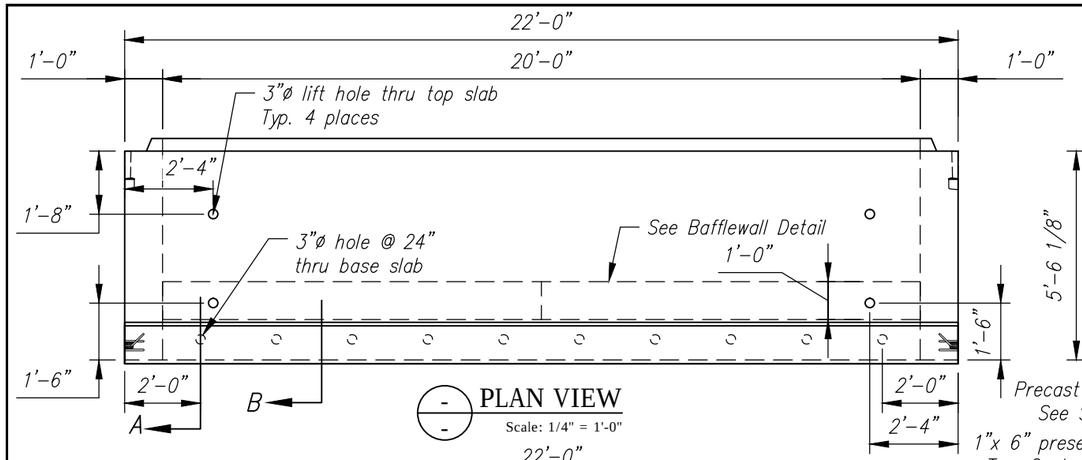
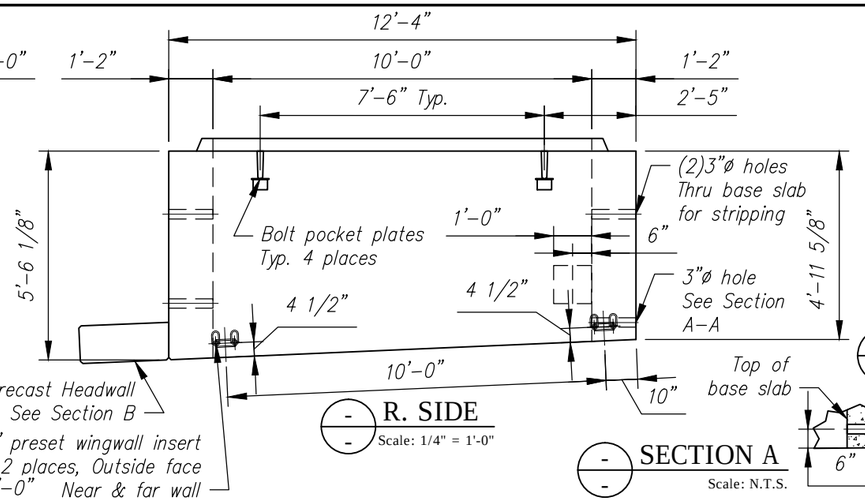
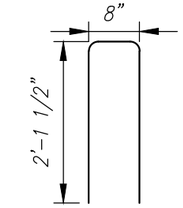


PLAN VIEW
Scale: 1/4" = 1'-0"

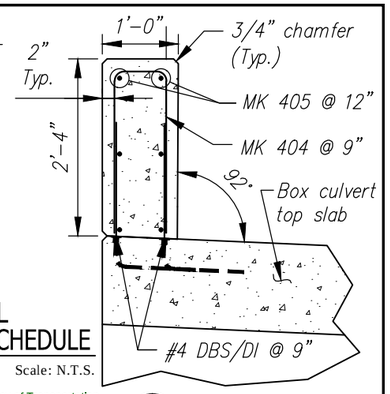


R. SIDE
Scale: 1/4" = 1'-0"

SECTION A
Scale: N.T.S.

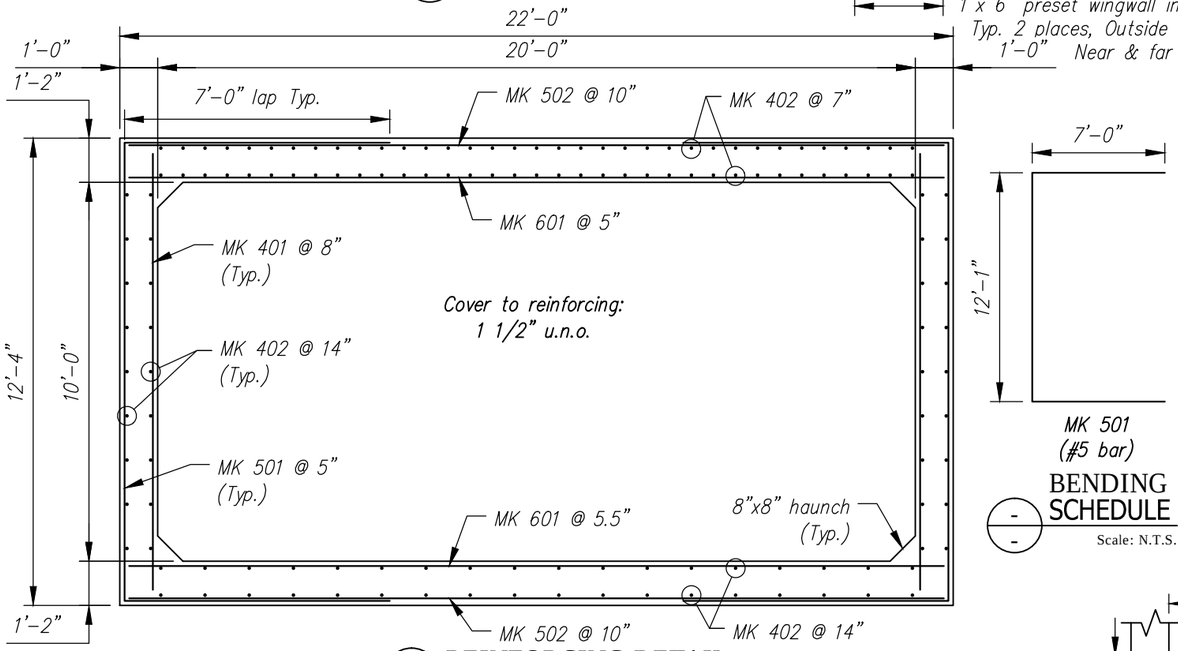


HEADWALL
BENDING SCHEDULE
Scale: N.T.S.



SECTION B
Scale: N.T.S.

Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015



REINFORCING DETAIL
Scale: N.T.S.

BENDING
SCHEDULE
Scale: N.T.S.

B1 - BILL OF MATERIALS / EMBEDS

CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CT-00005	C			
EM-0005A	1'			WEL BAR SPLICER
EM-00010	D			WEL BAR SPLICER
EM-00014	D			
EM-00033	3'			
EM-00125	B			
RM-00013	R			
RM-00015	R			
RM-00017	R			
MX-FA5000SC30	M			
EM-00022	D			WEL IN
RM-00013	R			
MX-FA5000SC30	M			
CT-00005	C			
EM-00018	D			WEL IN
RM-00013	REBAR #4 BLACK- GR 60	186	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	1.9	CY	

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

B1 Rebar Schedule

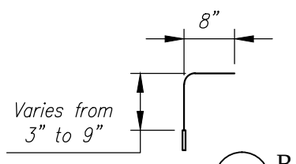
MK		QTY	LENGTH
401	#4	18	11 '- 6 "
402	#4	142	5 '- 3 "
501	#5	27	26 '- 1 "
502	#5	14	21 '- 6 "
601	#6	27	21 '- 6 "

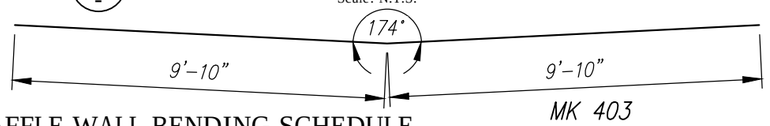
B1 BW Rebar Schedule

MK		QTY	LENGTH
403	#4	2	19 '- 8 "

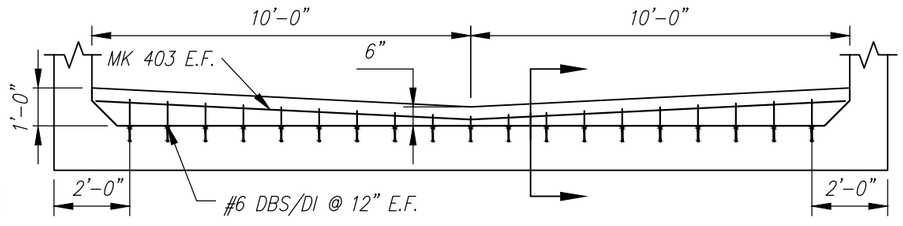
B1 HW Rebar Schedule

MK		QTY	LENGTH
404	#4	30	4 '- 11 "
405	#4	6	21 '- 10 "

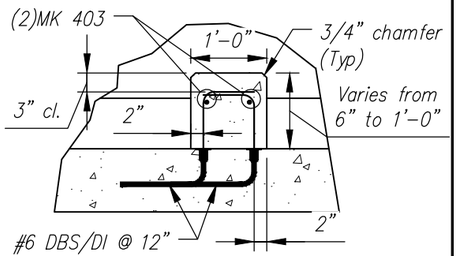




BAFFLE WALL BENDING SCHEDULE
Scale: N.T.S.



BAFFLE WALL DETAIL
Scale: N.T.S.



BAFFLE WALL SECTION
Scale: N.T.S.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY

VTrans Working to Get You There

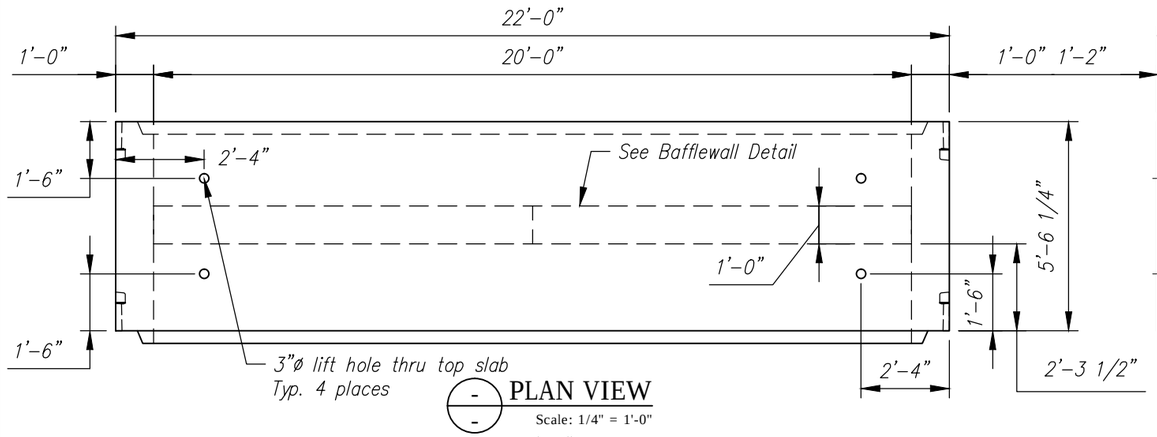
Drawn By	Date
R. YEAGER	16MAR2015
Concrete Cu. Yd.	Weight in Tons
16.78	33.99
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

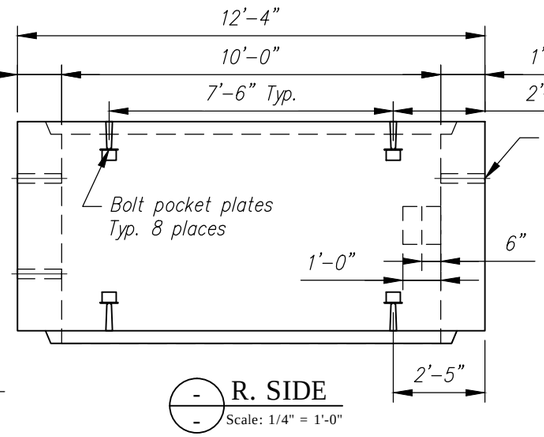
B | SHOP DRAWING – B1 | REV 0

Drawing No. C22283–LO2–B1

Quantity: 1 | Project No: STPCULV30 | SHEET 1 OF 9



PLAN VIEW
Scale: 1/4" = 1'-0"



R. SIDE
Scale: 1/4" = 1'-0"

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 5/7/2015

B2 Rebar Schedule			
MK		QTY	LENGTH
401	#4	18	11 '- 6 "
402	#4	142	5 '- 3 "
501	#5	27	26 '- 1 "
502	#5	14	21 '- 6 "
601	#6	27	21 '- 6 "

B2 BW Rebar Schedule			
MK		QTY	LENGTH
403	#4	2	19 '- 8 "

B2 - BILL OF MATERIALS / EMBEDS

CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00014		38	EA	DOWEL BAR SPLICER
EM-00033		7	FT	
EM-00125		8	EA	
JS-00002		65	FT	AROUND BELL
RM-00013		636	LB	
RM-00015		1048	LB	
RM-00017		872	LB	
MX-FA50(		ATING 14.87	CY	
		ALS / EMBEDS		
EM-00022		38	EA	DOWEL IN
RM-00013		26	LB	
MX-FA50(		ATING 0.51	CY	

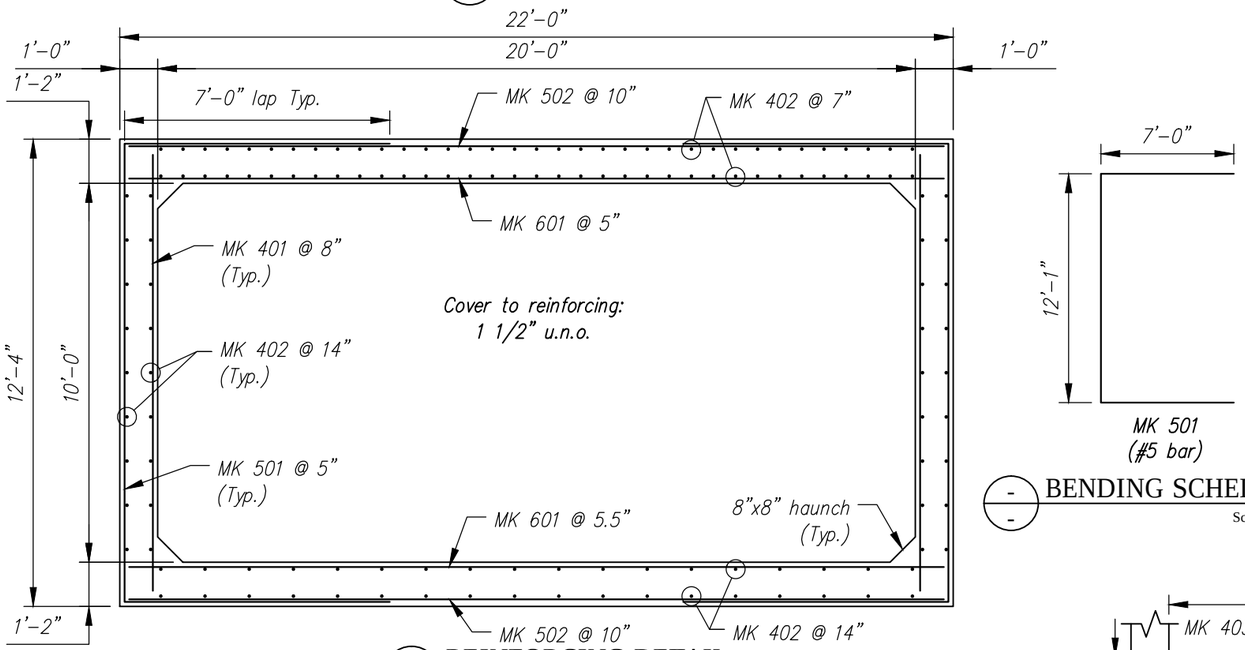
REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

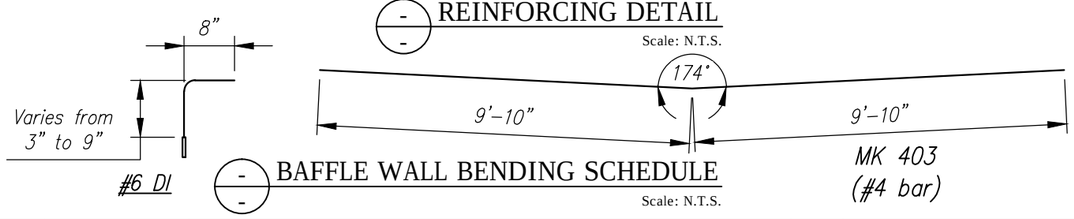
By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

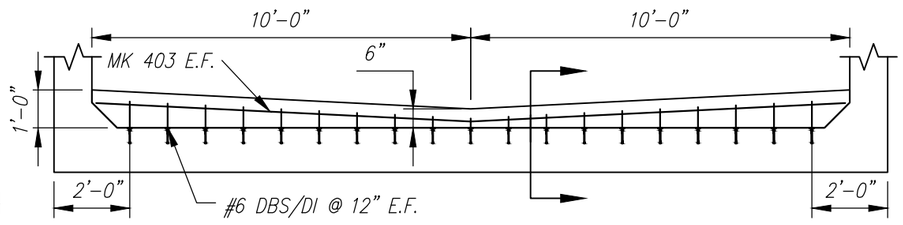


REINFORCING DETAIL
Scale: N.T.S.

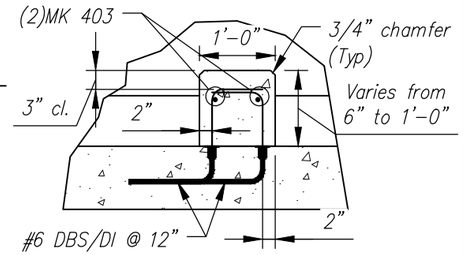
BENDING SCHEDULE
Scale: N.T.S.



BAFFLE WALL BENDING SCHEDULE
Scale: N.T.S.



BAFFLE WALL DETAIL
Scale: N.T.S.



BAFFLE WALL SECTION
Scale: N.T.S.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY

VTrans Working to Get You There

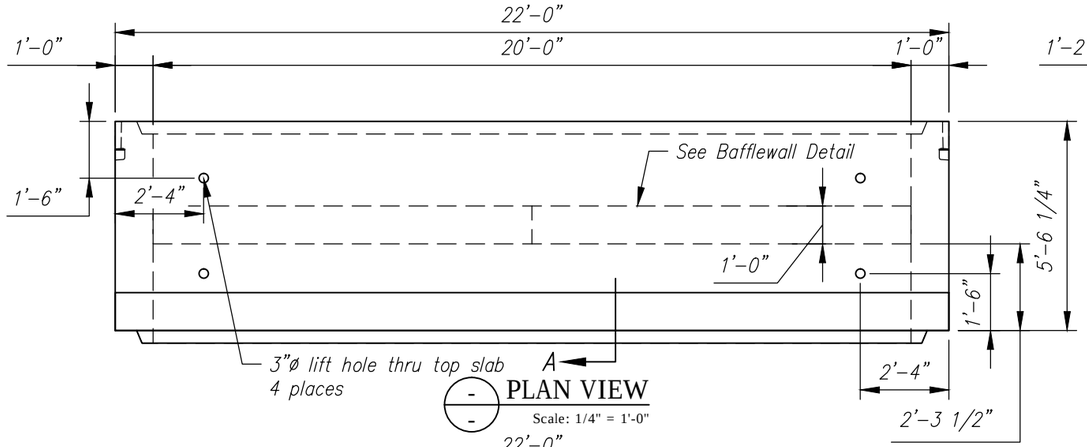
Drawn By	Date
R. YEAGER	16MAR2015
Concrete Cu. Yd.	Weight in Tons
15.39	31.16
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

B | SHOP DRAWING – B2 | REV 0

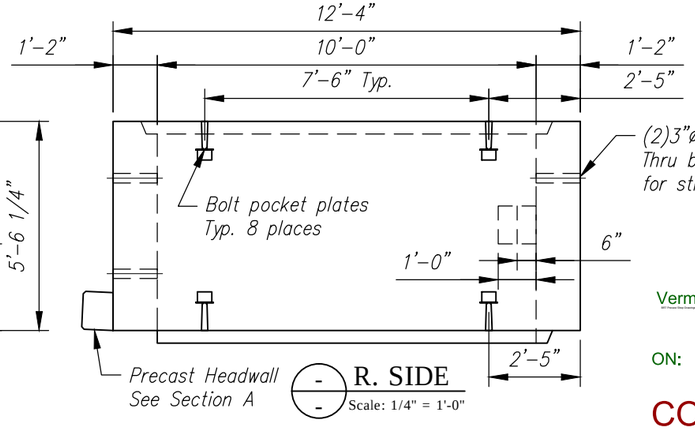
Drawing No. C22283-LO2-B2

Quantity: 7 | Project No: STPCULV30 | SHEET 2 OF 9



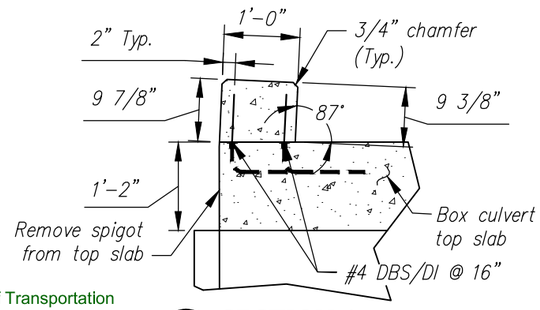
PLAN VIEW

Scale: 1/4" = 1'-0"



R. SIDE

Scale: 1/4" = 1'-0"



SECTION A

Scale: N.T.S.

Vermont Agency of Transportation

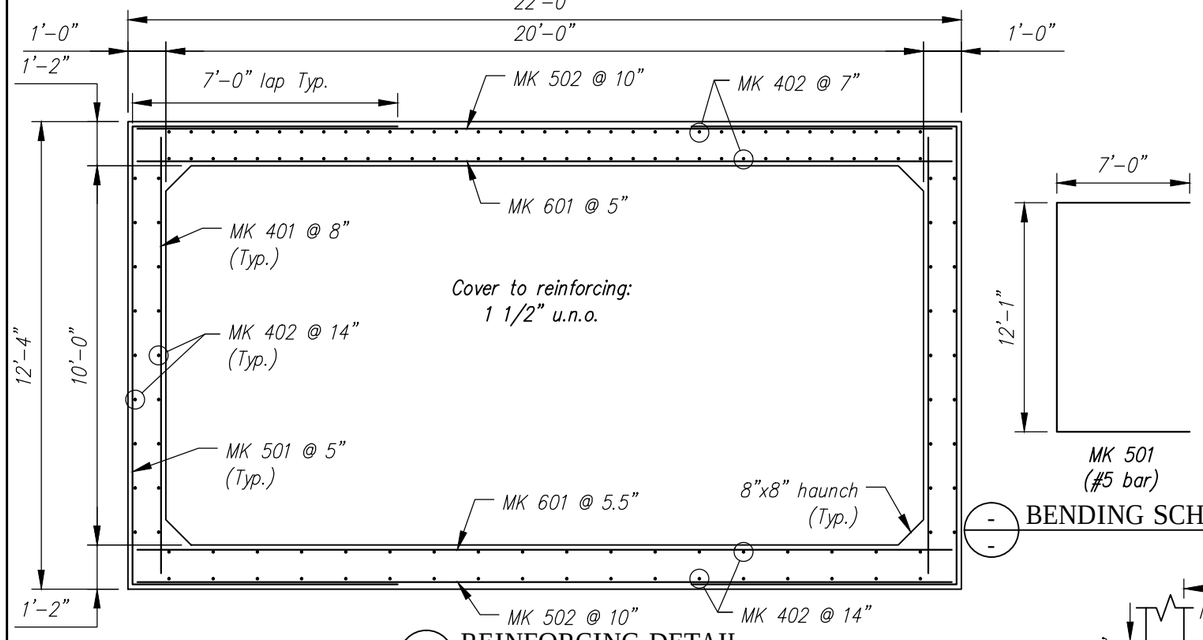
RECEIVED

ON: April 30, 2015

and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 5/7/2015



REINFORCING DETAIL

Scale: N.T.S.

BENDING SCHEDULE

Scale: N.T.S.

B3 - BILL OF MATERIALS / EMBEDS

CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.36	GA	
EM-0005A	1" X 6 " PRESET WING INSERTS	4.00	EA	
EM-00010	DBSAE #4 X 18" BLACK	34	EA	DOWEL BAR SPLICER
EM-00014	DBSAE #6 X 18" PLAIN	38	EA	DOWEL BAR SPLICER
EM-00033				
EM-00125				
JS-00002				AROUND BELL
RM-00013				
RM-00015				
RM-00017				
MX-FA5000SC30				
EM-00022				DOWEL IN
RM-00013				
MX-FA5000SC30				
CT-00005				
EM-00018				DOWEL IN
MX-FA5000SC30				

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

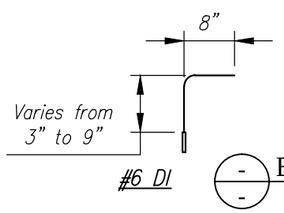
Date: 4/24/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

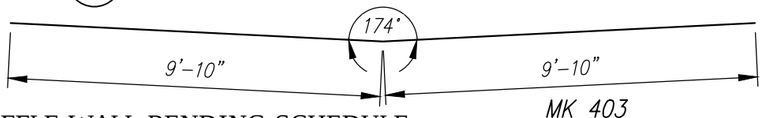
B3 Rebar Schedule			
MK		QTY	LENGTH
401	#4	18	11 '- 6 "
402	#4	142	5 '- 3 "
501	#5	27	26 '- 1 "
502	#5	14	21 '- 6 "
601	#6	27	21 '- 6 "

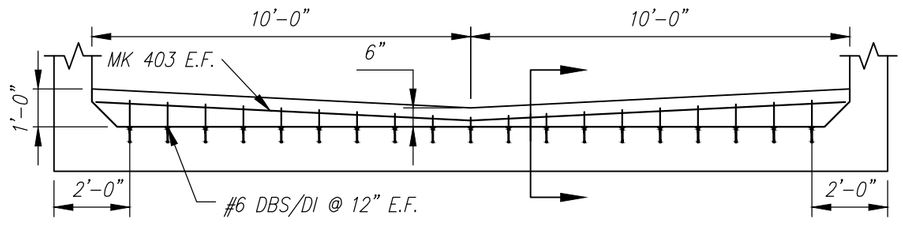
B3 BW Rebar Schedule			
MK		QTY	LENGTH
403	#4	2	19 '- 8 "



BAFFLE WALL BENDING SCHEDULE

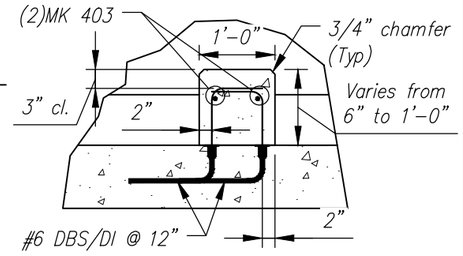
Scale: N.T.S.





BAFFLE WALL DETAIL

Scale: N.T.S.



BAFFLE WALL SECTION

Scale: N.T.S.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

CSI Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By	R. YEAGER	Date	16MAR2015
Concrete Cu. Yd.	16.06	Weight in Tons	32.52
Approved By		Date	

J A MCDONALD, INC.

VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT

BRIDGE #7, VT ROUTE 58, IRASBURG, VT

B

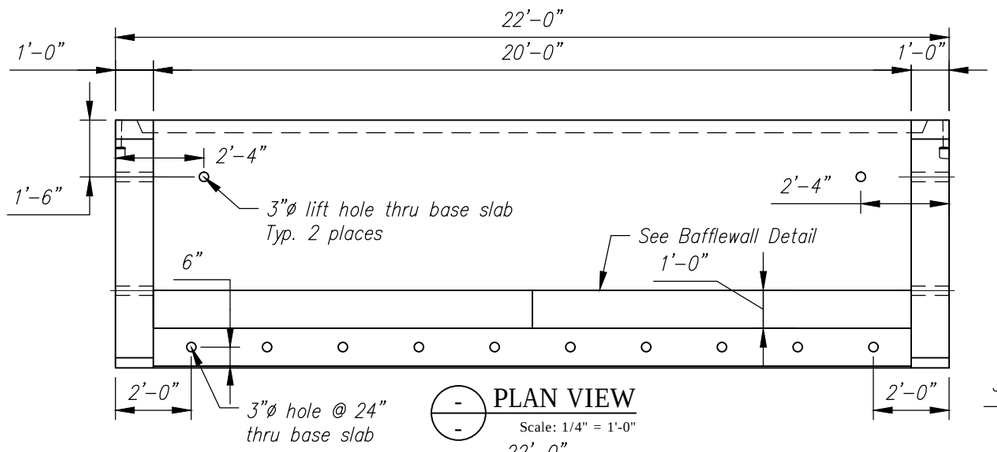
SHOP DRAWING – B3

Drawing No. C22283–L02–B3

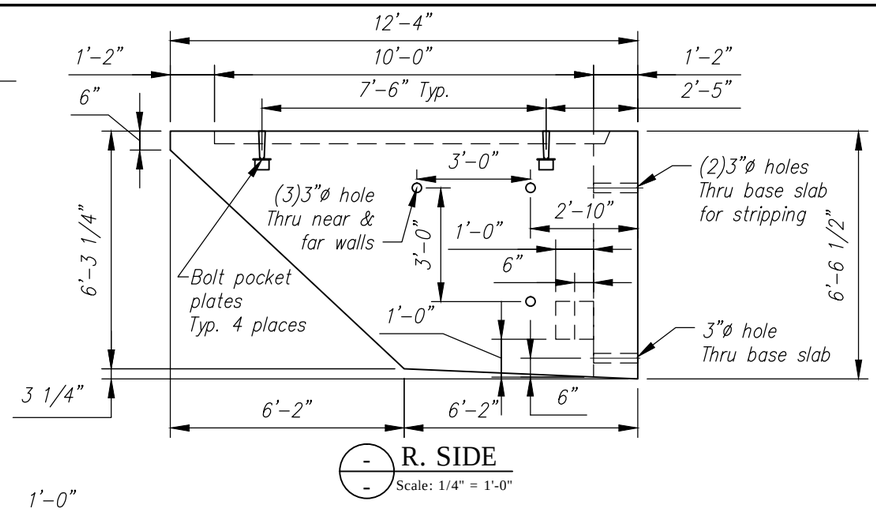
REV 0

Quantity: 1 | Project No: STPCULV30 | SHEET 3 OF 9

Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015



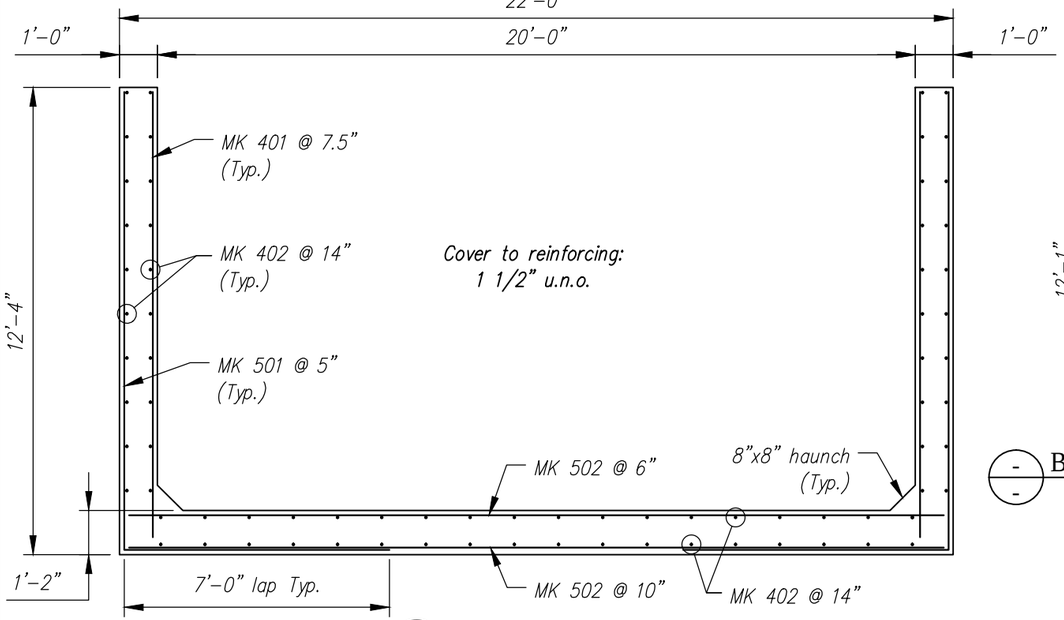
PLAN VIEW
Scale: 1/4" = 1'-0"



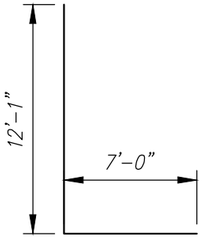
R. SIDE
Scale: 1/4" = 1'-0"

B4 Rebar Schedule			
MK		QTY	LENGTH
401	#4	20	11 '- 7 "
402	#4	76	6 '- 3 "
501	#5	30	19 '- 1 "
502	#5	21	21 '- 6 "

B4 BW Rebar Schedule			
MK		QTY	LENGTH
403	#4	2	19 '- 8 "

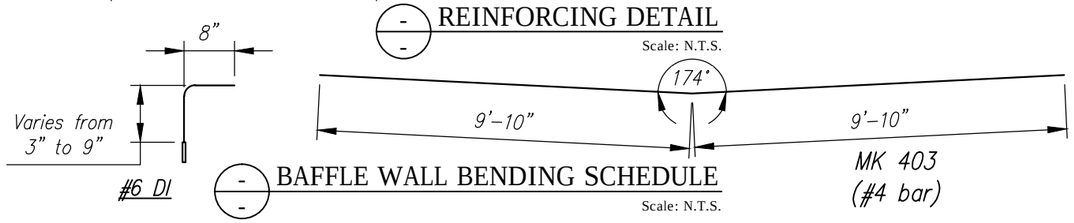


REINFORCING DETAIL
Scale: N.T.S.

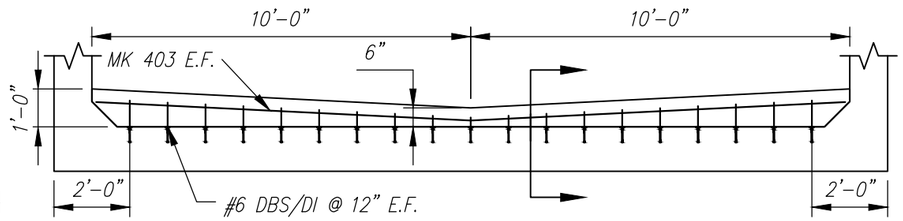


MK 501
(#5 rebar)

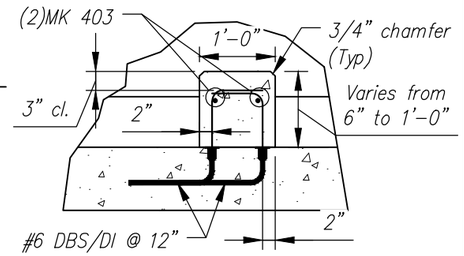
BENDING SCHEDULE
Scale: N.T.S.



BAFFLE WALL BENDING SCHEDULE
Scale: N.T.S.



BAFFLE WALL DETAIL
Scale: N.T.S.



BAFFLE WALL SECTION
Scale: N.T.S.

B4 - BILL OF MATERIALS / EMBEDS

CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	1.53	GA	
EM-00014	DBSAE #6 X 18" PLAIN	38	EA	DOWEL BAR SPLICER
EM-(		20	FT	
EM-(		4	EA	
JS-0		44	FT	AROUND BELL
RM-(		472	LB	
RM-(		1068	LB	
MX-F		LIDATING 14.87	CY	
		TERIALS / EMBEDS		
CT-0		OXANE) 0.20	GA	
EM-(		38	EA	DOWEL IN
RM-(		26	LB	
MX-F		LIDATING 0.51	CY	

REVIEWED — X
REVIEWED AS MODIFIED
REVISE AND RESUBMIT
NOT REVIEWED
Stantec
Date: 4/24/2015
By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

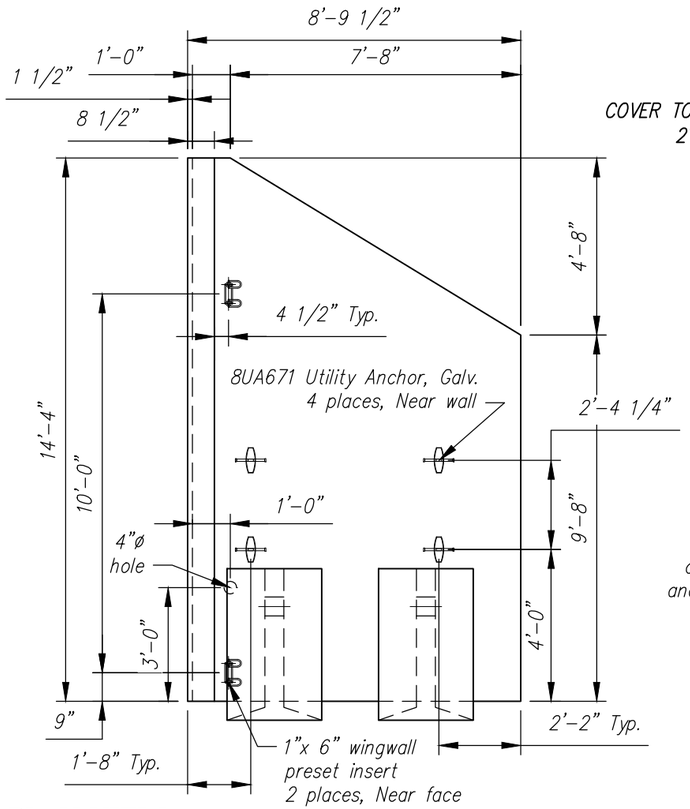
STATE AGENCY
VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By	Date
R. YEAGER	16MAR2015
Concrete Cu. Yd.	Weight in Tons
11.91	24.12
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

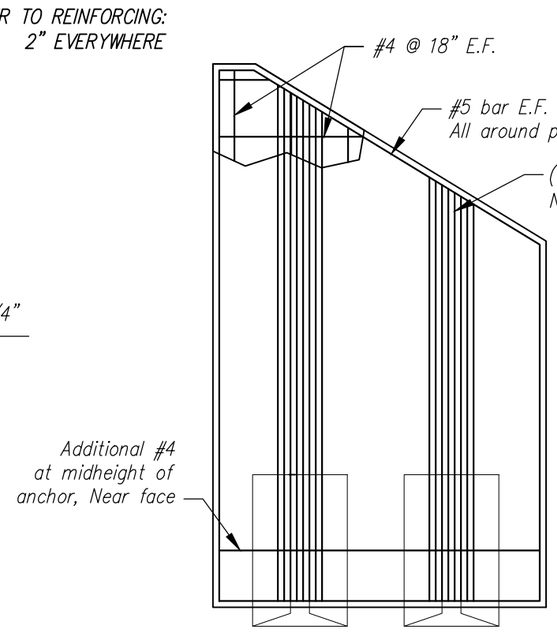
B — SHOP DRAWING – B4 — REV 0
Drawing No. C22283–LO2–B4

Quantity: 1 | Project No: STPCULV30 | SHEET 4 OF 9



PLAN VIEW

Scale: N.T.S.



REINFORCING DETAIL

Scale: N.T.S.

Need to specify a spacing or total width for the additional #8 bars

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

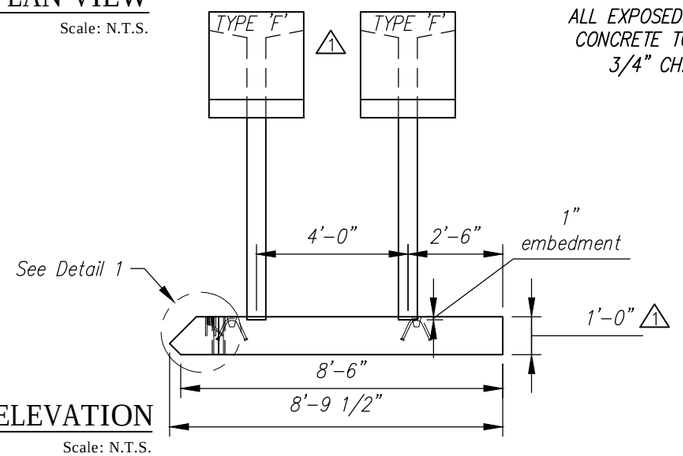
and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 5/7/2015

WW1B - BILL OF MATERIALS / EMBEDS

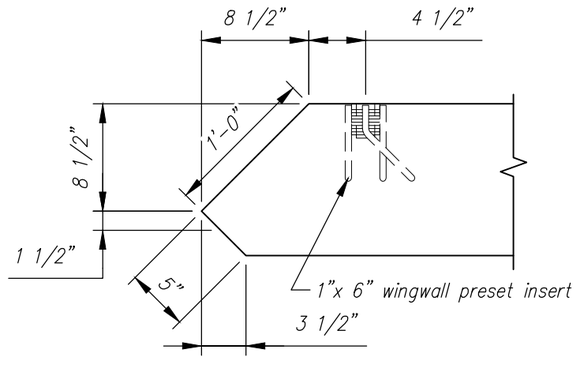
	CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
1	CSANC-F	CON/SPAN WINGWALL ANCHOR (F)	2	EA	
	CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.64	GA	
	EM-0005A	1" X 6 " PRESET WING INSERTS	2	EA	
	EM-00034	4" FOAM CORE PVC	1	FT	
	EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	4	EA	
	RM-00013	REBAR #4 BLACK- GR 60	219	LB	
	RM-00015	REBAR #5 BLACK-GR 60 40'	87	LB	
	RM-00104	REBAR #8 BLACK-GR 60	598	LB	
	MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	3.86	CY	



ELEVATION

Scale: N.T.S.

ALL EXPOSED EDGES OF CONCRETE TO RECEIVE 3/4" CHAMFER



DETAIL 1

Scale: N.T.S.

REVIEWED	
REVIEWED AS MODIFIED	X
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 5/1/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01APR2015	ANCHORS WERE TYPE 'D', WALL WAS 10" THK	RY

REVISIONS

CSI Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By	Date
R. YEAGER	16MAR2015
Concrete Cu. Yd.	Weight in Tons
5.24	10.61
Approved By	Date

J A MCDONALD, INC.

VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT

BRIDGE #7, VT ROUTE 58, IRASBURG, VT

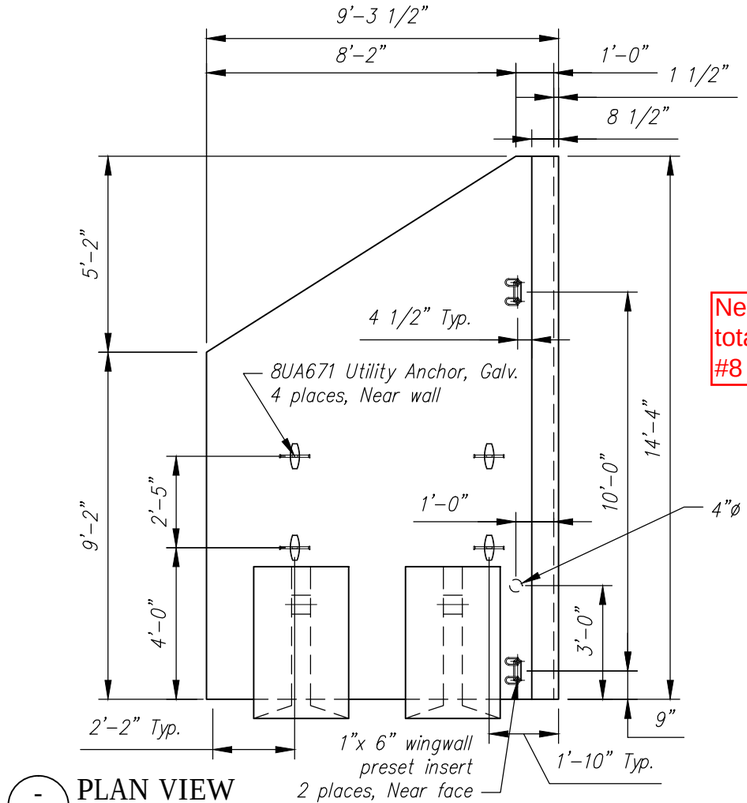
B

SHOP DRAWING – WW1B

Drawing No. C22283–LO2–WW1B

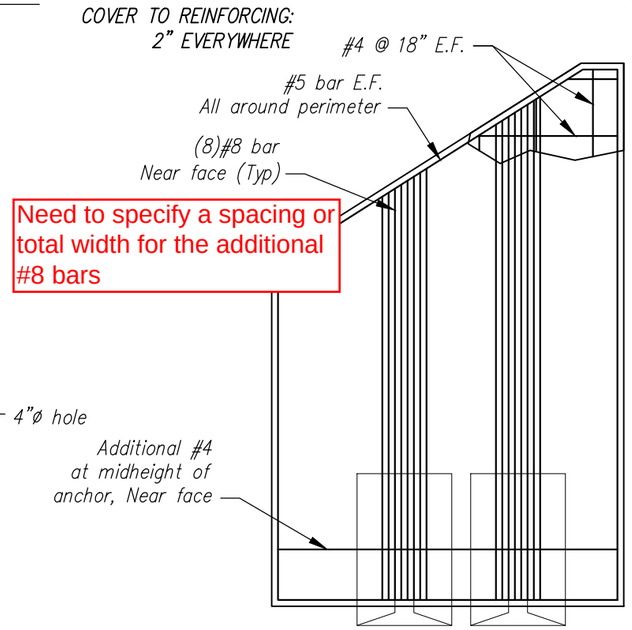
REV 1

Quantity: 1 | Project No: STPCULV30 | SHEET 5 OF 9



PLAN VIEW

Scale: N.T.S.



REINFORCING DETAIL

Scale: N.T.S.

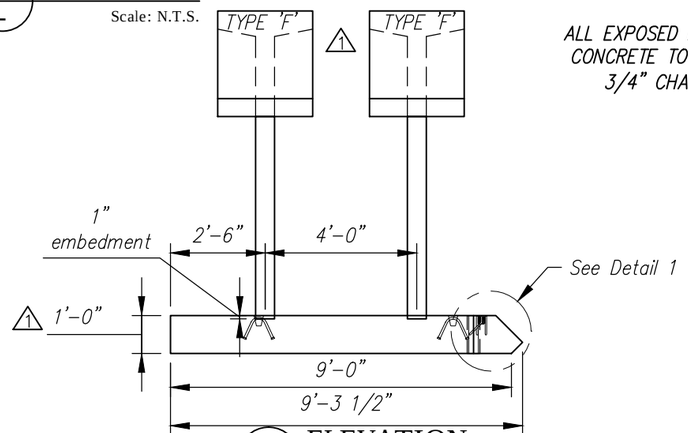
WW2B - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
CSANC-F	CON/SPAN WINGWALL ANCHOR (F)	2	EA	
CT-00005	CONSOLIDECK SALTGUARD (SILANE SILOXANE)	0.64	GA	
EM-0005A	1" X 6 " PRESET WING INSERTS	2	EA	
EM-00034	4" FOAM CORE PVC	1	FT	
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	4	EA	
RM-00013	REBAR #4 BLACK- GR 60	226	LB	
RM-00015	REBAR #5 BLACK-GR 60 40'	88	LB	
RM-00104	REBAR #8 BLACK-GR 60	598	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	4.01	CY	

REVIEWED		Stantec
REVIEWED AS MODIFIED	X	
REVISE AND RESUBMIT		
NOT REVIEWED		

Date: 5/1/2015

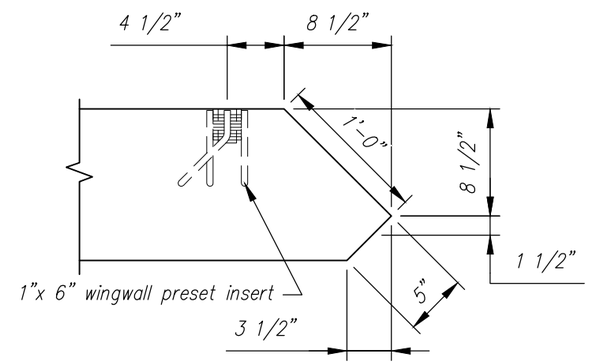
By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.



ELEVATION

Scale: N.T.S.



DETAIL 1

Scale: N.T.S.

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

and Checked for

CONFORMANCE

BY: Mark Sargent DATE: 5/7/2015

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01APR2015	ANCHORS WERE TYPE 'D', WALL WAS 10" THK	RY

REVISIONS

Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By R. YEAGER	Date 16MAR2015
Concrete Cu. Yd. 5.39	Weight in Tons 10.91
Approved By	Date

J A MCDONALD, INC.

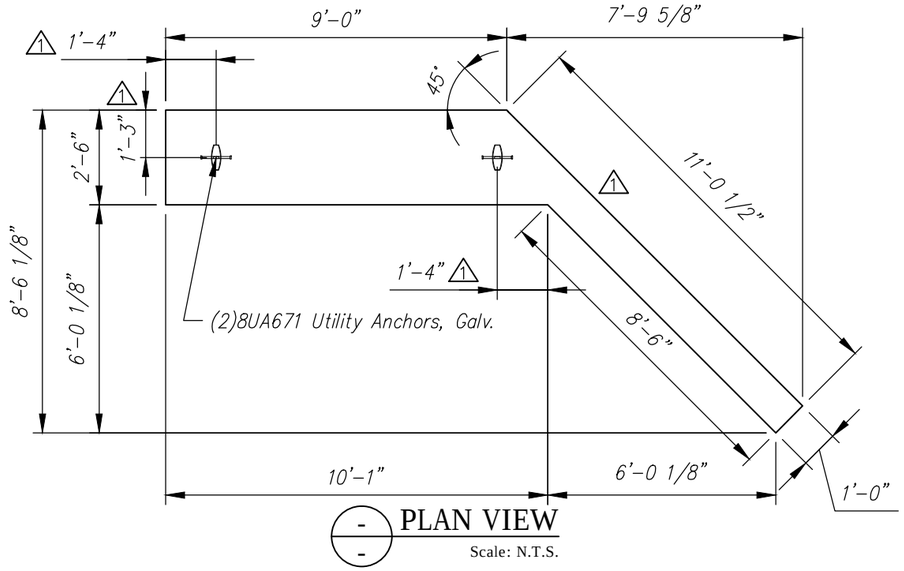
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT

BRIDGE #7, VT ROUTE 58, IRASBURG, VT

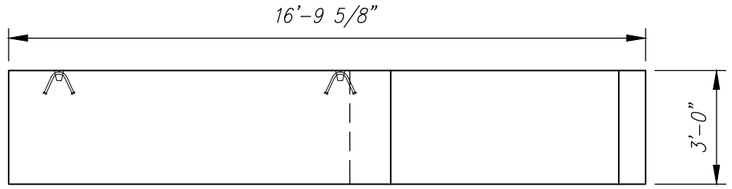
B — SHOP DRAWING – WW2B — REV 1

Drawing No. C22283-LO2-WW2B

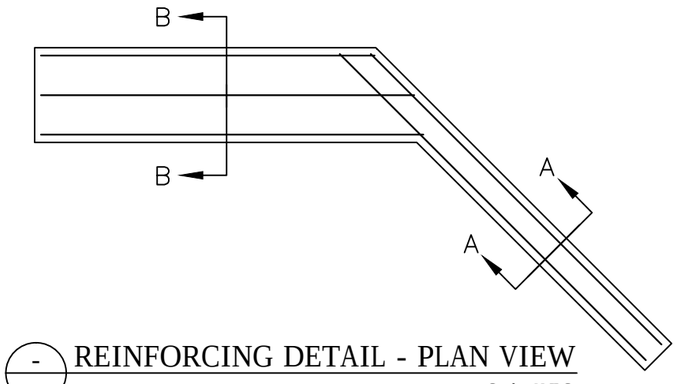
Quantity: 1 | Project No: STPCULV30 | SHEET 6 OF 9



PLAN VIEW
Scale: N.T.S.



ELEVATION
Scale: N.T.S.

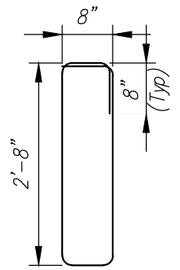


REINFORCING DETAIL - PLAN VIEW
Scale: N.T.S.

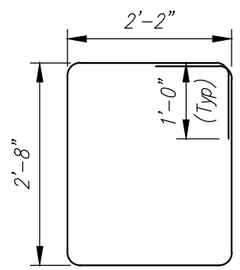
Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

F1B - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	2	EA	
RM-00013	REBAR #4 BLACK- GR 60	50	LB	
RM-00017	REBAR #6 BLACK-GR 60 40'	160	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	3.74	CY	

F1B Rebar Schedule			
MK	QTY	LENGTH	
401 #4	5	8 '- 0 "	
402 #4	3	11 '- 8 "	
601 #6	4	11 '- 6 "	
602 #6	6	10 '- 1 "	MAX



MK 401
#4 bar



MK 402
#4 bar

BENDING SCHEDULE
Scale: N.T.S.

Cover to reinforcing: 2" u.n.o.

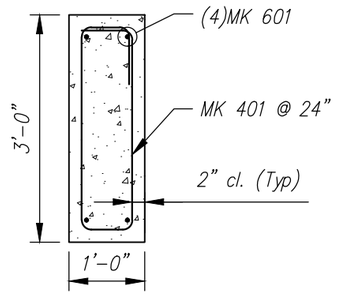
REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

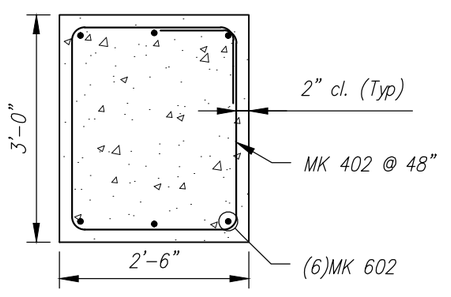
Date: 4/24/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.



SECTION A-A



SECTION B-B

REINFORCING DETAIL
Scale: N.T.S.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2	28APR2015	REVISED UTILITY ANCHOR LOCATIONS	RY
1	01APR2015	DIMENSIONAL CHANGES DUE TO 12" THK WW	RY

REVISIONS

CSI
Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

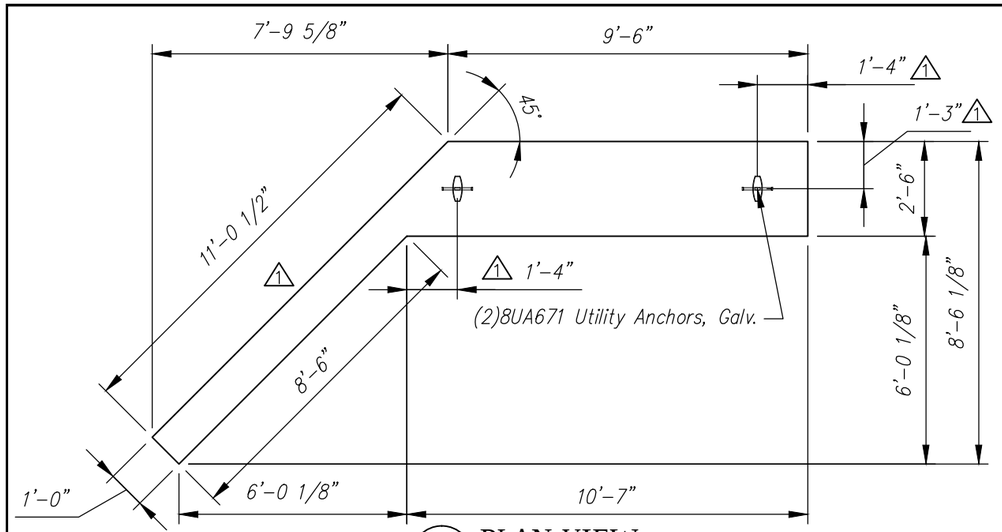
STATE AGENCY
VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By R. YEAGER	Date 16MAR2015
Concrete Cu. Yd. 3.74	Weight in Tons 7.57
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE - STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

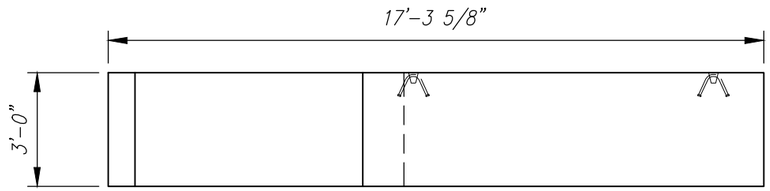
B | SHOP DRAWING - F1B | REV 2
Drawing No. C22283-LO2-F1B

Quantity: 1 | Project No: STPCULV30 | SHEET 7 OF 9



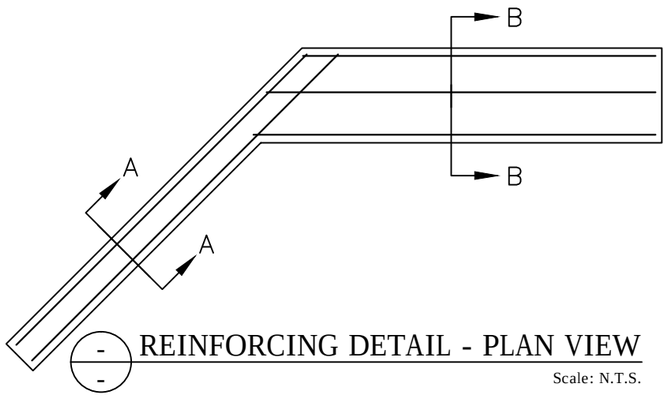
PLAN VIEW

Scale: N.T.S.



ELEVATION

Scale: N.T.S.



REINFORCING DETAIL - PLAN VIEW

Scale: N.T.S.

Vermont Agency of Transportation

RECEIVED

ON: April 30, 2015

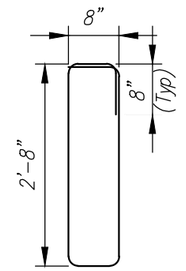
and Checked for

CONFORMANCE

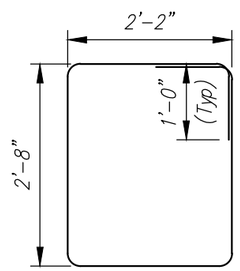
BY: Mark Sargent DATE: 5/7/2015

F2B - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	2	EA	
RM-00013	REBAR #4 BLACK- GR 60	50	LB	
RM-00017	REBAR #6 BLACK-GR 60 40'	164	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	3.88	CY	

F2B Rebar Schedule			
MK	QTY	LENGTH	
401 #4	5	8 '- 0 "	
402 #4	3	11 '- 8 "	
601 #6	4	11 '- 6 "	
602 #6	6	10 '- 7 "	MAX



MK 401
#4 bar



MK 402
#4 bar

BENDING SCHEDULE

Scale: N.T.S.

Cover to reinforcing: 2" u.n.o.

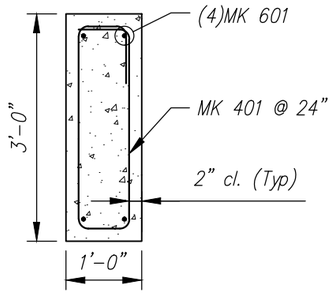
REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

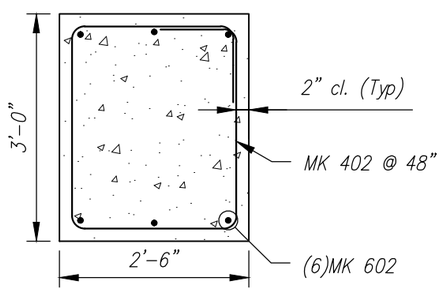
Date: 4/24/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.



SECTION A–A



SECTION B–B

REINFORCING DETAIL

Scale: N.T.S.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2	28APR2015	REVISED UTILITY ANCHOR LOCATIONS	RY
1	01APR2015	DIMENSIONAL CHANGES DUE TO 12" THK WW	RY

REVISIONS

Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY

VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By R. YEAGER	Date 16MAR2015
Concrete Cu. Yd. 3.88	Weight in Tons 7.86
Approved By	Date

J A MCDONALD, INC.

VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT

BRIDGE #7, VT ROUTE 58, IRASBURG, VT

B — SHOP DRAWING – F2B — REV 2

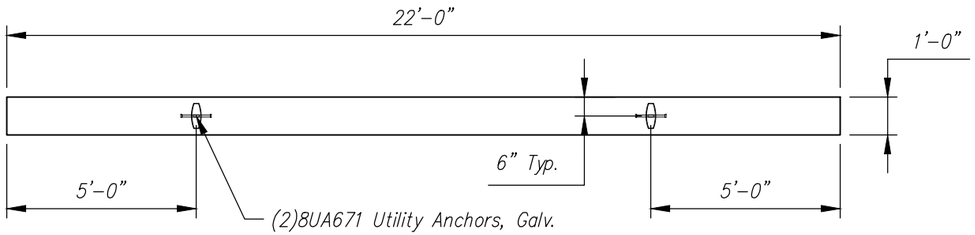
Drawing No. C22283–L02–F2B

Quantity: 1 | Project No: STPCULV30 | SHEET 8 OF 9

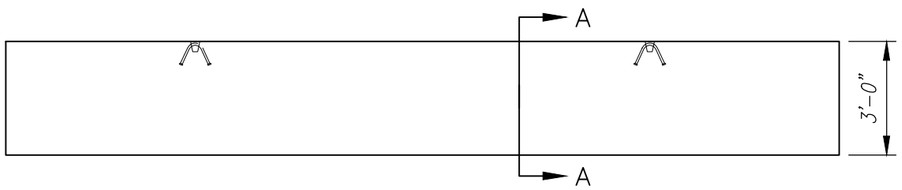
F3B - BILL OF MATERIALS / EMBEDS				
CSI ID#	DESCRIPTION	QTY	UM	COMMENTS
EM-00115	UTILITY ANCHOR #8UA671-GALVANIZED	2	EA	
RM-00013	REBAR #4 BLACK- GR 60	64	LB	
RM-00017	REBAR #6 BLACK-GR 60 40'	130	LB	
MX-FA5000SC30	MIX DESIGN - FLY ASH 5000 SELF CONSOLIDATING	2.44	CY	

F3B Rebar Schedule			
MK		QTY	LENGTH
401	#4	12	8 '- 0 "
601	#6	4	21 '- 8 "

Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015



PLAN VIEW
Scale: N.T.S.



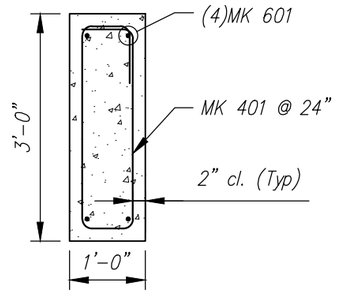
ELEVATION
Scale: N.T.S.

REVIEWED	X	Stantec
REVIEWED AS MODIFIED		
REVISE AND RESUBMIT		
NOT REVIEWED		

Date: 4/24/2015

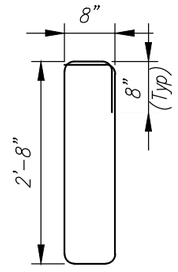
By: Nathan Tirk

This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.



SECTION A–A

REINFORCING DETAIL
Scale: N.T.S.



MK 401
#4 bar

BENDING SCHEDULE
Scale: N.T.S.

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1			

REVISIONS

CSI Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

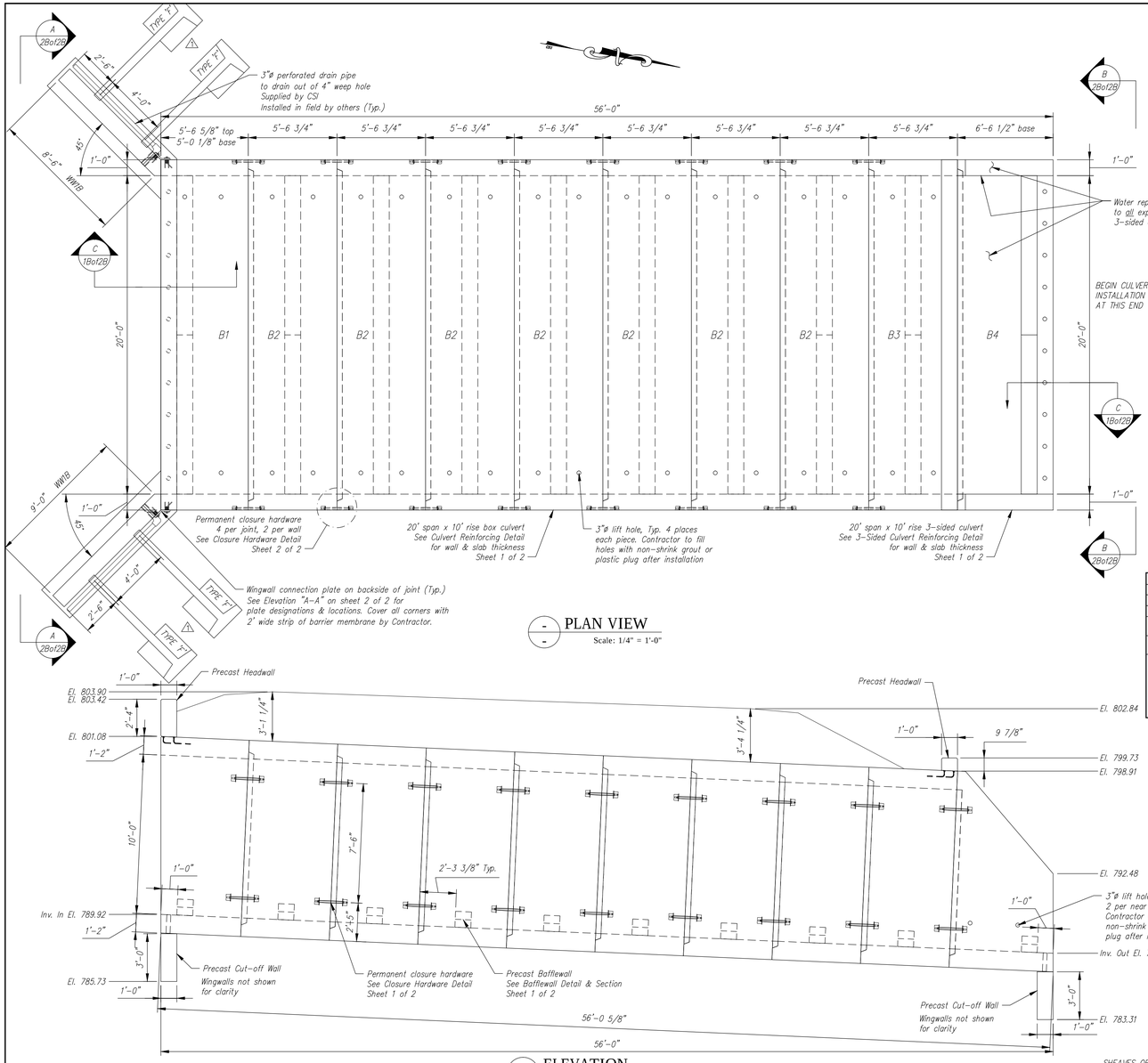
STATE AGENCY
VTrans Working to Get You There VERMONT AGENCY OF TRANSPORTATION

Drawn By R. YEAGER	Date 16MAR2015
Concrete Cu. Yd. 2.44	Weight in Tons 4.94
Approved By	Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

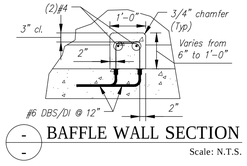
B | SHOP DRAWING – F3B | REV 0
Drawing No. C22283–L02–F3B

Quantity: 1 | Project No: STPCULV30 | SHEET 9 OF 9

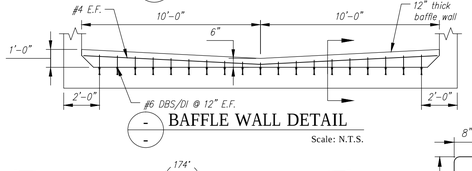


PLAN VIEW
Scale: 1/4" = 1'-0"

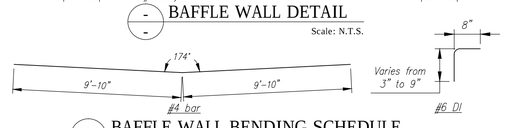
ELEVATION
Scale: 1/4" = 1'-0"



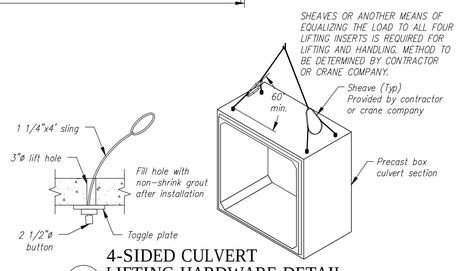
BAFFLE WALL SECTION
Scale: N.T.S.



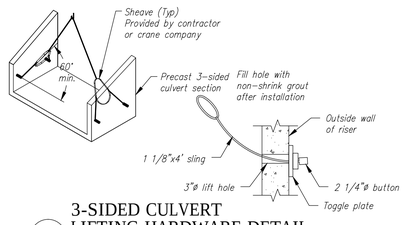
BAFFLE WALL DETAIL
Scale: N.T.S.



BAFFLE WALL BENDING SCHEDULE
Scale: N.T.S.



4-SIDED CULVERT
LIFTING HARDWARE DETAIL
Scale: N.T.S.



3-SIDED CULVERT
LIFTING HARDWARE DETAIL
Scale: N.T.S.

PIECE SCHEDULE (MX-FA5000SC30)					
MARK	QTY	LENGTH	YDS	WEIGHT	
B1	1	5.28 '	16.78	33.99	TONS
B2	7	5.56 '	15.39	31.16	TONS
B3	1	5.56 '	16.06	32.52	TONS
B4	1	6.27 '	11.91	24.12	TONS
⚠1 WW1B	1	8.50 '	5.24	10.61	TONS
⚠1 WW2B	1	9.00 '	5.39	10.91	TONS
⚠1 F1B	1	19.18 '	3.74	7.57	TONS
⚠1 F2B	1	19.86 '	3.88	7.86	TONS
⚠1 F3B	1	22.00 '	2.44	4.94	TONS

WINGWALL GENERAL NOTES:
1. Reference standard:
   AASHTO LRFD Specifications
2. Design Parameters:
   Soil Bearing: 3300 psf
   Earth Cover: 1.00 ft max.
   Concrete: Design strength f'c = 5000 psi
   Unit weight = 150 pcf
   Reinforcing: ASTM A615 (rebar), grade 60, Black
   Soil: Unit weight = 140 pcf
   Minimum lateral pressure coefficient .25
   Maximum lateral pressure coefficient .50
   Cover to reinforcing: 2" u.n.o.
3. The wingwalls have been designed for general site conditions. The project engineer shall be responsible for the structure's suitability to the existing site conditions and for the hydraulic evaluation, including scour and confirmation of soil conditions.
4. Prior to construction, contractor must verify all elevations shown through the engineer.

GENERAL NOTES:
1. Reference Standards:
   AASHTO "LRFD Bridge Design Specifications"
   ASTM C1577
2. Design Parameters:
   Live load: HL-93
   Earth Cover: 3' to 4'
   Concrete: Design strength f'c = 5000 psi
   Unit weight = 150 pcf
   Reinforcing: ASTM A615 (rebar) GR 60, Black
   Soil: Unit weight = 140 pcf
   Minimum lateral pressure coefficient .25
   Maximum lateral pressure coefficient .50
   Cover to reinforcing: 2" headwalls
   1 1/2" culvert walls
   1 1/2" elsewhere u.n.o.
3. Dimensions include a joint gap. Actual culvert piece length is ½" shorter (i.e. B2 = 5'-6 1/4").
4. No dampproofing or waterproofing supplied by CSI.
5. DBS are Dowel Bar Splicers and DI are Dowel Ins. Both are supplied by CSI. DI's are to be installed and cut/bent in the field by others as required.
6. Headwalls are not designed for impact load.
7. Water repellant(Silane Siloxane) by CSI on all exposed faces of culvert, headwalls, and wingwalls.
8. Provide engineer a minimum fourteen (14) days notice prior to the start of fabrication and a detailed casting schedule.

Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

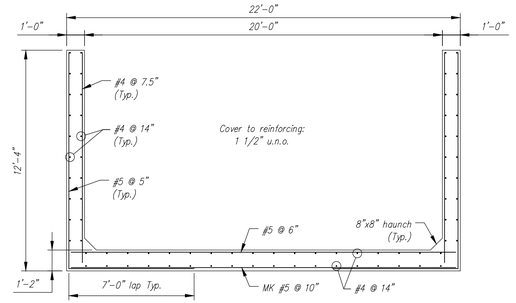
REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

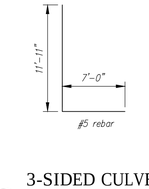
Date: 4/24/2015

By: Nathan Tirk

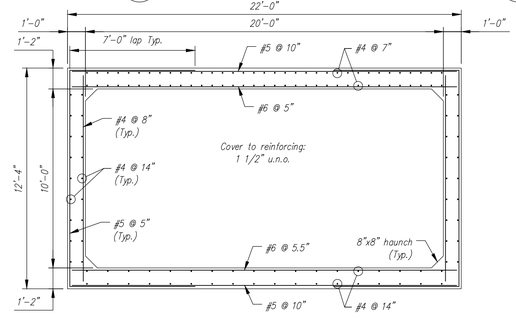
This review by Stantec Consulting Services Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawing or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.



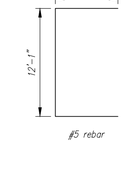
3-SIDED CULVERT
REINFORCING DETAIL
Scale: 3/8" = 1'-0"



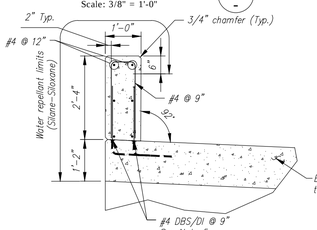
3-SIDED CULVERT
BENDING SCHEDULE
Scale: N.T.S.

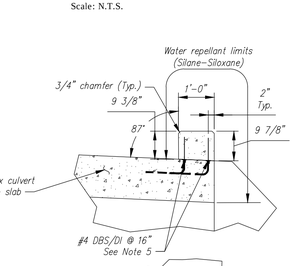


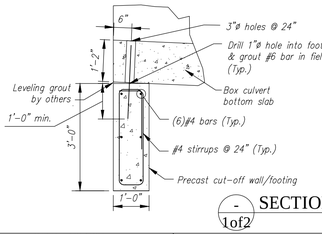
CULVERT REINFORCING DETAIL
Scale: 3/8" = 1'-0"

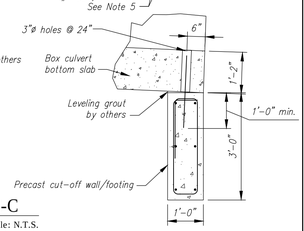


BENDING SCHEDULE
Scale: N.T.S.









SECTION C-C
Scale: N.T.S.

1of2

Contractor is to verify that all information shown on drawings has been thoroughly checked, complies with the contract documents and is adequate to meet the field conditions. Some dimensions and details may differ slightly from contract drawings to accommodate the manufacturing or design process. Approval of this drawing indicates that any deviation from the contract documents has been reviewed and found to be acceptable. Production will not commence until receipt of signed, approved shop drawings.

This drawing contains information proprietary to CONCRETE SYSTEMS, INC. This drawing is disclosed with the understanding that it will be retained in confidence and its use limited solely to the purpose for which it is disclosed. It is understood that no reproduction of this drawing is authorized without permission from CONCRETE SYSTEMS, INC. and that it will be returned to CONCRETE SYSTEMS, INC. upon request.

Stamp for structural design only

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01apr2015	WINGWALL ANCHORS WERE TYPE 'D', WINGWALLS WERE 10" THK	RY

REVISIONS

This drawing is based upon information provided from the following documents and/or sources:
Engineer: STATE OF VT AOT PROGRAM DEVELOPMENT
Project No: STPCULV30
Drawings: VT/AOT PROPOSED INPROVEMENT BRIDGE PROJECT
SHEETS 1 THRU 24 & 32 OF 55
Specifications: ----- ----- -----
Other Sources: -----

Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

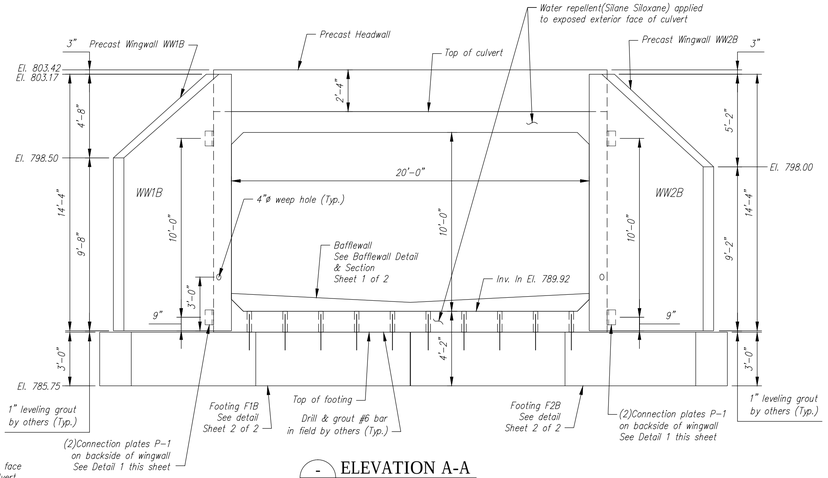
STATE AGENCY
VTrans Working to Get You There!

Drawn By	R. YEAGER	Date 09MAR2015
Reviewed By		Date
Approved By		Date

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

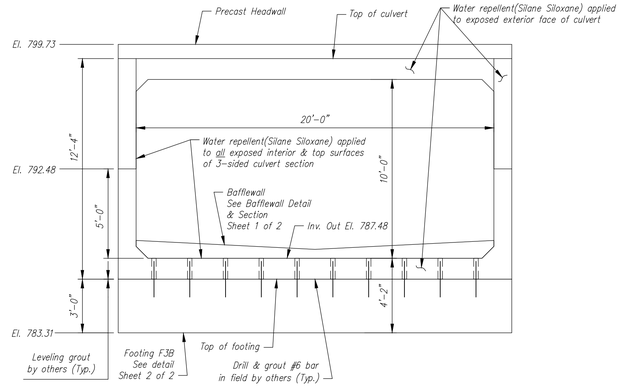
D — 20' SPAN x 10' RISE BOX CULVERT LAYOUT — REV 1
Drawing No. C22283–LO2A

Quantity: 1 | Project No: STPCULV30 | SHEET 1B OF 2B



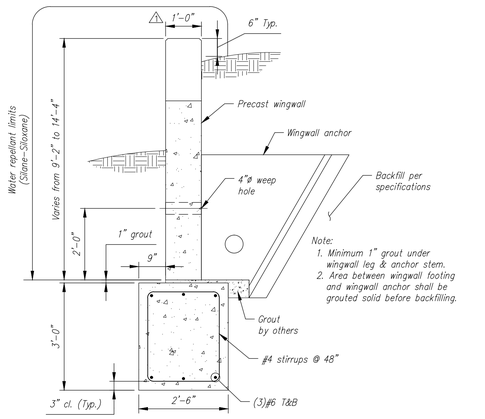
ELEVATION A-A

Scale: 1/4" = 1'-0"



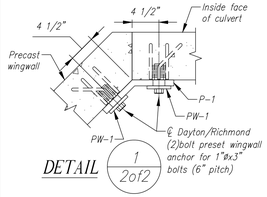
ELEVATION B-B

Scale: 1/4" = 1'-0"

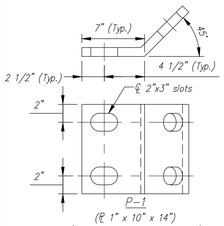


TYPICAL WINGWALL SECTION

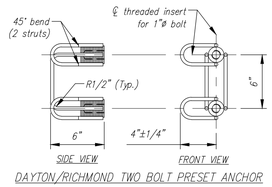
Scale: N.T.S.



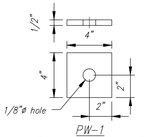
DETAIL 1 2of2



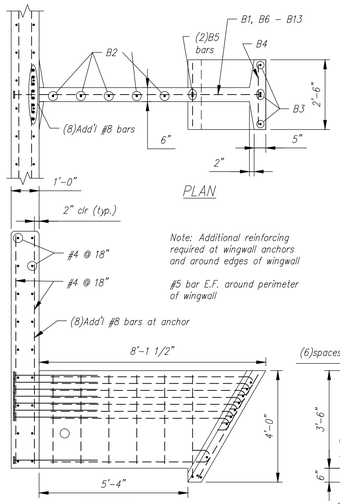
P-1
(℄ 1" x 10" x 14")
(Galvanized as per ASTM A153)
(Total required = 4)



DAYTON/RICHMOND TWO BOLT PRESET ANCHOR



PW-1
(℄ washer, 1/2" x 4" x 4")
(Galvanized as per ASTM A153)
(Total required = 16)



PLAN

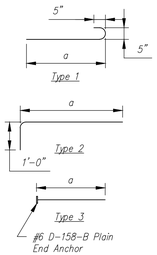
SECTION

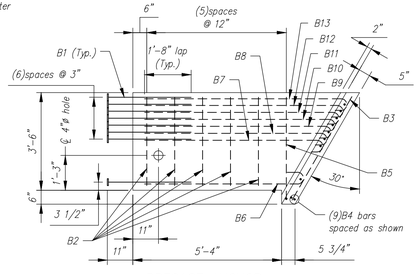
Note: Additional reinforcing required at wingwall anchors and around edges of wingwall

#5 bar E.F. around perimeter of wingwall

BAR LIST					
MARK	QTY.	SIZE	a	TYPE	LENGTH
B1	8	#6	3'-0"	3	———
B2	4	#5	———	Str.	3'-2"
B3	4	#5	———	Str.	4'-3"
B4	11	#5	———	Str.	2'-2"
B5	2	#5	3'-8"	2	———
B6	1	#5	6'-2"	1	———
B7	1	#5	6'-9"	1	———
B8	1	#5	6'-11"	1	———
B9	1	#5	7'-1"	1	———
B10	1	#5	7'-3"	1	———
B11	1	#5	7'-5"	1	———
B12	1	#5	7'-6"	1	———
B13	1	#5	7'-8"	1	———

Note: "Str." denotes straight bar. Standard clearance = 2"

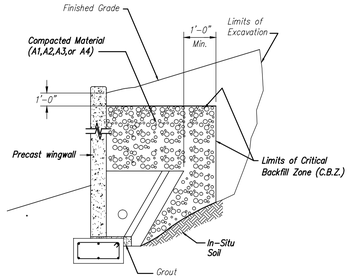




PRECAST ANCHOR TYPE F ⚠

BACKFILL DESCRIPTION						
Group Classification	A-1		A-3	A-2			
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7
Sieve Analysis, Percent Passing							
No. 10	50 max.						
No. 40	30 max.	50 max.	51 min.				
No. 200	15 max.	25 max.	10 max.	35 max.	35 max.	35 max.	35 max.
Characteristics of Fraction Passing No. 40							
Liquid Limit				40 max.	41 min.	40 max.	41 min.
Plasticity Index	6 max.		N.P.	10 max.	10 max.	11 min.	11 min.
Usual Types of Significant Constituent Materials	Stone Fragments, Gravel & Sand		Fine Sand	Silty or Clayey Gravel and Sand			
General Rating as Subgrade	Excellent to Good						

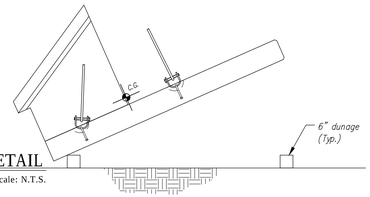
NOTES
1. BACKFILLING OPERATIONS WITHIN THE C.B.Z. SHALL BE PERFORMED IN LIFTS OF 8" OR LESS (LOOSE DEPTH).
2. MAXIMUM DRY DENSITY SHALL BE DETERMINED BY AASHTO T-99 OR OTHER APPROVED METHODS.
3. BACKFILL SHALL BE COMPACTED IN LAYERS UNTIL THE DENSITY IS NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY.



WINGWALL BACKFILL REQUIREMENTS

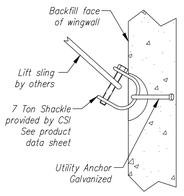
WINGWALL OFFLOADING & TRIPPING DETAIL

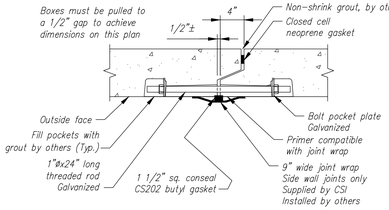
Scale: N.T.S.



WINGWALL LIFTING DETAIL

Scale: N.T.S.

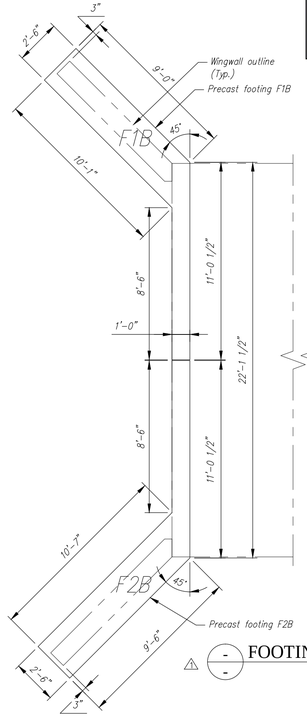




Permanent Closure Hardware (Galvanized)

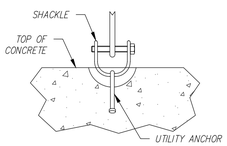
CLOSURE HARDWARE DETAIL

Scale: N.T.S.



FOOTING PLAN

Scale: N.T.S.



FOOTING LIFTING DETAIL

Scale: N.T.S.

Vermont Agency of Transportation
RECEIVED
ON: April 30, 2015
and Checked for
CONFORMANCE
BY: Mark Sargent DATE: 5/7/2015

REVIEWED	X
REVIEWED AS MODIFIED	
REVISE AND RESUBMIT	
NOT REVIEWED	

Stantec

Date: 4/24/2015

By: Nathan Tirk

This review by Stantec Consulting Services Inc.) is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that Stantec Consulting Services Inc approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor. Submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawings or of his responsibility for meeting all requirements of the Contract Documents. The contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and installation and for coordination of the work of all subtrades.

Contractor is to verify that all information shown on drawings has been thoroughly checked, complies with the contract documents and is adequate to meet the field conditions. Some dimensions and details may differ slightly from contract drawings to accommodate the manufacturing or design process. Approval of this drawing indicates that any deviation from the contract documents has been reviewed and found to be acceptable. Production will not commence until receipt of signed, approved shop drawings.

This drawing contains information proprietary to CONCRETE SYSTEMS, INC. This drawing is disclosed with the understanding that it will be retained in confidence and its use limited solely to the purpose for which it is disclosed. It is understood that no reproduction of this drawing is authorized without permission from CONCRETE SYSTEMS, INC. and that it will be returned to CONCRETE SYSTEMS, INC. upon request.

Stamp for structural design only

Rev.	Date	DESCRIPTION	By
5			
4			
3			
2			
1	01APR2015	WINGWALL ANCHORS WERE TYPE 'D', WINGWALLS WERE 10" THK	RY

REVISIONS

This drawing is based upon information provided from the following documents and/or sources:

Engineer: STATE OF VT AOT PROGRAM DEVELOPMENT
Project No: STPCULV30
Drawings: VT/AOT PROPOSED INPROVEMENT BRIDGE PROJECT SHEETS 1 THRU 24 & 32 OF 55
Specifications: ———— ————
Other Sources: ————

Concrete Systems Inc.
9 Commercial St., Hudson, NH,03051
Phone 603-889-4163
Fax 603-889-2417

STATE AGENCY
VTrans Working to Get You There

Drawn By: R. YEAGER | Date: 09MAR2015
Reviewed By: | Date:
Approved By: | Date:

J A MCDONALD, INC.
VT/AOT BRIDGE – STEEL CULVERT REPLACEMENT
BRIDGE #7, VT ROUTE 58, IRASBURG, VT

D | 20' SPAN x 10' RISE BOX CULVERT LAYOUT | REV 1
Drawing No. C22283-LO2B

Quantity: 1 | Project No: STPCULV30 | SHEET 2B OF 2B