



Submittal #000462-1.G 000462 - DIVISION 2 - POST-TENSIONING

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Project: 2015-711 - FIU - UCPP - DB Pedestrian Bridge
SW 109 Avenue & SW 8th Street
Miami, Florida 33174
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Post Tensioning Drawings

SPEC SECTION:	000462 - DIVISION 2 - POST-TENSIONING	CREATED BY:	
STATUS:	Open	DATE CREATED:	08/11/2017
ISSUE DATE:	08/11/2017	REVISION:	G
RESPONSIBLE CONTRACTOR:	STRUCTURAL TECHNOLOGIES LLC	RECEIVED FROM:	
RECEIVED DATE:	//	OWNER JOB NO.:	BT-904
FINAL DUE DATE:	08/16/2017	DAYS ELAPSED:	
TYPE:	Shop Drawing	MCM JOB NO.:	2015-711
PRIORITY:	High		
APPROVERS:	Erika Hango (FIGG Bridge Engineers)		
BALL IN COURT:	Erika Hango (FIGG Bridge Engineers)		
DISTRIBUTION:	Manuel Feliciano (FIGG Bridge Engineers) , Dwight Dempsey (FIGG Bridge Engineers) , Alan Ruiz (MCM) , Rodrigo Isaza (MCM) , Ernesto Hernandez (MCM) , Daniela Delgado (MCM)		
DESCRIPTION:	Updated PT Drawings addressing FIGG/FDOT comments		
ATTACHMENTS:			

SUBMITTAL WORKFLOW

#	NAME	SUBMITTER/ APPROVER	SENT DATE	DUE DATE	RETURNED DATE	RESPONSE	COMMENTS
1	Erika Hango	Approver		8/16/2017		Pending	

ENGINEERS & GENERAL CONTRACTORS

Review is for general conformance with the Contract Documents. Comments shall not be construed as relieving the supplier/subcontractor from strict compliance with such documents. The supplier/subcontractor remain responsible for details and accuracy, for complying with standards of the industry regarding fabrication, assembly, erection and installation procedures.

REVIEWED
 REVISE & RESUBMIT
 REVIEWED AS NOTED
 REJECTED

By: Alan Ruiz Date: 8-11-2017

BY _____ DATE _____ COPIES TO _____

FIU PEDESTRIAN BRIDGE 434688-1-58-01
PT DECK, CANOPY AND TRUSS SHOP DRAWING
SUMMARY OF REVIEW COMMENTS BY CEG 6/26/2017 from FDOT D6

<u>SHEET ID</u>	<u>COMMENT</u>
PT01.2	CALL OUT MATERIAL/ STEEL GRADE FOR LOCAL ZONE REINFORCEMENT IN TABLE. ✓ REV4
PT01.2 & 01.4	LOCAL ZONE REINFORCEMENT HAS A 2" PITCH. THIS IS A VERY TIGHT SPACING. WILL ANY CONFLICTS BE PRESENT WITH MILD REINFORCEMENT IN THESE AREAS? SPIRALS ONSITE ARE 2.5" PITCH. DRAWINGS UPDATED
PT01.3 & 01.4	CALCULATIONS FOR SPIRAL USE GRADE 75 REBAR. CALL OUT FY=75KSI ON SHOP DRAWING. GRADE 60 REBAR WILL BE USED. CALCS UPDATED. SEE CALCS REV1
PT01.4	THE LOCAL ZONE REINFORCEMENT CALCULATIONS PROVIDED ARE FOR THE 15" DIA SPIRAL. SHOW CALCULATIONS FOR THE 14" DIAMETER SPIRAL AS WELL. 14" DIA. SPIRAL IS NOT USED IN THIS JOB
PT01.5	PER SHEET B-38 & 42, STEEL ANCHOR PLATE FOR 1.375" PT BAR IS 5" X 10". VERIFY W/ EOR.
PT01.6	PER SHEET B-38 & 42, STEEL ANCHOR PLATE FOR 1.75" PT BAR IS 8" X 12". VERIFY W/ EOR.
PT01.7	PER SHEET B-38, STEEL ANCHOR PLATE FOR 2.5" PT BAR IS 12" X 14". VERIFY W/ EOR.
PT02	ELONGATION VALUES SHOWN ARE CALCULATED BY VSL AND DIFFER FROM PLAN SHEET B-69 VARIATIONS WITH IN 5%
PT02	4'-0 3/8" DIM DIFFERS FROM 4'-0 1/2" SHOWN ON SHEET B-60 AND END OF MAIN SPAN. ✓ REV4
PT03	ELONGATION VALUES SHOWN ARE CALCULATED BY VSL AND DIFFER FROM PLAN SHEET B-69 VARIATIONS WITH IN 5%
PT03	PROVIDE SPACING DIMENSIONS FOR THE CANOPY BLISTERS SHOWN IN PLAN VIEW ✓ REV4
PT03.4	SHOW 2'-0" SPACING IN 94FT BACK SPAN REGION. ✓ REV4
PT04	BEARING PLATE SIZES SHOWN DIFFER FROM SHEETS B-38 & B-42. VERIFY W/ EOR. FIGG REVIEWED & TAKE NO EXCEPTION DATED 05/08/17
PT04	100% THEORETICAL ELONGATION SHOWN FOR PT RODS DIFFERS FROM PLAN SHEET B-69. NO CALCULATIONS PROVIDED BY VSL. VERIFY W/ EOR. VARIATIONS WITH IN 5%
PT04	DIAPHRAGM PT BAR. EOR TO VERIFY JACKING FORCE, STRESS SEQUENCE, PT BAR LENGTH AND ELONGATION SHOWN. INFORMATION NOT IN RFC PLANS. FIGG RESPONDED TO VSL RFI005 DATED 04/17/17

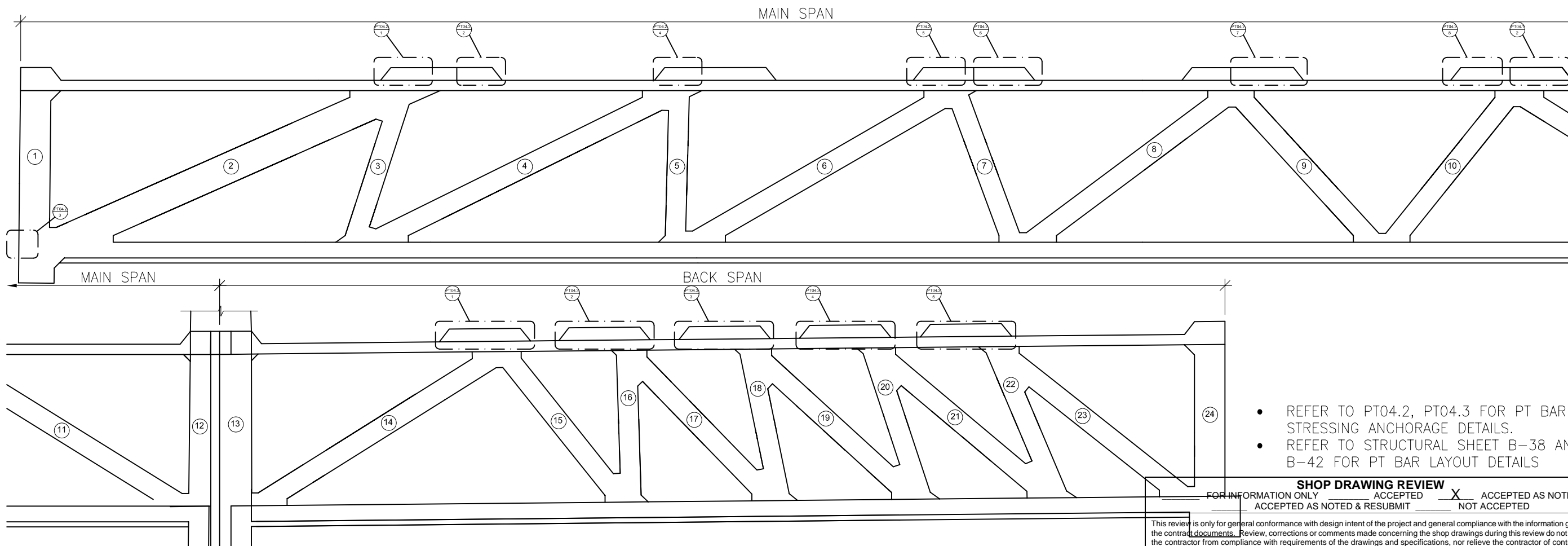
FIGG REVIEWED & TAKE NO EXCEPTION DATED 05/08/17

PT BAR BEARING PLATE CALCULATIONS:

CALCULATIONS WERE PERFORMED USING BEARING PLATE DIMENSIONS DIFFERENT THAN THOSE SHOWN IN PLANS. EOR TO VERIFY THAT THESE BEARING PLATE DIMENSIONS SATISFY THE DESIGN INTENT. FIGG REVIEWED & TAKE NO EXCEPTION DATED 05/08/17

LOCAL ZONE REINFORCEMENT DESIGN - 6-12 SYSTEM:

THE CALCULATIONS PROVIDED ARE FOR THE 15" DIA SPIRAL. SHOW CALCULATIONS FOR THE 14" DIAMETER SPIRAL AS WELL.
14" DIA. SPIRAL IS NOT USED IN THIS JOB



- REFER TO PT04.2, PT04.3 FOR PT BAR STRESSING ANCHORAGE DETAILS.
- REFER TO STRUCTURAL SHEET B-38 AND B-42 FOR PT BAR LAYOUT DETAILS

SHOP DRAWING REVIEW

FOR INFORMATION ONLY ACCEPTED ACCEPTED AS NOTED
 ACCEPTED AS NOTED & RESUBMIT NOT ACCEPTED

This review is only for general conformance with design intent of the project and general compliance with the information given in the contract documents. Review, corrections or comments made concerning the shop drawings during this review do not relieve the contractor from compliance with requirements of the drawings and specifications, nor relieve the contractor of contractual responsibility for any error or deviation from contract requirements. The contractor is responsible for confirming and correlating all quantities, dimensions and structural capabilities - Selecting fabrication processes and techniques of construction - Coordinating his work with that of all other trades - and performing his work in a safe and satisfactory manner.

FIGG BRIDGE ENGINEERS, INC. By: KLB Date 5/8/2017

P.T. BAR DATA TABLE

LOCATION	BAR DESIG.	NO. REQ.	BAR SIZE	BAR LENGTH (ft-in)	BAR LENGTH FROM PT SHOP DWG (ft-in)	JACKING FORCE / BAR (kips)	STRESSING END*	THEORETICAL ELONGATION (in)	STRESS SEQUENCE	REMARK
2	A	1	1 3/4"	42'-11"	44'-3/8"	280	UPSTATION	1.87	1	NO GROUT, TO BE DESTRESSED
	B	1	1 3/4"	42'-9"	43'-9 3/8"	280	DOWNSTATION	1.86	2	NO GROUT, TO BE DESTRESSED
3	A	4	1 3/4"	18'-1"	19'-1 3/8"	280	UPSTATION	0.79	5	
5	A	2	1 3/8"	17'-6"	18'-3 11/16"	166	UPSTATION	0.76	7	
6	A	2	1 3/4"	34'-9 3/4"	36'-4 3/8"	280	UPSTATION	1.52	9	
7	A	1	1 3/4"	18'-4"	19'-4 3/8"	280	UPSTATION	0.80	10	
8	A	4	1 3/4"	29'-0 3/4"	30'-1"	280	UPSTATION	1.27	8	
10	A	4	2 1/2"	22'-0"	22'-7"	389	UPSTATION	0.68	6	
11	A	1	1 3/4"	33'-0"	34'-0 3/8"	280	UPSTATION	1.44	3	NO GROUT, TO BE DESTRESSED
	B	1	1 3/4"	33'-2 1/4"	34'-2 5/8"	280	UPSTATION	1.45	4	NO GROUT, TO BE DESTRESSED
15	A	4	1 3/4"	21'-11 3/4"	23'-0"	240	UPSTATION	0.82	12	
16	A	1	1 3/8"	17'-6"	18'-3 3/4"	142	UPSTATION	0.65	14	
17	A	4	1 3/8"	24'-4"	25'-1 3/4"	166	UPSTATION	1.06	16	
18	A	1	1 3/8"	17'-9 3/4"	18'-7 1/2"	119	UPSTATION	0.56	18	
19	A	2	1 3/8"	25'-10 1/2"	26'-8 1/4"	166	UPSTATION	1.12	20	
20	A	1	1 3/8"	18'-4 1/2"	19'-2 1/4"	142	UPSTATION	0.68	19	
21	A	2	1 3/8"	27'-1 1/4"	27'-11"	119	UPSTATION	0.84	17	
22	A	2	1 3/8"	18'-11 1/4"	19'-8"	166	UPSTATION	0.82	15	
23	A	2	1 3/8"	28'-1"	28'-10 3/4"	119	UPSTATION	0.88	13	
DIAPHRAGM/13		2	1 3/8"	8'-0 1/2"	9'-1"	50	UPSTATION	0.11	11	SEE STRUCTURAL B-46 FOR MORE DETAILS

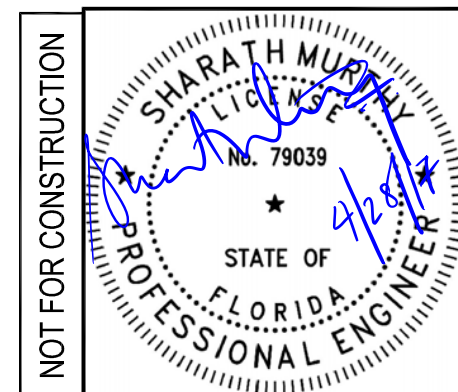
*NOTE:

- FOR VERTICAL TENDONS AND BARS, UPSTATION DENOTES TOP ANCHOR, DOWNSTATION DENOTES BOTTOM ANCHOR
- MIN CONCRETE STRENGTH AT STRESSING = 6000 PSI
- MIN CONCRETE COVER TO PT BAR (DEAD END) IS 2" (T.Y.P)
- MIN CONCRETE COVER TO PT BAR GROUT CAP (STRESSING END) IS 2-1/4" (T.Y.P)
- BEARING PLATE SIZE:
 1-3/8" BAR - 6" X 6" X 1-1/2"
 1-3/4" BAR - 8" X 8" X 2"
 2-1/2" BAR - 10" X 10" X 2-1/4"

We take no exception to the use of square plates with the dimensions shown.

FOR PLEASE VERIFY: VSL RECOMMENDED THESE SQUARE SIZE PLATE TO REDUCE THE THICKNESS. PLEASE SEE ATTACHED CALCULATIONS

See RFC drawings B-109 and B-110 for complete stressing sequence.



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Structural Technologies LLC (VSL) SHOP DRAWING
 These shop drawings illustrate the details of the VSL Post-Tensioning System. They were prepared in conformance with the structural design provided to VSL by project owner or its representative. VSL took no part in the preparation or review of said structural design and VSL DISCLAIMS ANY LIABILITY for it. The stamp or seal of a VSL employees on these shop drawings pertains only to the transfer of the forces required by the engineer of record on the structural drawings, and not to the adequacy of the structural design. NO WARRANTY, EXPRESSED OR IMPLIED, as to the adequacy of the structural design is made by virtue of any such stamp or seal.

<p>structural TECHNOLOGIES A Stantec Group Company</p> <p>2001 Bount Road Pompano Beach, FL 33069 Phone: 954/489-3981 Fax: 954/489-3992</p> <p>Atlanta, GA / Denver, CO / Pompano Beach, FL / Atlanta, GA</p>	DATE	04/26/17	DESCRIPTION	PER 90% DRAWINGS DATED FEB.2017	APPROVAL	BY	SM	CHK
	NO.	0						
<p align="center">TRUSS SYSTEM DETAILS</p> <p align="center">FIU PEDESTRIAN BRIDGE</p> <p align="center">MIAMI, FL</p> <p align="center">MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)</p>		<p>SCALE: VARIES</p> <p>JOB NO: 423729</p> <p>SHEET: PT04</p>						



Request For Information

Project: FIU Pedestrian Bridge

Location: FIU, Miami, FL

Project No. 420582

VSL RFI #

005

To: MCM
6201 SW 70th St, 2nd Floor
Miami, FL 33143
Attn: Rodrigo Isaza/ Alan Ruiz, PE

From: Structural Technologies, LLC
Date: 4/14/2017
2001 Blount Road
Pompano Beach, FL 33069

Drafted by: Raymond Peng

Reference/Item(s): Pylon Vertical PT Bars

Request:

Sheet B-109 Stage 3 shows vertical PT bars that to be stressed. However, these PT bars are not shown in PT bar schedule (Sheet B-69). Please clarify.

Response: By: _____ **Date:** _____

Response to VSL RFI 005

Date: April 17, 2017

From: Erika Hango (FIGG)

We received VSL RFI 005-Pylon Vertical PT Bars on April 17, 2017. We offer the following response to this RFI:

Information for these two 1 3/8" diameter PT bars is shown on Sheets B-23 & B-46. The length of the PT bar section embedded in the pylon base is 4'-0" and the length of the PT bar section at the Type II deck diaphragm is 4'-5" for a total length of 8'-5". This total length is measured from plate to plate and does not include the additional length required for stressing. The PT bars shall be stressed to 50 kips each. The elongation is 0.11 in.

MULTISTRAND GENERAL NOTES

1.0 PRESTRESSING STEEL

1.1 PRESTRESSING STEEL SHALL BE 7-WIRE, LOW RELAXATION STRAND FOR PRESTRESSED CONCRETE MANUFACTURED IN ACCORDANCE WITH ASTM A416-GRADE 270.
 NOMINAL DIAMETER.....0.60"
 ASSUMED NOMINAL AREA.....0.217 SQ. IN.
 ASSUMED MODULUS OF ELASTICITY.....28,500 KSI
 GUARANTEED ULTIMATE TENSILE STRENGTH.....58.6 KIPS
 MAX. TEMPORARY JACKING FORCE.....80% GUTS

2.0 ANCHORAGES

2.1 ANCHORAGES SHALL MEET THE MINIMUM REQUIREMENTS SET FORTH IN AASHTO & LRFD/FDOT SPECS.

2.2 BEARING PLATES SHALL BE PLACED PERPENDICULAR TO THE TENDON PATH AND SHALL BE SHIMMED AS NECESSARY.

2.3 GROUT FITTINGS AND ATTACHMENTS SHALL BE STANDARD PLASTIC PIPE OR FLEXIBLE PLASTIC TUBING AT THE PLACER'S OPTION. PERMANENT FITTINGS SHALL BE NON-METALLIC PER FDOT SPECS.

3.0 TENDON FABRICATION AND SHIPMENT

3.1 TENDONS SHALL BE FABRICATED WITH SUFFICIENT LENGTH BEYOND THE BEARING PLATE TO ALLOW STRESSING. A MINIMUM LENGTH OF STRAND IS REQUIRED AT ALL STRESSING ENDS FOR THE FOLLOWING ANCHORAGES:
 ECI 6-19 - 48";
 ECI 6-12 - 48";
 VSLAB 6-4 - 24".

3.2 TENDONS SHALL BE FABRICATED AT JOBSITE OR OFFSITE.

3.3 EXCESSIVELY DAMAGED DUCT LENGTHS SHALL BE REMOVED AND REPLACED COMPLETELY, NOT REPAIRED.

3.4 EACH SHIPMENT SHALL BE ACCOMPANIED BY A LIST OF MATERIALS INDICATING: TOTAL NUMBER OF STRAND COILS, DUCT, COMPONENTS, EQUIPMENT, ETC. UPON RECEIPT OF THE MATERIAL AND EQUIPMENT SHIPMENT, THE RECEIVER SHALL VERIFY THE QUANTITIES ARE IN AGREEMENT WITH THE SHIPPING LISTS AND SHALL NOTIFY THE SHIPPER AND VSL OF ANY DISCREPANCIES.

3.5 MATERIALS SHALL BE ORDERED IN SUCH SEQUENCE AND QUANTITY TO ALLOW SHIPPING IN FULL TRUCKLOADS.

3.6 USE OF A NYLON SLING IS REQUIRED TO PREVENT DAMAGE TO THE MATERIALS DURING HANDLING. MATERIALS AND EQUIPMENT SHALL BE PROPERLY STORED AT THE JOBSITE TO PREVENT THEFT, DETERIORATION FROM WEATHER, ETC.

3.7 ALL PRESTRESSING COILS SHALL BE SATISFACTORILY PROTECTED AT THE JOBSITE AND WHEN STORED OFF THE JOBSITE FROM CORROSION AND DAMAGE. SUFFICIENT PROTECTION SHALL ALSO BE PROVIDED FOR EXPOSED IN-PLACE PRESTRESSING STEEL TO PREVENT EXCESSIVE DETERIORATION FROM CORROSION.

3.8 SHIPPING, HANDLING AND STORAGE OF COILS, DUCT & COMPONENTS SHALL MEET REQUIREMENTS SET FORTH IN FDOT SPECIFICATION 462.

4.0 TENDON PLACEMENT

4.1 DUCTS, BEARING PLATES, AND ANCHORAGE SPIRALS SHALL BE PLACED BY VSL ACCORDING TO THE QUANTITY AND SPACING SHOWN ON THE PLACING DRAWINGS. THE STRANDS SHALL BE INSTALLED AND STRESSED BY VSL.

4.2 DUCT IN CONCRETE SHALL BE SUPPORTED AT A MAXIMUM SPACING OF 24" FOR ROUND PLASTIC DUCT.

4.3 THE GENERAL CONTRACTOR SHALL PROVIDE SUFFICIENT BEAM FORMS FOR FASTENING BEARING PLATES. THE GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY SHIMMING REQUIRED TO INSURE THAT BEARING PLATES ARE PLACED PERPENDICULAR TO TENDON PATH.

4.4 SECURE ATTACHMENT OF THE BEARING PLATES TO THE BEAM FORMS. ALL BOLTS SHALL BE TIGHTENED SECURELY.

4.5 THE ANCHORAGE SPIRAL AND TIES SHALL BE PLACED CONCENTRIC TO THE TRUMPET PROVIDING THE REQUIRED COVER TO THE BULKHEAD. THE SPIRAL PITCH SHALL NOT EXCEED THE PITCH ON THE SYSTEM DRAWINGS AT ANY POINT. FOR VSLAB SYSTEM, THE ANCHORAGE STEEL SPACING SHALL NOT EXCEED SPACING SHOWN ON THE SYSTEM DRAWING.

4.6 PLACEMENT OF MILD STEEL REINFORCEMENT SHALL BE COORDINATED WITH PLACEMENT OF POST-TENSIONING TENDONS. PROPER TENDON PLACEMENT HAS PRIORITY.

4.7 SUFFICIENT SUPPORT STEEL, IF NECESSARY, SHALL BE PROVIDED BY OTHERS. THESE BARS ARE USED TO PREVENT LATERAL AND VERTICAL MOVEMENT OF THE TENDONS DURING CONCRETE PLACEMENT.

4.8 ALL SUPPORT STEEL (BY OTHERS) AND POST-TENSIONING TENDONS SHALL BE FIRMLY SECURED IN FORMS TO OBTAIN DIMENSIONS AND LOCATIONS AS PROVIDED.

4.9 CONCRETE SHALL BE PLACED IN SUCH A MANNER AS TO INSURE THAT ALIGNMENT OF POST-TENSIONING TENDONS REMAINS UNCHANGED. SPECIAL PROVISIONS SHALL BE MADE TO INSURE PROPER CONSOLIDATION OF CONCRETE AROUND POST-TENSIONING ANCHORAGES

5.0 STRESSING

5.1 THE STRESSING OPERATIONS MUST BE UNDER THE IMMEDIATE CONTROL OF A PERSON EXPERIENCED IN THIS TYPE OF WORK; HE SHALL MAINTAIN A CLOSE CHECK AND RIGID CONTROL OF ALL OPERATIONS. SAFETY IS THE TOP PRIORITY!

5.2 ADEQUATE SCAFFOLDS, PLATFORMS, AND SAFETY DEVICES SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AS REQUIRED BY GOVERNING JOBSITE STANDARDS, INSTALLATION, OR STRESSING PROCEDURES.

5.3 TAKE SAFETY PRECAUTIONS AS NECESSARY. DO NOT PERMIT ANYONE TO STAND BEHIND, ABOVE, OR BELOW RAMS WHILE STRESSING. ONLY ESSENTIAL PERSONNEL SHALL BE IN THE AREA.

5.4 ALL TENDONS SHALL BE STRESSED BY MEANS OF HYDRAULIC RAMS, EQUIPPED WITH CALIBRATED HYDRAULIC PRESSURE GAUGES. A CALIBRATION CHART SHALL ACCOMPANY EACH GAUGE. NOTE: RAMS AND GAUGES SHALL NOT BE INTERCHANGED.

5.5 THE STRANDS MAY BE FULLY STRESSED WHEN SHEAR KEY GROUT TEST CYLINDERS, CURED UNDER JOBSITE CONDITIONS, HAVE BEEN TESTED AND INDICATE THE SHEAR KEY GROUT HAS REACHED THE MINIMUM CYLINDER STRENGTH OF 6000PSI.

5.6 THE POST-TENSIONING OPERATION SHALL BE CONDUCTED SO THAT ACCURATE ELONGATION OF THE TENDONS CAN BE RECORDED AND COMPARED WITH THEORETICAL ELONGATIONS.

5.7 RECORDS OF ALL GAUGE PRESSURES AND ELONGATIONS SHALL BE SUBMITTED PROMPTLY TO THE ENGINEER FOR APPROVAL. IF MEASURED ELONGATIONS ARE NOT WITHIN +/-7% OF THE THEORETICAL ELONGATIONS, THE CAUSE OF THE DISCREPANCIES SHALL BE DETERMINED AND RESOLVED BY VSL, THE GENERAL CONTRACTOR AND THE ENGINEER OF RECORD AS PER FDOT SPECIFICATION 462.

5.8 PROPER ALIGNMENT OF THE ANCHORAGE AND JACKING EQUIPMENT IS MANDATORY DURING ALL STRESSING OPERATIONS.

5.9 REFERENCE POINT USED IN ELONGATION CALCULATION SHOULD BE SPRAY PAINTED OR PROPERLY MARKED ON STRANDS BEFORE STRESSING (POINT AT WHICH JACK WILL ENGAGE TENDONS). THE DISTANCE FROM THIS REFERENCE POINT TO THE ANCHORHEAD WORK POINT SHALL BE MEASURED FOR RECORD PRIOR TO STRESSING (WHAT LENGTH OF STRAND OUTSIDE OF ANCHORHEAD/STRUT WILL ELONGATE ADDITIONALLY).

5.10 STRESSING PROCEDURE (MULTISTRAND)
 A) INSPECT RAM AND PUMP FOR LOOSE SCREWS, FITTINGS, ELECTRICAL AND HOSE CONNECTIONS AND TIGHTEN IF NECESSARY. CHECK JACK GRIPPERS TO INSURE THEY ARE CLEAN AND ALIGNED PROPERLY.
 B) INSTALL ANCHOR HEAD AND INSTALL WEDGES INTO EACH WEDGE CAVITY (DO NOT REMOVE OILY FILM FROM WEDGES).
 C) STRESS INITIALLY TO 20% OF P_{jack} AS INDICATED ON THE DRAWINGS TO REMOVE SLACK AND SEAT RAM.
 D) MARK THE STRAND AT A PREDETERMINED DISTANCE FROM A FIXED POINT.
 E) STRESS TO 100% OF P_{JACK}. MEASURE ELONGATION FROM FIXED REFERENCE TO DATUM POINT ON STRAND. RECORD ELONGATION. ELONGATIONS ARE MEASURED PER TABLE ON POINT ON STRAND.
 F) RETRACT RAM AND REMOVE FROM TENDON. VERIFY WEDGES ARE SEATED ON BOTH ENDS.
 G) PROMPTLY SUBMIT STRESSING RECORDS TO THE ENGINEER. UPON APPROVAL OF THE ELONGATIONS, STRESSING TAILS MAY BE REMOVED USING AN APPROVED METHOD TO APPROXIMATELY 3/4" FROM FACE OF ANCHORHEAD.
 H) INSTALL GROUT FITTINGS AND PREPARE FOR GROUTING.

6.0 GROUTING

6.1 EQUIPMENT-COLLOIDAL MIXER/PUMP COMBINATION. ACCESSORIES REQUIRED FOR ACCURATE MEASUREMENT OF QUANTITIES. HOSE-1" I.D. PRESSURE GAUGE AT PUMP. PERMANENT FITTINGS SHALL BE NON-METALLIC.

6.2 GROUT MIX: EUCLID PTX OR BASF MASTERFLOW 1206

6.3 PATCH BACK BLOCKOUTS AT ANCHORAGE WITH PRE-APPROVED PATCHING MATERIAL (BY OTHERS) AS SOON AS PRACTICAL AFTER GROUTING.

6.4 GROUT TENDONS IN ACCORDANCE WITH FDOT SPECIFICATION 462.

7.0 MISCELLANEOUS

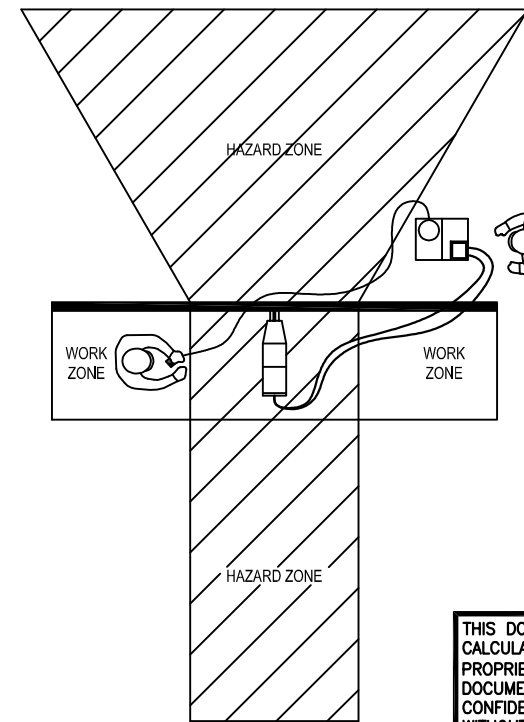
7.1 ALL EQUIPMENT AND PROCEDURES USED FOR HANDLING AND PLACING TENDONS SHALL NOT DAMAGE OR CAUSE DETERIORATION TO THE PRESTRESSING STEEL, DUCT, OR COMPONENTS.

7.2 ALL CONCRETE INSERTS MUST BE CAST-IN-PLACE. IF ADDITIONAL INSERTS ARE REQUIRED AFTER THE CONCRETE IS CAST, THE CONTRACTOR MUST LOCATE TENDONS AT THE SURFACE OF THE CONCRETE BEFORE DRIVING FASTENERS. IF THERE IS A RISK OF PENETRATING THE TENDON, WRITTEN APPROVAL MUST BE OBTAINED FROM THE ENGINEER PRIOR TO PENETRATING THE CONCRETE SURFACES.

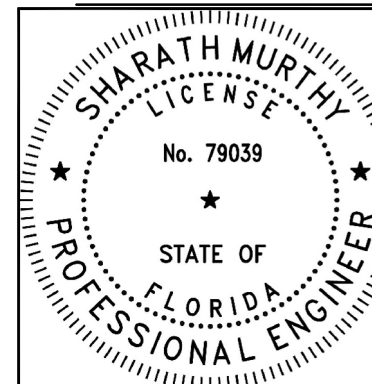
7.3 ALL STRESSING RECESSES, CLOSURE STRIPS, AND APPROVAL JOINTS REQUIRED FOR ANCHORAGES MUST BE ADEQUATELY REINFORCED SO AS TO NOT DECREASE THE STRENGTH OF THE STRUCTURE. COLD JOINTS SHALL NOT INTERSECT ANCHORAGES.

STRESSING SAFETY GUIDELINES

- THESE STRESSING SAFETY GUIDELINES APPLY TO ALL STRAND AND HIGH STRENGTH BAR TENDONS BUT ARE NOT INTENDED TO BE COMPLETE GUIDELINES ADDRESSING ALL CONSIDERATIONS REQUIRED TO MAINTAIN SAFETY. IT IS THE RESPONSIBILITY OF THE PLACER (THE CONTRACTOR PERFORMING STRESSING OPERATIONS) TO HAVE THE TRAINING AND EXPERIENCE IN ALL EQUIPMENT OPERATIONS AND SAFETY REQUIREMENTS NECESSARY TO PREVENT PROPERTY DAMAGE AND MAINTAIN THE SAFETY OF JOBSITE PERSONNEL AND THE GENERAL PUBLIC.
- THE NON-STRESSING END OR DEAD END OF A TENDON MAY BE AS HAZARDOUS AS THE STRESSING END. SIMILAR PRECAUTIONS, SUCH AS PLYWOOD BARRIERS, SHOULD BE TAKEN AT BOTH ENDS AS DIRECTED BY THE PLACER.
- WEDGES AND WEDGE CAVITIES MUST BE FREE OF CEMENT PASTE, DEBRIS AND CORROSION. THE NOSE OF THE RAM MUST PROPERLY SEAT AGAINST THE ANCHORAGE BEARING SURFACE. THE RAM MUST EXTEND PROPERLY AND NOT CONTACT OBSTRUCTIONS DURING STRESSING.
- PROPER THREAD ENGAGEMENT OF HEX NUTS (INCLUDING LIVE AND DEAD ENDS) AND COUPLERS FOR HIGH STRENGTH BAR TENDONS MUST BE VERIFIED PRIOR TO STRESSING.
- IMMEDIATELY CEASE STRESSING AND REMOVE ALL PERSONNEL FROM THE AREA IF ANY EXISTING CRACK WIDENING, NEW CONCRETE CRACKING, BEARING PLATE MOVEMENT, OR UNUSUAL SOUNDS ARE OBSERVED.
- WORK ZONES SHALL BE DEFINED BY THE PLACER AND ONLY ESSENTIAL PERSONNEL SHALL OCCUPY THE WORK ZONES DURING STRESSING OPERATIONS.
- HAZARD ZONES SHALL BE DEFINED BY THE PLACER AND ENTERING THE HAZARD ZONES SHALL BE AVOIDED DURING STRESSING OPERATIONS AND FOR A PERIOD OF TIME AFTER COMPLETION OF STRESSING OPERATIONS AS DIRECTED BY THE PLACER.
- TOOLS, MATERIALS, AND EQUIPMENT NOT ESSENTIAL TO THE STRESSING OPERATION SHALL BE CLEARED FROM THE WORK AND HAZARD ZONES DURING STRESSING OPERATIONS. STRESSING EQUIPMENT SHALL BE SECURED TO PREVENT FALLING FROM ELEVATED AREAS IN THE EVENT OF A FAILURE.



STRESSING SAFETY DETAIL



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SM	SM	SM	SM	CHK
GP	GP	GB	GP	BY
CONSTRUCTION	CONSTRUCTION	APPROVAL	APPROVAL	ISSUED FOR
07/10/17	PER FDOT COMMENTS DATED 06/26 & 27/17	06/22/17	PER EOR COMMENT DATED 05/01/17	04/28/17
4	3	1	0	NO.
<p>STRUCTURAL TECHNOLOGIES, LLC A Structural Group Company 2001 Beach Blvd Pompano Beach, FL 33069 Phone: 954/466-3981 Fax: 954/466-3982</p> <p>Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA</p>				DESCRIPTION
MULTISTRAND GENERAL NOTES				
FIU PEDESTRIAN BRIDGE				
MIAMI, FL				
MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)				
SCALE:		NTS		
JOB NO:		420582		
SHEET:		PT01		

PT BAR GENERAL NOTES

1. TECHNICAL DATA:

1.1 PRESTRESSING STEEL SHALL BE TYPE II (DEFORMED BARS) GRADE 150, MANUFACTURED IN CONFORMANCE WITH ASTM A722-98 (GRADE 1035)

1.2.A ROD PROPERTIES

1.375" DIAMETER ALL-THREAD BAR (GRADE 150 KSI)
NOMINAL DIAMETER 1.375 IN
CROSS-SECTIONAL AREA 1.58 SQ IN
MODULUS OF ELASTICITY (ASSUMED) 29,000 KSI
GUARANTEED ULTIMATE TENSILE STRENGTH 237 KIPS

1.2.B ROD PROPERTIES

1.75" DIAMETER ALL-THREAD BAR (GRADE 150 KSI)
NOMINAL DIAMETER 1.75 IN
CROSS-SECTIONAL AREA 2.66 SQ IN
MODULUS OF ELASTICITY (ASSUMED) 29,000 KSI
GUARANTEED ULTIMATE TENSILE STRENGTH 400 KIPS

1.2.C ROD PROPERTIES

2.5" DIAMETER ALL-THREAD BAR (GRADE 150 KSI)
NOMINAL DIAMETER 2.5 IN
CROSS-SECTIONAL AREA 5.19 SQ IN
MODULUS OF ELASTICITY (ASSUMED) 29,000 KSI
GUARANTEED ULTIMATE TENSILE STRENGTH 778 KIPS

1.2.D DUCT

1-3/8" BAR: PT + 59mm DIAMETER CORRUGATED DUCT.
1-3/4" BAR: PT + 76mm DIAMETER CORRUGATED DUCT.
2-1/2" BAR: PT + 85mm DIAMETER CORRUGATED DUCT.

1.2.E ANCHORAGE NUT AND BEARING PLATES SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:

BEARING PLATE MATERIAL: ASTM A536 GRADE 80-55-06
 HEX NUT: ASTM A29 GRADE C1045

1.3 DUCT MATERIAL SHALL BE CORRUGATED PLASTIC DUCT FOR INTERNAL TENDON. FOR EXTERNAL TENDONS PIPE TO BE SMOOTH HDPE PIPE. GROUT FITINGS TO BE PLASTIC FASTENERS. ALL GROUT INLETS & OUTLETS SHALL BE FITTED WITH A POSITIVE SHUTOFF.

2. P-T BAR FABRICATION:

2.1 P-T BAR WILL BE FABRICATED WITH LENGTH BEYOND BEARING PLATES TO ALLOW STRESSING AND HEX NUT INSTALLATION. THE PT BAR SHOULD PROTRUDE 1in. PAST THE HEX NUT AT ALL NON-STRESSING LOCATIONS. AT ALL STRESSING LOCATIONS THE PT BAR SHOULD PROTRUDE PAST THE HEX NUT A MINIMUM OF 4 IN. FOR ALL BARS.

2.2 ALL PRESTRESSING STEEL SHALL BE SATISFACTORILY PROTECTED AT THE JOBSITE.

2.3 CARE SHOULD BE TAKEN WHEN OFF LOADING AND STORING PT BARS. USE NYLON STRAPS DURING OFF LOADING & HANDLING OF PT BARS.

3. P-T BAR PLACEMENT:

3.1 P-T BAR, DUCT, AND BEARING PLATES SHALL BE PLACED ACCORDING TO NUMBER AND SPACING AS SHOWN ON THE PLACING DRAWINGS. (BY OTHERS)

3.2 P-T DUCT SHALL BE SUPPORTED EVERY 24" O.C.

3.3 THE GENERAL CONTRACTOR WILL PROVIDE SUFFICIENT END FORM BULKHEAD FOR FASTENING ANCHORS AND EXTENDING P-T DUCT THROUGH FORMS AT PROPER LOCATIONS AS REQUIRED FOR P-T BAR INSTALLATION.

3.4 PLACEMENT OF MILD STEEL REINFORCEMENT SHALL BE COORDINATED WITH PLACEMENT OF POST-TENSIONING BAR. PROPER P-T BAR PLACEMENT HAS PRIORITY.

3.5 CONCRETE SHALL BE PLACED IN SUCH A MANNER AS TO INSURE THAT ALIGNMENT OF POST-TENSIONING BARS REMAINS UNCHANGED. SPECIAL PROVISIONS SHALL BE MADE TO INSURE PROPER VIBRATION OF CONCRETE AROUND BEARING PLATES AND CONNECTIONS. EXTREME CARE MUST BE TAKEN TO AVOID DAMAGE TO DUCT. DUCT SHALL BE SUPPORTED IN ACCORDANCE W/ SECT. 462-7.2 OF FOOT SPECIFICATION.

3.6 ALIGNMENT OF BEARING PLATE SHALL BE NORMAL TO LONG AXIS OF THE P-T BAR.

4. TENSIONING:

4.1 ALL STRESSING WILL BE PERFORMED UNDER THE IMMEDIATE CONTROL OF A PERSON EXPERIENCED IN THIS TYPE OF WORK.

4.2 PLACE ALL MATERIAL AS SHOWN STRUCTURAL DETAILS, PLACING SEQUENCE MAY VARY DEPENDING ON CONSTRUCTION PROCEDURES AND AS APPROVED BY THE ENGINEER.

4.3 ALL PRESTRESSING STEEL SHALL BE STRESSED BY MEANS OF THE VSL HYDRAULIC JACKS EQUIPPED WITH CALIBRATED HYDRAULIC PRESSURE GAUGES. A CALIBRATION CHART WILL ACCOMPANY EACH JACK.

4.4 THE POST-TENSIONING OPERATION WILL BE SO CONDUCTED THAT ACCURATE ELONGATION OF THE PRESTRESSING STEEL CAN BE RECORDED AND COMPARED WITH ELONGATIONS SUBMITTED TO AND APPROVED BY THE STRUCTURAL ENGINEER.

4.5 RECORDS SHALL BE KEPT OF ALL JACKING FORCES AND ELONGATIONS AND SUBMITTED PROMPTLY TO THE STRUCTURAL ENGINEER. ELONGATIONS SHALL BE MEASURED TO THE NEAREST 1/16".

4.6 STRESSING PROCEDURE:

- RAM SHOULD BE OPEN APPROXIMATELY 1 IN. PRIOR TO STARTING.
- MEASURE THE DISTANCE FROM A FIXED POINT TO A PREDETERMINED POINT ON THE P-T BAR. RECORD THE MEASUREMENT. TIGHTEN NUT AT STRESSING END SNUG TO BEARING PLATE.
- STRESS BAR PER CONTRACT SPECIFICATIONS, WHILE SIMULTANEOUSLY SIMULTANEOUSLY TIGHTENING NUT AT STRESSING END.
- TIGHTEN NUT AT STRESSING END SNUG TO BEARING PLATE PRIOR TO RELEASING THE JACK.
- RETRACT RAM AND REMOVE FROM P-T BAR. MEASURE FROM ORIGINAL FIXED POINT TO PREDETERMINED POINT ON THE BAR. THE DIFFERENCE BETWEEN THIS MEASUREMENT AND THE ORIGINAL IS THE ELONGATION.
- PERFORM LIFT-OFFS TO VERIFY FORCE ON P-T BARS AS NECESSARY.
- CONTRACTOR SHALL SUBMIT THE GROUTING OPERATIONS PLAN AS REQUIRED BY SPECIFICATION 462-11 TO THE EOR FOR REVIEW AND APPROVAL.

4.7 TAKE SAFETY PRECAUTIONS AS NECESSARY. DO NOT PERMIT ANYONE TO STAND BEHIND JACKS OR OVER BAR WHILE STRESSING.

5. GROUTING:

5.1 REFER TO PROJECT SPECIFICATIONS FOR POST-TENSIONING GROUTING REQUIREMENTS

5.2 MATERIALS: EUCLID PTX OR MASTERFLOW 1206

5.3 MIX GROUT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS & SPECIAL PROVISIONS

6. MISCELLANEOUS:

6.1 ALL EQUIPMENT USED FOR HANDLING AND PLACING P-T BARS SHALL BE SUCH THAT IT DOES NOT DAMAGE OR DETERIORATE THE PRESTRESSING STEEL OR THE ANCHOR PLATES.

6.2 THE CONTRACTOR SHALL CHECK ALL PLANS, SECTIONS, AND DETAILS SHOWN ON THE POST-TENSION DRAWINGS FOR CONFORMANCE WITH THE STRUCTURAL DRAWINGS. THE POST-TENSION DRAWINGS SHOW ONLY THE POST-TENSIONED ELEMENTS. SEE STRUCTURAL DRAWINGS FOR ALL OTHER LAYOUT DIMENSIONS, SIZES AND LOCATION. DISCREPANCIES, IF ANY, SHALL BE REPORTED TO THE ENGINEER FOR CLARIFICATION OR ADJUSTMENT BEFORE PROCEEDING WITH THE WORK.

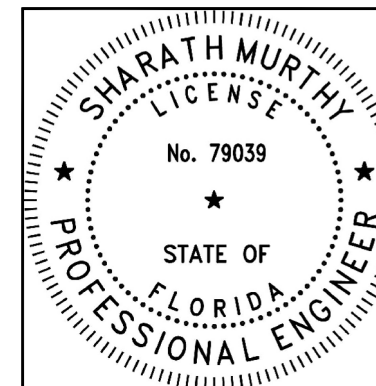
6.3 IN THE EVENT THAT CERTAIN FEATURES OF THE CONSTRUCTION ARE NOT SHOWN ON THE DRAWINGS OR CALLED FOR IN GENERAL NOTES, THEN THEIR CONSTRUCTION SHALL BE OF THE SAME GENERAL CHARACTER AS SIMILAR CONDITIONS THAT ARE SHOWN OR SPECIFIED IN THE STRUCTURAL DESIGN.

6.4 VSL HAS NOT CHECKED OR DESIGNED PT BARS WITHIN PRECAST DECK AND THEREFORE DOES NOT ACCEPT RESPONSIBILITY FOR ADEQUACY OF SAID DESIGN.

6.5 A SEATING LOSS OF 0", WOBBLE COEFFICIENT OF ZERO, AND FRICTION COEFFICIENT OF ZERO HAVE BEEN ASSUMED IN ELONGATION CALCULATIONS.

6.6 REFER TO CONTRACT DRAWINGS FOR STRESSING SEQUENCE. MINIMUM CONCRETE STRENGTH AT TIME OF STRESSING FOR LONGITUDINAL PT BAR AND VERTICAL PT BAR IS 6000 PSI.

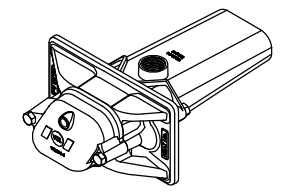
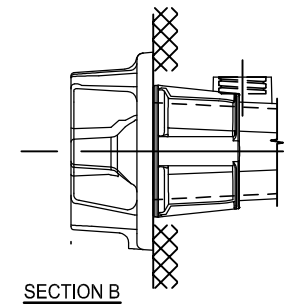
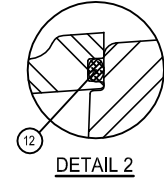
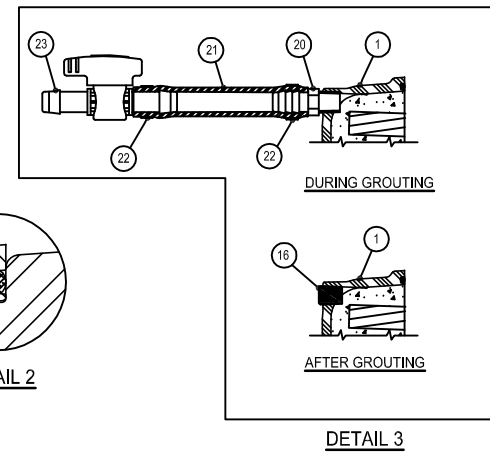
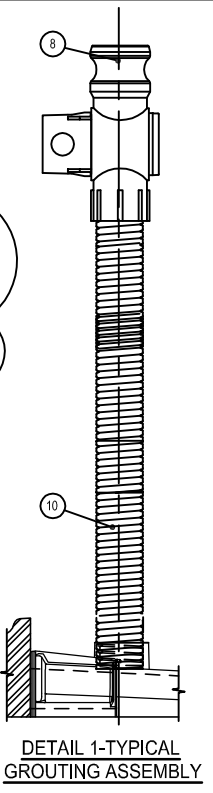
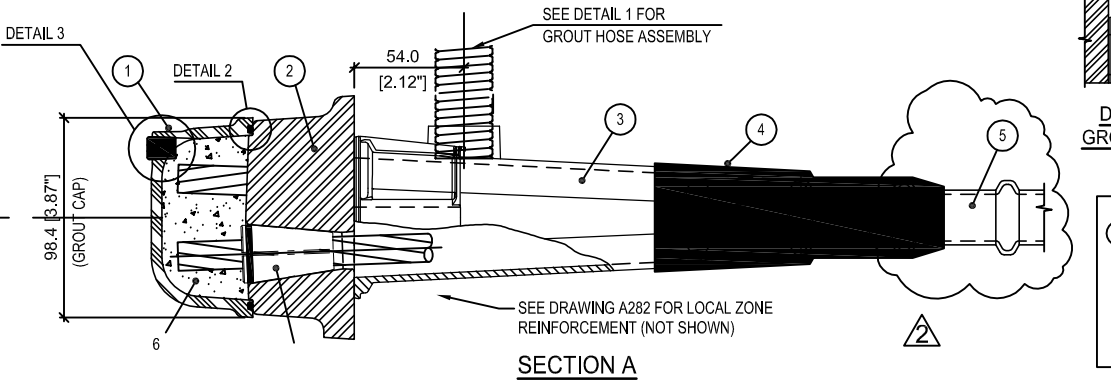
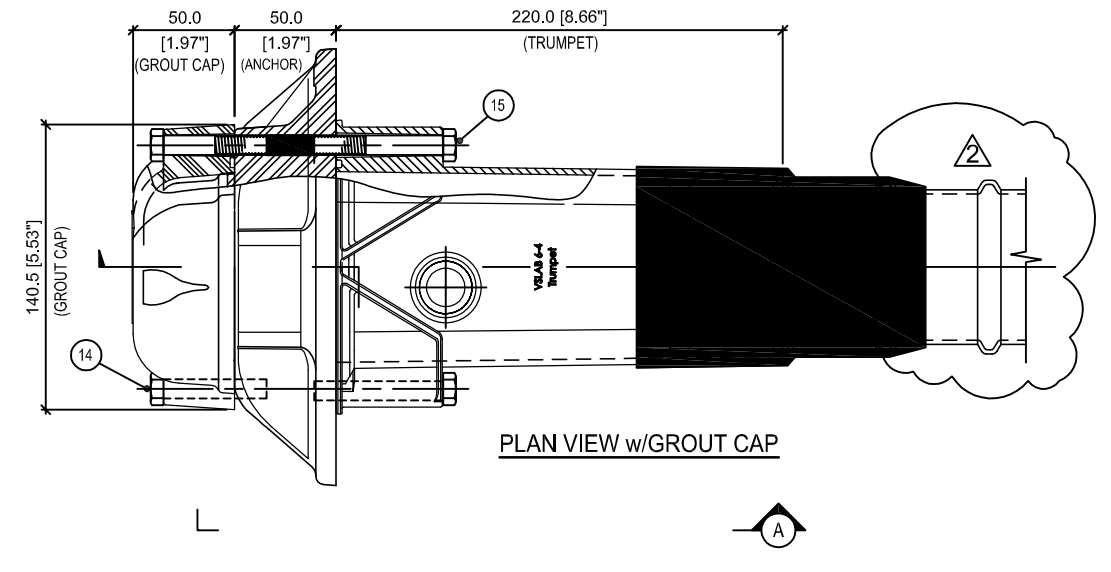
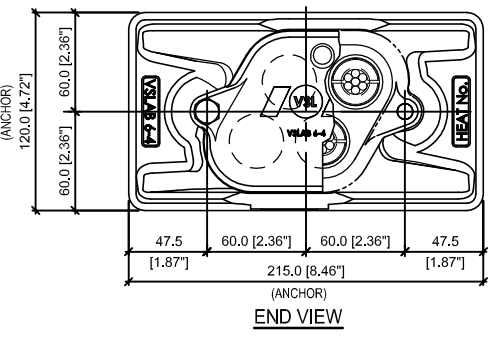
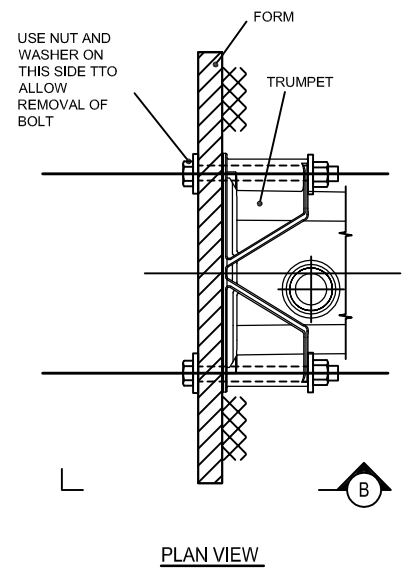
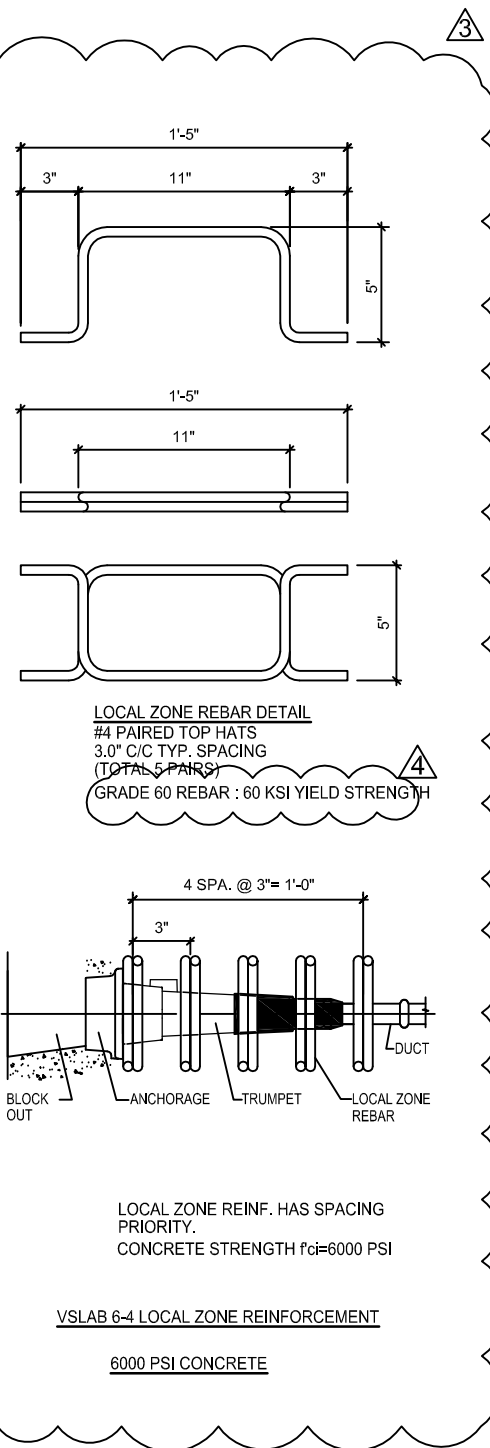
6.7 NOTE TO CONTRACTOR: IT IS OF UTMOST IMPORTANCE WHEN COUPLING PT BAR THAT BARS TO BE COUPLED ARE BUTTED UP TO EACH OTHER AND COUPLER IS CENTERED ON THE COUPLED PT BARS. IF NOT COUPLER MIGHT NOT FULLY DEVELOP INDUCED FORCES BY STRESSING IF NOT PLACED AS SHOWN.



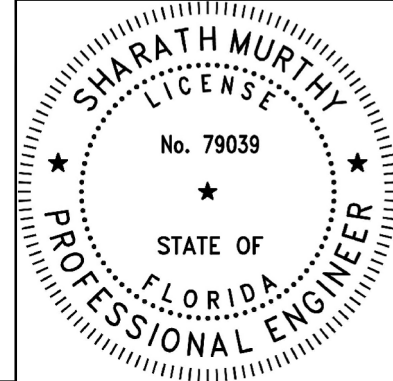
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CONSTRUCTION	07/10/17	4	PER FOOT COMMENTS DATED 06/26 & 27/17	SM
CONSTRUCTION	06/22/17	3	PER EOR COMMENT DATED 05/25/17	SM
APPROVAL	05/19/17	1	PER EOR COMMENT DATED 05/01/17	SM
APPROVAL	04/26/17	0	PER 90% DRAWINGS DATED FEB.2017	SM
ISSUED FOR	NO.		DESCRIPTION	CHK
				Phone: 954/469-3991 Fax: 954/469-3992 2001 Beach Blvd Pompano Beach, FL 33069 Pompano Beach, FL office
PT BAR GENERAL NOTES				Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA
FIU PEDESTRIAN BRIDGE				MIAMI, FL MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)
SCALE: NTS				
JOB NO: 420582				
SHEET: PT01.1				



ITEM	QTY	DESCRIPTION	MATERIAL	INVENTORY No.
23	1	GROUT VENT VALVE, 1/2"	POLYPROPYLENE	2DT01914
22	2	SMALL ONE EAR BAND CLAMP	316 STAINLESS STEEL	2DT01904
21	A/R	1/2" ID SMOOTH GROUT HOSE	POLYPROPYLENE	2DT01920
20	1	1/4" MPT TO 1/2" HOSE BARB ADAPTER	POLYPROPYLENE	2DT01917
16	1	1/4" NPT PLUG	POLYPROPYLENE	2DT01919
14	2	3/8" UNC X 2" LONG HEX BOLT	316 STAINLESS STEEL	2VS06407
12	1	GROUT CAP QUAD-RING (-242)	BUNA-90 DURO	W/ GROUT CAP
10	-	GROUT HOSE, 23MM (21MM)	POLYETHYLENE	02DT0310
8	1	GROUT VALVE, 23mm	POLYSTYRENE	02DT0311
7	4	1.6G WEDGE, 0.6, 1.77" W/GROOVE	AISI 11L17	02WG0008
6	-	GROUT	JOB SPECIFIC	-
5	1	FLAT DUCT, 72/21 PT-PLUS	POLYPROPYLENE WHT	02DT0412
4	1	HEAT SHRINK SLEEVE (6" LONG)	POLYOLEFIN(CANUSA PLA-63-150-YE)	02DT0503
3	1	VSLAB 6-4 TRUMPET	POLYPROPYLENE BLACK	2BP4437
2	1	VSLAB 6-4 ANCHOR GALV.	DUCTILE IRON (80-55-06) GALV.	2VS06401
1	1	VSLAB 6-4 GROUT CAP	ABS 20% FIBER FILLED	02WX4010



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NO.	DATE	DESCRIPTION	BY	CHK
3	06/22/17	PER EDR COMMENT DATED 05/25/17	GP	SM
2	05/28/17	PER MCM-VSL MEETING ON 05/25/17	GP	SM
1	05/19/17	PER EDR COMMENT DATED 05/01/17	GB	SM
4	07/10/17	PER FOOT COMMENTS DATED 06/26 & 27/17	GP	SM

structural technologies
 A Structural Group Company

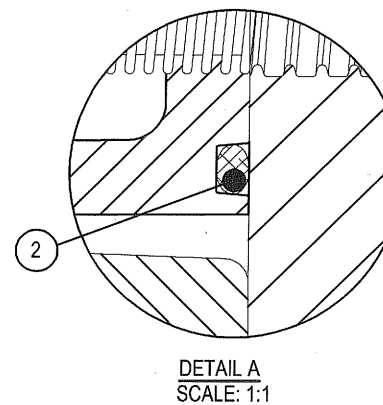
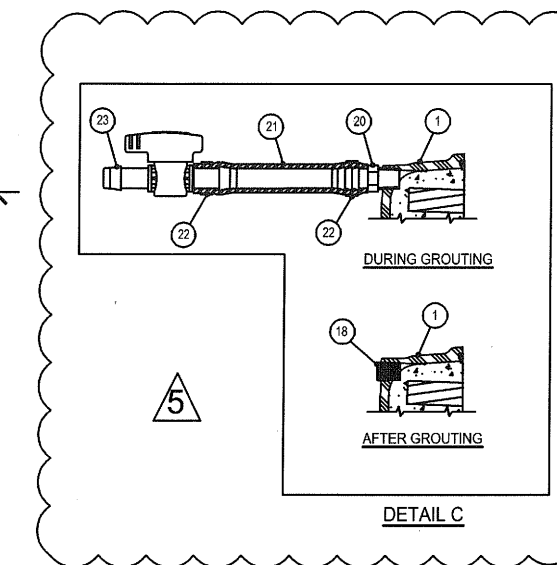
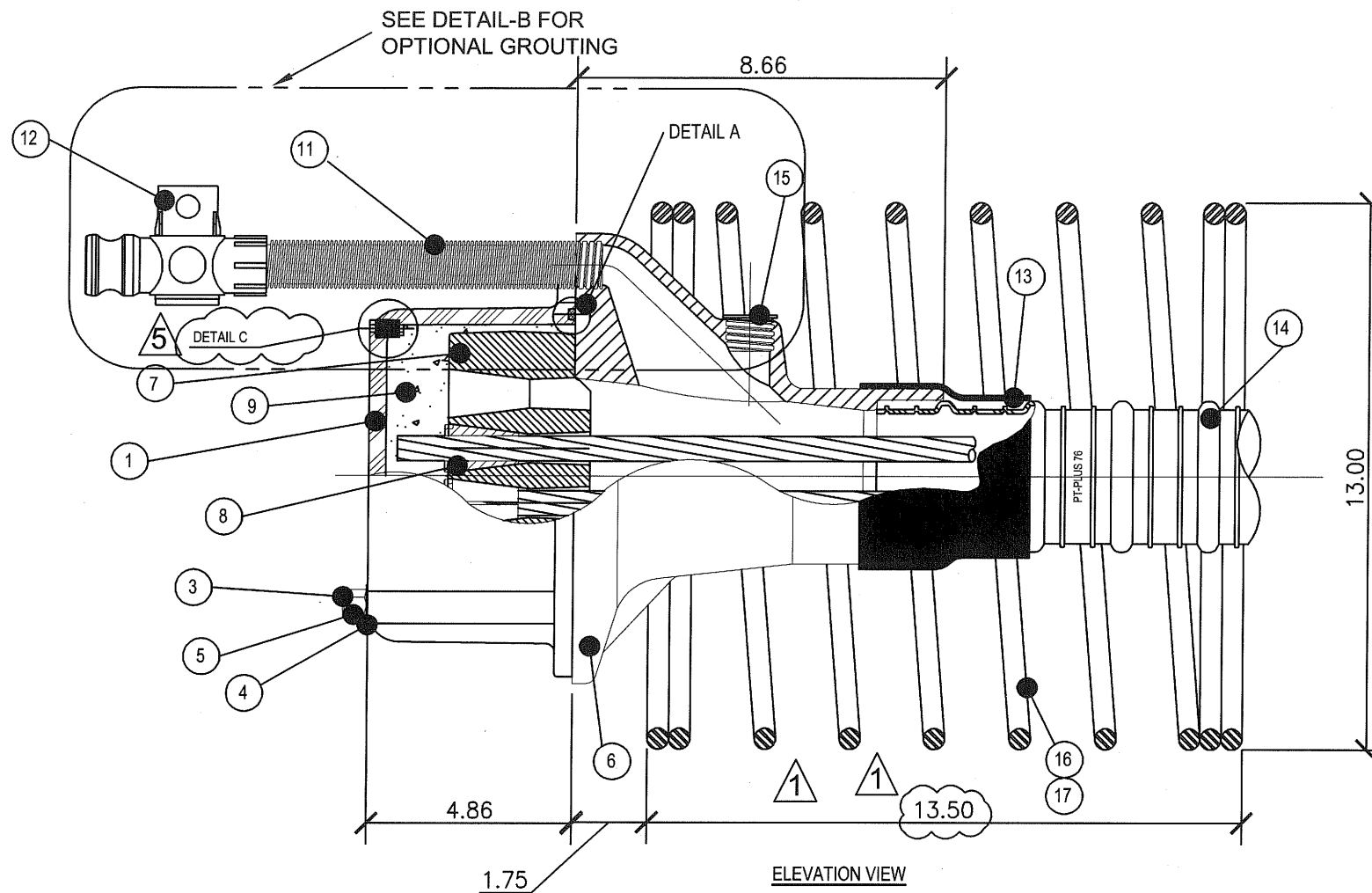
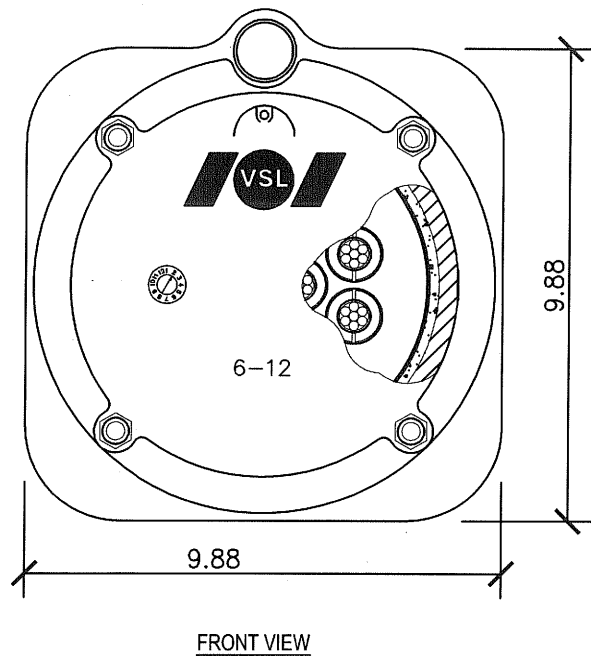
2001 Biscuit Road
 Pompano Beach, FL 33069

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 Fax: 954/488-3902

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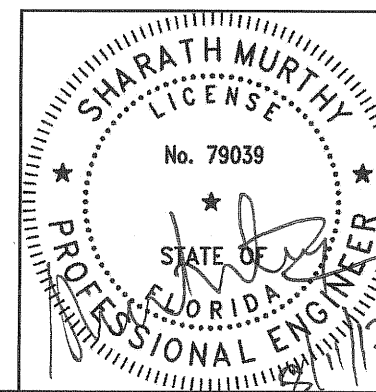
VSLAB 6-4
 SYSTEM DRAWING
 MIAMI, FL
 FIU PEDESTRIAN BRIDGE
 MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)

SCALE: NTS
 JOB NO: 420582
 SHEET: PT01.2



ITEM	QTY	DESCRIPTION	MATERIAL	DRAWING REFERENCE	INVENTORY NUMBER
23	1	GROUT VENT VALVE, 1/2"	POLYPROPYLENE		2DT01914
22	2	SMALL ONE EAR BAND CLAMP	316 STAINLESS STEEL		2DT01904
21	A/R	1/2" ID SMOOTH GROUT HOSE	POLYPROPYLENE		2DT01920
20	1	1/4" MPT TO 1/2" HOSE BARB ADAPTER	POLYPROPYLENE		2DT01917
18	1	1/4" Ø NPT PLUG	POLYPROPYLENE		2DT01919
17*	1	SPIRAL, #4, DIA. 13", 2.5" PITCH, 7 TURNS	A615, GRADE 60		02BP0097
16*	1	SPIRAL, #5, DIA. 13", 3" PITCH, 7 TURNS	A615, GRADE 60		02BP0096
15	1	BEARING PLATE GROUT PLUG, 23MM	P.P.	C583	02DT0341
14	1	DUCT, WHT PP, 76 MM PT-PLUS	P.P.	E0937-3	02DT0426
13	1	HEAT SHRINK SLEEVE	POLYOLEFIN	(CANUSA) PLA 90 YE	02DT0505
12	1	GROUT VALVE, 23 MM	P.S.	C589 & C590	02DT0311
11		GROUT HOSE, 23 MM (21 MM)	P.E.	C587	02DT0310
9		GROUT	JOB SPECIFIC	-	-
8	12	1.6G WEDGE	11-L-17	C218	02WG0008
7	1	ECI 6-12 ANCHOR HEAD	A536 GR80-55-06	C556	02AH0037
6	1	ECI 6-12 GALV BEARING PLATE	A536 GR80-55-06	C553	02BP0037
5	4	1/2"-13 NUT	(316L) STAINLESS	-	INCLUDED W/02WX5021
4	4	Ø1/2" FLAT WASHER	(316L) STAINLESS	-	INCLUDED W/02WX5021
3	4	1/2-13 NC x 6 1/2"	(316L) STAINLESS	-	02WX5021
2	1	O-RING (.210 CS X 7.475" ID # -367)	BUNA-N 70 D.	-	02WX5020
1	1	GROUT CAP	ABS LUSTRAN 633	C548	02WX5019

* USE ITEM 16 FOR CONCRETE WITH $f_c' = 3500$ psi, ITEM 17 FOR CONCRETE WITH $f_c' = 5500$ psi



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ECI 6-12 SYSTEM DRAWINGS

FIU PEDESTRIAN BRIDGE MIAMI, FL

MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)

APPROVAL CONSTRUCTION 07/26/17
 APPROVAL 06/26 & 27/17
 APPROVAL 06/01/17
 APPROVAL 04/28/17

DATE: 06/10/17, 07/10/17, 06/19/17, 04/28/17

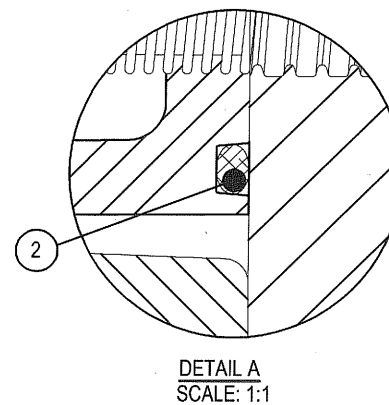
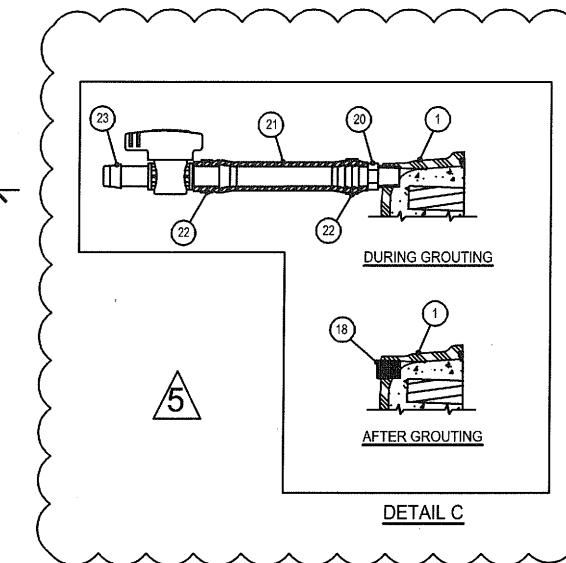
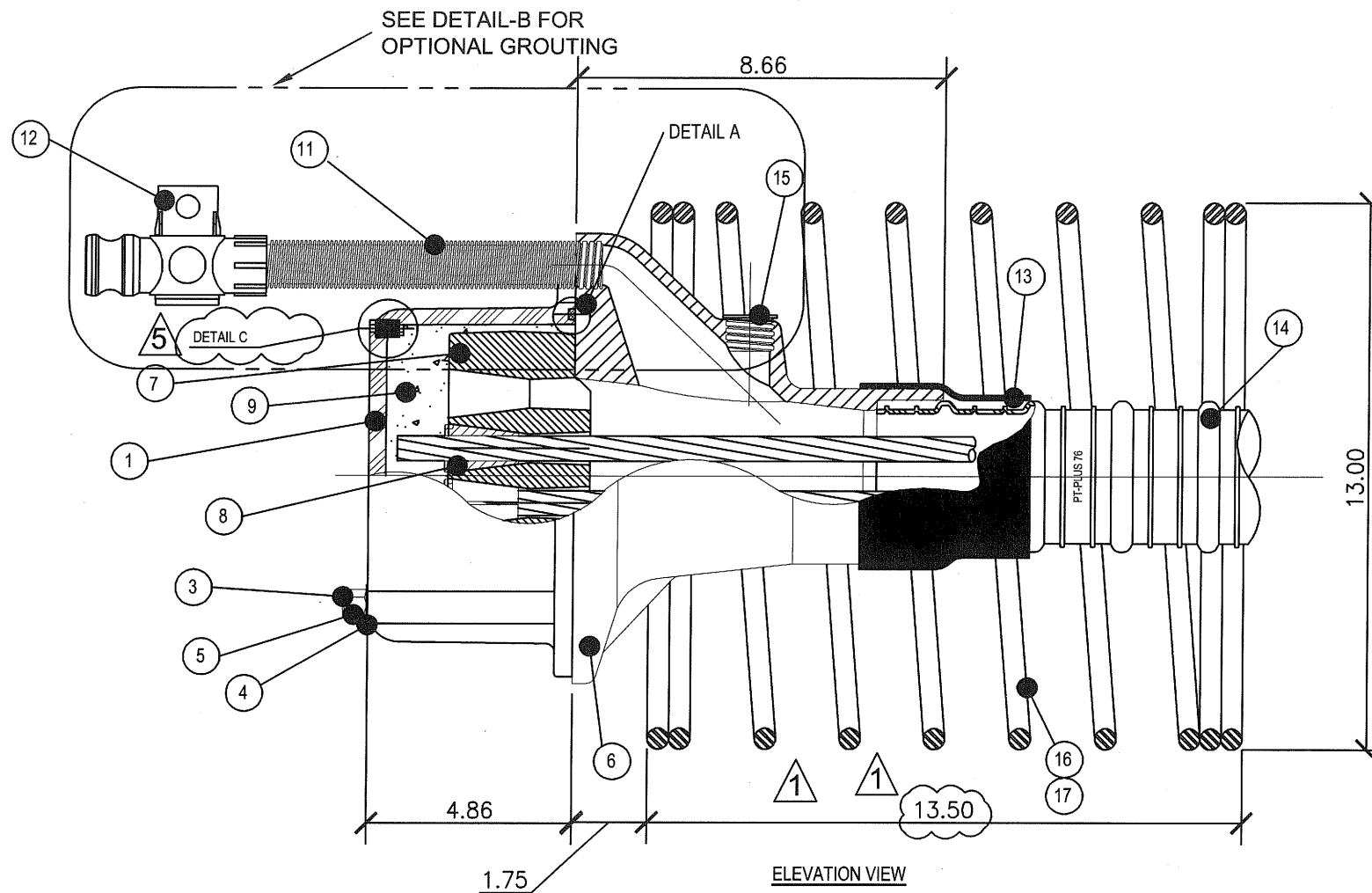
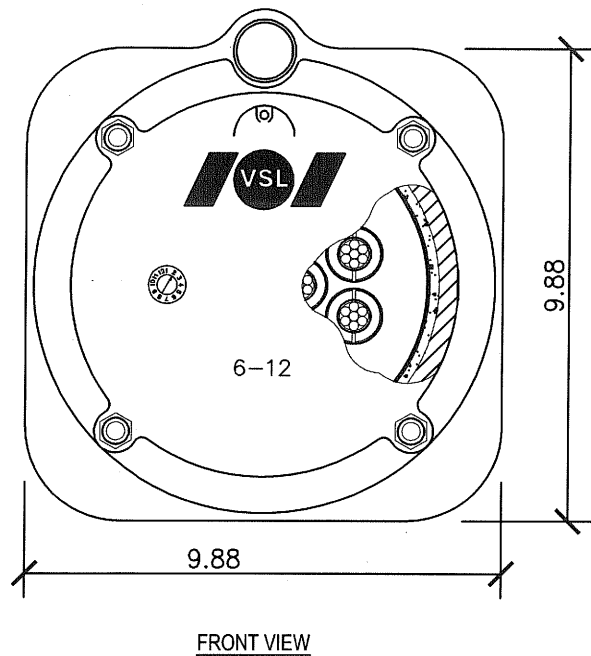
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DESCRIPTION

ISSUED FOR BY CHK

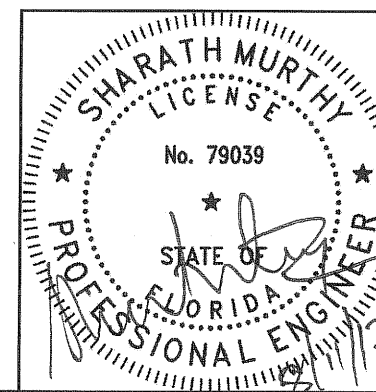
SCALE: NTS
 JOB NO: 420582
 SHEET: PT01.3

structural technologies A Structural Group Company
 2001 Sunset Road Pompano Beach, FL 33069
 Phone: 954/446-3991 Fax: 954/446-3922
 Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA



ITEM	QTY	DESCRIPTION	MATERIAL	DRAWING REFERENCE	INVENTORY NUMBER
23	1	GROUT VENT VALVE, 1/2"	POLYPROPYLENE		2DT01914
22	2	SMALL ONE EAR BAND CLAMP	316 STAINLESS STEEL		2DT01904
21	A/R	1/2" ID SMOOTH GROUT HOSE	POLYPROPYLENE		2DT01920
20	1	1/4" MPT TO 1/2" HOSE BARB ADAPTER	POLYPROPYLENE		2DT01917
18	1	1/4" Ø NPT PLUG	POLYPROPYLENE		2DT01919
17*	1	SPIRAL, #4, DIA. 13", 2.5" PITCH, 7 TURNS	A615, GRADE 60		02BP0097
16*	1	SPIRAL, #5, DIA. 13", 3" PITCH, 7 TURNS	A615, GRADE 60		02BP0096
15	1	BEARING PLATE GROUT PLUG, 23MM	P.P.	C583	02DT0341
14	1	DUCT, WHT PP, 76 MM PT-PLUS	P.P.	E0937-3	02DT0426
13	1	HEAT SHRINK SLEEVE	POLYOLEFIN	(CANUSA) PLA 90 YE	02DT0505
12	1	GROUT VALVE, 23 MM	P.S.	C589 & C590	02DT0311
11		GROUT HOSE, 23 MM (21 MM)	P.E.	C587	02DT0310
9		GROUT	JOB SPECIFIC	-	-
8	12	1.6G WEDGE	11-L-17	C218	02WG0008
7	1	ECI 6-12 ANCHOR HEAD	A536 GR80-55-06	C556	02AH0037
6	1	ECI 6-12 GALV BEARING PLATE	A536 GR80-55-06	C553	02BP0037
5	4	1/2"-13 NUT	(316L) STAINLESS	-	INCLUDED W/02WX5021
4	4	Ø1/2" FLAT WASHER	(316L) STAINLESS	-	INCLUDED W/02WX5021
3	4	1/2-13 NC x 6 1/2"	(316L) STAINLESS	-	02WX5021
2	1	O-RING (.210 CS X 7.475" ID # -367)	BUNA-N 70 D.	-	02WX5020
1	1	GROUT CAP	ABS LUSTRAN 633	C548	02WX5019

* USE ITEM 16 FOR CONCRETE WITH $f_c' = 3500$ psi, ITEM 17 FOR CONCRETE WITH $f_c' = 5500$ psi



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ECI 6-12 SYSTEM DRAWINGS

FIU PEDESTRIAN BRIDGE MIAMI, FL

MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)

APPROVAL CONSTRUCTION 07/26/17
 APPROVAL 06/26 & 27/17
 APPROVAL 06/01/17
 APPROVAL 04/28/17

DATE: 06/10/17, 07/10/17, 06/19/17, 04/28/17

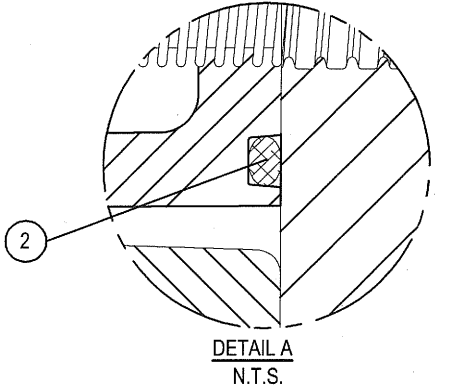
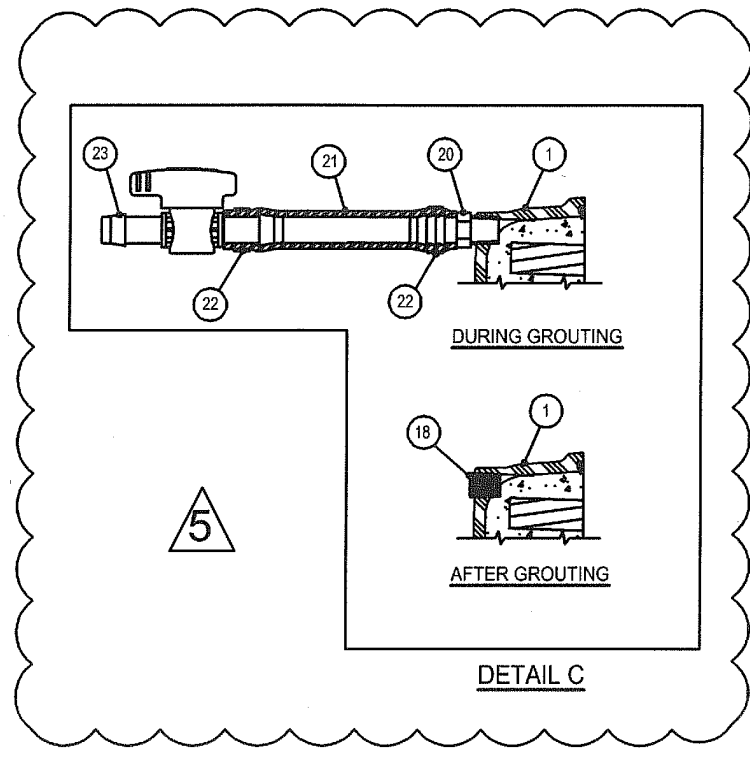
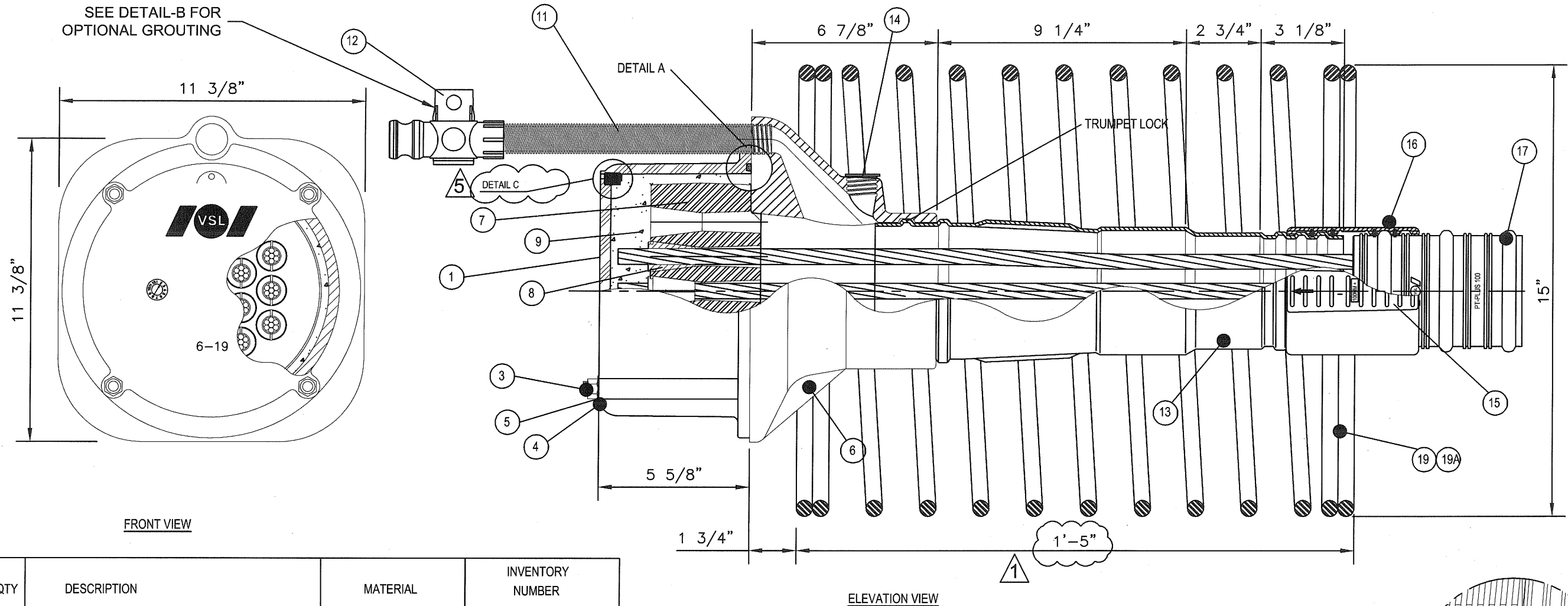
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DESCRIPTION

ISSUED FOR BY CHK

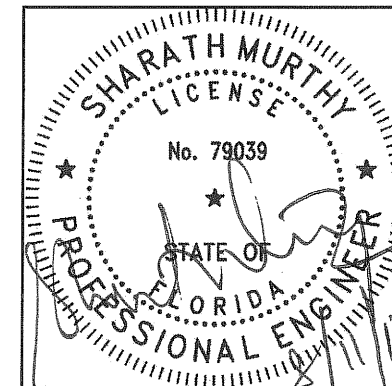
SCALE: NTS
 JOB NO: 420582
 SHEET: PT01.3

Structural Technologies LLC (VSL)
 A Structural Group Company
 2001 Sunset Road
 Pompano Beach, FL 33069
 Phone: 954/446-3991
 Fax: 954/446-3922
 Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA



ITEM	QTY	DESCRIPTION	MATERIAL	INVENTORY NUMBER
23	1	GROUT VENT VALVE, 1/2"	POLYPROPYLENE	2DT01914
22	2	SMALL ONE EAR BAND CLAMP	316 STAINLESS STEEL	2DT01904
21	A/R	1/2" ID SMOOTH GROUT HOSE	POLYPROPYLENE	2DT01920
20	1	1/4" MPT TO 1/2" HOSE BARB ADAPTER	POLYPROPYLENE	2DT01917
18	1	1/4" Ø NPT PLUG	POLYPROPYLENE	2DT01919
19A*	1	SPIRAL, #5, DIA. 14", 2" PITCH, 10.5 TURNS	A615, GRADE 60	OSP61903
19*	1	SPIRAL, #5, DIA. 15", 2.5" PITCH, 9 TURNS	A615, GRADE 60	02BP0094
17	1	DUCT, WHT PP, 100 mm PT-PLUS	ASTM D4101	02DT0443
16	2	COUPLER HALF, 100 mm PT-PLUS	PP	02DT0044
15	2	COUPLER CLAMP, 100 mm PT-PLUS	PP	02DT0046
14	1	BEARING PLATE GROUT PLUG, 23 mm	HDPE	02DT0341
13	1	ECI 6-19 TRUMPET	P.P.	02BP4322
12	1	GROUT VALVE, 23 mm	P.S.	02DT0311
11		GROUT HOSE, 23 mm (21 mm)	P.E.	02DT0310
9		GROUT	JOB SPECIFIC	
8	19	1.6G WEDGE	11-L-17	02WG0008
7	1	ECI 6-19 ANCHOR HEAD	A536 GR80-55-06	02AH0038
6	1	ECI 6-19 GALV BEARING PLATE	A536 GR80-55-06	02BP0038
5	4	1/2"-13 NUT	(316L) STAINLESS	INCLUDED W/ 02WX5033
4	4	Ø1/2" FLAT WASHER	(316L) STAINLESS	INCLUDED W/ 02WX5033
3	4	1/2-13 NC x 7"	(316L) STAINLESS	02WX5033
2	1	O-RING (.210 CS X 8.975" ID #373)	BUNA-N 70 D.	02WX6020
1	1	6-19 GROUT CAP	ABS LUSTRAN 633	02WX6019

* USE ITEM 19A FOR CONCRETE WITH $f'_c = 6500$ psi; USE ITEM 19 FOR CONCRETE WITH $f'_c = 5500$ psi (THIS JOB)



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structural technologies

 A Structural Group Company

2011 Shore Road

 Pompano Beach, FL 33069

 Phone: 854/458-3811

 Fax: 854/458-3822

Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA

ECI 6-19

 SYSTEM DRAWINGS

 FIU PEDESTRIAN BRIDGE

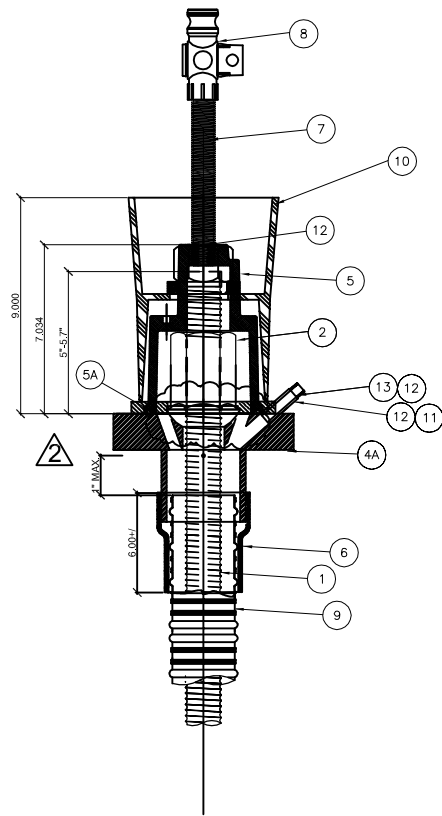
 MIAMI, FL

 MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)

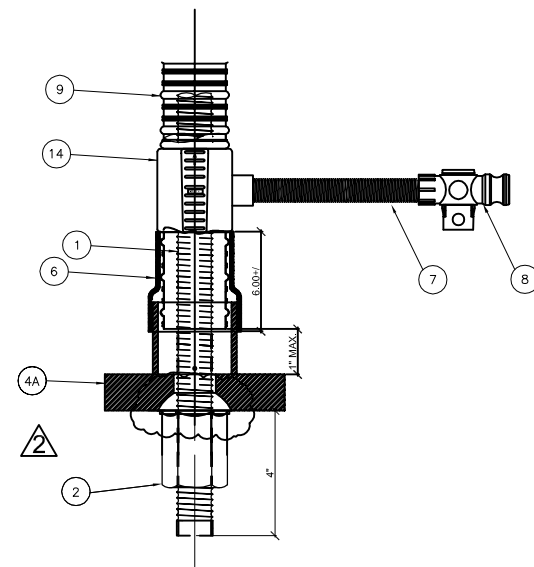
NO.	DATE	DESCRIPTION
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4	07/10/17	PER ECR COMMENTS DATED 08/28 & 27/17
1	06/19/17	PER ECR COMMENT DATED 05/01/17
0	04/28/17	PER ECR DRAWINGS DATED FEB.2017

APPROVAL: GP
 CONSTRUCTION: GP
 APPROVAL: GB
 APPROVAL: GP
 ISSUED FOR: BY
 CHK: CHK

SCALE: NTS
 JOB NO: 420582
 SHEET: PT01.4

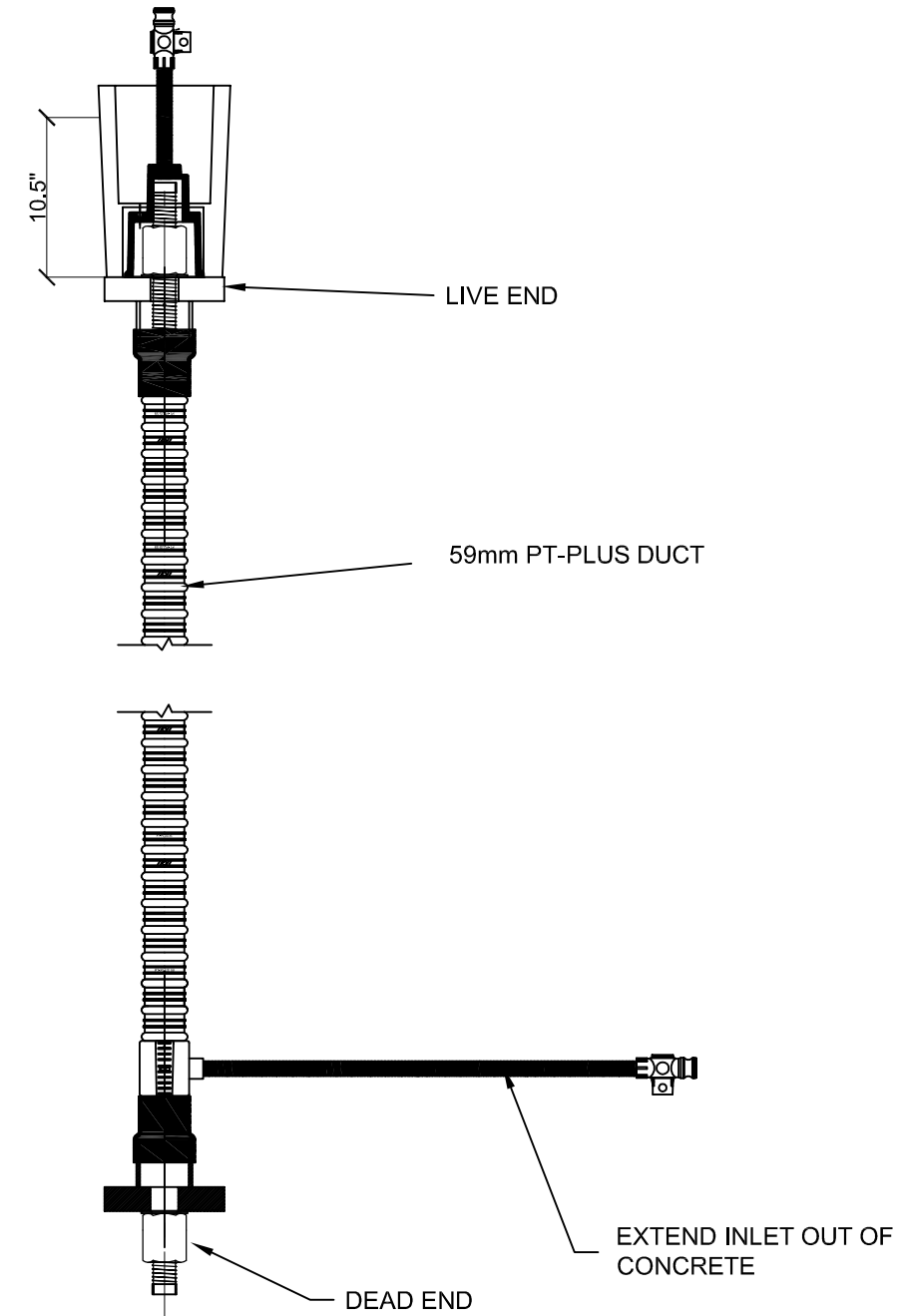


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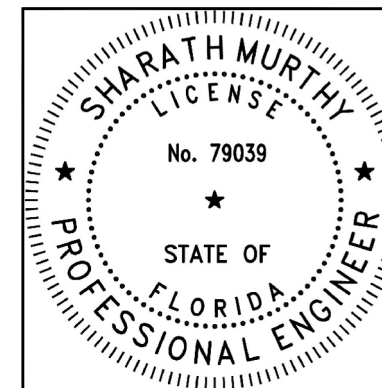


DEAD END

ITEM	DESCRIPTION	MATERIAL	MODEL PART No.
1	WMS. 1.375" ϕ PT BARS , 150 KSI, ASTM722 TYPE II	ASTM A-722-97,M275	R71-11
2	WMS. HEAVY DUTY SPHERICAL HEX NUTS	ASTM A-29-93A GRADE C-1045	R73-11
3	WMS. HARDENED WASHER	ASTM F-436-93, TYPE 1, AASHTO M293	R9F-12-436
*4A	STEEL BEARING PLATE 6" x 6" x 1.5" w/ GROUT HOLE & TRUMPET, A36 GALV.	ASTM A-36-01, ASTM M183, ASTM A-53, ASTM A-512	-
*4B	STEEL BEARING PLATE 6" x 6" x 1.5" w/ TRUMPET, A36 GALV.	ASTM A-36-01, ASTM M183, ASTM A-53, ASTM A-512	-
**4C	STEEL BEARING PLATE 8" x 8.5" x 2" w/ GROUT HOLE & TRUMPET, A36 GALV.	ASTM A-36-01, ASTM M183, ASTM A-53, ASTM A-512	-
**4D	STEEL BEARING PLATE 8" x 8.5" x 2" w/ TRUMPET, A36 GALV.	ASTM A-36-01, ASTM M183, ASTM A-53, ASTM A-512	-
5	WMS. NYLON REINFORCED END CAP	ASTM D-4086, S PA-0221, ASTM D-5989, S PA-0231	R78k113607
5A	WMS. NYLON REINFORCED END CAP O - RING .70 DUROMETER BUNA-N 800347-002	BUNA-N .70 D	-
6	CANUSATUBE HEAT SHRINKABLE TUBING WITH FUSION BONDED EPOXY ADHESIVE PLA63 X 6"	POLYOLEFIN	CANUSA PLA-63-YE
7	GROUT HOSE, 23mm (21mm)	P.E.	02DT0310
8	GROUT VALVE 23mm	P.S.	02DT0311
9	PT + 59mm CORRUGATED PLASTIC DUCT	P.P.	02DT0412
10	POCKET FORMER	-	-
11	1/4" PIPE SCH. 40 X 2" INSPECTION PORT	-	PURCHASED ITEM
12	NYLON GAS PLUMMERS TAPE FOR ALL THREAD FIT SEAL	-	PURCHASED ITEM
13	STD 1/4"-18NPT PIPE COUPLING PURCHASED ITEM	-	PURCHASED ITEM
14	PT-PLUS 59MM COUPLER W/ VENT	ASTM D4101	02DT0013-15
15	WMS. JAM NUT	ASTM A29	R73



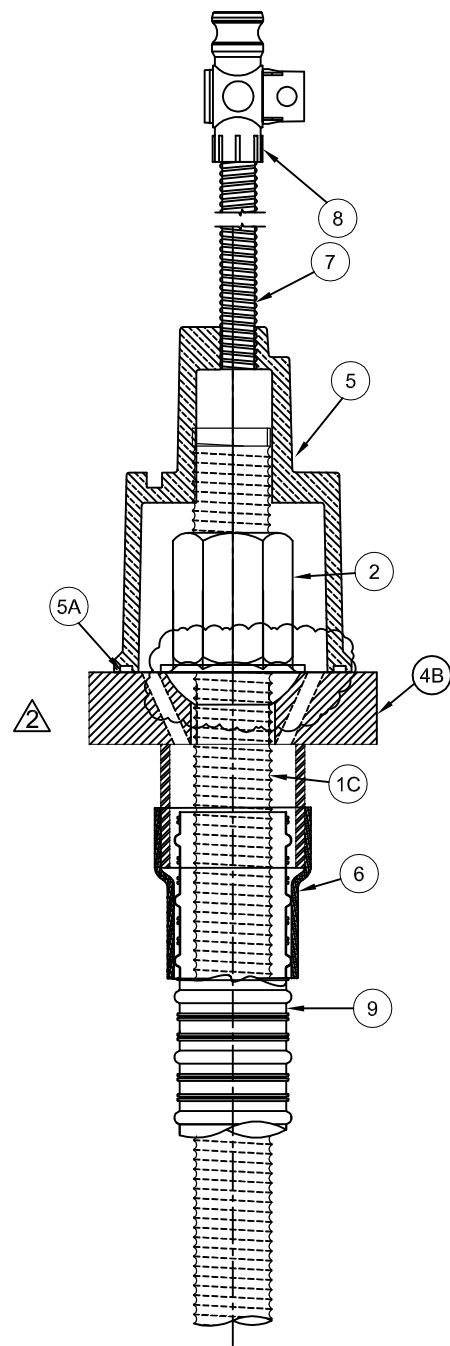
TENDON LAYOUT



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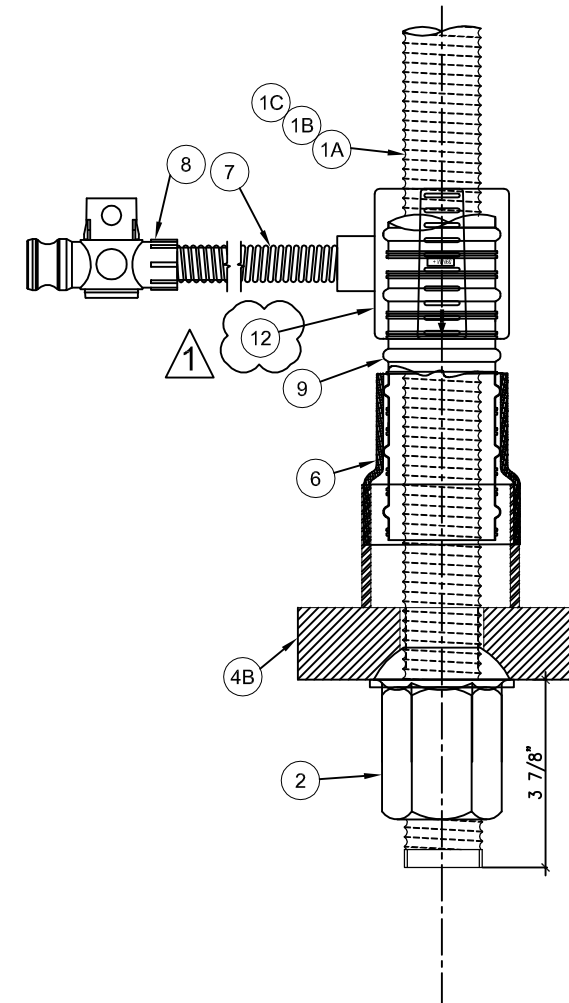
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<p>STRUCTURAL TECHNOLOGIES A Structural Group Company 2001 Blount Road Pompano Beach, FL 33069 Phone: 954/489-3981 Fax: 954/489-3982</p>	CONSTRUCTION	07/10/17	PER FOOT COMMENTS DATED 08/28 & 27/17	BY	CHK
	APPROVAL	05/26/17	PER MCM-VSL MEETING 05/25/17	BY	CHK
	APPROVAL	05/10/17	PER EOR COMMENT DATED 05/01/17	BY	CHK
	APPROVAL	04/26/17	PER 906 DRAWINGS DATED FEB.2017	BY	CHK
NO.	DATE	DESCRIPTION		BY	CHK
4	07/10/17	PER FOOT COMMENTS DATED 08/28 & 27/17			
2	05/26/17	PER MCM-VSL MEETING 05/25/17			
1	05/10/17	PER EOR COMMENT DATED 05/01/17			
0	04/26/17	PER 906 DRAWINGS DATED FEB.2017			
Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA					
1-3/8" PT BAR SYSTEM DRAWINGS FIU PEDESTRIAN BRIDGE MIAMI, FL MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)					
SCALE: NTS		JOB NO: 420582		SHEET: PT01.5	

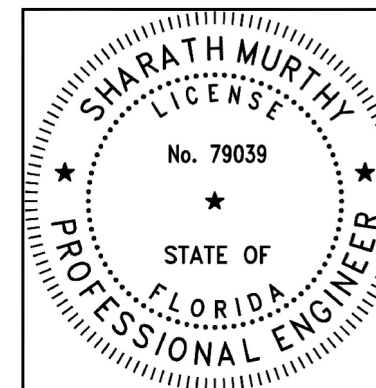


STRESSING END

ITEM	DESCRIPTION	MODEL PART No.
1A	PT BARS 1" ϕ RODS	R71-09
1B	PT BARS 1.375" ϕ RODS	R71-14
1C	PT BARS 1.75" ϕ RODS	R71-11
2	WMS. SPHERICAL HEX NUT	R9F-12-436 / R9F-16-436
4A*	STEEL BEARING PLATE 7" x 7" x 1.75" w/ GROUT HOLE AND TRUMPET	-
4B*	STEEL BEARING PLATE 8" x 8" x 2" w/ TRUMPETS	-
4C*	STEEL BEARING PLATE 9" x 9" x 2.25" w/ GROUT HOLE AND TRUMPET	-
4D*	STEEL BEARING PLATE 9" x 9" x 2.25" w/ TRUMPET	-
4E*	STEEL BEARING PLATE 5.5" x 5.5" x 1.5" w/ GROUT HOLE AND TRUMPET	-
4F*	STEEL BEARING PLATE 5.5" x 5.5" x 1.5" w/ TRUMPETS	-
5	NYLON REINFORCED END CAP	PURCHASED ITEM
5A	NYLON REINFORCED END CAP O - RING	PURCHASED ITEM
6	CANUSATUBE HEAT SHRINKABLE TUBING WITH FUSION BONDED EPOXY ADHESIVE.	-
7	GROUT HOSE, 23mm (21mm)	020T0311
8	GROUT VALVE 23mm	020T0310
9	PT + 76mm CORRUGATED PLASTIC DUCT	-
10	JAM NUT	-
11	POCKET FORMER	-
12	COUPLER W/ CLAMPS & VENT	-



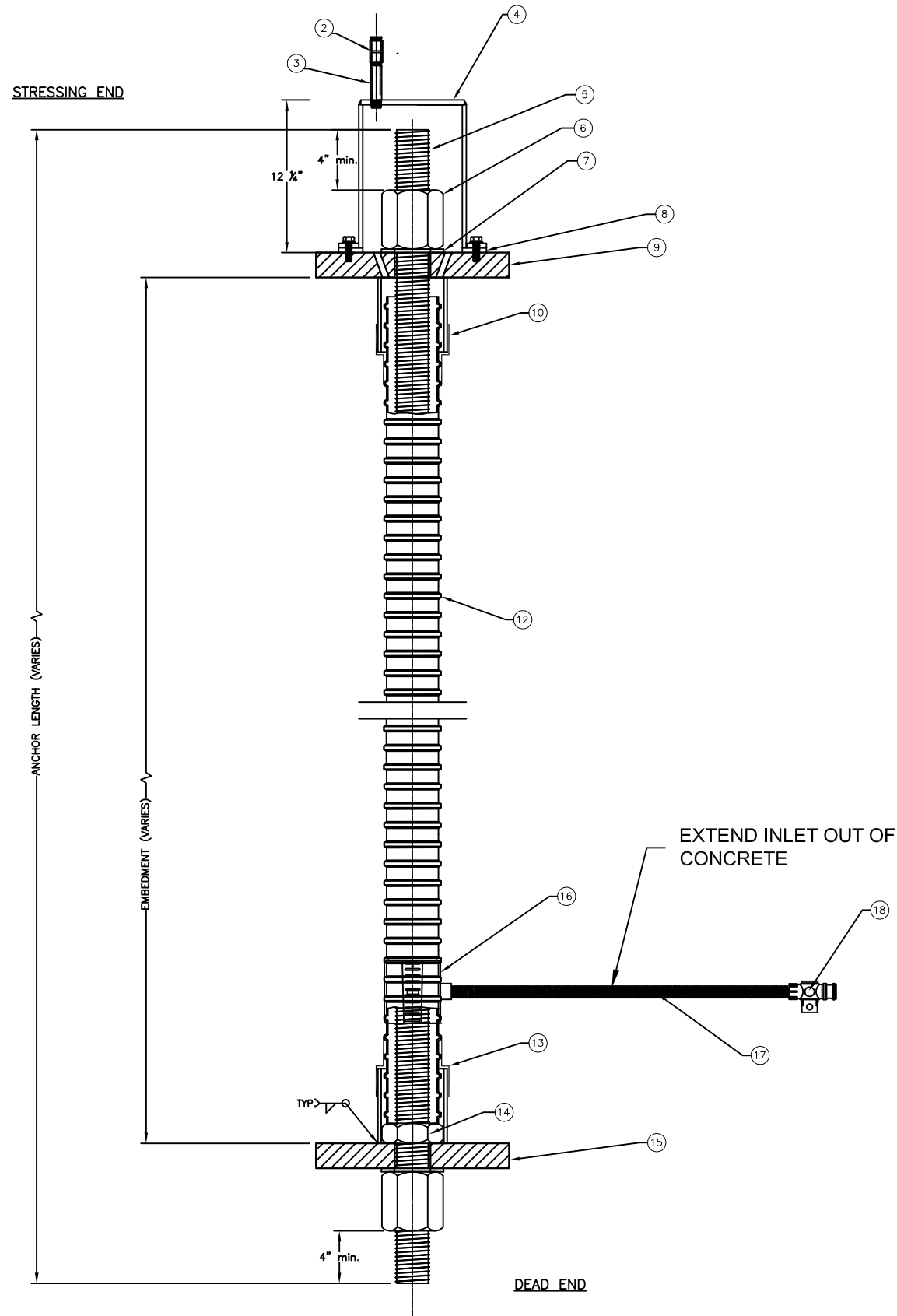
DEAD END



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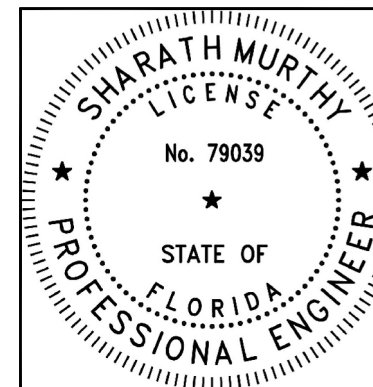
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CONSTRUCTION	APPROVAL	APPROVAL	APPROVAL	ISSUED FOR	CHK
07/10/17	09/26/17	09/19/17	04/26/17	NO.	DATE
4	2	1	0	NO.	DATE
PER FOOT COMMENTS DATED 06/26 & 27/17	PER MCM-VSL MEETING 05/25/17	PER EDR COMMENT DATED 06/01/17	PER 90% DRAWINGS DATED FEB.2017	DESCRIPTION	
 VSL Structural Technologies A Structural Group Company 2001 Biscayne Road Pompano Beach, FL 33069 Phone: 954/489-3991 Fax: 954/489-3992 Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA					
1-3/4" PT BAR SYSTEM DRAWINGS FIU PEDESTRIAN BRIDGE MIAMI, FL MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)					
SCALE: NTS					
JOB NO: 420582					
SHEET: PT01.6					



NOTE: FILED APPLY TEFLON TAPE SEAL TO ALL THREADED NPT CONNECTIONS

ITEM	DESCRIPTION
2	1/2" -14 NPT COUPLING
3	1/2" -14 NPT PIPE NIPPLE x 3" LONG
4	Sch. GALV 40 STEEL PIPE: ASTM A-53 GRADE B or A-500 FLANGED END CAP BOLTING TO ANCHOR BEARING PLT w/ (4) 1/2" -13 GR5 ZINC HEX HEAD BOLTS
5	WMS. 65mm (2 1/2" nom. RH) R71-20RH GRADE 150 KSI ALL-THREAD-BAR, ASTM A-722 TYPE II, AASHTO M275.
6	WMS. 65mm (2 1/2" nom. RH) R73-20RH GR150 HEAVY DUTY HEX NUT: ASTM A-29, GRADE C-1045 (4 1/4" A.F. x 4 3/4" THK.)
7	WMS. 65mm (2 1/2" nom.) R9F-22 HARDENED WASHER: ASTM F-436, TYPE I, AASHTO M293 (5" OD x 2 7/8" ID x 3/32" THK)
8	BUNA-RUBBER GASKET BETWEEN BEARING PLATE AND FLANGE PLATE
9	WMS. BEARING PLATE, ASTM A-36, AASHTO M183, 10"x10"x2 1/4" w/ 2 7/8" DIA. CENTER HOLE FOR 65mm (2 1/2" nom.) GR150 A.T.B. AND (4) HOLES TAPPED 1/2" -13 UNC FOR FLANGE END CAP HOT-DIP GALVANIZED, ASTM A-123
10	FIELD APPLY HEAT-SHRINK SEAL
12	PT + 85mm DUCT
13	FIELD APPLY HEAT-SHRINK SEAL
14	WMS. JAM NUT
15	WMS. BEARING PLATE, ASTM A-36, AASHTO M183 w/ 2 7/8" DIA. CENTER HOLE FOR 65mm (2 1/2" nom.) GR150 A.T.B. AND (4) HOLES TAPPED 1/2" -13 UNC FOR FLANGE END CAP HOT-DIP GALVANIZED, ASTM A-123
16	PT-PLUS 85mm COUPLER W/ VENT
17	GROUT HOSE, 23mm (21mm)
18	GROUT VALVE 23mm



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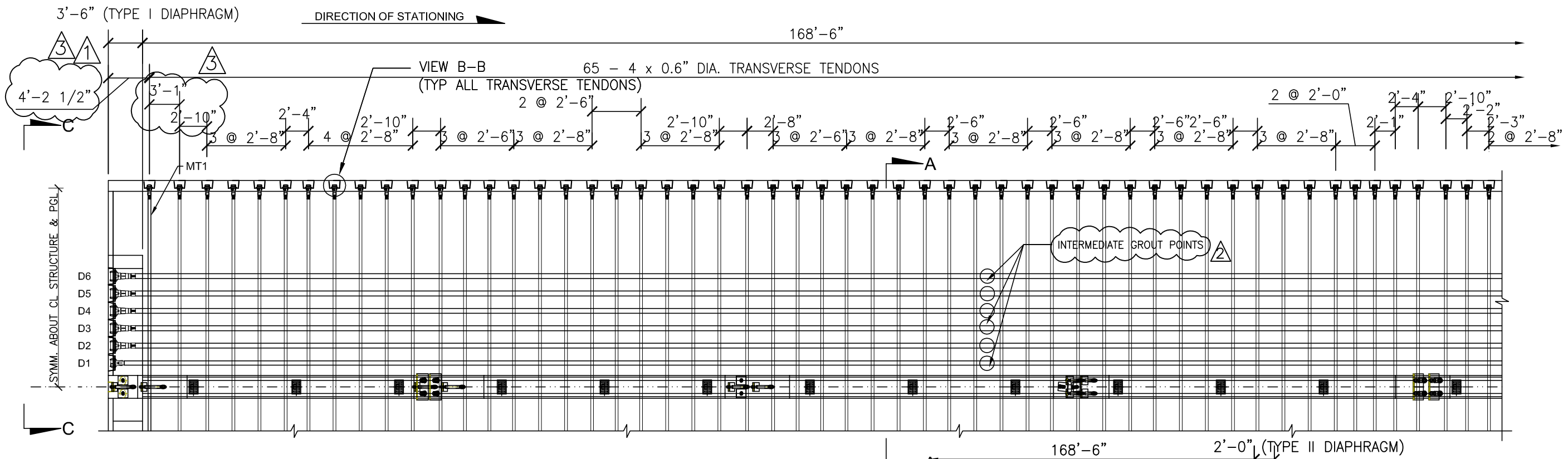
NO.	DATE	DESCRIPTION	BY	CHK
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1	06/10/17	PER EOR COMMENT DATED 05/01/17	APPROVAL	
0	04/28/17	PER 90% DRAWINGS DATED FEB.2017	APPROVAL	
			ISSUED FOR	

2-1/2" PT BAR
 SYSTEM DRAWINGS
 FIU PEDESTRIAN BRIDGE
 MIAMI, FL
 MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)

Phone: 954/488-3981
 Fax: 954/488-3982
 2001 Briant Road
 Pompano Beach, FL 33069

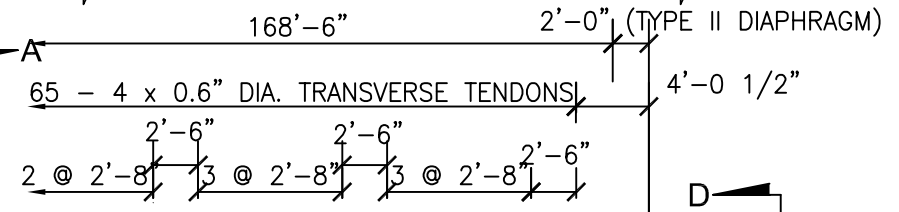
Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA

SCALE: NTS
 JOB NO: 420582
 SHEET: PT01.7



SEE PT2.2 FOR DETAILS AND SECTIONS

PARTIAL PLAN
3/32" = 1'-0"



PARTIAL PLAN (CONT.)
3/32" = 1'-0"

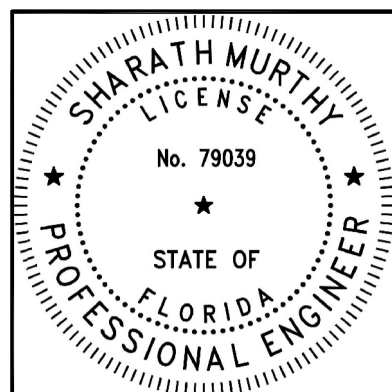
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LOCATIO N	TENDON DESIG.	NO. REQ.	TENDON SIZE	TENDON LENGTH (ft-in)	THEORETICAL ELONGATION (in) (BEFORE ANCHOR SET)		STRESS END	STRESSING FORCE / TENDON (kips)	STRESSING SEQUENCE
					100%	80%			
MAIN SPAN DECK	D1	2	12 X 0.6"	173'-4 1/4"	14.39	11.51	DOWNSTATION	527	1
	D2	2	19 X 0.6"	173'-4 1/4"	14.39	11.51	DOWNSTATION	835	2
	D3	2	19 X 0.6"	173'-4 1/4"	14.39	11.51	DOWNSTATION	835	3
	D4	2	19 X 0.6"	173'-4 1/4"	14.39	11.51	DOWNSTATION	835	4
	D5	2	19 X 0.6"	173'-4 1/4"	14.39	11.51	DOWNSTATION	835	5
BACK SPAN DECK	D6	2	19 X 0.6"	173'-4 1/4"	14.39	11.51	DOWNSTATION	835	6
	D7	2	19 X 0.6"	98'-10 3/4"	8.33	6.66	UPSTATION	828	8
	D8	2	19 X 0.6"	98'-10 3/4"	8.33	6.66	UPSTATION	828	9
	D9	2	19 X 0.6"	98'-10 3/4"	8.33	6.66	UPSTATION	828	10

TRANSVERSE TENDON DATA TABLE

LOCATIO N	TENDON DESIG.	NO. REQ.	TENDON SIZE	TENDON LENGTH (ft-in)	THEO. ELONGATION (AFTER ANCHOR SET) (in)		STRESS END	STRESSING FORCE / TENDON (kips)	STRESSING SEQUENCE
					100%	80%			
MAIN SPAN	MT1-MT65	65	4 X 0.6"	30' - 8"	2.38	1.90	ALTERNATE	46.75 X 4 = 187	7
CLOSURE	CT1	1	4 X 0.6"	30' - 8"	2.38	1.90	ALTERNATE	46.75 X 4 = 187	12
BACK SPAN	BT1-BT35 & BT38-BT40	38	4 X 0.6"	30' - 8"	2.38	1.90	ALTERNATE	46.75 X 4 = 187	11
BACK SPAN	BT36 & 37	2	4 X 0.6"	30' - 2"	2.33	1.86	ALTERNATE	46.75 X 4 = 187	11
NORTH LANDING	NT2-NT5	4	4 X 0.6"	30' - 2"	2.33	1.86	ALTERNATE	46.75 X 4 = 187	13
NORTH LANDING	NT1	1	4 X 0.6"	30' - 8"	2.38	1.90	ALTERNATE	46.75 X 4 = 187	13

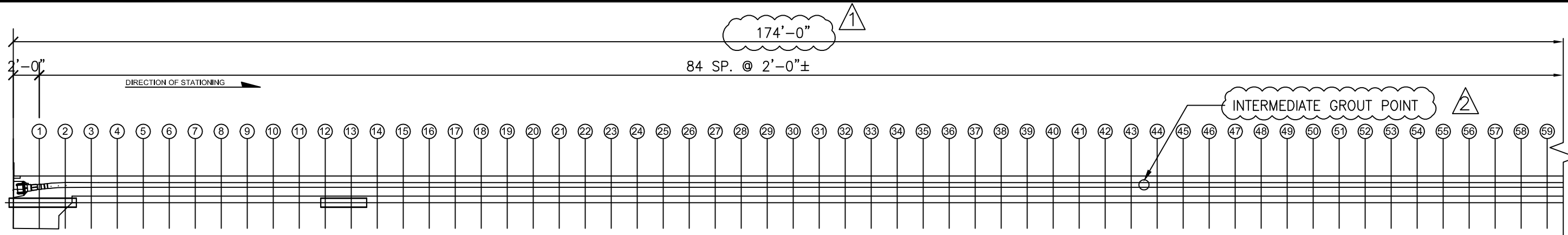
NOTE: PLEASE REFER TO B-109 & B-110 FOR OVERALL STRESSING SEQUENCE



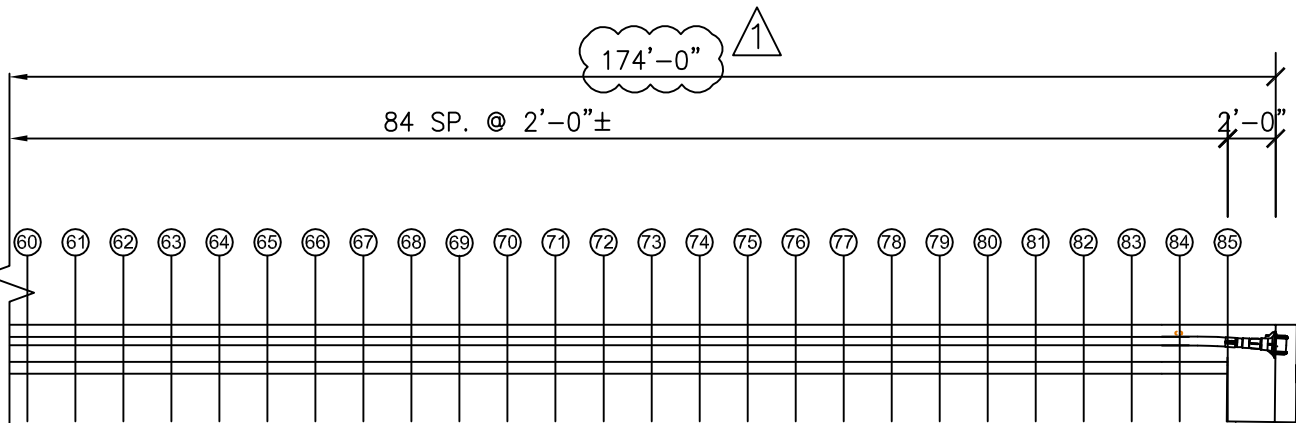
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 Phone: 954/489-3981 2001 Blount Road Pompano Beach, FL 33069 Fax: 954/489-3982 Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA	3	06/22/17	PER EOR COMMENT DATED 05/25/17	CONSTRUCTION	SM	CHK
	2	05/26/17	PER MCM-VSL MEETING 05/25/17	APPROVAL	SM	
	1	05/19/17	PER EOR COMMENT DATED 05/01/17	APPROVAL	SM	
	4	07/19/17	PER FOOT COMMENTS DATED 06/26 & 27/17	CONSTRUCTION	SM	
	NO.	DATE	DESCRIPTION	ISSUED FOR	BY	CHK
			DECK PT PLAN - MAIN SPAN			
			FIU PEDESTRIAN BRIDGE			
			MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)			
			SCALE: VARIES			
			JOB NO: 420582			
			SHEET: PT02			



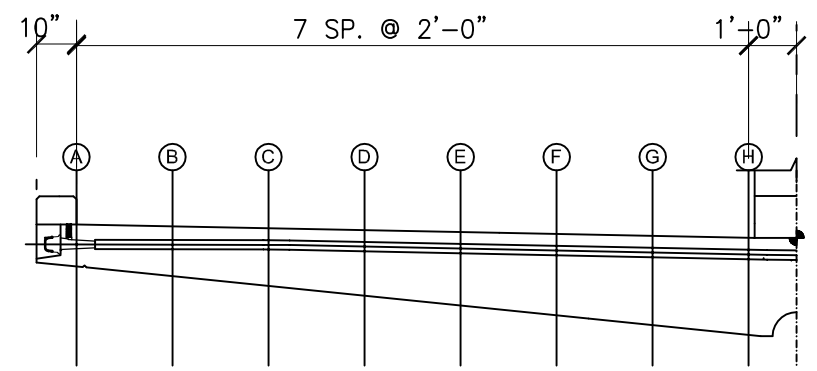
PARTIAL PROFILE VIEW
1/8" = 1'-0"



PARTIAL PROFILE VIEW
1/8" = 1'-0"

TENDON SUPPORT HEIGHT SCHEDULE (TRANSVERSE)

A	*
B	0'-6 3/4"
C	0'-9 1/8"
D	0'-11 1/8"
E	1'-1"
F	1'-3"
G	1'-5"
H	1'-6 7/8"

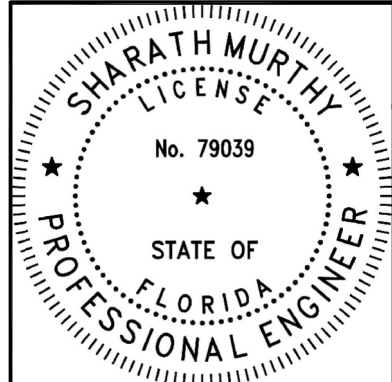


NOTE: SYMMETRICAL ACROSS CL
TYPICAL TRANSVERSE TENDON PROFILE
1/4" = 1'-0"

TENDON SUPPORT HEIGHT SCHEDULE (MAIN SPAN)

TENDON DESIGNATION	1	2	3 THRU 83	84	85
D1	**	1'-1 1/4"	1'-1 1/4"	1'-1 1/4"	**
D2	**	11 1/4"	11 1/4"	11 1/4"	**
D3	**	9 3/8"	9 3/8"	9 3/8"	**
D4	**	7 1/2"	7 1/2"	7 1/2"	**
D5	**	5 3/4"	5 3/4"	5 3/4"	**
D6	**	3 7/8"	3 7/8"	3 7/8"	**

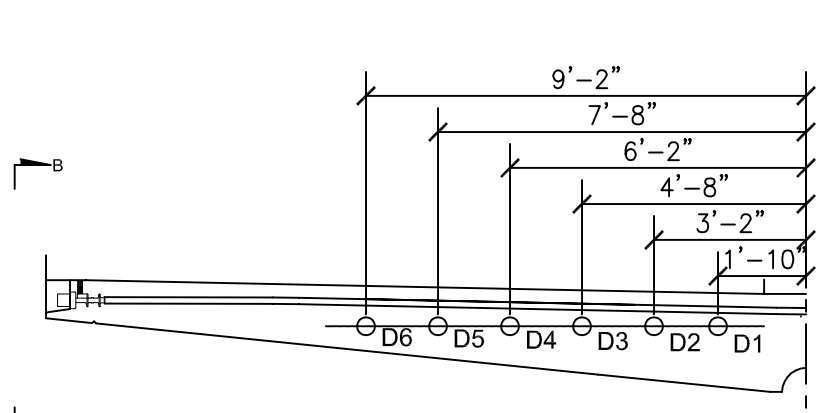
NOTE: SUPPORT HEIGHT IS FROM
BOTTOM OF SOFFIT TO BOTTOM
OF DUCT



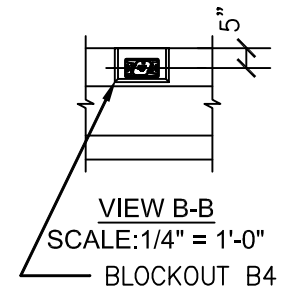
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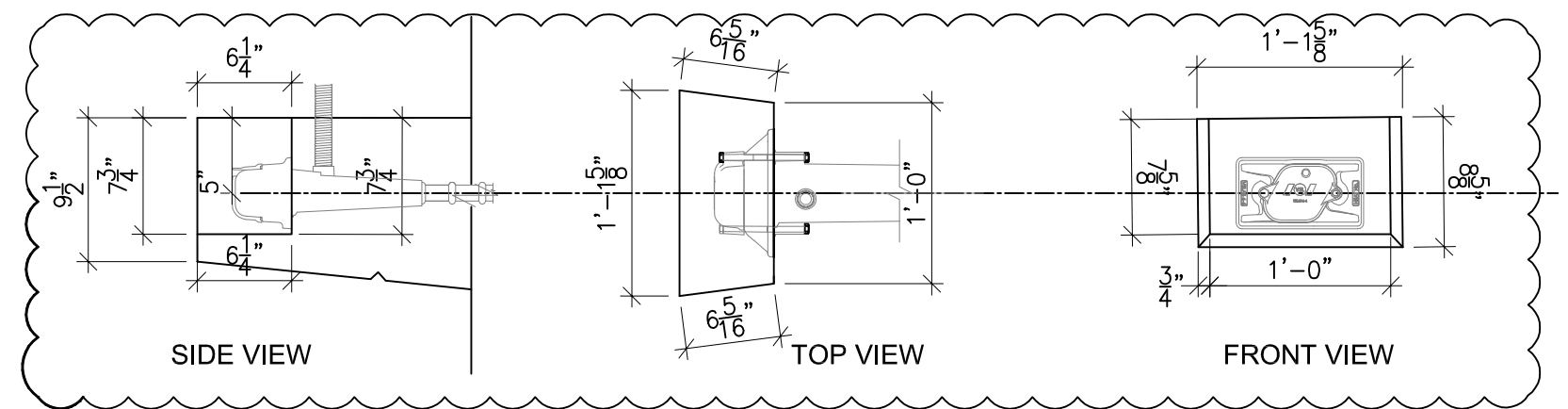
<p>STRUCTURAL TECHNOLOGIES VSL, LLC Pompano Beach, FL office: 2001 Blount Road, Pompano Beach, FL 33069 Phone: 954/489-3981 Fax: 954/489-3982</p> <p>Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA</p>	4	07/10/17	PER EDOT COMMENTS DATED 06/26 & 27/17	CONSTRUCTION	SM	CHK
	2	05/26/17	PER MCM-VSL MEETING 05/25/17	APPROVAL	SM	CHK
	1	05/19/17	PER EOR COMMENT DATED 05/01/17	APPROVAL	SM	CHK
	0	04/26/17	PER 90% DRAWINGS DATED FEB.2017	APPROVAL	SM	CHK
		NO.	DATE	DESCRIPTION	BY	CHK
DECK PT PLAN - MAIN SPAN PT PROFILES						
FIU PEDESTRIAN BRIDGE MIAMI, FL MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)						
SCALE: VARIES						
JOB NO: 420582						
SHEET: PT02.1						



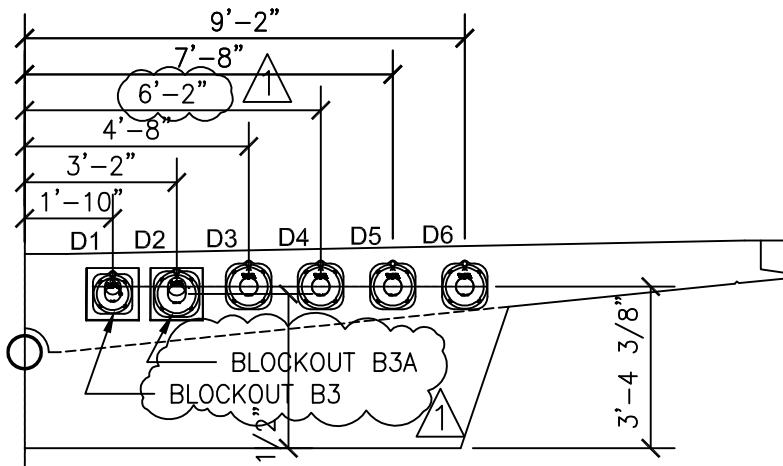
SECTION A-A
SCALE: 1/4" = 1'-0"
NOTE: SYMMETRICAL ACROSS CL



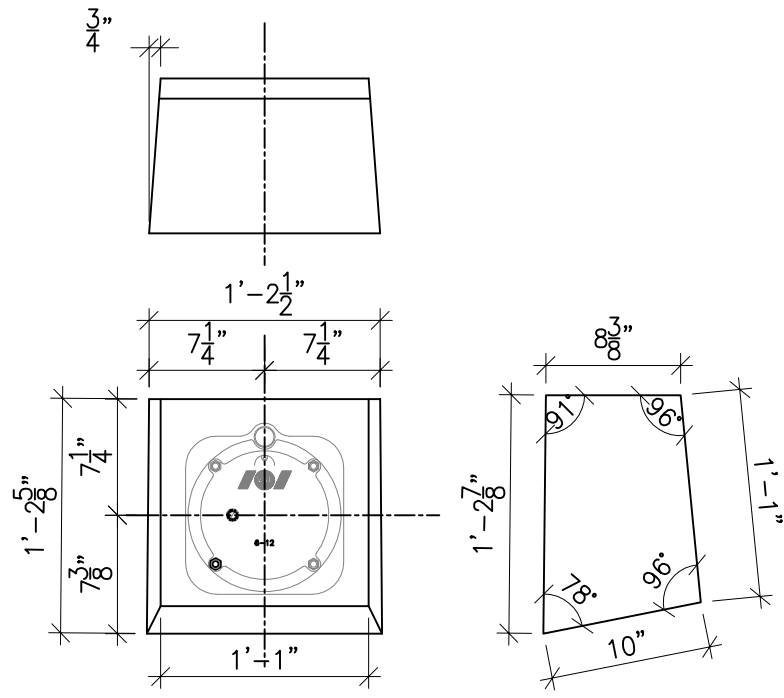
VIEW B-B
SCALE: 1/4" = 1'-0"
BLOCKOUT B4



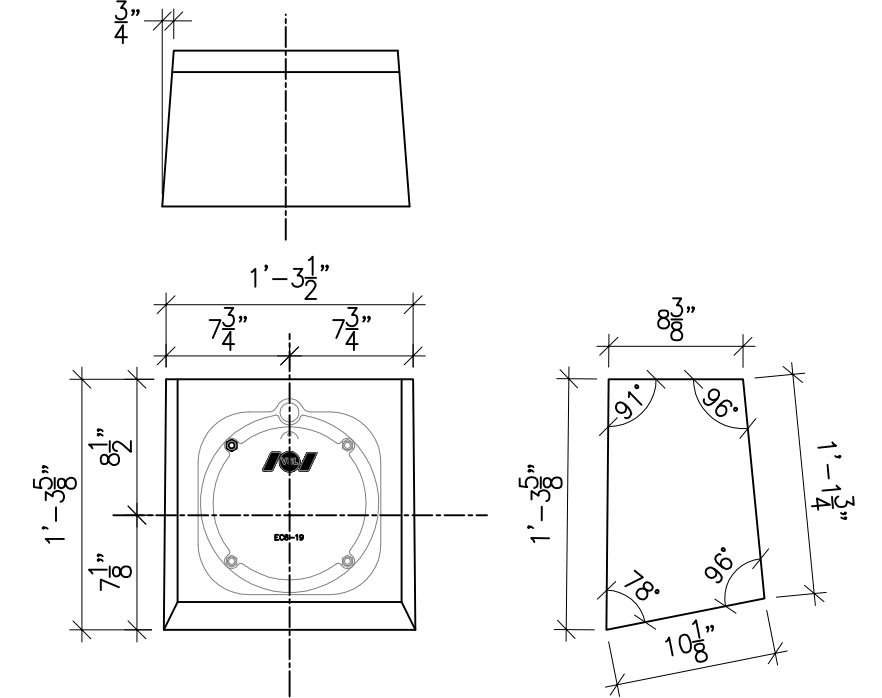
BLOCKOUT DETAIL B4 [132 TOTAL]
(BY OTHERS) SCALE: 1" = 1'-0"



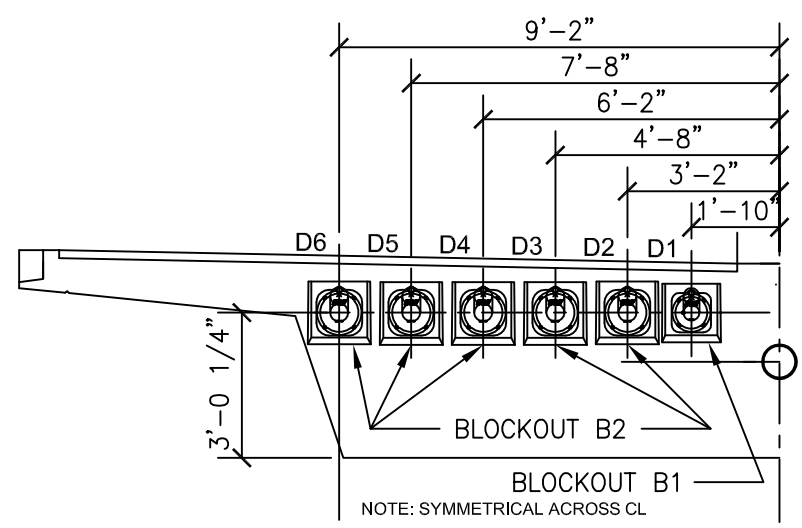
SECTION D-D
SCALE: 1/4" = 1'-0"
NOTE: SYMMETRICAL ACROSS CL



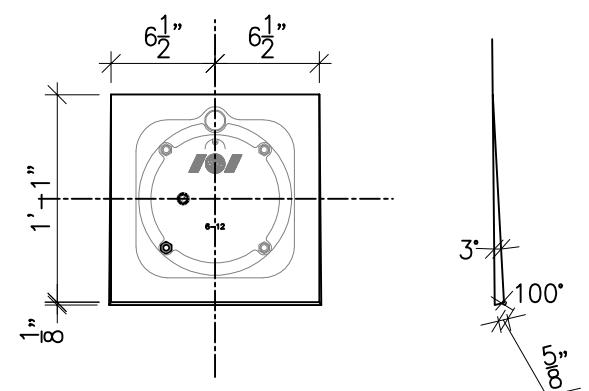
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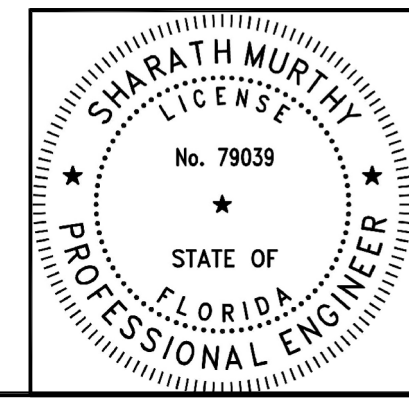
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SECTION C-C
SCALE: 1/4" = 1'-0"
NOTE: SYMMETRICAL ACROSS CL



BLOCKOUT DETAIL B3/B3A [2 TOTAL]
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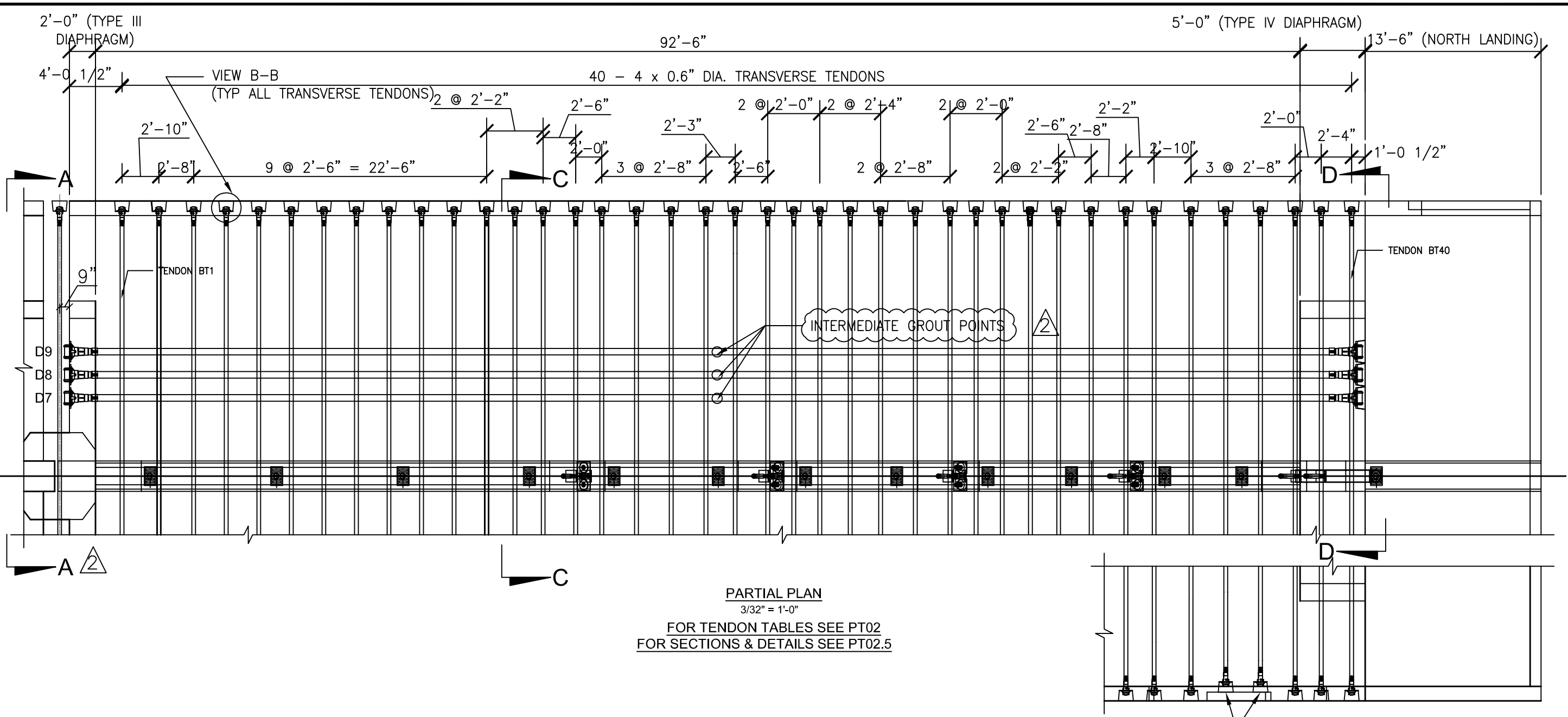


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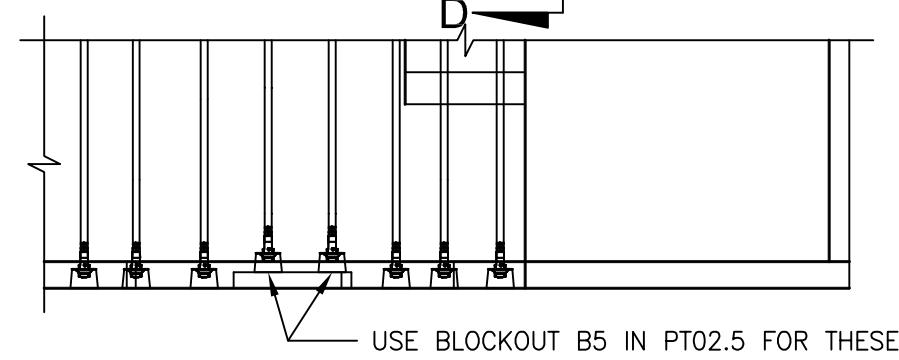
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NO.	DATE	DESCRIPTION	ISSUED FOR		BY	CHK
			CONSTRUCTION	APPROVAL		
4	07/10/17	PER FDOT COMMENTS DATED 06/26 & 27/17	CP	SM	SM	SM
3	06/27/17	PER EOR COMMENTS PER 05/25/17	CP	SM	SM	SM
1	05/19/17	PER EOR COMMENT DATED 05/01/17	CP	SM	SM	SM
0	04/28/17	PER 90% DRAWINGS DATED FEB.2017	CP	SM	SM	SM

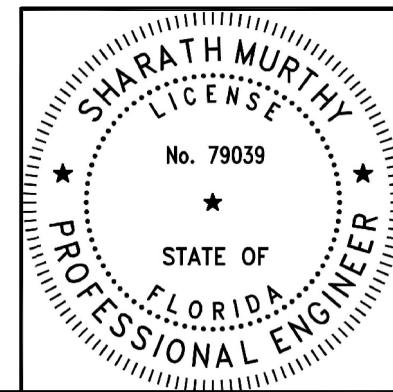
		Phone: 954/489-3991 Fax: 954/489-3992 2001 Blount Road Pompano Beach, FL 33069
DECK PT PLAN - MAIN SPAN DETAILS		FIU PEDESTRIAN BRIDGE MIAMI, FL
MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)		Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA



PARTIAL PLAN
 3/32" = 1'-0"
 FOR TENDON TABLES SEE PT02
 FOR SECTIONS & DETAILS SEE PT02.5



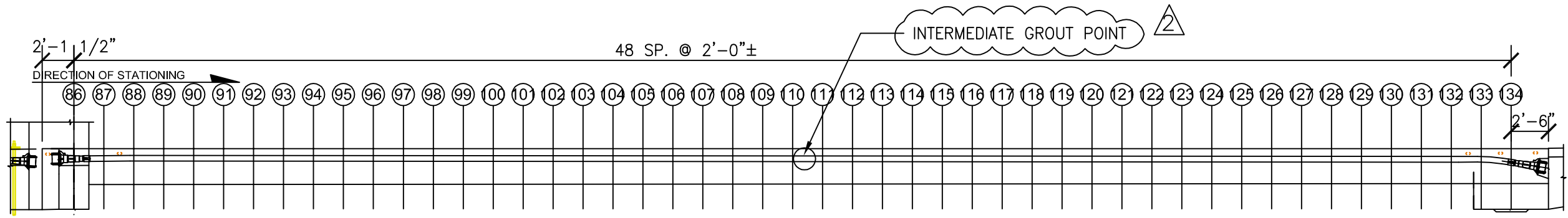
PARTIAL PLAN



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4	07/10/17	PER FOOT COMMENTS DATED 06/26 & 27/17	SM	CHK
	2	PER MCM-VSL MEETING 05/25/17	SM	
	1	PER EOR COMMENT DATED 05/01/17	SM	
	0	PER 90% DRAWINGS DATED FEB.2017	SM	
	NO.	DATE	DESCRIPTION	ISSUED FOR
 STRUCTURAL TECHNOLOGIES VSL, LLC 2001 Blount Road Pompano Beach, FL 33069 Phone: 954/468-3981 Fax: 954/468-3982 Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA		DECK PT PLAN - BACK SPAN		
		FIU PEDESTRIAN BRIDGE MIAMI, FL MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)		
SCALE: VARIES		JOB NO: 420582		
SHEET: PT02.3				

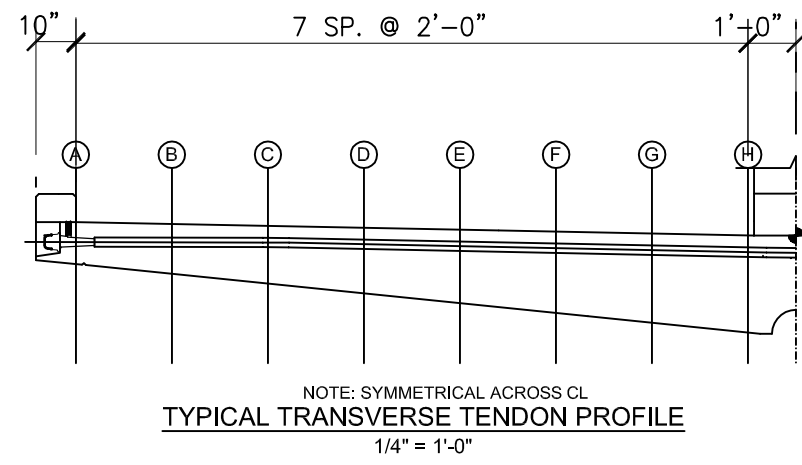


TENDON SUPPORT HEIGHT SCHEDULE (BACK SPAN)

TENDON DESIGNATION	86	87	88 THRU 132	133	134
D7	9 1/4"	9 3/8"	9 3/8"	9 3/8"	6 3/8"
D8	7 3/8"	7 1/2"	7 1/2"	7 1/2"	4 1/2"
D9	5 5/8"	5 3/4"	5 3/4"	5 3/4"	2 3/4"

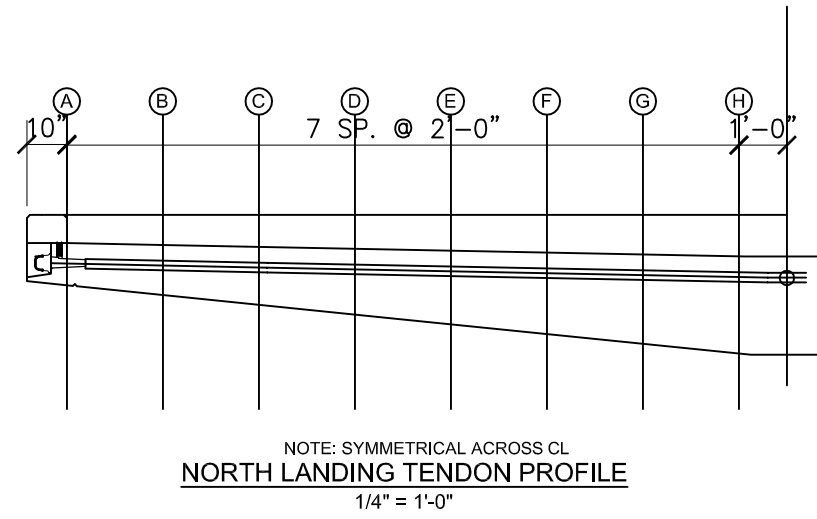
TENDON SUPPORT HEIGHT SCHEDULE (TRANSVERSE)

A	*
B	0'-6 3/4"
C	0'-9 1/8"
D	0'-11 1/8"
E	1'-1"
F	1'-3"
G	1'-5"
H	1'-6 7/8"

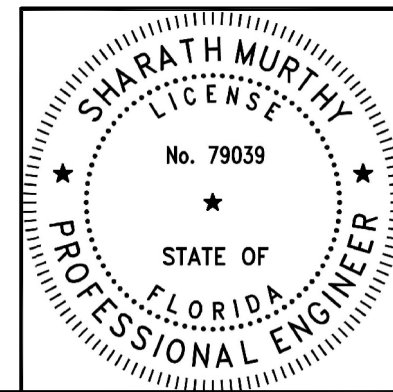


TENDON SUPPORT HEIGHT SCHEDULE (NORTH LANDING)

A	*
B	0'-6 1/4"
C	0'-8 1/8"
D	0'-10 1/8"
E	1'-0 1/8"
F	1'-2"
G	1'-4"
H	1'-6"



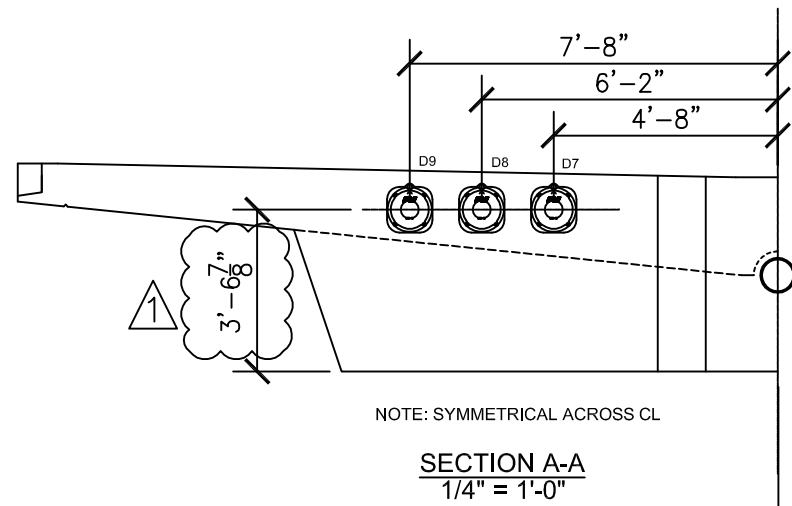
NOTE: SUPPORT HEIGHT IS FROM BOTTOM OF SOFFIT TO BOTTOM OF DUCT



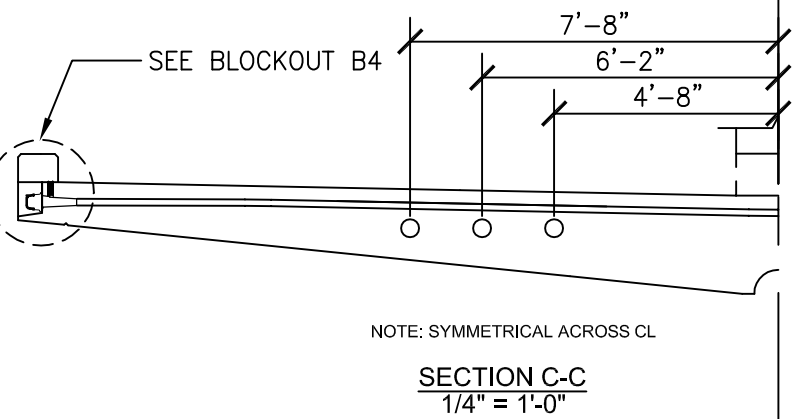
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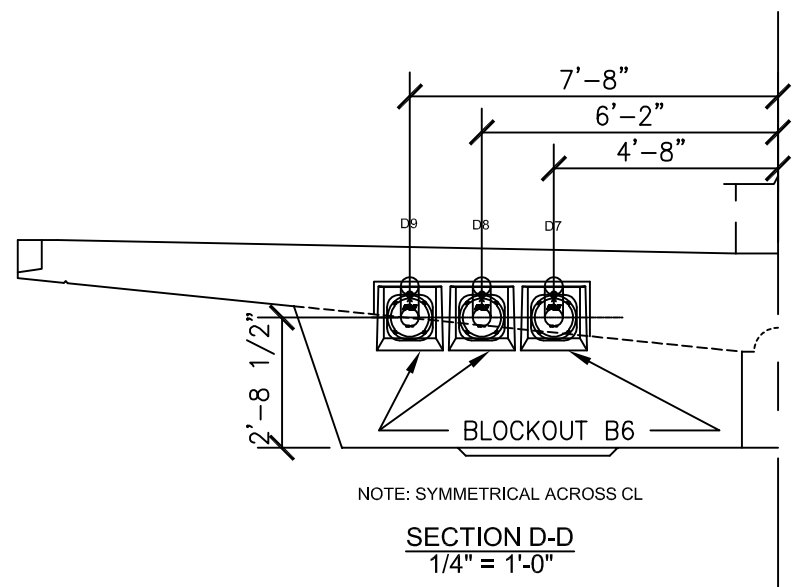
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	09/19/17	PER EOR COMMENT DATED 05/01/17	APPROVAL	SM	
	04/26/17	PER 90% DRAWINGS DATED FEB.2017	APPROVAL	SM	
	NO.	DATE	DESCRIPTION	ISSUED FOR	CHK
			FIU PEDESTRIAN BRIDGE MIAMI, FL MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)		
DECK PT PLAN - BACK SPAN PROFILES			SCALE: VARIES JOB NO: 420582 SHEET: PT02.4		



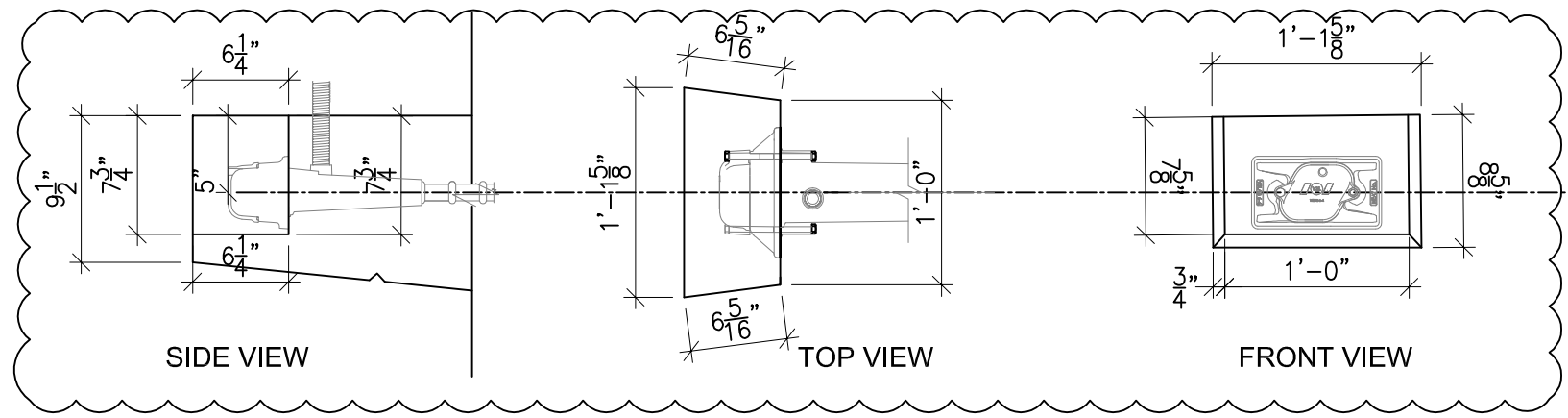
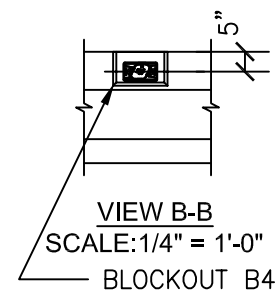
NOTE: SYMMETRICAL ACROSS CL
SECTION A-A
1/4" = 1'-0"



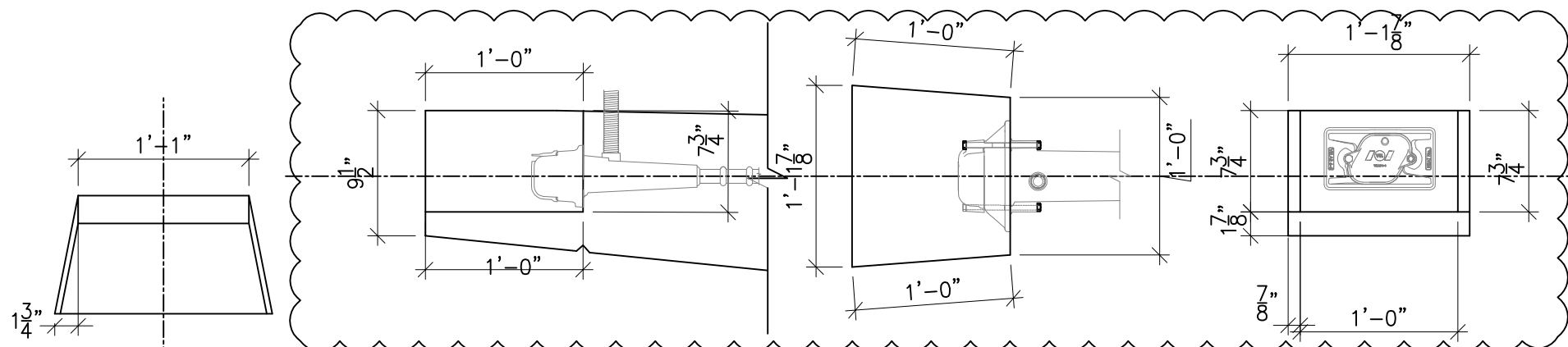
NOTE: SYMMETRICAL ACROSS CL
SECTION C-C
1/4" = 1'-0"



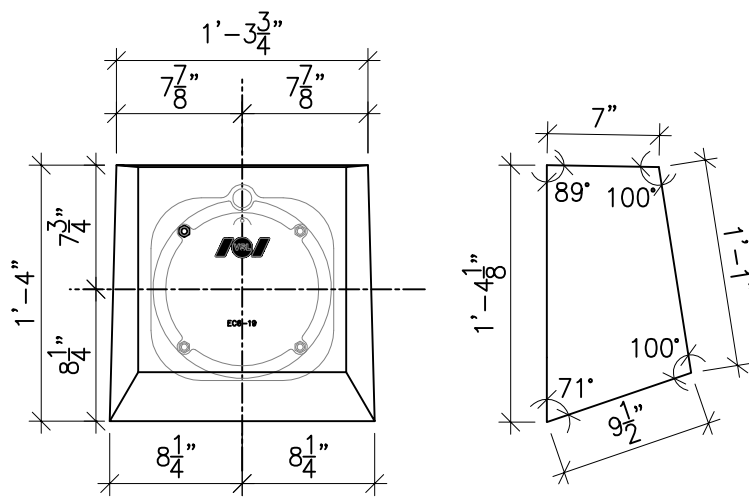
NOTE: SYMMETRICAL ACROSS CL
SECTION D-D
1/4" = 1'-0"



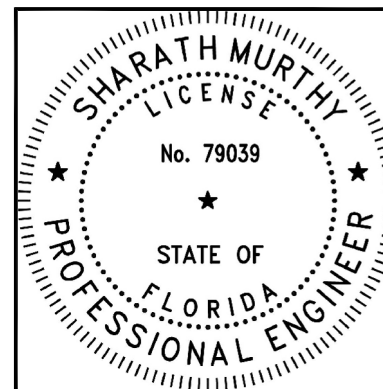
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BLOCKOUT DETAIL B5 [2 TOTAL]
(BY OTHERS) SCALE: 1" = 1'-0"



BLOCKOUT DETAIL B6 [3 TOTAL]
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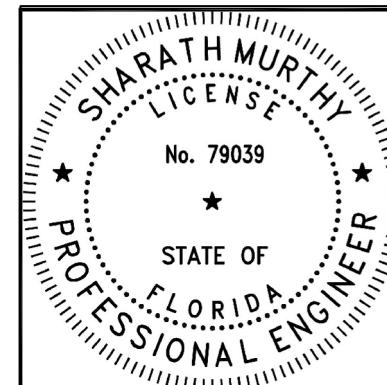
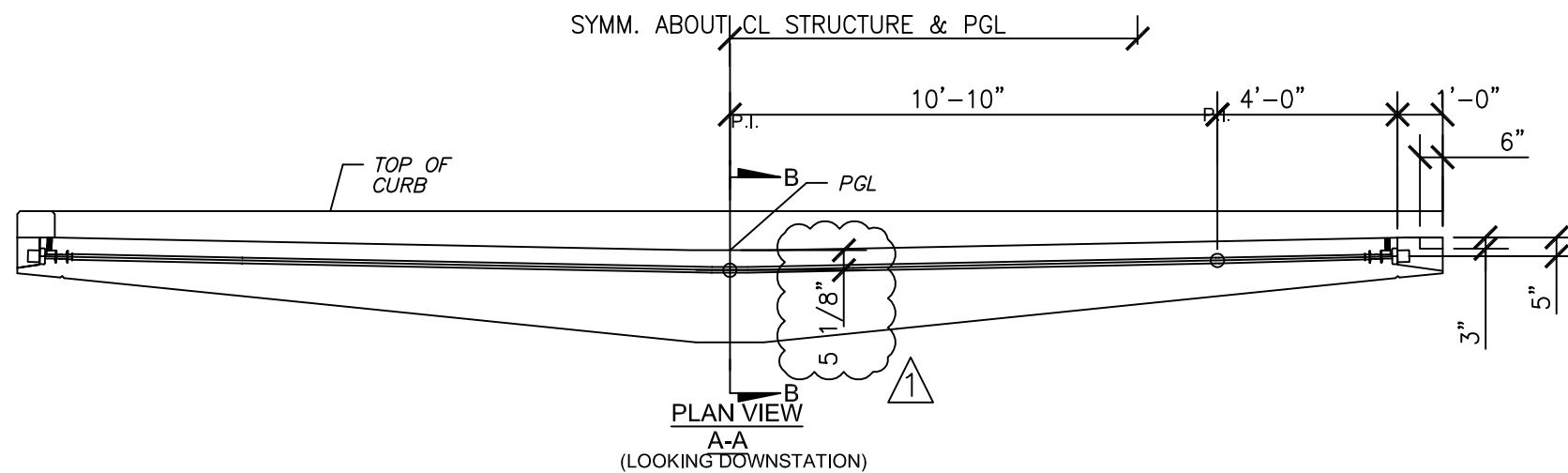
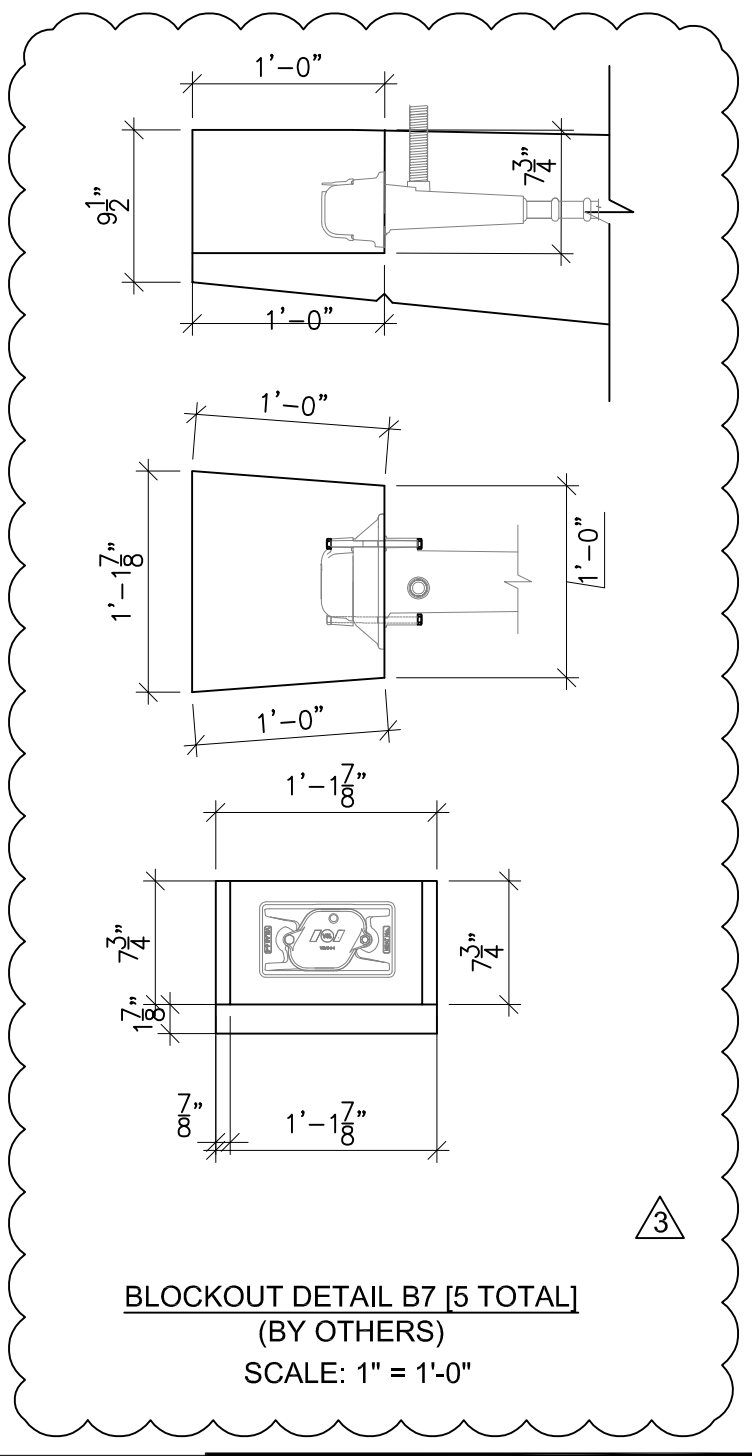
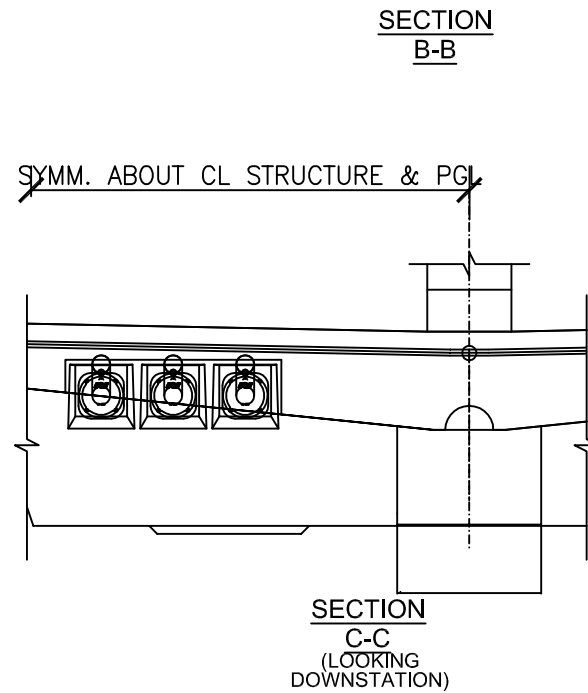
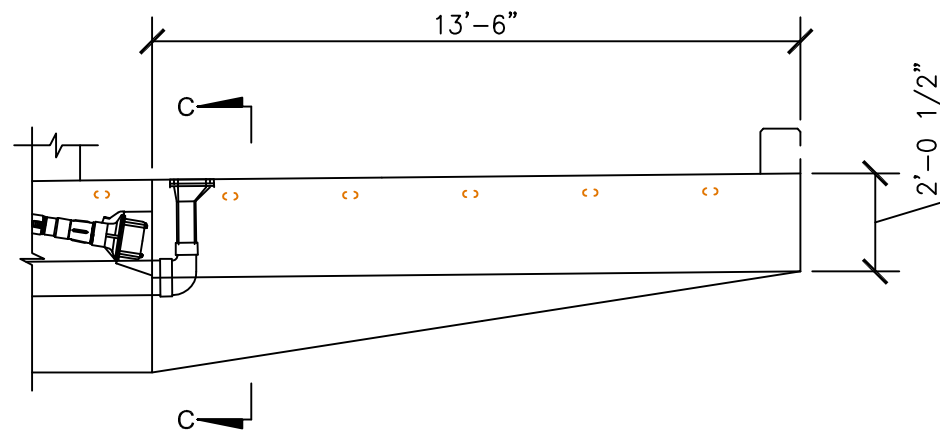
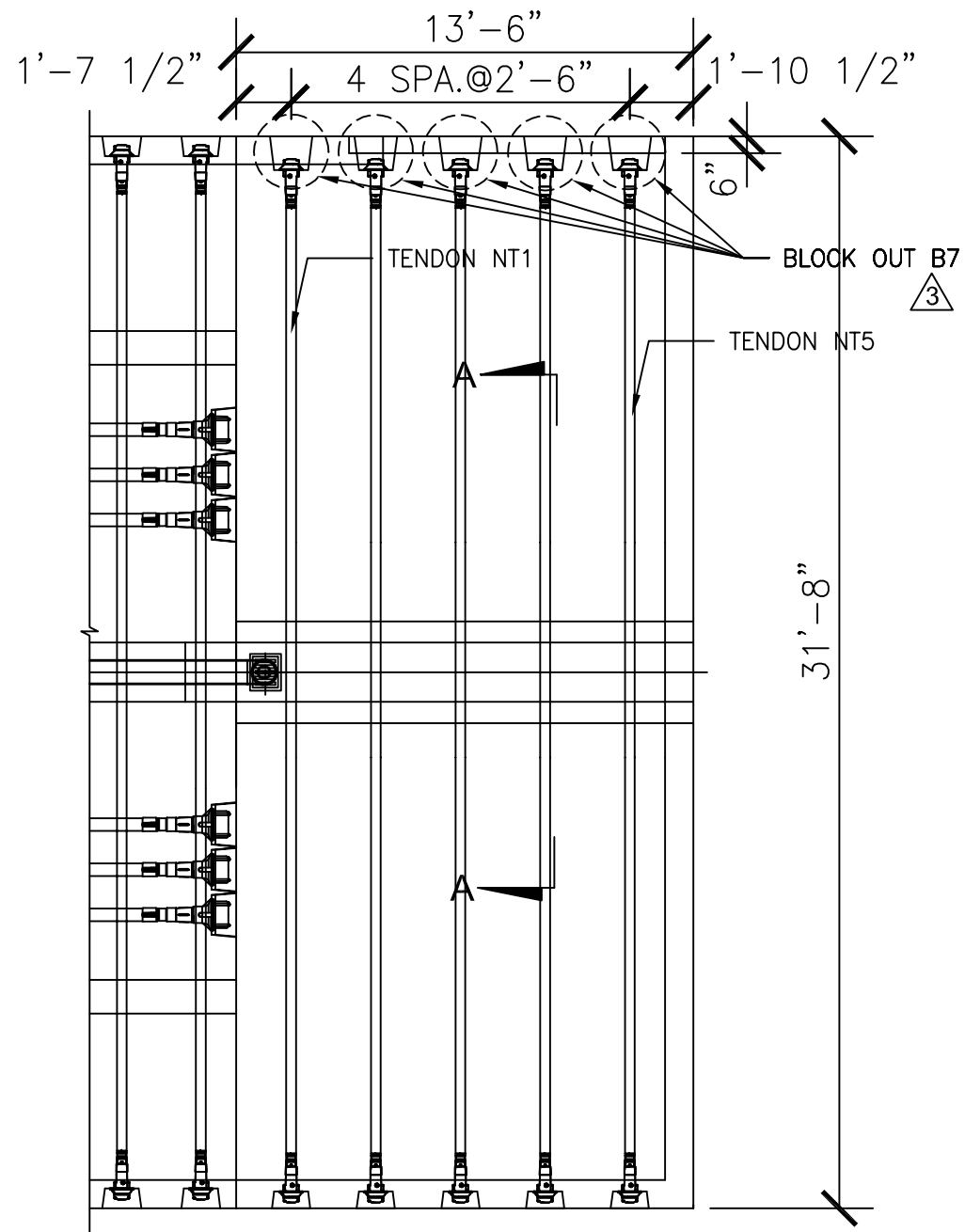
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NO.	DATE	DESCRIPTION	BY	CHK
4	07/10/17	PER FDOT COMMENTS DATED 06/26 & 27/17	SM	SM
3	04/27/17	PER EOR COMMENT DATED 05/25/17	SM	SM
1	05/19/17	PER EOR COMMENT DATED 05/01/17	SM	SM
0	04/28/17	PER 90% DRAWINGS DATED FEB.2017	SM	SM

DECK PT PLAN - BACK SPAN DETAILS	STRUCTURAL TECHNOLOGIES A Structural Group Company Phone: 954/489-3981 Pompano Beach, FL 33069 Fax: 954/489-3982
FIU PEDESTRIAN BRIDGE MIAMI, FL	Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA
MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)	

SCALE: VARIES
JOB NO: 420582
SHEET: PT02.5



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NO.	DATE	DESCRIPTION	BY	CHK
4	07/19/17	PER FOOT COMMENTS DATED 06/26 & 27/17	SM	SM
3	06/27/17	PER EOR COMMENT DATED 05/25/17	CP	SM
1	05/19/17	PER EOR COMMENT DATED 05/01/17	CP	SM
0	04/29/17	PER 90% DRAWINGS DATED FEB.2017	CP	SM

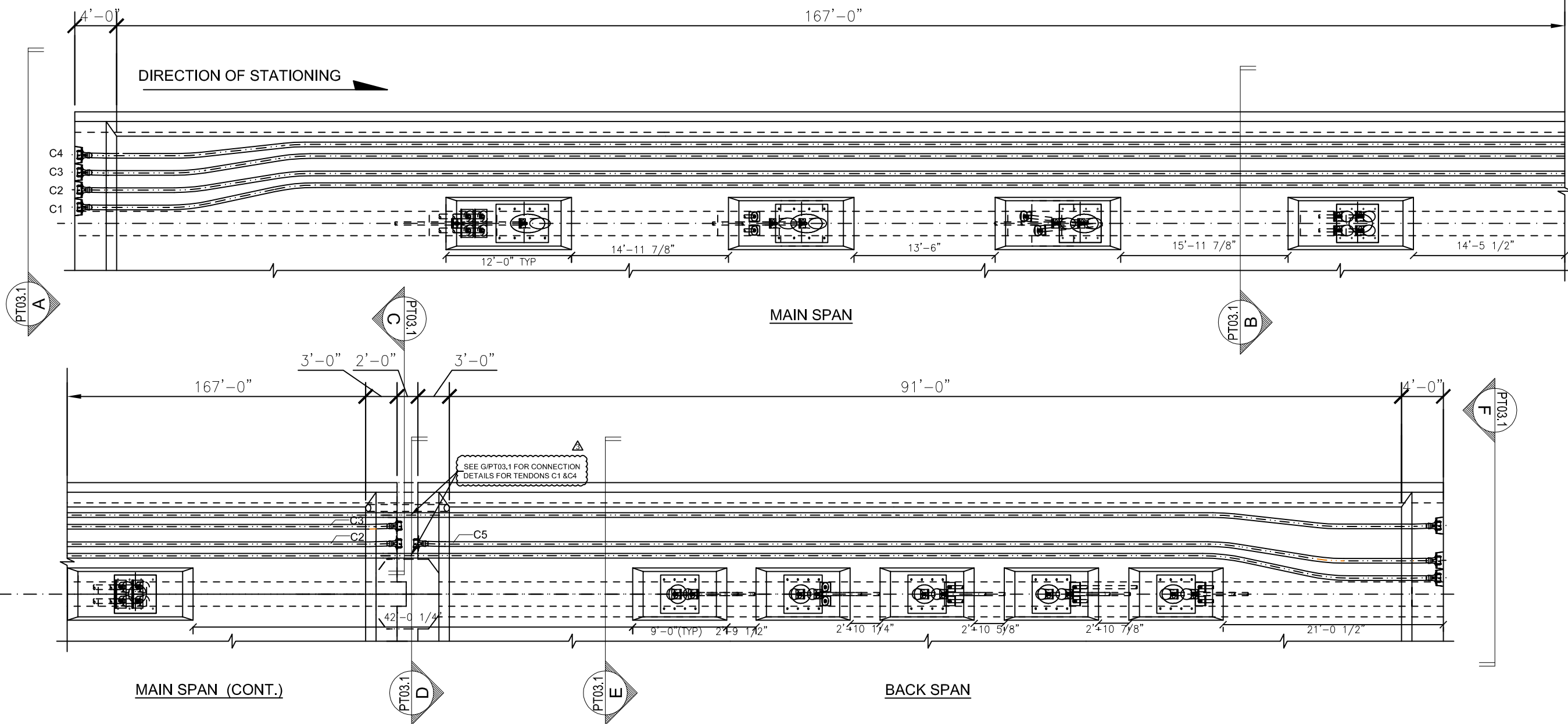
structural TECHNOLOGIES
 A Lütkestrahl Group Company
 STRUCTURAL TECHNOLOGIES/VSL, LLC 2001 Blount Road
 Pompano Beach, FL 33069 Phone: 954/489-3981
 Pompano Beach, FL office: 954/489-3982 Fax: 954/489-3982
 Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA

DECK PT PLAN - NORTH LANDING

FIU PEDESTRIAN BRIDGE
MIAMI, FL

MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)

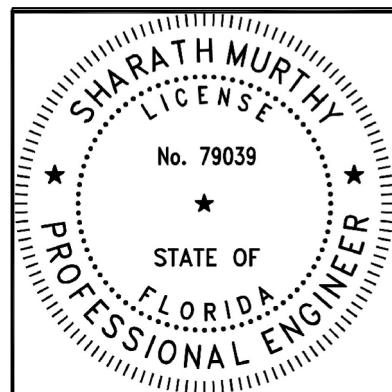
SCALE: VARIES
JOB NO: 420582
SHEET: PT02.6



LONGITUDINAL TENDON DATA TABLE [SYMM. ABOUT CL OF BRIDGE]

LOCATION	TENDON DESIG.	NO. REQ.	TENDON SIZE	TENDON LENGTH (ft-in)	THEORETICAL ELONGATION (in) (BEFORE ANCHOR SET)		STRESS END	STRESSING FORCE / TENDON (kips)	STRESSING SEQUENCE
					100%	80%			
MAIN SPAN CANOPY	C2	2	12 X 0.6"	173'-5 1/4"	1'-2 5/8"	11 11/16"	DOWNSTATION	531	1
	C3	2	12 X 0.6"	173'-5 1/4"	1'-2 5/8"	11 11/16"	DOWNSTATION	534	2
BACK SPAN CANOPY	C5	2	12 X 0.6"	97'-5 1/4"	8 1/16"	6 7/16"	UPSTATION	519	3
MAIN & BACK SPAN CANOPY	C1	2	12 X 0.6"	272'-11 1/2"	1'-11 7/16"	1'-7 1/16"	UPSTATION	556	4
	C4	2	12 X 0.6"	272'-9 1/4"	1'-11 7/16"	1'-7 1/16"	UPSTATION	556	5

NOTE: PLEASE REFER TO B-109 & B-110 FOR OVERALL STRESSING SEQUENCE



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CANOPY PT PLAN

FIU PEDESTRIAN BRIDGE
MIAMI, FL

MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)

PER FOOT COMMENTS DATED 06/26 & 27/17
 PER EOR COMMENT DATED 05/01/17
 PER 90% DRAWINGS DATED FEB.2017

NO. DATE DESCRIPTION
 4 07/19/17
 1 05/19/17
 0 04/29/17

CONSTRUCTION
 APPROVAL
 APPROVAL

SM
 SM
 SM

BY
 BY
 BY

4 07/19/17
 1 05/19/17
 0 04/29/17

NO. DATE DESCRIPTION

PER FOOT COMMENTS DATED 06/26 & 27/17
 PER EOR COMMENT DATED 05/01/17
 PER 90% DRAWINGS DATED FEB.2017

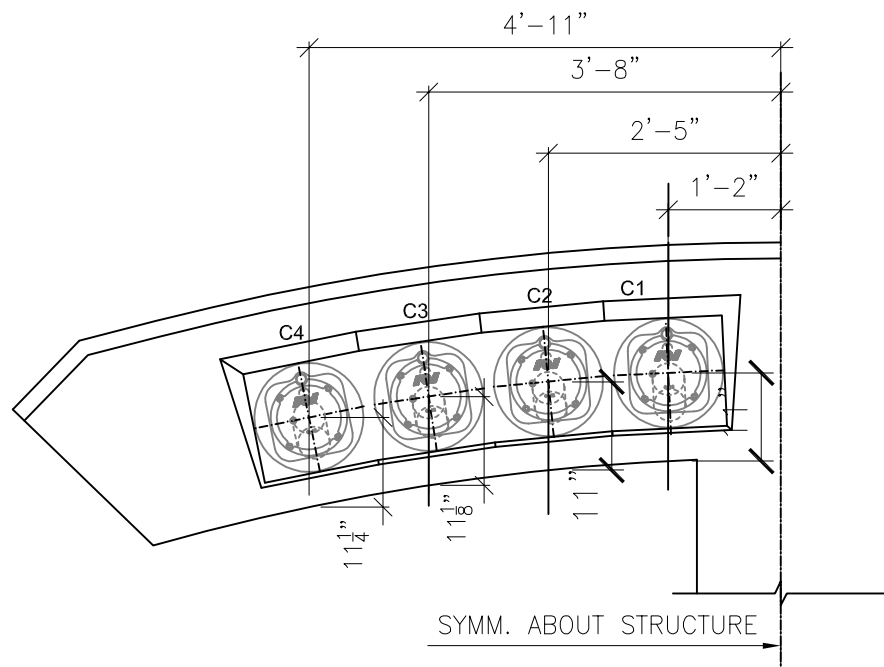
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 APPROVAL
 APPROVAL

SM
 SM
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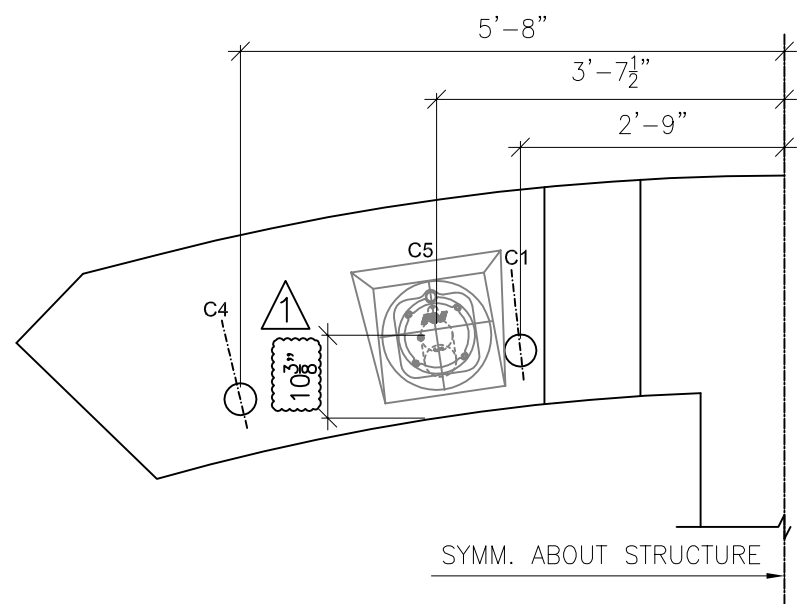
BY
 BY
 BY

SCALE: VARIES
 JOB NO: 420582
 SHEET: PT03

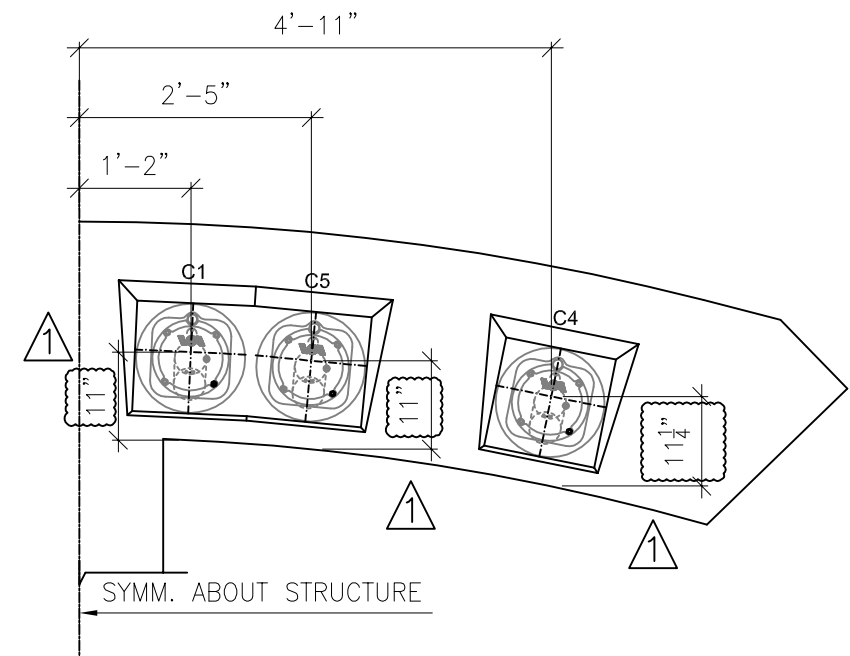
structural TECHNOLOGIES
 A Hensel Group Company
 STRUCTURAL TECHNOLOGIES/VSL, LLC 2001 Blount Road
 Pompano Beach, FL 33069 Phone: 954/489-3981
 Pompano Beach, FL 33069 Fax: 954/489-3982
 Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA



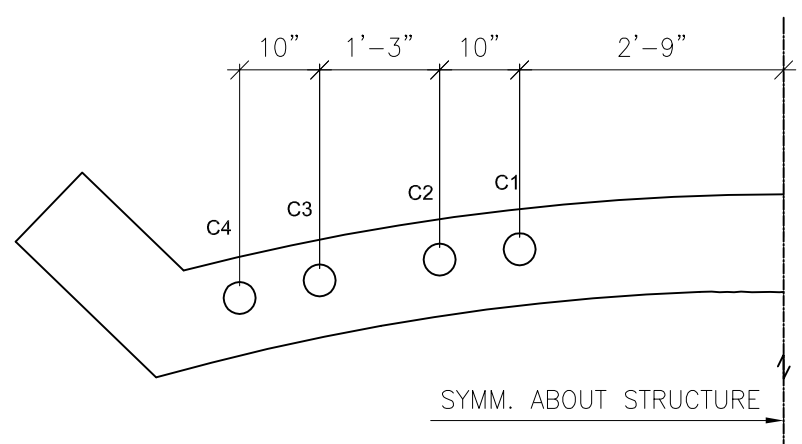
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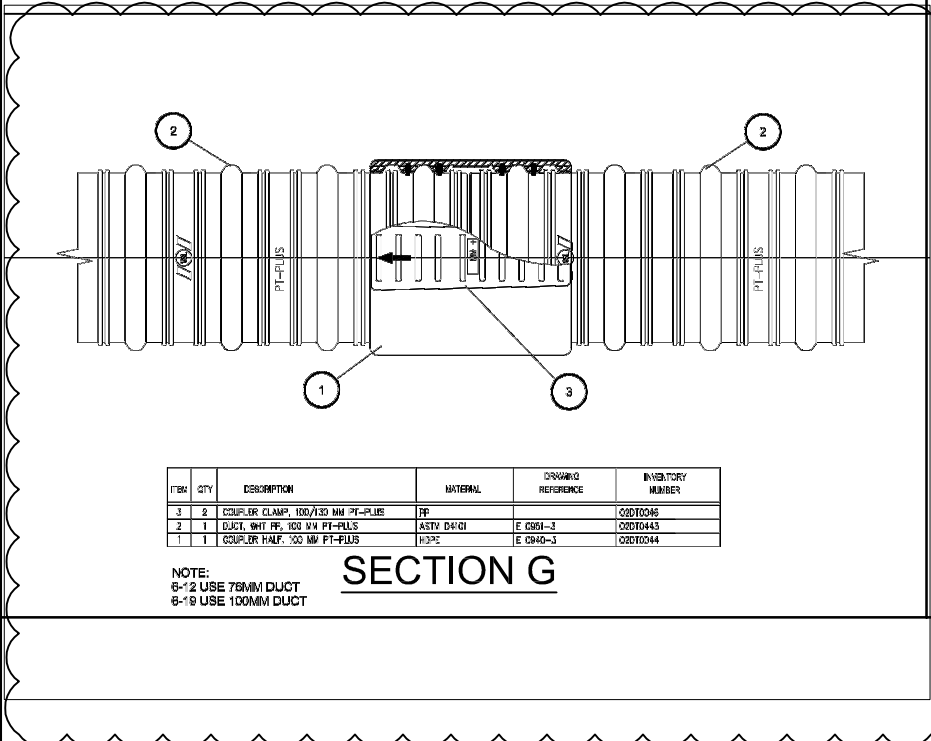
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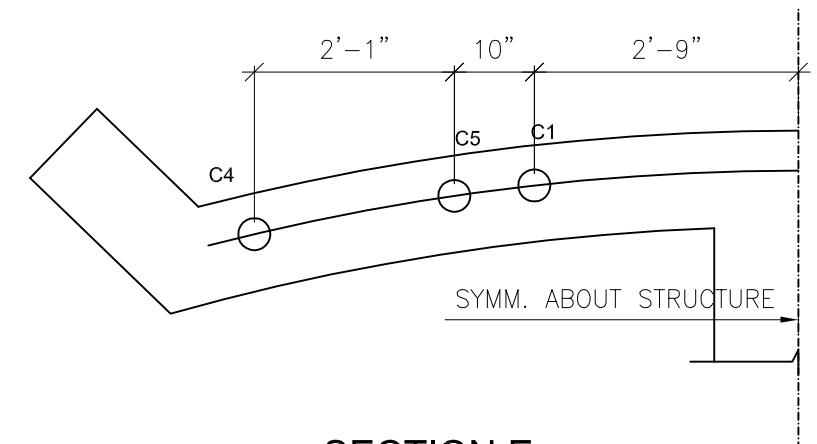
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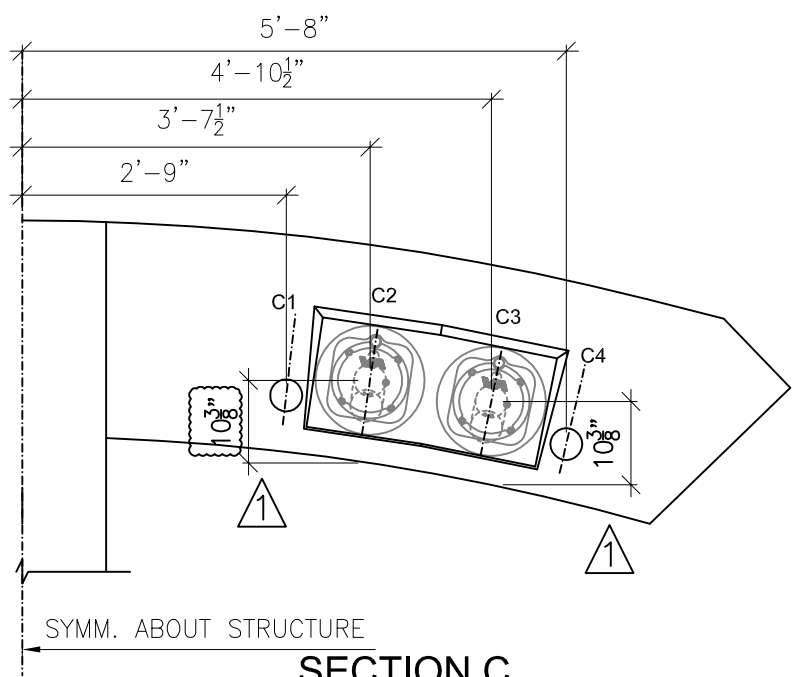
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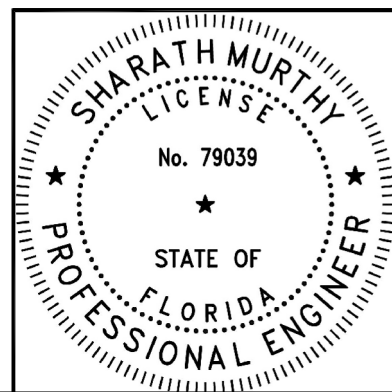
SECTION G



SECTION E



SECTION C



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1	05/19/17	PER EOR COMMENT DATED 05/01/17	APPROVAL	GP	SM
0	04/28/17	PER 90% DRAWINGS DATED FEB.2017	APPROVAL	GP	SM

structural TECHNOLOGIES
 A structural Group Company

Phone: 954/489-3991
 Fax: 954/489-3992

STRUCTURAL TECHNOLOGIES/VSL, LLC 2001 Blount Road
 Pompano Beach, FL 33069

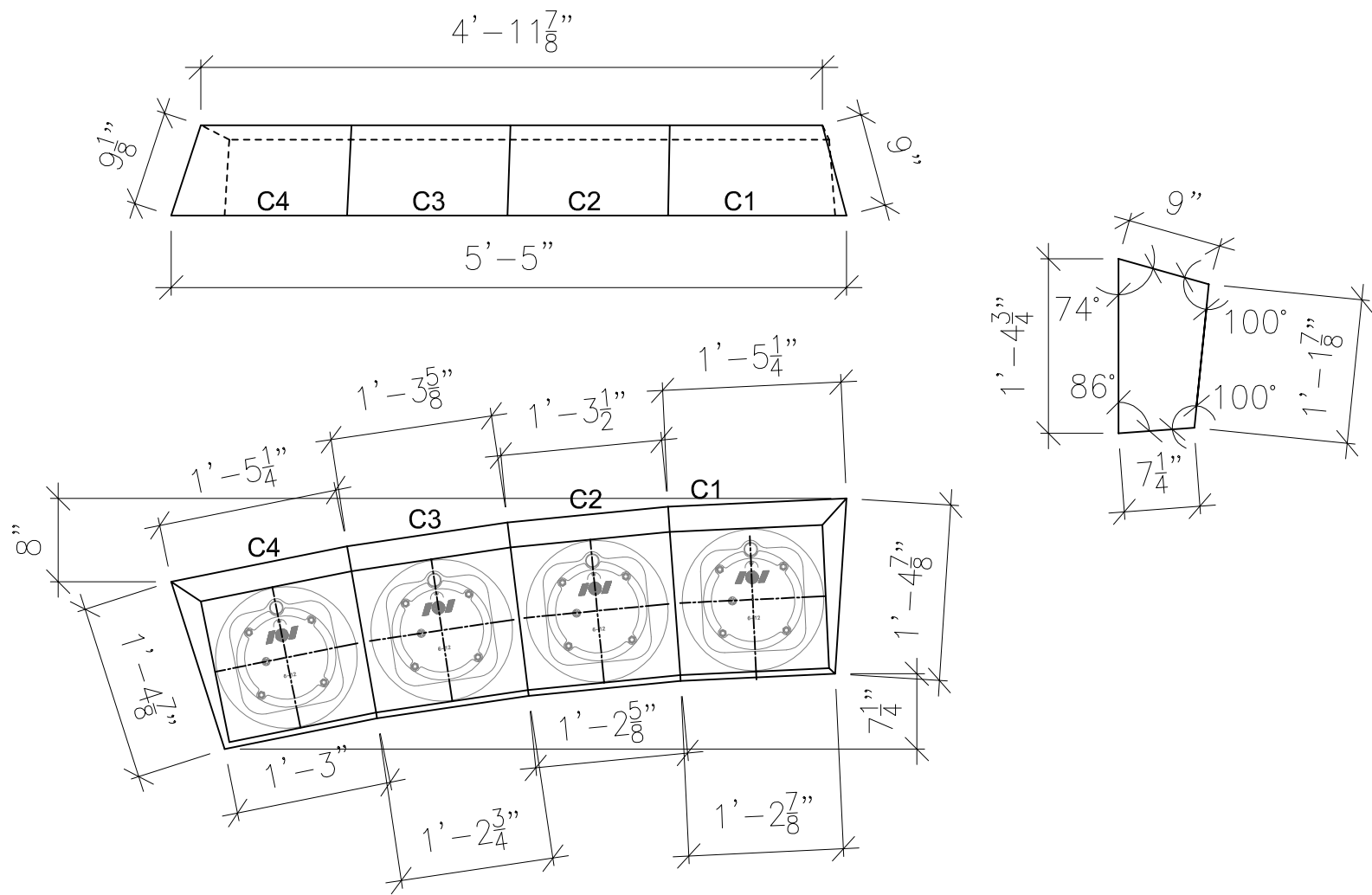
Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA

CANOPY PT DETAILS

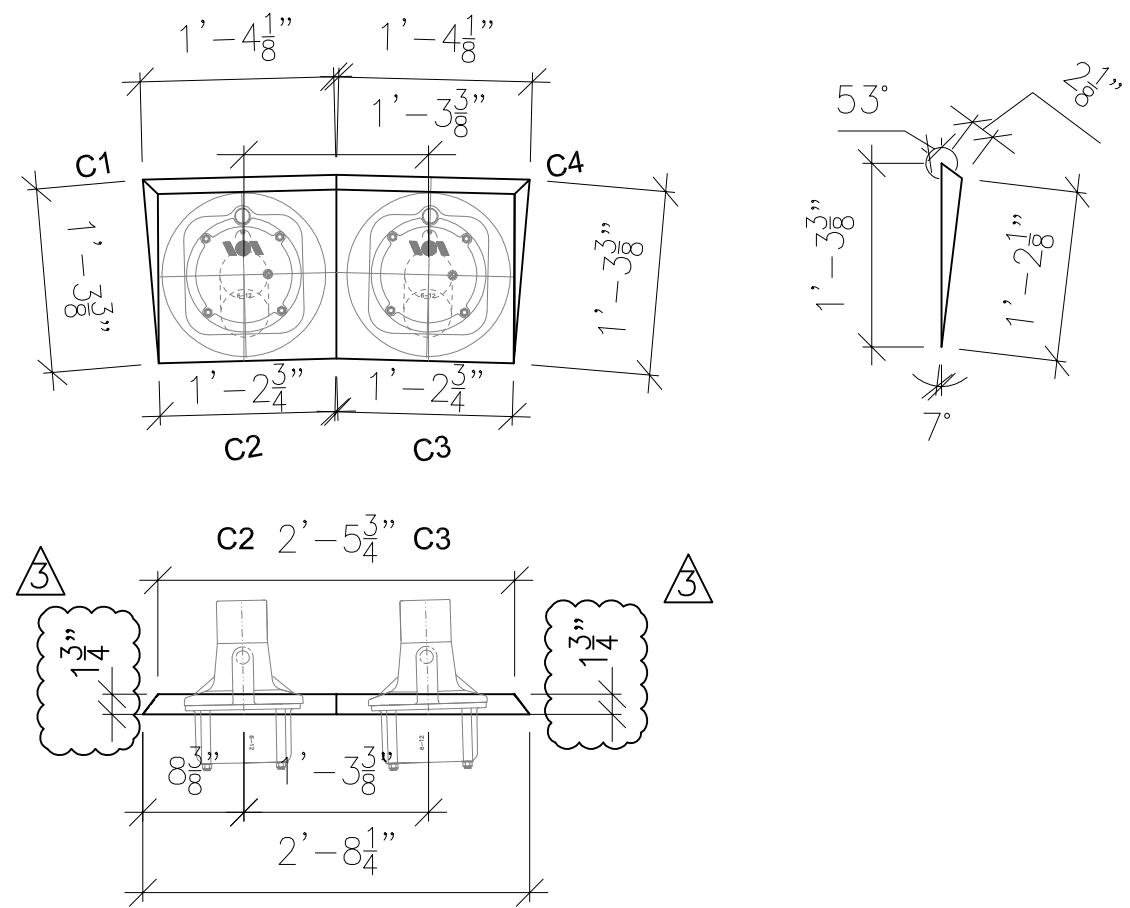
FIU PEDESTRIAN BRIDGE
 MIAMI, FL

MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)

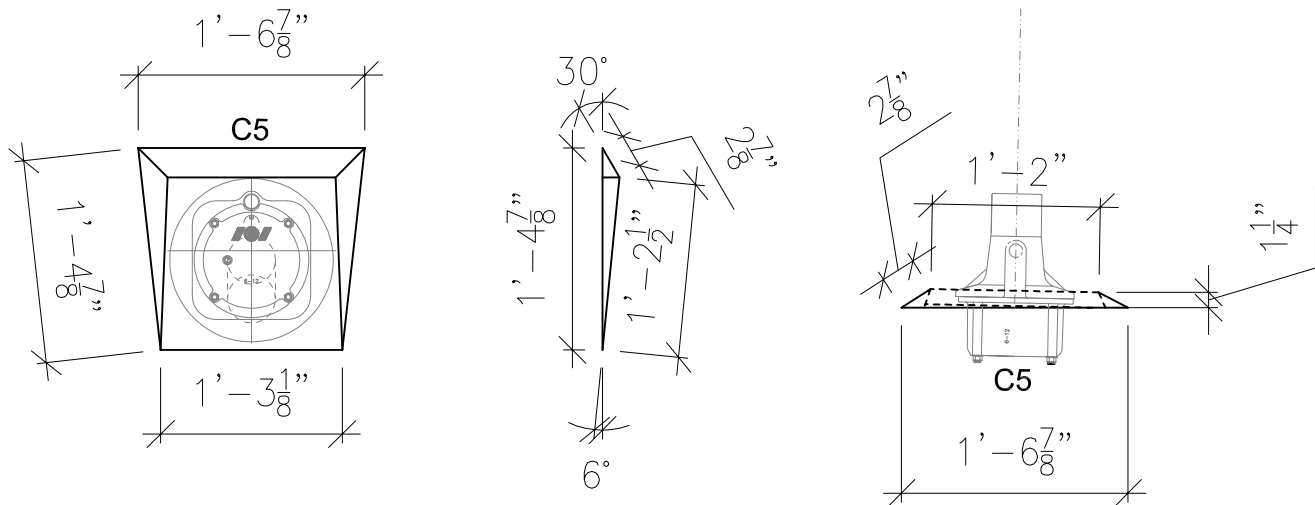
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JOB NO:	420582
SHEET:	PT03.1



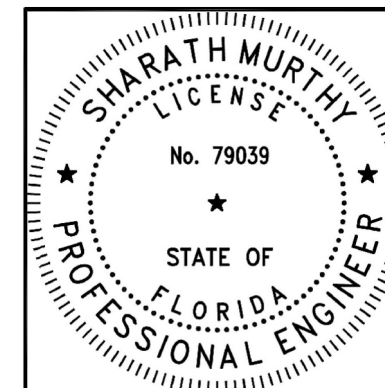
BLOCKOUT DETAIL B1



BLOCKOUT DETAIL B2



BLOCKOUT DETAIL B3



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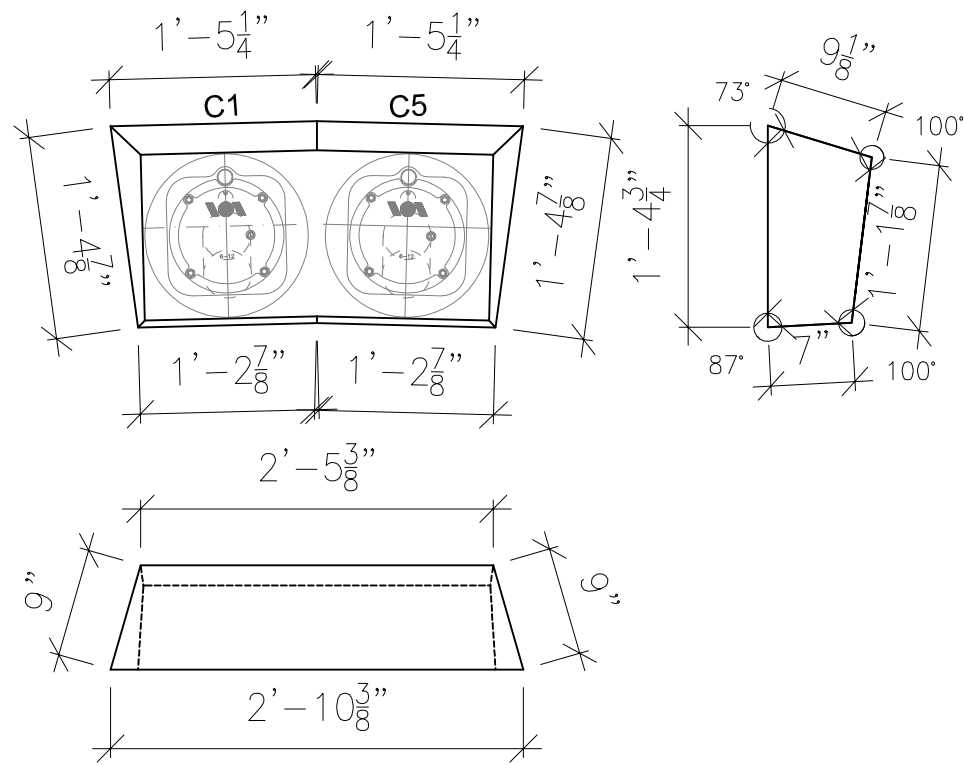
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0	04/26/17	PER 90% DRAWINGS DATED FEB.2017		APPROVAL	GP	SM

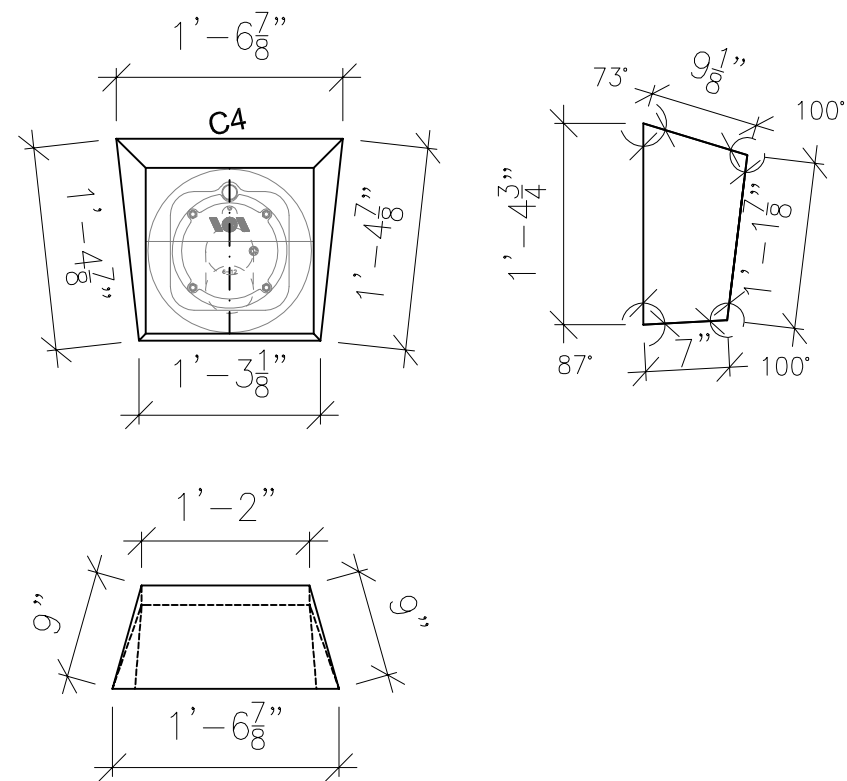
structural
 TECHNOLOGIES
 A Structural Group Company
 2001 Blount Road
 Pompano Beach, FL 33069
 Phone: 954/489-3981
 Fax: 954/489-3982
 Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA

CANOPY PT BLOCKOUT DETAILS
 FIU PEDESTRIAN BRIDGE
 MIAMI, FL
 MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)

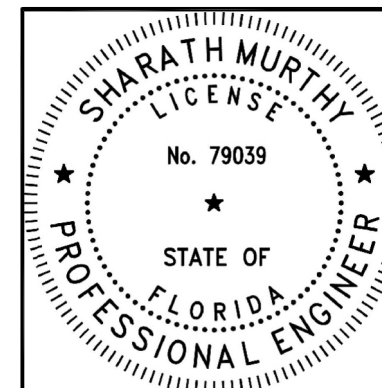
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 SHEET: PT03.2



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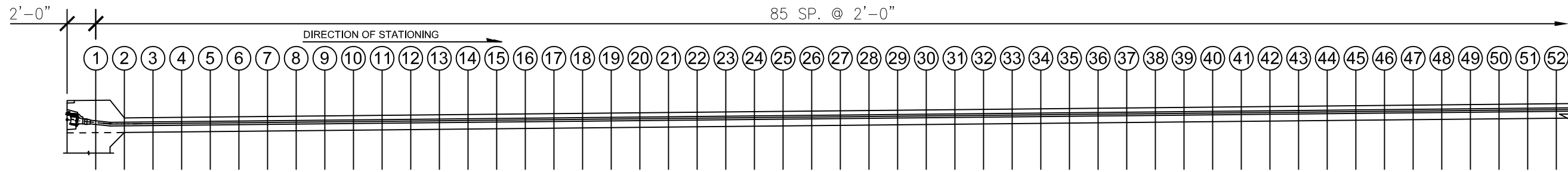
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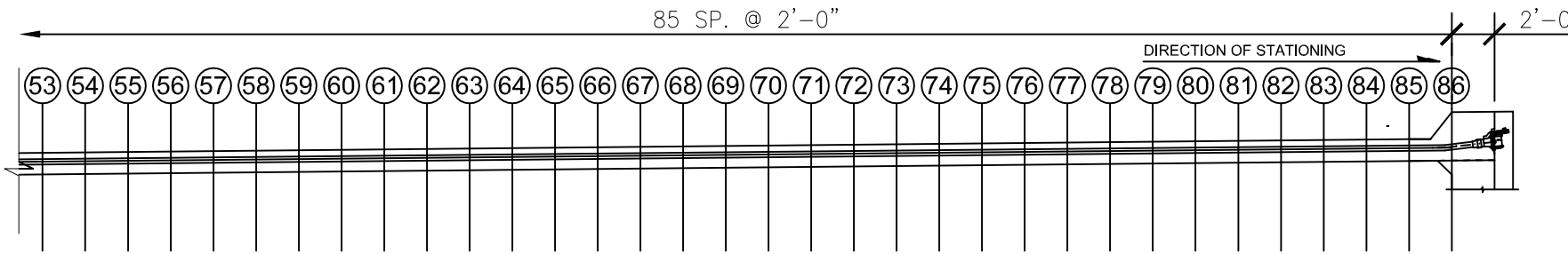
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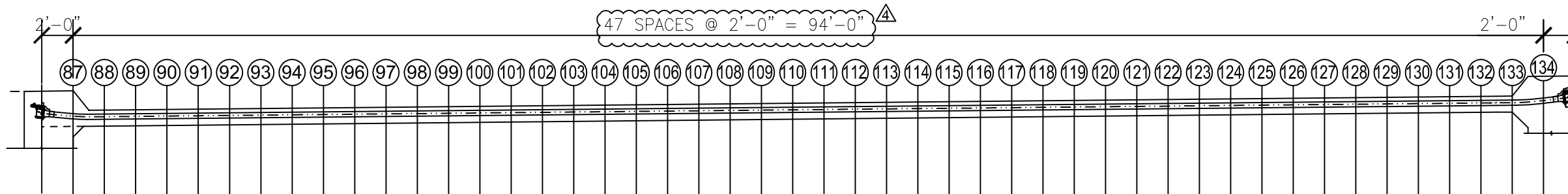
CANOPY PT BLOCKOUT DETAILS 2		 STRUCTURAL TECHNOLOGIES/VSL, LLC 2001 Blount Road Pompano Beach, FL, office: Pompano Beach, FL 33069 Phone: 954/489-3981 Fax: 954/489-3982		NO.	DATE	DESCRIPTION	ISSUED FOR	BY	CHK
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1	05/19/17	PER EOR COMMENT DATED 05/01/17				APPROVAL	GP	SM	
0	04/26/17	PER 90% DRAWINGS DATED FEB.2017				APPROVAL	GP	SM	
FIU PEDESTRIAN BRIDGE MIAMI, FL		MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)							
SCALE: VARIES		JOB NO: 420582		SHEET: PT03.3					



MAIN SPAN
SCALE: 1/8" = 1'-0"



MAIN SPAN
SCALE: 1/8" = 1'-0"



BACK SPAN
SCALE: 1/8" = 1'-0"

TENDON SUPPORT HEIGHT SCHEDULE (MAIN SPAN CANOPY)

TENDON DESIGNATION	1	2 THRU 85	86
C1	**	5 1/4"	5 1/4"
C2	**	5 1/4"	**
C3	**	5 1/4"	**
C4	**	5 1/4"	5 1/4"

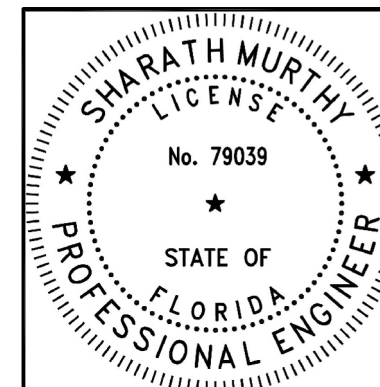


TENDON SUPPORT HEIGHT SCHEDULE (BACK SPAN CANOPY)

TENDON DESIGNATION	87	88 THRU 133	134
C1	5 1/4"	5 1/4"	**
C4	5 1/4"	5 1/4"	**
C5	**	5 1/4"	**



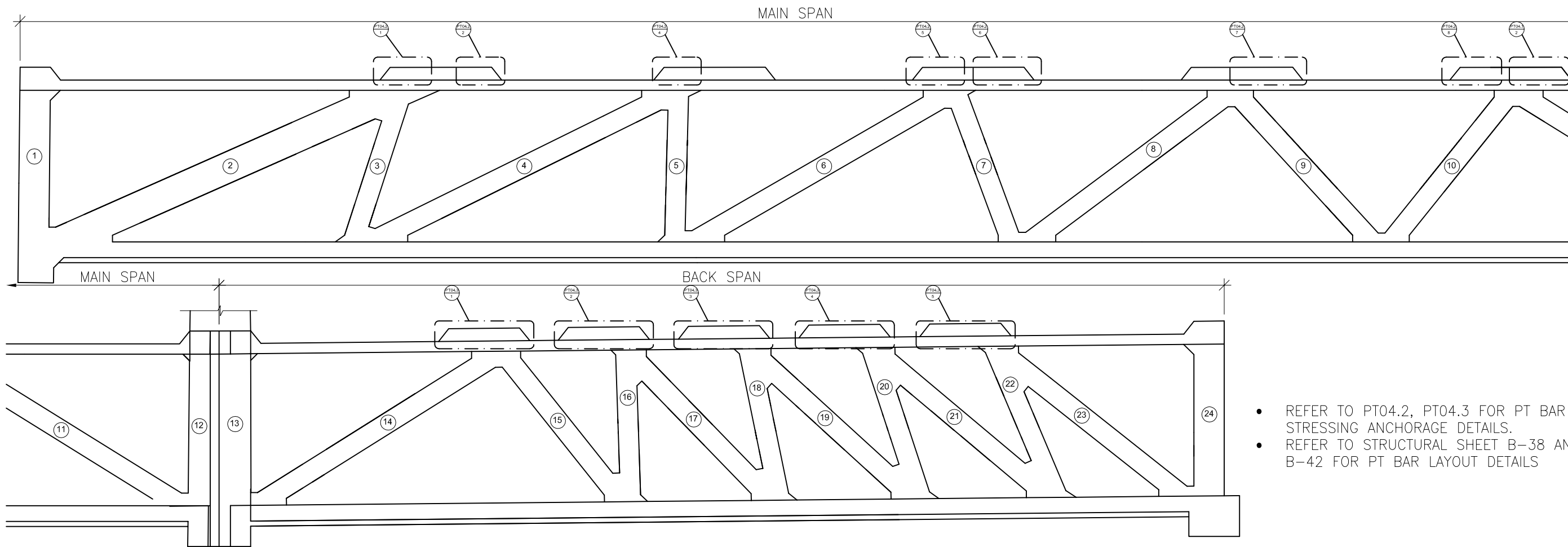
** INDICATES ANCHORAGE
DIMENSION IS FROM BOTTOM OF SOFFIT TO BOTTOM OF DUCT



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 Phone: 954/489-3981 2001 Blount Road Pompano Beach, FL 33069 Fax: 954/489-3982 Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA	4	07/19/17	PER FOOT COMMENTS DATED 06/26 & 27/17	CONSTRUCTION	SM
	3	08/22/17	PER EOR COMMENT DATED 05/25/17	CONSTRUCTION	SM
	1	05/19/17	PER EOR COMMENT DATED 05/01/17	APPROVAL	SM
	0	04/28/17	PER 90% DRAWINGS DATED FEB.2017	APPROVAL	SM
CANOPY PT PROFILE		NO.	DATE	DESCRIPTION	BY
FIU PEDESTRIAN BRIDGE					CHK
MIAMI, FL					
MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)					
SCALE: VARIES					
JOB NO: 420582					
SHEET: PT03.4					

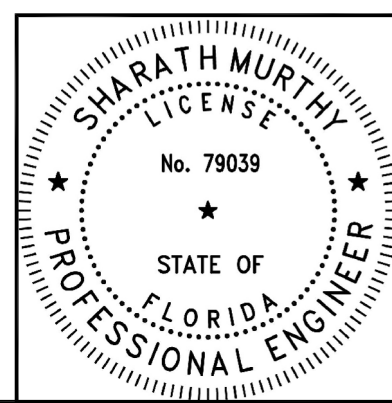


- REFER TO PT04.2, PT04.3 FOR PT BAR STRESSING ANCHORAGE DETAILS.
- REFER TO STRUCTURAL SHEET B-38 AND B-42 FOR PT BAR LAYOUT DETAILS

P.T. BAR DATA TABLE

LOCATION	BAR DESIG.	NO. REQ.	BAR SIZE	BAR LENGTH (ft-in)	BAR LENGTH FROM PT SHOP DWG (ft-in)	JACKING FORCE / BAR (kips)	STRESSING END*	THEORETICAL ELONGATION (in)	STRESS SEQUENCE	REMARK
2	A	1	1 3/4"	42'-11"	44'-3/8"	280	UPSTATION	1.87	1	NO GROUT, TO BE DESTRESSED
	B	1	1 3/4"	42'-9"	43'-9 3/8"	280	UPSTATION	1.86	2	NO GROUT, TO BE DESTRESSED
3	A	4	1 3/4"	18'-1"	19'-1 3/8"	280	UPSTATION	0.79	5	
5	A	2	1 3/8"	17'-6"	18'-3 11/16"	166	UPSTATION	0.76	7	
6	A	2	1 3/4"	34'-9 3/4"	36'-4 3/8"	280	UPSTATION	1.52	9	
7	A	1	1 3/4"	18'-4"	19'-4 3/8"	280	UPSTATION	0.80	10	
8	A	4	1 3/4"	29'-0 3/4"	30'-1"	280	UPSTATION	1.27	8	
10	A	4	2 1/2"	22'-0"	22'-7"	389	UPSTATION	0.68	6	
	B	1	1 3/4"	33'-0"	34'-0 3/8"	280	UPSTATION	1.44	3	NO GROUT, TO BE DESTRESSED
11	A	1	1 3/4"	33'-0"	34'-0 3/8"	280	UPSTATION	1.44	3	NO GROUT, TO BE DESTRESSED
	B	1	1 3/4"	33'-2 1/4"	34'-2 5/8"	280	UPSTATION	1.45	4	NO GROUT, TO BE DESTRESSED
15	A	4	1 3/4"	21'-11 3/4"	23'-0"	240	UPSTATION	0.82	12	
16	A	1	1 3/8"	17'-6"	18'-3 3/4"	142	UPSTATION	0.65	14	
17	A	4	1 3/8"	24'-4"	25'-1 3/4"	166	UPSTATION	1.06	16	
18	A	1	1 3/8"	17'-9 3/4"	18'-7 1/2"	119	UPSTATION	0.56	18	
19	A	2	1 3/8"	25'-10 1/2"	26'-8 1/4"	166	UPSTATION	1.12	20	
20	A	1	1 3/8"	18'-4 1/2"	19'-2 1/4"	142	UPSTATION	0.68	19	
21	A	2	1 3/8"	27'-1 1/4"	27'-11"	119	UPSTATION	0.84	17	
22	A	2	1 3/8"	18'-11 1/4"	19'-8"	166	UPSTATION	0.82	15	
23	A	2	1 3/8"	28'-1"	28'-10 3/4"	119	UPSTATION	0.88	13	
DIAPHRAGM/13		2	1 3/8"	8'-0 1/2"	9'-5"	50	UPSTATION	0.11	11	SEE STRUCTURAL B-46 FOR MORE DETAILS

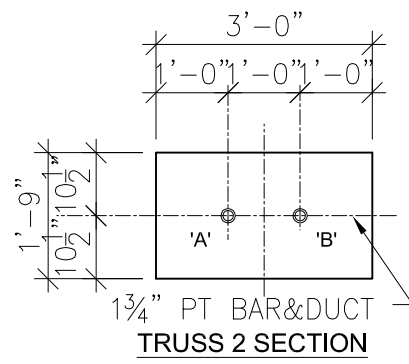
- NOTE:
- FOR VERTICAL TENDONS AND BARS, UPSTATION DENOTES TOP ANCHOR, DOWNSTATION DENOTES BOTTOM ANCHOR
 - MIN CONCRETE STRENGTH AT STRESSING = 6000 PSI
 - MIN CONCRETE COVER TO PT BAR (DEAD END) IS 2" (T.Y.P)
 - MIN CONCRETE COVER TO PT BAR GROUT CAP (STRESSING END) IS 2-1/4" (T.Y.P)
 - BEARING PLATE SIZE:
 1-3/8" BAR - 6" X 6" X 1-1/2"
 1-3/4" BAR - 8" X 8" X 2"
 2-1/2" BAR - 10" X 10" X 2-1/4"
 - PLEASE REFER TO SHEET B-109 & B-110 FOR OVERALL STRESSING SEQUENCE
 - PT BAR WEIGHT
 1-3/8" - 5.71 LB/FT
 1-3/4" - 9.06 LB/FT
 2-1/2" - 18.20 LB/FT



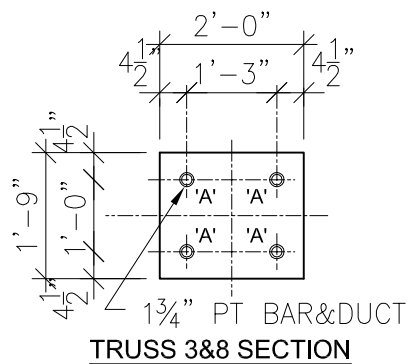
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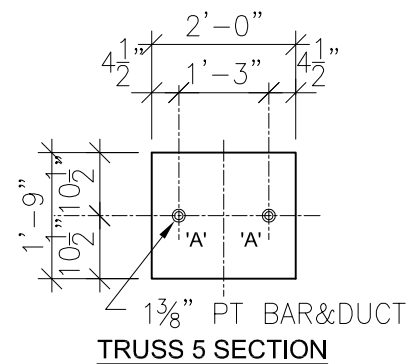
<p>STRUCTURAL TECHNOLOGIES VSL, LLC 2001 Blount Road Pompano Beach, FL 33069 Phone: 954/489-3991 Fax: 954/489-3992</p>	4	07/10/17	PER FOOT COMMENTS DATED 06/26 & 27/17	CONSTRUCTION	SM	BY	CHK
	3	09/26/17	PER EOR COMMENT	CONSTRUCTION	SM		
	1	09/19/17	PER EOR COMMENT DATED 05/01/17	APPROVAL	SM		
	0	04/26/17	PER 90% DRAWINGS DATED FEB.2017	APPROVAL	SM		
			NO.	DATE	DESCRIPTION		
TRUSS SYSTEM DETAILS		FIU PEDESTRIAN BRIDGE		MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)			
SCALE: Varies		JOB NO: 423729		SHEET: PT04			



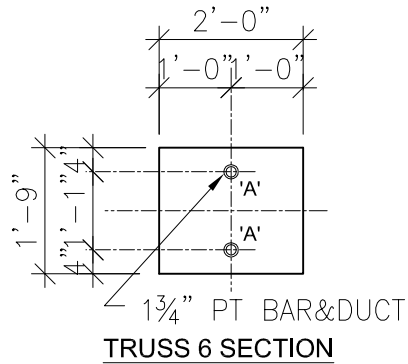
1 3/4" PT BAR&DUCT
TRUSS 2 SECTION



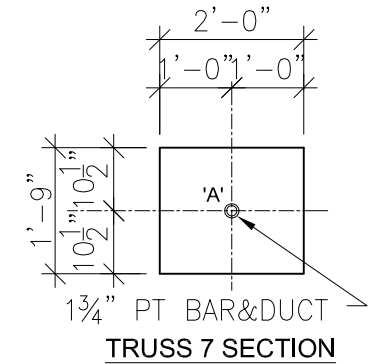
1 3/4" PT BAR&DUCT
TRUSS 3&8 SECTION



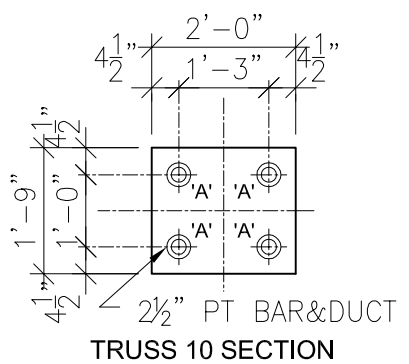
1 3/8" PT BAR&DUCT
TRUSS 5 SECTION



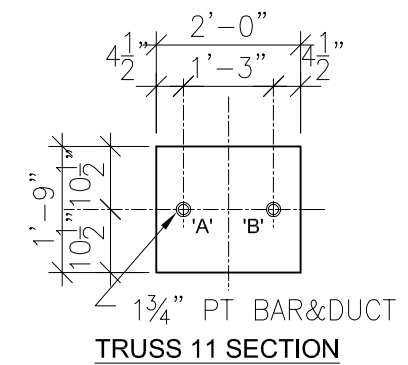
1 3/4" PT BAR&DUCT
TRUSS 6 SECTION



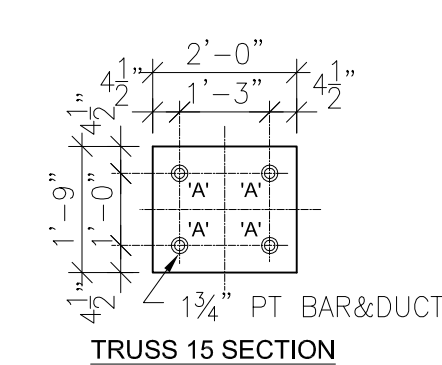
1 3/4" PT BAR&DUCT
TRUSS 7 SECTION



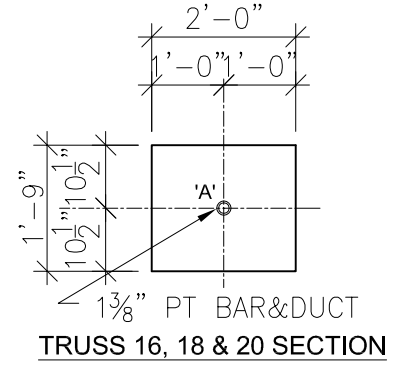
2 1/2" PT BAR&DUCT
TRUSS 10 SECTION



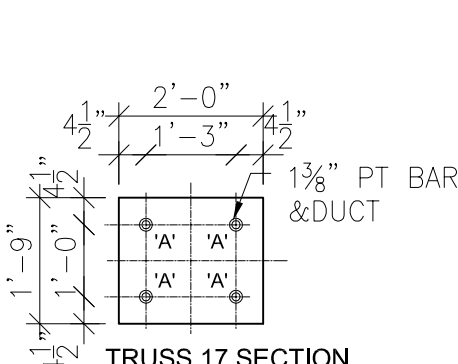
1 3/4" PT BAR&DUCT
TRUSS 11 SECTION



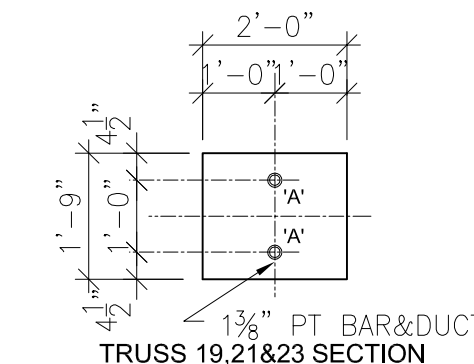
1 3/4" PT BAR&DUCT
TRUSS 15 SECTION



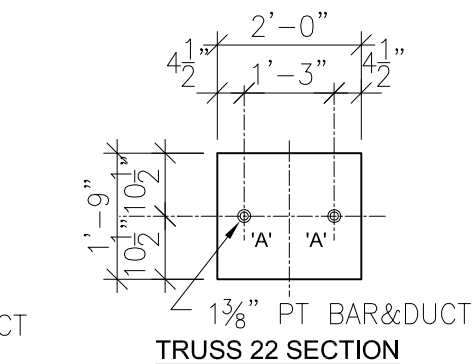
1 3/8" PT BAR&DUCT
TRUSS 16, 18 & 20 SECTION



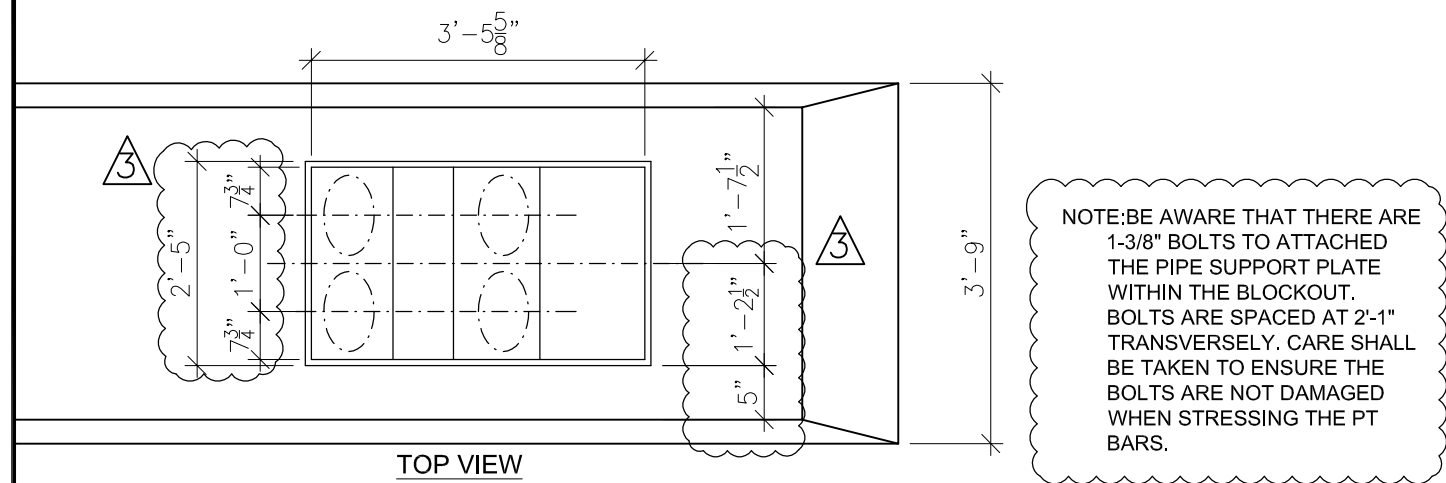
1 3/8" PT BAR & DUCT
TRUSS 17 SECTION



1 3/8" PT BAR&DUCT
TRUSS 19, 21 & 23 SECTION

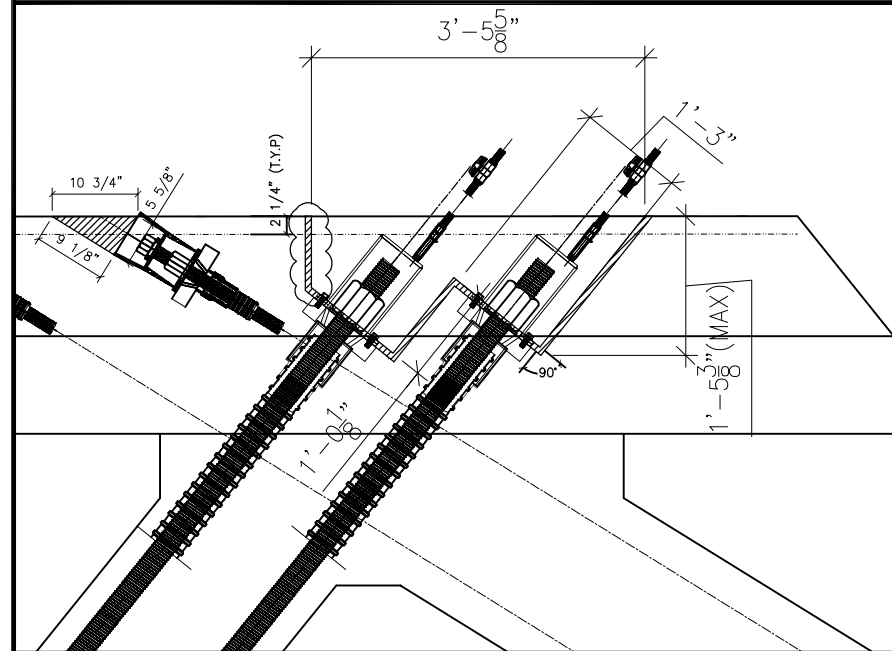


1 3/8" PT BAR&DUCT
TRUSS 22 SECTION

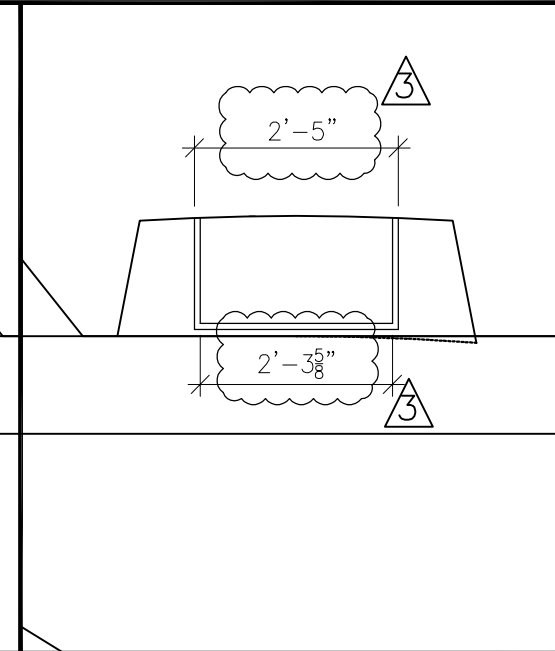


TOP VIEW

NOTE: BE AWARE THAT THERE ARE 1-3/8" BOLTS TO ATTACHED THE PIPE SUPPORT PLATE WITHIN THE BLOCKOUT. BOLTS ARE SPACED AT 2'-1" TRANSVERSELY. CARE SHALL BE TAKEN TO ENSURE THE BOLTS ARE NOT DAMAGED WHEN STRESSING THE PT BARS.

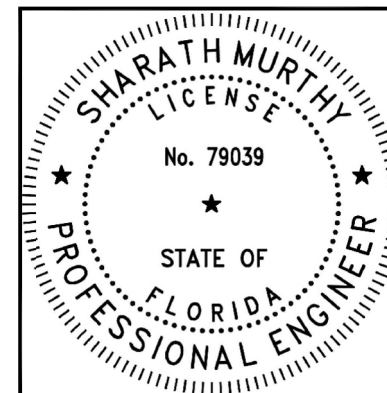


SIDE VIEW



FRONT VIEW

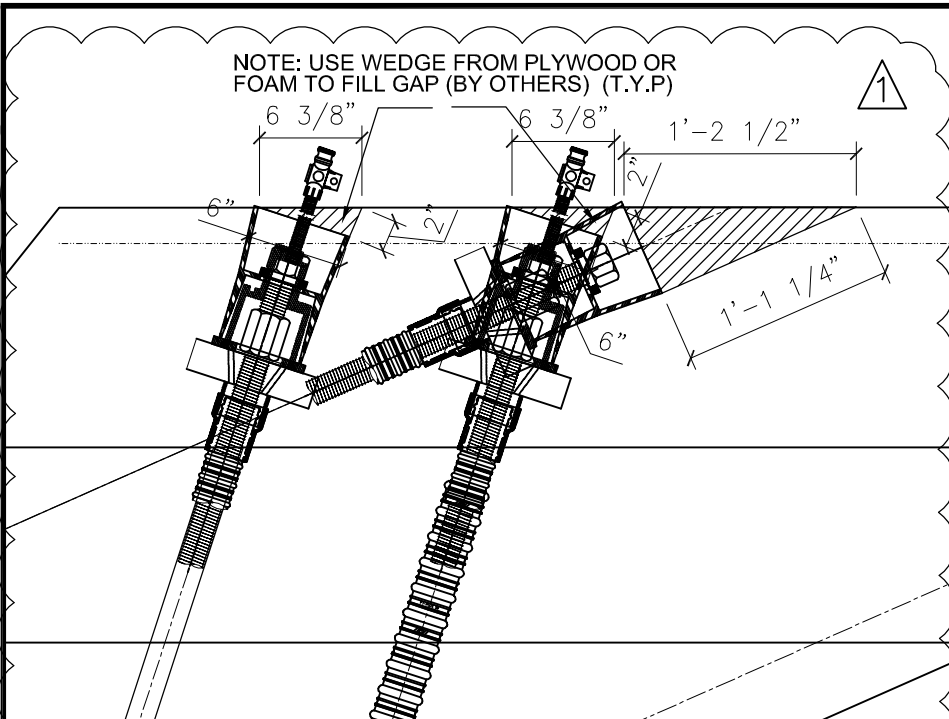
PT04.1- 2. MEMBER 10, 2-1/2" PT BAR BLOCK-OUT (BY OTHERS)



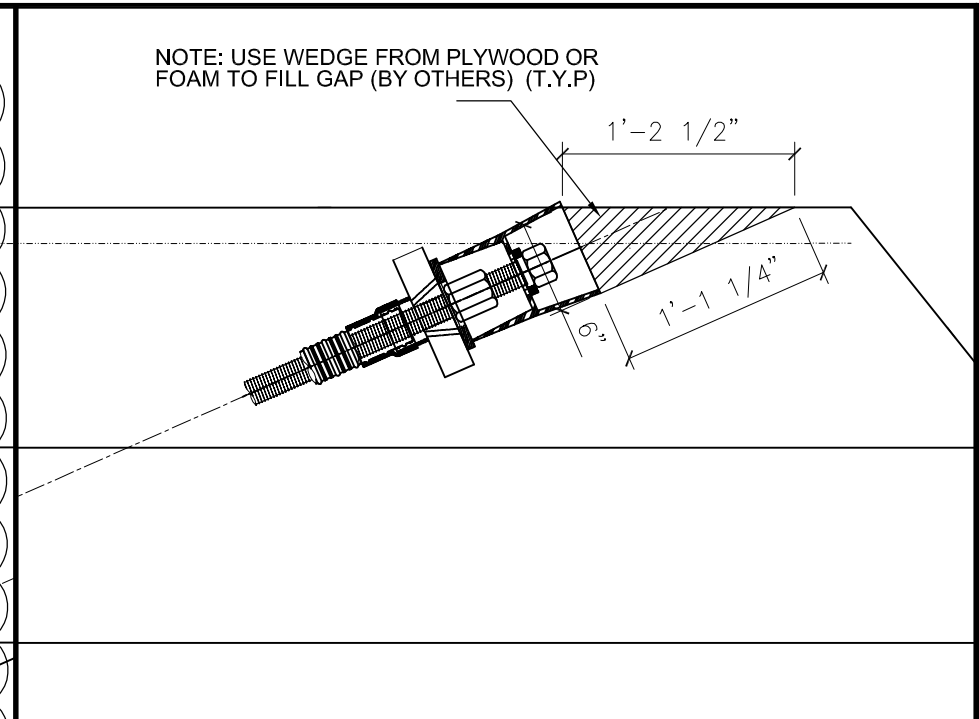
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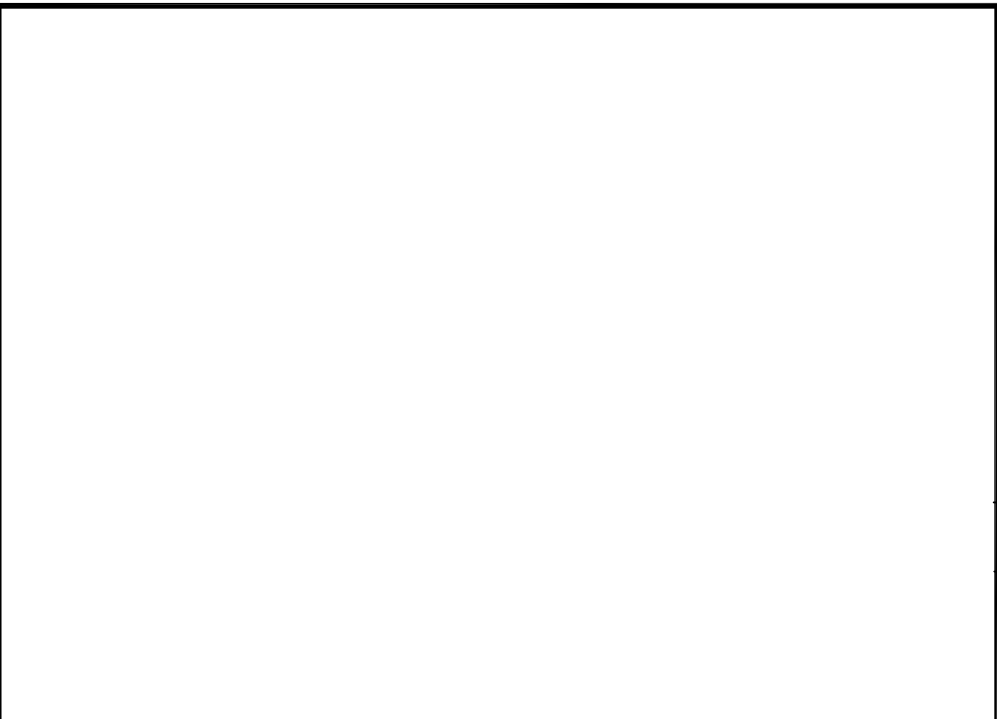
SM	SM	SM	SM	BY	CHK
CONSTRUCTION	CONSTRUCTION	APPROVAL	APPROVAL	ISSUED FOR	
PER FDOT COMMENTS DATED 06/26 & 27/17	PER EOR COMMENT DATED 05/25/17	PER EOR COMMENT DATED 05/01/17	PER 90% DRAWINGS DATED FEB 2017	DESCRIPTION	
4	3	1	0	NO.	DATE
		Phone: 954/489-3991 2001 Blount Road Pompano Beach, FL 33069 Fax: 954/489-3992		Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA	
TRUSS SYSTEM		PT BAR DETAILS		FIU PEDESTRIAN BRIDGE	
				MIAMI, FL	
				MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)	
SCALE:		VARIES			
JOB NO:		423729			
SHEET:		PT04.1			



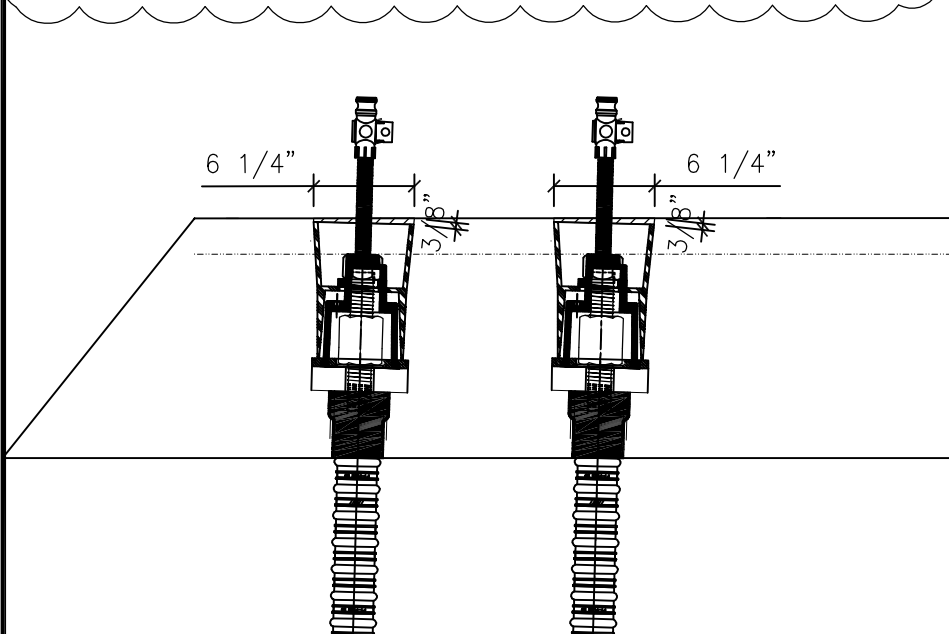
1 1"=1'-0" BLOCKOUT DETAIL_MEMBER 2 & 3



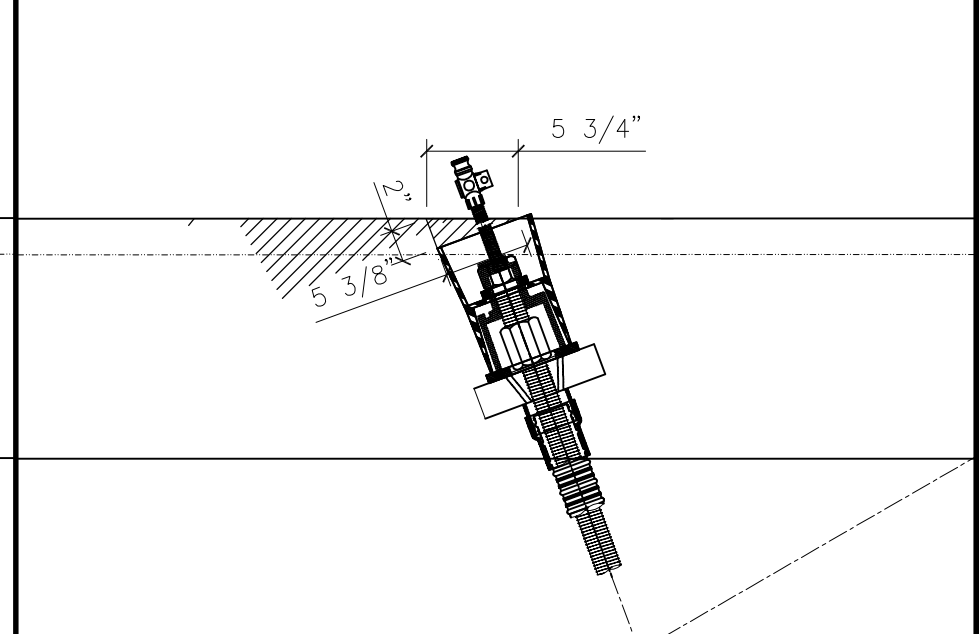
2 1"=1'-0" BLOCKOUT DETAIL_MEMBER 2 TOP



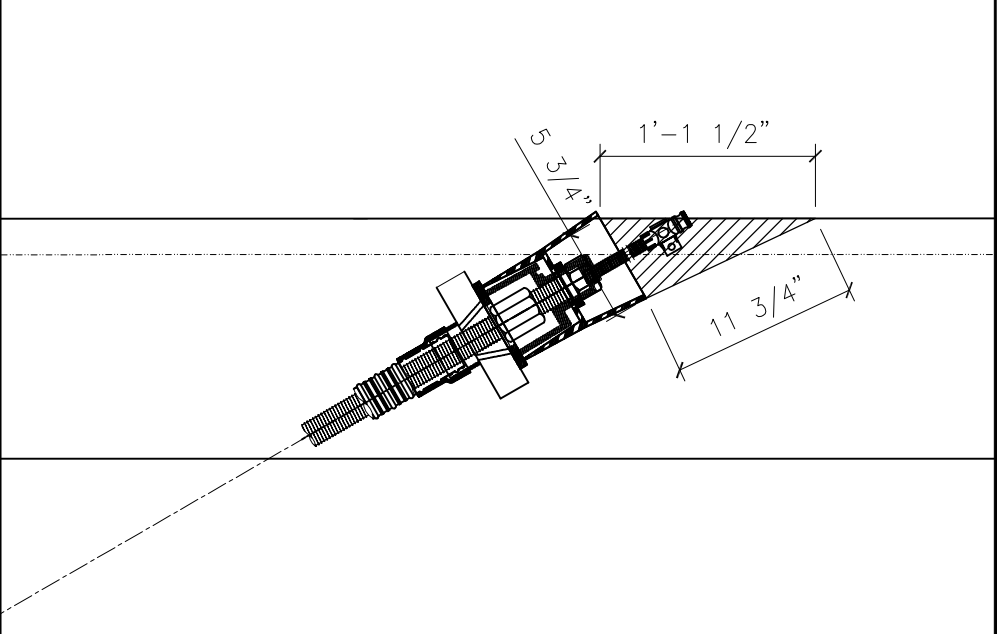
3 1"=1'-0" NOT USED



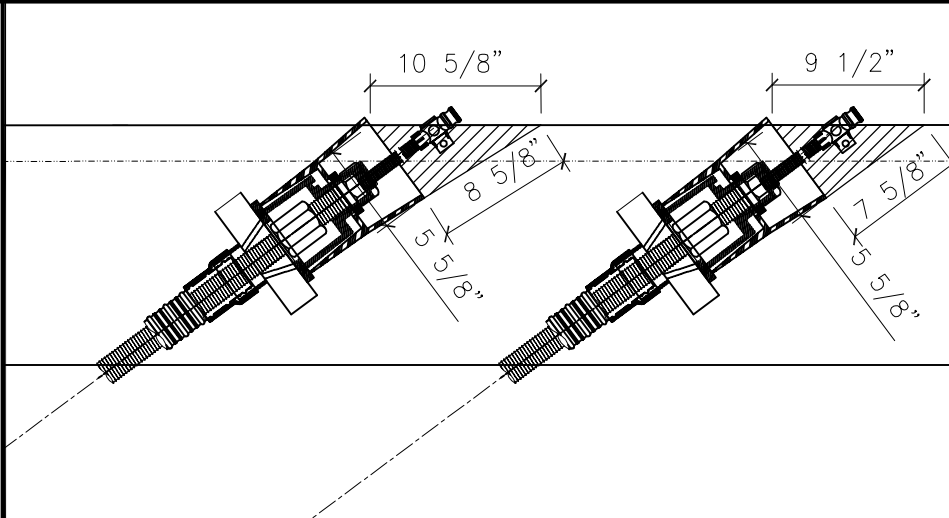
4 1"=1'-0" BLOCKOUT DETAIL_MEMBER 5



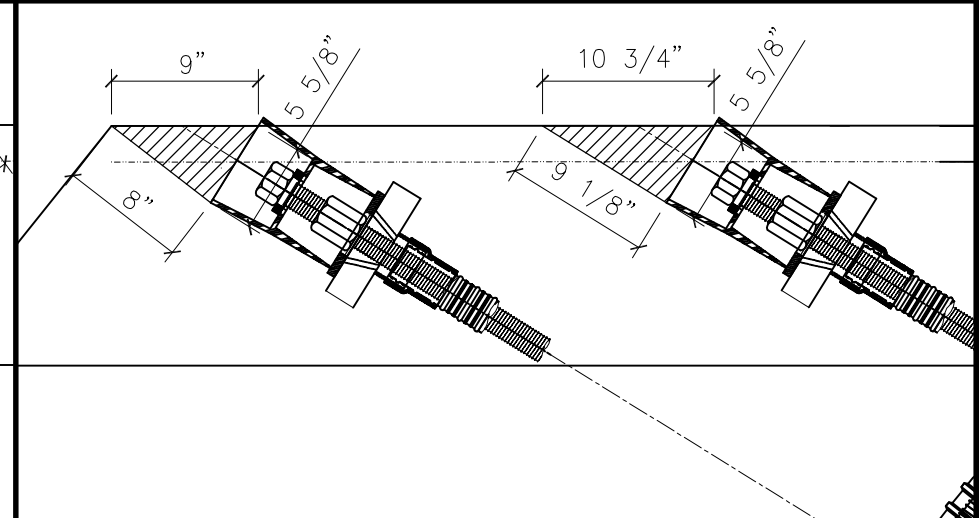
5 1"=1'-0" BLOCKOUT DETAIL_MEMBER 7



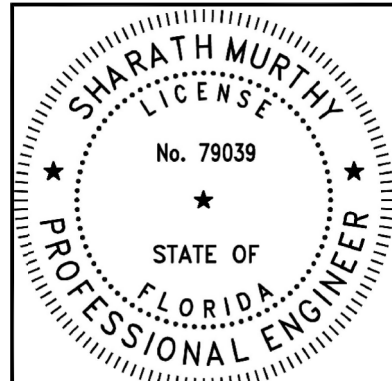
6 1"=1'-0" BLOCKOUT DETAIL_MEMBER 6



7 1"=1'-0" BLOCKOUT DETAIL_MEMBER 8



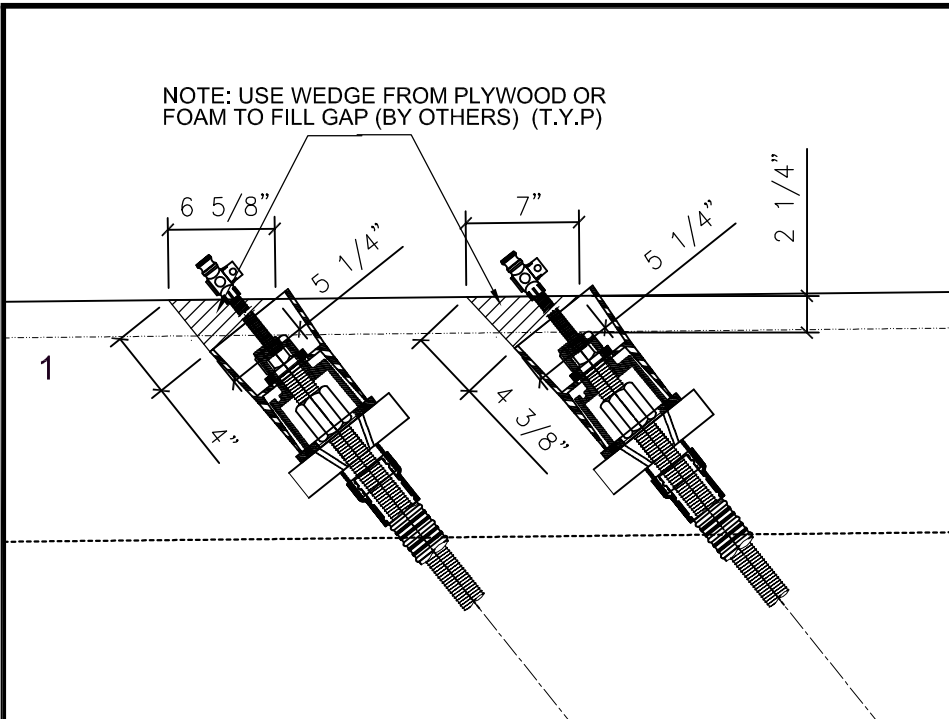
8 1"=1'-0" BLOCKOUT DETAIL_MEMBER 11



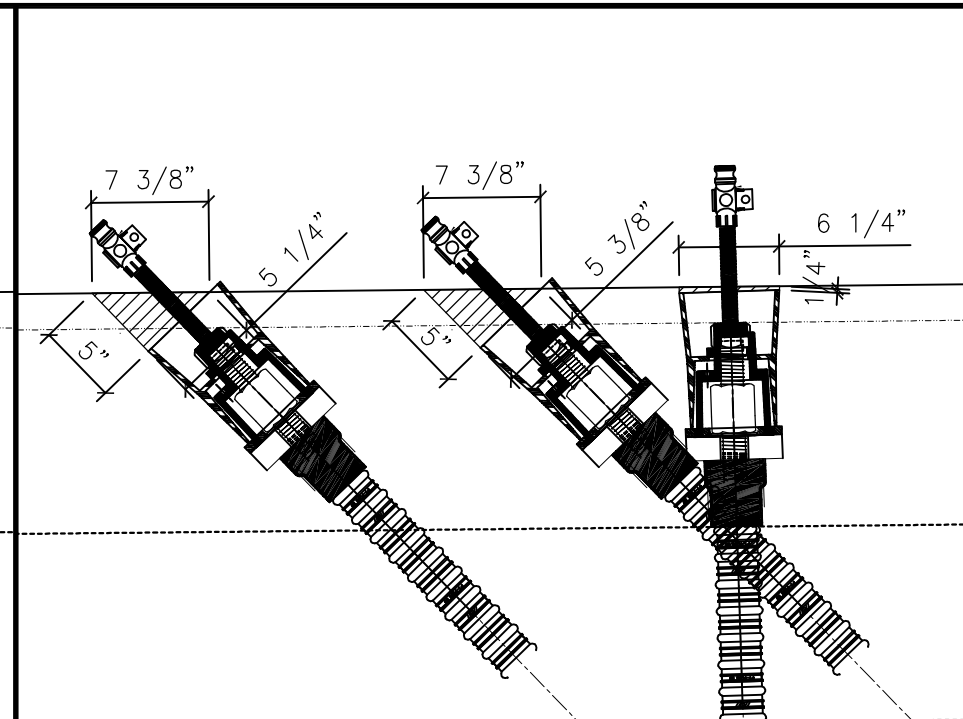
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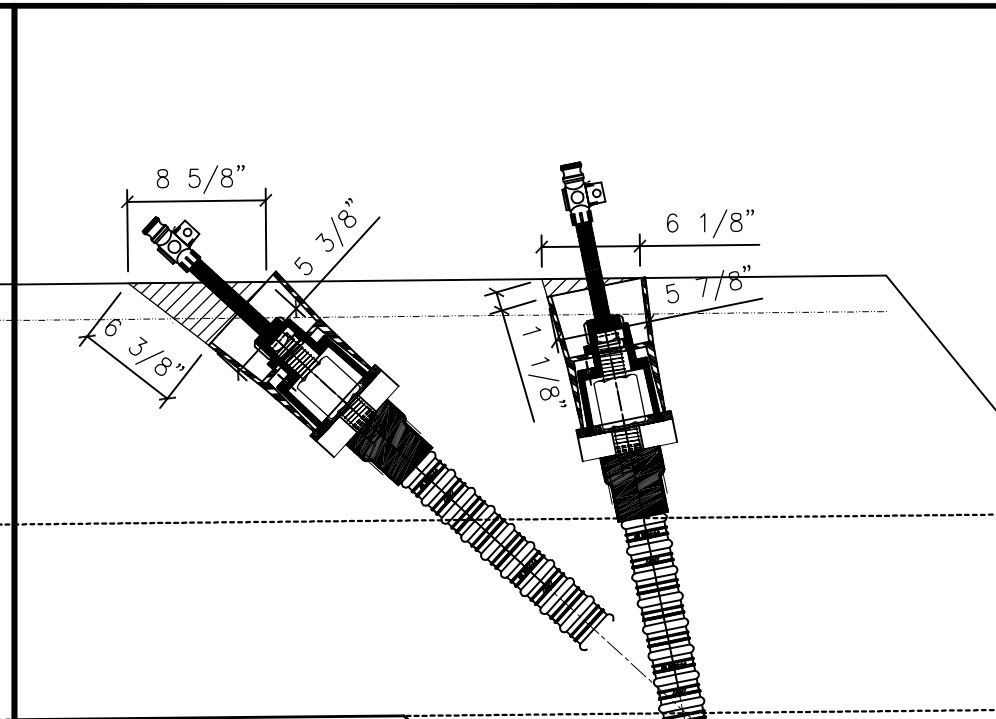
<p>STRUCTURAL TECHNOLOGIES A Structural Group Company</p> <p>Phone: 954/489-3991 STRUCTURAL TECHNOLOGIES, LLC 2001 Blount Road Pompano Beach, FL 33069 Pompano Beach, FL office: 954/489-3992</p> <p>Dallas, TX / Washington, DC / Denver, CO / Pompano Beach, FL / Atlanta, GA</p>	4	07/10/17	PER FOOT COMMENTS DATED 06/26 & 27/17	CONSTRUCTION	SM
	1	06/19/17	PER EOR COMMENT DATED 05/01/17	APPROVAL	SM
	0	04/29/17	PER 90% DRAWINGS DATED FEB.2017	APPROVAL	SM
	NO.	DATE	DESCRIPTION	ISSUED FOR	BY
PT BAR BLOCK-OUT DETAILS_MAIN SPAN		FIU PEDESTRIAN BRIDGE MIAMI, FL			
MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)					
SCALE: VARIES		JOB NO: 423729			
SHEET: PT04.2					



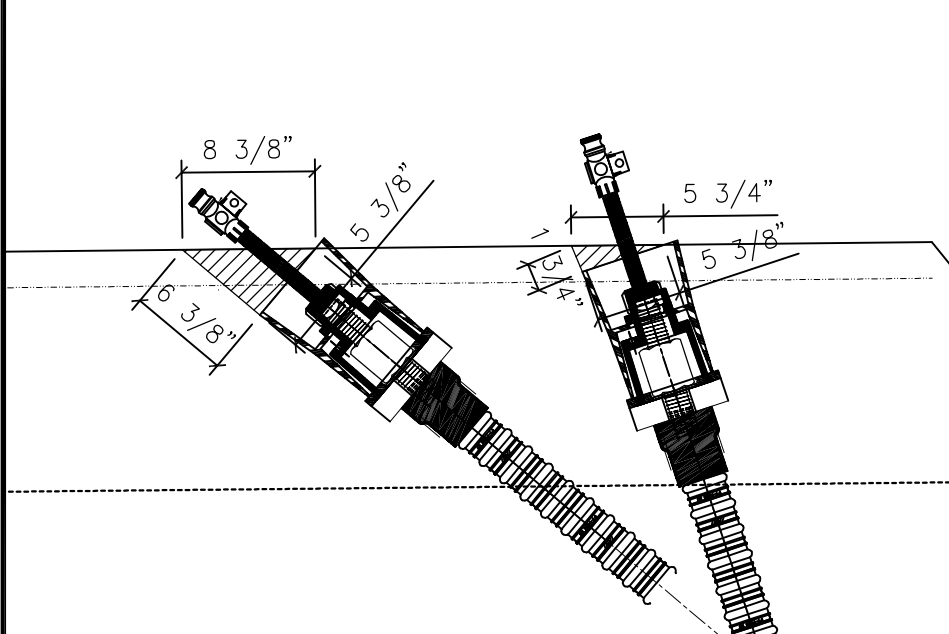
1 1"=1'-0" BLOCKOUT DETAIL_MEMBER 15



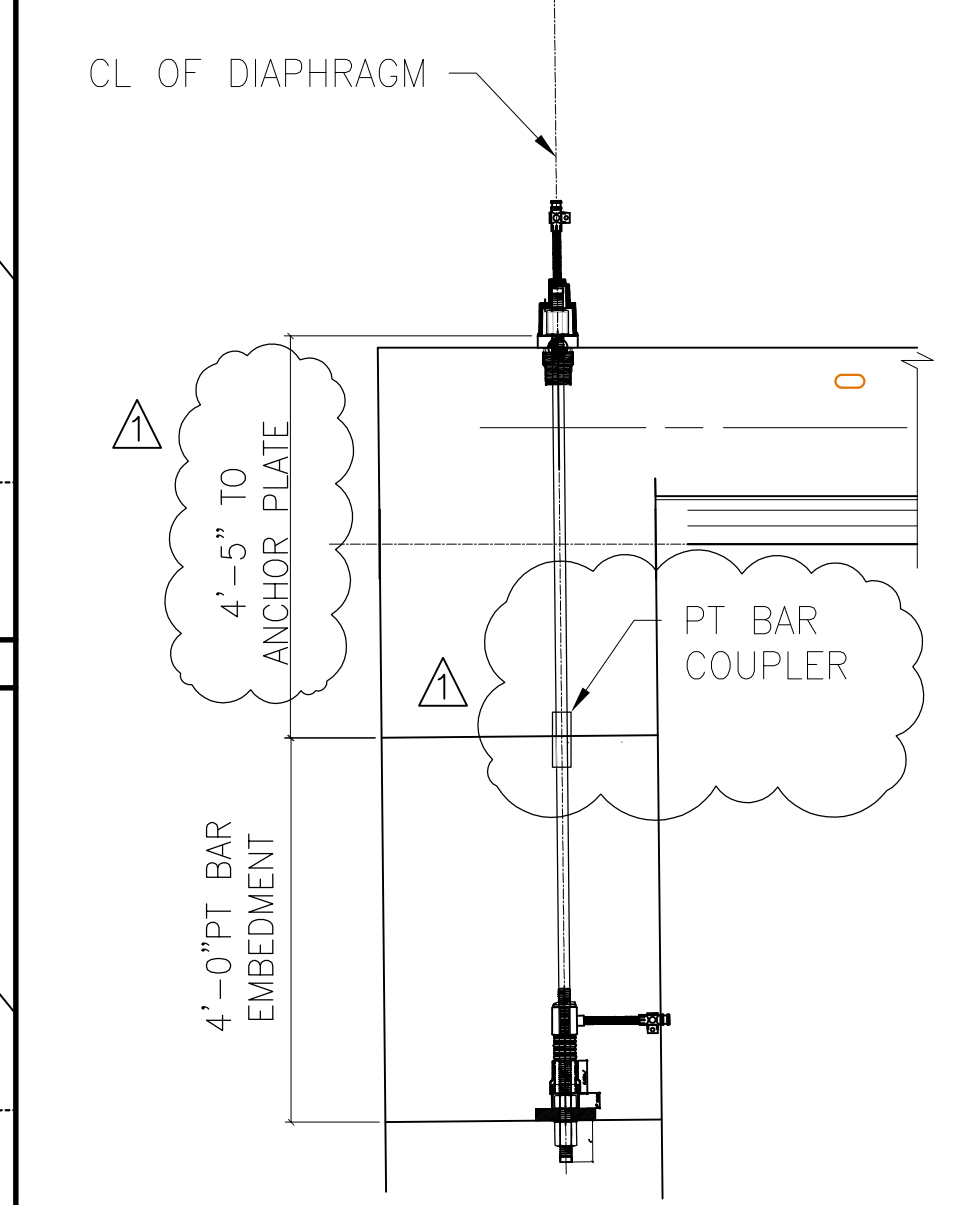
2 1"=1'-0" BLOCKOUT DETAIL_MEMBER 16 & 17



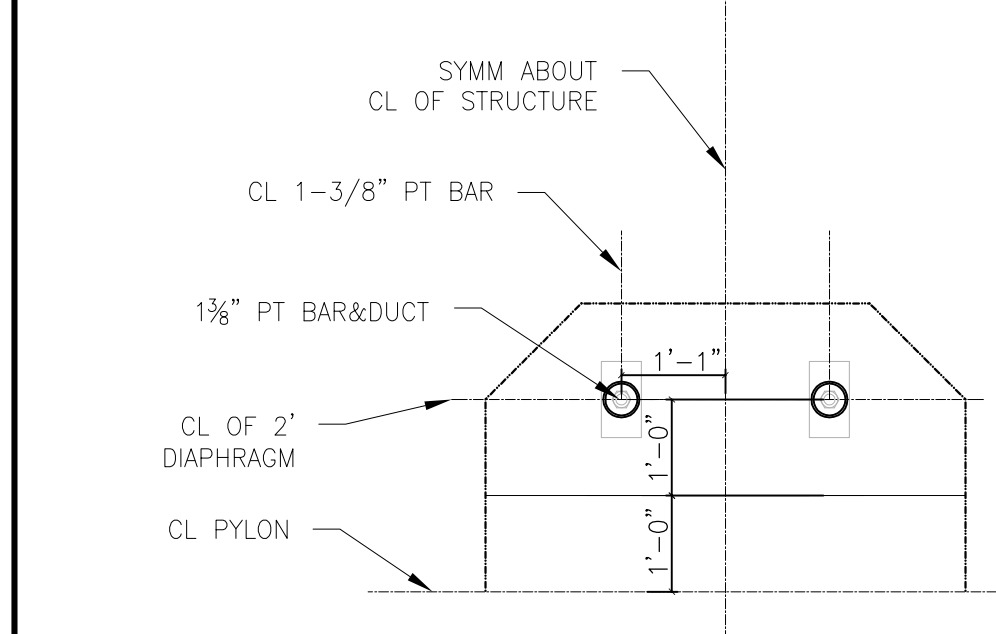
3 1"=1'-0" BLOCKOUT DETAIL_MEMBER 18 & 19



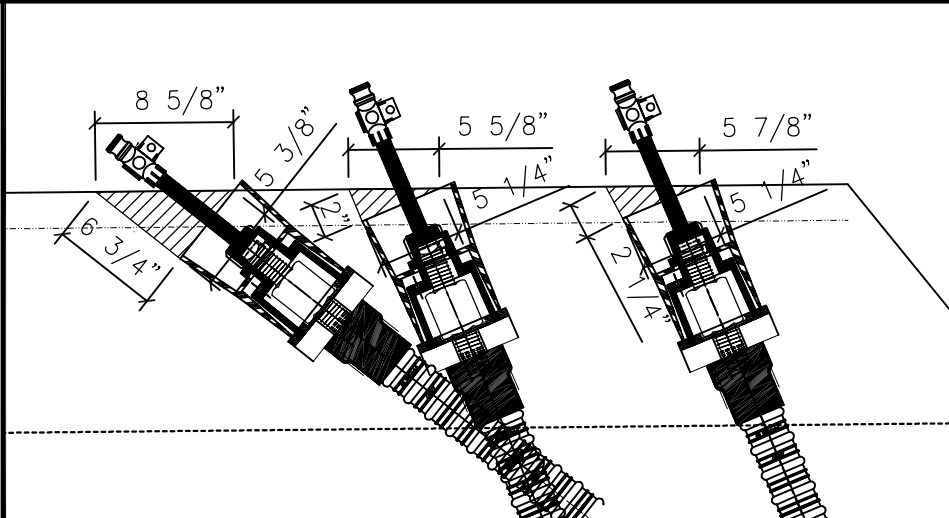
4 1"=1'-0" BLOCKOUT DETAIL_MEMBER 20 & 21



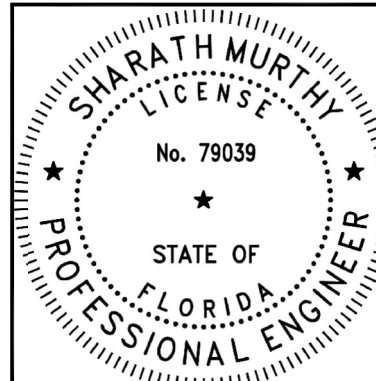
8 1/2"=1'-0" VERTICAL PT BAR AT DIAPHRAGM



6 1/2"=1'-0" VERTICAL PT BAR AT DIAPHRAGM_TOP VIEW



7 3/4"=1'-0" BLOCKOUT DETAIL_MEMBER 22 & 23



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	07/10/17	06/19/17	04/28/17	
	PER FOOT COMMENTS DATED 06/26 & 27/17	PER EOR COMMENT DATED 05/01/17	PER 90% DRAWINGS DATED FEB 2017	
	4	1	0	
	NO.	DATE	DESCRIPTION	BY
				CHK
PT BAR BLOCK-OUT DETAILS 2		FIU PEDESTRIAN BRIDGE MIAMI, FL MUNILLA CONSTRUCTION MANAGEMENT, LLC (MCM)		
SCALE: VARIES		JOB NO: 423729		
SHEET: PT04.3				

**NCS 6-12 & 6-19 SYSTEM
LOCAL ZONE REINFORCEMENT DESIGN**

FIU PEDESTRIAN BRIDGE

MIAMI, FL

07/10/2017

JOB # 420582

Performed By:

STRUCTURAL TECHNOLOGIES, LLC

2001 Blount Rd

Pompano Beach, FL 33069

954-489-3991 (P)

954-489-3992 (F)



VStructural LLC

SUBJECT : Main Span Longitudinal - 6-12 system
rev1

PROJECT: 420582 FIU Bridge

DESIGNED BY Guangfeng Peng

PAGE : 1

DATE : 7/10/2017

MATERIALS

CONCRETE 28th DAY STRENGTH $f'_c = 6,500$ psi
 CONCRETE STRENGTH AT STRESSING $f'_{ci} = 6,000$ psi
 CONCRETE TYPE [1 or 2] 1 NWC
 REINFORCEMENT REBAR YIELD STRENGTH $f_y = 60$ ksi
 POST-TENSIONING STRANDS $f_{pu} = 270$ ksi

DESIGN PARAMETERS

LOAD FACTOR $\gamma = 1.2$
 CALIBRATION FACTOR $\eta = 1.00$
 STRENGTH REDUCTION FACTOR
 (Per AASHTO LRFD Specifications Article 5.5.4.2)
 $\phi = 0.80$

ANCHORAGE DATA

SIZE OF P/T STRAND 0.60 in
 $A_p = 0.217$ sq. in.
 JACKING STRESS 0.75
 VSL ANCHOR ECI 6-12
 NUMBER OF STRANDS $n_s = 12$
 DIAMETER OR SIDE OF BEARING PLATE $d_p = 9.88$ in
 RADIUS OF CORNER (ECI ONLY) $r_p = 2.76$ in
 DIAMETER OF HOLE $d_h = 3.7$ in
 SUPPORTING CONCRETE Long : $a = 20.00$ in
 Short : $b = 16.00$ in

ANCHOR : ECI 6-12
 STRANDS : 12 - 0.6" DIA.
 SPIRAL : dia= 13.00 in.
 size # 4 bar
 pitch= 2.5 in.
 # of turns= 7
 TIES : none

DESIGN FORCE

Factored Load, P_u

$$P_u = \gamma * n_s * A_{ps} * f_{jack}$$

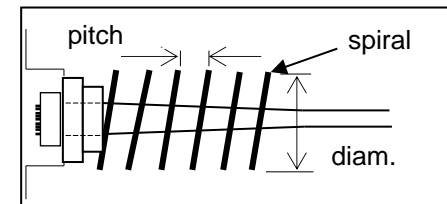
$$= 632.77 \text{ k}$$

Due to spiral confinement Reinforcement

Effective area confined by spiral:

$$A_{cs} = \frac{D^{2*} \pi * (1 - \frac{p}{2*D})^2 - A_d}{4}$$

$$= 97.68 \text{ sq. in.}$$



BEARING PLATE

Gross bearing plate area $A_b = 91.08$ sq. in.
 Duct Opening $A_d = 10.75$ sq. in.
 Net bearing plate area $A_{bn} = 80.32$ sq. in.

Lateral confinement from spiral

Limit to 1.2 ksi ? **y**

$$f_{lat_s} = \frac{2 * A_s * f_y}{D * p}$$

$$= 0.74 \text{ ksi} \leq 1.20 \text{ ksi OK}$$

SUPPORTING CONCRETE

Effective Short Dimension:
 $b = 16.00$
 $3d_p = 29.64$ $b_{eff} = 16.00$ in
 Effective Long Dimension:
 $a = 20.00$
 $3d_p = 29.64$
 $4b_{eff} - 3d_p = 34.36$ $a_{eff} = 20.00$ in
 Supporting area:
 $A = a_{eff} * b_{eff} = 320.00$ sq. in.

Local Strength due to spiral Reinforcement

$$P_s = 4 * f_{lat_s} * A_{cs}$$

$$= 288.54 \text{ k}$$

Local Strength due to Confinement of Orthogonal Ties

Effective area confined by ties:

$$\alpha_x = A \tan\left[\frac{s}{L_x/n_x}\right]$$
 $\alpha_y = A \tan\left[\frac{s}{L_y/n_y}\right]$

$$= 0.0000 \text{ rad}$$
 $= 0.0000 \text{ rad}$

$$A_{ct} = L_x * L_y - \frac{L_x^2}{4 * n_x * \cos \alpha_x} - \frac{L_y^2}{4 * n_y * \cos \alpha_y} - A_d$$

$$= 0.00 \text{ sq. in.}$$

Lateral confinement pressure from ties:

$$f_{lat_t} = \text{Min} \{ A_t * f_y * (n_x + 1) / L_x * s ; A_t * f_y * (n_y + 1) / L_y * s \}$$

$$= 0.000 \text{ ksi} \leq 1.20 \text{ ksi OK}$$

Local Strength due to confinement by orthogonal ties:

$$P_t = 4 * f_{lat_t} * A_{ct}$$

$$= 0.00 \text{ k}$$

LOCAL CONFINEMENT

SPIRAL:
 Diameter $D = 13.00$ in
 Pitch $p = 2.5$ in
 Rebar size # 4
 $A_s = 0.2$ sq. in.
 ORTHOGONAL TIES (leave blank if no lateral ties)
 Length of confined area $L_x =$ in
 $L_y =$ in
 Number of spaces between cross ties
 $n_x = 1$
 $n_y = 1$
 Tie Spacing $s = 2.25$ in
 Rebar size #
 $A_t = 0.00$ sq. in.

Nominal Local Zone Strength

$$P_n = \eta * (P_c + P_s + P_t)$$

$$= 1,011.24 \text{ k}$$

LOCAL ZONE STRENGTH

Due to Surrounding Concrete

$$P_c = 0.8 * f'_{ci} * \sqrt{\frac{A}{A_b}} * A_{bn}$$

$$= 722.70 \text{ k}$$

Ultimate Strength of Local Zone:

$$\phi P_n = 808.99 \text{ k} > 632.77 \text{ k}$$

Okay!

MATERIALS

CONCRETE 28 th DAY STRENGTH	f'c =	6,500	psi
CONCRETE STRENGTH AT STRESSING	f'ci =	6,000	psi
CONCRETE TYPE	[1 or 2]	1	NWC
REINFORCEMENT REBAR YIELD STRENGTH	fy =	60	ksi
POST-TENSIONING STRANDS	fpu =	270	ksi

DESIGN PARAMETERS

LOAD FACTOR	γ =	1.2
CALIBRATION FACTOR	η =	1.00
STRENGTH REDUCTION FACTOR	(Per AASHTO LRFD Specifications Article 5.5.4.2)	
	φ =	0.80

ANCHORAGE DATA

SIZE OF P/T STRAND		0.60	in
	Ap =	0.217	sq. in.
JACKING STRESS		0.75	
VSL ANCHOR		ECI 6-19	
NUMBER OF STRANDS	ns =	19	
DIAMETER OR SIDE OF BEARING PLATE	dp =	11.42	in
RADIUS OF CORNER (ECI ONLY)	rp =	3.15	in
DIAMETER OF HOLE	dh =	5.36	in
SUPPORTING CONCRETE	Long :	a =	18.00 in
	Short :	b =	18.00 in

ANCHOR	: ECI 6-19
STRANDS	: 19 - 0.6" DIA.
SPIRAL	: dia= 15.00 in.
	size # 5 bar
	pitch= 2.5 in.
	# of turns= 9
TIES	: none

DESIGN FORCE

Factored Load, Pu

$$Pu = \gamma * n_s * A_{ps} * f_{jack}$$

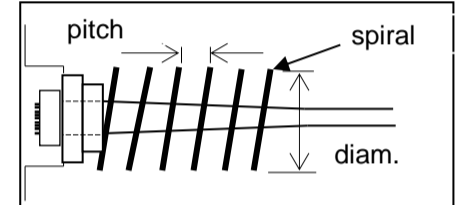
$$= 1,001.89 \text{ k}$$

Due to spiral confinement Reinforcement

Effective area confined by spiral:

$$A_{cs} = \frac{D^{2*} \pi * (1 - \frac{p}{2*D})^2 - A_d}{4}$$

$$= 125.93 \text{ sq. in.}$$



BEARING PLATE

Gross bearing plate area	Ab =	121.90	sq. in.
Duct Opening	Ad =	22.56	sq. in.
Net bearing plate area	Abn =	99.33	sq. in.

Lateral confinement from spiral

$$f_{lat_s} = \frac{2 * A_s * f_y}{D * p}$$

$$= 0.99 \text{ ksi} \quad \leq 1.20 \text{ksi OK}$$

Limit to 1.2 ksi ? **y**

SUPPORTING CONCRETE

Effective Short Dimension:			
b =	18.00		
3dp =	34.26	b _{eff} =	18.00 in
Effective Long Dimension:			
a =	18.00		
3dp =	34.26		
4beff-3dp =	37.74	a _{eff} =	18.00 in
Supporting area:			
A =	a _{eff} * b _{eff}	=	324.00 sq. in.

Local Strength due to spiral Reinforcement

$$Ps = 4 * f_{lat_s} * A_{cs}$$

$$= 499.67 \text{ k}$$

Local Strength due to Confinement of Orthogonal Ties

Effective area confined by ties:

$$\alpha_x = A \tan\left[\frac{s}{L_x/n_x}\right] \quad \alpha_y = A \tan\left[\frac{s}{L_y/n_y}\right]$$

$$= 0.0000 \text{ rad} \quad = 0.0000 \text{ rad}$$

$$A_{ct} = L_x * L_y - \frac{L_x^2}{4 * n_x * \cos \alpha_x} - \frac{L_y^2}{4 * n_y * \cos \alpha_y} - A_d$$

$$= 0.00 \text{ sq. in.}$$

Lateral confinement pressure from ties:

$$f_{lat_t} = \text{Min} \{ A_t * f_y * (n_x + 1) / L_x * s; A_t * f_y * (n_y + 1) / L_y * s \}$$

$$= 0.000 \text{ ksi} \quad \leq 1.20 \text{ksi OK}$$

Local Strength due to confinement by orthogonal ties:

$$Pt = 4 * f_{lat_t} * A_{ct}$$

$$= 0.00 \text{ k}$$

LOCAL CONFINEMENT

SPIRAL:			
Diameter	D =	15.00	in
Pitch	p =	2.5	in
Rebar size	#	5	
	As =	0.31	sq. in.
ORTHOGONAL TIES (leave blank if no lateral ties)			
Length of confined area	Lx =		in
	Ly =		in
Number of spaces between cross ties	nx =	1	
	ny =	1	
Tie Spacing	s =	2.25	in
Rebar size	#		
	A _t =	0.00	sq. in.

Nominal Local Zone Strength

$$P_n = \eta * (P_c + P_s + P_t)$$

$$= 1,277.02 \text{ k}$$

LOCAL ZONE STRENGTH

Due to Surrounding Concrete

$$P_c = 0.8 * f'_{ci} * \sqrt{\frac{A}{A_b}} * A_{bn}$$

$$= 777.35 \text{ k}$$

Ultimate Strength of Local Zone:

$$\phi P_n = 1,021.61 \text{ k} > 1,001.89 \text{ k}$$

Okay!