F"	1044.79

*TEMPORARY BEARING SHALL BE 9"x9"x3" THICK AND BE CENTERED AT THE INTERSECTION OF ℄ BEARING AND STEM CENTER. ORIENT BARRIERS ALONG STEMS.



ABUTMENT 2 - TYPICAL SECTION

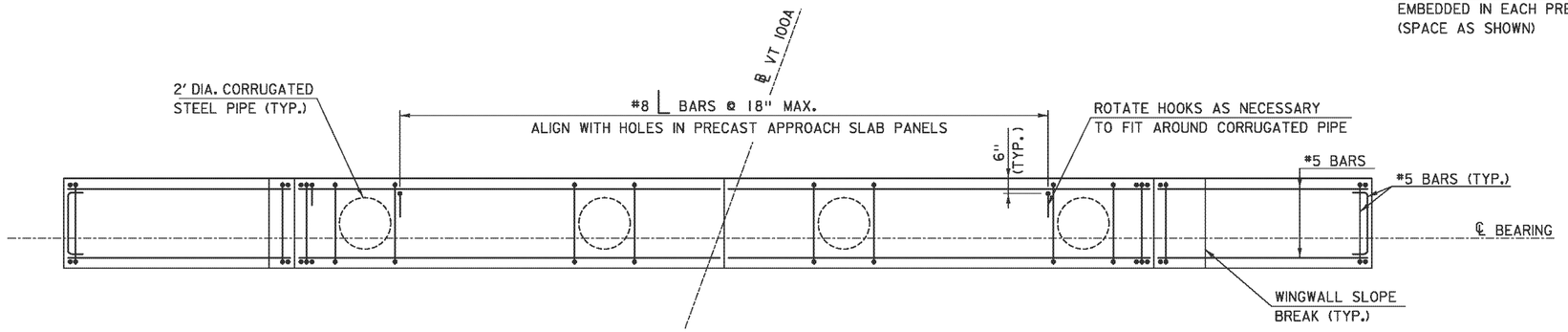
SCALE: ½" = 1'-0

SCALE ⅜" = 1'-0"
0 1 2 3 4

SCALE ½" = 1'-0"
0 1 2

T-Y-LIN INTERNATIONAL

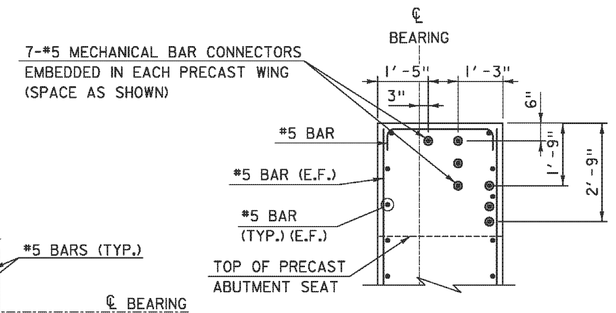
PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	ER BRS 0149(5)
FILE NAME: zllc330sub_02.dgn	PLOT DATE: 9/20/2012
PROJECT LEADER: J. OLUND	DRAWN BY: T. KELLEY
DESIGNED BY: D. MYERS	CHECKED BY: D. MYERS
ABUTMENT 2 PLAN, ELEVATION & SECTION	SHEET 24 OF 46



TYPICAL ABUTMENT REINFORCEMENT PLAN

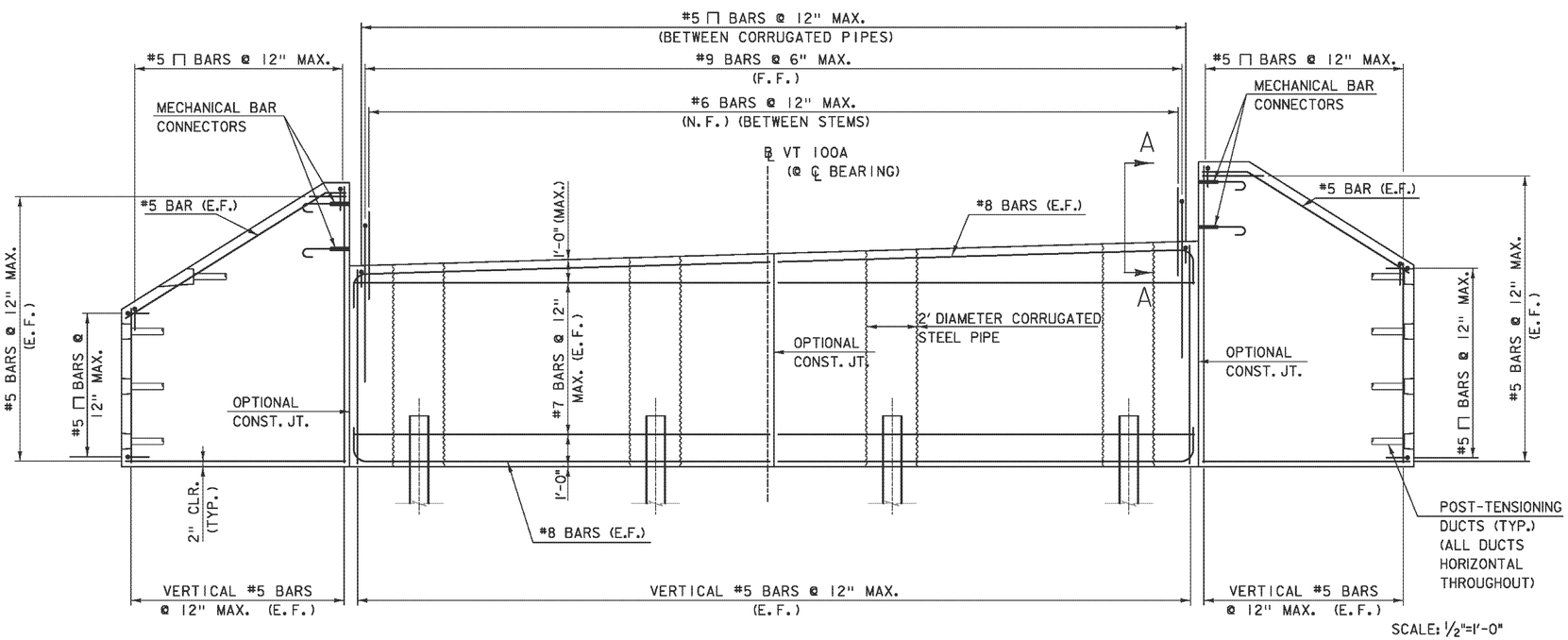
POST TENSIONING DUCTS NOT SHOWN FOR CLARITY

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



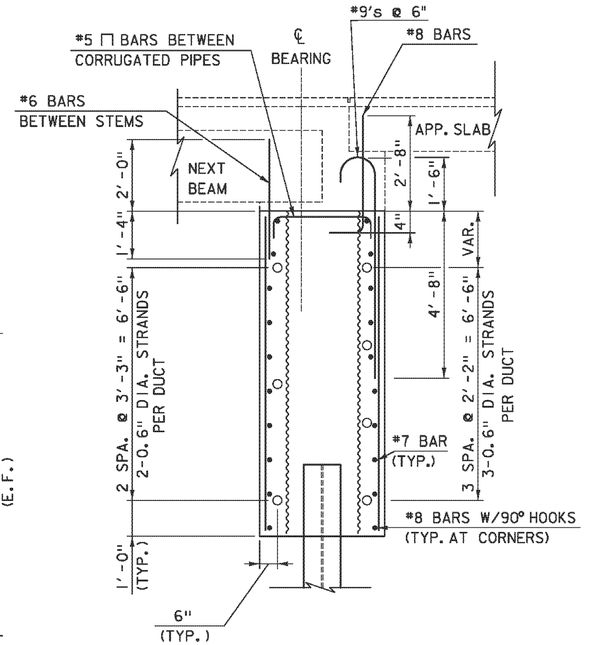
VIEW A-A TOP OF WING

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



TYPICAL ABUTMENT REINFORCEMENT ELEVATION

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



TYPICAL ABUTMENT REINFORCEMENT SECTION

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

SCALE 3/8" = 1'-0"

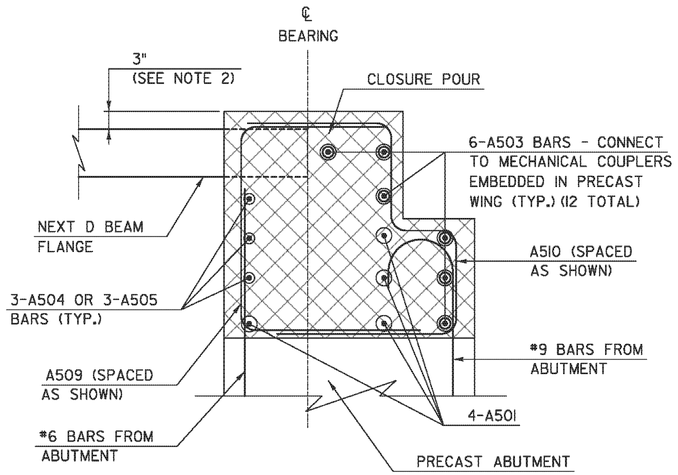
0 1 2 3 4

SCALE 1/2" = 1'-0"

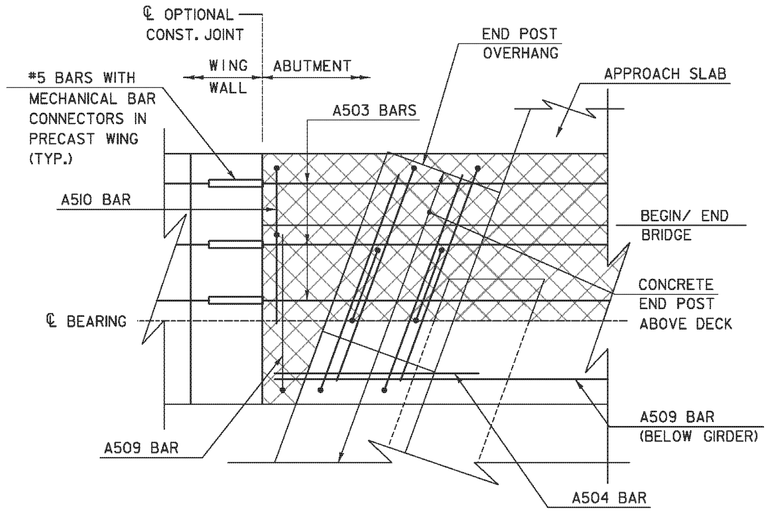
0 1 2

TYLIN INTERNATIONAL

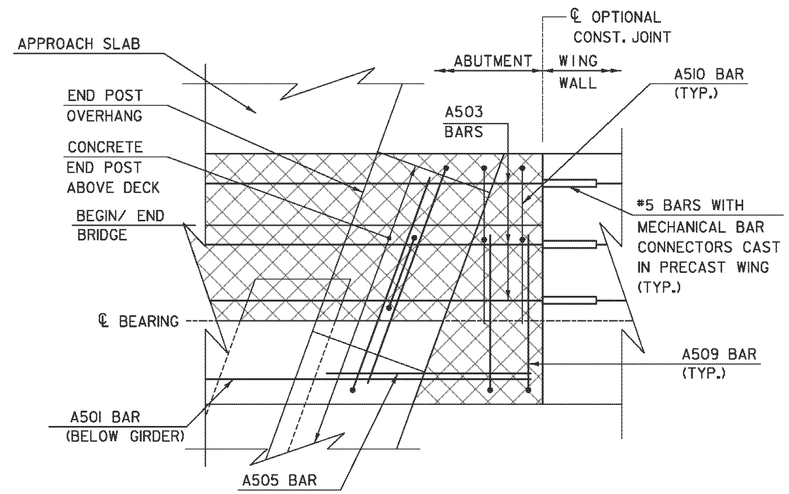
PROJECT NAME: PLYMOUTH	
PROJECT NUMBER: ER BRS 0149(5)	
FILE NAME: zllc330d1003.dgn	PLOT DATE: 9/20/2012
PROJECT LEADER: J. OLUND	DRAWN BY: T. KELLEY
DESIGNED BY: D. MYERS	CHECKED BY: J. OLUND
ABUTMENT REINFORCEMENT	SHEET 25 OF 46



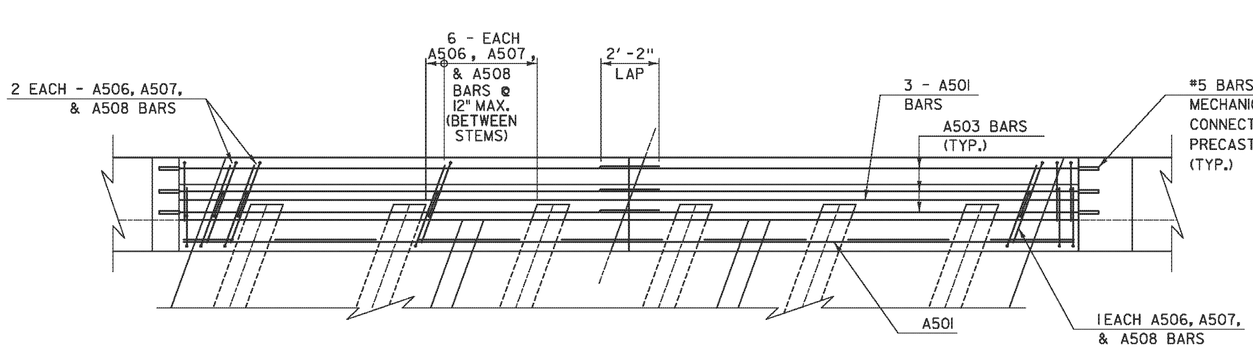
SECTION A-A
SCALE: 1" = 1'-0



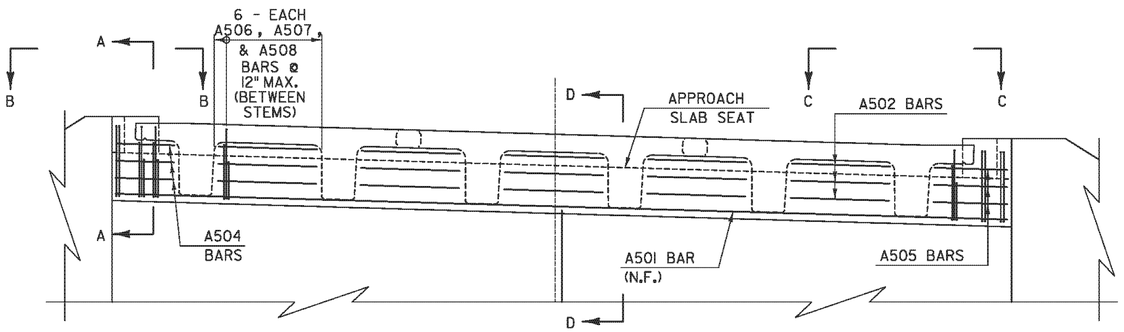
VIEW B-B
SCALE: 1" = 1'-0



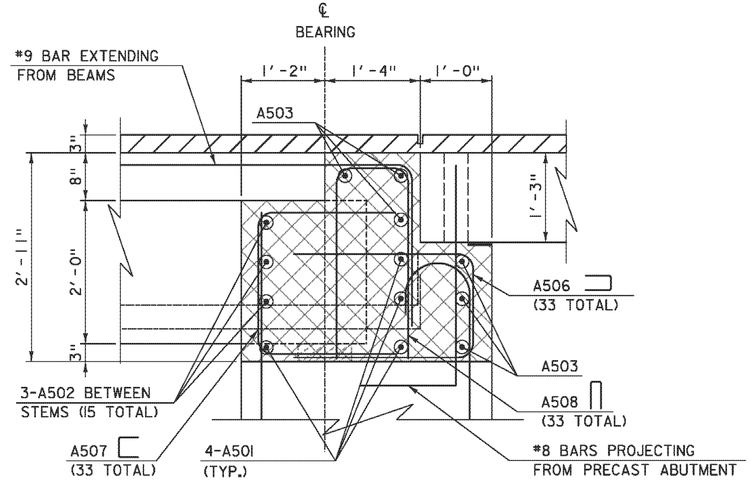
VIEW C-C
SCALE: 1" = 1'-0



CLOSURE POUR - PLAN
SCALE: 3/8" = 1'-0



CLOSURE POUR - ELEVATION
SCALE: 3/8" = 1'-0
(A501 & A503 BARS NOT SHOWN FOR CLARITY)



SECTION D-D: CLOSURE POUR
SCALE: 1" = 1'-0

NOTES:

1. ABUTMENT NO. 1 SHOWN, ABUTMENT NO 2 IS SIMILAR.
2. TOP OF CLOSURE POUR SHALL BE STRUCK FLUSH WITH NEXT D BEAM FLANGES WITHIN THE HORIZONTAL LIMITS OF THE NEXT D BEAM FLANGES. TOP OF CLOSURE POUR OUTSIDE OF NEXT D BEAM FLANGE LIMITS SHALL BE STRUCK LEVEL WITH TOP OF WINGWALLS.

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

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

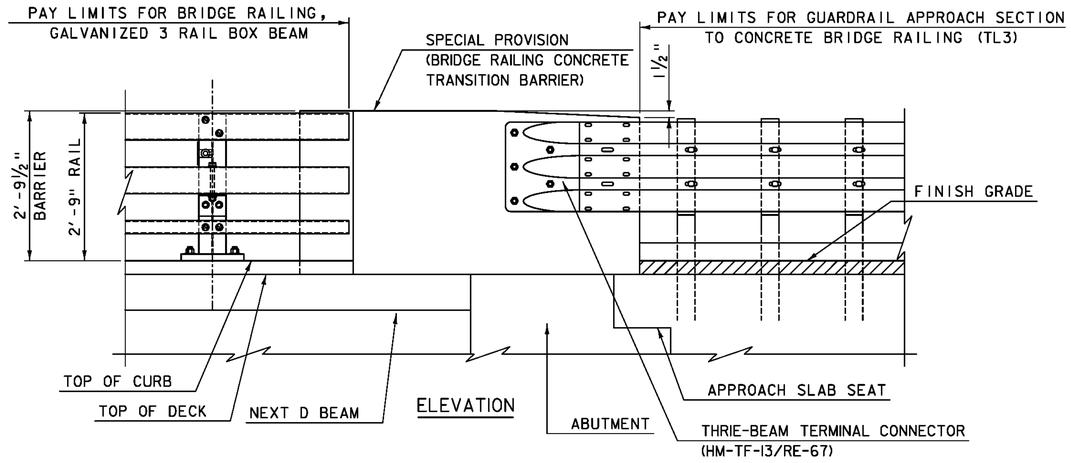
SCALE 1" = 1'-0"
1 9 6 3 0 1 2

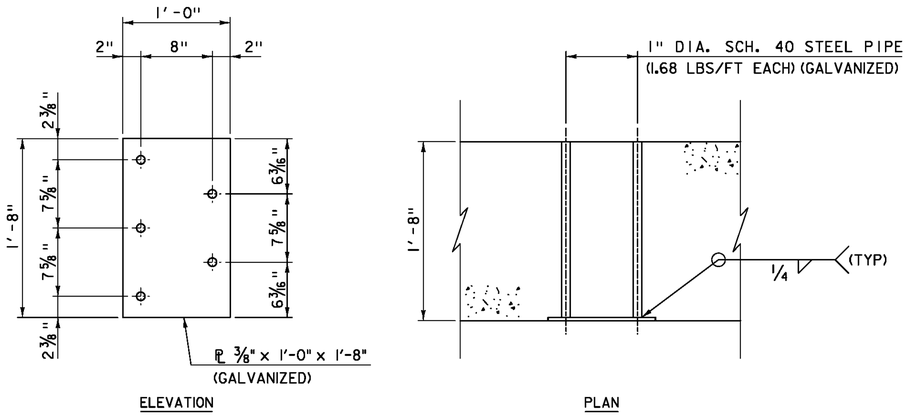
T.Y.LIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330d1004.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
ABUTMENT CLOSURE POUR DETAILS

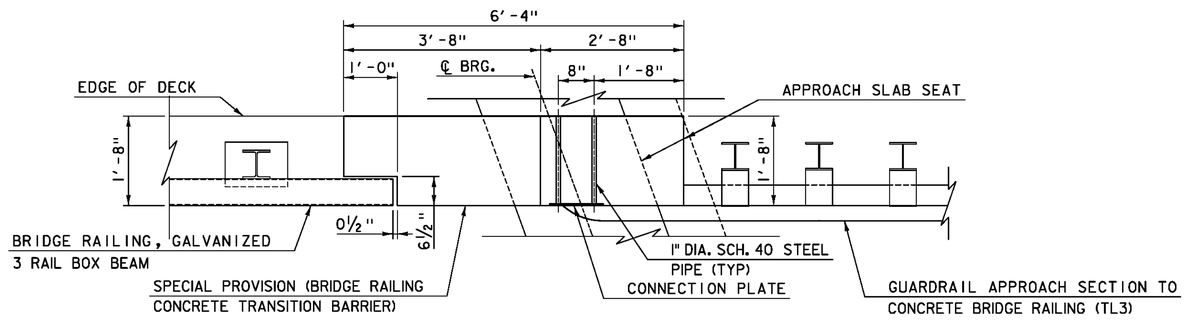
PLOT DATE: 9/20/2012
DRAWN BY: T. KELLEY
CHECKED BY: J. OLUND
SHEET 26 OF 46





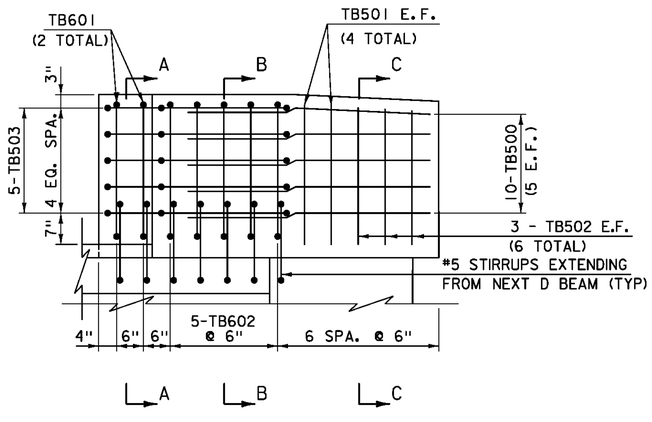
CONNECTION PLATE DETAIL

SCALE: 1½" = 1'-0"

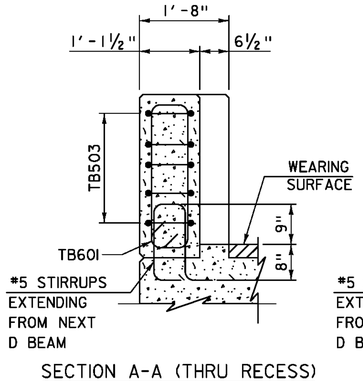


NOTE: CONNECTION PLATES, PIPES, AND REINFORCEMENT NOTED WITH PREFIX 'TB' SHALL BE INCIDENTAL TO ITEM 900.620, "SPECIAL PROVISION (BRIDGE RAILING CONCETE TRANSITION BARRIER)". BAR DETAILS, INCLUDING QUANTITY AND BEND DIMENSIONS, ARE SHOWN IN THE REINFORCEMENT SCHEDULE.

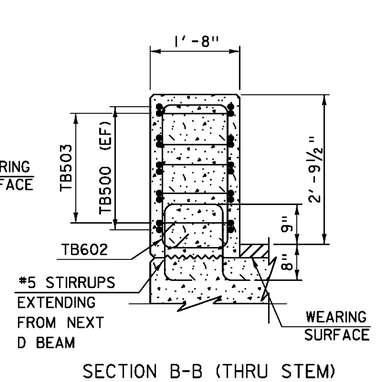
PLAN



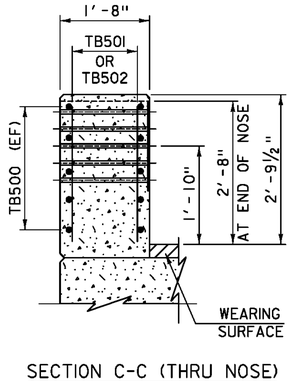
ELEVATION - REINFORCEMENT



SECTION A-A (THRU RECESS)



SECTION B-B (THRU STEM)

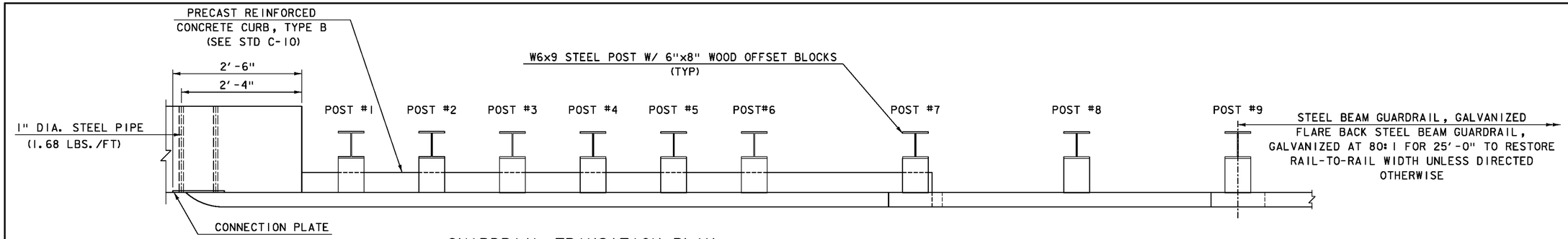


SECTION C-C (THRU NOSE)

BRIDGE RAILING, CONCRETE TRANSITION BARRIER

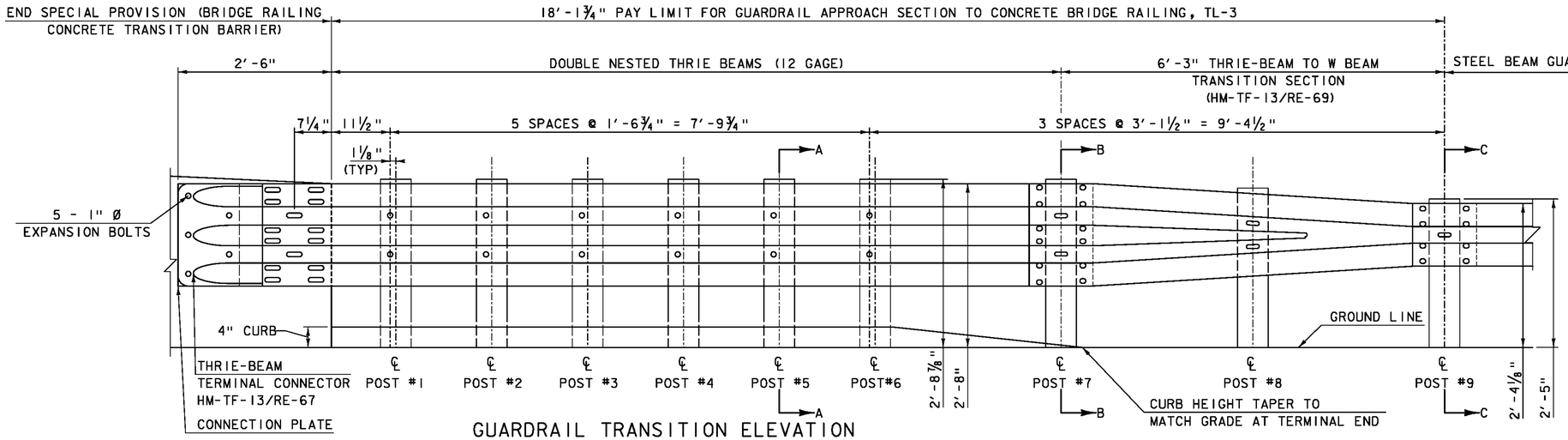
SCALE: ¾" = 1'-0"

PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	ER BRS 0149(5)
T.Y.LIN INTERNATIONAL	
FILE NAME:	z11c330trans_barrier.dgn
PROJECT LEADER:	J. OLUND
DESIGNED BY:	J. OLUND
TRANSITION BARRIER DETAILS	
PLOT DATE:	9/20/2012
DRAWN BY:	T. KELLEY
CHECKED BY:	D. MYERS
SHEET 27 OF 46	



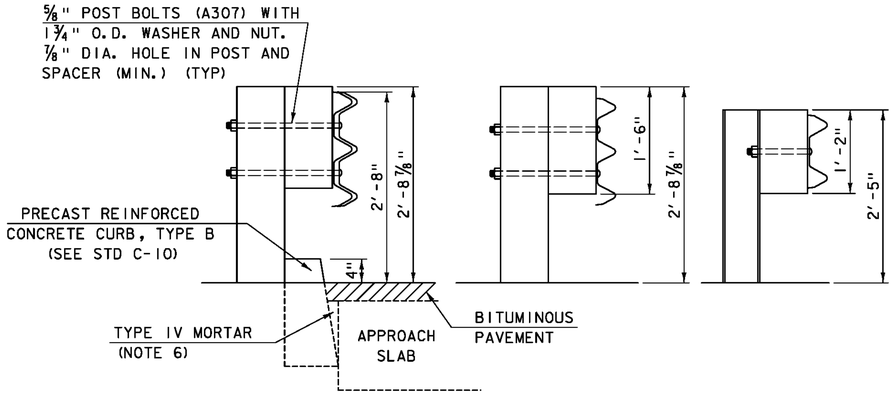
GUARDRAIL TRANSITION PLAN

SCALE: 1" = 1'-0"



GUARDRAIL TRANSITION ELEVATION

SCALE: 1" = 1'-0"



SECTION A-A SECTION B-B SECTION C-C

NOTES:

1. THRIE-BEAM TERMINAL CONNECTOR SHALL BE INCLUDED IN THE UNIT BID PRICE OF ITEM 621.747, "GUARDRAIL APPROACH SECTION TO CONCRETE BRIDGE RAILING, TL3."

2. THE CONNECTION PLATE AND PIPE SHALL BE INCLUDED IN THE UNIT BID PRICE OF ITEM 900.620, "SPECIAL PROVISION (BRIDGE RAILING CONCRETE TRANSITION BARRIER)."

3. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, A COMPOSITE MATERIAL POST AND/OR BLOCKOUT FROM THE APPROVED PRODUCTS LIST MAY BE SUBSTITUTED FOR A POST AND/OR BLOCKOUT OF SIMILAR DIMENSIONS.

4. REFER TO STANDARD DRAWINGS G-1 AND G-1D FOR ADDITIONAL DETAILS.

5. ALL APPROACH RAIL SPLICES SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW.

6. THE TRIANGULAR SPACE BETWEEN THE APPROACH SLAB AND PRECAST CURB SHALL BE FILLED WITH TYPE IV MORTAR. PAYMENT SHALL BE INCIDENTAL TO ITEM 616.26, "PRECAST REINFORCED CONCRETE CURB, TYPE B."

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

T·Y·LIN INTERNATIONAL

FILE NAME: z11c330rail.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
TL-3 TRANSITION RAIL DETAILS

PLOT DATE: 9/20/2012
DRAWN BY: T. KELLEY
CHECKED BY: D. MYERS
SHEET 28 OF 46

STATE OF VERMONT
AGENCY OF TRANSPORTATION

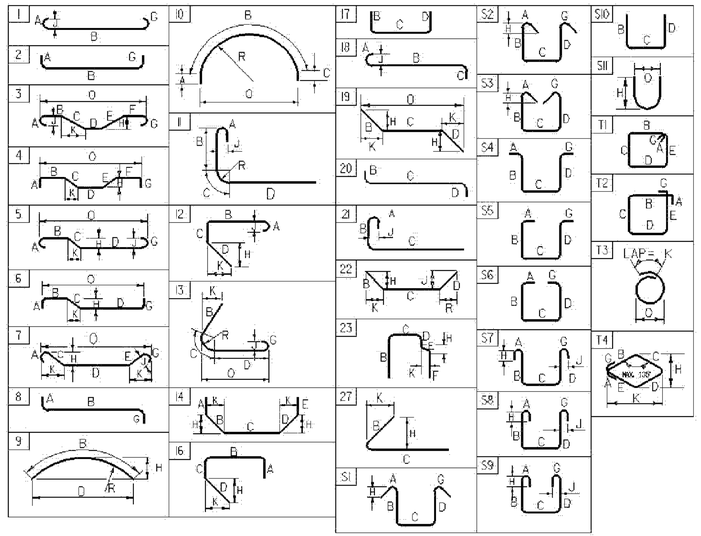
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
ABUTMENT CLOSURE POUR REINFORCING																	
	8	5	33'- 2"	A501	STR.												
△	32	5	3'- 8"	A502	STR.												
	24	5	19'- 5"	A503	STR.												
	6	5	1'- 9"	A504	STR.												
	6	5	3'- 1"	A505	STR.												
	66	5	7'- 10"	A506	17		3'- 3"	1'- 4"	3'- 3"								
✳	67	5	6'- 5"	A507	17		2'- 3"	1'- 11"	2'- 3"								
	66	5	6'- 3"	A508	17		2'- 7"	1'- 1"	2'- 7"								
	6	5	7'- 2"	A509	17		2'- 2"	2'- 10"	2'- 2"								
	6	5	9'- 2"	A510	23		3'- 2"	1'- 4"	1'- 0"	1'- 6"	2'- 2"		0"		1'- 0"		
TRANSITION BARRIERS (INCIDENTAL TO ITEM 900.620, SPECIAL PROVISION (BRIDGE RAILING, CONCRETE TRANSITION BARRIER))																	
△	42	5	4'- 6"	TB500	STR.												
	16	5	2'- 8"	TB501	STR.												
△	26	5	2'- 7"	TB502	STR.												
	20	5	10'- 2"	TB503	T2	0'- 11"	2'- 4"	1'- 4"	3'- 4"	0'- 9"		1'- 6"					
	8	6	8'- 0"	TB601	T1	0'- 8"	0'- 8"	2'- 8"	0'- 8"	2'- 8"		0'- 8"					
	20	6	9'- 2"	TB602	T1	0'- 8"	1'- 3"	2'- 8"	1'- 3"	2'- 8"		0'- 8"					

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

~ NOTES ~

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



ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	AREA INCHES^2	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

PROJECT NAME: **PLYMOUTH**
PROJECT NUMBER: **ER BRS 0149(5)**

FILE NAME: **zllc330rss.xls** PLOT DATE: **8/24/2012**
PROJECT MANAGER: **J. OLUND** DRAWN BY: **D. MYERS**
DESIGNED BY: **D. MYERS** CHECKED BY: **J. OLUND**
REINFORCING STEEL SCHEDULE SHEET **29** OF **46**

N

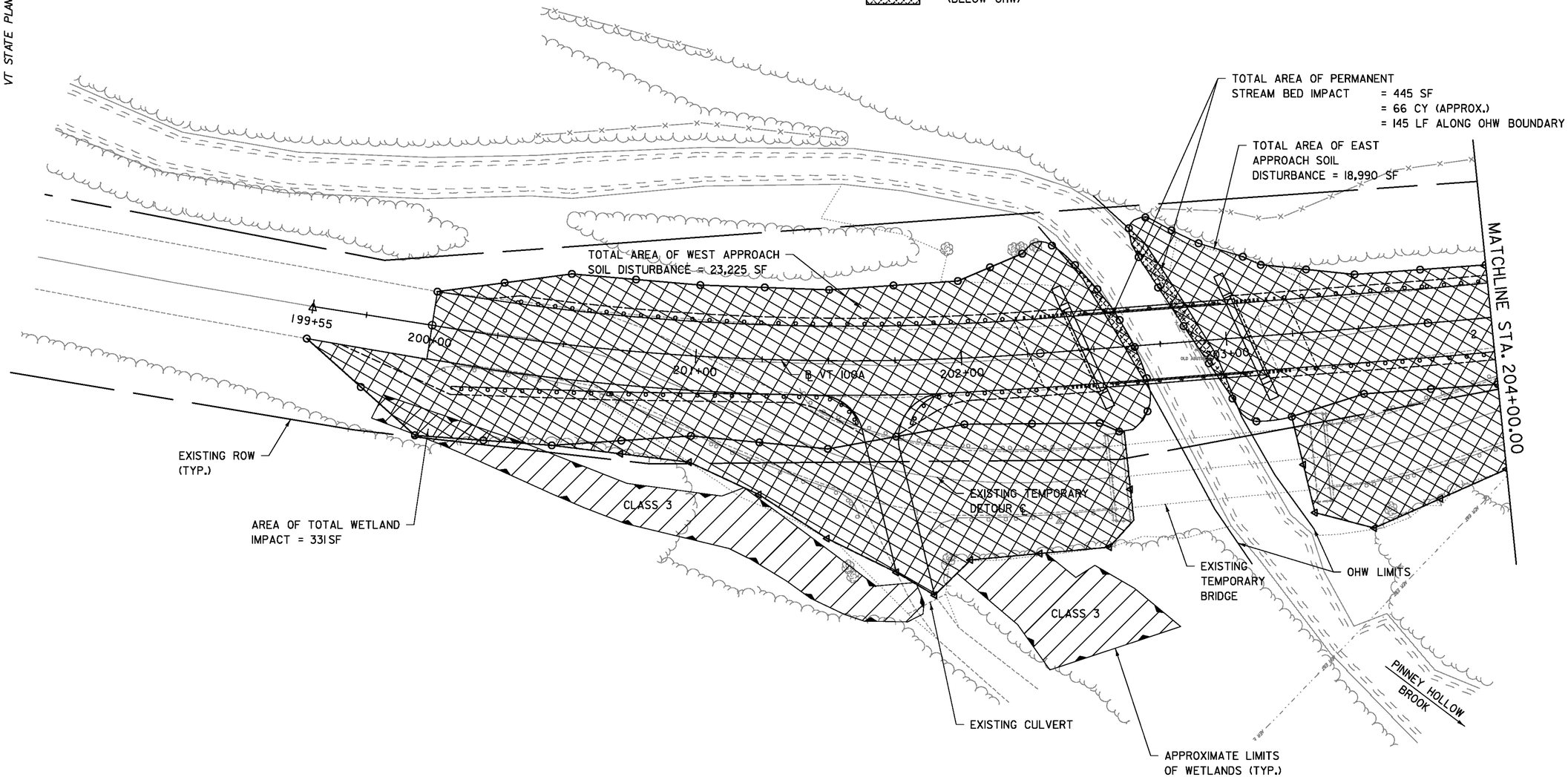
VT STATE PLANE GRID

LEGEND

AREA OF SOIL DISTURBANCE

AREA OF PERMANENT STREAM IMPACT (BELOW OHW)

AREA OF APPROXIMATE WETLAND LIMITS



RESOURCE LAYOUT 1

NOTE: APPROXIMATELY 650 SF OF WETLANDS WERE IMPACTED AS A RESULT OF THE CONSTRUCTION OF THE TEMPORARY DETOUR, PER J. LEPORE OF VTRANS, OCT. 25, 2011.

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

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_R1_01.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
RESOURCE LAYOUT 1

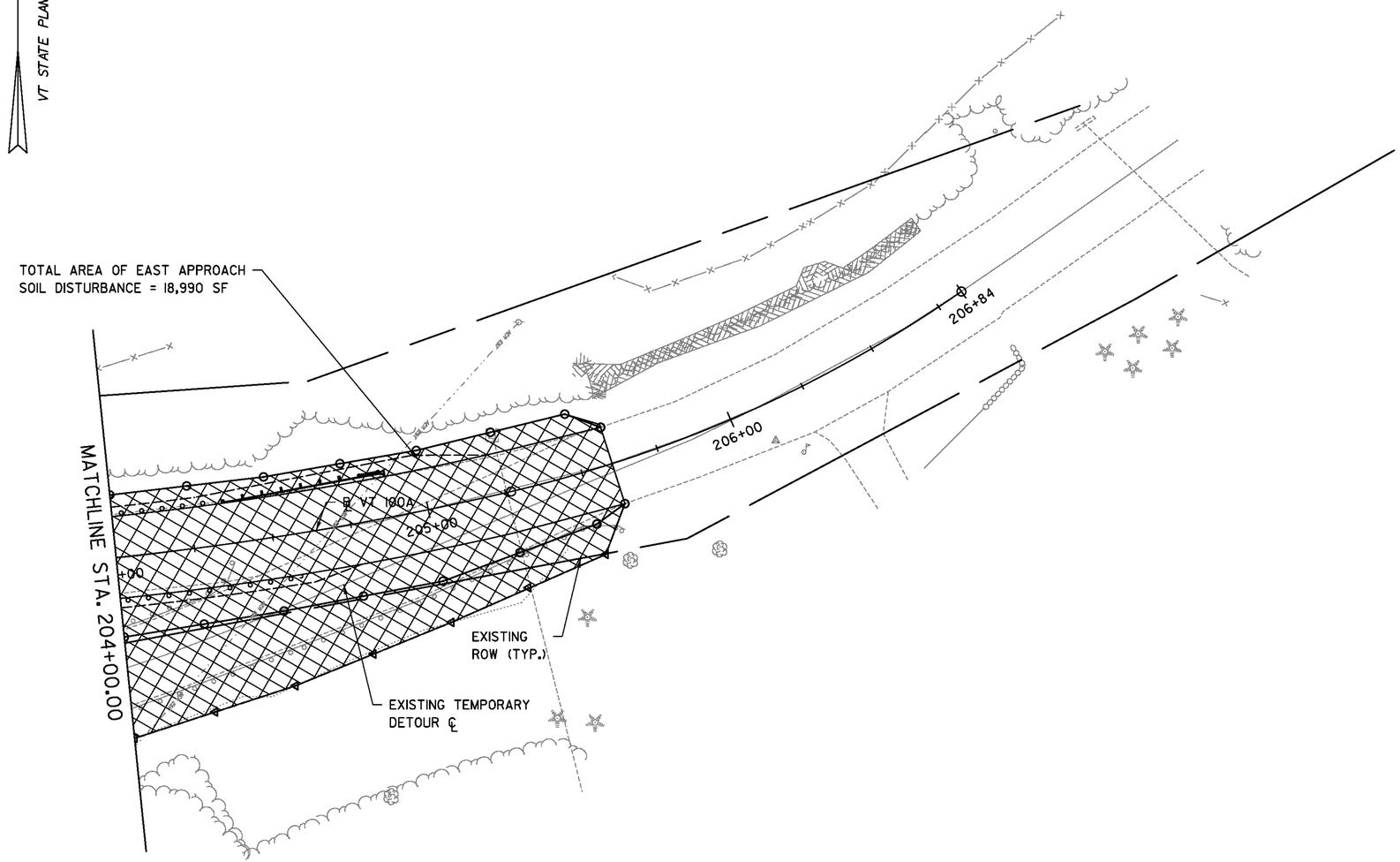
PLOT DATE: 9/20/2012
DRAWN BY: S. MORGAN
CHECKED BY: D. BRYANT
SHEET 30 OF 46

N

VT STATE PLANE GRID

LEGEND

AREA OF SOIL DISTURBANCE



RESOURCE LAYOUT 2

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

T.Y.LIN INTERNATIONAL

PROJECT NAME: PLYMOUTH	
PROJECT NUMBER: ER BRS 0149(5)	
FILE NAME: z11c330bdr_RL02.dgn	PLOT DATE: 9/20/2012
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: J. OLUND	CHECKED BY: D. BRYANT
RESOURCE LAYOUT 2	SHEET 31 OF 46

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE #8 ON VT 100A SPANNING 63 FEET OVER THE BODY OF WATER KNOWN AS PINNEY HOLLOW BROOK IN THE TOWN OF PLYMOUTH. THE PROJECT BEGINS AT A POINT APPROXIMATELY 1.00 MILES SOUTH OF THE BRIDGEWATER TOWN LINE AND EXTENDS EASTERLY FOR 0.04 MILES. WORK WILL INVOLVE CONSTRUCTION OF NEW ABUTMENTS, CONSTRUCTION OF THE BRIDGE SUPERSTRUCTURE ALONG WITH RELATED ROADWAY, CHANNEL WORK, AND THE MAINTENANCE AND REMOVAL OF AN EMERGENCY REPAIR TEMPORARY DETOUR BRIDGE AND APPROACHES.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA AS SHOWN ON THE ATTACHED EPSC PLAN. THE AREA OF DISTURBANCE DOES NOT INCLUDE WASTE, BORROW AND STAGING AREAS. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE LOCATION OF THE WASTE, BORROW AND STAGING AREAS, AS WELL AS THE MATERIAL STOCKPILE, REFUELING AND MAINTENANCE AREAS. A MAP SHALL BE ATTACHED IF NECESSARY.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 42,215 SQUARE FEET (0.97 ACRES).

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY, EXISTING ROADS, UTILITIES

THE TOPOGRAPHY SURROUNDING THE PROJECT SITE CONSISTS OF MODERATELY STEEP SLOPES ON THE NORTH SIDE OF THE PROJECT AND GENTLY SLOPING SLOPES ON THE SOUTH SIDE OF THE PROJECT. THERE IS ONE RESIDENTIAL PROPERTY ON THE SOUTHEAST CORNER OF THE PROJECT. THE GENERAL TOPOGRAPHY OF THE AREA SLOPES FROM THE NORTH TO THE SOUTH. ALL ROAD SURFACES IN THE PROJECT AREA ARE BITUMINOUS CONCRETE PAVEMENT.

THERE ARE OVERHEAD ELECTRICAL AND TELEPHONE LINES ON THE EAST END OF THE PROJECT THAT CROSS VT 100A AND PINNEY HOLLOW BROOK.

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

THE BRIDGE SPANS THE BODY OF WATER KNOWN AS PINNEY HOLLOW BROOK. IN GENERAL THE BROOK IS CLASSIFIED AS MEANDERING. WITHIN THE REACH INFLUENCED BY THE BRIDGE THE BROOK IS CHANNELIZED WITH A BEND UPRIVER. THE BROOK BOUNDARIES ARE ALLUVIAL AND STREAM BANKS ARE GENERALLY SHALLOW. THE STREAM BED CONSISTS OF GRAVEL AND COBBLE. THE TRIBUTARY AREA AT THE BRIDGE IS 8.6 SQUARE MILES. CONSTRUCTION OF THE NEW BRIDGE WILL REQUIRE SOME TEMPORARY AND PERMANENT IMPACTS TO PINNEY HOLLOW BROOK. THERE ARE ALSO EXISTING WETLANDS ON THE SOUTHWEST END OF THE PROJECT THAT WILL BE IMPACTED.

THE FOLLOWING DESCRIPTIONS ARE FOR THE EXISTING SITE PLANS: SURFACE DRAINAGE FROM VT 100A FLOWS DOWN WOODED SIDESLOPES INTO EXISTING DITCHES AND DRAINAGE STRUCTURES WHICH OUTLET TOWARDS PINNEY BROOK.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF A SMALL AREA OF A WELL ESTABLISHED LAWN AND MEDIUM TO HEAVILY WOODED AREAS. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS REQUIRED FOR REPLACEMENT OF THE EXISTING BRIDGE AND REMOVAL OF THE EMERGENCY REPAIR TEMPORARY DETOUR BRIDGE AND APPROACHES. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE FOR THE COUNTY OF WINDSOR, VERMONT. SOILS ON THE PROJECT SITE ARE:

TUNBRIDGE-LYMAN COMPLEX;
BERKSHIRE AND MONADNOCK;
AND CROGHAN AND SHEEPSCOT.

SEE EPSC EXISTING CONDITIONS LAYOUT SHEETS FOR SOIL LOCATIONS AND ADDITIONAL INFORMATION.

1.2.4 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHAEOLOGICAL AREAS: NO
PRIME AGRICULTURE LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: PINNEY HOLLOW BROOK
WETLANDS: CLASS III WETLANDS ON SOUTHWEST CORNER OF PROJECT.
TOTAL IMPACTED AREA IS 331 SF.

1.3 RISK EVALUATION

THE PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. 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, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

1.4.1 MARK SITE BOUNDARIES

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

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA

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

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

ENTRANCE/EXIT STABILIZATION MEASURES ARE NOT ANTICIPATED ON THIS PROJECT.

1.4.4 INSTALL SEDIMENT BARRIERS

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

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND DETAIL SHEETS.

DROP INLET PROTECTION WILL BE UTILIZED AS SHOWN ON THE EPSC PLAN AND DETAIL SHEETS.

1.4.5 DIVERT UPLAND RUNOFF

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

DIVERSION OF UPLAND RUNOFF IS NOT ANTICIPATED.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS. STONE CHECK DAMS SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND OTHER AREAS AS DIRECTED BY THE RESIDENT ENGINEER.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS.

SEED AND MULCH WILL BE USED AS PERMANENT CONTROLS TO STABILIZE EXPOSED SOIL. RIPRAP AND STONE FILL WILL BE USED TO STABILIZE THE STREAMBED AROUND THE ABUTMENTS.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE. THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

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

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

1.4.9 WINTER STABILIZATION

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

SHOULD EARTH DISTURBANCE BE PERFORMED OUTSIDE THE CONSTRUCTION SEASON, A WINTER EROSION AND SEDIMENT CONTROL PLAN DESCRIBING ALTERNATIVE STABILIZATION METHODS SHALL BE SUBMITTED TO THE RESIDENT ENGINEER PRIOR TO AUGUST 15TH FOR APPROVAL.

1.4.10 STABILIZE SOIL AT FINAL GRADE

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

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

1.4.11 DE-WATERING ACTIVITIES

THE USE OF COFFERDAMS ARE NOT ANTICIPATED.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS.

1.5 SEQUENCE AND STAGING

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

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. WASTE, BORROW AND STAGING SITES MUST BE APPROVED BY VTRANS ENVIRONMENTAL SECTION.

N

VT STATE PLANE GRID

SOIL CLASSIFICATION

TUNBRIDGE-LYMAN COMPLEX
VERY ROCKY
35 TO 60% SLOPES
"K FACTOR" 0.28
HIGH ERODIBILITY

WOODS

STA. 200+00.00
MATCH EXISTING
PAVEMENT
BEGIN APPROACH

TO PLYMOUTH

GRASS

199+55

200+00

201+00

202+00

℄ VT 100A

BRUSH

STA. 201+60.00
END APPROACH
BEGIN PROJECT
ER BRS 0149(5)

STA. 202+45.58
BEGIN BRIDGE

CHANNEL LINE

100+00

101+00

101+77

203+00

204

MATCHLINE STA. 204+00.00

PROPOSED VT ROUTE 100A
STA. 202+75.47 =
CHANNEL
STA. 100+86.08

STA. 203+90.00
END PROJECT
ER BRS 0149(5)
BEGIN APPROACH

STA. 203+08.42
END BRIDGE

EXISTING
ROW (TYP.)

EDGE OF WETLAND

SOIL CLASSIFICATION

BERKSHIRE AND MONADNOCK
FINE SANDY LOAMS, VERY STONY
35 TO 60% SLOPES
"K FACTOR" 0.28
HIGH ERODIBILITY

EDGE OF WETLAND

SOIL CLASSIFICATION

CROGHAN AND SHEEPSCOT
FINE SANDY LOAMS
0 TO 8% SLOPES
"K FACTOR" 0.24
MEDIUM ERODIBILITY

PINNEY
HOLLOW BROOK

LEGEND:

WETLAND CLASS III

AER E&T — AERIAL ELECTRIC & TELEPHONE

SOIL CLASSIFICATION BOUNDARY

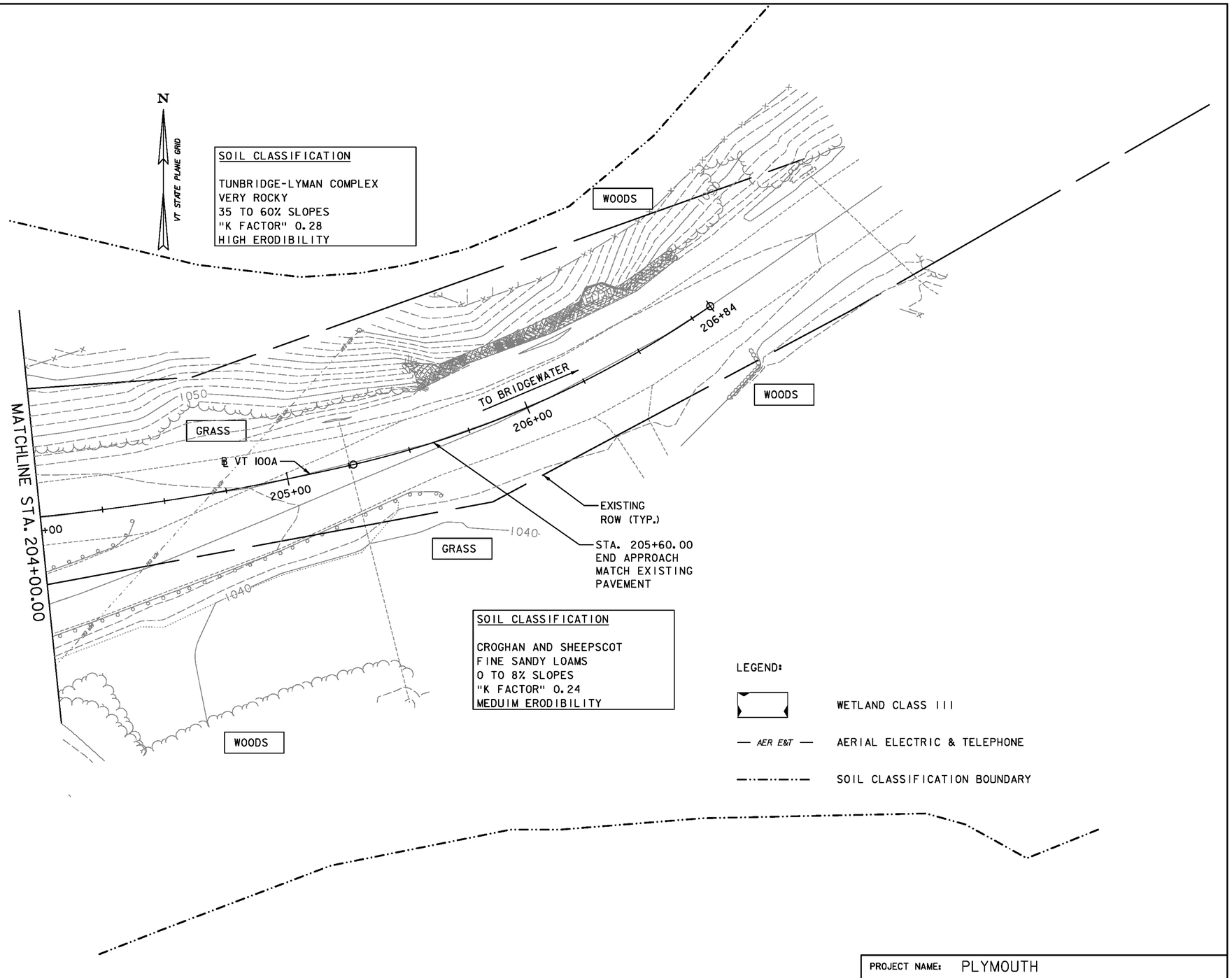
SCALE 1" = 20'-0"
20 0 20

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_ero.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. AMOROSO
EPSC EXISTING CONDITIONS LAYOUT 1

PLOT DATE: 9/20/2012
DRAWN BY: S. AMOROSO
CHECKED BY: D. BRYANT
SHEET 33 OF 46



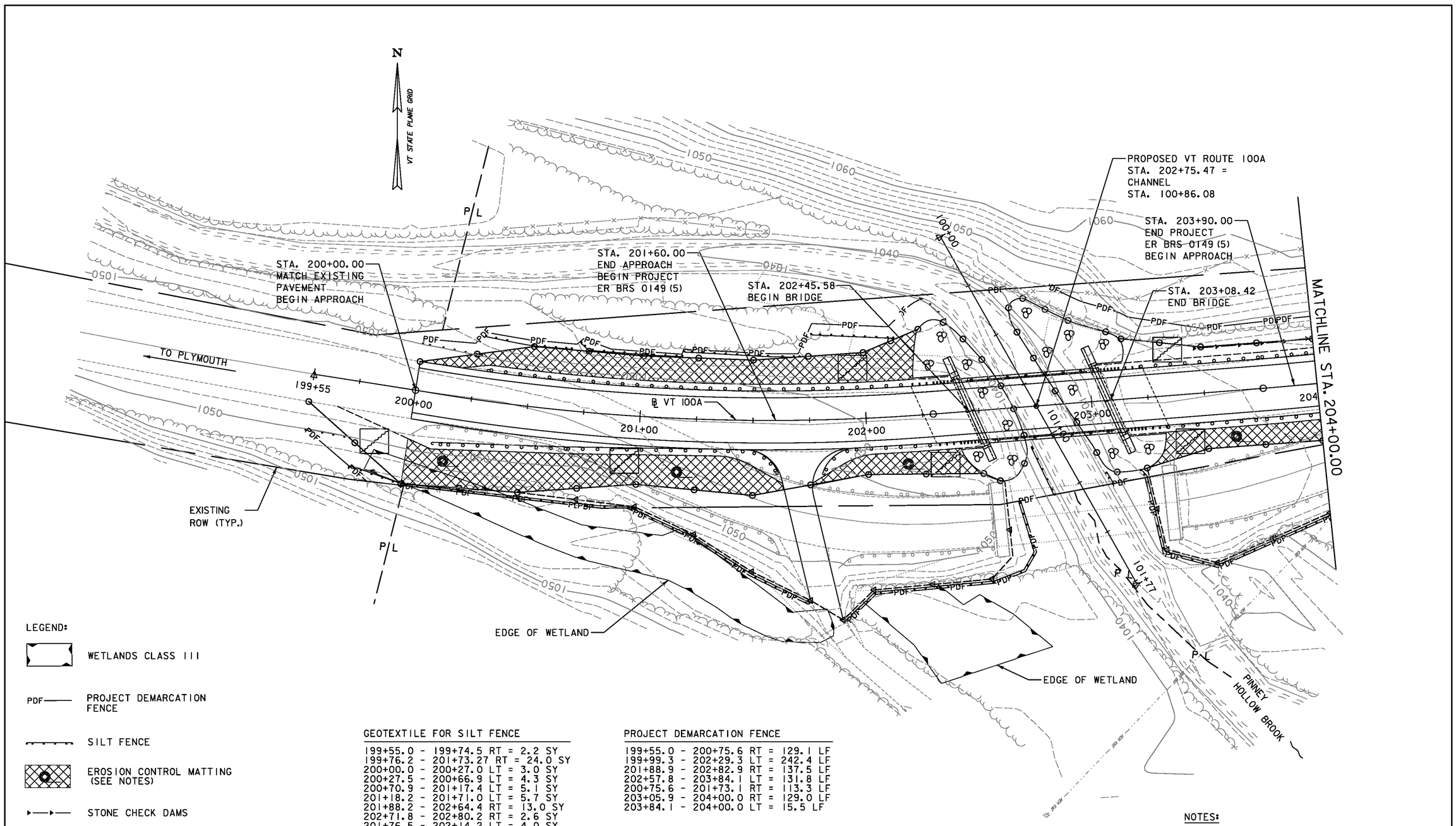
SCALE 1" = 20'-0"
20 0 20

T.Y.LIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_ero.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. AMOROSO
EPSC EXISTING CONDITION LAYOUT 2

PLOT DATE: 9/20/2012
DRAWN BY: S. AMOROSO
CHECKED BY: D. BRYANT
SHEET 34 OF 46



LEGEND:

- WETLANDS CLASS III
- PDF — PROJECT DEMARCATION FENCE
- SILT FENCE
- EROSION CONTROL MATTING (SEE NOTES)
- STONE CHECK DAMS
- STONE FILL, TYPE IV
- SURFACE ROUGHENING
- INLET PROTECTION DEVICE, TYPE I

GEOTEXTILE FOR SILT FENCE

199+55.0 - 199+74.5 RT	= 2.2 SY
199+76.2 - 201+73.27 RT	= 24.0 SY
200+00.0 - 200+27.0 LT	= 3.0 SY
200+27.5 - 200+66.9 LT	= 4.3 SY
200+70.9 - 201+17.4 LT	= 5.1 SY
201+18.2 - 201+71.0 LT	= 5.7 SY
201+88.2 - 202+64.4 RT	= 13.0 SY
202+71.8 - 202+80.2 RT	= 2.6 SY
201+76.5 - 202+14.2 LT	= 4.0 SY
202+28.1 - 202+38.0 LT	= 1.6 SY
203+04.4 - 203+06.8 RT	= 0.6 SY
203+19.6 - 204+00.0 RT	= 14.3 SY

TEMPORARY EROSION MATTING

200+00.0 - 202+25.8 LT	= 256.9 SY
200+00.0 - 201+63.7 RT	= 282.9 SY
201+75.7 - 202+49.9 RT	= 66.0 SY
203+22.3 - 204+00.0 RT	= 74.7 SY

PROJECT DEMARCATION FENCE

199+55.0 - 200+75.6 RT	= 129.1 LF
199+99.3 - 202+29.3 LT	= 242.4 LF
201+88.9 - 202+82.9 RT	= 137.5 LF
202+57.8 - 203+84.1 LT	= 131.8 LF
200+75.6 - 201+73.1 RT	= 113.3 LF
203+05.9 - 204+00.0 RT	= 129.0 LF
203+84.1 - 204+00.0 LT	= 15.5 LF

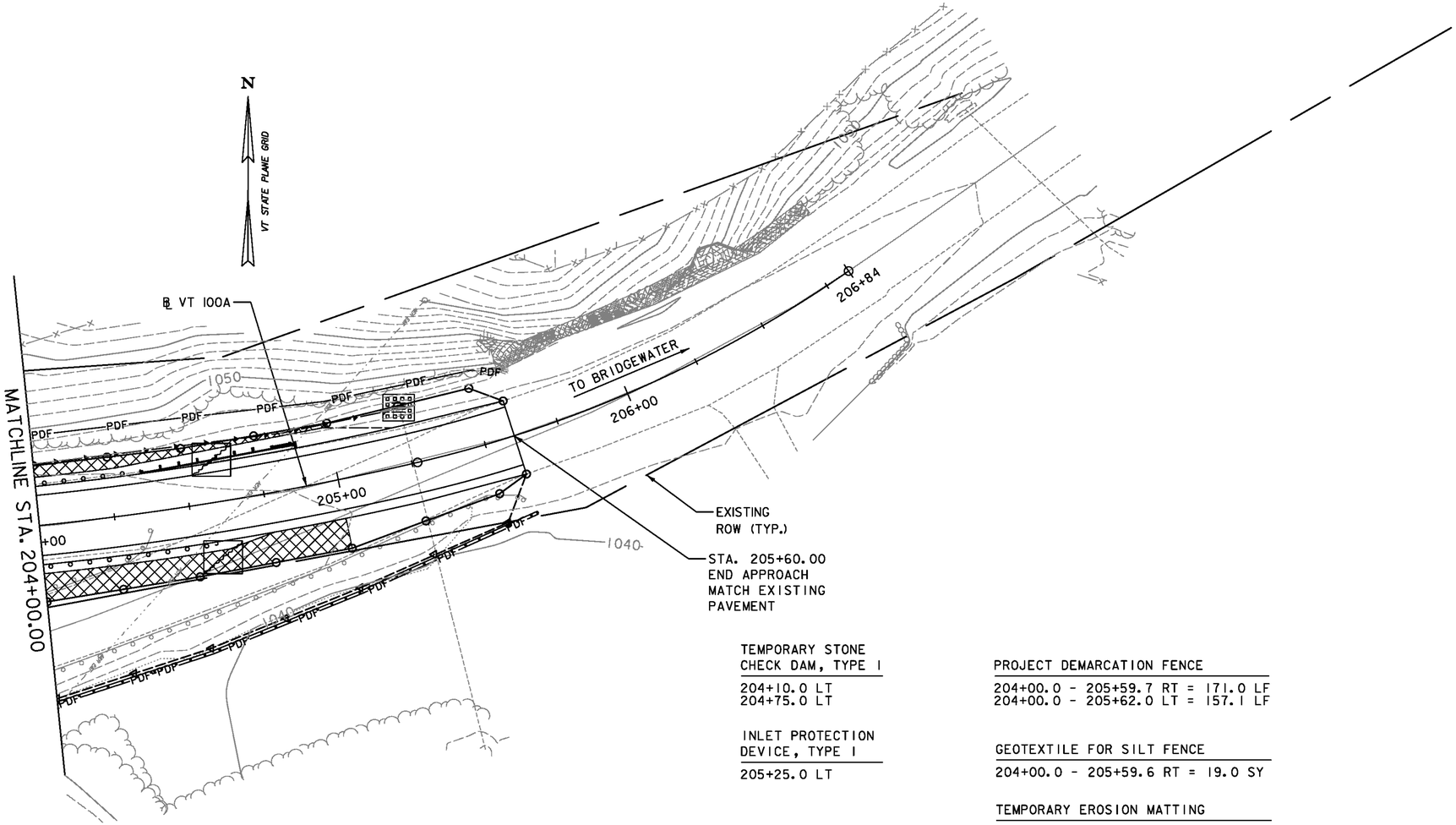
NOTES:

TEMPORARY EROSION MATTING TO BE USED ON SLOPES STEEPER THAN 3:1.

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

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH	
PROJECT NUMBER: ER BRS 0149(5)	
FILE NAME: zllc330bdr_ero.dgn	PLOT DATE: 9/20/2012
PROJECT LEADER: J. OLUND	DRAWN BY: S. AMOROSO
DESIGNED BY: S. AMOROSO	CHECKED BY: D. BRYANT
EPSC CONSTRUCTION CONDITION LAYOUT 1	SHEET 35 OF 46



LEGEND:

- WETLANDS CLASS III
- PDF —— PROJECT DEMARCATION FENCE
- SILT FENCE
- EROSION CONTROL MATTING (SEE NOTES)
- STONE CHECK DAMS
- STONE FILL, TYPE IV
- SURFACE ROUGHENING
- INLET PROTECTION DEVICE, TYPE I

TEMPORARY STONE CHECK DAM, TYPE I

204+10.0 LT
204+75.0 LT

INLET PROTECTION DEVICE, TYPE I

205+25.0 LT

PROJECT DEMARCATION FENCE

204+00.0 - 205+59.7 RT = 171.0 LF
204+00.0 - 205+62.0 LT = 157.1 LF

GEOTEXTILE FOR SILT FENCE

204+00.0 - 205+59.6 RT = 19.0 SY

TEMPORARY EROSION MATTING

204+00.0 - 205+00.0 RT = 97.6 SY
204+00.0 - 205=00.0 RT = 28.8 SY

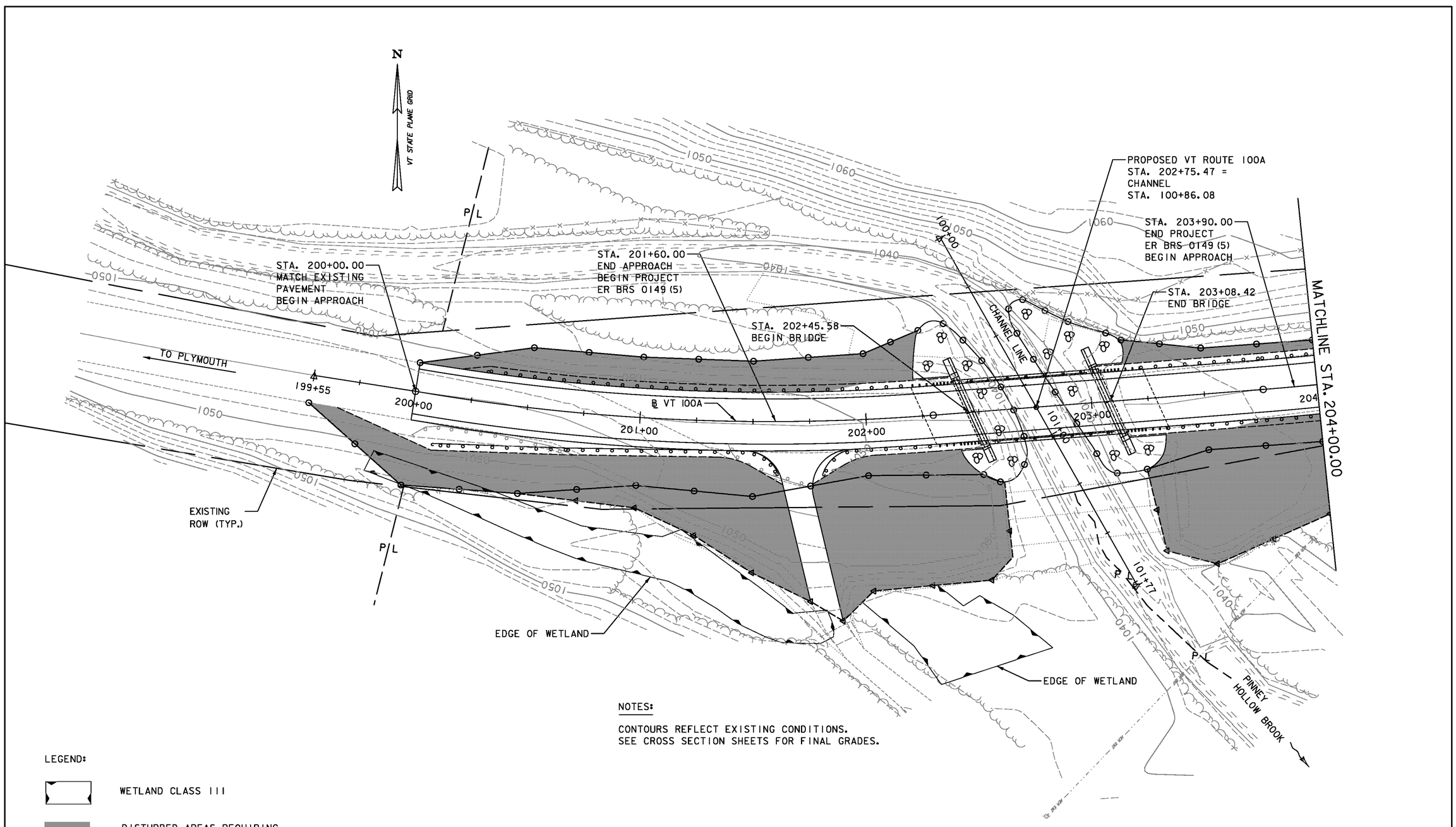
SCALE 1" = 20'-0"
20 0 20

TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_ero.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. AMOROSO
EPSC CONSTRUCTION CONDITION LAYOUT 2

PLOT DATE: 9/20/2012
DRAWN BY: S. AMOROSO
CHECKED BY: D. BRYANT
SHEET 36 OF 46



NOTES:

CONTOURS REFLECT EXISTING CONDITIONS.
SEE CROSS SECTION SHEETS FOR FINAL GRADES.

LEGEND:

WETLAND CLASS III

DISTURBED AREAS REQUIRING RE-VEGETATION

STONE FILL, TYPE IV

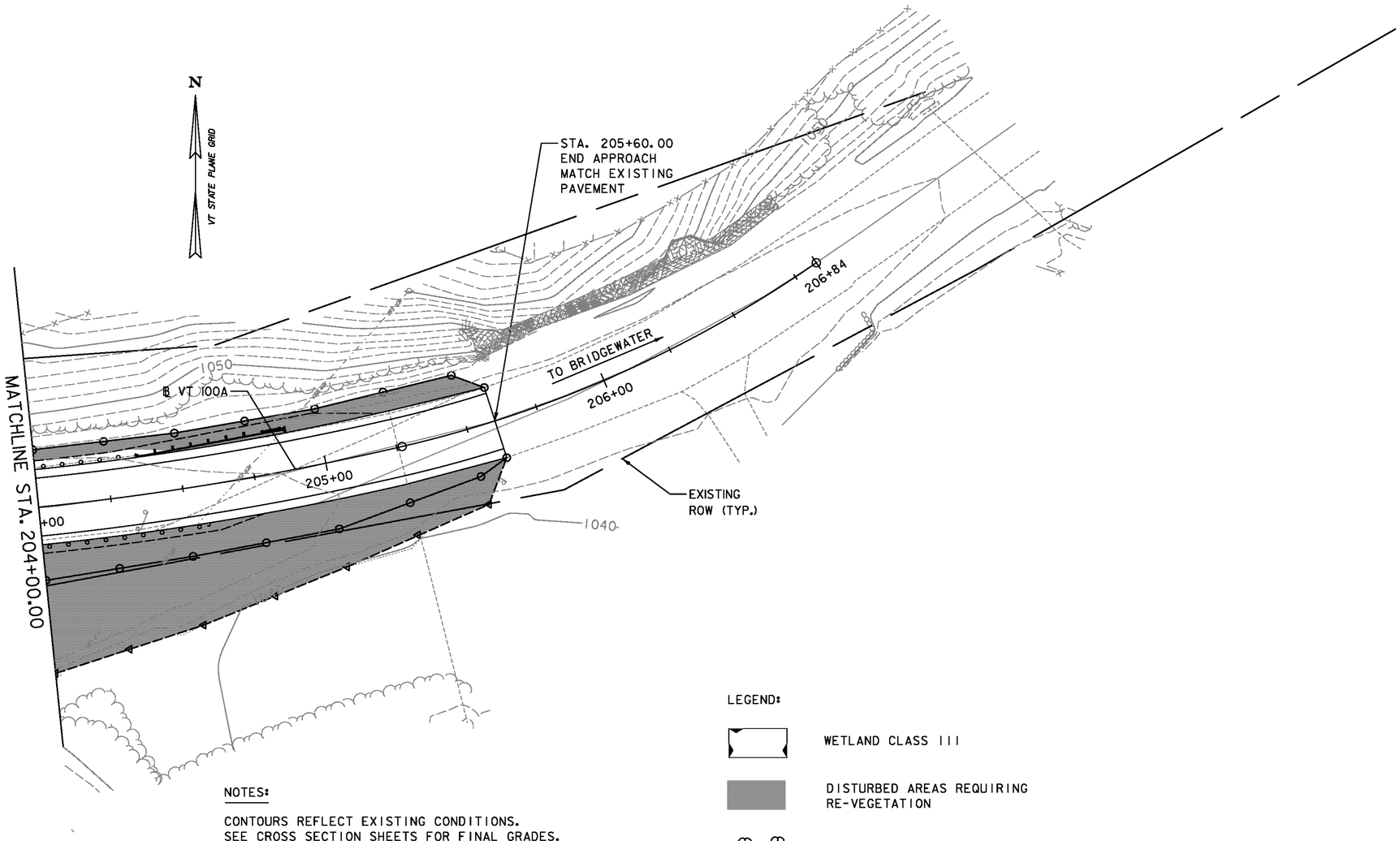
SCALE 1" = 20'-0"
20 0 20

T·Y·LIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_ero.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. AMOROSO
EPSC FINAL CONDITIONS LAYOUT 1

PLOT DATE: 9/20/2012
DRAWN BY: S. AMOROSO
CHECKED BY: D. BRYANT
SHEET 37 OF 46



LEGEND:

- WETLAND CLASS III
- DISTURBED AREAS REQUIRING RE-VEGETATION
- STONE FILL, TYPE IV

NOTES:

CONTOURS REFLECT EXISTING CONDITIONS.
SEE CROSS SECTION SHEETS FOR FINAL GRADES.

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

T.Y. LIN INTERNATIONAL

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FILE NAME: z11c330bdr_ero.dgn
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EPSC FINAL CONDITIONS LAYOUT 2

PLOT DATE: 9/20/2012
DRAWN BY: S. AMOROSO
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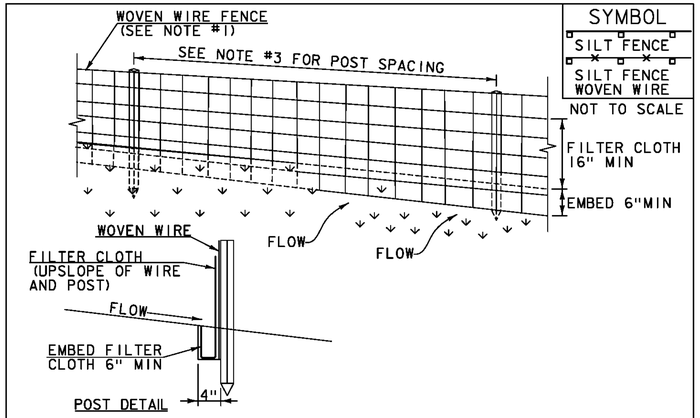
SHEET 38 OF 46



CONSTRUCTION SPECIFICATIONS

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

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

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

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

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

VAOT RURAL AREA MIX

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

VAOT URBAN AREA MIX

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

SOIL AMENDMENT GUIDANCE

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

CONSTRUCTION GUIDANCE

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

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES	TURF ESTABLISHMENT

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

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

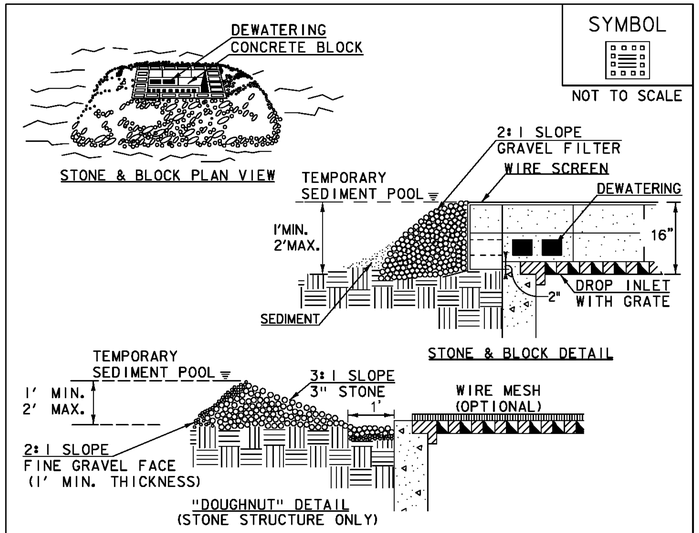
TYLIN INTERNATIONAL

FILE NAME: z11c330bdr_ero.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. AMOROSO
EPSC DETAILS 1

PLOT DATE: 9/20/2012
DRAWN BY: S. AMOROSO
CHECKED BY: D. BRYANT
SHEET 39 OF 46

SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2" MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR ½" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL ½"- ¾" IN DIAMETER PLACED 2" BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1' THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3" STONE AS SHOWN ON THE DRAWINGS.
5. MAXIMUM DRAINAGE AREA 1 ACRE

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

STONE & BLOCK DROP INLET PROTECTION

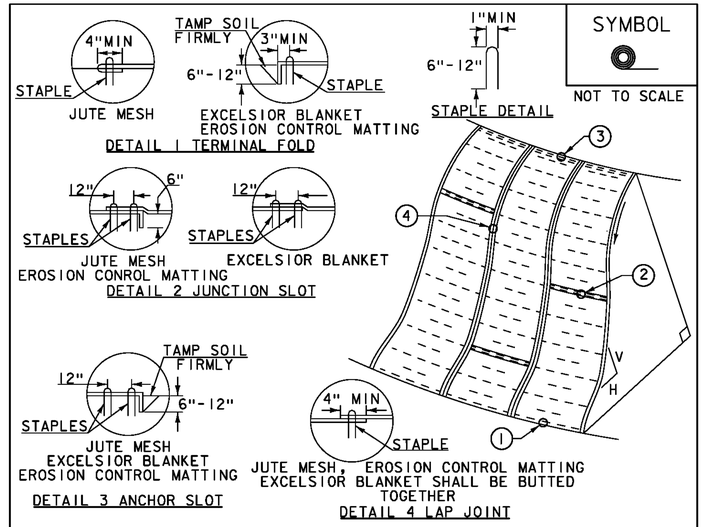
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

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

REVISIONS	
MARCH 6, 2008	WHF
JANUARY 13, 2009	WHF

SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

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

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

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

T.Y.LIN INTERNATIONAL

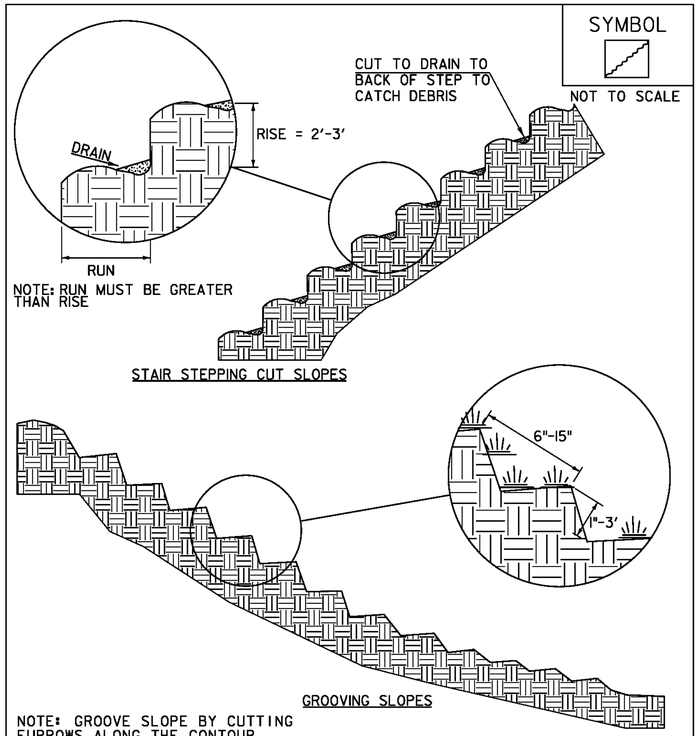
PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_ero.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. AMOROSO
EPSC DETAILS 2

PLOT DATE: 9/20/2012
DRAWN BY: S. AMOROSO
CHECKED BY: D. BRYANT
SHEET 40 OF 46

SYMBOL

NOT TO SCALE



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

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

SURFACE ROUGHENING

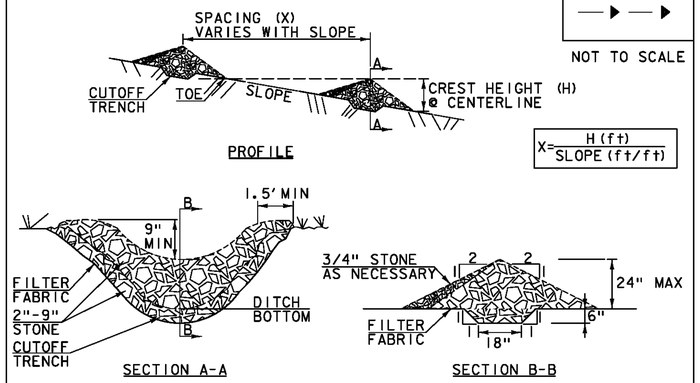
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

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

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

CHECK DAM

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

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

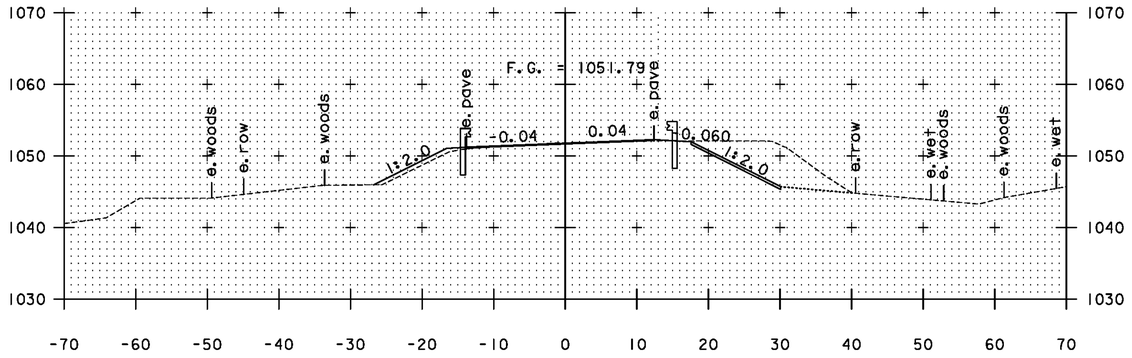
REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF

TYLIN INTERNATIONAL

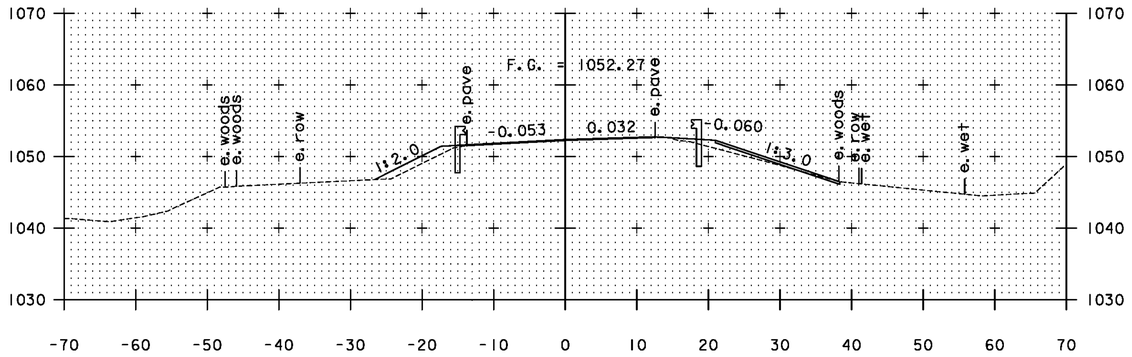
PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: z11c330bdr_ero.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. AMOROSO
EPSC DETAILS 3

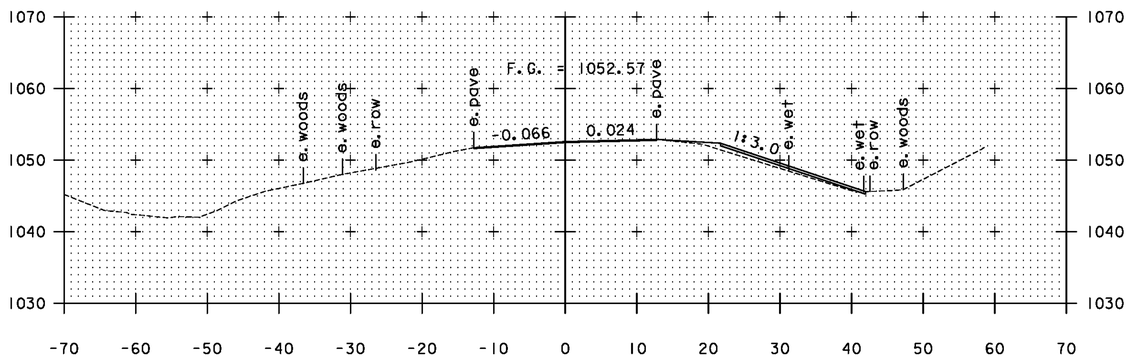
PLOT DATE: 9/20/2012
DRAWN BY: S. AMOROSO
CHECKED BY: D. BRYANT
SHEET 41 OF 46



201+00

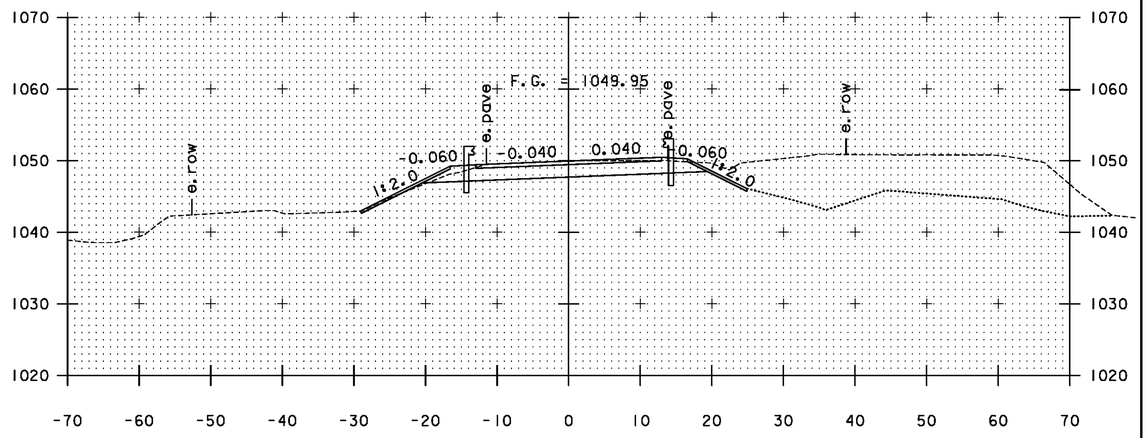


200+50

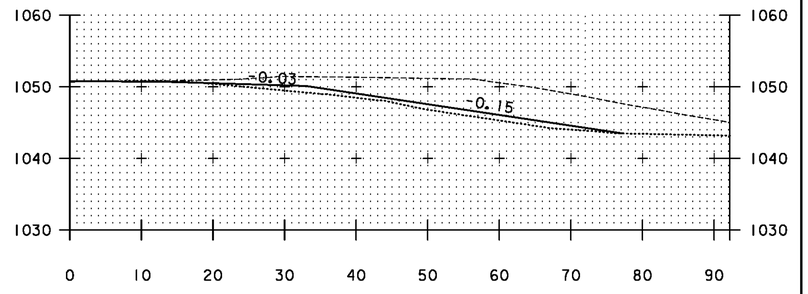


VT100A
STA. 200+00.00
MATCH EXISTING PAVEMENT
BEGIN APPROACH

200+00

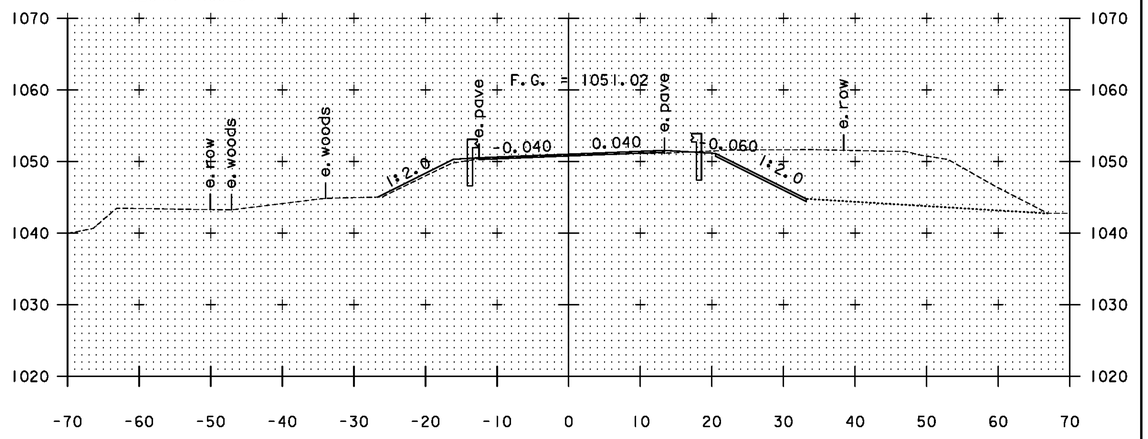


202+00



VT100A
STA. 201+60.00
END APPROACH
BEGIN PROJECT

SKEWED DRIVE 201+63



201+50

PROPOSED GROUND ELEVATIONS SHOWN WITH A SHORT DASH (------------------------) APPROXIMATE THE GROUND SURFACE PRIOR TO THE CONSTRUCTION OF THE TEMPORARY DETOUR. FINAL GRADING WITHIN THESE AREAS SHALL BE DETERMINED BY THE RESIDENT ENGINEER.

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

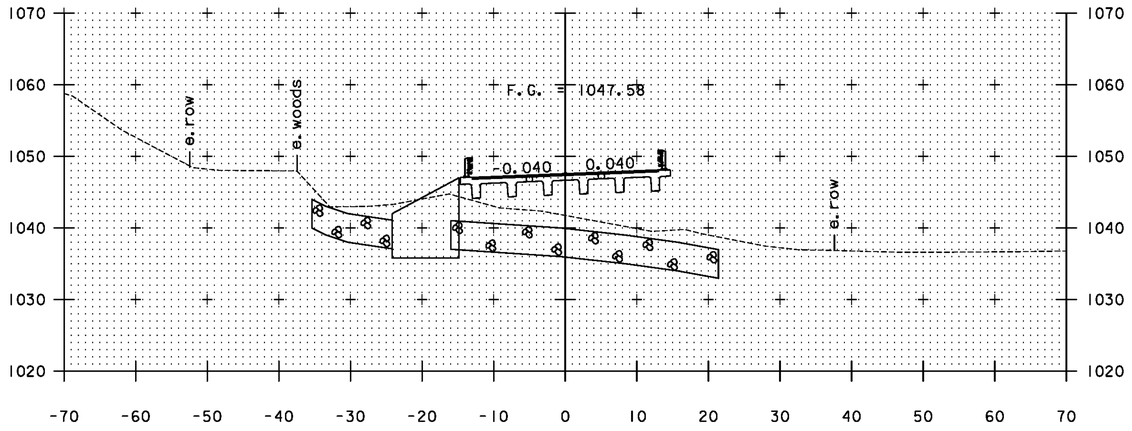
STA. 200+00 TO STA. 202+00

T·Y·LIN INTERNATIONAL

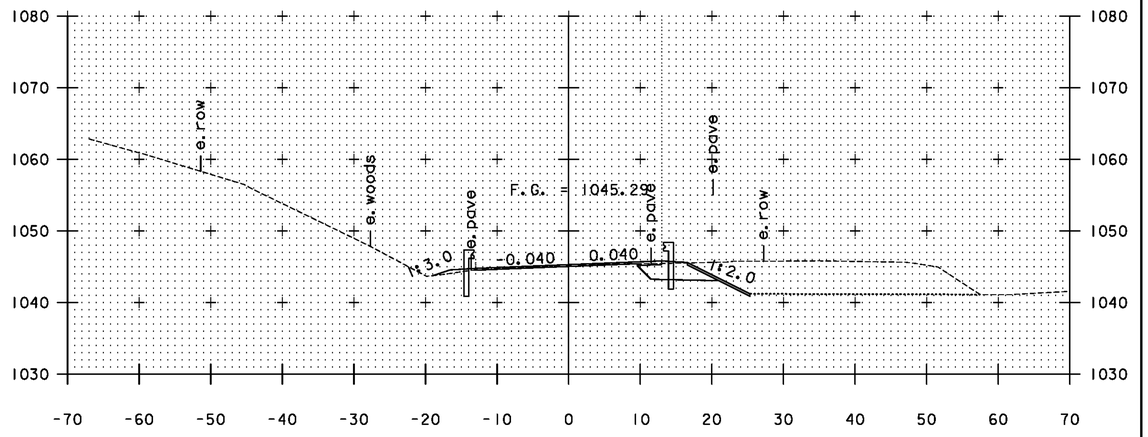
PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: zllc330xs.dgn	PLOT DATE: 9/20/2012
PROJECT LEADER: J. OLUND	DRAWN BY: A. GREENLAW
DESIGNED BY: A. GREENLAW	CHECKED BY: J. HOWE
VT100A CROSS SECTION 1	SHEET 42 OF 46

VT100A
STA. 203+08.42
END BRIDGE

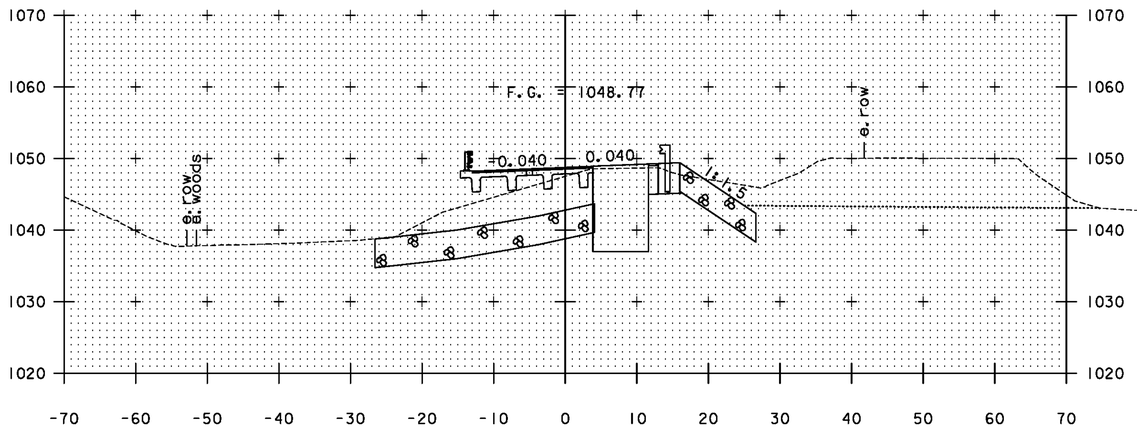


203+00



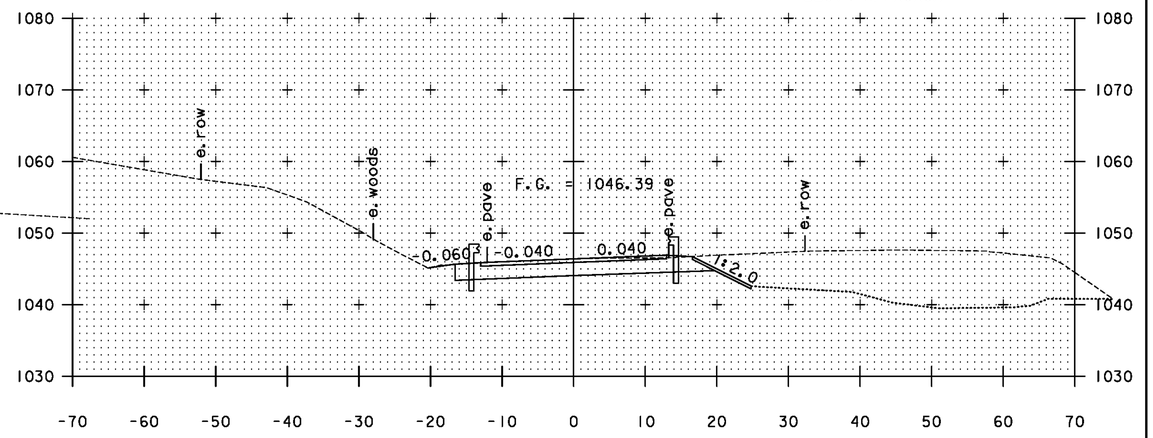
204+00

VT100A
STA. 203+90.00
END PROJECT
BEGIN APPROACH



VT100A
STA. 202+45.58
BEGIN BRIDGE

202+50



203+50

PROPOSED GROUND ELEVATIONS SHOWN WITH A SHORT DASH (·····) APPROXIMATE THE GROUND SURFACE PRIOR TO THE CONSTRUCTION OF THE TEMPORARY DETOUR. FINAL GRADING WITHIN THESE AREAS SHALL BE DETERMINED BY THE RESIDENT ENGINEER.

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

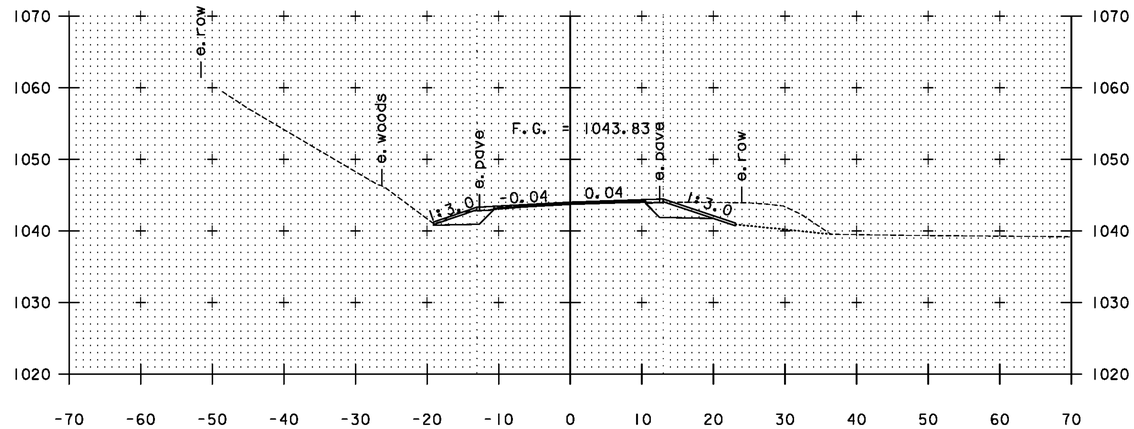
STA. 202+50 TO STA. 204+00

TYLIN INTERNATIONAL

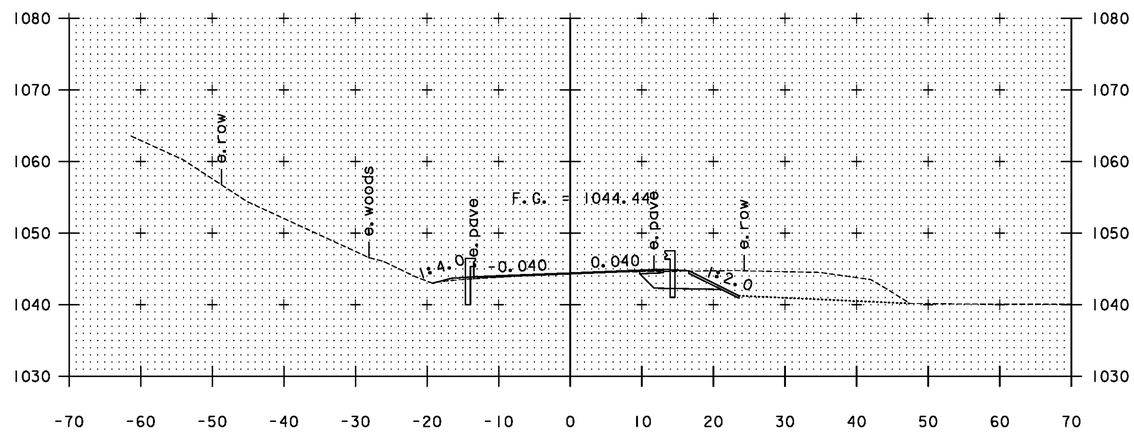
PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

FILE NAME: zllc330xs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: A. GREENLAW
VT100A CROSS SECTION 2

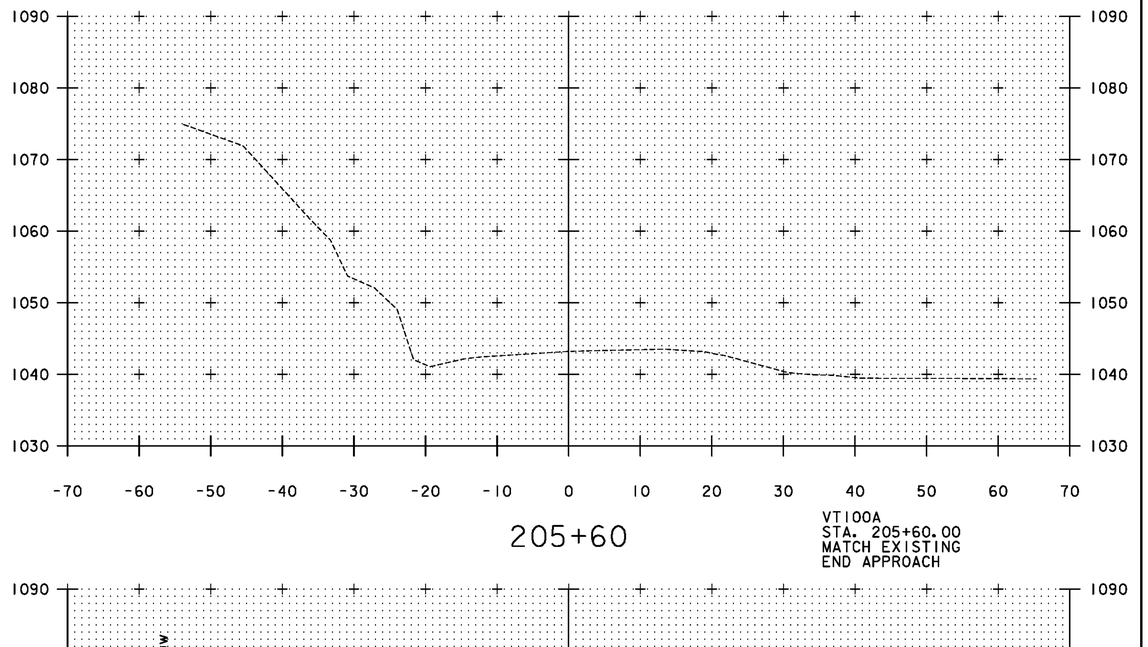
PLOT DATE: 9/20/2012
DRAWN BY: A. GREENLAW
CHECKED BY: J. HOWE
SHEET 43 OF 46



205+00

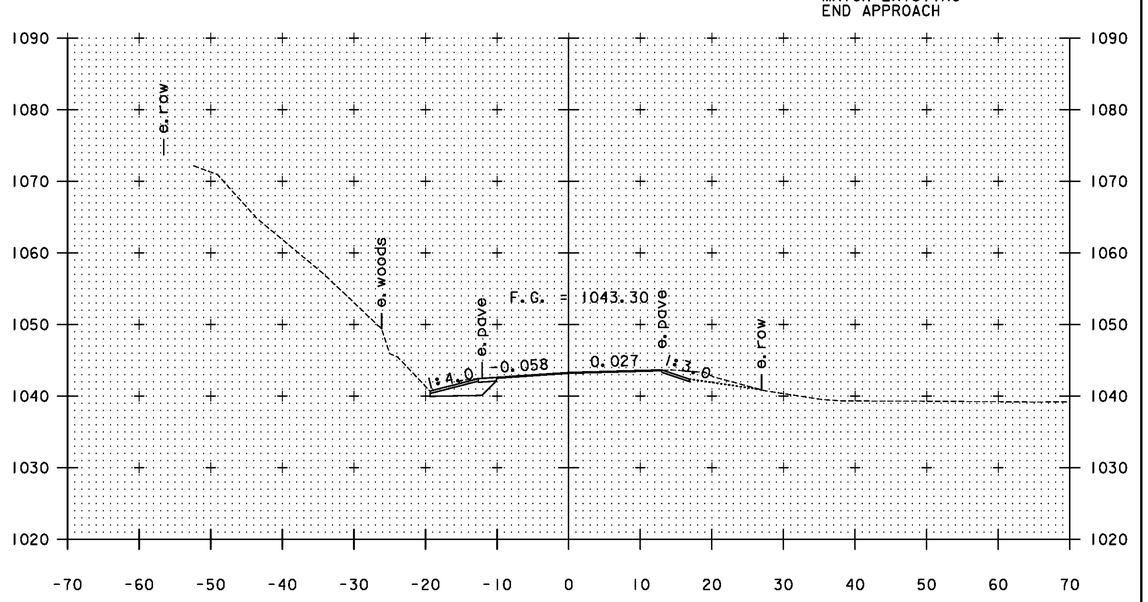


204+50



205+60

VT100A
STA. 205+60.00
MATCH EXISTING
END APPROACH



205+50

PROPOSED GROUND ELEVATIONS SHOWN WITH A SHORT DASH (·····) APPROXIMATE THE GROUND SURFACE PRIOR TO THE CONSTRUCTION OF THE TEMPORARY DETOUR. FINAL GRADING WITHIN THESE AREAS SHALL BE DETERMINED BY THE RESIDENT ENGINEER.

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

STA. 204+50 TO STA. 205+60

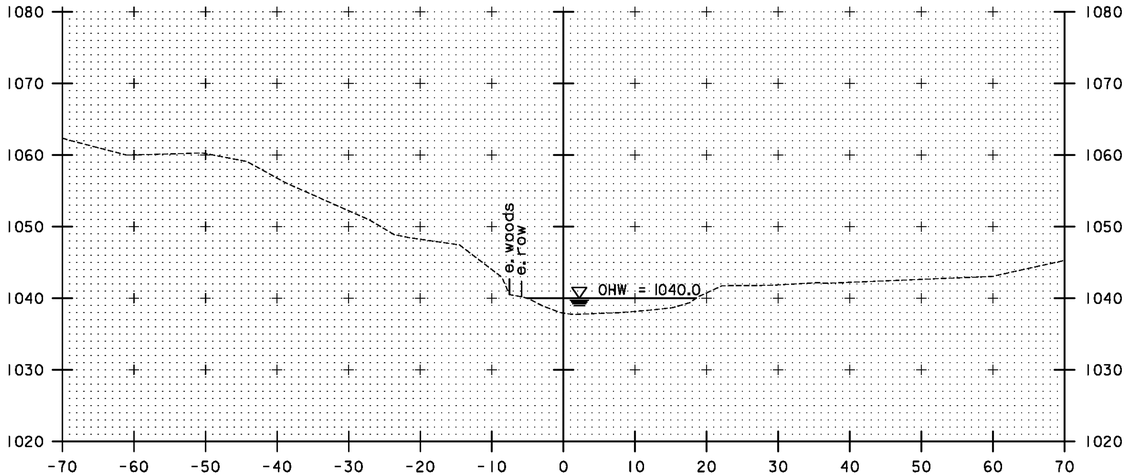
TYLIN INTERNATIONAL

PROJECT NAME: PLYMOUTH
PROJECT NUMBER: ER BRS 0149(5)

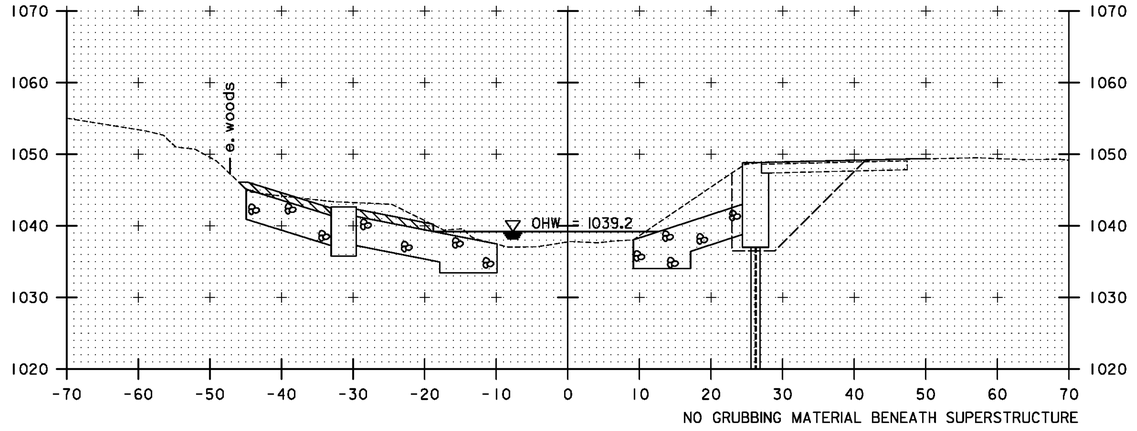
FILE NAME: z11c330xs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: A. GREENLAW
VT100A CROSS SECTION 3

PLOT DATE: 9/20/2012
DRAWN BY: A. GREENLAW
CHECKED BY: J. HOWE
SHEET 44 OF 46

STATION 100+40.50 LT.
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN STONE FILL, TYPE IV
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN GRUBBING MATERIAL

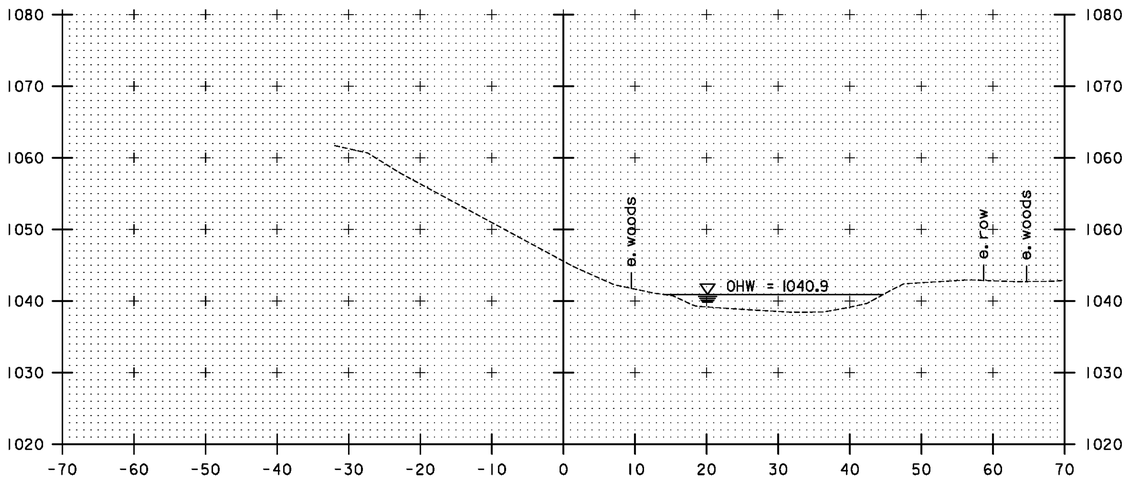


STATION 100+29.50 RT.
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN STONE FILL, TYPE IV
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN GRUBBING MATERIAL

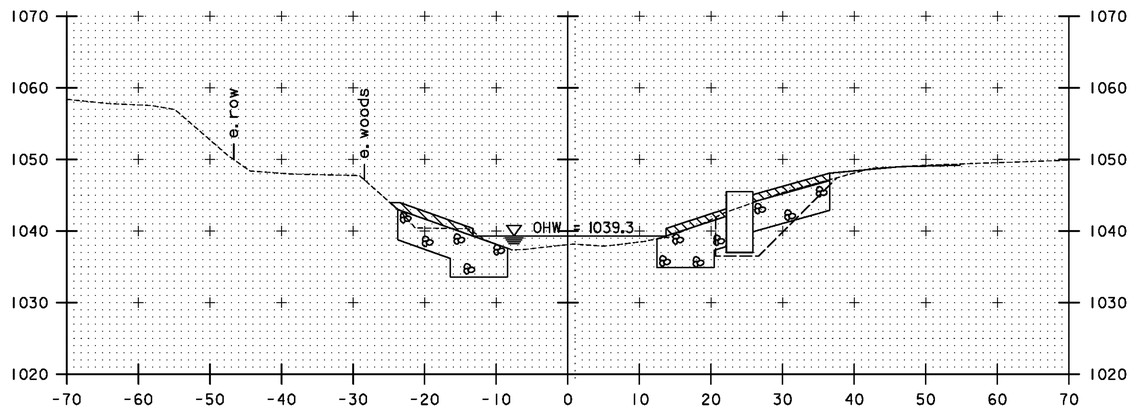


NO GRUBBING MATERIAL BENEATH SUPERSTRUCTURE

100+25



100+75



100+00

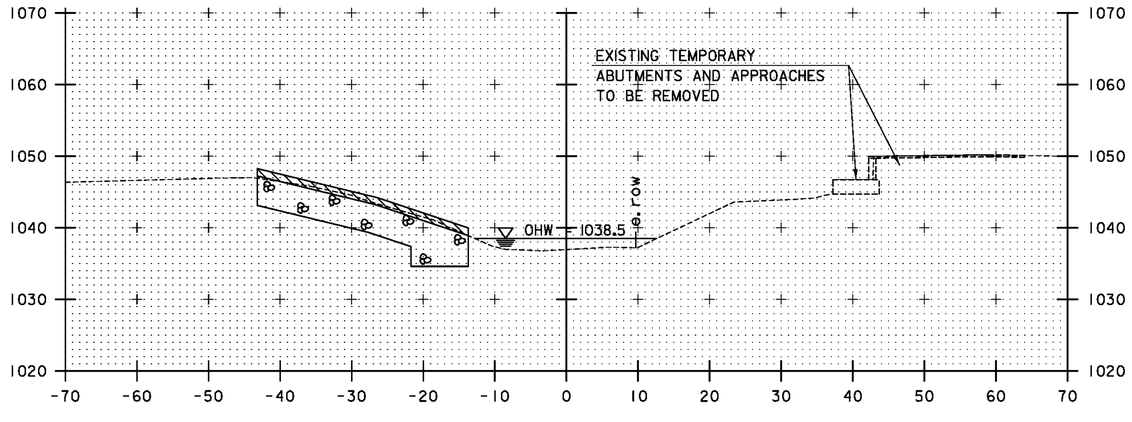
100+50

PROJECT NAME:	PLYMOUTH
PROJECT NUMBER:	ER BRS 0149(5)

TYLIN INTERNATIONAL

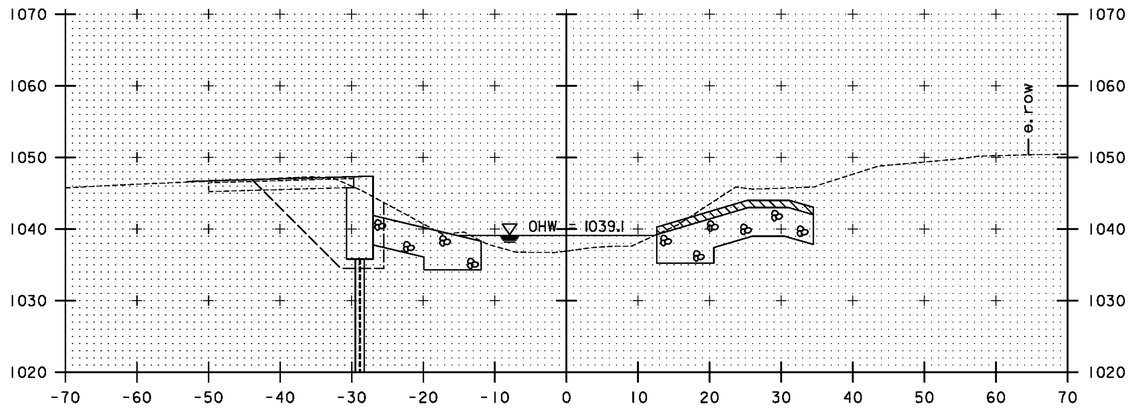
FILE NAME: zllc330xs_ch.dgn	PLOT DATE: 9/20/2012
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: A. GREENLAW	CHECKED BY: J. OLUND
CHANNEL SECTIONS 1	SHEET 45 OF 46

STATION 101+34.50 LT.
END UNCLASSIFIED CHANNEL EXCAVATION
END STONE FILL, TYPE IV
END GEOTEXTILE UNDER STONE FILL
END GRUBBING MATERIAL



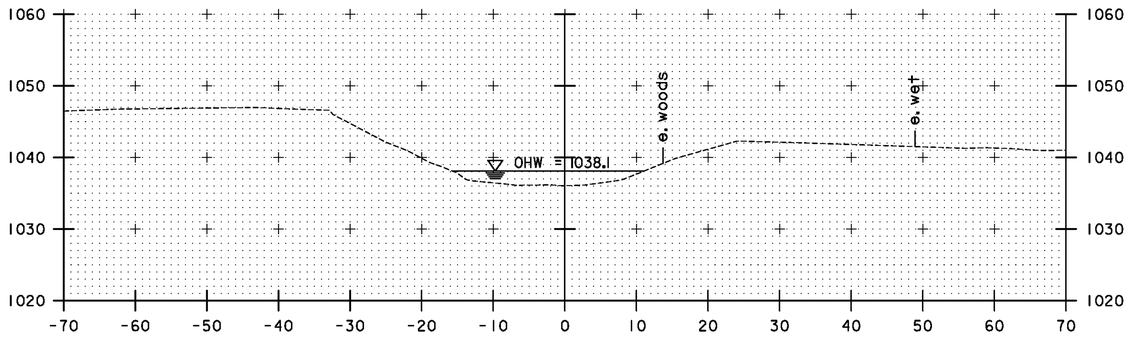
STATION 101+08.50 RT.
END UNCLASSIFIED CHANNEL EXCAVATION
END STONE FILL, TYPE IV
END GEOTEXTILE UNDER STONE FILL
END GRUBBING MATERIAL

101+25

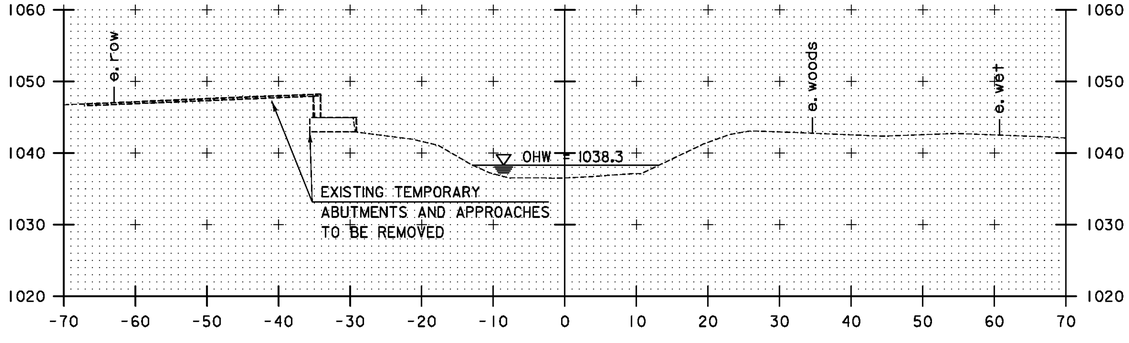


NO GRUBBING MATERIAL BENEATH SUPERSTRUCTURE

101+00



101+75

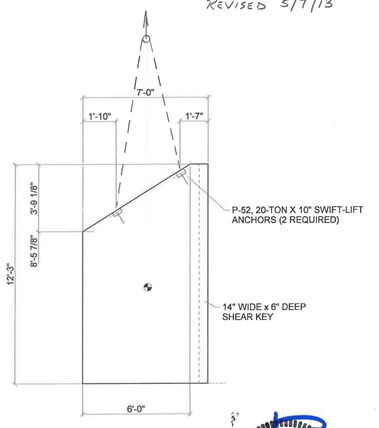


101+50

PROJECT NAME: PLYMOUTH	
PROJECT NUMBER: ER BRS 0149(5)	
TYLIN INTERNATIONAL	FILE NAME: zllc330xs_ch.dgn
	PROJECT LEADER: J. OLUND
	DESIGNED BY: A. GREENLAW
	CHANNEL SECTIONS 2
	PLOT DATE: 9/20/2012
	DRAWN BY: S. MORGAN
	CHECKED BY: J. OLUND
	SHEET 46 OF 46

NON STR. THK.	STRUCT. THK.	WEIGHT	WIDTH	HEIGHT	NO. REQ'D.	PANEL NUMBER OR TYPE
	42"	38.0 kips	7'-0"	12'-3"	1	ABUTMENT 1 LEFT WINGWALL

REVISED 5/7/13



Vermont Agency of Transportation
RECEIVED
ON: May 9, 2013
and Checked for
CONFORMANCE
BY: Rob Young DATE: 05/13/13

W B F

VERIFY ALL DIMENSIONS PRIOR TO POURING PANEL — MINIMUM COMPRESSIVE STRENGTH REQ'D.= 4,000 PSI

Construction Period Design Wind Speed	TOTAL BRACE LOAD =	B=	W=	F=	BRACE REQ'D.:
72 mph					

GROUND RELEASE II TILT-UP SYSTEM

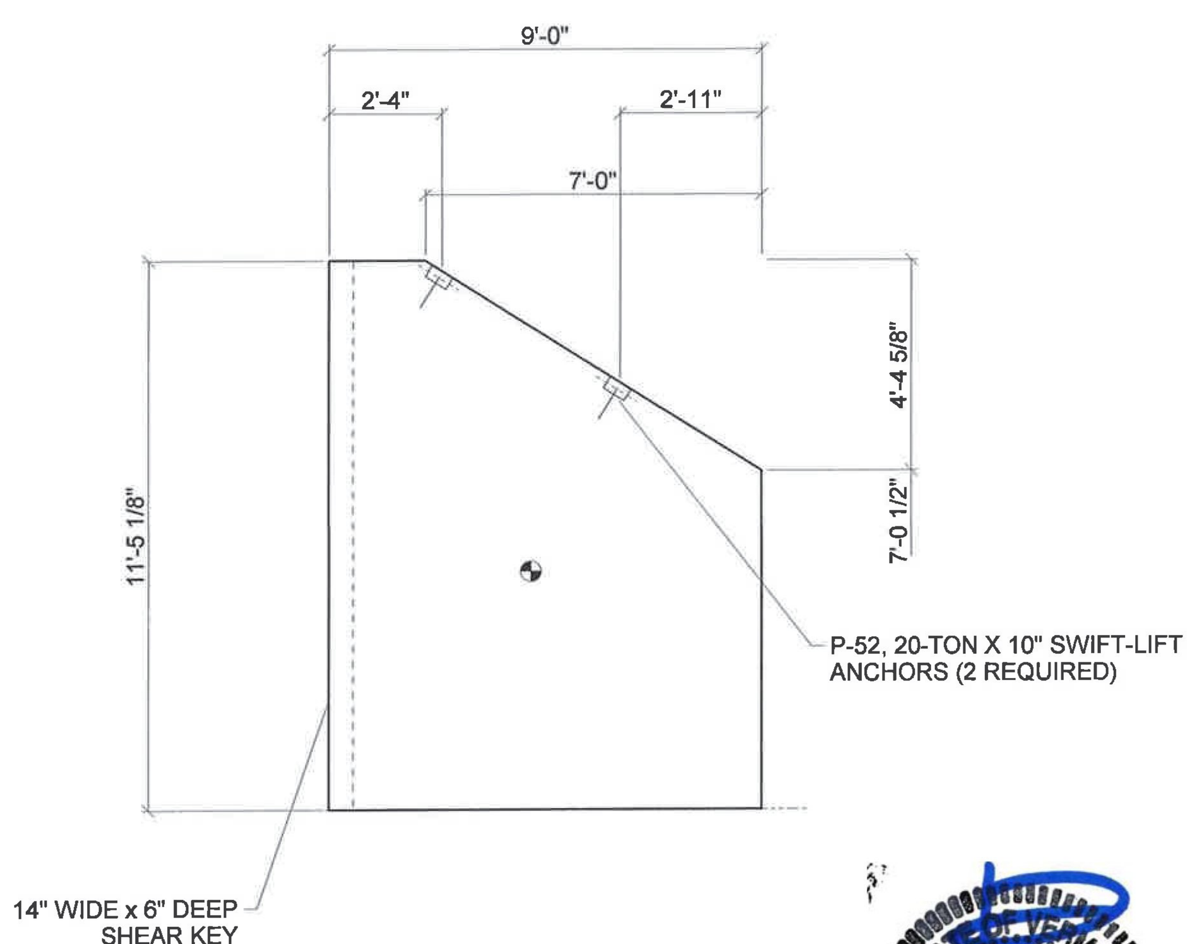
This drawing is furnished solely for the purpose of clarifying the proper use, installation and application of products supplied by Dayton Superior. Dayton Superior does not assume any responsibility for the correctness of structural designs or dimensions furnished by others. These drawings are intended merely to supplement the architectural and structural drawings and are to be used only in conjunction with them. In no way are these drawings to be interpreted as shop drawings for panel fabrication.

X 3'-7 11/16"	△X .14 >	CY= 9.4	SCALE:	RIGGING DETAILS
Y 5'-4 3/8"	2△X .28	GROSS AREA 85.8	1/4"	R02
PANEL VIEWED FROM:	CHECKED BY	NET AREA 74.5	JOB NO.	SHEET
INSIDE	LAYOUT BY BP	DATE 5/7/13	13200	1 OF 1 8

NOTE: INSERT AND BRACING DESIGN SHOWN IS BASED ON THE USE OF DAYTON SUPERIOR PRODUCTS ONLY!

NON STR. THK.	STRUCT. THK.	WEIGHT	WIDTH	HEIGHT	NO. REQ'D.	PANEL NUMBER OR TYPE
	42"	44.9 kips	9'-0"	11'-5 1/8"	1	ABUTMENT 1 RIGHT WINGWALL

REVISED 5/7/13



STATE OF VERMONT
DONALD VAN GERVE
NO.8012
STRUCTURAL
LICENSED
PROFESSIONAL ENGINEER
5/8/13

W B F

VERIFY ALL DIMENSIONS PRIOR TO POURING PANEL

MINIMUM COMPRESSIVE STRENGTH REQ'D.= 4,000 PSI

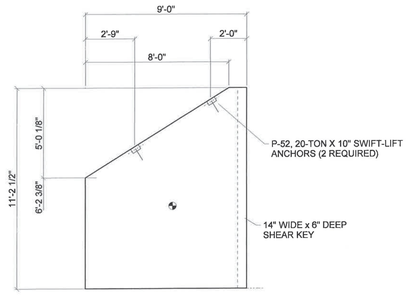
Construction Period Design Wind Speed 72 mph	TOTAL BRACE LOAD =	B=	W=	F=	BRACE REQ'D.:

GROUND RELEASE II TILT-UP SYSTEM This drawing is furnished solely for the purpose of clarifying the proper use, installation and application of products supplied by Dayton Superior. Dayton Superior does not assume any responsibility for the correctness of structural designs or dimensions furnished by others. These drawings are intended merely to supplement the architectural and structural drawings and are to be used only in conjunction with them. In no way are these drawings to be interpreted as shop drawings for panel fabrication.	X 4'-2 1/2"	△X -.29 <	CY= 11.1	SCALE: 1/4"	RIGGING DETAILS R02
	Y 4'-11 7/16"	2△X -.59	GROSS AREA 102.8		
	PANEL VIEWED FROM: INSIDE	CHECKED BY	NET AREA 87.5	JOB NO. 13200	SHEET 2 OF 13
		LAYOUT BY BP	DATE 5/7/13		

NOTE: INSERT AND BRACING DESIGN SHOWN IS BASED ON THE USE OF DAYTON SUPERIOR PRODUCTS ONLY!

NON STR. THK.	STRUCT. THK.	WEIGHT	WIDTH	HEIGHT	NO. REQ'D.	PANEL NUMBER OR TYPE
	42"	41.5 kips	9'-0"	11'-2 1/2"	1	ABUTMENT 2 LEFT WINGWALL

REVISED 5/7/13



VERIFY ALL DIMENSIONS PRIOR TO POURING PANEL — MINIMUM COMPRESSIVE STRENGTH REQ'D.= 4,000 PSI

Construction Period Design Wind Speed	TOTAL BRACE LOAD =	B=	W=	F=	BRACE REQ'D.:
72 mph					

GROUND RELEASE II TILT-UP SYSTEM

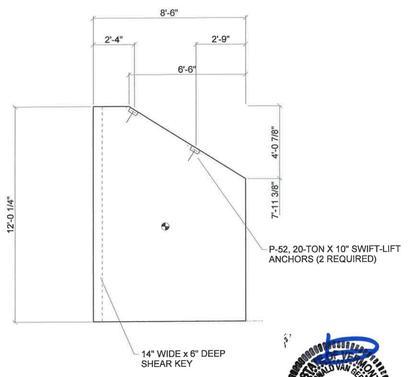
This drawing is furnished solely for the purpose of clarifying the proper use, installation and application of products supplied by Dayton Superior. Dayton Superior does not assume any responsibility for the correctness of structural designs or dimensions furnished by others. These drawings are intended merely to supplement the architectural and structural drawings and are to be used only in conjunction with them. In no way are these drawings to be interpreted as shop drawings for panel fabrication.

X 4'-10 3/8"	△X .36 >	CY= 10.2	SCALE:	RIGGING DETAILS
Y 4'-7 1/4"	2△X .73	GROSS AREA 100.9	1/4"	R02
PANEL VIEWED FROM:	CHECKED BY	NET AREA 80.8	JOB NO.	SHEET
INSIDE	LAYOUT BY BP	DATE 5/7/13	13200	3 OF 18

NOTE: INSERT AND BRACING DESIGN SHOWN IS BASED ON THE USE OF DAYTON SUPERIOR PRODUCTS ONLY!

NON STR. THK.	STRUCT. THK.	WEIGHT	WIDTH	HEIGHT	NO. REQ'D.	PANEL NUMBER OR TYPE
	42"	45.6 kips	8'-6"	12'-0 1/4"	1	ABUTMENT 2 RIGHT WINGWALL

REVISED 5/7/13



STATE OF VERMONT
DONALD VAN DEUSEN
NO.8012
STRUCTURAL
LICENSED
PROFESSIONAL ENGINEER
5/8/13

VERIFY ALL DIMENSIONS PRIOR TO POURING PANEL — MINIMUM COMPRESSIVE STRENGTH REQ'D.= 4,000 PSI

Construction Period Design Wind Speed	TOTAL BRACE LOAD =	B=	W=	F=	BRACE REQ'D.:
72 mph					

GROUND RELEASE II TILT-UP SYSTEM

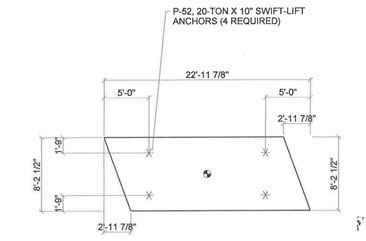
This drawing is furnished solely for the purpose of clarifying the proper use, installation and application of products supplied by Dayton Superior. Dayton Superior does not assume any responsibility for the correctness of structural designs or dimensions furnished by others. These drawings are intended merely to supplement the architectural and structural drawings and are to be used only in conjunction with them. In no way are these drawings to be interpreted as shop drawings for panel fabrication.

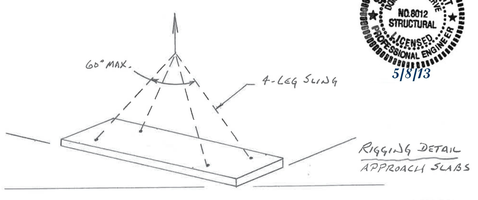
X 4'-0 5/16"	△X -.23 <	CY= 11.3	SCALE:	RIGGING DETAILS
Y 5'-3 5/8"	2△X -.45	GROSS AREA 102.2	1/4"	R02
PANEL VIEWED FROM:	CHECKED BY	NET AREA 88.9	JOB NO.	SHEET
INSIDE	LAYOUT BY BP	DATE 5/7/13	13200	4 OF 18

NOTE: INSERT AND BRACING DESIGN SHOWN IS BASED ON THE USE OF DAYTON SUPERIOR PRODUCTS ONLY!

NON STR. THK.	STRUCT. THK.	WEIGHT	WIDTH	HEIGHT	NO. REQ'D.	PANEL NUMBER OR TYPE
	15"	30.8 kips	22'-11 7/8"	8'-2 1/2"	4	APPROACH SLAB 1, 3, 4 & 6

30,800 LBS. CONCRETE WEIGHT
+ 4,100 LBS. (20' X 8' 2-1/2" X 25PSF ADHESION)
=34,900 LBS. CONCRETE & ADHESION
x 1.16 (INCREASE FACTOR FOR 60 DEG. CABLE ANGLE)
=40,500 LBS. TOTAL EFFECTIVE WEIGHT
/ 2 ANCHORS
=20,250 LBS. PER ANCHOR





RIGGING DETAIL
APPROACH SLABS

W B F

VERIFY ALL DIMENSIONS PRIOR TO POURING PANEL

MINIMUM COMPRESSIVE STRENGTH REQ'D.= 3,500 PSI

Construction Period Design Wind Speed	TOTAL BRACE LOAD =	B=	W=	F=	BRACE REQ'D.:
72 mph					

GROUND RELEASE II TILT-UP SYSTEM

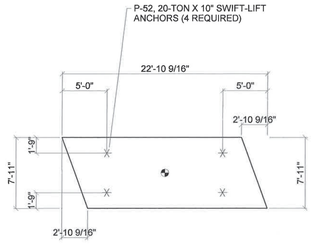
This drawing is furnished solely for the purpose of clarifying the proper use, installation and application of products supplied by Dayton Superior. Dayton Superior does not assume any responsibility for the correctness of structural designs or dimensions furnished by others. These drawings are intended merely to supplement the architectural and structural drawings and are to be used only in conjunction with them. In no way are these drawings to be interpreted as shop drawings for panel fabrication.

X 11'-5 15/16"	△X .0 <	CY= 7.6	SCALE: 1/8"	RIGGING DETAILS F22
Y 4'-1 1/4"	2△X .0	GROSS AREA 188.7		
PANEL VIEWED FROM: INSIDE	CHECKED BY	NET AREA 164.2	JOB NO. 13200	SHEET 5 OF 18
	LAYOUT BY BP	DATE 4/26/13		

NOTE: INSERT AND BRACING DESIGN SHOWN IS BASED ON THE USE OF DAYTON SUPERIOR PRODUCTS ONLY!

NON STR. THK.	STRUCT. THK.	WEIGHT	WIDTH	HEIGHT	NO. REQ'D.	PANEL NUMBER OR TYPE
	15"	29.7 kips	22'-10 9/16"	7'-11"	2	APPROACH SLAB 2 & 4

29,700 LBS. CONCRETE WEIGHT
+ 3,980 LBS. (20' X 7' 11" X 25PSF ADHESION)
=33,660 LBS. CONCRETE & ADHESION
x 1.16 (INCREASE FACTOR FOR 60 DEG. CABLE ANGLE)
=39,050 LBS. TOTAL EFFECTIVE WEIGHT
/ 2 ANCHORS
=19,525 LBS. PER ANCHOR



W B F

VERIFY ALL DIMENSIONS PRIOR TO POURING PANEL

MINIMUM COMPRESSIVE STRENGTH REQ'D.= 3,500 PSI

Construction Period Design Wind Speed	TOTAL BRACE LOAD =	B=	W=	F=	BRACE REQ'D.:
72 mph					

GROUND RELEASE II TILT-UP SYSTEM

This drawing is furnished solely for the purpose of clarifying the proper use, installation and application of products supplied by Dayton Superior. Dayton Superior does not assume any responsibility for the correctness of structural designs or dimensions furnished by others. These drawings are intended merely to supplement the architectural and structural drawings and are to be used only in conjunction with them. In no way are these drawings to be interpreted as shop drawings for panel fabrication.

X	11'-5 5/16"	△X	.0 <	CY= 7.3	SCALE:	RIGGING DETAILS
Y	3'-11 1/2"	2△X	.0	GROSS AREA 181.1	1/8"	F22
PANEL VIEWED FROM:		CHECKED BY		NET AREA 158.3	JOB NO.	SHEET
INSIDE		LAYOUT BY BP		DATE 4/26/13	13200	6 OF 13

NOTE: INSERT AND BRACING DESIGN SHOWN IS BASED ON THE USE OF DAYTON SUPERIOR PRODUCTS ONLY!

Summary - P-52 Swift Lift Anchor Safe Working Load Calculations
DAYTON SUPERIOR CORPORATION

Precaster: Cold River Bridges

Project: Plymouth Wing Walls - P52, 20-Ton X 10" SL Anchors

Location: New Hampshire

Dealer: Harris Rebar

****

Recommended P-52 Swift Lift (SL) Anchor	=	20.00	tons
Recommended length of SL Anchor	=	10.000	in. long
SL Anchor set back from face of concrete	=	1.063	inches
SL Anchor embedment depth (Le)	=	10.438	inches
SL Anchor foot diameter (Dh)	=	2.813	inches
Concrete compressive strength	=	4,000	psi at initial lift
Concrete unit weight	=	150.00	lbs. per cubic foot
SL Anchor front edge distance (T1)	=	21.000	inches
SL Anchor back edge distance (T2)	=	21.000	inches
SL Anchor left edge distance (T3)	=	21.000	inches
SL Anchor right edge distance (T4)	=	21.000	inches
Concrete ultimate pull out capacity	=	108,650	lbs. per anchor
SL Anchor ultimate mechanical capacity	=	160,000	lbs. per anchor
Recommended factor of safety	=	4.00	to 1 (Ult. to SWL)
SL Anchor tension safe working load	=	27,150	lbs. per anchor

By: Brad Phillips Date: 04/26/2013

********** GROUND RELEASE II Tilt-up Analysis **********

Operator : BP
Job no.: 13200
Panel no.: APPROACH SLAB 1 & 3
Date : 4/26/2013

Insert type: Other
Safe working load = 25000 lbs.
Concrete compressive strength = 3500 psi.
Allowable bending strength = 354.9648 psi.
Steel grade = 60
Concrete unit Weight = 150 pcf.

Panel geometry

Feature number - 0 (Panel perimeter)
X(0) =00.00   Y(0) = 00.00   Width(0) =22.9896   Height(0) = 08.2083
X(1) =00.00   Y(1) = 08.2083
X(2) =22.9896   Y(2) = 08.2083
X(3) =22.9896   Y(3) = 00.00

Feature number - 1 (Opening)
X(0) =00.00   Y(0) = 00.00   NON RECTANGULAR FEATURE
X(1) =00.00   Y(1) = 08.2083
X(2) =00.00   Y(2) = 08.2083
X(3) =02.9896   Y(3) = 00.00

Feature number - 2 (Opening)
X(0) =20.00   Y(0) = 08.2083   NON RECTANGULAR FEATURE
X(1) =20.00   Y(1) = 08.2083
X(2) =22.9896   Y(2) = 08.2083
X(3) =22.9896   Y(3) = 00.00

Weight and C. G.

Structural thickness = 15.00 in.
Overall thickness = 15.00 in.
Projected area = 164 sq. ft.
Effective area = 164 sq. ft.
X-bar = 11.49 ft.
Y-bar = 4.10 ft.
Z-bar = 7.50 inches
Bottom Concrete Cover for reinforcing = .75 in.
Top Concrete Cover for reinforcing = .75 in.
Weight = 30781.30 lbs.
Minimum number of inserts required by Weight = 2

Insert locations - decimal

ROW	Column 1	Column 2
1	04.99,01.72	18.00,01.72
2	04.99,06.48	18.00,06.48

Two row cable length = 30'-0"

********** GROUND RELEASE II Tilt-up Analysis **********

Operator : BP
Job no.: 13200
Panel no.: APPROACH SLAB 1
Date : 4/26/2013

VERTICAL ANALYSIS

Uniform loads

Segment Number	Length (Feet)	Load (PPF)
01	000.26	03750.00
02	000.26	03750.00
03	000.26	03750.00
04	000.26	03750.00
05	000.26	03750.00
06	000.26	03750.00
07	000.18	03750.00
08	000.07	03750.00
09	000.26	03750.00
10	000.26	03750.00
11	000.26	03750.00
12	000.26	03750.00
13	000.26	03750.00
14	000.26	03750.00
15	000.26	03750.00
16	000.26	03750.00
17	000.26	03750.00
18	000.26	03750.00
19	000.26	03750.00
20	000.26	03750.00
21	000.26	03750.00
22	000.26	03750.00
23	000.26	03750.00
24	000.26	03750.00
25	000.26	03750.00
26	000.26	03750.00
27	000.07	03750.00
28	000.18	03750.00
29	000.26	03750.00
30	000.26	03750.00
31	000.26	03750.00
32	000.26	03750.00
33	000.26	03750.00
34	000.26	03750.00

Section Properties

N	D(N) (Ft.)	Area (In.^2)	Mom. of In. (In^4)	Neut. Axis (In.)	+Sec. Mod. (In.^3)	-Sec. Mod. (In.^3)	Eff. Thk. (In.)
01	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
02	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
03	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
04	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
05	000.26	03600.00	000067500	007.50	00009000	00009000	015.00

********** GROUND RELEASE II Tilt-up Analysis **********

Operator : BP
Job no.: 13200
Panel no.: APPROACH SLAB 1
Date : 4/26/2013

06	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
07	000.18	03600.00	000067500	007.50	00009000	00009000	015.00
08	000.07	03600.00	000067500	007.50	00009000	00009000	015.00
09	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
10	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
11	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
12	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
13	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
14	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
15	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
16	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
17	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
18	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
19	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
20	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
21	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
22	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
23	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
24	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
25	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
26	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
27	000.07	03600.00	000067500	007.50	00009000	00009000	015.00
28	000.18	03600.00	000067500	007.50	00009000	00009000	015.00
29	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
30	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
31	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
32	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
33	000.26	03600.00	000067500	007.50	00009000	00009000	015.00
34	000.26	03600.00	000067500	007.50	00009000	00009000	015.00

Additional reinforcing

							Strongbacks	
Angle	Loc.	Flexure Stress	Bending Moment	Allow. Moment	Tens. Steel	Comp. Steel	Sec. Mod. Wood	Sec. Mod. Steel
Deg.	Feet	PSI	Ft-Lbs	Ft-Lbs	Sq. In.	Sq. In.	In^3	In^3

Insert loads

Maximum tension load = 7695.33 lbs per insert.
Maximum shear load = .00 lbs per insert.
Maximum ground reaction = .00 lbs
Maximum positive stress (Bottom)= 7 psi @ 4.1 ft. and 0°
Maximum negative stress (Top)= 7 psi @ 1.72 ft. and 0°

Strongback req'ments (Applicable only if printout shows add'l steel req'd.)

Wood: 0 single 2X12's or equivalent.
0 single 4X12's or equivalent.
Steel: 0 double C6X8.2 or equivalent.
0 double C8x11.5 or equivalent.

//

********** GROUND RELEASE II Tilt-up Analysis **********

Operator : BP
Job no.: 13200
Panel no.: APPROACH SLAB 1
Date : 4/26/2013

HORIZONTAL ANALYSIS

Uniform loads

Segment Number	Length (Feet)	Load (PPF)
01	00.37	00096.19
02	00.37	00288.58
03	00.37	00480.96
04	00.37	00673.34
05	00.37	00865.72
06	00.37	01058.11
07	00.37	01250.49
08	00.37	01442.87
09	02.00	01539.06
10	13.00	01539.06
11	02.00	01539.06
12	00.37	01442.87
13	00.37	01250.49
14	00.37	01058.11
15	00.37	00865.72
16	00.37	00673.34
17	00.37	00480.96
18	00.37	00288.58
19	00.37	00096.19

Section Properties

N	D(N) (Ft.)	Area (In.^2)	Mom. of In. (In^4)	Neut. Axis (In.)	+Sec. Mod. (In.^3)	-Sec. Mod. (In.^3)	Eff. Thk. (In.)
01	000.37	00092.35	000001731	007.50	00000231	00000231	015.00
02	000.37	00277.03	000005194	007.50	00000693	00000693	015.00
03	000.37	00461.72	000008657	007.50	00001154	00001154	015.00
04	000.37	00646.41	000012120	007.50	00001616	00001616	015.00
05	000.37	00831.10	000015583	007.50	00002078	00002078	015.00
06	000.37	01015.78	000019046	007.50	00002539	00002539	015.00
07	000.37	01200.47	000022509	007.50	00003001	00003001	015.00
08	000.37	01385.16	000025972	007.50	00003463	00003463	015.00
09	002.00	01477.50	000027703	007.50	00003694	00003694	015.00
10	013.00	01477.50	000027703	007.50	00003694	00003694	015.00
11	002.00	01477.50	000027703	007.50	00003694	00003694	015.00
12	000.37	01385.16	000025972	007.50	00003463	00003463	015.00
13	000.37	01200.47	000022509	007.50	00003001	00003001	015.00
14	000.37	01015.78	000019046	007.50	00002539	00002539	015.00
15	000.37	00831.10	000015583	007.50	00002078	00002078	015.00
16	000.37	00646.41	000012120	007.50	00001616	00001616	015.00
17	000.37	00461.72	000008657	007.50	00001154	00001154	015.00
18	000.37	00277.03	000005194	007.50	00000693	00000693	015.00
19	000.37	00092.35	000001731	007.50	00000231	00000231	015.00

First point of zero shear = 00.00 ft.

Additional reinforcing

********** GROUND RELEASE II Tilt-up Analysis **********

Operator : BP
Job no.: 13200
Panel no.: APPROACH SLAB 1
Date : 4/26/2013

Angle	Loc.	Flexure Stress	Bending Moment	Allow. Moment	Tens. Steel	Comp. Steel	Strongbacks Sec. Mod. Wood	Strongbacks Sec. Mod. Steel
Deg.	Feet	PSI	Ft-Lbs	Ft-Lbs	Sq. In.	Sq. In.	In^3	In^3

Maximum positive stress (Bottom)= 74 psi @ 11.39 ft. and 0°
Maximum negative stress (Top)= 32 psi @ 18.0 ft. and 0°

Balancing moment = 0.00 ft.-lbs./ft. over 0.00 ft.W-Shift 0.00
Strongback req'ments (Applicable only if printout shows add'l steel req'd.)
Wood: 0 single 2X12's or equivalent.
0 single 4X12's or equivalent.
Steel: 0 double C6X8.2 or equivalent.
0 double C8x11.5 or equivalent.

P52 Swift Lift® Anchor

The P52 Swift Lift Anchor is hot forged from carbon steel. The formed head provides spherical seating that the Lifting Eye engages, while a disc-shaped foot is embedded in the concrete.

Due to its being a forged part, the Swift Lift Anchor does not depend on welds or thread engagement to develop its safe working load. Forging provides maximum safety with its advantageous material structure. This allows the anchor to easily meet the OSHA requirement of a 4 to 1 factor of safety.

In addition to the carbon steel anchors, Type 304 or 316 Stainless Steel Swift Lift Anchors are available on special order. Use stainless steel anchors when maximum protection against corrosion is required.

For safety, refer to the P52 Swift Lift Anchor Selection Chart to determine the actual safe working load of an individual anchor. The MAXIMUM safe working load is clearly visible on the head of the anchor for easy recognition of the appropriate hardware and accessories for-use with each Swift Lift Anchor.

Caution: The Swift Lift Anchor is designed to be used with Dayton Superior components. Failure to use this combination may result in concrete spalling or premature failure.

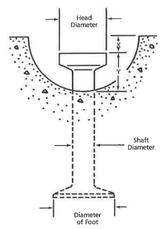
To Order:

Specify: (1) quantity, (2) name, (3) system size, (4) length

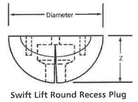
Example:

200, P52 Swift Lift Anchors, 4 ton, 9-1/2" long

P52 Swift Lift Anchor and Recess Plug Dimensions



P52 Swift Lift Anchor



Swift Lift Round Recess Plug

Swift Lift Round Recess Plug Dimensions

Swift Lift Anchor	Diameter of Recess Plug	Dimension Z
1	2-7/16"	1-3/16"
2	3-5/16"	1-7/16"
4	4"	1-13/16"
8	5"	2-5/16"
20 Tons	6-3/8"	3-1/8"

Note: The diameter of the narrow recess plug is the same as the diameter of the round recess plug.

P52 Swift Lift Anchor Dimensions

Swift Lift Anchor	Dimension X	Dimension Y	Shaft Diameter	Foot Diameter	Head Diameter
1	5/16"	7/8"	3/8"	1"	11/16"
2	7/16"	1-1/16"	9/16"	1-3/8"	1-1/32"
4	9/16"	1-5/16"	3/4"	1-7/8"	1-11/32"
8	9/16"	1-5/8"	1-3/32"	2-5/8"	1-7/8"
20 Tons	9/16"	2-5/8"	1-1/2"	3-3/4"	2-3/4"

How to Install P56 and P56PL Recess Plugs on P52 Anchors

Grasp the recess plug firmly across the top diameter of the plug. Application of pressure by the thumb and fingers on the outer edge of the plug will cause the plug to open up to allow insertion of the anchor.

"Wet Setting" P52 Swift Lift Face Lift Anchors

When a Swift Lift anchor is to be positioned in the top surface of a flat precast section, wet setting the anchor is best done immediately after the concrete has been placed.

The anchor/recess plug assembly is attached to a small template board and pressed into the fresh concrete until the template board lies flush on the surface of the concrete.

Light vibration of the fresh concrete will assure proper embedment and anchorage.

Recess Plug Removal

Swift Lift recess plugs provide two holes in the top surface that are used in the removal process. Insert two screw drivers or steel rods into the holes and simply lever the two across the plug for easy removal.

Selecting the Proper Swift Lift Anchor

Determination of the required rated load and length of a P52 Swift Lift Anchor is based on the actual maximum load that is transferred to the anchor. In most cases, a flat slab can be handled with the anchors properly located in the face of the flat slab. The anchors should normally be the maximum length that can be accommodated in the slab's structural thickness, allowing at least 1/2" clearance between the anchor and the casting bed. Dimension tables and safe working load charts, contained herein, will aid in the selection of the proper anchor. Keep in mind that the safe working load of an anchor is a function of several factors:

1. The effective concrete thickness
2. Actual edge distance
3. Concrete compressive strength at time of lift
4. Anchor length
5. In some applications, the use of a shear bar

P61 Swift Lift® Setting Plate, P62 Countersunk Screw

The Dayton Superior P61 Swift Lift Setting Plate and P62 Countersunk Screw combination provide an easy method of placing a Swift Lift Anchor into the surface of a flat panel without obstructing the screeding process. The P61 setting plate is available in two sizes, a 4" unit for use with 4-ton anchors and a 5" unit for use with 8-ton anchors. The P62 screw is available in two sizes to match the setting plates. The 4-ton setup uses a 3/4" long, 5/16" – 18 NC thread screw and the 8-ton setup uses a 3/4" long, 7/16" – 14 NC thread screw.

P61 Swift Lift Setting Plate

P62 Swift Lift Countersunk Screw

To Order:
Specify: (1) quantity, (2) name, (3) anchor size.

Example:
200, P61 Swift Lift Setting Plates and 200, P62 Countersunk Screws for 4-ton anchors.

P63 Swift Lift® Stud, P64 Swift Lift Wing Nut

The Dayton Superior P63 Swift Lift Stud and P64 Wing Nut combination is used to set P56 Narrow Recess Plugs. Available in two sizes, 5/16" – 18 NC threads for use with the 1-ton anchor and 7/16" – 14 NC threads for use with 2, 4, 8 and 20-ton P56 anchors.


P63 Swift Lift Stud

Note: The P63 Stud and P64 Wing Nut are not interchangeable with the P56PL Recess Plug accessories.


P64 Swift Lift Wing Nut

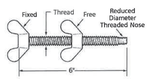
To Order:
Specify: (1) quantity, (2) name, (3) size.

Example:
200, P63 Swift Lift Studs and 200 P64 Swift Lift Wing Nuts, 7/16" dia.

P63PL Swift Lift® Plus Holding Stud, P64PL Swift Lift Plus Wing Nut

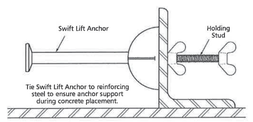
The Dayton Superior P63PL Swift Lift Plus Holding Stud is a 3/8" diameter, coil threaded stud with a fixed wing nut and a free-running wing nut used with the P66PL threaded plate to quickly attach the P56PL recess plug to the formwork. The holding stud is inserted through the form and threaded into the threaded plate. Complete the anchor installation by screwing the free-running wing nut tightly against the form.

The P64PL Wing Nut has 3/8" diameter coil thread and is available as a replacement nut for the P63PL Holding Stud.



P63PL Swift Lift Plus Holding Stud


P64PL Swift Lift Plus Wing Nut



To Order:
Specify: (1) quantity, (2) name.

Example:
200, P63PL Swift Lift Plus Holding Studs.

Swift Lift® System

The Swift Lift System is a quick connect-disconnect system that allows precast concrete elements to be handled repeatedly, with speed, safety and economy. It is a non-welded system and void of threaded connections. The quality, reusable Swift Lift Lifting Eye's heavy duty construction will provide years of good service.

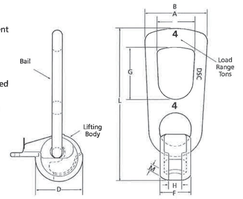
The Swift Lift System is available with safe load ratings of 1, 2, 4, 8 and 20 tons. Each component is clearly marked with its maximum safe working load. The System is extremely versatile and can be utilized for vertical and diagonal pulls. It can be used to lift concrete elements from a horizontal to a vertical position without the aid of a tilting table.

P50 Swift Lift® Universal Lifting Eye

The Swift Lift Universal Lifting Eye (P50) consists of a flat-sided, spherical lifting body and a high strength bail. The lifting body has a T-shaped slot that permits rapid attachment and release of the head on Swift Lift Anchors.

The design of the P50 Universal Lifting Eye permits the bail to freely rotate 180°, while the complete lifting eye may rotate through a 360° arc. This design feature allows precast concrete elements to be turned, tilted and/or rotated under load.

Dayton Superior does not recommend the use of this lifting eye for edge lifting of thin precast concrete panels.



P50 Swift Lift Universal Lifting Eye Dimensions

Rated Load Tons	A	B	D	F	G	L
1	1.87"	2.95"	2.20"	1.26"	2.80"	7.40"
2	2.34"	3.58"	2.68"	1.61"	3.41"	9.06"
4	2.76"	4.65"	3.46"	2.22"	3.46"	11.14"
8	3.47"	6.30"	4.41"	2.83"	4.52"	15.79"
20	4.18"	7.09"	6.00"	4.29"	5.31"	20.00"

The rated load provides a factor of safety of approximately 5 to 1 (ultimate to rated load).

P50 Inspection and Maintenance

The P50 Universal Lifting Eye may be subjected to wear, misuse, overloading and other factors that can affect the lifting eye's rated load. Therefore, it is imperative that the lifting eye be user-inspected at least once a month to determine its general condition and degree of wear.

During the user's monthly inspection, the lifting eye should be checked for evidence of heat application. If evidence of heat application is found, the unit must be scrapped. Check for a bent or twisted bail and discard all units found to have these flaws. Also, check to make certain that the bail rotates freely in all directions.

Limiting Dimensions on P-50 Swift Lift Universal Lifting Eye

Rated Load (Tons)	H Maximum Width	M Minimum Thickness
1	0.512"	0.217"
2	0.709"	0.236"
4	0.984"	0.315"
8	1.260"	0.472"
20	1.811"	0.709"

At least once every three months, dimensions "H" and "M" on each unit should be checked. The upper limits are shown in the chart. If either of these limits is exceeded, the P50 Universal Lifting Eye must be removed from service and destroyed.

The proper method for scrapping a lifting eye is to cut through the bail with a cutting torch to render the unit useless as a lifting device.

No repairs or welding to the P50 Swift Lift Universal Lifting Eye are permitted.

How to Use the P50 Swift Lift Universal Lifting Eye

1. To install the P50 lifting eye, hold the unit upside down with the T-shaped slot directly over the head of the Swift Lift anchor.

2. Lower the lifting eye down onto the anchor until the Tslot engages the head of the anchor.

3. Rotate the lifting eye until the extended lip of the body touches the horizontal surface of the concrete.

Note: Prior to lifting a precast element, apply an initial cable tension to make sure that the bail and body of the lifting eye are aligned in the direction of the cable pull.

The bail of the P50 lifting eye can move through a 180° usable range.

The main body of the lifting eye has a 360° rotational range.

The P50 lifting is used with the T-shaped slot facing toward the direction of the applied load.

To disengage the lifting eye, the crane hook is lowered and the body removed by rotating the extended lip upward.

Right

Right

Wrong

Dos and Don'ts of the P50 Swift Lift Universal Lifting Eye

Prior to lifting a precast element, apply an initial cable tension to make certain that the bail and body of the lifting eye are aligned in the direction of the cable pull.

When applying the initial cable tension on edge lift applications, make sure that the cables are at a 90° angle (or larger) to the surface of the precast element.

Warning: Do not allow the crane lines to form an angle less than 90° during an edge lift application. This condition can bend the lifting eye bail and could lead to a premature failure.

Warning: The crane line and bail of the lifting hardware must be turned in the direction of the cable forces before the lifting operation begins. The crane line must not be allowed to apply a sideward force on the bail. This condition is dangerous and could lead to premature failure of the hardware or insert.

Warning: Do not modify, weld or alter in any way the Swift Lift Universal Lifting Eye.

PLYMOUTH ER BRS 0149 (5)
CONTRACTOR FABRICATED PRE-CAST

SHEET1:ABUTMENT #1 PLAN
SHEET2:ABUTMENT #2 PLAN
SHEET3:WING WALL FORMING PLAN
SHEET4:CLOSURE POUR FORMING PLAN
SHEET5:APPROACH SLAB PLAN
SHEET6:APPROACH SLAB FORMING PLAN
SHEET7:APPROACH SLAB INSTALLATION /GROUTING PLAN
SHEET8:GENERAL NOTES
SHEET9:QUALITY CONTROL PLAN & PROCEDURES
SHEET10:NPCA TOLERANCES
SHEET11:INSPECTION FORMS
SHEET12:REINFORCING STEEL DRAWINGS

T-Y-LIN INTERNATIONAL

____ No Exception Taken
_X_ Make Correction as Noted
____ Submit Specified Item
____ Revise and Resubmit as Noted
____ Rejected

Checking is for general compliance with the design concept of the project and general compliance with the information given in the contract documents only. Any action shown is not an approval and is subject to the requirements of the plans and specifications. Any action shown on a specific item shall not indicate the checking of an assembly of which the item is a component. Contractor is solely responsible for: dimensions which shall be confirmed and correlated at the job site, fabrication processes, techniques of construction, safety precautions; and coordination of its work with that of all other trades and the satisfactory performance of its work.

Reviewed By: _____ Date: May 13, 2013

Please incorporate comments; no need to return corrected versions for further review.

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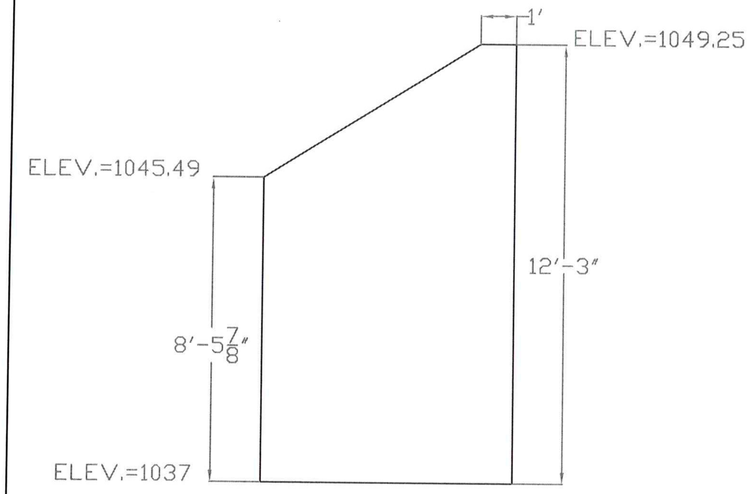
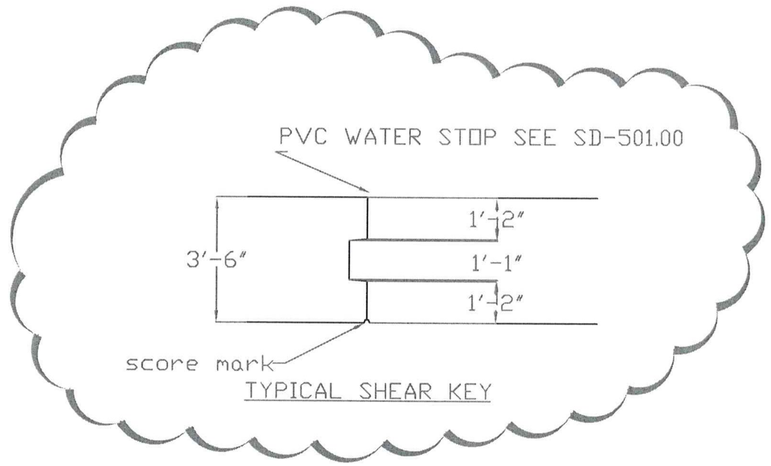
PLYMOUTH ER BRS 0149 (5)

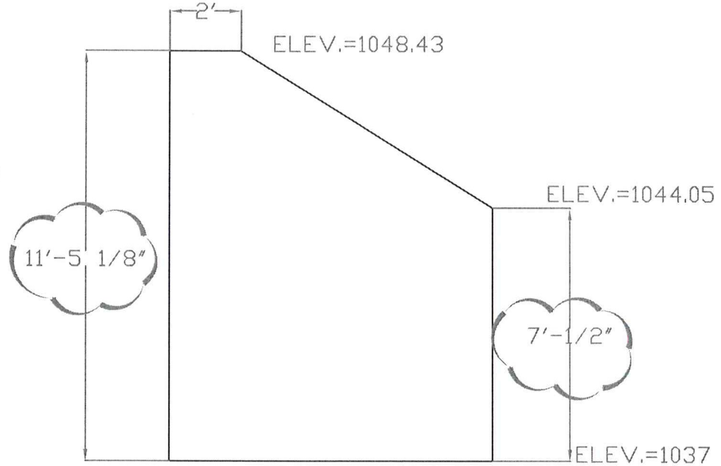
COVER SHEET/INDEX

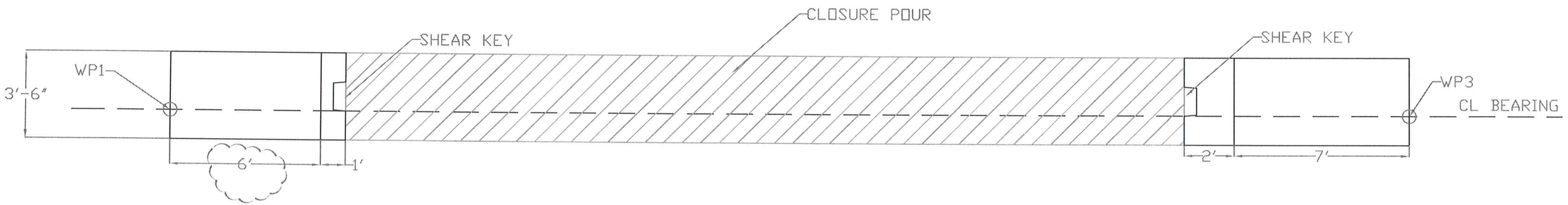
SHEET NUMBER
COVER
REV 1 5-7-13

DATE: 4-16-13 scale:









ABUTMENT 1 PLAN&ELEV VIEW

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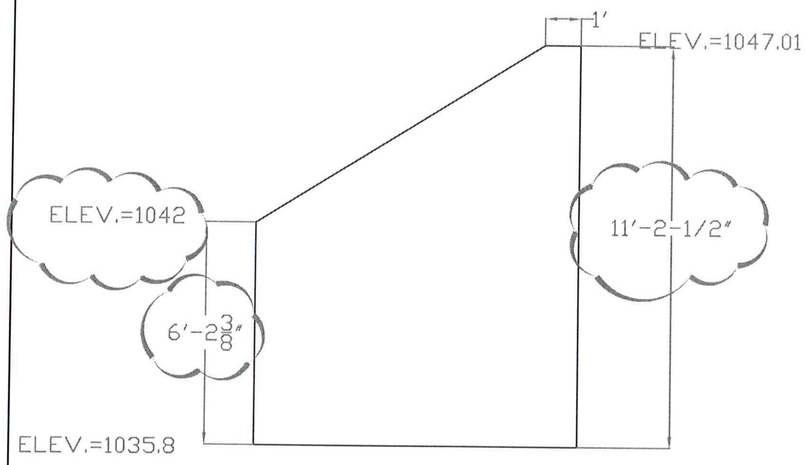
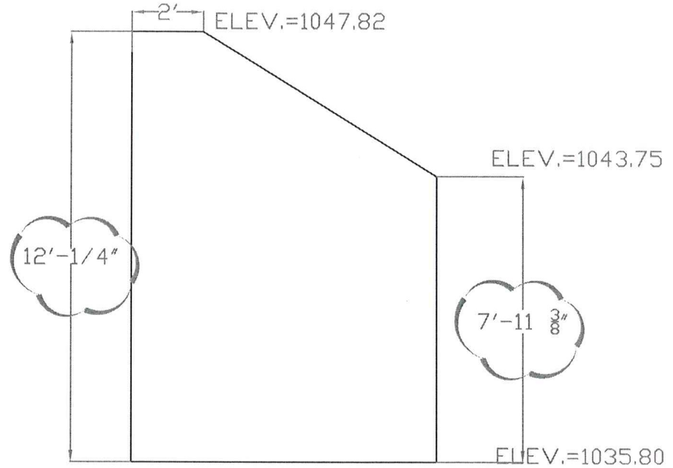
ABUTMENT 1 PLAN

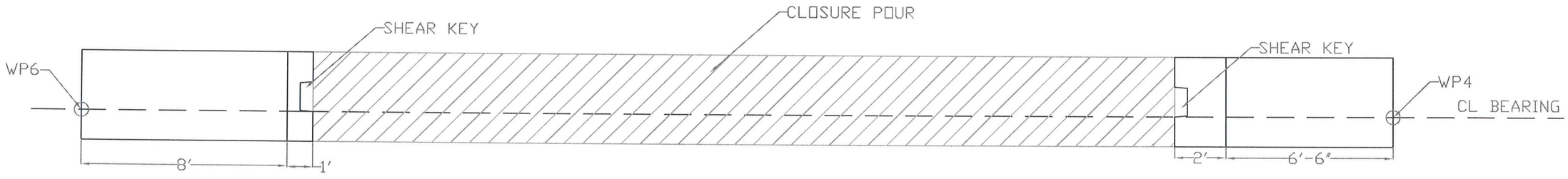
SHEET NUMBER 1

DATE: 4-16-13 scale: 1/4"=1'

REV 1 5-7-13







ABUTMENT 2 PLAN&ELEV VIEW

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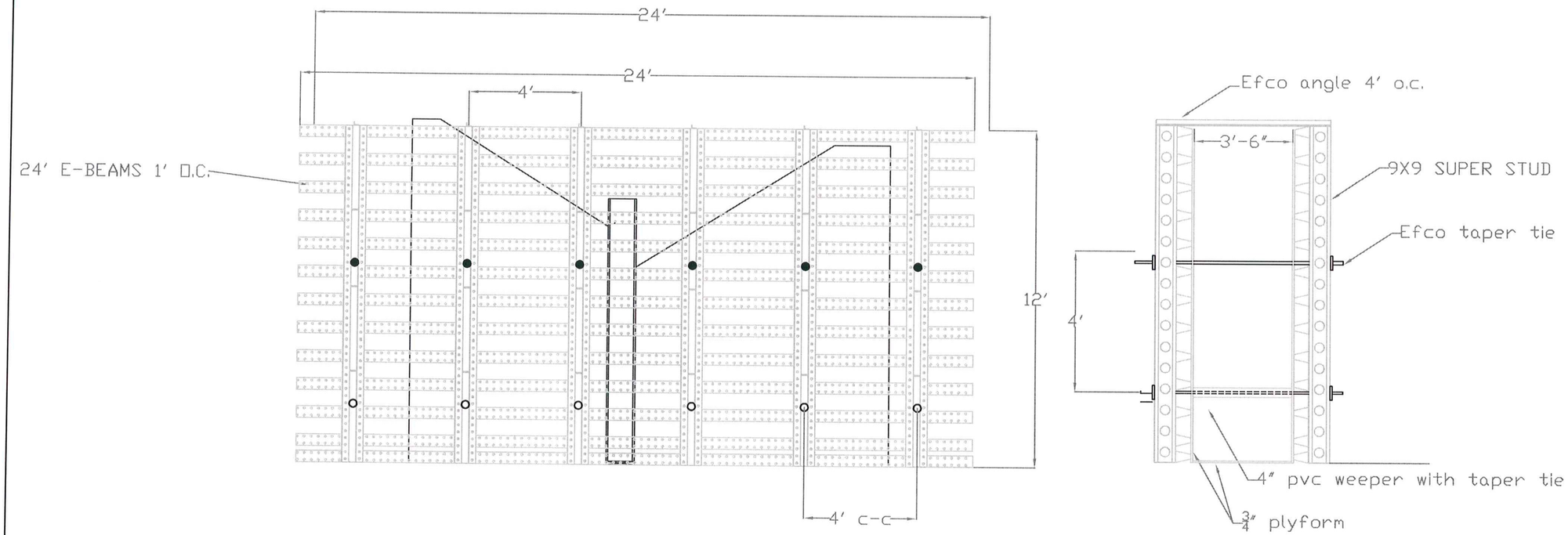
PLYMOUTH ER BRS 0149 (5)

ABUTMENT 2 PLAN

SHEET NUMBER 2

DATE: 4-16-13 scale: 1/4"=1'

REV 1 5-7-13



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PLYMOUTH ER BRS 0149 (5)

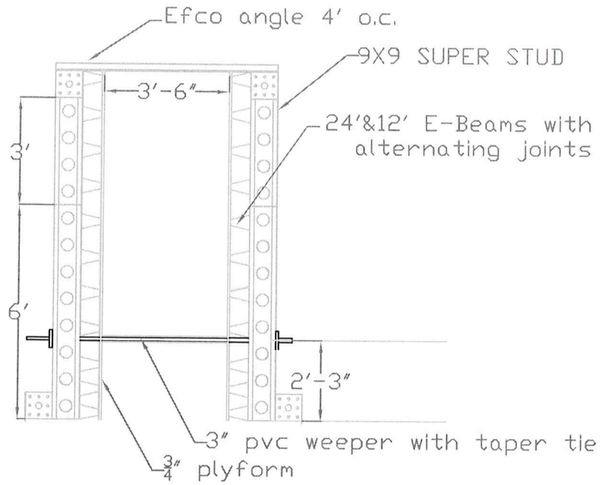
W.W. FORMING PLAN

SHEET NUMBER 3

DATE: 4-16-13 scale: 1/4"=1'

REV 1 5-7-13

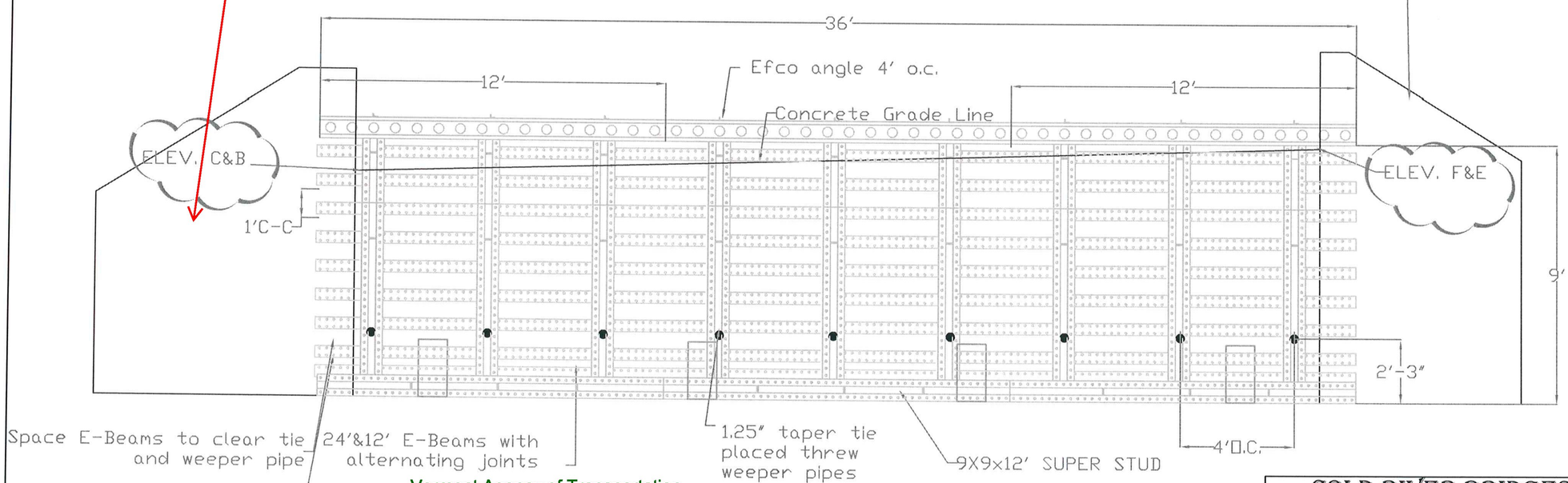
WING WALLS WILL BE SET ON A CRUSHED STONE BASE LOCATION AND ELEVATION PER CONTRACT PLANS. WW'S WILL BE SELF STANDING, CLOSURE POUR FORMS LAP ONTO WINGALLS AND ARE DRAWN TIGHT WITH TAPER TIES



ABUTMENT #1
ELEVATION "C" ~~1046.92~~ 1046.12 (NF), 1046.24 (FF)
ELEVATION "F" ~~1045.26~~ 1045.13 (NF), 1045.26 (FF)
ABUTMENT #2
ELEVATION "B" ~~1043.68~~ 1043.80 (NF), 1043.68 (FF)
ELEVATION "E" ~~1044.67~~ 1044.79 (NF), 1044.67 (FF)

Need to laterally brace wings to prevent 'tipping' during abutment closure cure period

Pre-cast Wing walls
See Forming sheet 1



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CLOSURE POUR

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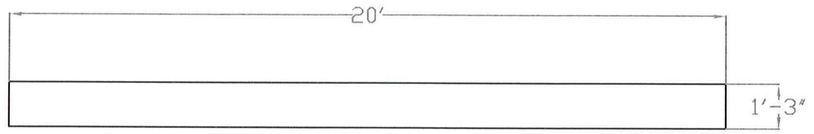
CLOSURE POUR FORM PLAN

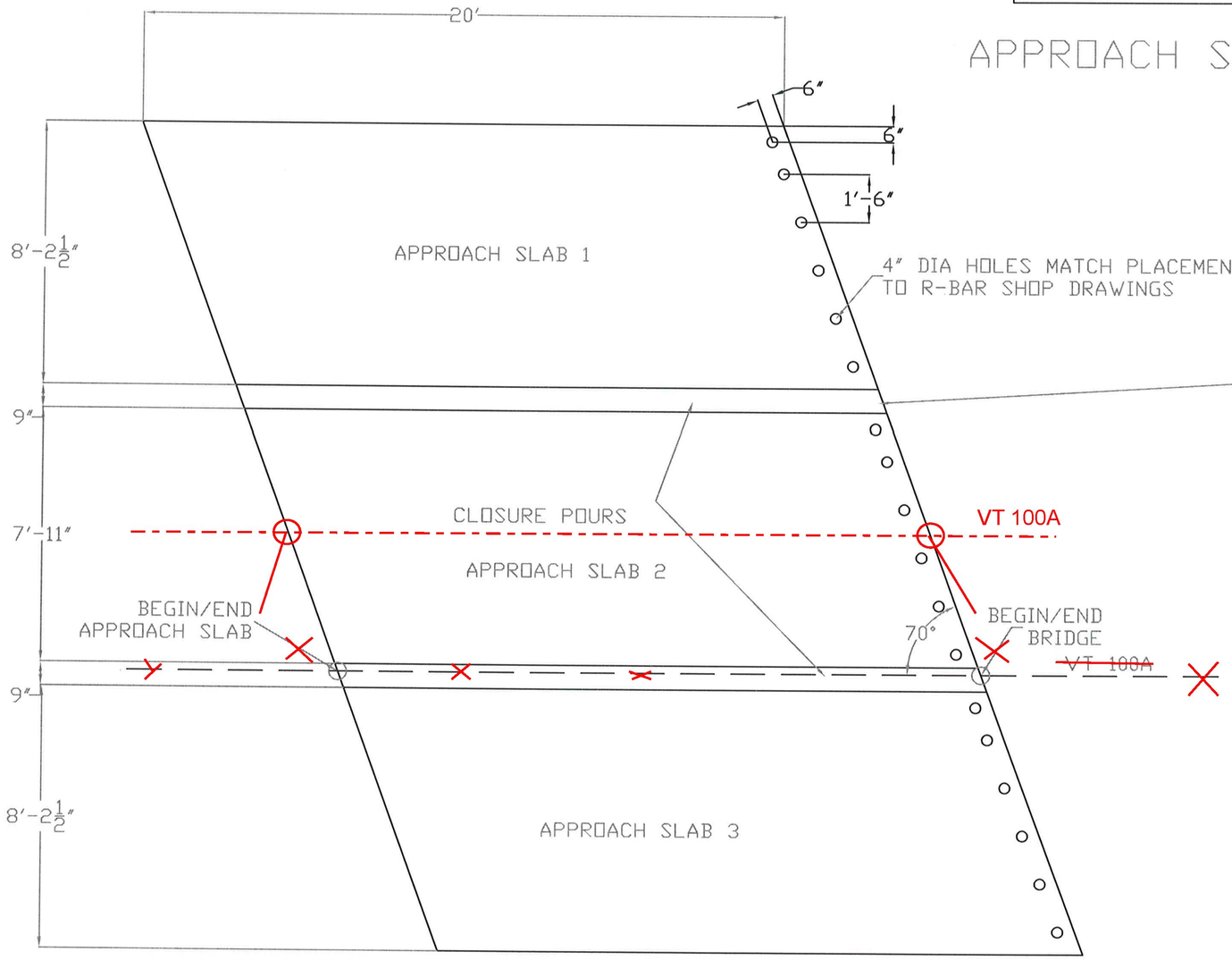
SHEET NUMBER 4

DATE: 4-16-13 scale: 1/4"=1'

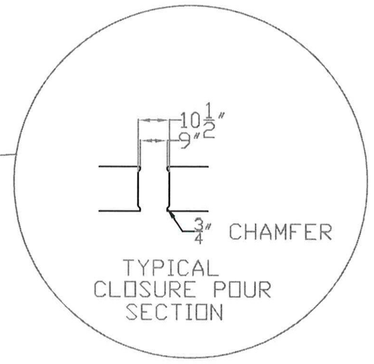
REV 1 5-7-13



APPROACH SLAB ELEVATION VIEW



APPROACH SLAB PLAN VIEW



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**APPROACH SLABS 4,5,6 ARE THE SAME

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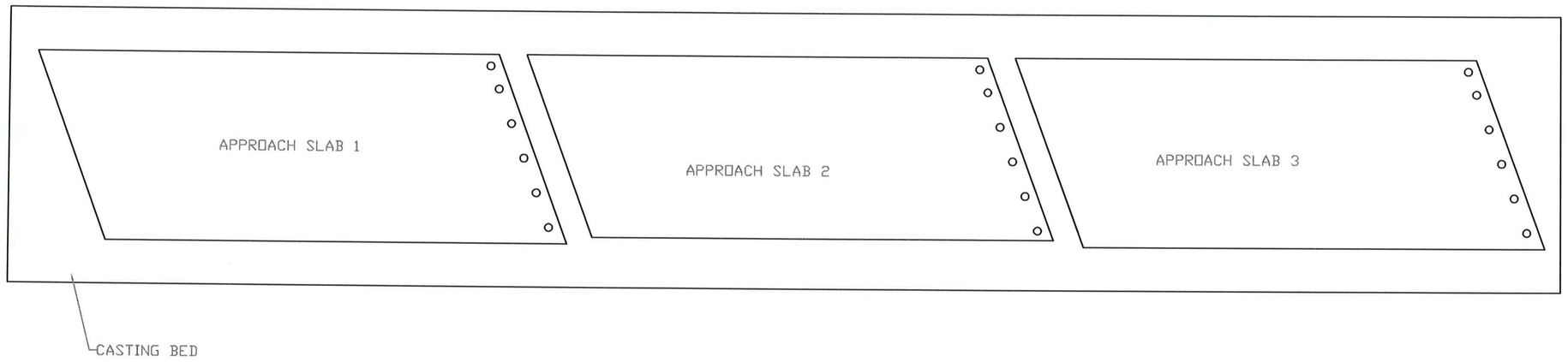
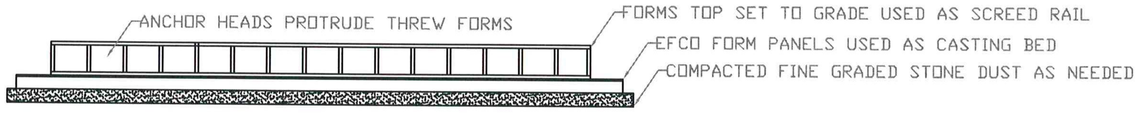
APPROACH SLAB PLAN

SHEET NUMBER 5

DATE: 4-16-13 scale: 1/4"=1'

REV 1 5-7-13





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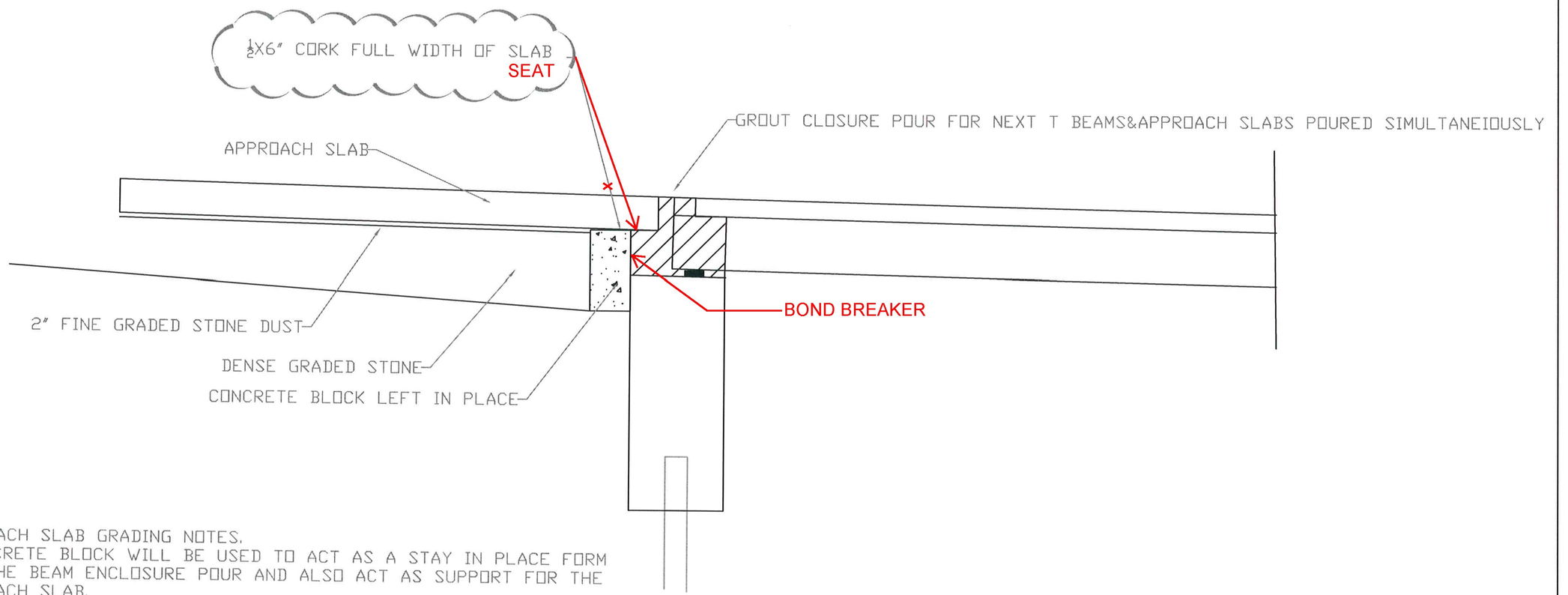
PLYMOUTH ER BRS 0149 (5)

APPROACH SLAB FORMING PLAN

SHEET NUMBER 6

DATE: 4-16-13 scale: 3/16"=1'

REV 1 5-7-13



APPROACH SLAB GRADING NOTES.
1 CONCRETE BLOCK WILL BE USED TO ACT AS A STAY IN PLACE FORM FOR THE BEAM ENCLOSURE POUR AND ALSO ACT AS SUPPORT FOR THE APPROACH SLAB.
2. 2" +- OF STONE DUST WILL BE USED TO GRADE THE SUB BASE SO THE APPROACH SLABS HAS ADEQUATE BEARING ON THE GROUND SURFACE.

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PLYMOUTH ER BRS 0149 (5)

APP SLAB INSTALLATION PLAN AND GROUTING PLAN

SHEET NUMBER 7

DATE: 4-16-13 scale: 1/4"=1'

REV 1 5-7-13

CONCRETE NOTES:
CONTRACTOR-FABRICATED PRECAST CONCRETE STRUCTURES.

1.APROACH SLABS- CONCRETE CLASS HPC B

2.WINGWALLS-CONCRETE CLASS HPC A

3.ABUTMENT CLOSURE POUR CONCRETE CLASS HPC B

4.CLOSURE POUR-940LBS/CY NON SHRINK GROUT MIX

5.ALL CONCRETE ABOVE WILL BE SUPPLIED BY CARROLL CONCRETE INC.

6.ALL CONCRETE MIX DESIGNS HAVE OR WILL BE SUBMITTED BY CARROLL CONCRETE INC.

7. APPROACH SLABS SHALL HAVE A TEXTURED BROOM FINISH.

8. WINGWALLS AND CLOSURE POUR TOP WILL HAVE A HAND FLOATED FINISHED PRODUCED BY THE USE OF A MAGNESIUM FLOAT.

8. WINGWALLS AND APPROACH SLABS FORM CAN BE REMOVED WHEN THE SPECIFIED CONCRETE HAS REACHED 85% OF ITS DESIGN STRENGTH. WATER CURE WILL CONTINUE BASED ON TABLE 501.17A "CURING CONCRETE COMPONENTS" 7 DAYS OF WATER CURING.

9. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3./4"

10. Precast elements will not be lifted or handled until full concrete design strength has been achieved, and the cure period has ended.

CONSTRUCTION SEQUENCE:
1. CAST WINGWALLS FOR ABUTMENT # 1
3.CAST WINGWALLS FOR ABUTMENT #2
4.CAST APPROACH SLABS 1-3 AND 4-6
5.SET ABUTMENT #2 WINGWALLS
6. SET PRE-TIED R-BAR CAGE AND GANGED FORMS AND POUR ABUTMENT 1 CLOSURE
7.SET ABUTMENT #1 WINGWALLS
8.SET PRE-TIED R-BAR CAGE AND GANGED FORMS AND POUR ABUTMENT 2 CLOSURE .
9SET NEXT T-BEAMS,SET PRECAST APPROACH SLABS AND GOUT CLOSURE POURS.

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PLYMOUTH ER BRS 0149 (5)

GENERAL NOTES

SHEET NUMBER 8

DATE: 4-16-13 scale:

REV 1 5-7-13

QUALITY CONTROL PROCEDURES.

1.CARROLL CONCRETE WILL BE RESPONSIBLE FOR THE CONTRACTOR./SUPPLIOR QC TESTING DURING CONCRETE POURS.

2.A PRE-PRODUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR AND RESIDENT ENGINEER BEFORE CONCRETE PLACEMENT.

3. VTRANS WILL RETAIN THEIR RESPONSIBILITIES FOR QUALITY ACCEPTANCE TESTING.

4. A MINIMUM OF TWO EXTRA CYLINDERS PER CONCRETE PLACEMENT SHALL BE TAKEN FOR EARLY STRENGTH BREAKS.

5. ALL INSIDE FORM DIMENSION AND R-BAR SPACING AND CLEARANCES SHALL BE REVIEWED AND DOCUMENTED ON THE PRE-POUR INSPECTION SHEET BY THE CONTRACTOR AND THE RESIDENT ENGINEER BEFORE CASTING IS COMMENCED..

6. BEFORE FORMS ARE ERECTED THE CONTRACTOR WILL INSPECT ALL FORM-WORK FOR DAMAGE OR RESIDUAL CONCRETE. ANY DEFICIENCY IN THE FORM WORK SHALL BE CORRECTED BEFORE FORM WORK CONTINUES.

7. FORMS SHALL HAVE A GENEROUS COATING OF FORM OIL APPLIED. . CAUTION WILL BE TAKEN NOT TO HAVE PONDING OF FORM OIL IN THE BASE OF THE FORM OR ON ANY R-BAR.

8. ANY COATING DAMAGED ON THE R-BAR SHALL BE REPAIRED WITH A 2 PART EPOXY TOUCH UP KIT.

9. ALL PRE-CAST WILL BE INSPECTED BY BOTH THE CONTRACTOR AND THE RESIDENT ENGINEER AND DOCUMENTED ON THE POST POUR INSPECTION SHEET. ANY MINOR REPAIRS AND HONEY COMBING OR RUBBING NECESSARY WILL BE COMPLETED USING A SAND AND PORTLAND SLURRY FROM THE SAME SOURCE AS THE CONCRETE. ANY MAJOR REPAIRS WILL BE REPAIRED WITH A VERTICAL OVERHEAD PATCH FROM THE APPROVED PRODUCTS LIST.

10.. CONCRETE TOLERANCES SHALL BE IN ACCORDANCE WITH THE NPCA CONCRETE TOLERANCES.

11. EACH PIECE OF PRE-CAST SHALL BE MARKED WITH ITS UNIT NUMBER AND DATE OF CASTING.

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PLYMOUTH ER BRS 0149 (5)

QC PROCEDURES/PLAN

SHEET NUMBER 9

DATE: 4-16-13 scale:

REV 1 5-7-13

Prestressed Concrete Tolerances

I. Fabrication tolerances in linear elements except piles (Beams, girders, columns, joists and similar members)

A. Length of member
- Per 10 foot of length ..... 1/8 in
- Total not more than ..... 3/4 in

B. Cross-sectional dimensions
- 6 in. or less ..... 1/8 in
- Over 6 in. but not over 18 in ..... 3/16 in
- Over 18 in. but not over 36 in ..... 1/4 in
- Over 36 in ..... 3/8 in

C. Lateral alignment (Sweep) of noncambered member of surfaces as measured relative to the centerline of member
- Member length
- 40 ft and less ..... 1/4 in
- Over 40 foot but not over 60 ft ..... 3/8 in
- Over 60 foot ..... 1/2 in

D. Camber variation from design chamber, at time of erection
- 1/4 in. per 10 foot of length but not more than ..... 1 in

E. Surface irregularities, deviation from a 10 ft straightedge...
- For elements which will not receive topping ..... 1/4 in
- For elements to receive topping ..... 1/2 in
- For elements to be used as concrete guideways support and steering surfaces ..... 1/8 in

II. Fabrication tolerances for piles

A. Length ..... +6 in
..... -2 in

B. Cross-sectional dimensions
- Overall ..... 3/8 in
- Wall thickness of hollow sections ..... +1/2 in
..... -0 in

C. Lateral alignment of pile surfaces relative to pile centerline
- in length of pile, per 10 foot ..... 1/8 in

D. Location of internal void ..... 3/8 in

E. Pile head
- From the plane perpendicular to the longitudinal axis of pile, 1/4 in. in 12 in. but not more than ..... 1/2 in

F. Surface irregularities
- Pile head ..... 1/8 in
- Other surfaces, deviation from a 10 foot straightedge ... 1/4 in

III. Fabrication tolerances in planar elements (Wall and floor panels, tees and similar members)

A. Length and width
- 10 foot or less ..... 1/8 in
- Over 10 ft but no over 20 foot ..... +1/8 in
..... -3/16 in
- Over 20 ft but not over 40 foot ..... 1/4 in
- Each additional 10 foot increment in excess of 40 foot. 1/16 in
- Difference in length of the two diagonals, of a rectangular member the greater of 1/8 in. per 6 foot or diagonal or . 1/2 in

B. Cross-sectional dimensions
- Thickness ..... +1/4 in
..... -1/8 in

C. Openings in panels
- Size of opening ..... 1/4 in
- Location referenced to centerline of opening ..... 1/4 in

D. Lateral alignment of embedded items
- Reglets for glazing gaskets ..... 1/8 in
- Bolts ..... 1/4 in
- Flashing reglets ..... 1/4 in
- Flashing reglets at panel edge ..... 1/8 in
- Electrical penetrations and pipe sleeves ..... 1/2 in
- Weld plates ..... 1 in
- Inserts ..... 1/2 in

E. Bowing and warping at time of erection
- Bowing
- 1/360 times the panel diagonal dimension (in inches) but not more than ..... 1 in.
- Warping
- 1/16 in. per foot of distance from the nearest adjacent corner but not more than ..... 1 in.

NPCA
Precast ... The Concrete Solution

QMF-014, Appendix B Forms
Prestressed Tolerances

Rev.1
135

02-07-12 (9.0)

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PLYMOUTH ER BRS 0149 (5)

NPCA TOLLERANCES

SHEET NUMBER 10

DATE: 4-16-13 scale:

REV 1 5-7-13

QMF-005, Rev. 1, 02-07-12 (9.0)

POST-POUR INSPECTION REPORT

QUALITY CONTROL DEPARTMENT

PRODUCT:							
Job #	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Casting Date							
Inspection Date							
Mark Number							
Stripping Strength							
Top Finish							
Bottom Finish							
Surface Texture							
As Cast Length (ft/in)							
As Cast Width (ft/in)							
As Cast Depth (ft/in)							
Cracks							
Spalls							
Squareness							
Chamfers							
Honeycomb / Grout Leak							
Bowing							
Exposed Reinforcement							
Exposed Chairs							
Plates and Inserts							
Chamfer & Radius Quality							
Openings / Blockouts							
Lifting Devices							

REMARKS: _____

Inspector _____ **Date** _____ **QC Supervisor** _____

QMF-003, Rev. 1, 02-07-12 (9.0)

PRE-POUR INSPECTION REPORT

QUALITY CONTROL DEPARTMENT

PRODUCT:							
Job #	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Casting Date							
Form Condition							
Form Cleanliness							
Form Joints							
Release Agent/Retarder							
Design Length (ft/in)							
Set-Up Length (ft/in)							
Design Width (ft/in)							
Set-Up Width (ft/in)							
Design Depth (ft/in)							
Set-Up Depth (ft/in)							
Blockouts							
Squareness							
End and Edge Details							
Reinforcing Steel							
Size of Reinforcing							
Spacing of Reinforcing							
Corrosion							
Reinf. Cleanliness							
Plates and Inserts							
Lifting Devices							
Top Finish (wet)							

* All applicable boxes should have a S=Satisfactory or D=Deficiency

REMARKS: _____

QC Supervisor _____ **Date** _____ **Inspector** _____

COLD RIVER BRIDGES, LLC
10 LANBRO LANE
WALPOLE, NH
TEL 603-756-9300 FAX 603-756-9303

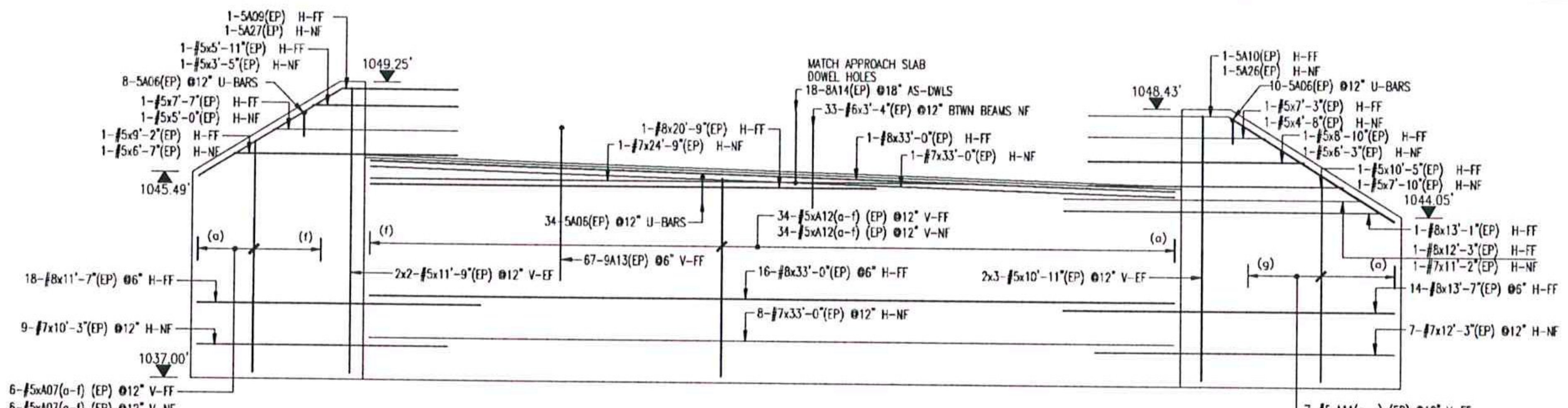
PLYMOUTH ER BRS 0149 (5)

INSPECTION FORMS

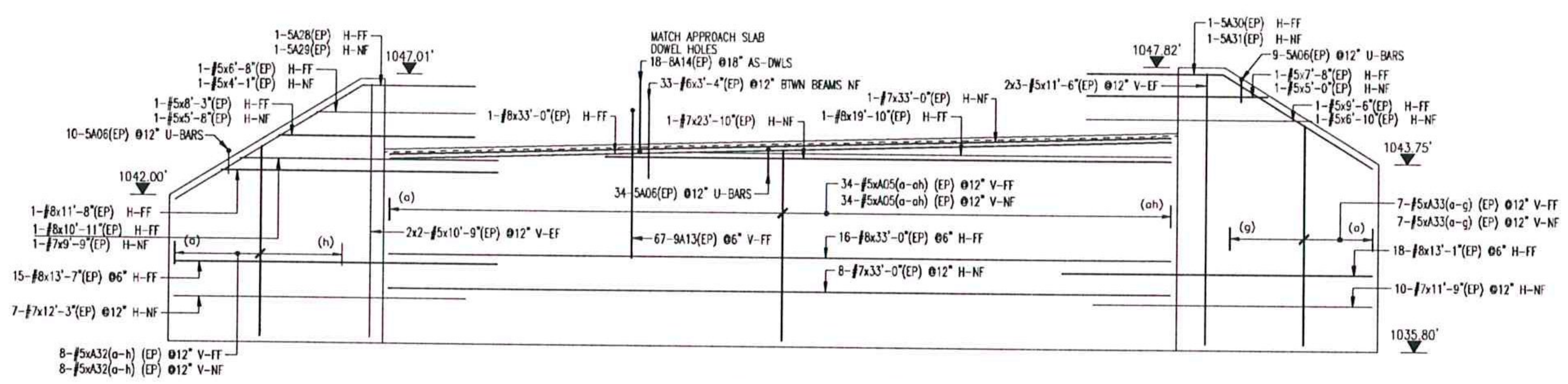
SHEET NUMBER 11

DATE: 4-16-13 scale:

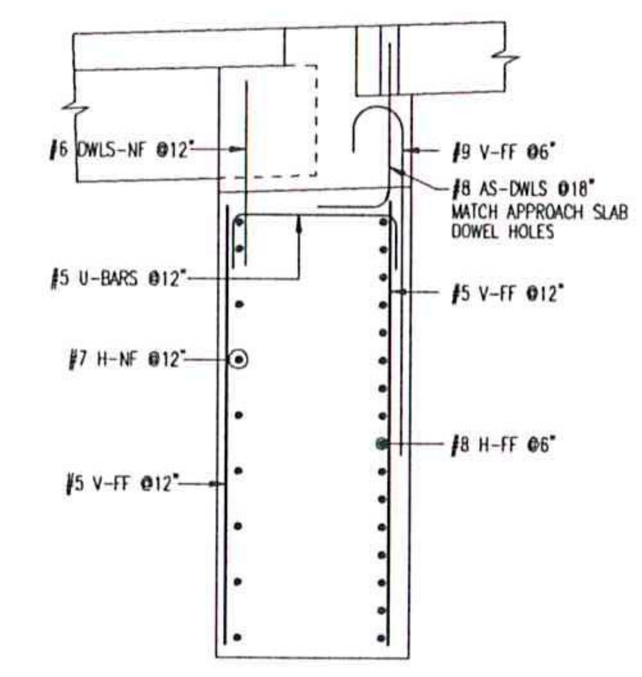
REV 1 5-7-13



ABUTMENT 1 REINFORCEMENT ELEVATION

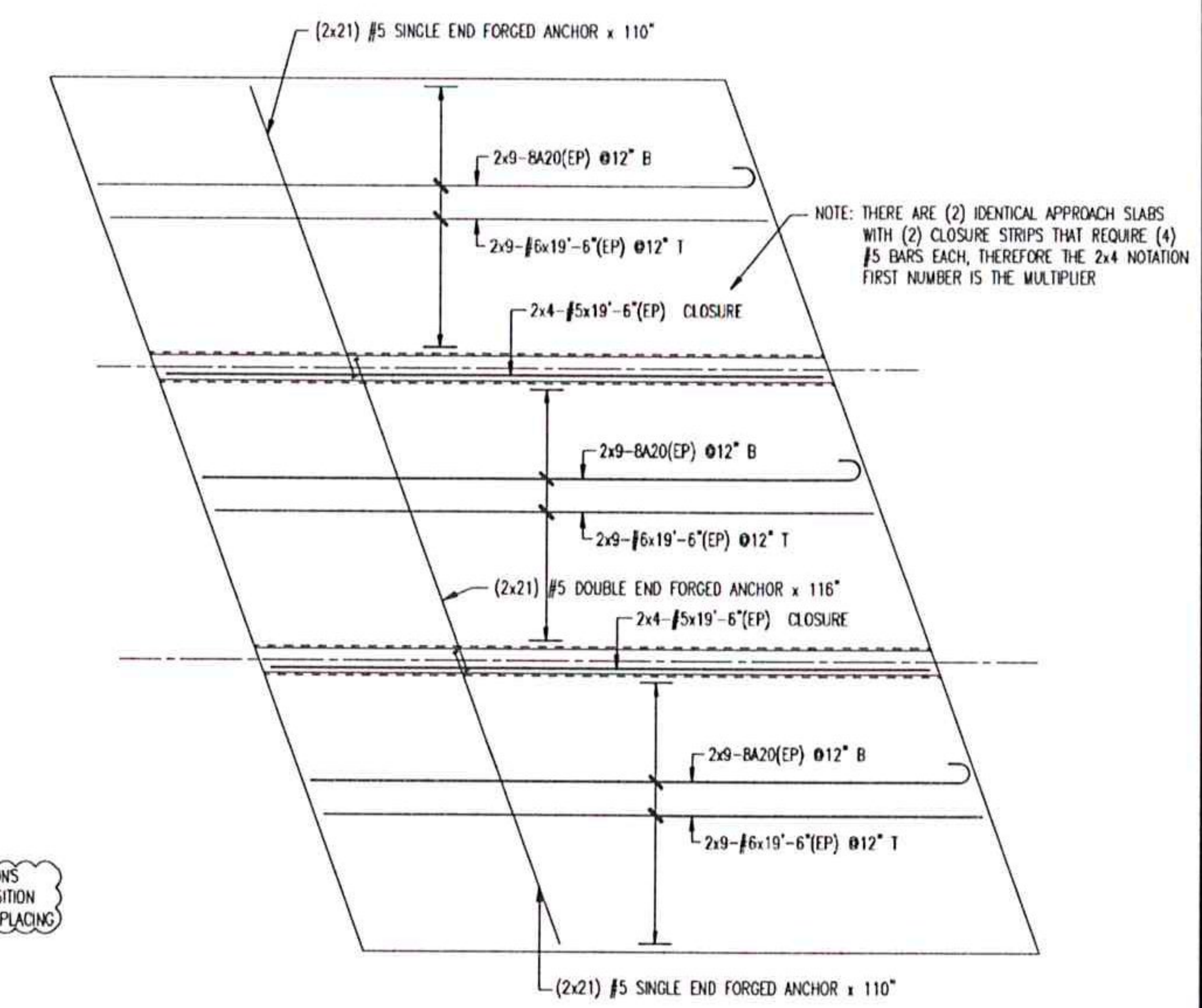


ABUTMENT 2 REINFORCEMENT ELEVATION

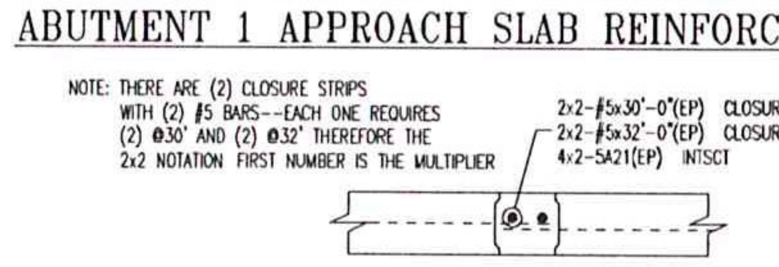


TYPICAL ABUTMENT SECTION
ABUTMENT "1" AS SHOWN
ABUTMENT "2" OPP. HAND

SEE CONTRACT LIST AND SECTIONS FOR CLOSURE POUR AND TRANSITION BARRIERS REINFORCEMENT AND PLACING



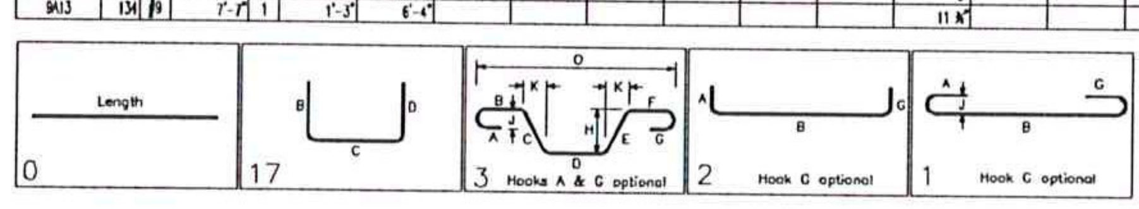
ABUTMENT 2 APPROACH SLAB REINFORCEMENT-A.S.
ABUTMENT 1 APPROACH SLAB REINFORCEMENT-O.H.



CLOSURE STRIPS IN DECK SLAB

Drawing Sheet : R01 — BAR LIST

Bar Mark	Qty	Size	Total Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'O'	'R'
A05a	2	#5	7'-4"			7'-4"										
A05ah	2	#5	8'-4"			8'-4"										
First and Last Bar in Vary Group Shown Only																
A07a	2	#5	8'-1"			8'-1"										
A07l	2	#5	11'-3"			11'-3"										
First and Last Bar in Vary Group Shown Only																
A11a	2	#5	6'-8"			6'-8"										
A11g	2	#5	10'-5"			10'-5"										
First and Last Bar in Vary Group Shown Only																
A12a	12	#5	7'-8"			7'-8"										
A12l	8	#5	8'-6"			8'-6"										
First and Last Bar in Vary Group Shown Only																
A32a	2	#5	5'-10"			5'-10"										
A32h	2	#5	10'-2"			10'-2"										
First and Last Bar in Vary Group Shown Only																
A33a	2	#5	7'-7"			7'-7"										
A33g	2	#5	11'-4"			11'-4"										
First and Last Bar in Vary Group Shown Only																
5A06	105	#5	5'-0"	17		1'-0"	3'-0"	1'-0"								
5A09	1	#5	11'-7 ½"	3		4'-9 ½"	6'-10 ½"					3'-8 ½"		5'-9 ½"	10'-6 ½"	
5A10	1	#5	13'-9 ½"	3		5'-9 ½"	8'-½"					4'-4"		6'-9 ½"	12'-6 ½"	
5A21	8	#5	5'-10"	2	10"	5'-0"										
5A26	1	#5	11'-2 ½"	3		8'-½"	3'-2 ½"					1'-8 ½"		2'-8"	10'-8 ½"	
5A27	1	#5	9'-½"	3		6'-10 ½"	2'-2 ½"					1'-2 ½"		1'-9 ½"	8'-8 ½"	
5A28	1	#5	14'-0"	3		9'-2 ½"	4'-9 ½"					2'-7"		4'-½"	13'-5"	
5A29	1	#5	11'-5"	3		9'-2 ½"	2'-2 ½"					1'-2 ½"		1'-10"	11'-½"	
5A30	1	#5	13'-2 ½"	3		7'-5 ½"	5'-9 ½"					3'-1 ½"		4'-10 ½"	12'-3 ½"	
5A31	1	#5	10'-7 ½"	3		7'-5 ½"	3'-2 ½"					1'-8 ½"		2'-8"	10'-1 ½"	
8A14	36	#8	4'-4"	2	1'-4"	3'-0"										
8A20	54	#8	20'-5"	1	11"	19'-6"							8"			
9A13	134	#9	7'-7"	1	1'-3"	6'-4"							11 ½"			



Vermont Agency of Transportation
RECEIVED
ON: May 9, 2013
and Checked for
CONFORMANCE
BY: Rob Young DATE: 05/13/13

No.	Description	Date	By
2	APPROVAL PRINT	05/01/13	CPS
1	APPROVAL PRINT	04/24/13	CPS

Revisions and Issue Record

The full intent and purpose of this drawing is the placing of reinforcing steel bars ONLY. It is NOT to be used as a means of communication between the Architect, Engineer, Contractor or any other Sub-trades.

THIS DRAWING IS NOT TO BE SCALED.

HarrisRebar — National Strength. Local Service.
DETAILED AT: CANAAN NEW HAMPSHIRE

Project: PLYMOUTH ER BRS 0149(5) PLYMOUTH VT

Drawing: BRIDGE ABUTMENT REINFORCEMENT

Customer: COLD RIVER BRIDGES

Engineer: T-Y-LIN INTERNATIONAL

Refer to Release:

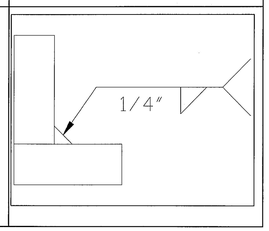
Date	Drawn	Chkd.	JOB No.	Dwg. No.
04/23/13	CPS		10049702	R01

W:\csample\Projects\10049702\Placing Drawings\DWGs\R01.dwg

WELDING PROCEDURE SPECIFICATION

Material Specification	A709 TO A500 GR B
Welding Process	FCAW
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT
Filler Metal Specification	A5.20 - 95
Filler Metal Classification	E71T-1H8 E71T-9H8 LINCOLN ULTRACORE
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	CLEAN AS PER SECTION 603 OF THE NYSSCM
Preheat and Interpass Temperature	PREHEAT AS PER TABLEL 708 OF THE NYSSCM
Postheat Temperature	NONE
Heat Input	Min Max

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	300	26	14	
Variable	LIMITS	270 TO 330	24 TO 28	12.6 TO 15.4	

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in Section 5.

Procedure No. 3009
Revision No.

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 10/18/2011

Form III-2

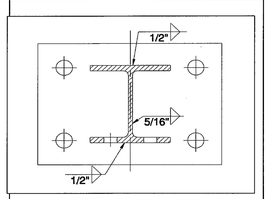
Form III-2-Sample Welding Procedure Specification

WELDING PROCEDURE SPECIFICATION

Material Specification	A572 GRD. 50 /A992-06a
Welding Process	FCAW
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT
Filler Metal Specification	A5.20
Filler Metal Classification	E70 LINCOLN OUTERSHEILD
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50 CFM
Single or Multiple Pass	SINGLE (45 TO 63 CFM)
Single or Multiple Arc	N/A
Welding Current	DC
Polarity	DCEP
Welding Progression	STRINGER
Root Treatment	CLEAN AS PER SECTION 603 OF THE NYSSCM
Preheat and Interpass Temperature	PREHEAT AS PER TABLEL 708 OF THE NYSSCM
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	3/32	390	27	12	
Variable	LIMITS	351 TO 429	25 TO 29	11 TO 13	



This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in Section 5.

Procedure No. 3008
Revision No. _____

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 10/18/2011

Vermont Agency of Transportation

RECEIVED

ON: July 3, 2013

and Checked for

CONFORMANCE

BY: Rob Young DATE: 07/08/13

T-Y-LIN INTERNATIONAL

_____ No Exception Taken

X Accept as Noted

_____ Submit Specified Item

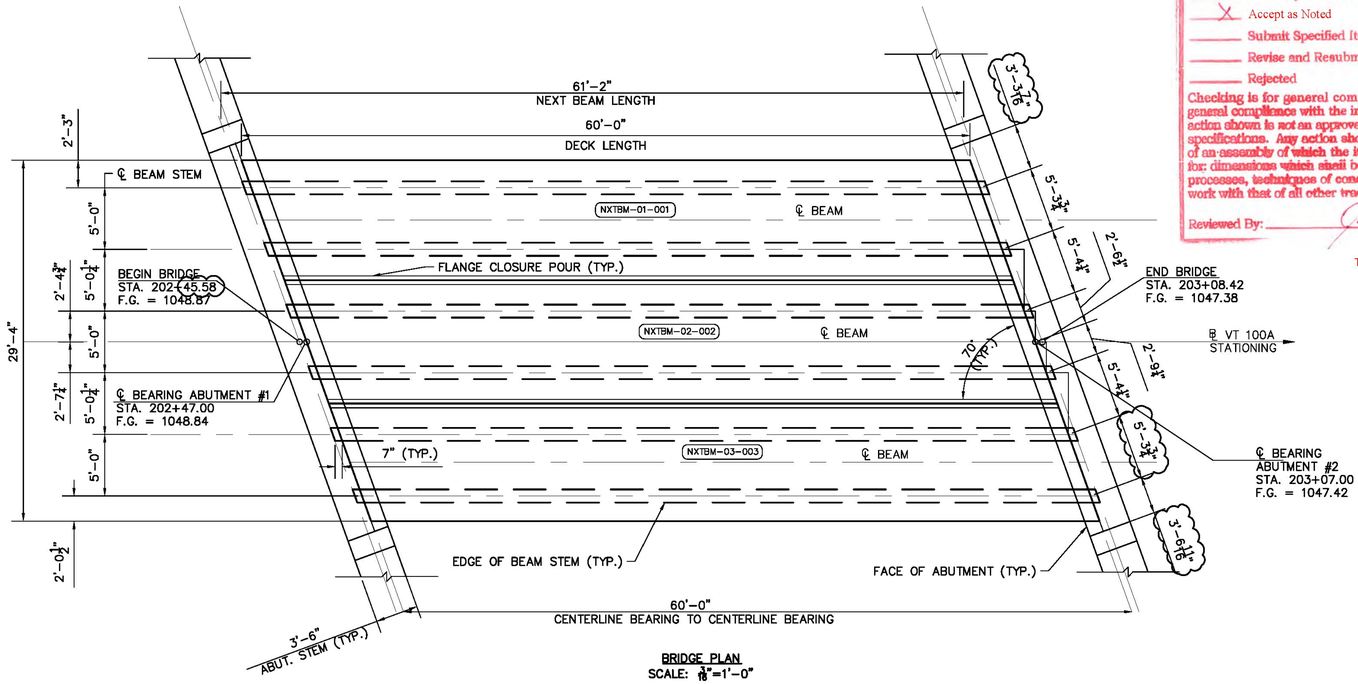
_____ Revise and Resubmit as Noted

_____ Rejected

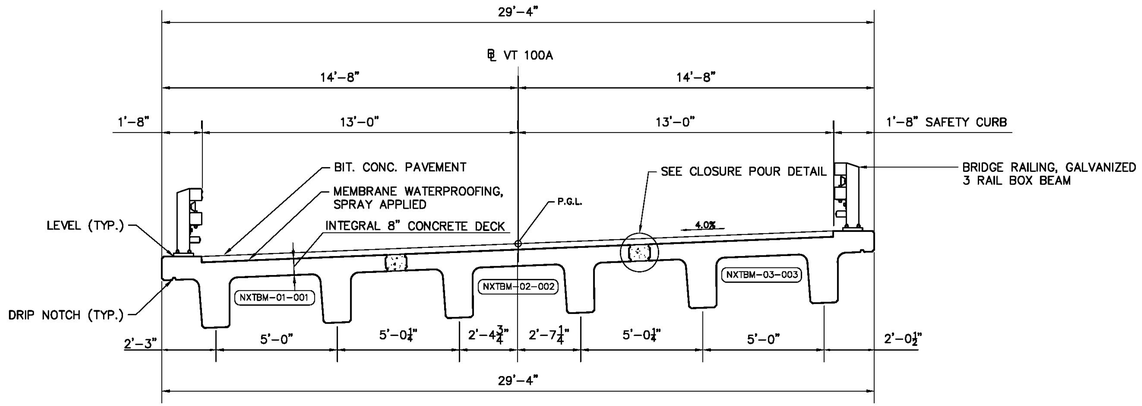
Checking is for general compliance with the design concept of the project and general compliance with the information given in the contract documents only. Any action shown is not an approval and is subject to the requirements of the plans and specifications. Any action shown on a specific item shall not indicate the checking of an assembly of which the item is a component. Contractor is solely responsible for: dimensions which shall be confirmed and correlated at the job site, fabrication processes, techniques of construction, safety precautions; and coordination of its work with that of all other trades and the satisfactory performance of its work.

Reviewed By: _____ Date: July 8, 2013

There is no need to resubmit these fabrication drawings.



BRIDGE PLAN
SCALE: 3/16"=1'-0"



BRIDGE TYPICAL SECTION
SCALE: 3/8" = 1'-0"

NOTES:

1. SHOP DRAWINGS WERE DEVELOPED USING THE FOLLOWING RESOURCES FOR THE CONTRACT: VT100A REPLACEMENT OF BRIDGE OVER PINNEY HOLLOW BROOK, PLYMOUTH, VT. BRIDGE NO. 47 PREPARED BY TYLIN. PROJECT NO ER BRS 0149(5)
2. IF THERE IS ADDITIONAL INFORMATION PERTINENT TO THE FABRICATION AND INSTALLATION OF THESE UNITS THAT IS NOT CONTAINED WITHIN THE RESOURCES LISTED ABOVE, IT SHALL BE BROUGHT TO THE ATTENTION OF DAILEY PRECAST LLC. AND EIV TECHNICAL SERVICES OF ALL LIABILITIES ARISING FROM ERRORS OR OMISSIONS RELATED TO THE OMITTED INFORMATION.
3. VOIDS AT LIFTER POCKETS SHALL BE FILLED WITH APPROVED NON-SHRINK GROUT ONCE BEAMS ARE IN PLACE. (NOT BY DP)
4. TOLERANCES SHALL BE IN ACCORDANCE WITH PCI TOLERANCE MANUALS (MNL-135 & MNL-116)

CONSTRUCTION SET DATE: 06/28/2013	
SHEET NAME: ERECTION PLAN	
REVISION NO.	REVISION DATE

Dailey PRECAST
WILLIAM E. DAILEY PRECAST, LLC
295 AIRPORT ROAD
SHAFTSBURY, VT 05262
TEL: 802.442.4418 FAX: 802.442.0738

STATE OF VERMONT · CHARLES H. SWANGO · No. 8126 Structural · LICENSED PROFESSIONAL ENGINEER

EIV TECHNICAL SERVICES
55 LEROY ROAD, WILLISTON, VT 05495
TEL: (802) 497-3653 FAX: (802) 497-3656

DATE: JUNE 2013 PROJECT # E1729
DRAWN BY: LKW/CN CHECKED BY: CHS

STATE OF VERMONT AGENCY OF TRANSPORTAION

PLYMOUTH, VERMONT
PROJECT NO: ER BRS 0149(5)

SHEET 1 OF 9

NOTES:

(1) NXTBM-01 REQUIRED

FINISHES
TOP: BROOM (1/8" AMP MAX.)
SIDES: STEEL FORM
BOTTOM: STEEL FORM
ENDS: FORM

BEAMS SHALL BE HANDLED AND ERECTED USING LIFTERS ONLY. THE MINIMUM SLING ANGLE FOR SHOP PICKING SHALL BE 90° FROM THE HORIZONTAL. BEAMS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS LOCATED BELOW THE LIFTERS U.O.N.

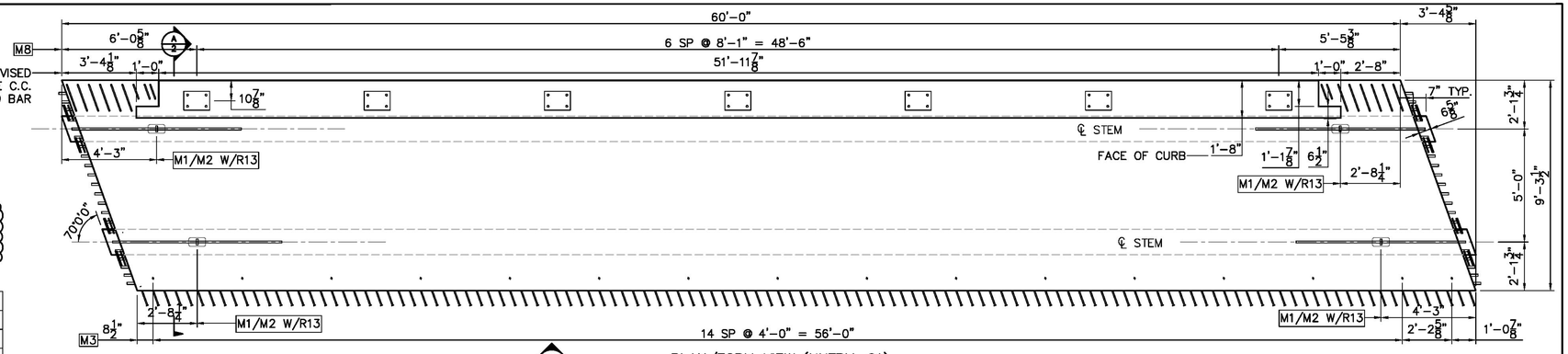
WIPE CLEAN CURB REINF. PRIOR TO FINISHING BEAM TOP.

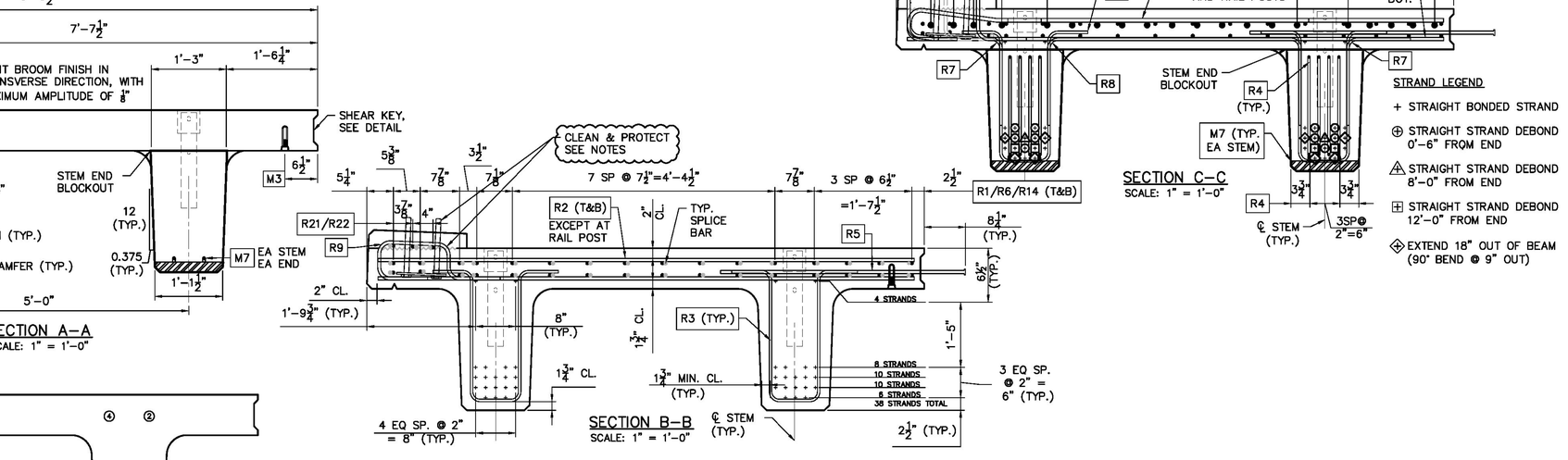
RAIL POST ANCHOR SHALL BE PROTECTED FROM CONCRETE ABOVE FINISHED CURB.

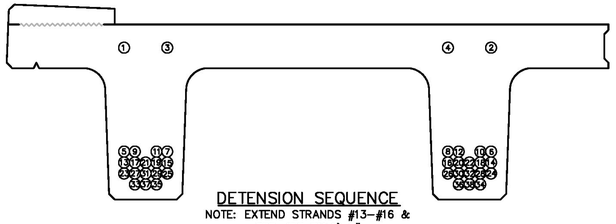
BEAM WEIGHT: 104,866 LBS

BILL OF MATERIALS				
MARK	NXTBM-01		QTY =	1
fc'=	8,000 PSI	@ 28 DAYS	fci' =	6,000 PSI
PART MARK	DESCRIPTION		QTY	TOTAL QTY
M1	MB RL-23 (79172) GALV.		4	4
M2	MB RL-45 (79166)		4	4
M3	DS F-64 FERRULE LOOP GALV.		16	16
M4	DS D-112 #9 A=5'-4" EPOXY		40	40
M7	P900 NXTBM END ASSEMBLY		4	4
M8	RAIL ASSEMBLY		7	7
	25.89 CY VT MIX ID # 53		1	1
	0.6" 7WS LR = 2348'-4"		1	1
INSTALL AFTER REMOVED FROM FORM				
M5	DS D-110 #9 (111520) EPOXY		40	40
M6	DS D-102 #9 EPOXY A=8" B=2'-3"		40	40

Provide 3 total additional mechanical coupler assemblies for VTrans testing purposes.







DETENSION SEQUENCE
NOTE: EXTEND STRANDS #13-#16 & #33-#36 BY 1'-6"

CONSTRUCTION SET DATE: 06/28/2013	
SHEET NAME: NXTBM-01 PLAN	
REVISION NO.	REVISION DATE

Dailey PRECAST
WILLIAM E. DAILEY PRECAST, LLC
295 AIRPORT ROAD
SHAFTSBURY, VT 05262
TEL: 802.442.4418 FAX: 802.442.0738

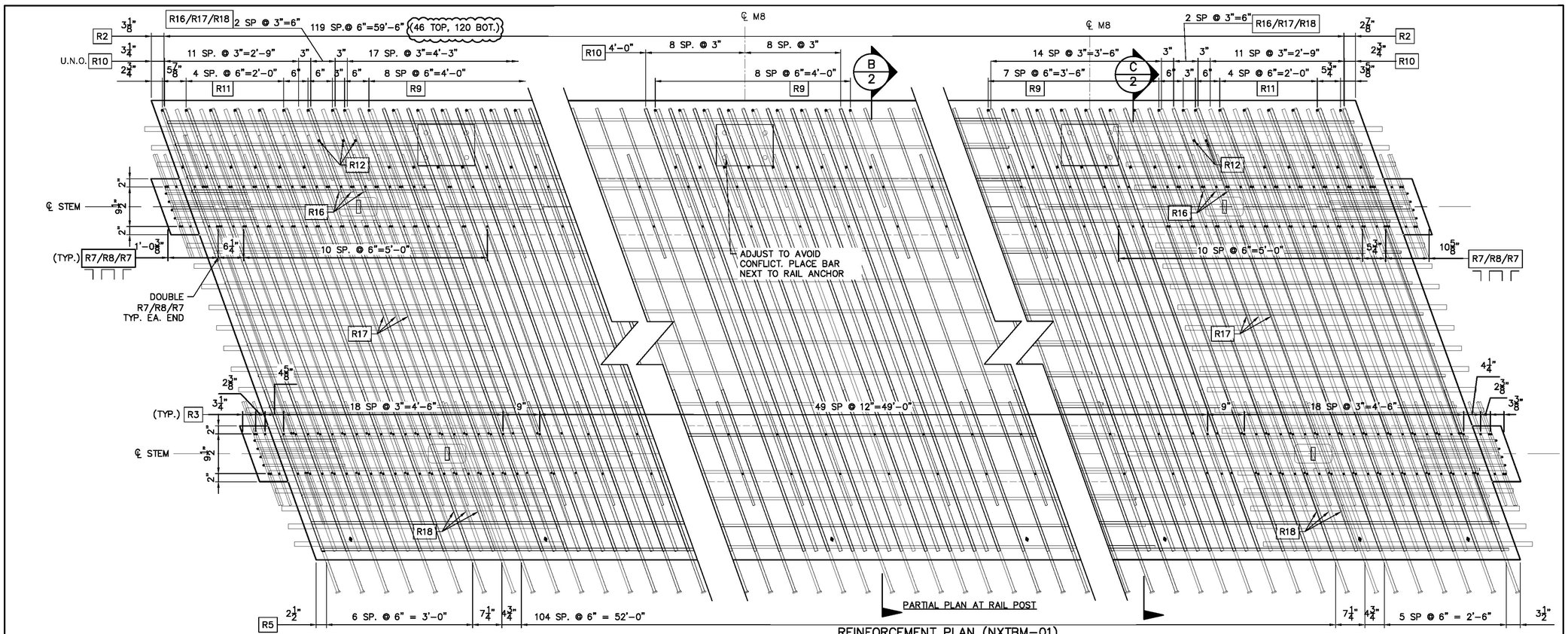
STATE OF VERMONT CHARLES H. SWANN No. 8126 Structural LICENSED PROFESSIONAL ENGINEER

EIV TECHNICAL SERVICES
55 LEROY ROAD, WILLISTON, VT 05495
TEL: (802) 497-3653 FAX: (802) 497-3656

DATE: JUNE 2013 PROJECT # E1729
DRAWN BY: LKW/CN CHECKED BY: CHS

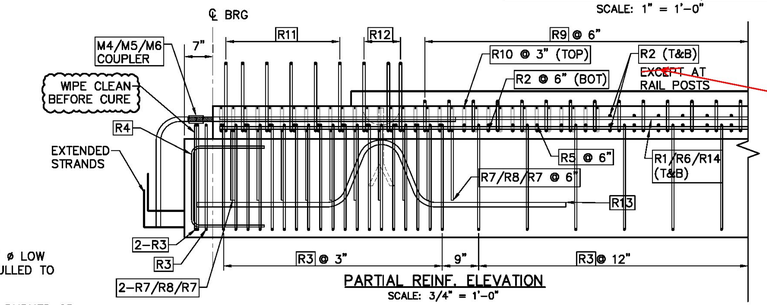
STATE OF VERMONT AGENCY OF TRANSPORTAION

PLYMOUTH, VERMONT
PROJECT NO: ER BRS 0149(5)



REINFORCEMENT PLAN (NXTBM–01)

SCALE: 1" = 1'–0"



PARTIAL REINF. ELEVATION

SCALE: 3/4" = 1'–0"

REINFORCEMENT CHART					
DESCRIPTION					
BAR MARK	BAR SIZE	COATING	BENT/ STRAIGHT	LENGTH	QTY
R1	5	E	STRAIGHT	20'- 0.00"	32
R2	5	E	STRAIGHT	9'- 6.38"	166
R3	4	E	BENT	6'- 6.63"	188
R4	4	E	BENT	4'- 7.50"	16
R5	5	E	HEADED	4'- 4.375"	120
R6	5	E	STRAIGHT	35'- 2.00"	32
R7	4	E	BENT	2'- 6.38"	52
R8	4	E	BENT	7'- 4.50"	26
R9	5	E	BENT	3'- 10.25"	62
R10	6	E	BENT	9'- 11.75"	142
R11	5	E	BENT	5'- 4.63"	12
R12	5	E	BENT	4'- 11.63"	5
R13	9	E	BENT	9'- 0.00"	4
R14	5	E	STRAIGHT	10'- 0.00"	32
R16	6	E	BENT	2'- 7.38"	6
R17	6	E	STRAIGHT	4'- 8.25"	6
R18	6	E	STRAIGHT	1'- 9.25"	6
R21	5	E	STRAIGHT	40'- 0.00"	3
R22	5	E	STRAIGHT	15'- 0.00"	3

NOTES:

STRANDS SHALL BE 270 KSI 0.6" ø LOW RELAXATION STRAIGHT STRAND PULLED TO 44 KIPS.

EACH STRAND SHALL BE FINALLY BURNED OR CUT OFF AT A DEPTH OF ¾" INTO THE END OF THE BEAM AND THE RECESSED AREA AROUND THE STRAND SHALL BE FILLED WITH NON–SHRINK GROUT, EXCEPT AS NOTED.

STAGGER SPLICES OF R1\R6\R14 OR R21/R22 BARS BY 5'–0" MIN.

MIN LAP LENGTH OF R1\R6\R14 OR R21/R22 BARS IS 2'–9" MIN.

CONSTRUCTION SET DATE: 06/28/2013

SHEET NAME: NXTBM–01 REINFORCEMENT PLAN

REVISION NO.	REVISION DATE

Dailey PRECAST
WILLIAM E. DAILEY PRECAST, LLC
295 AIRPORT ROAD
SHAFTSBURY, VT 05262
TEL: 802.442.4418 FAX: 802.442.0738

STATE OF VERMONT CHARLES H. SWANSON No. 8126 Structural LICENSED PROFESSIONAL ENGINEER

EIV TECHNICAL SERVICES
55 LEROY ROAD, WILLISTON, VT 05495
TEL: (802) 497-3653 FAX: (802) 497-3656

DATE: JUNE 2013 PROJECT # E1729

DRAWN BY: LKW/CN CHECKED BY: CHS

STATE OF VERMONT AGENCY OF TRANSPORTAION

PLYMOUTH, VERMONT
PROJECT NO: ER BRS 0149(5)

NOTES:

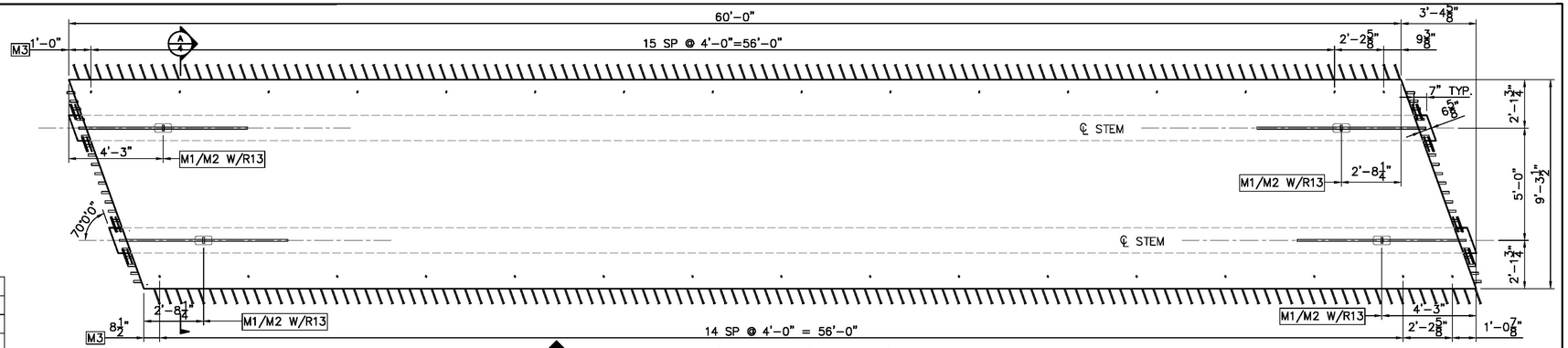
(1) NXTBM-02 REQUIRED

FINISHES
TOP: BROOM ($\frac{1}{8}$" AMP MAX.)
SIDES: STEEL FORM
BOTTOM: STEEL FORM
ENDS: FORM

BEAMS SHALL BE HANDLED AND ERECTED USING LIFTERS ONLY. THE MINIMUM SLING ANGLE FOR SHOP PICKING SHALL BE 90° FROM THE HORIZONTAL. BEAMS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS LOCATED BELOW THE LIFTERS U.O.N.

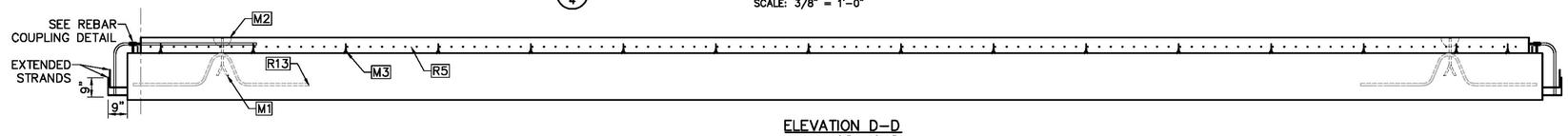
BEAM WEIGHT: 100,645 LBS

BILL OF MATERIALS				
MARK	NXTBM-02		QTY =	1
fc'=	8,000 PSI	@ 28 DAYS	fci' =	6,000 PSI
PART MARK	DESCRIPTION		QTY	TOTAL QTY
M1	MB RL-23 (79172) GALV.		4	4
M2	MB RL-45 (79166)		4	4
M3	DS F-64 FERRULE LOOP GALV.		32	32
M4	DS D-112 #9 A=5'-4" EPOXY		40	40
M7	P900 NXTBM END ASSEMBLY		4	4
	24.85 CY VT MIX ID # 53		1	1
	0.6" 7WS LR = 2348'-4"		1	1
INSTALL AFTER REMOVED FROM FORM				
M5	DS D-110 #9 (111520) EPOXY		40	40
M6	DS D-102 #9 EPOXY A=8" B=2'-3"		40	40

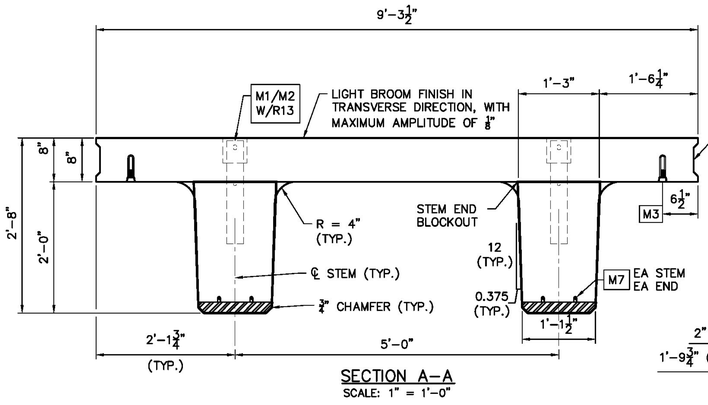


PLAN/FORM VIEW (NXTBM-02)
SCALE: 3/8" = 1'-0"

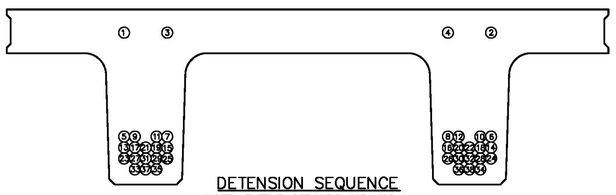
D/4



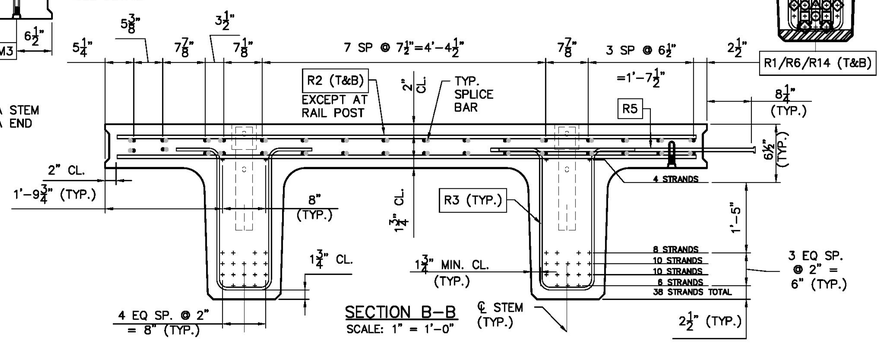
ELEVATION D–D
SCALE: 3/8" = 1'-0"



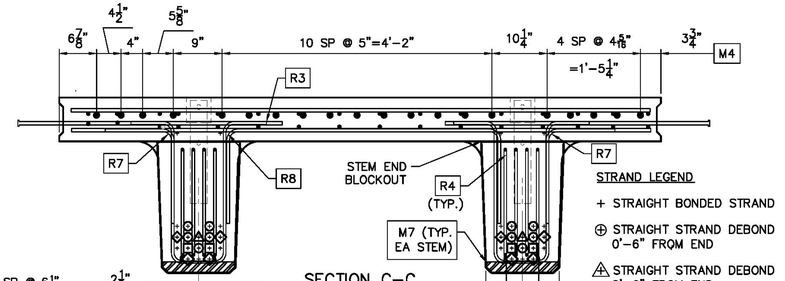
SECTION A–A
SCALE: 1" = 1'-0"



DETENSION SEQUENCE
NOTE: EXTEND STRANDS #15–#18 & #39–#42 BY 1'-6"



SECTION B–B
SCALE: 1" = 1'-0"



SECTION C–C
SCALE: 1" = 1'-0"

STRAND LEGEND
+ STRAIGHT BONDED STRAND
⊕ STRAIGHT STRAND DEBOND 0'-6" FROM END
⚠ STRAIGHT STRAND DEBOND 8'-0" FROM END
⊞ STRAIGHT STRAND DEBOND 12'-0" FROM END
⊕ EXTEND 18" OUT OF BEAM (90° BEND @ 9" OUT)

CONSTRUCTION SET DATE: 06/28/2013

SHEET NAME: NXTBM-02 PLAN

REVISION NO.	REVISION DATE

Dailey PRECAST
WILLIAM E. DAILEY PRECAST, LLC
295 AIRPORT ROAD
SHAFTSBURY, VT 05262
TEL: 802.442.4418 FAX: 802.442.0738

STATE OF VERMONT CHARLES H. SWANSON No. 8126 Structural LICENSED PROFESSIONAL ENGINEER

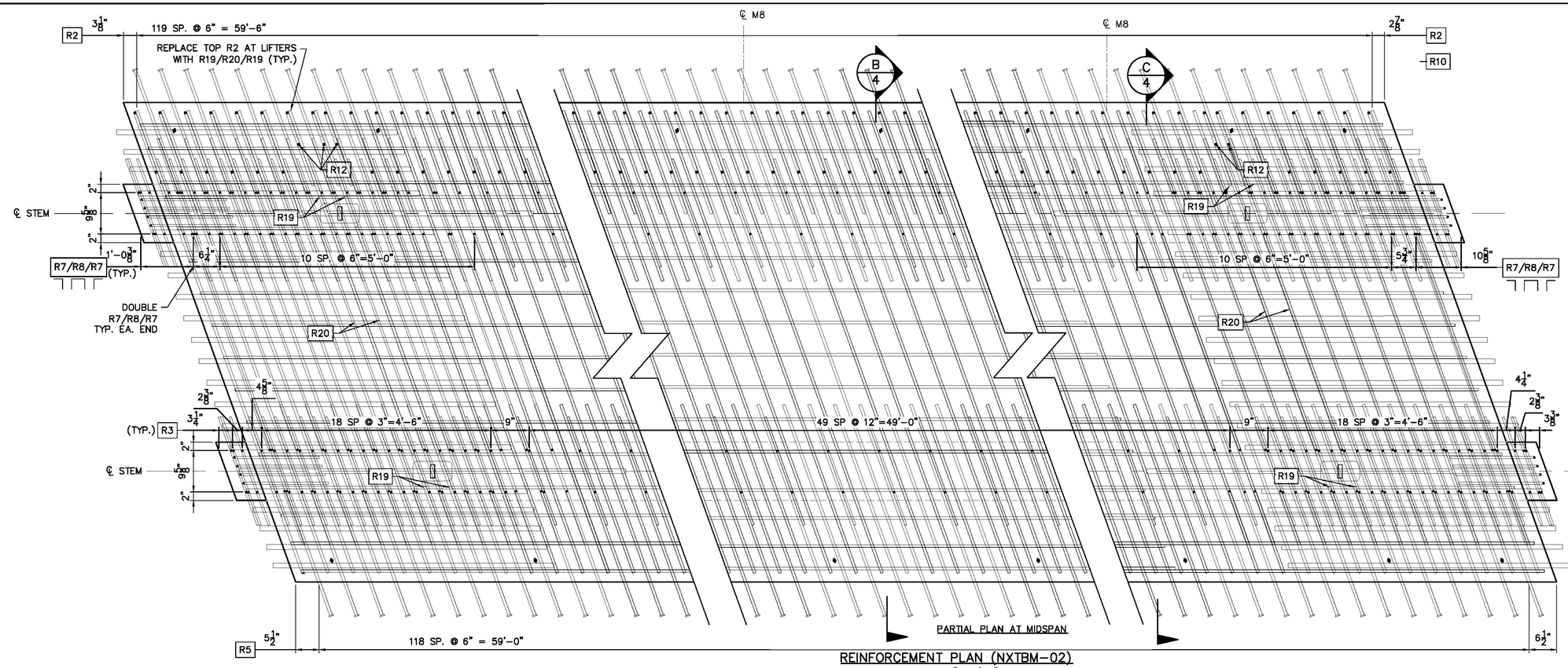
EIV TECHNICAL SERVICES
55 LEROY ROAD, WILLISTON, VT 05495
TEL: (802) 497-3653 FAX: (802) 497-3656

DATE: JUNE 2013 PROJECT # E1729
DRAWN BY: LKW/CN CHECKED BY: CHS

STATE OF VERMONT AGENCY OF TRANSPORTAION

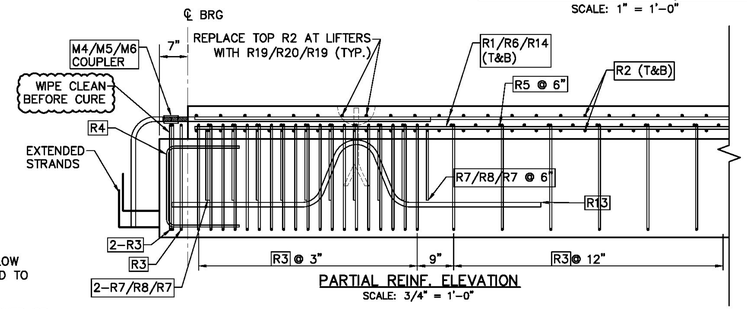
PLYMOUTH, VERMONT
PROJECT NO: ER BRS 0149(5)

SHEET 4 OF 9



REINFORCEMENT PLAN (NXTBM–02)

SCALE: 1" = 1'-0"



PARTIAL REINF. ELEVATION

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

REINFORCEMENT CHART						
DESCRIPTION						QTY
BAR MARK	BAR SIZE	COATING	BENT/ STRAIGHT	LENGTH		
R1	5	E	STRAIGHT	20'-	0.00"	32
R2	5	E	STRAIGHT	9'-	6.38"	240
R3	4	E	BENT	6'-	6.63"	188
R4	4	E	BENT	4'-	7.50"	16
R5	5	E	HEADED	4'-	4.375"	238
R6	5	E	STRAIGHT	35'-	2.00"	32
R7	4	E	BENT	2'-	6.38"	52
R8	4	E	BENT	7'-	4.50"	26
R13	9	E	BENT	9'-	0.00"	4
R14	5	E	STRAIGHT	10'-	0.00"	32
R19	5	E	STRAIGHT	1'-	9.25"	6
R20	5	E	STRAIGHT	4'-	8.25"	6

NOTES:

STRANDS SHALL BE 270 KSI 0.6" ø LOW RELAXATION STRAIGHT STRAND PULLED TO 44 KIPS.

EACH STRAND SHALL BE FINALLY BURNED OR CUT OFF AT A DEPTH OF 1" INTO THE END OF THE BEAM AND THE RECESSED AREA AROUND THE STRAND SHALL BE FILLED WITH NON–SHRINK GROUT, EXCEPT AS NOTED.

STAGGER SPLICES OF R1\R6\R14 OR R21/R22 BARS BY 5'–0" MIN.

MIN LAP LENGTH OF R1\R6\R14 OR R21/R22 BARS IS 2'–9" MIN.

CONSTRUCTION SET DATE: 06/28/2013

SHEET NAME: NXTBM–02 REINFORCEMENT PLAN

REVISION NO.	REVISION DATE

Dailey PRECAST
WILLIAM E. DAILEY PRECAST, LLC
295 AIRPORT ROAD
SHAFTSBURY, VT 05262
TEL: 802.442.4418 FAX: 802.442.0738

STATE OF VERMONT CHARLES H. SWANSON No. 8126 Structural LICENSED PROFESSIONAL ENGINEER

EIV TECHNICAL SERVICES
55 LEROY ROAD, WILLISTON, VT 05495
TEL: (802) 497-3653 FAX: (802) 497-3656

DATE: JUNE 2013 PROJECT # E1729

DRAWN BY: LKW/CN CHECKED BY: CHS

STATE OF VERMONT AGENCY OF TRANSPORTAION

PLYMOUTH, VERMONT
PROJECT NO: ER BRS 0149(5)

NOTES:

(1) NXTBM-03 REQUIRED

FINISHES
TOP: BROOM (1/8" AMP MAX.)
SIDES: STEEL FORM
BOTTOM: STEEL FORM
ENDS: FORM

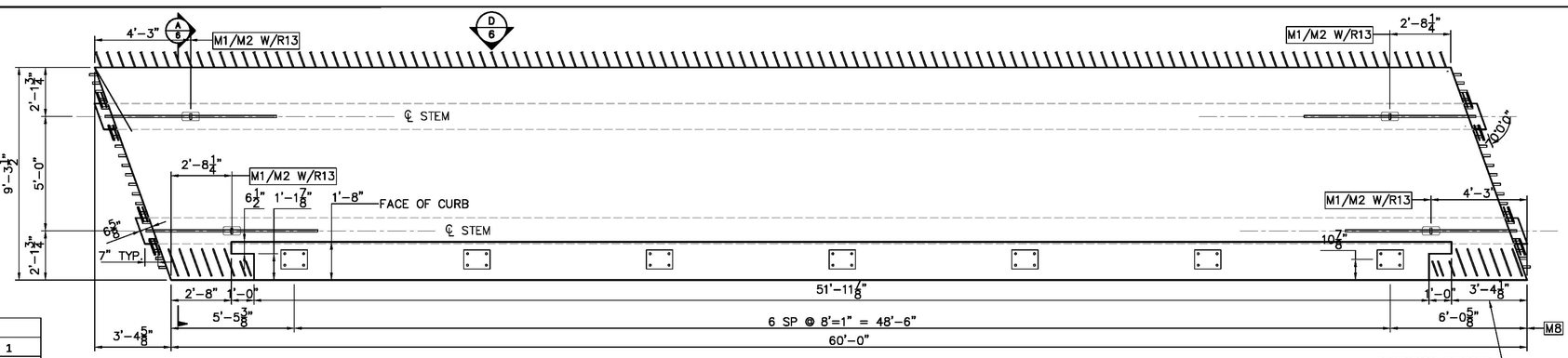
BEAMS SHALL BE HANDLED AND ERECTED USING LIFTERS ONLY. THE MINIMUM SLING ANGLE FOR SHOP PICKING SHALL BE 90° FROM THE HORIZONTAL. BEAMS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS LOCATED BELOW THE LIFTERS U.O.N.

WIPE CLEAN CURB REINF. PRIOR TO FINISHING BEAM TOP.

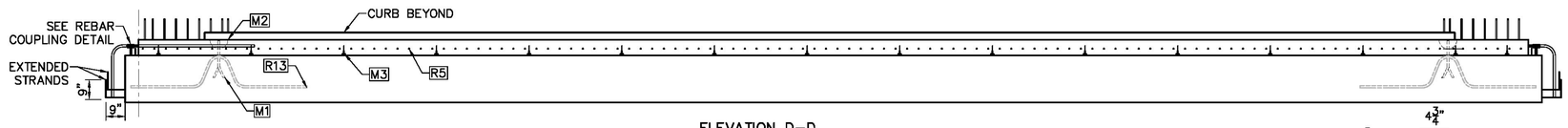
RAIL POST ANCHOR SHALL BE PROTECTED FROM CONCRETE ABOVE FINISHED CURB.

BEAM WEIGHT: 104,866 LBS

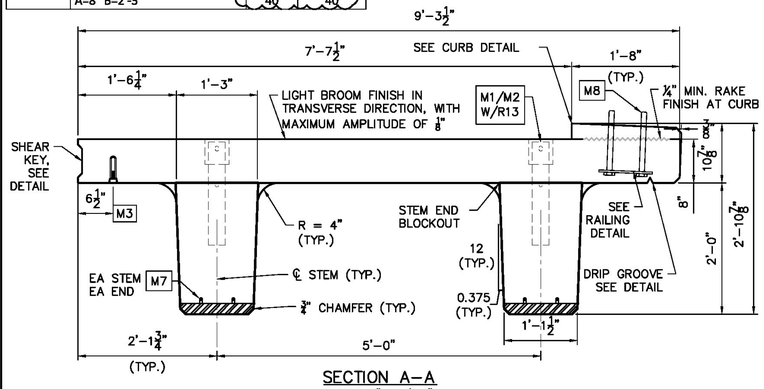
BILL OF MATERIALS				
MARK	NXTBM-03		QTY =	1
fc'=	8,000 PSI	@ 28 DAYS	fci' =	6,000 PSI
PART MARK	DESCRIPTION		QTY	TOTAL QTY
M1	MB RL-23 (79172) GALV.		4	4
M2	MB RL-45 (79166)		4	4
M3	DS F-64 FERRULE LOOP GALV.		16	16
M4	DS D-112 #9 A=5'-4" EPOXY		40	40
M7	P900 NXTBM END ASSEMBLY		4	4
M8	RAIL ASSEMBLY		7	7
	25.89 CY VT MIX ID # 53		1	1
	0.6" 7WS LR = 2348'-4"		1	1
INSTALL AFTER REMOVED FROM FORM				
M5	DS D-110 #9 (111520) EPOXY		40	40
M6	DS D-102 #9 EPOXY A=8" B=2'-3"		40	40



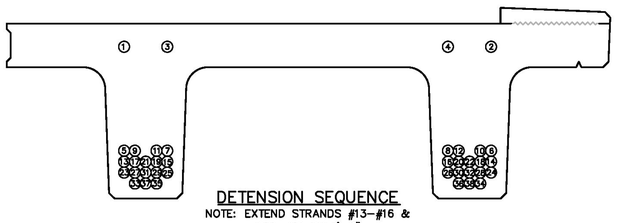
PLAN/FORM VIEW (NXTBM-03)
SCALE: 3/8" = 1'-0"



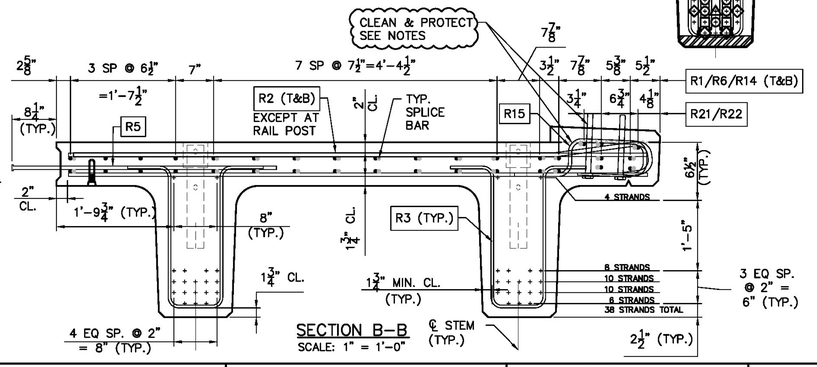
ELEVATION D-D
SCALE: 3/8" = 1'-0"



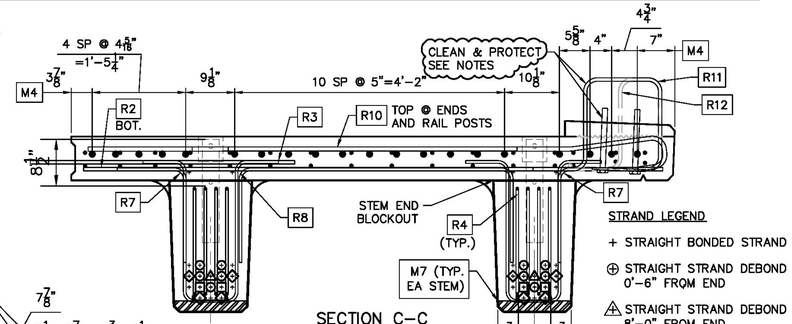
SECTION A-A
SCALE: 1" = 1'-0"



DETENSION SEQUENCE
NOTE: EXTEND STRANDS #13-#16 & #33-#36 BY 1'-6"



SECTION B-B
SCALE: 1" = 1'-0"



SECTION C-C
SCALE: 1" = 1'-0"

STRAND LEGEND
+ STRAIGHT BONDED STRAND
⊕ STRAIGHT STRAND DEBOND 0'-6" FROM END
△ STRAIGHT STRAND DEBOND 8'-0" FROM END
⊞ STRAIGHT STRAND DEBOND 12'-0" FROM END
◈ EXTEND 18" OUT OF BEAM (90° BEND @ 9" OUT)

CONSTRUCTION SET DATE: 06/28/2013

SHEET NAME: NXTBM-03 PLAN

REVISION NO.	REVISION DATE

Dailey PRECAST
WILLIAM E. DAILEY PRECAST, LLC
295 AIRPORT ROAD
SHAFTSBURY, VT 05262
TEL: 802.442.4418 FAX: 802.442.0738

STATE OF VERMONT · CHARLES H. SWANSON · No. 8126 Structural · LICENSED PROFESSIONAL ENGINEER

EIV TECHNICAL SERVICES
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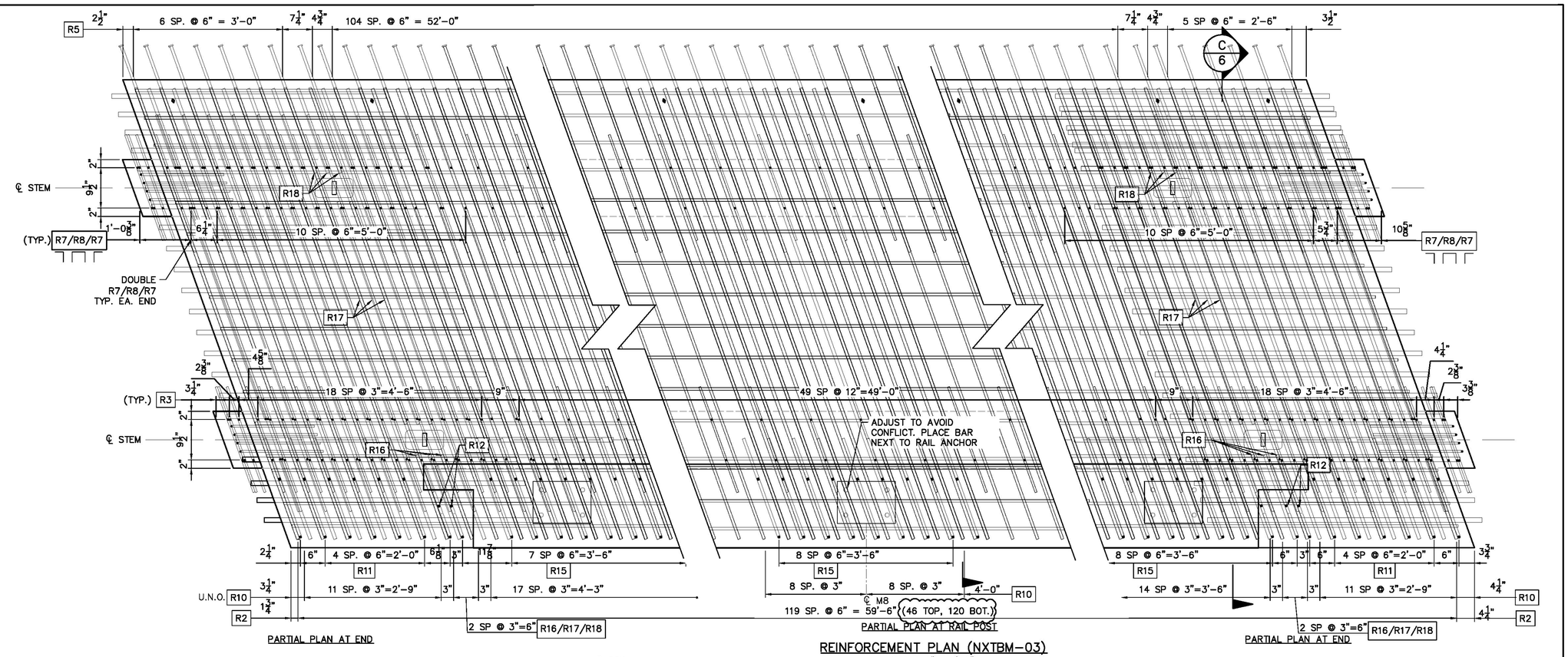
DRAWN BY: LKW/CN CHECKED BY: CHS

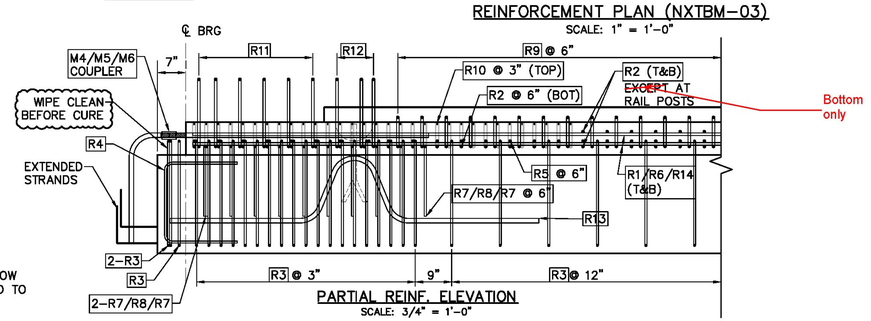
STATE OF VERMONT AGENCY OF TRANSPORTAION

PLYMOUTH, VERMONT
PROJECT NO: ER BRS 0149(5)



REINFORCEMENT PLAN (NXTBM-03)

SCALE: 1" = 1'-0"



PARTIAL REINF. ELEVATION

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

REINFORCEMENT CHART

DESCRIPTION						
BAR MARK	BAR SIZE	COATING	BENT/ STRAIGHT	LENGTH		QTY
R1	5	E	STRAIGHT	20'-	0.00"	32
R2	5	E	STRAIGHT	9'-	6.38"	166
R3	4	E	BENT	6'-	6.63"	188
R4	4	E	BENT	4'-	7.50"	16
R5	5	E	HEADED	4'-	4.375"	120
R6	5	E	STRAIGHT	35'-	2.00"	32
R7	4	E	BENT	2'-	6.38"	52
R8	4	E	BENT	7'-	4.50"	26
R10	6	E	BENT	9'-	11.75"	142
R11	5	E	BENT	5'-	4.63"	12
R12	5	E	BENT	4'-	6.00"	5
R13	9	E	BENT	9'-	0.00"	4
R14	5	E	STRAIGHT	10'-	0.00"	32
R15	5	E	BENT	4'-	2.88"	62
R16	6	E	BENT	2'-	5.70"	6
R17	6	E	STRAIGHT	4'-	8.25"	6
R18	6	E	STRAIGHT	1'-	9.25"	6
R21	5	E	STRAIGHT	40'-	0.00"	3
R22	5	E	STRAIGHT	15'-	0.00"	3

NOTES:

STRANDS SHALL BE 270 KSI 0.6" ø LOW RELAXATION STRAIGHT STRAND PULLED TO 44 KIPS.

EACH STRAND SHALL BE FINALLY BURNED OR CUT OFF AT A DEPTH OF 1" INTO THE END OF THE BEAM AND THE RECESSED AREA AROUND THE STRAND SHALL BE FILLED WITH NON-SHRINK GROUT, EXCEPT AS NOTED.

STAGGER SPLICES OF R1\R6\R14 OR R21/R22 BARS BY 5'-0" MIN.

MIN LAP LENGTH OF R1\R6\R14 OR R21/R22 BARS IS 2'-9" MIN.

CONSTRUCTION SET DATE: 06/28/2013

SHEET NAME: NXTBM-03 REINFORCEMENT PLAN

REVISION NO.	REVISION DATE

Dailey PRECAST

WILLIAM E. DAILEY PRECAST, LLC
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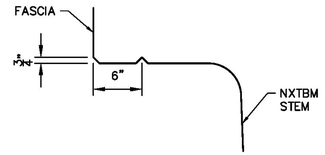
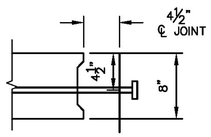
STATE OF VERMONT AGENCY OF TRANSPORTAION

PLYMOUTH, VERMONT
PROJECT NO: ER BRS 0149(5)



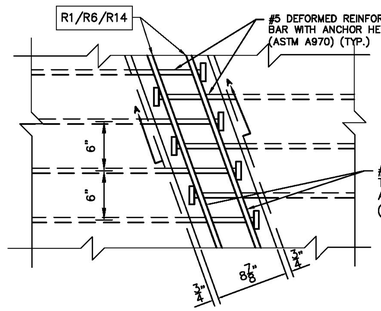
DRIP GROOVE DETAIL
SCALE: 1½" = 1'–0"



SHEAR KEY NOTES:

- FLANGE EDGES AND BEAM STEMS IN CONTACT WITH HPC RAPID SET CONCRETE SHALL BE SANDBLASTED PRIOR TO DELIVERY AND POWER WASHED WITH WATER PRIOR TO ERECTION OF THE BEAMS.

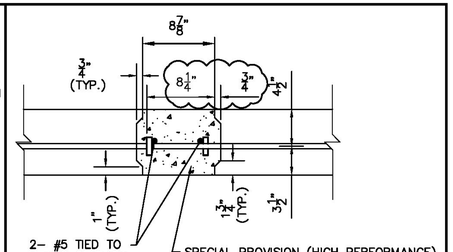
SHEAR KEY DETAIL (NXTBM)
SCALE: 1½" = 1'–0"



REINFORCEMENT CHART

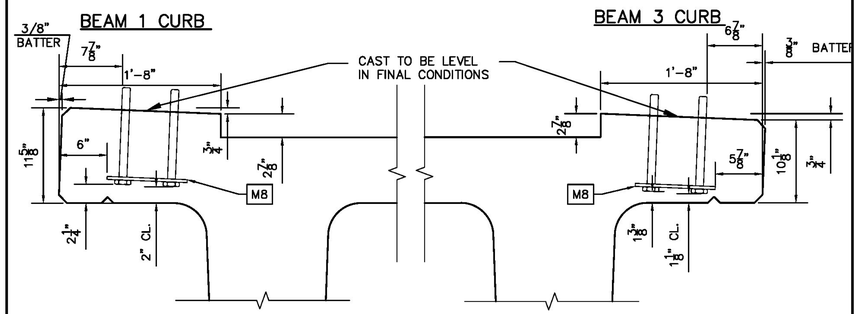
DESCRIPTION					
BAR MARK	BAR SIZE	COATING	BENT/ STRAIGHT	LENGTH	QTY
R6	5	E	STRAIGHT	35'- 2.00"	4
R23	5	E	BENT	22'- 0.00"	4
R24	5	E	BENT	12'- 0.00"	4

FLANGE CLOSURE POUR DETAILS
SCALE: 1 1/2" = 1'–0"

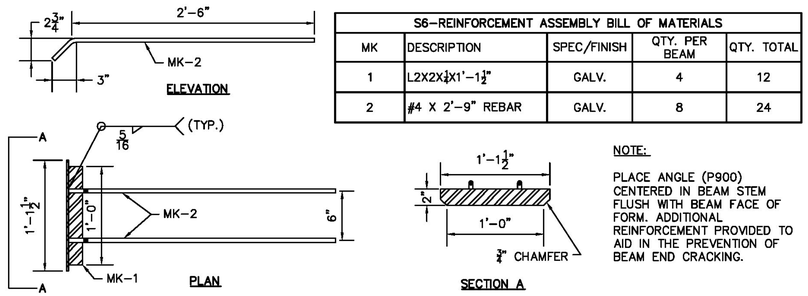


SECTION A–A

FLANGE CLOSURE POUR SECTION
SCALE: 1 1/2" = 1'–0"



NXTBM CURB DETAIL
SCALE: 1 1/2" = 1'–0"

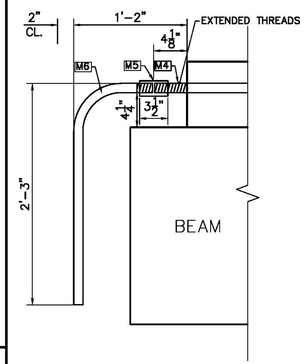


S6–REINFORCEMENT ASSEMBLY BILL OF MATERIALS				
MK	DESCRIPTION	SPEC/FINISH	QTY. PER BEAM	QTY. TOTAL
1	L2X2X¼X1'–1½"	GALV.	4	12
2	#4 X 2'–9" REBAR	GALV.	8	24

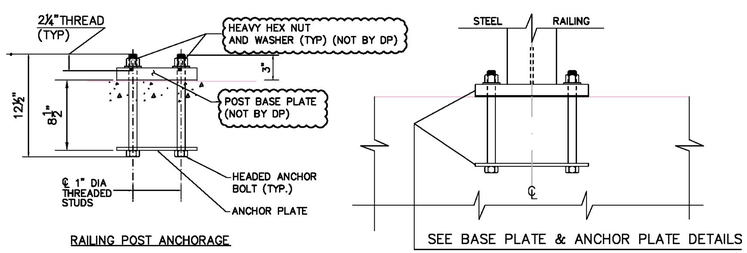
NOTE:

PLACE ANGLE (P900) CENTERED IN BEAM STEM FLUSH WITH BEAM FACE OF FORM. ADDITIONAL REINFORCEMENT PROVIDED TO AID IN THE PREVENTION OF BEAM END CRACKING.

REINFORCEMENT ASSEMBLY DETAILS
P900 (PART S6)
SCALE: 1½" = 1'–0"



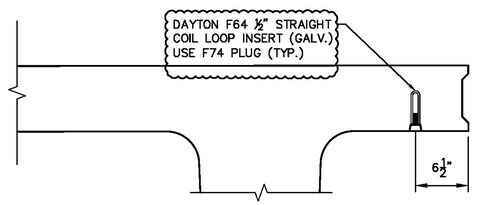
REBAR COUPLING DETAIL
SCALE: 1 1/2" = 1'–0"



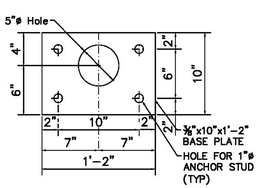
RAILING POST ANCHORAGE

RAILING ANCHOR ELEVATION

NOTE:
AFTER TEMPORARY INSERT USE IS COMPLETE, PATCH OVER INSERT WITH NON–SHRINK CONCRETE PATCH MATERIAL. COLOR TO MATCH SURROUNDING CONCRETE. (NOT BY DAILEY PRECAST)



COIL LOOP DETAIL NXTBM
(APP. SLAB SIM.)
SCALE: 1 1/2" = 1'–0"



ANCHOR PLATE DETAIL

RAIL POST ANCHOR ASSEMBLY
SCALE: 1 1/2" = 1'–0"

CONSTRUCTION SET DATE: 06/28/2013

SHEET NAME: DETAILS

REVISION NO.	REVISION DATE

Dailey PRECAST
WILLIAM E. DAILEY PRECAST, LLC
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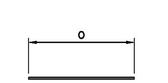
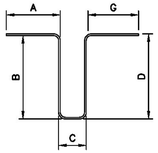
DRAWN BY: LKW/CN CHECKED BY: CHS

STATE OF VERMONT AGENCY OF TRANSPORTAION

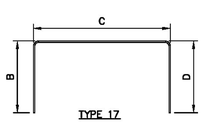
PLYMOUTH,
VERMONT
PROJECT NO: ER BRS 0149(5)



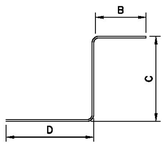
TYPE 27



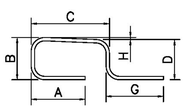
TYPE S4



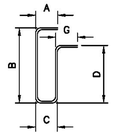
TYPE 17



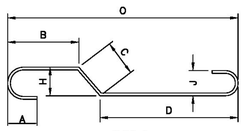
TYPE 20



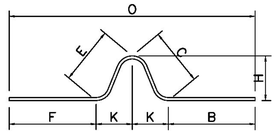
TYPE S5 MOD.



TYPE S5



TYPE 5



TYPE 4

REINFORCEMENT CHART																										
	DESCRIPTION				TOTAL QTY IN PROJECT																					
BAR MARK	BAR SIZE	COATING	BENT/ STRAIGHT	LENGTH		TYPE	A		B		C		D		E		F		G		H		J		K		L		O		P	
R1	5	E	STRAIGHT	20'-	0.00"	96	27																						20'-	0.00"		
R2	5	E	STRAIGHT	9'-	6.38"	572	27																						9'-	6.38"		
R3	4	E	BENT	6'-	6.63"	564	S4	0'-	8.50"	2'-	1.88"	0'-	10.63"	2'-	1.88"				0'-	8.50"											
R4	4	E	BENT	4'-	7.50"	48	17			1'-	6.00"	1'-	7.75"	1'-	6.00"																
R5	5	E	HEADED	4'-	4.375	478	27																						4'-	4.375"		
R6	5	E	STRAIGHT	35'-	2.00"	100	27																						35'-	2.00"		
R7	4	E	BENT	2'-	6.38"	156	20			1'-	1.57"	1'-	5.25"	0'-	0.00"																
R8	4	E	BENT	7'-	4.50"	78	17			1'-	5.25"	4'-	6.00"	1'-	5.25"																
R9	5	E	BENT	3'-	10.75"	62	S5 MOD.	0'-	10.64"	0'-	7.75"	1'-	3.43"	0'-	7.38"				0'-	11.31"	0'-	0.38"										
R10	6	E	BENT	9'-	11.75"	284	5	0'-	6.00"	0'-	0.00"	1'-	6.50"	7'-	11.25"						0'-	6.00"	0'-	0.00"					9'-	11.75"		
R11	5	E	BENT	5'-	4.63"	24	S5	0'-	10.75"	1'-	5.00"	1'-	3.38"	1'-	5.00"				0'-	10.75"											
R12	5	E	BENT	4'-	11.63"	10	S5	0'-	6.38"	1'-	5.00"	0'-	8.50"	1'-	5.00"				0'-	10.75"											
R13	9	E	BENT	9'-	0.00"	12	4	0'-	0.00"	2'-	8.13"	1'-	9.13"	0'-	0.00"	1'-	9.13"	2'-	8.13"	0'-	0.00"	1'-	4.38"			1'-	1.38"		7'-	7.13"		
R14	5	E	STRAIGHT	10'-	0.00"	96	27																						10'-	0.00"		
R15	5	E	BENT	4'-	2.88"	62	S5 MOD.	0'-	10.75"	0'-	6.50"	1'-	3.38"	0'-	6.88"				0'-	11.38"	0'-	0.38"										
R16	6	E	BENT	2'-	7.38"	12	5	0'-	6.00"	0'-	0.00"	1'-	4.13"	0'-	3.25"				0'-	0.00"	0'-	6.00"							1'-	9.25"		
R17	6	E	STRAIGHT	4'-	8.25"	12	27																						4'-	8.25"		
R18	6	E	STRAIGHT	1'-	9.25"	12	27																						1'-	9.25"		
R19	5	E	STRAIGHT	1'-	9.25"	6	27																						1'-	9.25"		
R20	5	E	STRAIGHT	4'-	8.25"	6	27																						4'-	8.25"		
R21	5	E	STRAIGHT	40'-	0.00"	3	27																						40'-	0.00"		
R22	5	E	STRAIGHT	15'-	0.00"	3	27																						15'-	0.00"		
R23	5	E	BENT	22'-	0.00"	4	17			2'-	0.00"	20'-	0.00"	0'-	0.00"																
R24	5	E	BENT	12'-	0.00"	4	17			2'-	0.00"	10'-	0.00"	0'-	0.00"																

NOTES:

COATINGS
S = STAINLESS STEEL
E = EPOXY COATED
B = PLAIN/BLACK

QTY = TOTAL QUANTITY IN PROJECT

ALL MILD REBAR TO BE AASHTO M31, GRADE 60

ANY EPOXY DAMAGED EPOXY COATING SHALL BE REPAIRED WITH AN APPROVED TWO PART EPOXY.

CONSTRUCTION SET DATE: 06/28/2013

SHEET NAME: REINFORCEMENT DETAILS

REVISION NO.	REVISION DATE

Dailey PRECAST

WILLIAM E. DAILEY PRECAST, LLC
295 AIRPORT ROAD
SHAFTSBURY, VT 05262
TEL: 802.442.4418 FAX: 802.442.0738

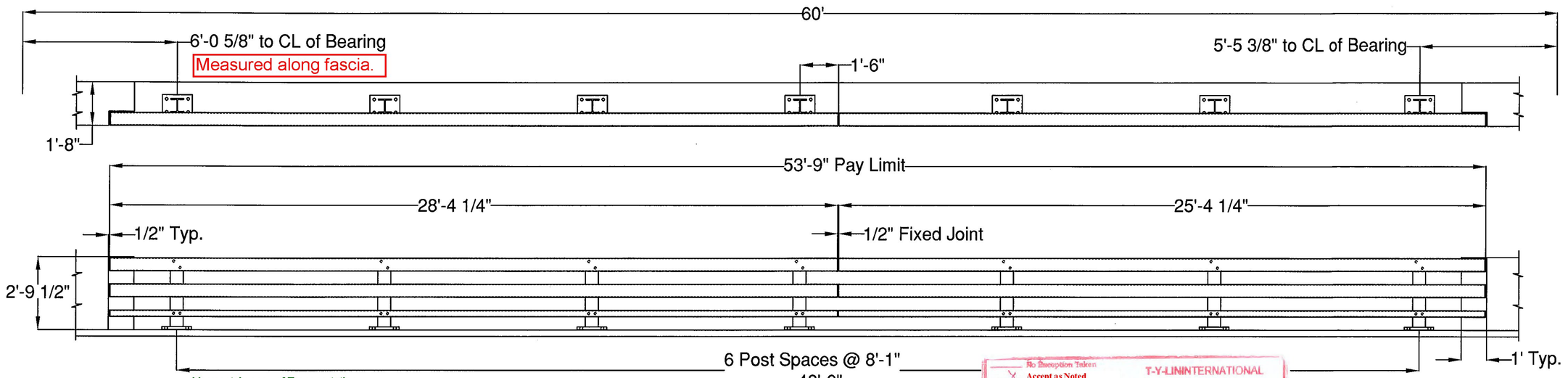
STATE OF VERMONT
CHARLES H. SWANSON
No. 8126
Structural
LICENSED
PROFESSIONAL ENGINEER

EIV TECHNICAL SERVICES
55 LEROY ROAD, WILLISTON, VT 05495
TEL: (802) 497-3653 FAX: (802) 497-3656

DATE: JUNE 2013 PROJECT # E1729
DRAWN BY: LKW/CN CHECKED BY: CHS

STATE OF VERMONT AGENCY OF TRANSPORTAION

PLYMOUTH,
VERMONT
PROJECT NO: ER BRS 0149(5)



Vermont Agency of Transportation

RECEIVED

ON: May 7, 2013

and Checked for

CONFORMANCE

BY: Rob Young DATE: 06/07/2013

T-Y-LIN INTERNATIONAL

No Exception Taken

X Accept as Noted

Submit Specified Item

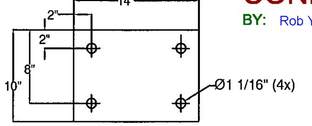
Revise and Resubmit as Noted

Rejected

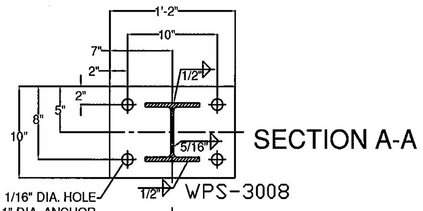
Checking is for general compliance with the design concept of the project and general compliance with the information given in the contract documents only. Any action shown is not an approved and is subject to the requirements of the plans and specifications. Any action shown on a specific item shall not indicate the checking of an assembly of which the item is a component. Contractor is solely responsible for: dimensions which shall be confirmed and correlated at the job site, fabrication processes, techniques of construction, safety precautions, and coordination of its work with that of all other trades and the satisfactory performance of its work.

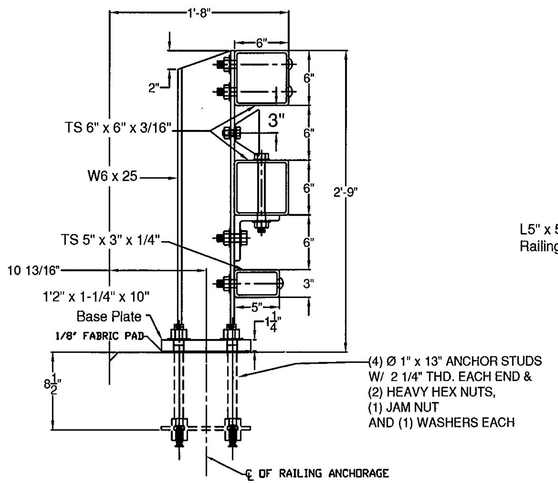
Reviewed By: Date: 06-03-2013

NORTH RAILING FACING NORTH
(SOUTH RAILING SIMILAR)

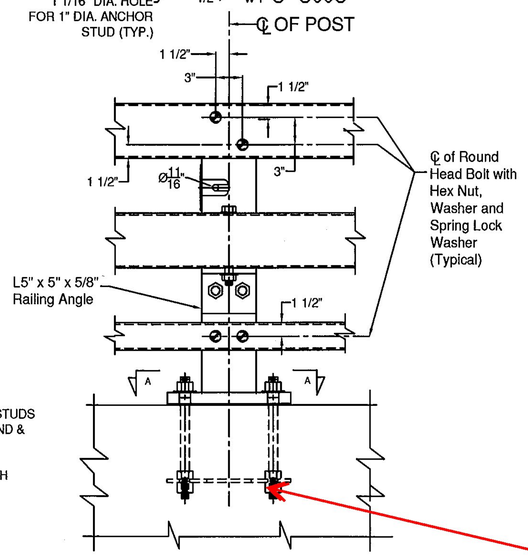


1/8" FABRIC PAD





SECTION



ELEVATION

STEEL BRIDGE RAILING

A436 (typ.)

QTY		ASTM DESIGNATION
14	THREE RAIL POST @ 2'-9" OA	A572 Gr. 50
2	3" X 5" X 1/4" RAIL @ 28'4-1/4" w/Capped End	A500 Gr. B
2	3" X 5" X 1/4" RAIL @ 25'4-1/4" w/Capped End	A500 Gr. B
4	6" X 6" X 3/16" RAIL @ 28'4-1/4" w/Capped End	A500 Gr. B
4	6" X 6" X 3/16" RAIL @ 25'4-1/4" w/Capped End	A500 Gr. B
2	2-1/8" X 4-1/4" FIX. SPLICE BAR @ 2'-3"	A572 Gr. 50
4	5" X 5" X 5/16" FIX. SPLICE TUBE @ 2'-3"	A500 Gr. B, A572 Gr. 50
14	3/8" X 10" X 14" ANCHOR PLATES	A572 Gr. 50
14	1/8" X 10" X 14" FABRIC PAD	AASHTO M251
56	Ø 1" X 13" ANCHOR STUDS, W/ 2 1/4" THD. EACH END	A449 Gr. 1
112	Ø 1" HEAVY HEX NUTS & FLAT WASHERS	A563 (HD) & F436
56	Ø 1" HEX JAM NUTS	A563
56	Ø 7/8" X 8" ROUND HEAD BOLT, NUT, SQ. WASHER, L.W.	A449, A563 (HD), ASME B18.21.1
14	Ø 3/4" X 8" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563 (HD), F436, & ASME B18.21.1
28	Ø 3/4" X 2-3/4" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563 (HD), F436, & ASME B18.21.1
16	Ø 3/4" X 7-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563 (HD), & F436
8	Ø 3/4" X 4-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563 (HD), & F436
14	L5" X 5" X 5/8" RAILING ANGLE @ 6 1/8"	A572 Gr. 50
0	DELINEATORS	(SUPPLIED BY CUSTOMER)
14	1 1/4" X 10" X 14" POST BASE PLATE	A572 GR 50

56

NEXT Beam fabricator may be using anchor bolts and not anchor rods due to clear cover restrictions.

Post Base Plate Not Listed

ITEM #: 525.335 GEN CONTR: F.R. LAFAYETTE, P.O. 27767

SHEET 1 OF 2

APPROVED BY:

BRIDGE RAIL DETAILS SHEET

PROJECT: PLYMOUTH ER BRS 0149 (5) VT 100A (MAJOR COLLECTOR) BRIDGE NO. 8
TOWN OF PLYMOUTH, WINDSOR COUNTY, VERMONT

R	NO.	DATE	DESCRIPTION	BY
E				E.P.
V				E.P.

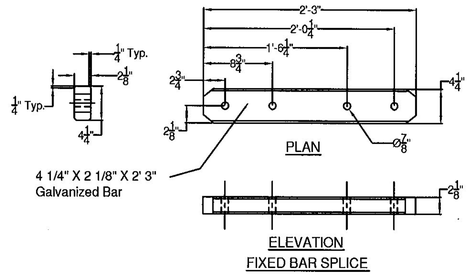
R	NO.	DATE	DESCRIPTION	BY
E				E.P.
V				

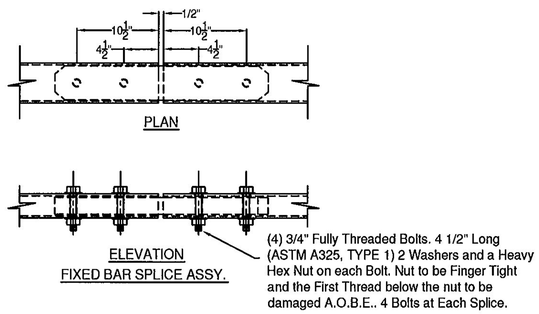
ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

CERTIFIED FABRICATOR

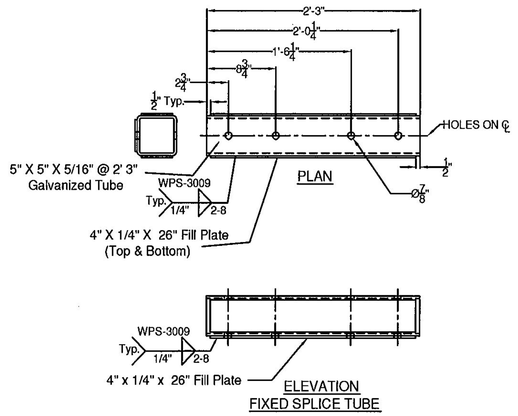
DRAWN	D.L.	12/13/12
CHECKED	E.P.	12/13/12
APPROVED	.	.
SCALE	SCHEMATIC	
DRAWING NO.	F.R.L. PLYMOUTH 27767	

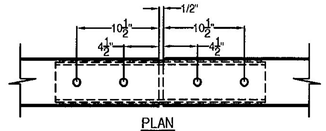
SPLICE BAR - FIXED

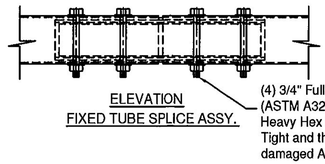




(4) 3/4" Fully Threaded Bolts. 4 1/2" Long (ASTM A325, TYPE 1) 2 Washers and a Heavy Hex Nut on each Bolt. Nut to be Finger Tight and the First Thread below the nut to be damaged A.O.B.E.. 4 Bolts at Each Splice.

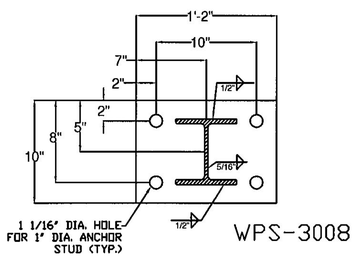




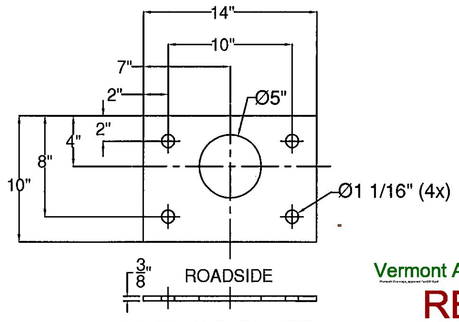


(4) 3/4" Fully Threaded Bolts. 7 1/2" Long (ASTM A325, TYPE 1) 2 Washers and a Heavy Hex Nut on each Bolt. Nut to be Finger Tight and the First Thread below the nut to be damaged A.O.B.E.. 4 Bolts at Each Splice.

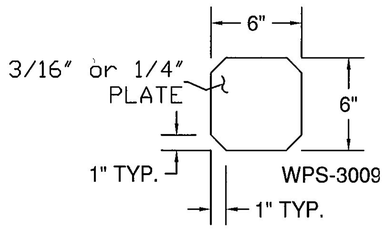
SPLICE TUBE - FIXED



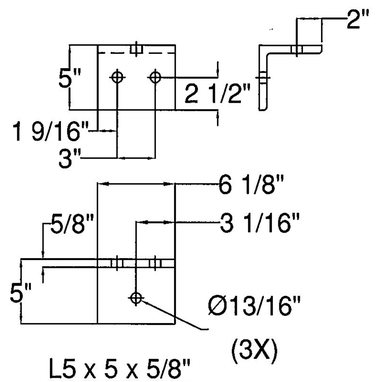
WPS-3008



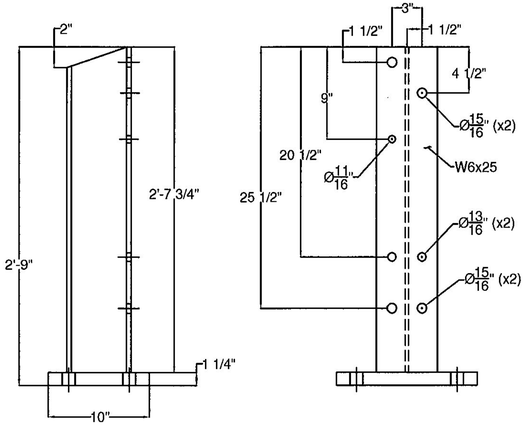
ANCHOR PLATE



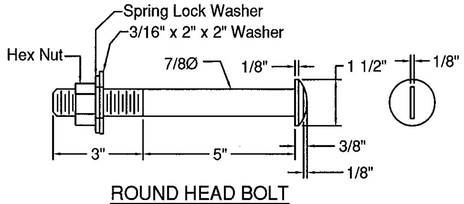
WELDED END
CAP DETAIL



L5 x 5 x 5/8"
RAILING ANGLE



BRIDGE POST DETAIL



ROUND HEAD BOLT

GENERAL NOTES:

1) ALL RAILING IS TO BE FABRICATED AND ERECTED ACCORDING TO SECTION 525 OF THE STANDARD SPECIFICATIONS.
2) PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
3) BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
4) RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPER STRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4"@ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
5) RETROREFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.08 AND SHALL BE A .063" ALUMINUM BACKING WHITE OR YELLOW REFLECTOR. WHITE IS TO BE INSTALLED ON THE DRIVERS RIGHT. FOR ONE WAY BRIDGES , YELLOW IS TO BE INSTALLED ON THE DRIVERS LEFT.
6) PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
7) THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
8) ALL POST SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POST IS 8' 3".
9) ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT.
10) STD. SPLICE HOLES ONLY IN BRIDGE RAIL TUBES. REST TO BE DRILLED BY CUSTOMER. FIELD DRILLED HOLES TO BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
11) THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

Vermont Agency of Transportation
RECEIVED
ON: May 7, 2013
and Checked for
CONFORMANCE
BY: Rob Young DATE: 06/07/2013

No Exception Taken
Make Correction as Noted
Submit Specified Item
Revise and Resubmit as Noted
Rejected
T-Y-LININTERNATIONAL
Checking is for general compliance with the design concept of the project and general compliance with the information given in the contract documents only. Any action shown is not an approval and is subject to the requirements of the plans and specifications. Any action shown on a specific item shall not indicate the checking of an assembly of which the item is a component. Contractor is solely responsible for: dimensions which shall be confirmed and correlated at the job site, fabrication processes, techniques of construction, safety precautions; and coordination of its work with that of all other trades and the satisfactory performance of its work.
Reviewed By: _____ Date: 06-03-2013

ITEM #: 525.335 GEN CONTR: F.R. LAFAYETTE, P.O. 27767

SHEET 2 OF 2

APPROVED BY:

BRIDGE RAIL DETAILS SHEET

PROJECT: PLYMOUTH ER BRS 0149 (5) VT 100A (MAJOR COLLECTOR) BRIDGE NO. 8
TOWN OF PLYMOUTH, WINDSOR COUNTY, VERMONT

R E V	NO.	DATE	DESCRIPTION	BY	R E V	NO.	DATE	DESCRIPTION	BY

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

CERTIFIED FABRICATOR

DRAWN	D.L.	12/13/12
CHECKED	E.P.	12/13/12
APPROVED	.	.
SCALE	SCHEMATIC	
DRAWING NO.	F.R.L. PLYMOUTH 27767	