RECORD PLANS

CONTRACTOR: MILLER CONSTRUCTION, INC – WINDSOR, VT

RESIDENT ENGINEER: SANDRA SCHMITT

CONSTRUCTION BEGAN: APRIL 30, 2014

CONSTRUCTION COMPLETE: MAY 22, 2015

RECORD PLANS BY: SANDRA SCHMITT & AARON JAMES

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

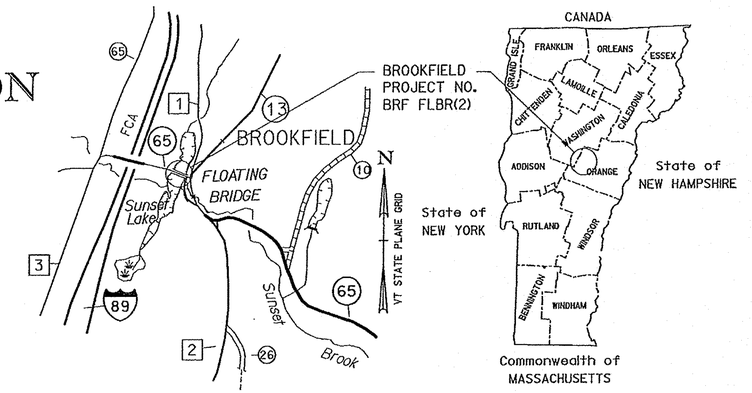
BY Sandra B Schmitt RESIDENT ENGINEER

DATE 07/26/16

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

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF BROOKFIELD
COUNTY OF ORANGE
VT. ROUTE 65 (MINOR COLLECTOR)
BRIDGE NO. 2

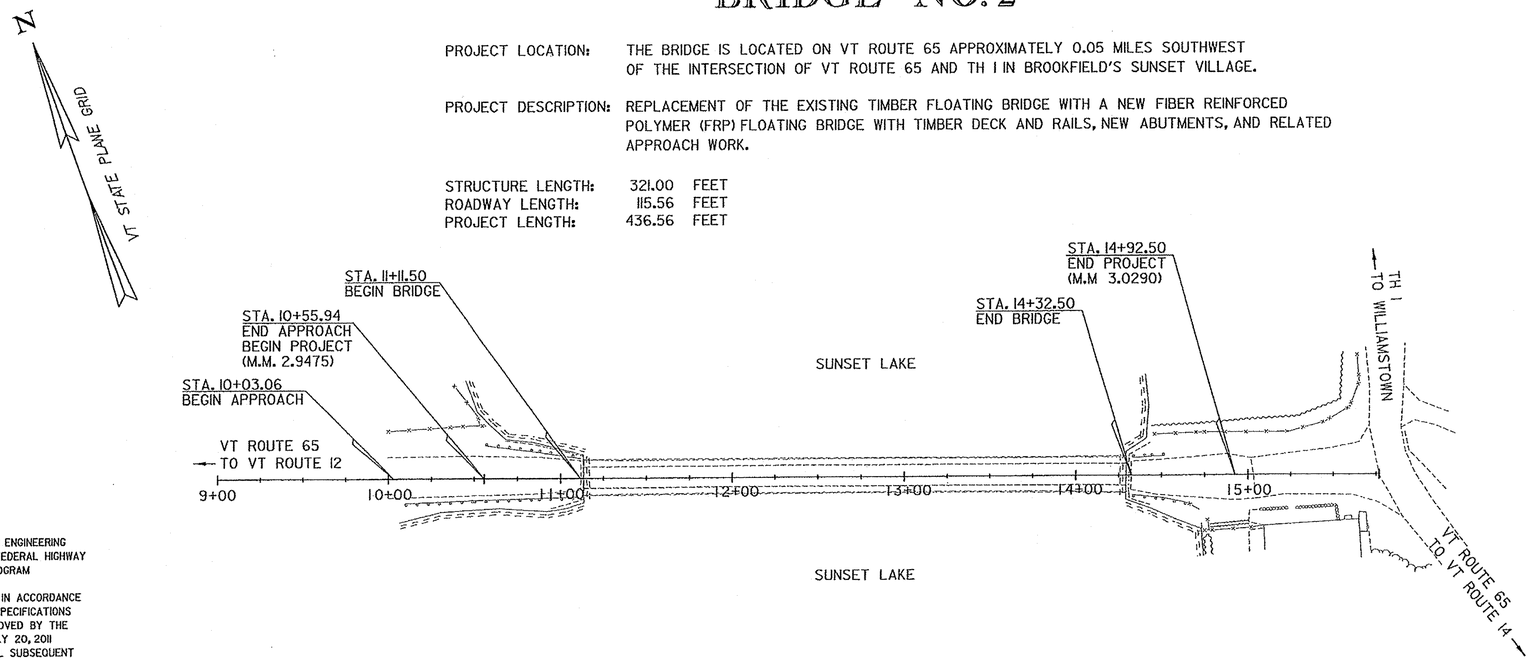


LOCATION MAP

PROJECT LOCATION: THE BRIDGE IS LOCATED ON VT ROUTE 65 APPROXIMATELY 0.05 MILES SOUTHWEST OF THE INTERSECTION OF VT ROUTE 65 AND TH 1 IN BROOKFIELD'S SUNSET VILLAGE.

PROJECT DESCRIPTION: REPLACEMENT OF THE EXISTING TIMBER FLOATING BRIDGE WITH A NEW FIBER REINFORCED POLYMER (FRP) FLOATING BRIDGE WITH TIMBER DECK AND RAILS, NEW ABUTMENTS, AND RELATED APPROACH WORK.

STRUCTURE LENGTH:	321.00	FEET
ROADWAY LENGTH:	115.56	FEET
PROJECT LENGTH:	436.56	FEET



SCALE 1" = 40'-0

40 0 40

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

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

QUALITY ASSURANCE PROGRAM : LEVEL 2

SURVEYED BY : R. GILMAN

SURVEYED DATE : 1/2011

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83 (07)

STATE OF VERMONT JOSHUA K. GILMO NO. 72818 Structural Engineer REGISTERED PROFESSIONAL ENGINEERS

T·Y LIN INTERNATIONAL

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATOR
APPROVED Tod K. Wolf DATE 1-6-14

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Richard Tetreault DATE 12-30-13

PROJECT MANAGER : JENNIFER FITCH, P.E.

PROJECT NAME : BROOKFIELD
PROJECT NUMBER : BRF FLBR(2)

SHEET 1 OF 70 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

LRFD

INDEX OF SHEETS

PLAN SHEETS

STANDARDS LIST

STRUCTURES DETAIL SHEETS

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2014	110	10	59	0.6	1
2034	120	10	59	0.8	2

20 year ESAL for flexible pavement from 2014 to 2034 : 7700

40 year ESAL for flexible pavement from 2014 to 2054 : 18200

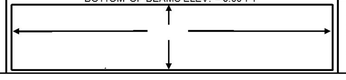
Design Speed : 15 mph

AS BUILT "REBAR" DETAIL

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

TEMPORARY BRIDGE PROFILE ALONG TEMP CL

BOTTOM OF BEAMS ELEV. = 0.00 FT



FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

DATE: Apr. 3, 2013

DRAINAGE AREA: 4.0 SQ. MI.
CHARACTER OF TERRAIN: HILLY TO MOUNTAINOUS VALLEY TERRAIN
STREAM CHARACTERISTICS: LAKE
NATURE OF STREAMBED: SAND, SILT

Q 2.33 =	440 CFS	Q50 =	1630 CFS
Q 10 =	1130 CFS	Q 100 =	2080 CFS
Q 25 =	1380 CFS	Q 500 =	3120 CFS

DATE OF FLOOD OF RECORD: AUGUST, 2011 (TROPICAL STORM IRENE)
ESTIMATED DISCHARGE: UNKNOWN
WATER SURFACE ELEVATION: >1278.6
NATURAL STREAM VELOCITY: N/A
ICE CONDITIONS: RECURRING SEASONAL ICE
DEBRIS: N/A
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? NO
IS ORDINARY RISE RAPID? NO
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? YES
IF YES, DESCRIBE TWO UNNAMED STREAMS DISCHARGE INTO SUNSET LAKE

WATERSHED STORAGE: 4%
HEADWATERS: 3%
UNIFORM:
IMMEDIATELY ABOVE SITE: 1%

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: SINGLE LANE FLOATING BRIDGE
YEAR BUILT: 1978
CLEAR SPAN (NORMAL TO STREAM): 316 FT
VERTICAL CLEARANCE ABOVE STREAMBED: +/- 27 FT
WATERWAY OF FULL OPENING: 5255 SQ. FT.
DISPOSITION OF STRUCTURE: COMPLETE REMOVAL
TYPE OF MATERIAL UNDER SUBSTRUCTURE: GLACIAL TILL AND BEDROCK

WATER SURFACE ELEVATIONS AT: UPSTREAM END OF CULVERT

Q 2.33 =	1278.0 FT	VELOCITY =	0 FPS
Q 10 =	1278.6 FT	"	0 FPS
Q 25 =	1278.9 FT	"	0 FPS
Q50 =	1279.3 FT	"	0 FPS
Q 100 =	1279.8 FT	"	0 FPS

LONG TERM STREAMBED CHANGES: N/A

IS THE ROADWAY OVERTOPPED BELOW Q100: YES. BOTH APPROACH ROADWAYS
FREQUENCY: OVERTOPPED AT AN APPROXIMATE Q1.7 FLOOD EVENT
RELIEF ELEVATION: +/- 1277.5 FT
DISCHARGE OVER ROAD @ Q100: UNKNOWN

UPSTREAM STRUCTURE

TOWN: BROOKFIELD — DISTANCE: -
HIGHWAY #: TH 1 — STRUCTURE #: N/A
CLEAR SPAN: UNKNOWN — CLEAR HEIGHT: UNKNOWN
YEAR BUILT: UNKNOWN — FULL WATERWAY: UNKNOWN
STRUCTURE TYPE: CULVERT AT NORTHERN INLET TO LAKE

DOWNSTREAM STRUCTURE

TOWN: BROOKFIELD — DISTANCE: 180 FT
HIGHWAY #: — STRUCTURE #: N/A
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE: SLUICE DAM TO LAKE OUTLET

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	1.14	0.70					
POSTING							
OPERATING	1.34	0.56	0.95	0.56	0.91	0.81	0.84
COMMENTS:	OPERATING VALUES ARE DEFLECTION (SERVICE) CONTROLLED.						

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY — Rndr: **135.00 KIP**
2. PILE TEST RESISTANCE FACTOR — ϕ: **0.65**
3. MAXIMUM PILE TIP ELEVATION — **1244.00 FT**
4. SEE PROJECT NOTES FOR ADDITIONAL PILE FOUNDATION REQUIREMENTS.

PROPOSED STRUCTURE

STRUCTURE TYPE: SINGLE LANE FLOATING BRIDGE

CLEAR SPAN (NORMAL TO STREAM): 320
VERTICAL CLEARANCE ABOVE STREAMBED: +/- 27 FT
WATERWAY OF FULL OPENING: 5255 SQ. FT

WATER SURFACE ELEVATIONS AT: UPSTREAM BRIDGE FASCIA

Q 2.33 =	1278.0 FT	VELOCITY =	0 FPS
Q 10 =	1278.6 FT	"	0 FPS
Q 25 =	1278.9 FT	"	0 FPS
Q50 =	1279.3 FT	"	0 FPS
Q 100 =	1279.8 FT	"	0 FPS

IS THE ROADWAY OVERTOPPED BELOW Q100? YES
FREQUENCY: +/- 1.7 YR
RELIEF ELEVATION: +/- 1277.5 FT
DISCHARGE OVER ROAD @ Q100: UNKNOWN

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: +/- 1273.2 FT
VERTICAL CLEARANCE: N/A

SCOUR: N/A

REQUIRED CHANNEL PROTECTION: N/A

PERMIT INFORMATION

		DEPTH OR ELEVATION:
AVERAGE DAILY FLOW:	10 CFS	
ORDINARY LOW WATER:	5 CFS	1274.9 FT
ORDINARY HIGH WATER:	190 CFS	1275.3 FT

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A
CLEAR SPAN (NORMAL TO STREAM): N/A
VERTICAL CLEARANCE ABOVE STREAMBED: +/- 27 FT
WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

SUNSET LAKE WATER SURFACE ELEVATIONS ARE MAINTAINED BY AN OUTFALL CONTROL WEIR STRUCTURE ON THE EAST SIDE OF THE LAKE. THE NORMAL WATER STAGE ELEVATION IS MAINTAINED AT 1274.7 FT

DESIGN VALUES

1. DESIGN LIVE LOAD		H12
2. FUTURE PAVEMENT	d_p:	0.0 INCH
3. ABUTMENT BEARING TO BEARING LENGTH (THREE SPANS) (29.33 - 258.34 - 29.33) FT	L:	317.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	---
5. PRESTRESSING STRAND	f_y:	---
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	---
9. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
10. CONCRETE, CLASS A	f'_c:	4.0 KSI
11. CONCRETE, CLASS C	f'_c:	3.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	---
14. SOIL UNIT WEIGHT	γ:	0.135 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	15.0 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	44.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	135.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 12X74
22. EST. PILE LENGTHS (TWO SUBSTRUCTURES) (ABUTMENT 1 = 51 AND ABUTMENT 2 = N/A) FT	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	0.65
24. LATERAL PILE DEFLECTION	Δ:	---
25. BASIC WIND SPEED	V_{3s}:	90 MPH
26. MINIMUM GROUND SNOW LOAD	p_g:	0.05 K/FT²
27. SEISMIC DATA PGA: ---	S_s:	---
	S_1:	---

PROJECT NAME: **BROOKFIELD**
PROJECT NUMBER: **BRF FLBR(2)**

FILE NAME: **z12e134bdr_pi.dgn**
PROJECT LEADER: **JOSH OLUND**
DESIGNED BY: **JOSH OLUND**
PRELIMINARY INFORMATION SHEET

PLOT DATE: 11/7/2013
DRAWN BY: **JOSH OLUND**
CHECKED BY: **DAVE BURHANS**

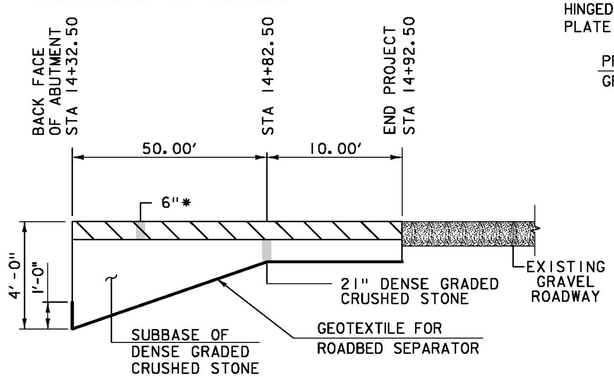
MATERIAL TOLERANCES

(IF USED ON PROJECT)

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

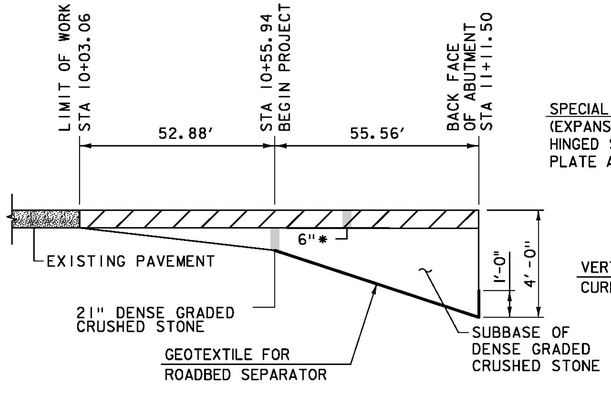
GENERAL NOTES

1. TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT A MINIMUM RATE OF 0.025 GAL/SY BETWEEN EACH LIFT OF BITUMINOUS CONCRETE PAVEMENT OR AS SPECIFIED BY THE ENGINEER.



SUBBASE TAPER - EAST

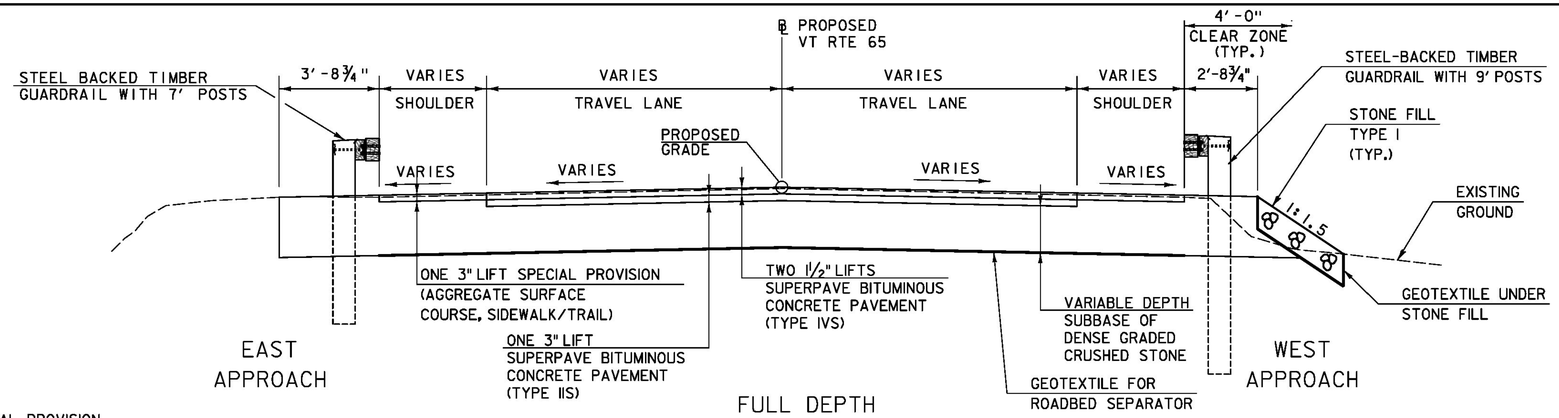
ALONG BASELINE
NOT TO SCALE



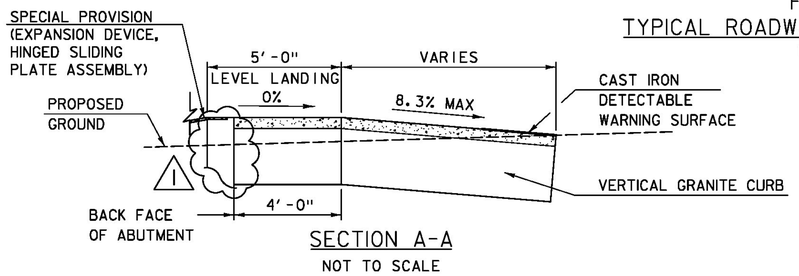
SUBBASE TAPER - WEST

ALONG BASELINE
NOT TO SCALE

* TWO 1½" LIFTS BITUMINOUS CONCRETE PAVEMENT (TYPE IVS) OVER ONE 3 " LIFT BITUMINOUS CONCRETE PAVEMENT (TYPE IIS)

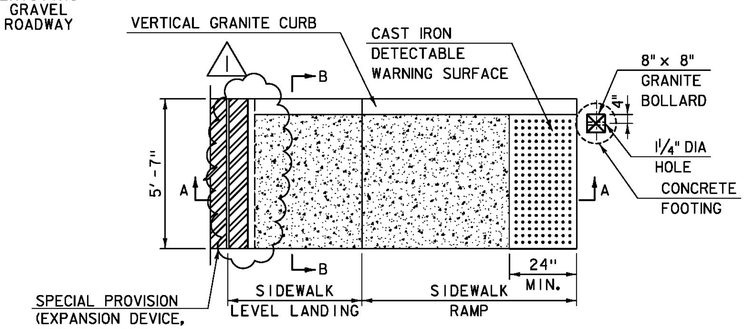


FULL DEPTH
TYPICAL ROADWAY SECTION - VT RTE 65
NOT TO SCALE



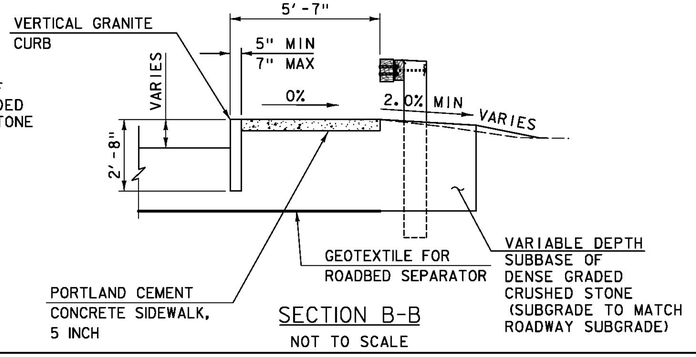
SECTION A-A

NOT TO SCALE



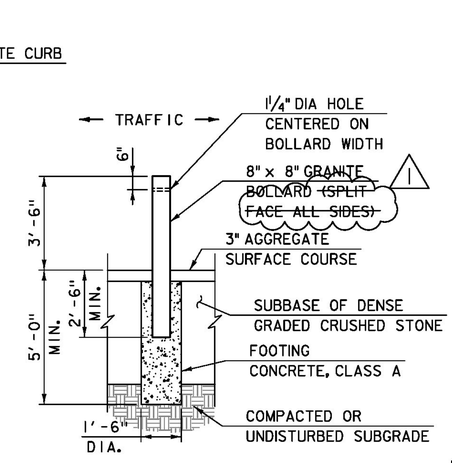
SIDEWALK PLAN

NOT TO SCALE



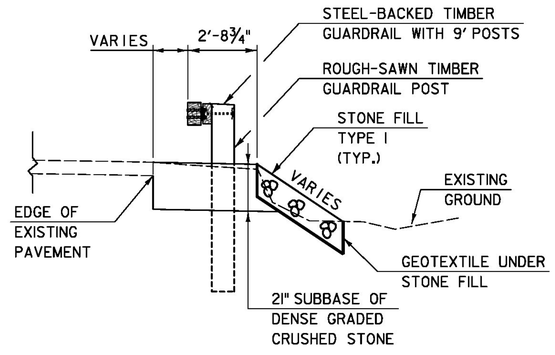
SECTION B-B

NOT TO SCALE



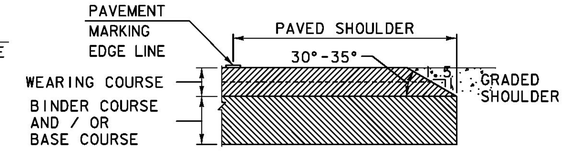
TYPICAL SPECIAL PROVISION
(GRANITE BOLLARD) DETAIL

NOT TO SCALE



GUARDRAIL WIDENING SECTION - VT 65

NOT TO SCALE



SAFETY EDGE DETAIL

NOT TO SCALE

NOTES:
1. LEVELING COURSE SHALL INCLUDE THE "SAFETY EDGE" DEVICE OF THE CONTRACTOR'S CHOICE.
2. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.

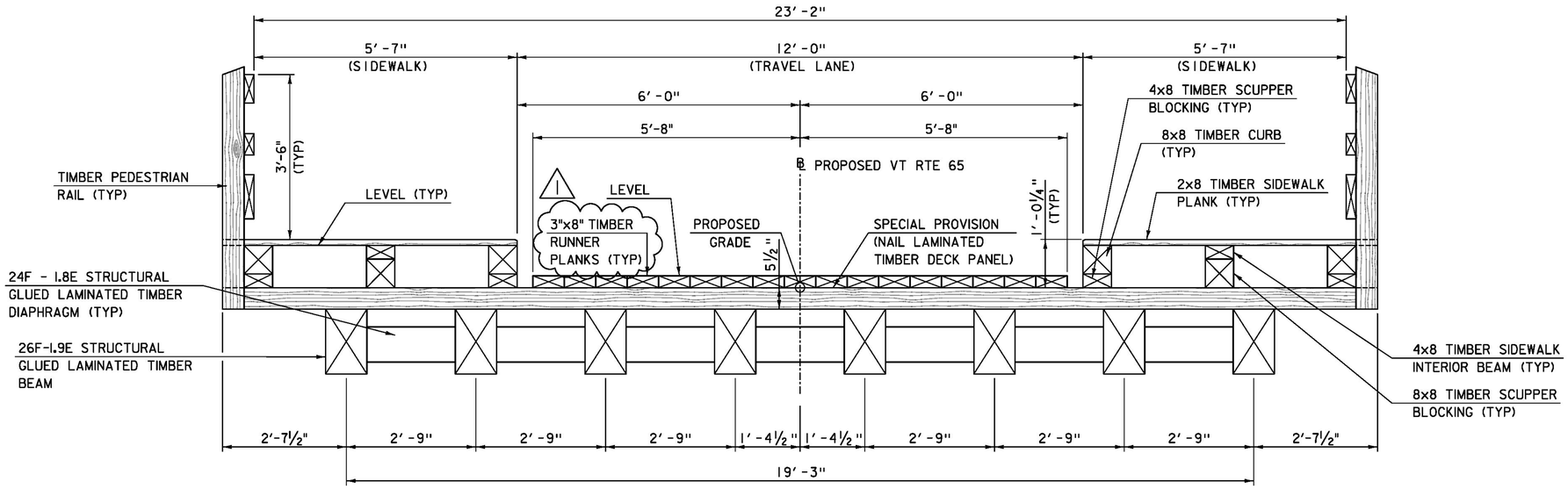
REVISION	DESCRIPTION	DATE
REVISION #1	HINGE PLATE & BOLLARD CHANGES	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

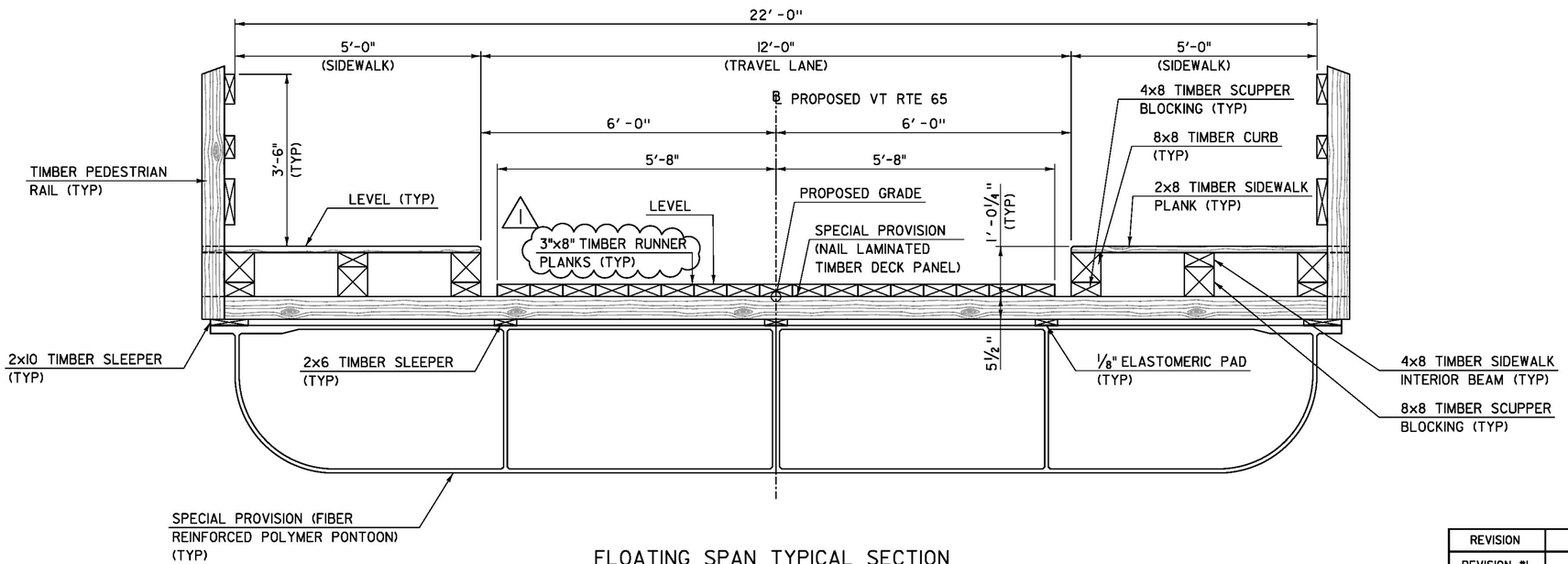
FILE NAME: z12el34bdr_typ.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
ROADWAY TYPICAL SECTIONS

PLOT DATE: 2/5/2014
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 3 OF 70



ARTICULATING RAMP TYPICAL SECTION

SCALE: ¾" = 1'-0"



FLOATING SPAN TYPICAL SECTION

SCALE: ¾" = 1'-0"

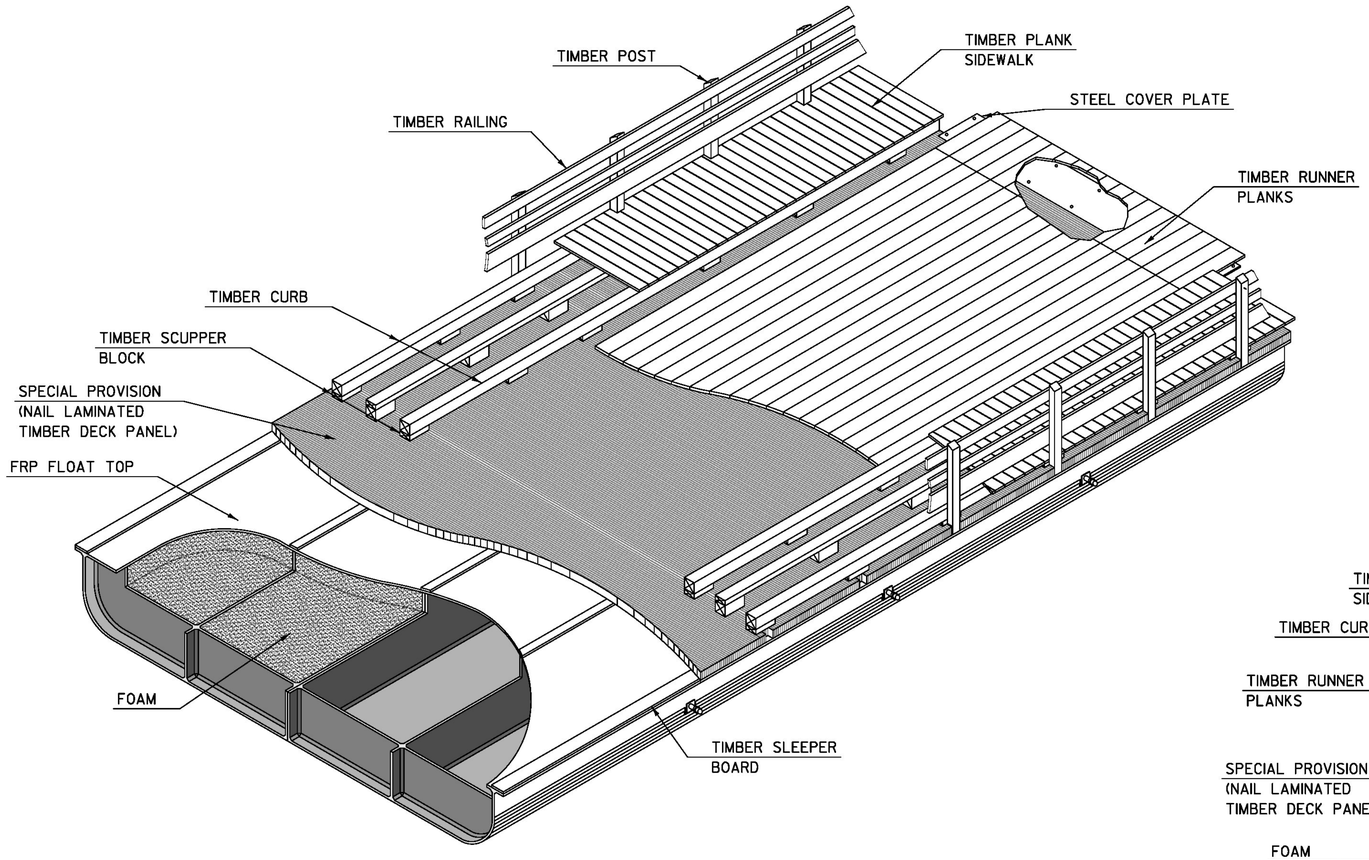
REVISION	DESCRIPTION	DATE
REVISION #1	RUNNER PLANK THICKNESS CHANGE	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

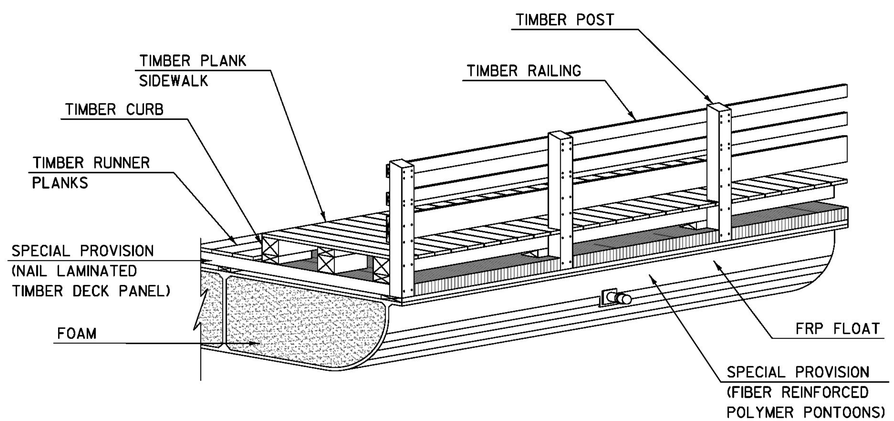
FILE NAME: z12el34bdr_brldge_typ.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
BRIDGE TYPICAL SECTIONS

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 4 OF 70



FLOAT ISOMETRIC

NOT TO SCALE



FLOAT ISOMETRIC - CURB SECTION

NOT TO SCALE

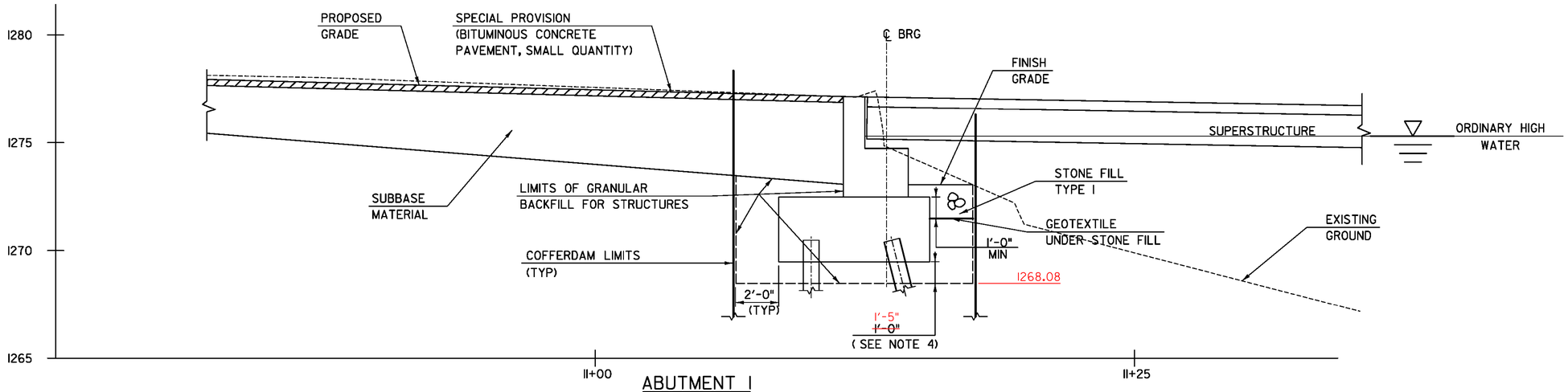
NOTE: ISOMETRIC DRAWINGS ARE GRAPHICAL REPRESENTATIONS ONLY.

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

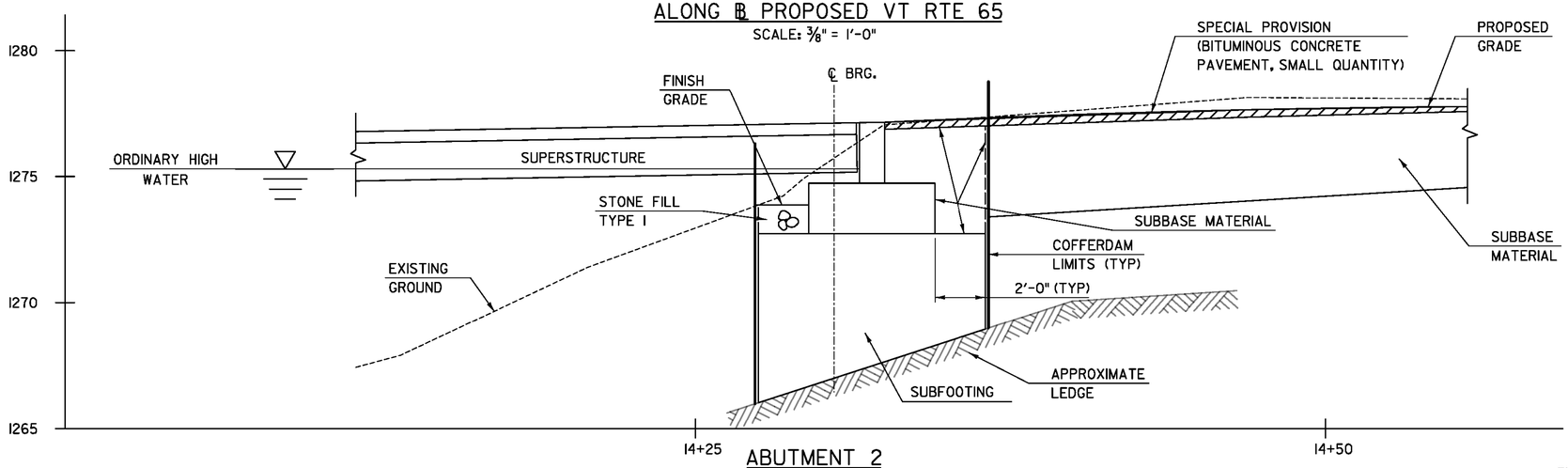
TYLIN INTERNATIONAL

FILE NAME: z12el34bdrfrp_1so.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
ISOMETRIC VIEWS

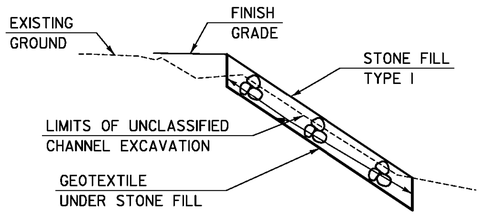
PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 5 OF 70



ABUTMENT 1
COFFERDAM AND EARTHWORK SECTION
ALONG ℄ PROPOSED VT RTE 65
SCALE: 3/8" = 1'-0"



ABUTMENT 2
COFFERDAM AND EARTHWORK SECTION
ALONG ℄ PROPOSED VT RTE 65
SCALE: 3/8" = 1'-0"



LAKE SHORE EARTHWORK DETAIL
(NOT TO SCALE)

NOTES:

1. COFFERDAM DIMENSIONS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF EITHER "COFFERDAM EXCAVATION, EARTH" OR "COFFERDAM EXCAVATION, ROCK" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING AND FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR COFFERDAM EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THE PAY LIMITS DEFINED IN NOTE 2.
4. USE A ~~12"~~ 17" UNDERCUT, IF DETERMINED NECESSARY BY ENGINEER.

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

T.Y.LIN INTERNATIONAL

FILE NAME: z12el34bdrearthtyp.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
EARTHWORK TYPICAL SECTIONS

PLOT DATE: 12/3/2013
DRAWN BY: B. CARTER
CHECKED BY: R. HEBERT
SHEET 6 OF 70

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 AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION WITH INTERIMS THROUGH 2012.

2. THE EXISTING BRIDGE IS CLOSED TO ALL TRAFFIC DUE TO INADEQUATE LOAD CAPACITY AND OTHER DEFICIENCIES. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE AND ITS OFFICERS AND EMPLOYEES HARMLESS REGARDING THE CONTRACTOR'S USE OF THE EXISTING BRIDGE FOR TRANSPORTING VEHICLES, MATERIALS, OR PEOPLE ACROSS THE LAKE.

3. THE EXISTING TIMBER BRIDGE RAILINGS (POSTS AND RAILS) SHALL BE CAREFULLY REMOVED WITHOUT DAMAGE AND DELIVERED TO THE BROOKFIELD TOWN GARAGE AT 866 VT ROUTE 65. THE REMAINING COMPONENTS OF THE EXISTING BRIDGE, INCLUDING BUT NOT LIMITED TO THE FLOATING SPAN, APPROACH RAMPS, ABUTMENTS, TIE-BACK ANCHORS, AND GRANITE BLOCKS EXTENDING FROM THE ABUTMENTS, SHALL BE REMOVED IN ITS ENTIRETY AND BECOME THE PROPERTY OF THE CONTRACTOR. PAYMENT SHALL BE MADE UNDER ITEM 529.15, "REMOVAL OF STRUCTURE".

4. NO BURNING OF REMOVED MATERIALS AT THE PROJECT SITE WILL BE ALLOWED. THE EXISTING BRIDGE LUMBER MAY CONTAIN HAZARDOUS WOOD PRESERVATIVES. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE AND ITS OFFICERS AND EMPLOYEES HARMLESS REGARDING THE CONTRACTOR'S HANDLING OF THESE MATERIALS AND SUBSEQUENT USE, RE-USE, OR DISPOSAL OF THESE MATERIALS.

5. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AT 50°F AND AT LAKE ELEVATION 1274.7 FT, UNLESS NOTED OTHERWISE.

6. THE CONTRACTOR IS NOTIFIED THAT AN EXISTING DRY HYDRANT IS LOCATED WITHIN THE PROJECT LIMITS. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

7. NO PROVISIONS HAVE BEEN MADE FOR THE CONTRACTOR TO PERFORM WORK OR SET UP STAGING OUTSIDE THE EXISTING RIGHT-OF-WAY. SHOULD THE CONTRACTOR REQUIRE ANY ADDITIONAL RIGHT-OF-WAY, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL EASEMENTS AND BEAR THE COSTS OF SUCH EASEMENTS WITHOUT FURTHER COMPENSATION.

TRAFFIC MAINTENANCE DURING CONSTRUCTION

8. BRIDGE NO. 2 SHALL REMAIN CLOSED TO ALL TRAFFIC FOR THE DURATION OF CONSTRUCTION. THE CONTRACTOR SHALL DEVELOP, SUBMIT TO THE ENGINEER FOR APPROVAL, AND IMPLEMENT A ROAD CLOSURE AND TRAFFIC CONTROL PLAN IN ACCORDANCE WITH SECTION 641. EXISTING CLOSURE SIGNAGE AND BARRICADES MAY REMAIN IN PLACE AND BE USED BY THE CONTRACTOR FOR THE DURATION OF THE PROJECT. EXISTING SIGNS AND BARRICADES SHALL REMAIN THE PROPERTY OF THE STATE AND SHALL BE DELIVERED TO THE MAINTENANCE GARAGE IN WILLIAMSTOWN WHEN NO LONGER NEEDED. THE COST OF REMOVING AND DELIVERING EXISTING BARRIERS AND SIGNS SHALL BE INCLUDED IN ITEM 641.10, "TRAFFIC CONTROL."

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING THE JOB SITE FROM VEHICULAR, BOAT, AND PEDESTRIAN TRAFFIC WHILE SIMULTANEOUSLY MAINTAINING ACCESS TO ALL ADJACENT DRIVES AND THE TOWN OWNED/OPERATED DRY HYDRANT ON THE SOUTHEAST CORNER OF THE BRIDGE. ALL COSTS ASSOCIATED WITH CREATING A TRAFFIC CONTROL PLAN AND FURNISHING, MAINTAINING, AND REMOVING TRAFFIC CONTROL SIGNS AND DEVICES NEEDED FOR SUCCESSFUL IMPLEMENTATION OF THIS PLAN WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 641.10, "TRAFFIC CONTROL."

10. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK.

EARTHWORK AND RELATED ITEMS

11. ITEM "STONE FILL, TYPE I" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE SUPERSTRUCTURE RAMPS ARE SET.

12. TEMPORARY CONSTRUCTION FILLS USED FOR ANY PURPOSE WITHIN THE LAKE SHALL CONSIST OF CLEAN STONE FILL ONLY. NO TEMPORARY FILLING IN THE LAKE SHALL OCCUR WITHOUT THE APPROVAL OF THE LAKES AND PONDS ENGINEER.

CONCRETE

13. ALL SUBSTRUCTURE CONCRETE ABOVE THE SUB-FOOTING SHALL BE HIGH PERFORMANCE, CLASS B.

14. SUBFOOTING CONCRETE SHALL BE CLASS C.

15. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES.

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

17. ALL REINFORCING STEEL SHALL BE LEVEL I, EPOXY COATED IN ACCORDANCE WITH SECTION 507 OF THE GENERAL SPECIAL PROVISIONS. MINIMUM CLEAR COVER SHALL BE 3.0 INCHES, UNLESS NOTED OTHERWISE.

18. ALL HORIZONTAL CONSTRUCTION JOINTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STRUCTURES DETAIL SHEET SD-502.00.

PILE FOUNDATIONS

19. THE PILES SHALL BE HP 12 X 74.

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

21. THE PILES SHALL BE DRIVEN TO A NOMINAL RESISTANCE OF 135 KIPS AS DETERMINED BY THE RESULTS OF DYNAMIC TESTING, AS INTERPRETED BY THE ENGINEER.

22. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED TO EXTEND 50 FEET BELOW THE BOTTOM OF THE FOOTING. THE ACTUAL LENGTHS MAY VARY.

23. 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. A PILE TEST SHALL BE CONDUCTED ON THE FIRST PLUMB PILE AND FIRST BATTERED PILE DRIVEN AT ABUTMENT NO. 1 (TWO TOTAL TESTS). MORE TESTS MAY BE REQUIRED BY THE ENGINEER.

FOOTINGS ON BEDROCK

24. FOOTINGS AND/OR SUBFOOTINGS FOR SUBSTRUCTURES FOUNDED ON BEDROCK SHALL BE PLACED ON CLEAN COMPETENT ROCK. ALL LOOSE ROCK AND DEBRIS SHALL BE REMOVED.

25. ONCE THE ELEVATION OF COMPETENT BEDROCK HAS BEEN DETERMINED, THE CONTRACTOR SHALL PROVIDE A BEDROCK PROFILE TO THE ENGINEER FOR PREPARATION OF AS-BUILT DRAWINGS. FOOTING ELEVATIONS SHALL NOT BE ADJUSTED WITHOUT APPROVAL OF THE ENGINEER.

26. THE LIMITS OF THE SUBFOOTING SHALL BE 2 FT OUTSIDE OF THE HORIZONTAL LIMITS OF THE FOOTING. THE TOP SURFACE OF THE SUBFOOTING SHALL BE INTENTIONALLY ROUGHENED TO 0.25 IN AMPLITUDE.

27. ANY CONCRETE REQUIRED FOR SUBFOOTINGS SHALL BE PAID FOR WITH ITEM 541.30, "CONCRETE, CLASS C." AN ESTIMATED QUANTITY OF ITEM 541.30 HAS BEEN INCLUDED IN THE CONTRACT.

28. ANY BEDROCK THAT NEEDS TO BE REMOVED SHALL BE PAID FOR UNDER ITEM 208.35, "COFFERDAM EXCAVATION, ROCK." OVER-BREAKAGE BEYOND THE AVERAGE MAXIMUM ALLOWANCE SPECIFIED IN SUBSECTIONS 204.09 (B) (1) AND 208.11 (C) WILL BE AT THE CONTRACTOR'S EXPENSE.

29. DOWELS SHALL BE DRILLED AND GROUTED INTO BEDROCK WHEN THE SLOPE IS AT OR GREATER THAN 10 DEGREES FROM HORIZONTAL. THE DOWELS SHALL HAVE A 2 FT MINIMUM EMBEDMENT INTO THE BEDROCK AND SHALL EXTEND INTO THE SUBFOOTING A MINIMUM OF 1.5 FT.

BEARING NOTES

30. ALL STEEL PLATES, BARS, SHAPES, AND HARDWARE SHALL BE STAINLESS STEEL CONFORMING TO THE REQUIREMENTS OF "SPECIAL PROVISION (BEARING DEVICE ASSEMBLY, FLOATING BRIDGE)".

31. BOLTS USED TO CONNECT BEARINGS TO THE STAINLESS STEEL SHELF SHALL BE TIGHTENED TO A TORQUE OF 190 FT*LBS. THREADS OF BOLTS SHALL BE EXCLUDED FROM THE THICKNESS OF CONNECTED MATERIAL.

FIBER REINFORCED POLYMER (FRP) NOTES

32. FRP PONTOON DETAILS DEPICTED THROUGHOUT THIS PLAN SET ARE CONCEPTUAL. THE FABRICATOR SHALL PROVIDE DESIGNS FOR THE FRP COMPONENTS IN ACCORDANCE WITH THESE PLANS AND THE SPECIAL PROVISIONS. THE FABRICATOR MAY ALTER THE DETAILS NOTED IN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. CHANGES TO FRP PONTOON DETAILS NOTED IN THIS PLAN SET MAY REQUIRE CHANGES TO TIMBER DECK CONNECTIONS, FIELD SPLICE CONNECTIONS, AND RAMP BEARING CONNECTIONS, AMONG OTHER ASPECTS. DESIGN AND DETAILING OF SUCH CHANGES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL, AND SHALL BE SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT, WHERE APPROPRIATE.

33. ALL INSIDE CORNERS/EDGES SHALL BE CHAMFERED OR FILLETED 1/2 INCH. ALL EXTERIOR EDGES SHALL BE CHAMFERED OR FILLETED 1/4 INCH.

34. HEAVY CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE SHALL BE PROHIBITED FROM DIRECT CONTACT WITH THE TOP SURFACE OF THE FRP RAFTS. ONLY FOOT TRAFFIC AND TOOLS NECESSARY FOR INSTALLATION OF THE FRP PONTOONS WILL BE ALLOWED TO BEAR DIRECTLY ON THE RAFTS. THE PROPOSED TIMBER DECK SHALL BE INSTALLED PRIOR TO ALLOWING CONSTRUCTION EQUIPMENT ON THE FRP RAFTS.

FASTENERS FOR FIBER REINFORCED POLYMER

35. THREADS OF BOLTS SHALL BE EXCLUDED FROM THE THICKNESS OF THE CONNECTED MATERIAL.

36. HOLES IN THE FRP MEMBERS FOR FIELD SPLICE AND STAINLESS STEEL SHELF INSTALLATION SHALL BE LOCATED IN ACCORDANCE WITH THESE PLANS AND THROUGH USE OF THE STEEL PLATES AS A TEMPLATE.

37. BOLTS USED IN THE INSTALLATION OF STEEL FIELD SPLICES SHALL BE TIGHTENED TO A TORQUE OF 300 FT*LBS AND FASTENED WITH TWO WASHERS AND A DOUBLE NUT. BOLTS USED IN THE INSTALLATION OF STAINLESS STEEL SHELVES SHALL BE TIGHTENED TO A TORQUE OF 190 FT*LBS ABD FASTENED WITH TWO WASHERS AND A DOUBLE NUT.

38. HOLES IN THE FRP MEMBERS FOR NAIL LAMINATED TIMBER DECK PANEL ATTACHMENT SHALL BE FIELD DRILLED USING THE DECK PANELS AS A TEMPLATE. COSTS ASSOCIATED WITH DRILLING AND INSTALLING HARDWARE NEEDED FOR ATTACHING THE DECK PANELS TO THE FRP PONTOONS SHALL BE INCLUDED IN ITEM 900.670, "SPECIAL PROVISION (NAIL LAMINATED TIMBER DECK PANEL)." HOLE DRILLING FOR DECK PANEL INSTALLATION SHALL BEGIN AT THE MIDDLE OF EACH RAFT AND PROGRESS OUTWARD TOWARD THE RAFT ENDS.

39. BOLTS USED IN THE ATTACHMENT OF NAIL LAMINATED TIMBER DECK PANELS SHALL BE TIGHTENED TO A TORQUE OF 15 FT*LBS AND FASTENED WITH TWO WASHERS AND A DOUBLE NUT.

FASTENERS FOR TIMBER

40. ALL FASTENERS AND ASSOCIATED HARDWARE IN CONTACT WITH TYPE V PRESERVATIVE (ALKALINE COPPER QUATERNARY) SHALL BE STAINLESS STEEL. STAINLESS STEEL BOLTS AND SCREWS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593, ALLOY GROUP 1, 2, OR 3, CONDITION CW, WITH A MINIMUM YIELD STRENGTH OF 43 KSI.

41. ALL OTHER FASTENERS AND ASSOCIATED HARDWARE FOR TIMBER CONSTRUCTION SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SUBSECTIONS 709.01(h) AND 709.03(d), UNLESS NOTED OTHERWISE.

42. WITH THE EXCEPTION OF CARRIAGE BOLT HEADS AND UNLESS NOTED OTHERWISE, WASHERS SHALL BE PROVIDED UNDER ALL BOLT HEADS AND NUTS.

43. ANY UNUSED HOLES IN THE FINAL, AS BUILT CONDITION SHALL BE FILLED WITH A TIGHT FITTING FULL WIDTH WOODEN PEG.

44. AFTER BOLT INSTALLATION, ALL RESULTING CAVITIES OF PRE-BORED, COUNTERSUNK, VERTICALLY INSTALLED BOLTS SHALL BE FILLED WITH HOT POURED JOINT SEALER. THE COST FOR THIS WORK SHALL BE PAID UNDER RELATED CONTRACT ITEMS.

45. THREADED RODS SHALL BE ASTM A615, GRADE 75. ASSOCIATED NUTS SHALL BE IN ACCORDANCE WITH ASTM A108 AND WASHERS SHALL BE IN ACCORDANCE WITH ASTM F436. BEARING PLATE ASSEMBLIES SHALL MEET THE REQUIREMENTS OF AASHTO M270, GRADE 36. ALL COMPONENTS OF THE THREADED ROD AND CROSS BRACE ASSEMBLY SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M 111 OR AASHTO M 232, AS APPLICABLE.

REVISION	DESCRIPTION	DATE
REVISION #1	REVISED NOTES	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

FILE NAME: z12e134bdrnotes.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
PROJECT NOTES 1

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS
SHEET 7 OF 70

46. PROPOSED THREADED ROD TENSIONING SEQUENCE FOR RODS PASSING THROUGH GLUED LAMINATED GIRDERS AND DIAPHRAGMS:

    - INITIALLY TENSION RODS TO 15 KIPS
    - RE-TENSION TO 15 KIPS 1 WEEK AFTER THE INITIAL STRESSING
    - RE- TENSION TO 15 KIPS 4-6 WEEKS AFTER THE SECOND STRESSING

47. CROSS BRACE THREADED RODS PASSING BENEATH THE GLUED LAMINATED GIRDERS SHALL BE WRENCH TIGHTENED UPON COMPLETION OF THE DIAPHRAGM THREADED ROD TENSIONING SEQUENCE.

48. ALL COMPONENTS OF THE THREADED ROD AND CROSS BRACE ASSEMBLY SHALL BE PAID UNDER ITEM 522.40, "STRUCTURAL GLUED LAMINATED TIMBER".

TIMBER NOTES

49. ALL TIMBER CONSTRUCTION SHALL COMPLY WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION WITH INTERIMS THROUGH 2012, THE NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION 2005 AND ITS LATEST REVISIONS, AND THE LATEST EDITION OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC) SPECIFICATION.

50. ALL TIMBER SHALL BE GRADED BY A RECOGNIZED GRADING AGENCY AND, WHERE APPLICABLE, THE REQUIREMENTS OF THE SOUTHERN PINE INSPECTION BUREAU (SPIB). INDIVIDUAL BOARDS SHALL NOT BE STAMPED WITH A GRADE STAMP AND MATERIAL CERTIFICATIONS SHALL BE SUBMITTED FOR ALL TIMBER IN ACCORDANCE WITH SECTION 709.

51. UNLESS NOTED OTHERWISE, ALL SAWN TIMBER INCORPORATED IN THE PROJECT SHALL MEET THE REQUIREMENTS OF SUBSECTION 709.01, "STRUCTURAL LUMBER AND TIMBER" OF THE STANDARD SPECIFICATIONS AND THE FOLLOWING:

    - WEARING SURFACE: WHITE OAK, NO. 1 GRADE, FULL SAWN
    - ALL OTHER: SOUTHERN YELLOW PINE, NO. 1 GRADE, DRESSED (SURFACED FOUR SIDES)

52. GLUED LAMINATED TIMBER BEAMS AND DIAPHRAGMS SHALL MEET THE REQUIREMENTS OF SUBSECTION 709.03, "STRUCTURAL GLUED LAMINATED TIMBER" OF THE STANDARD SPECIFICATIONS AND SHALL BE COMPRISED OF SOUTHERN PINE. GLUED LAMINATED TIMBER BEAMS SHALL MEET THE DESIGN VALUES FOR AASHTO COMBINATION SYMBOL 26F-1.9E. GLUED LAMINATED TIMBER DIAPHRAGMS SHALL MEET THE DESIGN VALUES FOR AASHTO COMBINATION SYMBOL 24F-1.8E.

53. PRESERVATIVE TREATMENT FOR TIMBER SHALL BE AS FOLLOWS:

    - NAIL LAMINATED TIMBER DECK PANELS: PRESERVATIVE TYPE II OR TYPE III (SEE NEXT NOTE)
    - GLUED LAMINATED TIMBER: PRESERVATIVE TYPE II
    - WEARING SURFACE: NO TREATMENT
    - ALL OTHER: PRESERVATIVE TYPE V

    INCISING WILL NOT BE ALLOWED.

54. THE FABRICATOR MAY USE PRESERVATIVE TYPE II OR III (PENTACHLOROPHENOL TYPE A OR TYPE C) TO TREAT THE NAIL LAMINATED TIMBER DECK PANELS. IF PRESERVATIVE TYPE II IS SELECTED, EXPANSION BATH AND STEAM CLEANING POST TREATMENT OPERATIONS SHALL BE INCORPORATED. IF PRESERVATIVE TYPE III IS SELECTED, POST TREATMENT NEED ONLY INCLUDE EXPANSION BATH OPERATIONS.

55. ALL TREATED WOOD PRODUCTS IN THIS PROJECT SHALL BE PRODUCED IN COMPLIANCE WITH THE "BEST MANAGEMENT PRACTICES FOR THE USE OF TREATED WOOD IN AQUATIC AND WETLAND ENVIRONMENTS" (BMPS) PUBLISHED BY THE WESTERN WOOD PRESERVERS INSTITUTE (WWW.WWPINSTITUTE.ORG), NOVEMBER 1, 2011 OR THE MOST CURRENT VERSION INCLUDING PUBLISHED AMENDMENTS.

56. ALL "STRUCTURAL LUMBER AND TIMBER, TREATED" SHALL BE CUT AND DRILLED TO THE APPROPRIATE GEOMETRIES PROVIDED IN THE PLANS AND SPECIFICATIONS PRIOR TO TREATMENT. FIELD CUTTING AND/OR DRILLING WILL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER ON A CASE-BY-CASE BASIS. DAMAGE TO TREATED TIMBERS CAUSED BY FABRICATION, HANDLING, OR CONSTRUCTION MAY BE CAUSE FOR REJECTION. WHERE FIELD CUTTING OR DRILLING IS ALLOWED BY THE ENGINEER, THE FRESHLY EXPOSED SURFACE SHALL BE TREATED WITH TWO COATS OF COPPER NAPHTHENATE SOLUTION, LIBERALLY APPLIED IN ACCORDANCE WITH SUBSECTION 522.13C OF THE STANDARD SPECIFICATIONS.

57. ONLY MATURE WOOD SHALL BE USED FOR STRUCTURAL APPLICATIONS; JUVENILE WOOD WILL NOT BE ALLOWED. 'MATURE' AND 'JUVENILE' WOOD DEFINITIONS SHALL BE IN ACCORDANCE WITH THE "WOOD HANDBOOK: WOOD AS AN ENGINEERING MATERIAL" PUBLISHED BY THE FOREST PRODUCTS LABORATORY AND AVAILABLE AT WWW.PFL.FS.FED.US.

58. THE FOLLOWING MATERIALS WILL BE RANDOMLY SELECTED, FROM THE PROJECT, BY THE VTRANS MATERIALS AND RESEARCH SECTION FOR PHYSICAL AND CHEMICAL TESTING. THESE QUANTITIES SHALL BE ADDED TO THE PROJECT QUANTITIES SHOWN IN THE PLANS. PAYMENT SHALL BE INCIDENTAL TO RELATED CONTRACT ITEMS.

    A. STEEL BACKED TIMBER GUARDRAIL
        - 2 ~ 6x10x10 FT RAIL SECTIONS
    B. CURB AND SIDEWALK TIMBER
        - 2 ~ 8x8x6 FT CURB SECTIONS
        - 2 ~ 2x8x5.67 FT SIDEWALK PLANKS
        - 2 ~ 4x8x1.5 FT SIDEWALK STIFFENER SECTIONS
    C. TIMBER PEDESTRIAN RAILING, BRIDGE
        - 2 ~ 3x8x6 FT RAIL SECTIONS
        - 2 ~ 3x6x6 FT RAIL SECTIONS
        - 2 ~ 3x12x6 FT RAIL SECTIONS
        - 2 ~ 6x6x5 FT RAIL POSTS
    D. TIMBER DECK
        - 2 ~ 8x8x8 FT RUNNER PLANKS
        - 2 ~ 2x6x8 FT DECK PLANK LAMINATES

59. NO TIMBER SPECIES SUBSTITUTIONS WILL BE ALLOWED.

MATERIALS FOR STRUCTURAL LUMBER AND TIMBER

MEMBER TYPE	MEMBER SIZE (SEE NOTE 51)	QUANTITY (MFBM)	PAY ITEM FOR MEMBER TYPE
RUNNER PLANKS	3"x8"	9.84	522.20 - STRUCTURAL LUMBER AND TIMBER, UNTREATED
RUNNER PLANKS AT STEEL COVER PLATES	2"x8"	0.31	522.20 - STRUCTURAL LUMBER AND TIMBER, UNTREATED
RUNNER PLANKS - TRANSVERSE SPACERS AT STEEL COVER PLATES	1"x6"	0.05	522.20 - STRUCTURAL LUMBER AND TIMBER, UNTREATED
SCUPPER BLOCKING (CURB)	4x8	0.93	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED
CURB	8x8	6.85	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED
SCUPPER BLOCKING (SIDEWALK INTERIOR BEAM)	8x8	0.62	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED
SIDEWALK INTERIOR BEAM	4x8	1.71	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED
SIDEWALK PLANKS	2x8	7.90	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED
PEDESTRIAN RAIL - POST	6x6	1.70	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED
PEDESTRIAN RAIL - POST (FLOATING SPAN ENDS)	5x6	0.05	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED
PEDESTRIAN RAIL - BACKER BOARD	2x6	0.01	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED
PEDESTRIAN RAIL - BOTTOM RAIL	3x12	1.95	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED
PEDESTRIAN RAIL - MIDDLE RAIL	3x6	0.98	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED
PEDESTRIAN RAIL -TOP RAIL	3x8	1.30	522.25 - STRUCTURAL LUMBER AND TIMBER, TREATED

REVISION	DESCRIPTION	DATE
REVISION #1	RUNNER PLANK THICKNESS CHANGE	2/5/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

FILE NAME: zl2el34bdrnotes.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
PROJECT NOTES 2

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS
SHEET 8 OF 70

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
525					525		CY	COMMON EXCAVATION	203.15	
			20		20		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
			45		45		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
			235		235		CY	COFFERDAM EXCAVATION, EARTH	208.30	
			10		10		CY	COFFERDAM EXCAVATION, ROCK	208.35	
			1		1		LS	COFFERDAM (ABUTMENT NO. 1)	208.40	
			1		1		LS	COFFERDAM (ABUTMENT NO. 2)	208.40	
440					440		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	
1.5					1.5		CWT	EMULSIFIED ASPHALT	404.65	
1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	
			59		59		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	
			1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	
			410		410		LF	STEEL PILING, HP 12 X 74	505.16	
			2		2		EACH	DYNAMIC PILE LOADING TEST	505.45	
			5500		5500		LB	REINFORCING STEEL, LEVEL I	507.11	
			44		44		LF	DRILLING AND GROUTING DOWELS	507.16	
			3.5		3.5		GAL	WATER REPELLENT, SILANE	514.10	
			10.2		10.2		MFBM	STRUCTURAL LUMBER AND TIMBER, UNTREATED	522.20	
			24		24		MFBM	STRUCTURAL LUMBER AND TIMBER, TREATED	522.25	
			1		1		LS	STRUCTURAL GLUED LAMINATED TIMBER (12.3 MFBM) (BEAMS AND DIAPHRAGMS)	522.40	
			1		1		EACH	REMOVAL OF STRUCTURE (6620 SF - EST.)	529.15	
			75		75		CY	CONCRETE, CLASS C	541.30	
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	
25					25		MGAL	DUST CONTROL WITH WATER	609.10	
40			35		75		CY	STONE FILL, TYPE I	613.10	
53					53		LF	VERTICAL GRANITE CURB	616.21	
29					29		SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	618.10	
40					40		SF	DETECTABLE WARNING SURFACE	618.30	
214					214		LF	STEEL BACKED TIMBER GUARDRAIL	621.18	
210					210		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	
40					40		HR	UNIFORMED TRAFFIC OFFICERS	630.10	
200					200		HR	FLAGGERS	630.15	
				1	1		LS	FIELD OFFICE, ENGINEERS	631.10	
				1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	
				1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	
				3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
525	CY	EARTH AND ROCK EXCAVATION
0	CY	SOLID ROCK EXCAVATION
525	CY	EARTH EXCAVATION
2.7	CY	PLANIMETERED FILL
0	CY	LESS FACTORED SOLID ROCK
0	CY	LESS DISPLACEMENT OF ANY LARGE STRUCTURES
2.7	CY	NET PLANIMETERED FILL
0.15		FACTOR
3.1	CY	PLANIMETERED FILL INCLUDING FACTOR
		MATERIALS AVAILABLE FOR FILL
525	CY	EARTH EXCAVATION
20	CY	UNCLASSIFIED CHANNEL EXCAVATION
0	CY	UNDERDRAIN EXCAVATION
0	CY	STRUCTURE EXCAVATION
235	CY	COFFERDAM EXCAVATION, EARTH
10	CY	COFFERDAM EXCAVATION, ROCK
790	**CY**	**TOTAL MATERIAL AVAILABLE FOR FILL**
3.1	CY	TOTAL FILL INCLUDING FACTOR
790	CY	TOTAL MATERIAL FOR FILL
0	CY	BORROW
786.9	CY	EXCESS EXCAVATION

REVISION	DESCRIPTION	DATE
REVISION #1	RUNNER PLANK THICKNESS CHANGE	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

FILE NAME: z12e134.xls
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
QUANTITY SHEET #1

PLOT DATE: 01/30/2014
DRAWN BY: S. MORGAN
CHECKED BY: S. KELLER
SHEET 9 OF 70

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
	520				520		HR	EMPLOYEE TRAINEESHIP	634.10				
1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
1					1		LS	TRAFFIC CONTROL	641.10				
143					143		LF	4 INCH YELLOW LINE	646.21				
12					12		EACH	LETTER OR SYMBOL	646.30				
360					360		SY	GEOTEXTILE FOR ROADBED SEPARATOR	649.11				
110			80		190		SY	GEOTEXTILE UNDER STONE FILL	649.31				
		75			75		SY	GEOTEXTILE FOR SILT FENCE	649.51				
		290			290		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
		3			3		LB	SEED	651.15				
		1			1		LB	SEED, WINTER RYE	651.17				
		20			20		LB	FERTILIZER	651.18				
		0.1			0.1		TON	AGRICULTURAL LIMESTONE	651.20				
		0.1			0.1		TON	HAY MULCH	651.25				
20					20		CY	TOPSOIL	651.35				
		1			1		LS	EPSC PLAN	652.10				
		70			70		HR	MONITORING EPSC PLAN	652.20				
		1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
		2			2		EACH	FILTER BAG	653.45				
		260			260		LF	PROJECT DEMARCATION FENCE	653.55				
55.6					55.6		SF	TRAFFIC SIGNS, TYPE A	675.20				
112.2					112.2		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
12					12		EACH	REMOVING SIGNS	675.50				
10					10		CY	SPECIAL PROVISION (AGGREGATE SURFACE COURSE, SIDEWALK/TRAIL)	900.608				
			32		32		EACH	SPECIAL PROVISION (BEARING DEVICE ASSEMBLY, FLOATING BRIDGE)	900.620				
4					4		EACH	SPECIAL PROVISION (GRANITE BOLLARD)	900.620				
			2		2		EACH	SPECIAL PROVISION (STAINLESS STEEL SHELF)	900.620				
2					2		EACH	SPECIAL PROVISION (WINTER TRAFFIC BARRIER)	900.620				
			93		93		LF	SPECIAL PROVISION (EXPANSION DEVICE, HINGED SLIDING PLATE ASSEMBLY)	900.640				
			1		1		LS	SPECIAL PROVISION (FIBER REINFORCED POLYMER PONTOONS)	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				
			7320		7320		SF	SPECIAL PROVISION (NAIL LAMINATED TIMBER DECK PANEL)	900.670				
115					115		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: z12e134.xls
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
QUANTITY SHEET #2

PLOT DATE: 11/07/2013
DRAWN BY: S. MORGAN
CHECKED BY: S. KELLER
SHEET 10 OF 70

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET

SUMMARY OF BRIDGE QUANTITIES				TOTALS	DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES		
APPROACH SLABS	ABUTMENT #1	ABUTMENT #2	SUPERSTRUCTURE	BRIDGE TOTAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
11	9			20	CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27			
42	3			45	CY	GRANULAR BACKFILL FOR STRUCTURES	204.30			
130	105			235	CY	COFFERDAM EXCAVATION, EARTH	208.30			
.	10			10	CY	COFFERDAM EXCAVATION, ROCK	208.35			
1				1	LS	COFFERDAM (ABUTMENT NO. 1)	208.40			
	1			1	LS	COFFERDAM (ABUTMENT NO. 2)	208.40			
41	18			59	CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34			
1				1	LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10			
410				410	LF	STEEL PILING, HP 12 X 74	505.16			
2				2	EACH	DYNAMIC PILE LOADING TEST	505.45			
3500	2000			5500	LB	REINFORCING STEEL, LEVEL I	507.11			
	44			44	LF	DRILLING AND GROUTING DOWELS	507.16			
2	1.5			3.5	GAL	WATER REPELLENT, SILANE	514.10			
		10.2		10.2	MFBM	STRUCTURAL LUMBER AND TIMBER, UNTREATED	522.20			
		24		24	MFBM	STRUCTURAL LUMBER AND TIMBER, TREATED	522.25			
		1		1	LS	STRUCTURAL GLUED LAMINATED TIMBER (12.3 MFBM) (BEAMS AND DIAPHRAGMS)	522.40			
		1		1	EACH	REMOVAL OF STRUCTURE (6620 SF - EST.)	529.15			
	75			75	CY	CONCRETE, CLASS C	541.30			
19	16			35	CY	STONE FILL, TYPE I	613.10			
45	35			80	SY	GEOTEXTILE UNDER STONE FILL	649.31			
		32		32	EACH	SPECIAL PROVISION (BEARING DEVICE ASSEMBLY, FLOATING BRIDGE)	900.620			
		2		2	EACH	SPECIAL PROVISION (STAINLESS STEEL SHELF)	900.620			
		93		93	LF	SPECIAL PROVISION (EXPANSION DEVICE, HINGED SLIDING PLATE ASSEMBLY)	900.640			
		1		1	LS	SPECIAL PROVISION (FIBER REINFORCED POLYMER PONTOONS)	900.645			
		7320		7320	SF	SPECIAL PROVISION (NAIL LAMINATED TIMBER DECK PANEL)	900.670			

REVISION	DESCRIPTION	DATE
REVISION #1	RUNNER PLANK THICKNESS CHANGE	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

FILE NAME: z12e134.xls
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
BRIDGE QUANTITY SHEET

PLOT DATE: 01/30/2014
DRAWN BY: S. MORGAN
CHECKED BY: S. KELLER
SHEET 11 OF 70

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

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

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

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

COMMON TOPOGRAPHIC POINT SYMBOLS

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

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

PROPOSED GEOMETRY CODES

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

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

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

ABOVE GROUND UTILITIES (AERIAL)

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

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

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

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

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

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

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

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

EXISTING FEATURES

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

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

FILE NAME: z12el34bdrlegend.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. KELLER
CONVENTIONAL SYMBOLOGY LEGEND

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS
SHEET 12 OF 70

GPS CONTROL POINTS

HVCTRL #1

189 MILE 37
NORTH = 559671.109
EAST = 1610545.674
ELEV. = 1454.003

GENERAL LOCATION, BROOKFIELD, VT.

TO REACH FROM THE VT ROUTE 66 BRIDGE OVER I-89 AT EXIT 4 IN RANDOLPH, GO NORTH ALONG I-89 NORTHBOUND FOR 6.4 MI (10.3 KM) TO THE SITE OF THE MARK ON THE LEFT, DIRECTLY OPPOSITE MILE MARKER 37.25. IT IS 5.7 MI (9.2 KM) SOUTH ALONG I-89 SOUTHBOUND FROM THE I-89 BRIDGES OVER VT ROUTE 64 AT EXIT 5 IN WILLIAMSTOWN.

THE MARK IS SET FLUSH WITH THE GROUND SURFACE IN THE TOP OF A MASSIVE ROCK OUTCROP.

IT IS 12.4 M (40.7 FT) WEST-NORTHWEST OF AND ABOUT 0.5 M (1.6 FT) HIGHER THAN THE I-89 NORTHBOUND WEST-NORTHWEST EDGE OF PAVEMENT, 35.4 M (116.1 FT) SOUTH OF A 20 CM (8 INCH) FIR WITH TRIANGULAR BLAZE, 15.9 M (52.2 FT) EAST-SOUTHEAST OF A 25 CM (10 INCH) CHERRY WITH TRIANGULAR BLAZE, 15.6 M (51.2 FT) NORTHEAST OF A 20 CM (8 INCH) BIRCH WITH TRIANGULAR BLAZE AND 2.7 M (8.9 FT) NORTHWEST OF A FIBERGLASS WITNESS POST.

HVCTRL #2

189 MILE 37 AZ MK
NORTH = 565959.350
EAST = 1613008.773
ELEV. = 1495.242

GENERAL LOCATION, BROOKFIELD, VT.

TO REACH FROM THE VT ROUTE 66 BRIDGE OVER I-89 AT EXIT 4 IN RANDOLPH, GO NORTH ALONG I-89 NORTHBOUND FOR 7.7 MI (12.4 KM) TO A PROMINENT QUARTZ ROCK OUTCROP ON THE RIGHT AND THE SITE OF THE MARK ON THE RIGHT, JUST SOUTH OF THE OUTCROP AND BETWEEN MILE MARKERS 38.50 AND 38.55. IT IS 4.5 MI (7.2 KM) SOUTH ALONG I-89 SOUTHBOUND FROM THE I-89 BRIDGES OVER VT ROUTE 64 AT EXIT 5 IN WILLIAMSTOWN.

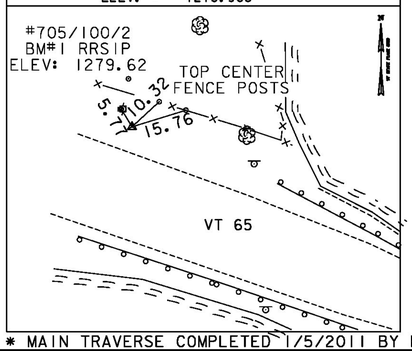
THE MARK IS SET FLUSH WITH THE GROUND SURFACE IN THE TOP OF A 0.6 M (2.0 FT) X 0.5 M (1.6 FT) ROCK OUTCROP.

IT IS 12.1 M (39.7 FT) EAST OF AND ABOUT 0.3 M (1.0 FT) HIGHER THAN THE I-89 NORTHBOUND EAST EDGE OF PAVEMENT, 2.6 M (8.5 FT) SOUTH-SOUTHEAST OF THE SOUTH END OF THE QUARTZ OUTCROP, 33.4 M (109.6 FT) SOUTH OF MILE MARKER 38.55, 23.3 M (76.4 FT) SOUTH-SOUTHWEST OF A 40 CM (16 INCH) PINE WITH TRIANGULAR BLAZE, 11.7 M (38.4 FT) WEST-NORTHWEST OF THE INTERSTATE RIGHT-OF-WAY FENCE AND 0.9 M (3.0 FT) WEST-NORTHWEST OF A FIBERGLASS WITNESS POST.

TRAVERSE TIES

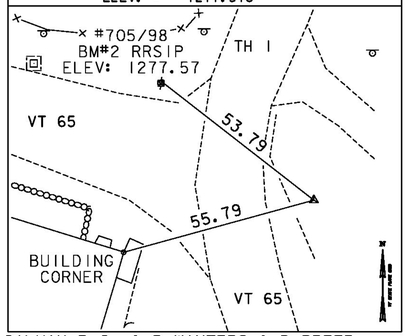
HVCTRL #5

NORTH = 562347.936
EAST = 1612662.418
ELEV. = 1278.908



HVCTRL #6

NORTH = 562125.952
EAST = 1613216.454
ELEV. = 1277.518

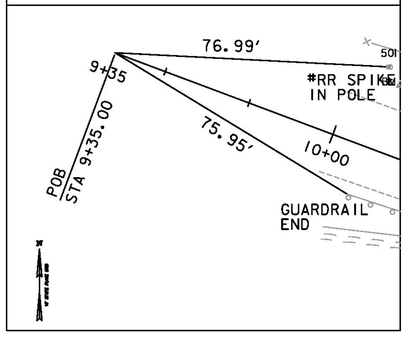


* MAIN TRAVERSE COMPLETED 1/5/2011 BY R.GILMAN P.C. & P.WINTERS & D.BREER

ALIGNMENT TIES

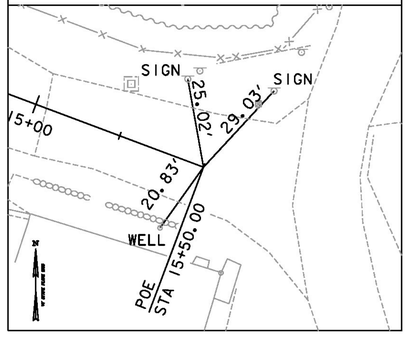
POB 9+35.00

NORTH = 562356.836
EAST = 1612582.525



POE 15+50.00

NORTH = 562140.906
EAST = 1613158.371



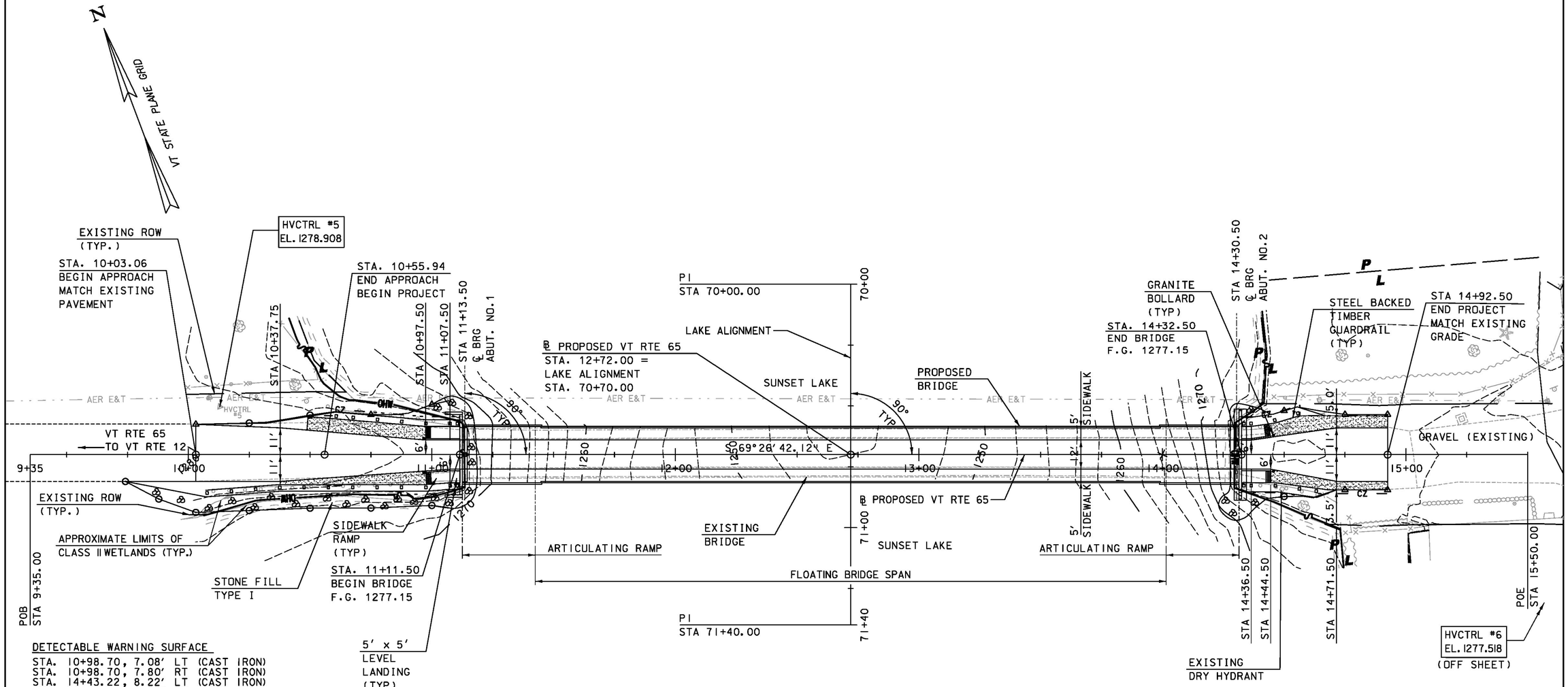
DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)
ADJUSTMENT COMPASS

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: z12el34bdr_t1.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
TIE SHEET

PLOT DATE: 12/3/2013
DRAWN BY: B. CARTER
CHECKED BY: K. DUCHARME
SHEET 13 OF 70



DETECTABLE WARNING SURFACE

STA. 10+98.70, 7.08' LT (CAST IRON)
STA. 10+98.70, 7.80' RT (CAST IRON)
STA. 14+43.22, 8.22' LT (CAST IRON)
STA. 14+43.30, 7.08' RT (CAST IRON)

SPECIAL PROVISION (GRANITE BOLLARD)

STA. 10+96.61, 6.69' LT
STA. 10+96.61, 7.39' RT
STA. 14+45.66, 7.95' LT
STA. 14+45.66, 6.86 'RT

LEGEND:

SPECIAL PROVISION (AGGREGATE SURFACE COURSE, SIDEWALK/TRAIL)

EXISTING BRIDGE DATA
YEAR BUILT 1978
TIMBER DECK ON PLASTIC FOAM FILLED FLOATS
OVERALL LENGTH = 320 FT
DECK WIDTH = 18 FT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH

STA. 10+97.50, LT TO STA. 11+11.50, LT
STA. 10+97.50, RT TO STA. 11+11.50, RT
STA. 14+32.50, LT TO STA. 14+44.40, LT
STA. 14+32.50, RT TO STA. 14+44.50, RT

SPECIAL PROVISION (AGGREGATE SURFACE COURSE, SIDEWALK/TRAIL)

STA. 10+37.75, RT TO STA. 10+97.88, RT
STA. 10+48.69, LT TO STA. 10+97.50, LT
STA. 14+43.64, LT TO STA. 14+92.50, LT
STA. 14+44.50, RT TO STA. 14+92.50, RT

VERTICAL GRANITE CURB*

STA. 10+95, LT TO STA. 11+10, LT
STA. 10+95, RT TO STA. 11+10, RT
STA. 14+30, LT TO STA. 14+55, LT
STA. 14+30, RT TO STA. 14+55, RT

* VERTICAL GRANITE CURB IS TALLER THAN STANDARD. SEE DETAILS ON ROADWAY TYPICAL SECTIONS.

LAYOUT

STEEL BACKED TIMBER GUARDRAIL

STA. 10+07.68, RT TO STA. 11+12.00, RT
STA. 10+60.13, LT TO STA. 11+12.00, LT
STA. 14+32.00, RT TO STA. 14+63.85, RT
STA. 14+32.00, LT TO STA. 14+56.45, LT

REMOVAL AND DISPOSAL OF GUARDRAIL

STA. 10+10, RT TO STA. 11+10, RT
STA. 10+55, LT TO STA. 11+10, LT
STA. 14+30, LT TO STA. 14+50, LT
STA. 14+30, RT TO STA. 14+70 RT

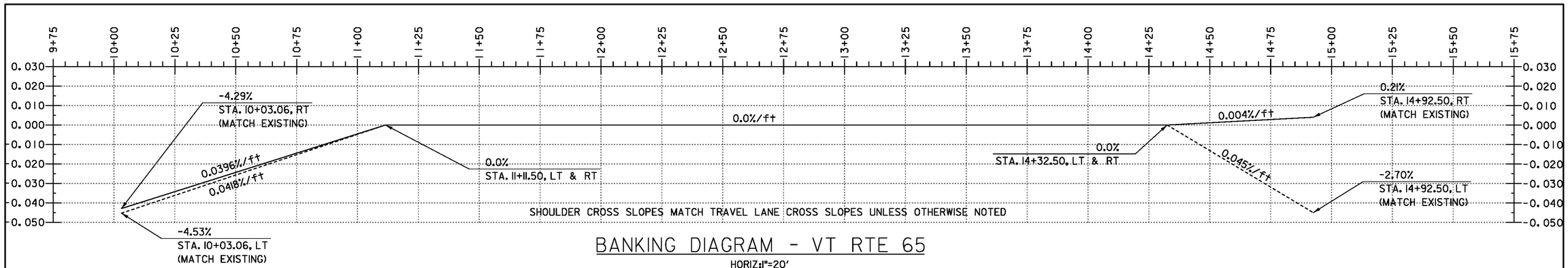
SCALE 1" = 20'-0"
20 0 20

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

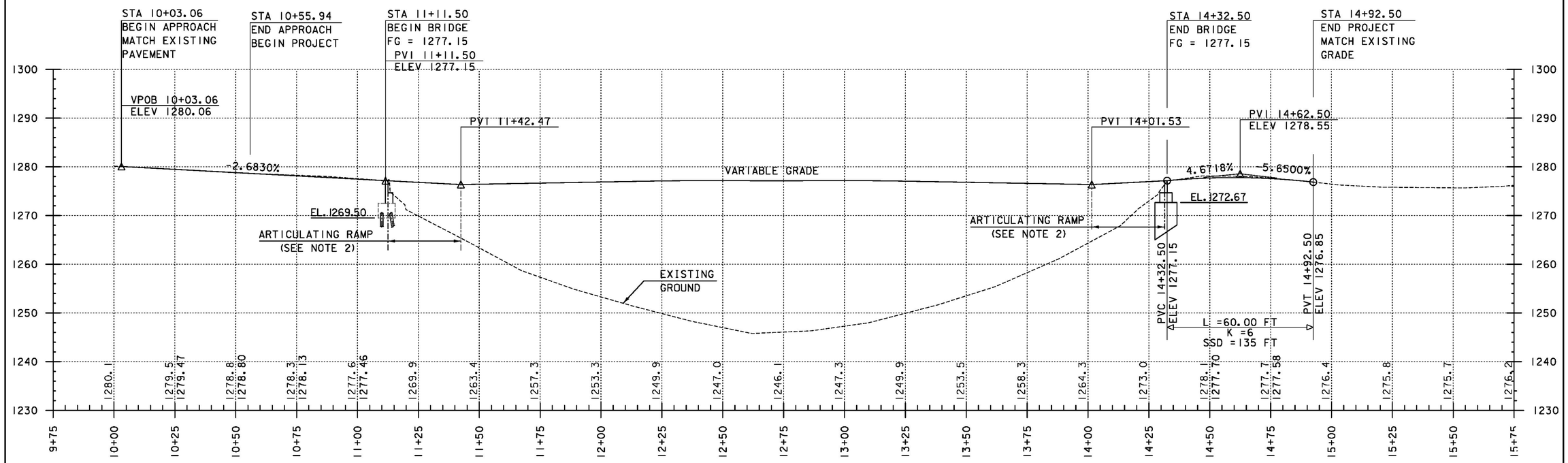
FILE NAME: z12el34bdr_nul.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
LAYOUT SHEET

PLOT DATE: 12/3/2013
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 14 OF 70



BANKING DIAGRAM - VT RTE 65

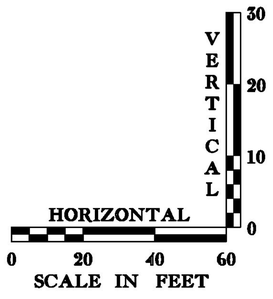
HORIZ:1"=20'
NO VERTICAL SCALE



NOTES:

1. PGL ELEVATIONS ALONG SUPERSTRUCTURE ARE DEPENDENT ON WATER ELEVATION AND SUPERSTRUCTURE MATERIAL PROPERTIES, THEREFORE THESE VALUES ARE NOT LABELED ON THE PROFILE.
2. DUE TO THE VARIABILITY OF WATER SURFACE ELEVATION AND SUPERSTRUCTURE MATERIAL PROPERTIES THE SLOPES OF THE ARTICULATING RAMPS WILL VARY.
3. THE GRADES SHOWN TO THE NEAREST TENTH ARE THE EXISTING GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.
4. THE GRADES SHOWN TO THE NEAREST HUNDRETH ARE THE PROPOSED GRADES FOR THE NEW ALIGNMENT AT NORMAL WATER ELEVATION.

PROFILE - VT RTE 65

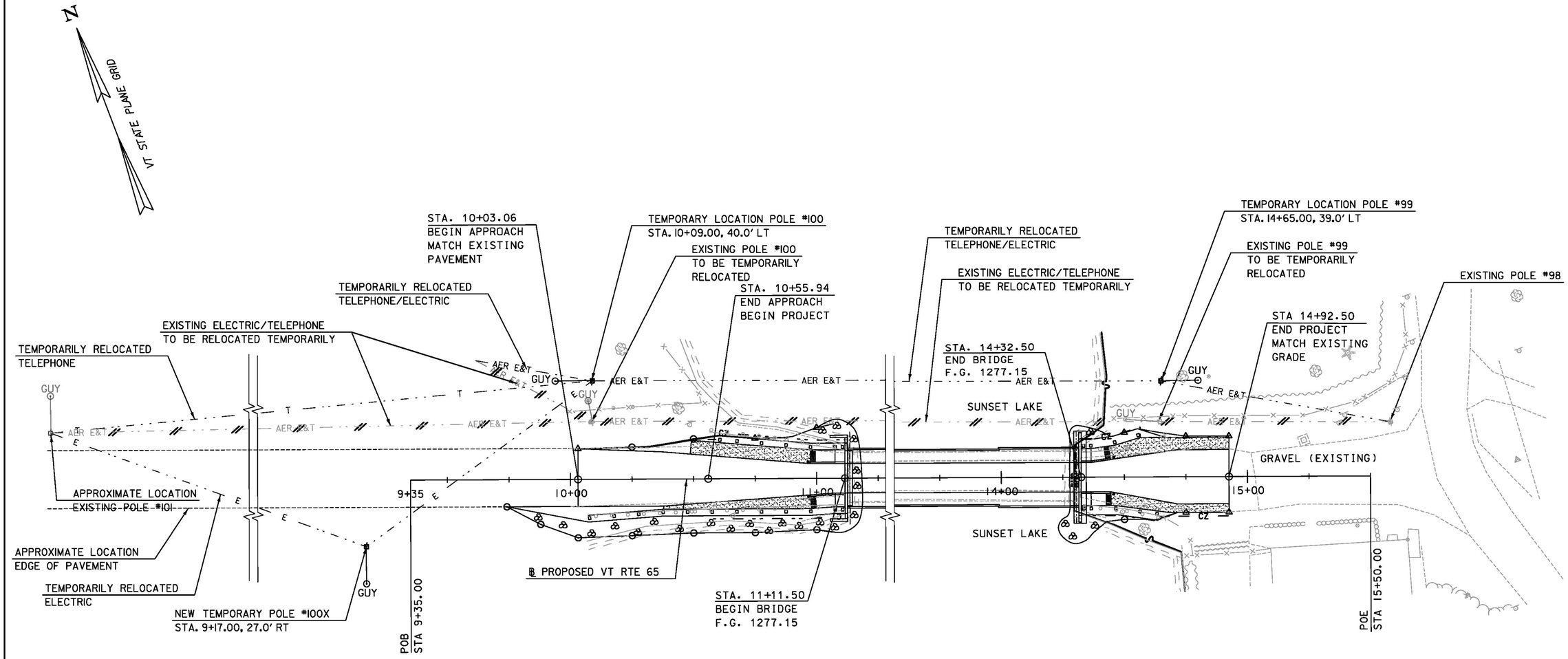


PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

FILE NAME: z12el34bdr_pro.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
PROFILE SHEET

PLOT DATE: 12/3/2013
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 15 OF 70



UTILITY RELOCATION PLAN

LEGEND:

- T — TELEPHONE
- E — ELECTRIC
- AER E&T — ELECTRIC/TELEPHONE
- AER E&T — ELECTRIC/TELEPHONE TO BE RELOCATED

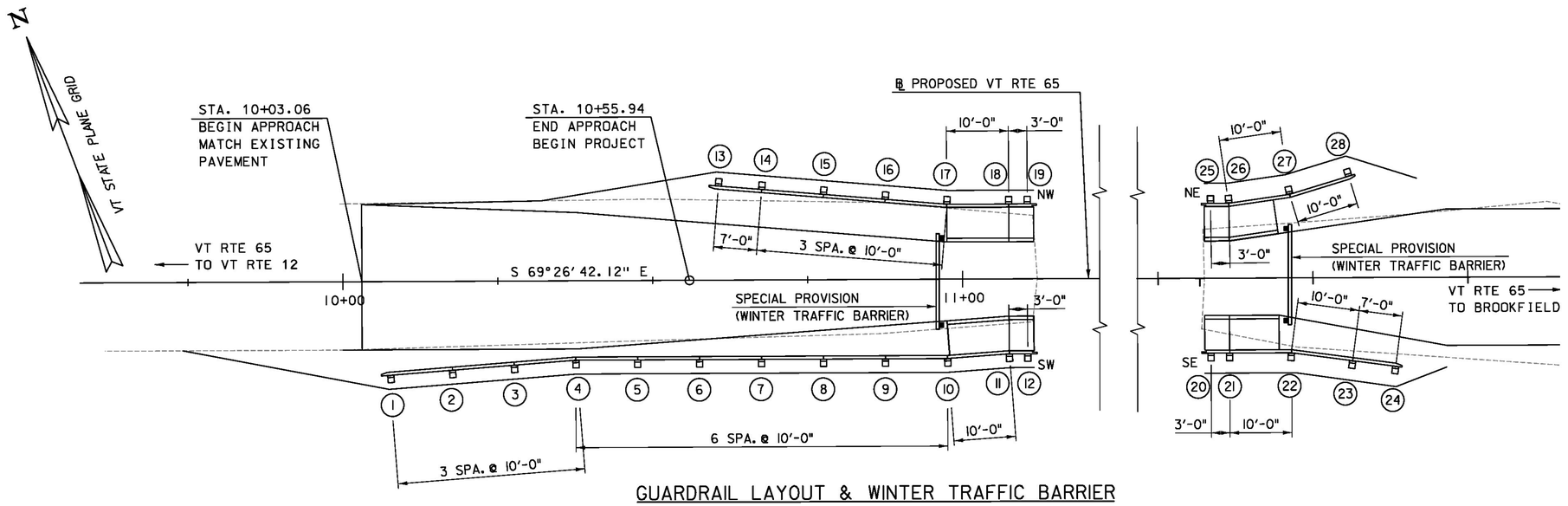
SCALE 1" = 20'-0"
20 0 20

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: zl2el34bdr_nul_utl.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
UTILITY RELOCATION PLAN

PLOT DATE: 12/3/2013
DRAWN BY: P. MCCLURE
CHECKED BY: D. BRYANT
SHEET 16 OF 70

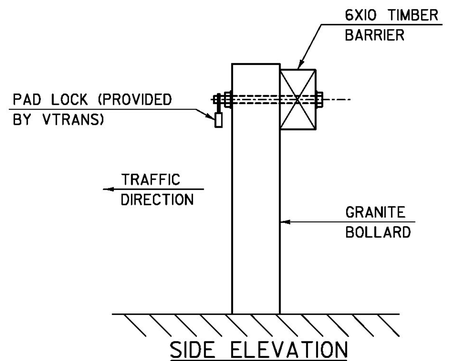


GUARDRAIL LAYOUT & WINTER TRAFFIC BARRIER

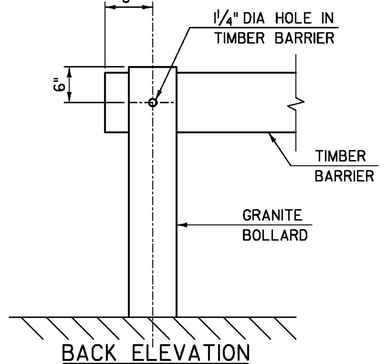
POST LOCATION		
POST NO.	STATION	OFFSET
1	STA. 10+07.68	15.50 RT
2	STA. 10+17.65	14.73 RT
3	STA. 10+27.62	13.96 RT
4	STA. 10+37.56	13.21 RT
5	STA. 10+47.53	13.20 RT
6	STA. 10+57.53	13.20 RT
7	STA. 10+67.53	13.20 RT
8	STA. 10+77.53	13.20 RT
9	STA. 10+87.53	13.20 RT
10	STA. 10+97.56	13.20 RT
11	STA. 11+07.53	12.50 RT
12	STA. 11+10.50	12.50 RT
13	STA. 10+60.71	15.58 LT
14	STA. 10+67.68	15.00 LT
15	STA. 10+77.65	14.15 LT
16	STA. 10+87.61	13.31 LT
17	STA. 10+97.54	12.50 LT
18	STA. 11+07.53	12.48 LT
19	STA. 11+10.50	12.48 LT
20	STA. 14+33.50	12.48 RT
21	STA. 14+36.50	12.48 RT
22	STA. 14+46.44	12.51 RT
23	STA. 14+56.29	13.80 RT
24	STA. 14+63.23	14.73 RT
25	STA. 14+33.46	12.48 LT
26	STA. 14+36.44	12.51 LT
27	STA. 14+46.20	13.91 LT
28	STA. 14+55.71	16.75 LT

TIMBER GUARDRAIL NOTES

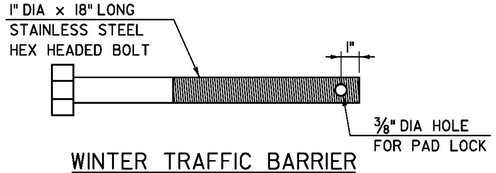
1. WOOD POSTS, OFFSET BLOCKS AND TIMBER RAIL SHALL CONFORM TO SUBSECTION 728.01.
2. STEEL SPLICE PLATES SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH THE REQUIREMENTS OF AASHTO M111M / M111 AND CONFORM TO THE REQUIREMENTS OF AASHTO M270M / M270, GRADE 36.
3. MISCELLANEOUS HARDWARE AND FITTINGS SUCH AS BOLTS, NUTS, AND WASHERS SHALL CONFORM TO THE DIMENSIONS SHOWN.
4. BOLTS, NUTS, AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 728.03(c) (1)-(2).
5. LAG SCREWS SHALL BE OF LOW TO MEDIUM CARBON STEEL AND SHALL BE OF GOOD COMMERCIAL QUALITY.
6. DELINEATORS SHALL BE A 3 INCH BY 1.5 INCH RETROREFLECTIVE ALUMINUM STRIP ATTACHED WITH TWO 4D GALVANIZED NAILS. DELINEATORS SHALL BE PLACED APPROXIMATELY 10 FEET APART, CENTERED VERTICALLY ALONG THE FACE OF THE TIMBER RAIL, AND CLEARLY VISIBLE TO APPROACHING TRAFFIC. RETROREFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 751.03 AND SHALL BE OF ENCAPSULATED LENS SILVER. PAYMENT SHALL BE INCIDENTAL TO ITEM 621.18.
7. STEEL-BACKED TIMBER GUARDRAIL LAYOUT DIMENSIONS ARE PROVIDED AT THE FRONT SURFACE OF THE ROUGH SAWN TIMBER RAIL AT THE CENTERLINE OF THE POST.
8. POST LAYOUT LOCATIONS ARE PROVIDED AT THE FACE OF POST AT THE CENTERLINE OF THE POST.
9. REFER TO TIMBER GUARDRAIL DETAILS SHEETS FOR STEEL-BACKED TIMBER GUARDRAIL DETAILS.
10. THE FINAL GUARDRAIL LOCATION SHALL BE FIELD VERIFIED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER PRIOR TO CONSTRUCTION. ALL COST ASSOCIATED WITH VERIFYING THE GUARDRAIL LAYOUT SHALL BE INCLUDED IN ITEM 621.18.
11. ALL COSTS ASSOCIATED WITH THE CONCRETE ANCHORS FOR SHORT GUARDRAIL POSTS ON THE TIMBER GUARDRAIL DETAILS-2 SHEET (IF NEEDED), SHALL BE INCUDED IN THE UNIT PRICE BID FOR ITEM 621.18, STEEL BACKED TIMBER GUARDR



SIDE ELEVATION



BACK ELEVATION



WINTER TRAFFIC BARRIER

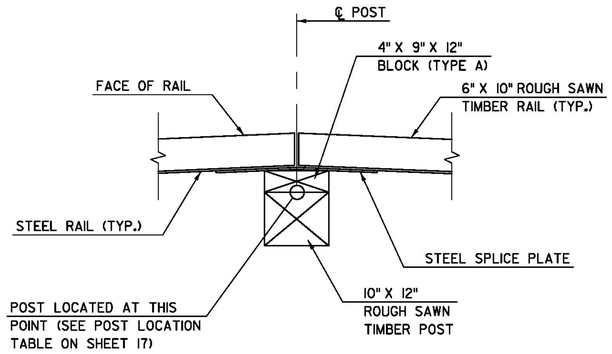
SCALE 1" = 10'-0"
10 0 10

TYLIN INTERNATIONAL

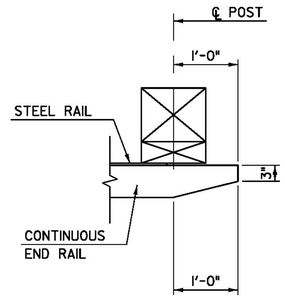
PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: z12e134bdr_grl.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
GUARDRAIL LAYOUT SHEET

PLOT DATE: 12/3/2013
DRAWN BY: P. MCCLURE
CHECKED BY: D. BRYANT
SHEET 17 OF 70

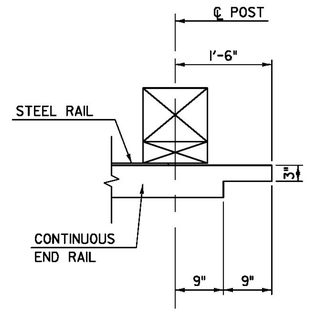


POST DETAIL



RAILING DETAIL - APPROACH ENDS

PLAN DETAIL FOR RAIL AT POSTS 1, 13, 24 & 28

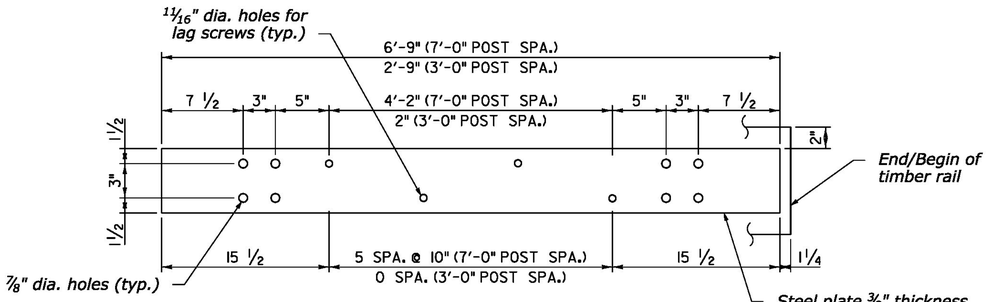


RAILING DETAIL
AT BRIDGE RAIL INTERFACE

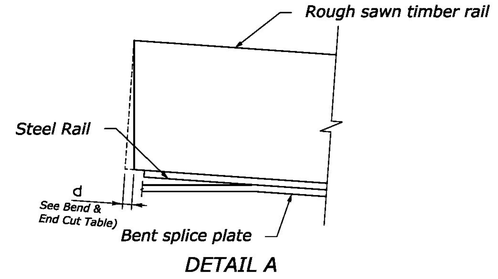
PLAN DETAIL FOR RAIL AT POSTS 12, 19, 20 & 25

NOTE:

1. *Furnish shop bent splice plates. Use the minimum bend angle shown in the table below.*
2. *See Guardrail Layout Sheet for Plan View.*

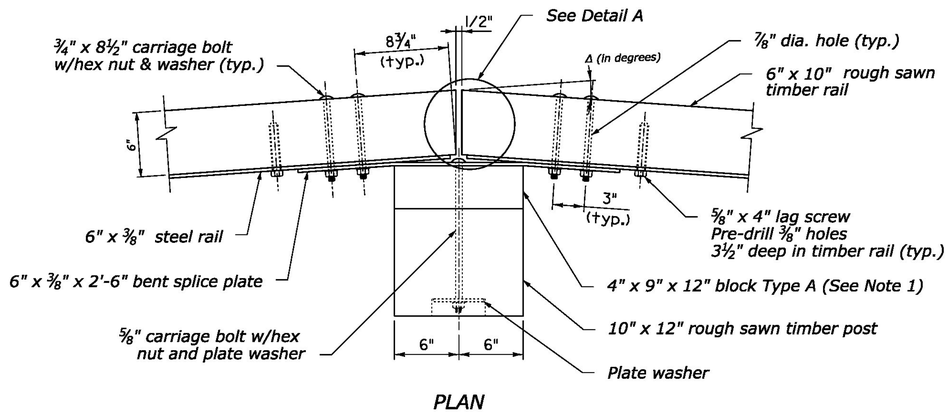


STEEL RAIL

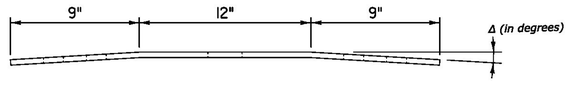


DETAIL A

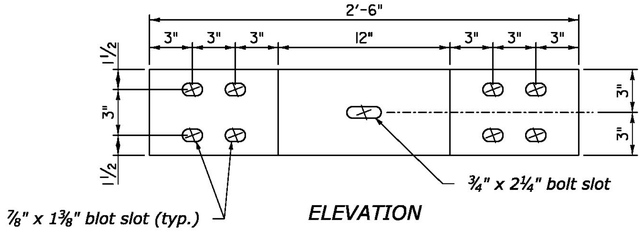
BEND AND END CUT TABLE			
POST #	*BEND TYPE*	*Δ degrees*	*d in*
4	*CONVEX*	*2.21*	*1/4*
10	*CONCAVE*	*2.05*	*3/16*
11	*CONVEX*	*2.05*	*3/16*
17	*CONVEX*	*2.41*	*1/4*
22	*CONVEX*	*3.81*	*3/8*
26	*CONVEX*	*4.07*	*7/16*
27	*CONVEX*	*4.34*	*7/16*



PLAN



PLAN



ELEVATION

BENT SPLICE PLATE

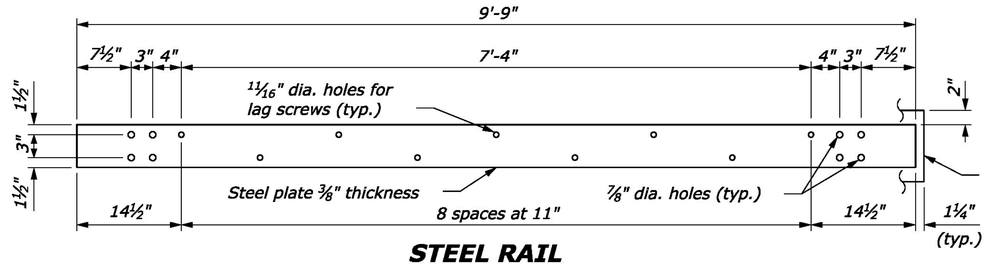
6" x 3/8" x 2'-6"

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: z12el34bdr_grl_detsl.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
TIMBER GUARDRAIL DETAILS - 1

PLOT DATE: 12/3/2013
DRAWN BY: P. MCCLURE
CHECKED BY: D. BRYANT
SHEET 18 OF 70



STEEL RAIL

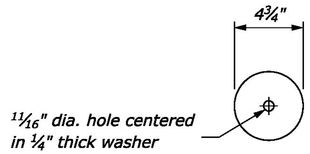
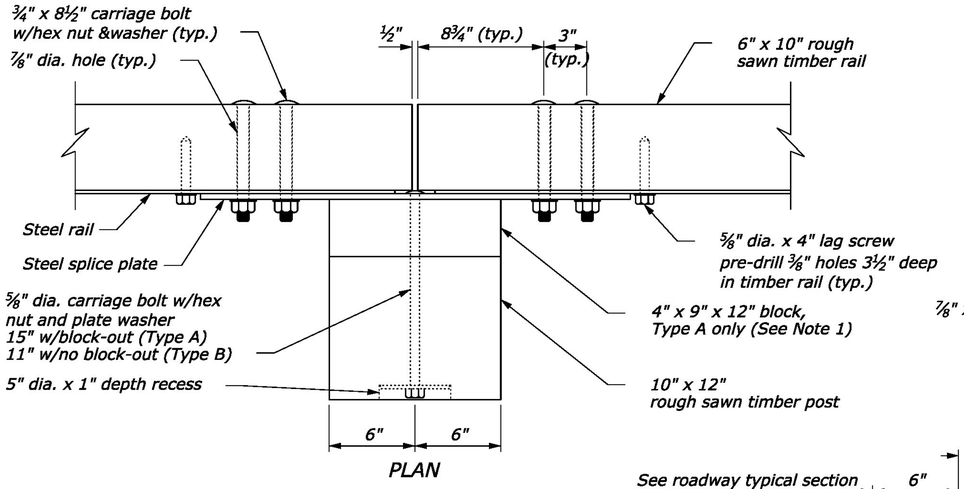
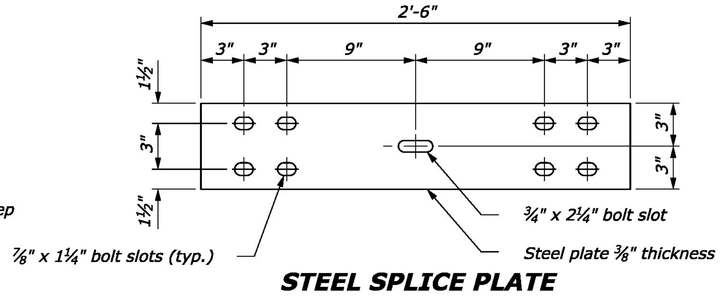


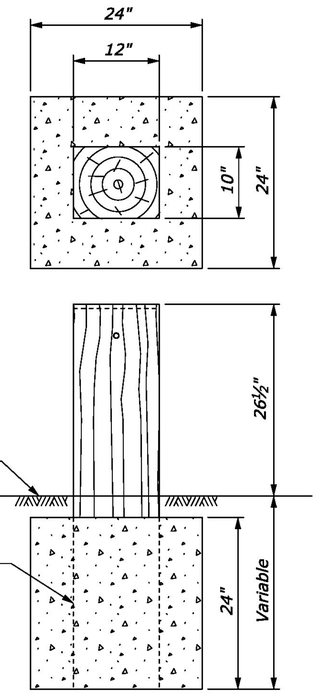
PLATE WASHER



PLAN

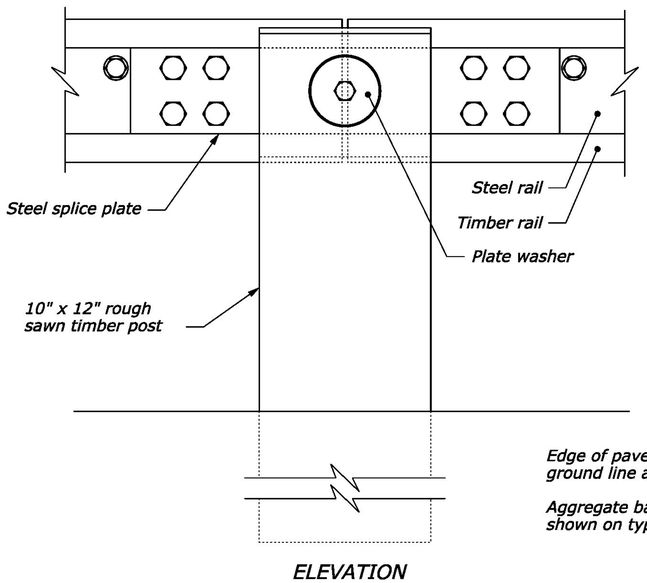


STEEL SPLICE PLATE



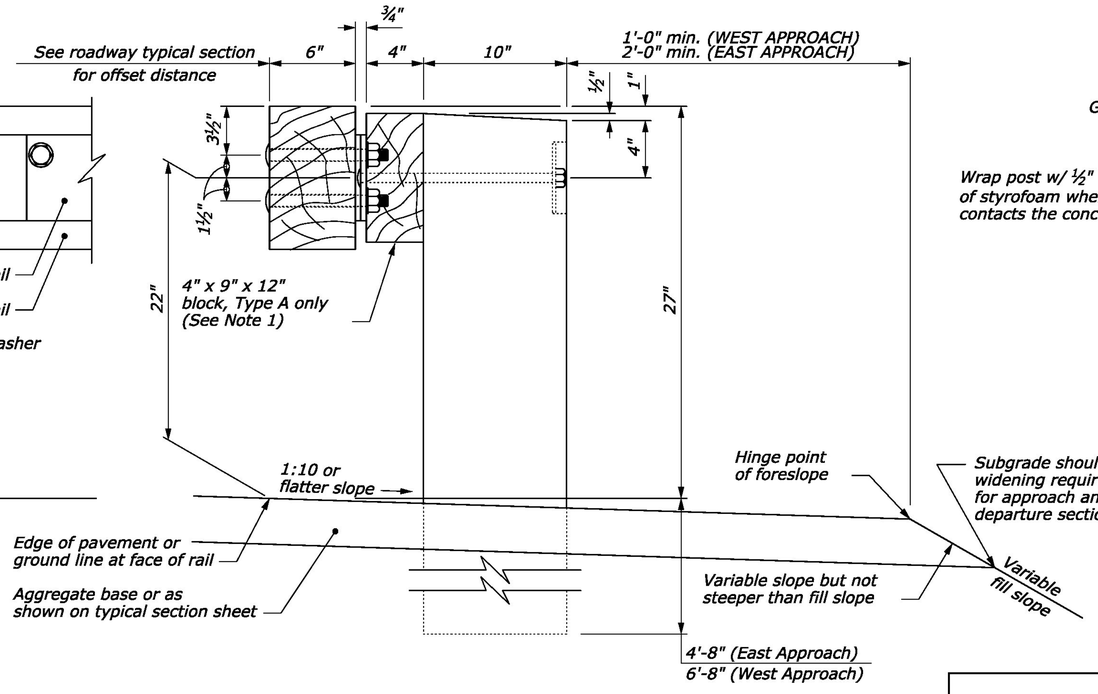
24" dia. round anchor is an acceptable alternative.
Reduced size acceptable in solid rock.

CONCRETE ANCHOR FOR SHORT GUARDRAIL POST



ELEVATION

POST CONNECTION



TYPICAL GUARDRAIL CROSS SECTION

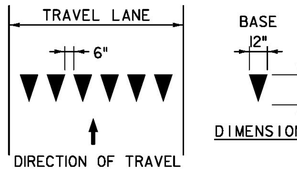
STEEL-BACKED TIMBER GUARDRAIL TYPE A & TYPE B

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TY LIN INTERNATIONAL

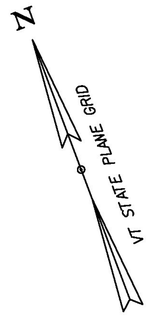
FILE NAME: z12el34bdr_grl_dets2.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
TIMBER GUARDRAIL DETAILS - 2

PLOT DATE: 12/3/2013
DRAWN BY: P. MCCLURE
CHECKED BY: D. BRYANT
SHEET 19 OF 70



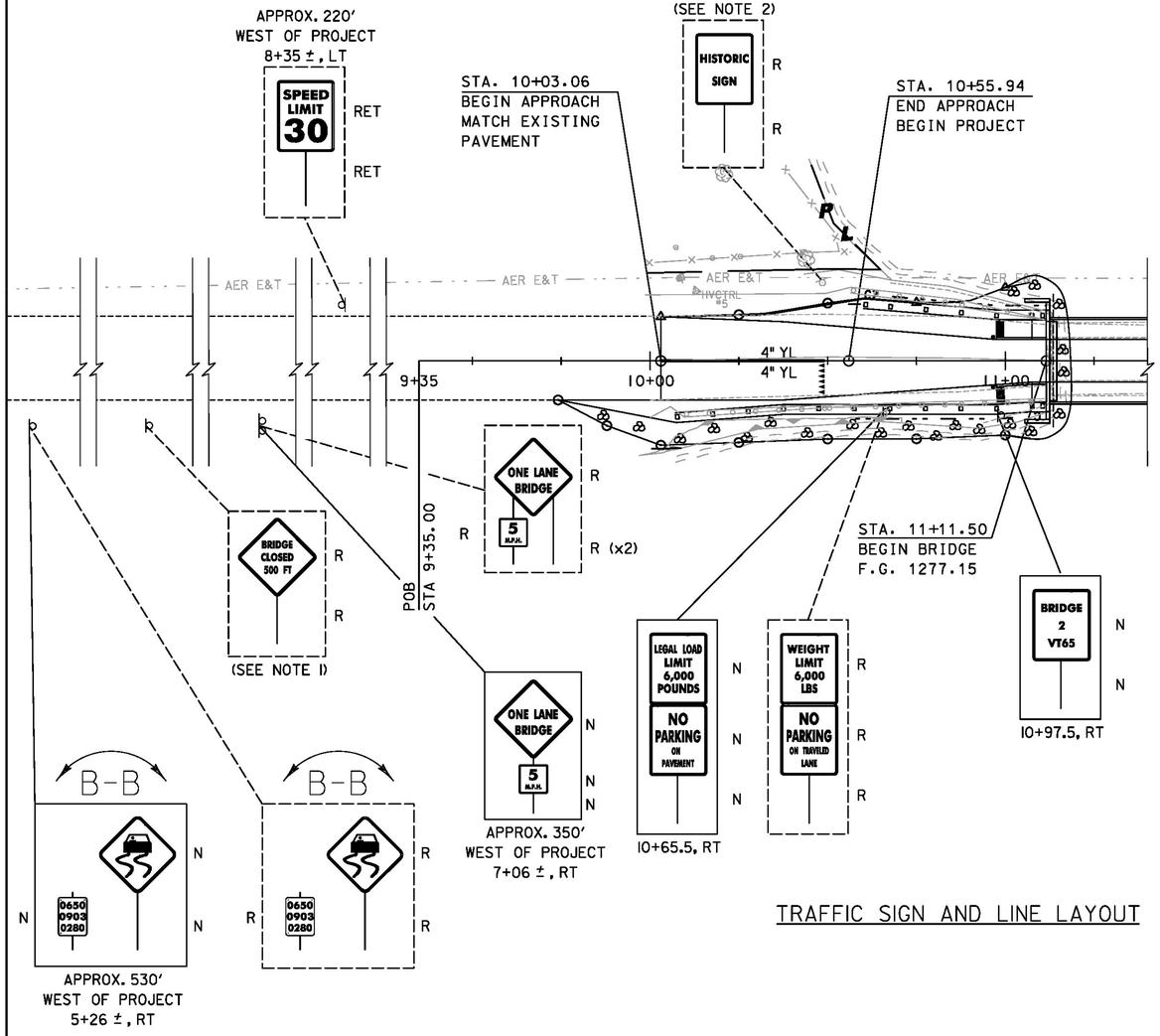
REMOVING SIGNS

STA 5+26±, RT (x2)
STA 6+26±, RT
STA 7+06±, RT (x2)
STA 10+48, LT
STA 10+65.5, RT (x2)
STA 14+51.5, LT
STA 14+65.5, LT
STA 15+39.5, LT
68.00'± SOUTH EAST OF INTERSECTION, RT

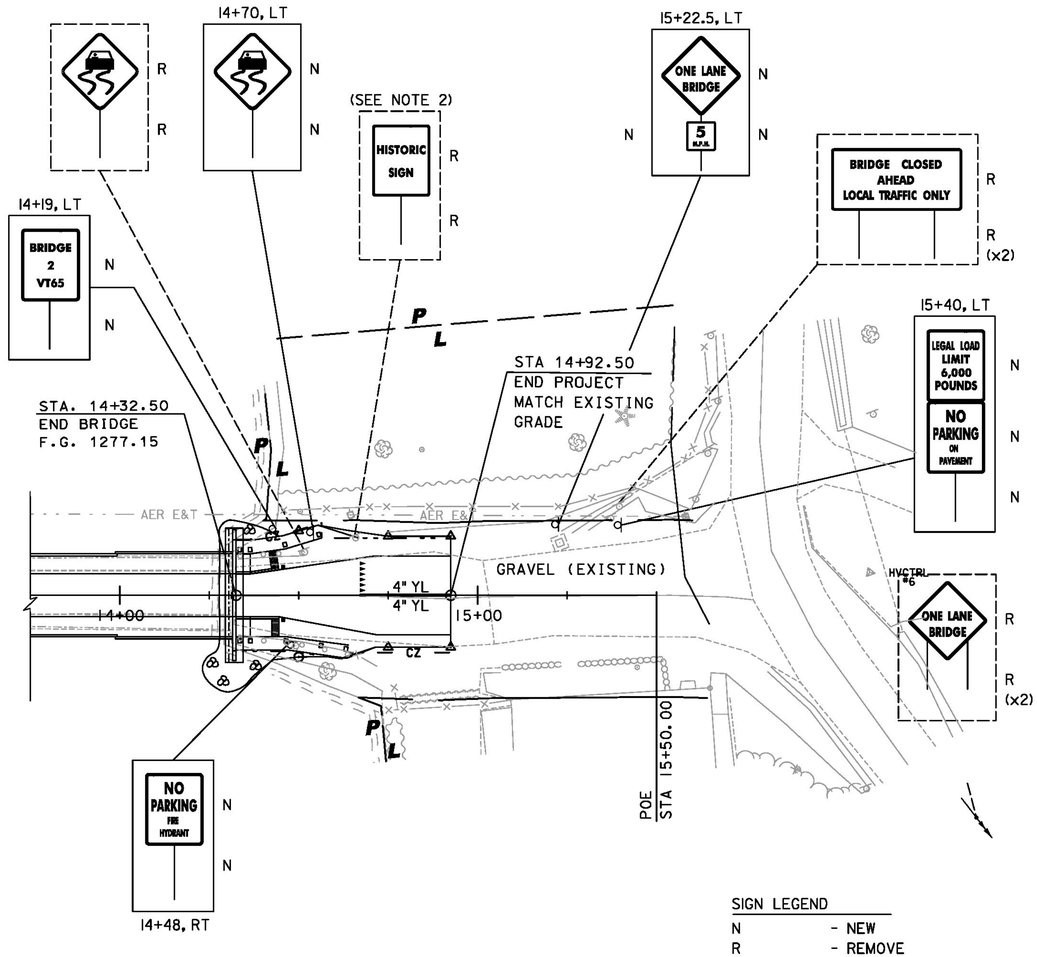


YIELD LINE LAYOUT

NOTE: TRIANGLES WILL BE PAID AS 6 EACH UNDER CONTRACT ITEM 646.30



TRAFFIC SIGN AND LINE LAYOUT



SIGN LEGEND

N	- NEW
R	- REMOVE
RET	- RETAIN
R & S	- REMOVE AND SALVAGE
▭	- EXISTING ASSEMBLY
▭	- PROPOSED ASSEMBLY

NOTES:

1. EXISTING CONSTRUCTION SIGNS SHALL BE REMOVED AFTER PROJECT IS COMPLETED. TO BE PAID FOR UNDER TRAFFIC CONTROL ITEM 641.10. SEE "PROJECT NOTES 1" SHEET FOR MORE INFORMATION.
2. EXISTING HISTORIC SIGN SHALL BE REMOVED BY CONTRACTOR AND OWNERSHIP TRANSFERRED TO VTRANS HISTORIC PRESERVATION OFFICER SCOTT NEWMAN BY CALLING (802) 595-5119. COST FOR DELIVERY AND COORDINATION WITH THE HISTORIC PRESERVATION OFFICER SHALL BE PAID UNDER ITEM 675.50.

4 INCH YELLOW LINE

STA. 10+03.06 - 10+49 (DOUBLE CENTERLINE)
STA. 14+67 - 14+92.50 (DOUBLE CENTERLINE)

LETTER OR SYMBOL

STA. 10+49, RT (X 6)
STA. 14+67, LT (X 6)

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

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: z12el34bdr_nul_sign.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
TRAFFIC SIGNS AND LINES LAYOUT

PLOT DATE: 12/3/2013
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 20 OF 70

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (In)	HEIGHT (In)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NO. OF POSTS	NEW SIGN POSTS: FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (In) 1.75 lb/ft 1.88	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (In) 3.0 lb/ft 1.3	4.0 lb/ft 1.7	4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (In) FOUNDATION	3.0 lb/ft 7.6	3.5 lb/ft 9.0	4.0 lb/ft 10.8	5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN REMAINED REQUIRED	REMARKS	SIGN DETAIL: DETAIL IN SHSM	DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
												OPTION ITEMS																											
APPROX. 530 FT WEST OF PROJECT, RT 5+26 ±		1	30	30	6.25						1					16' X		1															W8-5	X		
		1	6	10	0.42																												VD-700			E-138
APPROX. 350 FT WEST OF PROJECT, RT 7+06 ±		1	30	30	6.25						1					16.5' X		1															W5-3	X		
		1	18	18	2.25																												W13-1P	X		
10+65.5, RT		1	24	30	5						1					16' X		1															VR-017•			E-141
		1	24	30	5																												R8-1	X		
14+48, RT		1	24	30	5						1					13' X		1															R8-1•	X		
14+70, LT		1	30	30	6.25						1					~~X~~		~~1~~															W8-5	X		
15+22.5, LT		1	30	30	6.25						1					19' X		1															W5-3	X		
		1	18	18	2.25																												W13-1P	X		
15+40, LT		1	24	30	5						1					16' X		1															VR-017•			E-141
		1	24	30	5																												R8-1	X		
10+97.5, RT		1	6	8	0.33						1					6.5' X		1															VD-701			E-134
14+19, LT		1	6	8	0.33						1					6.5' X		1															VD-701			E-134
												FT	FT	FT	FT	FT 112.16	FT	EA	LB	LB	LB		LB	LB	LB	LB	EA.	EA.	LB						
	TOTALS				SF 55.58	SF	EA.	SF				FT			FT 112.16				LB			EA.	LB													

*MODIFIED TEXT
"SHSM" = STANDARD HIGHWAY SIGNS AND MARKINGS BOOK
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."

T.Y. LIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: z12el34bdr_signsum.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
TRAFFIC SIGN SUMMARY SHEET

PLOT DATE: 12/3/2013
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 21 OF 70

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.

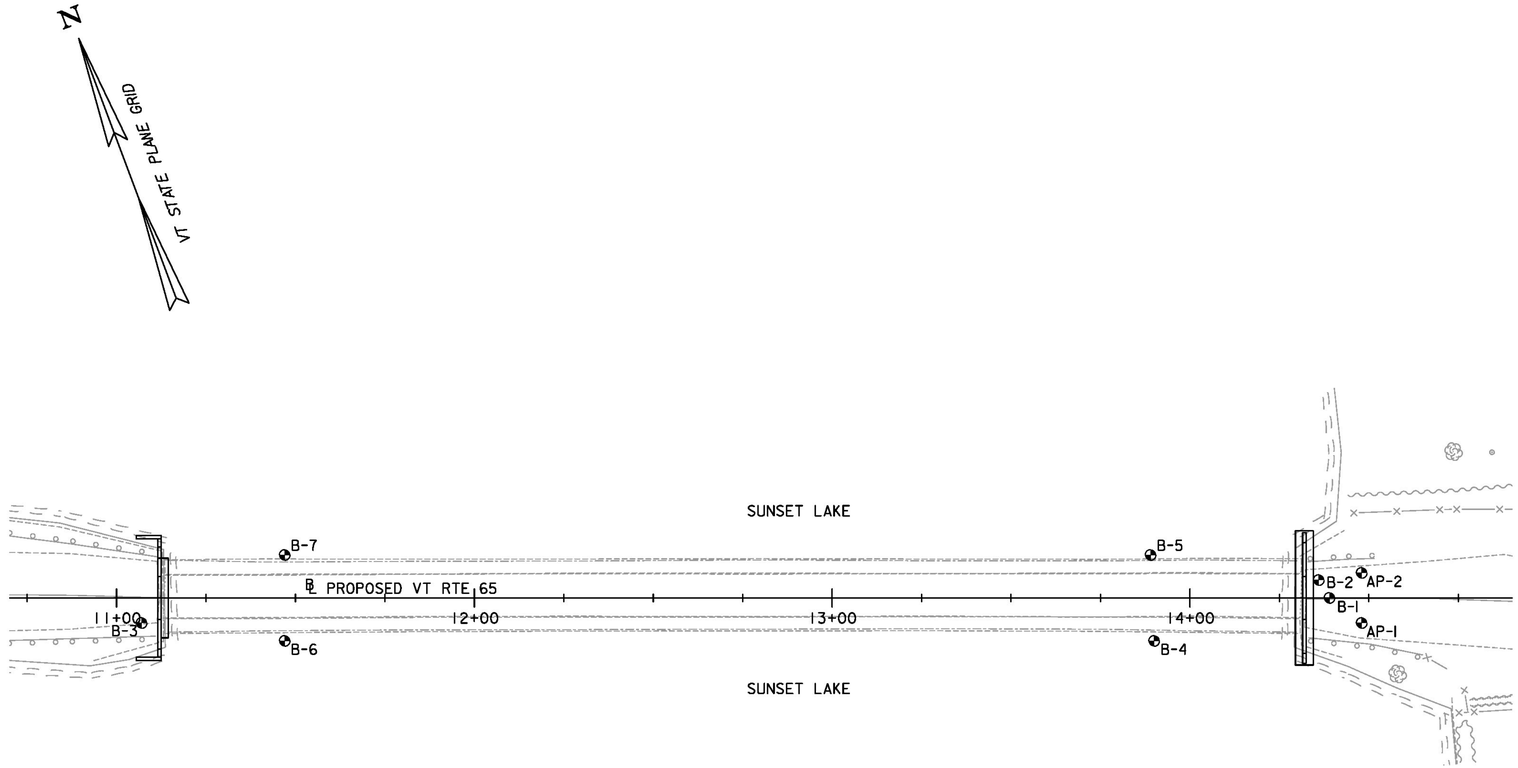
MUCK - Soft organic soil (containing > 10% organic material.

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" = 20'-0"

20 0 20

GENERAL NOTES

1. The subsurface explorations shown herein were made between July 30, 2012 and February 25, 2013 by GeoDesign Inc.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by GeoDesign Inc. 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 CHART

HOLE NO.	STATION	OFFSET	NORTHING	EASTING	GROUND ELEVATION	ELEVATION TLOB
AP-1	14+48.00	7' RT	562170.00	1613060.00	1278.0	1272.5
AP-2	14+48.00	7' LT	562183.00	1613066.00	1278.0	1270.0
B-1	14+39.00	0.00	562179.00	1613055.00	1278.0	1268.5
B-2	14+36.00	5' LT	562184.00	1613057.00	1278.0	1270.2
B-3	11+07.00	7' RT	562290.00	1612740.00	1277.0	-
B-4	13+90.00	12' RT	562185.00	1613005.00	1261.5	1252.0
B-5	13+89.00	12' LT	562208.00	1613012.00	1262.0	1250.0
B-6	11+47.00	12' RT	562271.00	1612777.00	1261.0	-
B-7	11+47.00	12' LT	562294.00	1612786.00	1262.0	-

PROJECT NAME: BROOKFIELD

PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

FILE NAME: z12el34bdr_bor_inf.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING INFORMATION & LAYOUT SHEET

PLOT DATE: 12/3/2013
DRAWN BY: J. OLUND
CHECKED BY: R. HEBERT
SHEET 22 OF 70

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: AP-1
Page No.: 1 of 1
Pin No.: 12e134
Checked By: JFW

Boring Crew: J. Leonhardt (TransTech)
Date Started: 3/01/13 Date Finished: 3/01/13
VTSPG NAD83: N 562170.00 ft E 1613060.00 ft
Station: 14+48 Offset: 7' R
Ground Elevation: 1278 ft

	Casing	Sampler
Type:	AUGER	N.A.
I.D.:	3.25 in	
Hammer Wt:	N.A.	N.A.
Hammer Fall:	N.A.	N.A.
Hammer/Rod Type:		NA
Rig:	CME 45C SKID	CE = NA

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Auger probe only. No soil data obtained.					
5		Hole stopped @ 5.5 ft HSA refusal on inferred bedrock or possible boulder.					
10							
15							
20							
25							
30							
35							
40							
45							

BOTTOM OF
ABUT NO 2
EL 1272.67

Remarks:
1) Ground surface elevation, northing, easting, and stationing are estimated from concept plans provided by TY Lin dated December 17, 2012.
2) Hollow stem auger refusal at 5.5' deep on inferred bedrock or possible boulder.

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

GEOVISION BORING LOG 886-04.5 FLOATING BRIDGE VTRANS FORMAT.GPJ VERMONT AOT.GDT 5/7/13

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

T.Y.LIN INTERNATIONAL

FILE NAME: z12e134bdr_bor_log.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING LOGS I

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 23 OF 70

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: AP-2
Page No.: 1 of 1
Pin No.: 12e134
Checked By: JFW

Boring Crew: J. Leonhardt (TransTech)
Date Started: 3/01/13 Date Finished: 3/01/13
VTSPG NAD83: N 562183.00 ft E 1613066.00 ft
Station: 14+48 Offset: 7' L
Ground Elevation: 1278 ft

	Casing	Sampler
Type:	AUGER	N.A.
I.D.:	3.25 in	
Hammer Wt:	N.A.	N.A.
Hammer Fall:	N.A.	N.A.
Hammer/Rod Type:		NA
Rig:	CME 45C SKID	CE = NA

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
5		Auger probe only. No soil data obtained.					
BOTTOM OF ABUT NO 2 EL 1272.67							
10		Hole stopped @ 8.0 ft HSA refusal on inferred bedrock or possible boulder.					
15		Remarks: 1) Ground surface elevation, northing, easting, and stationing are estimated from concept plans provided by TY Lin dated December 17, 2012. 2) Hollow stem auger refusal at 8' deep on inferred bedrock or possible boulder.					
20							
25							
30							
35							
40							
45							

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

GEOSCHEM BORING LOG 888-9415 FLOATING BRIDGE VTRANS FORMAT.GPJ VTRANS.AGT.GDT 9/7/13

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

T.Y.LIN INTERNATIONAL

FILE NAME: z12e134bdr_bor_log.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING LOGS 2

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 24 OF 70

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-1
Page No.: 1 of 1
Pin No.: 12e134
Checked By: JAG

Boring Crew: H. Garrow, J.Wimett (GeoDesign)
Date Started: 7/30/12 Date Finished: 7/30/12
VTSPG NAD83: N 562179.00 ft E 1613055.00 ft
Station: 14+39 Offset: 0.00
Ground Elevation: 1278 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	1.38 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:		Auto/AWJ
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations

Date	Depth (ft)	Notes
07/30/12	2.0	Wet sample.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		S1 (0'-2'): Loose, dark brown-black fine to coarse SAND, some fine Gravel, little Silt, trace Root Fibers, trace Cinders, moist. (FILL) Rec. = 1.5 ft (AASHTO M145 Classification: A-1-b) (AASHTO M145 Classification: Visual Description (Burmister).)				2-3-5-7 (8)	7.4	47.9	42.7	9.4
						7-6-3-2 (9)	11.1	50.9	37.5	11.6
5		S2 (2'-4'): Loose, brown WOOD and fine to coarse SAND, some fine Gravel, trace (+) Silt, strong Creosote Odor and Sheen, wet. (FILL) Rec. = 0.5 ft Inferred Timber Cribbing from 2' to 2.6' (AASHTO M145 Classification: A-1-a) (AASHTO M145 Classification: Visual Description (Burmister).)				3-2-1-5 (3)				
BOTTOM OF ABUT NO 2 EL 1272.67						3-9-13-25 (22)	15.7	12.9	50.9	36.2
		S3 (4'-6'): Very loose, brown WOOD, some coarse Gravel, trace fine to coarse Sand, trace Silt, strong Creosote Odor, wet. (FILL) Rec. = 0.5 ft Inferred Timber Cribbing from 4' to 4.9' (AASHTO M145 Classification: Visual Description (Burmister).)								
10		S4 (6'-8'): Medium dense, gray fine to medium SAND and SILT, wet. (SAND & SILT) Rec. = 1.2 ft (AASHTO M145 Classification: A-4) (AASHTO M145 Classification: Visual Description (Burmister).)	C1	98 (78)	8 4 4 3 5		Top of Bedrock ● 9.5 ft			
		Inferred Weathered Rock based on casing resistance and rig chatter. (AASHTO M145 Classification: Field Note.)								
15		C1) Good quality, moderately hard, fresh with occasional slight weathering in joints, close to wide jointing, gray LIMESTONE, with a white quartzite intrusion in the bottom 6" of the sample. Strong reaction to dilute HCl.	C2	100 (100)	4 4 3 5 5					
20		C2) Excellent quality, moderately hard, fresh, gray LIMESTONE. Strong reaction to dilute HCl.								
		Hole stopped ● 19.5 ft								
25										
30										
35										
40										
45										

Remarks:
1) Drilled through wood (inferred timber cribbing) from 2' to 2.6' deep and 4' to 4.9' deep.
2) Spoon bouncing on inferred weathered bedrock at 8' deep.
3) Driller inferred weathered bedrock from 8' to 9.5' deep based on rotary casing and roller bit resistance and chatter. Roller bit refusal at 9.5' deep on top of inferred competent bedrock.
4) Consistent gray-white return water throughout coring C1. Driller increased the rotary head rate after the first foot of coring in C1.
5) Lab testing gradations reported are per AASHTO M145.
6) Northing, Easting, Ground Surface Elevation, and Stationing shown are approximations based on taped measurements made from existing features in the field by GeoDesign personnel on July 30, 2012 and MicroStation files downloaded from TY Lin's FTP site by GeoDesign personnel on August 22, 2012. Location and elevation approximations for the borehole should be considered accurate only to the degree implied by the method of borehole location used.

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

GEODESIGN BORING LOG 888-045 FLOATING BRIDGE VTRANS FORMAT.GPJ VERMONT AOT.GDT 5/7/13

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

T.Y.LIN INTERNATIONAL

FILE NAME: z12e134bdr_bor_log.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING LOGS 3

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 25 OF 70

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-2
Page No.: 1 of 1
Pin No.: 12e134
Checked By: JAG

Boring Crew: H. Garrow, J.Wimett (GeoDesign)
Date Started: 7/30/12 Date Finished: 7/30/12
VTSPG NAD83: N 562184.00 ft E 1613057.00 ft
Station: 14+36 Offset: 5' L
Ground Elevation: 1278 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	1.38 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations

Date	Depth (ft)	Notes
07/30/12	2.0	Wet sample.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		S1 (0'-2'): Very loose, dark brown fine to coarse SAND, some fine Gravel, little Silt, trace Cinders, moist. (FILL) Rec. = 1.5 ft (AASHTO M145 Classification: A-1-b) (AASHTO M145 Classification: Visual Description (Burmister).)	3-2-2-4 (4)	8.2	44.9	42.2	12.9
		S2 (2'-4'): Loose, dark brown SILT and fine to coarse SAND, little coarse Gravel (stuck in spoon tip), wet. (FILL) Rec. = 0.9 ft (AASHTO M145 Classification: A-2-4) (AASHTO M145 Classification: Visual Description (Burmister).)	2-3-5-25 (See Note 3)	22.1	23.6	46.1	30.3
5		S3 (4'-6'): Very loose, piece of coarse GRAVEL stuck in spoon tip. (FILL) Rec. = 0.1 ft (AASHTO M145 Classification: Visual Description (Burmister).)	5-1-1-1 (See Note 3)				
BOTTOM OF ABUT NO 2 EL 1272.67		S4 (6'-7.6'): Refusal, gray fine to coarse GRAVEL (fractured weathered rock), little Silt, trace fine Sand, wet. (SANDY SILT) (AASHTO M145 Classification: Visual Description (Burmister).) Rec. = 0.3 ft	2-8-23/0.2 (100+)				
10		Inferred Weathered Rock based on casing resistance and rig chatter. (AASHTO M145 Classification: Field Note.)					
		Top of Bedrock @ 7.8 ft					
15		Hole stopped @ 7.8 ft Roller bit refusal on inferred competent bedrock.					
20							
25							
30							
35							
40							
45							

Remarks:
1) Borehole located 5' north of B-1.
2) No sample from S3 at 4' deep was retained. One piece of coarse gravel in the spoon tip was the entire recovery.
3) SPT N-values for samples S2 and S3 are invalid due to driller taking samples without clearing borehole between spoons. Instruct driller to clean borehole between samples going forward.
4) Advanced casing through wood from 5' to 6' deep (inferred timber cribbing). Wood was observed in roller bit spoils but was not picked up in split spoon sample S3.
5) Advance roller bit to 6.5' to clear hole of woody debris prior to sampling S4.
6) Split spoon refusal at 7.7' deep after 15 blows with no movement.
7) Roller bit refusal at 7.8' deep on inferred bedrock.
8) Lab testing gradations reported are per AASHTO M145.
9) Northing, Easting, Ground Surface Elevation, and Stationing shown are approximations based on taped measurements made from existing features in the field by GeoDesign personnel on July 30, 2012 and MicroStation files downloaded from TY Lin's FTP site by GeoDesign personnel on August 22, 2012. Location and elevation approximations for the borehole should be considered accurate only to the degree implied by the method of borehole location used.

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

GEODESIGN BORING LOG BRF-FLBR(2) FLOATING BRIDGE VTRANS FORMAT.GPJ VERMONT AGY.GDT 5/7/13

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

T.Y.LIN INTERNATIONAL

FILE NAME: z12e134bdr_bor_log.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING LOGS 4

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 26 OF 70

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-3
Page No.: 1 of 3
Pin No.: 12e134
Checked By: JAG

Boring Crew: H. Garrow, J.Wimett/J. Gilman (GeoDesign)
Date Started: 7/31/12 Date Finished: 8/01/12
VTSPG NAD83: N 562290.00 ft E 1612740.00 ft
Station: 11+07 Offset: 7' R
Ground Elevation: 1277 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	1.38 in
Hammer Wt:	N.A.	140 lb.
Hammer Foll:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes
07/31/12	2.0	Wet sample.
08/01/12	1.5	In casing (overnight)

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt (AASHTO M145 Classification: Visual Description (Burmister).)				3-4-4-4 (8)	19.6	37.8	40.9	21.3
		S1 (1'-3'): Loose, dark brown fine to coarse SAND, some (+) Silt, little (-) fine to coarse Gravel, moist to wet. (FILL) (AASHTO M145 Classification: A-1-b) (AASHTO M145 Classification: Visual Description (Burmister).) Rec. = 1.1 ft				7-4-3-2 (7)				
5		S2 (3'-5'): Loose, no recovery. (FILL) Rec. = 0.0 ft (AASHTO M145 Classification: Visual Description (Burmister).)				2-1-5-3 (6)	22.6	31.7	39.9	28.4
		S3 (5'-7'): Loose, dark brown SILT and fine to coarse SAND, some fine to coarse Gravel, trace Organic Fibers, wet. (LAKE SEDIMENT - POSSIBLE FILL) Rec. = 0.4 ft (AASHTO M145 Classification: A-2-4) (AASHTO M145 Classification: Visual Description (Burmister).)				1-1-8-10 (9)	26.7	45.6	36.0	18.4
BOTTOM OF ABUT NO 1 EL 1269.50						2-2-8-5 (10)	17.3	48.2	34.1	17.7
10		S4 (7'-9'): Loose, dark brown fine to coarse SAND, some fine Gravel, little Silt, trace (+) Organic Fibers, wet. (LAKE SEDIMENT - POSSIBLE FILL) Rec. = 0.7 ft (AASHTO M145 Classification: A-1-b) (AASHTO M145 Classification: Visual Description (Burmister).) Rec. = 0.7 ft				5-6-6-5 (12)	14.6	42.3	44.2	13.5
						6-6-6-7 (12)	15.4	51.8	33.7	14.5
15						3-5-6-9 (12)	10.8	57.6	32.0	10.4
		S5 (9'-11'): Medium dense, dark brown fine to coarse SAND, little fine to coarse Gravel, little Silt, wet. (SILTY SAND & GRAVEL) (AASHTO M145 Classification: A-1-b) (AASHTO M145 Classification: Visual Description (Burmister).)				16-10-10-14 (20)	10.8	41.9	32.0	26.1
		S6 (11'-13'): Medium dense, dark brown fine to coarse SAND, little Silt, little fine Gravel, wet. (SILTY SAND & GRAVEL) Rec. = 1.1 ft (AASHTO M145 Classification: A-1-b) (AASHTO M145 Classification: Visual Description (Burmister).)								
20										
		S7 (13'-15'): Medium dense, dark brown fine to coarse SAND, some fine Gravel, little Silt, wet. (SILTY SAND & GRAVEL) Rec. = 0.9 ft (AASHTO M145 Classification: A-1-a) (AASHTO M145 Classification: Visual Description (Burmister).)				15/0.4 (100+)	5.4	70.8	16.0	13.2
25										
		S8 (15'-17'): Medium dense, dark brown fine to coarse SAND, some fine Gravel, trace Silt, wet. (SILTY SAND * GRAVEL) Rec. = 0.6 ft (AASHTO M145 Classification: A-1-a) (AASHTO M145 Classification: Visual Description (Burmister).)				50/0.4 (100+)	7.7	65.9	15.3	18.8
30										
		S9 (20'-22'): Medium dense, gray fine to medium SAND, some Silt, some fine to coarse Gravel, wet. (GLACIAL TILL WITH FREQUENT BOULDERS/COBBLES) Rec. = 1.0 ft (AASHTO M145 Classification: A-2-4) (AASHTO M145 Classification: Visual Description (Burmister).)	C1	36 (10)	2 2 2 2 2	23-50/0.2 (100+)	7.0	56.4	23.1	20.5
35										
		S10 (25'-25.4'): Refusal, gray fine to coarse GRAVEL (fractured cobble pieces), little fine to medium Sand, little Silt, wet. (GLACIAL TILL WITH FREQUENT BOULDERS/COBBLES) Rec. = 0.3 ft (AASHTO M145 Classification: A-1-a) (AASHTO M145 Classification: Visual Description (Burmister).)				67 (100+)	8.6	44.7	22.9	32.4
40										
		S11 (30'-30.4'): Refusal, gray fine to coarse GRAVEL, little fine to coarse Sand, little (-) Silt, wet. (Pen = 0.4, Rec. = 0.4) C1) Very poor quality, fresh, moderately hard, gray LIMESTONE (Boulder). (GLACIAL TILL WITH FREQUENT BOULDERS/COBBLES) Rec. = 0.4 ft (AASHTO M145 Classification: A-1-b) (AASHTO M145 Classification: Visual Description (Burmister).)				48-50 (100+)	10.7	24.3	22.6	53.1
45										
		S12 (35'-35.7'): Refusal, gray fine to coarse SAND and fine to coarse GRAVEL, some Silt, wet. (GLACIAL TILL WITH FREQUENT BOULDERS/COBBLES) Rec. = 0.7 ft (AASHTO M145 Classification: A-1-b) (AASHTO M145 Classification: Visual								

ESTIMATED BOTTOM PILE AT ABUT NO 1 EL 1219.50

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

GEODESIGN BORING LOG 888-04.5 FLOATING BRIDGE VTRANS FORMAT.GPJ VERMONT AOT.GDT 5/7/13

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-3
Page No.: 2 of 3
Pin No.: 12e134
Checked By: JAG

Boring Crew: H. Garrow, J.Wimett/J. Gilman (GeoDesign)
Date Started: 7/31/12 Date Finished: 8/01/12
VTSPG NAD83: N 562290.00 ft E 1612740.00 ft
Station: 11+07 Offset: 7' R
Ground Elevation: 1277 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	1.38 in
Hammer Wt:	N.A.	140 lb.
Hammer Foll:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes
07/31/12	2.0	Wet sample.
08/01/12	1.5	In casing (overnight)

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Description (Burmister).)				50 (100+)	11.6	18.4	19.5	62.1
55		S13 (40'-40.5'): Refusal, gray SILT, some (-) fine to medium Sand, trace fine to coarse Gravel, wet. (GLACIAL TILL WITH FREQUENT BOULDERS/COBBLES) Rec. = 0.5 ft (AASHTO M145 Classification: A-2-4) (AASHTO M145 Classification: Visual Description (Burmister).)								
		S14 (45'-46'): Refusal, gray SILT, some fine to medium Sand, trace (+) fine Gravel, wet. (GLACIAL TILL) Rec. = 1.0 ft (AASHTO M145 Classification: A-4) (AASHTO M145 Classification: Visual Description (Burmister).)				18-25-32-38 (57)	23.2		7.2	92.8
60		S15 (50'-50.5'): Refusal, gray SILT, little fine Sand, trace fine Gravel, wet. (GLACIAL TILL) Rec. = 0.5 ft (AASHTO M145 Classification: A-4) (AASHTO M145 Classification: Visual Description (Burmister).)				17-23-26-35 (49)	23.5		27.4	72.6
		S16 (55'-57'): Very dense, gray SILT, little fine Sand, wet. (GLACIAL TILL) Rec. = 1.6 ft (AASHTO M145 Classification: A-4) (AASHTO M145 Classification: Visual Description (Burmister).)								
65		S17 (60'-62'): Very dense, SILT and fine to medium SAND, wet. (GLACIAL TILL) Rec. = 1.6 ft (AASHTO M145 Classification: A-4) (AASHTO M145 Classification: Visual Description (Burmister).)								
70		S18 (70'-72'): Dense, SILT and fine to medium SAND, wet. (GLACIAL TILL) Rec. = 1.6 ft (AASHTO M145 Classification: A-4) (AASHTO M145 Classification: Visual Description (Burmister).)				3-14-24-32 (38)	24.0		39.2	60.8
75										
80		S19 (80'-82'): Very dense, SILT and fine to medium SAND, wet. (GLACIAL TILL) Rec. = 1.7 ft (AASHTO M145 Classification: A-4) (AASHTO M145 Classification: Visual Description (Burmister).)				20-31-40-44 (71)	22.8		41.2	58.8
85										
90		S20 (90'-91.4'): Refusal, gray SILT, little fine to coarse Sand, trace fine to coarse Gravel, wet (top 3" washed angular gravel). (GLACIAL TILL) Rec. = 1.4 ft (AASHTO M145 Classification: A-4) (AASHTO M145 Classification: Visual Description (Burmister).)				22-50-50/0.4' (100+)	20.4	12.3	7.8	79.9
95										

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

GEODESIGN BORING LOG 888-04.5 FLOATING BRIDGE VTRANS FORMAT.GPJ VERMONT AOT.GDT 5/7/13

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-3
Page No.: 3 of 3
Pin No.: 12e134
Checked By: JAG

Boring Crew: H. Garrow, J.Wimett/J. Gilman (GeoDesign)
Date Started: 7/31/12 Date Finished: 8/01/12
VTSPG NAD83: N 562290.00 ft E 1612740.00 ft
Station: 11+07 Offset: 7' R
Ground Elevation: 1277 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	1.38 in
Hammer Wt:	N.A.	140 lb.
Hammer Foll:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C SKID	CE = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes
07/31/12	2.0	Wet sample.
08/01/12	1.5	In casing (overnight)

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Hole stopped @ 100.0 ft No refusal to 100' deep.								
105										
		Remarks: 1) Start sampling at 1' deep. Advanced casing through 5" of asphalt. 2) Driller notes occasional roller bit chatter through inferred coarse gravel and or small cobbles at 13' deep. 3) Infer boulder at 24.5' deep based on roller bit resistance. 4) Split spoon refusal at 25.4' deep after 10 blows with no movement. 5) Infer glacial till with frequent nested boulders and cobbles (estimated under 12" thick) from 24.5' to 35' deep based grinding and chatter during casing advance. Recoveries from the clean out barrel used to clear the casing and split spoon samples from this interval were almost entirely composed of broken pieces of Limestone with silt and sand. Attempted core run from 30' to 35' and recovered 1.8' worth of Limestone and Quartz boulder/cobble pieces. 6) Driller used hammer to pound sampler through approximately 8" of slough to reach sample interval for S12 at 35' (8 blows), 12" of slough for sample S13 at 40' deep (10 blows) and through 4" of slough at 45' deep (11 blows). Asked driller to clean hole with the roller bit instead of cleanout barrel going forward in attempt to break up more of the coarse gravel slough in the borehole. Driller stated he couldn't because it would over torque the drill rods. 7) Infer glacial till between 35' and 45' deep to contain frequent boulders and cobbles (estimated under 12" diameter) but not as frequent as noted between 24.5' and 35'. 8) Boulders and cobbles not encountered while advancing borehole below 45' deep. 9) Driller noted decrease in resistance to casing advance at approximately 54' deep. 10) Exploration terminated after roller bit advance to 100' deep with no refusal (casing was at 90' deep). 11) Lab testing gradations reported are per AASHTO M145. 12) Northing, Easting, Ground Surface Elevation, and Stationing shown are approximations based on visual estimates of the borehole location made in the field by GeoDesign personnel on July 31, 2012 and MicroStation files downloaded from TY Lin's FTP site by GeoDesign personnel on August 22, 2012. Location and elevation approximations for the borehole should be considered accurate only to the degree implied by the method of borehole location used.								
110										
115										
120										
125										
130										
135										
140										
145										

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

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLININTERNATIONAL

FILE NAME: z12e134bdr_bor_log.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING LOGS 5

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 27 OF 70

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-4
Page No.: 1 of 1
Pin No.: 12e134
Checked By: DTH

Boring Crew: J. Leonhardt (TransTech), J.Wimett (GeoDesign)
Date Started: 2/22/13 Date Finished: 2/22/13
VTSPG NAD83: N 562185.00 ft E 1613005.00 ft
Station: 13+90 Offset: 12'R
Ground Elevation: 1275 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	1.38 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Safety/AWJ	
Rig:	CME 45C SKID	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
5		Water Column										
10												
15		S1 (13.5' – 15.5'): Very loose, black/brown PEAT and ORGANIC SILT and fine to medium SAND, some Wood Pieces, wet. (Lake Bottom Sediment) Rec. = 0.6 ft (AASHTO M145 Classification: A-4.)				2/24" (1)	115.8	4.5	36.4	59.1	NP	NP
20		S2 (20' – 20.2'): Refusal, black ORGANIC SILT and WOOD PIECES and fine to coarse SAND, trace Debris (Bear Cap), little fine Gravel, wet. (Lake Bottom Sediment). Rec. = 0.2 ft (AASHTO M145 Classification: A-4.)				50/2" (R)	98.2	22.6	32.4	45.0	NP	NP
25		Inferred Lake Bottom Sediment.	C1	100 (100)	5 8							
		C1) Excellent quality, moderately hard, fresh, moderately jointed, gray with white banding LIMESTONE. Moderate to strong reaction to diluted HCl. Jointing at 38 degrees from horizontal.	C2	96 (65)	7 8 8 9							
30		C2) Fair quality, moderately hard, fresh, closely to moderately jointed gray with white banding LIMESTONE. Moderate to strong reaction to diluted HCl. Jointing between 0 and 35 degrees from horizontal with one joint at 65 degrees.	C3	100 (100)	8 8 7 10							
35		C3) Excellent quality, moderately hard, fresh, widely jointed, gray with white banding LIMESTONE. Moderate to strong reaction to diluted HCl. Jointing nearly horizontal.										
40		Hole stopped @ 33.0 ft										
45												

Top of Bedrock @ 23.0 ft

Remarks:
1) Ground surface elevation, northing, easting, and stationing are estimated from concept plans provided by TY Lin dated December 17, 2012. Borehole performed ~10' west of proposed hinge point due to accessibility.
2) Hammer correction factor is assumed to be 1.0 (rope and cathead safety hammer).
3) Performed borehole through lake ice. Lake bottom sediments noted to begin at 13.5' below ice level.
4) After hitting sample S1 with 2 blows, both the rod and casing began sinking through the lake bottom sediments.
5) Split spoon refusal at 20.2' deep on inferred cobble.
6) Driller notes increase in rollerbit resistance on inferred bedrock at 23' deep.
7) Stopped core C1 at 24.5' deep to add a drill rod and immediately had core blockage upon attempting to restart core run. End core run C1 at 24.5'.
8) Stopped core C2 at 29' (4.5' long run) due to drill stroke. Begin C3 at 29'.
9) Stopped core C3 after 4' of penetration for a total of 10' of rock core.
10) Visual soil descriptions are per the Burmister system. Lab testing gradations reported are per AASHTO M145.

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

SOILSYSTEM BORING LOG 888-045 FLOATING BRIDGE_VTRANS_FORMAT.GPJ VERMONT.GDT 5/7/13

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

T·Y·LIN INTERNATIONAL

FILE NAME: z12e134bdr_bor_log.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING LOGS 6

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 28 OF 70

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-5
Page No.: 1 of 1
Pin No.: 12e134
Checked By: DTH

Boring Crew: J. Leonhardt (TransTech), J.Wimett (GeoDesign)
Date Started: 2/25/13 Date Finished: 2/25/13
VTSPG NAD83: N 562208.00 ft E 1613012.00 ft
Station: 13+89 Offset: 12'L
Ground Elevation: 1275 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	1.38 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:		Safety/AWJ
Rig:	CME 45C SKID	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		Water Column.										
15		Inferred Lake Bottom Sediments(Organic Silts and Organic Matter).										
25		S1 (24.5' – 25'): Refusal, gray fine to medium SAND, some (+) Silt, some fine Gravel (fractured), wet. Rec. = 0.5 ft (AASHTO M145 Classification: A-2-4.)				6-12/0" (R)	14.3	26.2	44.8	29.0	NP	NP
		C1) Excellent quality, moderately hard, fresh, moderate to widely jointed, gray with white banding LIMESTONE. Moderate to strong reaction to diluted HCl. Jointing between 0 and 35 degrees from horizontal.	C1	100 (98)	9 7 7 7 8							
30		Hole stopped @ 30.0 ft										

Top of Bedrock @ 25.0 ft

Remarks:
1) Ground surface elevation, northing, easting, and stationing are estimated from concept plans provided by TY Lin dated December 17, 2012. Borehole performed ~10' west of proposed hinge point due to accessibility.
2) Hammer correction factor is assumed to be 1.0 (rope and cathead safety hammer).
3) Performed borehole through lake ice. Lake bottom sediments noted to begin at 13' below ice level.
4) While placing casing through ice to lake bottom, casing stopped on sediments at 13' deep. Driller added additional section of casing and casing sunk through sediments prior to obtaining a sample at 13' deep. Casing continued to advance under its own self weight until 22' deep. Driller drove casing to 24.5' deep prior to sampling S1 (due to excessive casing stickup at 22').
5) Stop sample S1 after 12 blows with no movement and spoon bouncing. Note casing to have sunk 6 inches while sampling S1.
6) Visual soil descriptions are per the Burmister system. Lab testing gradations reported are per AASHTO M145.

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

EDGERTON BORING LOG 888-12&5 FLOATING BRIDGE VTRANS FORMAT.GPJ VERMONT AGT.GDT 5/7/13

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

T·Y LIN INTERNATIONAL

FILE NAME: z12e134bdr_bor_log.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING LOGS 7

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 29 OF 70

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-6
Page No.: 1 of 2
Pin No.: 12e134
Checked By: DTH

Boring Crew: J. Leonhardt (TransTech), J.Wimett (GeoDesign)
Date Started: 2/25/13 Date Finished: 2/27/13
VTSPG NAD83: N 562271.00 ft E 1612777.00 ft
Station: 11+47 Offset: 12'R
Ground Elevation: 1275 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	1.38 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Safety/AWJ	
Rig:	CME 45C SKID	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		Water Column.							
15		Inferred Lake Bottom Sediment (Organic Silt / Organic Matter)							
20		S1 (20'-22'): Very loose, black ORGANIC SILT, little fine to coarse Sand, trace Organic Matter, wet. (Lake Bottom Sediment) Rec. = 0.4 ft (AASHTO M145 Classification: A-4.)	WOR-WOR-WOR-WOR (0)	392.5	3.0	11.0	86.0	NP	NP
25		S2 (25'-27'): Dense, olive brown fine to coarse SAND, some Silt, little fine to coarse Gravel (Decomposed), wet. (Glacial Moraine). Rec. = 0.8 ft (AASHTO M145 Classification: A-2-4.)	12-14-29-16 (43)	14.5	24.9	45.5	29.6	NP	NP
30		S3 (30'-32'): Dense, olive brown fine to coarse SAND, some fine to coarse Gravel (Decomposed), little Silt, wet. (Glacial Moraine). Rec. = 0.8 ft (AASHTO M145 Classification: A-1-a.)	10-11-23-17 (34)	12.7	50.2	35.0	14.8	NP	NP
35		S4 (34'-34.3'): Refusal, gray SILT, some fine to coarse Sand, some fine Gravel, wet. (Glacial Till). Rec. = 0.3 ft (AASHTO M145 Classification: A-4.)	100/4" (R)	8.8	31.2	29.2	39.6	NP	NP
40		S5 (39'-39.3'): Refusal, gray SILT and fine to coarse SAND, some fine Gravel, wet. (Glacial Till). Rec. = 0.3 ft (AASHTO M145 Classification: A-4.)	100/4" (R)	14.2	41.8	14.8	43.4	NP	NP
45		S6 (44'-44.8'): Refusal, gray SILT, some fine to coarse Sand, little fine to coarse Gravel, wet. (Glacial Till) Rec. = 0.5 ft (AASHTO M145 Classification: A-4.)	66-100/3" (R)	15.1	19.6	17.1	63.3	NP	NP
		S7 (49'-49.2'): Refusal, gray fine SAND and SILT, wet. (Glacial Till) Rec. =	100/2"						

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

GEOSESSION BORING LOG 888-045 FLOATING BRIDGE VTRANS FORMAT.GPJ VERMONT.AGT.GDT 5/7/13

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-6
Page No.: 2 of 2
Pin No.: 12e134
Checked By: DTH

Boring Crew: J. Leonhardt (TransTech), J.Wimett (GeoDesign)
Date Started: 2/25/13 Date Finished: 2/27/13
VTSPG NAD83: N 562271.00 ft E 1612777.00 ft
Station: 11+47 Offset: 12'R
Ground Elevation: 1275 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	1.38 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Safety/AWJ	
Rig:	CME 45C SKID	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		0.1 ft	(R)						
55		S8 (54'-54.8'): Refusal, gray SILT, some fine to coarse Sand, some fine Gravel, wet. (Glacial Till) Rec. = 0.8 ft (AASHTO M145 Classification: A-4.)	92-100/4" (R)	11.6	29.9	19.5	50.6	NP	NP
60		S9 (59'-61'): Very dense, gray SILT, some fine to coarse Sand, trace (+) fine Gravel, wet. (Glacial Till) Rec. = 2.0 ft (AASHTO M145 Classification: A-4.)	38-42-49-69 (91)	16.9	13.7	20.4	65.9	NP	NP
		Hole stopped @ 61.0 ft No refusal to 61' depth.							
65									
70									
75									
80									
85									
90									
95									

Remarks:
1) Ground surface elevation, northing, easting and stationing are estimated from concept plans provided by TY Lin dated December 17, 2012. Borehole performed ~4' east of proposed hinge point due to accessibility.
2) Hammer correction factor is assumed to be 1.0 (rope and cathead safety hammer).
3) Performed borehole through lake ice. Lake bottom sediments noted to begin at 14' below ice level. Casing sunk under own weight through lake bottom sediments until 20' deep.
4) Note increase in resistance during casing and roller bit advance at 24' deep.
5) Frequent rollerbit grinding and chatter through inferred gravel and cobbles below 24' deep.
6) Advance casing to 34' deep. Driller added EZ-Mud to the wash tub and advanced the borehole open hole below 34' deep.
7) Borehole terminated at 61' deep in glacial till. No refusal encountered.
8) Visual soil descriptions are per the Burmister system. Lab testing gradations reported are per AASHTO M145.

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

GEOSESSION BORING LOG 888-045 FLOATING BRIDGE VTRANS FORMAT.GPJ VERMONT.AGT.GDT 5/7/13

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TY LIN INTERNATIONAL

FILE NAME: zl2el34bdr_bor_log.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING LOGS 8

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 30 OF 70

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-7
Page No.: 1 of 2
Pin No.: 12e134
Checked By: DTH

Boring Crew: J. Leonhardt (TransTech), J.Wimett (GeoDesign)
Date Started: 2/27/13 Date Finished: 2/28/13
VTSPG NAD83: N 562294.00 ft E 1612786.00 ft
Station: 11+47 Offset: 12'L
Ground Elevation: 1275 ft

	Casing	Sampler
Type:	FJ	SS
I.D.:	4 in	1.38 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Safety/AWJ	
Rig:	CME 45C SKID	CE = 1

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		Water Column.							
15		S1 (13'–15'): Very loose, no recovery. Inferred Lake Bottom Sediment (Organic Silt / Organic Matter) Rec. = 0.0 ft	WOR-WOR-WOR-1 (0)						
20		S2 (20'–22'): Very loose, brown ORGANIC SILT and ORGANIC MATTER, trace fine Gravel, trace Glass, trace fine Sand, wet. (Lake Bottom Sediment). Rec. = 0.1 ft (AASHTO M145 Classification: A-4.)	WOR-WOR-WOR-WOR (0)	166.1	6.7	8.7	84.6	NP	NP
25		S3 (25'–27'): Medium dense, gray fine to coarse SAND and fine to coarse GRAVEL, some Silt, wet. (Glacial Moraine) Rec. = 0.3 ft (AASHTO M145 Classification: A-2-4.)	7-14-10-8 (24)	8.9	48.4	22.8	28.8	NP	NP
30		S4 (30'–32'): Dense, gray fine to coarse SAND and SILT, little fine Gravel, wet. (Glacial Moraine) Rec. = 0.3 ft (AASHTO M145 Classification: A-4.)	9-11-25-35 (36)	10.1	22.9	35.7	41.4	NP	NP
35		Inferred nested boulders.							
		C1 (35.5' – 37.5'): Gray LIMESTONE BOULDER/COBBLE PIECES.							
40		S5) (40'–40.75') Refusal, gray fine to coarse SAND and SILT, some fine to coarse Gravel, wet. (Glacial Till) Rec. = 0.75 ft (AASHTO M145 Classification: A-4.)	22–50/3" (R)	9.6	42.8	18.6	38.6	NP	NP
		S6) (45'–45.5') Refusal, gray fine to coarse SAND, some fine to coarse Gravel, some Silt, wet. (INFERRED ROLLERBIT CUTTINGS)							

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

GEODESIGN BORING LOG B09-043 FLOATING BRIDGE VTRANS FORMAT.GPJ VERMONT AGT.GDT 3/7/13

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

BORING LOG

Brookfield Floating Bridge
BRF FLBR(2)

Boring No.: B-7
Page No.: 2 of 2
Pin No.: 12e134
Checked By: DTH

Boring Crew: J. Leonhardt (TransTech), J.Wimett (GeoDesign)
Date Started: 2/27/13 Date Finished: 2/28/13
VTSPG NAD83: N 562294.00 ft E 1612786.00 ft
Station: 11+47 Offset: 12'L
Ground Elevation: 1275 ft

Type: FJ SS
I.D.: 4 in 1.38 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Safety/AWJ
Rig: CME 45C SKID CE = 1

Groundwater Observations

Date | Depth (ft) | Notes

Depth (ft) | Strata (1) | CLASSIFICATION OF MATERIALS (Description) | Blows/6" (N Value) | Moisture Content % | Gravel % | Sand % | Fines % | LL % | PI %

50		Rec. = 0.5 ft (AASHTO M145 Classification: A-1-b.)	80–50/0" (R)	9.2	56.9	20.1	23.0	NP	NP
		S7) (50'–50.9') Refusal, gray fine to coarse SAND and SILT, some fine to coarse Gravel, wet. (Glacial Till) Rec. = 0.9 ft (AASHTO M145 Classification: A-4.)	31–100/5" (R)	9.1	40.0	23.7	36.3	NP	NP
55		Hole stopped @ 50.9 ft No refusal to 50.9' depth.							
60									
65									
70									
75									
80									
85									

Remarks:
1) Ground surface elevation, northing, easting, and stationing are estimated from concept plans provided by TY Lin dated December 17, 2012. Borehole performed ~4' east of proposed hinge point due to accessibility.
2) Hammer correction factor is assumed to be 1.0 (rope and cathead safety hammer).
3) Performed borehole through lake ice. Lake bottom sediments noted to begin at 13' below ice level. Casing sunk under own weight through lake bottom sediments until 23.5' deep.
4) Note increase in resistance during casing and roller bit advance at 23.5' deep.
5) Advance casing to 30' deep. Driller added EZ-Mud to the wash tub and advanced the borehole open hole below 30' deep.
6) Advance roller bit through inferred boulder from 32.5' to 35.5'. Attempt core run to break through boulders from 35.5' to 37.5'. Break through inferred nested boulders at 37' deep.
7) Telescope through 4" casing and inferred nested boulder layer with 3" flush joint casing to 40' deep.
8) Exploration terminated at 50.9 feet due to crooked borehole causing difficulty advancing the roller bit and clearing cuttings.
9) Visual soil descriptions are per the Burmister system. Lab testing gradations reported are per AASHTO M145.

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

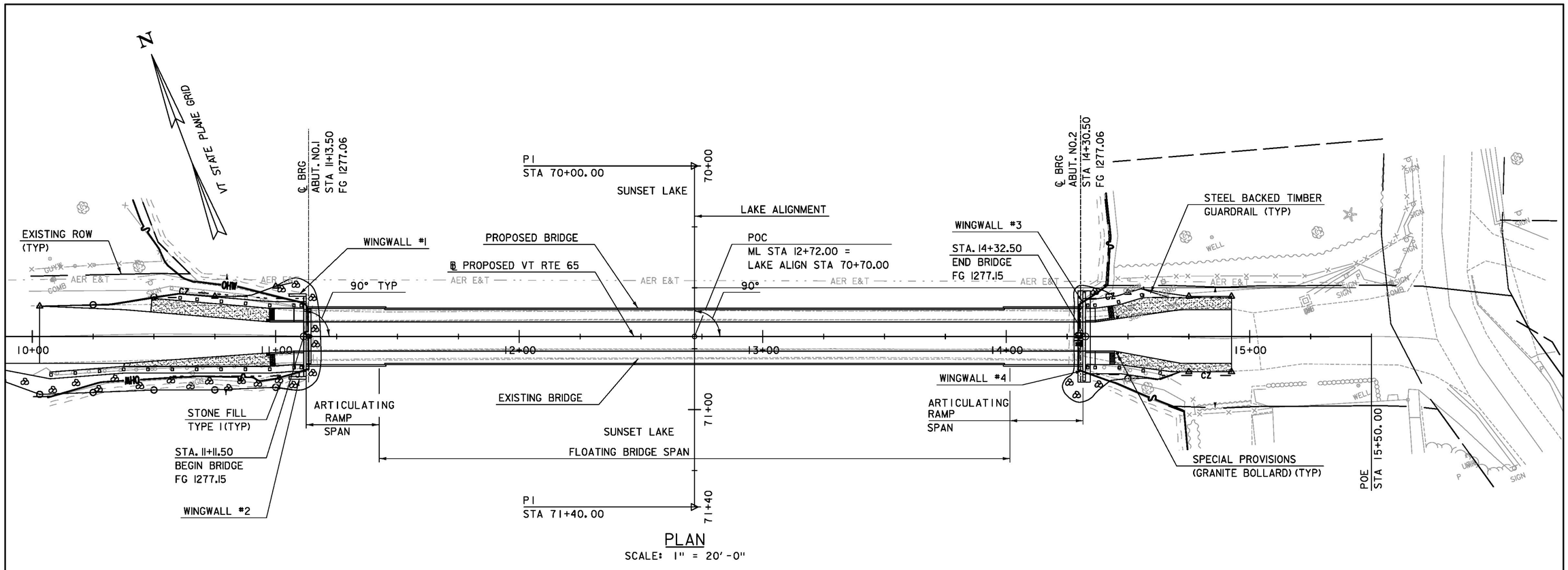
GEODESIGN BORING LOG B09-043 FLOATING BRIDGE VTRANS FORMAT.GPJ VERMONT AGT.GDT 3/7/13

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

T·Y LIN INTERNATIONAL

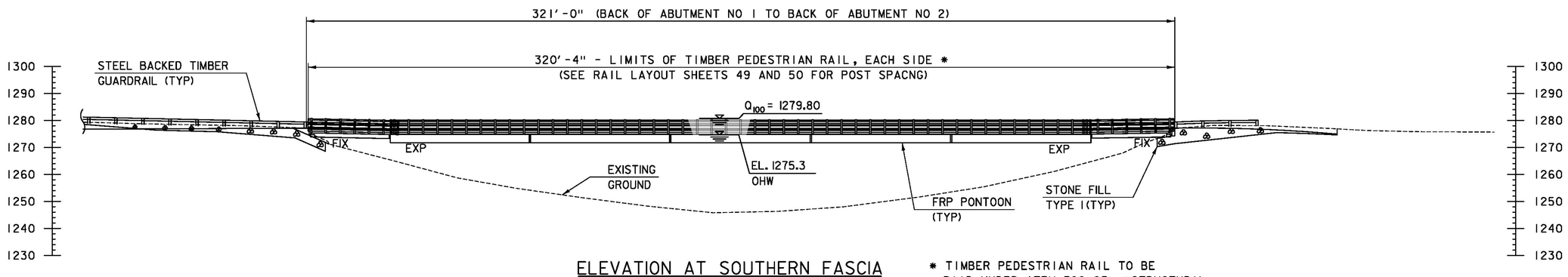
FILE NAME: z12e134bdr_bor_log.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BORING LOGS 9

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 31 OF 70



PLAN

SCALE: 1" = 20'-0"



ELEVATION AT SOUTHERN FASCIA

SCALE: 1" = 20'-0"

* TIMBER PEDESTRIAN RAIL TO BE PAID UNDER ITEM 522.25, "STRUCTURAL LUMBER AND TIMBER, TREATED."

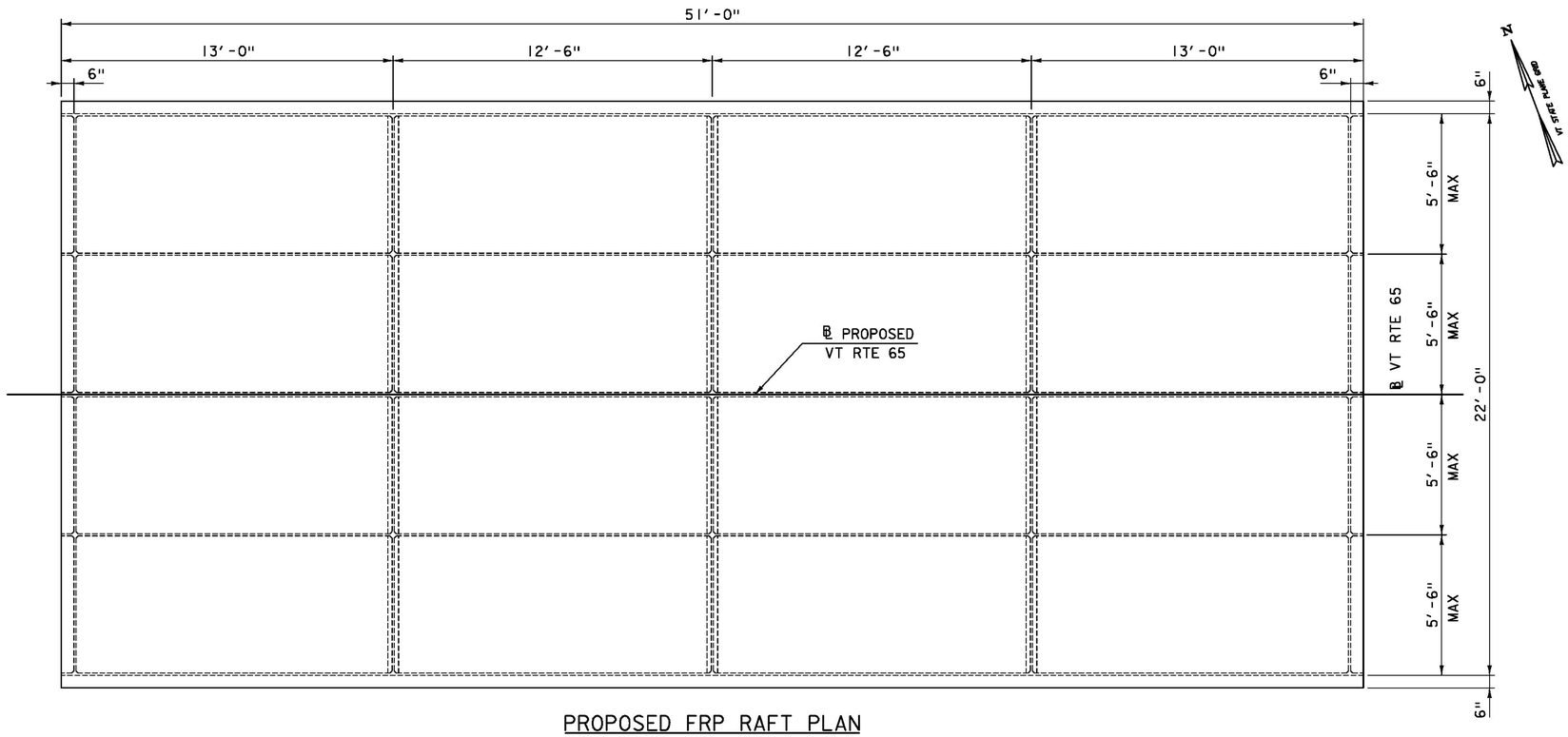
SCALE 1" = 20'-0"
20 0 20

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

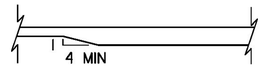
FILE NAME: z12el34bdrgpe.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
BRIDGE PLAN AND ELEVATION

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND.
SHEET 32 OF 70



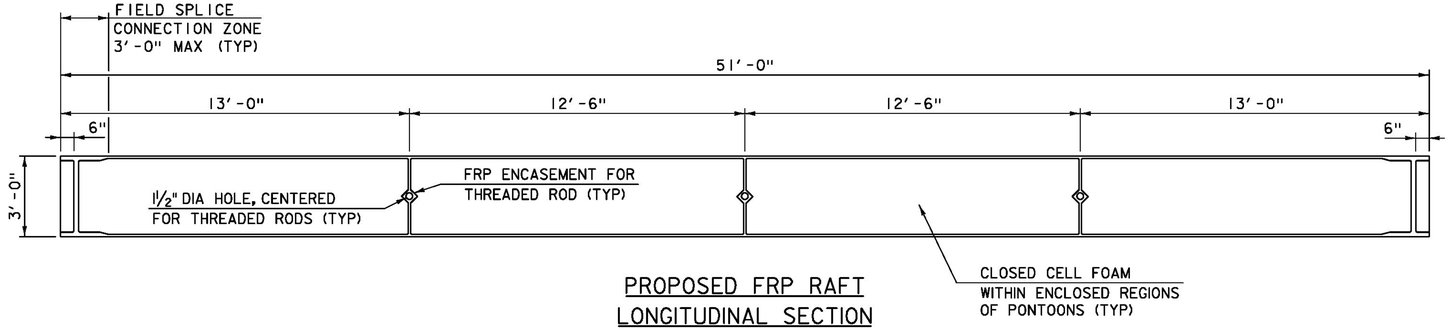
PROPOSED FRP RAFT PLAN

SCALE: 3/8" = 1'-0"
(INTERIOR RAFT SHOWN)



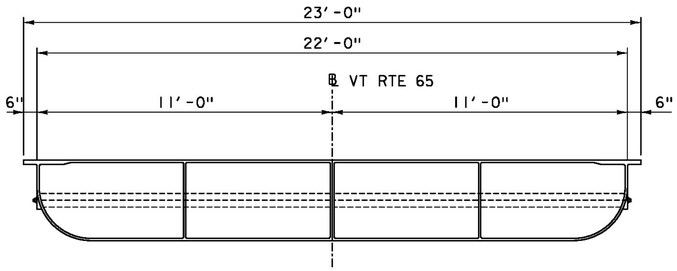
FRP PLATE TRANSITION DETAIL

SCALE: 1½" = 1'-0"



PROPOSED FRP RAFT
LONGITUDINAL SECTION

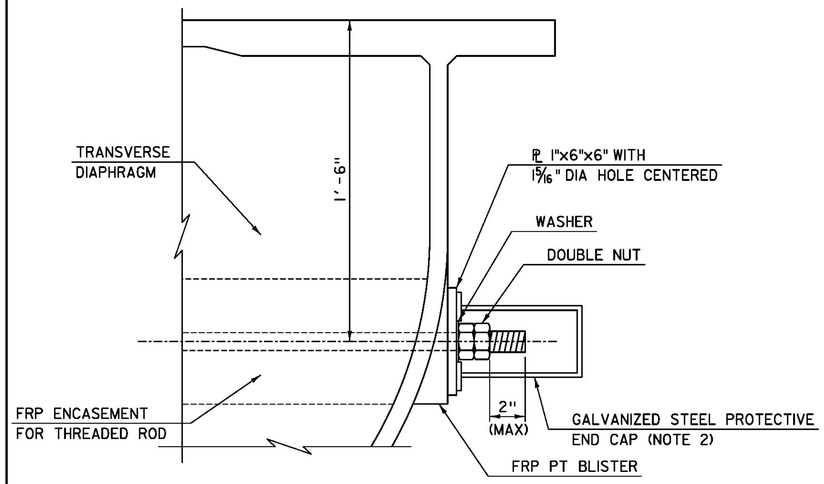
SCALE: 3/8" = 1'-0"
(INTERIOR RAFT SHOWN)



PROPOSED FRP RAFT
TRANSVERSE SECTION

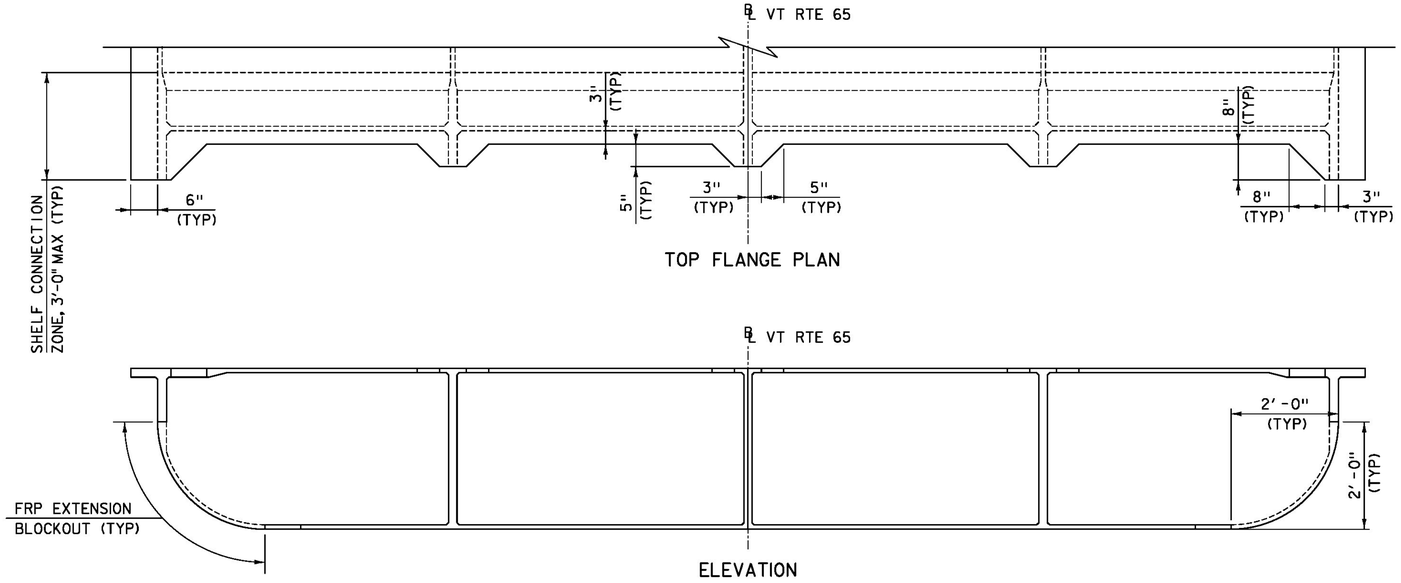
SCALE: 3/8" = 1'-0"

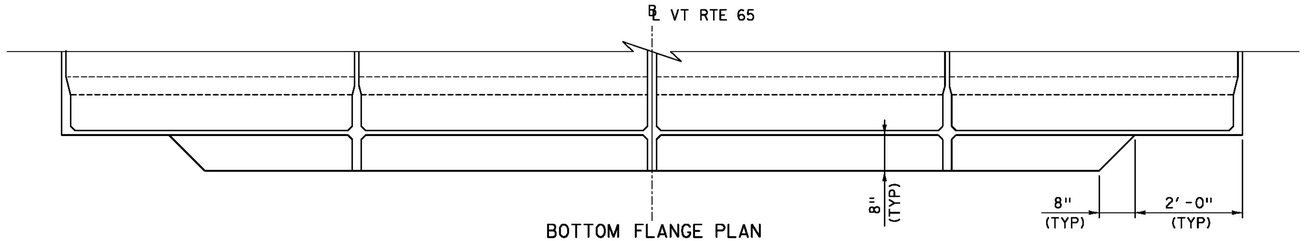
PROJECT NAME: BROOKFIELD	
PROJECT NUMBER: BRF FLBR(2)	
TYLIN INTERNATIONAL	
FILE NAME: zl2el34bdrfrp_details.dgn	PLOT DATE: 12/3/2013
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: J. OLUND	CHECKED BY: D. MYERS
FRP RAFT DETAILS I	SHEET 33 OF 70

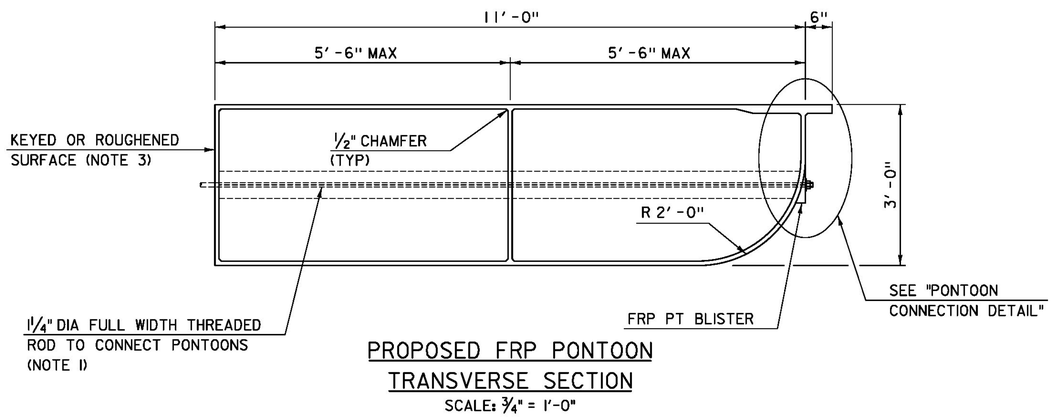


PONTOON CONNECTION DETAIL

NOT TO SCALE







PROPOSED FRP PONTOON
TRANSVERSE SECTION

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

FRP RAFT END DETAIL
AT END OF FLOATING SPAN

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

NOTES:

1. THREADED RODS SHALL BE TENSIONED TO AN INITIAL JACKING FORCE OF 55 KIPS AND SHALL BE RETENSIONED 2 WEEKS AFTER INITIAL TENSIONING, TO THE SAME MAGNITUDE. THE FRP ENCASEMENT FOR THREADED RODS SHALL BE DESIGNED TO RESIST COMPRESSIVE FORCES CAUSED BY TENSIONING OPERATIONS. THREADS ALONG THREADED RODS NEED ONLY BE PRESENT NEAR THE ANCHOR LOCATIONS FOR PROPER INSTALLATION. 1
2. THE GALVANIZED STEEL PROTECTIVE END CAPS SHALL PROVIDE A WATER-TIGHT ENCLOSURE AROUND THE THREADED ROD ENDS. THE CONTRACTOR SHALL SUBMIT INTENDED METHOD OF SECURING THE END CAP FOR APPROVAL. ALTERNATIVE PROTECTIVE END CAPS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDED SUCH CAPS CAN RESIST ICE PRESSURES NOTED HEREIN AND HAVE CORROSION RESISTANCE EQUIVALENT OR BETTER THAN THE PROPOSED GALVANIZED STEEL CAPS. 1
3. SURFACE BETWEEN PONTOONS SHALL BE KEYED OR ROUGHENED BY METHODS OF SANDBLASTING, ACID ETCHING, OR ADHESIVELY APPLIED SILICA GRIT. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

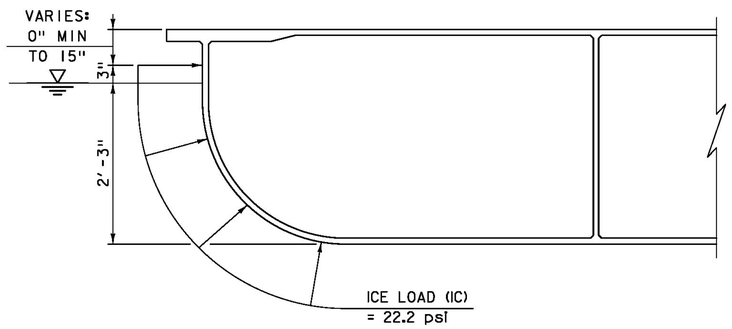
REVISION	DESCRIPTION	DATE
REVISION #1	REVISED NOTES	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

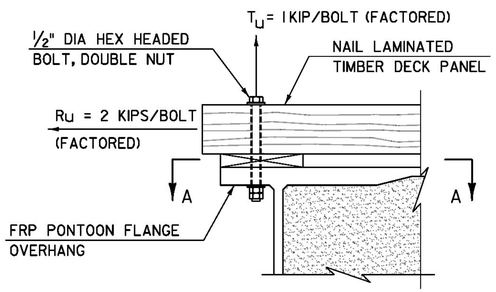
FILE NAME: z12el34bdrfrp_details2.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
FRP RAFT DETAILS 2

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS
SHEET 34 OF 70



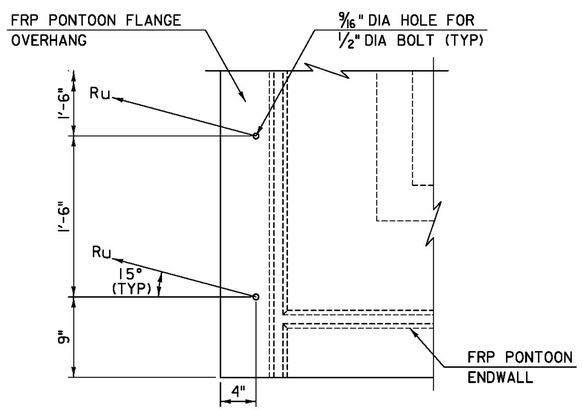
ICE PRESSURE LOADING DIAGRAM

NOT TO SCALE



DECK OVERHANG CONNECTION LOADING DIAGRAM - SECTION

NOT TO SCALE
(NOT ALL BRIDGE COMPONENTS SHOWN FOR CLARITY)



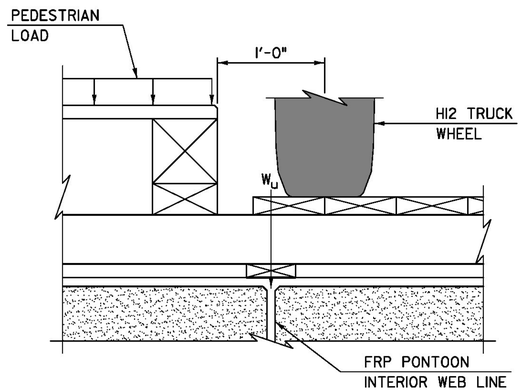
VIEW A-A - DECK OVERHANG CONNECTION LOADING DIAGRAM

NOT TO SCALE

ICE LOAD NOTES:

1. ICE LOADS SHALL BE TAKEN TO ACT EQUALLY TO BOTH SIDES OF THE FRP RAFTS SIMULTANEOUSLY. ICE FLOWS AND HANGING ICE DAMS NEED NOT BE CONSIDERED IN THE DESIGN OF THE FRP PONTOONS.

2. DESIGN FOR ICE PRESSURES NOTED ON THIS SHEET SHALL BE CONSIDERED SIMULTANEOUSLY WITH GLOBAL 'EXTREME EVENT II' GLOBAL DESIGN FORCES NOTED ON SHEET 37.



W_u = 15.5 KIP DISTRIBUTED OVER A 24" LONGITUDINAL LENGTH, WHICH ACCOUNTS FOR THE FACTORED REACTION DUE TO PEDESTRIAN LOAD, HI2 TRUCK WHEEL LOAD, AND TIMBER DEAD LOAD

REACTION AT WEB LINE DIAGRAM

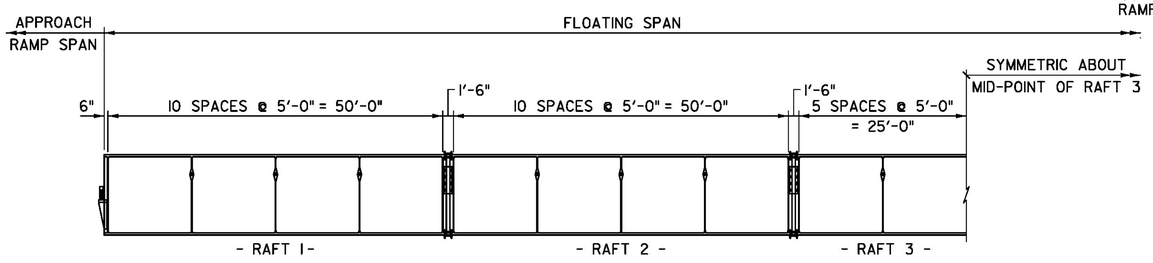
NOT TO SCALE

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

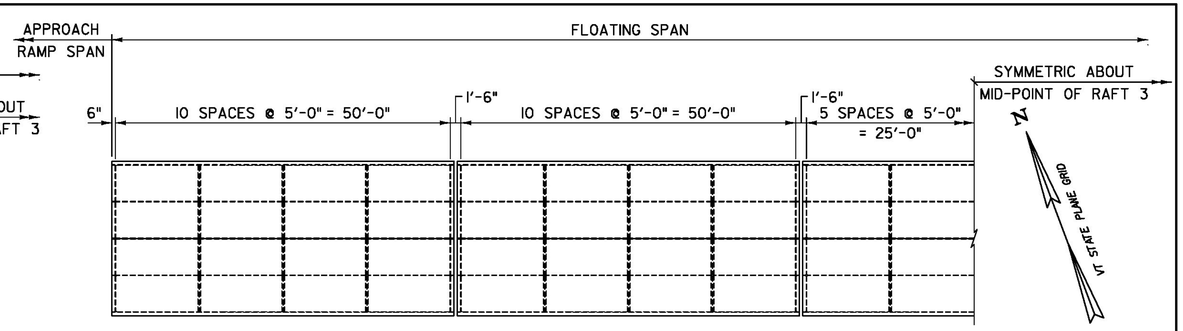
TYLIN INTERNATIONAL

FILE NAME: zl2el34bdrfrpdiagr.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
FRP RAFT LOADING DIAGRAMS I

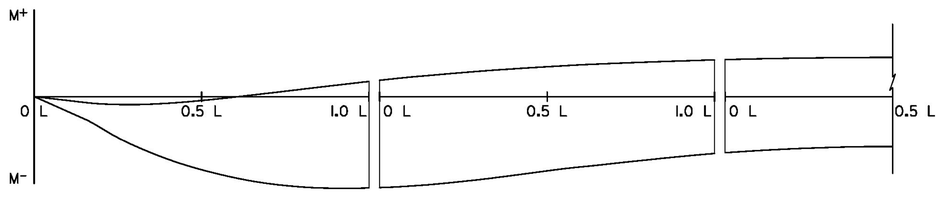
PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: C. TAYLOR
SHEET 35 OF 70



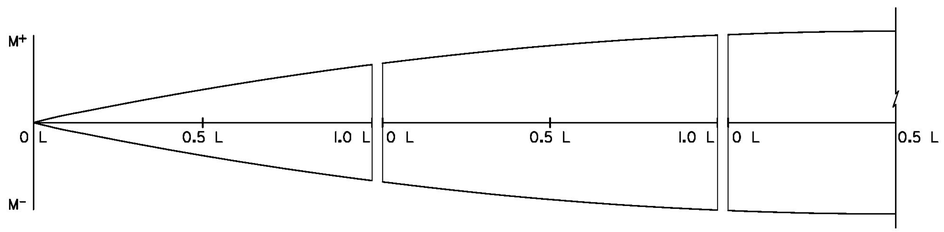
DESIGN VALUE LOCATION DIAGRAM
FLOATING SPAN ELEVATION VIEW
NOT TO SCALE



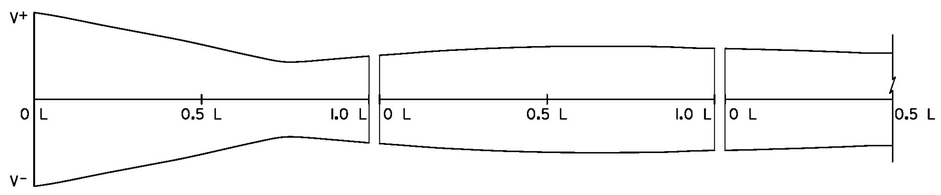
DESIGN VALUE LOCATION DIAGRAM
FLOATING SPAN PLAN VIEW
NOT TO SCALE



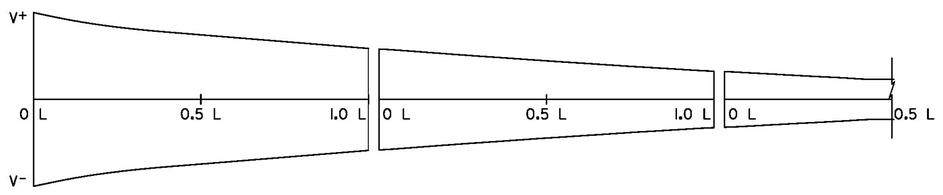
VERTICAL BENDING MOMENT ENVELOPE DIAGRAM
NOT TO SCALE



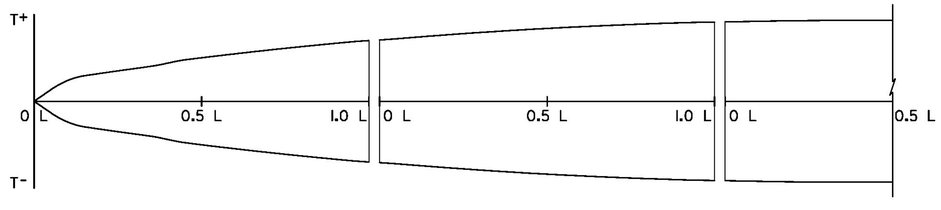
TRANSVERSE BENDING MOMENT ENVELOPE DIAGRAM
NOT TO SCALE



VERTICAL SHEAR ENVELOPE DIAGRAM
NOT TO SCALE



TRANSVERSE SHEAR ENVELOPE DIAGRAM
NOT TO SCALE



TORSION ENVELOPE DIAGRAM
NOT TO SCALE

NOTE:

1. DESIGN FORCE DIAGRAMS ARE GRAPHICAL ONLY; DESIGN VALUES CAN BE FOUND ON SHEET 37.

PROJECT NAME: BROOKFIELD	
PROJECT NUMBER: BRF FLBR(2)	
TYLIN INTERNATIONAL	
FILE NAME: zl2el34bdrfrpdlagr.dgn	PLOT DATE: 12/3/2013
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: J. OLUND	CHECKED BY: C. TAYLOR
FRP RAFT LOADING DIAGRAMS 2	SHEET 36 OF 70

FIBER REINFORCED POLYMER RAFT DESIGN FORCE TABLE

		RAFT 1											RAFT 2											RAFT 3					
	LRFD LOAD COMBINATION AND DESIGN FORCE ENVELOPES	0.0 L	0.1L	0.2 L	0.3 L	0.4 L	0.5 L	0.6 L	0.7 L	0.8 L	0.9 L	1.0 L	0.0 L	0.1L	0.2 L	0.3 L	0.4 L	0.5 L	0.6 L	0.7 L	0.8 L	0.9 L	1.0 L	0.0 L	0.1L	0.2 L	0.3 L	0.4 L	0.5 L
SERVICE I	VERTICAL BENDING MOMENT, MAXIMUM (KIP•FT)	0	-92	-132	-137	-119	-83	-41	10	63	115	163	170	208	242	276	307	335	360	382	410	428	444	448	455	461	458	460	461
	VERTICAL BENDING MOMENT, MINIMUM (KIP•FT)	0	-280	-521	-721	-882	-1010	-1103	-1169	-1207	-1225	-1221	-1219	-1204	-1175	-1138	-1093	-1042	-988	-946	-911	-877	-845	-837	-812	-791	-775	-766	-763
	HORIZONTAL BENDING MOMENT, REVERSIBLE (KIP•FT)	5	39	71	102	132	160	187	212	237	260	281	287	307	326	343	359	373	386	398	409	418	425	428	434	438	442	444	444
	VERTICAL SHEAR, REVERSIBLE (KIP)	61.7	57.3	51.8	46.5	40.7	36.0	31.8	28.2	25.2	23.0	25.1	24.8	25.4	26.5	27.5	28.1	28.7	29.2	29.7	30.0	30.2	30.3	29.5	29.2	29.1	28.8	28.4	27.9
	HORIZONTAL SHEAR, REVERSIBLE (KIP)	6.9	6.7	6.5	6.2	6.0	5.7	5.5	5.2	5.0	4.8	4.6	4.4	4.3	4.1	3.9	3.7	3.5	3.3	3.1	2.9	2.8	2.6	2.5	2.4	2.2	2.1	1.9	1.8
	TORSION, REVERSIBLE (KIP•FT)	63	170	216	275	316	355	391	426	458	488	516	532	545	569	590	610	628	644	658	670	681	691	696	699	704	708	710	710
STRENGTH II	VERTICAL BENDING MOMENT, MAXIMUM (KIP•FT)	0	-74	-87	-64	-18	45	110	181	253	324	389	399	448	490	528	559	586	610	630	659	675	689	692	696	699	691	692	692
	VERTICAL BENDING MOMENT, MINIMUM (KIP•FT)	0	-367	-683	-946	-1157	-1327	-1449	-1537	-1588	-1612	-1609	-1606	-1587	-1550	-1503	-1443	-1377	-1307	-1251	-1207	-1162	-1121	-1111	-1078	-1050	-1030	-1018	-1014
	HORIZONTAL BENDING MOMENT, REVERSIBLE (KIP•FT)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VERTICAL SHEAR, REVERSIBLE (KIP)	80.8	74.3	66.0	58.3	49.9	43.3	37.7	33.0	29.1	30.9	33.6	33.2	33.8	35.4	36.6	37.4	38.3	38.9	39.5	39.7	39.7	39.5	38.8	37.8	37.3	36.8	36.1	35.4
	HORIZONTAL SHEAR, REVERSIBLE (KIP)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TORSION, REVERSIBLE (KIP•FT)	227	283	336	406	452	496	537	575	611	645	663	680	708	734	757	779	798	815	830	842	853	859	863	869	873	876	876	874
STRENGTH III	VERTICAL BENDING MOMENT, MAXIMUM (KIP•FT)	0	-101	-181	-241	-285	-314	-330	-337	-334	-325	-311	-306	-288	-267	-245	-222	-199	-177	-155	-136	-118	-103	-99	-86	-76	-69	-64	-63
	VERTICAL BENDING MOMENT, MINIMUM (KIP•FT)	0	-142	-257	-347	-415	-463	-495	-513	-519	-515	-502	-498	-479	-456	-430	-402	-374	-346	-318	-293	-269	-249	-243	-226	-212	-202	-196	-194
	HORIZONTAL BENDING MOMENT, REVERSIBLE (KIP•FT)	12	92	169	242	313	380	444	505	563	617	668	683	730	774	815	852	887	918	946	971	992	1011	1016	1030	1041	1049	1054	1056
	VERTICAL SHEAR, REVERSIBLE (KIP)	31.5	28.4	22.9	18.0	13.6	9.7	6.4	3.5	1.1	2.5	4.0	4.6	5.1	5.8	6.2	6.4	6.4	6.2	5.9	5.4	4.9	4.3	3.9	3.6	2.8	2.0	1.2	0.4
	HORIZONTAL SHEAR, REVERSIBLE (KIP)	16.4	16.0	15.4	14.8	14.2	13.6	13.0	12.4	11.9	11.4	10.8	10.5	10.2	9.7	9.2	8.7	8.3	7.8	7.4	7.0	6.5	6.2	5.9	5.7	5.3	4.9	4.6	4.3
	TORSION, REVERSIBLE (KIP•FT)	4	11	18	24	30	36	41	46	51	55	58	60	64	67	70	73	75	78	80	82	83	84	85	86	86	87	87	87
STRENGTH V	VERTICAL BENDING MOMENT, MAXIMUM (KIP•FT)	0	-74	-87	-64	-18	45	110	181	253	324	389	399	448	490	528	559	586	610	630	659	675	689	692	696	699	691	692	692
	VERTICAL BENDING MOMENT, MINIMUM (KIP•FT)	0	-367	-683	-946	-1157	-1327	-1449	-1537	-1588	-1612	-1609	-1606	-1587	-1550	-1503	-1443	-1377	-1307	-1251	-1207	-1162	-1121	-1111	-1078	-1050	-1030	-1018	-1014
	HORIZONTAL BENDING MOMENT, REVERSIBLE (KIP•FT)	6	45	83	120	154	187	219	249	277	304	329	337	360	382	402	420	437	453	466	479	489	498	501	508	513	517	520	521
	VERTICAL SHEAR, REVERSIBLE (KIP)	80.8	74.3	66.0	58.3	49.9	43.3	37.7	33.0	29.1	30.9	33.6	33.2	33.8	35.4	36.6	37.4	38.3	38.9	39.5	39.7	39.7	39.5	38.8	37.8	37.3	36.8	36.1	35.4
	HORIZONTAL SHEAR, REVERSIBLE (KIP)	8.1	7.9	7.6	7.3	7.0	6.7	6.4	6.1	5.9	5.6	5.3	5.2	5.0	4.8	4.5	4.3	4.1	3.9	3.6	3.4	3.2	3.0	2.9	2.8	2.6	2.4	2.3	2.1
	TORSION, REVERSIBLE (KIP•FT)	230	292	350	424	476	524	569	612	651	688	708	727	758	786	812	836	857	875	892	906	918	924	929	936	941	943	944	942
EXTREME EVENT II	VERTICAL BENDING MOMENT (KIP•FT)	0	-261	-471	-636	-761	-850	-909	-941	-952	-944	-921	-913	-879	-837	-789	-739	-686	-634	-584	-537	-494	-457	-446	-414	-389	-370	-359	-355
	VERTICAL SHEAR (KIP)	57.8	52.2	42.0	33.0	24.9	17.9	11.7	6.5	2.1	4.6	7.3	8.4	9.3	10.6	11.4	11.7	11.7	11.4	10.8	9.9	8.9	7.8	7.2	6.5	5.2	3.7	2.3	0.8

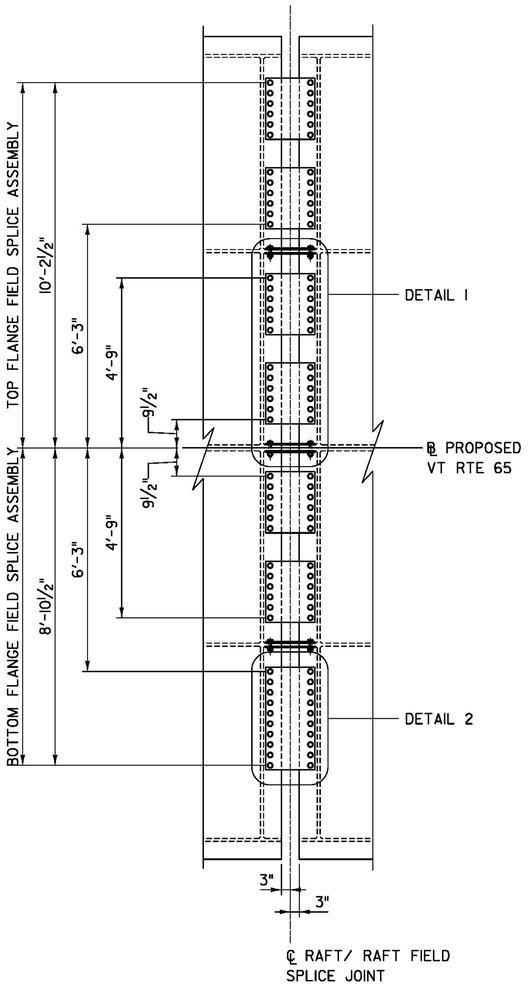
NOTES:

1. DESIGN LOADS IN THE TABLE ABOVE ARE GLOBAL FORCES ACTING ON THE RAFTS. THESE DESIGN FORCES SHALL BE INVESTIGATED SIMULTANEOUSLY WITH LOCALIZED FORCE EFFECTS NOTED IN THESE PLANS, AS APPROPRIATE.

2. EXTREME EVENT II LOAD COMBINATION SHALL BE INVESTIGATED WITH TRANSVERSE ICE PRESSURES NOTED ON SHEET 35.

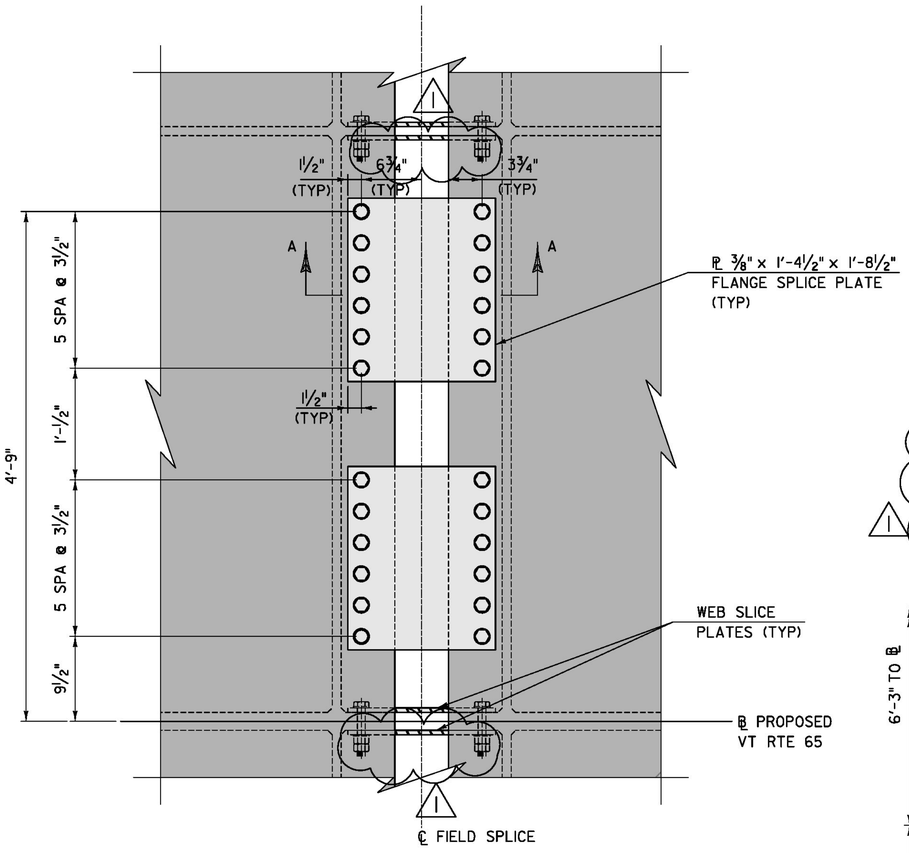
3. SERVICE AND STRENGTH FORCE EFFECTS NOTED IN THE TABLE ACCOUNT FOR VEHICLUAR LIVE LOAD, PEDESTRIAN LOAD, WIND LOAD, AND DEAD AND LIVE LOAD APPROACH RAMP REACTIONS. EXTREME EVENT FORCE EFFECTS NOTED IN THE TABLE ACCOUNT FOR SNOW AND DEAD LOAD APPROACH RAMP REACTIONS.

4. POSITIVE VERTICAL BENDING MOMENT VALUES CAUSE LONGITUDINAL TENSION STRESSES IN THE BOTTOM OF THE FRP RAFTS. NEGATIVE VERTICAL BENDING MOMENT VALUES CAUSE LONGITUDINAL TENSION STRESSES IN THE TOP OF THE FRP RAFTS.

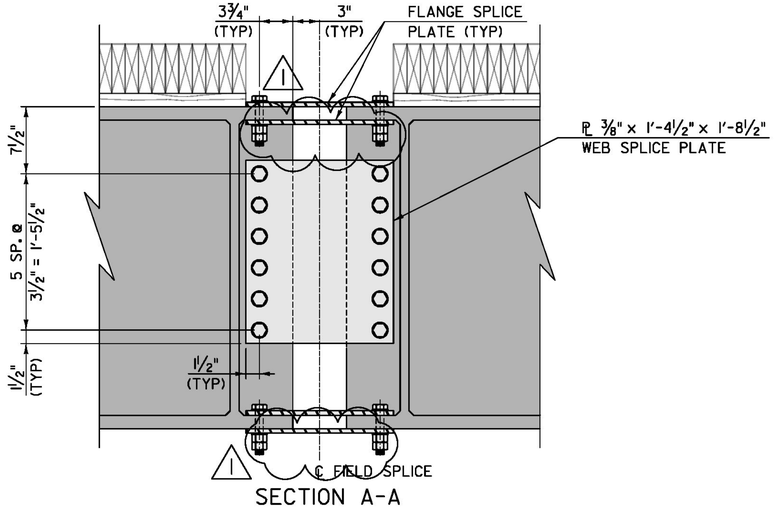


FIELD SPLICE PLAN
TOP AND BOTTOM FLANGE SPLIT VIEW

SCALE: ½" = 1'-0"
(4 TOTAL FIELD SPLICE ASSEMBLIES REQUIRED)



DETAIL 1
SCALE: 1½" = 1'-0"



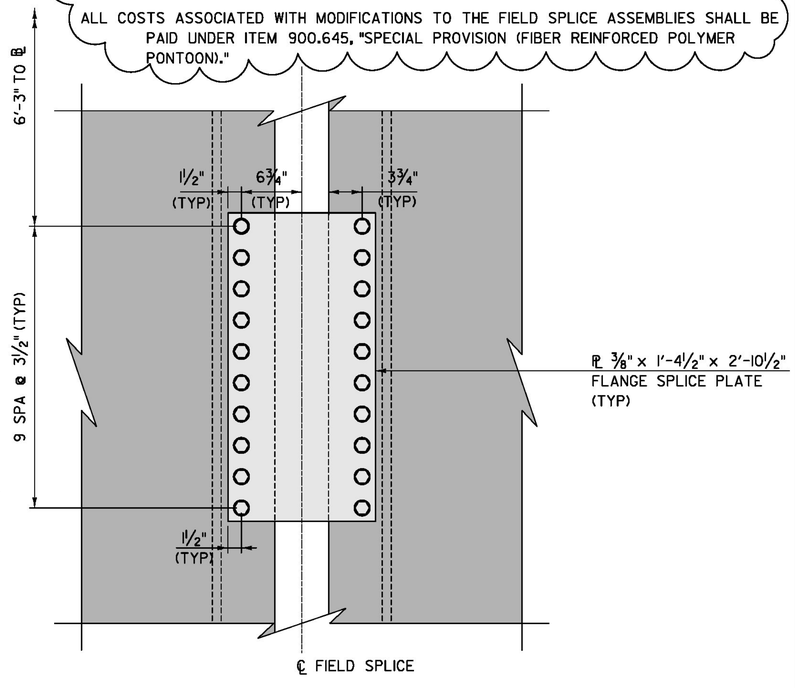
SECTION A-A
SCALE: 1½" = 1'-0"

FIELD SPLICE NOTES:

1. FIELD SPLICE CONNECTIONS TO FRP SHALL BE DESIGNED AS BEARING CONNECTIONS; SLIP CRITICAL (FRICTION BASED) CONNECTION DESIGN IS NOT ALLOWED.
2. BOLTS USED IN THE FIELD SPLICE ASSEMBLIES SHALL BE ⅞" DIA THROUGH 15⁄16 " DIA HOLES.
3. THE FACTORED PIN BEARING FORCE PER BOLT ACTING ON THE FRP FLANGE PLATES IS 19.4 KIPS. THIS FORCE SHALL BE TAKEN TO ACT PARALLEL WITH THE BASELINE.
4. THE FACTORED PIN BEARING FORCE PER BOLT ACTING ON THE FRP WEB PLATES IS 12.3 KIPS. THIS FORCE SHALL BE TAKEN TO ACT IN ANY RADIAL DIRECTION WITH RESPECT TO THE BOLT LONGITUDINAL AXIS.
5. FIELD SPLICE ASSEMBLIES SHALL MEET THE REQUIREMENTS OF, AND BE PAID, UNDER ITEM 900.645, "SPECIAL PROVISION (FIBER REINFORCED POLYMER PONTOON". FIELD SPLICE ASSEMBLIES INCLUDE ALL SPLICE PLATES, BOLTS, NUTS, WASHERS, AND ALL LABOR AND INCIDENTALS NEEDED TO COMPLETE THE WORK AS SHOWN.
6. THE CONTRACTOR MAY ALTER THE LAYOUT OF THE FIELD SPLICE ASSEMBLIES. DESIGN CALCULATIONS AND FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL, IN ACCORDANCE WITH STANDARD SPECIFICATION SUBSECTION 105.03. THE FIELD SPLICES SHALL EACH BE DESIGNED TO ACCOMMODATE THE FOLLOWING CONCURRENT FORCES:

   - ULTIMATE VERTICAL BENDING MOMENT = -3,210 KIP•FT TO 1,690 KIP•FT
   - ULTIMATE VERTICAL SHEAR, REVERSIBLE = 85 KIP
   - ULTIMATE TORSION, REVERSIBLE = 1,660 KIP•FT

   ALL COSTS ASSOCIATED WITH MODIFICATIONS TO THE FIELD SPLICE ASSEMBLIES SHALL BE PAID UNDER ITEM 900.645, "SPECIAL PROVISION (FIBER REINFORCED POLYMER PONTOON)."



DETAIL 2
SCALE: 1½" = 1'-0"

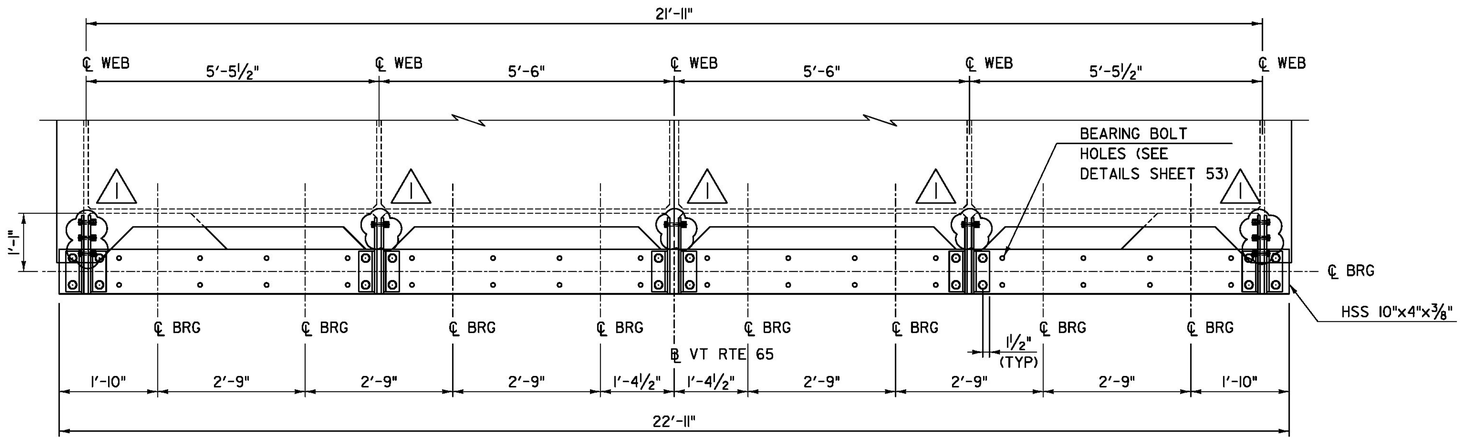
REVISION	DESCRIPTION	DATE
REVISION #1	ADDED NOTE AND DOUBLE NUT	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

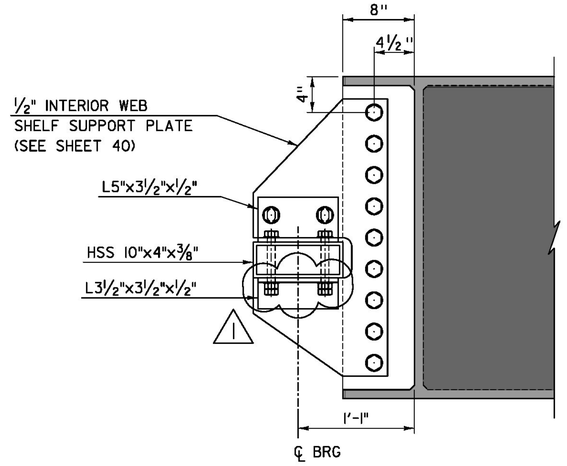
FILE NAME: zl2el34bdrsplice.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
FRP RAFT FIELD SPLICES

PLOT DATE: 2/5/2014
DRAWN BY: B. CARTER
CHECKED BY: D. MYERS
SHEET 38 OF 70



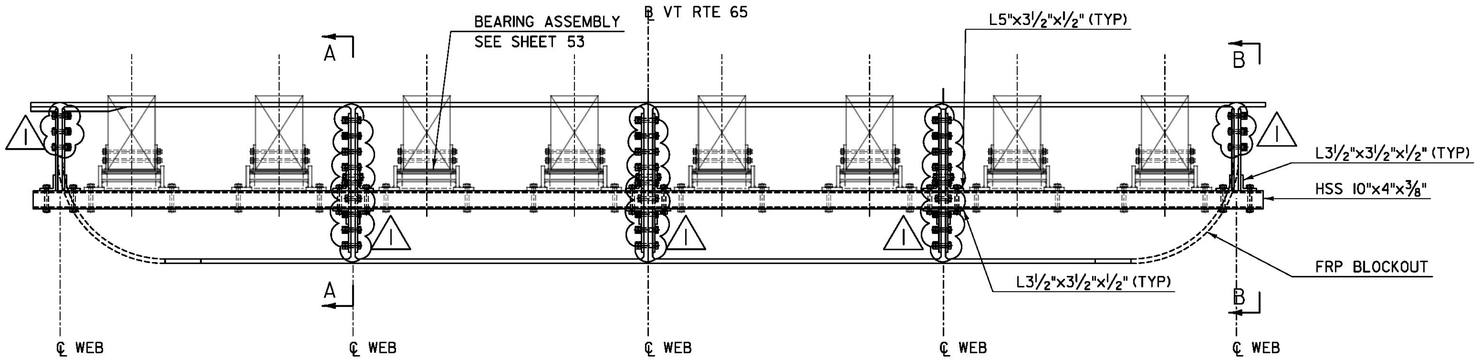
SHELF ASSEMBLY - PLAN

SCALE: ¾" = 1'-0"



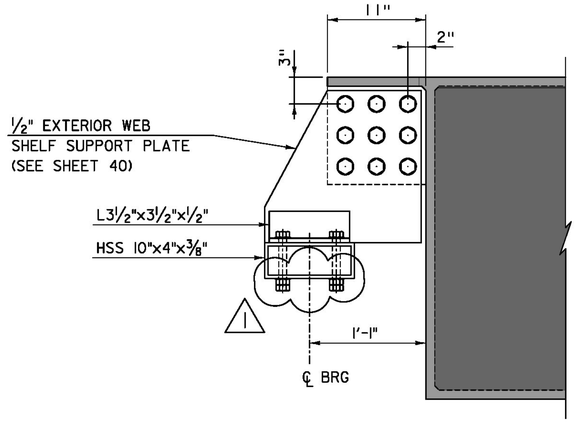
SECTION A-A

SCALE: 1½" = 1'-0"



SHELF ASSEMBLY - ELEVATION

SCALE: ¾" = 1'-0"



SECTION B-B

SCALE: 1½" = 1'-0"

SHELF NOTES:

1. PLATE CONNECTIONS TO FRP SHALL BE DESIGNED AS BEARING CONNECTIONS; SLIP CRITICAL (FRICTION BASED) CONNECTION DESIGN IS NOT ALLOWED.
2. ALL BOLTS SHALL BE ⅞" DIA, IN 15/16 " DIA HOLES, UNLESS NOTED OTHERWISE.
3. THE FACTORED PIN BEARING FORCE ACTING ON THE FRP PLATES IS 14.8 KIPS PER BOLT. THIS FORCE SHALL BE TAKEN TO ACT IN ANY DIRECTION RADIAL TO THE BOLT LONGITUDINAL AXIS.
4. FRP WEB EXTENSIONS SHALL BE DESIGNED TO RESIST A FACTORED FORCE OF 20.2 KIPS, TOTAL, ACTING TRANSVERSELY TO THE BRIDGE ALONG THE CENTERLINE OF SHELF.
5. BOLT HOLE LOCATIONS IN HSS SHELF AND SHIM PLATE THICKNESS BETWEEN INTERIOR WEB SHELF SUPPORT PLATES IS DEPENDENT ON FABRICATOR - SELECTED FRP PLATE THICKNESSES.

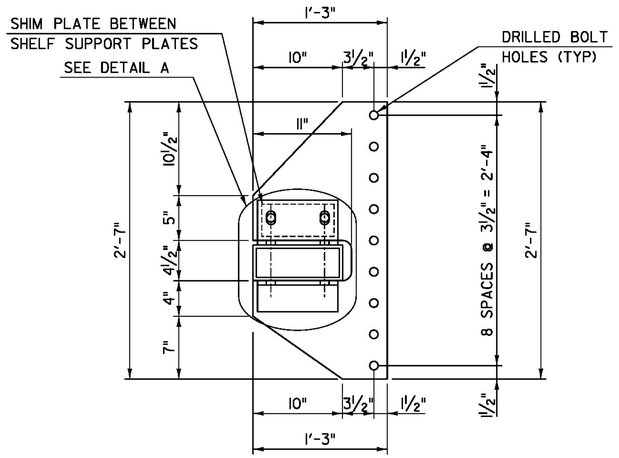
REVISION	DESCRIPTION	DATE
REVISION #1	ADDED DOUBLE NUT	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

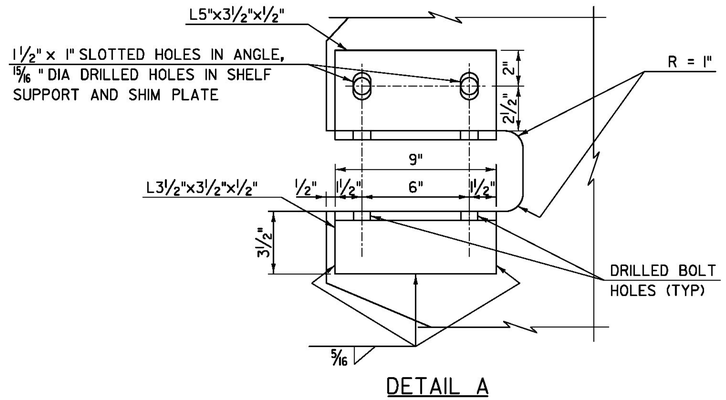
FILE NAME: zl2el34bdrfrpshelfl.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
RAMP-RAFT STAINLESS STEEL SHELF 1

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 39 OF 70



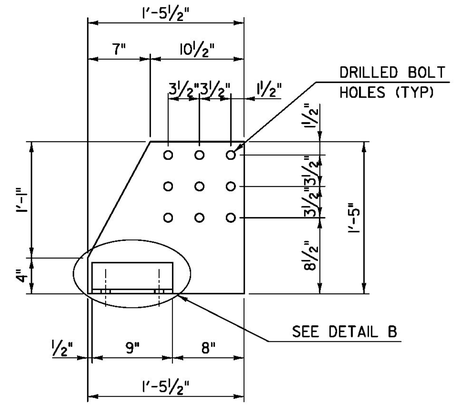
INTERIOR WEB SHELF SUPPORT PLATE

SCALE: 1½" = 1'-0"
(6 REQUIRED PER SHELF)



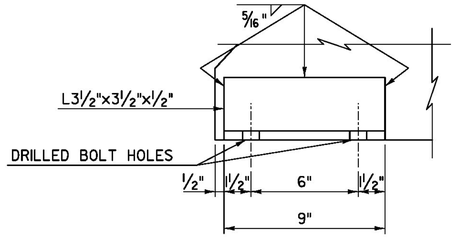
DETAIL A

SCALE: 3" = 1'-0"



EXTERIOR WEB SHELF SUPPORT PLATE

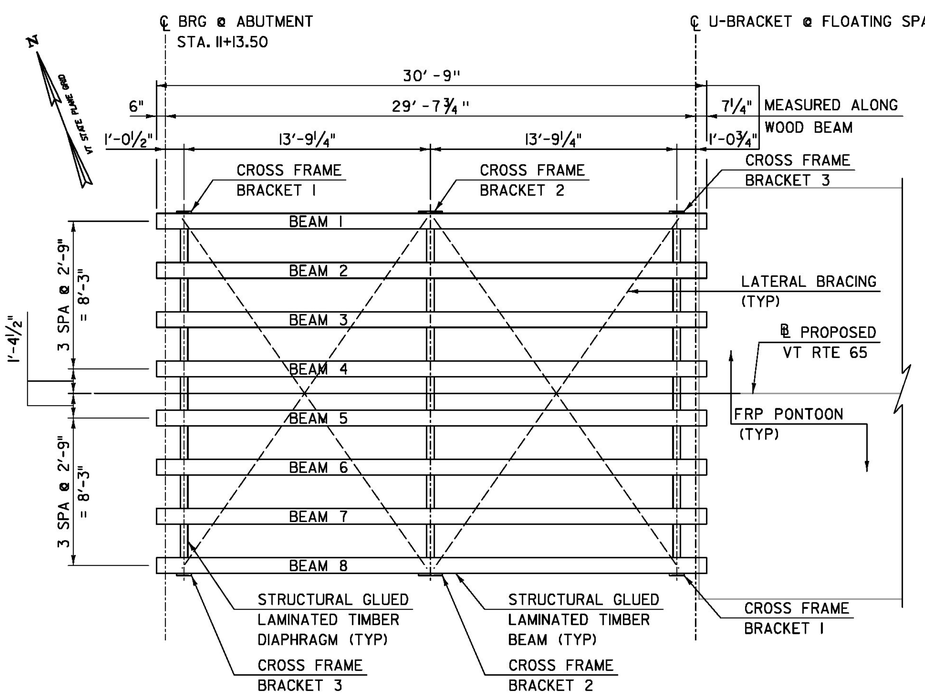
SCALE: 1½" = 1'-0"
(4 REQUIRED PER SHELF)



DETAIL B

SCALE: 3" = 1'-0"

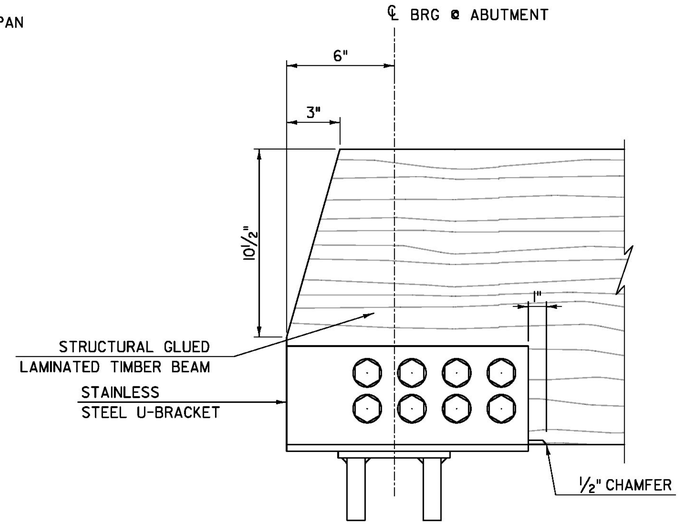
PROJECT NAME: BROOKFIELD	
PROJECT NUMBER: BRF FLBR(2)	
TYLIN INTERNATIONAL	
FILE NAME: z12el34bdr-frpshelf2.dgn	PLOT DATE: 12/3/2013
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: D. MYERS	CHECKED BY: J. OLUND
RAMP-RAFT STAINLESS STEEL SHELF 2	SHEET 40 OF 70



RAMP FRAMING PLAN

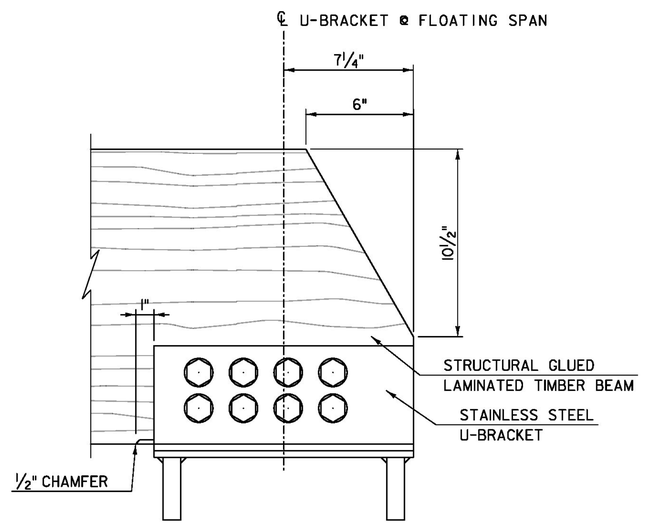
SCALE: ¼" = 1'-0"

(WESTERN RAMP SHOWN, EASTERN RAMP OPPOSITE HAND)



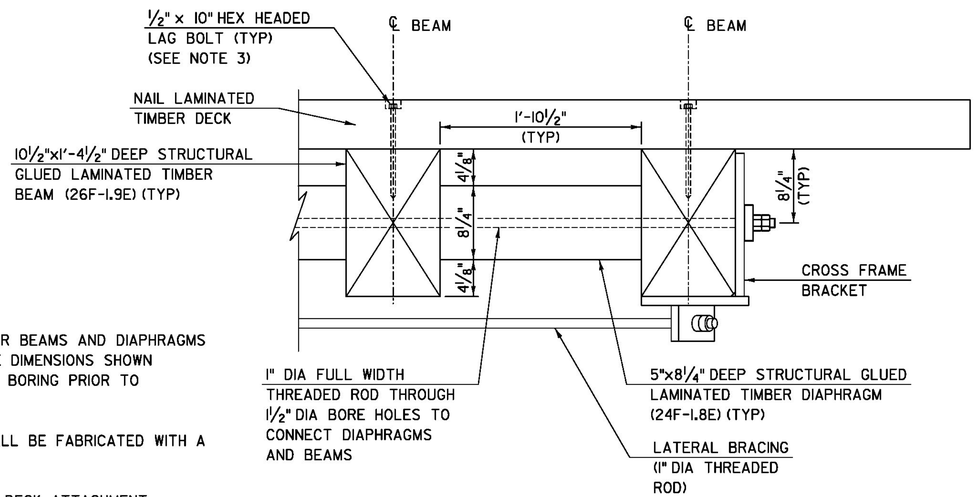
BEAM END DETAIL AT ABUTMENT

SCALE: 3" = 1'-0"



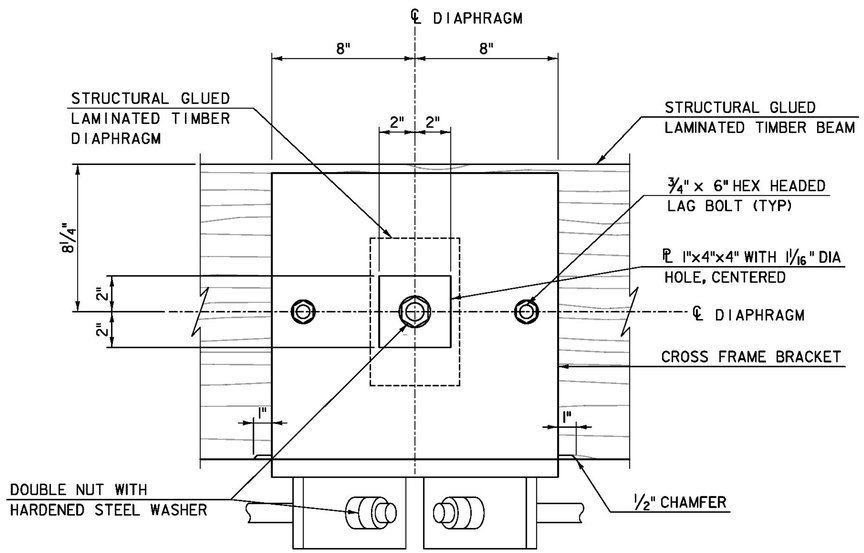
BEAM END DETAIL AT FLOATING SPAN

SCALE: 3" = 1'-0"



DIAPHRAGM DETAIL

SCALE: 1½" = 1'-0"



THREADED ROD ANCHOR DETAIL

SCALE: 3" = 1'-0"

(MIDDLE DIAPHRAGM SHOWN, END DIAPHRAGMS SIMILAR)

NOTES:

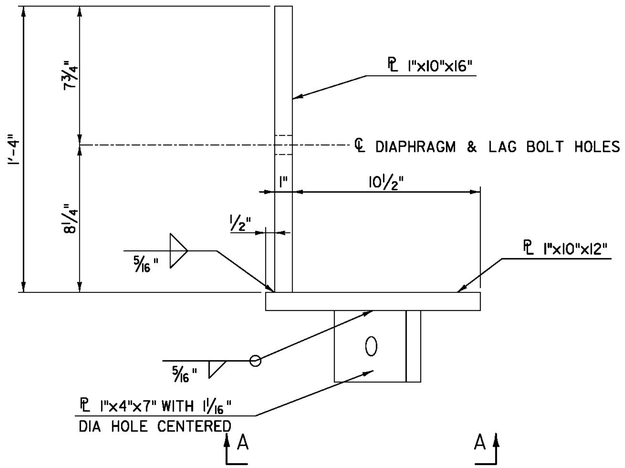
1. STRUCTURAL GLUED LAMINATED TIMBER BEAMS AND DIAPHRAGMS SHALL BE FULLY FABRICATED TO THE DIMENSIONS SHOWN INCLUDING ALL DRILLING, CUTTING, AND BORING PRIOR TO PRESSURE TREATING.
2. GLUED LAMINATED TIMBER BEAMS SHALL BE FABRICATED WITH A 1 INCH VERTICAL CAMBER AT MIDSPAN.
3. SEE SHEET 44 FOR DECK PANEL AND DECK ATTACHMENT LAYOUT AND DETAILS.
4. SEE SHEET 53 FOR BEARING ASSEMBLY AND U-BRACKET CONNECTION DETAILS.

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

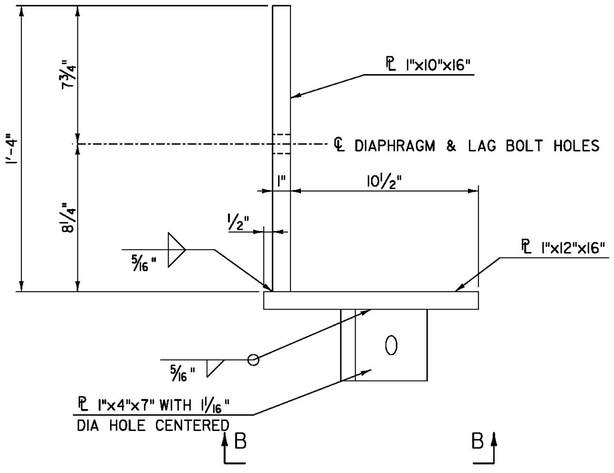
FILE NAME: z12e134bdrramp_frm.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
RAMP FRAMING PLAN

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 41 OF 70



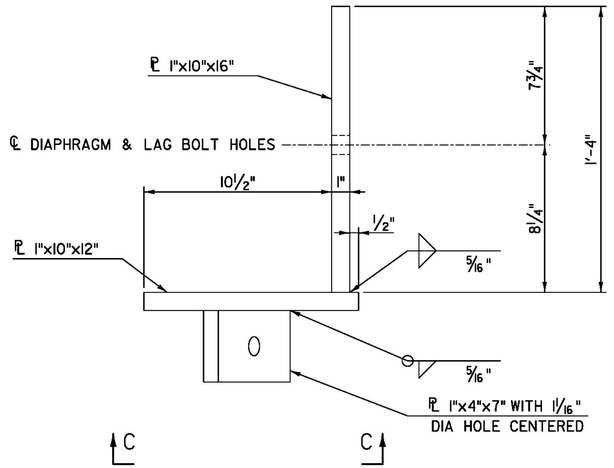
CROSS FRAME BRACKET 1

SCALE: 3" = 1'-0"



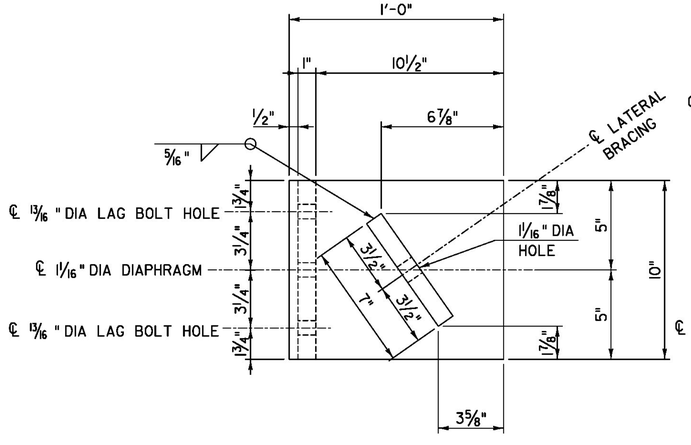
CROSS FRAME BRACKET 2

SCALE: 3" = 1'-0"



CROSS FRAME BRACKET 3

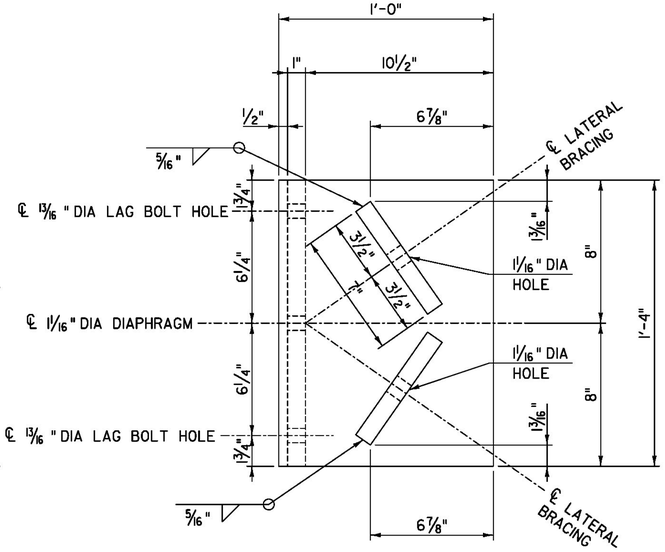
SCALE: 3" = 1'-0"



VIEW A-A

CROSS FRAME BRACKET 1

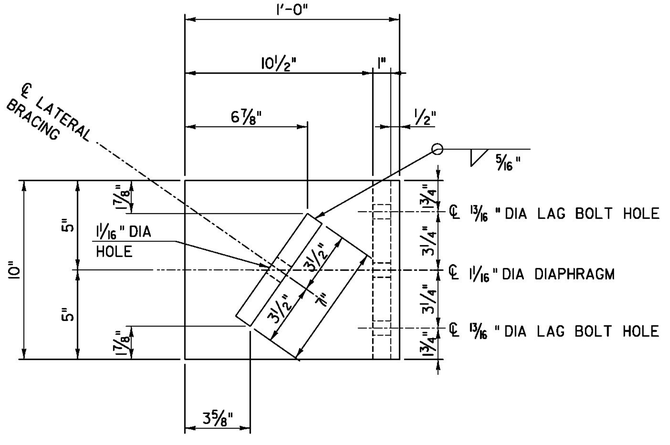
SCALE: 3" = 1'-0"



VIEW B-B

CROSS FRAME BRACKET 2

SCALE: 3" = 1'-0"

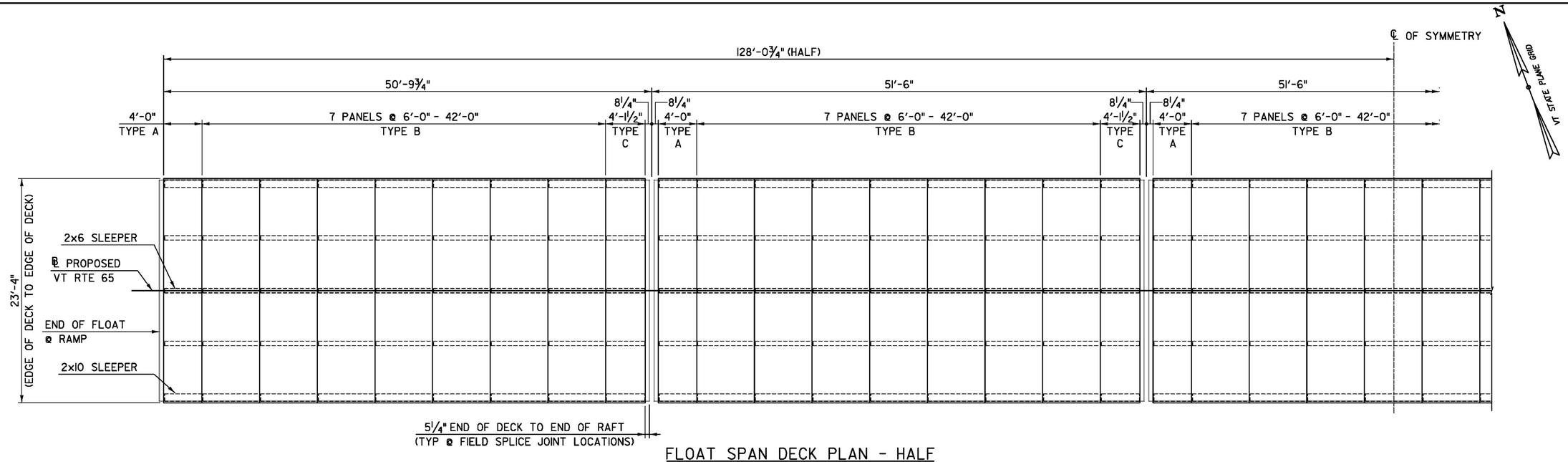


VIEW C-C

CROSS FRAME BRACKET 3

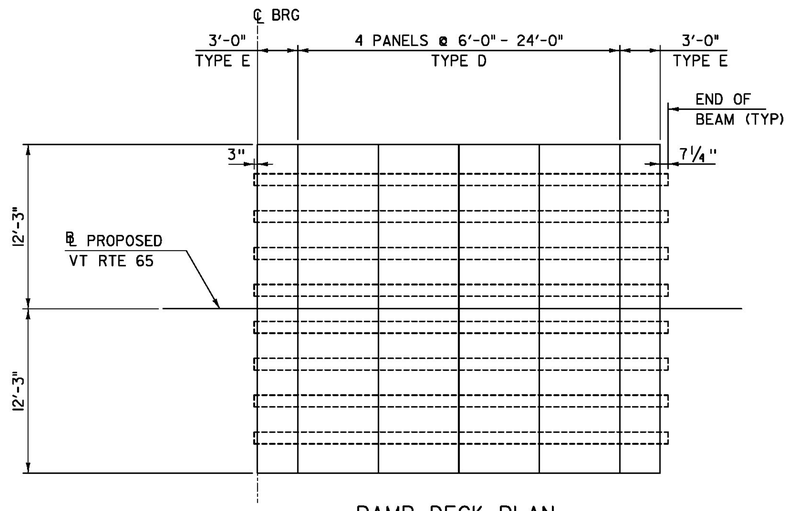
SCALE: 3" = 1'-0"

PROJECT NAME:	BROOKFIELD
PROJECT NUMBER:	BRF FLBR(2)
TYLIN INTERNATIONAL	
FILE NAME: z12el34bdrramp_frm2.dgn	PLOT DATE: 12/3/2013
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: T. POULIN	CHECKED BY: J. OLUND
RAMP FRAMING DETAILS	SHEET 42 OF 70



FLOAT SPAN DECK PLAN - HALF

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



RAMP DECK PLAN

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

(WEST RAMP SHOWN, EAST RAMP OPPOSITE)

NOTE:

ALL DIMENSIONS ARE MEASURED ALONG THE TOP SURFACE OF EACH DECK PANEL.

PROJECT NAME: BROOKFIELD

PROJECT NUMBER: BRF FLBR(2)

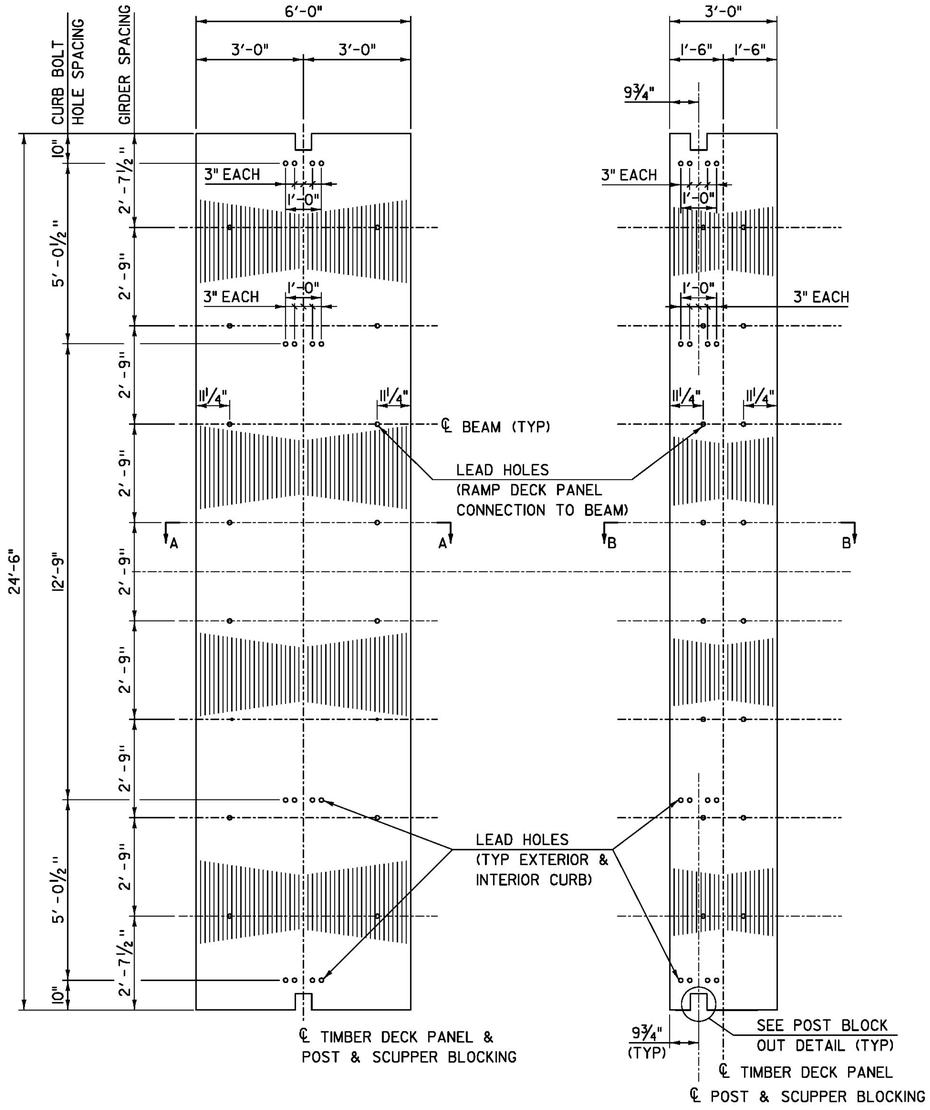
TYLIN INTERNATIONAL

FILE NAME: z12el34bdrdeckplan.dgn | PLOT DATE: 12/3/2013

PROJECT LEADER: J. OLUND | DRAWN BY: S. MORGAN

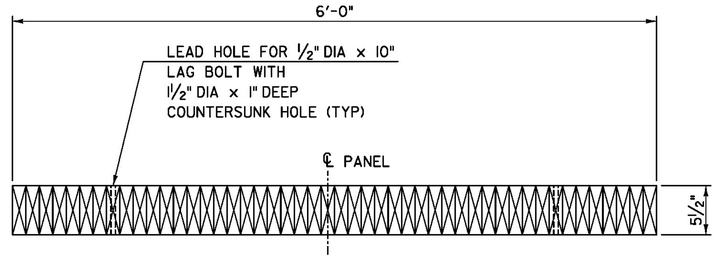
DESIGNED BY: T. POULIN | CHECKED BY: J. OLUND

DECK PANEL LAYOUT | SHEET 43 OF 70

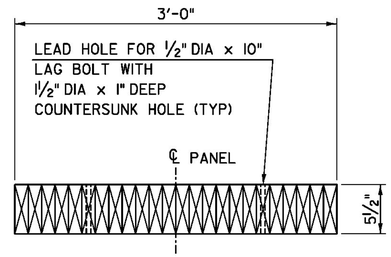


RAMP DECK
PANEL TYPE D - PLAN
SCALE: ½" = 1'-0"

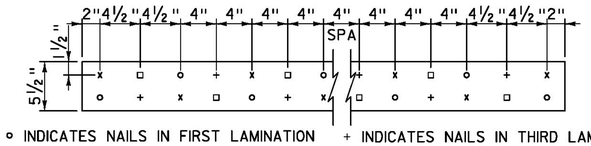
RAMP DECK
PANEL TYPE E - PLAN
SCALE: ½" = 1'-0"



DECK PANEL SECTION A-A - TYPE D
SCALE: 1½" = 1'-0"

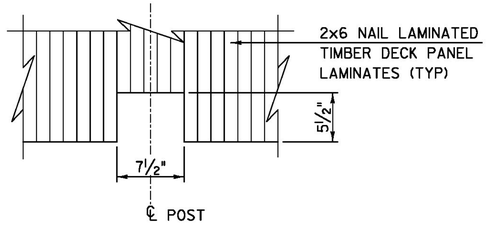


DECK PANEL SECTION B-B - TYPE E
SCALE: 1½" = 1'-0"



○ INDICATES NAILS IN FIRST LAMINATION
× INDICATES NAILS IN SECOND LAMINATION
+ INDICATES NAILS IN THIRD LAMINATION
□ INDICATES NAILS IN THE FIRST BOARD ONLY REVERSED NAILING DIRECTION

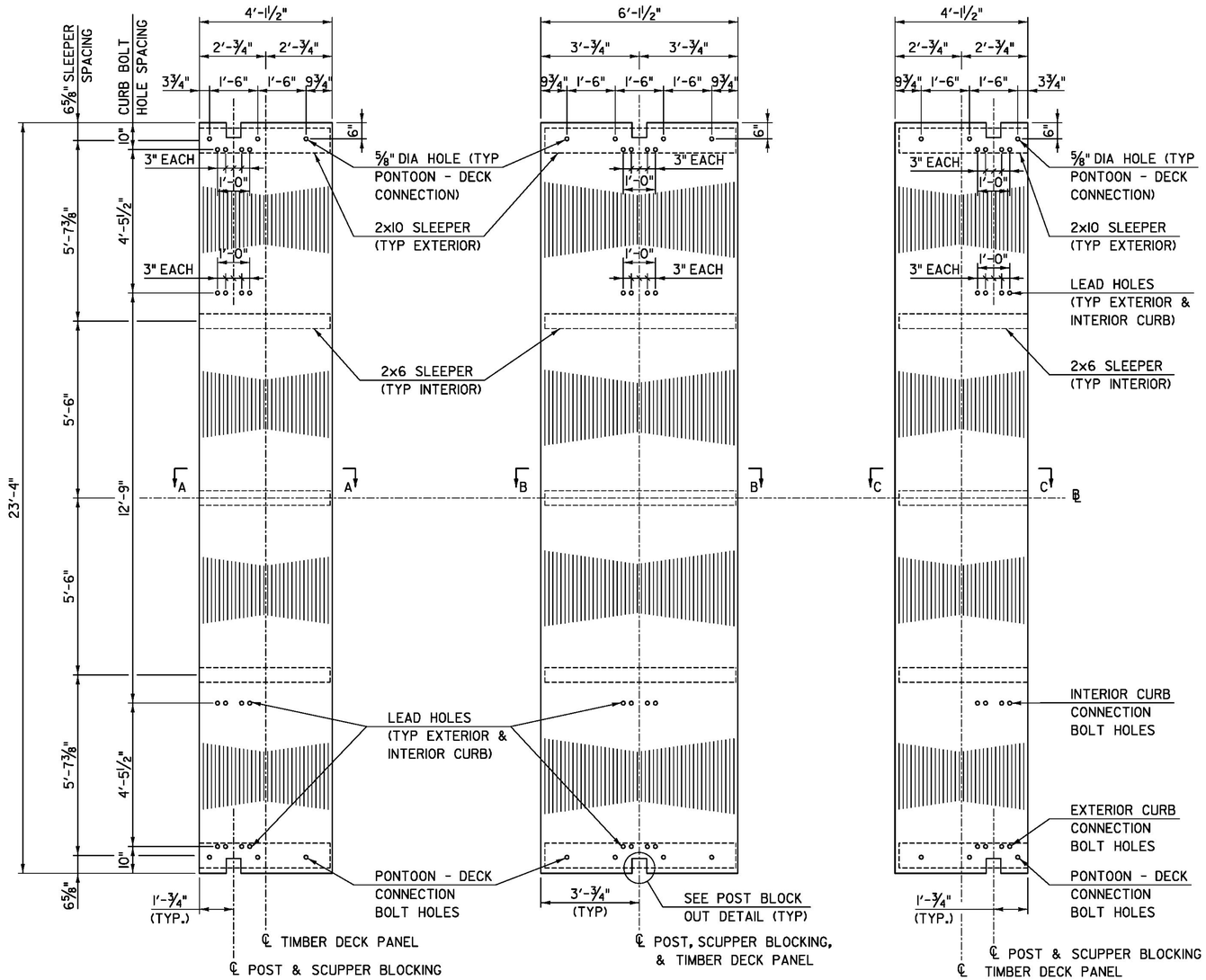
RAMP DECK PANEL - NAIL PATTERN
SCALE: 1½" = 1'-0"



POST BLOCK OUT DETAIL
SCALE: 1½" = 1'-0"

PROJECT NAME:	BROOKFIELD
PROJECT NUMBER:	BRF FLBR(2)
FILE NAME: z12el34bdrdeckpanel.dgn	PLOT DATE: 12/3/2013
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: T. POULIN	CHECKED BY: S. KELLER
RAMP DECK PANELS	SHEET 44 OF 70

TYLIN INTERNATIONAL



FLOATING SPAN DECK PANEL TYPE A - PLAN

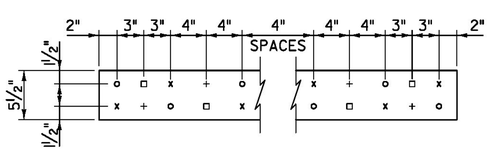
SCALE: ½" = 1'-0"

FLOATING SPAN DECK PANEL TYPE B - PLAN

SCALE: ½" = 1'-0"

FLOATING SPAN DECK PANEL TYPE C - PLAN

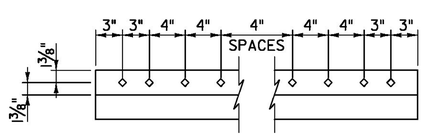
SCALE: ½" = 1'-0"



- o INDICATES NAILS IN FIRST LAMINATION
- x INDICATES NAILS IN SECOND LAMINATION
- \+ INDICATES NAILS IN THIRD LAMINATION
- □ INDICATES NAILS IN THE FIRST BOARD ONLY, REVERSED NAILING DIRECTION

FLOATING SPAN DECK PANEL - NAIL PATTERN

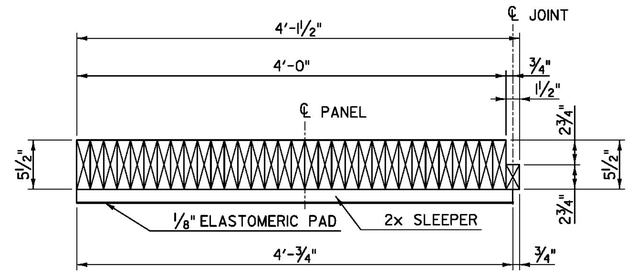
SCALE: 1½" = 1'-0"



SHIP LAP BOARD - NAIL PATTERN

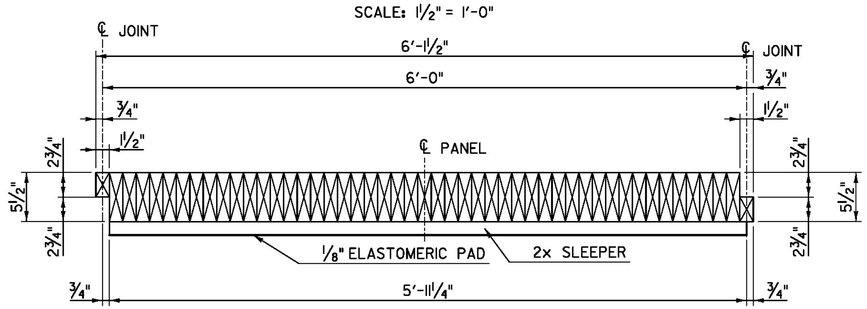
SCALE: 1½" = 1'-0"

(TOP SHIP LAP BOARD SHOWN, BOTTOM SIMILAR)



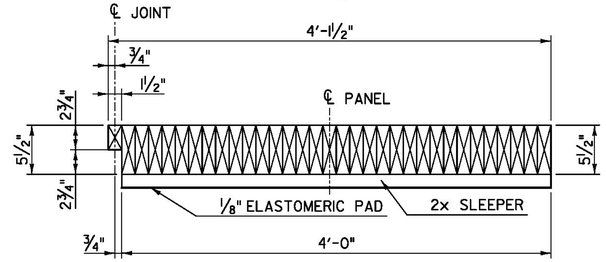
DECK PANEL SECTION A-A - TYPE A

SCALE: 1½" = 1'-0"



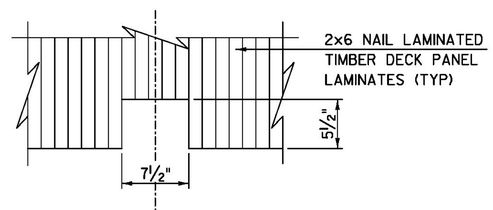
DECK PANEL SECTION B-B - TYPE B

SCALE: 1½" = 1'-0"



DECK PANEL SECTION C-C - TYPE C

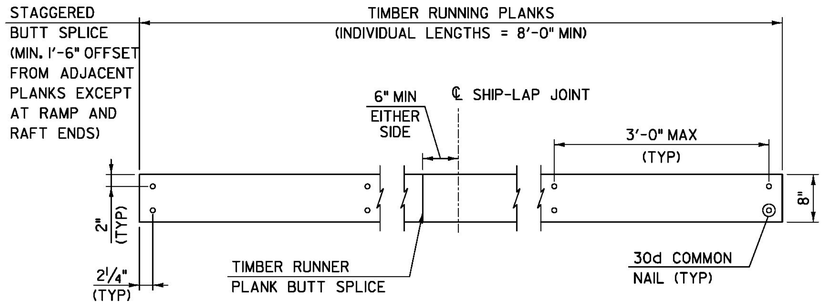
SCALE: 1½" = 1'-0"



POST BLOCK OUT DETAIL

SCALE: 1½" = 1'-0"

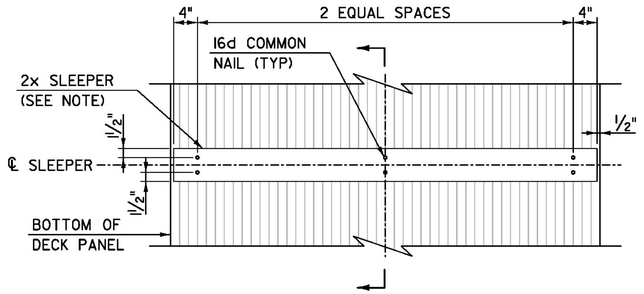
PROJECT NAME: BROOKFIELD	
PROJECT NUMBER: BRF FLBR(2)	
TYLIN INTERNATIONAL	
FILE NAME: z12el34bdrdeckpanel.dgn	PLOT DATE: 12/3/2013
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: T. POULIN	CHECKED BY: S. KELLER
FLOATING SPAN DECK PANELS	SHEET 45 OF 70



NOTE: TIMBER RUNNER PLANK NAILS SHALL BE CENTERED ON NAIL LAMINATED DECK PANEL LAMINATES.

RUNNER PLANK ATTACHMENT DETAIL - PLAN

SCALE: 1" = 1'-0"

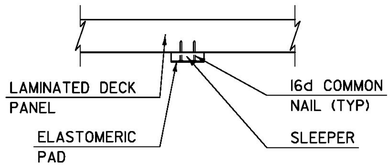


SLEEPER DETAIL - PLAN

SCALE: 1" = 1'-0"

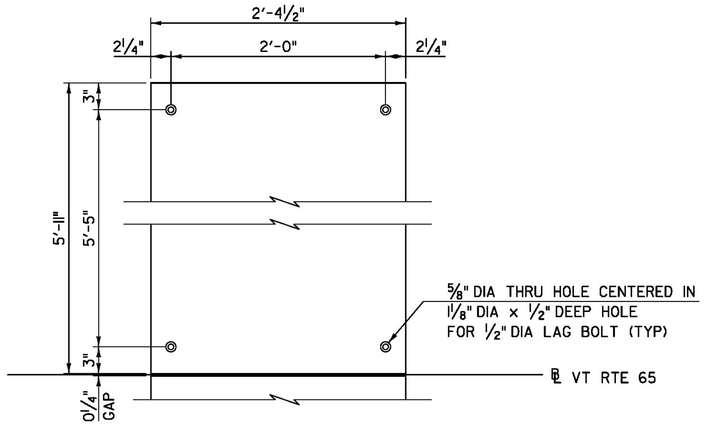
NOTE:

1. ⅛" THICK ELASTOMERIC PADS CONFORMING TO THE LENGTH AND WIDTH OF THE SLEEPER SHALL BE PLACED BENEATH THE SLEEPERS AND ATTACHED TO THE SLEEPERS WITH THE SAME NAILS USED TO ATTACH THE SLEEPER TO THE DECK.



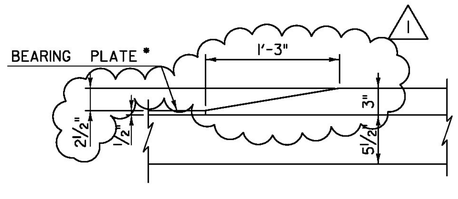
SECTION

SCALE: 1" = 1'-0"



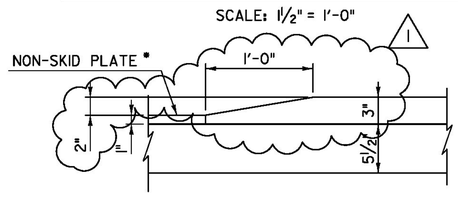
STEEL COVER PLATE PLAN OVER RAFT FIELD SPLICE LOCATIONS

SCALE: 1½" = 1'-0"



TIMBER RUNNER PLANK BEVEL DETAIL 1

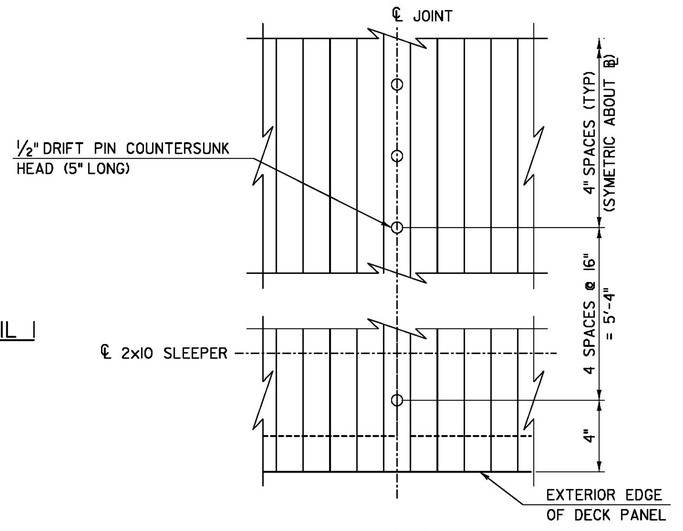
SCALE: 1½" = 1'-0"



TIMBER RUNNER PLANK BEVEL DETAIL 2

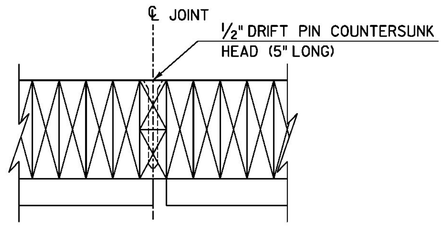
SCALE: 1½" = 1'-0"

* NON-SKID AND BEARING PLATES ARE COMPONENTS OF THE SPECIAL PROVISION (EXPANSION DEVICE, HINGED SLIDING PLATE ASSEMBLY). SEE SHEET 51 FOR LOCATION AND DETAILS.



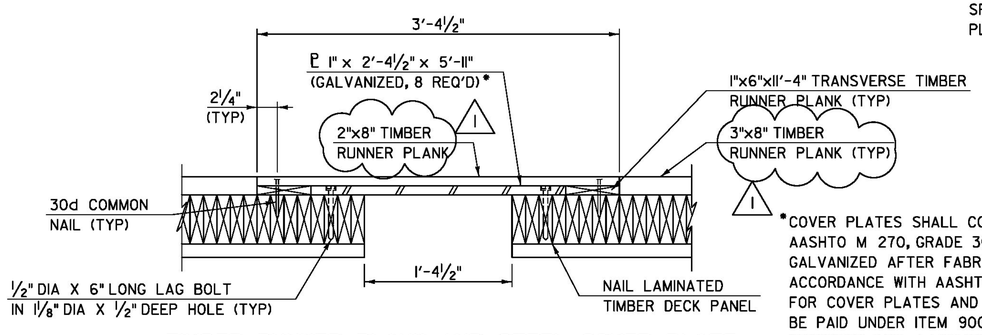
SHIP-LAP DETAIL - PLAN

SCALE: 3" = 1'-0"



SHIP-LAP DETAIL - SECTION

SCALE: 3" = 1'-0"



TIMBER RUNNER PLANK AND STEEL COVER PLATE DETAIL OVER RAFT FIELD SPLICES

SCALE: 1½" = 1'-0"

*COVER PLATES SHALL CONFORM TO AASHTO M 270, GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M 111. COSTS FOR COVER PLATES AND HARDWARE SHALL BE PAID UNDER ITEM 900.670, "SPECIAL PROVISION (NAIL LAMINATED TIMBER DECK PANEL)".

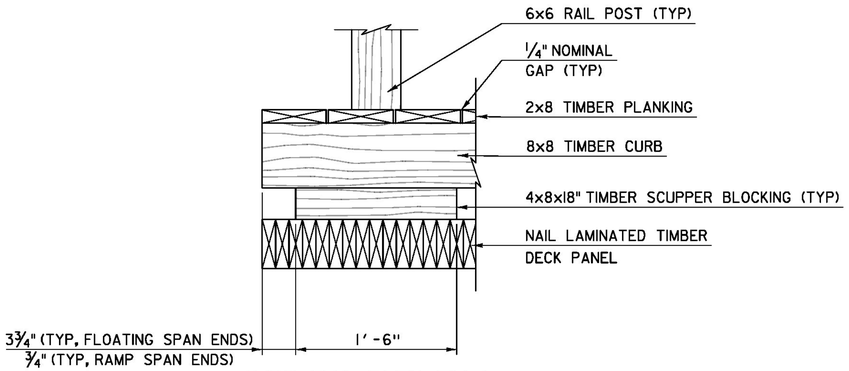
REVISION	DESCRIPTION	DATE
REVISION #1	RUNNER PLANK THICKNESS CHANGE	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

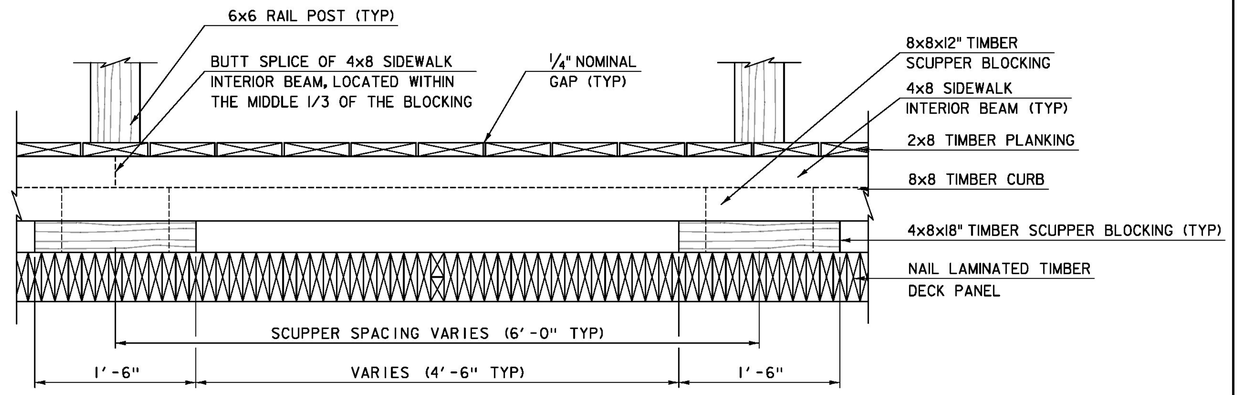
FILE NAME: z12el34bdrdeckdets.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
DECK PANEL DETAILS

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 46 OF 70



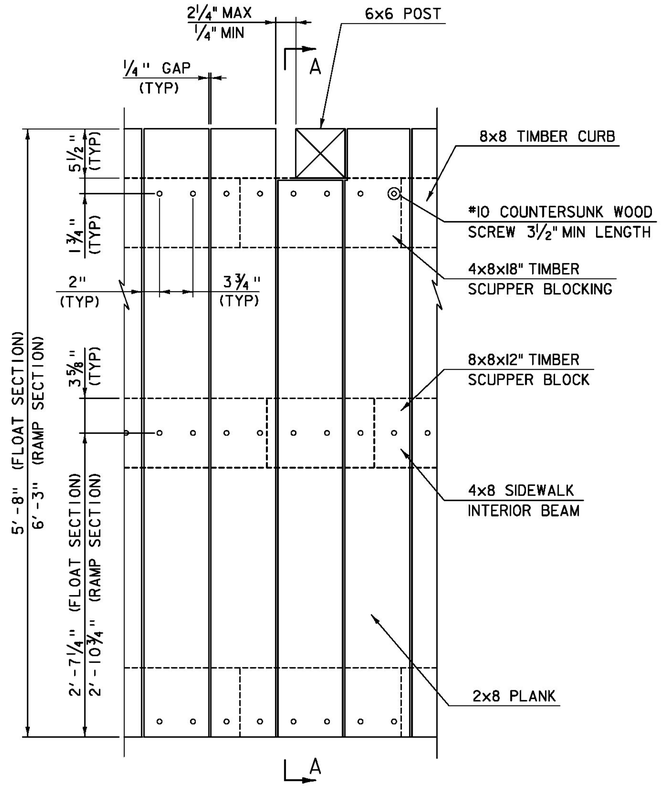
CURB END ELEVATION

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



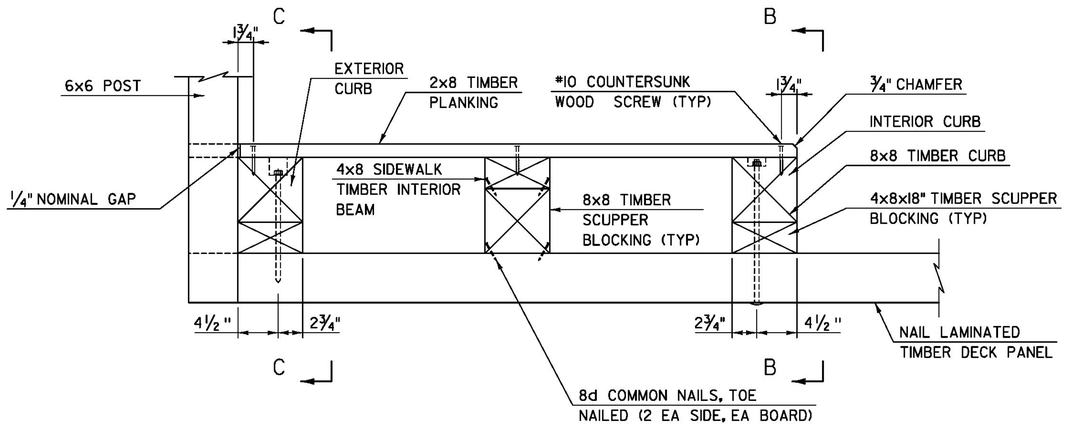
CURB ELEVATION

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



SIDEWALK NAIL PATTERN - PLAN

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



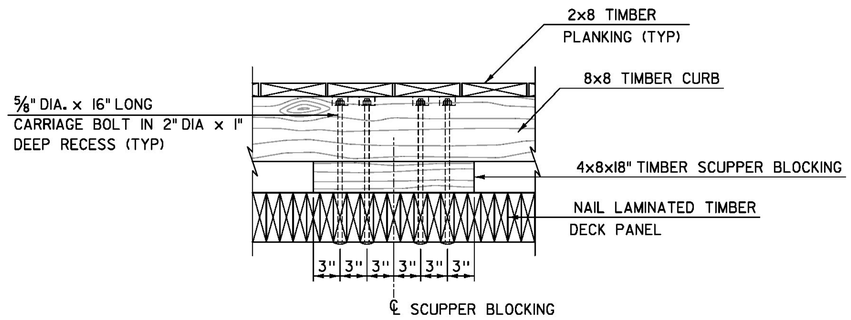
SECTION A-A:

CURB & SIDEWALK

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

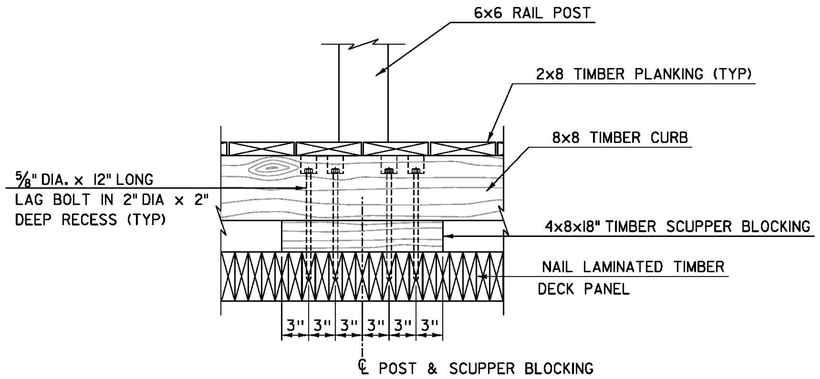
(RAIL POST CONNECTION HARDWARE NOT SHOWN FOR CLARITY)

PROJECT NAME: BROOKFIELD	
PROJECT NUMBER: BRF FLBR(2)	
TYLIN INTERNATIONAL	FILE NAME: z12el34bdrcurbdetsl.dgn
	PROJECT LEADER: J. OLUND
	DESIGNED BY: T. POULIN
	CURB DETAILS 1
	PLOT DATE: 12/3/2013
	DRAWN BY: S. MORGAN
	CHECKED BY: S. KELLER
	SHEET 47 OF 70



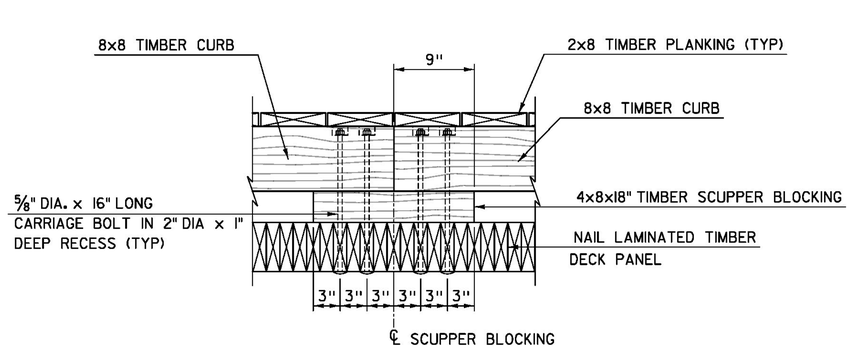
SECTION B-B: INTERIOR CURB ELEVATION

SCALE: 1½" = 1'-0"
(SIDEWALK CONNECTIONS NOT SHOWN
FOR CLARITY)



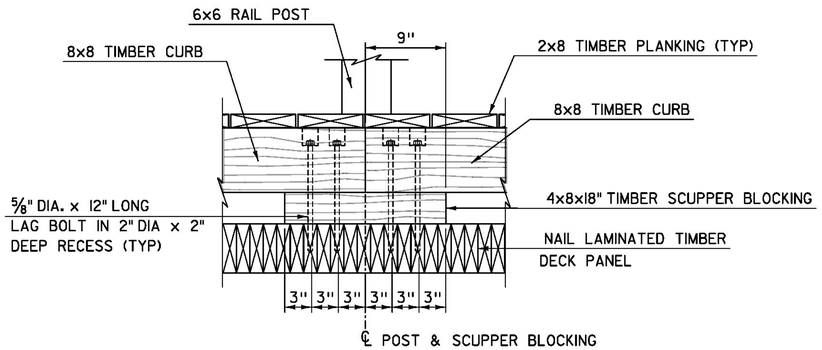
SECTION C-C: EXTERIOR CURB ELEVATION

SCALE: 1½" = 1'-0"
(SIDEWALK CONNECTIONS NOT SHOWN
FOR CLARITY)



SECTION B-B: INTERIOR CURB AT SPLICE

SCALE: 1½" = 1'-0"
(SIDEWALK CONNECTIONS NOT SHOWN
FOR CLARITY)



SECTION C-C: EXTERIOR CURB AT SPLICE

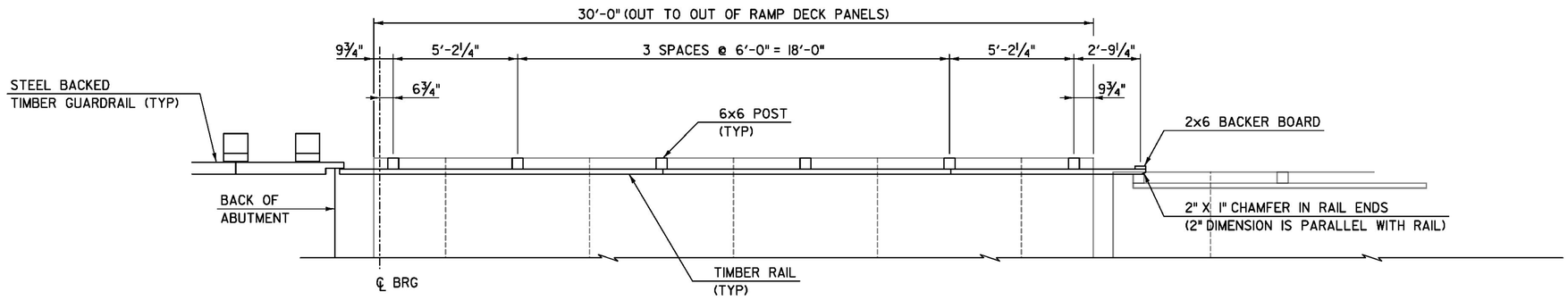
SCALE: 1½" = 1'-0"
(SIDEWALK CONNECTIONS NOT SHOWN
FOR CLARITY)

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

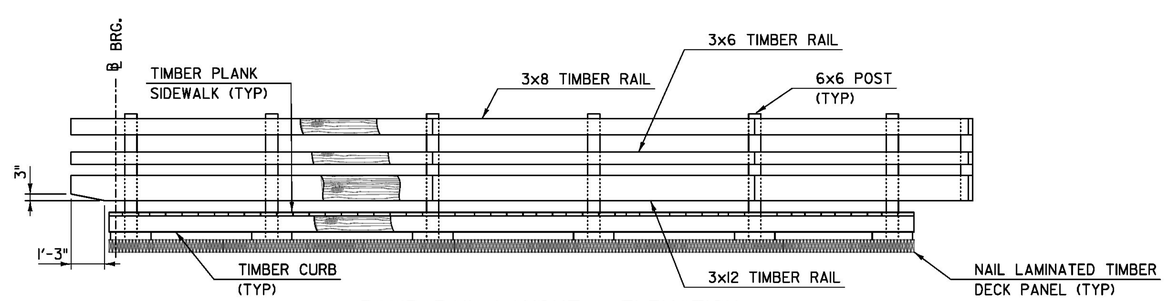
FILE NAME: z12el34bdrcurbdets2.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
CURB DETAILS 2

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: S. KELLER
SHEET 48 OF 70



RAIL POST LAYOUT - RAMP PLAN

SCALE: ⅜" = 1'-0"
(BOTH SIDES SIMILAR, SIDEWALK PLANKS AND CURB BOARDS NOT SHOWN FOR CLARITY)

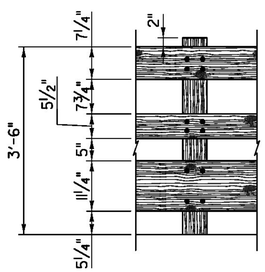


RAMP RAIL LAYOUT - ELEVATION

SCALE: ⅜" = 1'-0"
(BOTH SIDES SIMILAR)

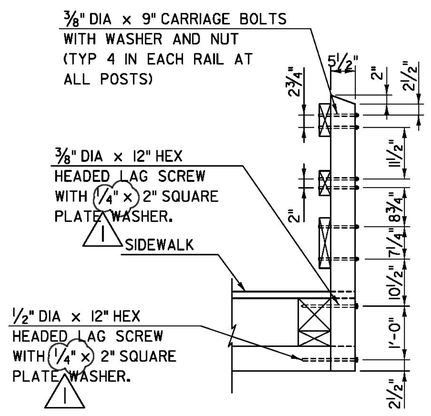
NOTES:

1. TIMBER RAILS SHALL BE ATTACHED TO A MINIMUM OF 3 POSTS, OR 2 POSTS AND THE BACKER BOARD.
2. NO POSITIVE CONNECTION SHALL BE MADE BETWEEN THE RAMP TIMBER RAILING AND EITHER THE STEEL BACKED TIMBER GUARDRAIL OR THE FLOATING SPAN TIMBER RAILING.



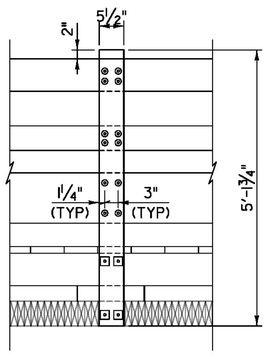
TIMBER PEDESTRIAN RAIL - FRONT ELEVATION

SCALE: ¾" = 1'-0"



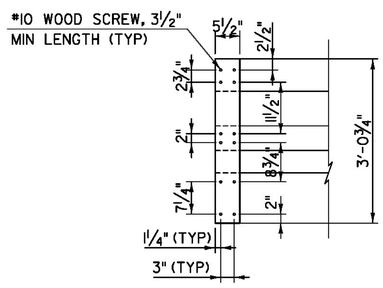
RAIL POST - RAMP SECTION

SCALE: ¾" = 1'-0"



RAIL POST - BACK ELEVATION

SCALE: ¾" = 1'-0"



2x6 BACKER BOARD - BACK ELEVATION

SCALE: ¾" = 1'-0"

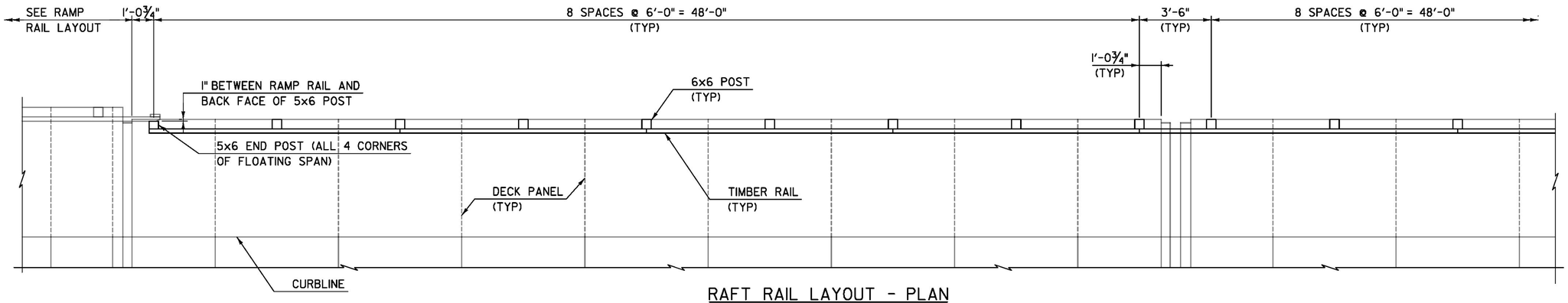
REVISION	DESCRIPTION	DATE
REVISION #1	WASHER THICKNESS ADDED	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

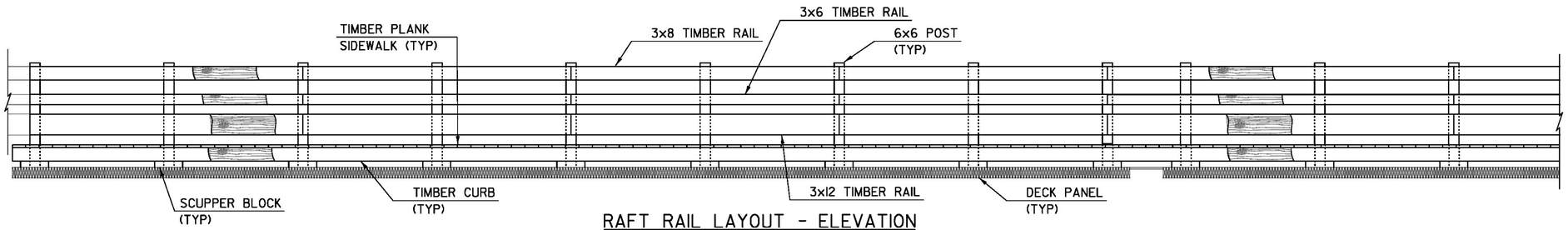
FILE NAME: z12el34bdrraillayr.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. KELLER
RAMP RAILING LAYOUT & DETAILS

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 49 OF 70



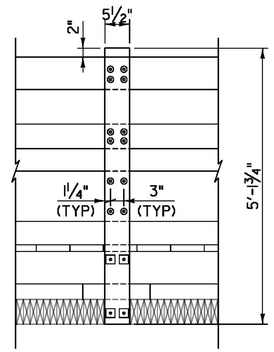
RAFT RAIL LAYOUT - PLAN

SCALE: ⅜" = 1'-0"
(BOTH SIDES SIMILAR, SIDEWALK PLANKS AND CURB BOARDS NOT SHOWN FOR CLARITY)



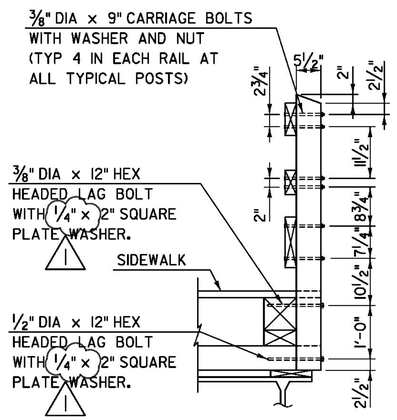
RAFT RAIL LAYOUT - ELEVATION

SCALE: ⅜" = 1'-0"
(BOTH SIDES SIMILAR)



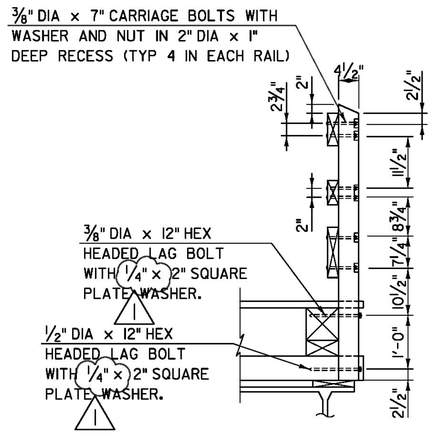
RAIL POST - BACK ELEVATION

SCALE: ¾" = 1'-0"



TYPICAL RAIL POST - RAFT SECTION

SCALE: ¾" = 1'-0"



5x6 END POST - RAFT SECTION

SCALE: ¾" = 1'-0"

NOTES:

1. TIMBER RAILS SHALL BE ATTACHED TO A MINIMUM OF 3 POSTS.

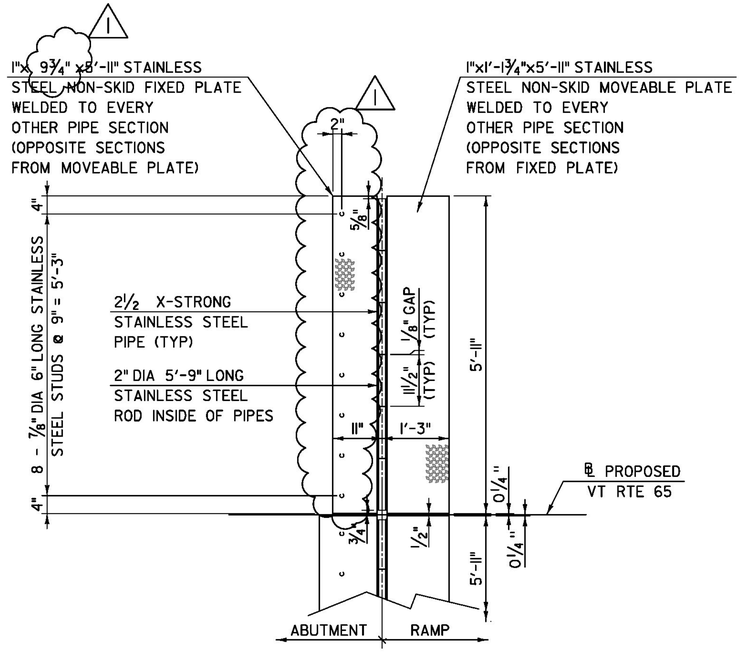
REVISION	DESCRIPTION	DATE
REVISION #1	WASHER THICKNESS ADDED	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

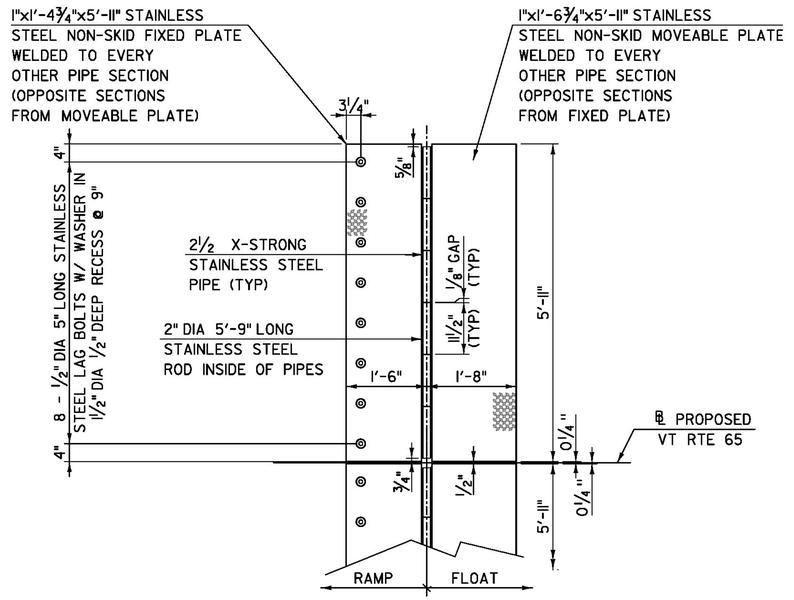
FILE NAME: zl2el34bdrraillayf.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. KELLER
FLOATING SPAN RAILING LAYOUT & DETAILS

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 50 OF 70



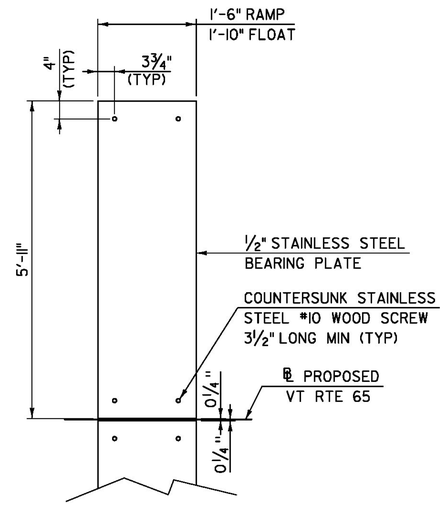
ABUTMENT / RAMP - ROADWAY ASSEMBLY

SCALE: ¾" = 1'-0"



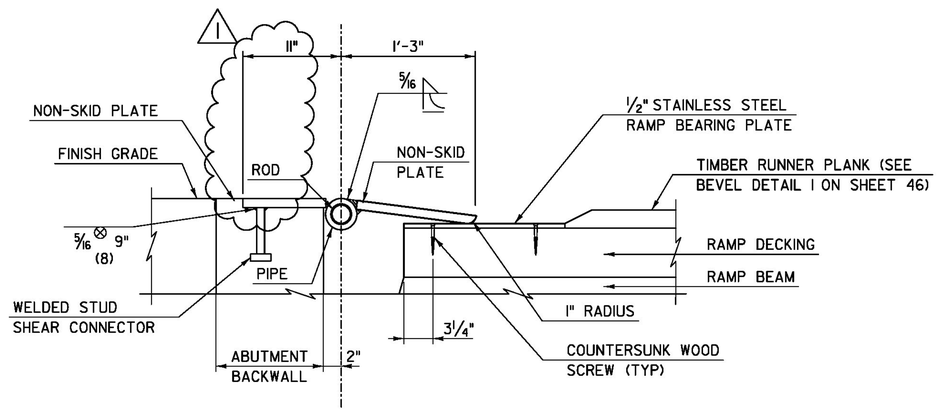
RAMP / FLOAT - ROADWAY ASSEMBLY

SCALE: ¾" = 1'-0"



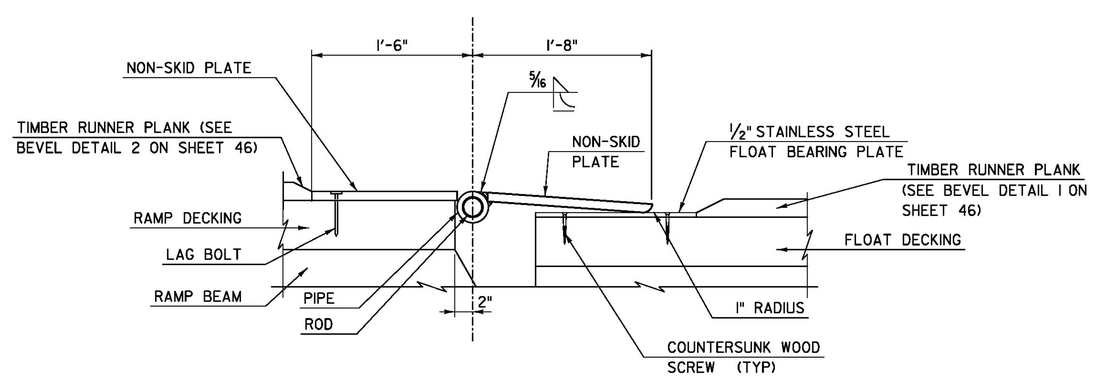
BEARING PLATE

SCALE: ¾" = 1'-0"



ABUTMENT / RAMP - ROADWAY SECTION

SCALE: 1½" = 1'-0"



RAMP / FLOAT - ROADWAY SECTION

SCALE: 1½" = 1'-0"

NOTE:

1. STEEL PIPES SHALL HAVE A MINIMUM 2⅛" INNER DIAMETER.
2. ALL COSTS ASSOCIATED WITH SLIDING PLATE ASSEMBLY WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.640 SPECIAL PROVISION (EXPANSION DEVICE, HINGED SLIDING PLATE ASSEMBLY).
3. NON-SKID PLATES SHALL HAVE A DIAMOND (TREAD/CHECKERED) PATTERN ON THE TRAVEL SURFACE. NON-SKID PATTERN SHALL BE IN GENERAL CONFORMANCE WITH THE GEOMETRIC REQUIREMENTS OF ASTM A 793.

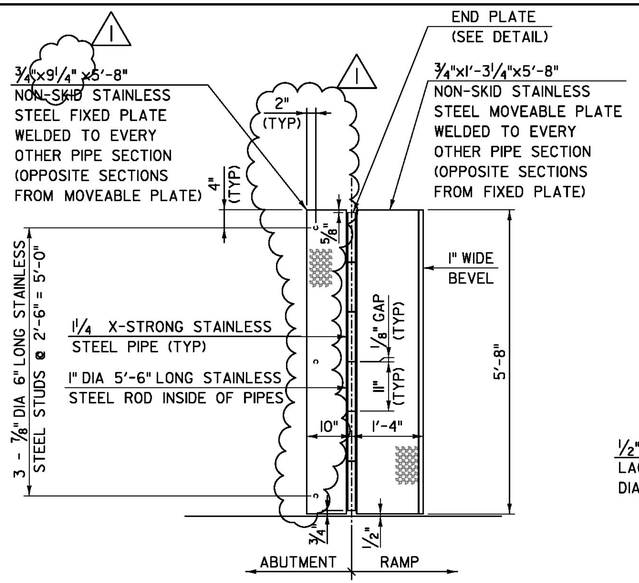
REVISION	DESCRIPTION	DATE
REVISION #1	HINGE PLATE CHANGE	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

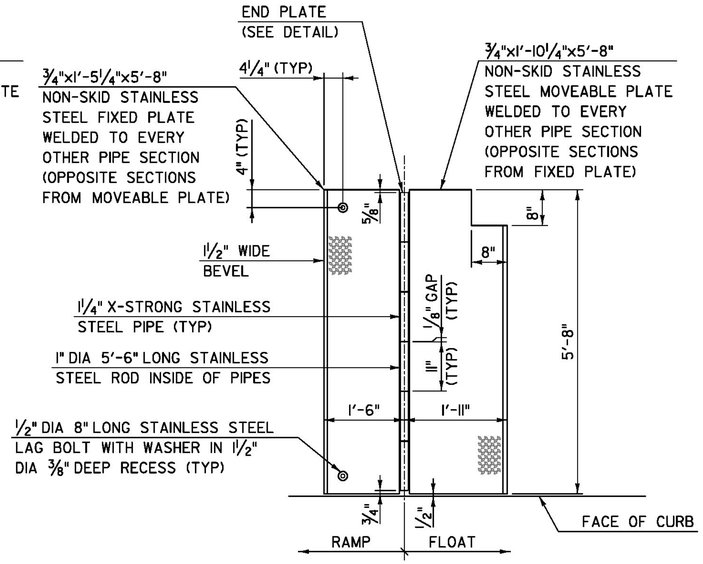
FILE NAME: zl2el34bdrstelconn2.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. KELLER
HINGED SLIDING PLATE ASSEMBLY - ROADWAY

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS
SHEET 51 OF 70



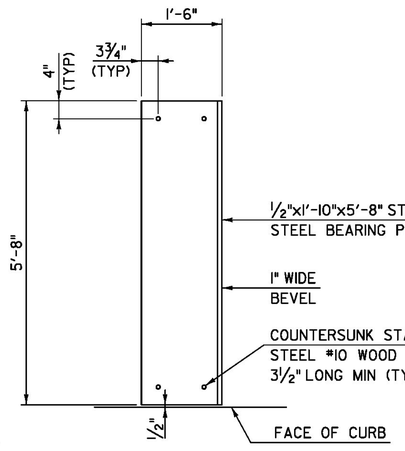
ABUTMENT / RAMP - SIDEWALK ASSEMBLY

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



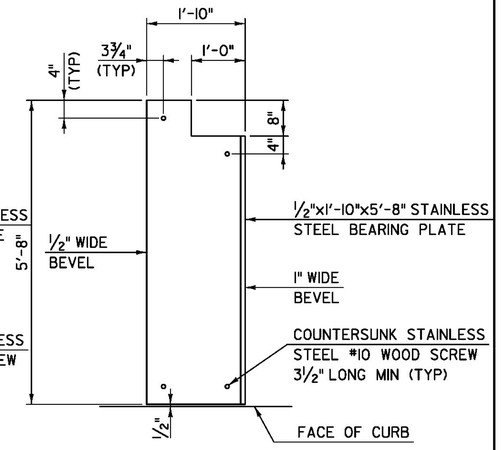
RAMP / FLOAT - SIDEWALK ASSEMBLY

SCALE: 3/4" = l'-0"
(NW AND SE CORNERS OF FLOAT SHOWN)
(ASSEMBLIES AT SW AND NE CORNERS OF
FLOAT MIRRORED ABOUT CL ROADWAY)



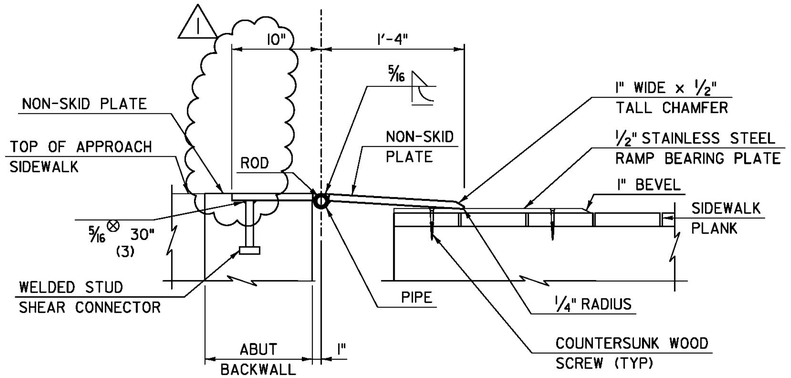
RAMP - BEARING PLATE

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



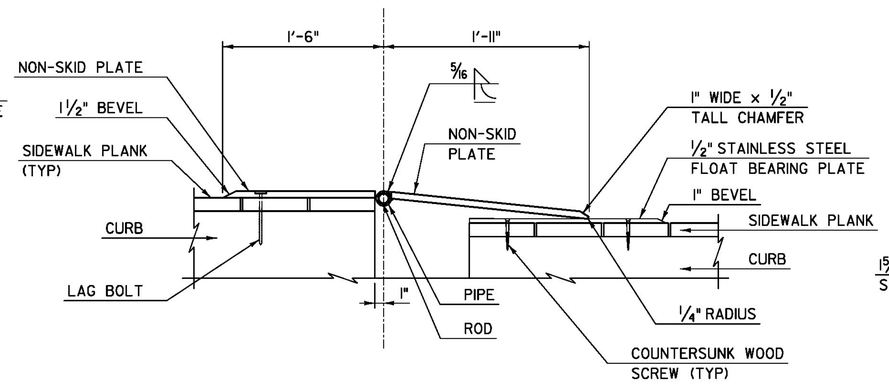
FLOAT - BEARING PLATE

SCALE: 3/4" = l'-0"
(NW AND SE CORNERS OF FLOAT SHOWN)
(ASSEMBLIES AT SW AND NE CORNERS OF
FLOAT MIRRORED ABOUT CL ROADWAY)



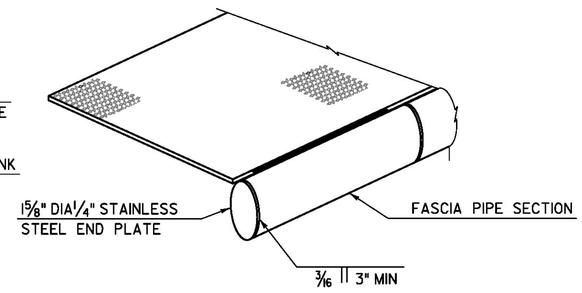
ABUTMENT / RAMP - SIDEWALK SECTION

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



RAMP / FLOAT - SIDEWALK SECTION

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



END PLATE

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

NOTES:

1. WELDS ON TOP OF HINGE ASSEMBLIES SHALL BE GROUND FLUSH.
2. STEEL PIPES SHALL HAVE A MINIMUM 1 1/8" INNER DIAMETER.
3. ALL COSTS ASSOCIATED WITH SLIDING PLATE ASSEMBLY WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.640 SPECIAL PROVISION (EXPANSION DEVICE, HINGED SLIDING PLATE ASSEMBLY).
4. NON-SKID PLATES SHALL HAVE A DIAMOND (TREAD/CHECKERED) PATTERN ON THE TRAVEL SURFACE. NON-SKID PATTERN SHALL BE IN GENERAL CONFORMANCE WITH THE GEOMETRIC REQUIREMENTS OF ASTM A 793.

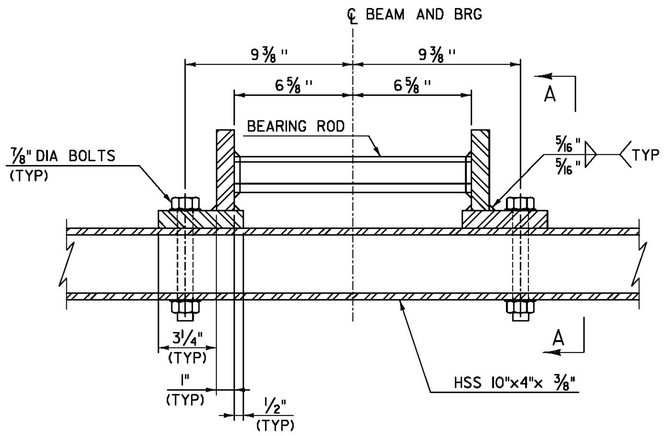
REVISION	DESCRIPTION	DATE
REVISION #1	HINGE PLATE CHANGE	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

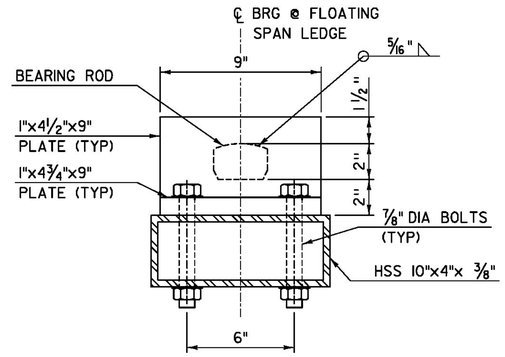
FILE NAME: z12el34bdrstelconn.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: S. KELLER
HINGED SLIDING PLATE ASSEMBLY - SIDEWALK

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: D. MYERS
SHEET 52 OF 70



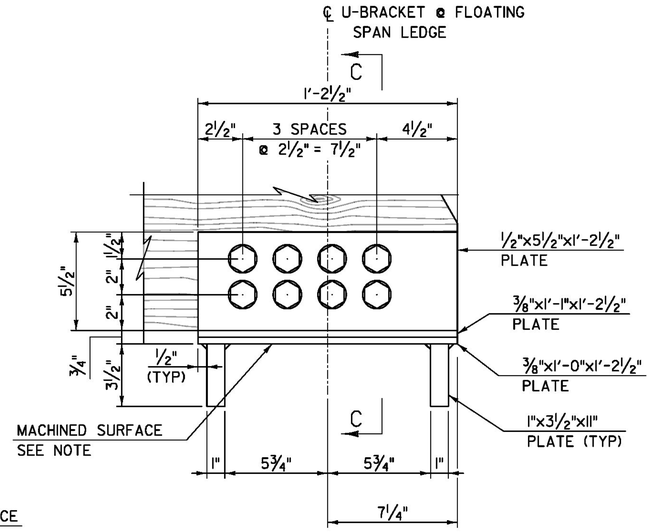
FLOATING SPAN LEDGE BEARING ELEVATION

SCALE: 3" = 1'-0"



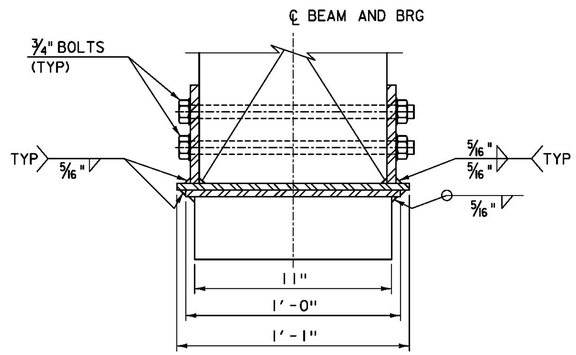
FLOATING SPAN LEDGE SECTION A-A

SCALE: 3" = 1'-0"



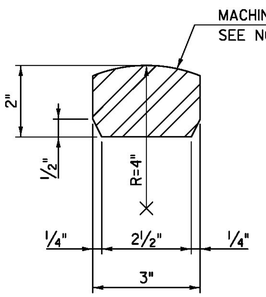
U-BRACKET BEARING DETAIL - FLOATING SPAN LEDGE

SCALE: 3" = 1'-0"



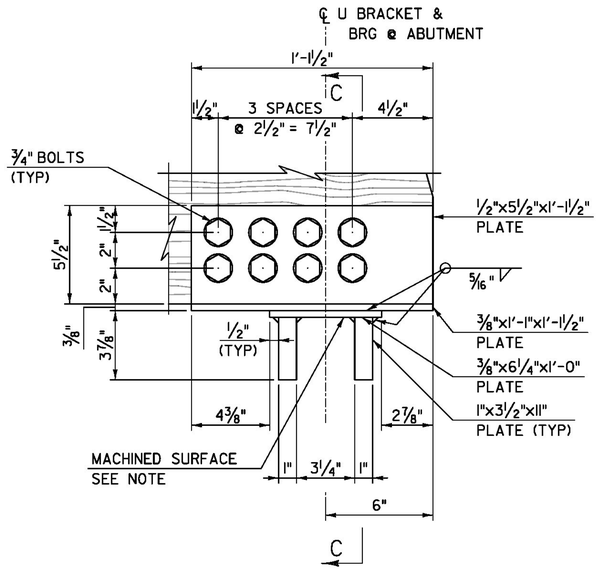
SECTION C-C

SCALE: 3" = 1'-0"



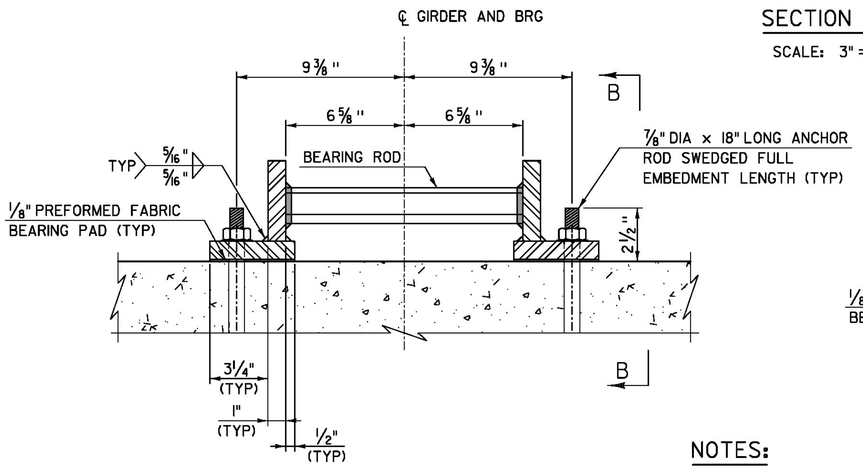
BEARING ROD SECTION

SCALE: 6" = 1'-0"



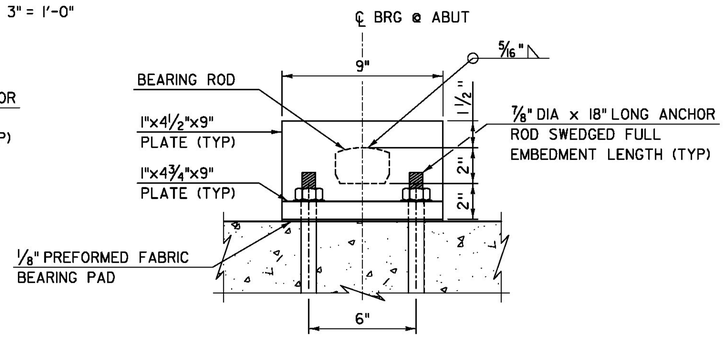
U-BRACKET BEARING DETAIL - ABUTMENT

SCALE: 3" = 1'-0"



ABUTMENT BEARING ELEVATION

SCALE: 3" = 1'-0"



ABUTMENT SECTION B-B

SCALE: 3" = 1'-0"

NOTES:

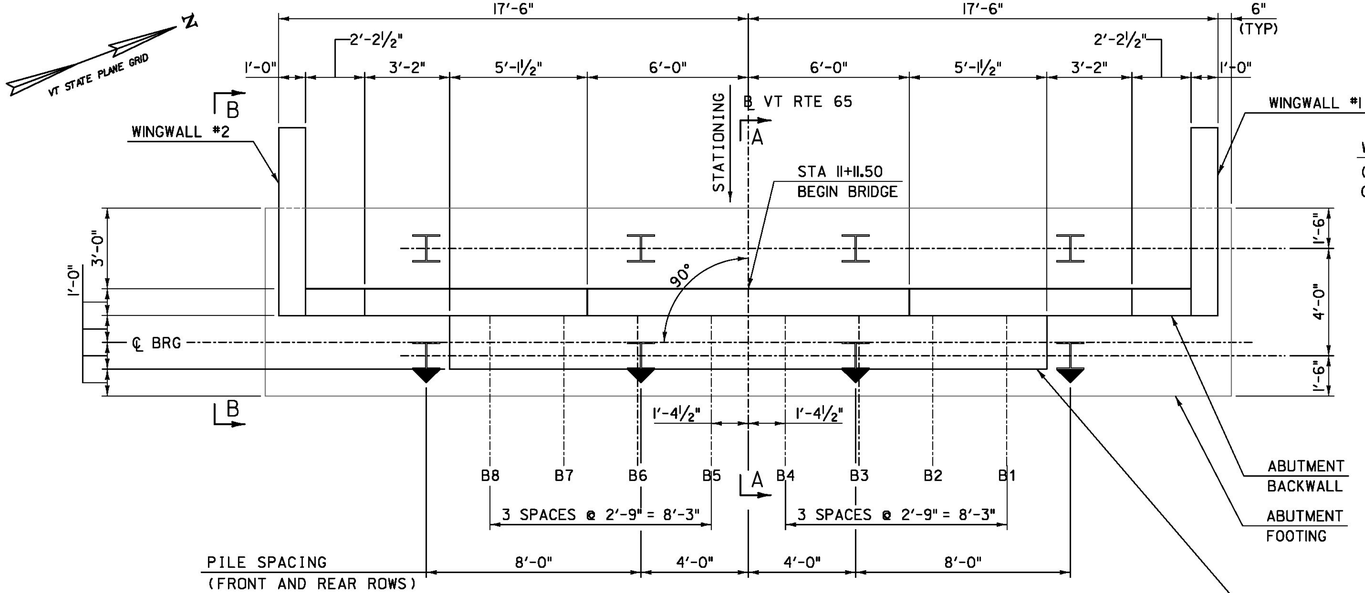
1. SURFACES NOTED AS MACHINED SURFACES SHALL BE FINISHED TO A ROUGHNESS TOLERANCE OF ANSI 250 MICRO-INCHES.
2. PREFORMED FABRIC BEARING PADS SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 731.01, AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.620 "SPECIAL PROVISION (BEARING DEVICE ASSEMBLY, FLOATING BRIDGE)".

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

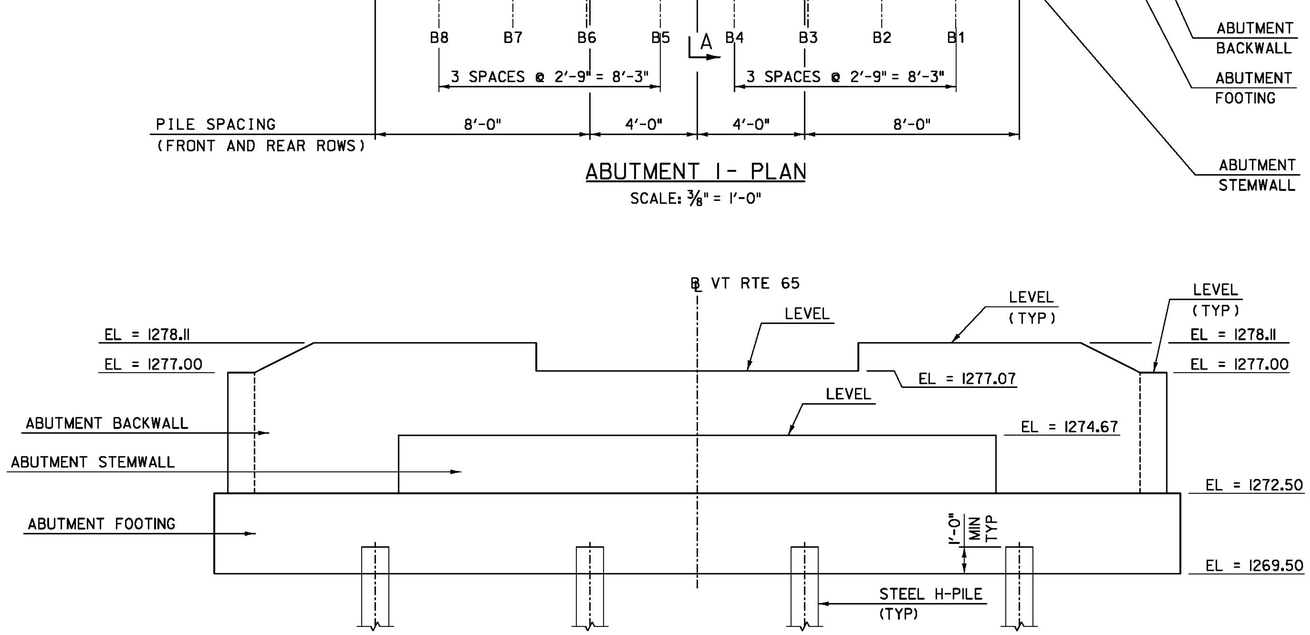
FILE NAME: z12el34bdrbearings.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. MYERS
BEARING DETAILS

PLOT DATE: 12/3/2013
DRAWN BY: S. MORGAN
CHECKED BY: S. KELLER
SHEET 53 OF 70



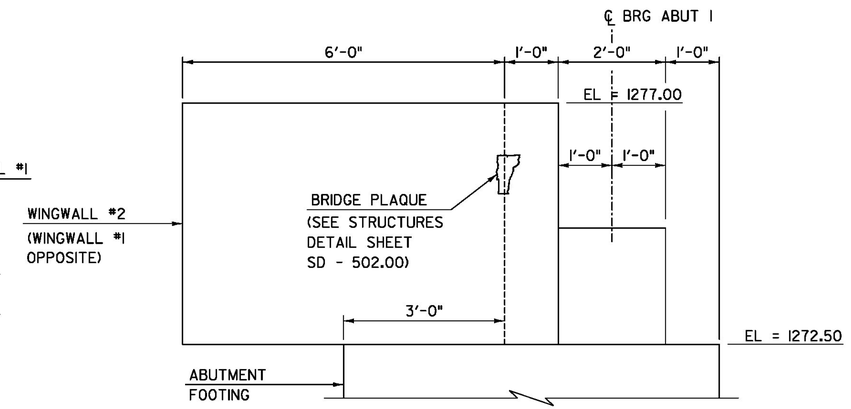
ABUTMENT I - PLAN

SCALE: ⅜" = 1'-0"



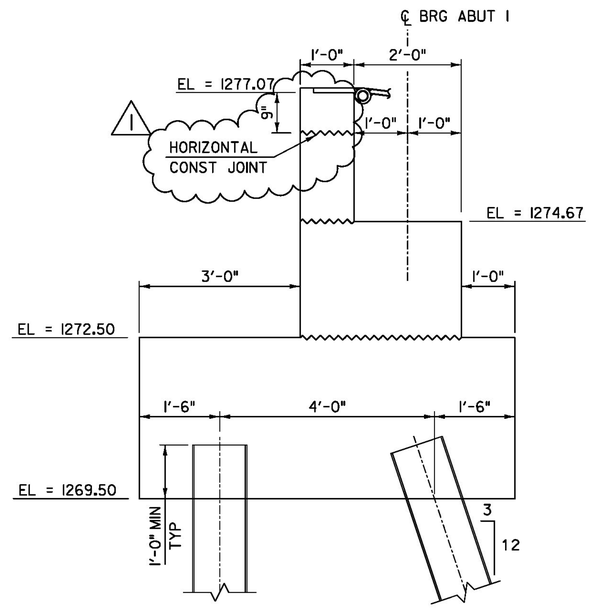
ABUTMENT I - ELEVATION

SCALE: ⅜" = 1'-0"



VIEW B-B

SCALE: ¾" = 1'-0"



SECTION A-A

SCALE: ¾" = 1'-0"

NOTE:

1. ALL ELEVATIONS NOTED ARE AT TOP OF CONCRETE, BENEATH HINGED SLIDING PLATE ASSEMBLY.

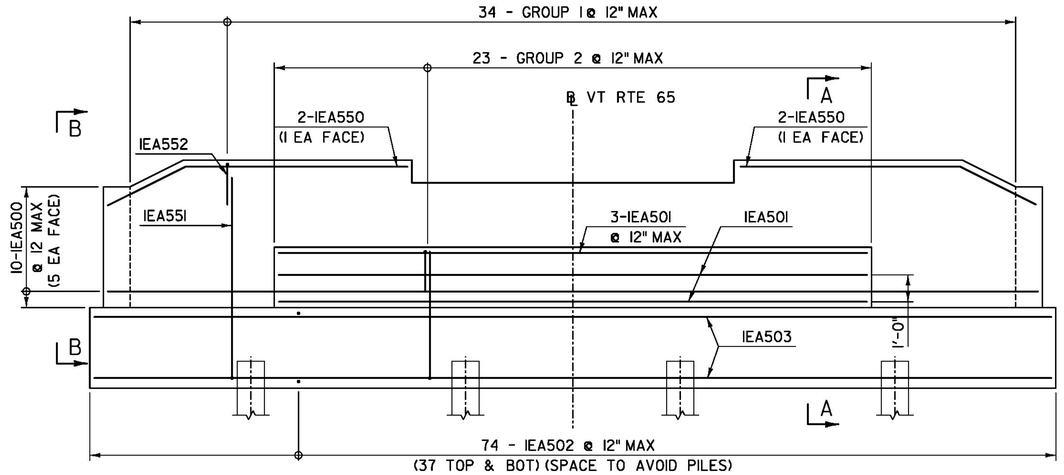
REVISION	DESCRIPTION	DATE
REVISION #1	ADDED CONSTRUCTION JOINT	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

FILE NAME: z12el34bdrabut1.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
ABUTMENT I PLAN, ELEVATION & SECTIONS

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: S. KELLER
SHEET 54 OF 70



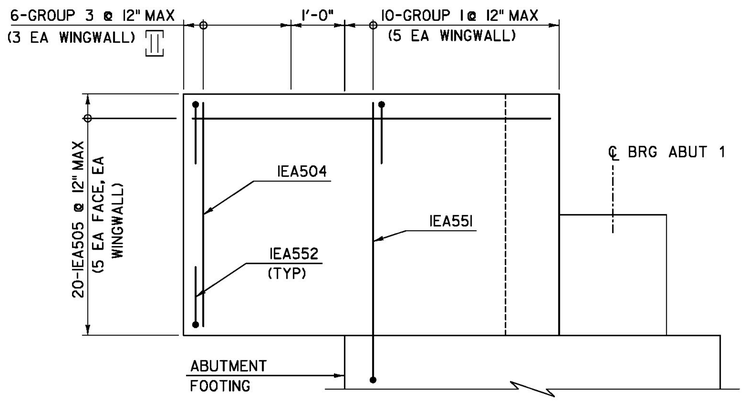
ABUTMENT 1 - REINFORCEMENT

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

GROUP 1:
2-1EA551, 1-1EA552

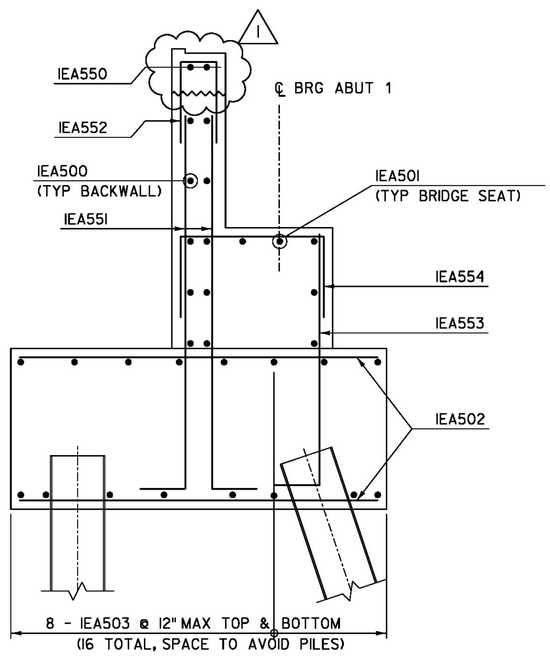
GROUP 2:
1-1EA553, 1-1EA554

GROUP 3:
2-1EA504, 2-1EA552



VIEW B-B

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



SECTION A-A

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

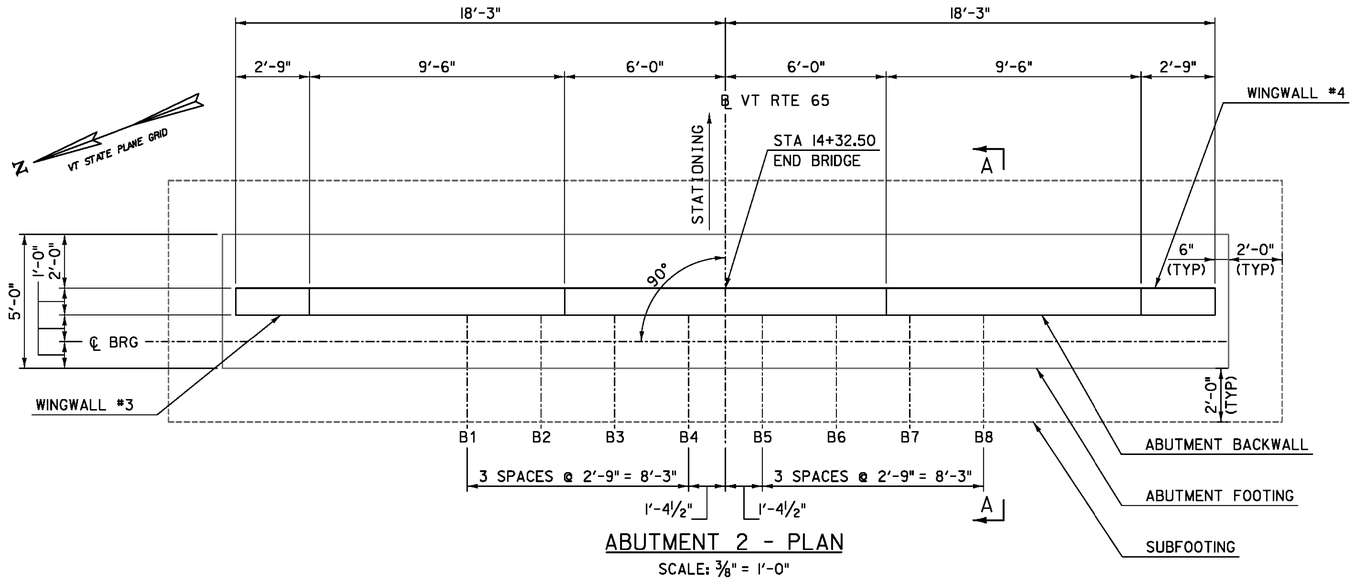
REVISION	DESCRIPTION	DATE
REVISION #1	ADDED CONSTRUCTION JOINT	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

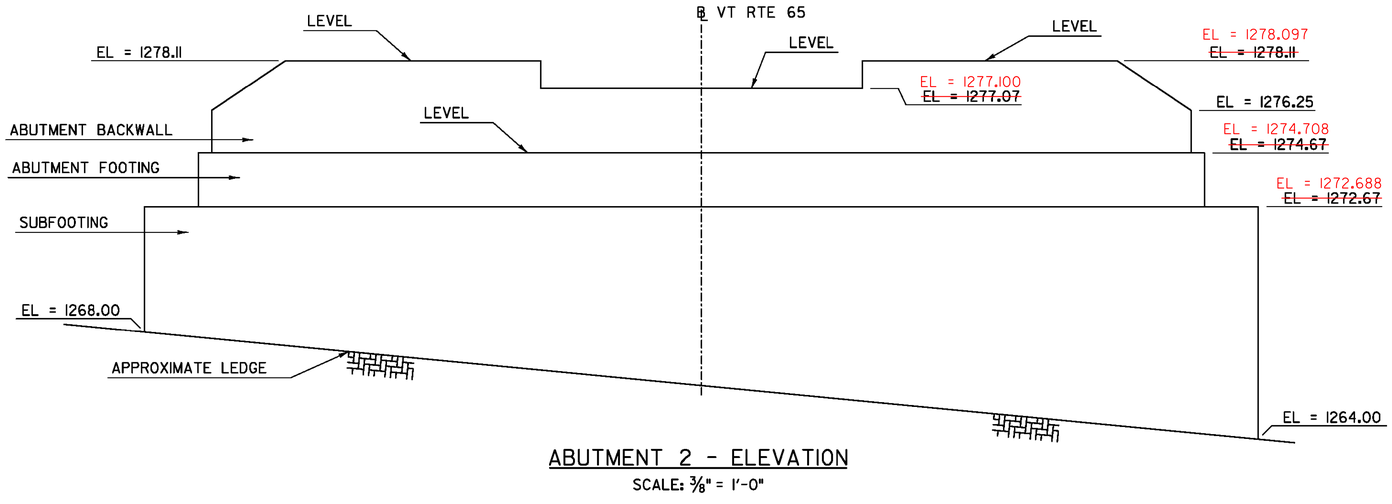
FILE NAME: z12e134bdrabut1r.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
ABUTMENT 1 REINFORCEMENT

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: S. KELLER
SHEET 55 OF 70



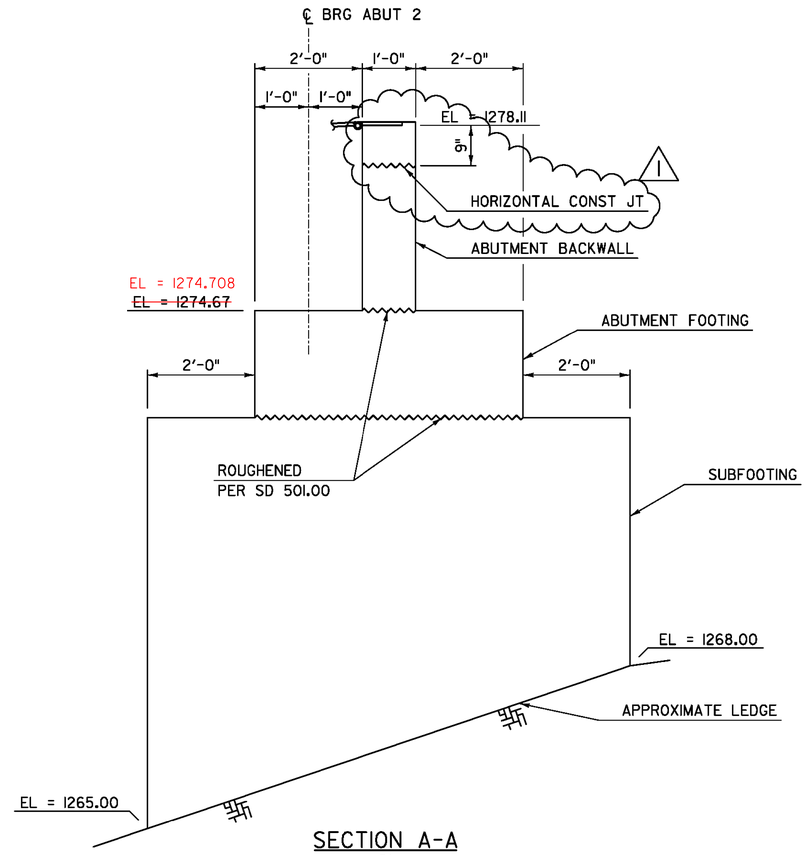
ABUTMENT 2 - PLAN

SCALE: ⅜" = 1'-0"



ABUTMENT 2 - ELEVATION

SCALE: ⅜" = 1'-0"



SECTION A-A

SCALE: ¾" = 1'-0"

NOTES:

1. ALL ELEVATIONS NOTED ARE AT TOP OF CONCRETE, BENEATH HINGED SLIDING PLATE ASSEMBLY.
2. ALL BEDROCK ELEVATIONS ARE APPROXIMATE.

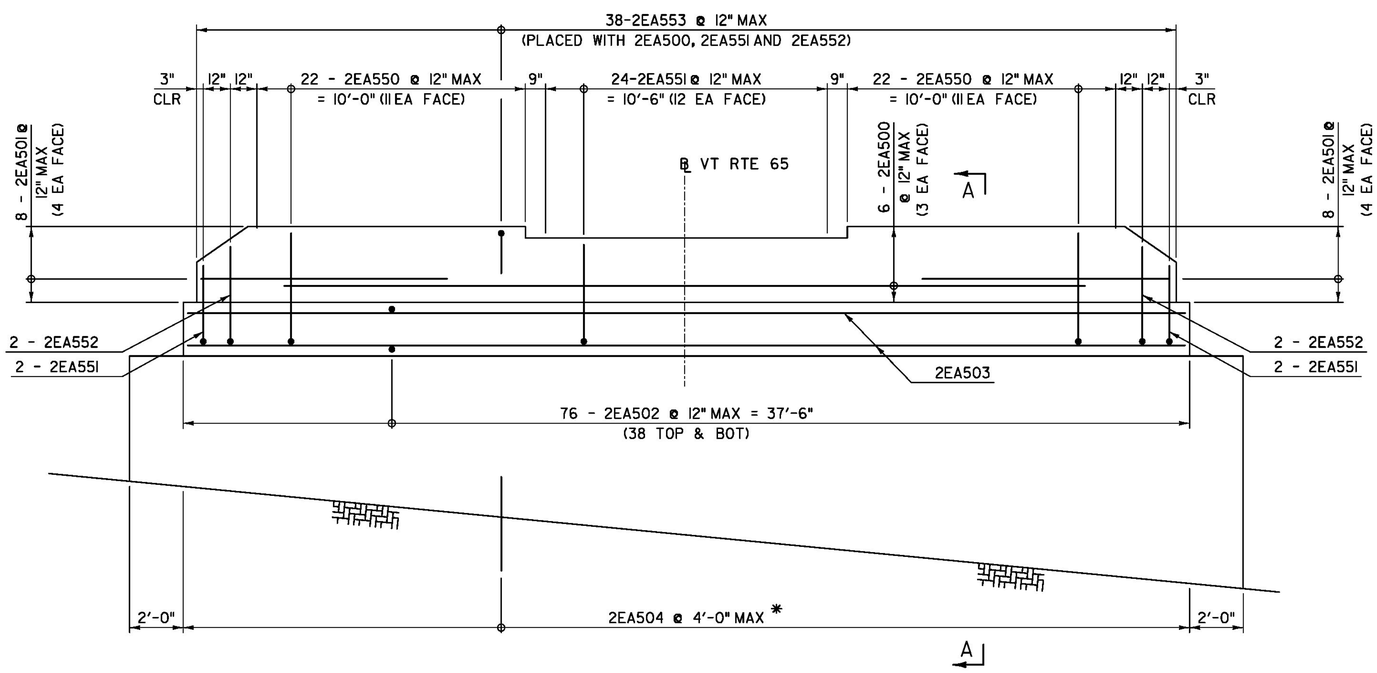
REVISION	DESCRIPTION	DATE
REVISION #1	ADDED CONSTRUCTION JOINT	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

T.Y.LIN INTERNATIONAL

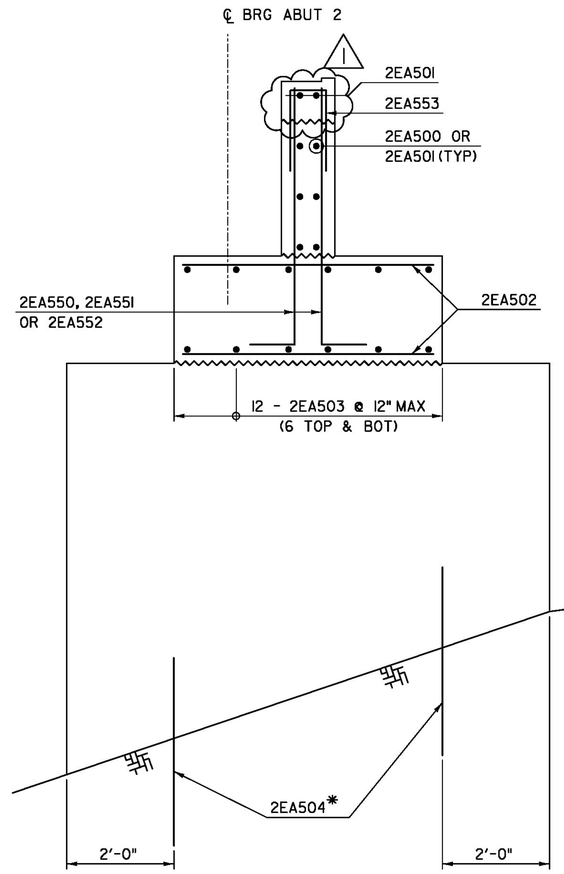
FILE NAME: zl2el34bdrabut2.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
ABUTMENT 2 PLAN, ELEVATION & SECTIONS

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: S. KELLER
SHEET 56 OF 70



ABUTMENT 2 - REINFORCEMENT

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



SECTION A-A

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

*2EA504 BARS SHALL BE DRILLED AND GROUTED INTO BEDROCK AS SHOWN HERE AND NOTED IN THE PROJECT NOTES.

REVISION	DESCRIPTION	DATE
REVISION #1	ADDED CONSTRUCTION JOINT	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

T.Y.LIN INTERNATIONAL

FILE NAME: z12el34bdrabut2r.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
ABUTMENT 2 REINFORCEMENT

PLOT DATE: 2/5/2014
DRAWN BY: S. MORGAN
CHECKED BY: S. KELLER
SHEET 57 OF 70

STATE OF VERMONT
AGENCY OF TRANSPORTATION

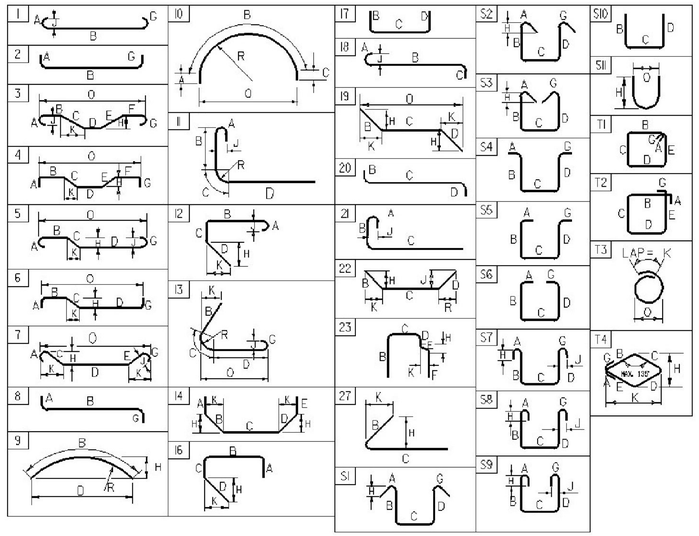
REINFORCING STEEL SCHEDULE

	ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	ABUTMENT 1																	
	10	5		34'- 6"	1EA500	STR												
	5	5		21'- 9"	1EA501	STR												
✳	75	5		6'- 6"	1EA502	STR												
	16	5		35'- 6"	1EA503	STR												
	12	5		4'- 0"	1EA504	STR												
	20	5		6'- 6"	1EA505	STR												
	4	5		11'- 1"	1EA550	19		0'- 0"	7'- 11"	3'- 2"				1'- 5"		2'- 11"		
	88	5		7'- 9"	1EA551	2	0'- 10"	6'- 11"					0'- 0"					
	56	5		5'- 6"	1EA552	17		2'- 6"	0'- 6"	2'- 6"								
	23	5		5'- 7"	1EA553	2	0'- 10"	4'- 9"					0'- 0"					
	23	5		5'- 6"	1EA554	17		1'- 6"	2'- 6"	1'- 6"								
	ABUTMENT 2																	
	6	5		20'- 6"	2EA500	STR												
	16	5		9'- 0"	2EA501	STR												
	76	5		4'- 6"	2EA502	STR												
	12	5		37'- 0"	2EA503	STR												
	22	5		3'- 6"	2EA504	STR												
	44	5		5'- 5"	2EA550	17		4'- 7"	0'- 10"	0'- 0"								
	28	5		4'- 7"	2EA551	2	0'- 10"	3'- 9"					0'- 0"					
	4	5		3'- 11"	2EA552	2	0'- 10"	3'- 1"					0'- 0"					
	38	5		3'- 4"	2EA553	17		1'- 5"	0'- 6"	1'- 5"								

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.



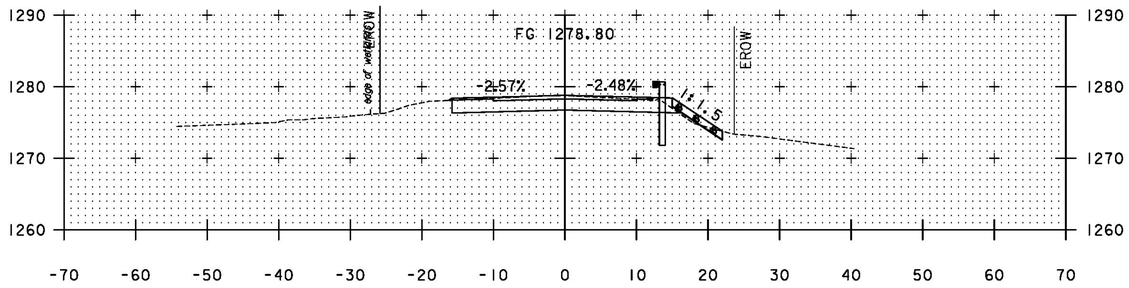
ASTM STANDARD REINFORCING BARS

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

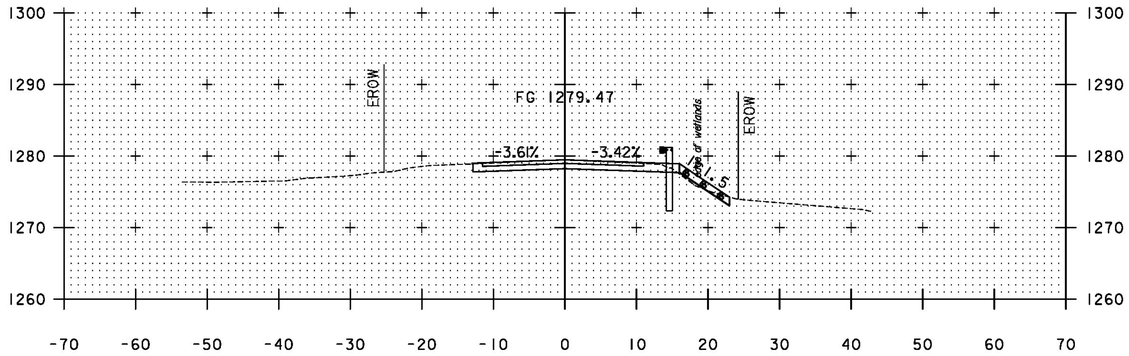
PROJECT NAME: **BROOKFIELD**
PROJECT NUMBER: **BRF FLBR(2)**

FILE NAME: **z12E134rss.xls**
PROJECT MANAGER: **J. OLUND**
DESIGNED BY: **T. POULIN**
REINFORCING STEEL SCHEDULE

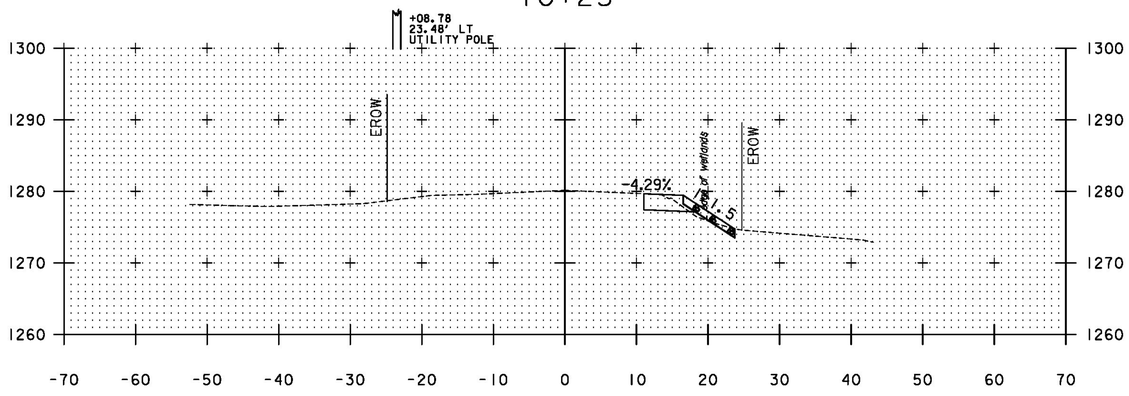
PLOT DATE: **9/25/2013**
DRAWN BY: **T. POULIN**
CHECKED BY: **S. MORGAN**
SHEET **58** OF **70**



10+50



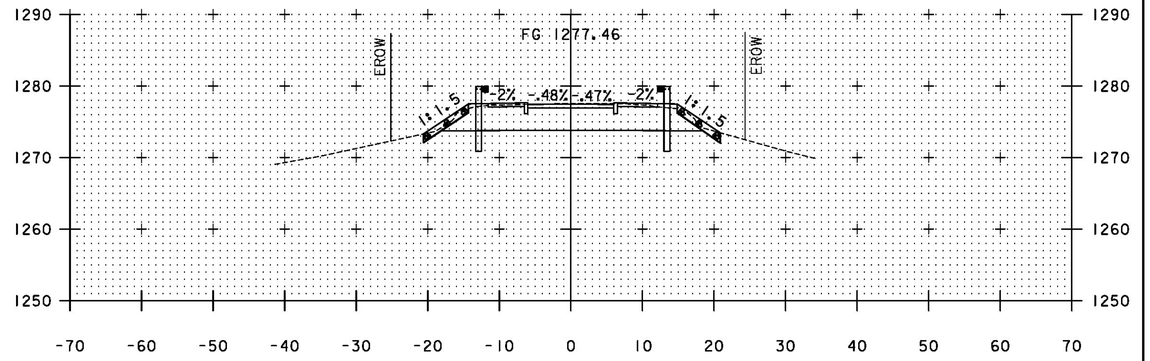
10+25



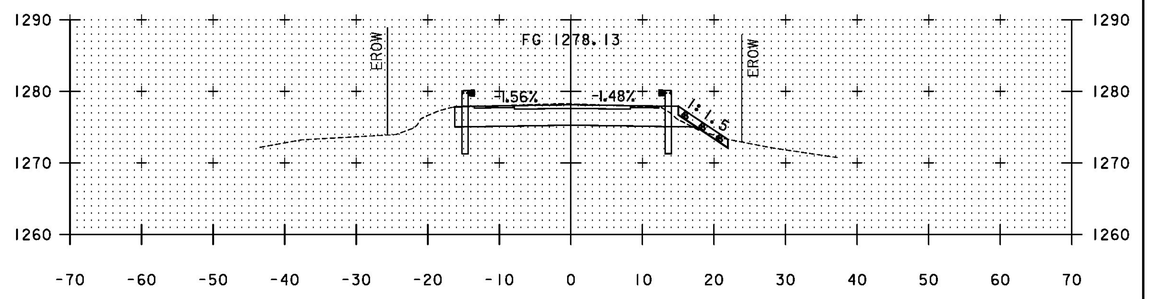
10+03.06

STA 10+03.06
MATCH EXISTING PAVEMENT
BEGIN APPROACH

STA 11+11.50
BEGIN BRIDGE



11+00



10+75

STA 10+55.94
END APPROACH
BEGIN PROJECT

STA 10+03.06 TO STA 11+00

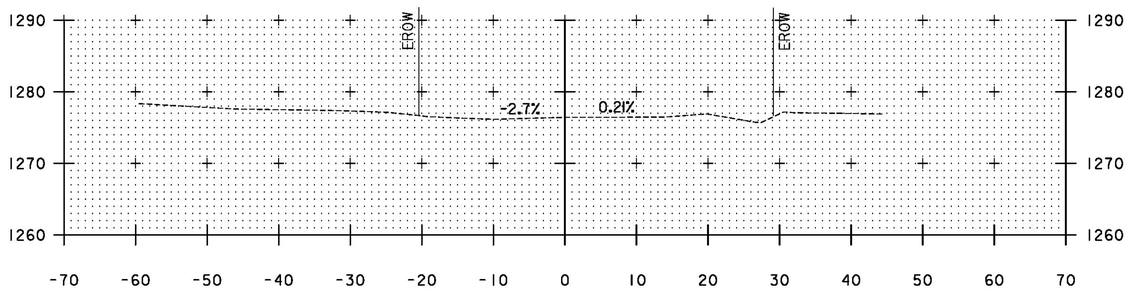
PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TY LIN INTERNATIONAL

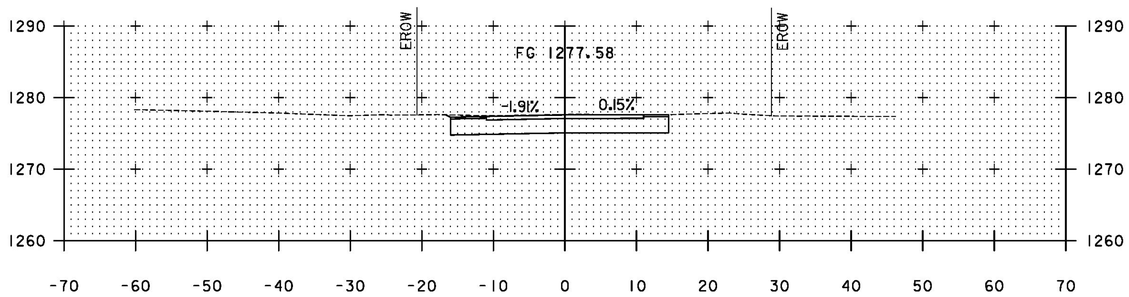
FILE NAME: z12el34bdr_xs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
ROADWAY CROSS SECTIONS 1

PLOT DATE: 12/3/2013
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 59 OF 70

STA 14+92.50
END PROJECT
MATCH EXISTING GRADE

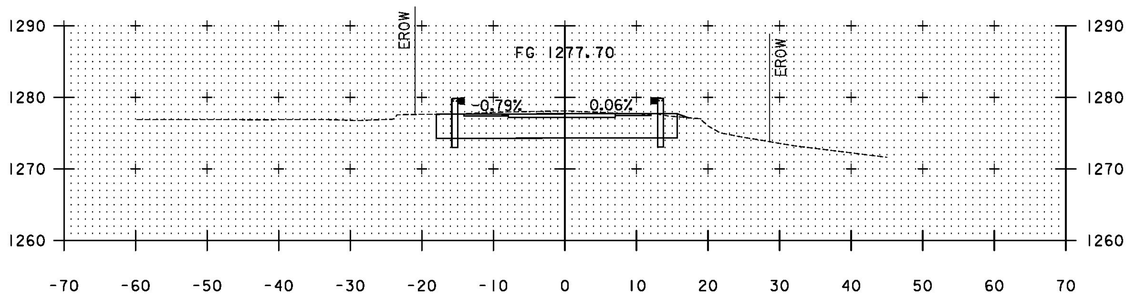


14+92.50



+64.53
22.46' LT
UTILITY POLE

14+75



14+50

+49.17
14.12' RT
DRY HYDRANT

STA 14+32.50
END BRIDGE

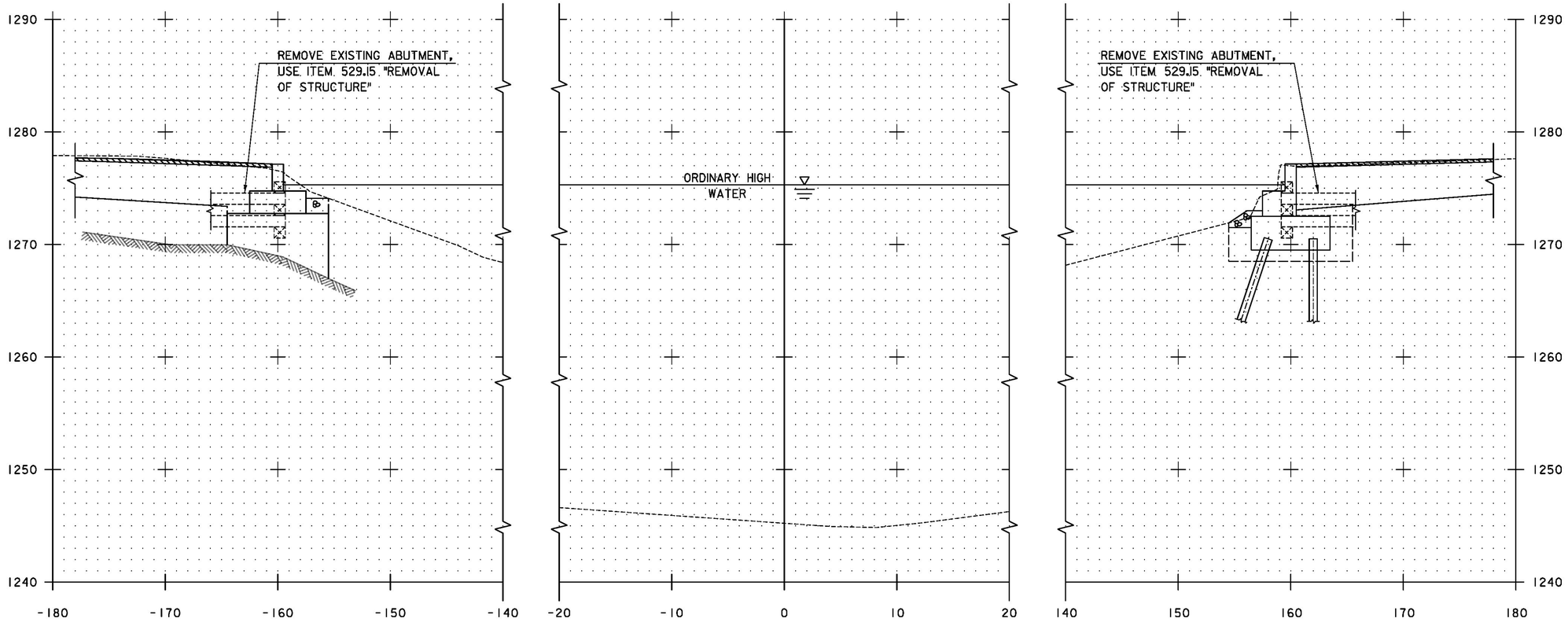
STA 14+50 TO STA 14+92.50

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

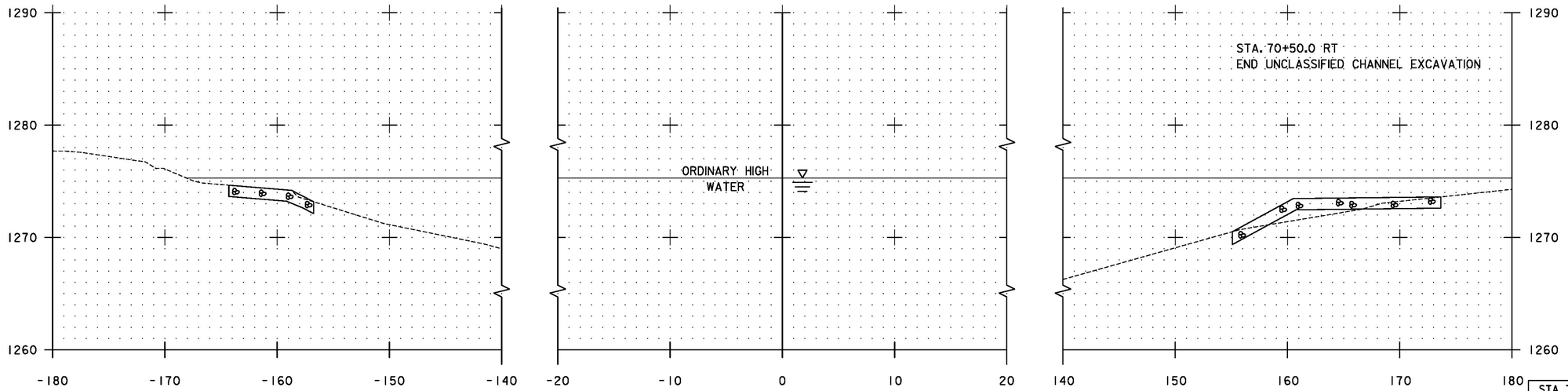
TYLIN INTERNATIONAL

FILE NAME: z12el34bdr_xs.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
ROADWAY CROSS SECTIONS 2

PLOT DATE: 12/3/2013
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 60 OF 70



70+60



70+50

STA. 70+49.0 LT
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN STONE FILL, TYPE I

STA. 70+46.0 RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN STONE FILL, TYPE I

SCALE 1" = 5'-0"
5 0 5

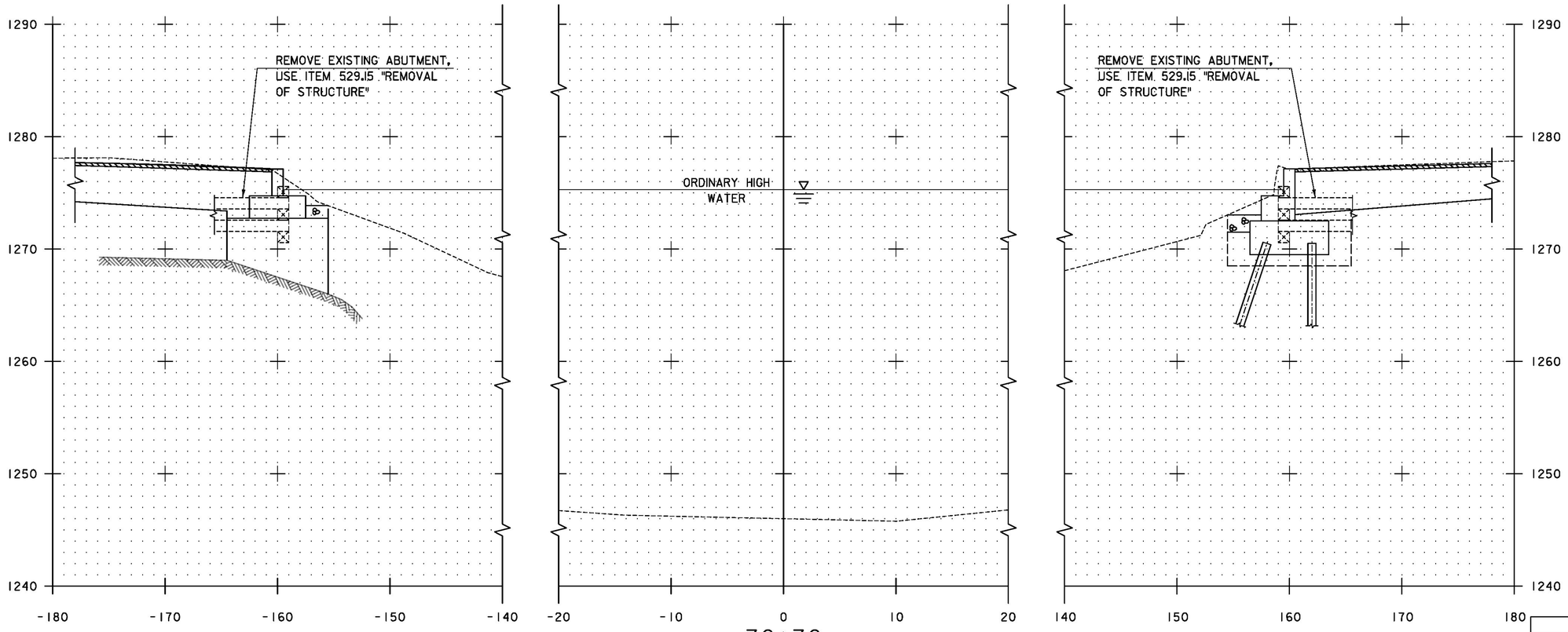
STA 70+50 TO 70+60

T.Y.LIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: z12el34bdr_xs-Lake.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
LAKE CROSS SECTIONS 1

PLOT DATE: 12/3/2013
DRAWN BY: T. KELLEY
CHECKED BY: J. OLUND
SHEET 61 OF 70



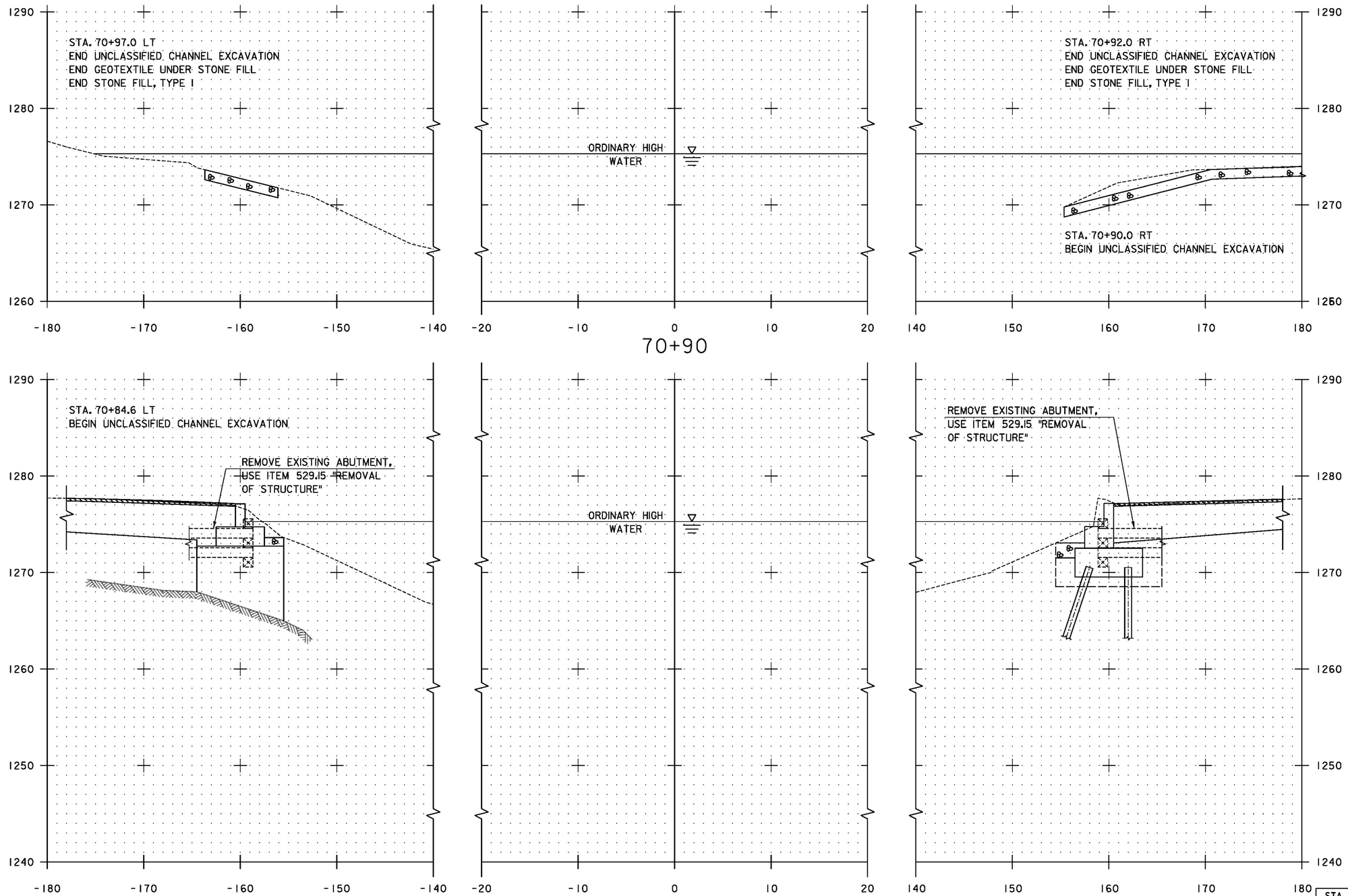
SCALE 1" = 5'-0"
5 0 5

T.Y.LIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: z12el34bdr_xs-Lake.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
LAKE CROSS SECTIONS 2

PLOT DATE: 12/3/2013
DRAWN BY: T. KELLEY
CHECKED BY: J. OLUND
SHEET 62 OF 70



STA 70+80 TO 70+90

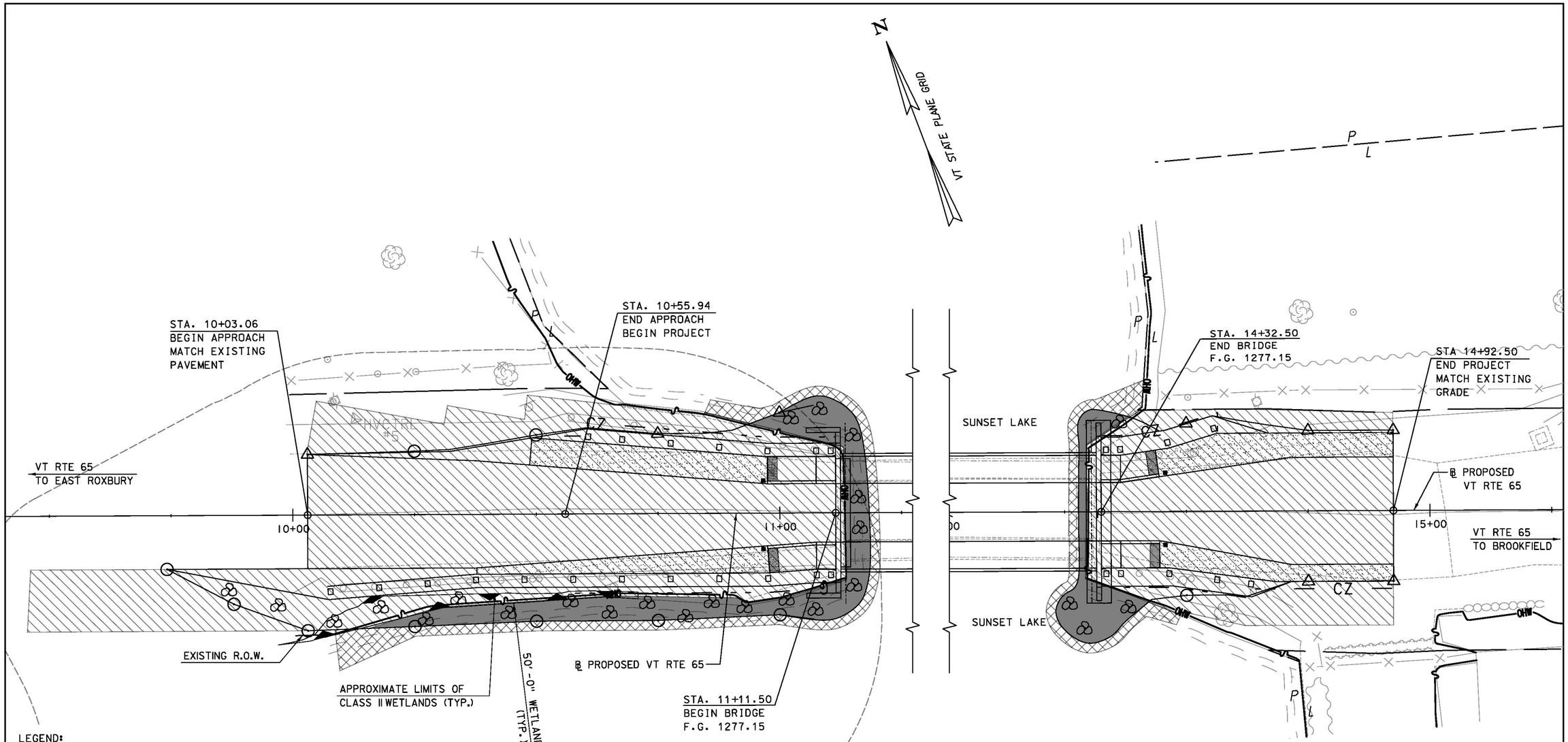
SCALE 1" = 5'-0"
5 0 5

T.Y.LIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: z12e134bdr_xs-Lake.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: J. OLUND
LAKE CROSS SECTIONS 3

PLOT DATE: 12/3/2013
DRAWN BY: T. KELLEY
CHECKED BY: J. OLUND
SHEET 63 OF 70



LEGEND:

- AREA OF EARTH DISTURBANCE ABOVE OHW (TOTAL AREA = 7,627 S.F.)
- TEMPORARY CONSTRUCTION BELOW OHW (TOTAL AREA 642 S.F.)
- PERMANENT CONSTRUCTION BELOW OHW (TOTAL AREA 940 S.F.)

TOTAL AREA OF EARTH DISTURBANCE WITHIN PROJECT LIMITS = 9,209 S.F. (0.21 ACRE)

—OHW—∿— ORDINARY HIGH WATER (OHW) LINE

TOTAL PERMANENT IMPACT AREA OF CLASS II WETLANDS = 175 S.F.

TOTAL TEMPORARY IMPACT AREA OF CLASS II WETLANDS = 3 S.F.

TOTAL PERMANENT IMPACT AREA OF WETLAND BUFFER = 1246 S.F.

TOTAL TEMPORARY IMPACT AREA OF WETLAND BUFFER = 299 S.F.

RESOURCE IMPACT PLAN

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

T.Y.LIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: z12e134bdr_RI.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
RESOURCE IMPACT PLAN

PLOT DATE: 12/3/2013
DRAWN BY: T. KELLEY
CHECKED BY: J. OLUND
SHEET 64 OF 70

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE #2 ON VT RTE 65 SPANNING 321 FEET OVER THE BODY OF WATER KNOWN AS SUNSET LAKE IN THE TOWN OF BROOKFIELD. THE PROJECT BEGINS AT A POINT APPROXIMATELY 0.13 MILES WEST OF THE VT RTE 65 /STONE ROAD INTERSECTION AND EXTENDS SOUTHEASTERLY FOR 0.08 MILES ALONG VT RTE 65 . WORK WILL INVOLVE COMPLETE REPLACEMENT OF BRIDGE #2 ALONG WITH RELATED ROADWAY AND REMOVAL OF THE EXISTING FLOATING BRIDGE SUPERSTRUCTURE, ABUTMENTS, AND INCIDENTAL ITEMS.

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 9,209 SQUARE FEET (0.21 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 PREDOMINANTELY OF ROLLING HILLS SLOPING TOWARD THE LAKE. VT RTE 65 RUNS EAST TO WEST GENERALLY FOLLOWING THE VALLEY BETWEEN ADJACENT HILLS. THE GENERAL TOPOGRAPHY WITHIN THE PROJECT SITE SLOPES TOWARD THE LAKE ON BOTH SIDES OF THE BRIDGE.

THERE IS ONE BUSINESS (BED AND BREAKFAST) NEAR THE SOUTHEAST CORNER OF THE PROJECT AND A RESIDENTIAL PROPERTY ON THE NORTHWEST CORNER OF THE PROJECT. THERE ARE OTHER RESIDENTIAL PROPERTIES IN CLOSE PROXIMITY TO PROJECT IN THE SOUTHEAST QUADRANT.

THERE IS AN INTERSECTION TO THE EAST OF THE PROJECT. ALL ROAD SURFACES IN THE PROJECT AREA ARE GRAVEL OR BITUMINOUS CONCRETE PAVEMENT. THERE IS ONE DRIVE WITHIN THE PROJECT AREA WHICH IS IMPACTED BY THE PROJECT. THIS DRIVE IS GRAVEL.

WITHIN THE PROJECT AREA THERE IS A DRY HYDRANT AS WELL AS AERIAL ELECTRICAL LINES. THE HYDRANT IS ON THE SOUTHEAST CORNER OF THE PROJECT AND IS FED FROM THE LAKE VIA AN EXISTING PIPE EXTENDING FROM THE EDGE OF THE LAKE TO THE HYDRANT. THE ELECTRIC LINES CROSS OVER SUNSET LAKE ON THE NORTH SIDE OF THE EXISTING BRIDGE. THEY PARALLEL THE ROAD WITHIN THE PROJECT LIMITS.

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 SUNSET LAKE. IN GENERAL A FLOATING FIBER REIFORCED POLYMER STRUCTURE IS PROPOSED FOR THE LAKE CROSSING WITHIN THE PROJECT SITE. THE LAKE WATER SURFACE IS CONTROLLED BY A WEIR STRUCTURE IMMEDIATELY ADJACENT TO THE BRIDGE CROSSING. THE TRIBUTARY AREA TO THE WEIR IS 4.0 SQUARE MILES. THE TERRAIN AT THE TWO LAKE EDGES AND ADJACENT TO THE PROJECT IS GENTLE TO MODERATELY SLOPED WITH GRASS BANKS ON THE WEST BANK AND DEVELOPED PROPERTY ON THE EAST BANK. THE LAKE BED CONSISTS OF SILTS AND FINE SEDIMENTS. CONSTRUCTION OF THE NEW BRIDGE WILL REQUIRE SOME TEMPORARY AND PERMANENT IMPACTS TO THE LAKE BANKS AND BOTTOM. THE WEIR STRUCTURE AND THE DOWNSTREAM REACH WILL NOT BE IMPACTED BY THE BRIDGE CONSTRUCTION.

THE FOLLOWING DESCRIPTIONS ARE FOR THE EXISTING SITE PLANS: SURFACE DRAINAGE FROM VT RTE 65 FLOWS DOWN VEGETATED SIDESLOPES TOWARDS SUNSET LAKE.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA IS A MIX OF GRASS, BRUSH AND TREES. THE GRASSED AREAS BEING PREDOMINATLY IN THE VICINITY OF THE RESIDENTAL PROPERTIES, THERE ARE SOME AREAS OF TREES. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS REQUIRED FOR REMOVAL AND REPLACEMENT OF THE EXISTING BRIDGE AND THE PLACEMENT OF THE STONE FILL. THE VEGETATION IN THESE AREAS IS MOSTLY BRUSH. 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 ORANGE, VERMONT. SOILS ON THE PROJECT SITE ARE:

BUCKLAND.

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: SUNSET LAKE
WETLANDS:YES
TOTAL IMPACTED AREA 175 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 THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

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

1.4.1 MARK SITE BOUNDARIES

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

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

1.4.2 LIMIT DISTURBANCE AREA

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

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS 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.

THE USE OF STABILIZED CONSTRUCTION ENTRANCES IS NOT ANTICIPATED.

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.

FILTER CURTAIN WILL BE INSTALLED AS PROPOSED 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.

THE USE OF CHECK STRUCTURES IS NOT ANTICIPATED FOR THIS PROJECT.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES ARE NOT ANTICIPATED FOR THIS PROJECT.

SEED AND MULCH WILL BE USED AS PERMANENT CONTROLS TO STABILIZE EXPOSED SOIL. STONE FILL WILL BE USED TO STABILIZE THE SHORELINE 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.

THE USE OF EROSION CONTROL MATTING IS NOT ANTICIPATED.

THE USE OF SURFACE ROUGHENING IS NOT ANTICIPATED.

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.

THE USE OF EROSION CONTROL MATTING IS NOT ANTICIPATED.

1.4.11 DE-WATERING ACTIVITIES

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

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. A LOCATION FOR THE TREATMENT HAS BEEN PROPOSED AND IS SHOWN ON THE PLANS. THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR. PAYMENT FOR TREATMENT OF DISCHARGE WILL BE MADE UNDER CONTRACT ITEM 653.45.

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.

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

FILE NAME: z12el34bdr_ero_n.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: D. BURHANS
EPSC NARRATIVE

PLOT DATE: 12/3/2013
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 65 OF 70

SOIL CLASSIFICATION

BUCKLAND
VERY STONY LOAM
8 TO 25% SLOPES
"K FACTOR" 0.28
MEDIUM ERODIBILITY

SOIL CLASSIFICATION

BUCKLAND
STONY LOAM
8 TO 15% SLOPES
"K FACTOR" 0.32
MEDIUM ERODIBILITY

N

VT STATE PLANE GRID

GRASS

STA. 10+03.06
BEGIN APPROACH
MATCH EXISTING
PAVEMENT

STA. 10+55.94
END APPROACH
BEGIN PROJECT

WATER

℄ PROPOSED VT RTE 65

SUNSET LAKE

STA 14+92.50
END PROJECT
MATCH EXISTING
GRADE

HVCTRL
#5

VT RTE 65
TO EAST ROXBURY

10+00

11+00

15+00

VT RTE 65
TO BROOKFIELD

1280

1270

BRUSH/
TREES

GRAVEL/
GRASS

SUNSET LAKE

WATER

EXISTING R.O.W.

℄ PROPOSED VT RTE 65

EPSC EXISTING CONDITIONS

LEGEND:

SOIL CLASSIFICATION BOUNDARY

ORDINARY HIGH WATER LINE

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

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: zl2el34bdr_ero_E.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
EPSC EXISTING CONDITION LAYOUT

PLOT DATE: 12/3/2013
DRAWN BY: T. KELLEY
CHECKED BY: D. BRYANT
SHEET 66 OF 70

N

VT STATE PLANE GRID

STA. 10+03.06
BEGIN APPROACH
MATCH EXISTING
PAVEMENT

STA. 10+55.94
END APPROACH
BEGIN PROJECT

VT RTE 65
TO EAST ROXBURY

HYDRANT #5

SUNSET LAKE

STA. 14+32.50
END BRIDGE
F.G. 1277.15

STA 14+92.50
END PROJECT
MATCH EXISTING
GRADE

℄ PROPOSED
VT RTE 65

VT RTE 65
TO BROOKFIELD

10+00

11+00

15+00

1270

1280

CZ

PDF

OHW

EXISTING R.O.W.

℄ PROPOSED VT RTE 65

STA. 11+11.50
BEGIN BRIDGE
F.G. 1277.15

LEGEND:

- FILTER BAG DEWATERING AREA
- FILTER CURTAIN
- PDF — PROJECT DEMARCATION FENCE
- SILT FENCE
- COFFERDAM
- STONE FILL, TYPE I
- OHW — ORDINARY HIGH WATER LINE

EPSC CONSTRUCTION CONDITIONS

NOTES:

1. ORDINARY HIGH WATER ELEVATION = 1275.3.
2. CONTOURS REFLECT EXISTING CONDITIONS. FINAL CONTOURS WILL BE SIMILAR. SEE CROSS SECTION SHEETS FOR FINAL GRADES.

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

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: zl2el34bdr_ero_C.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
EPSC CONSTRUCTION CONDITION LAYOUT

PLOT DATE: 12/3/2013
DRAWN BY: T. KELLEY
CHECKED BY: D. BRYANT
SHEET 67 OF 70

N

VT STATE PLANE GRID

STA. 10+03.06
BEGIN APPROACH
MATCH EXISTING
PAVEMENT

STA. 10+55.94
END APPROACH
BEGIN PROJECT

VT RTE 65
TO EAST ROXBURY

10+00

11+00

1290

1270

CZ

EXISTING R.O.W.

℄ PROPOSED VT RTE 65

STA. 11+11.50
BEGIN BRIDGE
F.G. 1277.15

SUNSET LAKE

STA. 14+32.50
END BRIDGE
F.G. 1277.15

STA 14+92.50
END PROJECT
MATCH EXISTING
GRADE

℄ PROPOSED
VT RTE 65

15+00

VT RTE 65
TO BROOKFIELD

SUNSET LAKE

OHW

LEGEND:

- DISTURBED AREAS REQUIRING RE-VEGETATION
- STONE FILL, TYPE I
- OHW — ORDINARY HIGH WATER LINE

EPSC FINAL CONDITIONS

NOTES:

1. ORDINARY HIGH WATER ELEVATION = 1275.3.
2. CONTOURS REFLECT EXISTING CONDITIONS. FINAL CONTOURS WILL BE SIMILAR. SEE CROSS SECTION SHEETS FOR FINAL GRADES.

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

TYLIN INTERNATIONAL

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

FILE NAME: zl2el34bdr_ero_F.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
EPSC FINAL CONDITION LAYOUT

PLOT DATE: 12/3/2013
DRAWN BY: T. KELLEY
CHECKED BY: D. BRYANT
SHEET 68 OF 70

LEGEND:

FILTER BAG

FILTER CURTAIN

PDF — PROJECT DEMARCATION FENCE

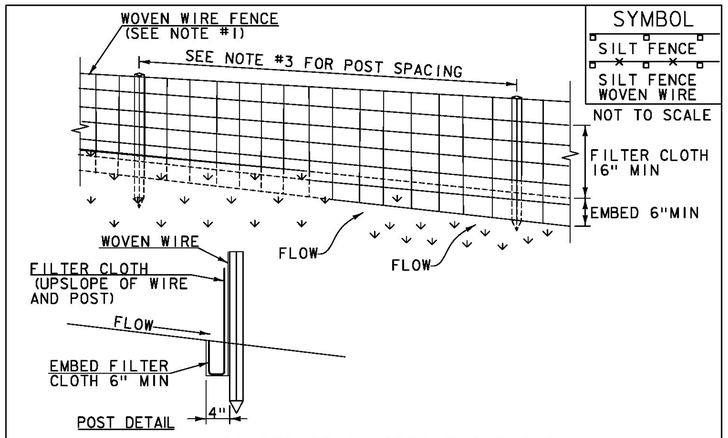
SILT FENCE

DISTURBED AREAS REQUIRING RE-VEGETATION

COFFERDAM

STONE FILL, TYPE I

OHW — ORDINARY HIGH WATER LINE



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

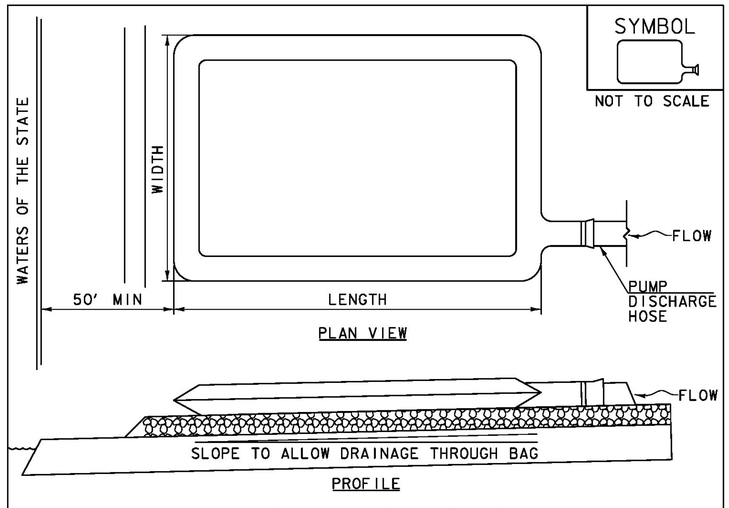
REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

TYLIN INTERNATIONAL

FILE NAME: z12el34bdr_epsc_detsl.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
EPSC DETAILS I

PLOT DATE: 12/3/2013
DRAWN BY: T. KELLEY
CHECKED BY: D. BRYANT



CONSTRUCTION SPECIFICATIONS

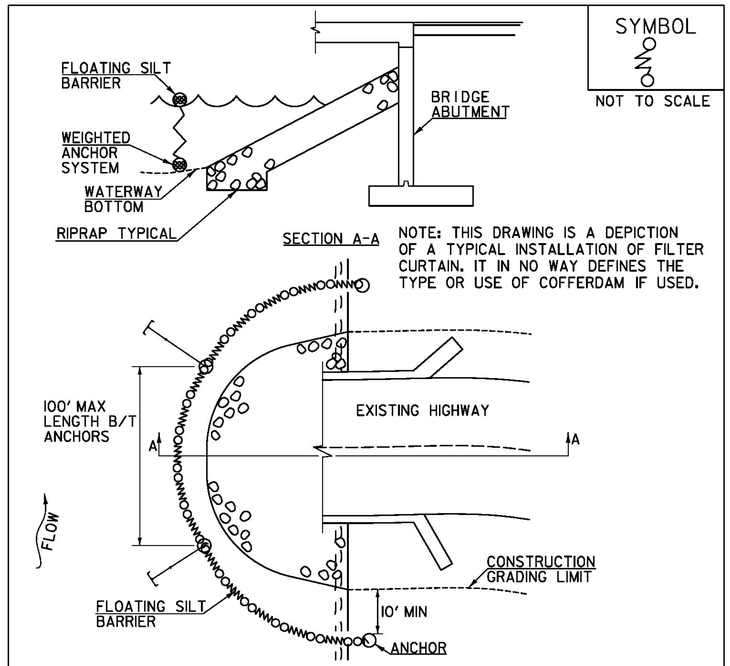
1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
4. FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
6. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

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 FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF



CONSTRUCTION SPECIFICATIONS

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

FILTER CURTAIN

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

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

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

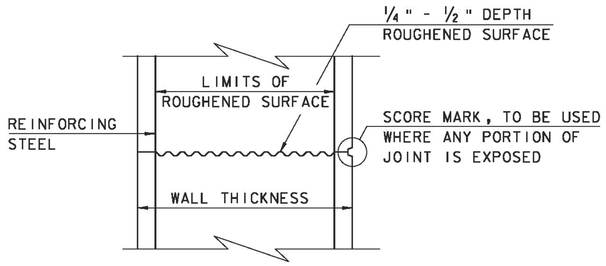
TYLIN INTERNATIONAL

FILE NAME: z12el34bdr_epsc_dets2.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. KELLEY
EPSC DETAILS 2

PLOT DATE: 12/3/2013
DRAWN BY: T. KELLEY
CHECKED BY: D. BRYANT
SHEET 70 OF 70

CONCRETE GENERAL NOTES

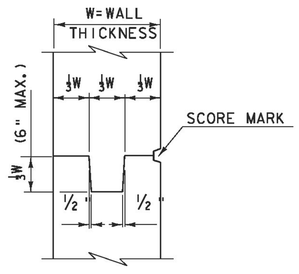
1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"



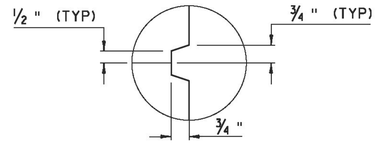
TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

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

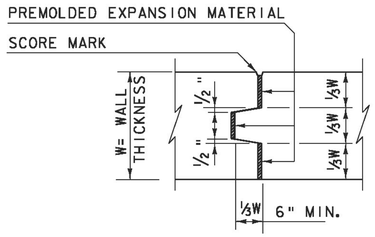
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



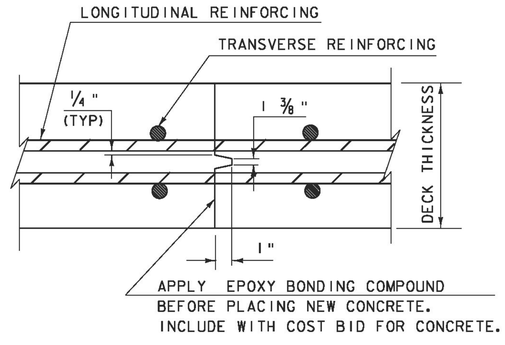
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



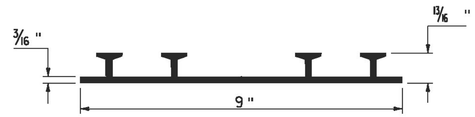
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



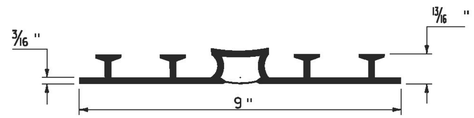
TRANSVERSE BRIDGE SLAB
CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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

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

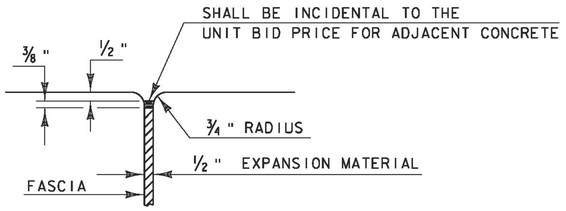
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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

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

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



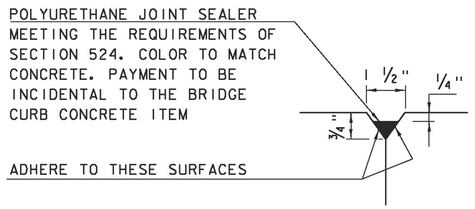
JOINT BETWEEN FASCIA
AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

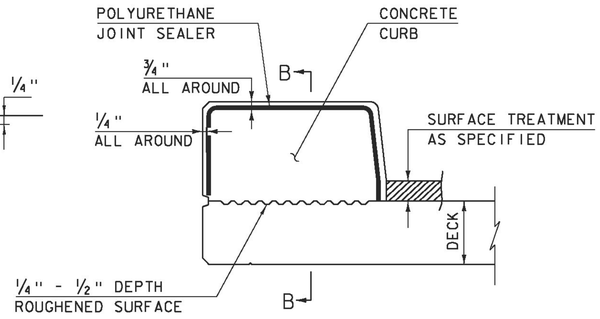
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

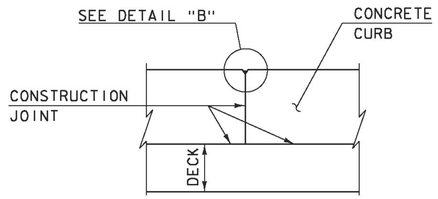
STRUCTURES
DETAIL
SD-501.00



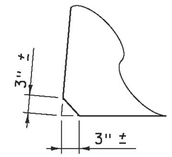
DETAIL "B"
(NOT TO SCALE)



CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

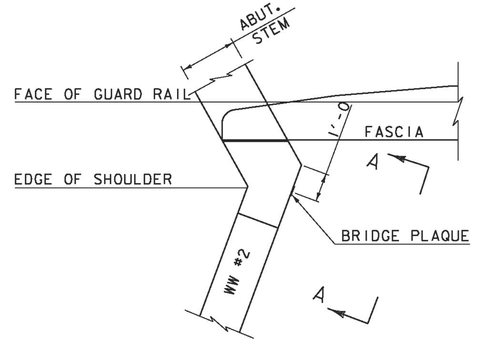


SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



PLAN

CONCRETE CURB JOINT NOTES

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

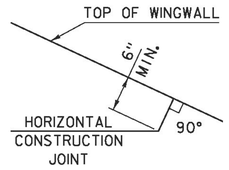
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

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

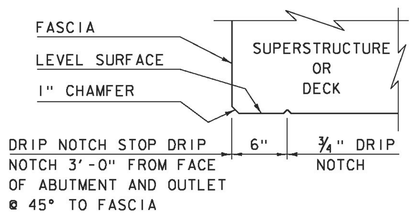
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

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

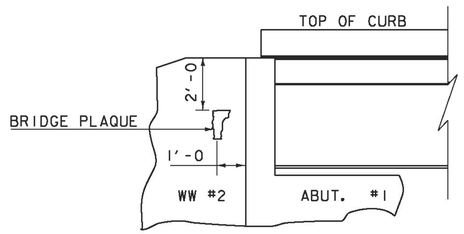
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

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

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

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

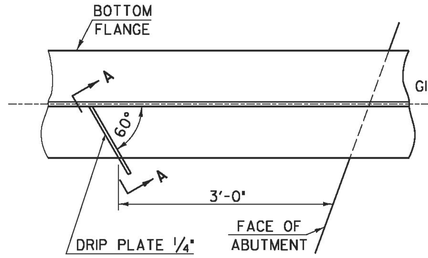
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

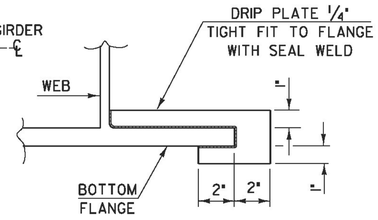
STRUCTURES DETAIL
SD-502.00

STRUCTURAL STEEL GENERAL NOTES:

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

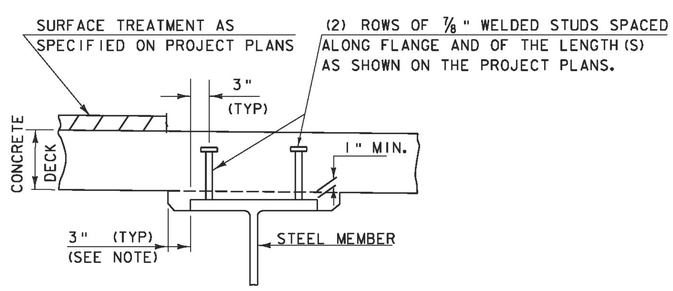


PLAN DRIP PLATE



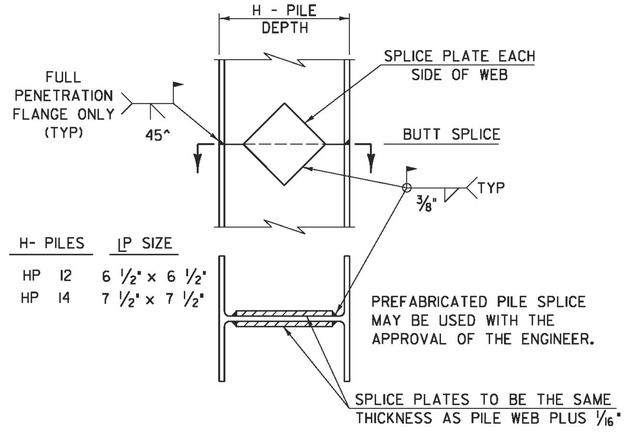
SECTION A - A

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



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

HAUNCH AND SHEAR CONNECTOR DETAIL



H- PILES	LP SIZE
HP 12	6 1/2" x 6 1/2"
HP 14	7 1/2" x 7 1/2"

DETAIL OF PILE SPLICE

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

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

STRUCTURAL STEEL DETAILS & NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-601.00

UNCLASSIFIED CHANNEL

① $3.25' \times \left(\frac{3.75+4.5}{2}\right) = 13.41$ SF

+ ② $10' \times \left(\frac{3+3.5}{2}\right) = 32.5$ SF

+ ③ $5' \times \left(\frac{3.5+4}{2}\right) = 18.75$ SF

+ ④ $5' \times \left(\frac{6+6.5}{2}\right) = 31.25$ SF

+ ⑤ $10' \times \left(\frac{6.25+5.5}{2}\right) = 58.75$ SF

+ ⑥ $10' \times \left(\frac{5.5+6}{2}\right) = 57.50$ SF

+ ⑦ $3.25' \times \left(\frac{5+5.5}{2}\right) = 17.1$ SF

$= [229.26 \times (1427.5' - 1425')]/9$

$V = 63.7$ CY

GRANULAR BACKFILL

① $3.25' \times \left(\frac{2.5+3.5}{2}\right) = 9.75$ SF

+ ② $10' \times \left(\frac{2+2.5}{2}\right) = 22.5$ SF

+ ③ $5' \times \left(\frac{2.5+3.25}{2}\right) = 14.38$ SF

+ ④ $5' \times \left(\frac{4.25+5}{2}\right) = 23.13$ SF

+ ⑤ $10' \times \left(\frac{4.5+5.25}{2}\right) = 48.75$ SF

+ ⑥ $10' \times \left(\frac{4.4+6}{2}\right) = 52.0$ SF

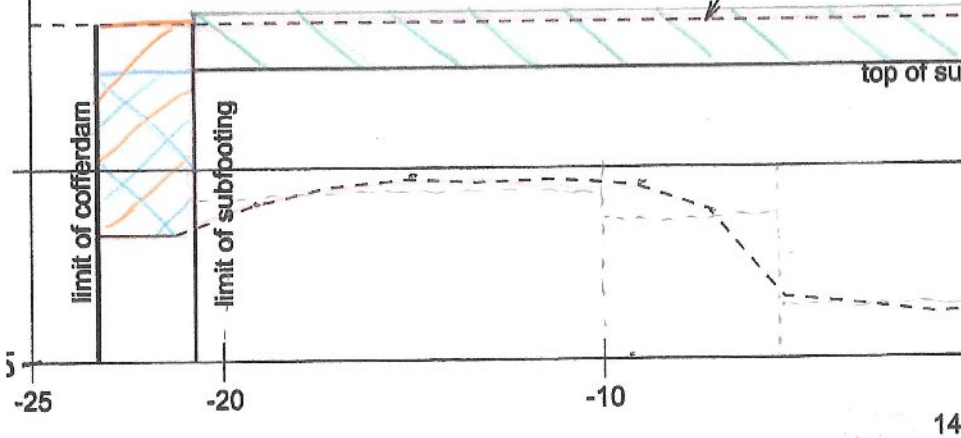
+ ⑦ $3.25' \times \left(\frac{4.8+4.6}{2}\right) = 15.275$ SF

$= [185.785 \times (1427.5' - 1425')]/9$

$V = 51.61$ CY

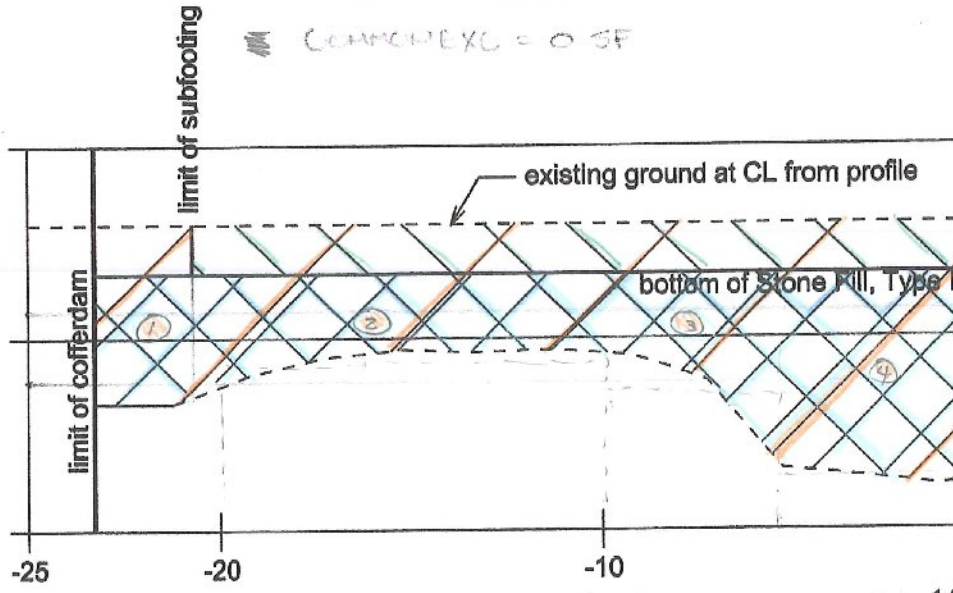
COMMON EXCAVATION

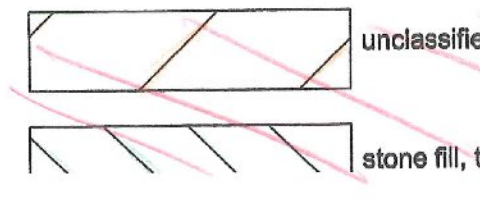
NONE.



GRANULAR BACKFILL

COMMON EXC = 0 SF





* 14+25.00 → START OF EXCAVATION +

+ (2) $5.5 \times \left(\frac{5.5 + 5.75}{2}\right) = 30.94$ SF

+ (3) $10' \times \left(\frac{4.5 + 5.5}{2}\right) = 50$ SF

+ (4) $28' \times \left(\frac{7.75 + 7.5}{2}\right) = 213.5$ SF

$= \left[301.5625 \times (1428.28 - 1427.50)\right] / 9$

V = 26.14 CY

UNCLASSIFIED CHANNEL

$V = \left[\left(0.5 \times \left(\frac{5.5 + 5.75}{2}\right) + 0.5 \times 7\right) \times (1428.28 - 1427.50)\right] / 9$

V = 0.55 CY

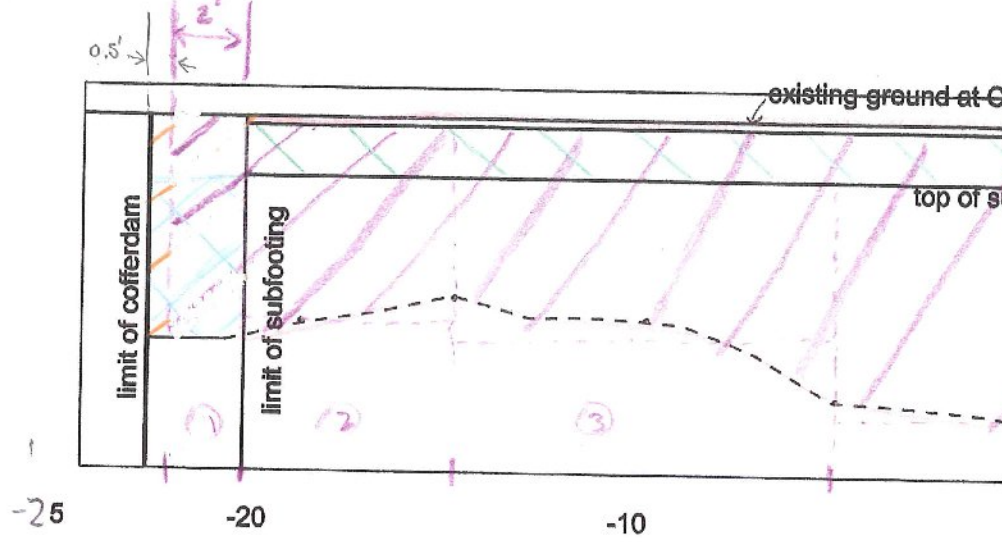
GRANULAR BACKFILL

$V = \left[\left(2.5 \times \left(\frac{4 + 4.25}{2}\right) + 2.5 \times 5.5\right) \times (1428.28 - 1427.50)\right] / 9$

V = 2.09 CY

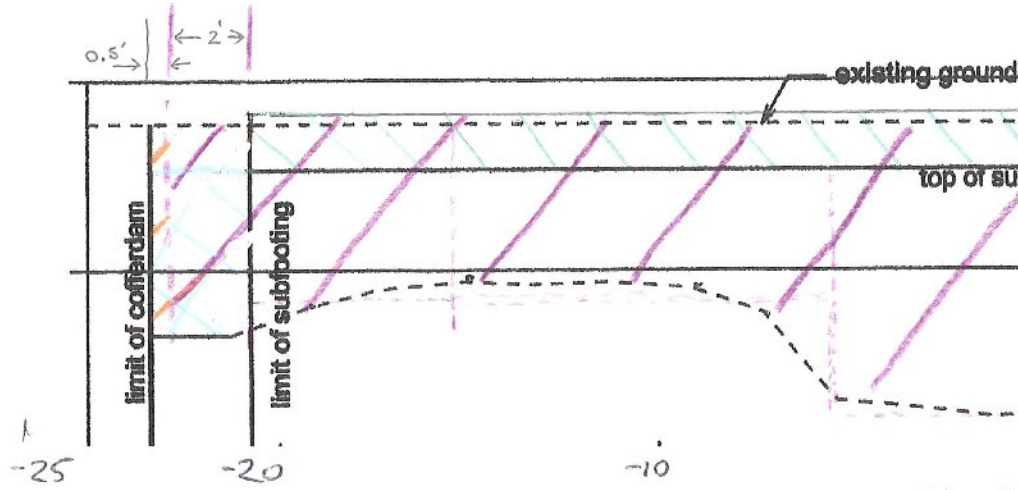
Common Exc.

NONE



GRANULAR BACKFILL

Common Exc.



* START of Cofferdam + Subfooting

+ ② 16′ × $\left(\frac{6.5+7.25}{2}\right)$

+ ③ 22′ × $\left(\frac{7.5+8.25}{2}\right)$

$V = \left[328.25 \times (1429.50 - 1428.28)\right]/9$

$V = 44.50$ CY

UNCLASSIFIED CHANNEL

$V = \left[\left[0.5' \times \frac{6.75+5.75}{2}\right) + \left(0.5' \times \frac{8'+7'}{2}\right)\right] \times (1429.50 - 1428.28)/9$

$V = 0.93$ CY

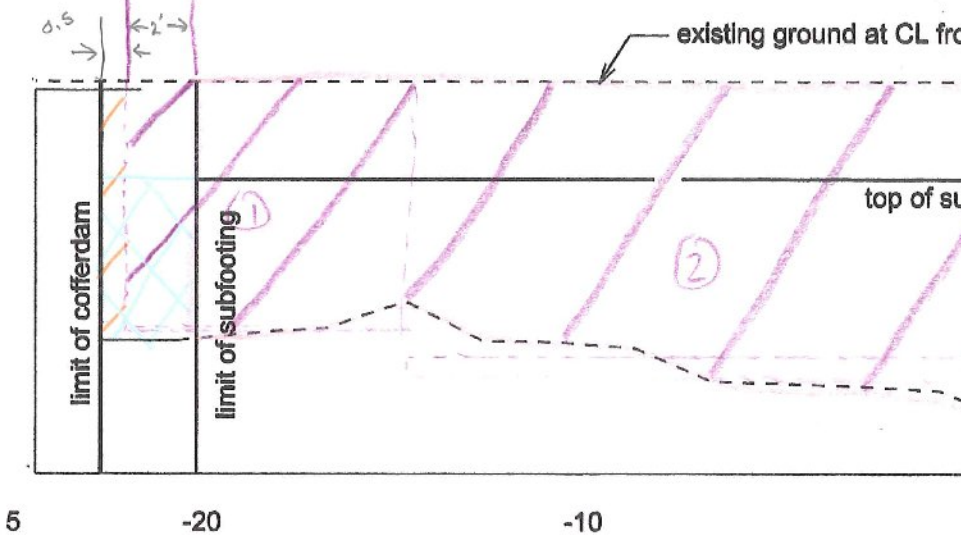
GRANULAR BACKFILL

$V = \left[\left(2.5 \times \frac{4.2+4.25}{2} + 2.5 \times \frac{5.25+5.5}{2}\right) \times (1429.5 - 1428.28)\right]/9$

$V = 3.25$ CY

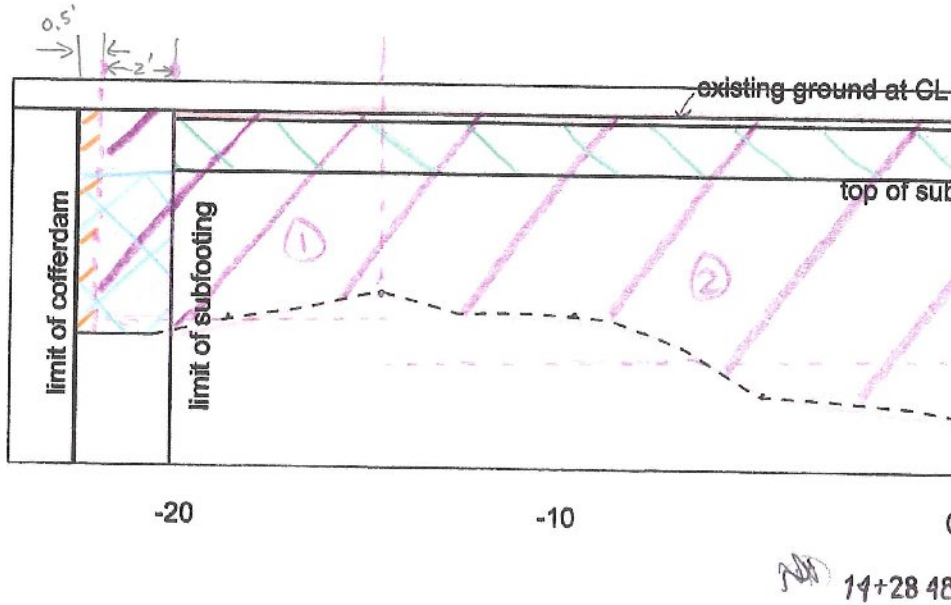
COMMON EXCAVATION

None.



GRAN BACKFILL

Common Exc.



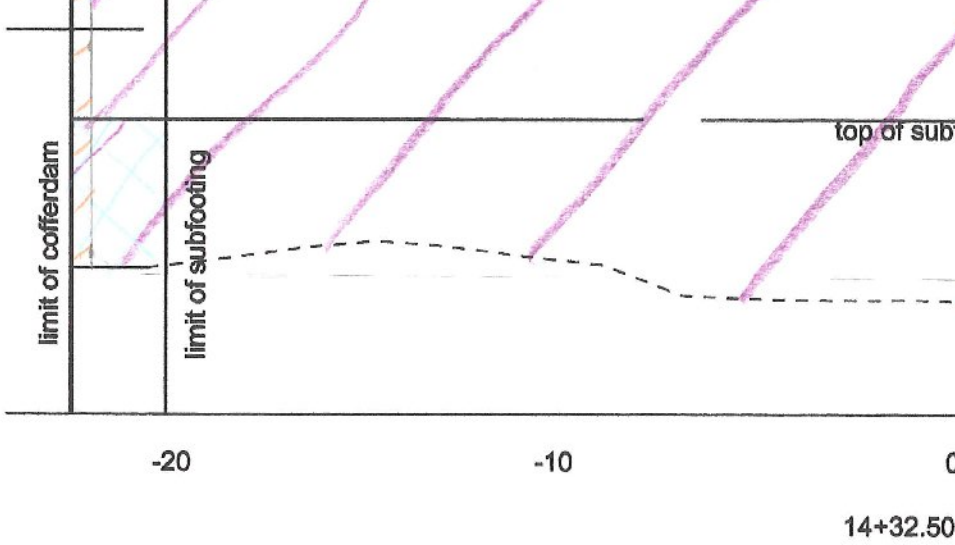
* CHANGE OF EXISTIN GROUND PROFILE

V = 121.33 CY

UNCLASSIFIED CHANNEL

$$V = \left[0.5 \times \left(\frac{6.5 + 8.25}{2}\right) + 0.5 \times \left(\frac{8 + 8.25}{2}\right)\right] \times (1432.5 - 1429.5) / 9$$

V = 2.58 CY



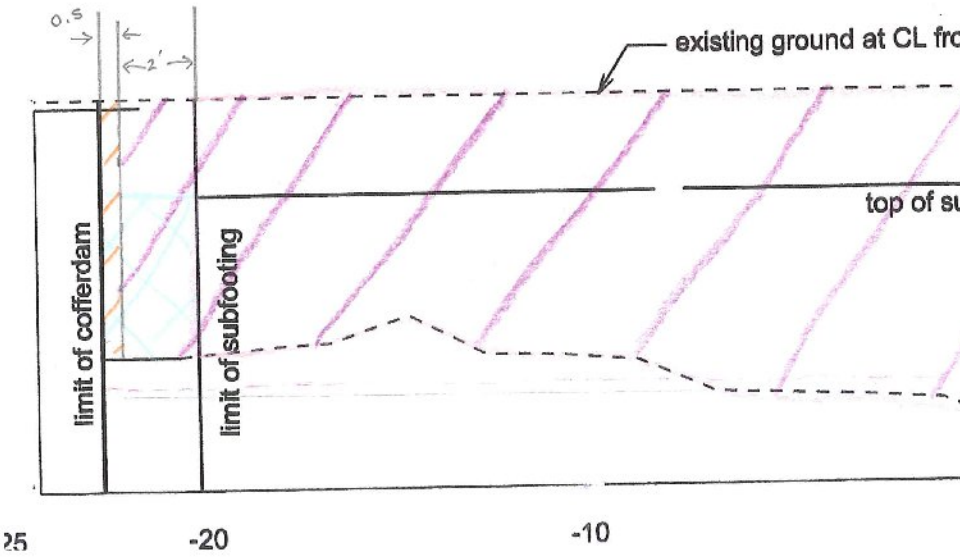
GRANULAR BACKFILL

$$V = \left[\left(2.5 \times \frac{4 + 4.25}{2} + 2.5 \times \frac{5.5 + 4}{2}\right)\left(1432.5 - 1429.5\right)\right] / 9$$

V = 7.40 CY

COMMON EXCAVATION

None.



* BEGINNING OF FOOTING BASE

14+2

V = 85.94 CY

UNCLASSIFIED CHANNEL

$$V = \left[\left(0.5 \times \frac{8.25+7.75}{2} + 0.5 \times \frac{8.25+7.75}{2}\right)\begin{pmatrix}1434.50\\-1432.50\end{pmatrix}\right]/9$$

V = 1.78 CY

GRANULAR BACKFILL

$$V = \left[\left(2.5 \times \frac{3.8+5}{2} + 2.5 \times \frac{4+5.3}{2}\right)\begin{pmatrix}1434.50\\-1432.50\end{pmatrix}\right]/9$$

V = 5.03 CY

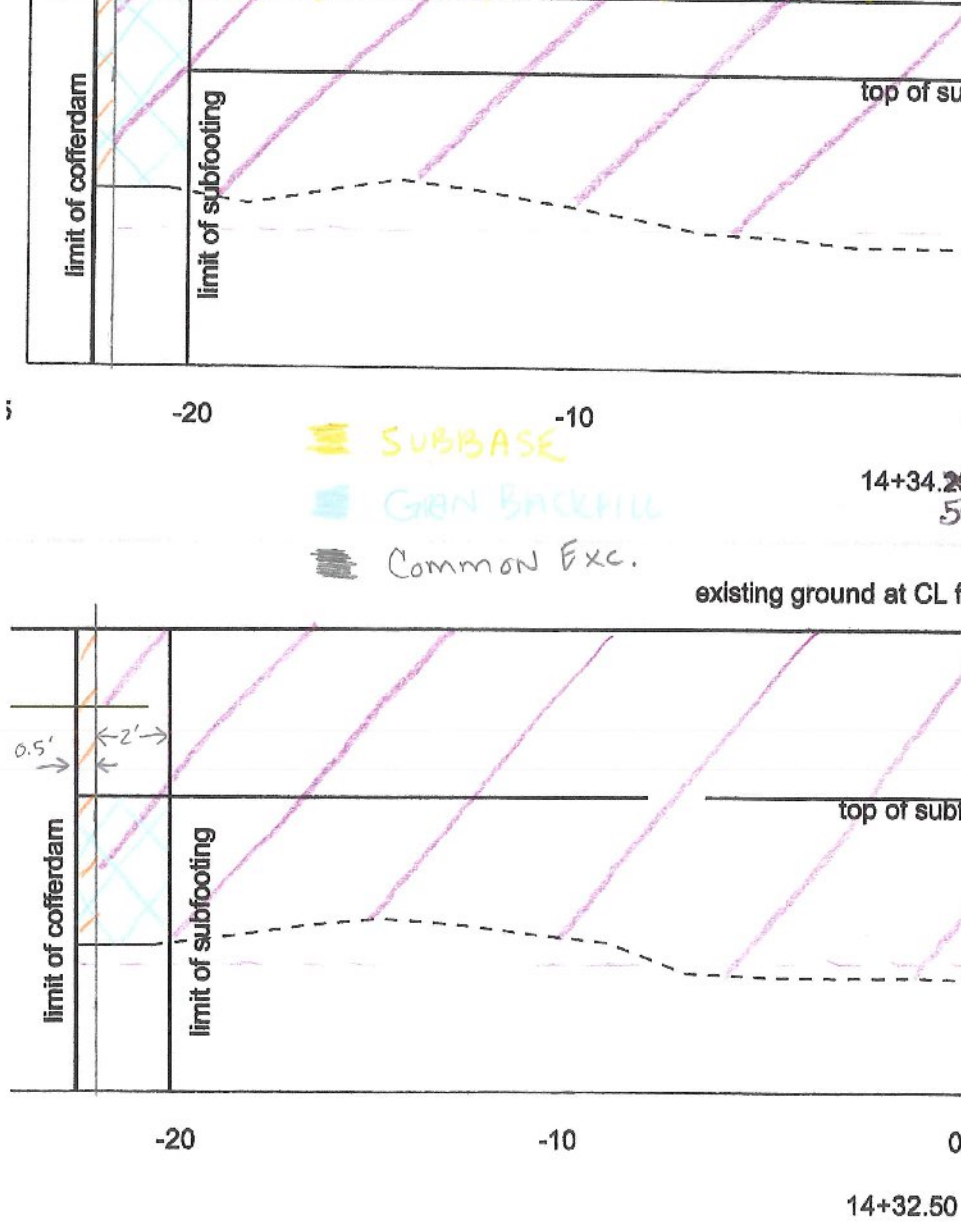
COMMON EXCAVATION

NONE.

SUBBASE OF DENSE GRADED

$$V = \left[46.5' \times 2.5' \times (1434.50 - 1432.50)\right]/9$$

V = 25.83 CY



* END OF FOOTING, START SUBBASE

UNCLASSIFIED CHANNEL

$$V = \left[\left(0.5 \times 7.6 + 0.5 \times \frac{7.9+8.4}{2}\right)\begin{pmatrix}1436.50\\-1434.50\end{pmatrix}\right]/9$$

$$V = 1.75 \text{ CY}$$

GRANULAR BACKFILL

$$V = \left[\left(2.5 \times \frac{3+5}{2} + 2.5 \times \frac{5.4+3.9}{2}\right)\begin{pmatrix}1436.50\\-1434.50\end{pmatrix}\right]/9$$

$$V = 4.81 \text{ CY}$$

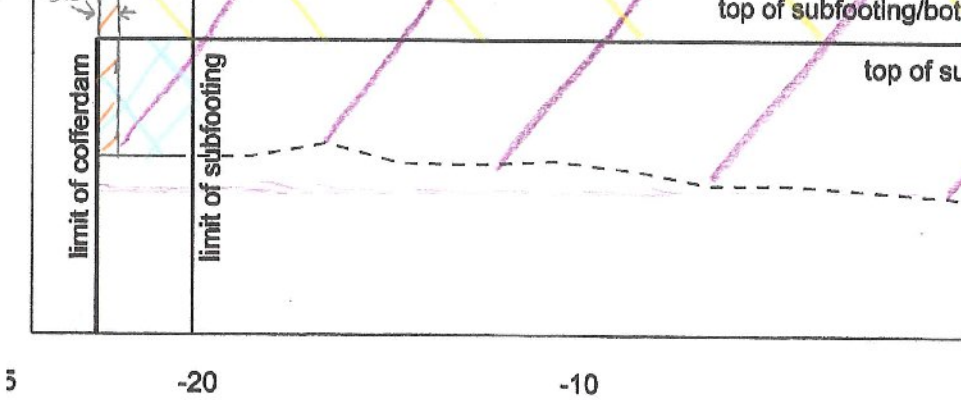
COMMON EXCAVATION

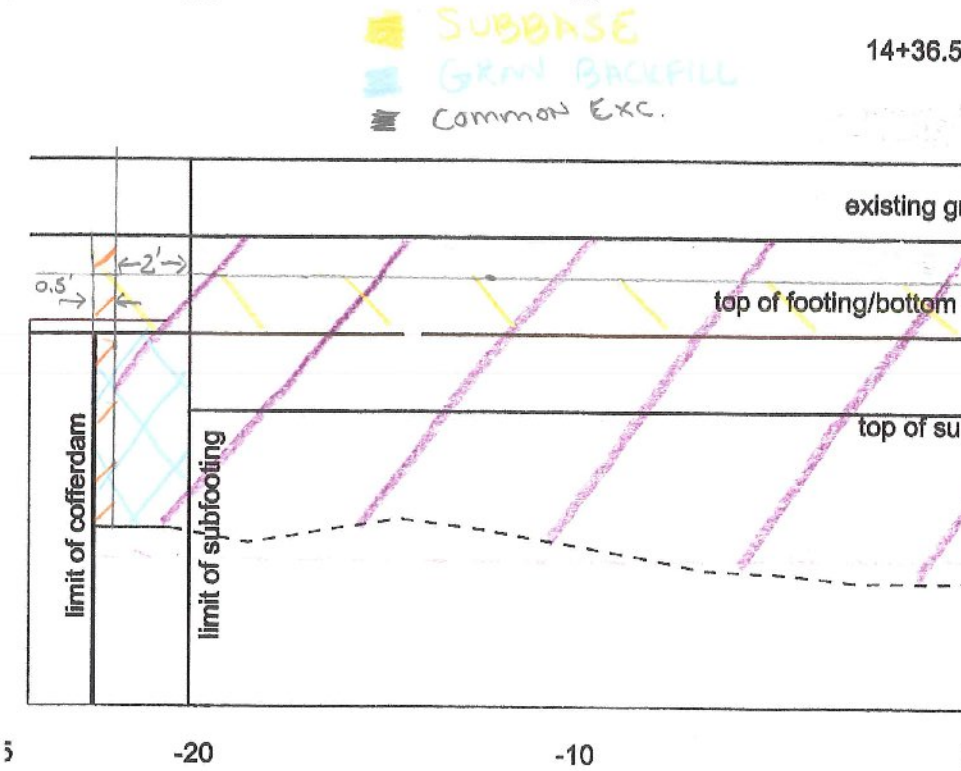
NONE.

SUBBASE OF DENSE GRADED

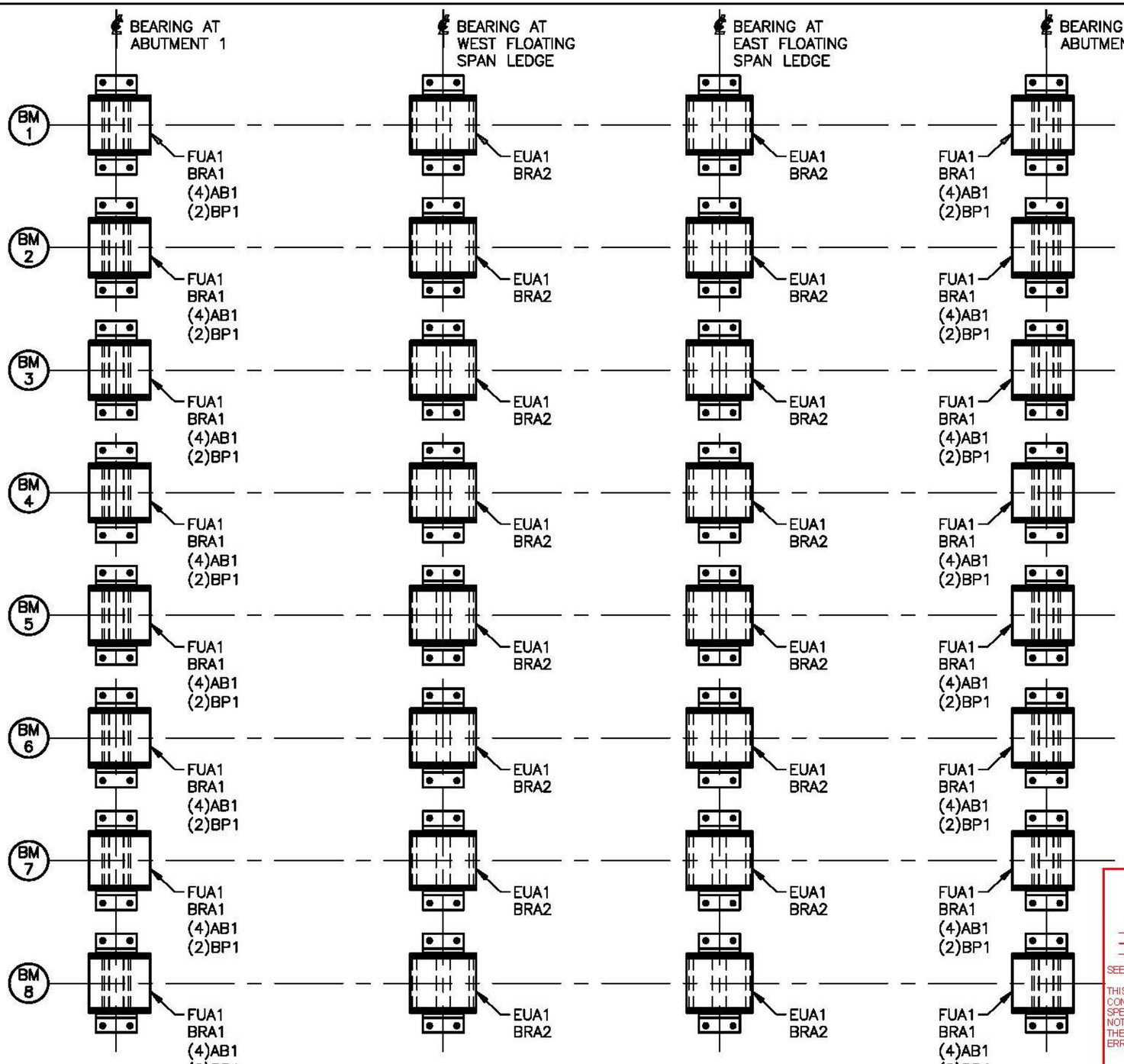
$$V = \left[46.5' \times 4' \times (1436.50 - 1434.50)\right]/9$$

$$V = 41.33 \text{ CY}$$

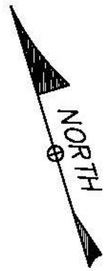




* END OF FOOTING BASE, CONTINUED SUBBAS



ERECTION DIAGRAM



Vermont Agency of Transportation

RECEIVED

ON: June 11, 2014

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 06/18/2014

SEE SHEET 1
FOR GENERAL NOTES

SEE SHEETS 1, 2, 3 & 5
FOR ASSEMBLY DETAILS

SEE SHEETS 4 & 6
FOR COMPONENT DETAILS

SEE SHEET 6
FOR ANCHOR BOLT & PAD DETAILS

SEE SHEETS E2 THRU E4
FOR INSTALLATION DIAGRAMS

T.Y. LIN INTERNATIONAL

THE STAMPED DOCUMENTS ARE HEREBY:

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___ REVISE AND RESUBMIT

SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.

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JOSH OLUND — REVIEWER — 06/17/2014 — DATE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

VT ROUTE 65 (MINOR COLLECTOR)
BRIDGE NO. 2
TOWN OF BROOKFIELD

STATE	COUNTY	CONTROL NO.
VT	ORANGE	NA

PROJECT NO.: BRF FLBR(2)

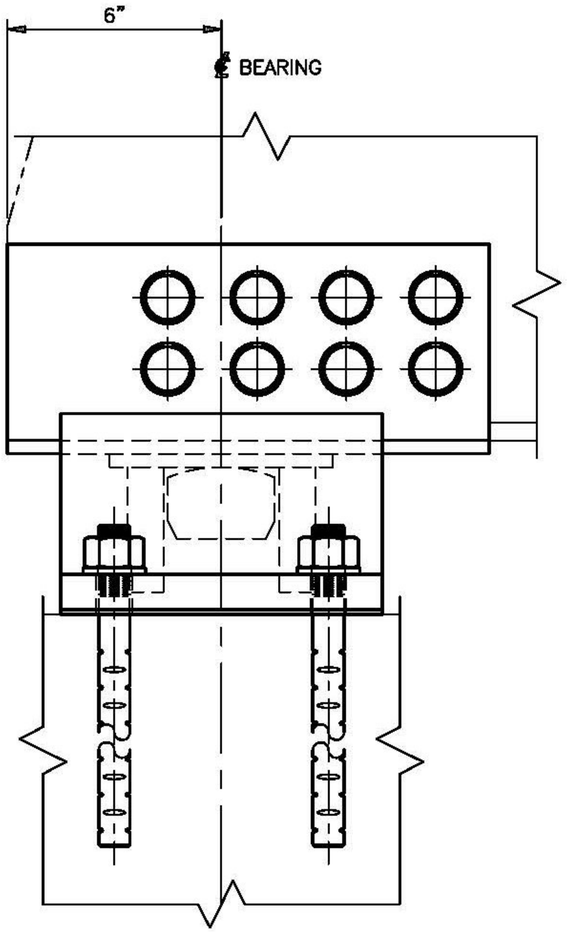
COSMEC, INC.
STAINLESS STEEL BEARING ASSY.'S

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

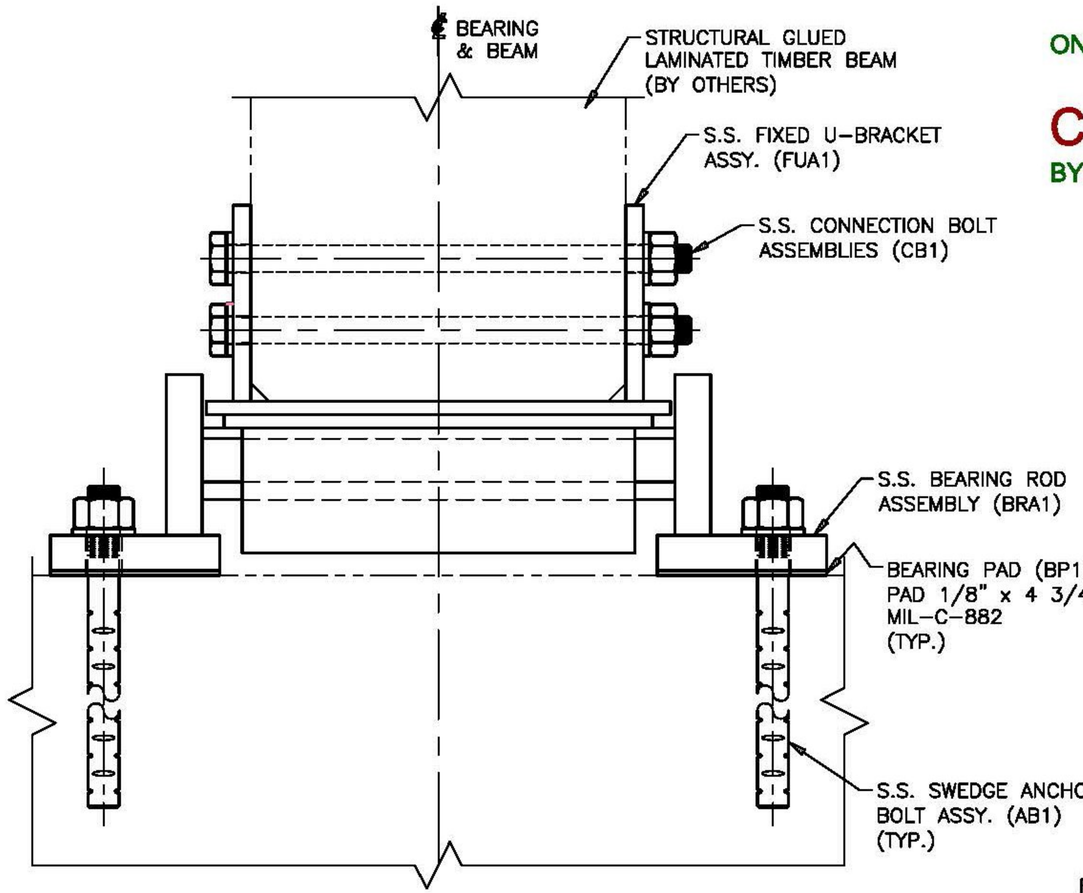
SCALE: NONE	DRAWN BY: MH	CHECKED BY: SL
	DATE: 05/28/14	DATE: 06/06/14
SHEET E1 OF 4	JOB NO.: 12445	

REV.	DESCRIPTION	BY	DATE	CK'D	DATE
0	-	.	.	.	.

CUSTOMER: MILLER CONSTRUCTION, INC.
DRAWING NUMBER: 12445-E1
REV.: 0



ELEVATION VIEW



FRONT VIEW

FIXED BEARING ASSEMBLY INSTALLATION DIAGRAM

(8) LOCATED @ ABUTMENT 1
(8) LOCATED @ ABUTMENT 2
(16) REQUIRED

Vermont Agency of Transportation
RECEIVED
ON: June 11, 2014
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BY: Jennifer Fitch DATE: 06/18/2014

SEE SHEET 1
FOR GENERAL NOTES

SEE SHEETS 1 & 3
FOR ASSEMBLY DETAILS

SEE SHEET 4
FOR COMPONENT DETAILS

SEE SHEET 7
FOR ANCHOR BOLT, CONNECTION
BOLT & PAD DETAILS

T.Y. LIN INTERNATIONAL

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STATE OF VERMONT
AGENCY OF TRANSPORTATION

VT ROUTE 65 (MINOR COLLECTOR)
BRIDGE NO. 2
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STATE	COUNTY	CONTROL NO.
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PROJECT NO.: BRF FLBR(2)

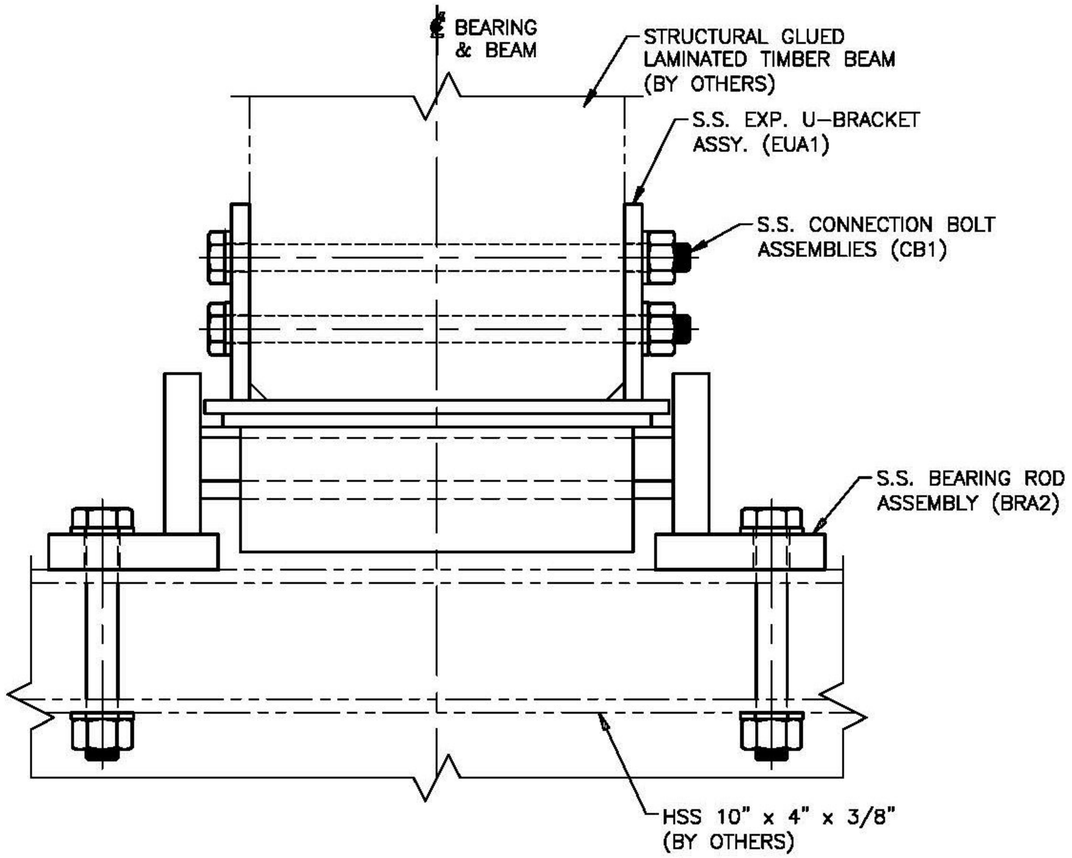
COSMEC, INC.
STAINLESS STEEL BEARING ASSY.'S

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

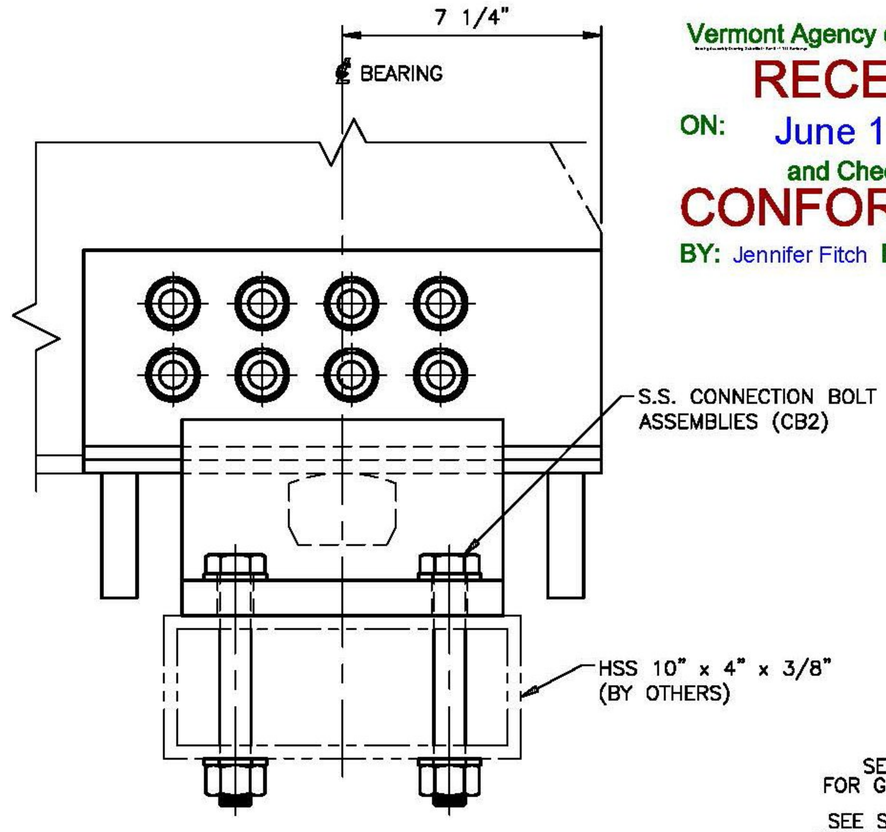
SCALE: NONE	DRAWN BY: MH	CHECKED BY: SL
	DATE: 05/28/14	DATE: 06/06/14

SHEET E2 OF 4 | JOB NO.: 12445

CUSTOMER: MILLER CONSTRUCTION, INC. | DRAWING NUMBER: 12445-E2 | REV. 0



FRONT VIEW



FRONT VIEW

EXPANSION BEARING ASSEMBLY INSTALLATION DIAGRAM
(8) LOCATED @ WEST FLOATING SPAN LEDGE
(8) LOCATED @ EAST FLOATING SPAN LEDGE
(16) REQUIRED

Vermont Agency of Transportation
RECEIVED
ON: June 11, 2014
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SEE SHEET 1
FOR GENERAL NOTES

SEE SHEETS 2 & 5
FOR ASSEMBLY DETAILS

SEE SHEET 6
FOR COMPONENT DETAILS

SEE SHEET 7
FOR CONNECTION BOLT DETAILS

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STATE OF VERMONT
AGENCY OF TRANSPORTATION

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STAINLESS STEEL BEARING ASSY.'S

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

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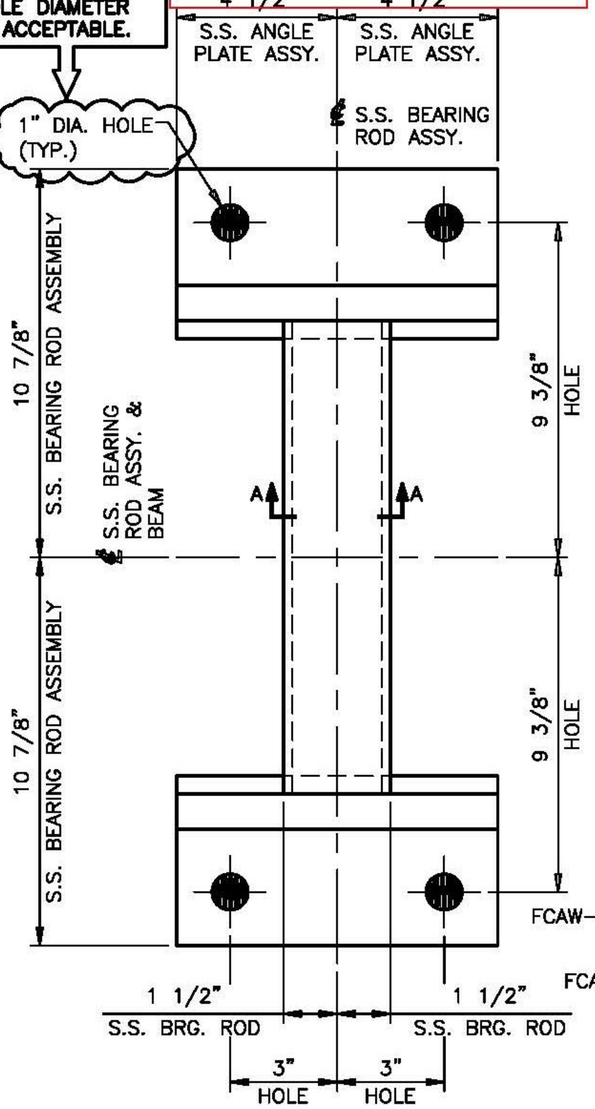
SHEET E3 OF 4 — JOB NO.: 12445

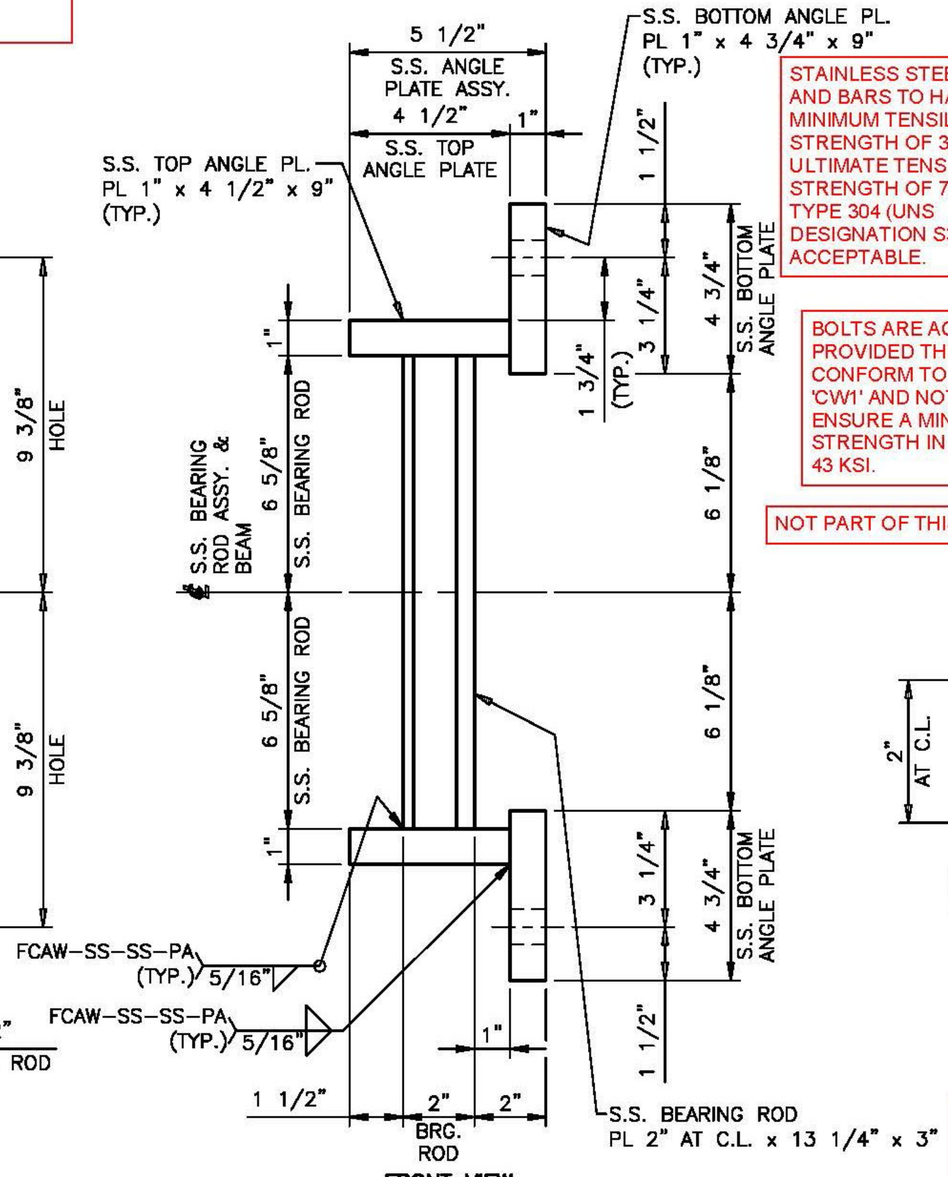
CUSTOMER: MILLER CONSTRUCTION, INC. — DRAWING NUMBER: 12445-E3 — REV. 0

APPROVER NOTE:
PLEASE VERIFY HOLE DIAMETER IS ACCEPTABLE.

1" HOLES ACCEPTABLE FOR ABUTMENT BEARINGS



PLAN VIEW



FRONT VIEW

S.S. BEARING ROD ASSEMBLY
MARK: BRA1
(8) LOCATED @ ABUTMENT 1
(8) LOCATED @ ABUTMENT 2
(16) REQUIRED

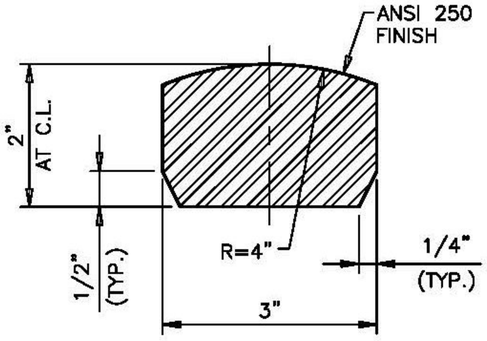
STAINLESS STEEL PLATES AND BARS TO HAVE A MINIMUM TENSILE YEILD STRENGTH OF 30 KSI AND ULTIMATE TENSILE STRENGTH OF 70 KSI. TYPE 304 (UNS DESIGNATION S30400) IS ACCEPTABLE.

BOLTS ARE ACCEPTABLE PROVIDED THEY CONFORM TO CONDITION 'CW1' AND NOT 'CW2' TO ENSURE A MINIMUM YIELD STRENGTH IN EXCESS OF 43 KSI.

NOT PART OF THIS SUBMITTAL

GENERAL NOTES:

1. ALL BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTION 731.01 OF THE 2011 VTAOT STANDARD SPECIFICATIONS AND SECTION "BEARING DEVICE ASSEMBLY, FLOATING BRIDGE" OF THE SPECIAL PROVISIONS FOR: BROOKFIELD BRF FLBR (2) DATED 02/11/14.
2. MATERIAL:
   STEEL COMPONENTS: ASTM A240 TYPE 304 (UNPAINTED)
   S.S. SWEDGE ANCHOR BOLT: ASTM F593, ALLOY GROUP 2, CONDITION CW
   7/8" DIA. S.S. CONNECTION BOLT: ASTM F593, ALLOY GROUP 2, CONDITION CW
   7/8" DIA. S.S. HEX NUT: ASTM F594, ALLOY GROUP 2, CONDITION CW
   7/8" DIA. S.S. WASHER: TYPE 316 STAINLESS STEEL
   3/4" DIA. S.S. CONNECTION BOLT: ASTM F593, ALLOY GROUP 2, CONDITION CW
   3/4" DIA. S.S. HEX NUT: ASTM F594, ALLOY GROUP 2, CONDITION CW
   3/4" DIA. S.S. WASHER: TYPE 316 STAINLESS STEEL
   BEARING PAD: MIL-C-822
   ~~PLAIN PAD (IN ROLLS): 60 DUROMETER GRADE 3 NEOPRENE~~
3. COSMEC REPRESENTATIVE KERRY MARCHAND: (508) 455-3290



SECTION A-A
BEARING ROD
ASTM A240 TYPE 304
PL 2" AT C.L. x 13 1/4" x 3
(16) REQUIRED

Vermont Agency of Transportation
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CONFORMANCE
BY: Jennifer Fitch DATE: 06/18/2014

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JOSH OLUND, REVIEWER — 06/17/2014, DATE

REV.	DESCRIPTION	BY	DATE	CK'D	DATE
1	.	.	.	.	.

STATE OF VERMONT
AGENCY OF TRANSPORTATION
VT ROUTE 65 (MINOR COLLECTOR)
BRIDGE NO. 2
TOWN OF BROOKFIELD

STATE	COUNTY	CONTROL NO.
VT	ORANGE	NA

PROJECT NO.: BRF FLBR(2)

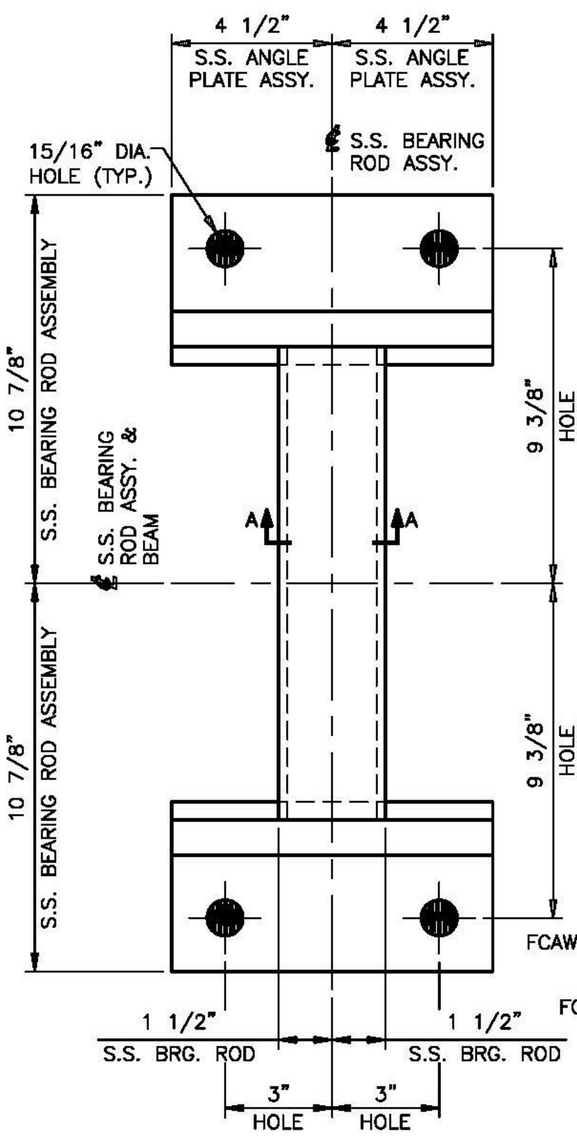
COSMEC, INC.
STAINLESS STEEL BEARING ASSY.'S

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

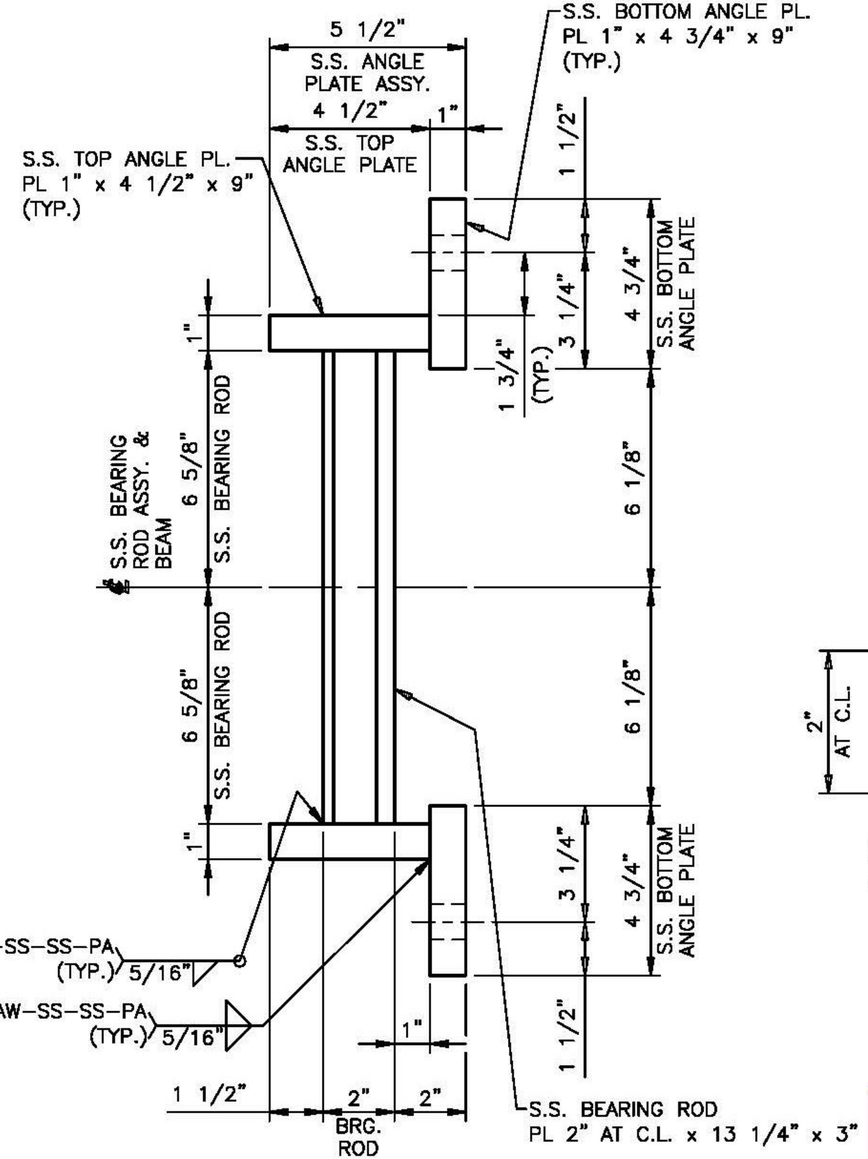
SCALE: NONE	DRAWN BY: MH	CHECKED BY: SL
	DATE: 05/23/14	DATE: 06/05/14

SHEET 1 OF 7 — JOB NO.: 12445

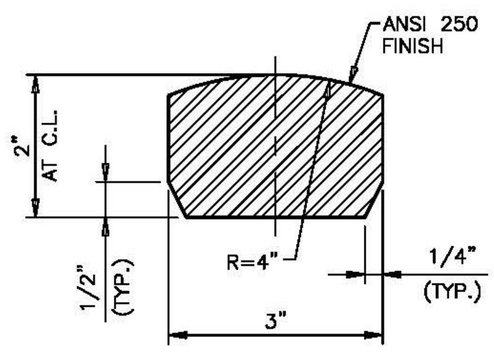
CUSTOMER	DRAWING NUMBER	REV.
MILLER CONSTRUCTION, INC.	12445-D1	0



PLAN VIEW



FRONT VIEW



SECTION A–A
BEARING ROD
ASTM A240 TYPE 304
PL 2" AT C.L. x 13 1/4" x 3
(16) REQUIRED

S.S. BEARING ROD ASSEMBLY
MARK: BRA2
(8) LOCATED @ WEST FLOATING SPAN LEDGE
(8) LOCATED @ EAST FLOATING SPAN LEDGE
(16) REQUIRED

Vermont Agency of Transportation
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BY: Jennifer Fitch DATE: 06/18/2014

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JOSH OLUND REVIEWER 06/17/2014 DATE

REV.	DESCRIPTION	BY	DATE	CK'D	DATE
1	.	.	.	.	.

SEE SHEET 1 FOR GENERAL NOTES

STATE OF VERMONT
AGENCY OF TRANSPORTATION
VT ROUTE 65 (MINOR COLLECTOR)
BRIDGE NO. 2
TOWN OF BROOKFIELD

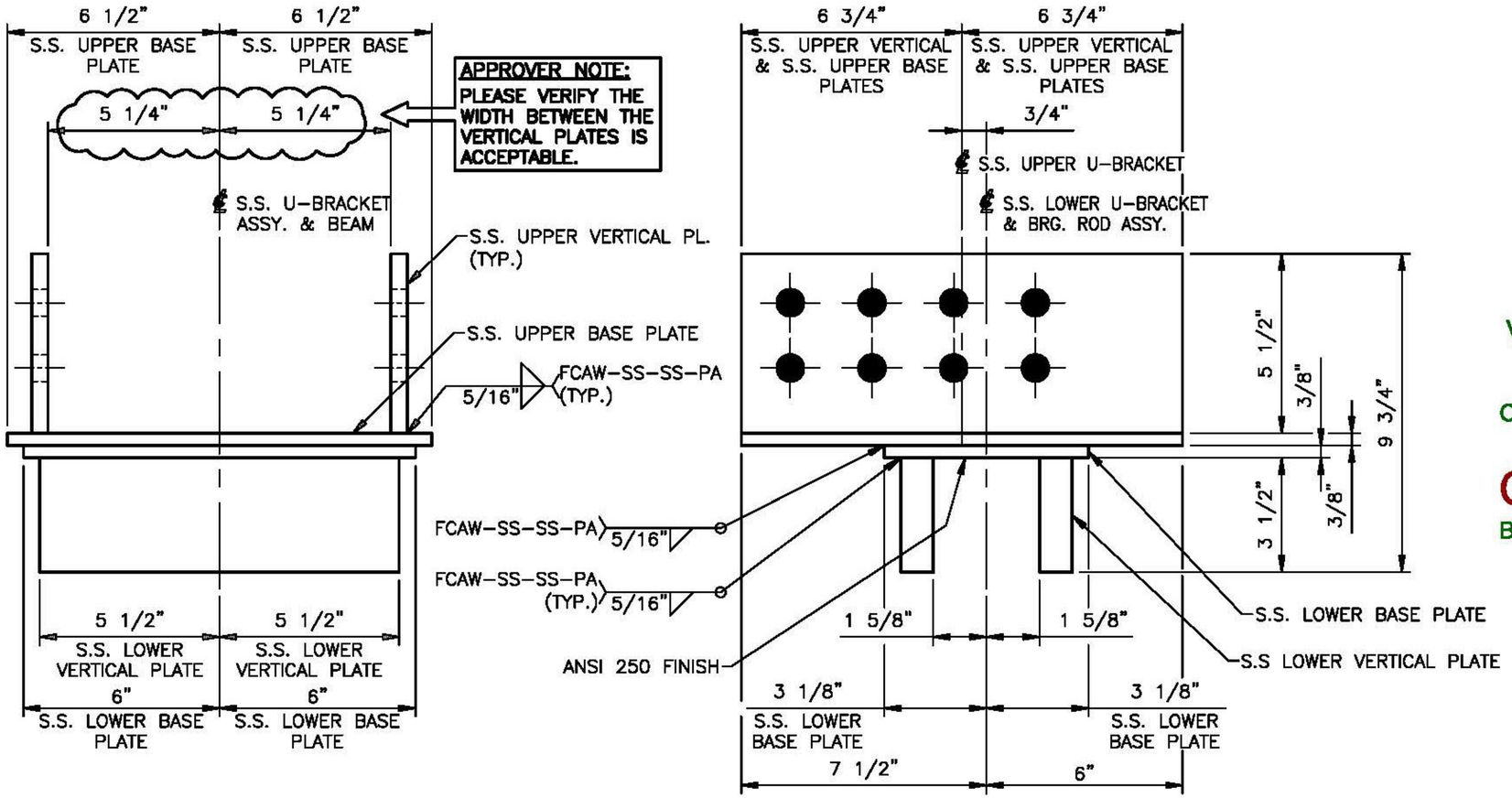
STATE	COUNTY	CONTROL NO.
VT	ORANGE	NA

PROJECT NO.: BRF FLBR(2)

COSMEC, INC.
STAINLESS STEEL BEARING ASSY.'S

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

SCALE: NONE	DRAWN BY: MH	CHECKED BY: SL
	DATE: 05/23/14	DATE: 06/06/14
SHEET 2 OF 7	JOB NO.: 12445	
CUSTOMER: MILLER CONSTRUCTION, INC.	DRAWING NUMBER: 12445-D2	REV. 0



FRONT VIEW

ELEVATION VIEW

S.S. FIXED U-BRACKET ASSEMBLY
MARK: FUA1
(8) LOCATED @ ABUTMENT 1
(8) LOCATED @ ABUTMENT 2
(16) REQUIRED

Vermont Agency of Transportation
RECEIVED
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and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 06/18/2014

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FOR GENERAL NOTES

SEE SHEET 4
FOR COMPONENT DETAILS

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JOSH OLUND (REVIEWER) 06/17/2014 (DATE)

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VT ROUTE 65 (MINOR COLLECTOR)
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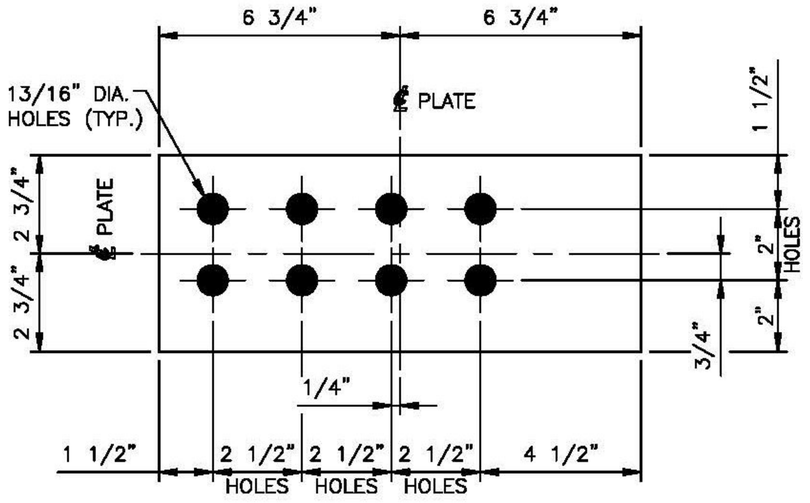
STAINLESS STEEL BEARING ASSY.'S

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

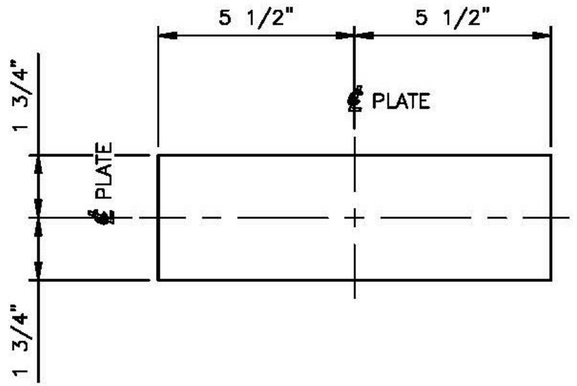
SCALE: NONE	DRAWN BY: MH DATE: 05/28/14	CHECKED BY: SL DATE: 06/05/14
SHEET 3 OF 7	JOB NO.: 12445	

REV.	DESCRIPTION	BY	DATE	CK'D	DATE
1	.	.	.	.	.

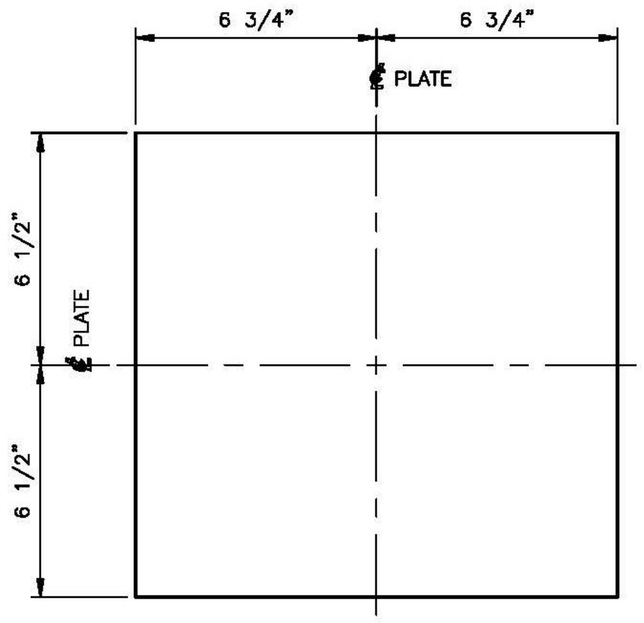
CUSTOMER: MILLER CONSTRUCTION, INC.
DRAWING NUMBER: 12445-D3 REV. 0



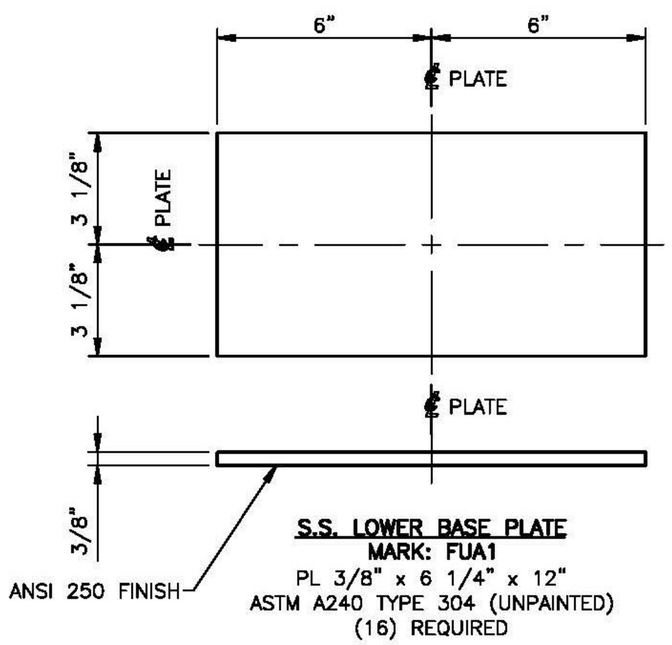
S.S. UPPER VERICAL PLATE
MARK: FUA1
PL 1/2" x 5 1/2" x 13 1/2"
ASTM A240 TYPE 304 (UNPAINTED)
(32) REQUIRED



S.S. LOWER VERICAL PLATE
MARK: FUA1
PL 1" x 3 1/2" x 11"
ASTM A240 TYPE 304 (UNPAINTED)
(32) REQUIRED



S.S. UPPER BASE PLATE
MARK: FUA1
PL 3/8" x 13" x 13 1/2"
ASTM A240 TYPE 304 (UNPAINTED)
(16) REQUIRED



S.S. LOWER BASE PLATE
MARK: FUA1
PL 3/8" x 6 1/4" x 12"
ASTM A240 TYPE 304 (UNPAINTED)
(16) REQUIRED

Vermont Agency of Transportation

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JOSH OLUND — REVIEWER
06/17/2014 — DATE

SEE SHEET 1
FOR GENERAL NOTES

SEE SHEET 3
FOR ASSEMBLY DETAILS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

VT ROUTE 65 (MINOR COLLECTOR)
BRIDGE NO. 2
TOWN OF BROOKFIELD

STATE	COUNTY	CONTROL NO.
VT	ORANGE	NA

PROJECT NO.: BRF FLBR(2)

COSMEC, INC.
STAINLESS STEEL BEARING ASSY.'S

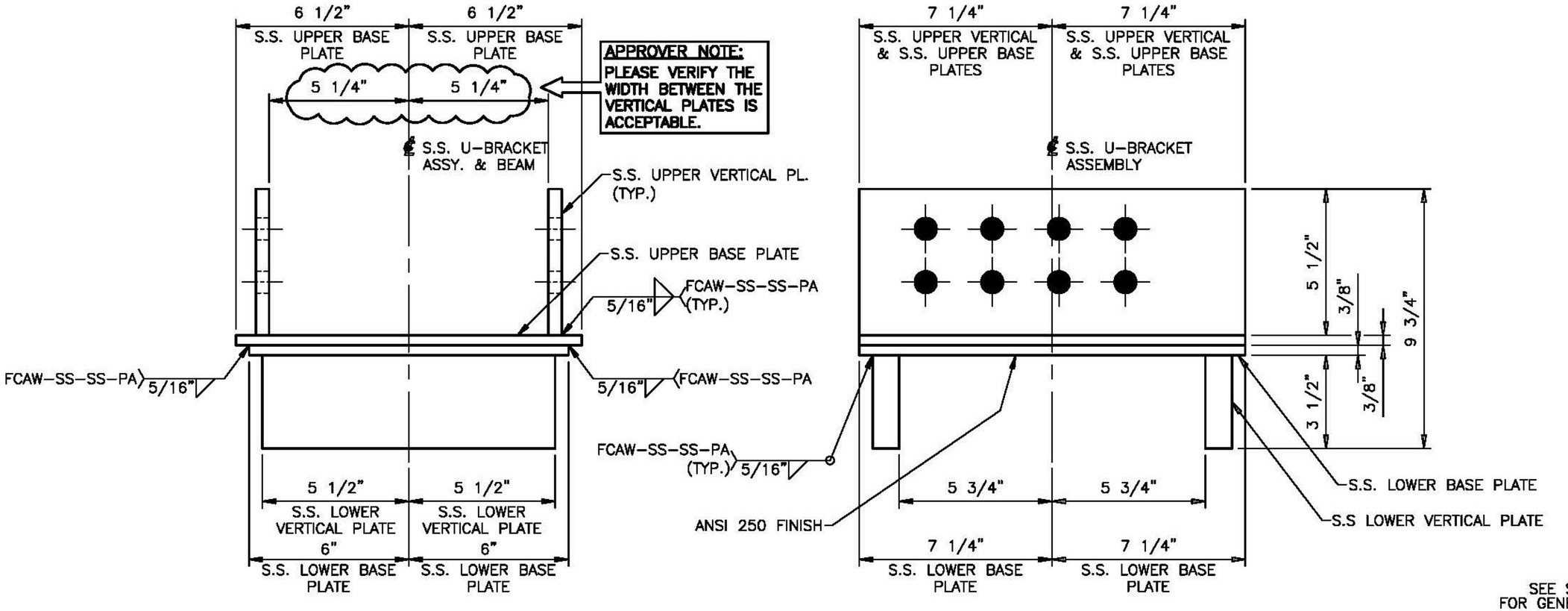
Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

SCALE: NONE
DRAWN BY: MH DATE: 05/28/14
CHECKED BY: SL DATE: 06/06/14

SHEET 4 OF 7
JOB NO.: 12445

REV.	DESCRIPTION	BY	DATE	CK'D	DATE
1	.	.	.	.	.

CUSTOMER: MILLER CONSTRUCTION, INC.
DRAWING NUMBER: 12445-D4
REV.: 0



FRONT VIEW

ELEVATION VIEW

S.S. EXPANSION U-BRACKET ASSEMBLY
MARK: EUA1
(8) LOCATED @ WEST FLOATING SPAN LEDGE
(8) LOCATED @ EAST FLOATING SPAN LEDGE
(16) REQUIRED

SEE SHEET 1
FOR GENERAL NOTES

SEE SHEET 6
FOR COMPONENT DETAILS

Vermont Agency of Transportation
RECEIVED
ON: June 11, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 06/18/2014

T.Y. LIN INTERNATIONAL

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JOSH OLUND — REVIEWER — 06/17/2014 — DATE

REV.	DESCRIPTION	BY	DATE	CK'D	DATE
1	.	.	.	.	.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

VT ROUTE 65 (MINOR COLLECTOR)
BRIDGE NO. 2
TOWN OF BROOKFIELD

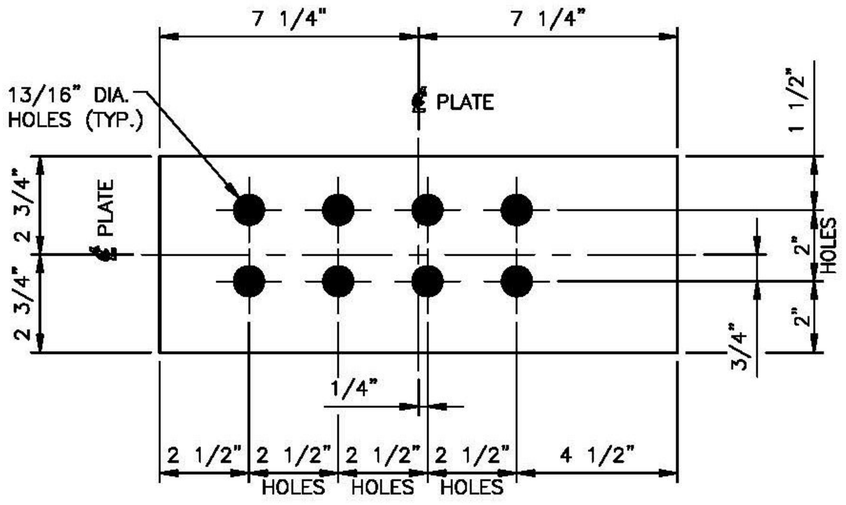
STATE	COUNTY	CONTROL NO.
VT	ORANGE	NA

PROJECT NO.: BRF FLBR(2)

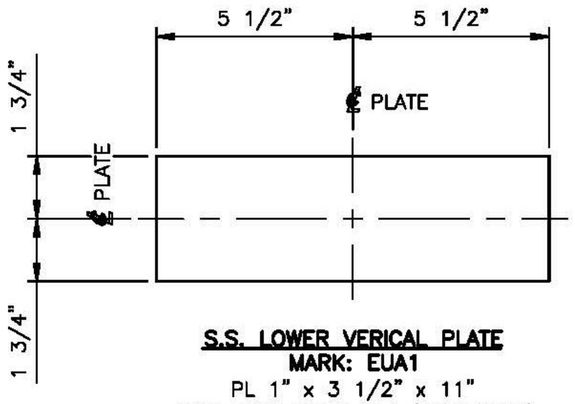
COSMEC, INC.
STAINLESS STEEL BEARING ASSY.'S

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

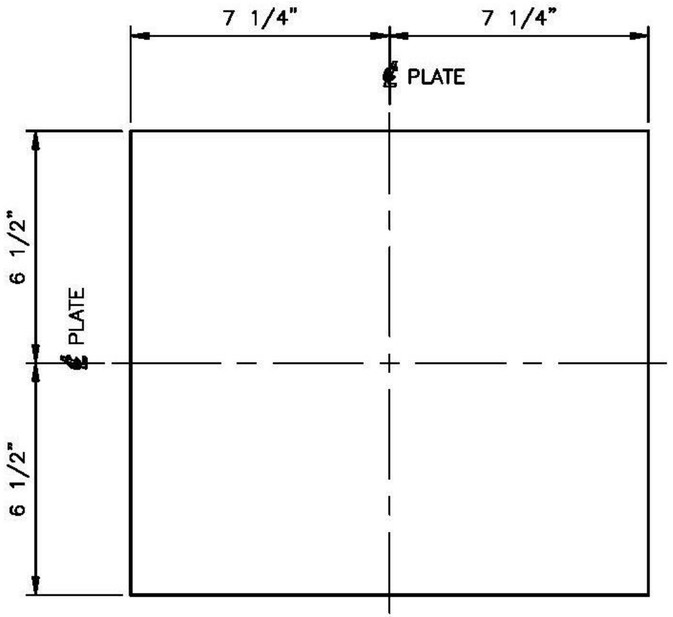
SCALE: NONE
DRAWN BY: MH DATE: 05/22/14
CHECKED BY: SL DATE: 06/06/14
SHEET 5 OF 7
JOB NO.: 12445
CUSTOMER: MILLER CONSTRUCTION, INC.
DRAWING NUMBER: 12445-D5
REV.: 0



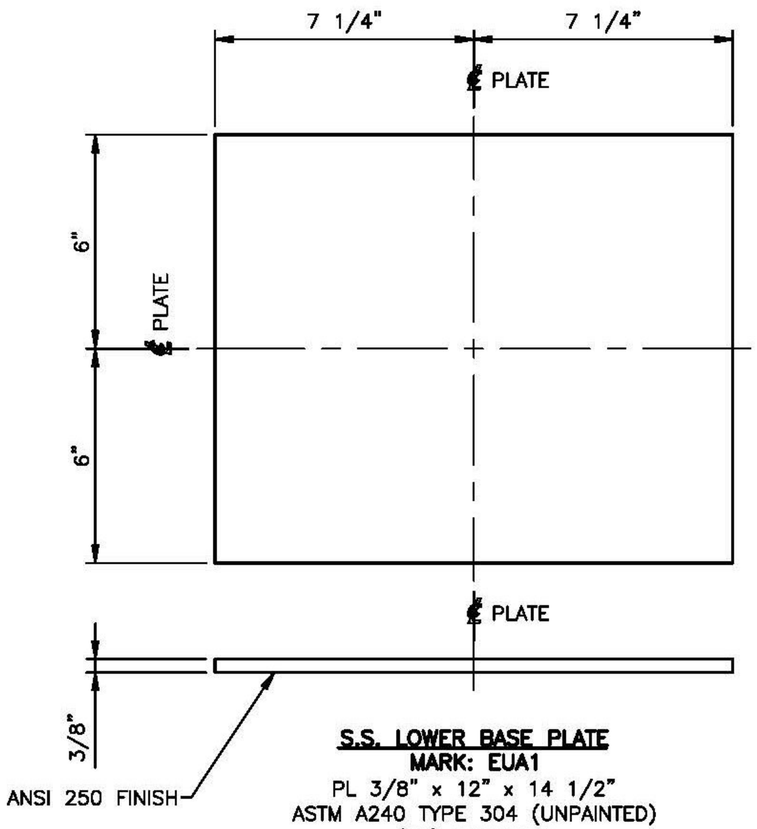
S.S. UPPER VERICAL PLATE
MARK: EUA1
PL 1/2" x 5 1/2" x 14 1/2"
ASTM A240 TYPE 304 (UNPAINTED)
(32) REQUIRED



S.S. LOWER VERICAL PLATE
MARK: EUA1
PL 1" x 3 1/2" x 11"
ASTM A240 TYPE 304 (UNPAINTED)
(32) REQUIRED



S.S. UPPER BASE PLATE
MARK: EUA1
PL 3/8" x 13" x 14 1/2"
ASTM A240 TYPE 304 (UNPAINTED)
(16) REQUIRED



S.S. LOWER BASE PLATE
MARK: EUA1
PL 3/8" x 12" x 14 1/2"
ASTM A240 TYPE 304 (UNPAINTED)
(16) REQUIRED

Vermont Agency of Transportation

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BY: Jennifer Fitch DATE: 06/18/2014

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JOSH OLUND — REVIEWER
06/17/2014 — DATE

SEE SHEET 1
FOR GENERAL NOTES

SEE SHEET 5
FOR ASSEMBLY DETAILS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

VT ROUTE 65 (MINOR COLLECTOR)
BRIDGE NO. 2
TOWN OF BROOKFIELD

STATE	COUNTY	CONTROL NO.
VT	ORANGE	NA

PROJECT NO.: BRF FLBR(2)

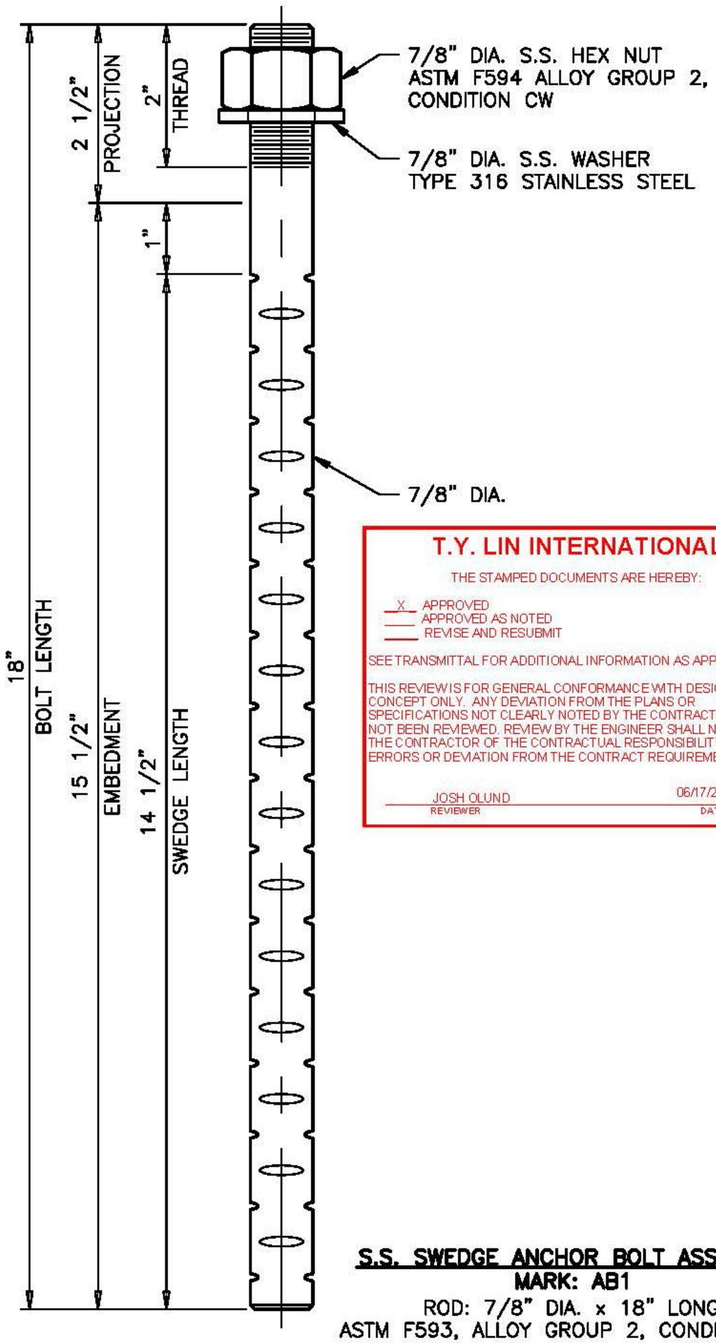
COSMEC, INC.
STAINLESS STEEL BEARING ASSY.'S

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

SCALE: NONE
DRAWN BY: MH DATE: 05/28/14
CHECKED BY: SL DATE: 06/06/14
SHEET 6 OF 7
JOB NO.: 12445

REV.	DESCRIPTION	BY	DATE	CK'D	DATE
1	.	.	.	.	.

CUSTOMER: MILLER CONSTRUCTION, INC.
DRAWING NUMBER: 12445-D6
REV. 0



S.S. SWEDGE ANCHOR BOLT ASSEMBLY
MARK: AB1
ROD: 7/8" DIA. x 18" LONG
ASTM F593, ALLOY GROUP 2, CONDITION CW
(32) LOCATED @ ABUTMENT 1
(32) LOCATED @ ABUTMENT 2
(64) REQUIRED

T.Y. LIN INTERNATIONAL

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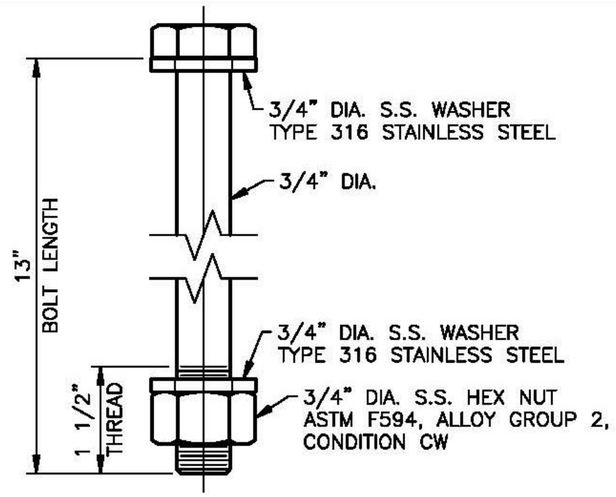
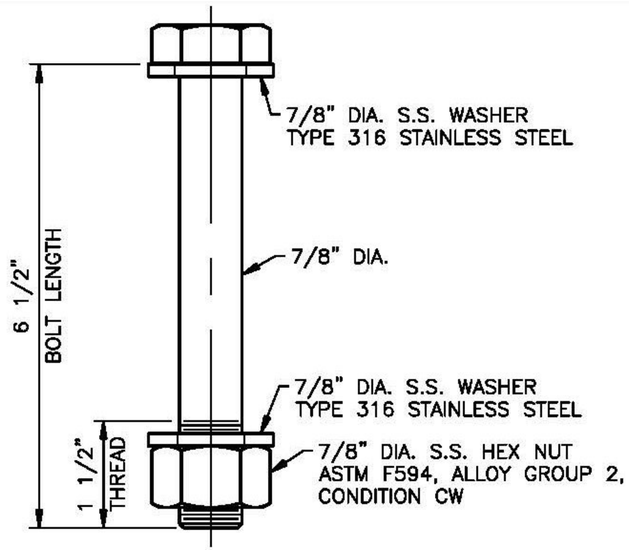
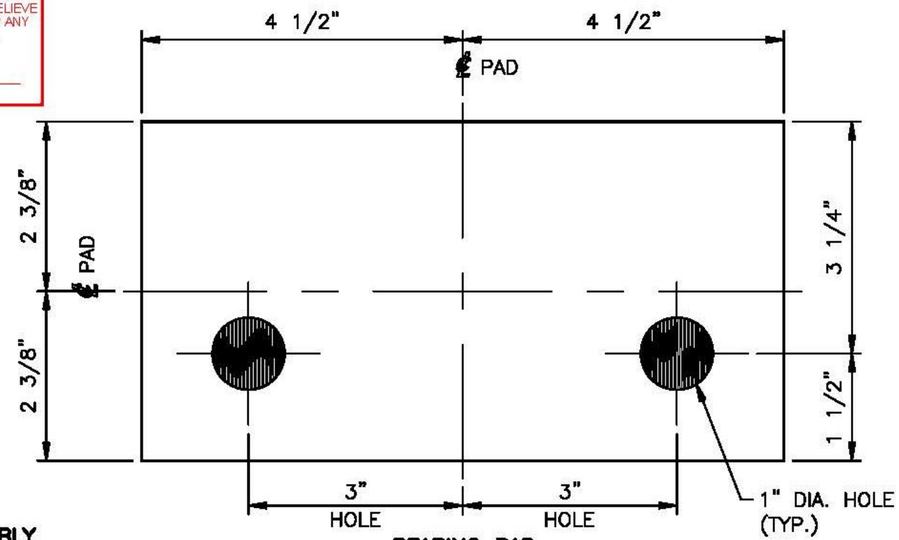
JOSH OLUND — REVIEWER
06/17/2014 — DATE



S.S. CONNECTION BOLT ASSEMBLY
MARK: CB1
3/4" DIA. x 13" LONG
ASTM F593, ALLOY GROUP 2, CONDITION CW
(64) LOCATED @ ABUTMENT 1
(64) LOCATED @ WEST FLOATING SPAN LEDGE
(64) LOCATED @ ABUTMENT 2
(64) LOCATED @ EAST FLOATING SPAN LEDGE
(256) REQUIRED



S.S. CONNECTION BOLT ASSEMBLY
MARK: CB2
7/8" DIA. x 6 1/2" LONG
ASTM F593, ALLOY GROUP 2, CONDITION CW
(32) LOCATED @ WEST FLOATING SPAN LEDGE
(32) LOCATED @ EAST FLOATING SPAN LEDGE
(64) REQUIRED



BEARING PAD
MARK: BP1
PAD 1/8" x 4 3/4" x 9"
MIL-C-882
(16) LOCATED @ ABUTMENT 1
(16) LOCATED @ ABUTMENT 2
(32) REQUIRED

Vermont Agency of Transportation
RECEIVED
ON: June 11, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 06/18/2014

SEE SHEET 1
FOR GENERAL NOTES

SEE SHEETS E1 THRU E3
FOR INSTALLATION DETAILS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

VT ROUTE 65 (MINOR COLLECTOR)
BRIDGE NO. 2
TOWN OF BROOKFIELD

STATE	COUNTY	CONTROL NO.
VT	ORANGE	NA

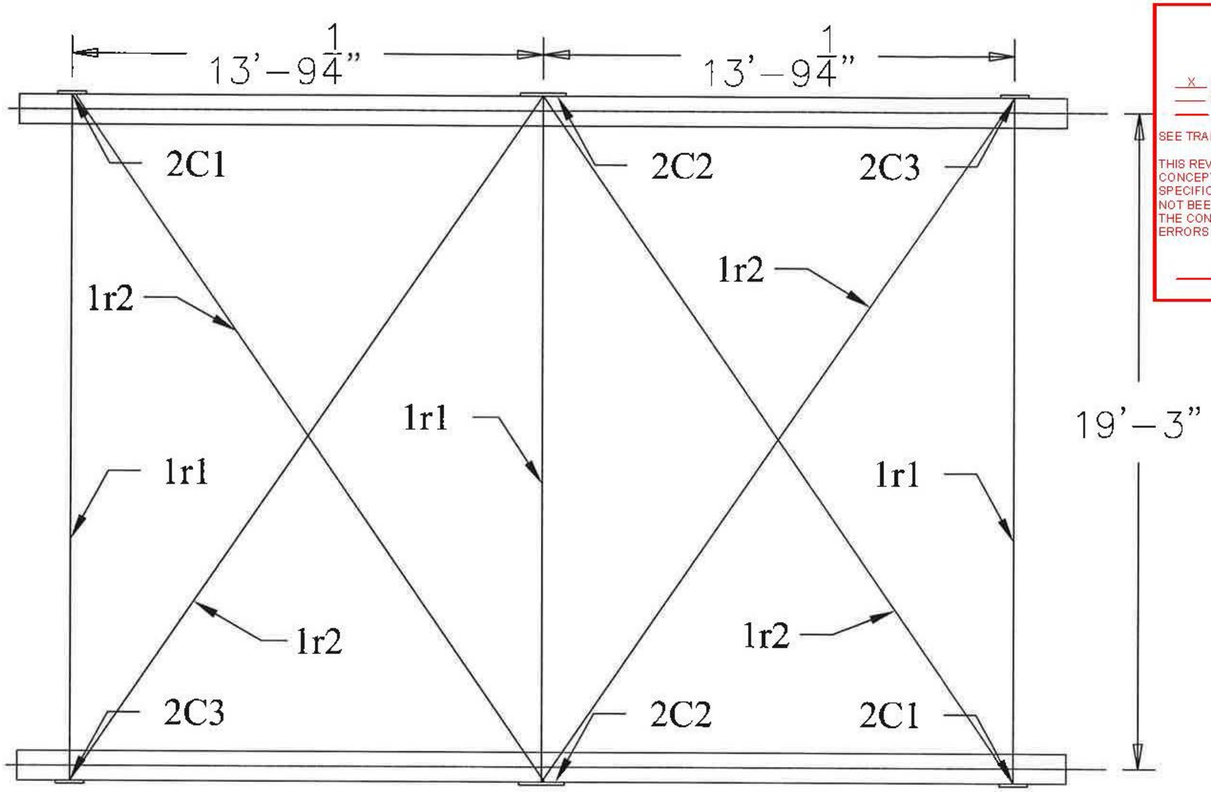
PROJECT NO.: BRF FLBR(2)

COSMEC, INC.
STAINLESS STEEL BEARING ASSY.'S

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

SCALE: NONE	DRAWN BY: MH DATE: 05/28/14	CHECKED BY: SL DATE: 06/06/14
SHEET 7 OF 7	JOB NO.: 12445	
CUSTOMER: MILLER CONSTRUCTION, INC.	DRAWING NUMBER: 12445-D7	REV. 0

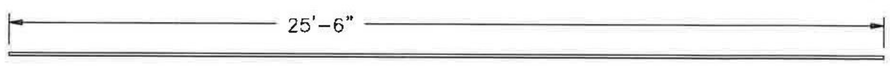
REV.	DESCRIPTION	BY	DATE	CK'D	DATE
1	.	.	.	.	.



(1) - 1E1 EAST RAMP FRAMING
(1) - 1W1 WEST RAMP FRAMING

(6) - 1r1 CROSS ROD DETAIL

NOTE - 6" THRD EACH END



(8) - 1r2 CROSS ROD DETAIL

T.Y. LIN INTERNATIONAL

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JOSH OLUND — REVIEWER
08/08/2014 — DATE

Vermont Agency of Transportation
RECEIVED
ON: July 28, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 08/08/2014

BILL OF MATERIALS

QTY	MARK	SHAPE	LENGTH	REMARKS
1	1E1	EAST FRAMING PLAN		
2	2C1	Cross Frame Bracket 1		
2	2C2	Cross Frame Bracket 2		
2	2C3	Cross Frame Bracket 3		
3	1r1	1" Dia Rebar Tie Rod x 20'-9 1/2" lg with 4 Nuts & 2 Hardended Steel Washers		
4	1r2	1" Dia Rebar Tie Rod x 25'-6" lg with 4 Nuts & 2 Hardended Steel Washers		
1	1W1	WEST FRAMING PLAN		
2	2C1	Cross Frame Bracket 1		
2	2C2	Cross Frame Bracket 2		
2	2C3	Cross Frame Bracket 3		
3	1r1	1" Dia Rebar Tie Rod x 20'-9 1/2" lg with 4 Nuts & 2 Hardended Steel Washers		
4	1r2	1" Dia Rebar Tie Rod x 25'-6" lg with 4 Nuts & 2 Hardended Steel Washers		

RAMP FRAMING MATERIAL NOTES

1. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270 GRADE 36.
2. ALL STRUCTURAL STEEL AND FASTENERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M 111 AND M 232.
3. ALL REBAR TIE RODS SHALL CONFORM TO ASTM A615 GRADE 75.
4. ALL NUTS SHALL CONFORM TO ASTM A563.

		DATE SUBMITTED
3	6-24-2014	REVISED PER APPROVAL COMMENTS
2	6-17-2014	REVISED PER APPROVAL COMMENTS
1	5-30-2014	REVISED PER APPROVAL COMMENTS
0	5-5-2014	SUBMITTED FOR APPROVAL
REV NO.	DATE	DESCRIPTION

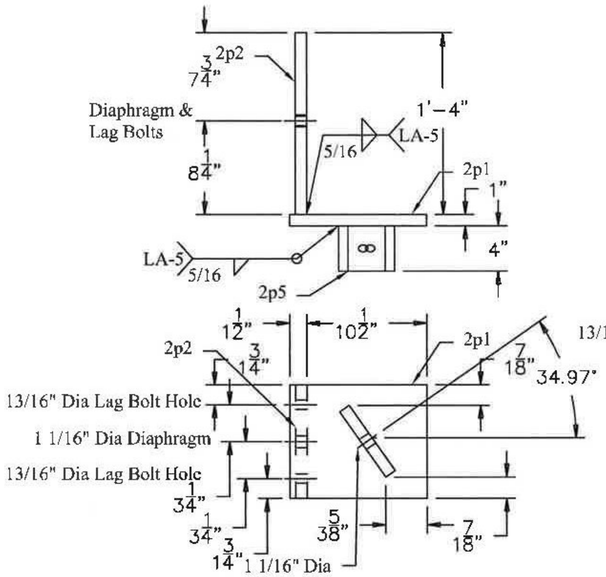
HOLES AS NOTED
MATERIAL: AASHTO M 270 GRADE 36 GALV

DRAWING COVERS
TIMBER BRIDGE SUPPORT DETAILS

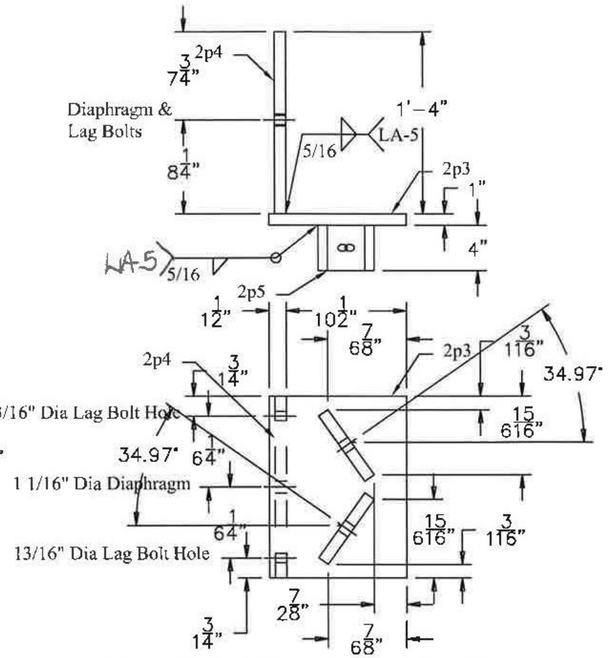
	PROJECT	BROOKFIELD BRF FLBR(2)
	LOCATION	VT ROUTE 65 OVER WESTERN AND EASTERN RAMP
	ENGINEER	T Y LIN INTERNATIONAL
	CUSTOMER	MILLER CONSTRUCTION

MERRIMACK SHEET METAL
119 HALL STREET
CONCORD NH 03301
Tel. 603.224.7766
Fax 603.224.7925

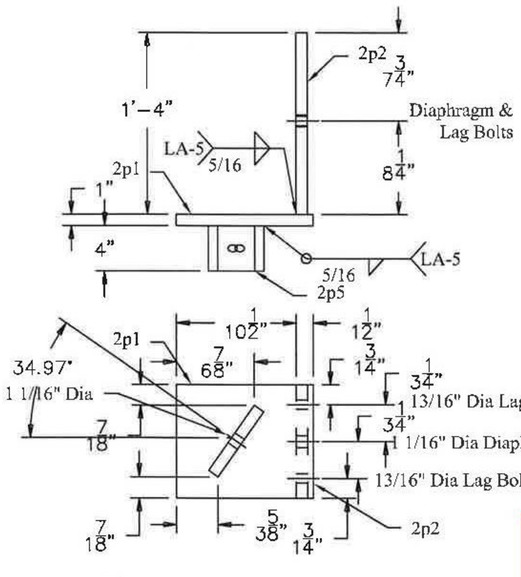
DRAWN BY: RL
CHECKED BY: JD
JOB NO.: #5414
DWG: F1



(4) - 2C1 CROSS FRAME BACKET



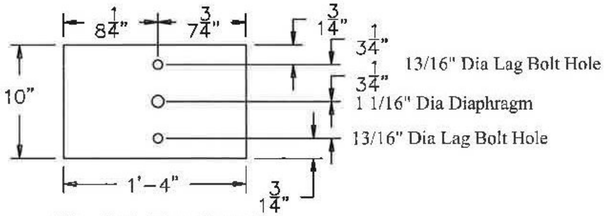
(4) - 2C2 CROSS FRAME BACKET



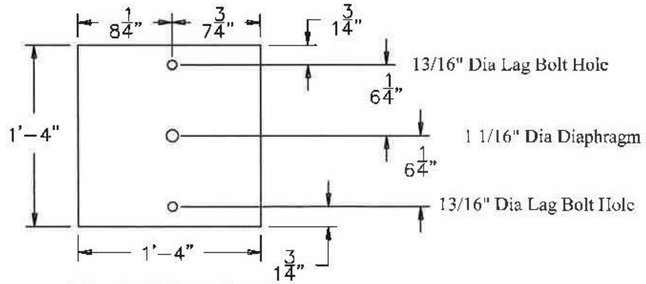
(4) - 2C3 CROSS FRAME BACKET

BILL OF MATERIALS

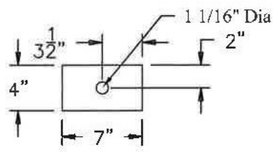
QTY	MARK	SHAPE	LENGTH	REMARKS
4	2C1	CROSS FRAME BRACKET 1		
4	2p1	Plate 1" x 10"	1'-0"	
4	2p2	Plate 1" x 10"	1'-4"	
4	2p5	Plate 1" x 4"	0'-7"	
4	2C2	CROSS FRAME BRACKET 2		
4	2p3	Plate 1" x 12"	1'-4"	
4	2p4	Plate 1" x 16"	1'-4"	
8	2p5	Plate 1" x 4"	0'-7"	
4	2C3	CROSS FRAME BRACKET 3		
4	2p1	Plate 1" x 10"	1'-0"	
4	2p2	Plate 1" x 10"	1'-4"	
4	2p5	Plate 1" x 4"	0'-7"	



(8) - 2p2 Plate Details



(4) - 2p4 Plate Details



(16) - 2p5 Plate Details

Vermont Agency of Transportation

RECEIVED

ON: July 28, 2014

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CONFORMANCE

BY: Jennifer Fitch DATE: 08/08/2014

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JOSH OLUND — REVIEWER — 08/08/2014 — DATE

REV NO.	DATE	DESCRIPTION
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2	6-17-2014	REVISED PER APPROVAL COMMENTS
1	5-30-2014	REVISED PER APPROVAL COMMENTS
0	5-5-2014	SUBMITTED FOR APPROVAL

HOLES AS NOTED

MATERIAL: AASHTO M 270 GRADE 36 GALV

DRAWING COVERS

TIMBER BRIDGE CROSS FRAME BRACKETS

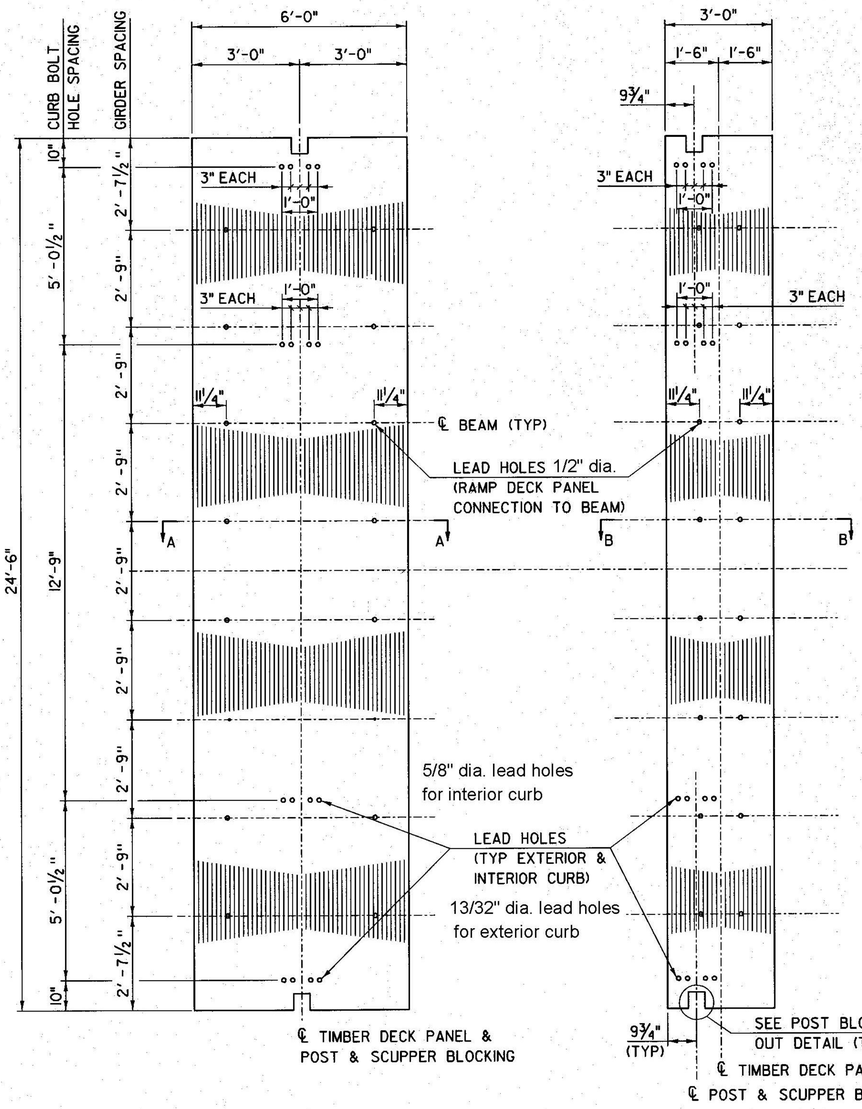
PROJECT	BROOKFIELD BRF FLBR(2)
LOCATION	VT ROUTE 65 OVER WESTERN AND EASTERN RAMP
ENGINEER	T Y LIN INTERNATIONAL
CUSTOMER	MILLER CONSTRUCTION

MERRIMACK SHEET METAL

119 HALL STREET
CONCORD NH 03301

Tel. 603.224.7766
Fax 603.224.7925

DRAWN BY: RL
CHECKED BY: JD
JOB NO: #5414
DWG: F2



RAMP DECK
PANEL TYPE D - PLAN
SCALE: ½" = 1'-0"

RAMP DECK
PANEL TYPE E - PLAN
SCALE: ½" = 1'-0"

Vermont Agency of Transportation

RECEIVED
ON: July 17, 2014
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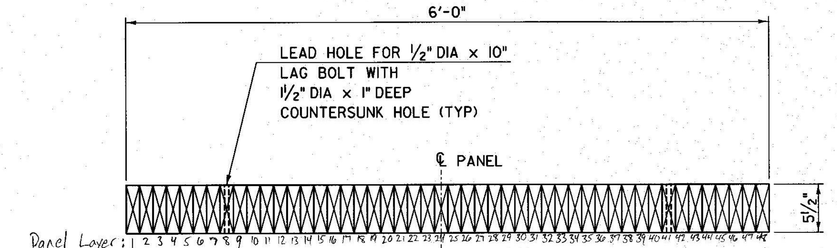
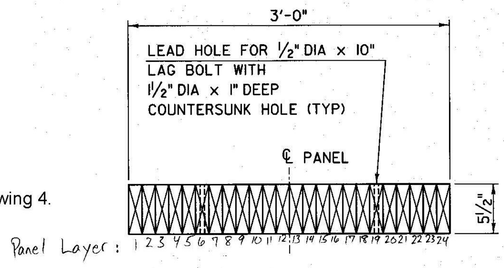
BY: Jennifer Fitch DATE: 8/8/2014

Expansion device hole layout shown on drawing 4.

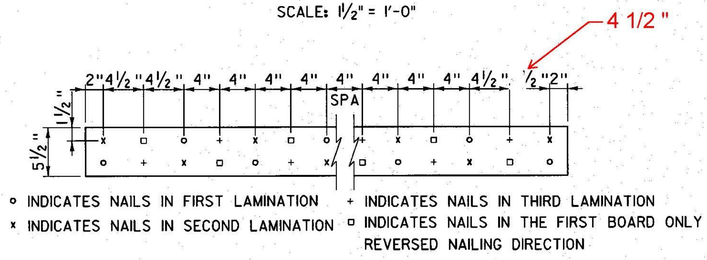


*Refer to Panel Layer Layout drawing for lengths of pieces and pattern. (Typical for all panels)

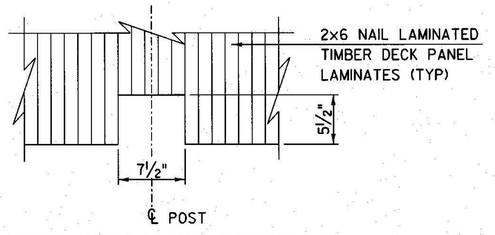
DECK PANEL SECTION A-A - TYPE D
SCALE: 1½" = 1'-0"



DECK PANEL SECTION B-B - TYPE E
SCALE: 1½" = 1'-0"



RAMP DECK PANEL - NAIL PATTERN
SCALE: 1½" = 1'-0"



POST BLOCK OUT DETAIL
SCALE: 1½" = 1'-0"

T.Y. LIN INTERNATIONAL

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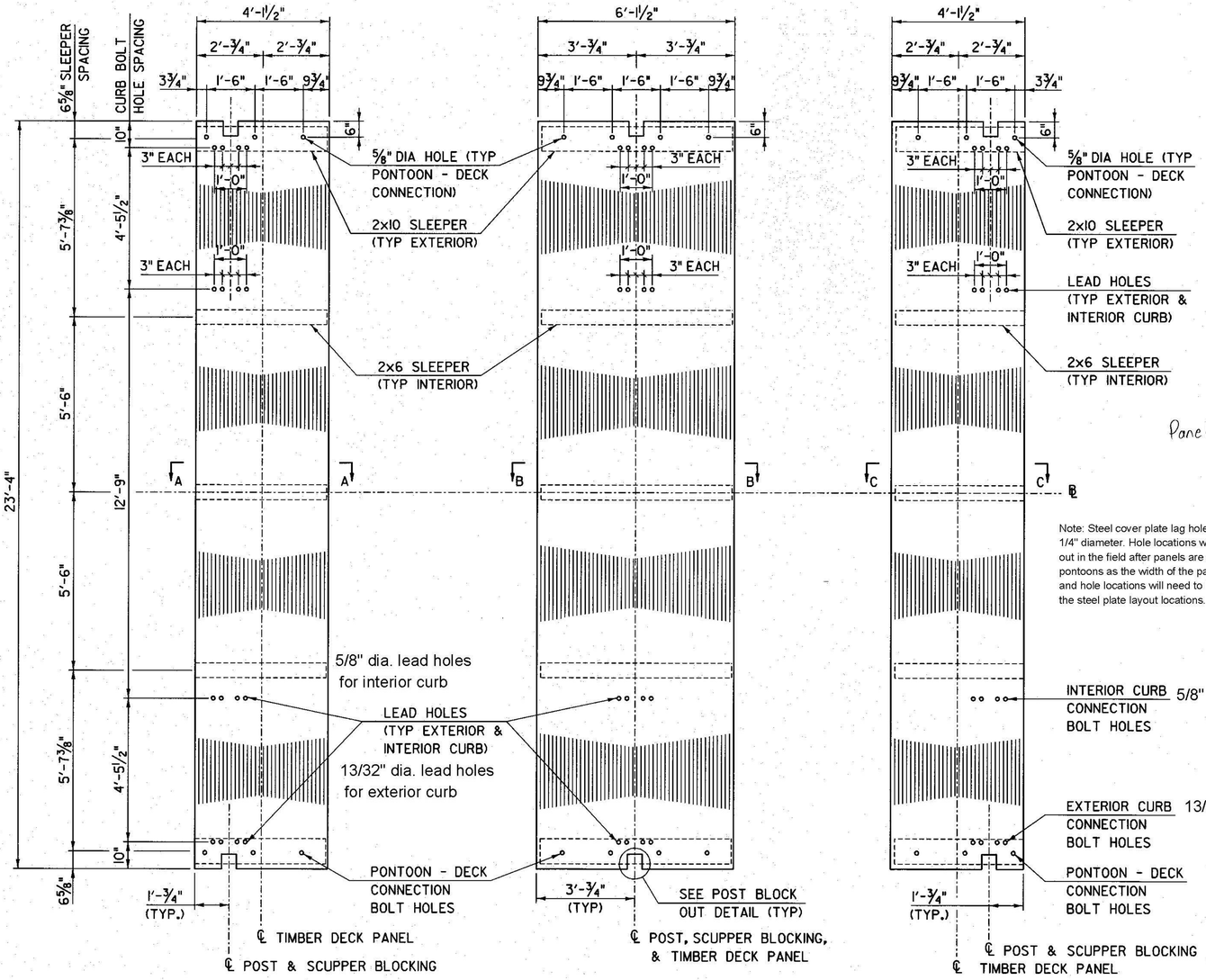
Tim Poulin — REVIEWER
08/07/2014 — DATE

Deck Panel Layout Fabrication Drawings

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)



FLOATING SPAN DECK PANEL TYPE A - PLAN

SCALE: ½" = 1'-0"

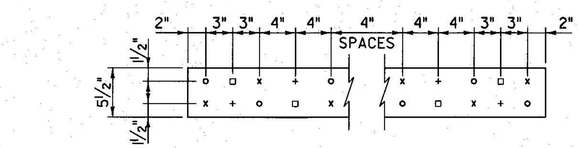
FLOATING SPAN DECK PANEL TYPE B - PLAN

SCALE: ½" = 1'-0"

FLOATING SPAN DECK PANEL TYPE C - PLAN

SCALE: ½" = 1'-0"

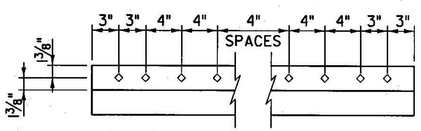
Note: Steel cover plate lag holes to be predrilled 1/4" diameter. Hole locations will need to be laid out in the field after panels are assembled on the pontoons as the width of the panels will vary and hole locations will need to be adjusted to match the steel plate layout locations.



○ INDICATES NAILS IN FIRST LAMINATION
× INDICATES NAILS IN SECOND LAMINATION
\+ INDICATES NAILS IN THIRD LAMINATION
□ INDICATES NAILS IN THE FIRST BOARD ONLY, REVERSED NAILING DIRECTION

FLOATING SPAN DECK PANEL - NAIL PATTERN

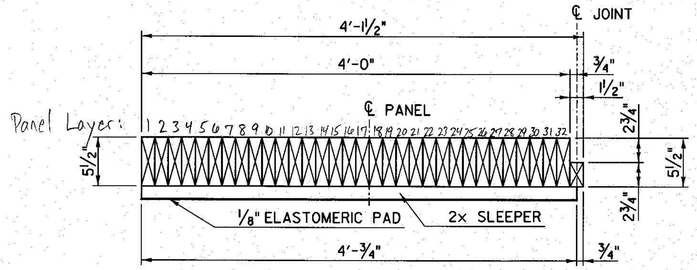
SCALE: 1½" = 1'-0"



SHIP LAP BOARD - NAIL PATTERN

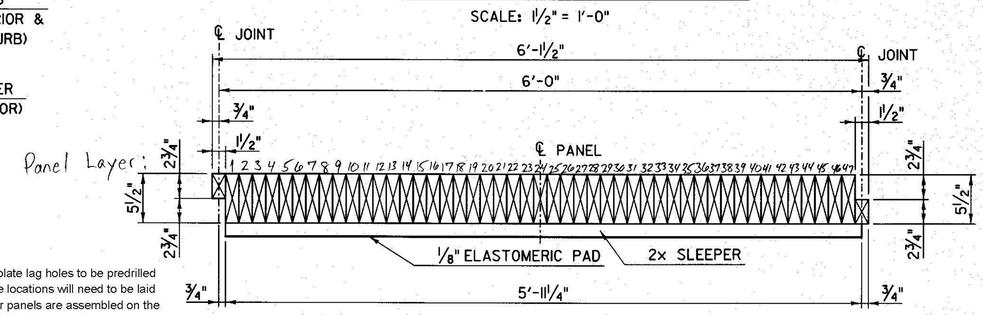
SCALE: 1½" = 1'-0"

(TOP SHIP LAP BOARD SHOWN, BOTTOM SIMILAR)



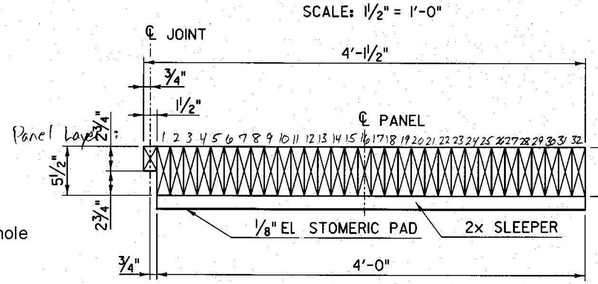
DECK PANEL SECTION A-A - TYPE A

SCALE: 1½" = 1'-0"



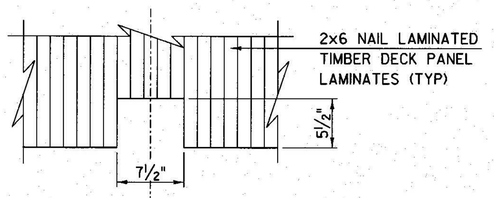
DECK PANEL SECTION B-B - TYPE B

SCALE: 1½" = 1'-0"



DECK PANEL SECTION C-C - TYPE C

SCALE: 1½" = 1'-0"



POST BLOCK OUT DETAIL

SCALE: 1½" = 1'-0"

Vermont Agency of Transportation

RECEIVED

ON: July 17, 2014

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 8/8/2014

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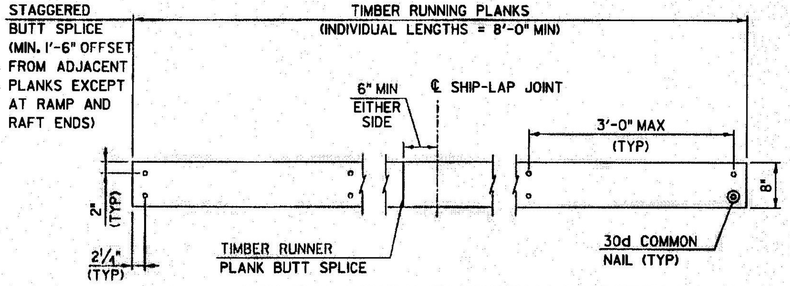
Tim Poulin — REVIEWER — 08/07/2014 — DATE

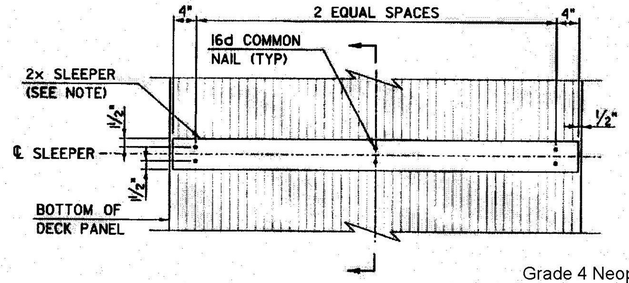
PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)



NOTE: TIMBER RUNNER PLANK NAILS SHALL BE CENTERED ON NAIL LAMINATED DECK PANEL LAMINATES.

RUNNER PLANK ATTACHMENT DETAIL - PLAN

SCALE: 1" = 1'-0"

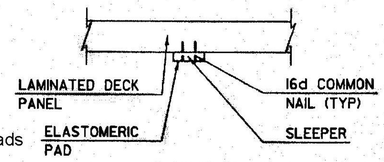


SLEEPER DETAIL - PLAN

SCALE: 1" = 1'-0"

NOTE:

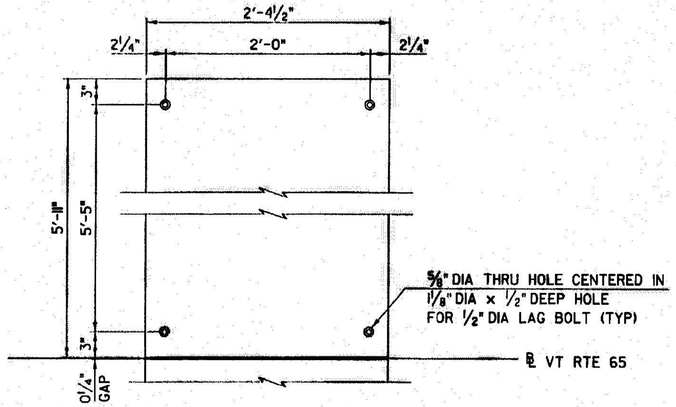
1. ⅛" THICK ELASTOMERIC PADS CONFORMING TO THE LENGTH AND WIDTH OF THE SLEEPER SHALL BE PLACED BENEATH THE SLEEPERS AND ATTACHED TO THE SLEEPERS WITH THE SAME NAILS USED TO ATTACH THE SLEEPER TO THE DECK.



Grade 4 Neoprene Pads

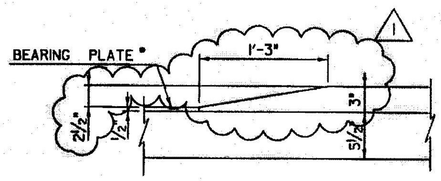
SECTION

SCALE: 1" = 1'-0"



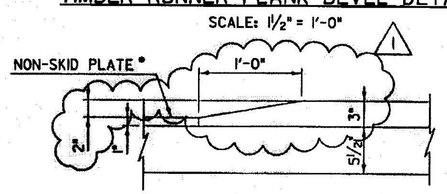
STEEL COVER PLATE PLAN OVER RAFT FIELD SPLICE LOCATIONS

SCALE: 1½" = 1'-0"



TIMBER RUNNER PLANK BEVEL DETAIL 1

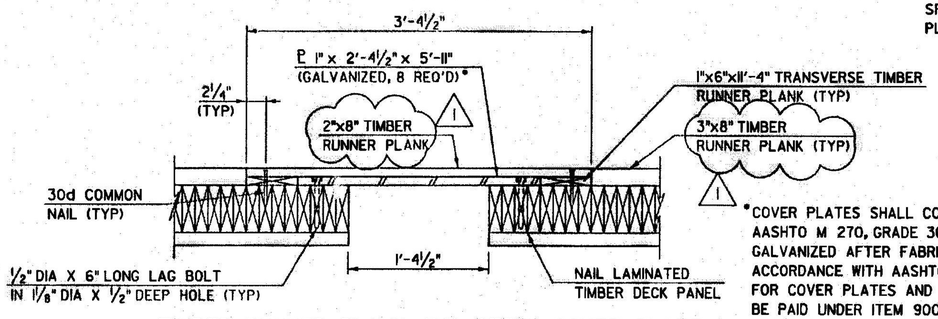
SCALE: 1½" = 1'-0"



TIMBER RUNNER PLANK BEVEL DETAIL 2

SCALE: 1½" = 1'-0"

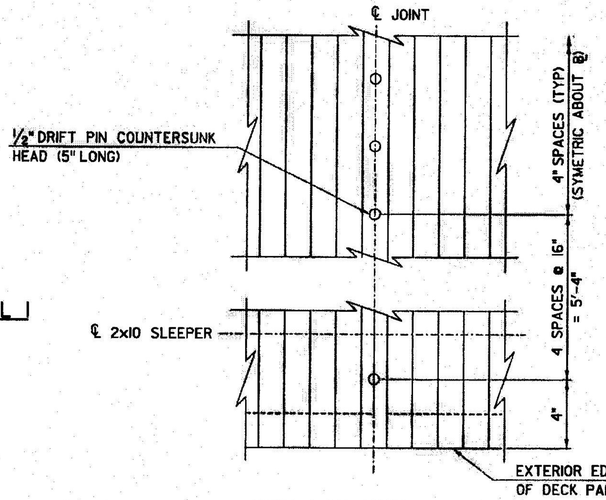
* NON-SKID AND BEARING PLATES ARE COMPONENTS OF THE SPECIAL PROVISION (EXPANSION DEVICE, HINGED SLIDING PLATE ASSEMBLY). SEE SHEET 51 FOR LOCATION AND DETAILS.



TIMBER RUNNER PLANK AND STEEL COVER PLATE DETAIL OVER RAFT FIELD SPLICES

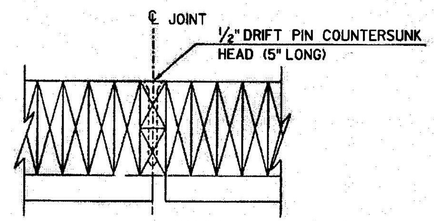
SCALE: 1½" = 1'-0"

* COVER PLATES SHALL CONFORM TO AASHTO M 270, GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M 111. COSTS FOR COVER PLATES AND HARDWARE SHALL BE PAID UNDER ITEM 900.670, "SPECIAL PROVISION (NAIL LAMINATED TIMBER DECK PANEL)".



SHIP-LAP DETAIL - PLAN

SCALE: 3" = 1'-0"



SHIP-LAP DETAIL - SECTION

SCALE: 3" = 1'-0"

Vermont Agency of Transportation
RECEIVED
ON: July 17, 2014
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CONFORMANCE
BY: Jennifer Fitch DATE: 8/8/2014

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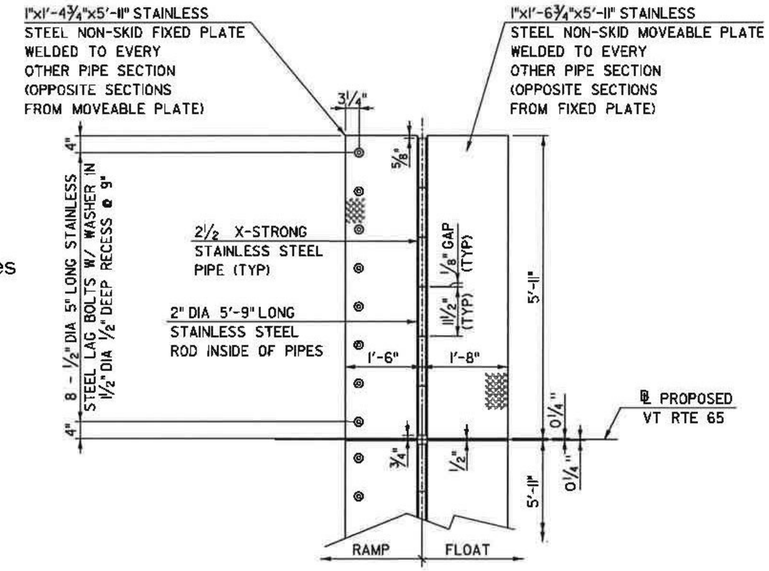
Tim Poulin — REVIEWER — 08/07/2014 — DATE

REVISION	DESCRIPTION	DATE
REVISION #1	RUNNER PLANK THICKNESS CHANGE	2/4/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

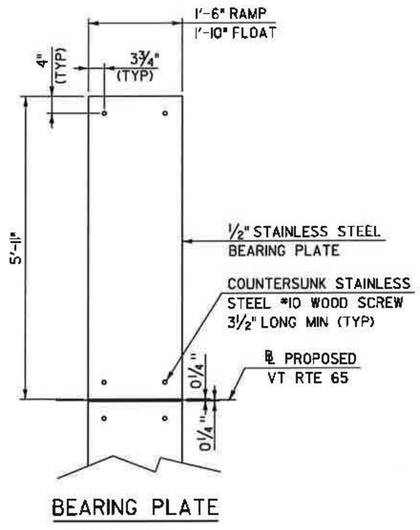
1/2 " dia. lead hole for Shank portion of lag bolt, and suggest 5/16" dia lead hole for the threaded portion of the lag bolt to avoid splitting

1/4" dia. lead holes for 1/2" lag bolts



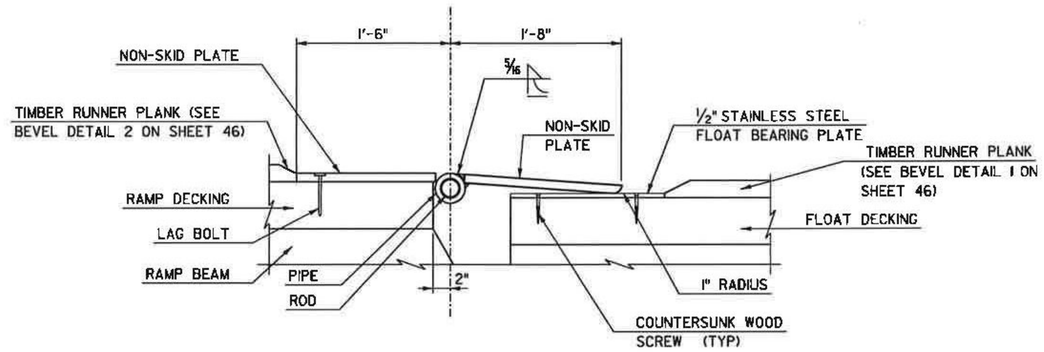
RAMP / FLOAT - ROADWAY ASSEMBLY

SCALE: ¾" = 1'-0"



BEARING PLATE

SCALE: ¾" = 1'-0"



RAMP / FLOAT - ROADWAY SECTION

SCALE: 1½" = 1'-0"

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Tim Poulin — REVIEWER
08/07/2014 — DATE

Vermont Agency of Transportation

RECEIVED

ON: July 17, 2014

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CONFORMANCE

BY: Jennifer Fitch DATE: 8/8/2014

PROJECT NAME: BROOKFIELD
PROJECT NUMBER: BRF FLBR(2)

Wilder, VT 05088

RE: Brookfield BRF FLBR (2) – Galvanized Steel Protective End Cap Securing Method

Miller Construction, Inc. submits the following method for securing the Galvanized Steel Protective End Cap.

The Galvanized Steel Protective End Cap shall be fabricated so that a 1/8" back plate (washer) with a threaded (NPT) collar can be installed in conjunction with the double nut.

The nut on the tie rod will secure the coupler to the FRP Blister. After final tensioning, the NPT nipple and cap will be threaded into the coupling.

Placing a bead of 3M Marine Sealant between the washer and the base plate, as well as the base plate and the FRP Blister will ensure a watertight installation.

GENERAL COMMENTS:
1) THE END CAPS NEED TO BE INSTALLED BEFORE LAUNCHING THE PONTOONS IN TO THE LAKE (SPECIAL PROVISION SECTION 75(b).

2) IT'S ASSUMED THAT THE END CAP IS SUFFICIENTLY LARGE TO ACCOMODATE THE ROD NUTS AND ROD EXTENSION BEYOND THE BASE PLATE - THIS IS THE CONTRACTOR'S RESPONSIBILITY.

3) PARTS NEED TO BE GALVANIZED AFTER FABRICATION.

4) FROM THE DESCRIPTION, IT APPEARS THE PORTION OF THREADED ROD WITHIN THE FRP PONTOONS WILL BE PROTECTED BY ADHEARING THE PLATE/COUPLER/WASHER TOGETHER. HOWEVER, PLEASE USE A THREAD FILLER (EG: TEFLON TAPE, PLUMBERS PUTTY, ETC) TO ENSURE THE THREADED CONNECTION IS ALSO WATER TIGHT, BUT REMOVEABLE TO ALLOW FOR FUTURE INSPECTION.

T.Y. LIN INTERNATIONAL

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JOSH OLUND — REVIEWER
08/26/2014 — DATE

Vermont Agency of Transportation

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ON: August 25, 2014

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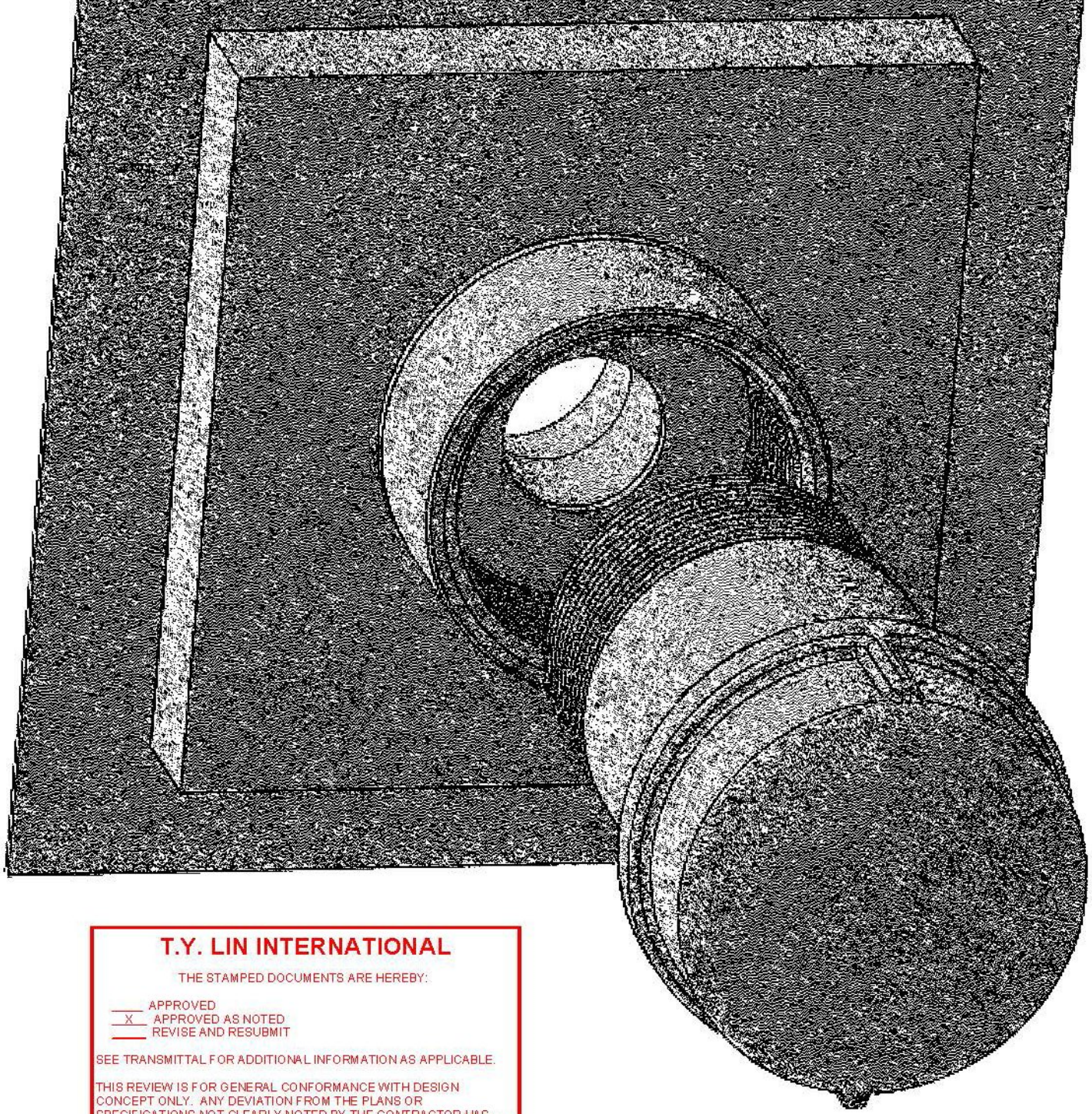
BY: Jennifer Fitch **DATE:** 08/27/2014



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JOSH OLUND — REVIEWER

08/26/2014 — DATE

3M Part No.(s)	3M Part Descriptor(s)
06500	10 fl. oz. cartridge (295 ml) - White
05203	3 fl. oz. tube (90 ml) - White
05206	1fl. oz. tube (30 ml) - White
21463	5 gal. pail (18.93 L) – White
06504	10 fl. oz. cartridge (295 ml) - Black
05205	3 fl. oz. tube (90 ml) – Black
06502	10 fl. oz. cartridge (295 ml) - Mahogany

Description

3M™ Marine Adhesive/Sealant 5200 is a one-part polyurethane that chemically reacts with moisture to deliver strong, flexible bonds. It has excellent adhesion to wood, gelcoat and fiberglass. It forms a watertight, weather-resistant seal on joints and boat hardware, above and below the waterline. In addition, its flexibility allows for dissipation of stress caused by shock, vibration, swelling or shrinking.

Features

- Tough/flexible polyurethane polymer
- Non-shrinking
- One-part moisture cure
- Long working time

Typical Physical Properties

Base	Polyurethane
Density lbs/Gallon (Approx.)	11.3 lbs/gallon
Color	White
Solids Content (Approx.)	97%
Consistency	Medium paste
Service Temperature - °F	-40°F (-40°C) to 190°F (88°C)
Shore A Hardness (cured)	68
Specific Gravity	1.36
Coverage (10 oz.)	1/8 inch (0.3175 cm) bead = 120 lineal feet (36.6 m)

Performance Properties

Tensile, Elongation, and effect of water submersion:

A 1/8-inch (0.3175 cm) dumbbell specimen with a 1/8-inch (0.3175 cm) square cross section was tested at 2.0 inches/minute (5.08 cm/minute). All samples tested at 50% Relative Humidity and 70°F (21°C).

STATE OF VERMONT

BROOKFIELD FLOATING BRIDGE

BRIDGE REPLACEMENT PROJECT

PROJECT NAME: BROOKFIELD

PROJECT NUMBER: BRF FLBR (2)

JUNE 4, 2014

FIBER REINFORCED POLYMER (FRP) PONTOON COMPONENT FABRICATION

Vermont Agency of Transportation

RECEIVED

ON: June 30, 2014

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BY: Jennifer Fitch DATE: 07/07/2014

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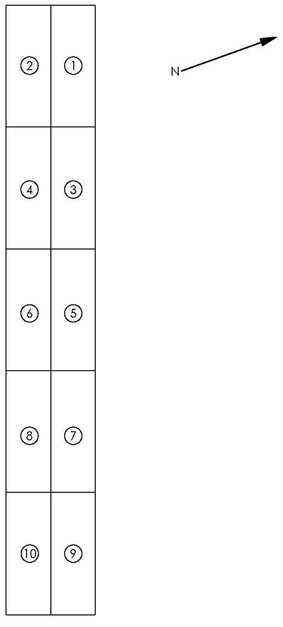
JOSH OLUND — REVIEWER

07/03/2014 — DATE

SHEET INDEX:

ASSEMBLY OF THE PONTOONS USING THE COMPONENTS FABRICATED FROM THIS DRAWING IS DESCRIBED IN DWG: 8420-8.



PONTOON NUMBERING

FABRICATION NOTES

FABRIC:
VECTORPLY E-BXM 4008 ±45
TEAM 54OZ 0/90 E-GLASS
PPG C-VEIL E-GLASS

FLOTATION FOAM:
PFPI 23-008(2) URETHANE FOAM

RESIN:
INTERPLASTICS CORVE 8100-50 VINYL ESTER

ADDITIVES:
BASF TINUVIN 328 ULTRAVIOLET LIGHT ABSORBER
ADVANCED COATINGS A-8-14265 GRAY PIGMENT

CATALYST:
SYRGIS NOROX MEKP 925

PROMOTERS:
DURA CHEMICALS DUROCT COBALT
PURITAN PRODUCTS DIMETHYLANILINE (DMA)

TOLERANCES:
LENGTH: +/- 1/2"
ADJACENT UNIT LENGTHS: +/- 1/2"
DEPTH & WIDTH: +/- 1/4"
WALL THICKNESS: + 1/16, - 0
SURFACE FLATNESS: +/- 1/16 PER 48"
SWEEP: +/- 1/8"
CAMBER: + 1/2", - 1/4"
DEVIATION FROM DIAGONALS: +/- 3/4"
DEVIATION FROM END SQUARENESS: +/- 1/4"
INSERT OR HOLE LOCATIONS: +/- 1/8"
VERTICAL DIFFERENTIAL BETWEEN PONTON SURFACES: +/- 1/8"
FLOATING SPAN OVERALL LENGTH: +/- 1/2"

REPAIRS:
REPAIRS ARE NOT TO EXCEED DEFECTS INDENTIFIED BY ASTM D 2563 (MORE THAN 2 DEFECTS WITHIN A 1 FT RADIUS). TO BE REPAIRED PER KENWAY QA/QC PLAN.

CURING:
PARTS ARE TO BE LEFT IN THE MOLD FOR A PERIOD OF NO LESS THAN 6 HOURS AFTER ALL HOSES HAVE BEEN CLAMPED. PARTS MUST BE UNDER FULL VACUUM PRESSURE FOR A PERIOD OF NO LESS THAN 6 HOURS. BARCOL HARDNESS READINGS OF NO LESS THAN 40 WILL BE ACCEPTABLE.

SURFACE PREP:
CLEAN SURFACE OF CONTAMINENTS INCLUDING MOLD RELEASE AGENT, RESIN RIDGES AND/OR DRIPS.

⚠1 GRIT BLASTING:
VERTICAL SURFACE THAT MATES WITH ADJOINING PONTOON SHALL BE GRIT BLASTED USING 60-120 MESH GLASS BEADS AT 80 PSI - DURATION SHALL BE APPROXIMATELY 1 MINUTE PER SQ.FT.

LABELING:
EACH PONTOON IS TO BE LABELED WITH KENWAY NAME PLATES ON THE UPSTATION END WALL. IT SHALL INCLUDE AT A MINIMUM THE FABRICATOR NAME, DATE OF MANUFACTURE, AND MARK NUMBER

WITNESS PANELS:
PANELS HAVING A MINIMUM LENGTH AND WIDTH OF 2 FT SHALL BE FABRICATED AT THE SAME TIME AS THE HULL TO BE USED FOR RANDOM TESTING. THE LAYUP SHALL CONSIST OF THE FOLLOWING:
(1) 1708
(3) 54
(1) 1708

LAYUP REQUIREMENTS:
⚠1 MINIMUM TRANSVERSE LAP SPLICE TO BE 2 INCHES FOR ALL VECTORPLY E-BXM 4008. ~~TEAM 54 OZ MATERIAL MAY BE BUTTED TOGETHER~~. C-VEIL IS COSMETIC ONLY AND REQUIRES MINIMAL OVERLAP. LONGITUDINAL SEAMS ARE INCLUDED BY DESIGN. NO MORE THAN 2 SPLICES IN THE SAME LOCATION. LAP SPLICES TO BE PER KENWAY FABRICATION DRAWINGS.

FINISHING:
⚠1 GENERALLY, NO CUTTING OF FINISHED PARTS WILL BE ALLOWED EXCEPT FOR BOLT HOLES AND COPED CORNER IN BULKHEADS AS SHOWN IN DRAWINGS - EXPOSED GLASS SHALL BE FINAL COATED WITH RESIN

LIFTING:
LIFTING OF FINISHED MOLDED PART SHALL ONLY BE BY THE ATTACHED LIFTING LUGS OR BASKET SLING. LIFTING BY ANY OTHER METHOD IS PROHIBITED UNLESS APPROVED BY THE ENGINEER.

HANDLING/STORAGE:
ALL FINISHED PARTS MUST BE HANDLED WITH CARE IN ORDER TO PREVENT DAMAGE. FINISHED PARTS MUST BE PROTECTED FROM UV LIGHT AND SUPPORTED BELOW BULKHEADS. STACKING OF PONTOONS WILL BE ACCEPTABLE.

INSPECTION:
ALL PONTOONS MUST BE INSPECTED BY KENWAY PROJECT ENGINEER & VERMONT DOT AGENCY REPRESENTATIVE PRIOR TO SHIPMENT.

INFUSION NOTES

PERFORATED RELEASE FILM SHALL BE APPLIED OVER THE ENTIRE PART

SHADE CLOTH SHALL BE APPLIED OVER THE PART BUT WILL STOP 3" FROM THE EDGE OF THE PART UNLESS OTHERWISE NOTED

FEED LINES SHALL START AT THE CENTER OF THE PART AND BE SPACED NOMINALLY 16" APART UNLESS OTHERWISE NOTED - FEED TUBE INPUT LOCATIONS SHALL GENERALL BE AT THE CENTER OF THE FEED LINE

VAC LINES SHALL BE LAID OUT IN SEPARATE ZONES AS NOTED IN THE DRAWING TO ALLOW FOR CLAMPING INDIVIDUAL ZONES IF REQUIRED AND SHALL PROVIDE AT LEAST 6" BETWEEN THE PART AND THE TUBE

RESIN BUCKETS SHALL BE PLACED SUCH THAT THE HEIGHT OF THE RESIN IS EVEN WITH OR UP TO 12" BELOW THE LOWEST POINT ON THE PART

PARTS SHALL BE FED STARTING FROM THE CENTER FEED LINE - ADJACENT LINES SHALL BE OPENED ONCE THE RESIN FLOW FRONT IS APPROXIMATELY 3-4" PAST THE NEXT FEED LINE

A MINIMUM AMOUNT OF RESIN SHALL BE KEPT IN THE BUCKET TO AVOID PULLING AIR INTO THE LINE - LINES WILL ONLY BE CLAMPED ONCE THE RESIN IN THE BUCKET HAS GELLED

FLOODED VAC LINES MAY BE CLAMPED IF NEEDED - HOWEVER, AT LEAST ONE VAC LINE MUST REMAIN OPEN FOR 6 HOURS AFTER THE PART IS FILLED

⚠1 PART AND RESIN TEMPERATURE SHALL BE BETWEEN 70-90F AT TIME OF INFUSION - ADJUST CATALYST RATIO AS NEEDED TO ACHIEVE 40-60 MINUTE GEL TIME

⚠1 ANTICIPATED PEAK EXOTHERM DURING CURE IS 230F +/-30F

Vermont Agency of Transportation
FRP Fabrication Drawings - Rev 1-1 - TYLI Review.pdf
RECEIVED
ON: June 30, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 07/07/2014

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JOSH OLUND (REVIEWER) 07/03/2014 (DATE)

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED GRIT BLASTING, C-VEIL JOINT AND FINAL COAT NOTE	6/25/14
1	ADDED INFUSION AND CURE TEMP NOTE	6/25/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± ANGULAR MACH± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

DRAWN BY ML	DATE 6/4/14
CHKD BY JM	DATE 6/4/14
PROJECT BROOKFIELD FRP PONTOONS	
CUSTOMER MILLER CONST. / VTRANS	SHEET GENERAL NOTES
WEIGHT: N/A	
DESCRIPTION: FABRICATION	
SCALE 1 : 64	
WO NO. 8420	
CONTRACT NO. 9185	
DWG NO. 8420-6	
SHEET 1 OF 16	
PONTOON N/A	PART NO. N/A

T.Y. LIN INTERNATIONAL

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JOSH OLUND — REVIEWER
07/03/2014 — DATE

Vermont Agency of Transportation

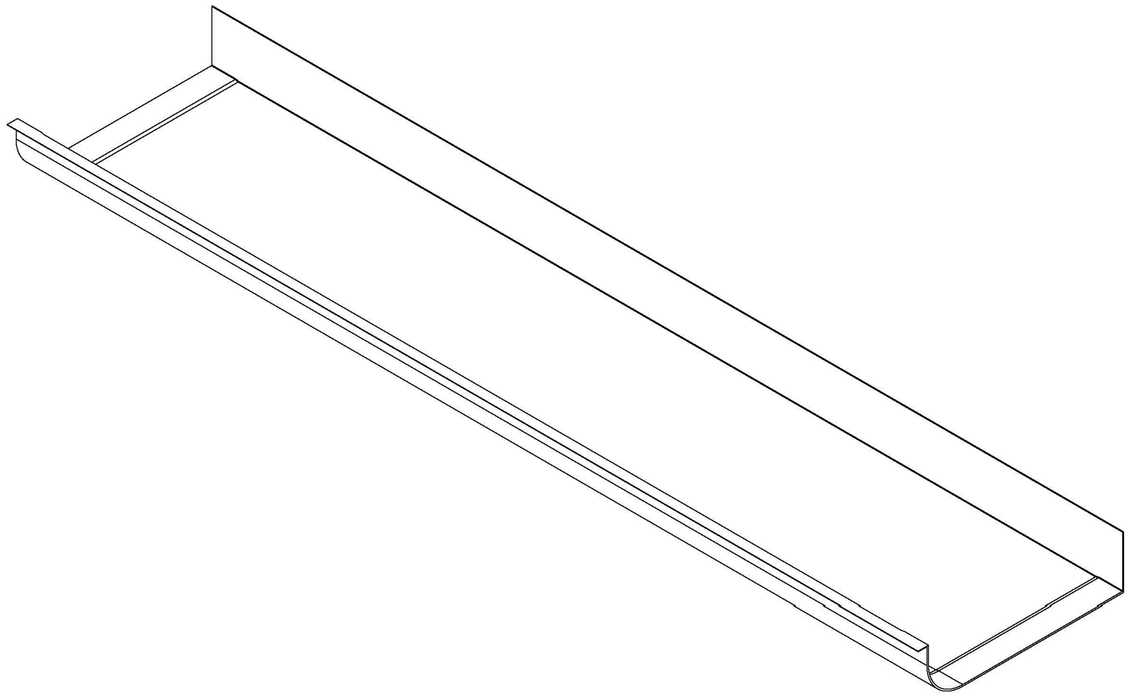
RECEIVED

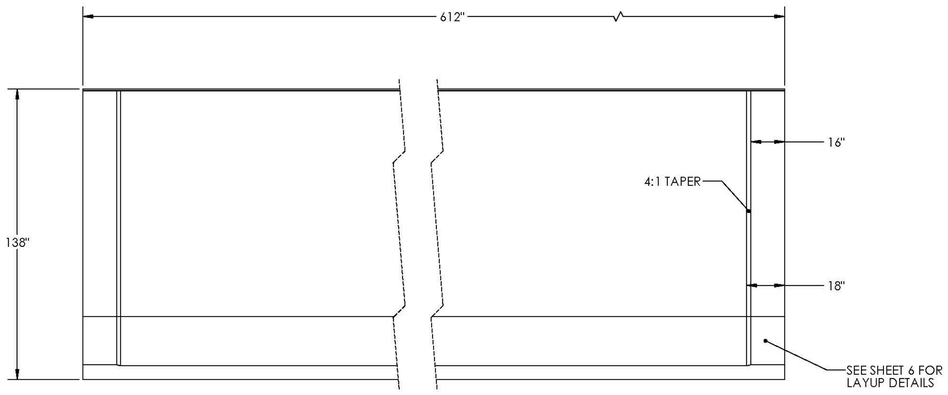
ON: June 30, 2014

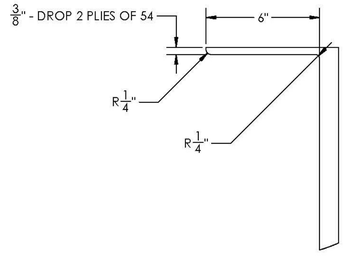
and Checked for

CONFORMANCE

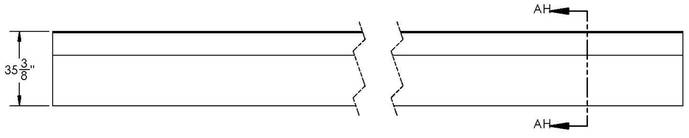
BY: Jennifer Fitch DATE: 07/07/2014

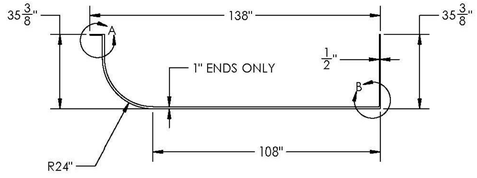


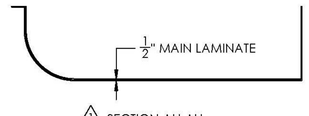




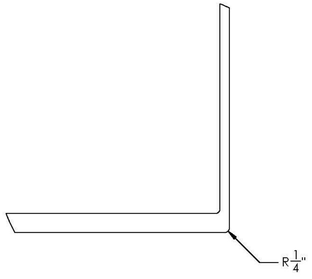
DETAIL A
SCALE 1 : 4







1 SECTION AH-AH
SCALE 1 : 36



DETAIL B
SCALE 1 : 4

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED SECTINO AH-AH	6/25/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± ANGULAR MACH± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: HULLS 3-8 DIMENSIONS

WEIGHT: 4,205 lb

DESCRIPTION: FABRICATION

SCALE 1 : 48

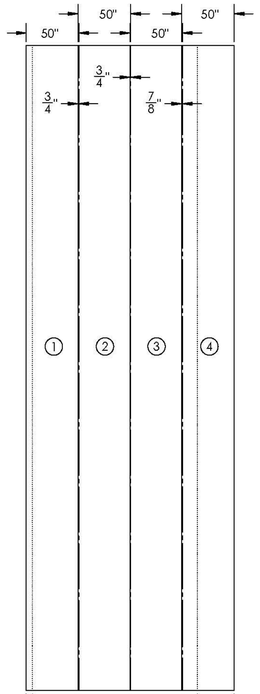
WO NO. 8420

CONTRACT NO. 9185

DWG NO. 8420-6

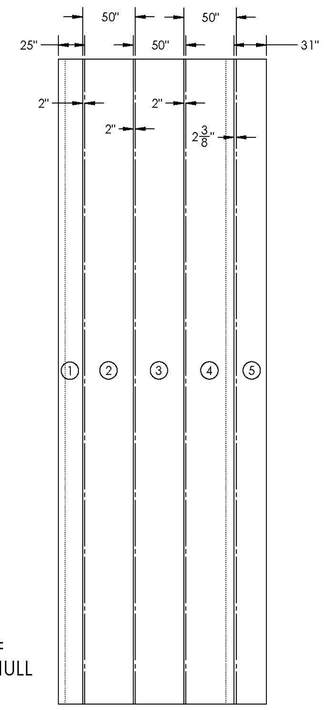
SHEET 2 OF 16

PONTOON	PART NO.
3-8	1

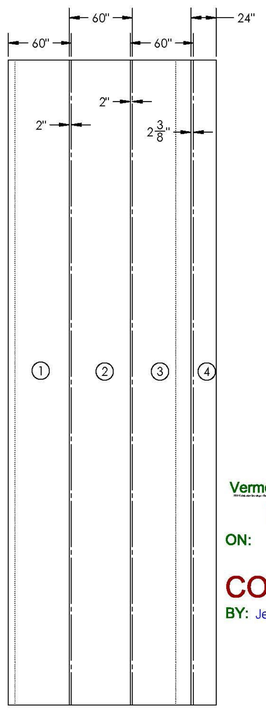


PLAN VIEW OF "UNFOLDED" HULL

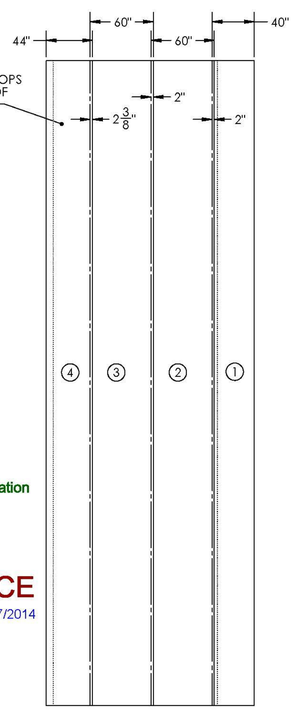
PLY # 1 - C-VEIL



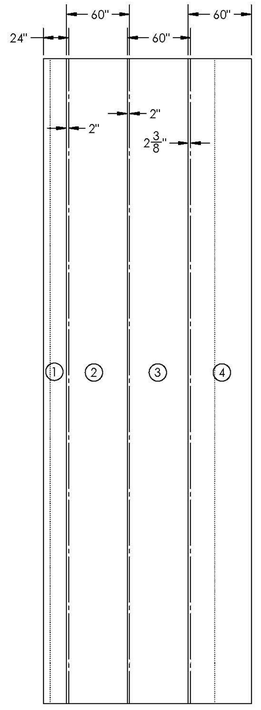
PLY # 2 - 4008



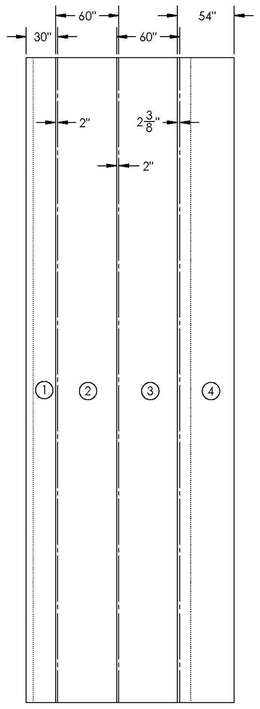
1 PLY # 3 - 54 oz



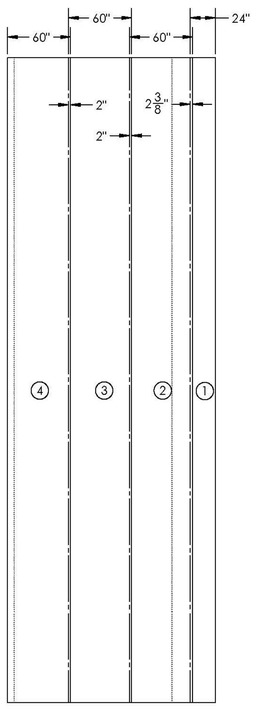
1 PLY # 4 - 54 oz



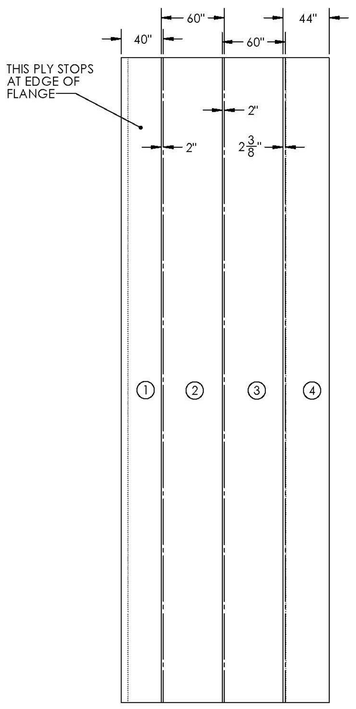
1 PLY # 5 - 54 oz



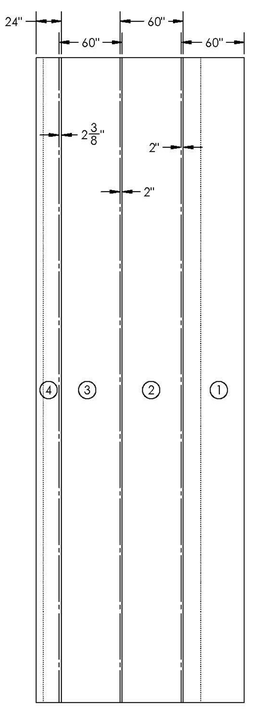
1 PLY # 6 - 54 oz



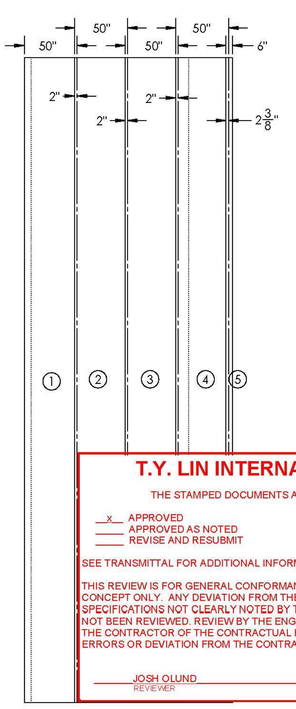
1 PLY # 7 - 54 oz



1 PLY #8 - 54 oz



1 PLY # 9 - 54 oz



PLY # 10 - 4008

Vermont Agency of Transportation
RECEIVED
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CONFORMANCE
BY: Jennifer Fitch DATE: 07/07/2014

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JOSH OLUND (REVIEWER) 07/03/2014 (DATE)

KENWAY CORP.

REV	DESCRIPTION	DATE
1	CHANGED NOTE ON REFERENCE LINES	6/25/14
1	ADDED 2" OVERLAP ON ALL 54 OZ PLIES	6/26/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± ANGULAR MACH± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: HULLS 3-8 LAYUP SCHEDULE

WEIGHT: 4,205 lb

DESCRIPTION: FABRICATION

SCALE 1 : 72

WO NO. 8420

CONTRACT NO. 9185

DWG NO. 8420-6

SHEET 3 OF 16

PONTOON	PART NO.
3-8	1

Vermont Agency of Transportation

RECEIVED

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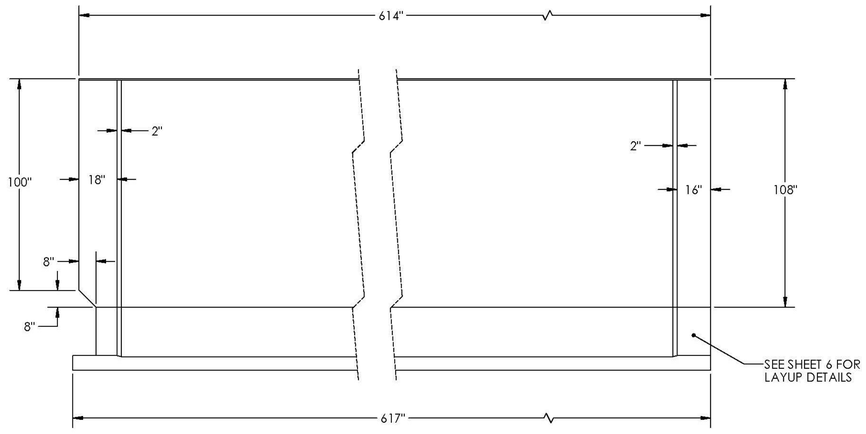
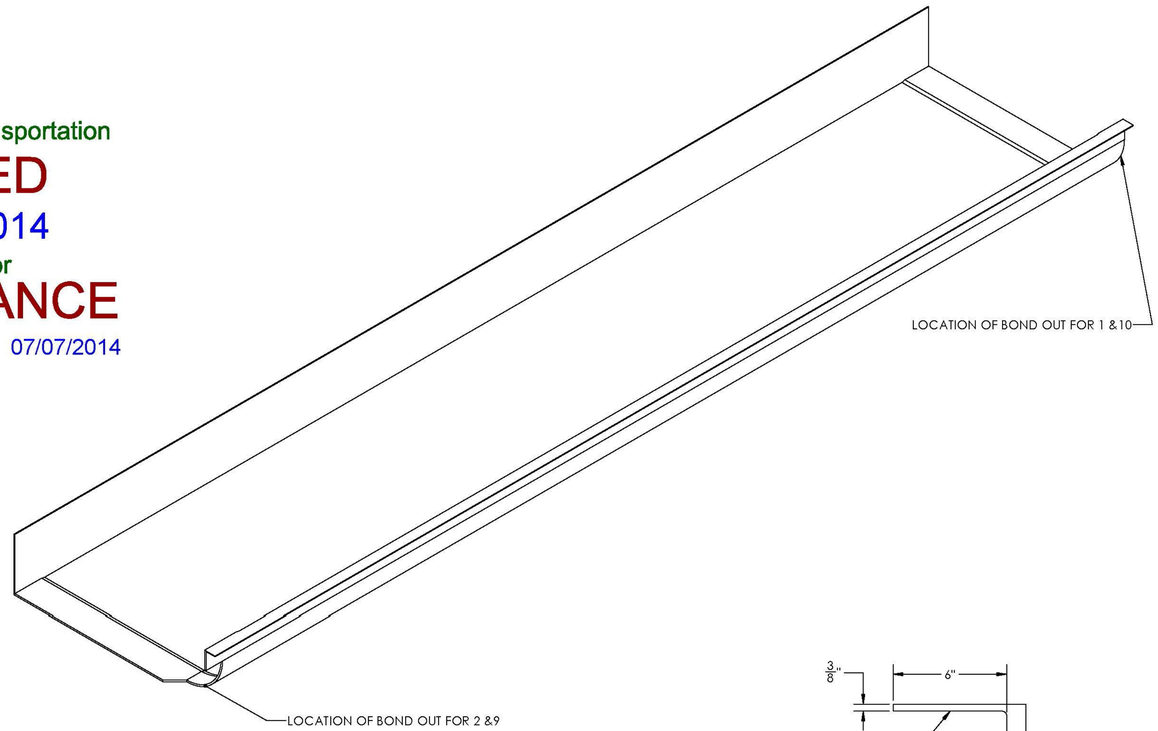
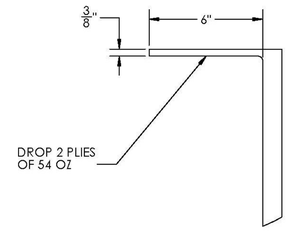
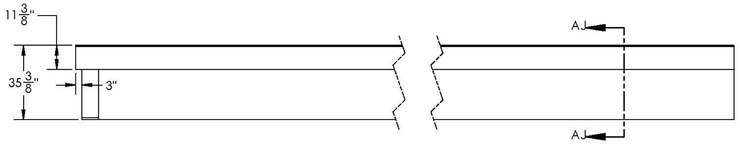
BY: Jennifer Fitch DATE: 07/07/2014

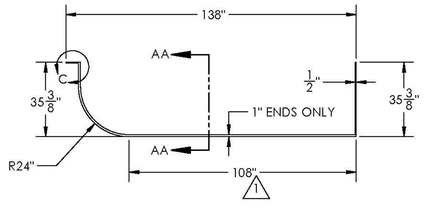


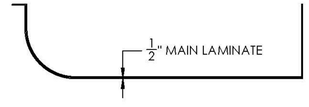




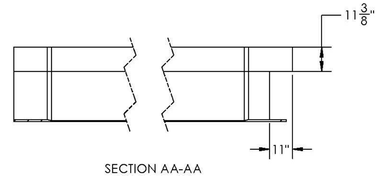
DETAIL C
SCALE 1 : 4







1 SECTION AJ-AJ
SCALE 1 : 36



SECTION AA-AA
SCALE 1 : 36

NOTE:
PONTOON HULLS 2 & 9 SHOWN - SWAP MOLD INSERT END FOR END
TO PROPERLY ORIENTATE CONFIGURATION FOR HULLS 1&10

T.Y. LIN INTERNATIONAL

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JOSH OLUND — REVIEWER
07/03/2014 — DATE

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED SECTION AJ-AJ AND FIXED DIMENSION SNAP	6/25/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± ANGULAR MACH± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: END HULL DIMENSIONS

WEIGHT: 4,205 lb

DESCRIPTION: FABRICATION

SCALE 1 : 48

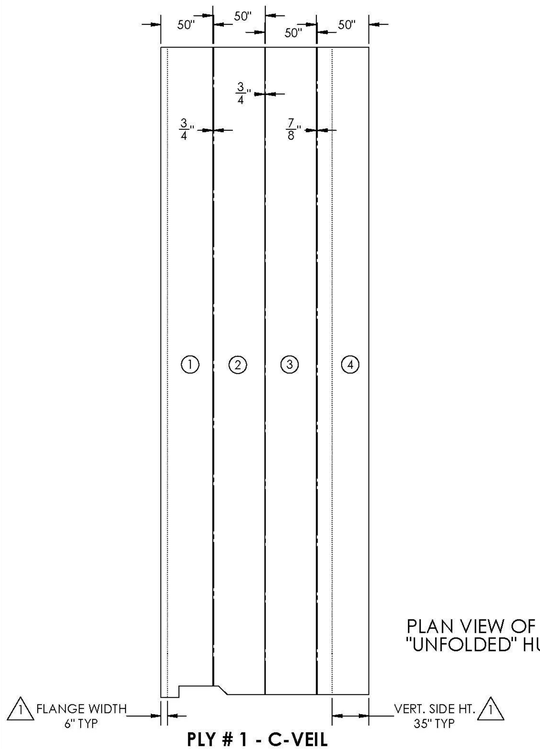
WO NO. 8420

CONTRACT NO. 9185

DWG NO. 8420-6

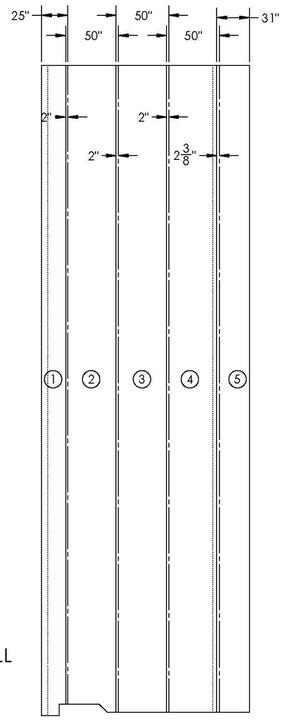
SHEET 4 OF 16

PONTOON	PART NO.
1,2,9,10	1

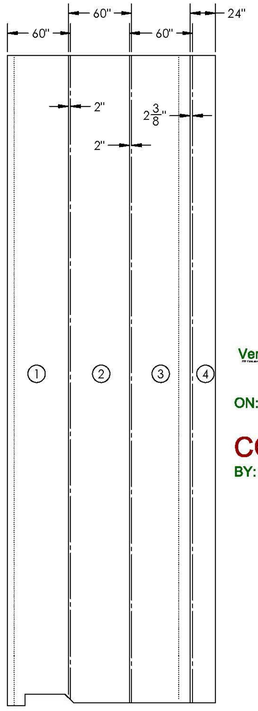


PLAN VIEW OF "UNFOLDED" HULL

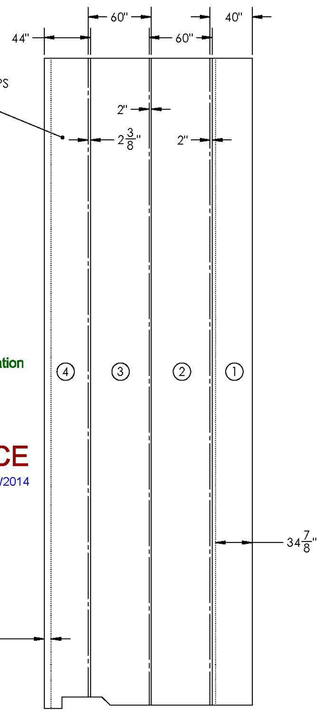
PLY # 1 - C-VEIL



PLY # 2 - 4008



1 **PLY # 3 - 54 oz**



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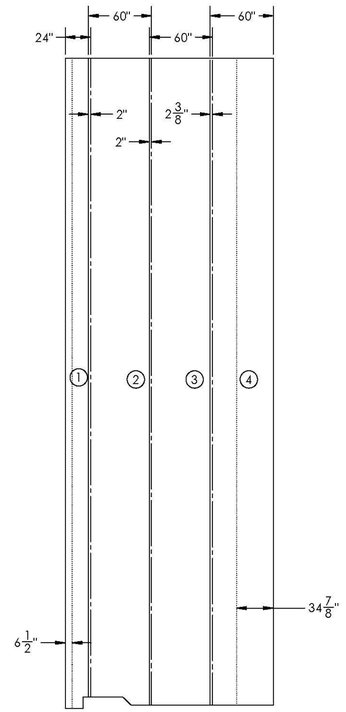

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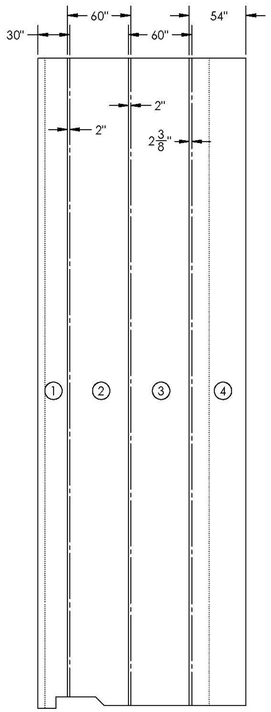
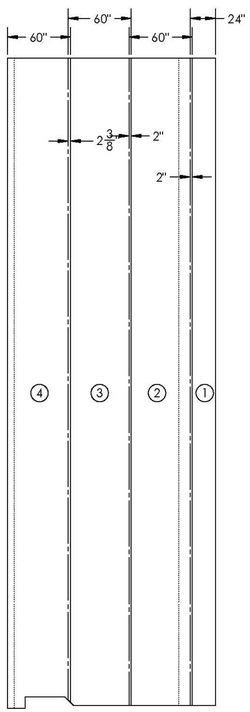
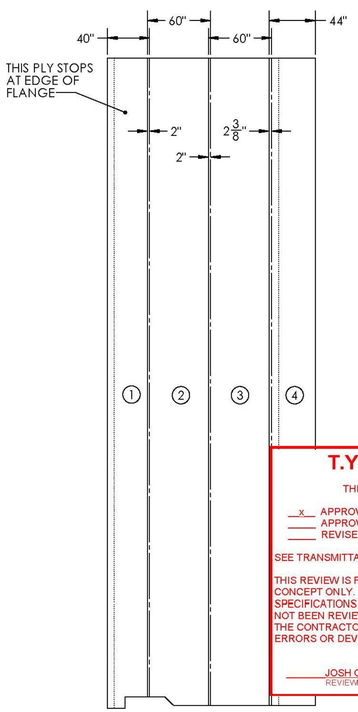


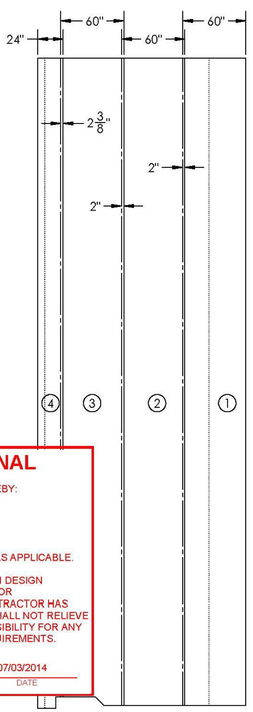
1 **PLY # 6 - 54 oz**



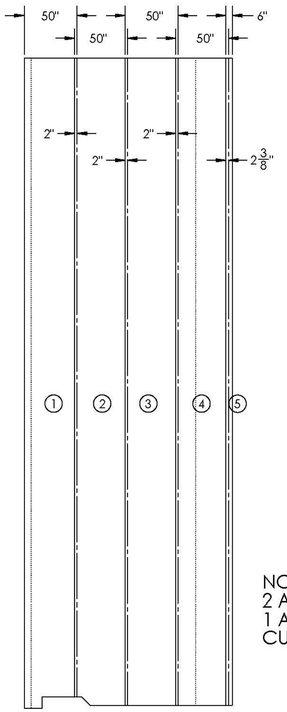
1 **PLY # 7 - 54 oz**



1 **PLY #8 - 54 oz**



1 **PLY # 9 - 54 oz**



PLY # 10 - 4008

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JOSH OLUND (REVIEWER) 07/03/2014 (DATE)

NOTE: PONTOONS 2 AND 9 SHOWN - 1 AND 10 WILL BE CUT OPPOSITE END

KENWAY CORP.

REV	DESCRIPTION	DATE
1	CHANGED NOTE ON REFERENCE LINES	6/25/14
1	ADDED 2" OVERLAP ON ALL 54 OZ PLIES	6/26/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± ANGULAR MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: END HULL LAYUP SCHEDULE

WEIGHT: 4,205 lb

DESCRIPTION: FABRICATION

SCALE 1 : 72

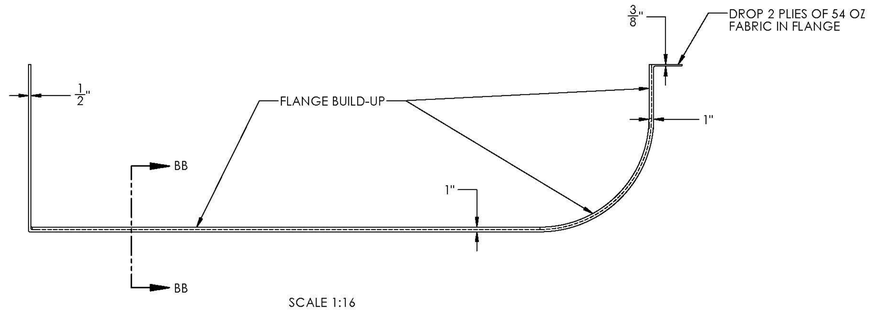
WO NO. 8420

CONTRACT NO. 9185

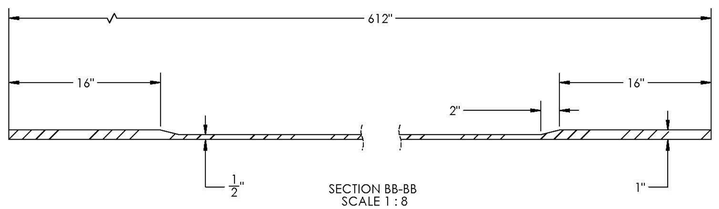
DWG NO. 8420-6

SHEET 5 OF 16

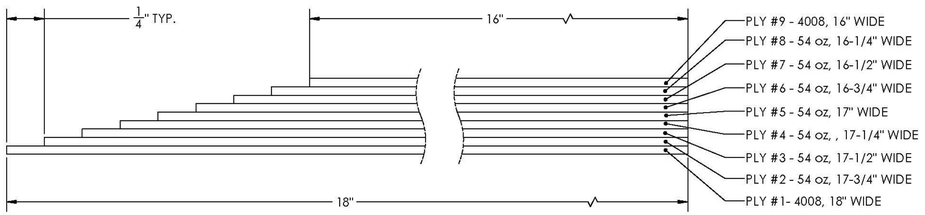
PONTOON	PART NO.
1,2,9,10	1



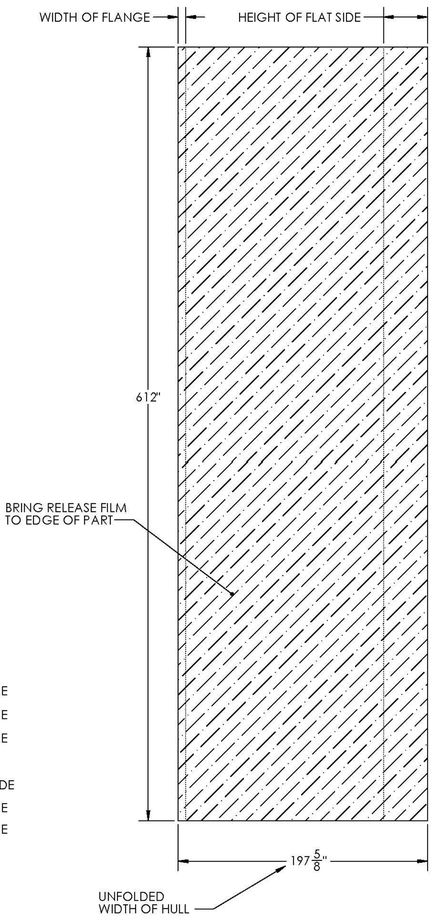
SCALE 1:16



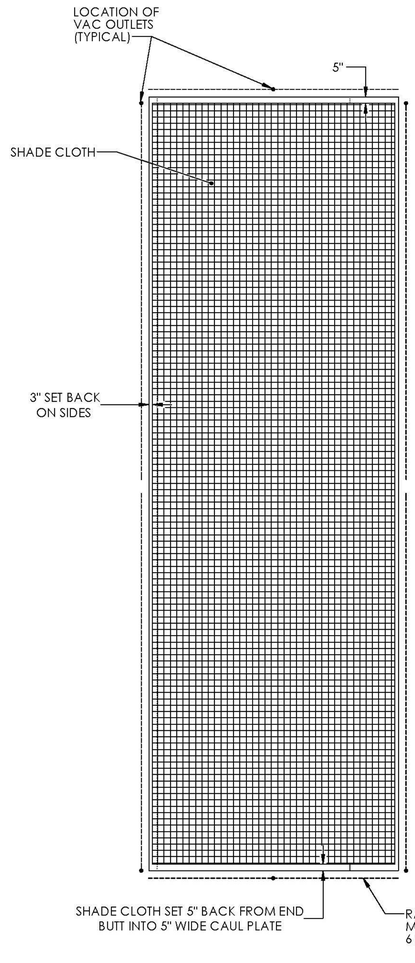
SECTION BB-BB
SCALE 1 : 8



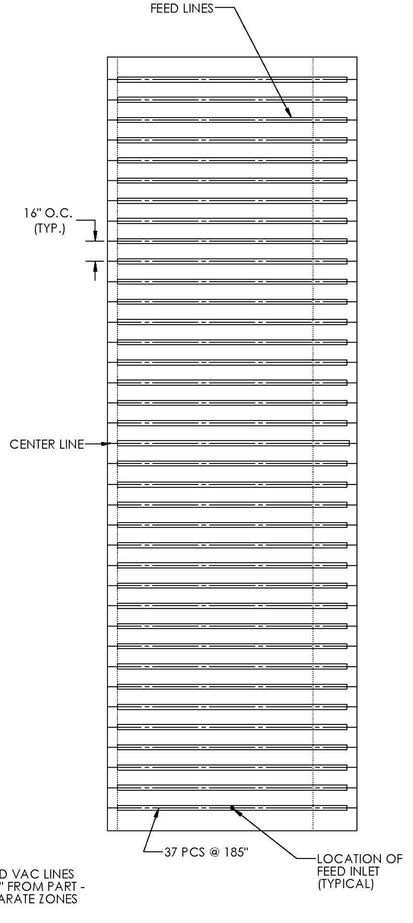
1 ADDITIONAL BOLT ARE LAMINATE - ON TOP OF STARNDARD 1/2" LAMINATE



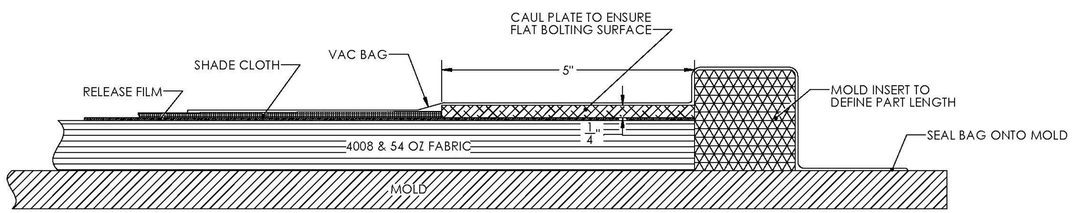
RELEASE FILM



SHADE CLOTH & VAC LINES



FEED LINES



SCALE 2 : 3

TYPICAL BOLTING FLANGE LAY-UP DETAILS

Vermont Agency of Transportation

RECEIVED

ON: June 30, 2014

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 07/07/2014

INFUSION SET-UP DETAILS

T.Y. LIN INTERNATIONAL

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JOSH OLUND — REVIEWER — 07/03/2014 — DATE

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED BOLT AREA LAMINATE NOTE	6/25/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: FRACTIONAL ± 0. .1/16"
ANGULAR .MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

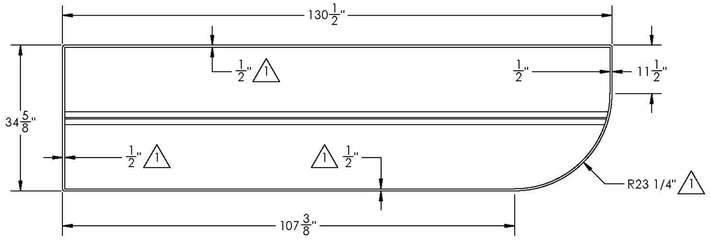
DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS

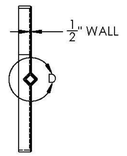
CUSTOMER: MILLER CONST. / VTRANS

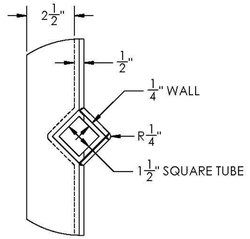
SHEET: HULL INFUSION LAYOUT AND DETAILS

WEIGHT:	N/A
DESCRIPTION:	FABRICATION
SCALE	1 : 60
WO NO.	8420
CONTRACT NO.	9185
DWG NO.	8420-6
SHEET	6 OF 16
PONTOON	PART NO.
1-10	1

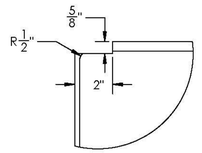


TRANSVERSE ROD BULKHEAD - PN 2
195 LB

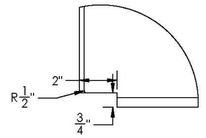




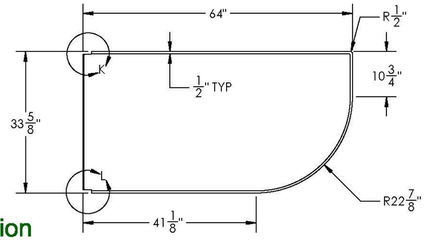
DETAIL D
SCALE 1 : 4

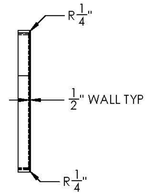


DETAIL K
SCALE 1 : 4

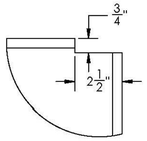


DETAIL L
SCALE 1 : 4

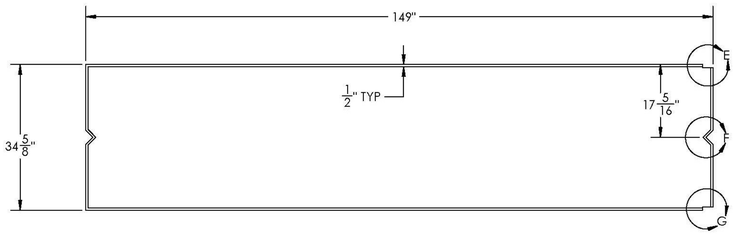




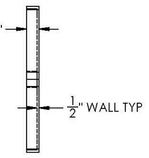
TRANSVERSE RADIUS BULKHEAD - PN 6
(PN 8 OPPOSITE HAND)
82 LB

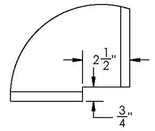


DETAIL E
SCALE 1 : 4



INTERIOR LONGITUDINAL BULKHEAD - PN 3
203 LB





DETAIL G
SCALE 1 : 4

Vermont Agency of Transportation

RECEIVED

ON: June 30, 2014

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 07/07/2014

T.Y. LIN INTERNATIONAL

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_____ APPROVED AS NOTED
_____ REVISE AND RESUBMIT

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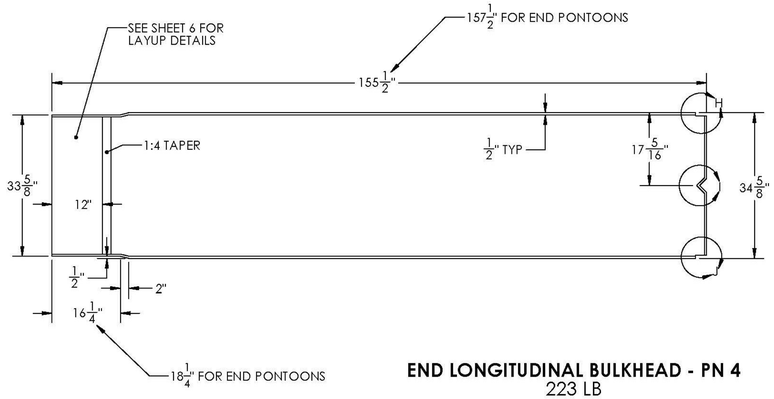
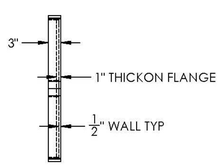
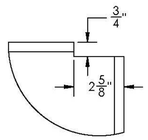
JOSH OLUND (REVIEWER) 07/03/2014 (DATE)

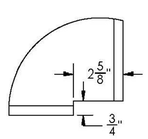


END LONGITUDINAL BULKHEAD - PN 4
223 LB

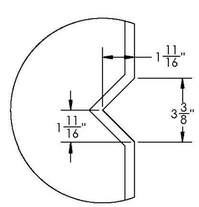


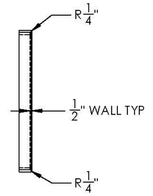


DETAIL H
SCALE 1 : 4



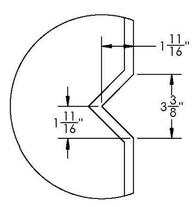
DETAIL J
SCALE 1 : 4





TRANSVERSE SQUARE BULKHEAD - PN 7
86 LB

DETAIL F
SCALE 1 : 4



DETAIL I
SCALE 1 : 4

KENWAY CORP.

REV	DESCRIPTION	DATE
1	FIXED FLANGE AND RADIUS DIMENSIONS	6/25/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ±
ANGULAR MACH± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: BULKHEAD DIMENSIONS

WEIGHT: NOTED

DESCRIPTION: FABRICATION

SCALE 1 : 18

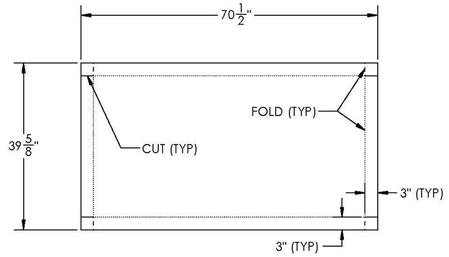
WO NO. 8420

CONTRACT NO. 9185

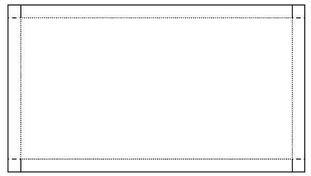
DWG NO. 8420-6

SHEET 7 OF 16

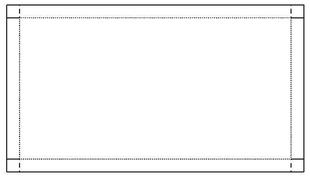
PONTOON	PART NO.
1-10	NOTED



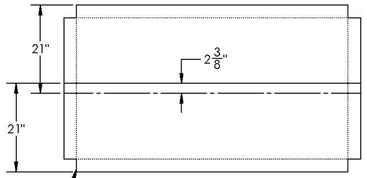
PLY # 1 - C-VEIL



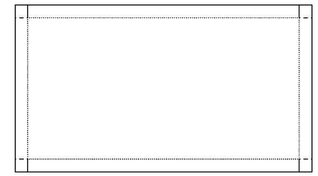
PLY # 2 - 4008



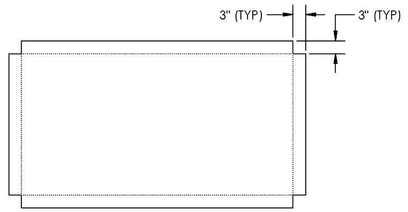
PLY # 3 - 54 oz



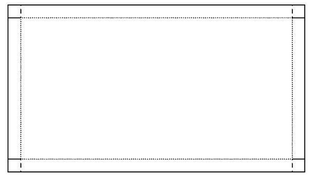
⚠1 PLY # 4 - 54 oz



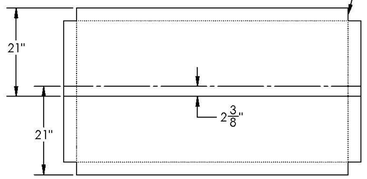
PLY # 5 - 54 oz



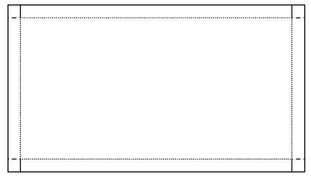
PLY # 6 - 54 oz



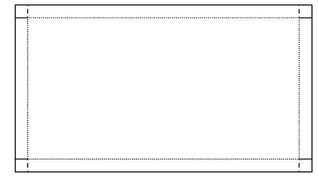
PLY # 7 - 54 oz



⚠1 PLY #8 - 54 oz



PLY # 9 - 54 oz



PLY # 10 - 4008

CUT OUT CORNERS FROM PLIES 4, 6 AND 8

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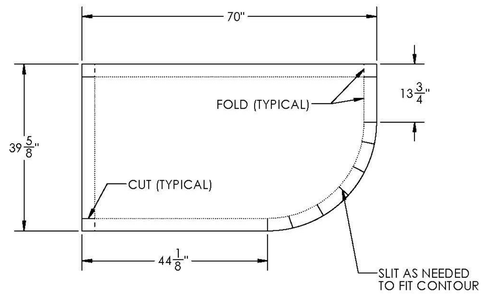
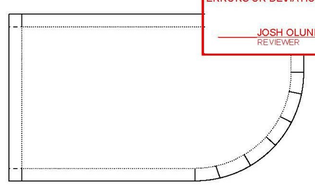
JOSH OLUND — REVIEWER
07/03/2014 — DATE

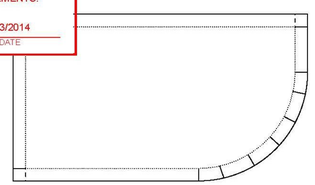
Vermont Agency of Transportation
RECEIVED
ON: June 30, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 07/07/2014



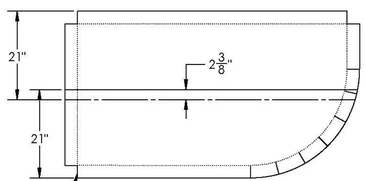
PLY # 1 - C-VEIL



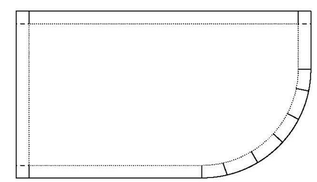
PLY # 2 - 4008



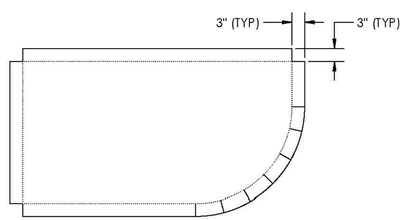
PLY # 3 - 54 oz



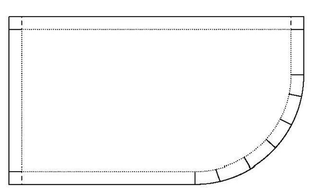
⚠1 PLY # 4 - 54 oz



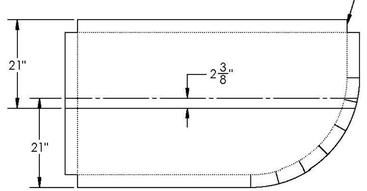
PLY # 5 - 54 oz



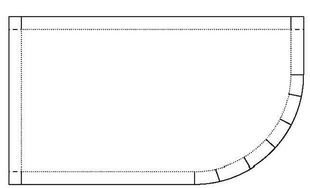
PLY # 6 - 54 oz



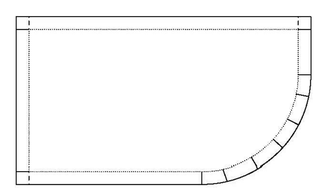
PLY # 7 - 54 oz



⚠1 PLY #8 - 54 oz



PLY # 9 - 54 oz



PLY # 10 - 4008

CUT OUT CORNERS FROM PLIES 4, 6 AND 8

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED CORNER CUT OUT NOTE	6/26/14
1	ADDED 2" OVERLAP ON NOTED 54 OZ PLIES	6/26/14

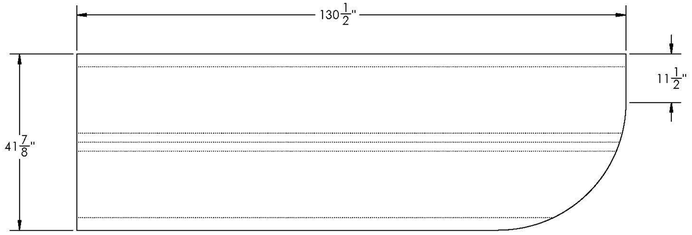
SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± ANGULAR MACH ± BEND ±
TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±

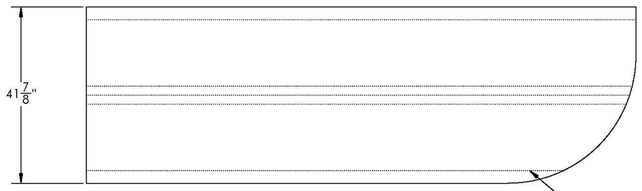
DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS
CUSTOMER: MILLER CONST. / VTRANS
SHEET: END BULKHEADS LAYUP SCHEDULE

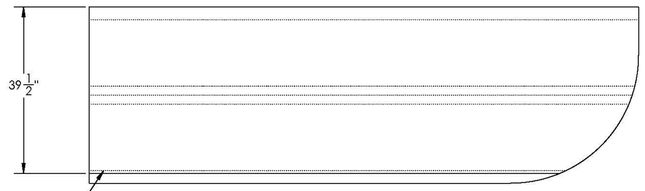
WEIGHT: N/A
DESCRIPTION: FABRICATION
SCALE 1 : 18
WO NO. 8420
CONTRACT NO. 9185
DWG NO. 8420-6
SHEET 8 OF 16
PONTOON 1-10
PART NO. 6-8



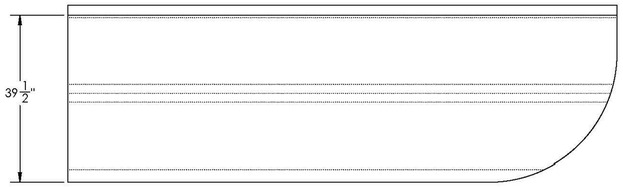
PLY # 1 - C-VEIL



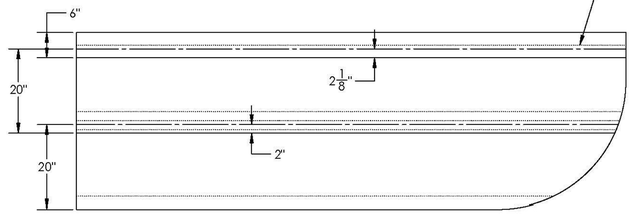
PLY # 2 - 4008



PLY # 3 - 54 oz



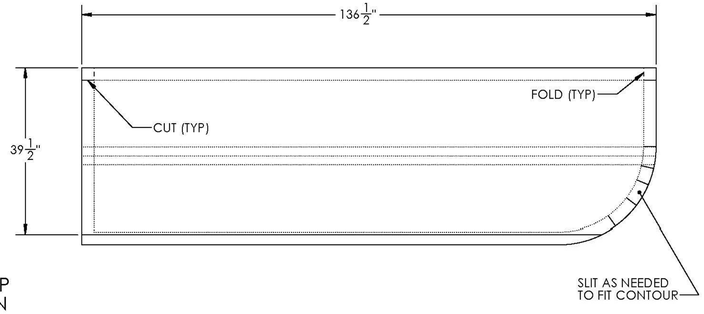
PLY # 4 - 54 oz



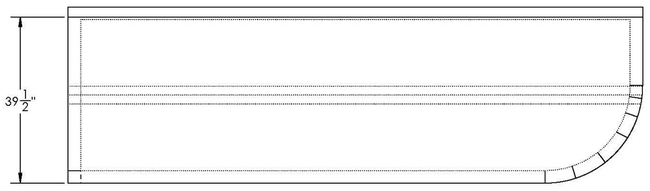
⚠1 PLY # 5 - 54 oz

FIRST 5 PLIES FOLD UP ON LONG FLANGES ONLY SO SQUARE TUBE WILL BUTT AGAINST MOLD (TYP) ⚠1

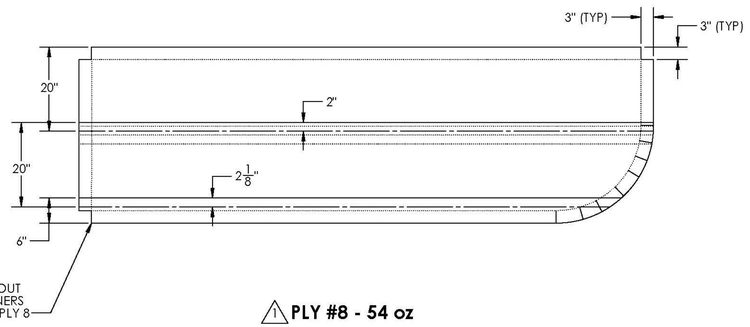
⚠1 INSERT 2X2 FRP TUBE BETWEEN PLIES 5 AND 6



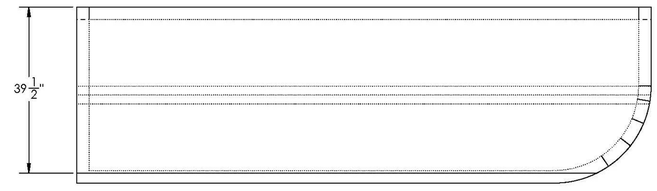
PLY # 6 - 54 oz



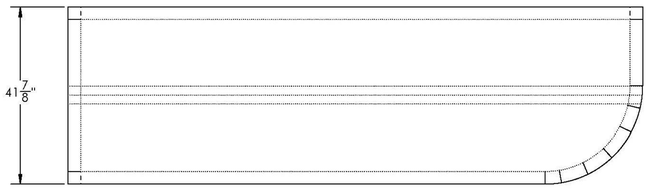
PLY # 7 - 54 oz



⚠1 PLY #8 - 54 oz



PLY # 9 - 54 oz



PLY # 10 - 4008

NOTE:
PLIES 1-5 BUTT UP TO SHORT SIDE FLANGES

Vermont Agency of Transportation
FRP Fabrication Drawings - Rev 1-1 - TYU Review.pdf

RECEIVED
ON: June 30, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 07/07/2014

T.Y. LIN INTERNATIONAL

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_____ REVISE AND RESUBMIT

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JOSH OLUND (REVIEWER) 07/03/2014 (DATE)

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED FABRIC FOLD, FRP TUBE, AND CORNER CUT NOTES	6/25/14
1	ADDED 2" OVERLAP ON NOTED 54 OZ PLIES	6/26/14

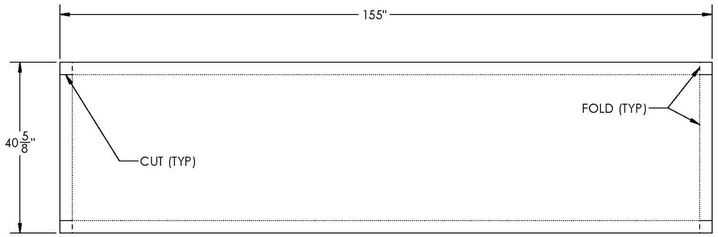
SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± BEND ±
ANGULAR MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

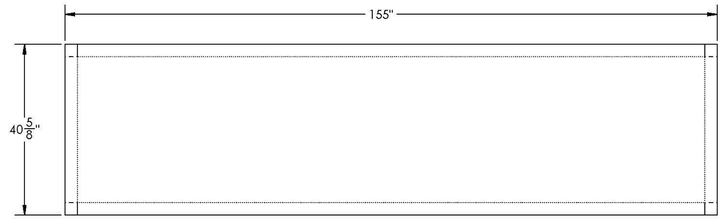
DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS
CUSTOMER: MILLER CONST. / VTRANS
SHEET: TRANSVERSE ROD BULKHEAD LAYUP SCHEDULE

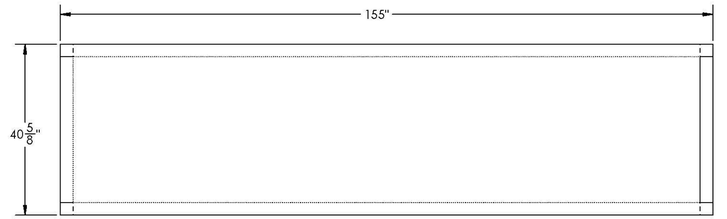
WEIGHT: 195 LB
DESCRIPTION: FABRICATION
SCALE 1 : 18
WO NO. 8420
CONTRACT NO. 9185
DWG NO. 8420-6
SHEET 9 OF 16
PONTOON 1-10
PART NO. 2



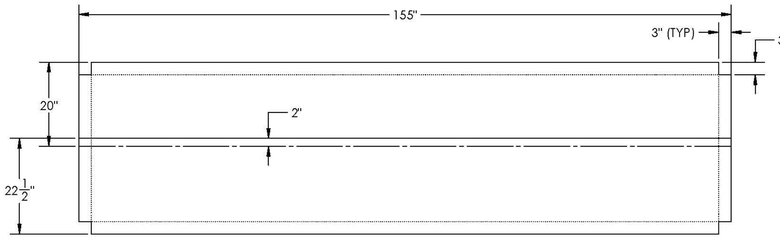
PLY # 1 - C-VEIL



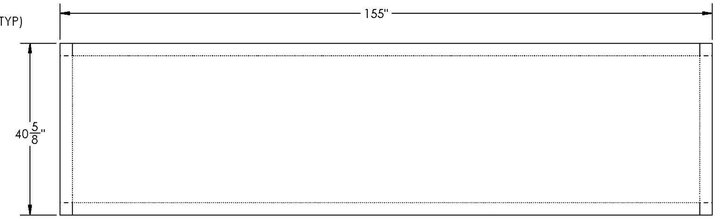
PLY # 2 - 4008



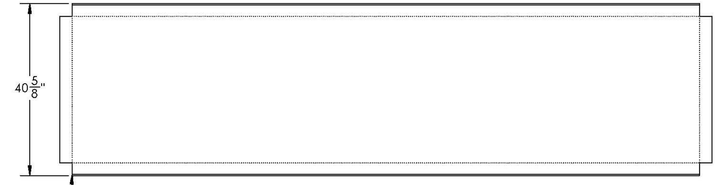
PLY # 3 - 54 oz



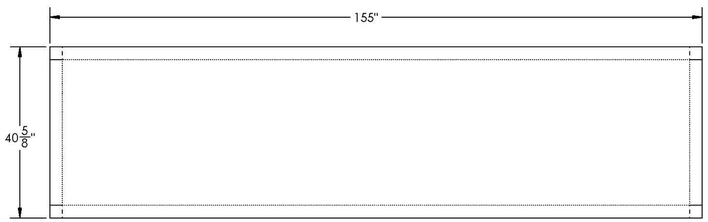
1 **PLY # 4 - 54 oz**



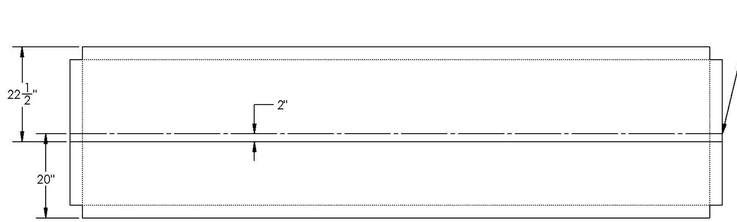
PLY # 5 - 54 oz



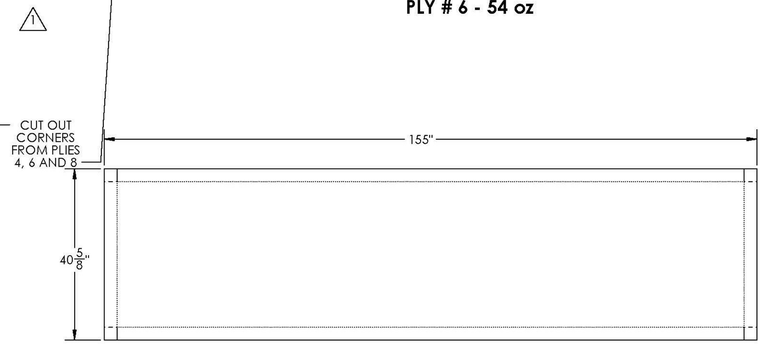
PLY # 6 - 54 oz



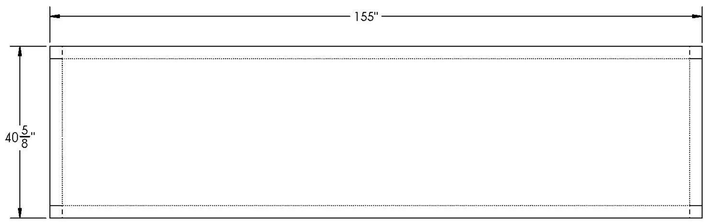
PLY # 7 - 54 oz



1 **PLY #8 - 54 oz**



PLY # 9 - 54 oz



PLY # 10 - 54 oz

Vermont Agency of Transportation

RECEIVED

ON: June 30, 2014

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CONFORMANCE

BY: Jennifer Fitch DATE: 07/07/2014

T.Y. LIN INTERNATIONAL

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JOSH OLUND (REVIEWER) 07/03/2014 (DATE)

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED CORNER CUT OUT NOTE	6/26/14
1	ADDED 2" OVERLAP ON NOTED 54 OZ PLIES	6/26/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ±
ANGULAR MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: MIDDLE LONGITUDINAL BULKHEAD LAYUP SCHEDULE

WEIGHT: 203 LB

DESCRIPTION: FABRICATION

SCALE 1 : 18

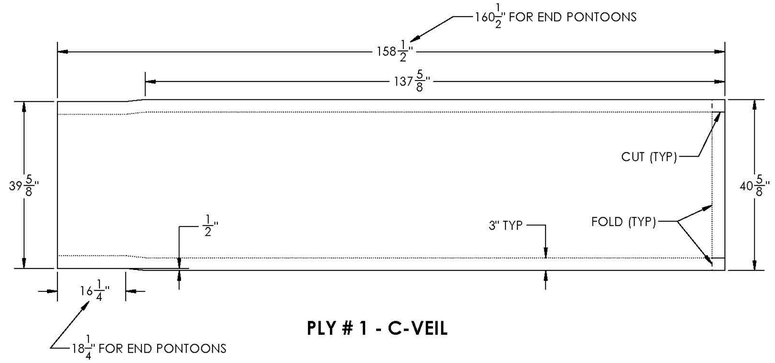
WO NO. 8420

CONTRACT NO. 9185

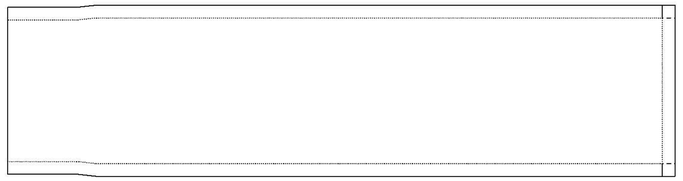
DWG NO. 8420-6

SHEET 10 OF 16

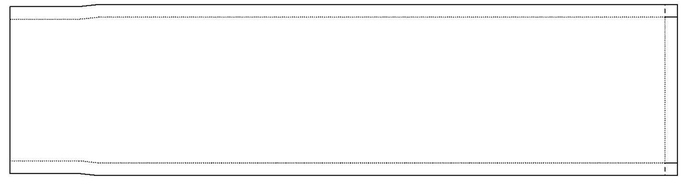
PONTOON	PART NO.
1-10	3



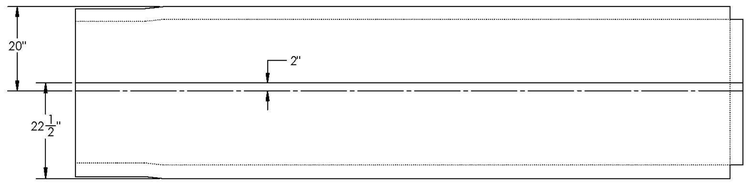
PLY # 1 - C-VEIL



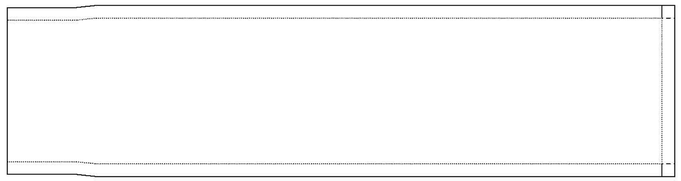
PLY # 2 - 4008



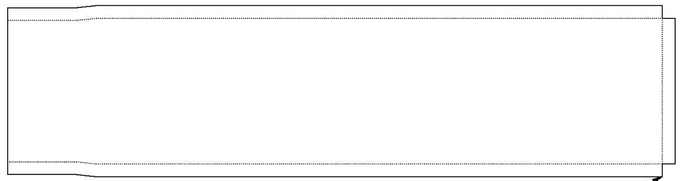
PLY # 3 - 54 oz



PLY # 4 - 54 oz



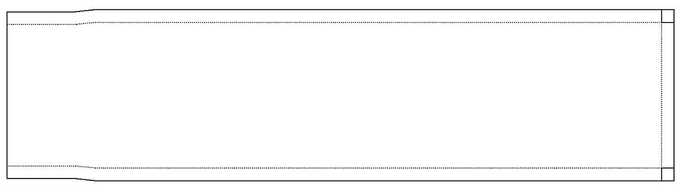
PLY # 5 - 54 oz



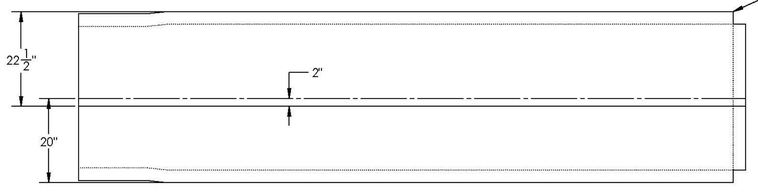
PLY # 6 - 54 oz

CUT OUT CORNERS FROM PLIES 4, 6 AND 8

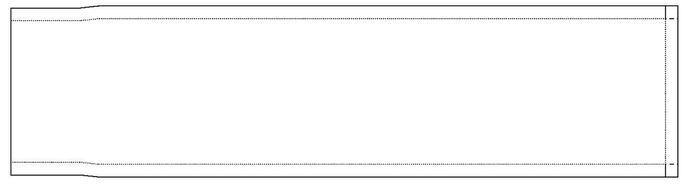
1



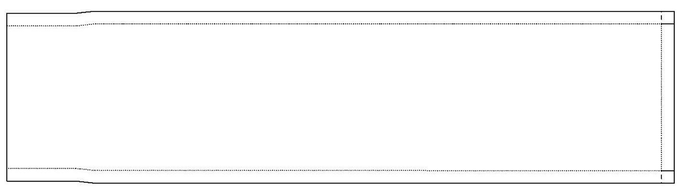
PLY # 7 - 54 oz



PLY #8 - 54 oz



PLY # 9 - 54 oz



PLY # 10 - 4008

Vermont Agency of Transportation

RECEIVED

ON: June 30, 2014

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 07/07/2014

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JOSH OLUND — REVIEWER — 07/03/2014 — DATE

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED CORNER CUT OUT NOTE	6/26/14
1	ADDED 2" OVERLAP ON NOTED 54 OZ PLIES	6/26/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± ANGULAR MACH ± BEND ±
TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±

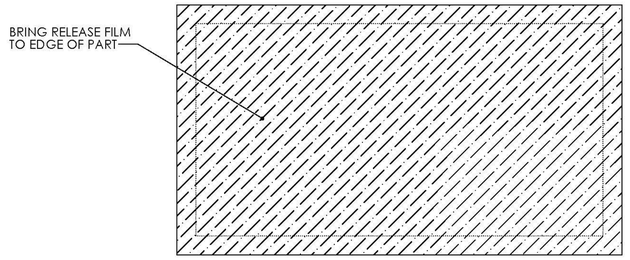
DRAWN BY ML	DATE 6/4/14
CHKD BY JM	DATE 6/4/14

PROJECT BROOKFIELD FRP PONTOONS

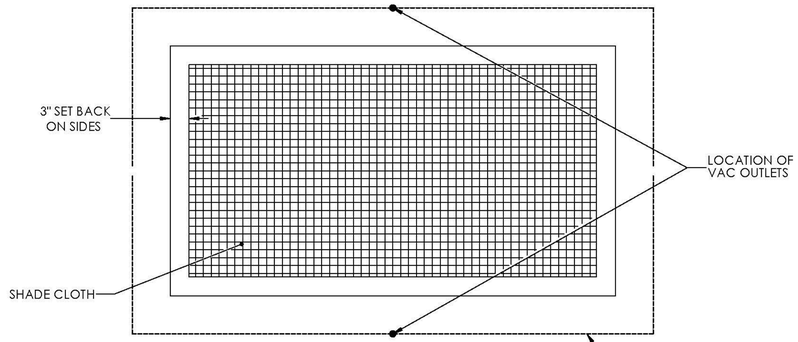
CUSTOMER MILLER CONST. / VTRANS

SHEET END LONGITUDINAL BULKHEAD LAYUP SCHEDULE

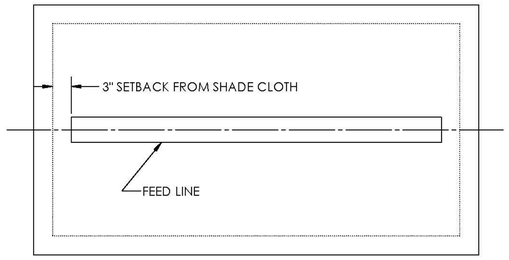
WEIGHT:	223 lb
DESCRIPTION:	FABRICATION
SCALE	1 : 18
WO NO.	8420
CONTRACT NO.	9185
DWG NO.	8420-6
SHEET	11 OF 16
PONTOON 1-10	PART NO. 4



RELEASE FILM

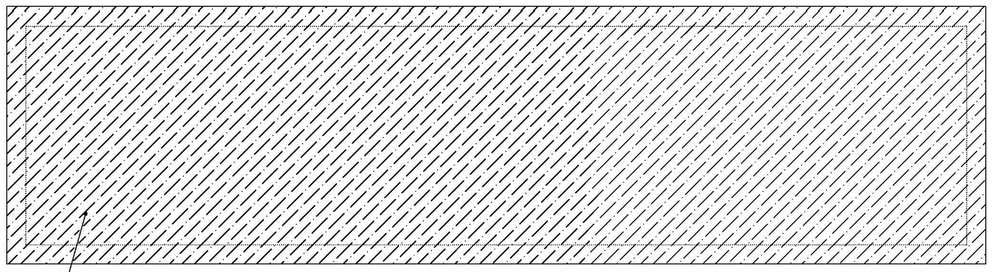


SHADE CLOTH & VAC LINES



FEED LINE

END BULKHEAD INFUSION DETAILS



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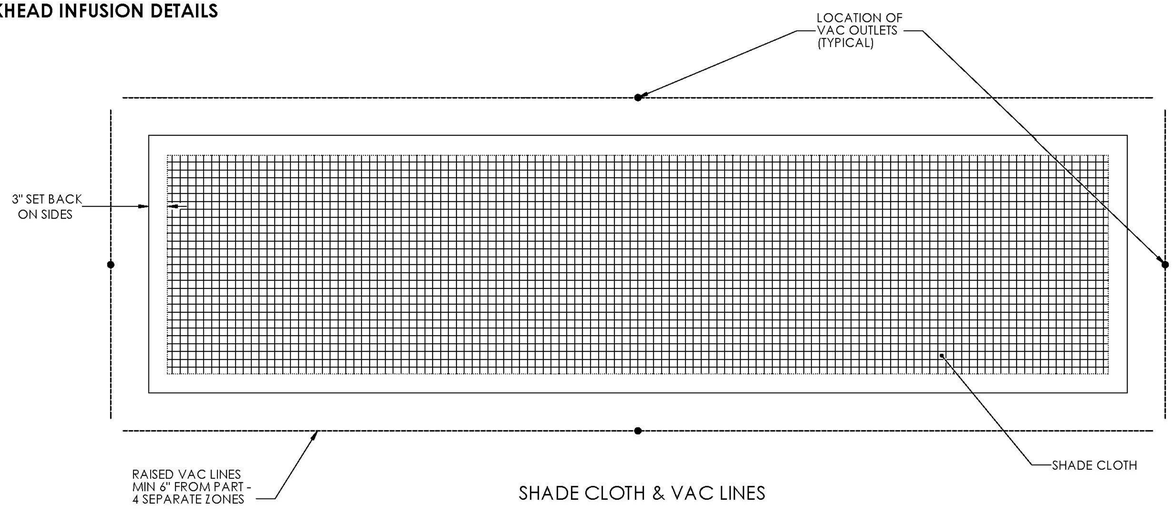
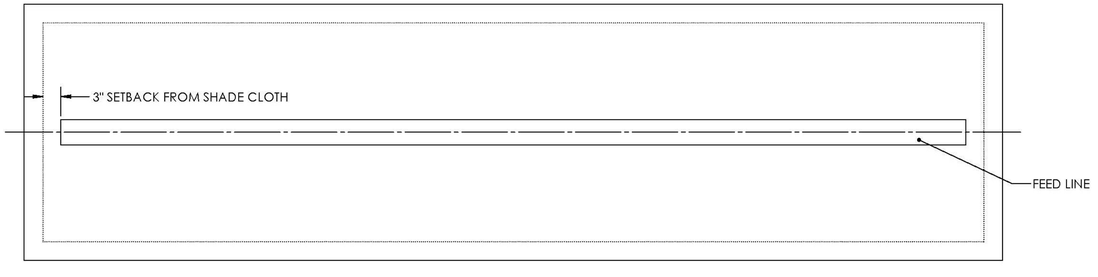


SHADE CLOTH & VAC LINES



FEED LINE

LONG BULKHEAD INFUSION DETAILS

Vermont Agency of Transportation
FRP Fabrication Drawings / Rec. 5-1-7712 Review.pdf
RECEIVED
ON: June 30, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 07/07/2014

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JOSH OLUND — REVIEWER
07/03/2014 — DATE

KENWAY CORP.

REV	DESCRIPTION	DATE

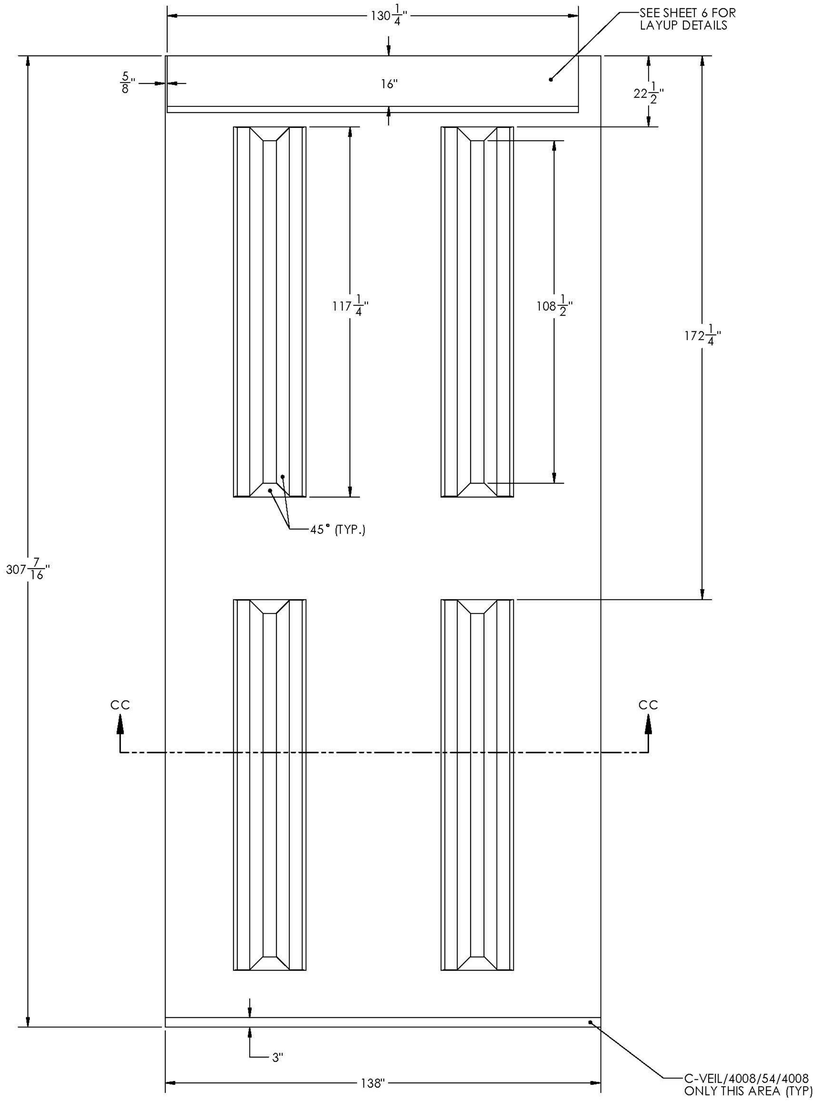
SEAL

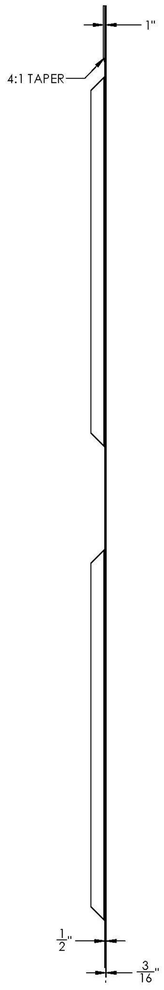
DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± ANGULAR MACH ± BEND ±
TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±

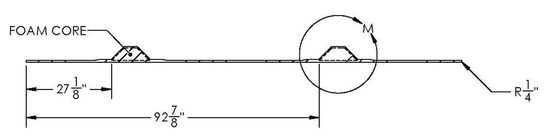
DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS
CUSTOMER: MILLER CONST. / VTRANS
SHEET: BULKHEAD INFUSION LAYOUT AND DETIALS

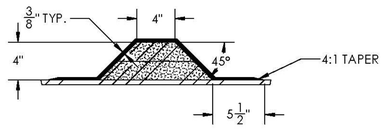
WEIGHT: N/A
DESCRIPTION: FABRICATION
SCALE 1 : 12
WO NO. 8420
CONTRACT NO. 9185
DWG NO. 8420-6
SHEET 12 OF 16
PONTOON 1-10
PART NO. 2-4,6-8







SECTION CC-CC

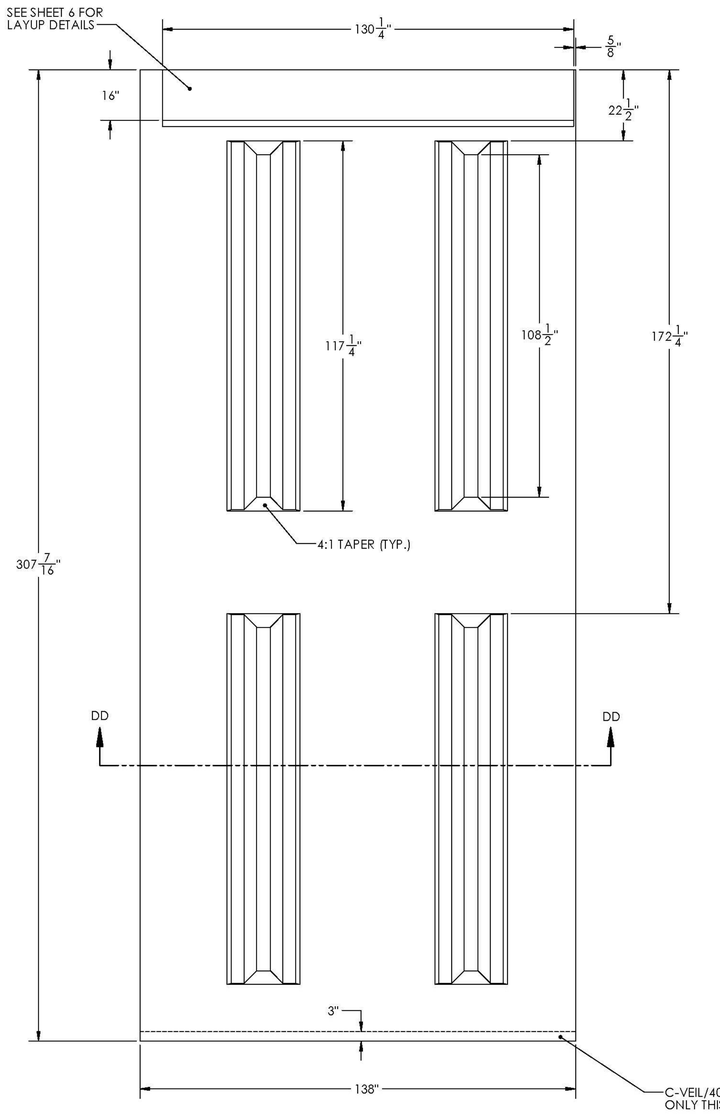


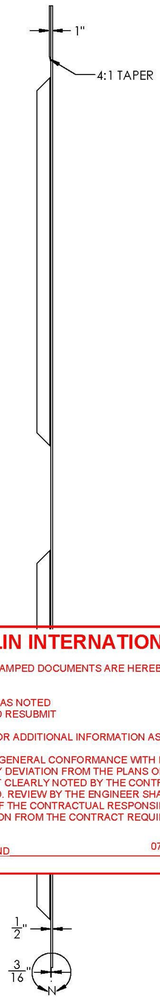
DETAIL M
TYPICAL STIFFENER DETAIL
SCALE 1 : 8

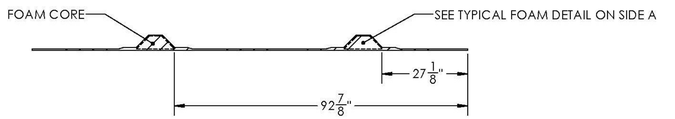
1 NOTE:
2 LAYERS OF 2" PERFORATED FOAM CORE WITH 1.5OZ CFM BETWEEN FOAM INFUSED WITH PRIMARY LAMINATE

FACING LAYUP SCHEDULE: (1) 4008 / (5) 54 / (1) 4008

TOP PLATE SIDE A







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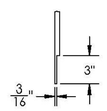

DETAIL N
SCALE 1 : 8

TOP PLATE SIDE B

Vermont Agency of Transportation
RECEIVED
ON: June 30, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 07/07/2014

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JOSH OLUND — REVIEWER
07/03/2014 — DATE

KENWAY CORP.

REV	DESCRIPTION	DATE
1	CHANGED STIFFENER NOTE AND ADDED FACING LAYUP	6/28/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± BEND ±
ANGULAR .MACH ± TWO PLACE DECIMAL ±
TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±

DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: HALF TOP PLATE DIMENSIONS

WEIGHT: 1,490 lb

DESCRIPTION: FABRICATION

SCALE 1 : 24

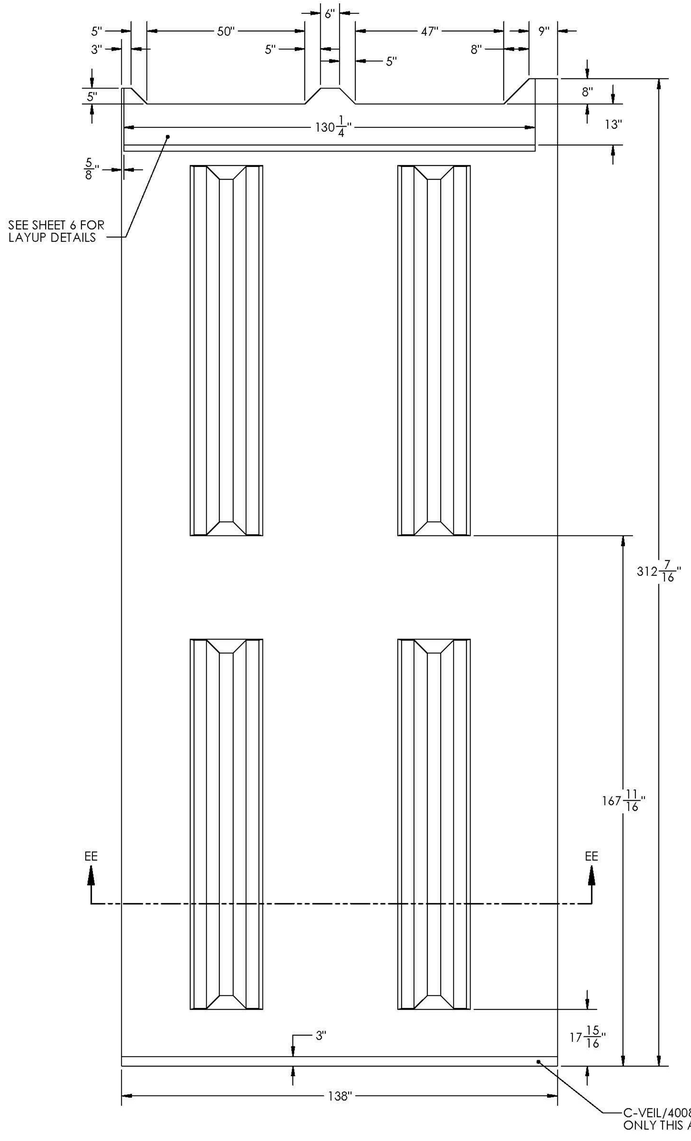
WO NO. 8420

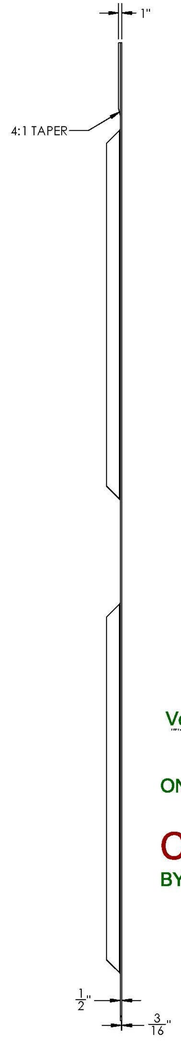
CONTRACT NO. 9185

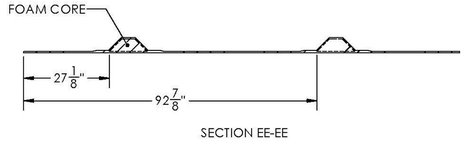
DWG NO. 8420-6

SHEET 13 OF 16

PONTOON	PART NO.
3-8	9







SECTION EE-EE

TOP PLATE SIDE A

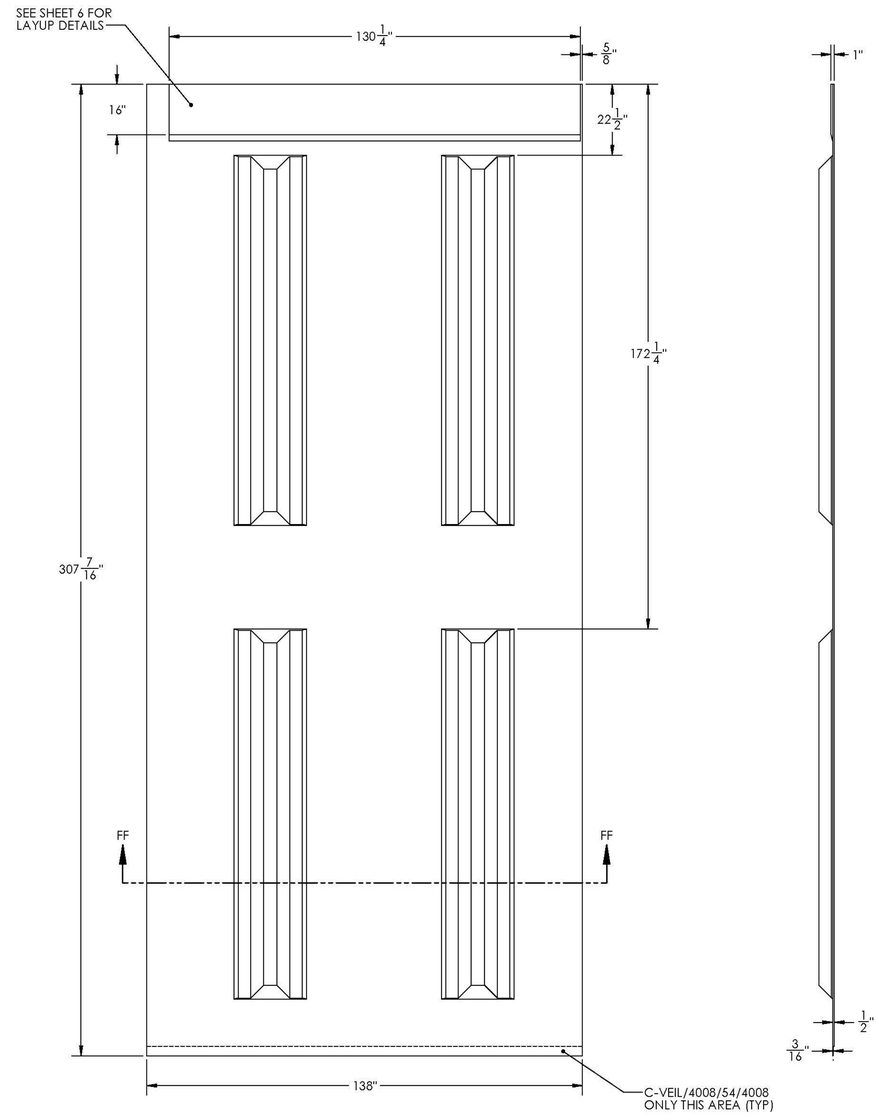
TOP SIDE A SHOWN FOR PONTOONS 2 & 9 - MIRROR ABOUT LONGITUDINAL AXIS FOR PONTOONS 1 & 10

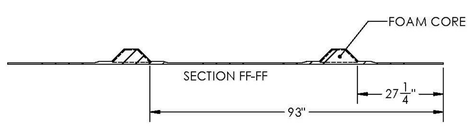
1 NOTE:
2 LAYERS OF 2" PERFORATED FOAM CORE WITH 1.5OZ CFM BETWEEN FOAM INFUSED WITH PRIMARY LAMINATE

FACING LAYUP SCHEDULE: (1) 4008 / (5) 54 / (1) 4008

SEE DETAIL M ON SHEET 13

Vermont Agency of Transportation
RECEIVED
ON: June 30, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 07/07/2014





SECTION FF-FF

TOP PLATE SIDE B

TOP SIDE A SHOWN FOR PONTOONS 2 & 9 - MIRROR ABOUT LONGITUDINAL AXIS FOR PONTOONS 1 & 10

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JOSH OLUND — REVIEWER — 07/03/2014 — DATE

KENWAY CORP.

REV	DESCRIPTION	DATE
1	CHANGED STIFFENER NOTE AND ADDED FACING LAYUP	6/26/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± BEND ±
ANGULAR MACH ± TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

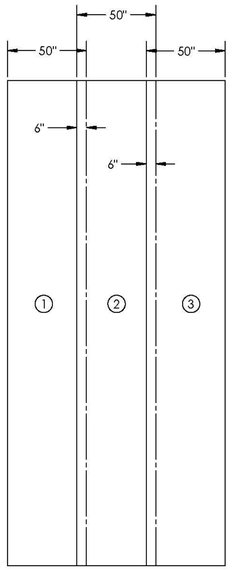
DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS

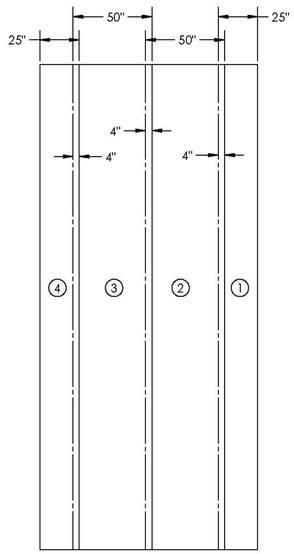
CUSTOMER: MILLER CONST. / VTRANS

SHEET: END HALF TOP PLATE DIMENSIONS

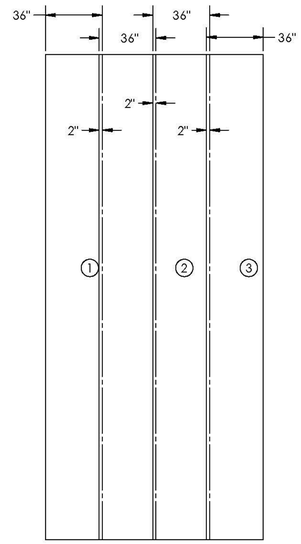
WEIGHT:	1,490 lb
DESCRIPTION:	FABRICATION
SCALE	1 : 24
WO NO.	8420
CONTRACT NO.	9185
DWG NO.	8420-6
SHEET	14 OF 16
PONTOON	PART NO.
1,2,9,10	9



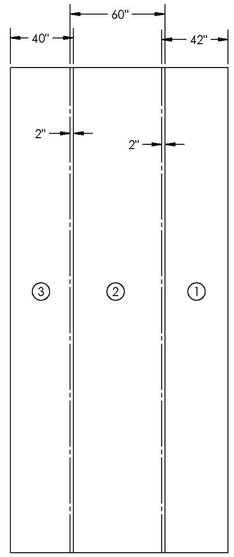
PLY # 1 - C-VEIL



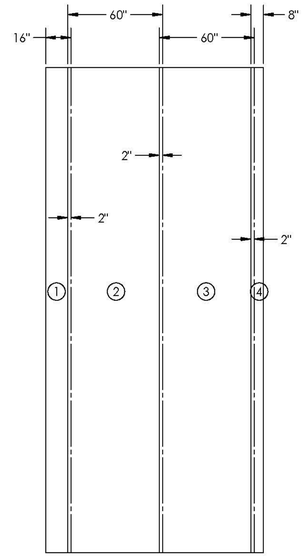
PLY # 2 - 4008



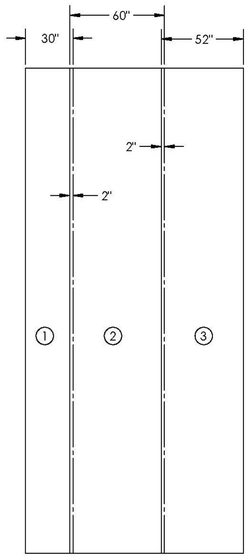
PLY # 3 - 54 oz



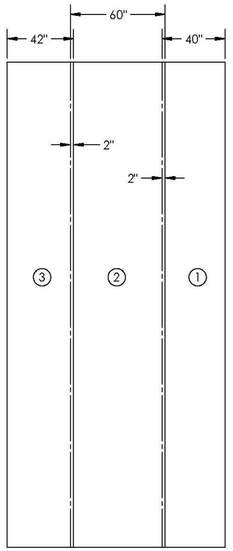
PLY # 4 - 54 oz



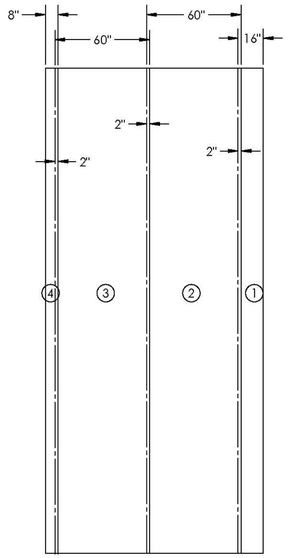
PLY # 5 - 54 oz



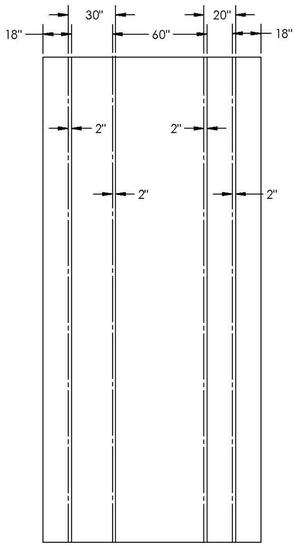
PLY # 6 - 54 oz



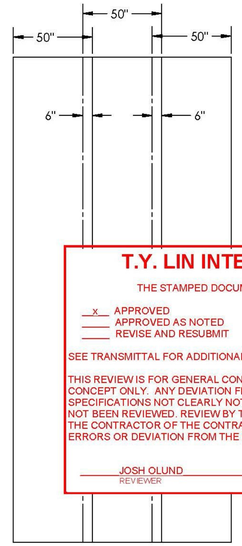
PLY # 7 - 54 oz



PLY # 8 - 54 oz



PLY # 9 - 54 oz



PLY # 10 - 4008

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JOSH OLUND — REVIEWER
07/03/2014 — DATE

NOTE:
1. SEE SHEET 13 OR 14 FOR REQUIRED LENGTH
2. PLIES 4-9 ARE 3" SHORTER TO CREATE LAP SPLICE WHERE TOP PLATES ARE JOINED

KENWAY CORP.

REV	DESCRIPTION	DATE
1	CHANGED ALL 54 OZ FABRIC TO 2" MIN. OVERLAP	6/27/14

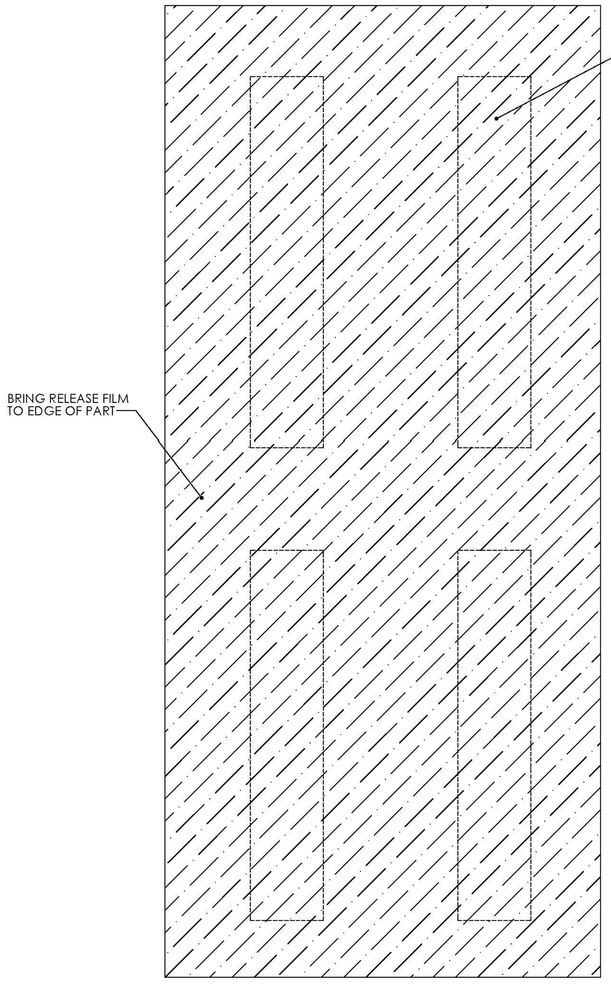
SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ± BEND ±
ANGULAR: MACH ± TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

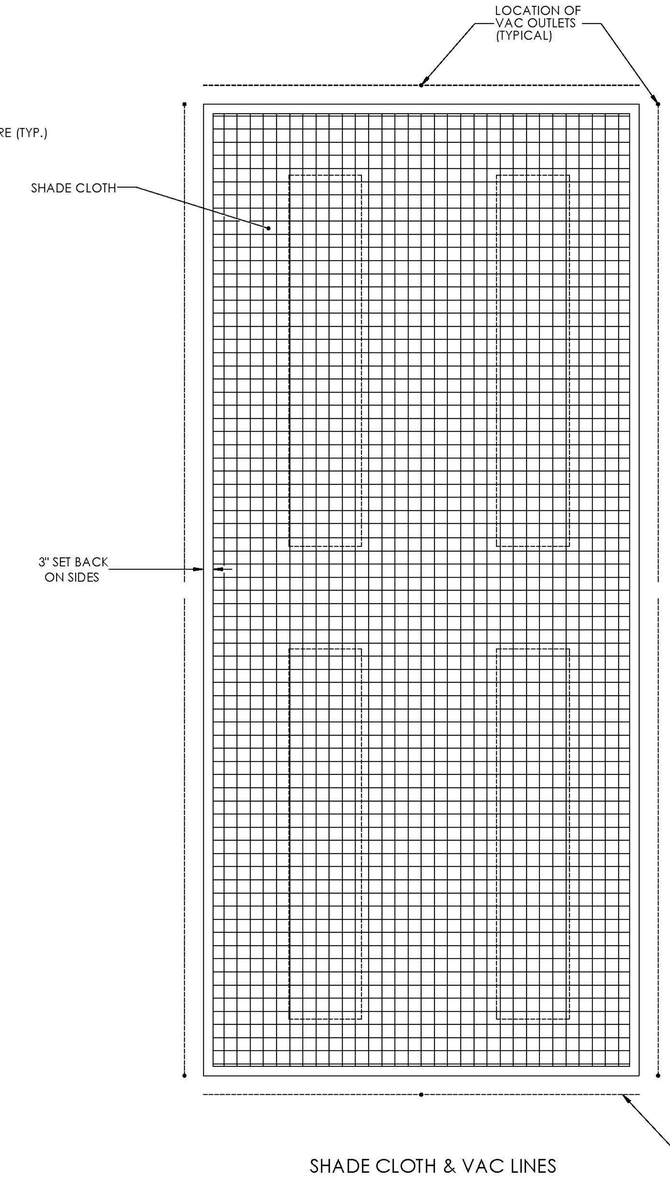
DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS
CUSTOMER: MILLER CONST. / VTRANS
SHEET: HALF TOP PLATE LAYUP SCHEDULE

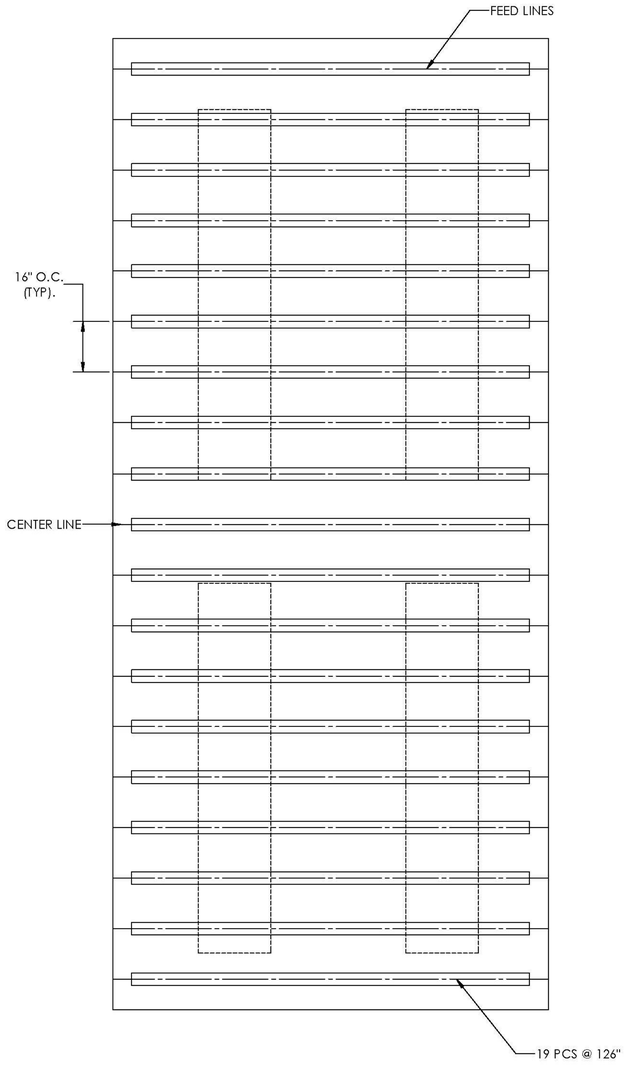
WEIGHT: 1,490 lb
DESCRIPTION: FABRICATION
SCALE 1 : 48
WO NO. 8420
CONTRACT NO. 9185
DWG NO. 8420-6
SHEET 15 OF 16
PONTOON N/A
PART NO. N/A



RELEASE FILM



SHADE CLOTH & VAC LINES



FEED LINES

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INFUSION SET-UP DETAILS

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JOSH OLUND — REVIEWER
07/03/2014 — DATE

KENWAY CORP.

REV	DESCRIPTION	DATE

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: FRACTIONAL ± 1/16" ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±

DRAWN BY	DATE
ML	6/4/14
CHKD BY	DATE
JM	6/4/14

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: HALF TOP PLATE INFUSION LAYOUT AND DETAILS

WEIGHT:	N/A
DESCRIPTION:	FABRICATION
SCALE	1 : 24
WO NO.	8420
CONTRACT NO.	9185
DWG NO.	8420-6
SHEET	16 OF 16
PONTOON	PART NO.
N/A	N/A

STATE OF VERMONT

BROOKFIELD FLOATING BRIDGE

BRIDGE REPLACEMENT PROJECT

PROJECT NAME: BROOKFIELD

PROJECT NUMBER: BRF FLBR (2)

JUNE 4, 2014

FIBER REINFORCED POLYMER (FRP) PONTOON COMPONENT ASSEMBLY

Vermont Agency of Transportation

FRP Fabrication Drawings - Rev 1-1 - TYLI Review.pdf

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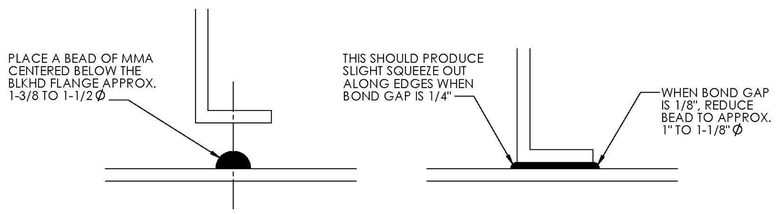
07/03/2014 — DATE

TYIPICAL BONDING APPROACH



1 **WORKING TIME** IS 55-70 MIN. AT 74F - PARTS SHOULD BE IN PLACE WITHIN 40 MIN.

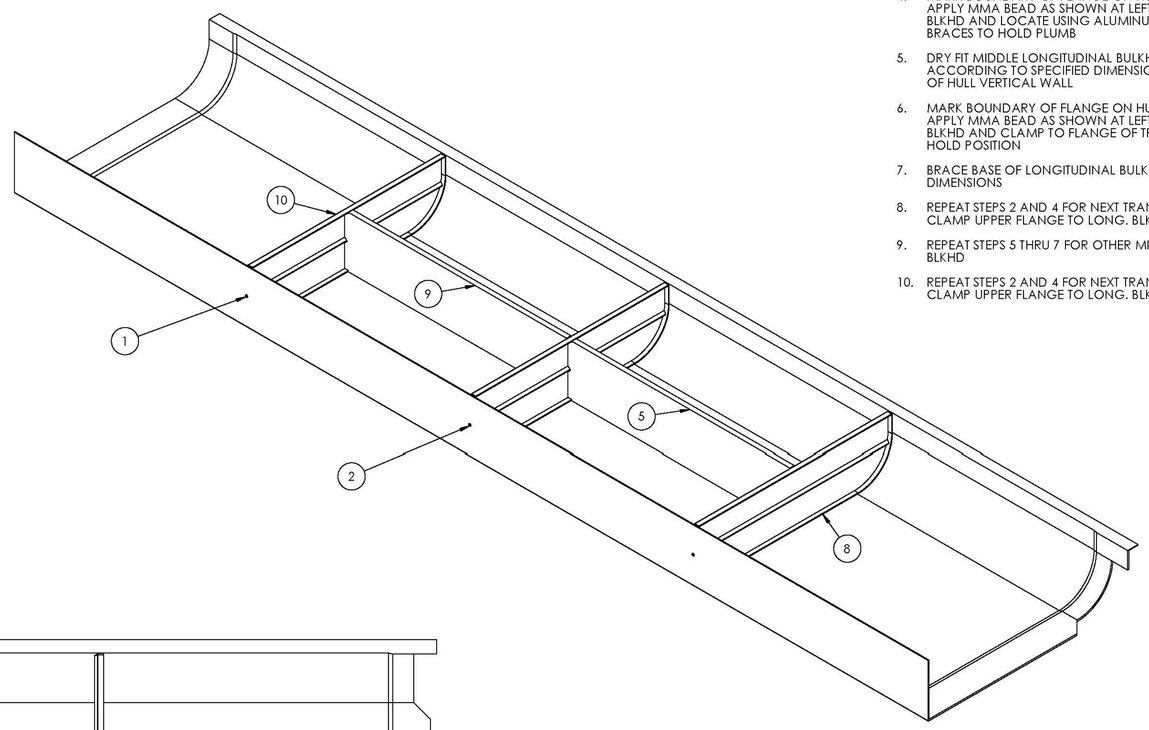
1 **FIXTURE TIME** IS 220-240 MIN. AT 74F - PARTS SHALL BE CLAMPED FOR AT LEAST 4 HR

NOTES:

ALL GLUED SURFACES ARE TO BE VACUUM CLEANED AND WIPED WITH ALCOHOL PRIOR TO BONDING

SELECT THE PROPER SPACERS WHEN DRY FITTING PARTS TO MAINTAIN NECESSARY BONDLINE - NOMINAL GAP IS 1/4" (HAVE 3/16" & 5/16" AVAILABLE)

1. REMOVE PLUGS FROM LOCATOR SLEEVES IN MOLD AND DRILL 1-1/2" HOLE THRU HULL WALL (6 PLACES)
2. DRY FIT CENTER TRANSVERSE BULKHEAD AND ALIGN BY PUSHING 1-1/2" ALUMINUM TUBE THRU HULL SLEEVES AND BULKHEAD - NOTE: PROPERLY SEAL AND APPLY FREKOTE RELEASE PRODUCTS TO ALUMINUM TUBE
3. HOT GLUE 2X4 BLOCKS TO HULL AND DRY FIT BRACES TO HOLD BLKHD PLUMB (4 PLACES)
4. MARK BOUNDARY OF FLANGE ON HULL, LIFT BLKHDAND APPLY MMA BEAD AS SHOWN AT LEFT (1/4" GAP), LOWER BLKHD AND LOCATE USING ALUMINUM TUBE, REPOSITION BRACES TO HOLD PLUMB
5. DRY FIT MIDDLE LONGITUDINAL BULKHEAD - PLACE ACCORDING TO SPECIFIED DIMENSION FROM INSIDE FACE OF HULL VERTICAL WALL
6. MARK BOUNDARY OF FLANGE ON HULL, LIFT BLKHD AND APPLY MMA BEAD AS SHOWN AT LEFT (1/4" GAP), LOWER BLKHD AND CLAMP TO FLANGE OF TRANSVERSE BLKHD TO HOLD POSITION
7. BRACE BASE OF LONGITUDINAL BULKHEAD TO HOLD DIMENSIONS
8. REPEAT STEPS 2 AND 4 FOR NEXT TRANSVERSE BLKHD THEN CLAMP UPPER FLANGE TO LONG. BLKHD
9. REPEAT STEPS 5 THRU 7 FOR OTHER MIDDLE LONGITUDINAL BLKHD
10. REPEAT STEPS 2 AND 4 FOR NEXT TRANSVERSE BLKHD THEN CLAMP UPPER FLANGE TO LONG. BLKHD



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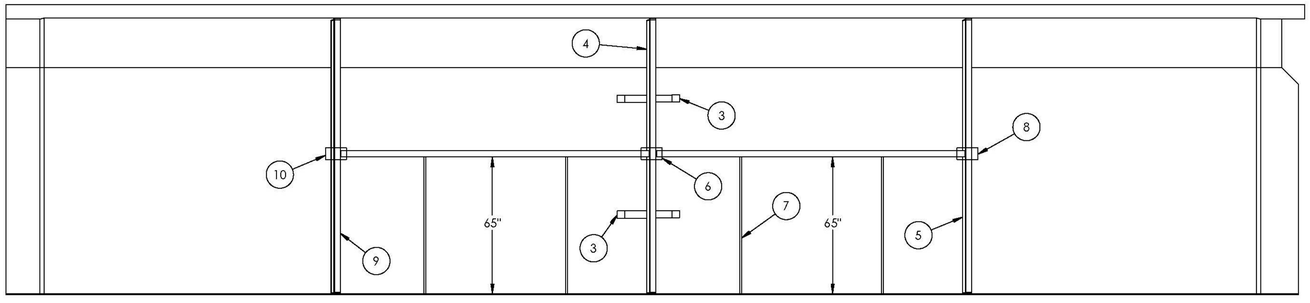

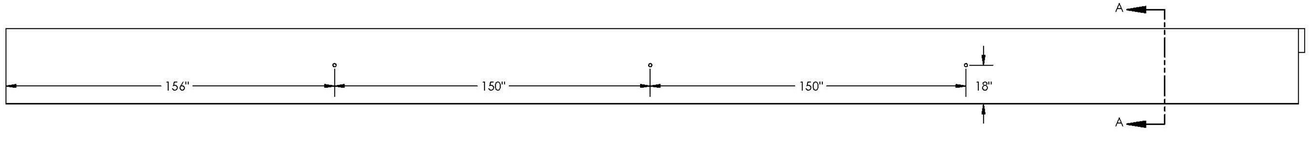

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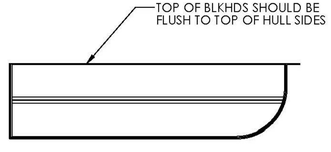
JOSH OLUND (REVIEWER) 07/03/2014 (DATE)



SECTION A-A

SCALE 1 : 36

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED MMA WORKING AND FIXTURE TIME NOTES	6/26/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0. -1/16"
FRACTIONAL ± ANGULAR MACH ± BEND ±
TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±

DRAWN BY	DATE
JM	6/2/14
CHKD BY	DATE
XX	X/X/XX

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: PONTOON ASSEMBLY - STEP 1

WEIGHT: 5,195 LB

DESCRIPTION: ASSEMBLY

SCALE 1 : 36

WO NO. 8420

CONTRACT NO. 9185

DWG NO. 8420-8

SHEET 1 OF 5

PONTOON	PART NO.
N/A	N/A

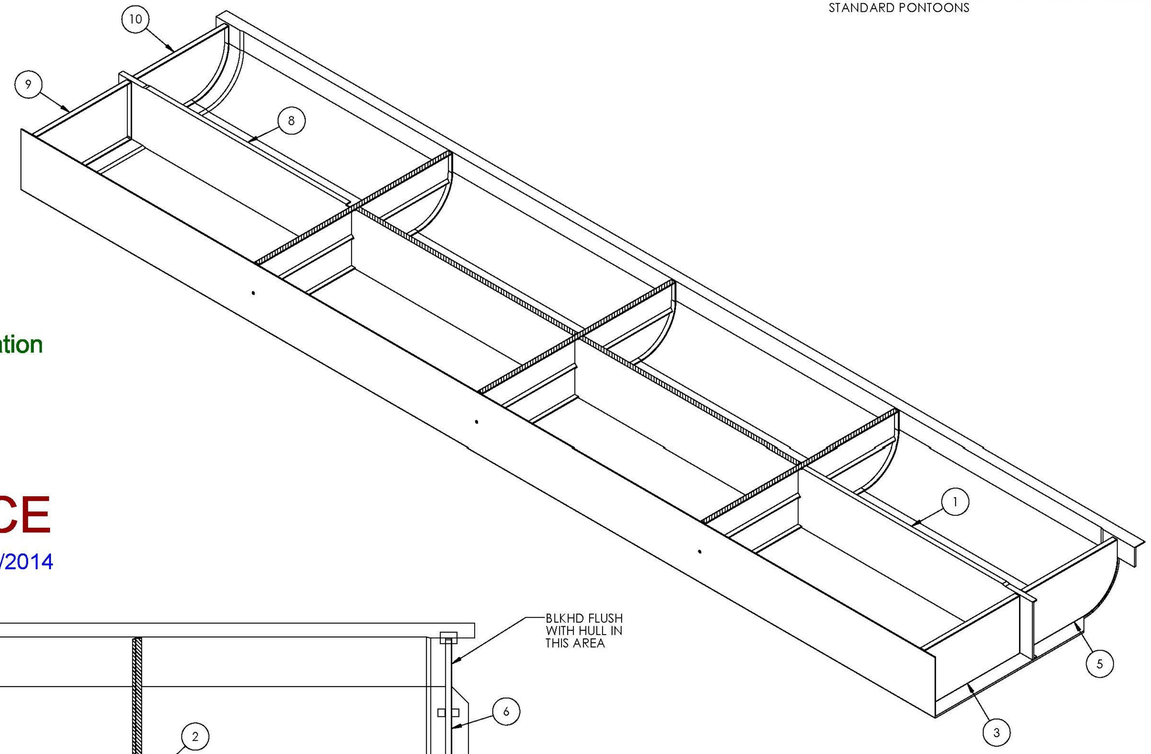
1. DRY FIT END LONGITUDINAL BLKHD - PLACE ACCORDING TO SPECIFIED DIMENSION FROM INSIDE FACE OF HULL VERTICAL WALL
2. MARK BOUNDARY OF FLANGE ON HULL, LIFT BLKHDAND APPLY MMA BEAD AS SHOWN AT LEFT (1/4" GAP), LOWER BLKHD AND CLAMP TO FLANGE OF TRANSVERSE BLKHD
3. DRY FIT END SQUARE BULKHEAD - PLACE ACCORDING TO SPECIFIED DIMENSION FROM END OF HULL
4. MARK BOUNDARY OF FLANGE ON HULL, LIFT BLKHD AND APPLY MMA BEAD AS SHOWN ON SHEET 1 (1/4" GAP), LOWER BLKHD AND CLAMP TO FLANGE OF LONGITUDINAL BLKHD AND TOP OF HULL MOLD
5. DRY FIT END RADIUS BULKHEAD - PLACE ACCORDING TO SPECIFIED DIMENSIONS FROM END OF HULL
6. MARK BOUNDARY OF FLANGE ON HULL, LIFT BLKHD AND APPLY MMA BEAD AS SHOWN AT LEFT (1/4" GAP), LOWER BLKHD AND CLAMP TO FLANGE OF LONGITUDINAL BLKHD AND TOP OF HULL MOLD
7. BRACE BASE OF LONGITUDINAL AND END BULKHEADS TO HOLD DIMENSIONS AND KEEP PLUMB
8. REPEAT STEPS 1 AND 2 FOR OTHER LONGITUDINAL BLKHD
9. REPEAT STEPS 3 AND 4 FOR OTHER END SQUARE BLKHD
10. REPEAT STEPS 5 AND 6 FOR OTHER END RADIUS BLKHD

NOTES:

ALL GLUED SURFACES ARE TO BE VACUUM CLEANED AND WIPED WITH ALCOHOL PRIOR TO BONDING

SELECT THE PROPER SPACERS WHEN DRY FITTING PARTS TO MAINTAIN NECESSARY BONDLINE - NOMINAL GAP IS 1/4" (HAVE 3/16" & 5/16" AVAILABLE)

FACE OF END BULKHEADS IS 8" FROM EDGE OF HULL ON END PONTOONS AND 6" FROM EDGE OF HULL ON STANDARD PONTOONS



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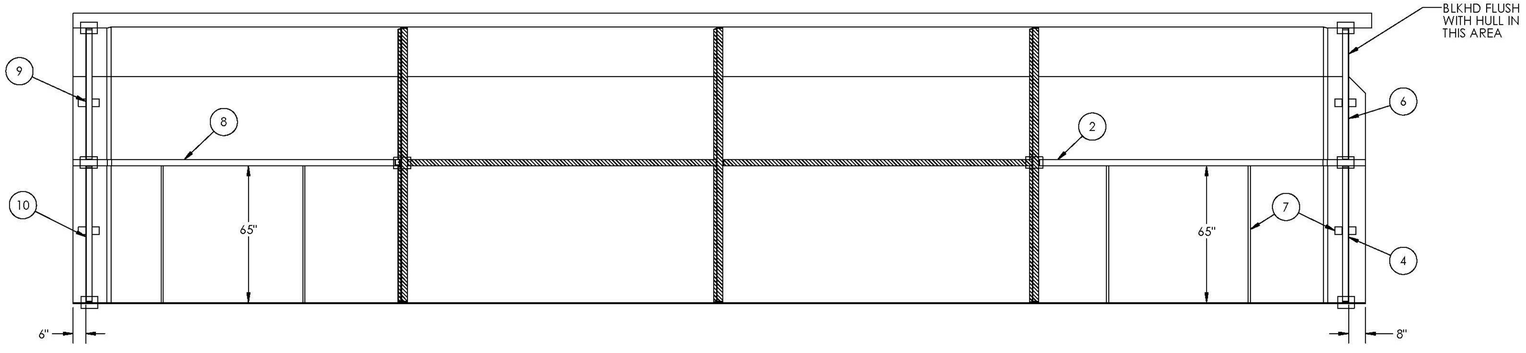

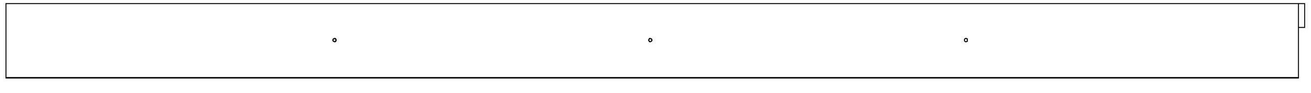

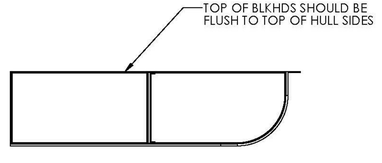

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JOSH OLUND (REVIEWER) 07/03/2014 (DATE)

KENWAY CORP.

REV	DESCRIPTION	DATE

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONALS ± ANGULARS MACH± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

DRAWN BY	DATE
JM	6/3/14
CHKD BY	DATE
XX	X/X/XX

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: PONTOON ASSEMBLY - STEP 2

WEIGHT: 6,058 LB

DESCRIPTION: ASSEMBLY

SCALE 1 : 36

WO NO. 8420

CONTRACT NO. 9185

DWG NO. 8420-8

SHEET 2 OF 5

PONTOON	PART NO.
N/A	N/A

1. BOND 6 PIECES OF 3" FRP ANGLE TO TOP EDGE OF HULL AS SHOWN (SEE SHEET 1 FOR NOMINAL 1/8" BOND LINE) - CLAMP FLUSH TO TOP OF MOLD
2. BOND LIFTING PLATES TO OUTER TRANSVERSE BULKHEADS AS SHOWN ENSURING A MINIMUM OF 16 SQ.IN. OF BOND AREA (NOMINAL 1/8" BOND LINE)
3. FILL HULL WITH FLOTATION FOAM UP TO THE TOP EDGE OF THE HULL AND BULKHEADS

   3.1 DO A TEST SHOT OF THE FOAM AT START UP TO CHECK DENSITY AND CONSISTENCY OF FOAM

   3.2 ADD IN MULTIPLE LIFTS AS INDICATED IN NOTES BLOCK

   3.3 USE A STRAIGHT EDGE ACROSS THE BULKHEADS TO GAGE THE HEIGHT OF THE FINAL LIFT - CUT OR SAND ANY FOAM THAT EXCEEDS THE DESIRED HEIGHT

   3.4 USE THE STIFFENER TEMPLATE WHEN SPRAYING AND SHAPING FOAM TO ENSURE THERE IS NO INTERFERENCE BETWEEN THE FOAM AND TOP PLATE
4. RELEASE THE HULL FROM THE MOLD USING THE 4 LIFTING LOCATIONS - ENSURE EACH TROLLEY IS CENTERED OVER THE LIFTING POINT
5. PLACE THE PONTOON IN THE SHOP STAGING AREA WITH 8' LENGTHS OF 4X4 BENEATH EACH TRANSVERSE BULKHEAD

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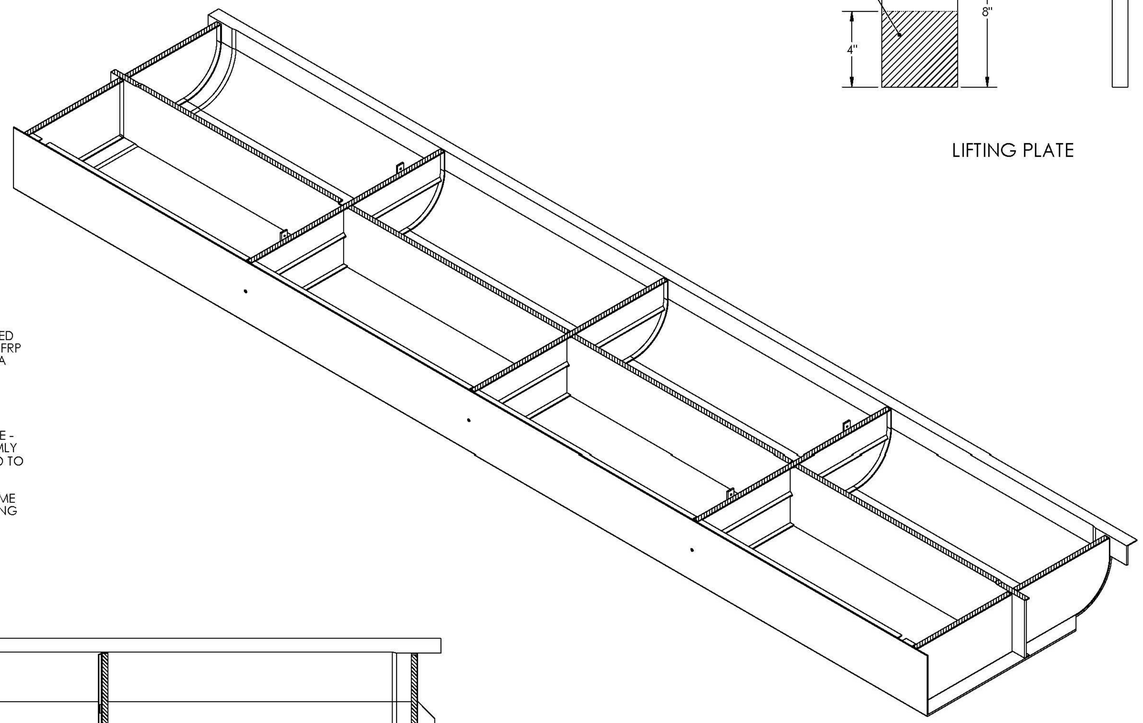
NOTES:

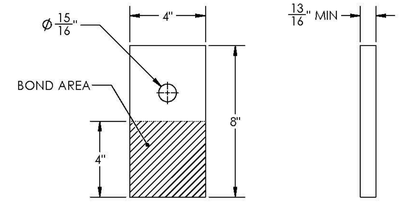
ALL GLUED SURFACES ARE TO BE VACUUM CLEANED AND WIPED WITH ALCOHOL PRIOR TO BONDING - FRP ANGLE MUST BE SCUFFED WITH 60-GRIT USING A DA

SELECT THE PROPER SPACERS WHEN DRY FITTING PARTS TO MAINTAIN NECESSARY BONDLINE - NOMINAL GAP FOR ANGLE AND LIFT PLATE IS 1/8"

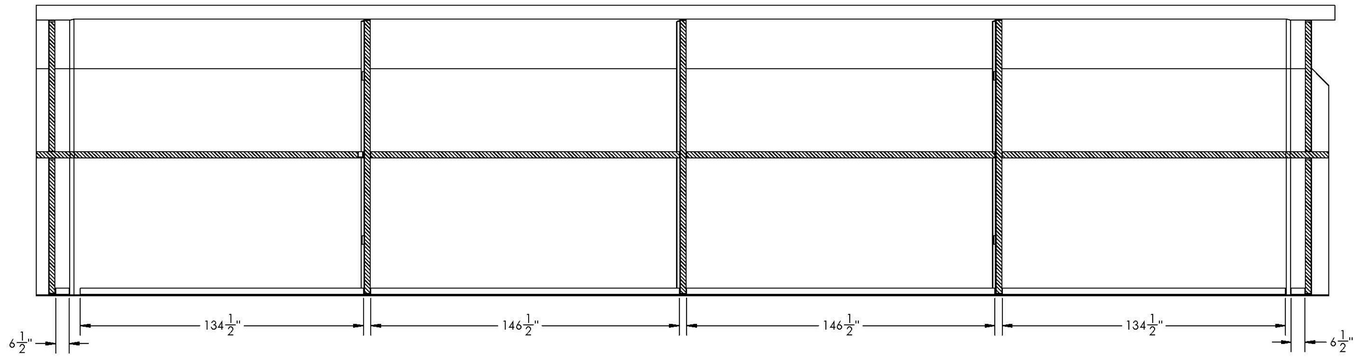
APPLY FOAM IN 10"-12" LIFTS (EXPANDED) AT A TIME - APPROX. 3" WET EXPANDS TO 12" - APPLY UNIFORMLY ACROSS THE BOTTOM OF THE HULL FROM ONE END TO THE OTHER THEN REPEAT FROM START POINT

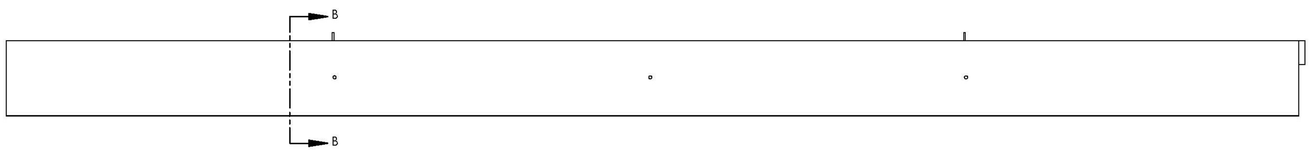
1 FOAM IS TACK FREE IN 120 SEC WITH A FREE RISE TIME OF 155 SEC - WAIT AT LEAST 10 MIN. BEFORE SHAPING

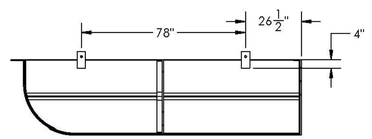




LIFTING PLATE







SECTION B-B
SCALE 1 : 36

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JOSH OLUND (REVIEWER) 07/03/2014 (DATE)

KENWAY CORP.

REV	DESCRIPTION	DATE

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: FRACTIONAL ± 1/16" ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±

DRAWN BY	DATE
JM	6/3/14
CHKD BY	DATE
XX	X/X/XX

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: PONTOON ASSEMBLY - STEP 3

WEIGHT:	9,755 lb
DESCRIPTION:	ASSEMBLY
SCALE	1 : 36
WO NO.	8420
CONTRACT NO.	9185
DWG NO.	8420-8
SHEET	3 OF 5
PONTOON	PART NO.
N/A	N/A

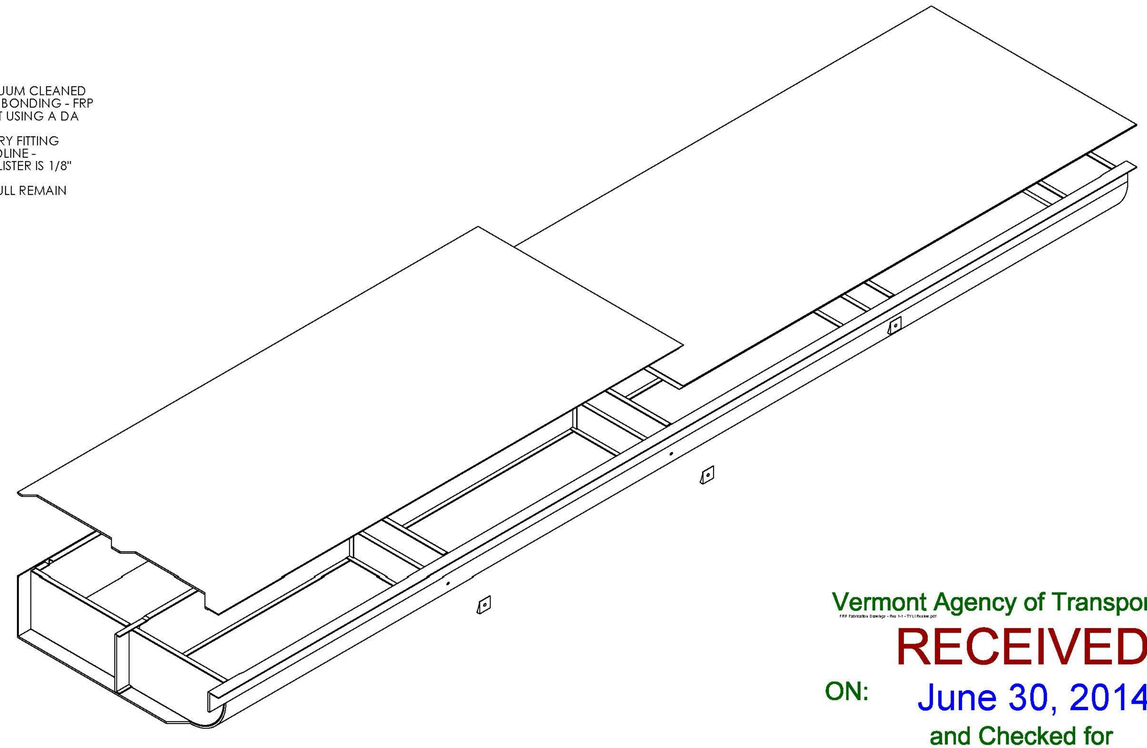
1. REMOVE LIFTING PLATES BY CUTTING FLUSH WITH TOP OF BULKHEAD FLANGE
2. DRY FIT TOP PLATES - PAY ATTENTION TO WHICH PLATE HAS THE LOWER LIP FOR THE LAP JOINT AND PLACE FIRST
3. PLACE 1/8" SPACERS BENEATH TOP PLATES WHEN DRY FITTING AND ENSURE ALL TOLERANCES ARE WITHIN SPEC - ADJUST SPACER THICKNESS AS NEEDED
4. ⚠1 APPLY A 1" WIDE BEAD OF MMA CENTERED ON THE 3" GLUE FLANGES AND A 1-1/2" WIDE BEAD ON THE 6" FLANGE FOR A 1/8" BOND LINE (SEE SHEET 1) AND PLACE FIRST TOP PLATE
5. REPEAT THE PROCESS FOR PLACING THE OTHER TOP PLATE - PLACE A 1" WIDE BEAD ACROSS THE LAP JOINT ON THE FIRST PLATE
6. WIPE OFF ANY EXCESS ADEHSIVE THAT SQUEEZES OUT - USE A SPATULA TO CREATE AN ADEHESIVE FILLET AT ALL INSIDE CORNERS AT EACH END
7. BOND THE FRP BLISTERS AT 3 LOCATIONS AS SHOWN ENSURING THE HOLE IN THE BLISTER IS CENTERED ON THE HOLE IN THE HULL (NOMINAL 1/8" BOND LINE)
8. APPLY LABEL TO UPSTATION END OF PONTOON AND MOVE TO STAGING AREA FOR RAFT ASSEMBLY AND DRILLING

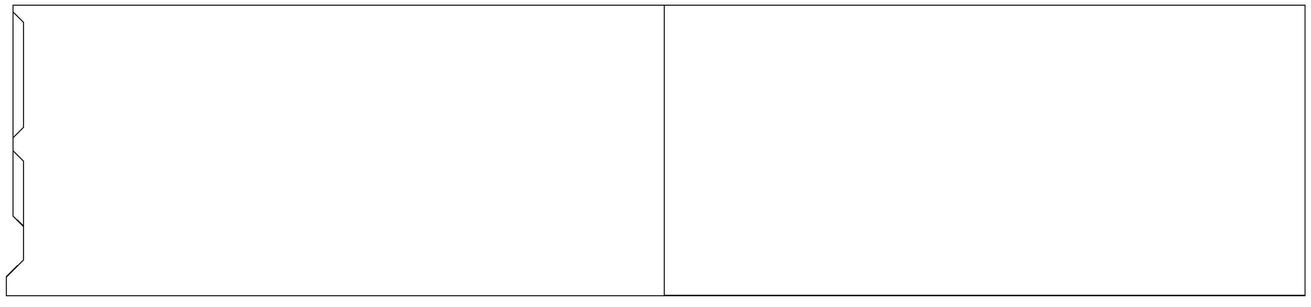
NOTES:

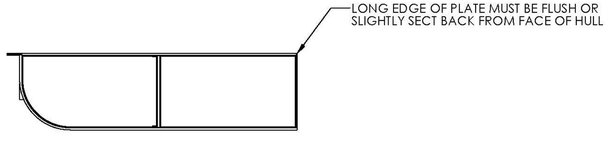
ALL GLUED SURFACES ARE TO BE VACUUM CLEANED AND WIPED WITH ALCOHOL PRIOR TO BONDING - FRP ANGLE MUST BE SCUFFED WITH 60-GRIT USING A DA

SELECT THE PROPER SPACERS WHEN DRY FITTING PARTS TO MAINTAIN NECESSARY BONDLINE - NOMINAL GAP FOR TOP PLATE AND BLISTER IS 1/8"

ENSURE THRU HOLES IN BLISTER AND HULL REMAIN CLEAR OF ADHESIVE







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JOSH OLUND (REVIEWER) 07/03/2014 (DATE)

KENWAY CORP.

REV	DESCRIPTION	DATE
1	CLARIFIED MMA BEAD SIZE FOR 3" AND 6" FLANGES	6/26/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

DRAWN BY	DATE
JM	6/4/14
CHKD BY	DATE
XX	X/X/XX

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: PONTOON ASSEMBLY - STEP 4

WEIGHT: 12,735 lb

DESCRIPTION: ASSEMBLY

SCALE 1 : 36

WO NO. 8420

CONTRACT NO. 9185

DWG NO. 8420-8

SHEET 4 OF 5

PONTOON	PART NO.
N/A	N/A

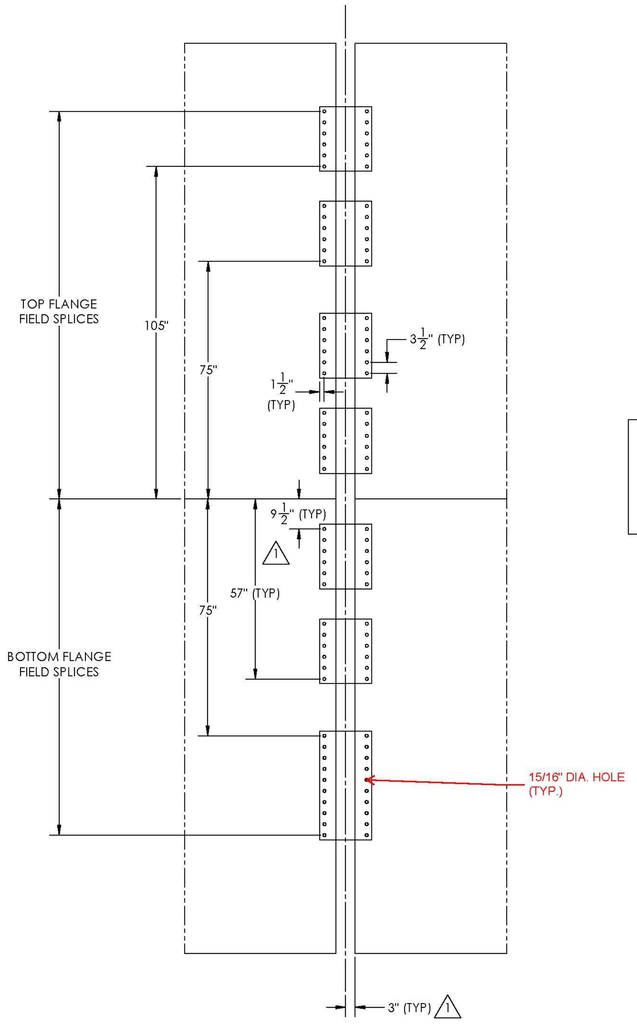
NOTES:

LEVEL PONTOONS ON BOAT STANDS AND SNUG THREADED ROD THRU EACH RAFT - VERIFY ALIGNMENT AND SET REFERENCE MARKS

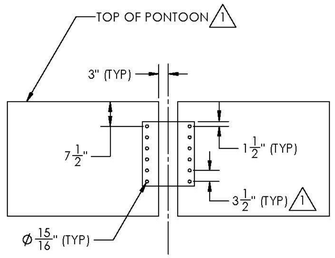
VERIFY ALIGNMENT USING ROTARY LASER LEVEL IN EACH PLANE BETWEEN ADJACENT RAFTS

ALIGN THE CNC MACHINED DRILLING TEMPLATE TO THE BOLT HOLE LOCATIONS PROVIDED IN THIS DRAWING AND DRILL 1/8" PILOT HOLES

REMOVE TEMPLATE AND DRILL 15/16" THRU HOLES USING A MAG DRILL TO ENSURE ACCURACY



TOP AND BOTTOM FLANGE FIELD SPLICES



WEB SPLICE DETAILS

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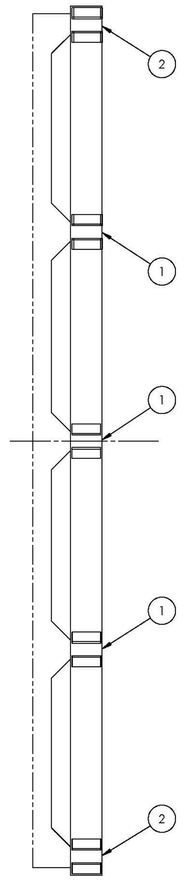
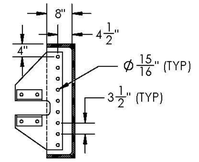
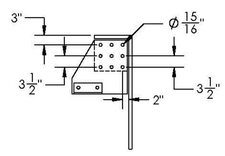
BY: Jennifer Fitch DATE: 07/07/2014



STAINLESS SHELF SUPPORT PLATE LOCATIONS



1 - INTERIOR SUPPORT PLATE BOLTING



2 - EXTERIOR SUPPORT PLATE BOLTING

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JOSH OLUND (REVIEWER) 07/03/2014 (DATE)

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED NOTES AND DIMENSIONS TO SPLICE DETAILS	6/26/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

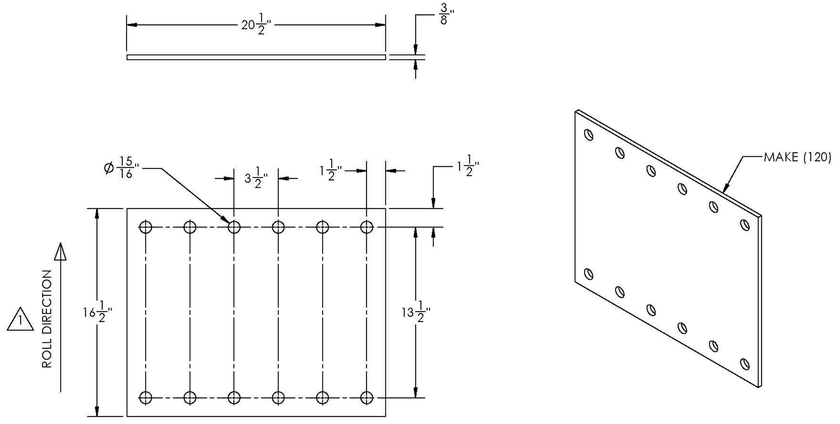
DRAWN BY JM	DATE 6/4/14
CHKD BY XX	DATE X/X/XX

PROJECT: BROOKFIELD FRP PONTOONS

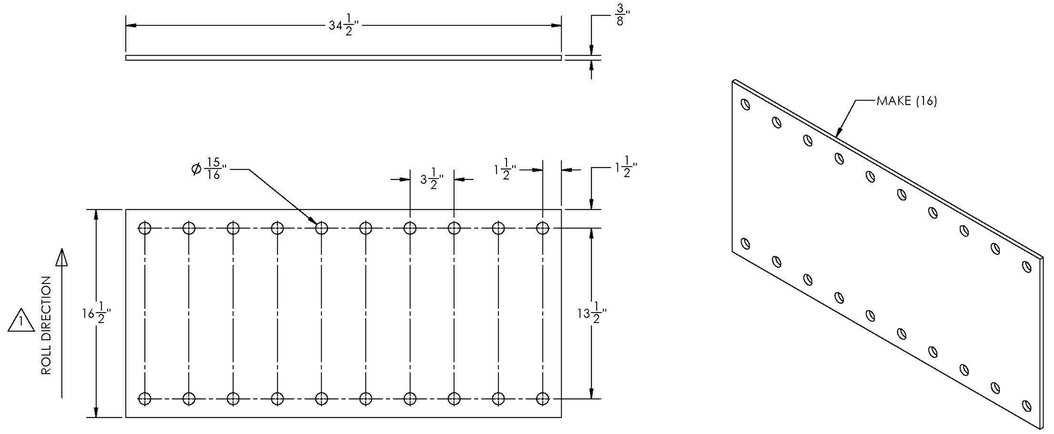
CUSTOMER: MILLER CONST. / VTRANS

SHEET: RAFT ASSEMBLY - BOLT HOLE LOCATIONS

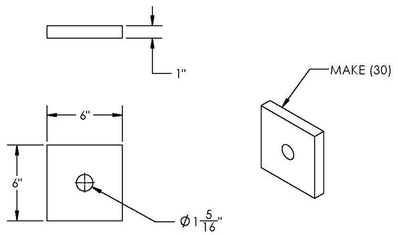
WEIGHT:	N/A
DESCRIPTION:	ASSEMBLY
SCALE	1 : 36
WO NO.	8420
CONTRACT NO.	9185
DWG NO.	8420-8
SHEET	5 OF 5
PONTOON	N/A
PART NO.	N/A



GALVANIZED SPLICE PLATE - SHORT



GALVANIZED SPLICE PLATE - LONG



GALVANIZED BEARING PLATE

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JOSH OLUND — REVIEWER
07/03/2014 — DATE

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FRP Fabricator Drawings - Rev 1-1 - TYLI Review.pdf

RECEIVED

ON: June 30, 2014

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 07/07/2014

⚠1 NOTES:

1. STRUCTURAL STEEL SHALL MEET AASHTO M 270M/M 270, GRADE 50 (50 KSI) STEEL
2. STRUCTURAL STEEL SHALL BE CHARPY V-NOTCH TESTED PER AASHTO T 243
3. STRUCTURAL STEEL SHALL BE GALVANIZED IN CONFORMANCE WITH AASHTO M 111M/M 111
4. STEEL HARDWARE SHALL MEET REQUIREMENETS OF ASTM A325, TYPE I (7/8" Ø BOLTS THROUGHOUT) THREADS OF BOLTS SHALL BE EXCLUDED FROM THE THICKNESS OF THE CONNECTED MATERIAL.
5. STEEL HARDWARE SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH AASHTO M 298, CLASS 50, TYPE 1
6. THREADED ROD SHALL MEET THE REQUIREMENTS OF ASTM A615, GRADE 75 (1-1/4" Ø THROUGHOUT)
7. THREADED ROD NUTS SHALL BE IN ACCORDANCE WITH ASTM A108
8. THREADED ROD WASHERS SHALL BE IN ACCORDANCE WITH ASTM F436
9. BEARING PLATES SHALL MEET THE REQUIREMENTS OF AASHTO M 270M/M 270, GRADE 36 (36 KSI)
10. THREADED ROD COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111M/M 111 (PRODUCTS) OR AASHTO M 232M/M 232 (HARDWARE)

KENWAY CORP.

REV	DESCRIPTION	DATE
1	ADDED MATERIAL AND ROLL DIRECTION NOTES	6/26/14

SEAL

DIMENSIONS ARE IN INCHES
TOLERANCES: +0, -1/16"
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

DRAWN BY	DATE
JM	5/29/14
CHKD BY	DATE
XX	X/X/XX

PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS

SHEET: GALVANIZED STEEL FABRICATION

WEIGHT: N/A

DESCRIPTION: FABRICATION

SCALE 1 : 6

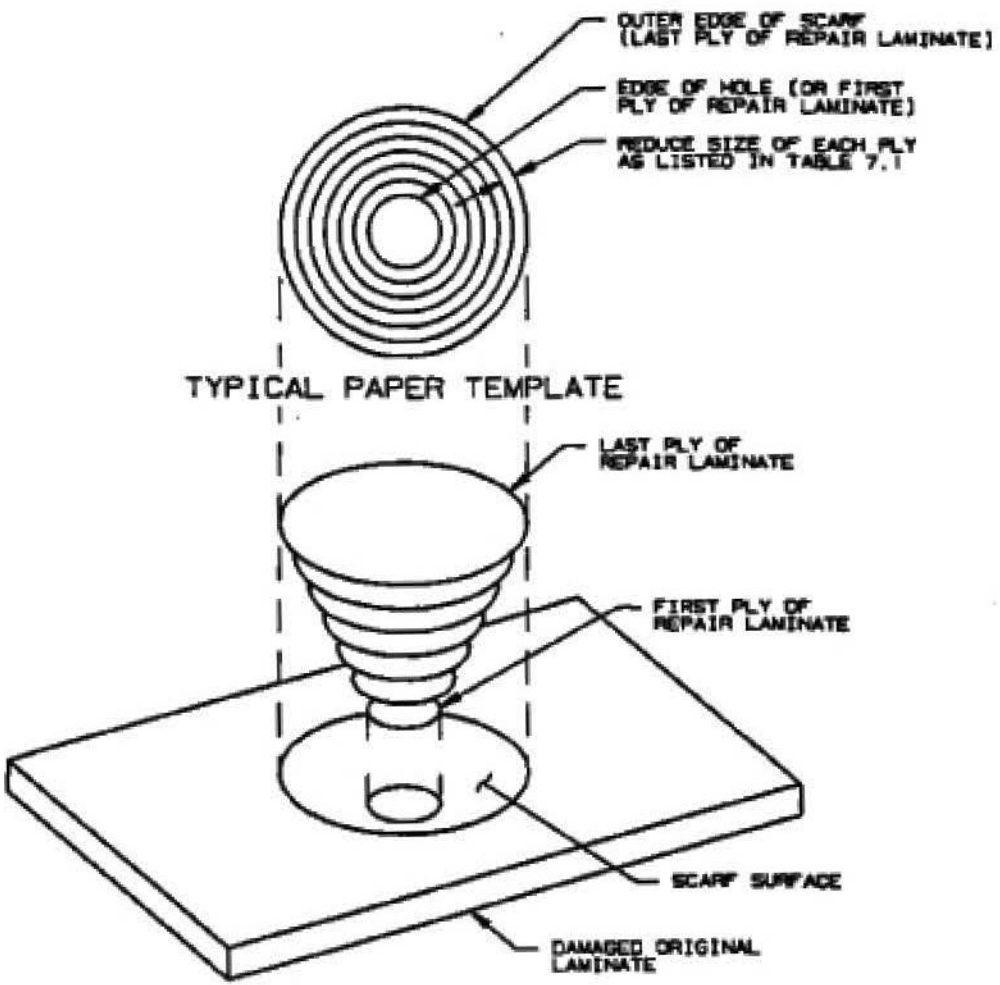
WO NO. 8420

CONTRACT NO. 9185

DWG NO. 8420-7

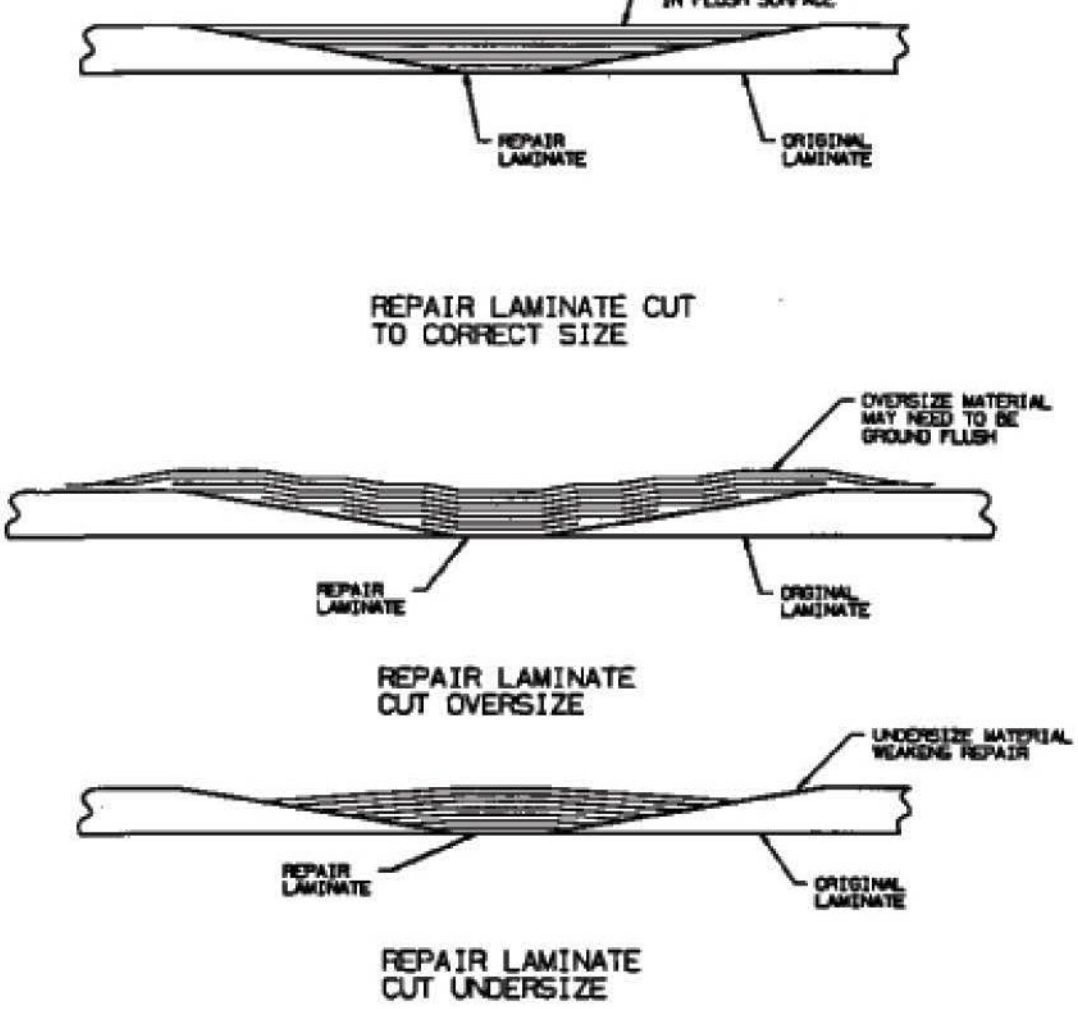
SHEET 1 OF 1

PONTOON	PART NO.
N/A	N/A



TEMPLATE FOR CUTTING REINFORCEMENT

FIGURE 6.1

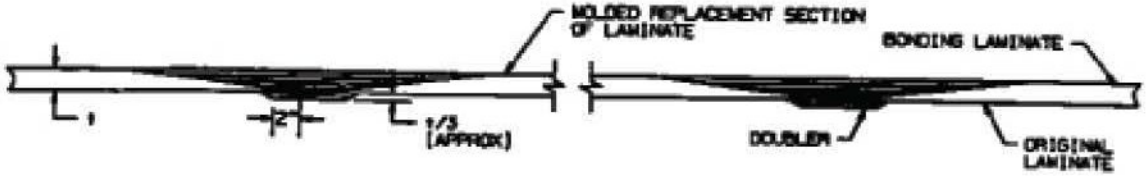


EFFECT OF OVERSIZE AND UNDERSIZE REPAIR LAMINATE REINFORCEMENT

FIGURE 6.2

DOUBLER WITH SCARF
ON MOLDED SURFACE

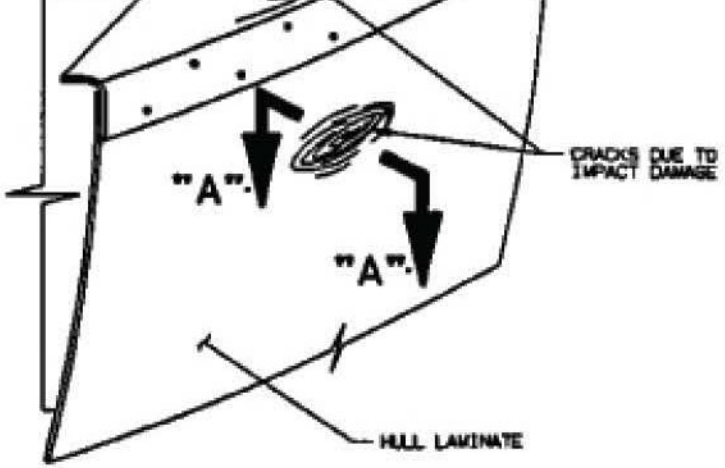
DOUBLER WITH SCARF ON
NON-MOLDED SURFACE



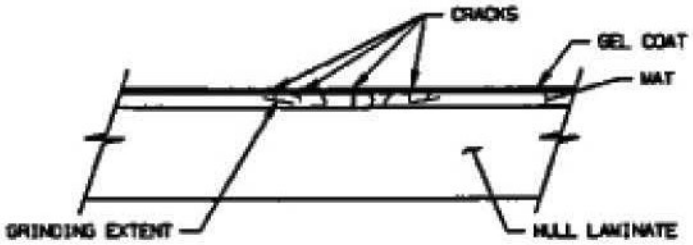
DOUBLER FOR MOLDED REPLACEMENT
SECTION OF LAMINATE OR LARGE
REPAIR AREA

TYPICAL DOUBLERS

FIGURE 6.3



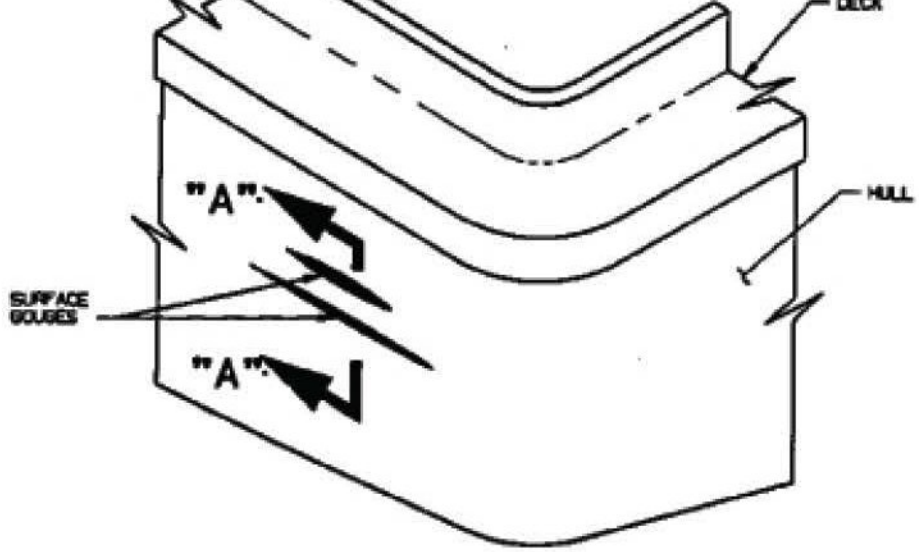
IMPACT DAMAGE SURFACE



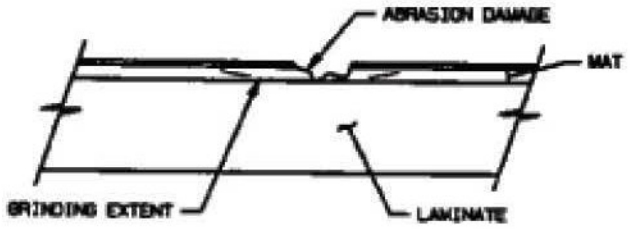
SECTION "A-A"
SECTION THROUGH DAMAGED AREA

SURFACE CRACKS AND CRAZING

FIGURE 6.4



TYPICAL SURFACE ABRASION DAMAGE



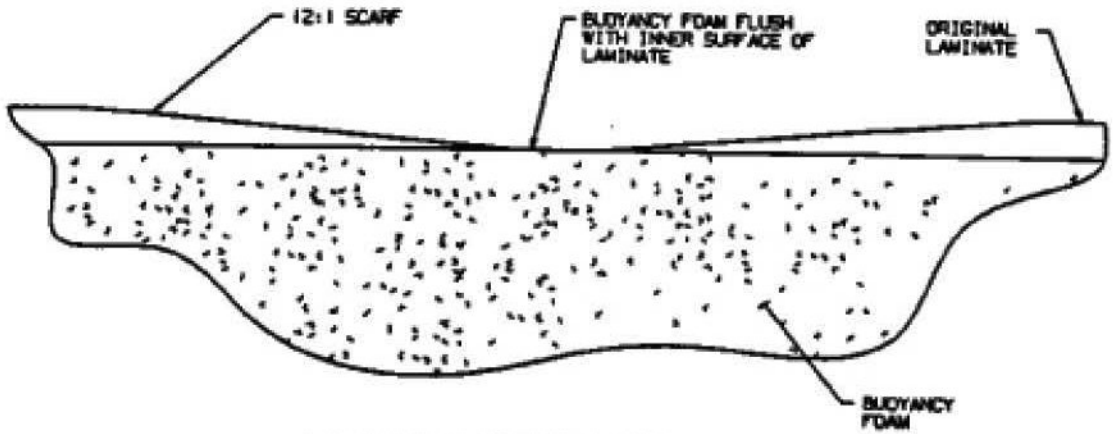
SECTION "A-A"
SECTION THROUGH ABRASION DAMAGE

SURFACE ABRASION DAMAGE

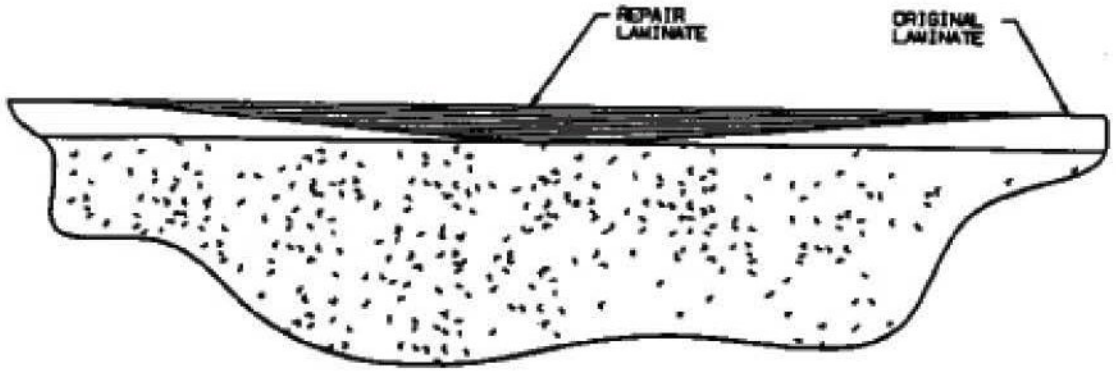
FIGURE 6.5

REPAIR OF DAMAGE TO ONE SIDE OF A LAMINATE

FIGURE 6.6



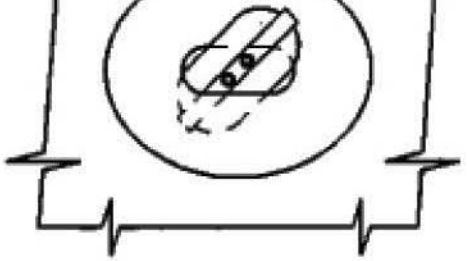
LAMINATE PREPARED FOR REPAIR



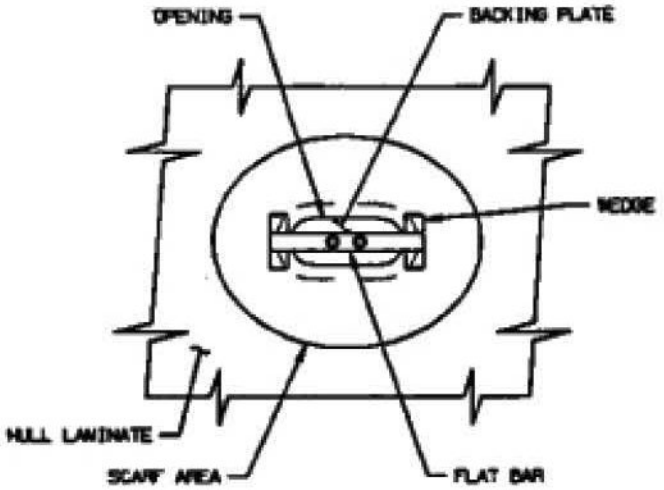
COMPLETED REPAIR

LAMINATING A REPAIR ON BUOYANCY FOAM

FIGURE 6.7



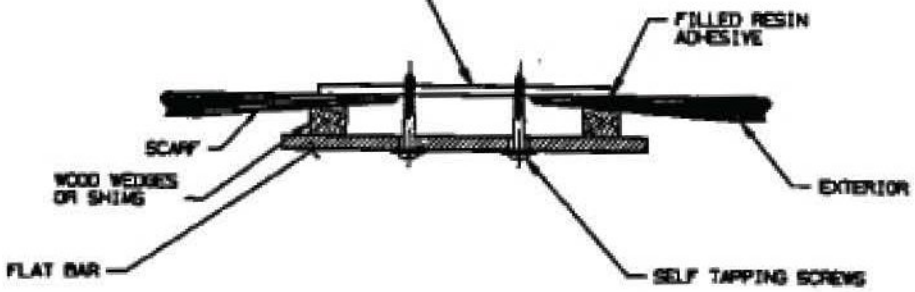
INSERTING BACKING PLATE



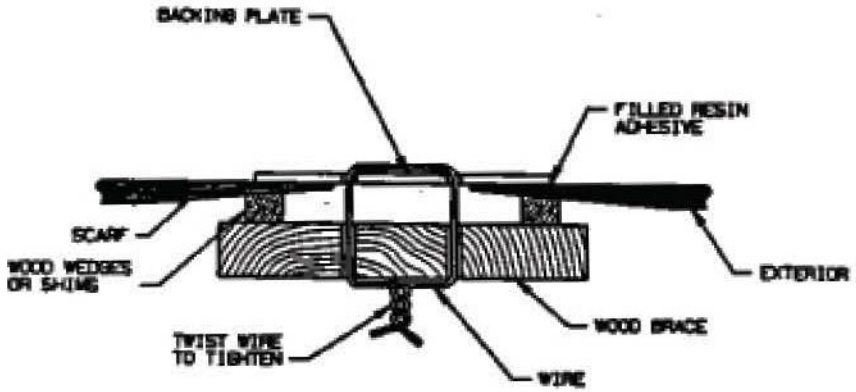
BACKING PLATE IN PLACE

BACKING PLATE FOR REPAIR WITH ACCESS FROM ONE SIDE

FIGURE 6.8 BACKING PLATE



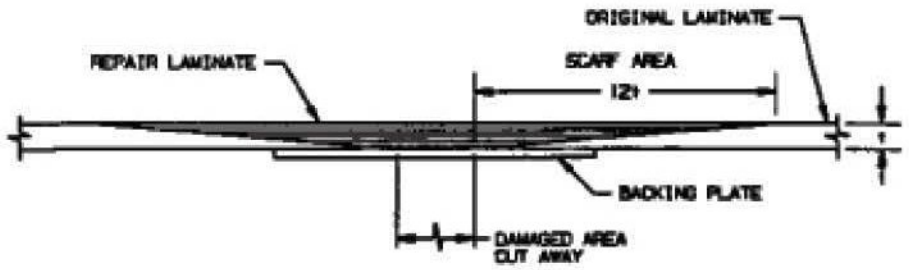
BACKING PLATE TEMPORARILY HELD IN PLACE WITH SELF-TAPPING SCREWS



BACKING PLATE TEMPORARILY HELD IN PLACE WITH TWISTED WIRE

SUGGESTED METHODS OF SECURING SACKING PLATE

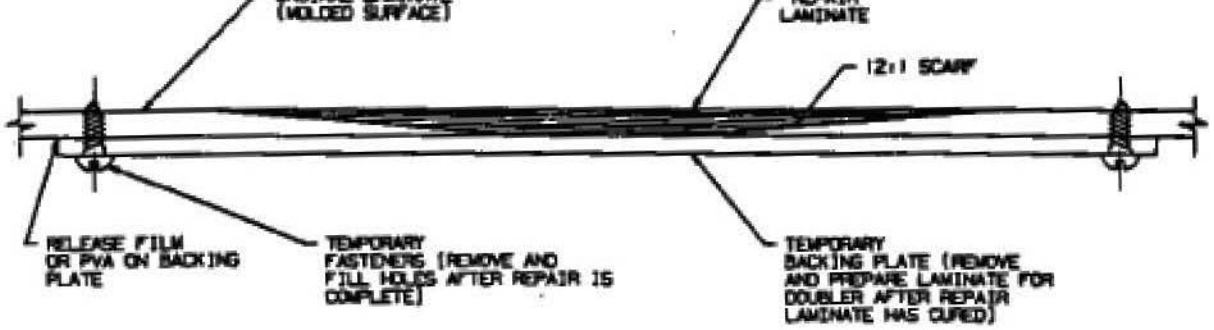
FIGURE 6.9



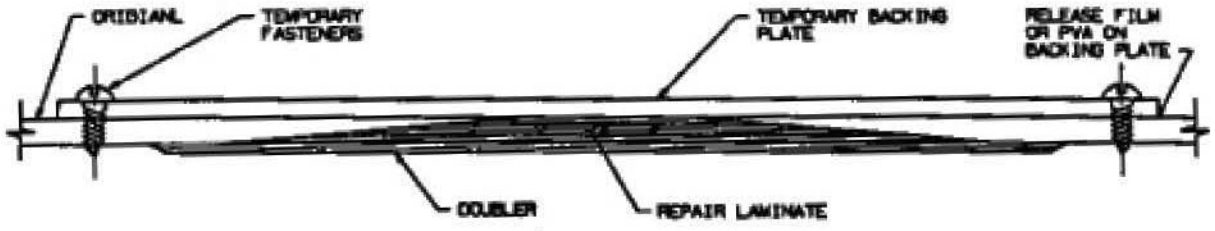
COMPLETED REPAIR OF DAMAGE
WITH ACCESS FROM ONE SIDE

SINGLE SKIN REPAIR WITH ACCESS FROM ONE SIDE

FIGURE 6.10



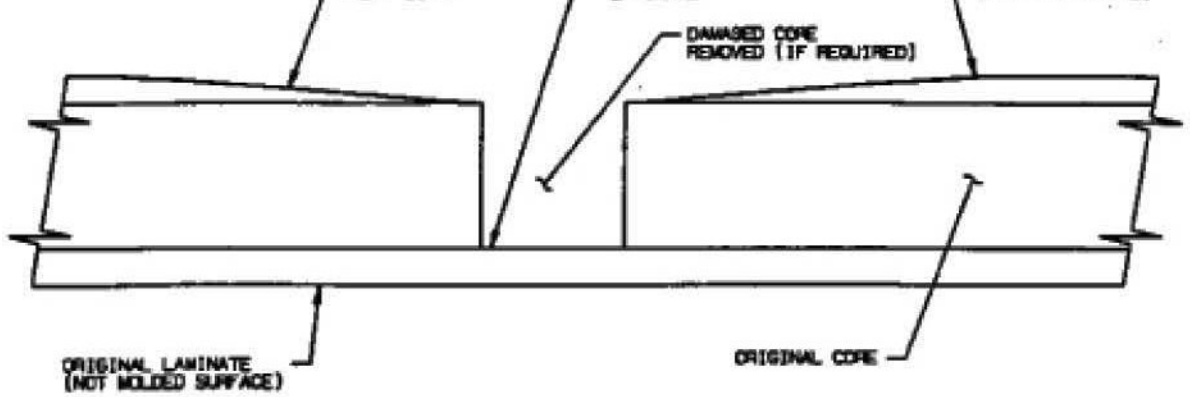
REPAIR WITH BACKING PLATE
ON NON-MOLDED SURFACE



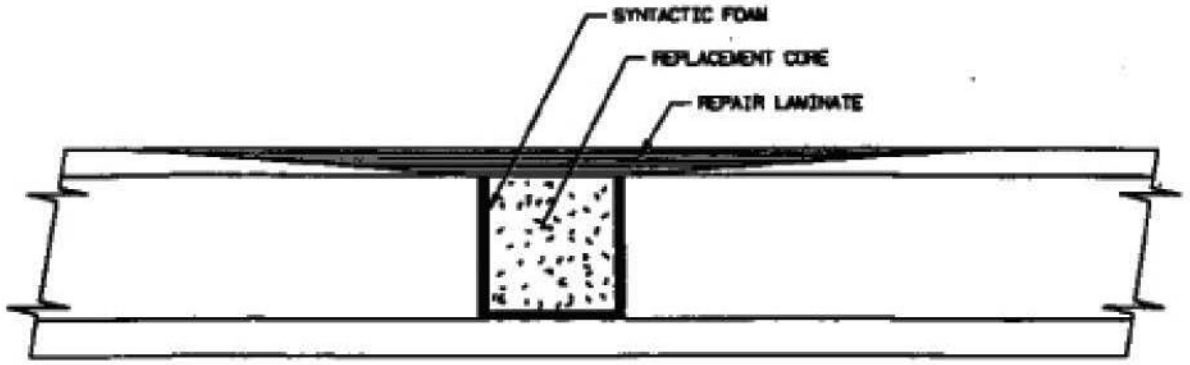
REPAIR WITH BACKING PLATE
ON MOLDED SURFACE

REPAIR OF SINGLE SKIN LAMINATE WITH ACCESS FROM BOTH SIDES

FIGURE 6.11



LAMINATE PREPARED
FOR REPAIR

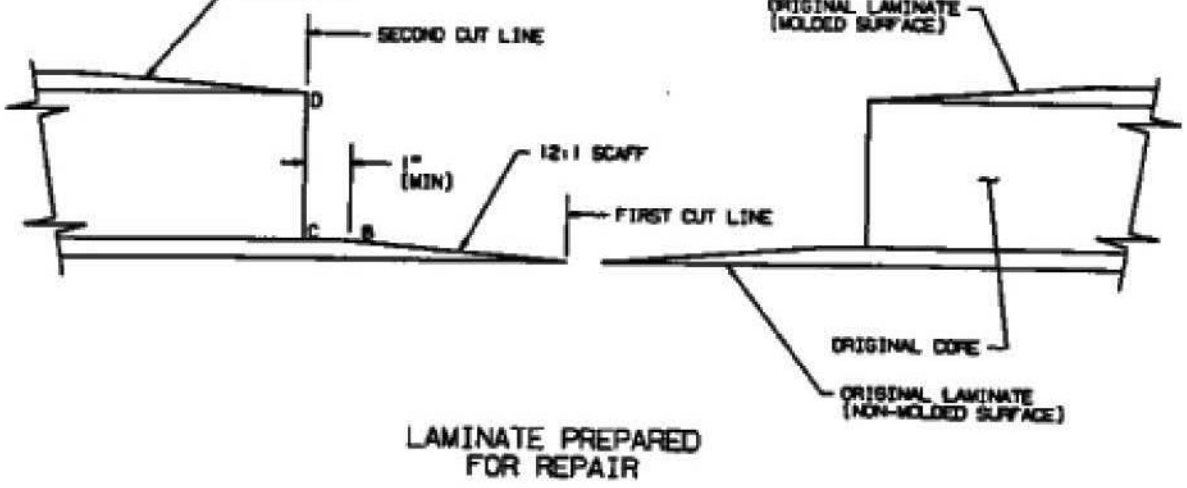


COMPLETED REPAIR

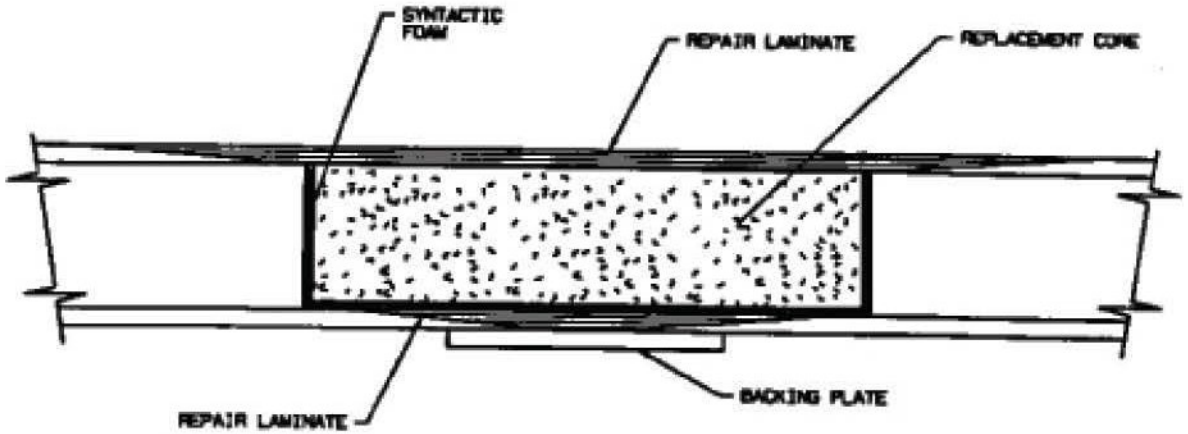
(NOTE: IF REPAIR IS TO NON MOLDED
SURFACE, ADD DOUBLER TO REPAIR
LAMINATE SIMILAR TO FIGURE 7.14)

REPAIR OF DAMAGE THROUGH ONE SKIN OF A CORED LAMINATE

FIGURE 6.12



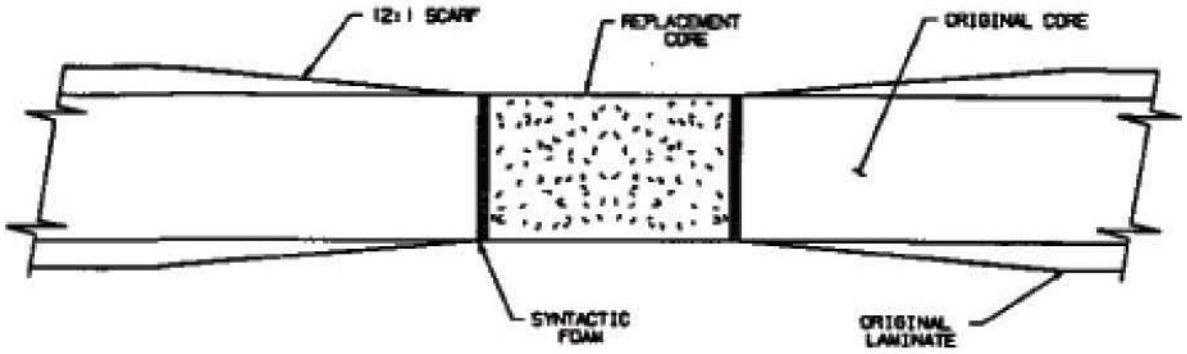
LAMINATE PREPARED FOR REPAIR



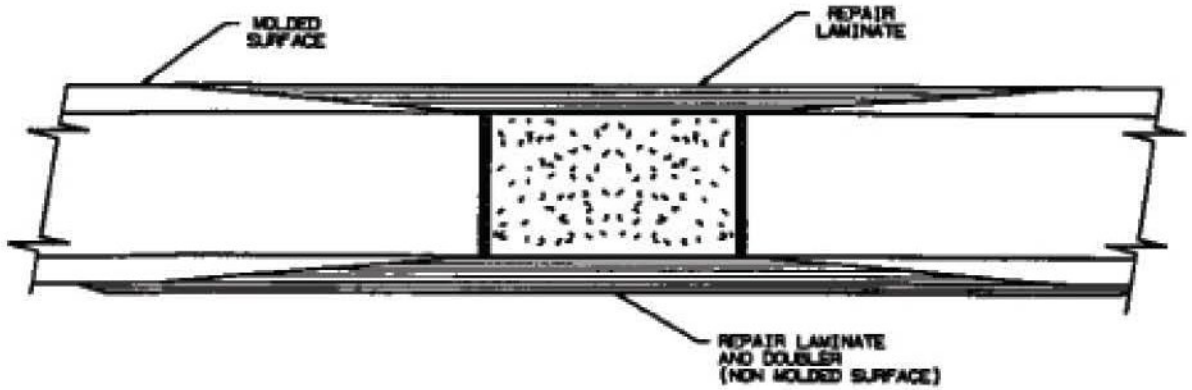
COMPLETED REPAIR

REPAIR OF DAMAGE THROUGH A CORED LAMINATE WITH ACCESS FROM ONE SIDE

FIGURE 6.13



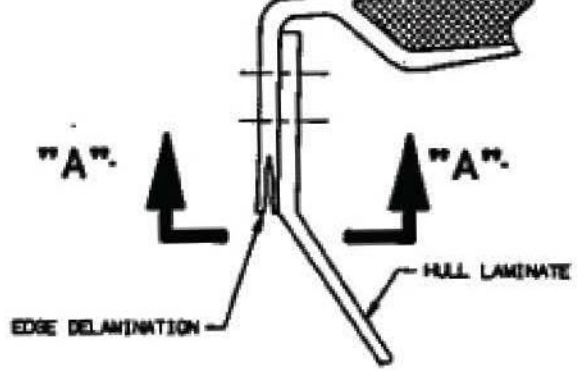
LAMINATE PREPARED FOR REPAIR



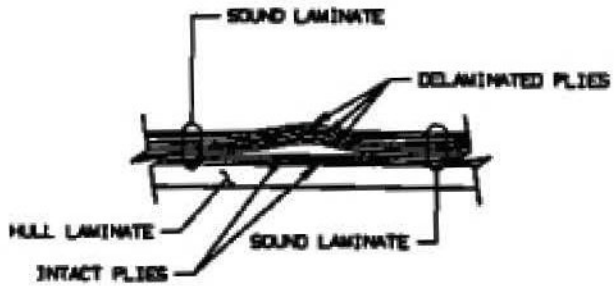
COMPLETED REPAIR

REPAIR OF DAMAGE THROUGH A CORED LAMINATE WITH ACCESS FROM BOTH SIDES

FIGURE 6.14



SECTION THROUGH
CRAFT AT SHEER

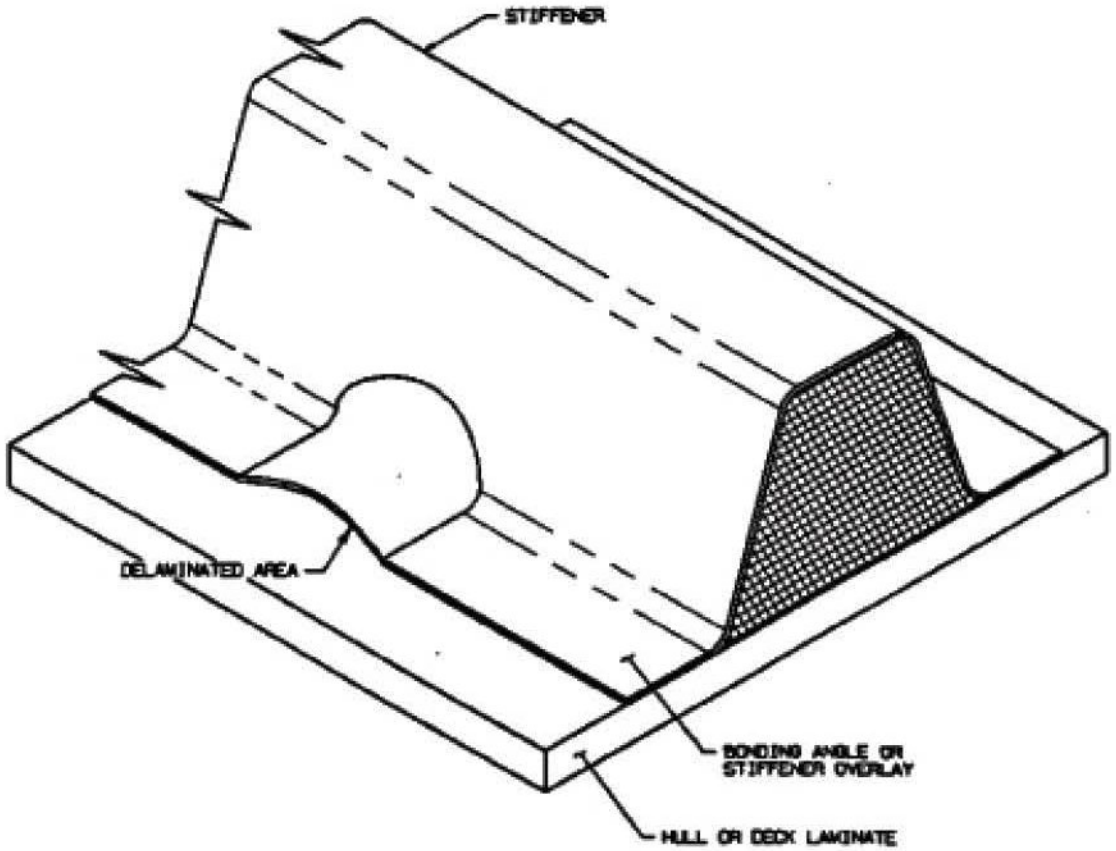


SECTION "A-A"

SECTION THROUGH EDGE DELAMINATION
OR BUBBLE DELAMINATION

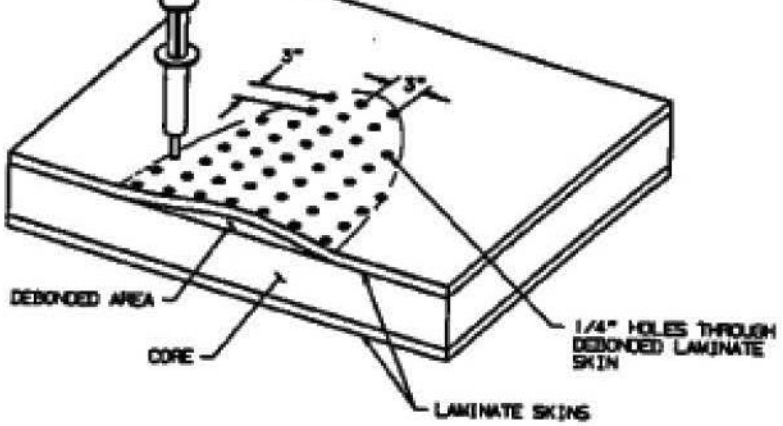
EDGE AND BUBBLE DELAMINATION

FIGURE 6. 15

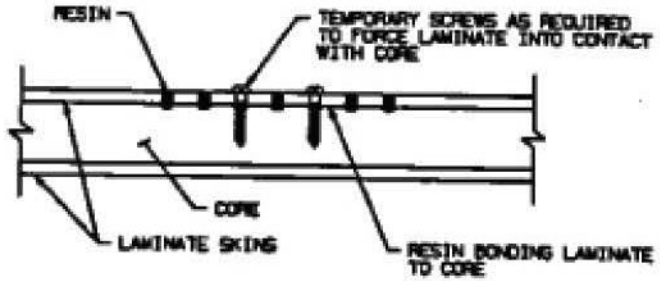


BONDING ANGLE AND STIFFENER DELAMINATION

FIGURE 6-16



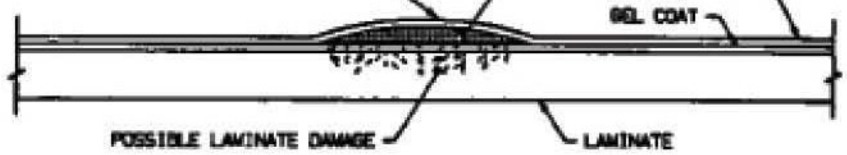
DEBONDED LAMINATE WITH HOLES DRILLED FOR RESIN INJECTION



DEBOND REPAIR TEMPORARILY SECURED WITH SELF TAPPING SCREWS

CORE DEBOND REPAIR

FIGURE 6.17



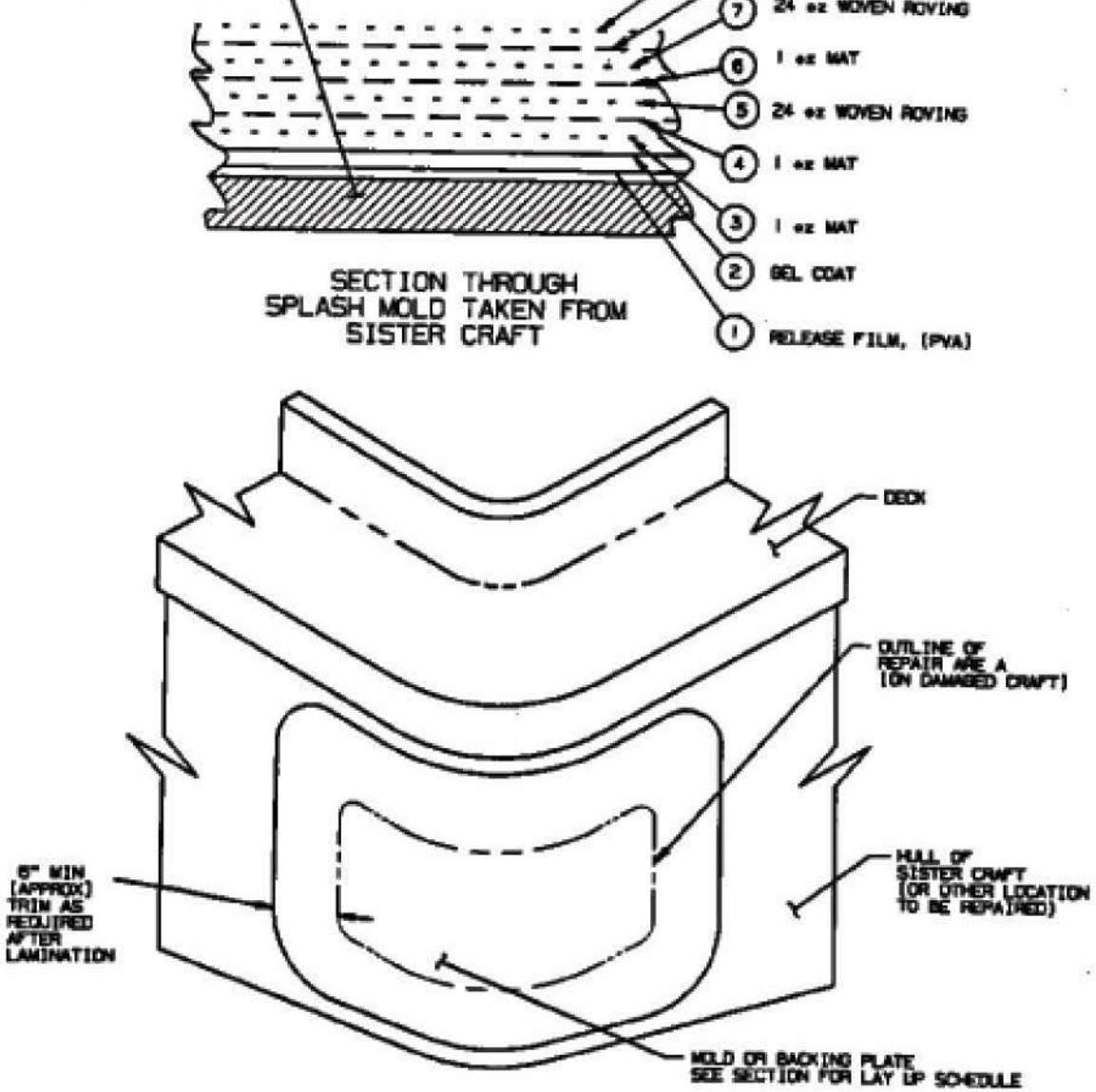
TYPICAL BLISTER

BLISTER PREPARED FOR REPAIR
(NO LAMINATE DAMAGE)

BLISTER PREPARED FOR REPAIR
(LAMINATE DAMAGED)

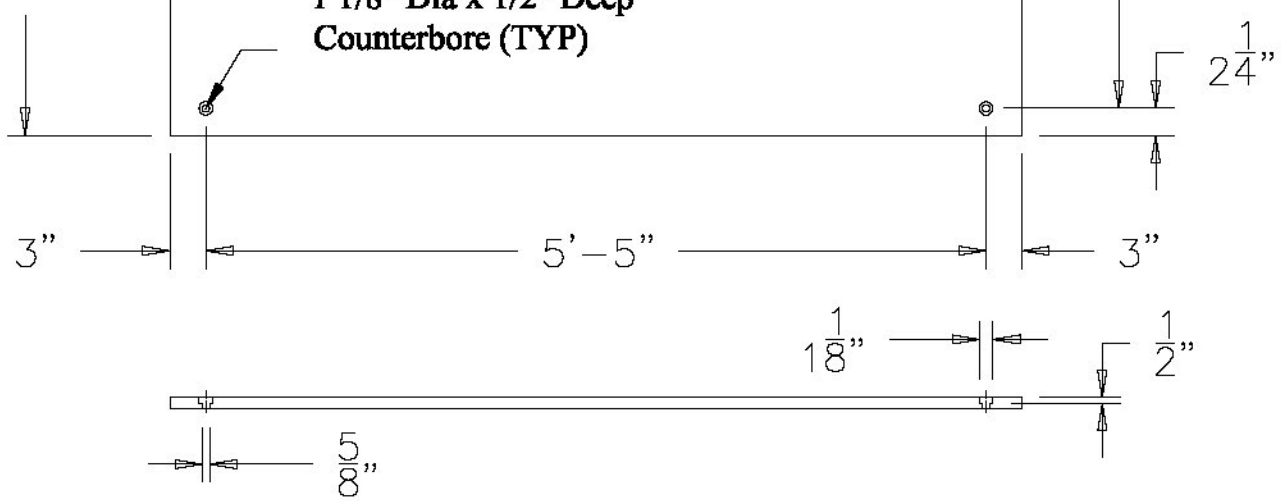
REPAIR OF BLISTERS

FIGURE 6.18



LAMINATING MOLD OR BACKING PLATE ON SISTER CRAFT

FIGURE 6.19



(8) - 3P1 STEEL COVER PLATE

T.Y. LIN INTERNATIONAL

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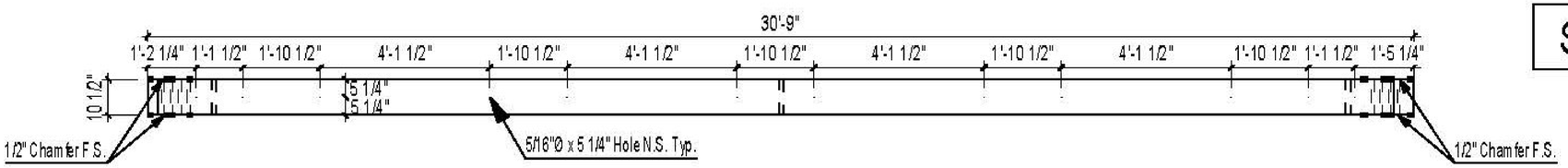
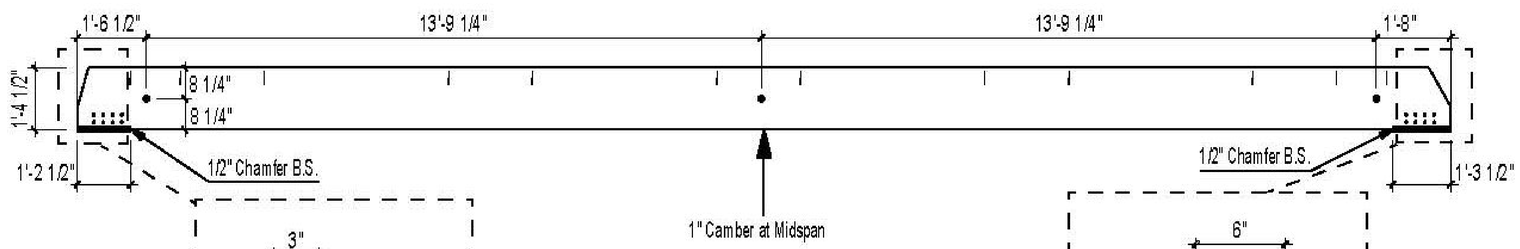
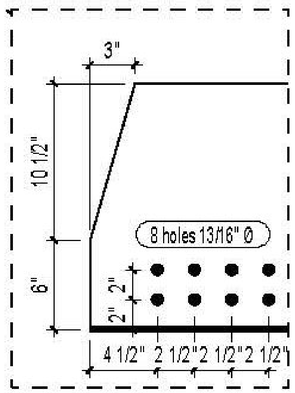
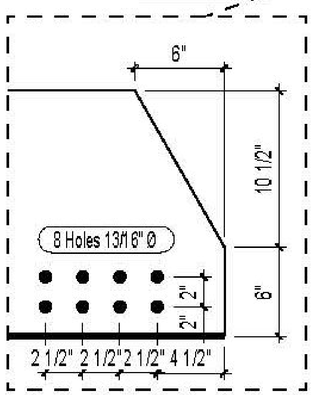
JOSH OLUND — REVIEWER
07/10/2014 — DATE

1	5-30-2014
0	5-5-2014
REV NO.	DATE
HOLES AS NOTED	
MATERIAL: AASHTO M	









Vermont Agency of Transportation

RECEIVED

ON: July 18, 2014

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 07/25/2014

Grade	Slope of grain	#of Lams
Top: 302-26	1:16	1
N1D	1:14	2
N1D	1:8	1
N1M	1:8	4
N1D	1:8	1
N1D	1:14	2
Bottom: 302-26	1:16	1

Lam splices are random

Prod: B1

STEEL ASSEMBLY BY OTHERS

T.Y. LIN INTERNATIONAL

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JOSH OLUND — REVIEWER — 07/22/2014 — DATE

FOR APPROVAL
NOT FOR CONSTRUCTION

LAMINATED TIMBER SPECIFICATION	
SPECIES:	SOUTHERN PINE
STRESS GRADE:	26F-1.9E
CAMBER:	1"
LAMINATIONS:	STANDARD 1-3/8"
AS PER ANSI/AITC A 190.1 IN ACCORDANCE W/ AITC 117 - CERTIFIED APA	
APPEARENCE GRADE:	INDUSTRIAL
MOISTURE CONTENT OF LAMINATIONS:	MAXIMUM 16%
ADHESIVE:	COMPLYING TO AITC A 190.1 WET-USE CONFROMING TO ASTM D 2559
LAMINATION LAYUP:	COMPLYING TO AITC 117 ANNEX B TABLE B1

Glue Laminated Timber Beams 2-7 PRINTED: 17.07.2014

HOLE TYP. U.N.O. 1 1/2" Ø

Qty: 12

Scale: 1/4" = 1'0"

Date: 05-02-2014

Goodfellow inc.

225, Goodfellow Street
DELSON, QUEBEC, J5B 1V5
Tel.: 450-635-6511 Fax : 450-635-8304
www.goodfellowinc.com

Project : Floating Bridge (Brookfield)
No.: 1314-150-U // G-28107
Customer: Wright Construction Co. Inc.

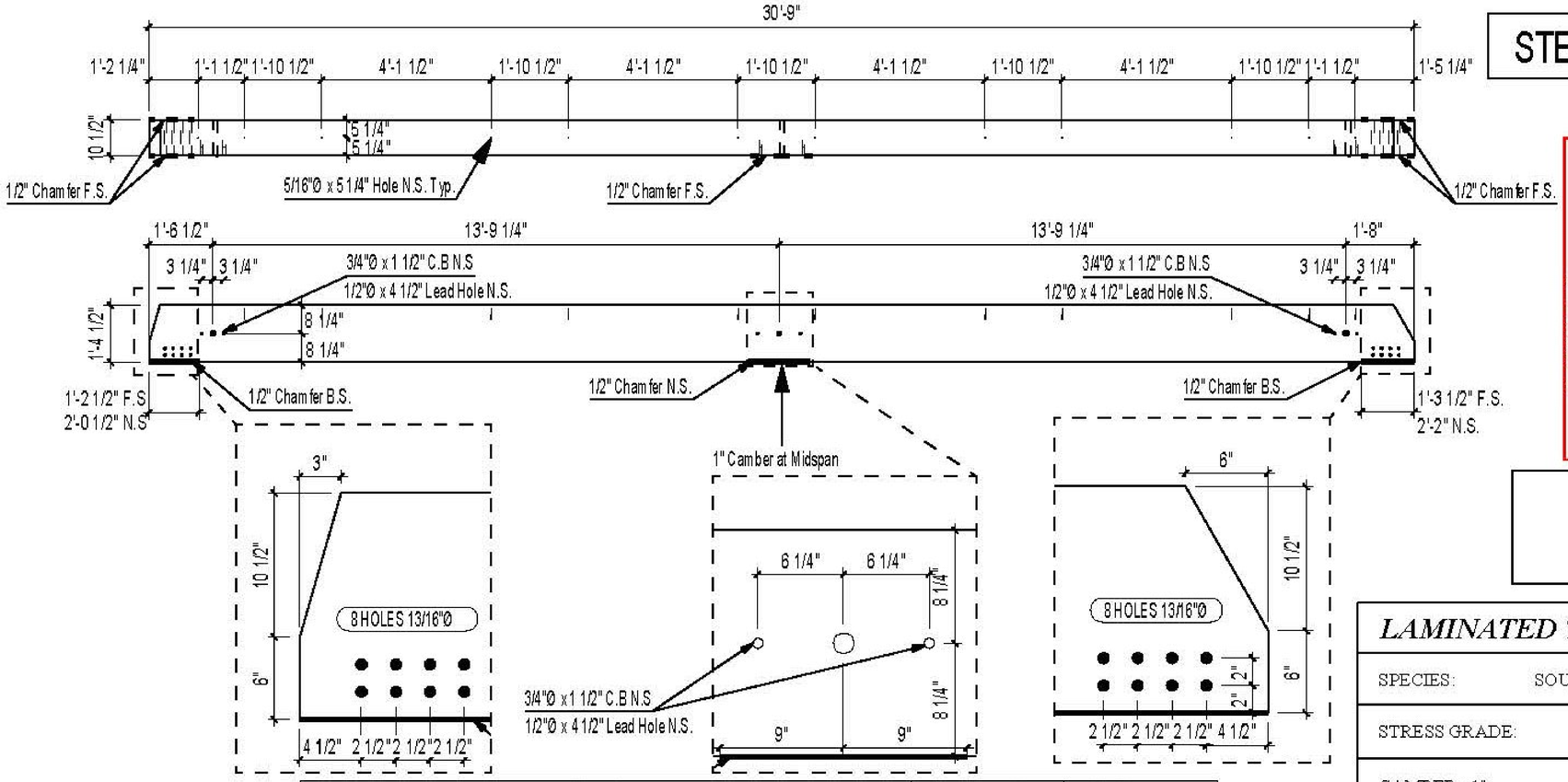
FABRICATION __/__/____

DATE:	REVISION
July 17	Approval #3
June 25	Added Holes & Notes

Stress Grade: 26F-1.9E
App. Grade: Industrial
Treatment: Preservative Type II Penta Type A 0.60# AWPA Use Category UC4B Commodity 6F

X-section: 10 1/2" / 16-1/2"
Length: 30'-9"
Material: Southern Pine

By: J.R.
Checked: M.R.



STEEL ASSEMBLY BY OTHERS

T.Y. LIN INTERNATIONAL

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APPROVED AS NOTED
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JOSH OLUND — REVIEWER — 07/22/2014 — DATE

FOR APPROVAL
NOT FOR CONSTRUCTION

Vermont Agency of Transportation
RECEIVED
ON: July 18, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 07/25/2014

Grade	Slope of grain	#of Lams
Top: 302-26	1:16	1
N1D	1:14	2
N1D	1:8	1
N1M	1:8	4
N1D	1:8	1
N1D	1:14	2
Bottom: 302-26	1:16	1

Lam splices are random

LAMINATED TIMBER SPECIFICATION

SPECIES:	SOUTHERN PINE
STRESS GRADE:	26F-1.9E
CAMBER:	1"
LAMINATIONS:	STANDARD 1-3/8"
	AS PER ANSI/AITC A 190.1 IN ACCORDANCE W/ AITC 117 - CERTIFIED APA
APPEARENCE GRADE:	INDUSTRIAL
MOISTURE CONTENT OF LAMINATIONS:	MAXIMUM 16%
ADHESIVE:	COMPLYING TO AITC A 190.1 WET-USE CONFROMING TO ASTM D 2559
LAMINATION LAY UP:	COMPLYING TO AITC 117 ANNEX B TABLE B1

Prod: B2

Glue Laminated Timber Beam 8

PRINTED: 17.07.2014

HOLE TYP. U.N.O. 1 1/2" Ø

Qty: 2

Scale: 1/4" = 1'0"

Date: 05-02-2014

Goodfellow inc.

225, Goodfellow Street
DELSON, QUEBEC, J5B 1V5
Tel.: 450-635-6511 Fax : 450-635-8304
www.goodfellowinc.com

Project: Floating Bridge (Brookfield)
No.: 1314-150-U // G-28107
Customer: Wright Construction Co. Inc.

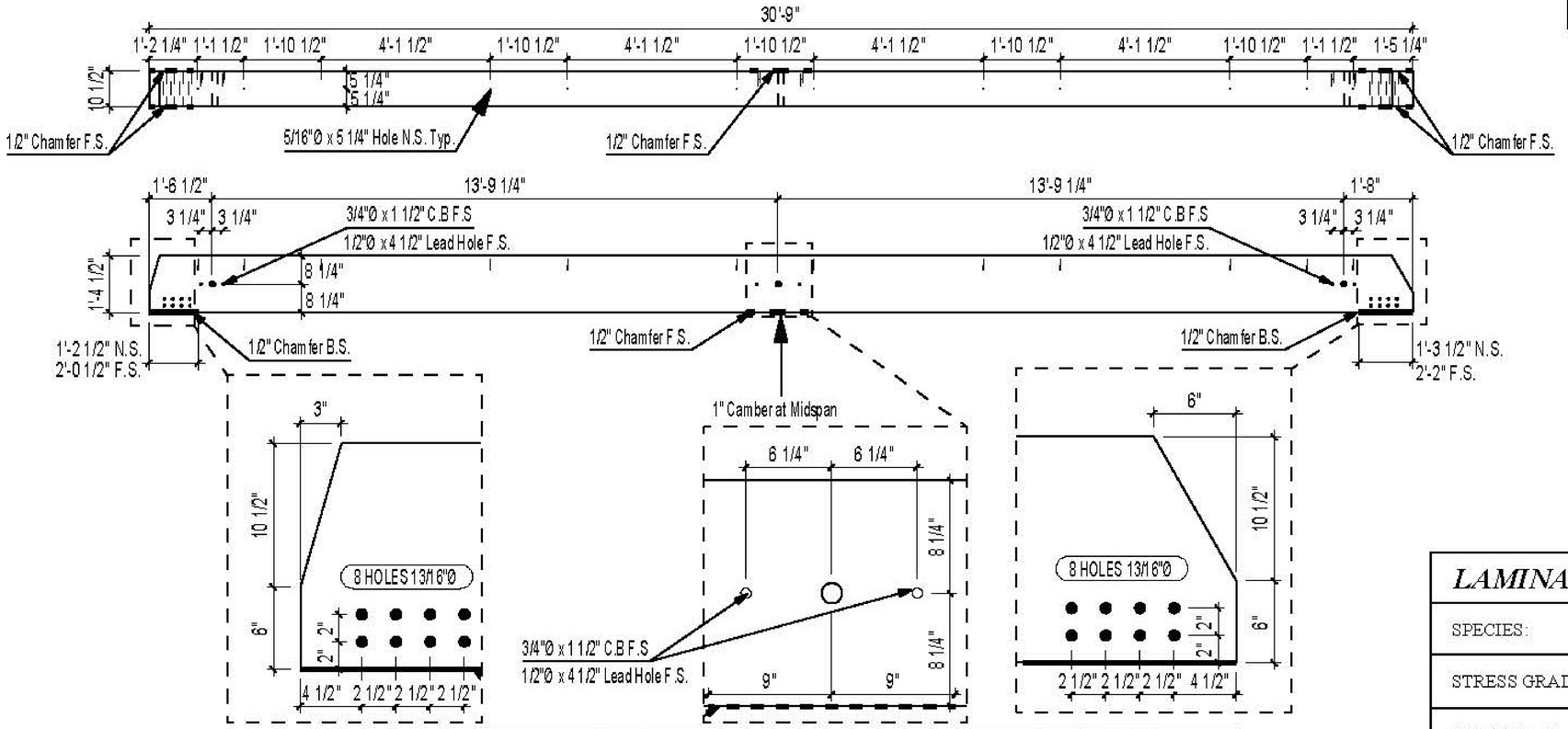
FABRICATION ___/___/_____

DATE:	REVISION
July 17	Approval #3
June 25	Added Holes & Notes

Stress Grade: 26F-1.9E
App. Grade: Industrial
Treatment: Preservative Type II Penta Type A 0.60# AWPA Use Category UC4B Commodity 6F

X-section: 10 1/2" / 16-1/2"
Length: 30'-9"
Material: Southern Pine

By: J.R.
Checked: M.R.



STEEL ASSEMBLY BY OTHERS

T.Y. LIN INTERNATIONAL

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JOSH OLUND — REVIEWER — 07/22/2014 — DATE

FOR APPROVAL
NOT FOR CONSTRUCTION

LAMINATED TIMBER SPECIFICATION	
SPECIES:	SOUTHERN PINE
STRESS GRADE:	26F-1.9E
CAMBER:	1"
LAMINATIONS:	STANDARD 1-3/8"
AS PER ANSI/AITC A 190.1 IN ACCORDANCE W/ AITC 117 - CERTIFIED APA	
APPEARENCE GRADE:	INDUSTRIAL
MOISTURE CONTENT OF LAMINATIONS:	MAXIMUM 16%
ADHESIVE:	COMPLYING TO AITC A 190.1 WET-USE CONFROMING TO ASTM D 2559
LAMINATION LAYUP:	COMPLYING TO AITC 117 ANNEX B TABLE B1

Vermont Agency of Transportation
RECEIVED
ON: July 18, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 07/25/2014

Grade	Slope of grain	#of Lams
Top: 302-26	1:16	1
N1D	1:14	2
N1D	1:8	1
N1M	1:8	4
N1D	1:8	1
N1D	1:14	2
Bottom: 302-26	1:16	1

Lam splices are random

Prod: B3

Glue Laminated Timber Beam 1

PRINTED: 17.07.2014

HOLE TYP. U.N.O. 1 1/2" Ø

Qty: 2

Scale: 1/4" = 1'0"

Date: 05-02-2014

Goodfellow inc.

Project: Floating Bridge (Brookfield)
No.: 1314-150-U // G-28107
Customer: Wright Construction Co. Inc.

FABRICATION __/__/____

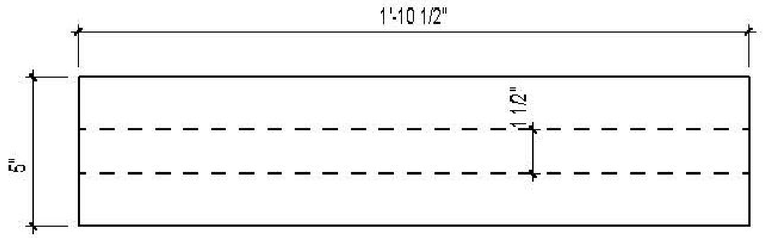
DATE:	REVISION
July 17	Approval #3
June 25	Added Holes & Notes

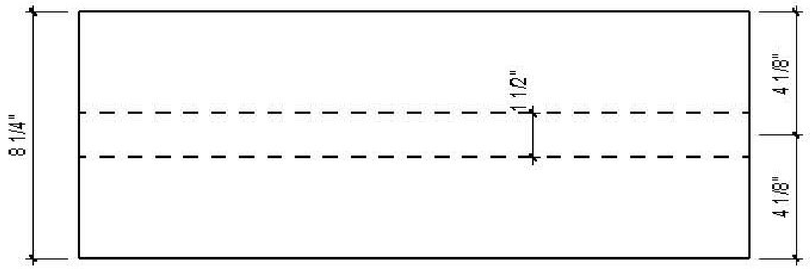
Stress Grade: 26F-1.9E
App. Grade: Industrial
Treatment: Preservative Type II Penta Type A 0.60# AWPA Use Category UC4B Commodity 6F

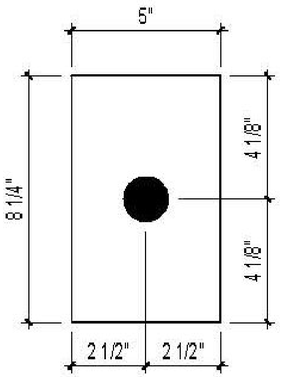
X-section: 10 1/2" / 16-1/2"
Length: 30'-9"
Material: Southern Pine

By: J.R.
Checked: M.R.

225, Goodfellow Street
DELSON, QUEBEC, J5B 1V5
Tel.: 450-635-6511 Fax : 450-635-8304
www.goodfellowinc.com







Vermont Agency of Transportation

RECEIVED

ON: July 18, 2014

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 07/25/2014

STEEL ASSEMBLY BY OTHERS

T.Y. LIN INTERNATIONAL

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JOSH OLUND — REVIEWER — 07/22/2014 — DATE

FOR APPROVAL
NOT FOR CONSTRUCTION

24F-V4 SP

Grade	Slope of grain	#of Lams
Top: N1M	1:14	1
N1M	-	1
N2M	-	1
N1D	-	2
Bottom: 302-20	1:14	1

Lam splices are random

LAMINATED TIMBER SPECIFICATION	
SPECIES:	SOUTHERN PINE
STRESS GRADE:	24F-1.8E
CAMBER:	1"
LAMINATIONS:	STANDARD 1-3/8"
AS PER ANSI/AITC A 190.1 IN ACCORDANCE W/ AITC 117 - CERTIFIED APA	
APPEARENCE GRADE:	INDUSTRIAL
MOISTURE CONTENT OF LAMINATIONS:	MAXIMUM 16%
ADHESIVE:	COMPLYING TO AITC A 190.1 WET-USE CONFROMING TO ASTM D 2559
LAMINATION LAYUP:	COMPLYING TO AITC 117 ANNEX B TABLE B1

Prod: B4

Glue Laminated Timber Diaphragm — PRINTED: 17.07.2014

HOLE TYP. U.N.O. 1 1/2" Ø

Qty: 42

Scale: 2" = 1'0"

Date: 05-02-2014

Goodfellow inc.

225, Goodfellow Street
DELSON, QUEBEC, J5B 1V5
Tel.: 450-635-6511 Fax : 450-635-8304
www.goodfellowinc.com

Project : Floating Bridge (Brookfield)
No.: 1314-150-U // G-28107
Customer: Wright Construction Co. Inc.

FABRICATION __/__/____

DATE:	REVISION
July 17	Approval #3
June 25	Added Notes

Stress Grade: 24F-1.8E
App. Grade: Industrial
Treatment: Preservative Type II Penta Type A 0.60# AWPA Use Category UC4B Commodity 6F

X-section: 5" / 8 1/4"
Length: 1'-10 1/2"
Material: Southern Pine

By: J.R.
Checked: M.R.

GENERAL NOTES

1.0 GENERAL

1.1 THE CONTRACTOR MUST VERIFY ALL DIMENSIONS PRIOR TO FABRICATION TO ENSURE ACCURACY OF THE EXPANSION JOINT.

DIMENSIONS VERIFIED:_____

⚠ 1.2 ALL WORK SHALL COMPLY WITH THE VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONSAND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, 3rd EDITION AND ITS LATEST REVISIONS, EXCEPT AS NOTED HEREIN.

1.3 ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

1.4 IN CASE OF DIFFERENCE ON THE CONTRACT PLANS BETWEEN SCALE DIMENSIONS AND FIGURES, THE FIGURES SHALL BE FOLLOWED.

2.0 STANDARD SPECIFICATION CRITERIA

3.0 SPECIAL PROVISION CRITERIA

4.0 MATERIALS

4.1 ALL STRUCTURAL AND PERMANENT MATERIALS SHALL BE OF DOMESTIC ORIGIN, AND MATERIAL CERTIFICATION STATING ALL SUCH MATERIALS ARE "MELTED AND MANUFACTURED" IN THE UNITED STATES OF AMERICA SHALL BE SUBMITTED.

⚠ 4.2 STEEL BARS, PLATES AND SHAPES SHALL BE STAINLESS STEEL CONFORMING TO ASTM A240/A. 240M, OR 312, WITH MINIMUM YIELD OF 30ksi AND MINIMUM TENSILE OF 75ksi.

⚠ 4.3 THE CONCRETE ANCHOR STUDS SHALL BE STAINLESS STEEL IN ACCORDANCE WITH ASTM A-108.

⚠ 4.4 HARDWARE SHALL BE STAINLESS STEEL CONFORMING TO ASTM F593 WITH MINIMUM YIELD OF 43ksi AND MINIMUM TENSILE OF 75ksi.

5.0 INSPECTION REQUIREMENTS

5.1 QUALITY CONTROL INSPECTION

5.1.1 DURING FABRICATION OF THE EXPANSION JOINT, WATSON BOWMAN ACME SHALL PROVIDE FULL TIME QUALITY CONTROL INSPECTION TO INSURE THAT THE MATERIALS AND WORKMANSHIP MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE CONTRACT.

6.0 FABRICATION

6.1 FABRICATION SHALL BE IN ACCORDANCE WITH WATSON BOWMAN ACME'S QUALITY CONTROL MANUAL AND MANUFACTURING TOLERANCE.

6.2 ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.6 WELDING SPECIFICATIONS.

⚠ 6.3 ALL WELDING SHALL BE EXECUTED USING FCAW PROCESSES.

6.4 STUDS SHALL BE INSPECTED VISUALLY AND SHALL BE GIVEN A LIGHT BLOW WITH A HAMMER. ANY STUD WHICH DOES NOT HAVE A COMPLETE END WELD OR DOES NOT EMIT A RINGING SOUND WHEN STRUCK WITH A LIGHT BLOW WITH A HAMMER SHALL BE REPLACED.

6.5 STUDS SHALL NOT BE LOCATED MORE THAN 1" FROM THE LOCATION SHOWN ON THESE SHOP DRAWINGS.

6.6 STUDS MAY BE BENT TO AN ANGLE OF 30° TO AVOID INTERFERENCE WITH DECK REINFORCEMENT, OR TO PROVIDE PROPER CONCRETE COVER.

6.7 AFTER FABRICATION, BUT BEFORE SHIPPING, STRAIGHTEN STEEL SHAPES SO THAT THEY ARE FREE FROM WARP, TWIST AND SWEEP.

⚠ 6.8 FOR PAYMENT PURPOSES THE LENGTH OF THE JOINT PAID FOR WILL BE THE NUMBER OF LINEAR FEET OF JOINT SYSTEM INSTALLED, MEASURED HORIZONTALLY ALONG THE CENTERLINE OF THE JOINT SYSTEM BETWEEN THE OUTER LIMITS OF THE BRIDGE FASCIA UNLESS OTHERWISE SHOWN ON THE PLANS.

7.0 COATINGS

7.1 THE RIDING SURFACES OF THE STAINLESS STEEL SHALL BE COATED WITH A SLIP RESISTANT MATERIAL. HIGH PURITY NICKEL CHROME WIRE (Ni20cR) SHALL BE SPRAY APPLIED. THE ALLOY SHALL HAVE A ROCKWELL HARDNESS SCALE OF HRB 90. SUPPLIER SHALL BE HUBBELL GALVANIZING INC. PRODUCT SHALL BE "GALVAGRIT" FINE.

Vermont Agency of Transportation
RECEIVED
ON: June 20, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 06/26/2014

T.Y. LIN INTERNATIONAL

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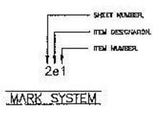
JOSH OLUND — REVIEWER — 06/25/2014 — DATE



MARK SYSTEM

STATE: VERMONT
COUNTY: ORANGE
PROJECT NO.: BRF FLBR(2)
REFERENCE NO.: XXXXXXXXX
DISTRICT: XXX ROUTE: 65
WBA PRODUCT NO.: FMB154768AA-AF

DRAWING ACTION:
SUBMITTED FOR APPROVAL
DATE: 6/5/14

NO.	DESCRIPTION	MADE	DATE
⚠	REVISED PER REVIEWERS COMMENTS	TEB	6/6/14

Watson Bowman Acme
Watson Bowman Acme Corp.
95 Pineview Drive
Amherst, NY 14228
phone: (716) 691-7556
fax: (716) 691-5259
www.wbacorp.com

BASF The Chemical Company

PROJECT:
VERMONT RTE 65
REPLACEMENT OF FLOATING BRIDGE
WABO EMB HINGED SLIDING PLATE JOINT DETAILS

DRAWN BY: TEB	DATE: 6/4/14
CHECKED BY: TPL	DATE: 6/6/14
SCALE: NONE	WBA JOB NO.: 154768
SHEET NO.: 1 OF 6	DRAWING NO.: D-31790

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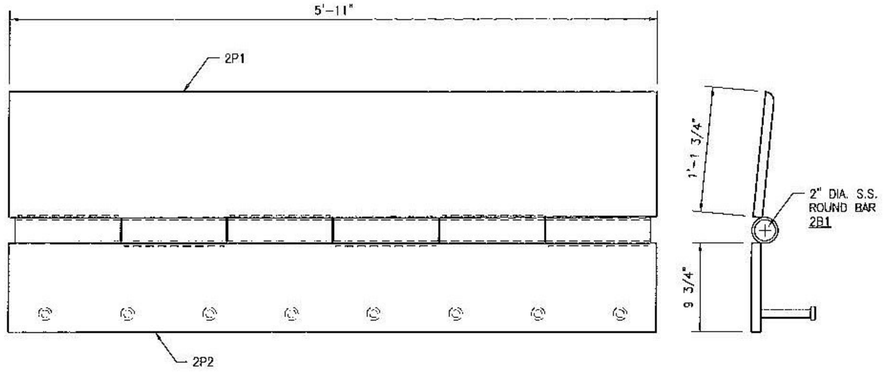
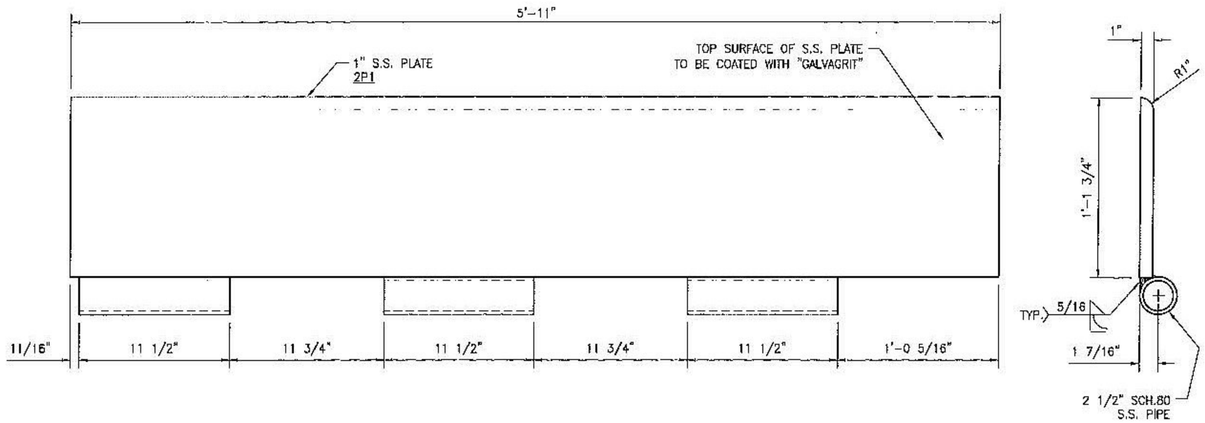
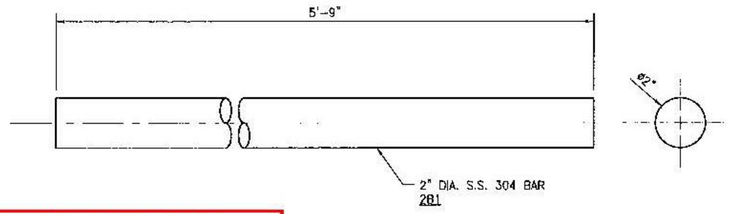
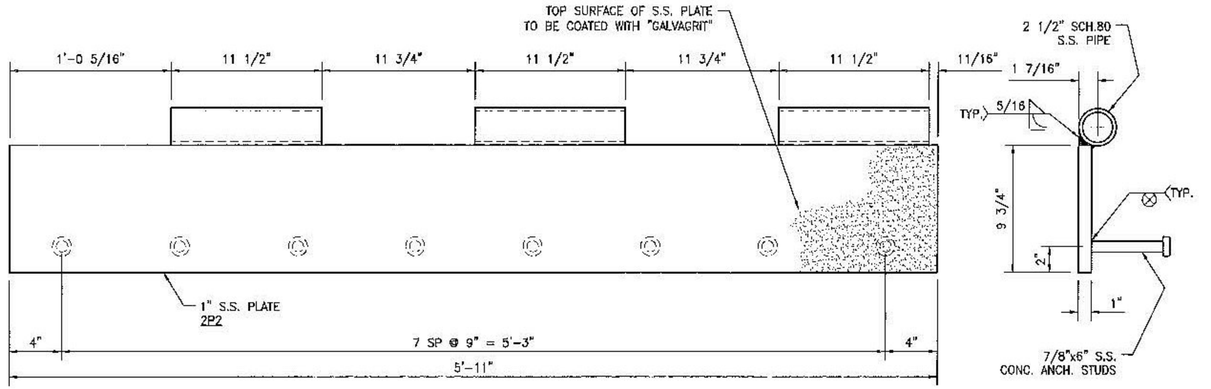


(4) – EMB154768AA

ABUTMENT / RAMP – ROADWAY ASSEMBLY







T.Y. LIN INTERNATIONAL

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___ APPROVED AS NOTED
___ REVISE AND RESUBMIT

SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.

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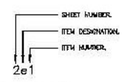
JOSH OLUND — REVIEWER — 06/25/2014 — DATE

Vermont Agency of Transportation
RECEIVED
ON: June 20, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 06/26/2014

EMB154768AA QTY: 4 REQD. **STRUCTUREQ BILL OF MATERIALS**

LV	PART NO.	QTY.	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AA	1.00	EA	EMB; ABUT/RAMP - ROADWAY ASSY.; 5.92"	UNCOATED	
					SHIPPING LENGTH = 6'±	
				GALVAGRIT (FINE) COATING ON TOP SURFACES OF 1" PLATES	APPROX. SHIPPING WEIGHT = 650 lb	
1	NTS154768A	520.00	LB	STNLS STL 1" TYPE 304 NO FIN	2P1, 2P2	
1	NTS154768B	6.00	FT	2 1/2" SCH.80 S.S. PIPE (A)		
1	NTS154768C	8.00	EA	7/8"x6" CONC. ANCH. STUDS S.S. ASTM F593 (A)		
1	NTS154768D	5.75	FT	ROUND BAR 2" S.S. 304 (A)	2B1	
			#N/A	#N/A		



MARK SYSTEM

STATE: VERMONT
COUNTY: ORANGE
PROJECT NO.: BRF FLBR(2)
REFERENCE NO.: XXXXXXXXX
DISTRICT: XXX ROUTE: 65
WBA PRODUCT NO.: EMB154768AA-AF

DRAWING ACTION:
SUBMITTED FOR APPROVAL
DATE: 6/5/14

NO	REVISION	BY	DATE
1	REVISED PER REVIEWERS COMMENTS	TEB	6/6/14

Watson Bowman Acme Corp.
58 Pleasant Drive
Amherst, NY 14228
phone: (716)691-7968
fax: (716)691-6230
www.wbacorp.com

BASF The Chemical Company

PROJECT:
VERMONT RTE 65
REPLACEMENT OF FLOATING BRIDGE
WABO EMB HINGED SLIDING PLATE JOINT DETAILS

DETAILED BY	TEB
DATED	6/4/14
CHECKED BY	TPL
DATED	6/6/14
SCALE	NONE
WBA JOB NO.	154768
SHEET NO.	2 OF 6
DRAWING NO.	D-31790

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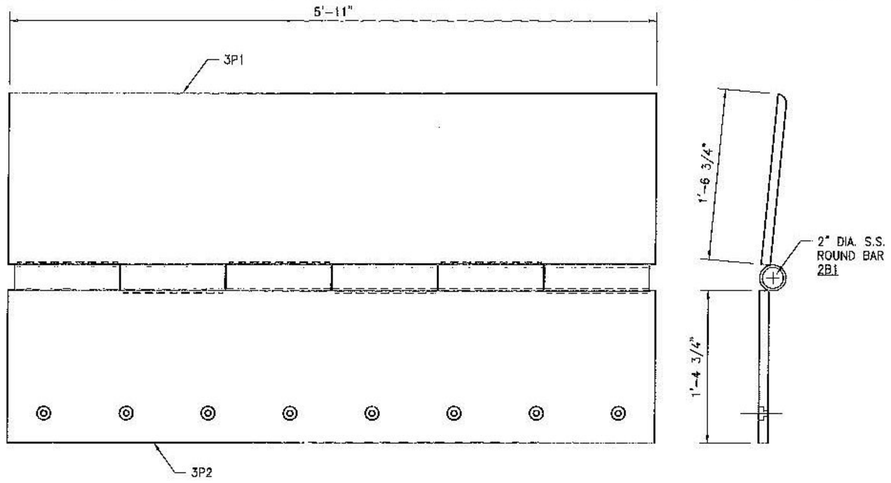
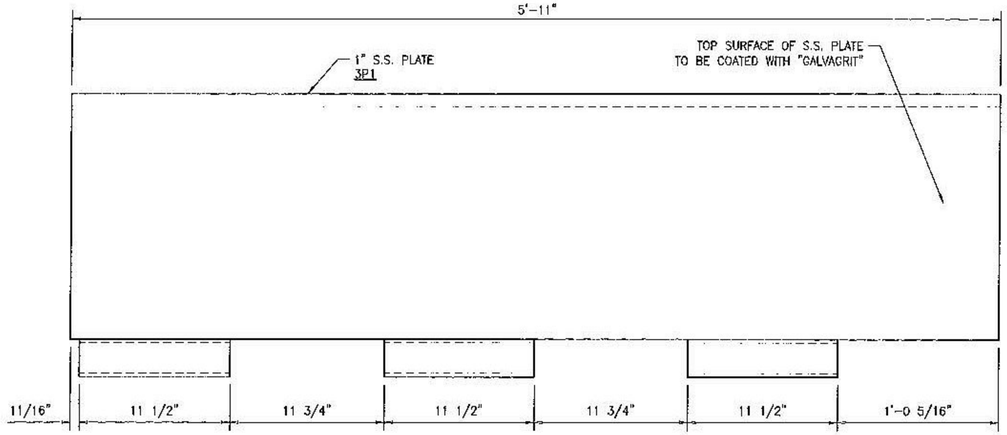
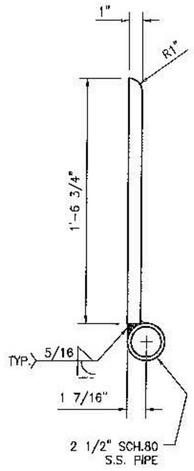
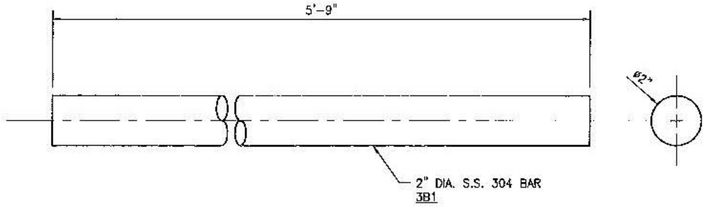


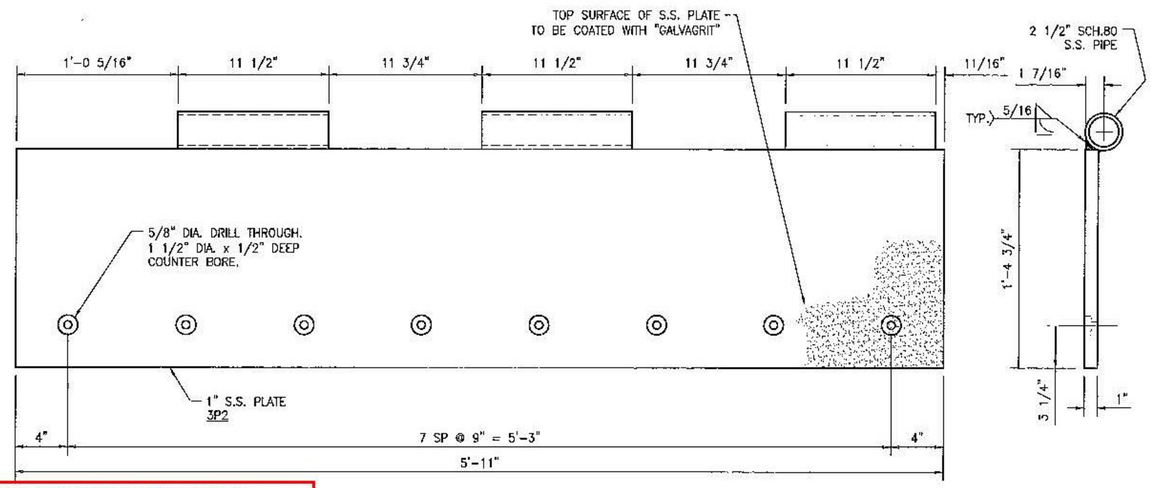




(4) – EMB154768AB

RAMP / FLOAT – ROADWAY ASSEMBLY





Vermont Agency of Transportation
RECEIVED
ON: June 20, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 06/26/2014

EMB154768AB QTY: 4 REQD.

STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AB	1.00	EA	EMB; RAMP/FLOAT - ROADWAY ASSY.; 5.92'	UNCOATED	
					SHIPPING LENGTH = 6'±	
				GALVAGRIT (FINE) COATING ON TOP SURFACES OF 1" PLATES	APPROX. SHIPPING WEIGHT = 870 lb	
1	NTS154768A	760.00	LB	STHLS STL 1" TYPE 304 NO FIN	3P1, 3P2	
1	NTS154768B	6.00	FT	2 1/2" SCH.80 S.S. PIPE (A)		
1	NTS154768D	5.75	FT	ROUND BAR 2" S.S. 304 (A)	3B1	
			#N/A	#N/A		

T.Y. LIN INTERNATIONAL

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REVISE AND RESUBMIT

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JOSH OLUND — REVIEWER
06/25/2014 — DATE

SHEET NUMBER.
ITEM DESIGNATION.
ITEM NUMBER.
2e1

MARK SYSTEM

STATE: VERMONT
COUNTY: ORANGE
PROJECT NO.: BRF FLBR(2)
REFERENCE NO.: XXXXXXXXX
DISTRICT: XXX ROUTE: 65
WBA PRODUCT NO.: EMB154768AA–AF

DRAWING ACTION:

SUBMITTED FOR APPROVAL

DATE: 6/5/14

3			
2			
1	REVISED PER REVIEWERS COMMENTS	TEB	6/6/14
NO.	DESCRIPTION	MADE	DATE

Watson Bowman Acme Corp.
50 Wende Dale
Amherst, NY 14228
phone: (716) 691-7625
fax: (716) 691-9779
www.wbacorp.com

BASF The Chemical Company

PROJECT:
VERMONT RTE 65
REPLACEMENT OF FLOATING BRIDGE

WABO EMB HINGED SLIDING PLATE JOINT DETAILS

DETAILED BY: TEB	DATE: 6/4/14
CHECKED BY: TPL	DATE: 6/6/14
SCALE: NONE	WBA JOB NO.: 154768
SHEET NO.: 3 OF 6	DRAWING NO.: D-31790

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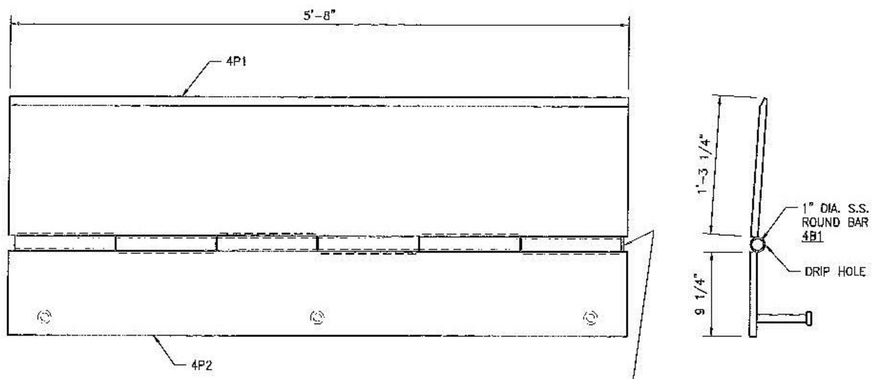
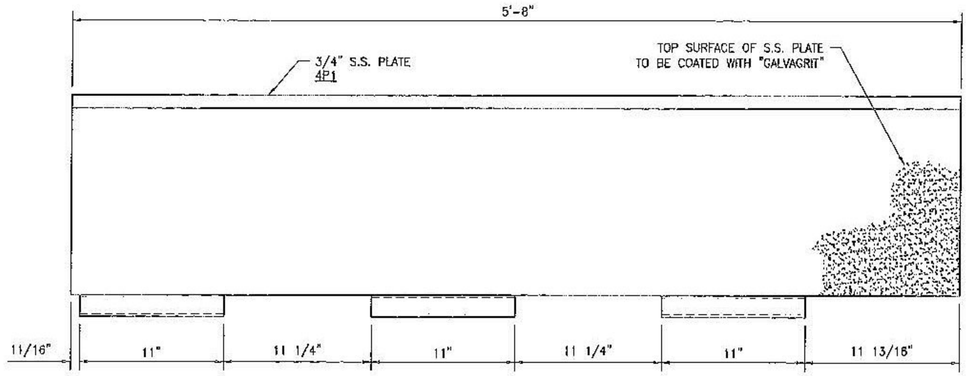
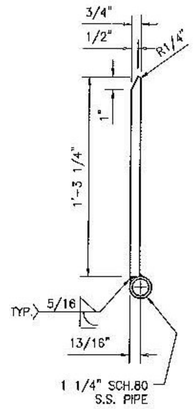
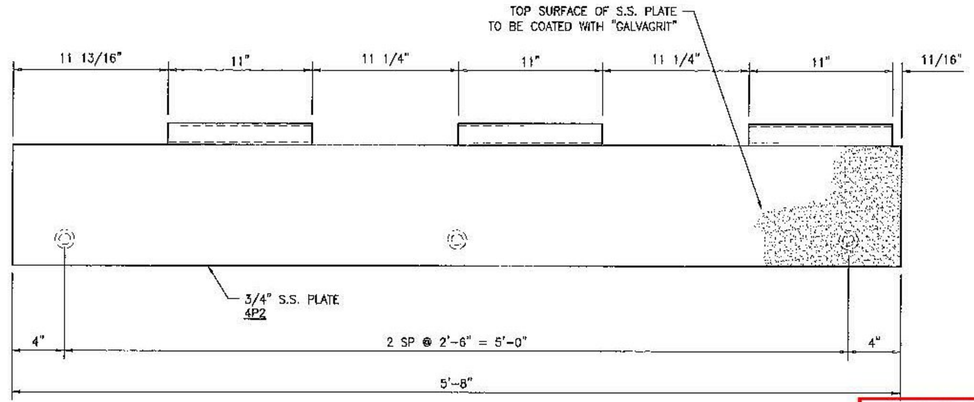


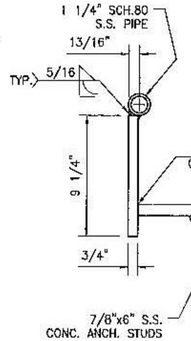
(2) -- EMB154768AC – AS SHOWN
(2) -- EMB154768AD – AS NOTED

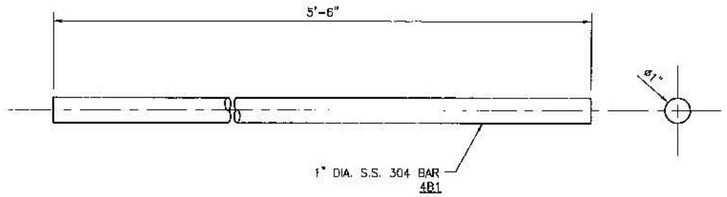
ABUTMENT / RAMP -- SIDEWALK ASSEMBLY









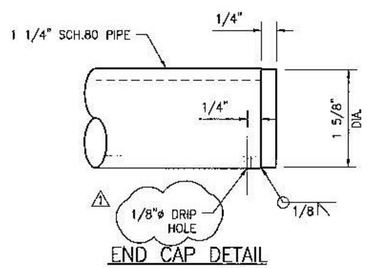


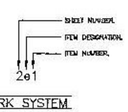
EMB154768AC QTY. 2 REQD. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AC	1.00	EA	EMB; ABUT/RAMP - SIDEWALK ASSY; 5.67'	UNCOATED	
					SHIPPING LENGTH = 6'±	
				GALVAGRIT (FINE) COATING ON TOP SURFACES OF 3/4" PLATES	APPROX. SHIPPING WEIGHT = 420 lb	
1	NTS154768E	375.00	LB	STNLS STL 3/4" TYPE 304 NO FIN	4P1, 4P2	
1	NTS154768F	6.00	FT	1 1/4" SCH 80 S.S. PIPE (A)		
1	NTS154768C	3.00	EA	7/8"x6" CONC. ANCH. STUDS S.S. ASTM F593 (A)		
1	NTS154768G	5.75	FT	ROUND BAR 1" S.S. 304 (A)	4B1	
1	8595	0.50	LB	STNLS STL 1/4 TYPE 304 2B FIN		
			#N/A	#N/A		

EMB154768AD QTY. 2 REQD. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AD	1.00	EA	EMB; ABUT/RAMP - SIDEWALK ASSY; 5.67'	UNCOATED	
					SHIPPING LENGTH = 6'±	
				GALVAGRIT (FINE) COATING ON TOP SURFACES OF 3/4" PLATES	APPROX. SHIPPING WEIGHT = 420 lb	
1	NTS154768E	375.00	LB	STNLS STL 3/4" TYPE 304 NO FIN	4P1, 4P2	
1	NTS154768F	6.00	FT	1 1/4" SCH.80 S.S. PIPE (A)		
1	NTS154768C	3.00	EA	7/8"x6" CONC. ANCH. STUDS S.S. ASTM F593 (A)		
1	NTS154768G	5.75	FT	ROUND BAR 1" S.S. 304 (A)	4B1	
1	8595	0.50	LB	STNLS STL 1/4 TYPE 304 2B FIN		
			#N/A	#N/A		





MARK SYSTEM

Vermont Agency of Transportation
RECEIVED
ON: June 20, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 06/26/2014

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JOSH OLUND — REVIEWER — 06/25/2014 — DATE

STATE: VERMONT
COUNTY: ORANGE
PROJECT NO.: BRF FLBR(2)
REFERENCE NO.: XXXXXXXXX
DISTRICT: XXX ROUTE: 65
WBA PRODUCT NO.: EMB154768AA--AF

DRAWING ACTION: SUBMITTED FOR APPROVAL
DATE: 6/5/14

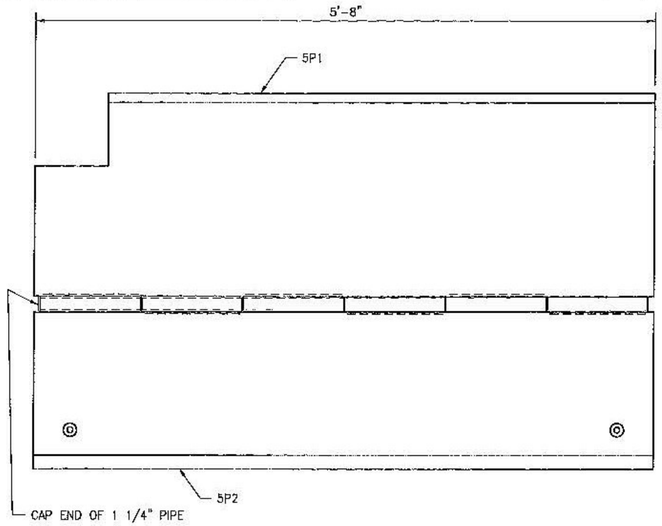
1	REVISED PER REVIEWERS COMMENTS	TEB	6/6/14

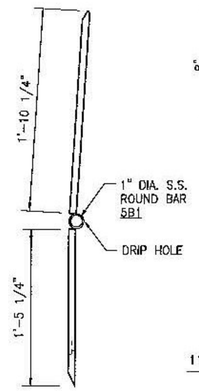
Watson Bowman Acme Corp. 50 Fireman Drive Amherst, NY 14228 Phone: (716) 691-7666 Fax: (716) 691-9228 www.wbacorp.com

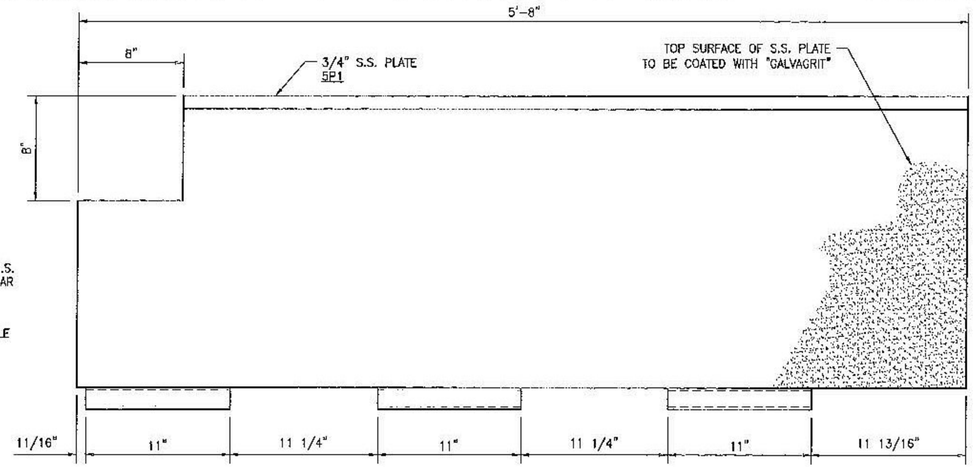
BASF The Chemical Company

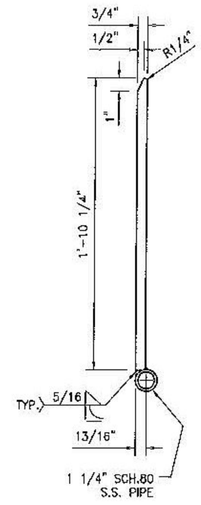
PROJECT: VERMONT RTE 65 REPLACEMENT OF FLOATING BRIDGE
WABO EMB HINGED SLIDING PLATE JOINT DETAILS

DETAILED BY: TEB	DATE: 6/4/14
CHECKED BY: TPL	DATE: 6/6/14
SCALE: NONE	WBA JOB NO.: 154768
SHEET NO.: 4 OF 6	DRAWING NO.: D-31790



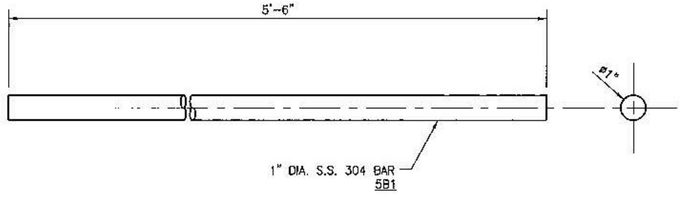


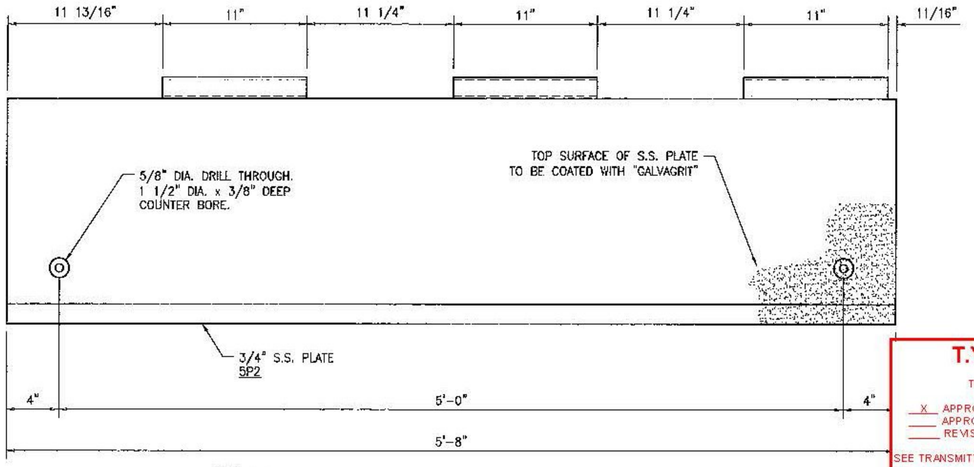


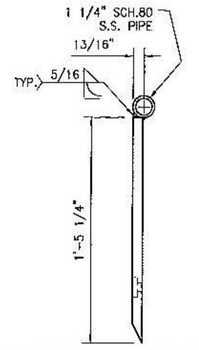


(2) – EMB154768AE – AS SHOWN
(2) – EMB154768AF – OPP. HAND

RAMP / FLOAT – SIDEWALK ASSEMBLY







EMB154768AE QTY: 2 REQD. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
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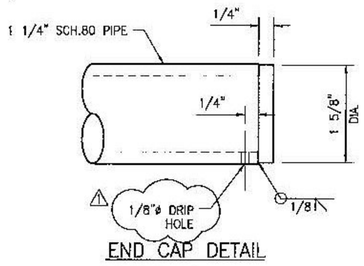
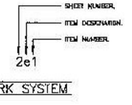
					SHIPPING LENGTH = 6'±	
				GALVAGRIT (FINE) COATING ON TOP SURFACES OF 3/4" PLATES	APPROX. SHIPPING WEIGHT = 650 lb	
1	NTS154768E	600.00	LB	STNLS STL 3/4" TYPE 304 NO FIN	5P1, 5P2	
1	NTS154768F	6.00	FT	1 1/4" SCH.80 S.S. PIPE (A)		
1	NTS154768G	5.75	FT	ROUND BAR 1" S.S. 304 (A)	5B1	
1	8695	0.50	LB	STNLS STL 1/4 TYPE 304 2B FIN		
			#N/A	#N/A		

EMB154768AF QTY: 2 REQD. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AF	1.00	EA	EMB; RAMP/FLOAT - SIDEWALK ASSY.; 5.67'	UNCOATED	
					SHIPPING LENGTH = 6'±	
				GALVAGRIT (FINE) COATING ON TOP SURFACES OF 3/4" PLATES	APPROX. SHIPPING WEIGHT = 650 lb	
1	NTS154768E	600.00	LB	STNLS STL 3/4" TYPE 304 NO FIN	5P1, 5P2	
1	NTS154768F	6.00	FT	1 1/4" SCH.80 S.S. PIPE (A)		
1	NTS154768G	5.75	FT	ROUND BAR 1" S.S. 304 (A)	5B1	
1	8695	0.50	LB	STNLS STL 1/4 TYPE 304 2B FIN		
			#N/A	#N/A		



END CAP DETAIL



MARK SYSTEM

Vermont Agency of Transportation
RECEIVED
ON: June 20, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 06/26/2014

T.Y. LIN INTERNATIONAL

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___ APPROVED AS NOTED
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JOSH OLUND (REVIEWER) 06/25/2014 (DATE)

STATE: VERMONT
COUNTY: ORANGE
PROJECT NO.: BRF FLBR(2)
REFERENCE NO.: XXXXXXXXX
DISTRICT: XXX ROUTE: 65
WBA PRODUCT NO.: EMB154768AA-AF

DRAWING ACTION: SUBMITTED FOR APPROVAL
DATE: 6/5/14

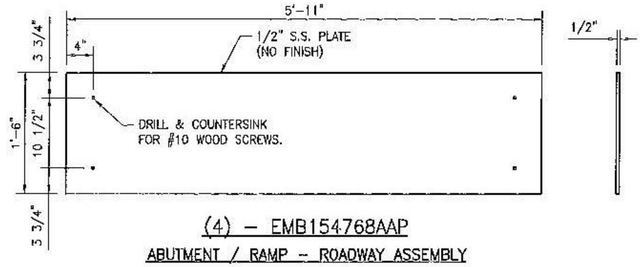
NO.	DESCRIPTION	DRAWN	DATE
3			
2			
1	REVISED PER REVIEWERS COMMENTS	TEB	6/6/14

Watson Bowman Acme Corp.
58 Pavan Dr.
Amherst, NY 14228
p.on. (716)691-3768
fax (716)691-6526
www.wbacorp.com

BASF The Chemical Company

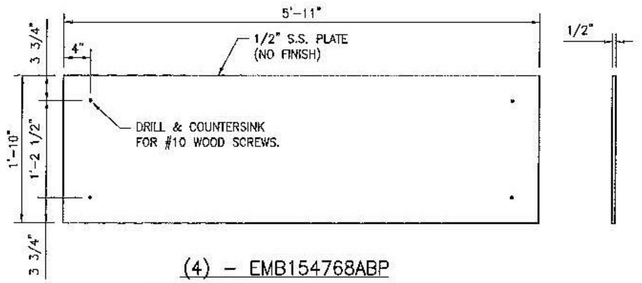
PROJECT:
VERMONT RTE 65
REPLACEMENT OF FLOATING BRIDGE
WABO EMB HINGED SLIDING PLATE JOINT DETAILS

DETAILED BY	DATE
TEB	6/4/14
CHECKED BY	DATE
TPL	6/6/14
SCALE	WBA JOB NO.
NONE	154768
SHEET NO.	DRAWING NO.
5 OF 6	D-31790



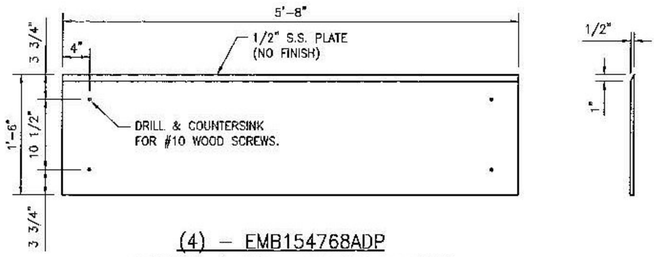
(4) – EMB154768AAP

ABUTMENT / RAMP – ROADWAY ASSEMBLY



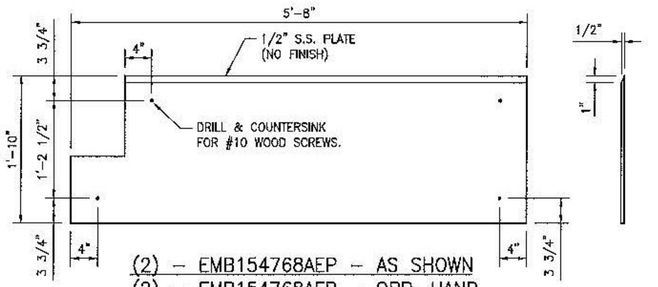
(4) – EMB154768ABP

RAMP / FLOAT – ROADWAY ASSEMBLY



(4) – EMB154768ADP

ABUTMENT / RAMP – SIDEWALK ASSEMBLY



(2) – EMB154768AEP – AS SHOWN

(2) – EMB154768AFP – OPP. HAND

RAMP / FLOAT – SIDEWALK ASSEMBLY

EMB154768AAP QTY: 4 REQ'D. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AAP	1.00	EA	EMB; ABUT/RAMP - ROADWAY BEARING PLATE.	UNCOATED	
					SHIPPING LENGTH = 6'±	
					APPROX. SHIPPING WEIGHT = 195 lb	
1	8591	195.00	LB	STNLS STL 1/2 TYPE 304 NO FIN		

EMB154768ABP QTY: 4 REQ'D STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768ABP	1.00	EA	EMB; RAMP/FLOAT - ROADWAY BEARING PLATE.	UNCOATED	
					SHIPPING LENGTH = 6'±	
					APPROX. SHIPPING WEIGHT = 240 lb	
1	8591	240.00	LB	STNLS STL 1/2 TYPE 304 NO FIN		

EMB154768ADP QTY: 4 REQ'D STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768ADP	1.00	EA	EMB; ABUT/RAMP - SIDEWALK BEARING PLATE.	UNCOATED	
					SHIPPING LENGTH = 6'±	
					APPROX. SHIPPING WEIGHT = 185 lb	
1	8591	185.00	LB	STNLS STL 1/2 TYPE 304 NO FIN		

EMB154768AEP QTY: 2 REQ'D. STRUCTURED BILL OF MATERIALS

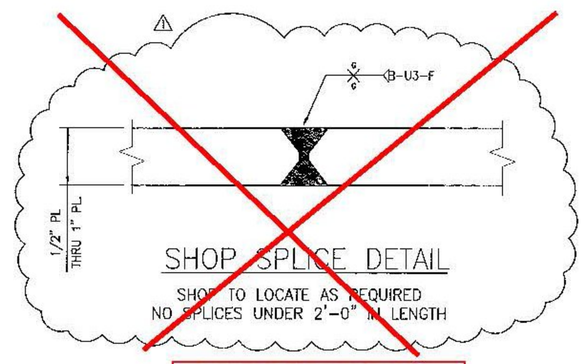
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AEP	1.00	EA	EMB; RAMP/FLOAT - SIDEWALK BEARING PLATE.	UNCOATED	
					SHIPPING LENGTH = 6'±	
					APPROX. SHIPPING WEIGHT = 225 lb	
1	8591	225.00	LB	STNLS STL 1/2 TYPE 304 NO FIN		

EMB154768AFP QTY: 2 REQ'D. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AFP	1.00	EA	EMB; RAMP/FLOAT - SIDEWALK BEARING PLATE.	UNCOATED	
					SHIPPING LENGTH = 6'±	
					APPROX. SHIPPING WEIGHT = 225 lb	
1	8591	225.00	LB	STNLS STL 1/2 TYPE 304 NO FIN		

EMB154768PS1 QTY: 1 REQ'D. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768PS1	1.00	EA	PARTS FOR SHIPPING (V		
1	NTS154768H	32.00	EA	LAG BOLT 1/2"x5" S.S. (A)		
1	NTS154768J	8.00	EA	LAG BOLT 1/2"x8" S.S. (A)		
1	NTS154768K	75.00	EA	WOOD SCREW #10x3 1/2" S.S. (A)		
1	7540	45.00	EA	WASHER 1/2 (A) STAINLESS STEEL		



FULL DIMENSION PLATES ONLY

Vermont Agency of Transportation
RECEIVED
ON: June 20, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 06/26/2014

T.Y. LIN INTERNATIONAL

THE STAMPED DOCUMENTS ARE HEREBY:

____ APPROVED
X APPROVED AS NOTED
____ REVISE AND RESUBMIT

SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.

THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS NOT CLEARLY NOTED BY THE CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.

JOSH OLUND — REVIEWER — 06/25/2014 — DATE

SHEET NUMBER
ITEM DESIGNATION
ITEM NUMBER
2e1
MARK SYSTEM

STATE: VERMONT
COUNTY: ORANGE
PROJECT NO.: BRF FLBR(2)
REFERENCE NO.: XXXXXXXXX
DISTRICT: XXX ROUTE: 65
WBA PRODUCT NO.: EMB154768AA–AF

DRAWING ACTION: SUBMITTED FOR APPROVAL
DATE: 6/5/14

⚠ REVISED PER REVIEWERS COMMENTS — TEB 6/4/14

Watson Bowman Acme Corp. 50 Fleck Blvd. Cheektowaga, NY 14225 phone: (716) 684-7166 fax: (716) 684-8226 www.wbacorp.com

BASF The Chemical Company

PROJECT: VERMONT RTE 65 REPLACEMENT OF FLOATING BRIDGE
WABO EMB HINGED SLIDING PLATE JOINT DETAILS

DETAILED BY: TEB	DATE: 6/4/14
CHECKED BY: TPL	DATE: 6/6/14
SCALE: NONE	WBA JOB NO.: 154768
SHEET NO.: 6 OF 6	DRAWING NO.: D-31790

G:\Engineer\WBA Projects\154768 Miller Constr. VT rte 65\030-Drawings\B-31790.dwg, 6/20/2014 10:23:07 AM

Vermont Agency of Transportation

RECEIVED
ON: April 18, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 04/22/2014

DIMENSION

Dimension Fabricators Inc
2000 7th Street
Scotia, NY 12302
518.374.1936 fax 518.374.4830

Ship To:
MILLER CONSTRUCTION INC.
VTAOT Brookfield BRF FLBR(2)
Brookfield, VT

CUSTOMER COPY

JOB: **VTAOT Brookfield BRF FLBR(2)** | Job#: **008792** Order#:**00001** | Delivery Date: **04/10/2014**

DESC:**ABUTMENTS 1 & 2** | Dwg#: | Made By:**Douglas DeGraff** | Jobsite Phone #:

NOTE:

Item	Qty	Size	Length	Mark	Bend	Weight	A	B	C	D	E	F	G	H	K	R	J	O
***							ABUT											
*	Rebar	Epoxy	60	Grade			1-											
1	16	5	35-6	1EA503		592												
2	10	5	34-6	1EA500		360												
3	5	5	21-9	1EA501		113												
4	4	5	11-1	1EA550	3	46		7-11	3-2					1-5	2-11			10-9¼
5	88	5	7-9	1EA551	17	711		0-10	6-11									
6	75	5	6-6	1EA502		508												
7	20	5	6-6	1EA505		136												
8	23	5	5-7	1EA553	17	134		0-10	4-9									
9	56	5	5-6	1EA552	17	321		2-6	0-6	2-6								
10	23	5	5-6	1EA554	17	132		1-6	2-6	1-6								
11	12	5	4-0	1EA504		50												
	332		SubTot			3103												
***																		
*	Rebar	Epoxy	60	Grade			ABUT											
12	12	5	37-0	2EA503		463	2-											
13	6	5	20-6	2EA500		128												
14	16	5	9-0	2EA501		150												
15	44	5	5-5	2EA550	17	249		0-10	4-7									
16	28	5	4-7	2EA551	17	134		0-10	3-9									
17	76	5	4-6	2EA502		357												

ALL BARS SHALL MEET THE REQUIREMENTS OF GENERAL SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTIONS 507 AND 713.

T.Y. LIN INTERNATIONAL

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TIM POULIN — REVIEWER
04/21/2014 — DATE

DIMENSION

Dimension Fabricators Inc
2000 7th Street
Scotia, NY 12302
518.374.1936 fax 518.374.4830

Ship To:
MILLER CONSTRUCTION INC.
VTAOT Brookfield BRF FLBR(2)
Brookfield, VT

CUSTOMER COPY

JOB: VTAOT Brookfield BRF FLBR(2) | Job#: 008792 Order#:00001 | Delivery Date: 04/10/2014

DESC:ABUTMENTS 1 & 2 | Dwg#: | Made By:Douglas DeGraff | Jobsite Phone #:

NOTE:

Item	Qty	Size	Length	Mark	Bend	Weight	A	B	C	D	E	F	G
18	22	5	4-0	2EA504		92							
19	4	5	3-11	2EA552	17	16		0-10	3-1				
20	38	5	3-4	2EA553	17	132		1-5	0-6	1-5			
	246		SubTot			1721							

Total Bar Weight: 4824 Lbs.

Total Weight: 4824 Lbs.

Longest Length: **37-0**

T.Y. LIN INTERNATIONAL

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TIM POULIN — REVIEWER
04/21/2014 — DATE

Size	Total #	Total Pcs	Total Wgt	Stock Wgt	Strt Pcs	Strt Wgt	Hvy #	Hvy Pcs	Hvy Wgt	Light #	Light Pcs	Light Wgt	Med Pcs	Med Wgt	Spiral Pcs	Spiral Wgt	Thrd Pcs	Thrd Wgt
Rebar	Epoxy	Gr.60																
5 Bar	20	578	4824	0	270	2949	9	308	1875	0	0	0	0	0	0	0	0	0
SizeTot:	20	578	4824	0	270	2949	9	308	1875	0	0	0	0	0	0	0	0	0

Items and material on this list are furnished in accordance with Dimension Fabricators standard terms, conditions, and original proposal for this project.

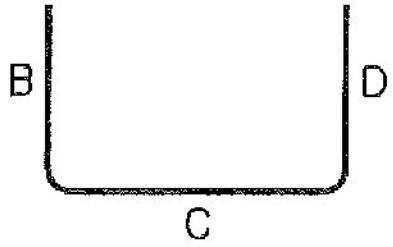
Trailers left on jobsite's longer than 2 weeks will be charged a rental fee of $100.00 per week.

Received By: _____

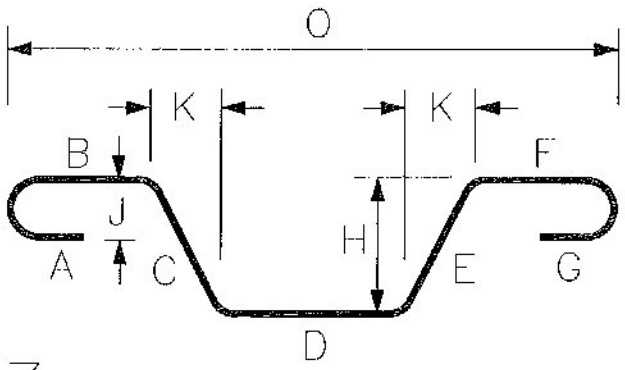
Vermont Agency of Transportation
RECEIVED
ON: April 18, 2014
and Checked for
CONFORMANCE
BY: Jennifer Fitch DATE: 04/22/2014

ALL BARS SHALL MEET THE REQUIREMENTS OF GENERAL SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTIONS 507 AND 713.

Standard Bends



17



3 Hooks A & G optional

REVIEWER DATE

Vermont Agency of Transportation

RECEIVED

ON: April 18, 2014

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 04/22/2014