

MONOKO, LLC

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Submittal No.: 03a: Containment Drawings & Calculations

Date: May 22, 2015

Vermont Department of Transportation
Northeast Regional Construction Office

Attn: Mr. Ron Gray
347 Emerson Falls Road, Suite 5
St. Johnsbury, VT 05819
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Description: Proposal/Contract Number: Bradford-Newbury IM BPNT (14)
Letting Date: 10/10/14; Award Date: 11/03/14
Project Description: Bridge Painting of Five Bridges
In the Towns of Bradford & Newbury, VT
Contract Amount: \$4,327,785.00; Completion Date: 08/26/16

Contractor: **MONOKO, LLC**

Reviewed & Approved By: *Keri Manakandilos*
Keri Monokandilos, Manager

Date: 05/22/2015

Engineer: Peter Hodgson, Resident Engineer
347 Emerson Falls Road, Suite 5
St. Johnsbury, VT 05819
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pete.hodgson@state.vt.us
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Revision:

See page C-17 revision to "[Mid Bay Cable Attachments](#)".
Calculations submitted have not changed.

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VERMONT

DEPARTMENT OF TRANSPORTATION

PROJECT NO. IM BPNT (14)
 TEN BRIDGES ON OR OVER
 I-91 IMPROVEMENTS PLANS
 BRIDGE NOS. 58N, 58S, 59N, 59S,
 D62N, D62S, 63N, 63S, 67N, & 67S
 ORANGE COUNTY, VERMONT

ABRASIVE BLASTING
 CONTAINMENT PLANS

PREPARED FOR:

MONDKO, LLC.
 1037 PENINSULA AVENUE
 TARPON SPRINGS, FL 34689
 PHONE (727) 940-3244
 FAX (727) 279-8795

PREPARED BY:

A2B ENGINEERING, LLC.
 5406 N. HOOVER BLVD., SUITE 12
 TAMPA, FL 33634
 PHONE (813) 249-2220
 FAX (813) 793-4692
 ENGINEER OF RECORD, PAUL R. STEIJLEN, P.E.
 VT P.E. LICENSE NUMBER 107795



SPECIFICATIONS:

VERMONT DEPARTMENT OF TRANSPORTATION (VTDDT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2012 EDITION, AND SUPPLEMENTS THERETO.

DESIGN CRITERIA:

DEAD LOAD (PLATFORM): 3 PSF
 220 LBS. (33"x28" MAX. 500 LBS. RATED)
 DEAD LOAD (SCAFFOLD): 12 PSF (WEIGHT OF 1/2" STEEL SHOT)
 LIVE LOAD (UNIFORM PLATFORM): 6 PSF (WEIGHT OF 1/4" STEEL SHOT)
 LIVE LOAD (UNIFORM SCAFFOLD): 500 LBS. (TWO WORKERS MAX.)
 LIVE LOAD (CONCENTRATED):

MATERIAL PROPERTIES:

STRUCTURAL SHAPES, PLATES & BARS: ASTM A36, Fy = 36,000 PSI
 STRUCTURAL TUBING: ASTM A500, GRADE B, Fy = 46,000 PSI
 STRUCTURAL BOLTS: ASTM A325
 SOUTHERN PINE NO. 2 (OR BETTER)
 TIMBER: 6x19 IWRG EIP
 CABLES: 9-GAUGE GALVANIZED
 CHAIN LINK:

REQUIRED PLATFORM CABLE SIZES (3/8" Ø MIN. SUPPORT HANGER SPACING = 25'-0" MAX.)		
OPTION #	PLATFORM CABLE	PLATFORM CABLE SPACING
1	1/2" Ø	3'-9" (MAX.)
2	3/8" Ø	5'-3" (MAX.)

USE 1/2" Ø MIN. SCAFFOLD CABLE WITH 3/8" Ø MIN. SUPPORT HANGERS SPACED AT 25'-0" MAXIMUM.

NO MORE THAN 2 WORKERS SHALL BE ALLOWED PER PLATFORM CABLE OR SCAFFOLD CABLE. LIMIT 500 LB TOTAL WEIGHT OF WORKERS AND ABRASIVE BLASTING ON 500 LB RATED SCAFFOLD.

STRUCTURAL IMPACT:

THE PLATFORM CONTAINMENT STRUCTURE HAS BEEN ANALYZED FOR AN AVERAGE LIVE LOAD ALLOWANCE OF 16 PSF (APPROXIMATELY 1/2" DEPTH OF STEEL SHOT, 1.5" MINERAL SLAG ABRASIVE OR 1.5" SAND ABRASIVE, PLUS THE UNIFORM WORKER LOADING) WITH A MAXIMUM OF 1" DEPTH OF STEEL SHOT (3" MINERAL SLAG ABRASIVE OR 3" SAND ABRASIVE) FOR THE CHAIN LINK. WHEN THE DEPTH OF SPENT ABRASIVES NEARS THE DEPTHS SPECIFIED, THE CONTRACTOR WILL CEASE ABRASIVE BLASTING OPERATIONS AND VACUUM THE SPENT ABRASIVES.

DEAD LIVE AND WIND LOADS IMPOSED ON THE BRIDGE DUE TO INSTALLATION OF THE PROPOSED PLATFORM & CONTAINMENT SYSTEMS WILL HAVE NO ADVERSE EFFECT ON THE BRIDGE STRUCTURE, AS DEFINED IN (A) AASHTO STANDARDS SPECIFICATIONS FOR HIGHWAY BRIDGES (SIXTEEN EDITION), FIGURE 3.7.6B AND (B) AASHTO MANUAL FOR CONDITION EVALUATION OF BRIDGES (SECOND EDITION), CHAPTER 6.6. THE BRIDGE HAS NOT BEEN ANALYZED FOR LOADS IMPOSED BY THE GRIT RECYCLING MACHINE (IF APPLICABLE). AS RESULT, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE OWNER FOR PLACEMENT OF ALL EQUIPMENT ALONG THE BRIDGE. THE GRIT RECYCLING MACHINE REAR AXLES SHALL BE CENTERED OVER THE PIERS.

THE CONTAINMENT STRUCTURE HAS BEEN ANALYZED FOR A MAXIMUM WIND VELOCITY OF 40 MPH. IF WINDS NEARING OR EXCEEDING 40 MPH (OR A LESSER WIND IS SPECIFIED IN THE CONTRACT SPECIFICATIONS) ARE PREDICTED, BLASTING AND PAINTING OPERATIONS SHALL CEASE. THE CONTRACTOR SHALL THOROUGHLY COLLECT AND REMOVE ALL SPENT

ABRASIVE MATERIAL AND DEBRIS GENERATED FROM THE BLASTING AND PAINTING ACTIVITIES USING A VACUUM TRUCK AND/OR PUMP, AND THE PAINT CONTAINMENT TARPULINS SHALL BE ROLLED AND SECURED IN PLACE.

BASED ON THE MAXIMUM WIND VELOCITY OF 40 MPH (8 PSF WIND LOAD PER AASHTO), THE RESULTING LOAD TRANSFERRED TO A BRIDGE STRUCTURE IS 244 PLF. BASED ON A CONTAINMENT HEIGHT OF 70'-0" FROM THE TOP OF THE BRIDGE PARAPETS TO GRADE (ONE-HALF OF THE CONTAINMENT HEIGHT APPLIED TO THE BRIDGE). SINCE AASHTO SPECIFIES A LATERAL LOADING OF 300 PLF FOR DESIGN OF GIRDER BRIDGES, THE MAXIMUM ANTICIPATED WIND LOAD OF 244 PLF IS ACCEPTABLE. WIND LOADING ON GIRDER BRIDGES DOES NOT GOVERN.

FOR PROJECTS INVOLVING THE INSTALLATION OF SUSPENDED PLATFORM, AASHTO ALLOWS A 36% INCREASE IN STRESS FOR TEMPORARY LOADS (18 KSI INVENTORY RATING VERSUS 24.5 KSI OPERATING RATING). THE UNIFORM DESIGN FOR LOAD GIRDERS BRIDGES IS 64 PSF, AND THUS, THE ANTICIPATED WEIGHT OF THE PLATFORM CONTAINMENT (APPROX. 19 PSF) ADDED TO THIS ORIGINAL DESIGN LOADING RESULTS IN A MAXIMUM D+L LOADING OF 83 PSF ON THE GIRDERS (19 PSF + 64 PSF EQUIVALENT LIVE LOADING). TEMPORARY LOADING APPLIED TO THE BRIDGE MEMBERS RESULT IN A MAXIMUM 30% INCREASE, WHICH IS BELOW THE 36% INCREASE ALLOWED BY AASHTO. SINCE THE METHOD ASSUMES THAT THE EXISTING BRIDGE MEMBERS ARE 100% STRESSED PRIOR TO LOADING, THIS GENERAL COMPARISON IS CONSIDERED VERY CONSERVATIVE.

GENERAL:

THESE DRAWINGS DEPICT THE PAINT CONTAINMENT DESIGNS TO BE UTILIZED BY MONOKO, L.L.C., FOR ORANGE COUNTY, VERMONT FOR THE FOLLOWING BRIDGES:

- BRIDGE NO. 58N (ORANGE) 1-91 OVER VT 25 (BRADFORD)
- BRIDGE NO. 58S (ORANGE) 1-91 OVER VT 25 (BRADFORD)
- BRIDGE NO. 59N (ORANGE) 1-91 OVER WAITS RIVER (BRADFORD)
- BRIDGE NO. 59S (ORANGE) 1-91 OVER WAITS RIVER (BRADFORD)
- BRIDGE NO. D62N (ORANGE) TH NO. 3 OVER 1-91 (BRADFORD)
- BRIDGE NO. D62S (ORANGE) TH NO. 3 OVER 1-91 (BRADFORD)
- BRIDGE NO. 63N (ORANGE) 1-91 OVER TH NO. 1 (NEWBURY)
- BRIDGE NO. 63S (ORANGE) 1-91 OVER TH NO. 1 (NEWBURY)
- BRIDGE NO. 67N (ORANGE) 1-91 OVER WELLS RIVER (NEWBURY)
- BRIDGE NO. 67S (ORANGE) 1-91 OVER WELLS RIVER (NEWBURY)

WORKERS WILL ACCESS THE BELOW-DECK CONTAINMENTS AT THE ABUTMENTS, FROM THE BRIDGE DECK ABOVE USING OSHA-APPROVED LADDERS. THE LADDERS WILL BE SECURED TO THE BRIDGE RAILINGS AND/OR TRUSS STEEL AT THE TOP AND TO THE PLATFORM SYSTEMS AT THE BOTTOM.

FOR WORK PERFORMED FROM 500 LBS RATED ALUMINUM SCAFFOLDS SUPPORTED BY 1/2" Ø CABLES RIGGED ALONG THE ENTIRE LENGTH OF THE BRIDGE, WORKER SAFETY TIE-OFF CABLES AND WORKER HARNESSSES WILL BE UTILIZED DURING ALL WORK, INCLUDING INSTALLATION & REMOVAL OF THE PLATFORM SYSTEMS & DURING TRAVEL UP & DOWN THE LADDERS, IN ACCORDANCE WITH OSHA GUIDELINES.

THE ABRASIVE BLASTING CONTAINMENT AND/OR SUSPENDED PLATFORM DESIGNS, DETAILS AND INSTALLATION SPECIFICATIONS INCLUDED IN THIS PACKAGE WERE PREPARED UNDER THE DIRECTION OF THE CONTRACTOR. BY ACCEPTING THESE PLANS FOR SUBMITTAL, THE CONTRACTOR CONFIRMS THAT THE PLANS HAVE BEEN REVIEWED FOR CORRECTNESS, AND THAT THE SYSTEMS WILL BE INSTALLED IN ACCORDANCE WITH THE PLANS.

THE CONTRACTOR FULLY UNDERSTANDS & AGREES THAT A2B ENGINEERING, L.L.C. AND THEIR CERTIFYING ENGINEERS ARE NOT RESPONSIBLE FOR THE ULTIMATE

TECHNIQUES AND/OR METHODS OF CONSTRUCTION USED ON THIS PROJECT, OR THE SAFETY PRECAUTIONS & PROGRAMS INCIDENT THERETO, OR FOR ANY LOSS OR DAMAGES RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLY WITH LAWS AND REGULATIONS (PRIMARILY OSHA) APPLICABLE TO THE FURNISHING, INSTALLING AND/OR PERFORMANCE OF WORK.

THE CONTRACTOR FULLY UNDERSTANDS & AGREES THAT A2B ENGINEERING, L.L.C. HAS PREPARED THESE SUBMITTALS WITH THE UNDERSTANDING THAT THE CONTRACTOR AND THEIR EMPLOYEES HAVE THE KNOWLEDGE & EXPERTISE IN THE PROPER RIGGING OF THE CATENARY CONTAINMENT & WORKER ACCESS SYSTEMS PRESENTED ON THESE DRAWINGS, INCLUDING ALL OSHA REQUIREMENTS, AND IS NOT IN NEED OF DETAILED INSTALLATION AND/OR DISMANTLING PROCEDURES FOR SUCH INSTALLATIONS.

THE CONTRACTOR FULLY UNDERSTANDS & AGREES THAT BY ACCEPTING THESE DRAWINGS FOR SUBMITTAL, THEY ARE FULLY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE & LOCAL CODES & REGULATIONS (PRIMARILY OSHA) AND HERE-BY HOLDS A2B ENGINEERING, L.L.C. AND THEIR CERTIFYING ENGINEER(S) HARMLESS, AND INDENMIFIES THEM FOR ANY LOSS OR DAMAGES RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLY WITH ANY/ALL APPLICABLE CODES, REGULATIONS AND/OR ANY MANUFACTURER'S INSTALLATION REQUIREMENTS, REGARDLESS OF WHETHER SAID INFORMATION IS OR IS NOT INCLUDED AS PART OF THESE SUBMITTALS.

THESE DRAWINGS & CALCULATIONS (IF APPLICABLE) HAVE BEEN PREPARED FOR THIS PROJECT ONLY. A2B ENGINEERING, L.L.C. AND THEIR CERTIFYING ENGINEERS HAVE NO LIABILITY SHOULD ANY PORTIONS OF THESE DRAWINGS AND/OR CALCULATIONS BE USED FOR DIFFERENT PROJECT.

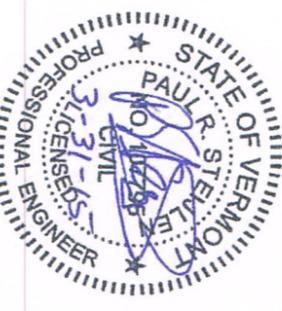
THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. DUE TO UNCERTAINTIES OF THE EXISTING STRUCTURE, THE CONTRACTOR MAY MAKE MINOR MODIFICATIONS TO THE PAINT CONTAINMENT STRUCTURE DETAILED IN THESE PLANS. A2B ENGINEERING, L.L.C. SHALL BE NOTIFIED OF ANY MODIFICATIONS TO ENSURE THAT THE STRUCTURAL INTEGRITY OF THE PAINT CONTAINMENT STRUCTURE IS NOT COMPROMISED.

DATE	BY	REVISIONS
		DESCRIPTION

PAUL STEULLEN P.E.
 P.E. LICENSE NUMBER 107795
 A2B ENGINEERING, L.L.C.
 5406 N. HOOVER BLVD., SUITE 12
 TAMPA, FL 33634

MONOKO, L.L.C.
 1037 PENINSULA AVENUE
 TARPON SPRINGS, FL 34689
 PHONE (727) 940-3244
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BROWN BR.	VERMONT	PROJECT NO.	SHEET TITLE
BDN 02/15	DEPARTMENT OF TRANSPORTATION	1-91	GENERAL NOTES (1 OF 2)
CHANGED BR.	COUNTY	ORANGE	
FDB 02/15			
DESIGNED BR.			
MAT 02/15			
CHANGED BR.			
PRS 02/15			



Bridge Nos. ALL

CONTAINMENT ENCLOSURE:

THE ABRASIVE BLASTING CONTAINMENT SYSTEM SHALL CONFORM TO THE REQUIREMENTS OF OSHA 1926 SUBPART L, OSHA 29 CFR 1910.28, ANSI A10.8 AND SSPC GUIDE 6.

ALL ABRASIVE BLAST CLEANING CONTAINMENTS, INCLUDING GROUND COVER, SIDEWALLS AND ENDWALLS, SHALL BE CONSTRUCTED OF 100% AIR IMPERMEABLE FIRE RESISTANT TARPULIN. ADJACENT TARPULIN PANELS SHALL BE FASTENED TOGETHER BY ROLLING AND CLAMPING OR BY CLAMPING TO LUMBER TO CREATE A CONTINUOUS IMPENETRABLE SEAL. THE CONTRACTOR MAY USE ANY APPROPRIATE METHOD AVAILABLE (TAPE, SPRAY FOAM, ETC) TO PROVIDE A CONTINUOUS SEAL TO CONTAIN DUST EMISSIONS (ABRASIVE BLASTING) AND/OR SOLVENT CLEANING/WATER WASHING OPERATIONS. SEE MISCELLANEOUS CONTAINMENT DETAILS SHEETS.

FOR BRIDGE TO GRADE CONTAINMENTS, THE TARPULIN BASE SHALL BE SEALED WITH SANDBAGS OR SIMILAR WEIGHTS. FOR SSPC CLASS 1A CONTAINMENTS, LUMBER PLANKS OR ALUMINUM SCAFFOLDS SHALL BE PLACED BELOW THE SANDBAGS TO PROVIDE A "CONTINUOUS" SEAL. FOR CLASS 2A CONTAINMENTS (OR LESSER), USE SANDBAGS OR SIMILAR WEIGHTED MATERIAL AT 5 FT (±) INTERVALS. FOR VERTICAL CONTAINMENTS, THE CONTRACTOR MAY UTILIZE CABLES ANCHORED WITH WEIGHTS OR ANCHORED TO THE GROUND TO SUPPORT THE VERTICAL TARPULIN WALLS.

FOR PLATFORM AND CABLE SUPPORTED CONTAINMENTS, TARPULIN WALLS SHALL BE SECURED TO APPROPRIATE BRIDGE ELEMENTS TO SEAL THE ENCLOSURE.

EXISTING BRIDGE DRAINS ENCLOSED WITHIN THE PAINT CONTAINMENT STRUCTURE SHALL BE TEMPORARILY PLUGGED OR WATER RUNOFF DIRECTED AWAY FROM THE CONTAINMENT ENCLOSURE AS SPECIFIED OR PERMITTED IN THE CONTRACT SPECIFICATIONS. AT THE CONCLUSION OF EACH WORK DAY, ALL PLUGGED DECK DRAINS SHALL BE UNPLUGGED TO RESTORE DECK DRAINAGE. AT THE CONCLUSION OF THE BRIDGE CLEANING AND PAINTING OPERATIONS RESTORE BRIDGE DRAINAGE TO THE SATISFACTION OF THE ENGINEER.

WHEN ABRASIVE BLASTING IS PERFORMED NEAR THE TARPULIN WALL, THE ABRASIVE BLAST SHALL BE DIRECTED AWAY FROM THE TARPULIN WALL. WHEN WORK IS PERFORMED NEAR AN INLET OPENING, THE OPENING SHALL BE TEMPORARILY SEALED TO MINIMIZE LOSS OF EMISSIONS.

TARPULINS SHALL BE 100% AIR/WATER IMPERMEABLE TO CONTAIN THE WASTE WATER AND BLASTING DEBRIS AND ALLOW FOR VACUUMING.

FOR SSPC TYPE 1A CONTAINMENTS, WORKERS SHALL ACCESS EACH CONTAINMENT THROUGH DOUBLE DOOR AIRLOCK ENTRANCE WHICH ALLOWS THE WORKERS TO SEAL ONE DOOR PRIOR TO ENTERING/EXITING THE CONTAINMENT THROUGH THE OTHER DOOR. TARPULIN DOORS SHALL BE CLOSED AND SEALED DURING BLASTING OPERATIONS TO PREVENT LOSS OF EMISSIONS. MINIMIZE PASSAGE IN AND OUT OF CONTAINMENT STRUCTURES DURING BLASTING OPERATIONS. DURING SANDBLASTING OPERATIONS, ALL WORKERS/PERSONAL SHALL BE CLEANED WITH A HEPA VACUUM PRIOR TO LEAVING THE CONTAINMENT.

FOR SSPC TYPE 2A CONTAINMENTS (OR LESSER), WORKERS SHALL ACCESS EACH CONTAINMENT THROUGH OVERLAPPING TARPULIN DOORS. TARPULIN DOORS SHALL BE CLOSED AND SEALED DURING BLASTING OPERATIONS TO PREVENT LOSS OF EMISSIONS. MINIMIZE PASSAGE IN AND OUT OF CONTAINMENT STRUCTURES DURING BLASTING OPERATIONS. SEE MISCELLANEOUS CONTAINMENT DETAILS SHEETS.

AT THE CONCLUSION OF EACH WORK DAY, THE CONTRACTOR SHALL THOROUGHLY COLLECT AND REMOVE ALL SPENT ABRASIVE MATERIAL AND DEBRIS GENERATED FROM THE BLASTING AND PAINTING ACTIVITIES USING A VACUUM TRUCK AND/OR PUMP. DURING SANDBLASTING OPERATIONS, ALL WORKER/PERSONNEL SHALL BE CLEANED WITH A HANDHELD HEPA VACUUM

PRIOR TO LEAVING THE CONTAINMENT.

PRIOR TO DISSEMBLING THE PAINT CONTAINMENT STRUCTURE, ALL SURFACES WITHIN THE CONTAINMENT, INCLUDING SIDEWALLS, ENDWALLS AND GROUND COVER, SHALL BE BLOWN DOWN TO ACHIEVE THE CLEANLINESS SPECIFIED IN THE CONTRACT, OR GENERALLY ACCEPTED PAINTING PRACTICES.

ALL WASTE DEBRIS SHALL BE SEALED AND STORED IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED WASTE HANDLING PLANS. COLLECTED AND SEALED WASTE MATERIAL SHALL BE APPROPRIATELY LABELED AS HAZARDOUS WASTE. RUN-OFF FROM POUNDING AROUND THE SEALED CONTAINERS. THE WASTE STORAGE SITE SHALL BE SECURED TO PREVENT UNAUTHORIZED ACCESS.

IF THE ENGINEER DETERMINES THAT THE PAINT CONTAINMENT SYSTEM IS NOT EFFECTIVE IN RESTRICTING BLASTING AND PAINTING EMISSIONS, OR IN COLLECTING BLASTING DEBRIS, BLASTING AND PAINTING OPERATIONS SHALL CEASE AND DEFICIENCIES CORRECTED PRIOR TO RESUMING WORK.

CONTAINMENT NOTES:

ALL WORK SHALL BE ASSEMBLED IN ACCORDANCE WITH THESE DRAWINGS, THE MANUFACTURER'S INSTRUCTIONS AND CRITERIA, INDUSTRY GUIDELINES AND THE MOST CURRENT EDITION OF ALL FEDERAL, STATE AND LOCAL REGULATIONS, STATUTES ORDINANCES, AND THE PROJECT SPECIFICATIONS. A2B ENGINEERING, LLC SHALL BE NOTIFIED WHERE DISCREPANCIES EXIST BETWEEN THESE DRAWINGS AND THE MANUFACTURER'S INSTRUCTIONS TO VERIFY THE APPROPRIATE CRITERIA.

THE CONTRACTOR IS SOLELY RESPONSIBLE TO ENSURE THAT ALL FALL PROTECTION IS INSTALLED PER OSHA AND PROJECT SPECIFICATIONS.

PRIOR TO CONSTRUCTION OF THE PAINT CONTAINMENT STRUCTURE ALL MATERIAL SHALL BE THOROUGHLY INSPECTED TO ENSURE THAT THEY CONTAIN NO DEFICIENCIES THAT WILL COMPROMISE THE STRUCTURAL INTEGRITY OF THE PAINT CONTAINMENT STRUCTURE. THE CONTRACTOR SHALL PERFORM PERIODIC INSPECTIONS OF THE PAINT CONTAINMENT STRUCTURE TO ENSURE THE STRUCTURAL INTEGRITY OF THE STRUCTURE REMAINS SECURE.

VENTILATION SYSTEM:

THE CONTRACTOR SHALL PROVIDE MECHANICAL EXHAUST VENTILATION FOR THE ABRASIVE BLASTING CONTAINMENT STRUCTURES USING ONE OR MORE MOBILE DUST COLLECTORS. THE CONTRACTOR PROPOSES TO USE ONE (1) 45,000 AT 13" W.G. CFM MOBILE DUST COLLECTOR MANUFACTURED BY ADVANCED RECYCLING SYSTEMS, INC. THE DUST COLLECTOR HAS AN ASSUMED DUST EXHAUST CAPACITY BASED ON THE NUMBER OF DUCTS PROVIDED AS:

- EXHAUST CAPACITY WITH 4 - 20 INCH DIAMETER DUCTS: 48,000 CFM
- EXHAUST CAPACITY WITH 3 - 20 INCH DIAMETER DUCTS: 45,000 CFM
- EXHAUST CAPACITY WITH 2 - 20 INCH DIAMETER DUCTS: 40,000 CFM
- EXHAUST CAPACITY WITH 1 - 20 INCH DIAMETER DUCT: 24,000 CFM

REFER TO PLAN SHEETS FOR NUMBER OF EXHAUST DUCTS AND INLET AREA REQUIREMENTS.

THE MAIN OBJECTIVE FOR USING THE NEGATIVE AIR EXHAUST VENTILATION SYSTEM IS TO CONTAIN AIRBORNE PARTICULATE WITHIN THE CONTAINMENT STRUCTURE AND PROVIDE AIR FLOW THROUGH THE CONTAINMENT STRUCTURE. CONTAINMENT SIDEWALLS, ENDWALLS AND GROUND COVERS SHALL BE CONSTRUCTED AND SEALED TO PREVENT EXCESSIVE LEAKS BETWEEN THE PANELS AND ALONG THE GROUND. A PRELIMINARY VENTILATION SYSTEM TEST OF EACH CONTAINMENT SHALL BE PERFORMED PRIOR TO STARTING ABRASIVE BLASTING OPERATIONS. AIR FLOW THROUGH THE CONTAINMENT SHALL BE VERIFIED AT MULTIPLE LOCATIONS THROUGHOUT THE CONTAINMENT USING A HAND-HELD MANOMETER. IF THE EXHAUST VENTILATION SYSTEM IS UNABLE TO ACHIEVE THE SPECIFIED AIR FLOW THROUGH THE CONTAINMENT STRUCTURE OR ADEQUATELY REMOVE AIRBORNE PARTICULATE MATTER, THE CONTRACTOR

SHALL PROVIDE ADDITIONAL DUST COLLECTORS AND EXHAUST DUCTS, OR REDUCE THE SIZE OF THE ACTIVE PAINT CONTAINMENT ENCLOSURE BY INSTALLING INTERNAL TARPULIN WALLS. THE EXHAUST VENTILATION SYSTEM SHALL REMAIN IN OPERATION DURING CLEANING AND VACUUMING OPERATIONS.

NO. OF 20" Ø DUCTS PROVIDED	4	3	2	1
VOLUME Q, CFM	48,000	45,000	24,000	20,000
MAX. CONTAINMENT AREA, SQ. FT. (V=100 FT/MIN.)	480.0	450.0	240.0	200.0
MIN. CONTAINMENT AREA, SQ. FT. (V=300 FT/MIN.)	160.0	150.0	80.0	66.7
MAX. INLET AREA, SQ. FT. (V=700 FT/MIN)	68.6	64.3	34.3	28.6
MIN. INLET AREA, SQ. FT. (V=1000 FT/MIN)	48.0	45.0	24.0	20.0

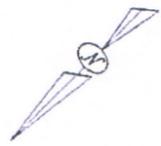


Bridge Nos. ALL

DATE	BY	DESCRIPTION
		PAUL STEULEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634

MONOKO LLC.
1037 PENINSULA AVENUE
TARPOON SPRINGS, FL 34689
PHONE (727) 940-3244
FAX (727) 279-8795

VERMONT DEPARTMENT OF TRANSPORTATION
PROJECT NO. 1-91 ORANGE HW BENT (141)
PROJECT TITLE: TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS
SHEET NO. C-3



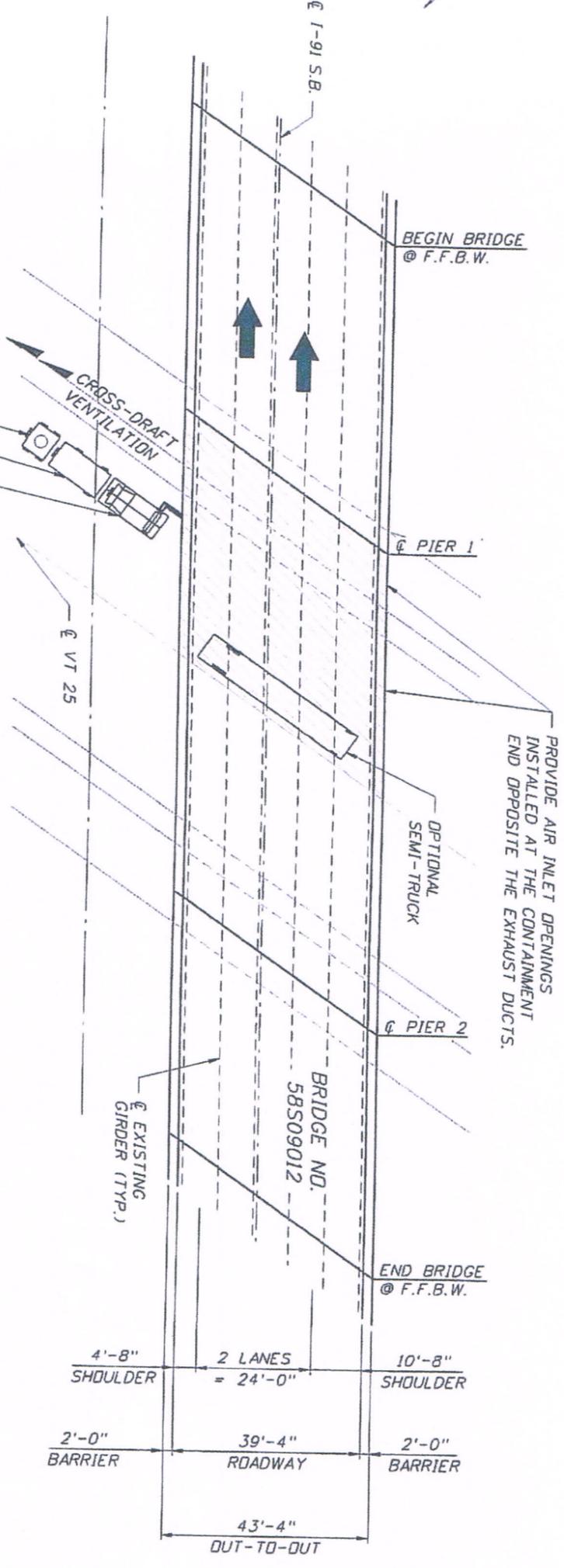
NOTES:

1. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR BRIDGE ELEMENTS AND MODIFICATIONS NOT SHOWN ON THESE PLANS.
2. WORK PHASES I-IV SHOWN SCHEMATICALLY. REFERENCE MOT PLANS FOR LIMITS OF WORK PHASES.
3. WORK PHASES I-IV MAY BE WORKED IN ANY ORDER AT THE CONVENIENCE OF THE CONTRACTOR'S MEANS AND METHODS, TRAFFIC PATTERNS AND DENSITY, OR OTHER SITE CHARACTERISTICS THAT INFLUENCE A PREFERRED WORK AREA.
4. THE CONTRACTOR HAS THE OPTION TO USE ADDITIONAL MOBILE DUST COLLECTORS OR PLACE LONGITUDINAL OR TRANSVERSE INTERMEDIATE TARPULIN WALL.
5. FOR ADDITIONAL DETAILS, SEE CONTAINMENT MISCELLANEOUS DETAILS SHEETS.

MOBILE DUST COLLECTOR WITH EXHAUST DUCTS EVENLY SPACED ACROSS THE CONTAINMENT AREA

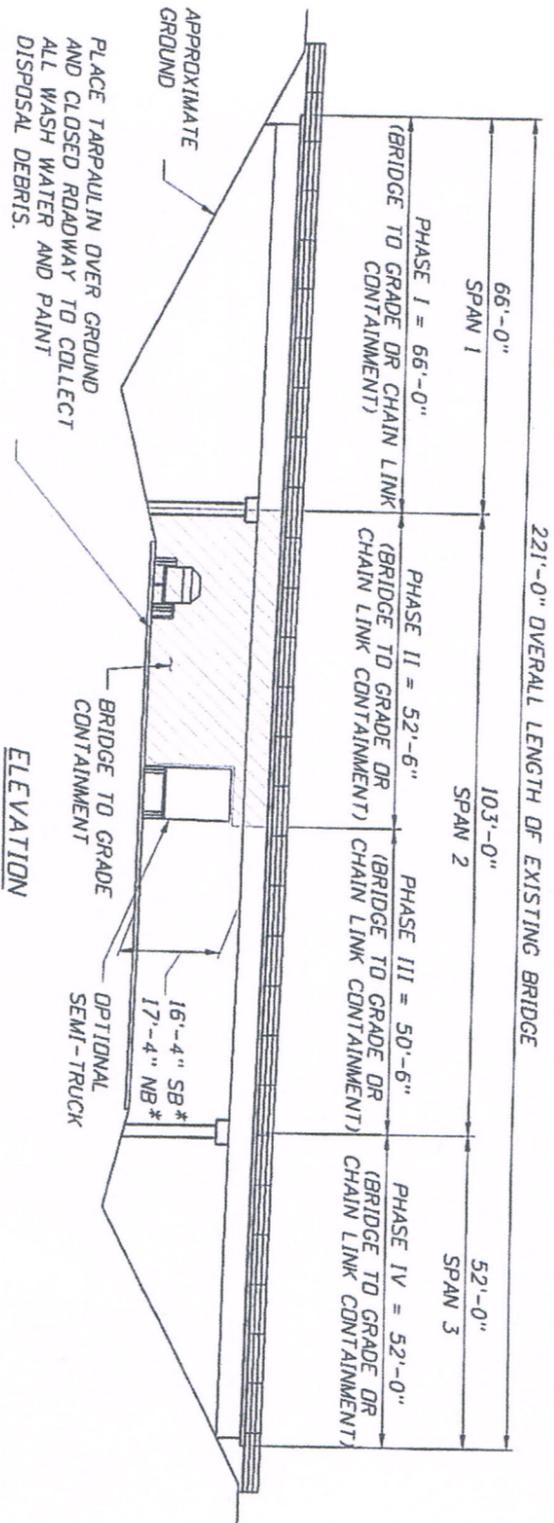
SANDBLASTING PQT
AIR COMPRESSOR

CROSS-DRAFT VENTILATION



PLAN

(PHASE II SHOWN, PHASES I, III & IV SIMILAR)
(S.B. BRIDGE SHOWN, N.B. BRIDGE SIMILAR)



* EXISTING MINIMUM VERTICAL CLEARANCE BASED ON EXISTING BRIDGE PLANS. CONTRACTOR SHALL OBTAIN APPROVAL FOR REDUCTION OF EXISTING VERTICAL CLEARANCE AND RAISE CABLE AS NEEDED OVER ACTIVE ROADWAY.



Bridge Nos. 58N & 58S (BRADFORD)

DATE	BY	REVISIONS	DESCRIPTION

PAUL STEILIEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634	MONOKO, LLC. 1037 PENINSULA AVENUE TARPOON SPRINGS, FL 34688 PHONE (727) 940-3244 FAX (727) 279-8795	<table border="1"> <tr> <td>DRAWN BY: EBN 02/15</td> <td>DEPARTMENT OF TRANSPORTATION</td> <td>PROJECT NO. 1-91</td> <td>COUNTY ORANGE</td> <td>PROJECT ID (W BUNT (14))</td> </tr> <tr> <td>CHECKED BY: PDB 02/15</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>DATE: MAT 02/15</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>DESIGNED BY: PRS 02/15</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	DRAWN BY: EBN 02/15	DEPARTMENT OF TRANSPORTATION	PROJECT NO. 1-91	COUNTY ORANGE	PROJECT ID (W BUNT (14))	CHECKED BY: PDB 02/15					DATE: MAT 02/15					DESIGNED BY: PRS 02/15				
DRAWN BY: EBN 02/15	DEPARTMENT OF TRANSPORTATION	PROJECT NO. 1-91	COUNTY ORANGE	PROJECT ID (W BUNT (14))																		
CHECKED BY: PDB 02/15																						
DATE: MAT 02/15																						
DESIGNED BY: PRS 02/15																						

TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS	3/31/2015	5:07:29 PM
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2'-0" BARRIER

43'-4" (DECK WIDTH OUT-TO-OUT)
39'-4" CLEAR ROADWAY

2'-0" BARRIER

TARPULIN PARAPET CONNECTION DETAIL (TYP.)

EX. ϕ GIRDER (TYP.)

CLASS 1A CONTAINMENT

SCAFFOLD SUPPORT HANGER (TYP.)

SCAFFOLD SUPPORT HANGER (TYP.)

500 LB RATED ALUMINUM SCAFFOLD, RELOCATE THE SCAFFOLD ALONG THE BRIDGE LENGTH/WIDTH (TYP.)

SCAFFOLD CABLE (TYP.)

MANLI FT (ALTERNATE TO THE SCAFFOLD)

OPTIONAL STRUCTURAL TUBING ALTERNATE TO SUSPENDING SCAFFOLD FROM THE DIAPHRAGMS (SEE TYPICAL SUPPORT HANGER DETAIL 1)

TYPICAL SUPPORT

SANDBAGS OR SIMILAR WEIGHTS PLACED AROUND THE BASE OF ACTIVE CONTAINMENT TO SECURE TARPULIN WALLS & SEAL ENCLOSURE (TYP.)

100% GROUND TARPULINS PLACED OVER ENTIRE CONTAINMENT AREA TO COLLECT ALL WASH WATER AND PAINT DISPOSAL DEBRIS.

FOUR (4) EXHAUST DUCTS EVENLY SPACED ACROSS THE CONTAINMENT AREA*

2'-0" (MIN.) OVERLAP (TYP.)

APPROXIMATELY 48 FT² OF AIR INLET OPENINGS OPPOSITE EXHAUST DUCTS*

* BASED ON MAXIMUM CONTAINMENT AREA OF 480 FT² AS MEASURED PERPENDICULAR TO THE DIRECTION OF CROSS-DRAFT (SEE VENTILATION SYSTEM TABLE ON GENERAL NOTES SHEETS)

NOTES:

1. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR BRIDGE ELEMENTS AND MODIFICATIONS NOT SHOWN ON THESE PLANS.
2. THE CONTRACTOR SHALL AVOID ATTACHING/CONNECTING TO BRIDGE ELEMENTS EXHIBITING SIGNIFICANT SECTION LOSS.
3. FOR ADDITIONAL DETAILS, SEE CONTAINMENT MISCELLANEOUS DETAILS SHEETS.
4. INSPECTIONS SHALL BE PERFORMED FROM MANLI FT.
5. CONTRACTOR TO PROVIDE LIFE LINES MEETING OSHA 1910.66 APPENDIX C AS REQUIRED.

TYPICAL SECTION (PHASES I-IV)

(MOBILE DUST COLLECTOR NOT SHOWN FOR CLARITY) (S.B. BRIDGE SHOWN, N.B. BRIDGE SIMILAR)



Bridge Nos. 58N & 58S (BRADFORD)

CONTAINMENT SECTION DETAILS (1 OF 2)

TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS

DATE	BY	REVISIONS
		PAUL STEILEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634

MONOKO, LLC.
1037 PENINSULA AVENUE
TARPOON SPRINGS, FL 34689
PHONE (727) 940-3244
FAX (727) 278-8795

DRAWN BY:	CHECKED BY:	DESIGNED BY:	DATE:	PROJECT NO.	COUNTY:	ROAD NO.
EDN 02/15	PDB 02/15	MAT 02/15	02/15	1-91	ORANGE	

VERMONT DEPARTMENT OF TRANSPORTATION	PROJECT ID	PROJECT TITLE
1-91	IN BRNT (14)	TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS

SHEET NO. C-5

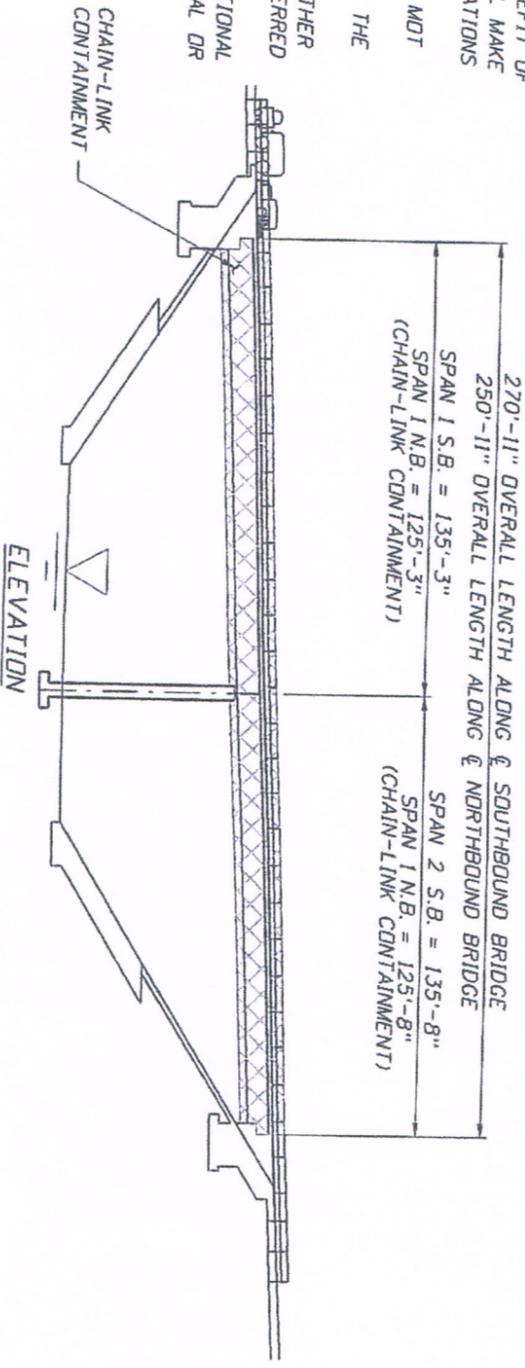
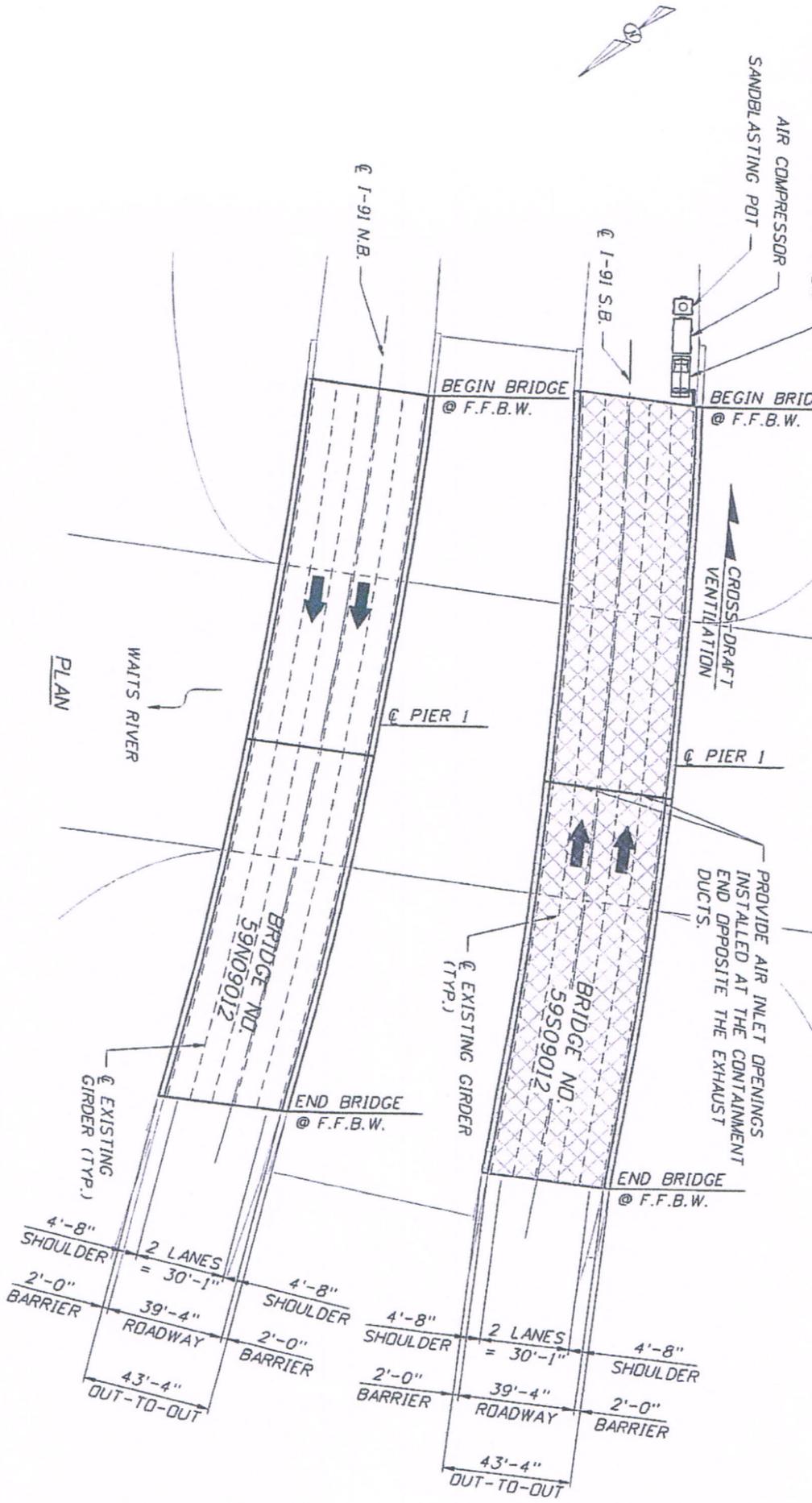
Code

3/31/2015

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3/31/2015

MOBILE DUST COLLECTOR WITH EXHAUST DUCTS EVENLY SPACED ACROSS THE CONTAINMENT AREA



- NOTES:
1. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR BRIDGE ELEMENTS AND MODIFICATIONS NOT SHOWN ON THESE PLANS.
 2. WORK PHASE SHOWN SCHEMATICALLY. REFERENCE NOT PLANS FOR LIMITS OF WORK PHASES.
 3. WORK PHASE MAY BE WORKED IN ANY ORDER AT THE CONVENIENCE OF THE CONTRACTOR'S MEANS AND METHODS, TRAFFIC PATTERNS AND DENSITY, OR OTHER SITE CHARACTERISTICS THAT INFLUENCE A PREFERRED WORK AREA.
 4. THE CONTRACTOR HAS THE OPTION TO USE ADDITIONAL MOBILE DUST COLLECTORS, OR PLACE LONGITUDINAL OR TRANSVERSE INTERMEDIATE TARPAIL IN WALL.
 5. FOR ADDITIONAL DETAILS, SEE CONTAINMENT MISCELLANEOUS DETAILS SHEETS.

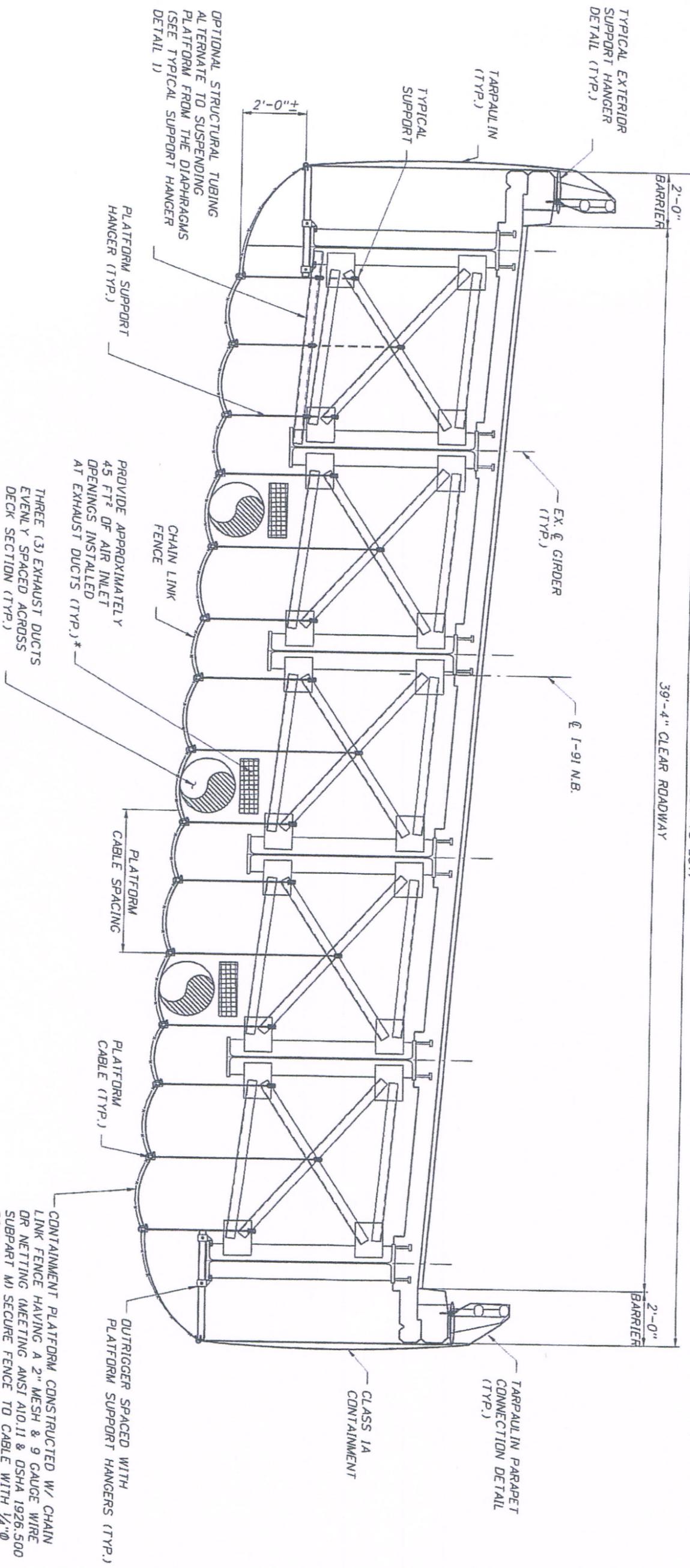


DATE	BY	DESCRIPTION
		PAUL STEILEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634
		MONOKO, LLC. 1037 PENINSULA AVENUE TARPOON SPRINGS, FL 34689 PHONE (727) 940-3244 FAX (727) 278-8795
		BRIDGE NOS. 59N & 59S (BRADFORD)
		PLAN & ELEVATION
		TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS
		C-7

3/21/2015 5:08:15 PM

43'-4" (DECK WIDTH OUT-TO-OUT)

39'-4" CLEAR ROADWAY



* BASED ON MAXIMUM CONTAINMENT AREA OF 405 FT² AS MEASURED PERPENDICULAR TO THE DIRECTION OF CROSS-DRAFT (SEE VENTILATION SYSTEM TABLE ON GENERAL NOTES SHEETS)

NOTES:

1. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR BRIDGE ELEMENTS AND MODIFICATIONS NOT SHOWN ON THESE PLANS.
2. THE CONTRACTOR SHALL AVOID ATTACHING/CONNECTING TO BRIDGE ELEMENTS EXHIBITING SIGNIFICANT SECTION LOSS.
3. FOR ADDITIONAL DETAILS, SEE CONTAINMENT MISCELLANEOUS DETAILS SHEETS.
4. CONTRACTOR TO PROVIDE LIFE LINES MEETING OSHA 1910.66 APPENDIX C AS REQUIRED.



Bridge Nos. 59N & 59S (BRADFORD)

CONTAINMENT SECTION DETAILS

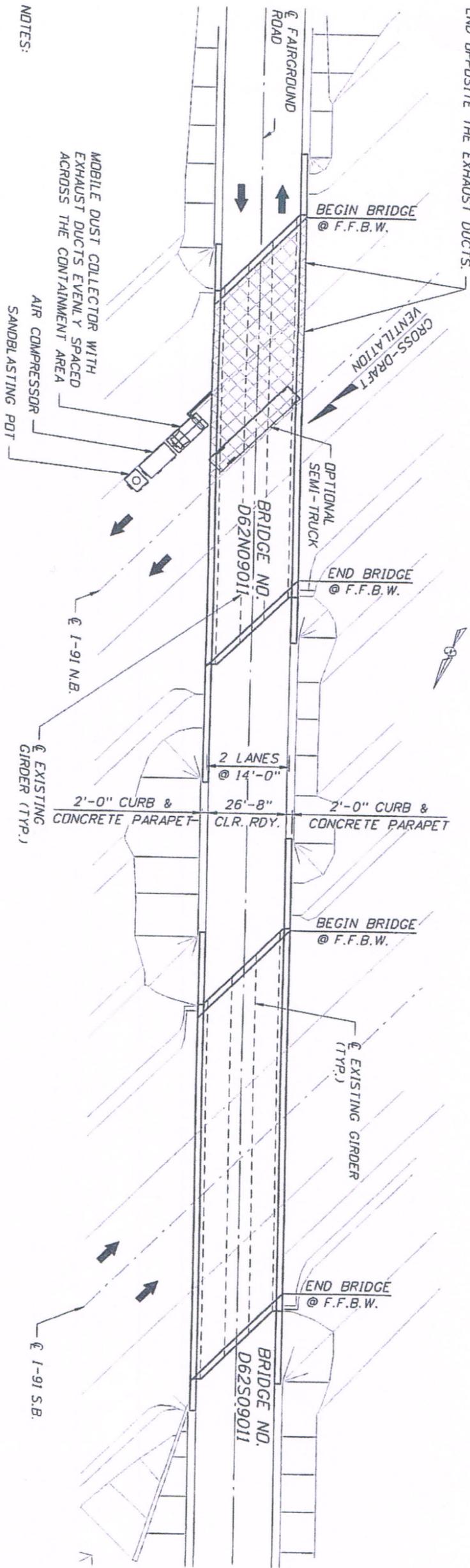
DATE	BY	DESCRIPTION	REVISIONS

PAUL STEULEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634	MONOKO, LLC. 1037 PENINSULA AVENUE TARPON SPRINGS, FL 34689 PHONE (727) 940-3244 FAX (727) 279-8795
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DRAWN BY: BDN 02/15 CHECKED BY: PDB 02/15 REVISIONS BY: MAI 02/15 CHECKED BY: PPS 02/15	VERMONT DEPARTMENT OF TRANSPORTATION COUNTY: ORANGE PROJECT ID: 1W BPH1 (14)	SHEET TITLE: CONTAINMENT SECTION DETAILS PROJECT NUMBER: TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS
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3/21/2015 5:31:58 PM	SHEET NO. C-8
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PROVIDE AIR INLET OPENINGS
INSTALLED AT THE CONTAINMENT
END OPPOSITE THE EXHAUST DUCTS.



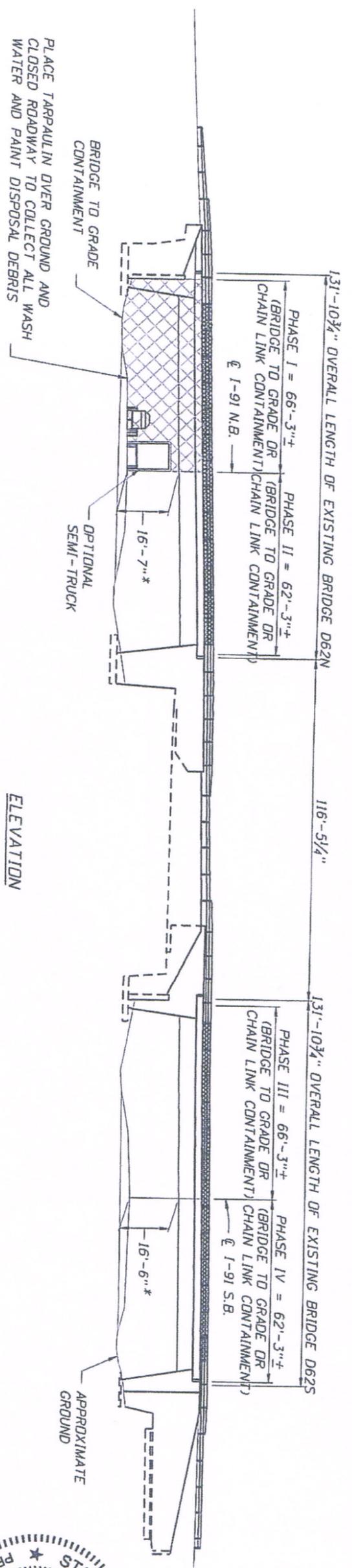
NOTES:

1. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR BRIDGE ELEMENTS AND MODIFICATIONS NOT SHOWN ON THESE PLANS.
2. WORK PHASES I-IV SHOWN SCHEMATICALLY. REFERENCE MDOT PLANS FOR LIMITS OF WORK PHASES.
3. WORK PHASES I-IV MAY BE WORKED IN ANY ORDER AT THE CONVENIENCE OF THE CONTRACTOR'S MEANS AND METHODS, TRAFFIC PATTERNS AND DENSITY, OR OTHER SITE CHARACTERISTICS THAT INFLUENCE A PREFERRED WORK AREA.
4. THE CONTRACTOR HAS THE OPTION TO USE ADDITIONAL MOBILE DUST COLLECTORS, OR PLACE LONGITUDINAL OR TRANSVERSE INTERMEDIATE TARPULIN WALL.
5. FOR ADDITIONAL DETAILS, SEE CONTAINMENT MISCELLANEOUS DETAILS SHEETS.

PLAN

(PHASE I SHOWN,
PHASES II-IV SIMILAR)

* EXISTING MINIMUM VERTICAL CLEARANCE
BASED ON EXISTING BRIDGE PLANS. CONTRACTOR
SHALL OBTAIN APPROVAL FOR REDUCTION OF
EXISTING VERTICAL CLEARANCE AND RAISE
CABLE AS NEEDED OVER ACTIVE ROADWAY.



ELEVATION

(PHASE I SHOWN,
PHASES II-IV SIMILAR)

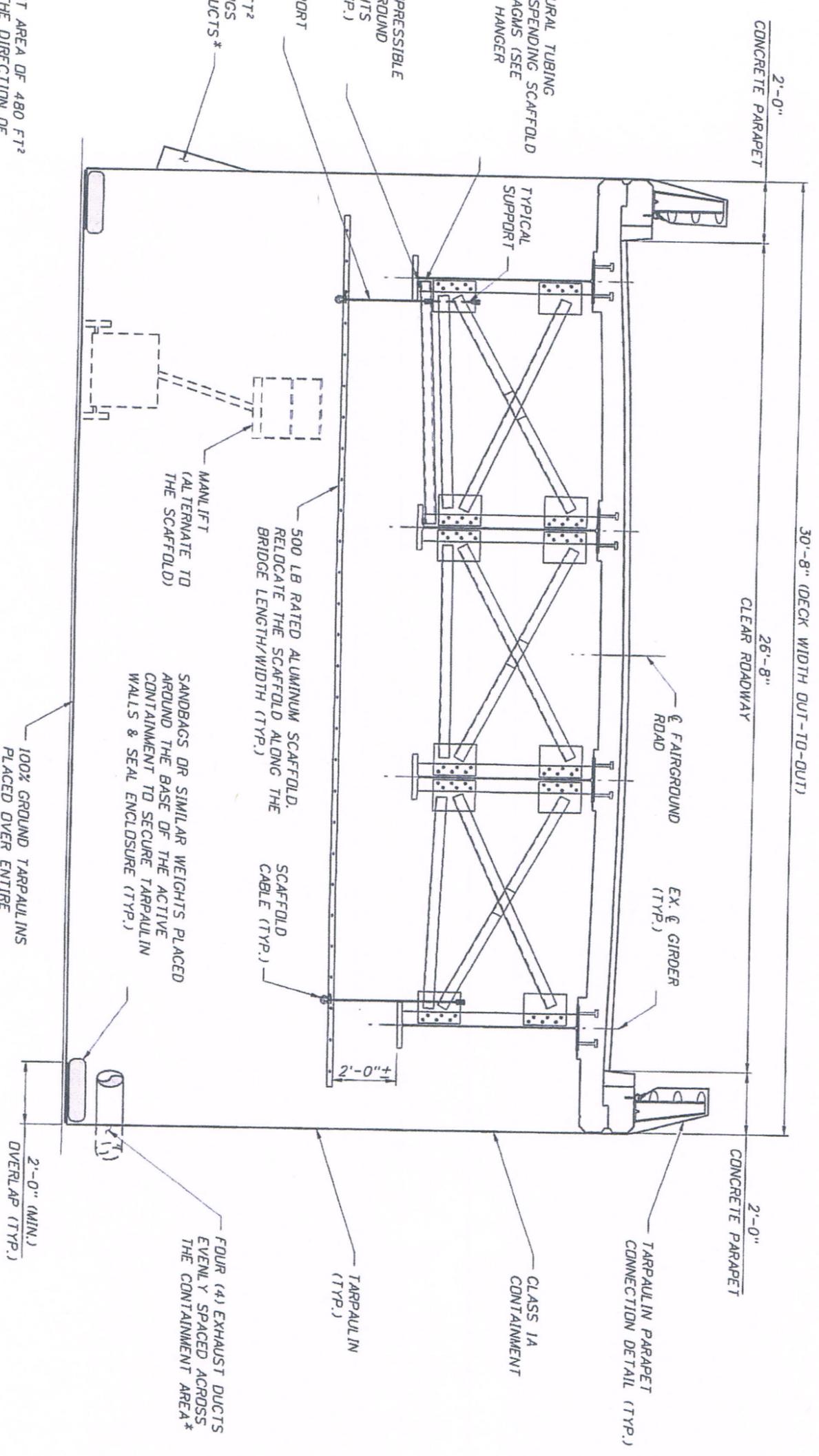


Bridge Nos. D62N & D62S (BRADFORD)

DATE	BY	DESCRIPTION	REVISIONS

PAUL STEULEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634	MONOKO LLC. 1037 PENINSULA AVENUE TARPON SPRINGS, FL 34889 PHONE (727) 940-3244 FAX (727) 278-8785
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DRAWN BY: BDN 02/15 CHECKED BY: PDR 02/15 REVISIONS BY: MAT 02/15 CHECKED BY: PPS 02/15	DEPARTMENT OF TRANSPORTATION COUNTY: ORANGE PROJECT ID: I11 BPH1 (14)	BRIDGE TITLE: TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS SHEET NO.: C-9
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* BASED ON MAXIMUM CONTAINMENT AREA OF 480 FT² AS MEASURED PERPENDICULAR TO THE DIRECTION OF CROSS-DRAFT (SEE VENTILATION SYSTEM TABLE ON GENERAL NOTES SHEETS)

NOTES:

1. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR BRIDGE ELEMENTS AND MODIFICATIONS NOT SHOWN ON THESE PLANS.
2. THE CONTRACTOR SHALL AVOID ATTACHING/CONNECTING TO BRIDGE ELEMENTS EXHIBITING SIGNIFICANT SECTION LOSS.
3. FOR ADDITIONAL DETAILS, SEE CONTAINMENT MISCELLANEOUS DETAILS SHEETS.
4. CONTRACTOR TO PROVIDE LIFE LINES MEETING OSHA 1910.66 APPENDIX C AS REQUIRED.
5. INSPECTIONS SHALL BE PERFORMED FROM MANLIFT.

TYPICAL SECTION
(MOBILE DUST COLLECTOR NOT SHOWN FOR CLARITY)

100% GROUND TARPULINS PLACED OVER ENTIRE CONTAINMENT AREA TO COLLECT ALL WASH WATER AND PAINT DISPOSAL DEBRIS.

SANDBAGS OR SIMILAR WEIGHTS PLACED AROUND THE BASE OF THE ACTIVE CONTAINMENT TO SECURE TARPULIN WALLS & SEAL ENCLOSURE (TYP.)

500 LB RATED ALUMINUM SCAFFOLD. RELOCATE THE SCAFFOLD ALONG THE BRIDGE LENGTH/WIDTH (TYP.)

SCAFFOLD CABLE (TYP.)

TARPULIN (TYP.)

CLASS 1A CONTAINMENT

TARPULIN PARAPET CONNECTION DETAIL (TYP.)

CONCRETE PARAPET

30'-8" (DECK WIDTH OUT-TO-OUT)

26'-8" CLEAR ROADWAY

EX. G GIRDER (TYP.)

ROAD

OPTIONAL STRUCTURAL TUBING ALTERNATE TO SUSPENDING SCAFFOLD FROM THE DIAPHRAGMS (SEE TYPICAL SUPPORT HANGER DETAIL 1)

PLACE SECTIONS OF COMPRESSIBLE PROTECTIVE MATERIAL AROUND EXISTING BRIDGE ELEMENTS TO PREVENT DAMAGE (TYP.)

SCAFFOLD SUPPORT HANGER (TYP.)

APPROXIMATELY 48 FT² OF AIR INLET OPENINGS OPPOSITE EXHAUST DUCTS*

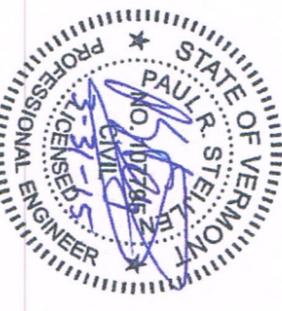
MANLIFT (ALTERNATE TO THE SCAFFOLD)

FOUR (4) EXHAUST DUCTS EVENLY SPACED ACROSS THE CONTAINMENT AREA*

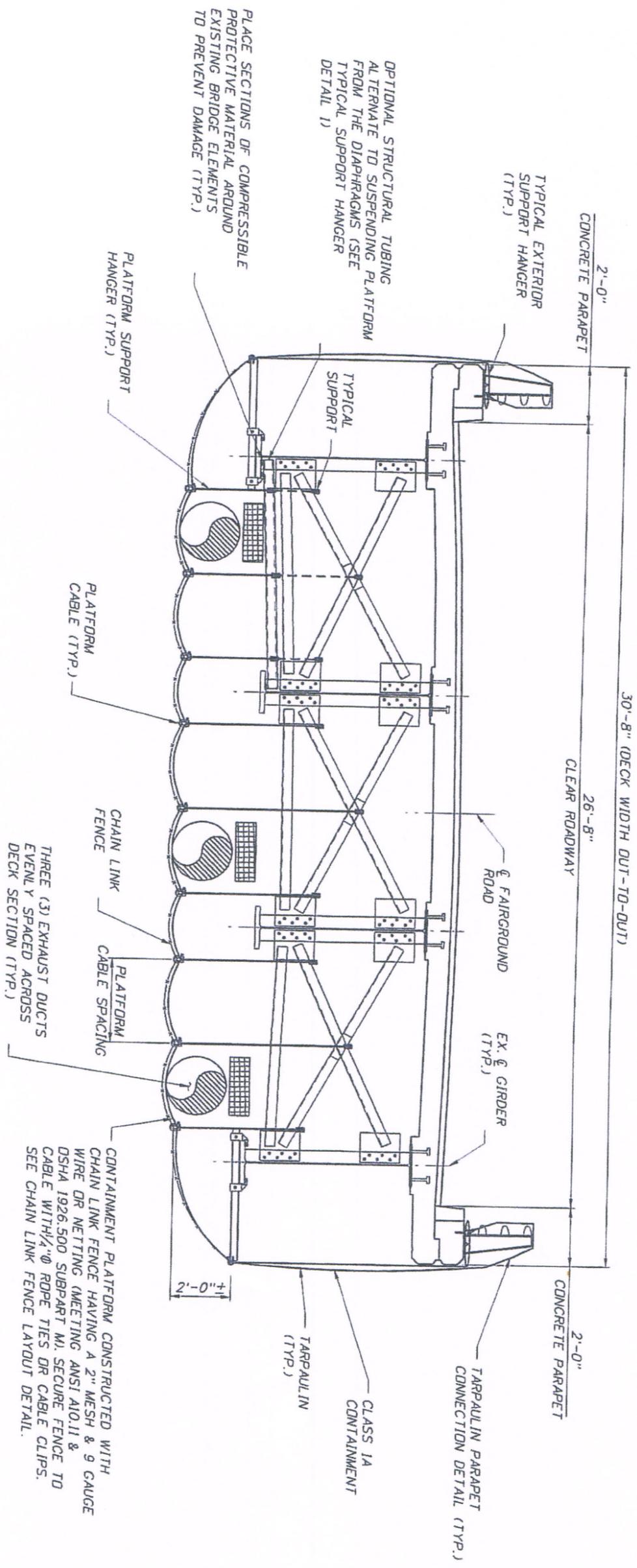
2'-0" (MIN.) OVERLAP (TYP.)

2'-0" CONCRETE PARAPET

2'-0" CONCRETE PARAPET



DATE		REVISIONS		DRAWN BY:		VERMONT DEPARTMENT OF TRANSPORTATION		PROJECT TITLE:	
BR	DESCRIPTION	BDN 02/15	CHECKED BY:	ROAD NO.	COUNTY	PROJECT ID	PROJECT NAME:	BRIDGE NOS. D62N & D62S (BRADFORD)	RES. DRWG. NO.
	PAUL STEULEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634			1-91	ORANGE	IN BRIT (14)	TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS		C-10
		MONOKO, LLC. 1037 PENINSULA AVENUE TARPOON SPRINGS, FL 34689 PHONE (727) 940-3244 FAX (727) 279-8795		DESIGNED BY:		PROJECT NO.:			
		PDR 02/15		MATERIAL:					
		MAY 02/15		PERS 02/15					



* BASED ON MAXIMUM CONTAINMENT AREA OF 480 FT² AS MEASURED PERPENDICULAR TO THE DIRECTION OF CROSS-DRAFT (SEE VENTILATION SYSTEM TABLE ON GENERAL NOTES SHEETS)

NOTES:

1. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR BRIDGE ELEMENTS AND MODIFICATIONS NOT SHOWN ON THESE PLANS.
2. THE CONTRACTOR SHALL AVOID ATTACHING/CONNECTING TO BRIDGE ELEMENTS EXHIBITING SIGNIFICANT SECTION LOSS.
3. FOR ADDITIONAL DETAILS, SEE CONTAINMENT MISCELLANEOUS DETAILS SHEETS.
4. CONTRACTOR TO PROVIDE LIFE LINES MEETING DSHA 1910.66 APPENDIX C AS REQUIRED.
5. INSPECTIONS SHALL BE PERFORMED FROM MANLIPT.

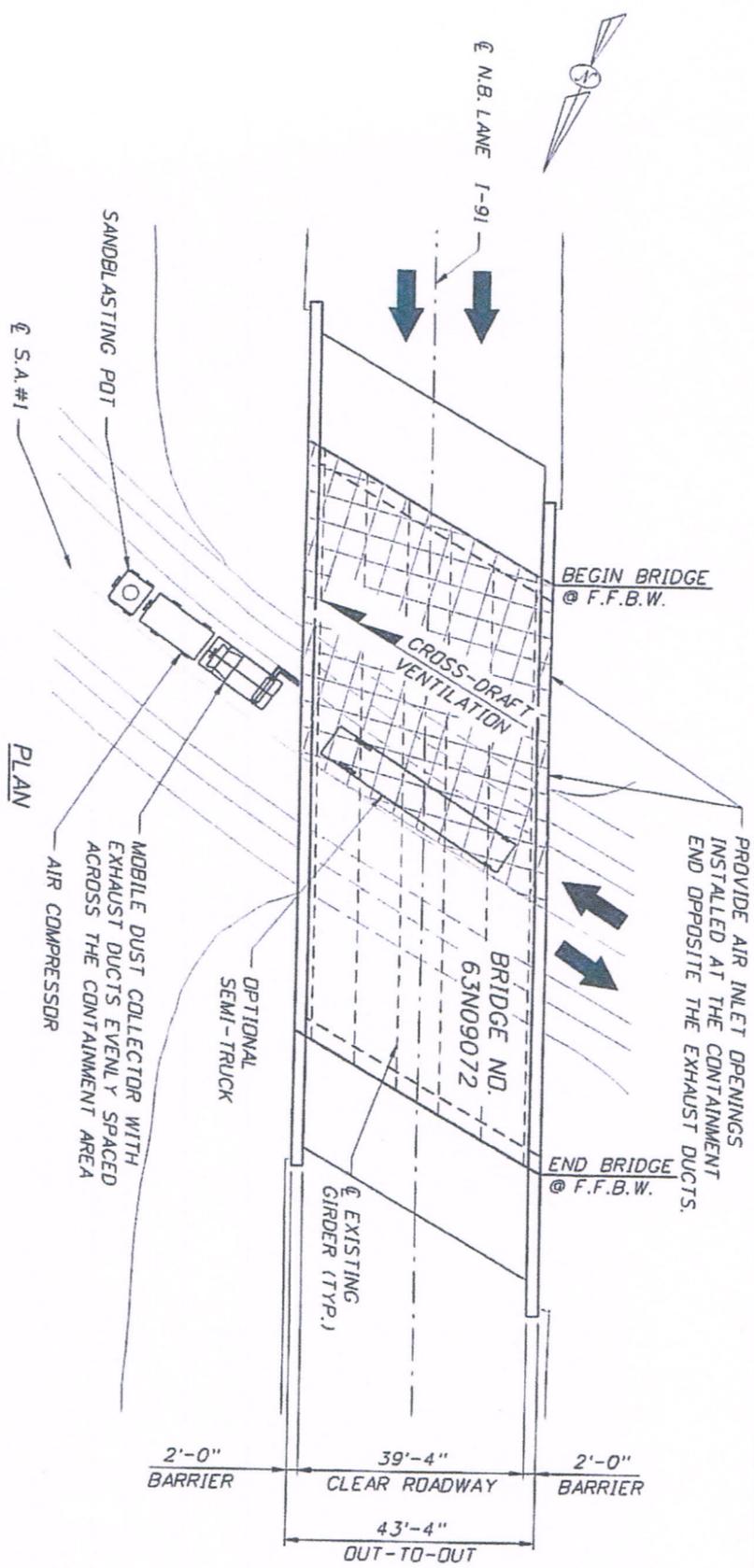
TYPICAL SECTION
 (MOBILE DUST COLLECTOR NOT SHOWN FOR CLARITY)
 (3'-9" CABLE SPACING SHOWN, 5'-3" CABLE SPACING SIMILAR)

CONTAINMENT PLATFORM CONSTRUCTED WITH CHAIN LINK FENCE HAVING A 2" MESH & 9 GAUGE WIRE OR NETTING (MEETING ANSI A10.11 & DSHA 1926.500 SUBPART M). SECURE FENCE TO CABLE WITH 1/4" ROPE TIES OR CABLE CLIPS. SEE CHAIN LINK FENCE LAYOUT DETAIL.

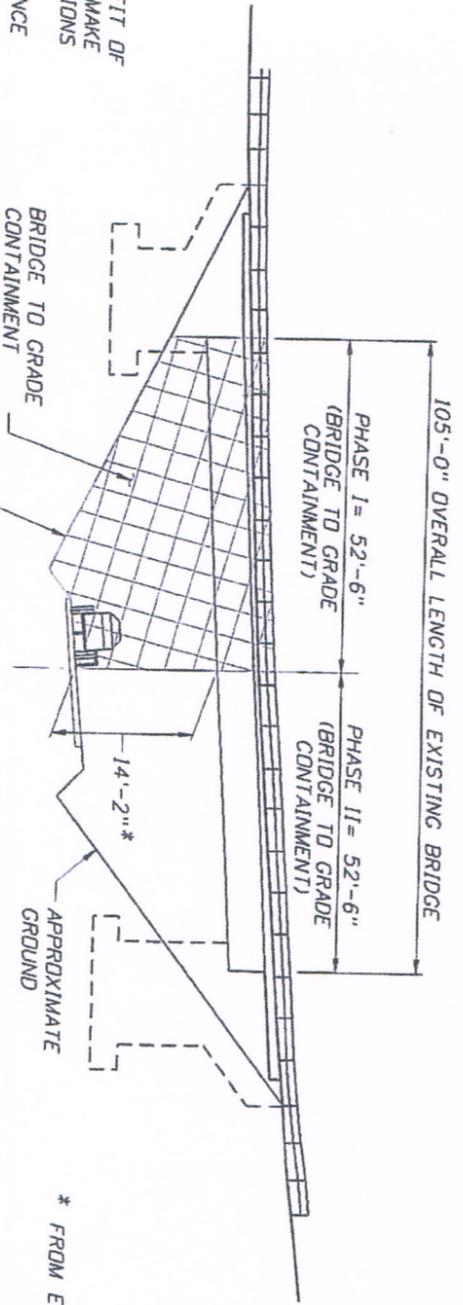


REVISIONS		DESCRIPTION	
DATE	BY	DESCRIPTION	
		PAUL STEULEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634	
		MONOKO, LLC. 1037 PENINSULA AVENUE TARPOON SPRINGS, FL 34889 PHONE: (727) 940-3244 FAX: (727) 279-8795	
		DRAWN BY: BDN 02/15 CHECKED BY: PDB 02/15 DESIGNED BY: MAT 02/15 CHECKED BY: PRS 02/15	
		VERMONT DEPARTMENT OF TRANSPORTATION COUNTY: ORANGE PROJECT ID: I-91 PROJECT NAME: TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS	
		BRIDGE NOS. D62N & D62S (BRADFORD)	
		CONTAINMENT SECTION DETAILS (2 OF 2)	
		DATE: 02/15/15	
		REVISION: C-11	

pl1017.mono, bck4 standard roadway InRoads containment plan.mcd\cadd\cadd\typical2.dgn



- NOTES:
1. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR BRIDGE ELEMENTS AND MODIFICATIONS NOT SHOWN ON THESE PLANS.
 2. WORK PHASES I-II SHOWN SCHEMATICALLY. REFERENCE NOT PLANS FOR LIMITS OF WORK PHASES.
 3. WORK PHASES I-II MAY BE WORKED IN ANY ORDER AT THE CONVENIENCE OF THE CONTRACTOR'S MEANS AND METHODS, TRAFFIC PATTERNS AND DENSITY, OR OTHER SITE CHARACTERISTICS THAT INFLUENCE A PREFERRED WORK AREA.
 4. THE CONTRACTOR HAS THE OPTION TO USE ADDITIONAL MOBILE DUST COLLECTORS, OR PLACE LONGITUDINAL OR TRANSVERSE INTERMEDIATE TARPULIN WALL.
 5. FOR ADDITIONAL DETAILS, SEE CONTAINMENT OR MISCELLANEOUS DETAILS SHEETS.



DATE	BY	REVISIONS	DESCRIPTION

PAUL STEULEN P.E., P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC, 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634	MONOKO, LLC. 1037 PENNSYLVANIA AVENUE TARPON SPRINGS, FL 34689 PHONE (727) 940-3244 FAX (727) 278-8795
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DRAWN BY: BDN 02/15 CHECKED BY: PDR 02/15 DESIGNED BY: MAT 02/15 CHECKED BY: PDR 02/15	DEPARTMENT OF TRANSPORTATION COUNTY: ORANGE PROJECT ID: 1-91 PROJECT NAME: TEN BRIDGES ON OR OVER 1-91 IMPROVEMENT PLANS
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VERMONT DEPARTMENT OF TRANSPORTATION COUNTY: ORANGE PROJECT ID: 1-91 PROJECT NAME: TEN BRIDGES ON OR OVER 1-91 IMPROVEMENT PLANS	BRIDGE TITLE: PLAN & ELEVATION SHEET NO.: C-12
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43'-4" (DECK WIDTH OUT-TO-OUT)

2'-0" RAILING

39'-4" CLEAR ROADWAY

2'-0" RAILING

TARPAULIN PARAPET CONNECTION DETAIL (TYP.)

TYPICAL SUPPORT

TARPAULIN (TYP.)

OPTIONAL STRUCTURAL TUBING ALTERNATE TO SUSPENDING SCAFFOLD FROM THE DIAPHRAGMS (SEE TYPICAL SUPPORT HANGER DETAIL 1)

500 LB RATED ALUMINUM SCAFFOLD. RELOCATE THE SCAFFOLD ALONG THE BRIDGE LENGTH/WIDTH (TYP.)

SCAFFOLD CABLE (TYP.)

SCAFFOLD SUPPORT HANGER (TYP.)

EX. ϕ GIRDER (TYP.)

ϕ N.B. 1-91

2'-0" (+)

CLASS 1A CONTAINMENT

SANDBAGS OR SIMILAR WEIGHTS PLACED AROUND THE BASE OF ACTIVE CONTAINMENT TO SECURE TARPAULIN WALLS & SEAL ENCLOSURE (TYP.)

MANLIFT (ALTERNATE TO THE SCAFFOLD)

100% GROUND TARPULINS PLACED OVER ENTIRE CONTAINMENT AREA TO COLLECT ALL WASH WATER AND PAINT DISPOSAL DEBRIS.

FOUR (4) EXHAUST DUCTS EVENLY SPACED ACROSS THE CONTAINMENT AREA*

NOTES:

1. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR BRIDGE ELEMENTS AND MODIFICATIONS NOT SHOWN ON THESE PLANS.
2. THE CONTRACTOR SHALL AVOID ATTACHING/CONNECTING TO BRIDGE ELEMENTS EXHIBITING SIGNIFICANT SECTION LOSS.
3. FOR ADDITIONAL DETAILS, SEE CONTAINMENT MISCELLANEOUS DETAILS SHEETS.
4. CONTRACTOR TO PROVIDE LIFE LINES MEETING OSHA 1910.66 APPENDIX C AS REQUIRED.
5. INSPECTIONS SHALL BE PERFORMED FROM MANLIFT.

TYPICAL SECTION (MOBILE DUST COLLECTOR NOT SHOWN FOR CLARITY) (N.B. BRIDGE SHOWN, S.B. BRIDGE SIMILAR)

* BASED ON MAXIMUM CONTAINMENT AREA OF 480 FT² AS MEASURED PERPENDICULAR TO THE DIRECTION OF CROSS-DRAFT (SEE VENTILATION SYSTEM TABLE ON GENERAL NOTES SHEETS)

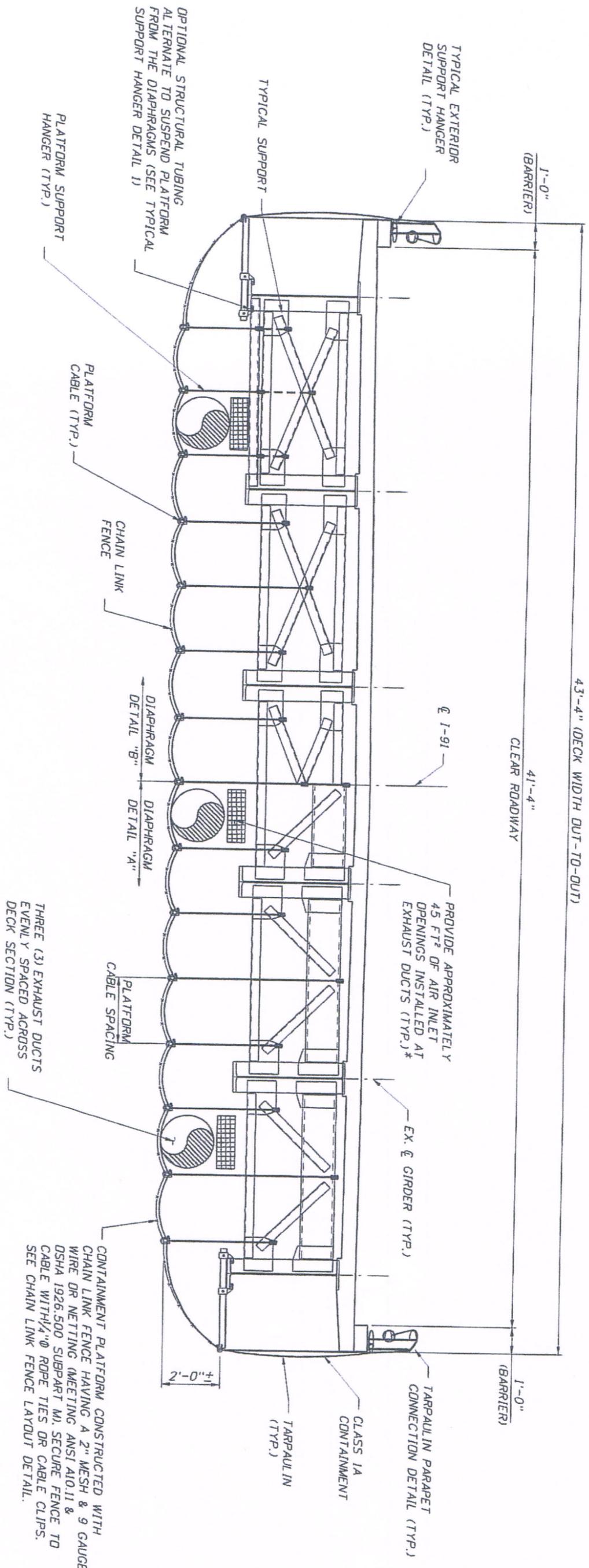


DATE	BY	REVISIONS	DESCRIPTION

PAUL STEULEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634	MONOKO LLC. 1037 PENINSULA AVENUE TARPON SPRINGS, FL 34689 PHONE (727) 940-3244 FAX (727) 279-8795
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DRAWN BY: BDN 02/15 CHECKED BY: PDB 02/15 DESIGNED BY: MAI 02/15 DATE: PRS 02/15	DEPARTMENT OF TRANSPORTATION COUNTY: ORANGE PROJECT ID: 1W BWT (1+1)	SHEET TITLE: CONTAINMENT SECTION DETAILS PROJECT NAME: TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS
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Bridge Nos. 63N & 63S (NEWBURY)	REG. DRWG. NO. C-13
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- * BASED ON MAXIMUM CONTAINMENT AREA OF 300 FT² AS MEASURED PERPENDICULAR TO THE DIRECTION OF CROSS-DRAFT (SEE VENTILATION SYSTEM TABLE ON GENERAL NOTES SHEET)
- NOTES:
1. THESE PLANS WERE PREPARED WITHOUT THE BENEFIT OF AS-BUILT BRIDGE PLANS. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR BRIDGE ELEMENTS AND MODIFICATIONS NOT SHOWN ON THESE PLANS.
 2. THE CONTRACTOR SHALL AVOID ATTACHING/CONNECTING TO BRIDGE ELEMENTS EXHIBITING SIGNIFICANT SECTION LOSS.
 3. FOR ADDITIONAL DETAILS SEE CONTAINMENT MISCELLANEOUS DETAILS SHEETS.
 4. CONTRACTOR TO PROVIDE LIFE LINES MEETING OSHA 1910.66 APPENDIX C AS REQUIRED.

TYPICAL SECTION
 (MOBILE DUST COLLECTOR NOT SHOWN FOR CLARITY)
 (3'-9" CABLE SPACING SHOWN, 5'-3" CABLE SPACING SIMILAR)

PROVIDE APPROXIMATELY 45 FT² OF AIR INLET OPENINGS INSTALLED AT EXHAUST DUCTS (TYP.)*

EX. ϕ GIRDER (TYP.)

TYPICAL EXTERIOR SUPPORT HANGER DETAIL (TYP.)

TYPICAL SUPPORT

OPTIONAL STRUCTURAL TUBING ALTERNATE TO SUSPEND PLATFORM FROM THE DIAPHRAGMS (SEE TYPICAL SUPPORT HANGER DETAIL 1)

PLATFORM SUPPORT HANGER (TYP.)

PLATFORM CABLE (TYP.)

CHAIN LINK FENCE

DIAPHRAGM DETAIL "B"

DIAPHRAGM DETAIL "A"

PLATFORM CABLE SPACING

THREE (3) EXHAUST DUCTS EVENLY SPACED ACROSS DECK SECTION (TYP.)

CONTAINMENT PLATFORM CONSTRUCTED WITH CHAIN LINK FENCE HAVING A 2" MESH & 9 GAUGE WIRE OR NETTING (MEETING ANSI A10.11 & OSHA 1926.500 SUBPART M). SECURE FENCE TO CABLE WITH 1/4" ϕ ROPE TIES OR CABLE CLIPS. SEE CHAIN LINK FENCE LAYOUT DETAIL.

TARPULIN CONNECTION DETAIL (TYP.)

CLASS 1A CONTAINMENT

TARPULIN (TYP.)

2'-0"



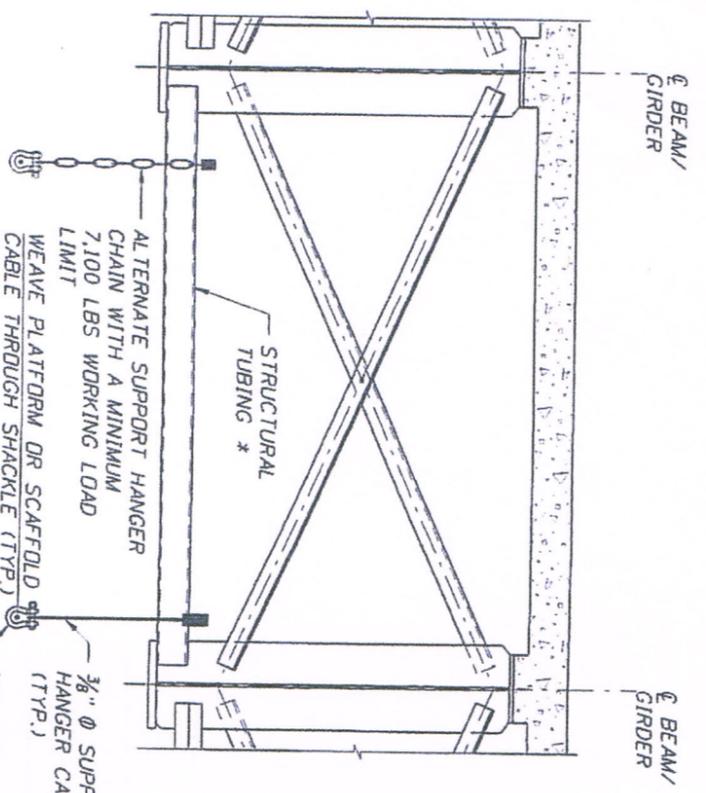
DATE	BY	DESCRIPTION	REVISIONS

PAUL STUJEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634	MONOKO, LLC. 1037 PENINSULA AVENUE TARPOON SPRINGS, FL 34689 PHONE (727) 940-3244 FAX (727) 279-8795
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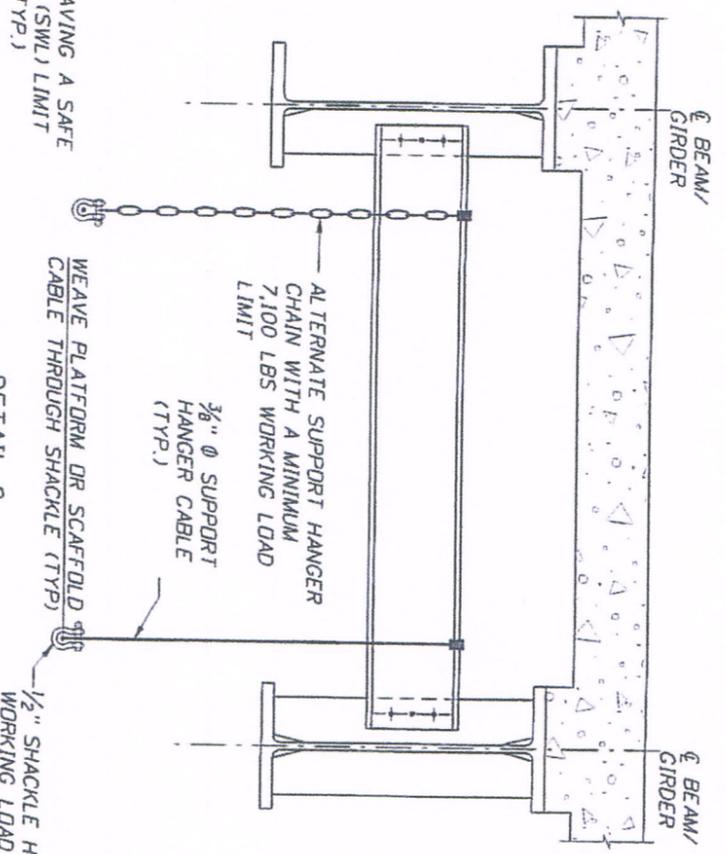
DRAWN BY: BDN 02/15	CHECKED BY: PDB 02/15	DESIGNED BY: MAT 02/15	CHECKED BY: PRS 02/15
ROAD NO. 1-91	COUNTY ORANGE	PROJECT ID IN BRWT (141)	PROJECT NAME TEN BRIDGES ON OR OVER 1-91 IMPROVEMENT PLANS

BRIDGE NO. 67N & 67S (NEWBURY)	CONTAINMENT SECTION DETAILS	DATE 03/12/2016	TIME 5:07:47 PM
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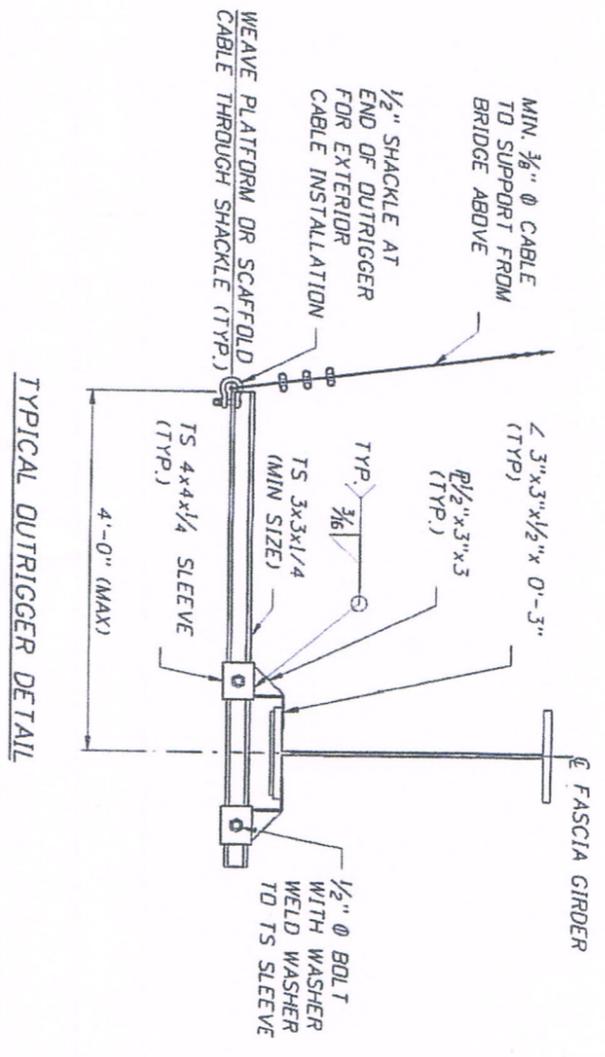
REF. DWG. NO.	BHEET NO.
	C-15



DETAIL 1



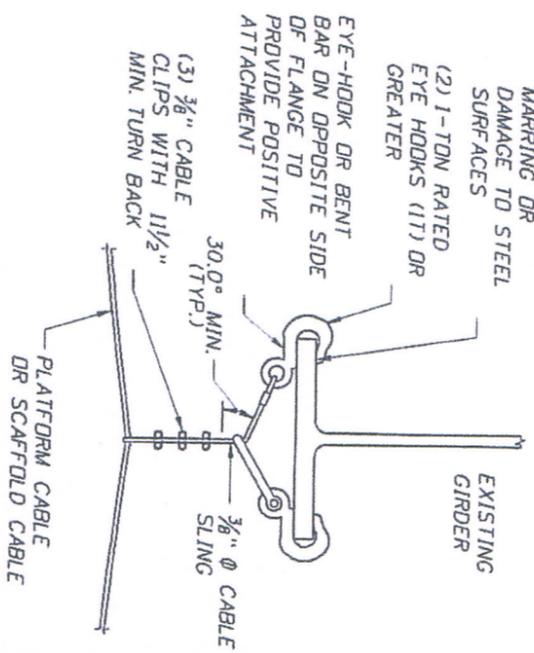
DETAIL 2



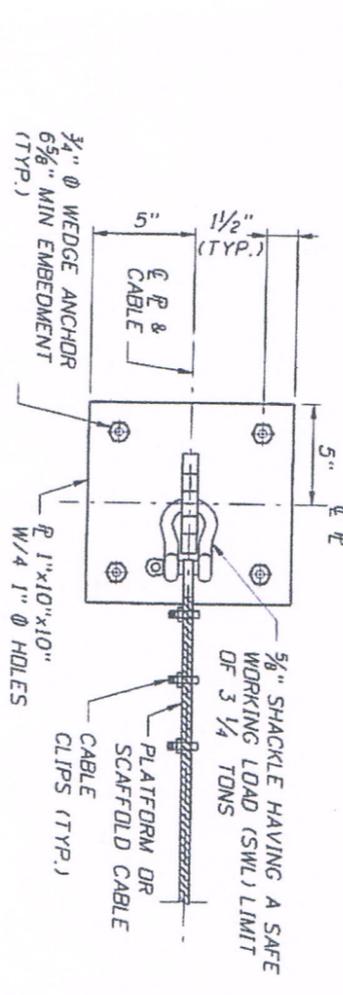
TYPICAL OUTRIGGER DETAIL

* USE TS 4X4X1/4 FOR SPACING UP TO 9'-6" OR TS 4X4X3/8 FOR SPACING UP TO 11'-0"

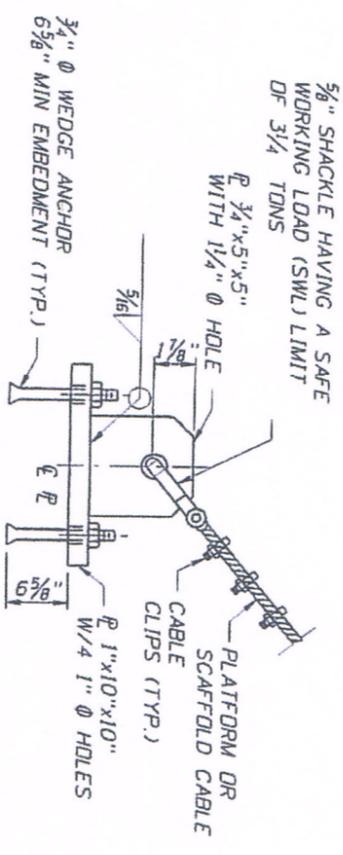
EYE-HOOK HANGERS MAY NOT CAUSE MARRING OR DAMAGE TO STEEL SURFACES
 (2) 1-TON RATED EYE HOOKS (11) OR GREATER



ALTERNATE SUPPORT HANGER



TYPICAL SUPPORT HANGER



OPTIONAL ANCHOR PLATE ATTACHMENT

GENERAL NOTES:

- OBTAIN APPROVAL FROM OWNER OR THE RESIDENT ENGINEER PRIOR TO INSTALLATION OF THE ANCHOR PLATE. CONSULT WITH RESIDENT ENGINEER REGARDING ANY ENCASED CONDUITS, PIPES, OR ANY OTHER KNOWN OBSTRUCTIONS PRIOR TO DRILLING.
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A36.
- WELD ELECTRODES SHALL BE E70XX.
- TO RESTORE CONCRETE:
 - REMOVE ANCHORS COMPLETELY WITHOUT DAMAGING THE CONCRETE ELEMENT.
 - FINISH SURFACE WITH DOT APPROVED METHODS AND NON-SHRINK GROUT.
- MINIMUM 8" EDGE DISTANCE AND 6" CENTER TO CENTER OF BOLTS IS REQUIRED.
- CONTRACTOR SHALL ATTACH THE ANCHOR PLATES TO SOUND CONCRETE. CONCRETE THAT IS SPALLED SHALL NOT BE CONSIDERED AS SOUND. CONCRETE WITH MAP CRACKS AND EFFLORESCENCE SHOULD HAVE PULL OUT TESTS CONDUCTED ON ALL ANCHOR BOLTS TO ENSURE THAT THE PROPER CAPACITY CAN BE ACHIEVED.
- ANCHOR PLATE SHALL NOT BE ATTACHED TO PRESTRESSED PILES OR BEAMS.

INSTALLATION NOTES:

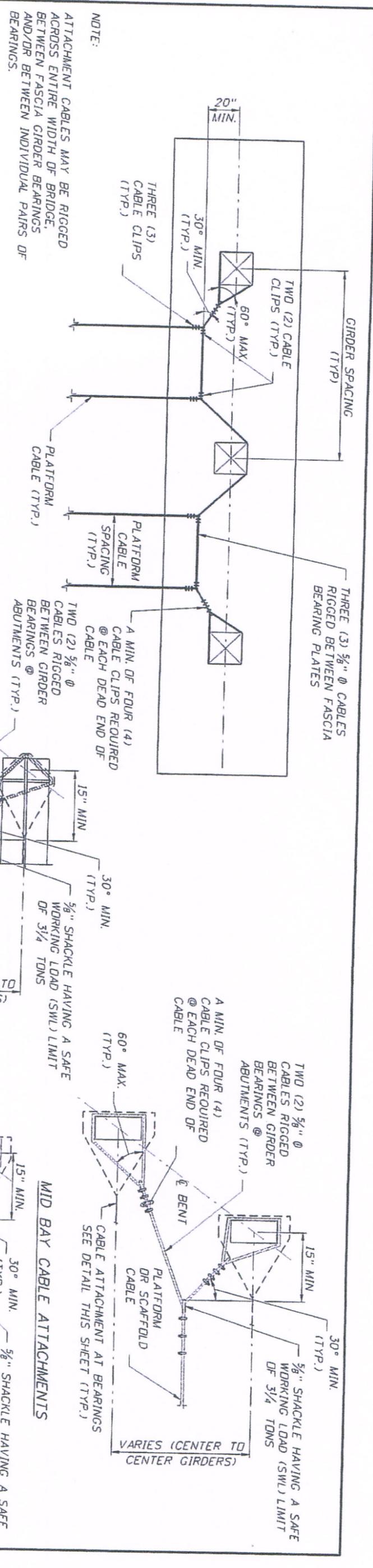
- DRILL (4) HOLES, USING THE MANUFACTURER'S RECOMMENDED DRILL BIT SIZE, INTO CONCRETE USING ANCHOR PLATE AS A TEMPLATE. (HOLES FOR ANCHOR BOLTS SHALL BE DRILLED 1/4" MINIMUM DEEPER THAN THE MINIMUM EMBEDMENT LENGTH FOR ALL ANCHOR BOLTS.)
- INSTALL ANCHOR BOLTS PER MANUFACTURER'S INSTRUCTIONS.
- INSTALL 5/8" SHACKLE (OR GREATER) ONTO THE ANCHOR PLATE.
- INSTALL MAIN CABLE ONTO SHACKLE.



DATE	BY	DESCRIPTION	DRAWN BY	CHECKED BY	DEPARTMENT OF TRANSPORTATION	COUNTY	PROJECT NO.	PROJECT NAME	SHEET NO.
		REVISIONS			VERMONT	ORANGE	1-91	TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS	C-16
		PAUL STEJLEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5405 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634	BON 02/15	PDB 02/15					
		MONOKO, LLC. 1037 PENINSULA AVENUE TARPOON SPRINGS, FL 34689 PHONE (727) 940-3244 FAX (727) 279-8795							

Bridge Nos. ALL

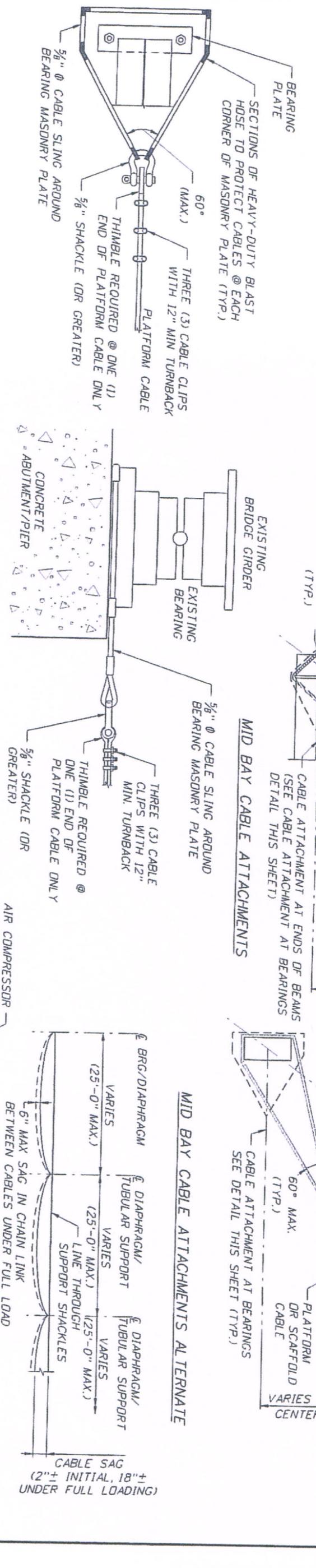
CONTAINMENT MISCELLANEOUS DETAILS (1 OF 4)



TRANSVERSE CABLE ATTACHMENT

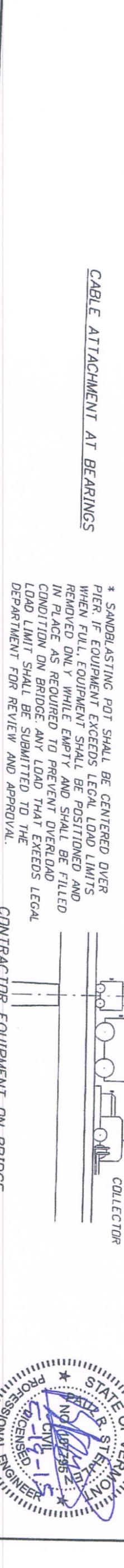
MID BAY CABLE ATTACHMENTS

MID BAY CABLE ATTACHMENTS ALTERNATE



ELEVATION

DESIGN CABLE SAG



CABLE ATTACHMENT AT BEARINGS

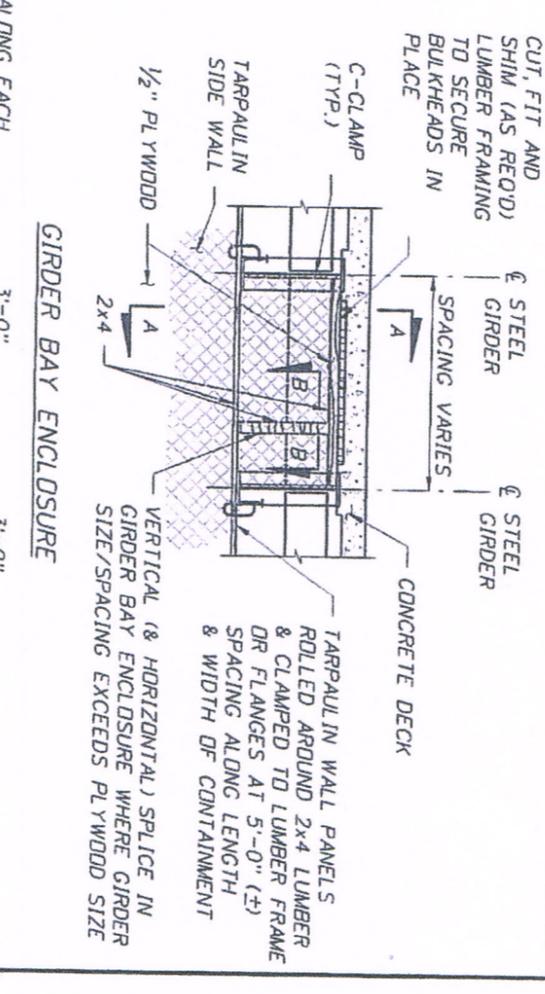
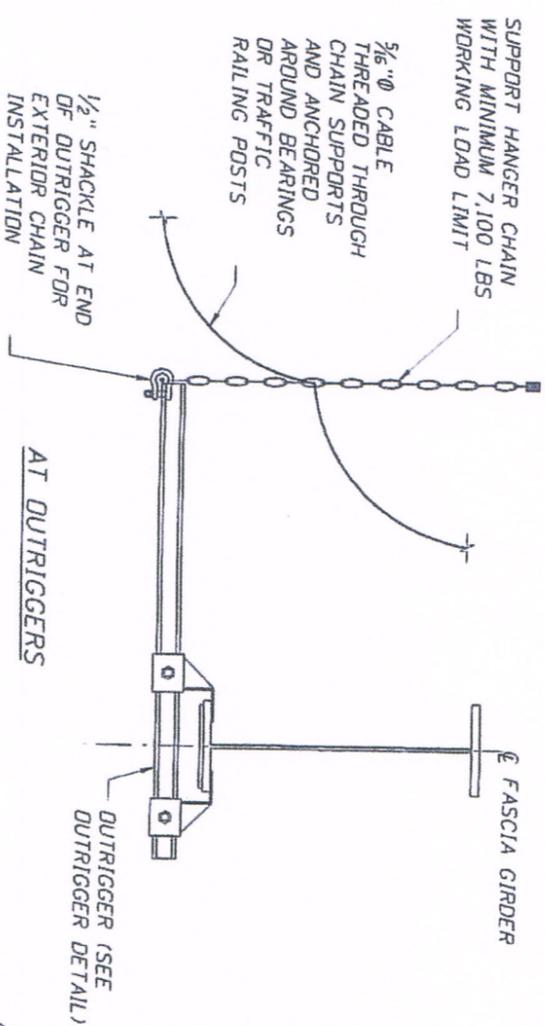
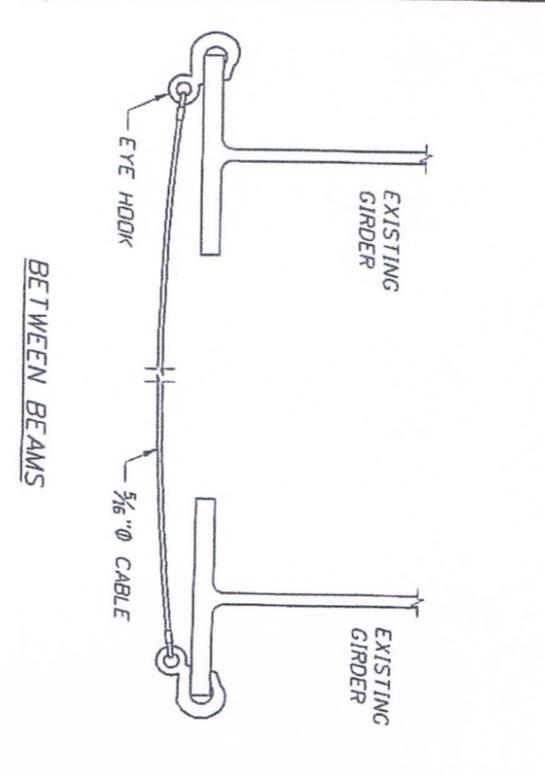
CONTRACTOR EQUIPMENT ON BRIDGE



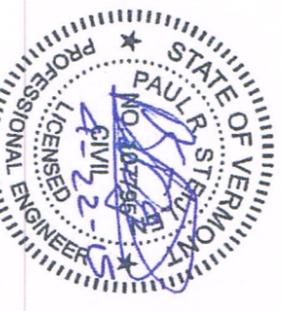
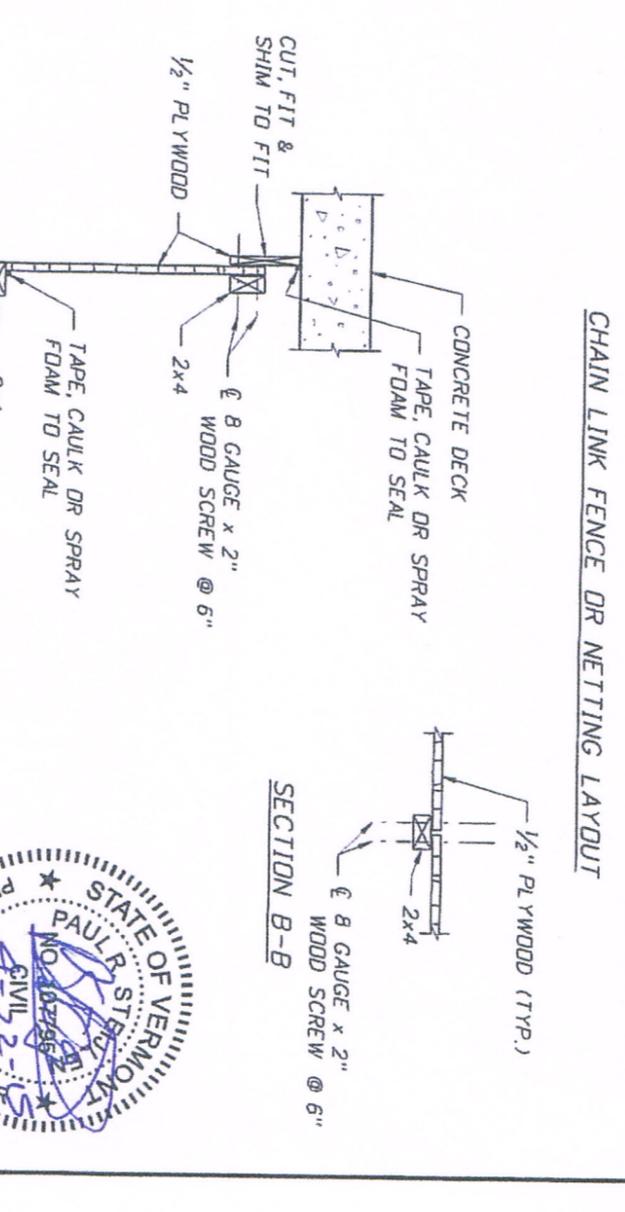
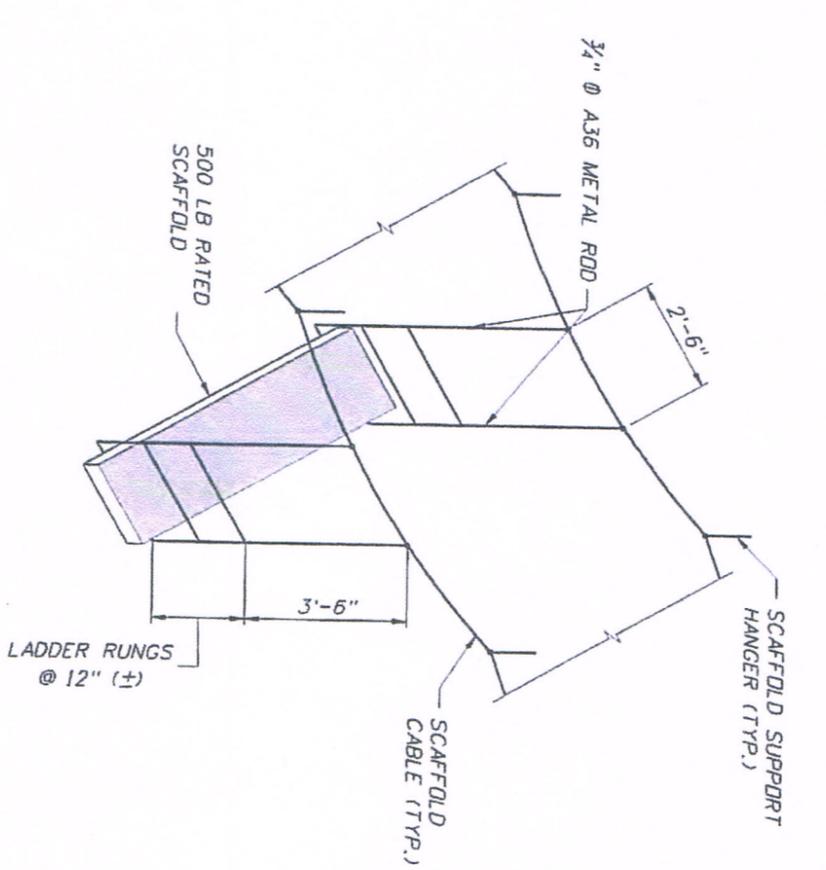
DATE	BY	REVISIONS	DESCRIPTION

PAUL STEULEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOPER BLVD., SUITE 12 TAMPA, FL 33634	DRAWN BY: BDN 02/15 CHECKED BY: PDR 02/15 DESIGNED BY: MAT 02/15 CHECKED BY: PDR 02/15	VERMONT DEPARTMENT OF TRANSPORTATION COUNTY: ORANGE PROJECT ID: 1-91 PROJECT NAME: TEN BRIDGES ON OR OVER 1-91 IMPROVEMENT PLANS	SHEET TITLE: CONTAINMENT MISCELLANEOUS DETAILS (2 OF 4) Bridge Nos. ALL
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MONOKO, LLC. 1037 PENINSULA AVENUE TARPON SPRINGS, FL 34689 PHONE (727) 940-3244 FAX (727) 279-9795	REG. DWG. NO. SHEET NO. C-17
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CABLE CLIP INSTALLATION			
CABLE DIA	MIN. CABLE TURNBACK, IN.	MIN. TORQUE FT-LBS	NO. OF CLIPS
3/8"	11"	45	3
1/2"	11.5"	65	3
5/8"	12"	95	3
3/4"	12"	95	3



DATE: BY: REVISIONS: DESCRIPTION: PAUL STEULEN P.E. P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634

MONOKO LLC. 1037 PENINSULA AVENUE TARPON SPRINGS, FL 34689 PHONE (727) 940-3244 FAX (727) 279-9795

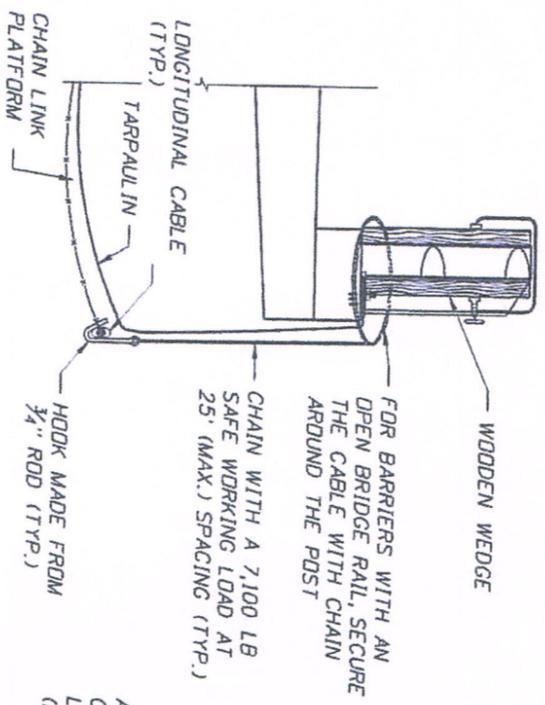
VERMONT DEPARTMENT OF TRANSPORTATION PROJECT ID: ROAD NO.: COUNTY: PROJECT NO.: PROJECT NAME: TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS

SECTION A-A

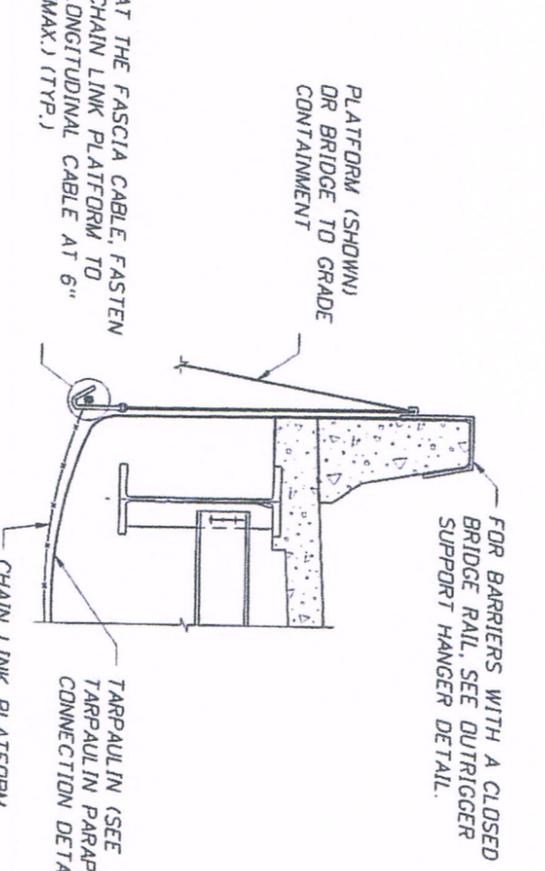
SECTION B-B

Bridge Nos. ALL

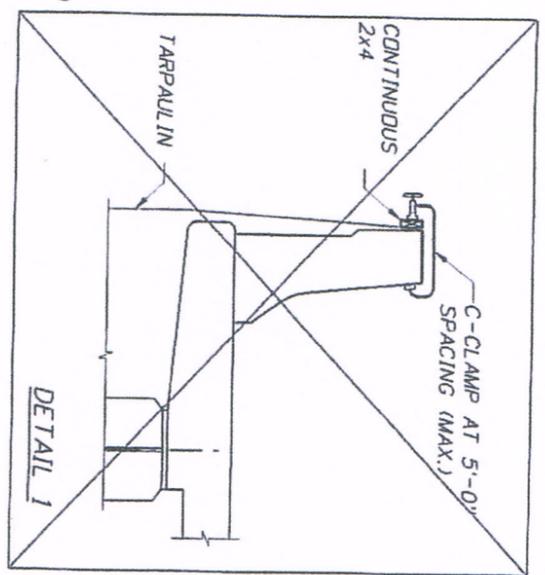
REVISIONS: 1-91 IMPROVEMENT PLANS



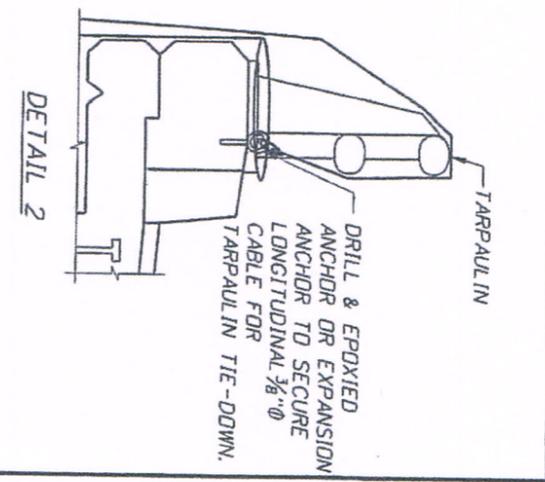
DETAIL 1



DETAIL 2

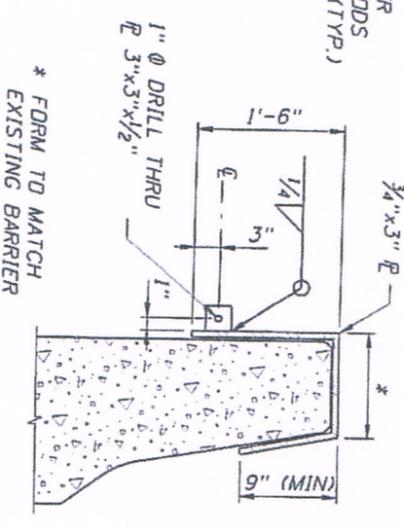
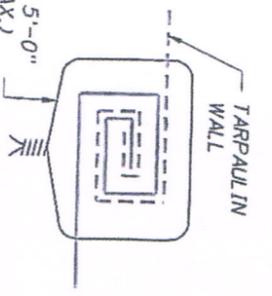
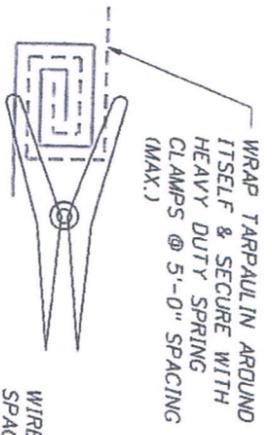
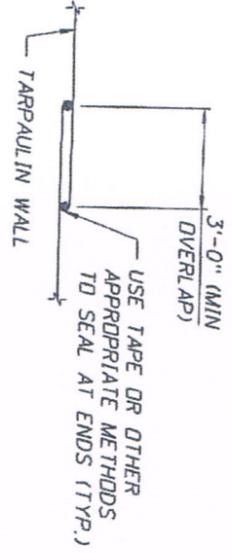
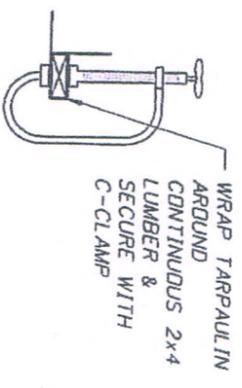


DETAIL 1

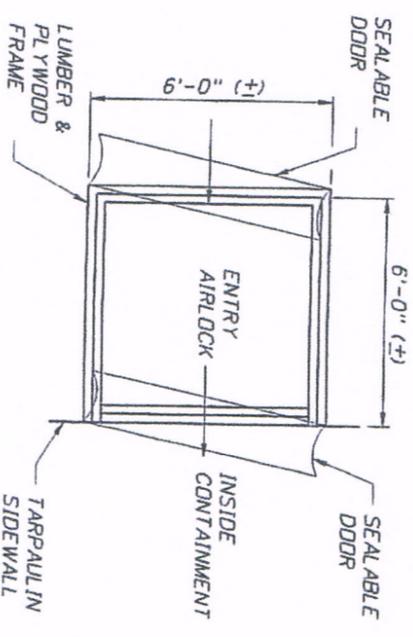


DETAIL 2

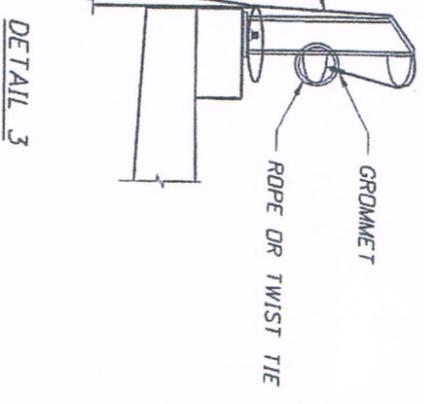
EXTERIOR SUPPORT HANGER
(CHAIN LINK PLATFORM SHOWN, NETTING OR METAL DECKING IS SIMILAR)



OUTRIGGER SUPPORT HANGER DETAIL



CONTAINMENT ENTRY



DETAIL 3

ADJACENT TARPAULIN CONNECTION ALTERNATIVES

INLET AIR OPENING
INSTALL INLET AIR OPENINGS WITHIN TARPAULIN WALLS AND/OR GIRDER BAY ENCLOSURES AS REQUIRED



DATE	BY	DESCRIPTION	REVISIONS

P.E. LICENSE NUMBER 107795 A2B ENGINEERING, LLC. 5406 N. HOOVER BLVD., SUITE 12 TAMPA, FL 33634	MONOKO, LLC. 1037 REMINSULA AVENUE TARPON SPRINGS, FL 34689 PHONE (727) 940-3244 FAX (727) 278-8795
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DRAWN BY: EBN 02/15 CHECKED BY: PDB 02/15 REVISIONS: MAI 02/15 PPS 02/15	DEPARTMENT OF TRANSPORTATION COUNTY: ORANGE PROJECT ID: 1W BNT (14)	SHEET TITLE: CONTAINMENT MISCELLANEOUS DETAILS (4 OF 4) TEN BRIDGES ON OR OVER I-91 IMPROVEMENT PLANS
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VERMONT DEPARTMENT OF TRANSPORTATION COUNTY: ORANGE PROJECT ID: 1W BNT (14)	SHEET NO.: C-19
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