PITTSFIELD ER BRF 022-1(23)
CONTRACTOR FABRICATED PRE-CAST

SHEET1:ABUTMENT #1 PLAN
SHEET2:ABUTMENT #2 PLAN
SHEET3:WING WALL PLAN
SHEET4:ABUTMENT CASTING PLAN
SHEET5:GENERAL NOTES
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SHEET8:POST TENSIONING DETAILS
SHEET9:CONCRETE MIX DESIGN

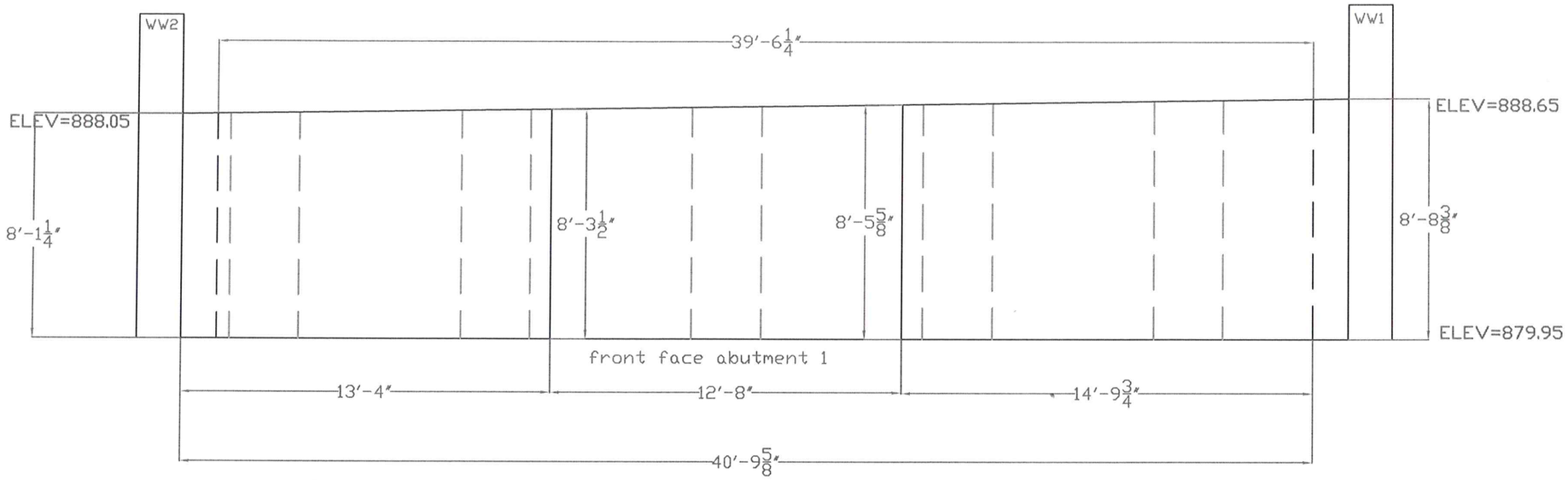
COLD RIVER BRIDGES, LLC
10 LANBRO LANE
TEL 603-756-9300 WALPOLE, NH FAX 603-756-9303

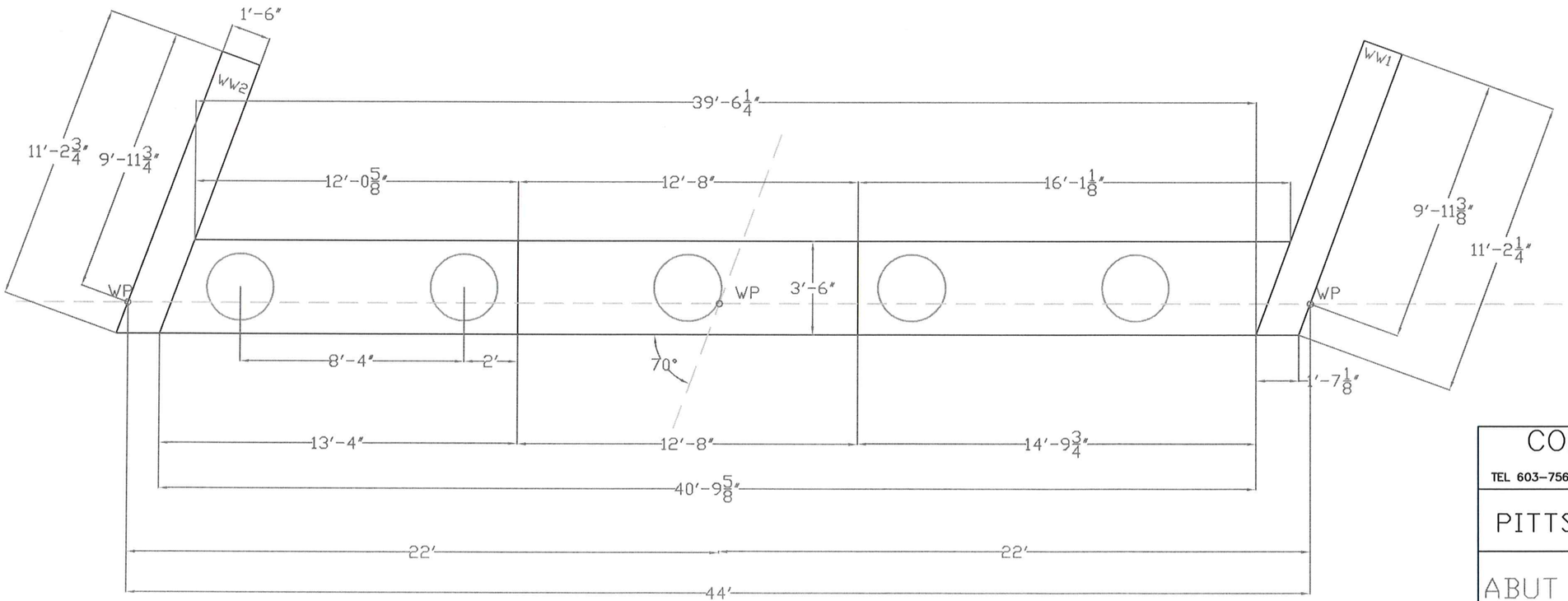
CAVENDISH ER BRF 0146(13)

COVER SHEET/INDEX

SHEET NUMBER
COVER

DATE: 10-31-13 scale:





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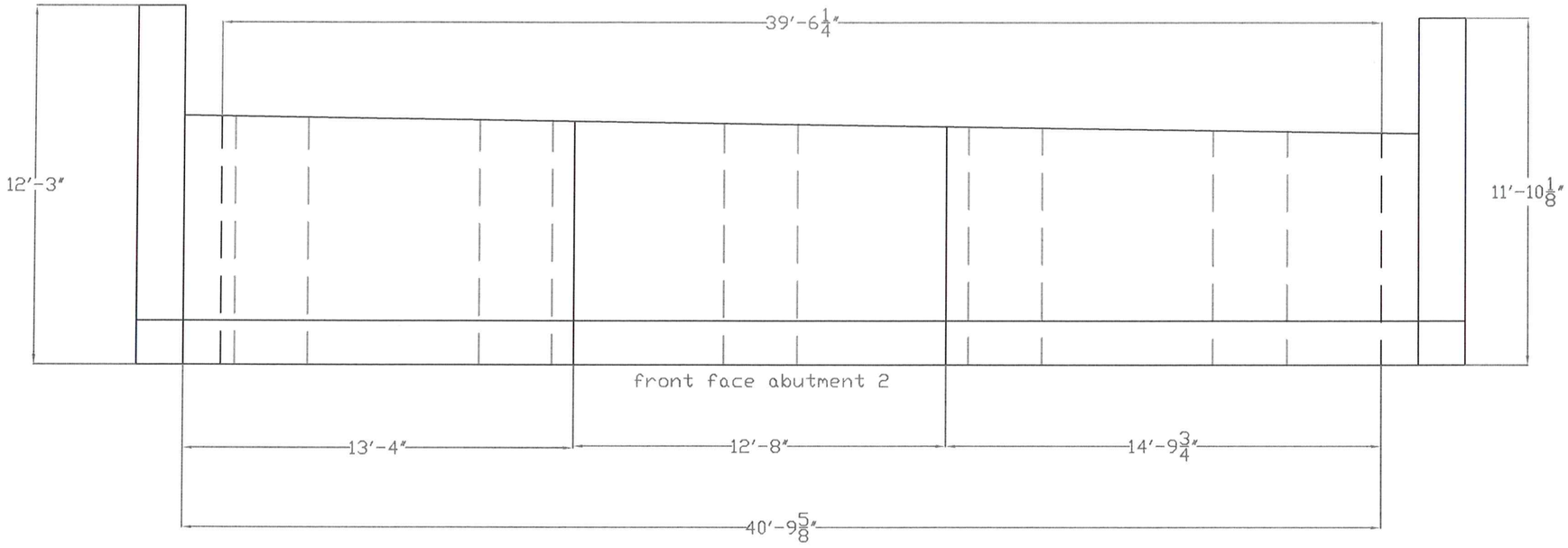
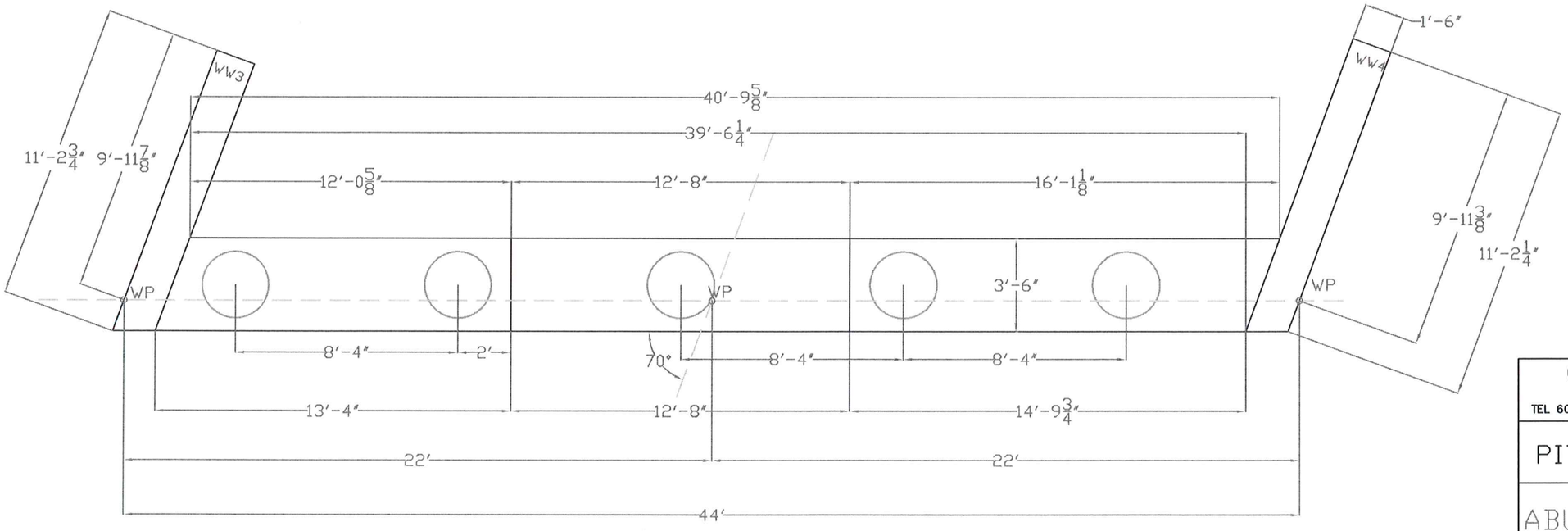
PITTSFIELD ER BRF 022-1(23)

ABUT 1 PLAN/ELEV

SHEET NUMBER 1

DATE: 1-17-14 scale: 1/4″=1′





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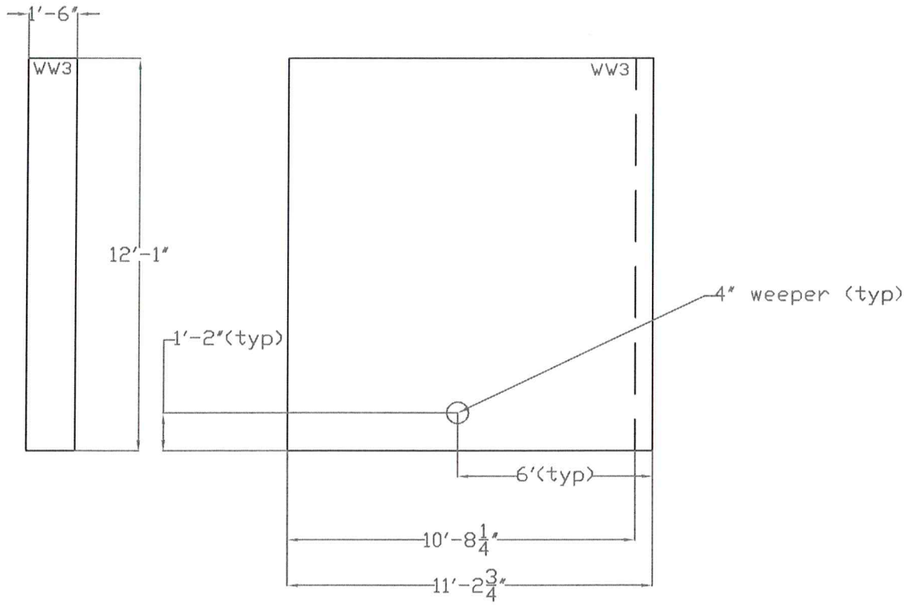
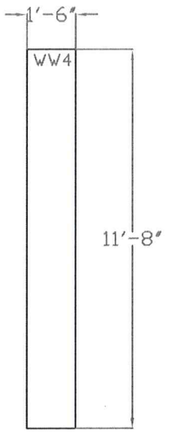
PITTSFIELD ER BRF 022-1(23)

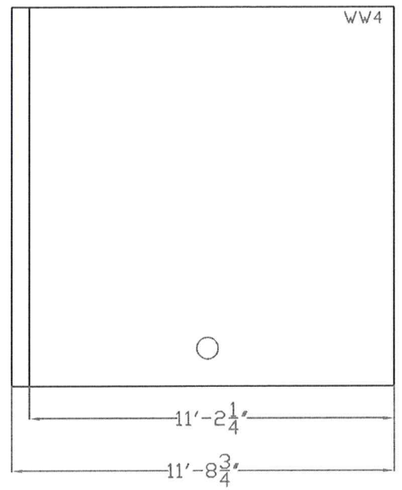
ABUT 2 PLAN/ELEV

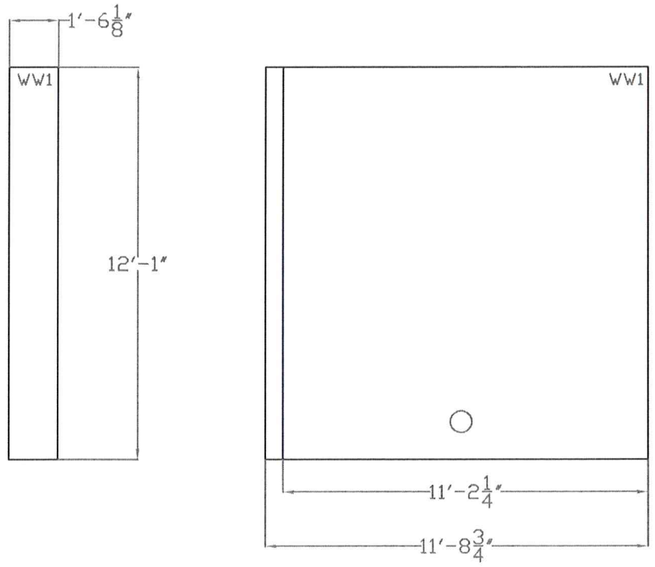
SHEET NUMBER 2

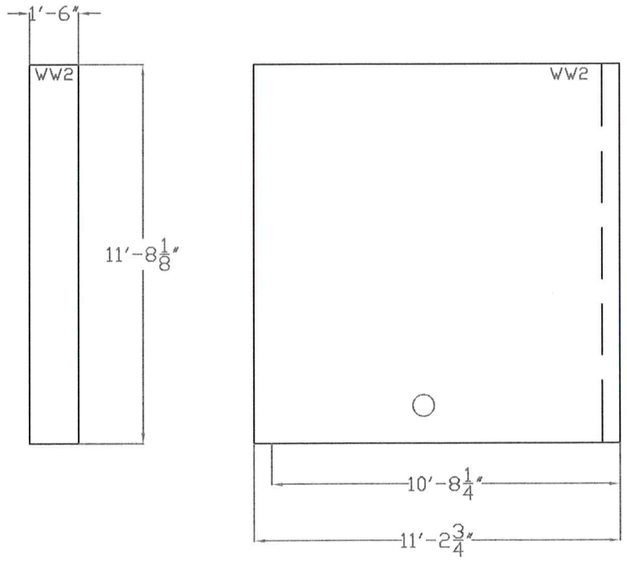
DATE: 1-17-14 scale: 1/4″=1′











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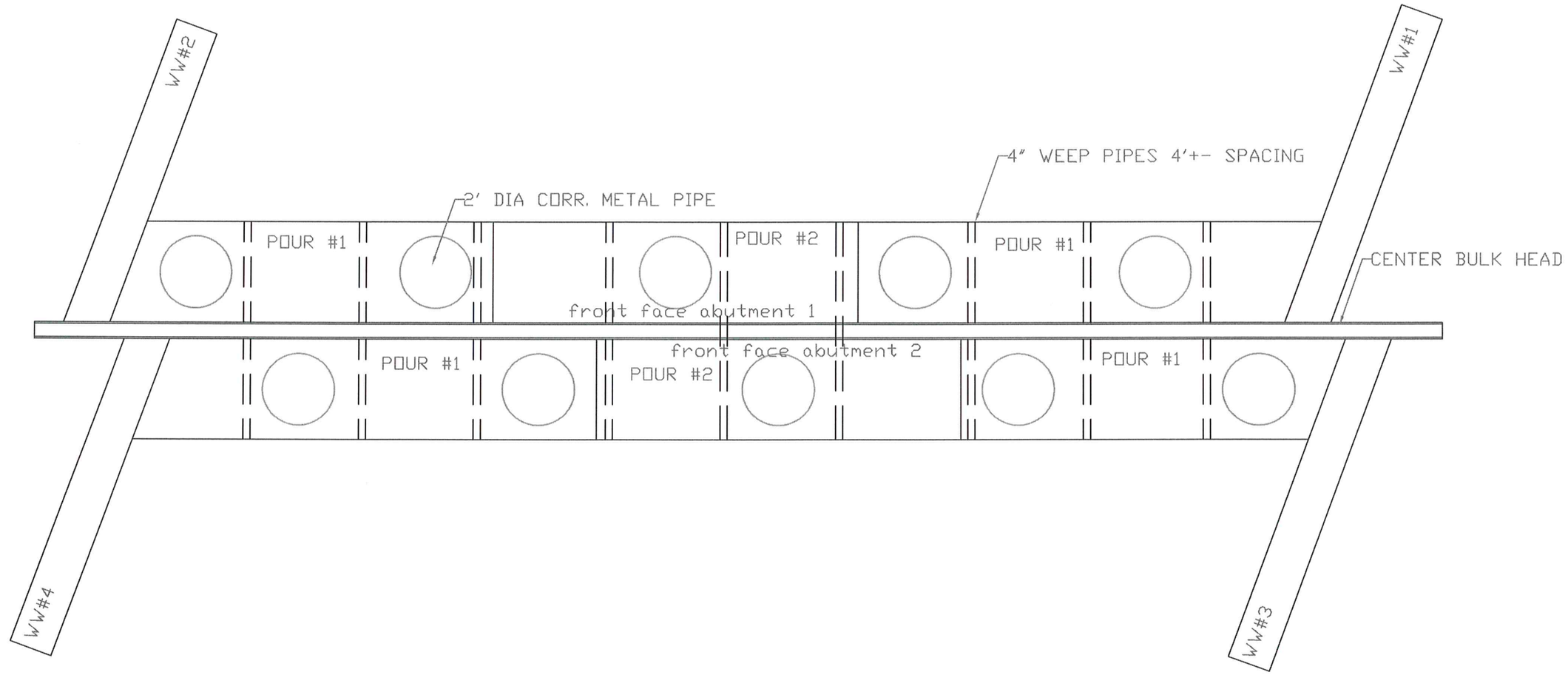
PITTSFIELD ER BRF 022-1(23)

WW PLAN

SHEET NUMBER 3

DATE: 1-17-14 scale: 1/4"=1'



ABUTMENT CASTING PLAN

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

PITTSFIELD ER BRF 022-1(23)

CASTING PLAN

SHEET NUMBER 4

DATE: 2-19-14

scale: 1/4"=1'

CONCRETE NOTES:

1.CAST IN PLACE APPROACH SLABS- CONCRETE CLASS HPC A fC'=4000 PSI

2.WINGWALL CONCRETE=5000 PSI

3.ABUTMENT COCNRETE 5000PSI

5.ALL CONCRETE FOR PRE-CAST OPERATION SHALL BE SUPPLIED BY CARROLL CONCRETE INC.

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

7. CAST IN PLACE APPROACH SLABS WILL HAVE A VIBRATORY SCREED FINISH..

8. WINGWALLS AND ABUTMENT TOPS WILL HAVE A HAND FLOATED FINISHED PRODUCED BY THE USE OF A MAGNESIUM FLOAT.

8. ABUTMENT BULKHEAD FORMS CAN BE REMOVED AFTER 48 HOURS CURE SHALL

CONTINUE BASED ON TABLE 501.17A "CURING CONCRETE COMPONENTS" 7 DAYS OF CURING.

9.CAST IN PLACE APPROACH SLAB FORMS CAN BE REMOVED AFTER 48 HOURS CURE SHALL CONTINUE

BASED ON TABLE 501.17a "CURING CONCRETE COMPONENTS" 7 DAYS OF CUREING.

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

CONSTRUCTION SEQUENCE:

1.CAST WINGWALLS 1,2,3,4 (CAST FLAT, FINISH FACE DOWN)
2.MATCH CAST ABUTMENT SECTIONS AS SHOWN IN CASTING SEQUENCE(POUR #1)
3.MATCH CAST REMAINING ABUTMENT SECTIONS (POUR #2)
4.SET ABUTMENT 1 SECTIONS, SET WINGWALLS 1 AND 2 , POST TENTION
5. SET ABUTMENT 2 SECTIONS, SET WINGWALLS 3 AND, POST TENTION

LIFTING,HANDLING

1.LIFTING DESIGN AND HANDLING STRESSES ARE PART OF ATTACHED CALCULATION PACKAGE.

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

PITTSFIELD ER BRF 022-1(23)

GENERAL NOTES

SHEET NUMBER 5

DATE: 2-19-14 scale:

QUALITY CONTROL PROCEDURES.

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

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

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

4. FOUR EXTRA CYLINDER SETS PER CONCRETE PLACEMENT SHALL BE TAKEN FOR EARLY STRENGTH BREAKS.

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

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

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

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

10.. CONCRETE TOLERANCES +- $\frac{1}{4}$"-REINFORCING PLACEMENT +-1/4" COVER AND CLEARANCE 1" BAR SPACING .

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

12. CURE METHODS WILL MEET THE REQUIRMENTS OF SECTION 501.17A(5). IF THE CONCRETE TEMPERATURE DROPS BELOW 50 DEGREE OR A WET CONDITION IS NOT MAINTAINED THE CURE WILL BE EXTENDED PER SECTION 501.17 (a)

13. MATCH CAST SURFACES WILL BE COATED WITH DAYTON SUPERIOR J9A WHITE WAX CURE AT A MIN. RATE OF 200 SF PER GALLON. THIS COATING WILL ACT AS A BOND BREAKER DURING MATCH CASTING.
14. PRE-CAST KEYWAYS WILL BE SANDBLASTED TO REMOVE ANY RESIDULE BOND BREAKER.
15. KEYWAYS SHALL BE AIR BLASTED BEFORE ERECTION TO PREP SURFACE FOR THE APPLICATION OF THE EPOXY BONDING COMPOUND.
16. EPOXY BONDING COMPOUND SHALL BE SIKADUR HI-MOD 32 OR = FROM THE VTRANS APPROVED PRODUCTS LIST.

WINTER WORK PROVISIONS:
1.Cold River Bridges will be constructing the abutments and wingwalls slabs inside of a heated enclosure construced and used to complete the pre-casting on the Cavendish ER BRF 0146 (13) project.
2.Concrete will meet the temperature requirements of section 501.07.
3.Form work and r-bar will be pre-heated inside of the casting enclosure to 50 degrees with the use of radiant heat and supplemental "salamander heaters".This will produce a redundant source of heat.
4.After the placement of concrete a combination of radiant heat and salamanders will be used for the full length of the cure. Maintaining cast concrete temperatures above 50 degrees for cure period.
5. Digital temperature data loggers will be used to monitor cure. 1 data logger will be supplied per unit.
6. Cure water shall be heated to 50 degrees by the use of radiant,propane or electric heat source before the water is applied to the concrete.

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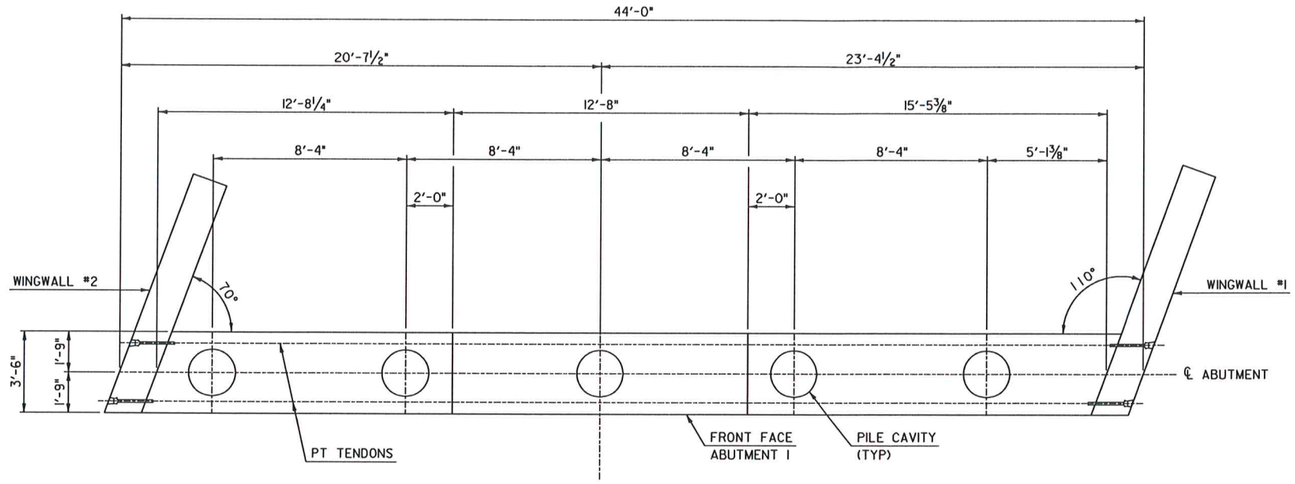
PITTSFIELD ER BRF 022-1(23)

QC PROCEDURES/PLAN

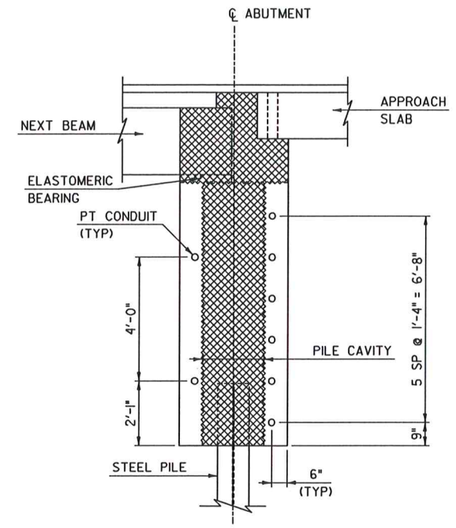
SHEET NUMBER 6

DATE: 10-30-13 scale:



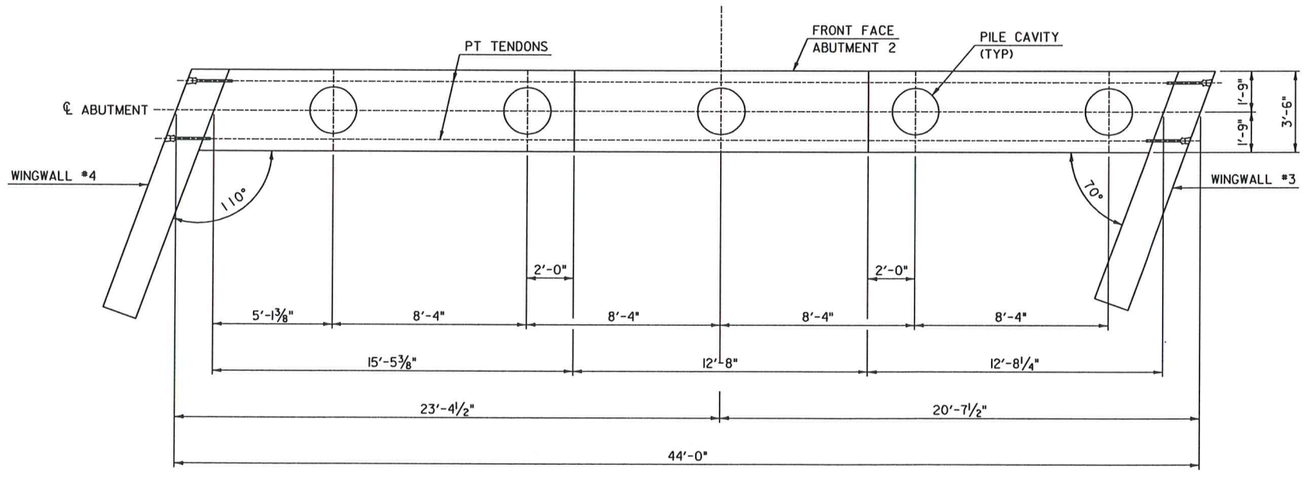
ABUTMENT #1 - PLAN

SCALE: ⅜" = 1'-0"



ABUTMENT TYPICAL

SCALE: ½" = 1'-0"



ABUTMENT #2 - PLAN

SCALE: ⅜" = 1'-0"

NOTES:

1. GEOMETRY SHOWN HEREIN IS AN UNDERSTANDING OF THE CONTRACTOR'S INTENDED PRECAST ABUTMENT CONSTRUCTION AND IS PROVIDED TO QUALIFY THE POST-TENSIONING DESIGN. DETAILS SHOWN HEREIN ARE INTENDED TO CONVEY TRANSVERSE POST-TENSIONING DESIGN ONLY. ALL GEOMETRY, MILD STEEL REINFORCEMENT, PROJECT NOTES, AND DETAILS NOT SHOWN HEREIN SHALL BE IN ACCORDANCE WITH THE ORIGINAL BRIDGE REPLACEMENT PLAN SET PREPARED BY VTRANS.

2. THERE SHALL BE A SINGLE POST-TENSIONING TENDON PER DUCT. POST-TENSIONING DESIGN VALUES ARE AS FOLLOWS:
   - -TENDONS SHALL BE 0.6 INCH DIAMETER, AASHTO M 203 LOW RELAXATION 7-WIRE STRANDS.
   - -JACKING FORCE PER TENDON = 42 KIPS.
   - -ANCHOR SET SHALL BE ¼ INCH OR LESS.
   - -APPARENT MODULUS OF ELASTICITY (TENDONS) = 28,500 KSI.

3. TENDON STRESSING SEQUENCE SHALL BEGIN NEAR THE CENTER OF THE ABUTMENT AND PROGRESS OUTWARD.

4. PILE CAVITIES SHALL BE FILLED PRIOR TO FULLY STRESSING THE TENDONS. TENDONS MAY BE JACKED TO 3 KIPS EACH PRIOR TO FILLING PILE CAVITIES.

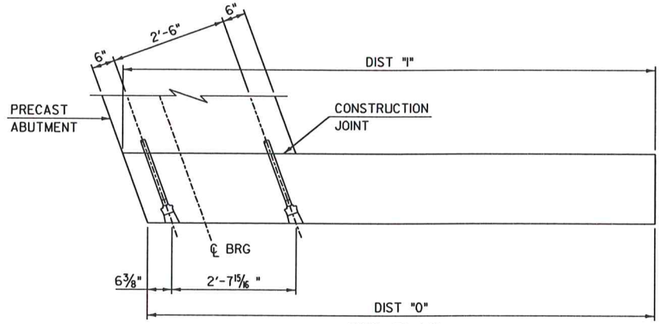
STATE OF VERMONT
JOSHUA K. OLUND
NO. 72818
Structural Part II
LICENSED
PROFESSIONAL ENGINEER
5/2/14

SHEET 7 OF 9

PROJECT NAME:	PITTSFIELD
PROJECT NUMBER:	ER BRF 022-1(23)

TY·LIN INTERNATIONAL

FILE NAME: z86e060bdrabut1.dgn	PLOT DATE: 3/3/2014
PROJECT LEADER: J. OLUND	DRAWN BY: S. MORGAN
DESIGNED BY: J. OLUND	CHECKED BY: D. MYERS
ABUTMENT 1 & 2 PLAN & SECTION	SHEET 1 OF 2

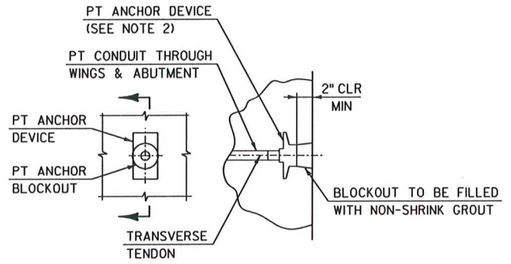


WWI PLAN

SCALE: ¾" = 1'-0"

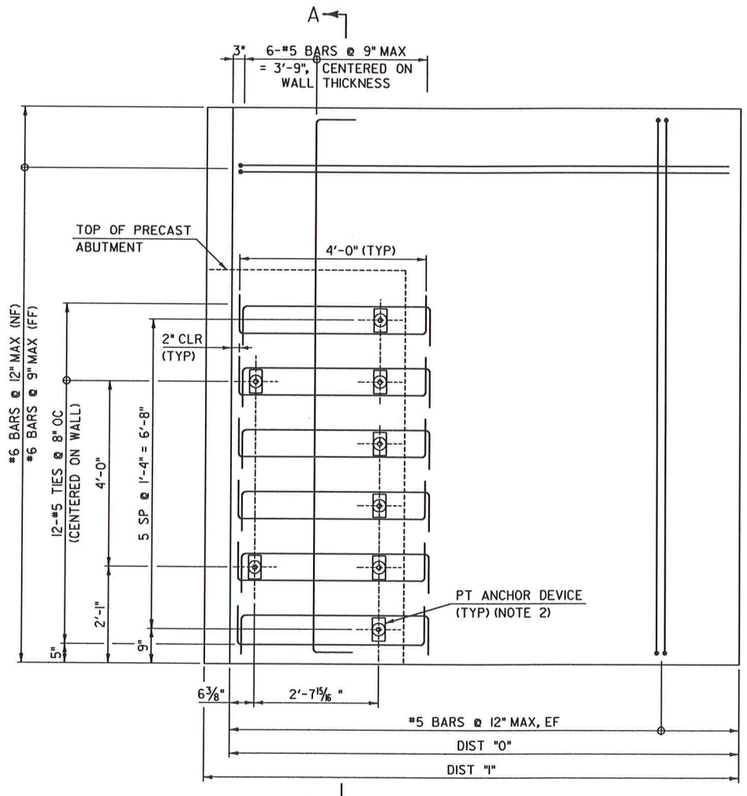
(REINFORCING STEEL NOT SHOWN FOR CLARITY)

WINGWALL DIMENSIONS				
	WINGWALL 1	WINGWALL 2	WINGWALL 3	WINGWALL 4
DIST "I"	11'-8¾"	10'-8¼"	10'-8¼"	11'-8¾"
DIST "O"	11'-2¼"	11'-2¾"	11'-2¾"	11'-2¼"



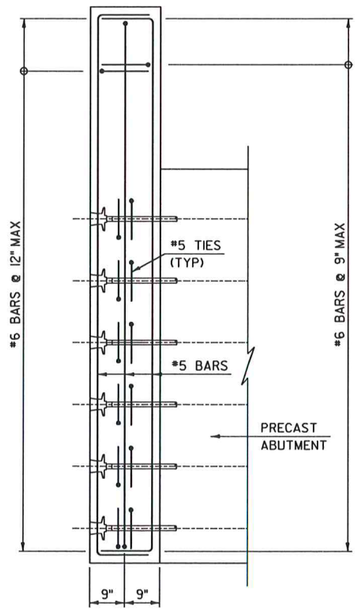
TRANSVERSE TENDON ANCHORAGE DETAIL

NOT TO SCALE



WWI ELEVATION

SCALE: ¾" = 1'-0"



SECTION A-A WWI TYPICAL

SCALE: ¾" = 1'-0"

NOTES:

1. WWI SHOWN, OTHERS SHALL BE SIMILAR.
2. POST-TENSIONING ANCHOR DEVICE SHALL BE DYWIDAG ANCHOR CASTING GTI SI-06 OR SIMILAR.
3. PRECAST WINGWALL MILD STEEL REINFORCEMENT SHOWN SHALL BE USED IN PLACE OF REINFORCEMENT DETAILED IN THE ORIGINAL PLAN SET.
4. DIMENSIONS AND ELEVATIONS NOT SHOWN SHALL BE CONSISTENT WITH THE ORIGINAL PLAN SET.

STATE OF VERMONT
JOSHUA K. OLUND
NO. 72618
Structural Part II
LICENSED
PROFESSIONAL ENGINEER
3/3/14

SHEET 8 OF 9

TYLIN INTERNATIONAL

PROJECT NAME: PITTSFIELD
PROJECT NUMBER: ER BRF 022-1(23)

FILE NAME: z86e060bdrabutdet.dgn
PROJECT LEADER: J. OLUND
DESIGNED BY: T. POULIN
WINGWALL DETAILS

PLOT DATE: 3/3/2014
DRAWN BY: S. MORGAN
CHECKED BY: J. OLUND
SHEET 2 OF 2

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIAL AND RESEARCH SECTION - STRUCTURAL CONCRETE UNIT

STRUCTURAL CONCRETE MIX DESIGN SUBMISSION

Concrete class: Precast Prestressed
Additional Description:
Ready Mix Supplier: CARROLL CONCRETE - CHARLESTOWN, NH
Designed By: Scott Jordan
Design strength: 5000 PSI
Design by dry weight or saturated surface dry: SSD

Agency Use Only	
Mix ID	PP00-0
Mix Design #	
Approved by	
Approved Date	
Spec Book Year	2013

Mix designs are valid for a 12 month period from date of approval or unless there is a change in material, material property or design parameter.

Cement:			Specific Gravity			lb/cy	0.00 cf
701.02	Source:						
	Brand Name:						
Cement Type III:			Specific Gravity			lb/cy	0.00 cf
701.04	Source:						
	Brand Name:						
Blended Cement:			Specific Gravity	3.020	705	lb/cy	3.74 cf
701.06	Source:	LAFARGE - TERCEM - MONTREAL, EAST PLANT					
	Brand Name:						
Cement with Slag:			Specific Gravity			lb/cy	0.00 cf
701.07	Source:						
	Brand Name:						
Pozzolan:			Specific Gravity			lb/cy	0.00 cf
725.03(a)	Source:						
	Brand Name:						
Fly Ash:			Specific Gravity			lb/cy	0.00 cf
725.03(a)	Source:						
	Brand Name:						
Silica Fume:			Specific Gravity			lb/cy	0.00 cf
725.03(b)	Source:						
	Brand Name:						
Slag:			Specific Gravity			lb/cy	0.00 cf
725.03(c)	Source:						
	Brand Name:						
Water					32 gals	267 lb/cy	4.28 cf
Air Content Target					7.0 %		1.89 cf
Coarse Aggregate 3/8"		Absorption	Specific Gravity			lb/cy	0.00 cf
704.02A	Source:						
Coarse Aggregate 3/4"		Absorption 0.80	Specific Gravity	2.880	1688	lb/cy	9.39 cf
704.02B	Source:	COLD RIVER MATERIALS PIT - N WALPOLE, NH					
Coarse Aggregate 1 1/2"		Absorption	Specific Gravity			lb/cy	0.00 cf
704.02C	Source:						
Fine Aggregate:		Absorption 0.90	Specific Gravity	2.670	1283	lb/cy	7.70 cf
704.01	Source:	NEWPORT SAND & GRAVEL - NEWPORT, NH	Fineness Modulus	2.83			
Air Entrainment Admixture			Specific Gravity		1.5	oz/cy	
725.02(b)	Source:	MASTER BUILDERS INC - MESQUITE, TX					
	Brand Name:	MasterAir AE 200 / Micro Air					
Retarder Admixture:			Specific Gravity		1	oz/cwt	
725.02(c)	Source:	MASTER BUILDERS INC - MESQUITE, TX					
	Brand Name:	MasterSet R100 / Pozzolith 100XR					
High Range Water Reducer Admixture:			Specific Gravity		3	oz/cwt	
725.02(h)	Source:	MASTER BUILDERS INC - MESQUITE, TX					
	Brand Name:	MasterGlenium 7500					
Other Admixtures:							
			Specific Gravity		2	oz/cwt	0.00 cf
	Source:						
	Brand Name:	BASF, MasterSure Z60					
	Source:		Specific Gravity				0.00 cf
	Brand Name:						
	Source:		Specific Gravity				0.00 cf
	Brand Name:						
		TOTAL		47.570	3943 lb		27.00 cf

Maximum Water/Cementitious Ratio: 0.44
Maximum Water (gal/cy): 37.2
Slump Min/Max (inch): 4.0 min — 7.0 max
Air Content Min/Max (%): 5.0 min — 9.0 max
Design Unit Wt. (lb/cf): 146.04

Notes:

2014 Construction season 2011 specification 5000-psi precast 2-10-14

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

PITTSFIELD ER BRF 022-1(23)

CONCRETE MIX DESIGN

SHEET NUMBER 9

DATE: 1-17-14 scale: 1/4"=1'