



**GENERAL NOTES:**

1. SPECIFICATIONS:  
CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 816 (2004)  
INCLUDING SUPPLEMENTAL SPECIFICATIONS DATED JANUARY 2014 AND SPECIAL PROVISIONS.
2. FOR DESIGN SPECIFICATIONS FOR TRACK, ARCHITECTURAL STATION WALLS, AND BRIDGE.  
SEE SHEETS T-01, A-01, S-01, WR-03, WS-01, RESPECTIVELY.
3. NIGHT WORK WILL BE PERMITTED AS NOTED IN THE SPECIAL PROVISION AND AS  
AUTHORIZED BY THE ENGINEER. WHEN THE CONTRACTOR PERFORMS NIGHTTIME OPERATIONS,  
THE WORK AREA SHALL BE ILLUMINATED TO THE SATISFACTION OF THE ENGINEER.  
THE LIGHTING SHALL BE SHIELDED TO AVOID GLARE TO TRAFFIC, TRAINS, PEDESTRIANS,  
AND SURROUNDING COMMUNITIES AS DIRECTED BY THE ENGINEER.
4. THE CONTRACTOR SHALL BE REQUIRED TO PROTECT HIS WORKERS AT ALL TIMES IN  
CONFORMANCE WITH APPLICABLE OSHA REGULATIONS.
5. THERE MAY BE CONCURRENT CONSTRUCTION CONTRACTS IN THE STAMFORD AREA.  
THE CONTRACTOR WILL BE REQUIRED TO COORDINATE WITH THE OTHER CONTRACTORS  
AND SCHEDULE HIS OPERATIONS SO AS TO CAUSE MINIMUM DISRUPTION TO TRAFFIC  
AND TO PREVENT DELAYS FOR THE COMPLETION OF THE WORK.
6. THE CONTRACTOR WILL NOT BE PERMITTED TO DROP WASTE CONCRETE DEBRIS AND  
OTHER MATERIAL TO THE AREA BELOW OR ADJACENT TO THE BRIDGE. PROTECTIVE DEVICES  
SHALL BE USED TO CATCH ALL MATERIALS AND WASTE CONCRETE. IF THE ENGINEER  
DETERMINES THAT ADEQUATE PROTECTIVE DEVICES ARE NOT BEING EMPLOYED,  
THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.  
PRIOR TO BEGINNING INSTALLATION OF ANY PROTECTIVE DEVICE, PLAN FOR PROTECTION  
SHOULD BE SUBMITTED TO THE ENGINEER AND RAILROAD FOR APPROVAL.
7. THE CONTRACT DRAWINGS ARE BASED ON ORIGINAL DESIGN DRAWINGS FOR  
STATE PROJECT NOS. 135-206 AND 301-006, 1995 (STRUCTURAL, ARCHITECTURAL,  
MECHANICAL, CIVIL, ELECTRICAL). ACTUAL CONDITIONS MAY VARY FROM WHAT IS  
SHOWN ON THESE DRAWINGS. SEE SPECIAL PROVISIONS.
8. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, CONFIGURATIONS,  
AND DETAILS NECESSARY TO PERFORM THE WORK ADEQUATELY.
9. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY SHORING AND BRACING TO  
UNLOAD STRUCTURAL ELEMENTS TO BE REMOVED AND TO RESIST ALL GRAVITY LOADS,  
LIVE LOADS, AND LATERAL FORCES. PRIOR TO DEMOLITION, CONTRACTOR SHALL SUBMIT  
DETAILS AND CALCULATIONS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER  
REGISTERED IN THE STATE OF CONNECTICUT, OF THE PROPOSED SHORING, BRACING,  
AND DEMOLITION SEQUENCE TO THE ENGINEER FOR REVIEW. REVIEW BY THE ENGINEER  
SHALL IN NO WAY RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE SAFETY  
AND INTEGRITY OF STRUCTURES.
10. CONTRACTOR SHALL COORDINATE REMOVAL OF STRUCTURAL, ARCHITECTURAL,  
MECHANICAL, AND ELECTRICAL COMPONENTS. NOT ALL OF THESE COMPONENTS ARE  
SHOWN ON THE DEMOLITION DRAWINGS (FOR EXAMPLE, LIGHTING FIXTURES AND  
TELEPHONE LINES).
11. REINFORCEMENT IS TYPICALLY NOT SHOWN ON DEMOLITION DRAWINGS.  
REINFORCEMENT THAT CROSSES THE INTERFACE BETWEEN A PORTION TO REMAIN AND  
A PORTION TO BE REMOVED SHALL REMAIN IN ITS ENTIRE LENGTH OR IT MAY BE CUT  
OFF SUCH THAT A LENGTH EQUAL TO GREATER THAN 32 BAR DIAMETERS REMAINS.  
DOWELS THAT ARE FOUND TO HAVE A LENGTH THAT IS SHORTER THAN REQUIRED  
ARE NOT REQUIRED SHALL NOT BE CUT. REINFORCEMENT THAT IS WHOLLY WITHIN  
A STRUCTURAL ELEMENT TO REMAIN SHALL NOT BE CUT OR DAMAGED. REINFORCEMENT  
THAT IS ACCIDENTALLY CUT OR DAMAGED MAY REQUIRE REMEDIAL WORK TO BE  
DECIDED BY THE ENGINEER ON A CASE BY CASE BASIS.
12. MATERIALS, UNLESS OTHERWISE NOTED, BECOME THE PROPERTY OF THE CONTRACTOR  
AND SHALL BE REMOVED FROM THE SITE AS SOON AS POSSIBLE AFTER DEMOLITION.
13. IN AREAS OF ARCHITECTURALLY EXPOSED CONCRETE WHERE A BREAK IN THE CONCRETE  
IS REQUIRED, CONTRACTOR SHALL PRE-SAWCUT THE SURFACE TO PROVIDE A STRAIGHT,  
CLEAN EDGE AND SHALL PROTECT THE EDGE AGAINST ACCIDENTAL DAMAGE.
14. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FROM THE APPROPRIATE AGENCIES,  
AS MAY BE REQUIRED TO PERFORM THE WORK CONTRACTED IN THESE PLANS AND  
SPECIFICATIONS AND THE COST SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE  
APPROPRIATE ITEM OF THE CONTRACT. ALSO THE TIME DURATION FOR ACQUIRING THESE  
PERMITS SHALL BE APPROPRIATELY CONSIDERED IN SCHEDULING OF THE WORK.

**UTILITIES NOTES:**

1. LOCATION OF UTILITIES, PUBLIC AND/OR PRIVATE, INDICATED AS EXISTING AND/OR TO  
BE CONSTRUCTED AS SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THEIR EXACT  
LOCATION SHALL BE DETERMINED IN THE FIELD. ADDITIONAL UTILITY LINES, WHETHER  
ABANDONED OR IN SERVICE, MAY EXIST AND IT SHALL BE THE CONTRACTOR'S  
RESPONSIBILITY TO CONDUCT HIS OPERATIONS AND TAKE THE NECESSARY PRECAUTIONS  
TO PREVENT INTERFERENCE WITH OR DAMAGE TO THESE OR OTHER FACILITIES DURING  
THE COURSE OF CONSTRUCTION. AFTER DETERMINATION OF THE INFORMATION IT SHALL  
BE SHOWN ON AS-BUILT PLANS AND SUBMITTED TO THE DEPARTMENT FOR INFORMATION  
PURPOSES. THE COST OF THIS WORK SHALL BE INCLUDED IN THE GENERAL COST OF THE PROJECT.
2. IN THE EVENT THE CONTRACTOR DAMAGES ANY EXISTING UTILITY CAUSING AN  
INTERRUPTION IN SERVICE, HE SHALL COMMENCE WORK AS INSTRUCTED TO RESTORE  
SERVICE AND MAY NOT CEASE HIS REPAIR WORK UNTIL SERVICE IS RESTORED.  
ALL CORRECTIVE UTILITY WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER  
AND THE SUBJECT UTILITY OWNER. COST OF REPAIR WORK AND INTERRUPTION OF SERVICE  
SHALL BE SUSTAINED BY THE CONTRACTOR.

**PROPERTY DAMAGE NOTES:**

1. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE CAUSED BY HIS  
OPERATIONS TO THE EXISTING STRUCTURE AND/OR PART OF EXISTING STRUCTURE  
WHICH IS INTENDED TO REMAIN IN SERVICE. ANY DAMAGE TO THE EXISTING STRUCTURE  
WHICH IS NOT PART OF THE INTENDED WORK SHALL BE REPAIRED OR REPLACED BY THE  
CONTRACTOR WITHOUT COST TO THE STATE AND TO THE SATISFACTION OF THE ENGINEER.
2. CONTRACTOR ALONE SHALL BE RESPONSIBLE FOR SAFETY OF STRUCTURES DURING  
DEMOLITION AND SHALL TAKE ADEQUATE PRECAUTIONS TO PREVENT DAMAGE TO ANY  
REMAINING PART OF THE STRUCTURE OR TO ANY COMPONENTS THAT ARE BEING STORED  
FOR LATER REUSE. ANY DAMAGE, IF INCURRED, SHALL BE RECTIFIED TO THE SATISFACTION  
OF THE ENGINEER AND AT NO ADDITIONAL COST TO THE STATE.

**FINAL DESIGN REVIEW**

<p>THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.</p>			<p>DESIGNER/DRAFTER: <b>B.A./S.F.C.</b></p> <p>CHECKED BY: <b>N.S.V.</b></p>	 <p><b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b></p> <p>Filename: ...\\SB_MSH_PLATFORM_0135_0301_S-02_NOTES-1.dgn</p>	<p>SIGNATURE/ BLOCK:</p>  <p><b>VB TECHNOLOGIES CORPORATION</b> STRUCTURAL &amp; CIVIL ENGINEERS 2049 SILAS DEANE HIGHWAY, SUITE 1E ROCKY HILL, CT 06867</p>	<p>PROJECT TITLE:</p> <p><b>RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET</b></p>	<p>TOWN:</p> <p><b>STAMFORD</b></p> <p>DRAWING TITLE:</p> <p><b>GENERAL NOTES-1</b></p>	<p>PROJECT NO.</p> <p><b>135-301</b></p> <p>DRAWING NO.</p> <p><b>S-02</b></p> <p>SHEET NO.</p> <p><b>00.02</b></p>
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 10/13/2014				

**STATION GENERAL NOTES:**

**ALLOWABLE DESIGN STRESSES**

- 1. CLASS 'A' CONCRETE  $f_c = 3,000$  PSI
- 2. CLASS 'F' CONCRETE  $f_c = 4,000$  PSI
- 3. REINFORCEMENT (ASTM A615 GRADE 60)  $f_s = 24,000$  PSI
- 4. STRUCTURAL STEEL (ASTM A709 GRADE 50)  $f_s = 27,000$  PSI (THICKNESS LIMITATION = 4")

**FASTENERS**

- 1. ANCHOR BOLTS ASTM A307.
- 2. HIGH STRENGTH BOLTS ASTM A325 - FRICTION CONNECTION- SLIP CRITICAL.

**CONCRETE**

- 1. CONCRETE MINIMUM CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:  
 CAST-IN-PLACE:  
 CONCRETE CAST AGAINST EARTH: 3"  
 CONCRETE EXPOSED TO EARTH  
 (BUT NOT CAST AGAINST) OR WEATHER:  
 #5 BARS AND SMALLER 2"  
 #6 BARS THROUGH #18 BARS 2"

CONCRETE NOT EXPOSED TO EARTH OR WEATHER:  
 SLABS AND WALLS:

- #11 BARS AND SMALLER 1"
- #14 BARS AND #18 BARS: 1 1/2"
- BEAMS AND COLUMNS 1 1/2"
- 2. REINFORCEMENT MAY BE LAP SPLICED OR EMBEDDED AS INDICATED ON THE DRAWINGS. WHERE LENGTH IS NOT INDICATED, LAP SPlice LENGTH SHALL BE 32 BAR DIAMETERS.
- 3. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. THE CONTRACTOR SHALL PROVIDE ADDITIONAL BARS OR STIRRUPS FOR THIS PURPOSE.
- 4. EXPOSED EDGES OF CONCRETE SHALL BE BEVELED 1" X 1" UNLESS OTHERWISE NOTED.
- 5. CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON THE PLANS WILL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.

**CAST-IN-PLACE CONCRETE**

- 1. CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM 28 DAY DESIGN STRENGTH OF 4000 PSI (CLASS F) FOR STRUCTURAL SLABS, BEAMS, COLUMNS, WALLS, AND ALL FOUNDATIONS.
- 2. CONCRETE REINFORCEMENT SHALL BE ASTM A615 GRADE 60 EPOXY COATED FOR SLABS, UNCOATED FOR FOUNDATIONS.
- 3. ALL CONCRETE SHALL BE AIR-ENTRAINED UNLESS OTHERWISE NOTED.
- 4. CALCIUM NITRATE ADDITIVE ALLOWED FOR PLATFORM SLABS, STAIRS, AND PRECAST PLATFORM UNITS.

**PRESTRESSED CONCRETE**

- 1. CONCRETE 28 DAY STRENGTH  $f_c$  SHALL BE 5,500 PSI.
- 2. ULTIMATE COMPRESSIVE CYLINDER STRENGTH OF CONCRETE SHALL NOT BE LESS THAN 4500 PSI AT TRANSFER OF PRESTRESSING FORCE.
- 3. PRESTRESSED CONCRETE EXTREME FIBER STRESS IN TENSION AT SERVICE LOADS (AFTER ALL PRESTRESS LOSSES) SHALL BE  $f_t = 0$  PSI.
- 4. CONTRACTOR MAY ALTER PATTERN OF STRANDS, BUT SHALL MAINTAIN INITIAL PRESTRESS FORCE AND ECCENTRICITY.
- 5. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.
- 6. THE END OF BEAMS SHALL BE VERTICAL AFTER ERECTION AND APPLICATION OF FULL DEAD LOAD.
- 7. THE DRILLING OF HOLES IN PRESTRESSED TEE BEAMS OR THE USE OF POWER ACTUATED TOOLS ON PRESTRESSED TEE BEAMS WILL NOT BE PERMITTED.
- 8. NO PROTRUSION ALLOWED AT EDGES.
- 9. MINIMUM COVER FOR PRESTRESSING SHALL BE 1 1/2".
- 10. FOR BEAMS WHICH SHALL HAVE A LONGITUDINAL SHEAR KEY JOINT, NO SUPERIMPOSED DEAD OR LIVE LOADS SHALL BE APPLIED TO THE ADJACENT BEAMS UNTIL THE GROUT IN THE SHEAR KEYS HAS FULLY CURED.
- 11. FOR ADDITIONAL PRESTRESSED CONCRETE NOTES, SEE SHEET S-XX.

**PLATFORMS AND CANOPIES**

- 1. DESIGN CODES, MANUALS, AND SPECIFICATIONS:  
 ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE LATEST REVISION OF ACI 318.  
 STEEL STRUCTURES AND COMPONENTS SHALL BE DESIGNED IN ACCORDANCE WITH LATEST REVISION OF "SPECIFICATION FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS BY AISC".

2003 INTERNATIONAL BUILDING CODE.

STATE BUILDING CODE - 2005 CT SUPPLEMENT.

STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION FORM 816 (2004) STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION.

- 2. MINIMUM LOADS AND FORCES:  
 STRUCTURES CATEGORY: III (STRUCTURES REPRESENTING A SUBSTANTIAL HAZARD TO THE HUMAN LIFE IN THE EVENT OF FAILURE)  
 GROUND SNOW LOAD, Pg: 30 PSF  
 (SNOW LOAD ON ROOF OR CANOPY; SNOW DRIFT LOAD AS APPLICABLE)  
 BASIC WIND SPEED (3 SEC. GUST): 105 MPH, EXPOSURE B.  
 PEDESTRIAN AREAS: 100 PSF UNIFORM LIVE LOAD  
 HANDRAILS: HORIZONTAL FORCE OF 150 PLF AND VERTICAL FORCE OF 100 PLF APPLIED SEPARATELY OR IN COMBINATION
- 3. CONNECTIONS:  
 ALL CONNECTIONS MADE IN THE FIELD SHALL BE BOLTED EXCEPT AS SHOWN ON PLANS. BOLTS SHALL BE HIGH STRENGTH FRICTION TYPE ASTM A325, UNLESS OTHERWISE NOTED. SHOP WELDED CONNECTIONS SHALL BE AS PER ANSI/AWS D1.5-88.
- 4. BONDING AND GROUNDING WILL BE ACCOMPLISHED AS THE WORK PROGRESSES TO ASSURE THAT NO POTENTIAL DIFFERENCE WILL EXIST IN ANY PHASE OF CONSTRUCTION.

**FOUNDATIONS**

- 1. ALLOWABLE BEARING PRESSURES:  
 PLATFORM FOUNDATION: 1.5 TSF - FILL - SOIL  
 BOTTOM SURFACE OF ANY FOUNDATION SHALL BE TAKEN DOWN TO MINIMUM OF 4 FEET BELOW THE ADJACENT FINAL GRADE.
- 2. NO BLASTING SHALL BE PERMITTED FOR STATION FOUNDATIONS.
- 3. FOUNDATIONS ARE TO BE PLACED ON 12" OF GRANULAR FILL CONFORMING TO THE REQUIREMENTS OF CONNDOT FORM 816 SECTION 2.14.
- 4. ELEVATIONS SHOWN ON THE DRAWINGS AT WHICH FOUNDATIONS BEAR ARE APPROXIMATE AND MAY VARY TO SUIT SUBSURFACE SOIL CONDITIONS. ANY BOTTOM OF FOOTING LOCATIONS SHOWN ON THE DRAWINGS ARE TO BE FIELD VERIFIED AND ADJUSTED AS REQUIRED SO THAT FOUNDATIONS BEAR ON MATERIAL OF AT LEAST THE CAPACITY NOTED ABOVE.

**SEISMIC REQUIREMENTS**

- 1. SEISMIC LOADS, MCE SPECTRAL ACCELERATIONS:  
 $S_s = 0.262$   $S_1 = 0.063$ ,
- 2. SEISMIC PERFORMANCE CATEGORY 'C'

**ABBREVIATIONS**

- 1. FOR ABBREVIATIONS, SEE SHEET XXXX.

**PROCEDURE FOR PLACING NEW CONCRETE AGAINST EXISTING CONCRETE**

- 1. ROUGHEN SURFACE OF EXISTING CONCRETE TO 1/4" MINIMUM AMPLITUDE AND CLEAN OFF LOOSE SCALE UNLESS OTHERWISE NOTED.
- 2. LOCATE EXISTING REINFORCEMENT WITH PACHOMETER PRIOR TO DRILLING HOLES IN EXISTING CONCRETE. ANY DAMAGE TO EXISTING CONCRETE OR REINFORCEMENT SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE STATE. DRILL HOLES AS INDICATED ON PLAN AND BLOW CLEAN. IF REINFORCEMENT IS ENCOUNTERED WHILE DRILLING, ABANDON HOLE AND REDRILL. FILL ABANDONED HOLES WITH GROUT.
- 3. GROUT REINFORCEMENT ACCORDING TO SPECIFICATIONS.
- 4. COAT ROUGHENED SURFACE OF CONCRETE WITH MORTAR PRIOR TO PLACING NEW CONCRETE.

**STRUCTURAL STEEL**

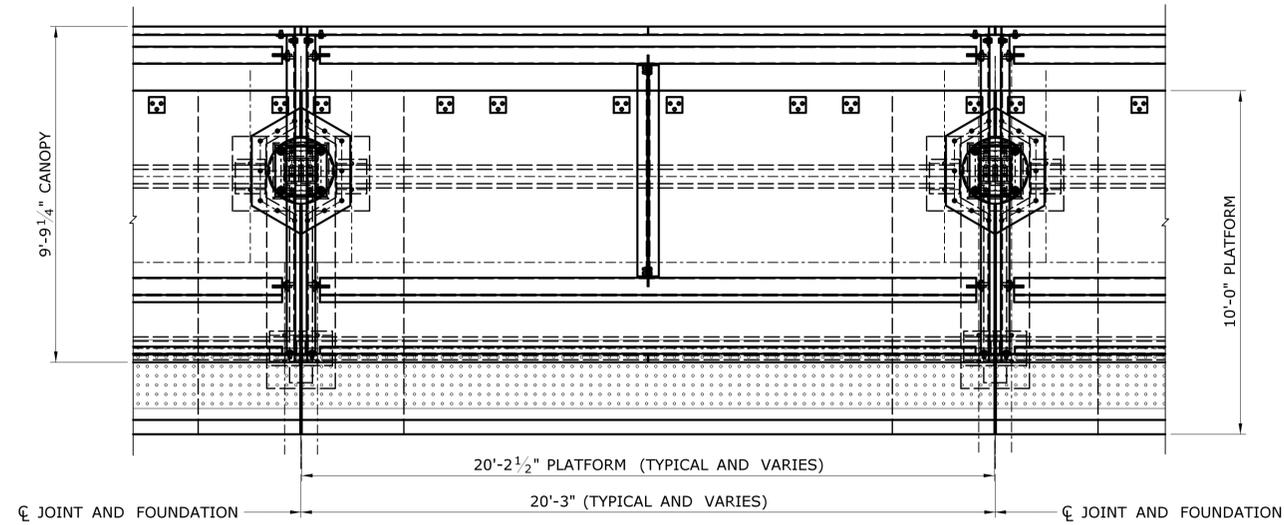
- 1. WELDING DETAILS, PROCEDURES AND TESTING METHODS SHALL CONFORM TO THE AWS D1J LATEST REVISION, UNLESS OTHERWISE NOTED ON THE PLANS.
- 2. BOLTED FIELD SPLICES, OTHER THAN THOSE INDICATED ON THE PLANS WILL NOT BE ALLOWED EXCEPT WITH THE WRITTEN PERMISSION OF THE ENGINEER PRIOR TO THE SUBMISSION OF THE SHOP PLANS. IF ALLOWED, THESE SPLICES SHALL BE DESIGNED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE COST OF THESE SPLICES, INCLUDING THE COST OF DESIGN, SHALL BE AT NO EXTRA EXPENSE TO THE STATE.
- 3. WELDED FIELD SPLICES, OTHER THAN THOSE INDICATED ON THE PLANS, WILL NOT BE ALLOWED EXCEPT WITH THE WRITTEN PERMISSION OF THE ENGINEER PRIOR TO THE SUBMISSION OF APPROVED SHOP PLANS. IF ALLOWED, THESE SPICES SHALL BE DESIGNED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE COST OF THESE SPLICES, INCLUDING THE COST OF DESIGN AND THE NONDESTRUCTIVE TESTING OF THEIR WELDS, AS DETERMINED BY THE ENGINEER, SHALL BE AT NO EXTRA EXPENSE TO THE STATE.
- 4. ALL SHOP AND FIELD GROOVE WELDS IN THE WEB AND FLANGS SHALL BE COMPLETELY INSPECTED BY RADIOGRAPHIC OR ULTRASONIC TESTING AND FINISHED SMOOTH AND FLUSH WITH THE BASE METAL ON ALL SURFACES BY GRINDING IN THE DIRECTION OF APPLIED STRESS LEAVING SURFACES FREE FROM DEPRESSIONS. CHIPPING MAY BE USED PROVIDED IT IS FOLLOWED Y SUCH GRINDING (THE GRINDING SHALL NOT REDUCE THE THICKNESS OF THE BASE METAL BY MORE THAN 1/32 OF AN INCH OR 5% OF THE THICKNESS, WHICHEVER IS SMALLER.
- 5. ALL WEB TO FLANGE AND WEB TO BEARING STIFFENER FILLET WIELDS SHALL BE INSPECTED BY THE MAGNETIC PARTICLE METHOD. AT LEAST ONE (1) FOOT OF EVERY TEN (10) FOOT LENGTH OF FILLET WELD AND ONE (1) FOOT OF EACH FILLET WELD LESS THAN TEN (10) FEET IN LENGTH SHALL BE TESTED. IF UNACCEPTABLE DISCONTINUITIES ARE FOUND IN ANY TEST LENGTH OF WELD, THE FULL LENGTH OF THE WELD, OR FIVE (5) FEET ON EITHER SIDE OF THE TEST LENGTH, WHICHEVER SHALL BE TESTED.
- 6. SHOP WEB SPLICES SHALL BE LOCATED WITHIN THE MIDDLE OF THE THIRD OF THE SPAN.
- 7. SHOP FLANGE SPLICES SHALL BE LOCATED WITHIN A MINIMUM OF SIX (6) INCHES FROM WEB SPLICES.
- 8. STIFFENERS AND CONNECTION PLATES SHALL BE LOCATED A MINIMUM OF SIX (6) INCHES FROM THE FLANGE OR WEB SPLICES.
- 9. BEARING STIFFENERS AND THE ENDS OF GIRDERS SHALL BE VERTICAL AFTER THE FULL DEAD LOADS.
- 10. INTERMEDIATE STIFFENERS SHALL BE PLACED IN PAIRS ON OPPOSITE SIDES OF THE WEBS.
- 11. THE STRUCTURAL STEEL FABRICATORS SHALL BE CERTIFIED UNDER THE AISC QUALITY CONTROL PROGRAM, CATEGORY III, MAJOR STEEL BRIDGES.
- 12. ALL FASTENERS SHALL BE ASTM A325 HIGH STRENGTH BOLTS WITH HEAVY HEX HEADS. NUTS AND WASHERS UNDER THE TURNED ELEMENT.

**FINAL DESIGN REVIEW**

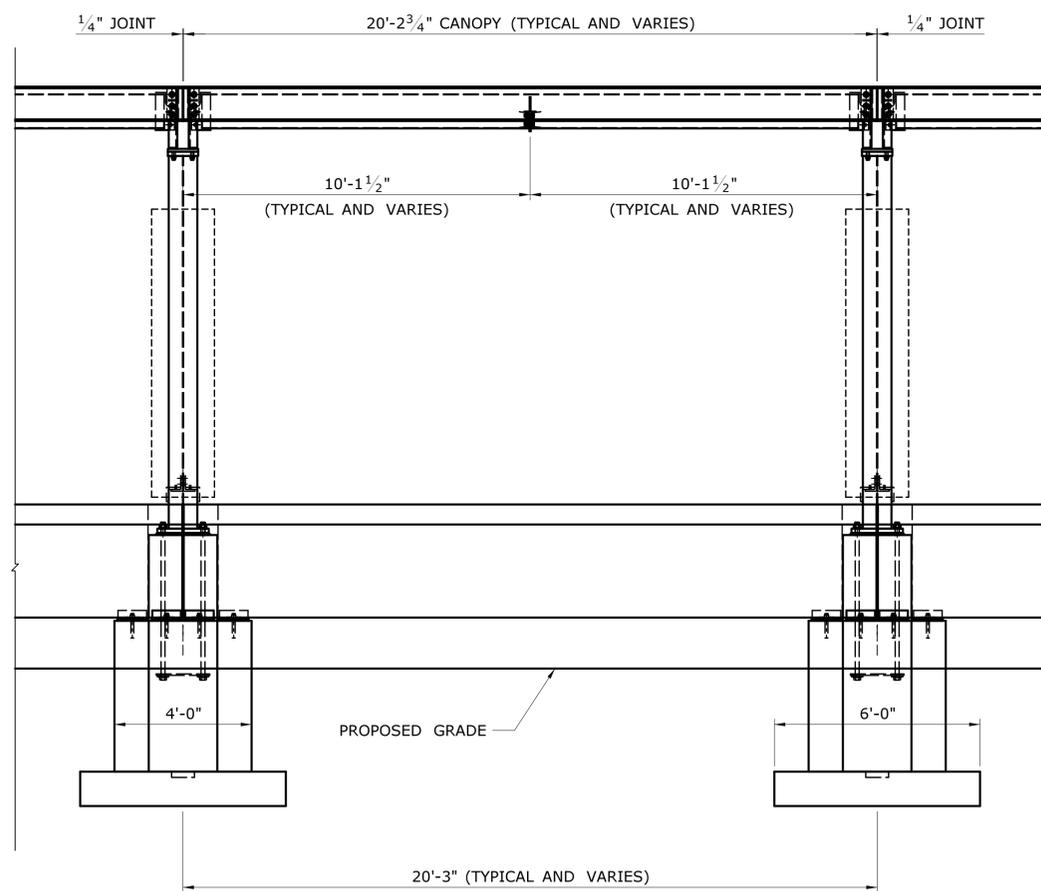
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						DRAWING TITLE: <b>GENERAL NOTES-2</b>	DRAWING NO. <b>S-03</b>	SHEET NO. <b>00.03</b>
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 10/13/2014		Filename: ...\\SB_MSH_PLATFORM_0135_0301_S-03_NOTES-2.dgn		



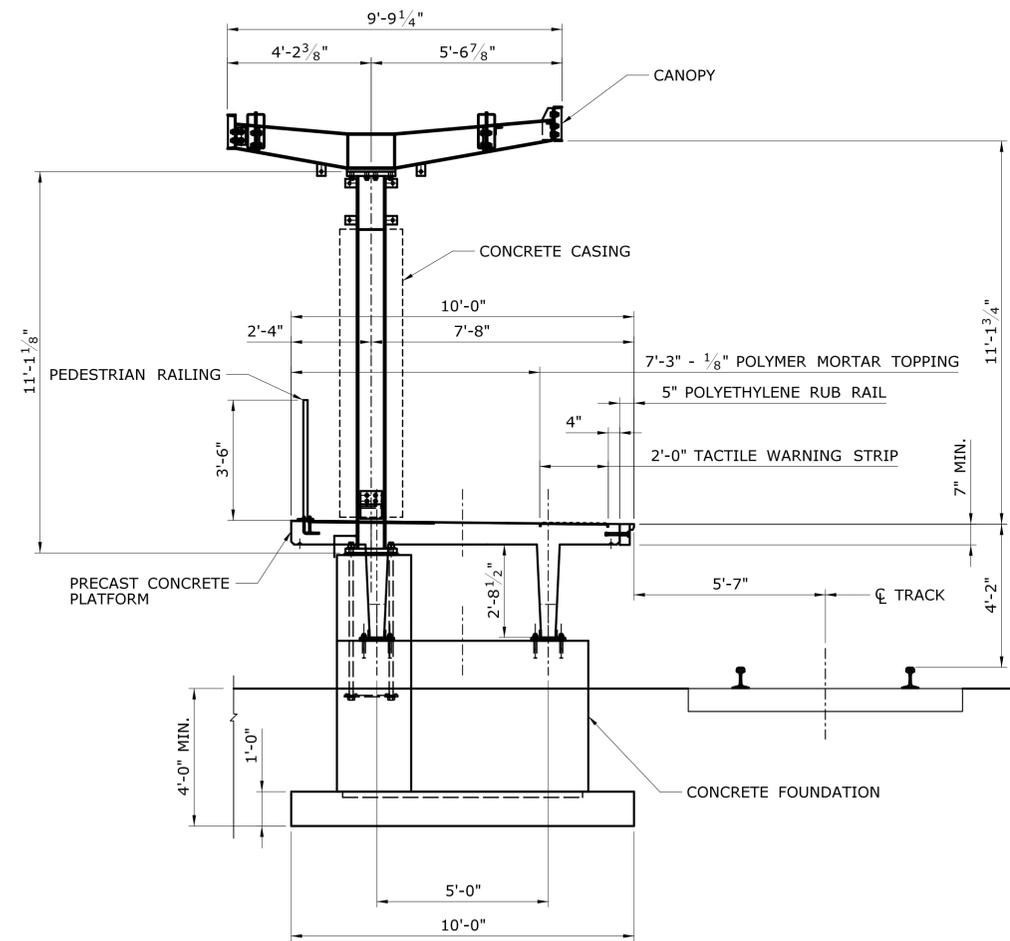




**PLAN**



**ELEVATION**



**SECTION**

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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Plotted Date: 10/13/2014

DESIGNER/DRAFTER:  
**B.A./S.F.C.**

CHECKED BY:  
**N.S.V.**

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

**STATE OF CONNECTICUT**  
**DEPARTMENT OF TRANSPORTATION**

Filename: ...\\SB\_MSH\_PLATFORM\_0135\_0301\_S-06\_TYPICAL-1.dgn

**VB TECHNOLOGIES CORPORATION**  
STRUCTURAL & CIVIL ENGINEERS  
2049 SILAS DEANE HIGHWAY, SUITE 1E  
ROCKY HILL, CT 06867

PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

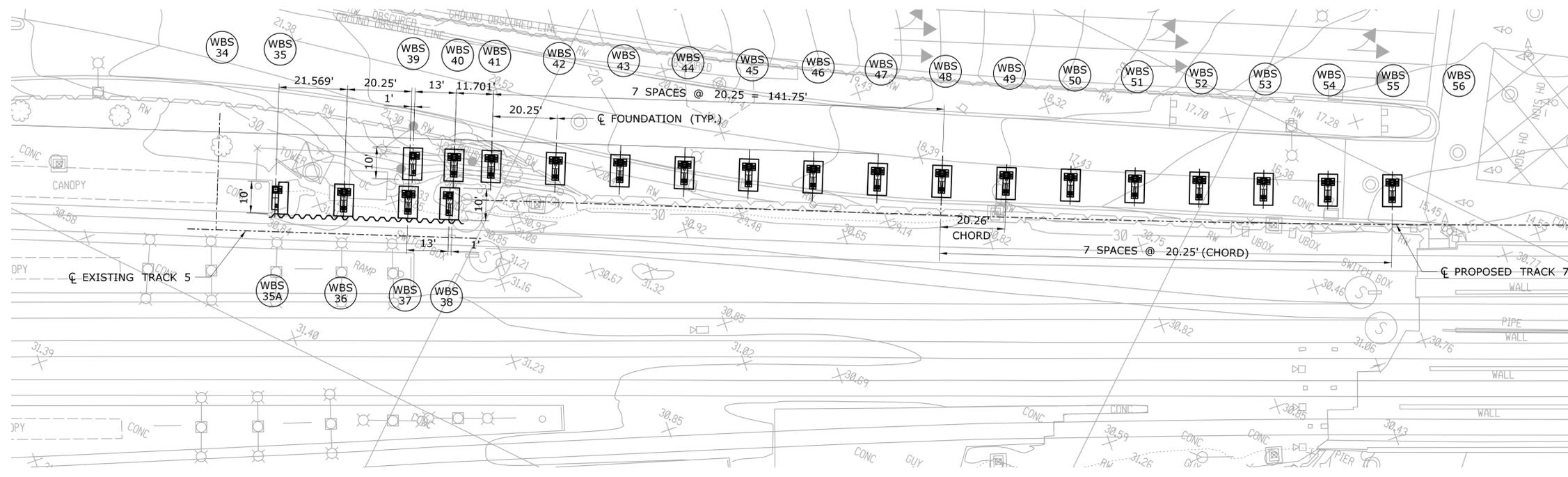
TOWN:  
**STAMFORD**

DRAWING TITLE:  
**TYPICAL STATION PLATFORM**

PROJECT NO.  
**135-301**

DRAWING NO.  
**S-06**

SHEET NO.  
**00.06**

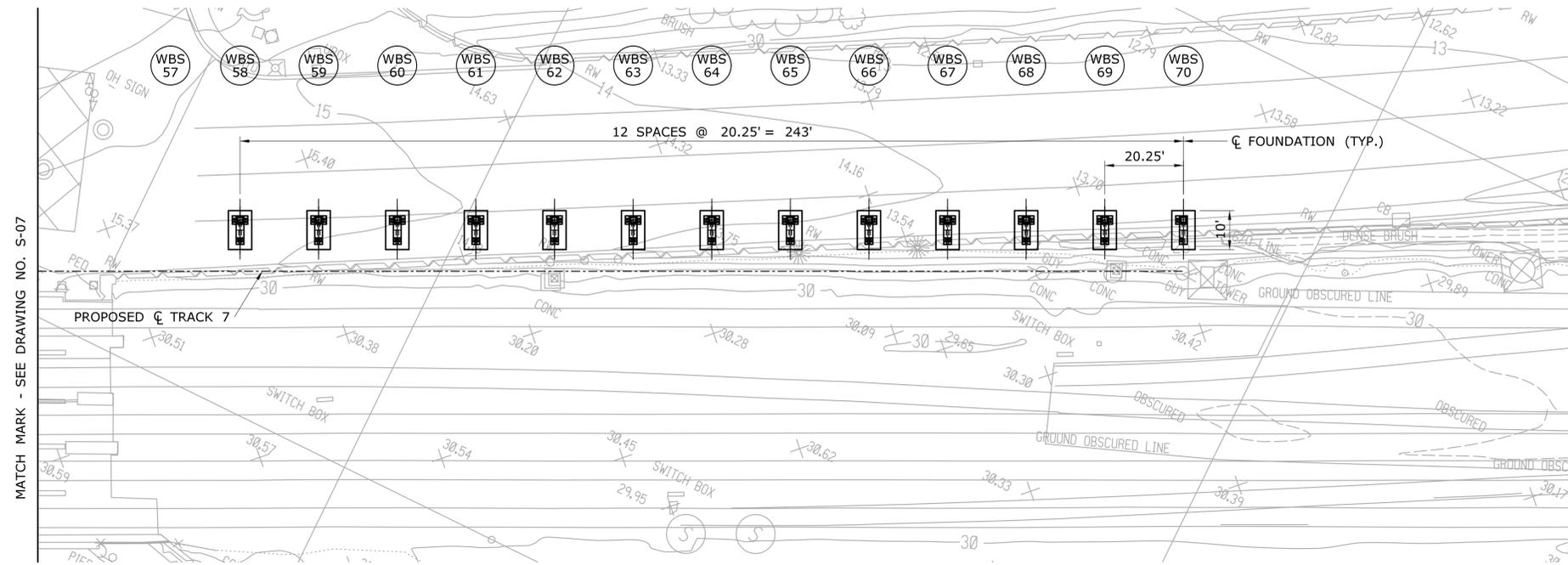


MATCH MARK - SEE DRAWING NO. S-08

**PARTIAL PLAN**

**FINAL DESIGN REVIEW**

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REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 10/13/2014				



**PARTIAL PLAN**

**FINAL DESIGN REVIEW**

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Plotted Date: 10/13/2014

DESIGNER/DRAFTER:  
**B.A./S.F.C.**

CHECKED BY:  
**N.S.V.**

SCALE IN FEET

0 20 40

SCALE 1"=20'

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION

File name: ...\_SB\_MSH\_PLATFORM\_0135\_0301\_S-08\_FOUND-PLAN-2.dgn

SIGNATURE/  
BLOCK:

**VB TECHNOLOGIES CORPORATION**  
STRUCTURAL & CIVIL ENGINEERS  
2040 SILAS DEANE HIGHWAY, SUITE 1E  
ROCKY HILL, CT 06867

PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

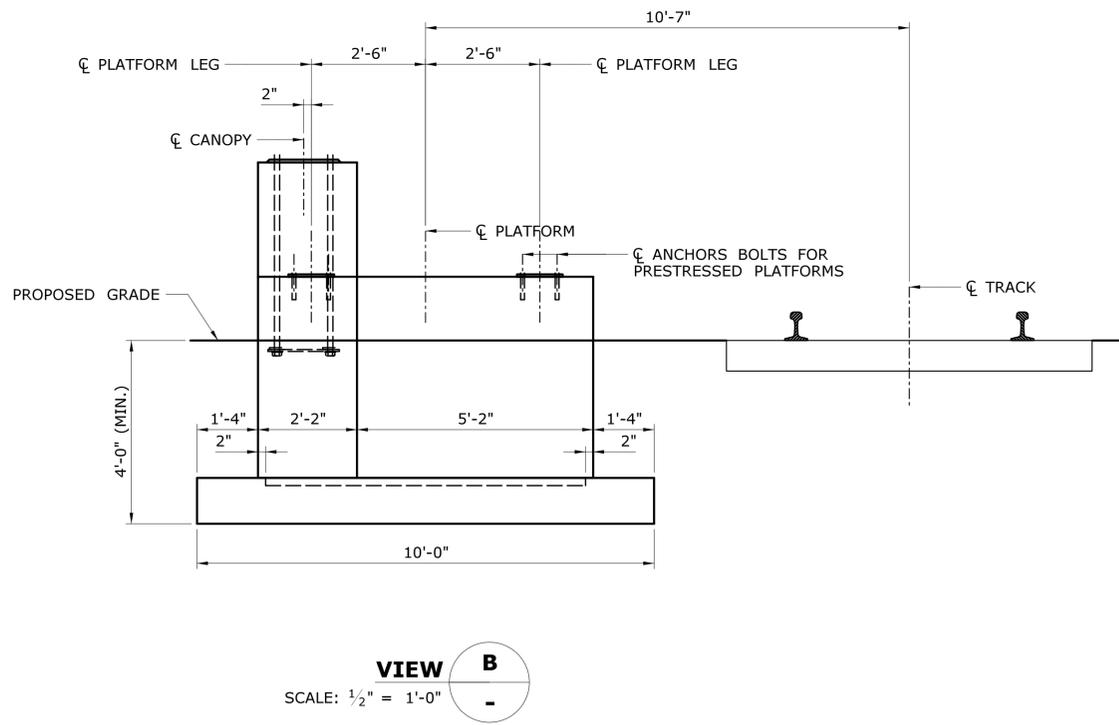
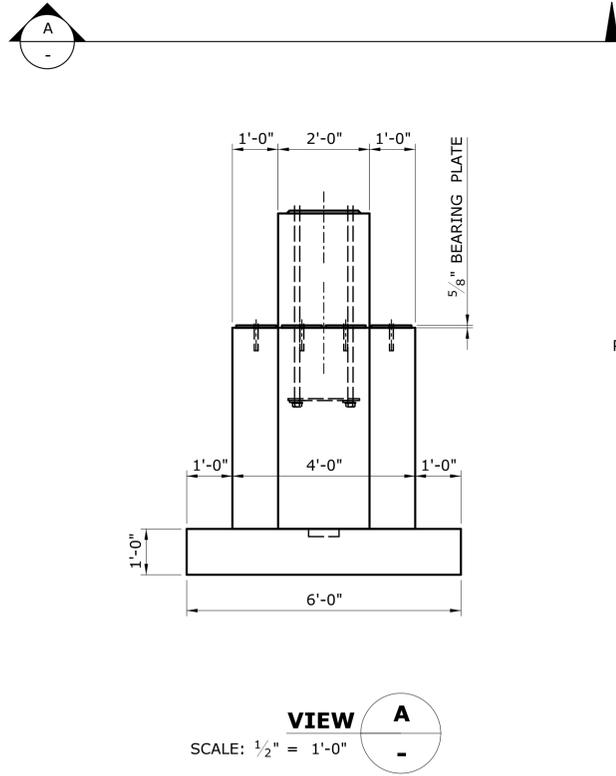
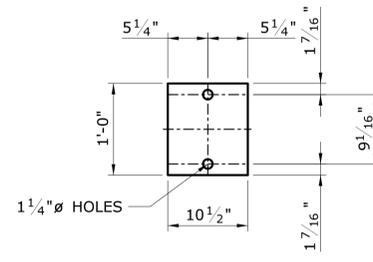
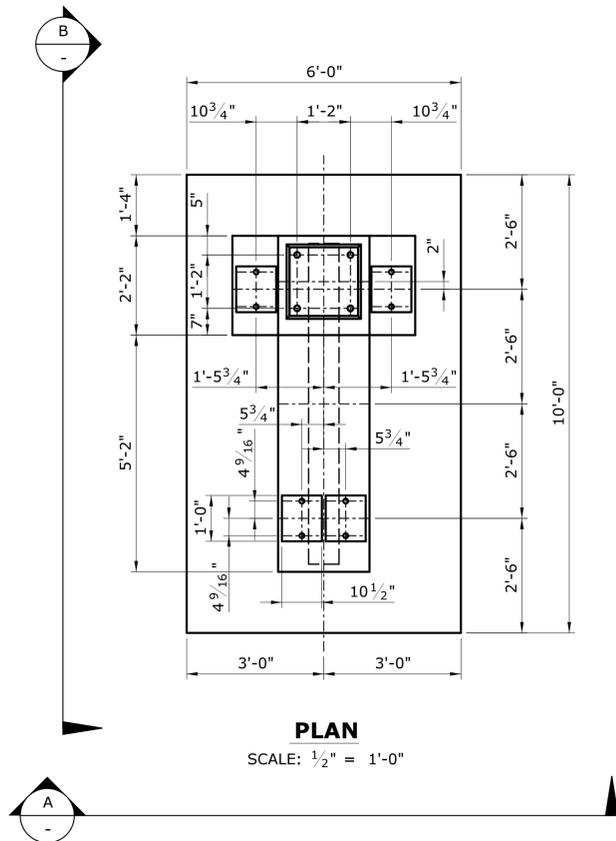
TOWN:  
**STAMFORD**

DRAWING TITLE:  
**STATION FOUNDATION LAYOUT-2**

PROJECT NO.  
**135-301**

DRAWING NO.  
**S-08**

SHEET NO.  
**00.08**



**FOUNDATION TYPE 1**

- NOTES:**
- FOR GENERAL NOTES, SEE SHEET S-0X.
  - FOR FOUNDATION LAYOUT, SEE SHEETS S-XX AND S-XX. WP FOR FOUNDATIONS ARE HE SAME AS THE PLATFORM WP.
  - PLATFORM FOUNDATION CENTERLINES ARE PERPENDICULAR TO CONSTRUCTION BASE LINE AND ADJACENT TRACK CENTERLINE.
  - CONTRACTOR SHALL ESTABLISH ELEVATIONS AT EACH PLATFORM AND CANOPY FOUNDATION BASED ON TRACK PROFILES AND PROPOSED GRADING. SEE SPECIAL PROVISIONS FOR SUBMITTAL OF WORKING DRAWINGS.
  - CLASS "F" CONCRETE SHALL BE USED FOR FOOTINGS, WALLS AND PEDESTALS.
  - ALL REINFORCEMENT IN FOUNDATIONS ARE PAID FOR UNDER THE ITEM "DEFORMED STEEL BARS".

<b>FINAL DESIGN REVIEW</b>	
<b>STAMFORD</b>	PROJECT NO. <b>135-301</b>
<b>PLATFORM FOUNDATION TYPE 1</b>	DRAWING NO. <b>S-09</b>
	SHEET NO. <b>00.09</b>

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

DESIGNER/DRAFTER: **B.A./S.F.C.**  
 CHECKED BY: **N.S.V.**  
 SCALE AS NOTED

**STATE OF CONNECTICUT**  
**DEPARTMENT OF TRANSPORTATION**

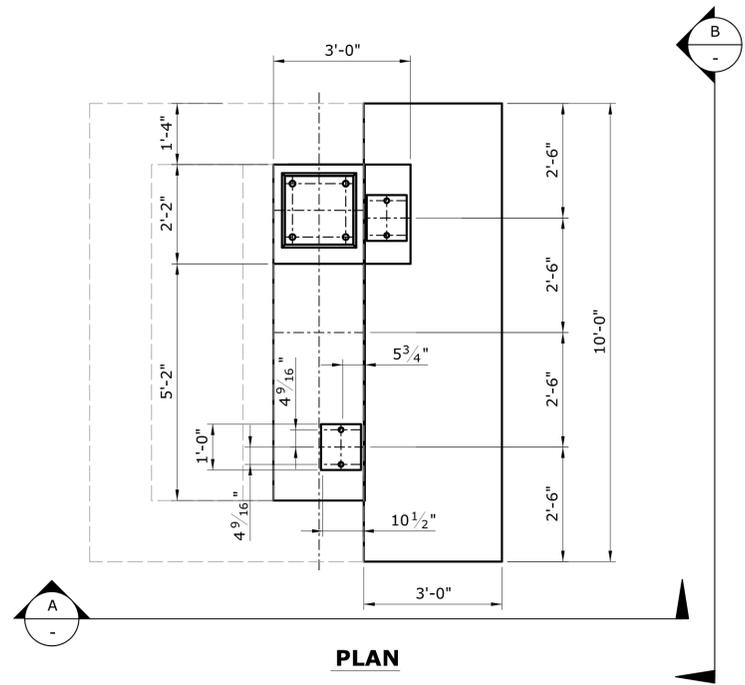
Plotted Date: 10/13/2014  
 Filename: ...\\SB\_MSH\_PLATFORM\_0135\_0301\_S-09\_FOUND-1.dgn

SIGNATURE/BLOCK:

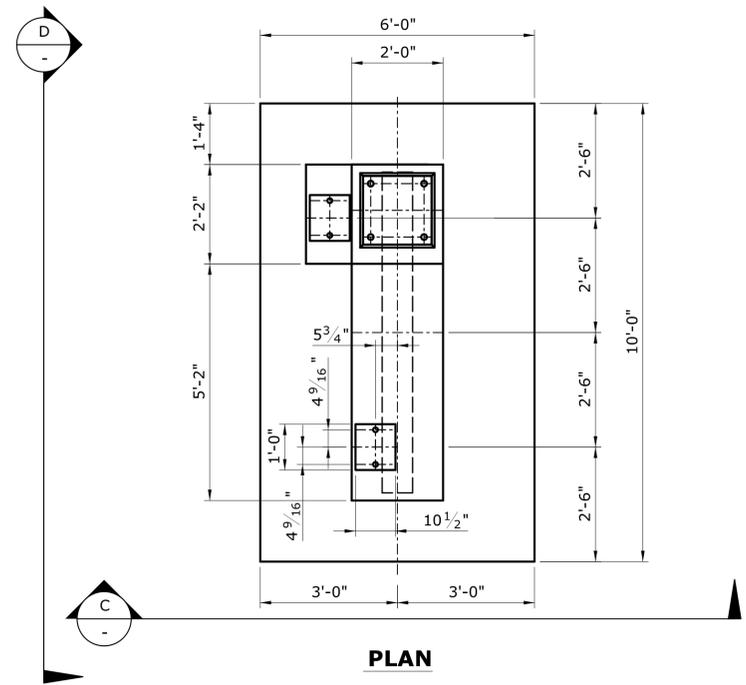
**VB TECHNOLOGIES CORPORATION**  
 STRUCTURAL & CIVIL ENGINEERS  
 2049 SILAS DEANE HIGHWAY, SUITE 1E  
 ROCKY HILL, CT 06867

PROJECT TITLE: **RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

TOWN: **STAMFORD**

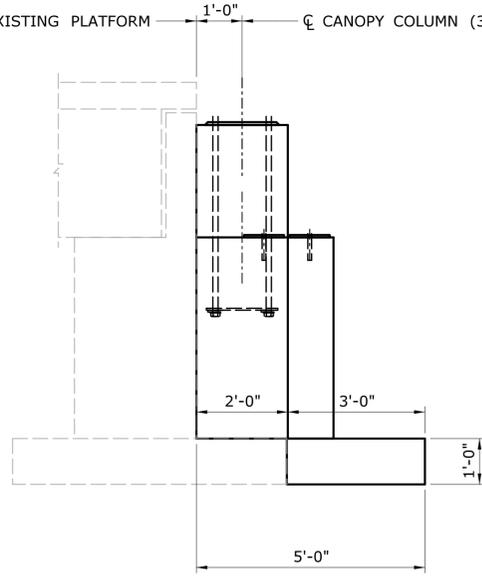


PLAN

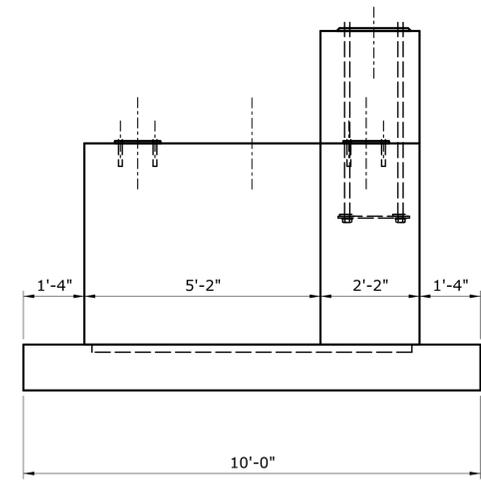


PLAN

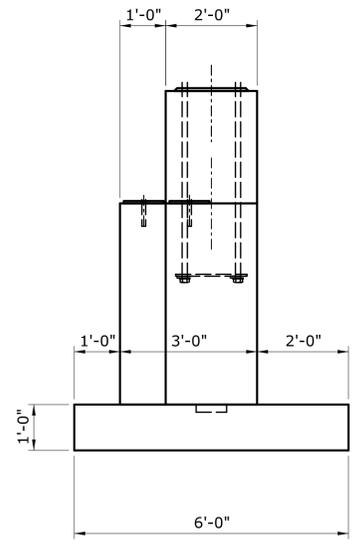
END OF EXISTING PLATFORM 1'-0" C CANOPY COLUMN (35A)



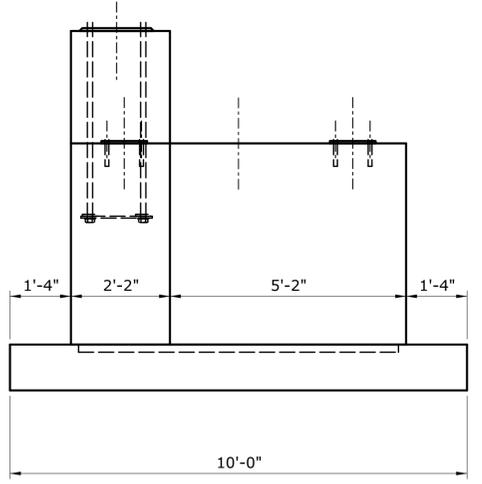
VIEW A



VIEW B



VIEW C



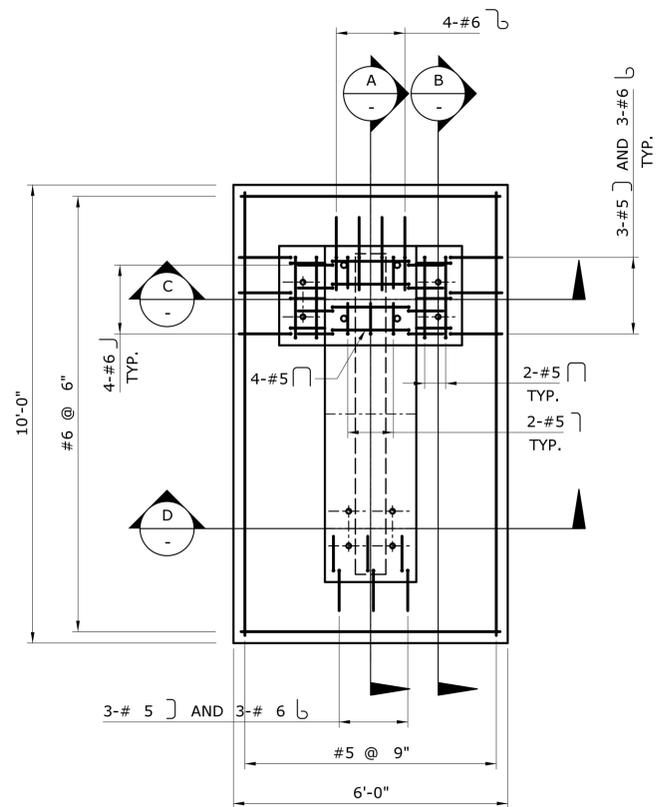
VIEW D

END FOUNDATION TYPE 2

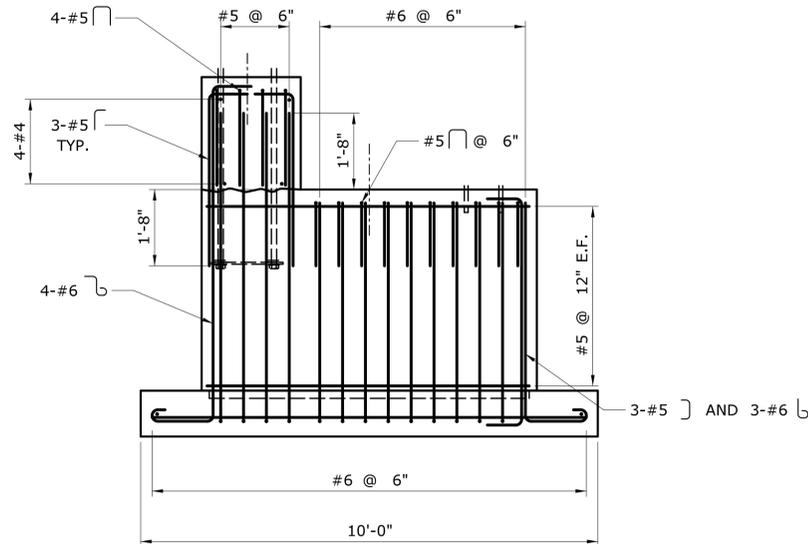
END FOUNDATION TYPE 3

FINAL DESIGN REVIEW

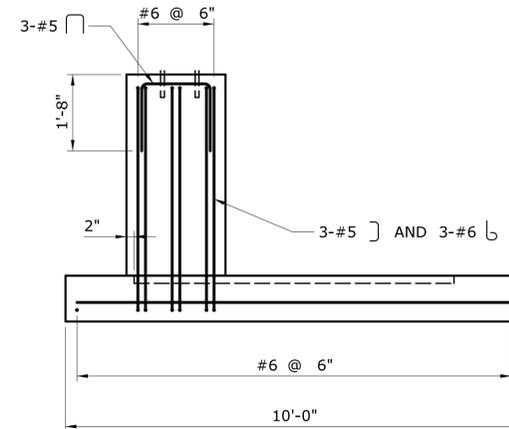
REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 10/13/2014	DESIGNER/DRAFTER: <b>B.A./S.F.C.</b>	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>	 <b>VB TECHNOLOGIES CORPORATION</b> STRUCTURAL & CIVIL ENGINEERS 2049 BLAS DEANE HIGHWAY, SUITE 1E ROCKY HILL, CT 06867	PROJECT TITLE: <b>RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET</b>	TOWN: <b>STAMFORD</b>	PROJECT NO. <b>135-301</b>
				CHECKED BY: <b>N.S.V.</b>					SCALE: 1/2" = 1'-0"
									SHEET NO. <b>00.10</b>



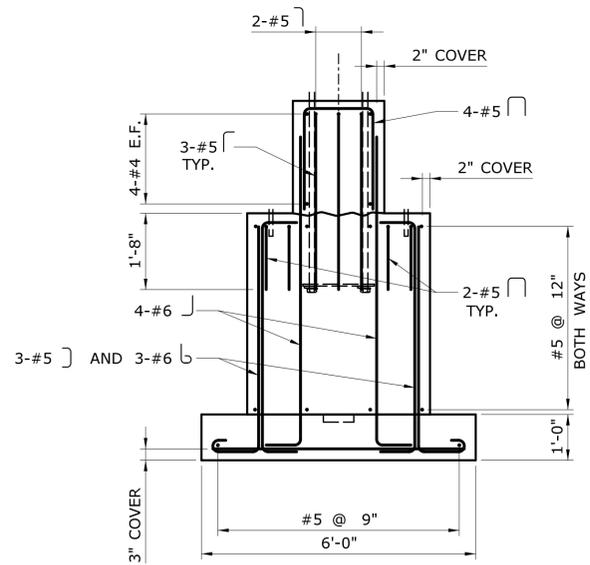
PLAN



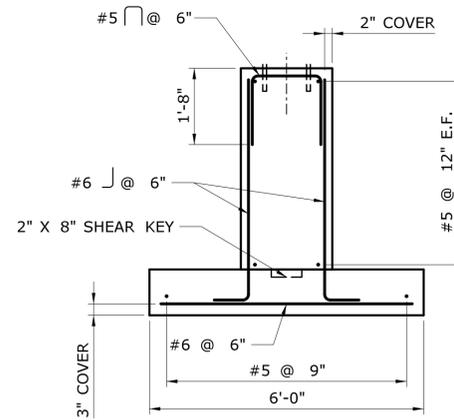
SECTION A



SECTION B



SECTION C



SECTION D

TYPICAL FOUNDATION

FINAL DESIGN REVIEW

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

DESIGNER/DRAFTER:  
**B.A./S.F.C.**  
CHECKED BY:  
**N.S.V.**  
SCALE: 1/2" = 1'-0"



SIGNATURE/  
BLOCK:  
**VB TECHNOLOGIES CORPORATION**  
STRUCTURAL & CIVIL ENGINEERS  
2040 SILAS DEANE HIGHWAY, SUITE 1E  
ROCKY HILL, CT 06867

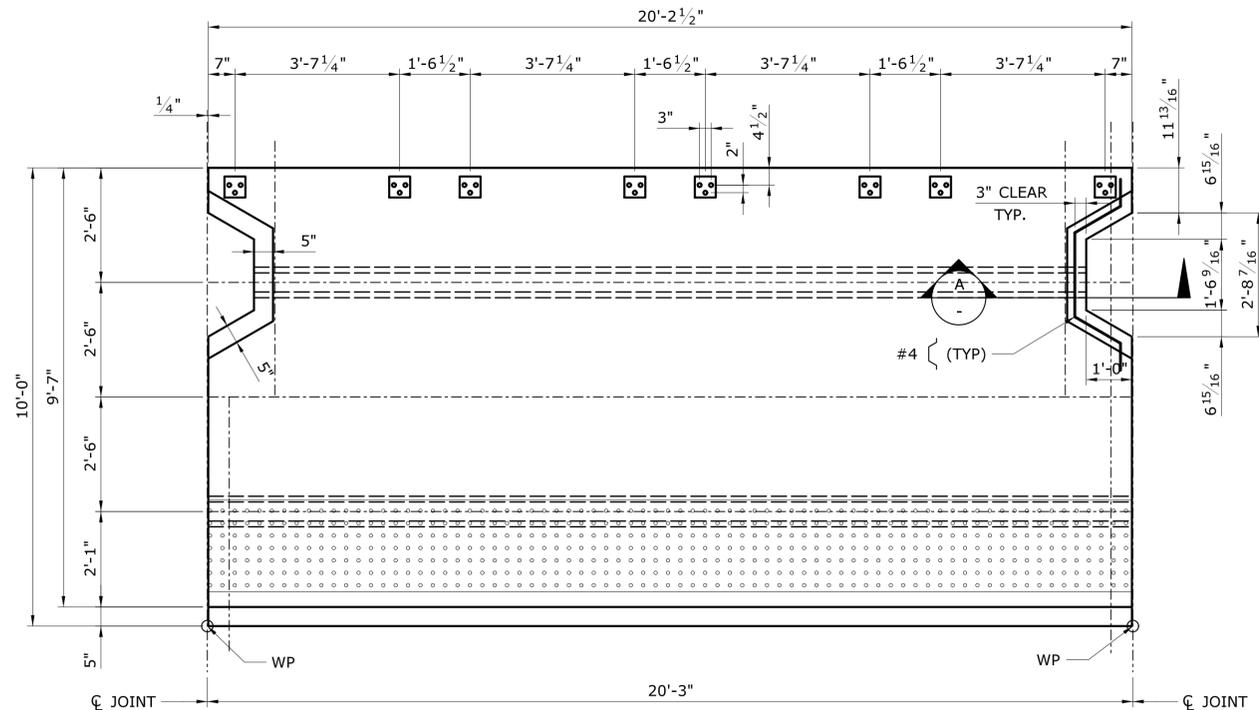
PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

TOWN:  
**STAMFORD**  
DRAWING TITLE:  
**PLATFORM FOUNDATION REINFORCEMENT**

PROJECT NO.  
**135-301**  
DRAWING NO.  
**S-11**  
SHEET NO.  
**00.11**

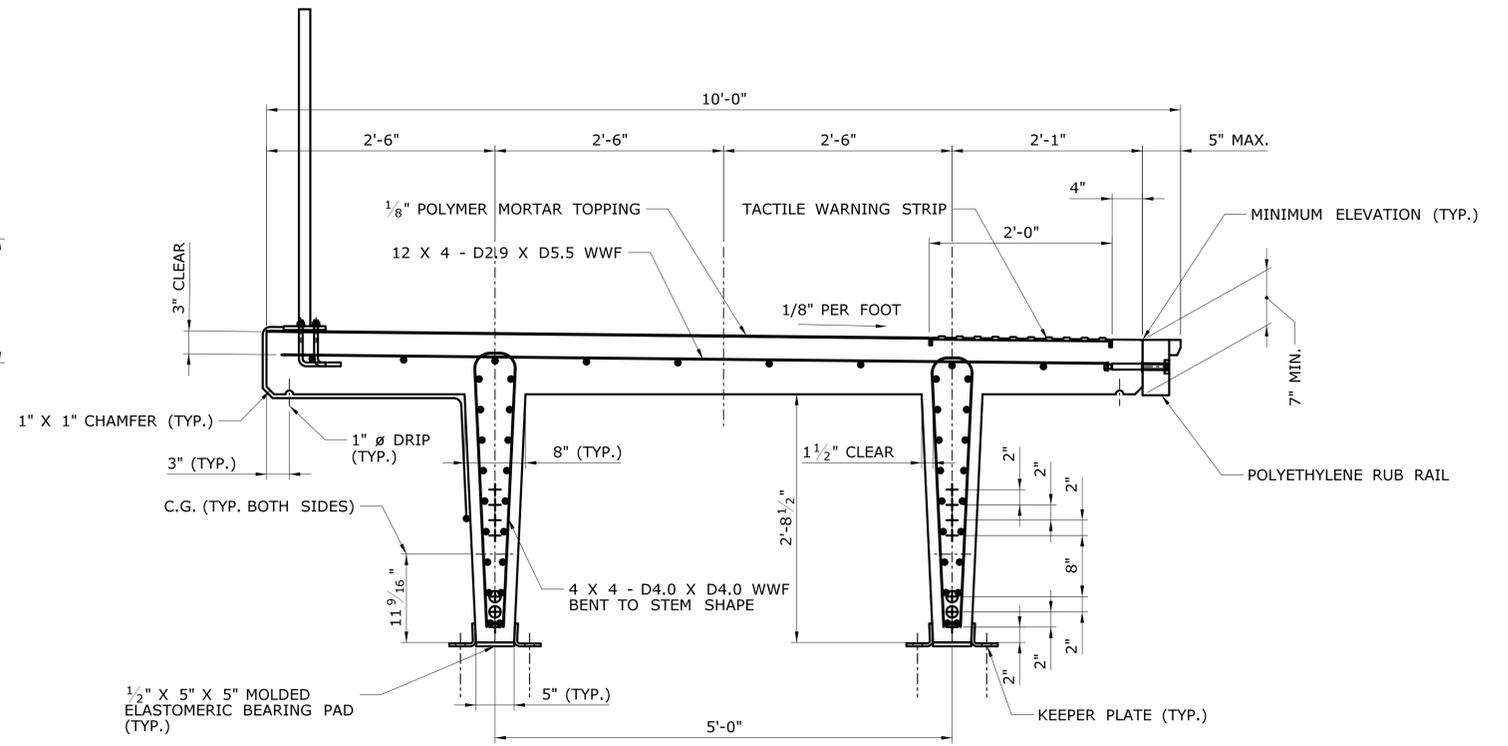
Plotted Date: 10/13/2014

Filename: ...\_SB\_MSH\_PLATFORM\_0135\_0301\_S-11\_FOUND-3.dgn



**PLAN**  
**PLATFORM I1, M1-S1, C2-M2**

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



**TYPICAL SECTION**

SCALE: 1" = 1'-0"

**LEGEND:**

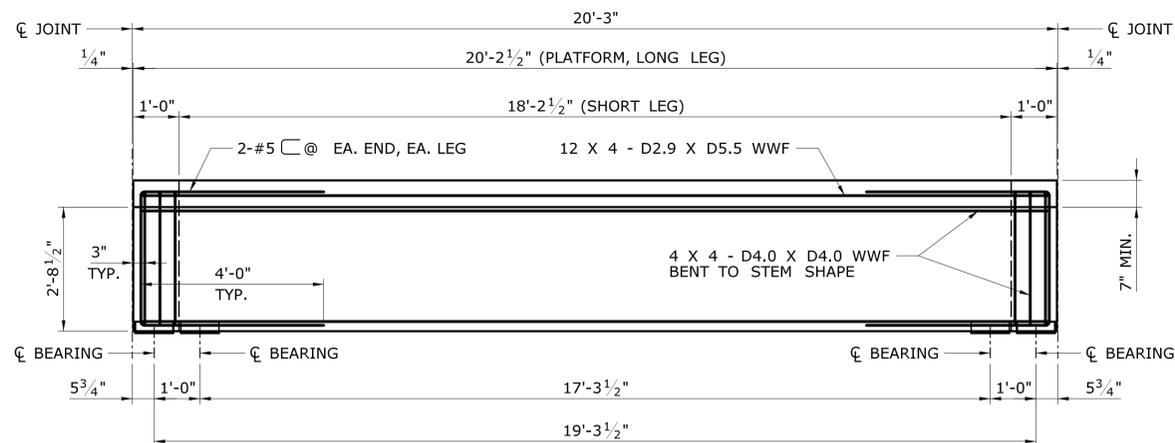
- + DESIGNATES FULLY BONDED PRESTRESSING STRAND
- ⊕ DESIGNATES STRANDS SHIELDED 6'-0" AT EACH END
- DESIGNATES GRADE 60 REINFORCEMENT

**NOTES:**

1. ALL PRESTRESSING STRANDS SHALL BE 1/2" DIAMETER LOW RELAXATION TYPE CONFORMING TO ASTM A416 GRADE 270.
2. INITIAL PRESTRESSING FORCE PER STRAND,  $P_i = 31$  KIPS. INITIAL PRESTRESSING FORCE PER BEAM,  $P_i = (\# \text{ OF STRANDS} \times 31 \text{ KIPS})$ .
3. COAT STRANDS AT EACH END OF BEAMS WITH EPOXY TO SEAL.
4. FOR ADDITIONAL PRESTRESSED CONCRETE NOTES, SEE SHEET S-0X.
5. ALL REINFORCING SHALL BE EPOXY COATED.
6. BEAMS SHALL BE PAID FOR UNDER THE ITEM "PRESTRESSED TEE BEAMS (PRETENSIONED)".
7. SEE THIS SHEET FOR CAMBER VALUES.
8. JOINT MATERIALS INCLUDING SEALERS, FILLERS, AND BACKER RODS SHALL BE INCLUDED UNDER THE ITEM "CAULKING AND SEALING JOINTS", EXCEPT AS NOTED.
9. THREADED INSERTS FOR RUB RAIL ARE INCLUDED UNDER THE ITEM "PRESTRESSED TEE BEAMS (PRETENSIONED)".
10. PRECAST UNITS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE PRECAST/PRESTRESSED CONCRETE INSTITUTE (PCI) DESIGN HANDBOOK AND ACI 318 (LATEST EDITIONS).
11. PRIOR TO FABRICATION, THE PRECAT MANUFACTURER IS TO SUBMIT TO THE STRUCTURAL ENGINEER OF RECORD FOR REVIEW THE FOLLOWING, PREPARED BY OR UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CONNECTICUT AND BEARING THE SEAL OF THE PROFESSIONAL ENGINEER:
  - A. DESIGN CALCULATIONS OF THE PRECAST UNITS, INTEGRATED SUPPORT MEMBERS AND CONNECTIONS.
  - B. SHOP DRAWINGS SHOWING ERECTION PLANS, DIMENSIONS, REINFORCING REQUIREMENTS, CONSTRUCTION DETAILS, DESIGN CRITERIA, LOAD CAPACITIES, OPENING SIZES AND LOCATIONS AND FOUNDATION LOADS.

**NOTES:**

1. FOR GENERAL NOTES, SEE SHEET S-0X.
2. MINIMUM ELEVATION OF TOP OF PLATFORM IS AT LOCATION SHOWN AND IS 4'-2" ABOVE TOP OF RAIL, NOT INCLUDING POLYMER MORTAR. PROFILE FOLLOWS ADJACENT TRACK. SEE TRACK DRAWINGS. FOR TYPICAL SCHEMATIC DETAIL FOR SETTING ELEVATIONS, SEE SHEET S-XX.
3. FOR TACTILE WARNING STRIP DETAILS, SEE SHEET S-XX.
4. FOR REINFORCEMENT AND PRESTRESSING DETAILS, SEE THIS SHEET.
5. FOR SECTION LOCATIONS, SEE SHEETS S-XX AND S-XX.
6. ALL TEE-BEAMS SHALL HAVE 1/8" POLYMER MORTAR TOPPING FOR FULL WIDTH OF PLATFORMS EXCEPT WHERE TACTILE WARNING STRIP IS MOUNTED.



**ELEVATION**

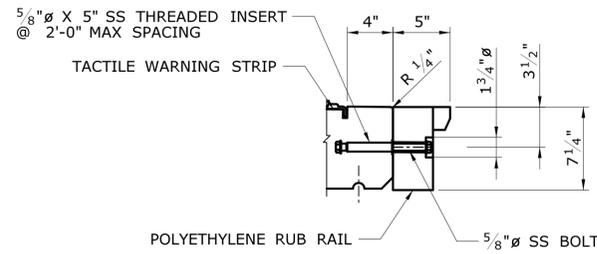
SCALE: 1/2" = 1'-0"

**CAMBER AND DEFLECTION TABLE (IN)**

SPAN L (FT)		AT TRANSFER	AT ERECTION	FINAL
L < 26 FT	PRESTRESS	0.02	0.04	0.05
	SELF WEIGHT	-0.01	-0.01	-0.02
	SDL - PRECAST	0.00	0.00	0.00
	TOTAL	0.01	0.03	0.03

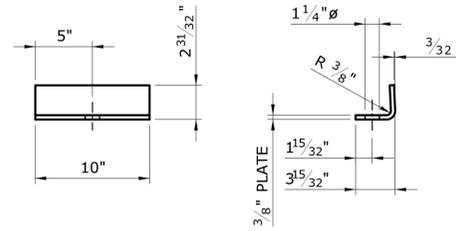
**FINAL DESIGN REVIEW**

	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: <b>B.A./S.F.C.</b> CHECKED BY: <b>N.S.V.</b> SCALE AS NOTED	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b> <small>Filename: ... \SB_MSH_PLATFORM_0135_0301_S-12_PLATFORM-1.dgn</small>	 <b>VB TECHNOLOGIES CORPORATION</b> <small>STRUCTURAL &amp; CIVIL ENGINEERS 2040 SILAS DEANE HIGHWAY, SUITE 1E ROCKY HILL, CT 06867</small>	PROJECT TITLE: <b>RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET</b>	TOWN: <b>STAMFORD</b>	PROJECT NO. <b>135-301</b> DRAWING NO. <b>S-12</b> SHEET NO. <b>00.12</b>	
REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 10/13/2014					DRAWING TITLE: <b>PLATFORM BEAM DETAILS</b>



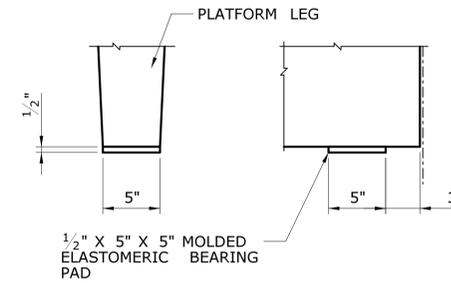
**RUB RAIL DETAIL**

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



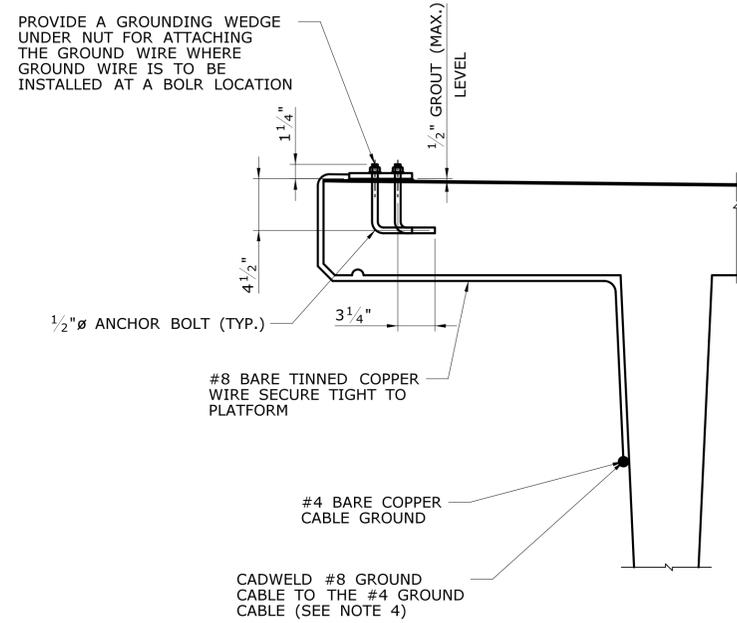
**KEEPER PLATE DETAIL**

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



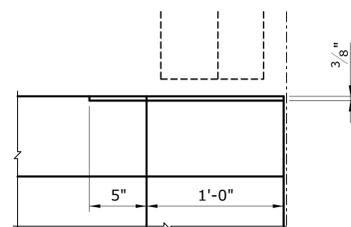
**BEARING DETAIL**

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



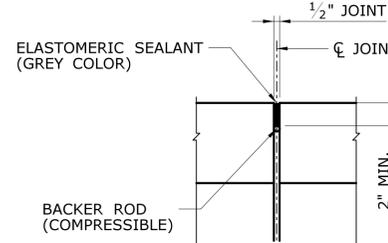
**RAIL ANCHOR BOLT AND PLATFORM GROUING DETAIL**

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



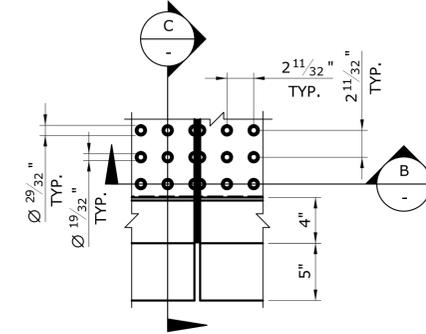
**SECTION A**

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

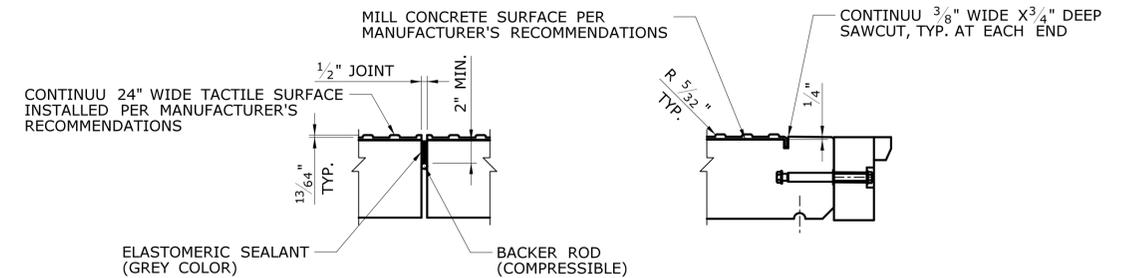


**JOINT DETAIL**

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



**PLAN**



**SECTION B**

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

**SECTION C**

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

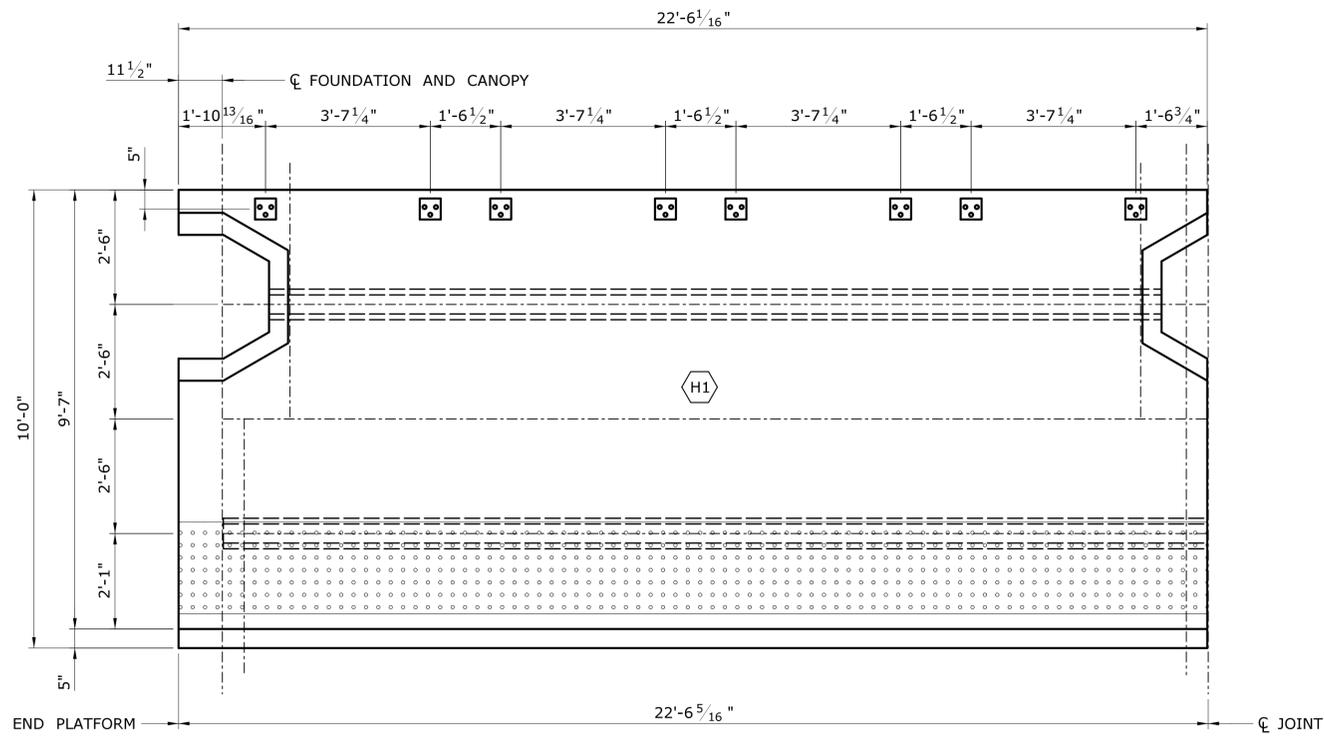
**TACTILE WARNING STRIP DETAILS**

**NOTES:**

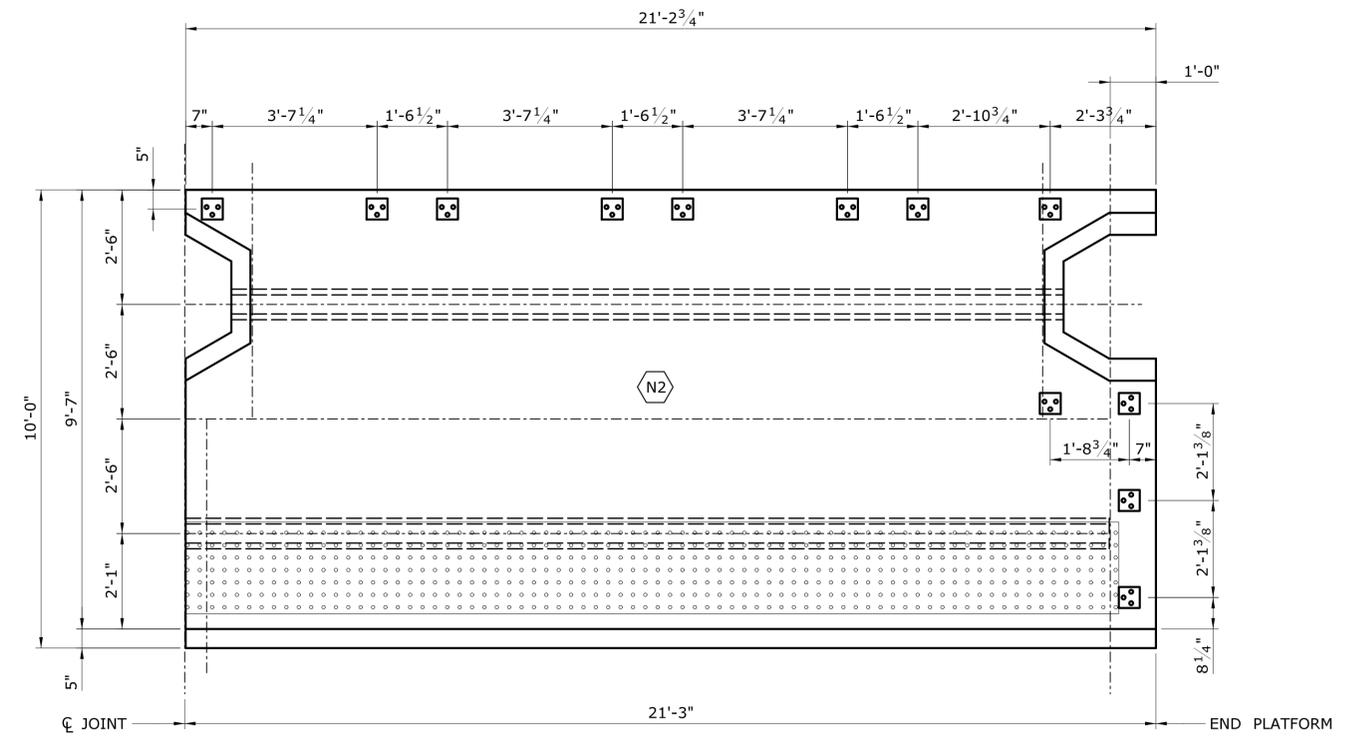
1. ALL METAL STRUCTURES, PERMANENT AND TEMPORARY ALONG WITH ASSOCIATED APPARATUS, INCLUDING BUT NOT LIMITED TO STATION PLATFORMS, CANOPIES, METAL COLUMN SUPPORTS, METAL GUARD RAILS, SIGNS, METAL AND/OR METAL AND NONCONDUCTIVE COMBINATION SEATING, SHALL BE BONDED AS TO FORM A CONDUCTIVE PATH. THERE SHALL BE NO UNACCEPTABLE POTENTIAL DIFFERENCE OR ANY HAZARDOUS TOUCH, STEP OR STEP AND TOUCH CONDITION BETWEEN THE RAIL/RAIL VEHICLE/CATENARY SYSTEM AND SURROUNDING METAL STRUCTURES IN THE ZONE OF INFLUENCES OF THE TRANSMISSION SYSTEMS. THIS IS TO BE REFLECTED BY ADHERENCE TO CURRENT CODES, ACCEPTED PRACTICES OR THE REQUIREMENTS OF THE ENGINEER.
2. EACH PLATFORM LIGHT FIXTURE STANDARD SHALL BE GROUNDED BY MEANS OF A NO. 4 BARE COPPER WIRE CONDUCTOR. A FIVE-SIXTEENTH INCH GROUNDING STUD FOR ATTACHING THE GROUNDING CONDUCTOR, SHALL BE FURNISHED AND MOUNTED INSIDE THE POLE. FOR LIGHT STANDARD GROUNDING DETAILS, SEE SHEET S-XX.
3. SECONDARY BONDING AND GROUNDING SHALL BE INCLUDED UNDER THE ITEM, "PLATFORM LIGHTING AND POWER".
4. THE #4 BARE COPPER GROUND CABLE SHALL BE CONNECTED TO GROUND RODS AT EACH END OF THE PLATFORM BY EXOTHERMIC CONFIGURATION DETAIL.

**FINAL DESIGN REVIEW**

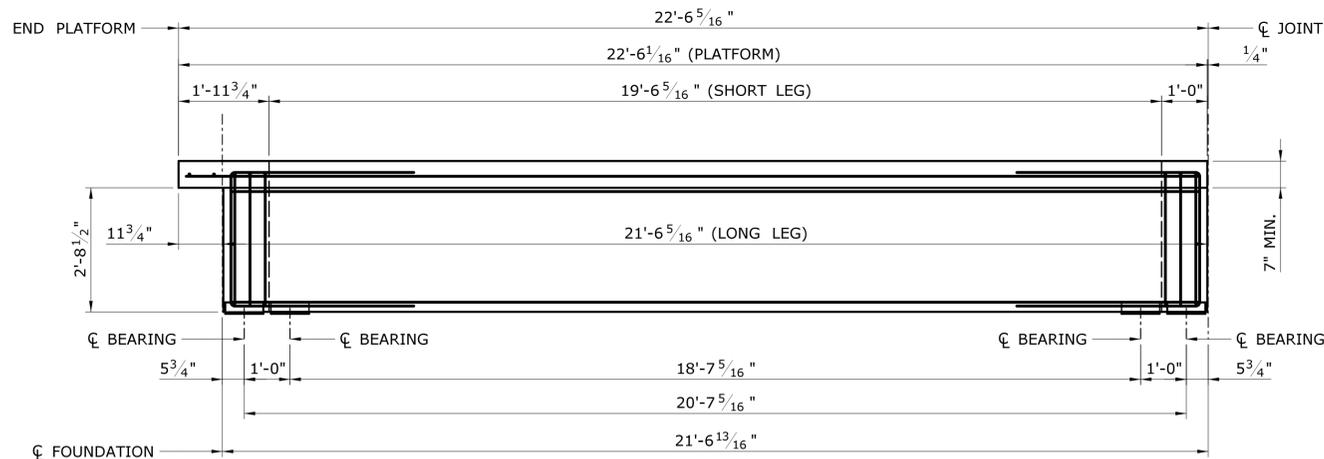
THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		DESIGNER/DRAFTER: <b>B.A./S.F.C.</b> CHECKED BY: <b>N.S.V.</b> SCALE AS NOTED	<b>STATE OF CONNECTICUT</b> DEPARTMENT OF TRANSPORTATION Filename: ...\\SB_MSH_PLATFORM_0135_0301_S-13_PLATFORM-2.dgn	SIGNATURE/BLOCK: <b>VB TECHNOLOGIES CORPORATION</b> STRUCTURAL & CIVIL ENGINEERS 2049 SILAS DEANE HIGHWAY, SUITE 1E ROCKY HILL, CT 06867	PROJECT TITLE: <b>RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET</b>	TOWN: <b>STAMFORD</b> DRAWING TITLE: <b>PLATFORM TYPICAL DETAILS</b>	PROJECT NO. <b>135-301</b> DRAWING NO. <b>S-13</b> SHEET NO. <b>00.13</b>
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 10/13/2014			



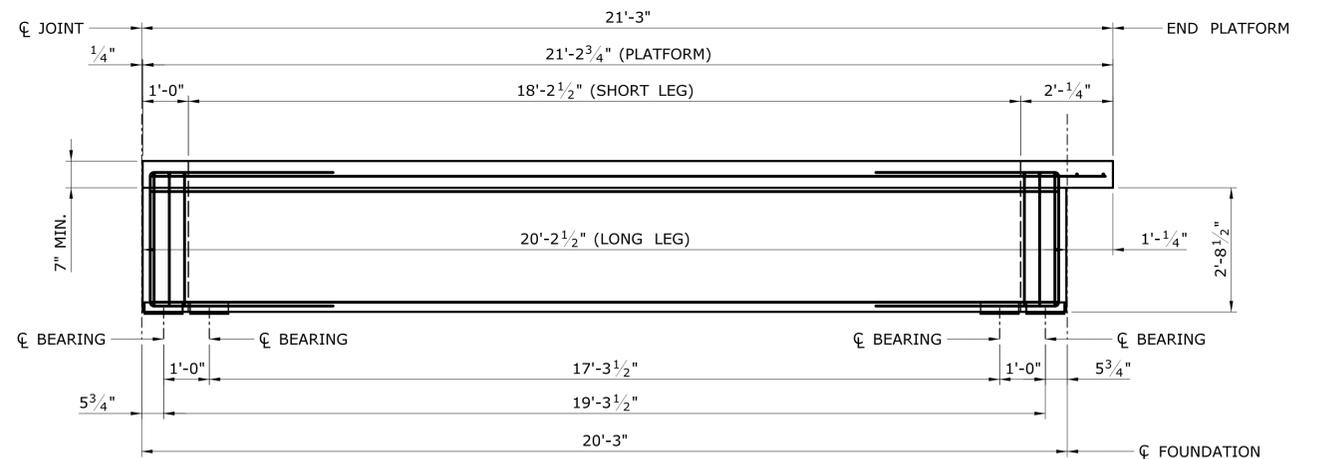
**PLAN**



**PLAN**



**ELEVATION**



**ELEVATION**

**FINAL DESIGN REVIEW**

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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DESIGNER/DRAFTER:  
**B.A./S.F.C.**  
CHECKED BY:  
**N.S.V.**  
SCALE: 1/2" = 1'-0"


**STATE OF CONNECTICUT**  
 DEPARTMENT OF TRANSPORTATION  
 Plotted Date: 10/13/2014  
 Filename: ...\_SB\_MSH\_PLATFORM\_0135\_0301\_S-14\_PLATFORM-3.dgn

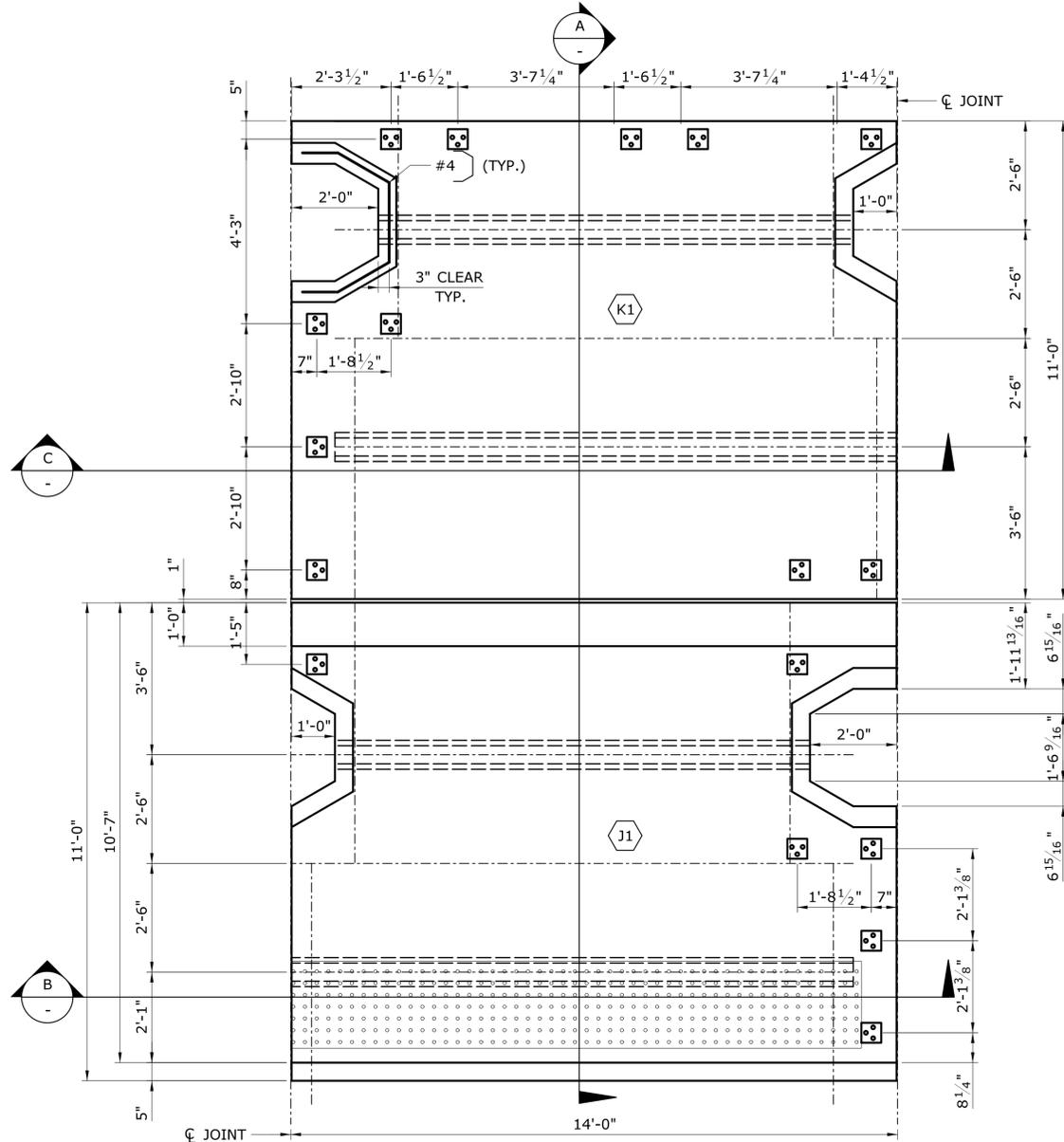
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BLOCK:  

**VB TECHNOLOGIES CORPORATION**  
 STRUCTURAL & CIVIL ENGINEERS  
 2040 SILAS DEANE HIGHWAY, SUITE 1E  
 ROCKY HILL, CT 06067

PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

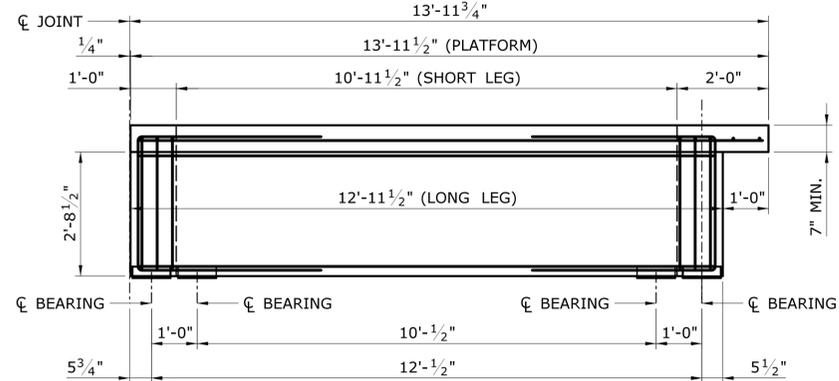
TOWN:  
**STAMFORD**  
DRAWING TITLE:  
**PLATFORMS H1 AND N2**

PROJECT NO.  
**135-301**  
DRAWING NO.  
**S-14**  
SHEET NO.  
**00.14**



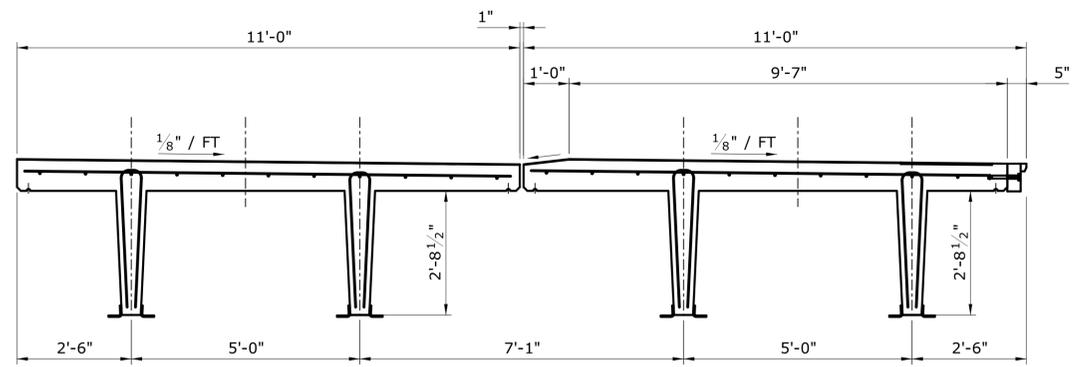
**PLAN**

SCALE: 1/2" = 1'-0"  
13'-11 3/4"



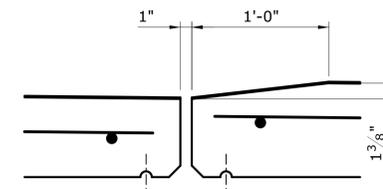
**SECTION B**

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



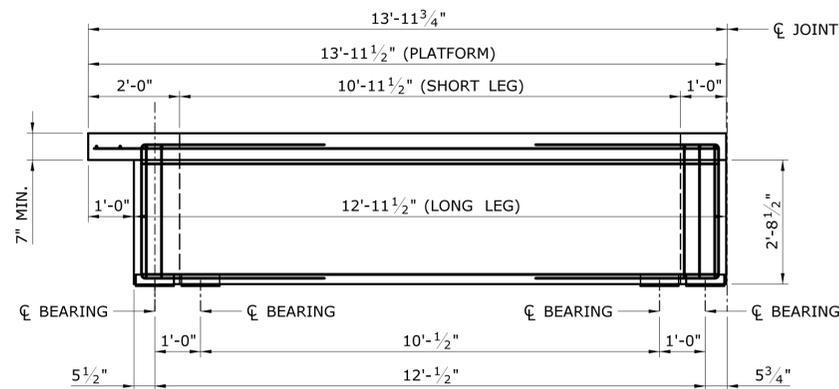
**SECTION A**

SCALE: 1" = 1'-0"



**LONGITUDINAL JOINT DETAIL**

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



**SECTION C**

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

**FINAL DESIGN REVIEW**

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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DESIGNER/DRAFTER:  
**B.A./S.F.C.**  
CHECKED BY:  
**N.S.V.**  
SCALE AS NOTED

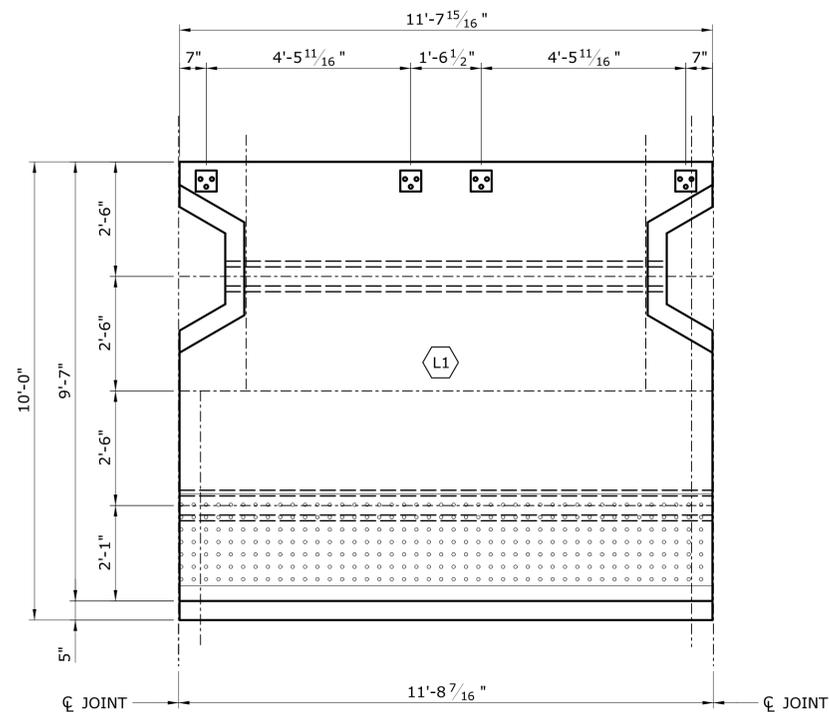
STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION  
Plotted Date: 10/13/2014  
Filename: ...\\SB\_MSH\_PLATFORM\_0135\_0301\_S-15\_PLATFORM-4.dgn

SIGNATURE/BLOCK:  
**VB TECHNOLOGIES CORPORATION**  
STRUCTURAL & CIVIL ENGINEERS  
2043 BLAS DEANE HIGHWAY, SUITE 1E  
ROCKY HILL, CT 06867

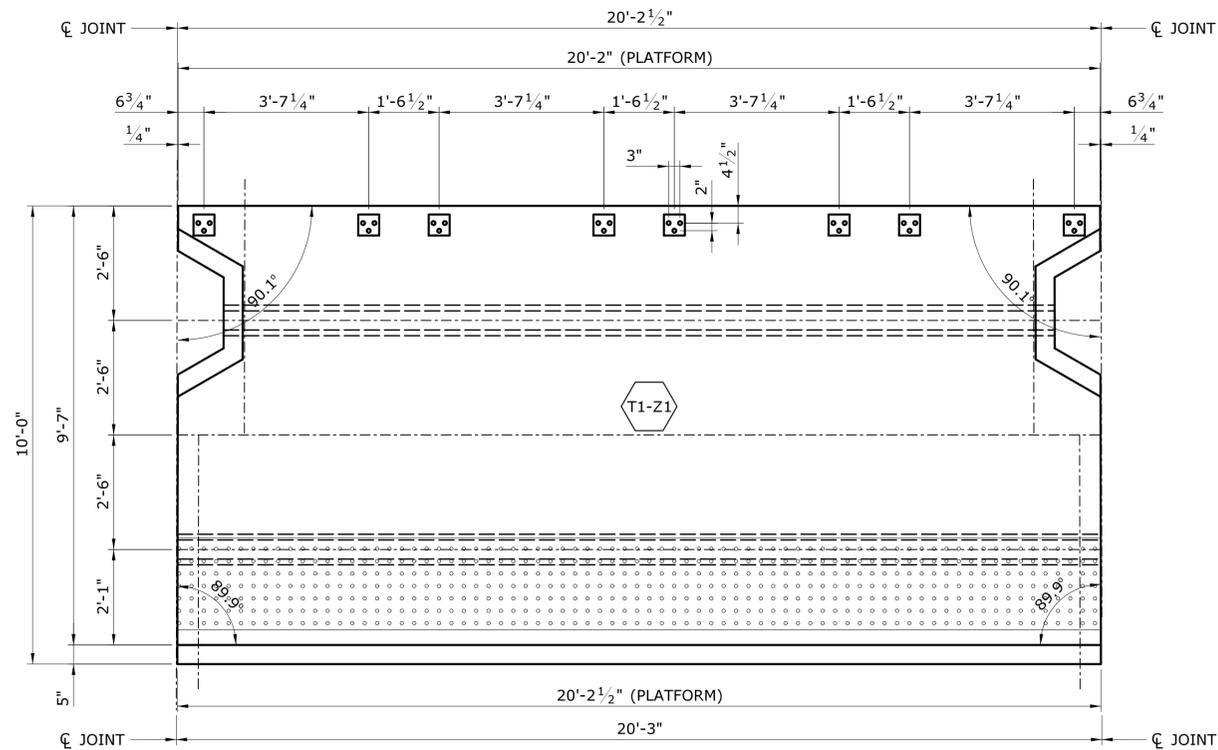
PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

TOWN:  
**STAMFORD**  
DRAWING TITLE:  
**PLATFORMS J1 AND K1**

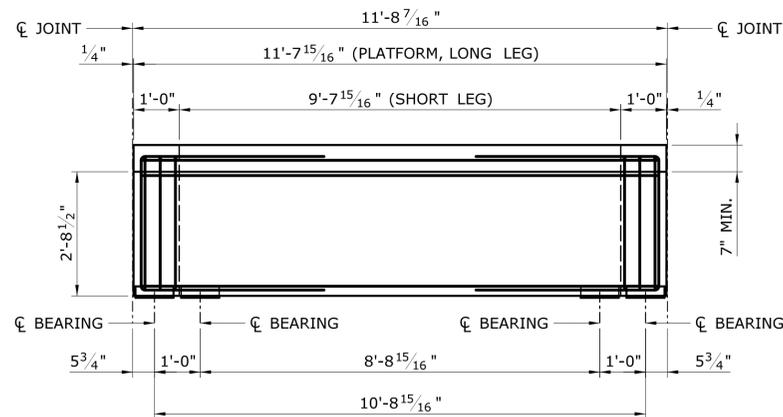
PROJECT NO.  
**135-301**  
DRAWING NO.  
**S-15**  
SHEET NO.  
**00.15**



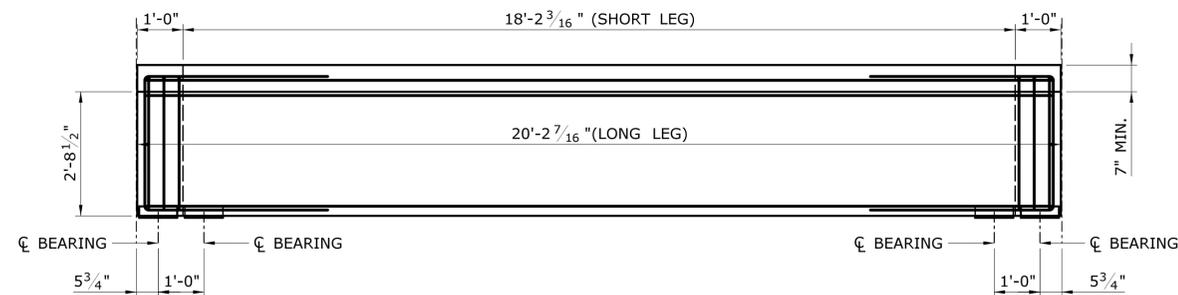
**PLAN**



**PLAN**



**ELEVATION**



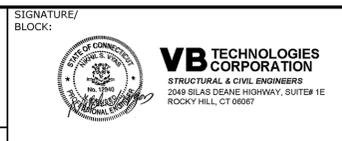
**ELEVATION**

**FINAL DESIGN REVIEW**

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

DESIGNER/DRAFTER:  
**B.A./S.F.C.**  
CHECKED BY:  
**N.S.V.**  
SCALE: 1/2" = 1'-0"



PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

TOWN:  
**STAMFORD**  
DRAWING TITLE:  
**PLATFORMS L1 AND T1-Z1**

PROJECT NO.  
**135-301**  
DRAWING NO.  
**S-16**  
SHEET NO.  
**00.16**

Plotted Date: 10/13/2014

Filename: ...\\SB\_MSH\_PLATFORM\_0135\_0301\_S-16\_PLATFORM-5.dgn

**FINAL DESIGN REVIEW**

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

**STATE OF CONNECTICUT**  
**DEPARTMENT OF TRANSPORTATION**

Filename: ...\\SB\_MSH\_PLATFORM\_0135\_0301\_S-17\_PLATFORM-6.dgn

SIGNATURE/  
BLOCK:

**VB TECHNOLOGIES CORPORATION**  
STRUCTURAL & CIVIL ENGINEERS  
2049 SILAS DEANE HIGHWAY, SUITE 1E  
ROCKY HILL, CT 06867

PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

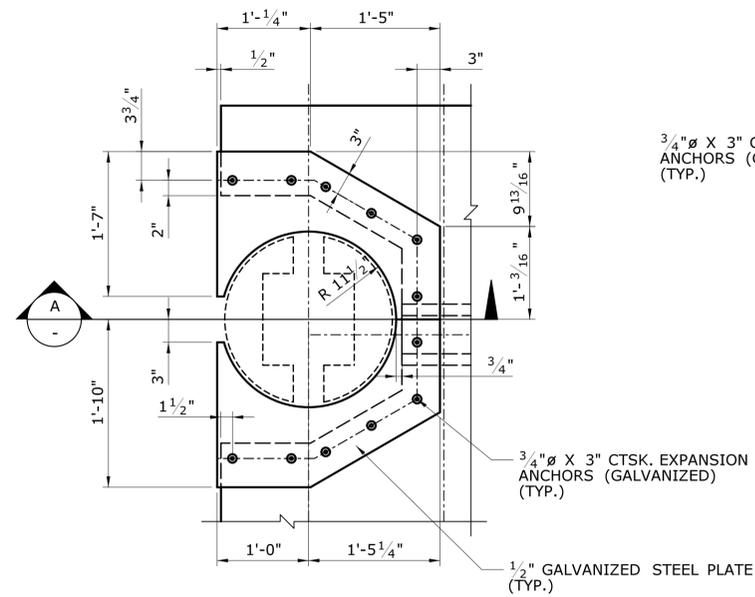
TOWN:  
**STAMFORD**

DRAWING TITLE:  
**PLATFORMS A2 AND B2**

PROJECT NO.  
**135-301**

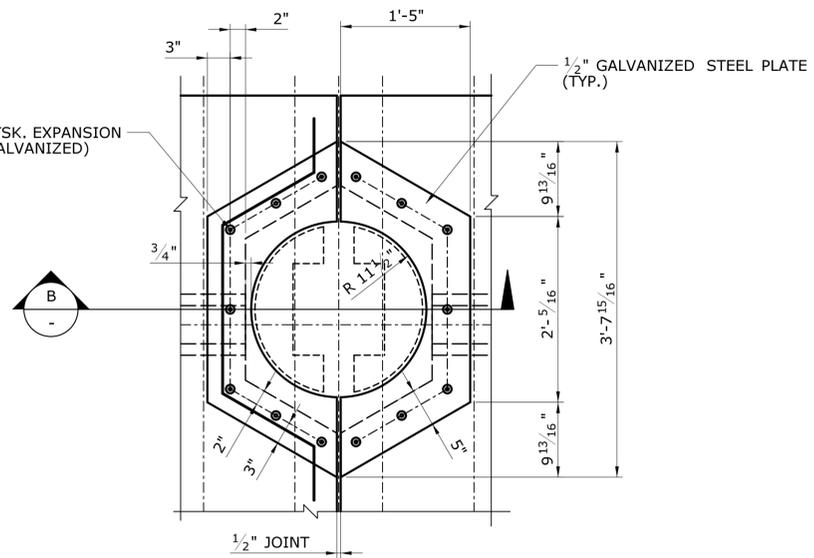
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**S-17**

SHEET NO.  
**00.17**



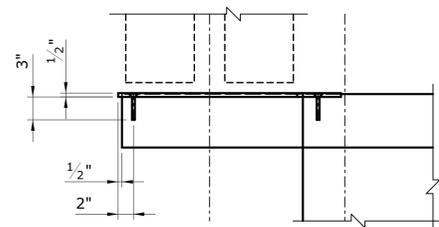
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SCALE: 1" = 1'-0"



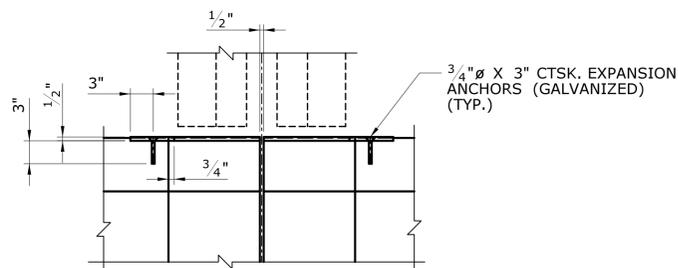
**PLAN**

SCALE: 1" = 1'-0"



**SECTION A**

SCALE: 1" = 1'-0"



**SECTION B**

SCALE: 1" = 1'-0"

**FINAL DESIGN REVIEW**

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

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**B.A./S.F.C.**  
CHECKED BY:  
**N.S.V.**  
SCALE AS NOTED


**STATE OF CONNECTICUT**  
**DEPARTMENT OF TRANSPORTATION**  
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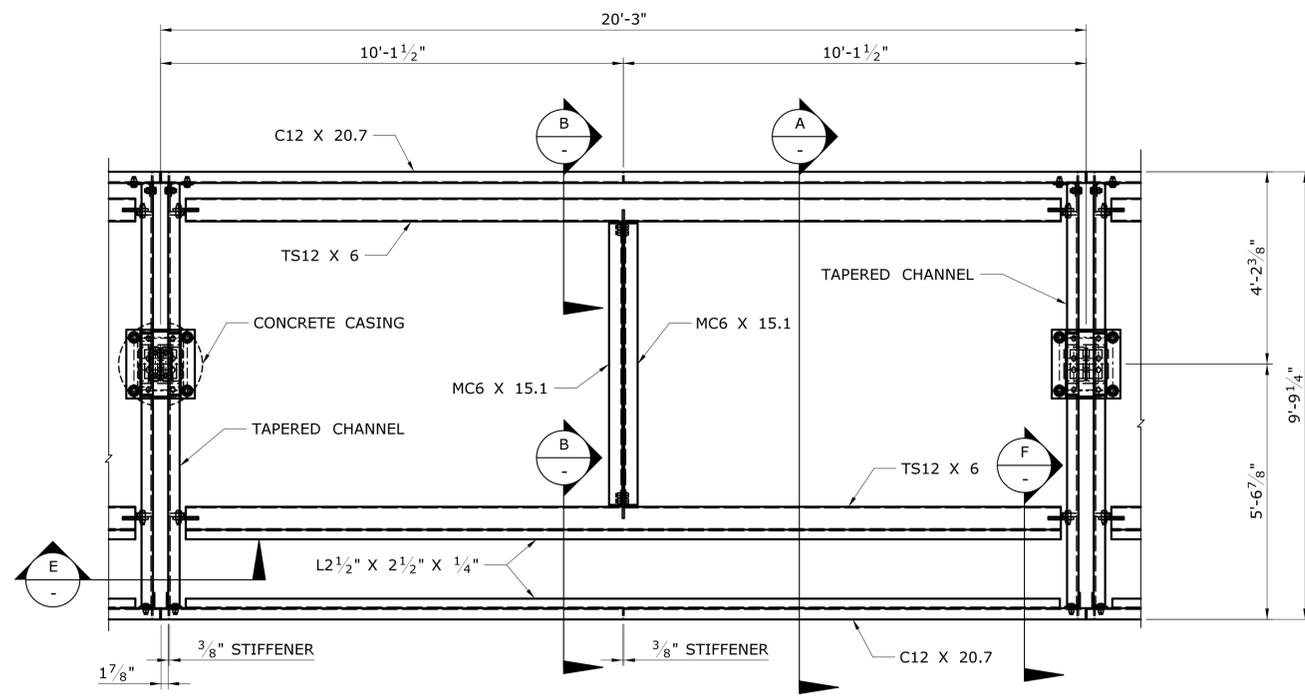
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**VB TECHNOLOGIES CORPORATION**  
STRUCTURAL & CIVIL ENGINEERS  
2080 BLAS DEANE HIGHWAY, SUITE 1E  
ROCKY HILL, CT 06867

PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

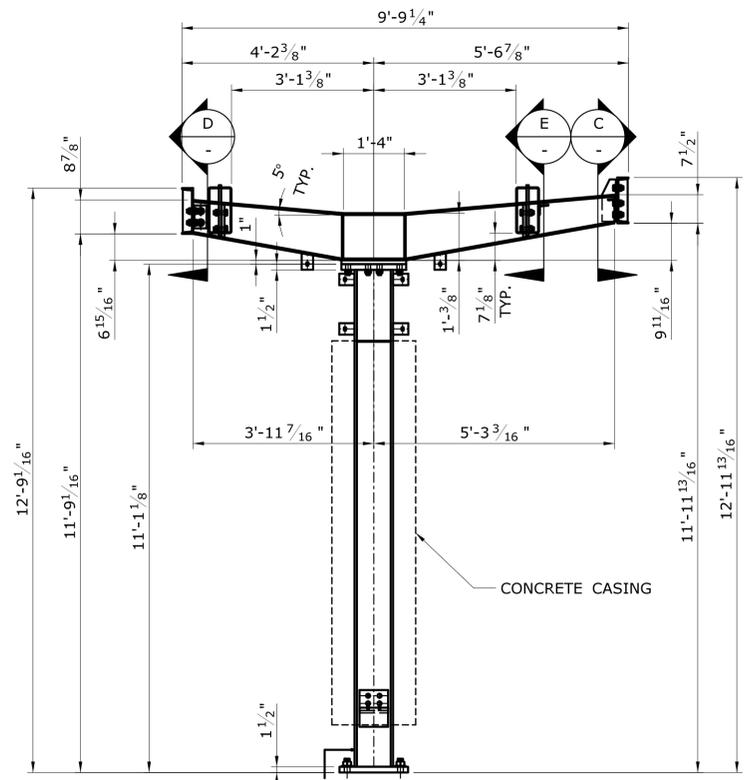
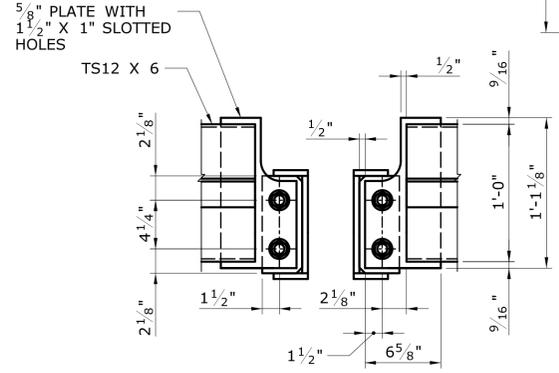
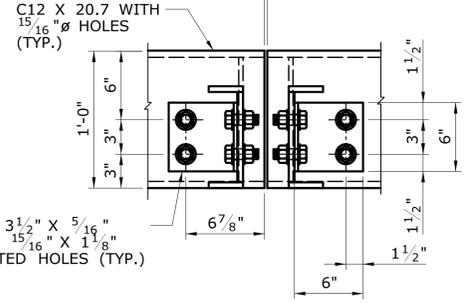
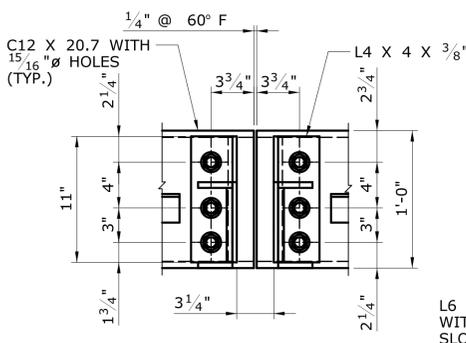
TOWN:  
**STAMFORD**  
DRAWING TITLE:  
**PLATFORM MISCELLANEOUS DETAILS**

PROJECT NO.  
**135-301**  
DRAWING NO.  
**S-18**  
SHEET NO.  
**00.18**



**PLAN**

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



**SECTION A**

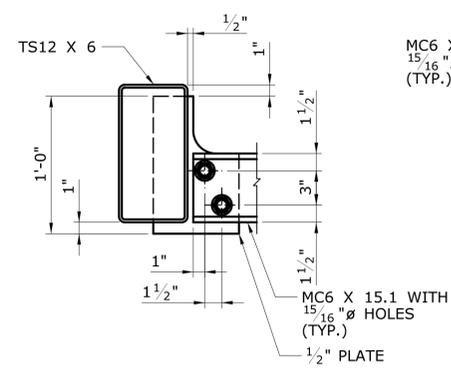
SCALE: 1/2" = 1'-0"

**NOTES:**

1. ALL BOLTS SHALL BE 7/8" DIAMETER ASTM A325 H.S. UNLESS OTHERWISE NOTED.
2. SHIM/FILL PLATES BE PROVIDED TO ASSURE PROPER FIT AND ALIGNMENT. ALL SHIMS/FILLS ARE INCLUDED UNDER THE ITEM "STRUCTURAL STEEL".
3. ALL STEEL TO ALUMINUM INTERFACES SHALL BE PAINTED WITH ZINC CHROMATE PAINT PRIOR TO CONNECTION.
4. ALL STEEL TO BE GALVANIZED ASTM A709 GRADE50PAINTED IN ACCORDANCE WITH SPECIAL PROVISIONS. BUILT UP SECTIONS SHALL BE GALVANIZED AFTER FABRICATION.
5. ALL STRUCTURAL TUBING TO BE ASTM A500 OR A501 GRADE 1020, GALVANIZED.
6. MODIFY DEPTH OF TAPERED CHANNEL AT SIDE CANOPY COLUMN.
7. ALL MATERIAL FABRICATION AND INSTALLATION WORK FOR CANOPIES INCLUDED UNDER THE ITEM "STRUCTURAL STEEL" UNLESS OTHERWISE NOTED.
8. GALVANIZED FASTENERS AND ACCESSORIES TO BE HOT DIPPED GALVANIZED PER ASTM A153.
9. REPAIR DAMAGE TO GALVANIZED COATINGS USING ASTM A780 ZINC RICH PAINT.

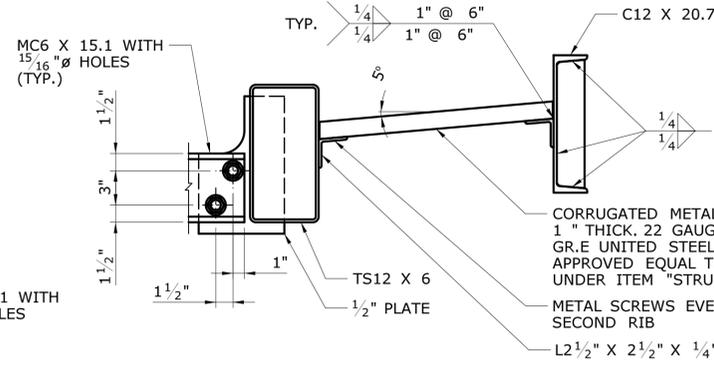
**SECTION C**

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



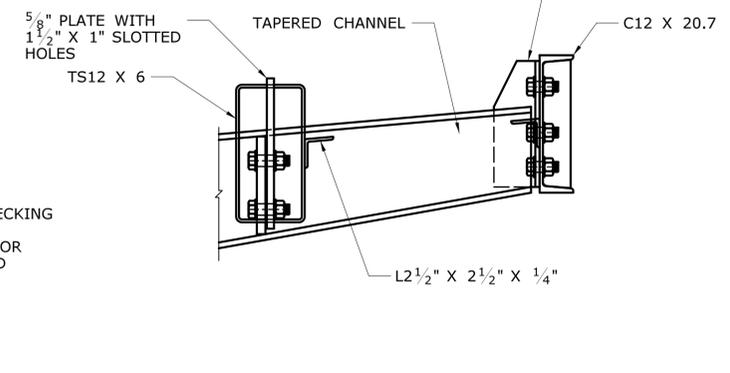
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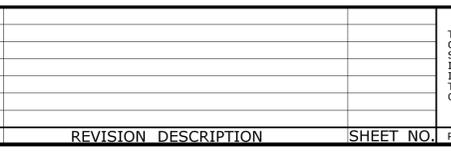
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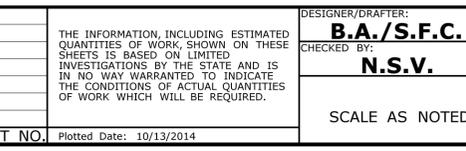
**SECTION B**

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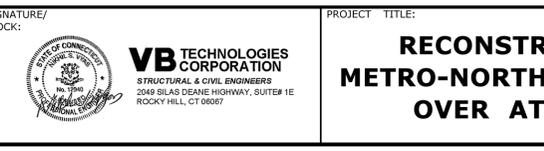
**SECTION B**

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



**SECTION F**

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



**FINAL DESIGN REVIEW**

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

DESIGNER/DRAFTER: **B.A./S.F.C.**  
 CHECKED BY: **N.S.V.**  
 SCALE AS NOTED

STATE OF CONNECTICUT  
 DEPARTMENT OF TRANSPORTATION

FILENAME: ...SB\_MSH\_PLATFORM\_0135\_0301\_S-19\_CANOPY-1.dgn

SIGNATURE/BLOCK:

**VB TECHNOLOGIES CORPORATION**  
 STRUCTURAL & CIVIL ENGINEERS  
 2003 SILAS DEANE HIGHWAY, SUITE 1E  
 ROCKY HILL, CT 06067

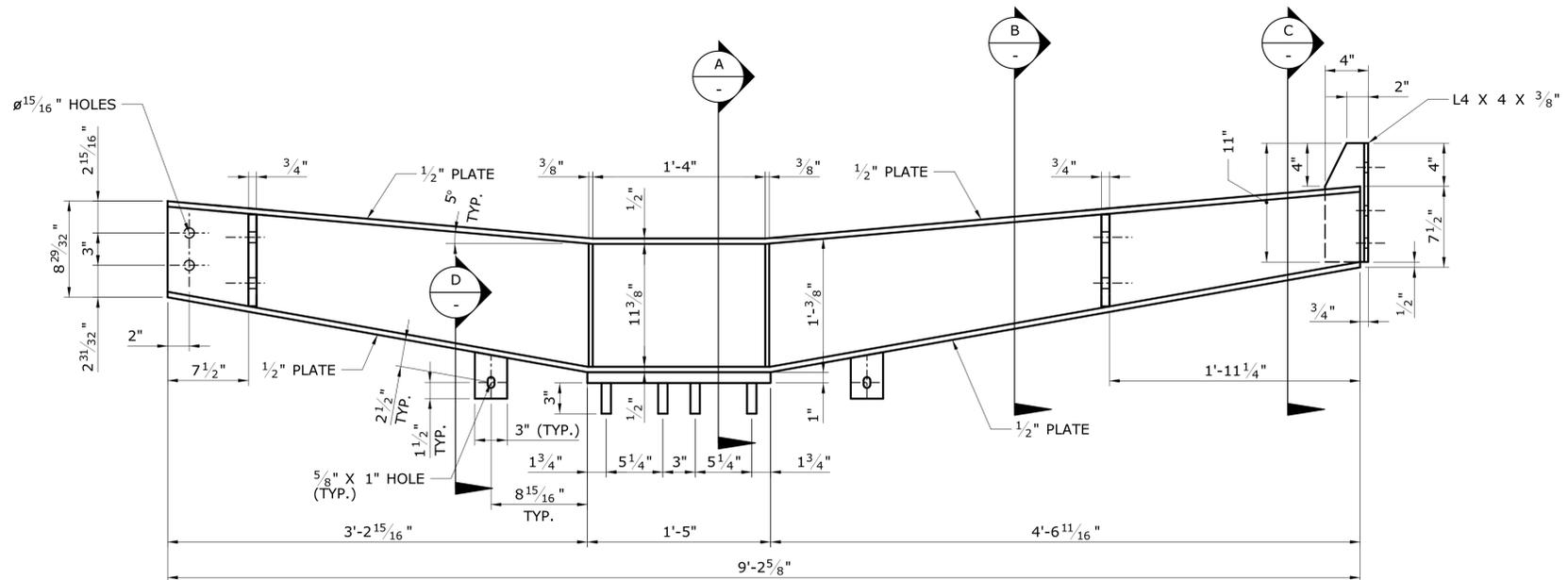
PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

TOWN:  
**STAMFORD**

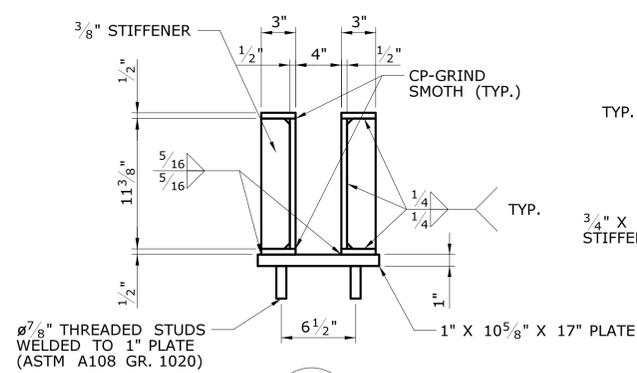
DRAWING TITLE:  
**CANOPIES SECTIONS AND DETAILS**

PROJECT NO.: **135-301**  
 DRAWING NO.: **S-19**  
 SHEET NO.: **00.19**

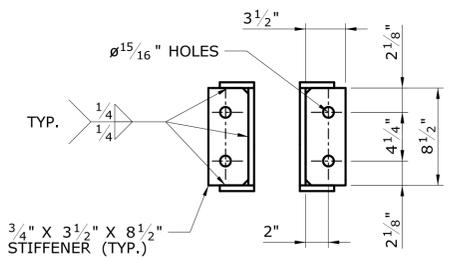




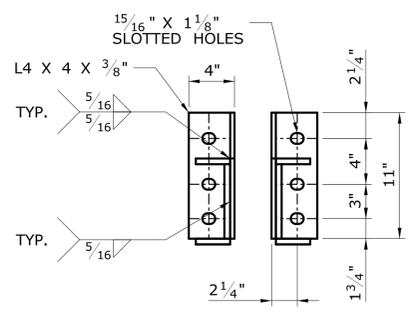
**TAPERED CHANNEL DETAIL**  
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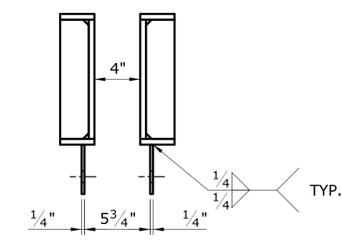
**SECTION A**  
SCALE: 1 1/2" = 1'-0"



**SECTION B**  
SCALE: 1 1/2" = 1'-0"



**SECTION C**  
SCALE: 1 1/2" = 1'-0"

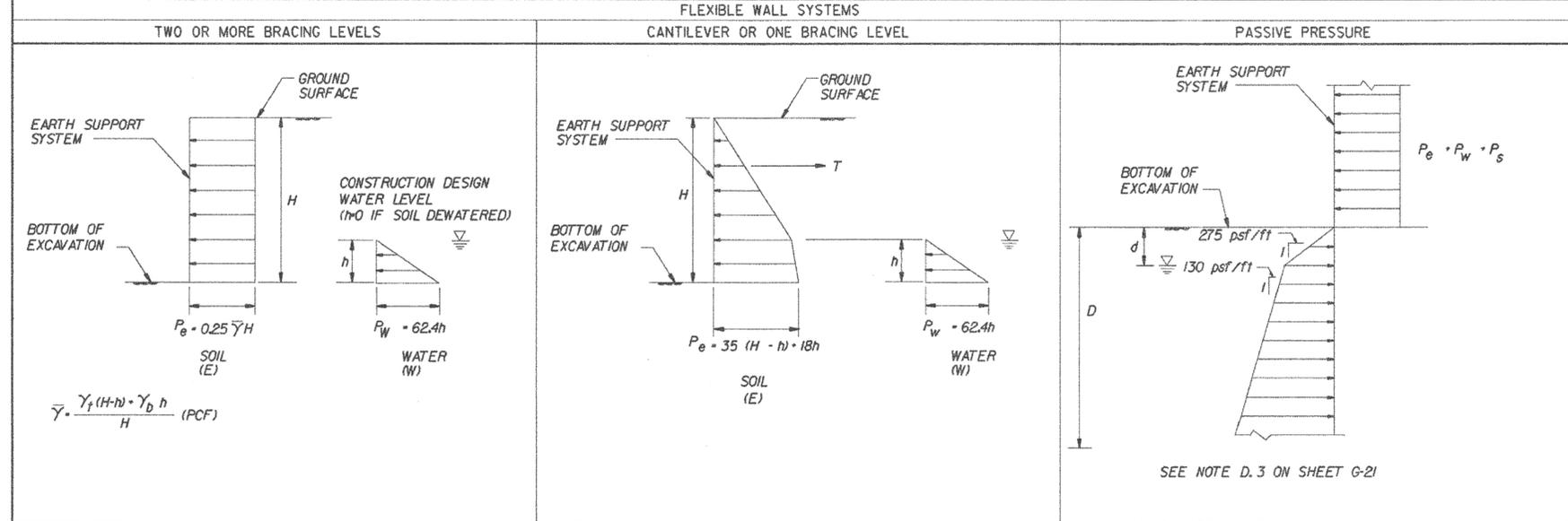


**SECTION D**  
SCALE: 1 1/2" = 1'-0"

**FINAL DESIGN REVIEW**

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REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 10/13/2014						

## MINIMUM DESIGN LATERAL PRESSURES DUE TO SOIL AND WATER



### MINIMUM DESIGN LOADS

STRUCTURE	VERTICAL LOADS		HORIZONTAL LOADS (E), (S) AND (W)	DESIGN LOADING COMBINATIONS AND ALLOWABLE UNIT STRESS
	DEAD LOADS (DL)	LIVE LOADS (LL)		
WALL SYSTEM (ELEMENTS IN CONTACT WITH RETAINED EARTH EXCEPT LAGGING)	WEIGHT OF WALL AND TEMPORARY TRESTLE WHERE APPLICABLE  DECK LOADS INCLUDING WEIGHT OF DECK WHERE APPLICABLE  REACTIONS FROM BRACING SYSTEM INCLUDING VERTICAL LOAD COMPONENTS OF INCLINED TIEBACKS	REACTIONS FROM ALL APPLICABLE LIVE LOADS INCLUDING AASHTO HS 20-44 OR COOPER E 80 LOADINGS AND CONSTRUCTION EQUIPMENT LOADING	LOADS FROM LATERAL EARTH PRESSURE (E) AND LATERAL SURCHARGE PRESSURES (S) AND HYDROSTATIC PRESSURE (W)  AXIAL LOADS FROM END WALLS (E) • (S) • (W), WHERE APPLICABLE	100% OF (DL) • (LL) • (W) • 80% OF (E) • (S) AT 120% OF ALLOWABLE UNIT STRESSES
PRIMARY BRACING MEMBERS (MEMBERS CARRYING DIRECT LOADS INCLUDING WALES, STRUTS AND TIEBACKS)	WEIGHT OF PRIMARY BRACING MEMBER PLUS DECK LOADS, WHERE APPLICABLE		LOADS FROM WALL SYSTEM (E) • (S) • (W)  AXIAL LOADS FROM END WALLS (E) • (S) • (W), WHERE APPLICABLE	FOR WALES: 100% OF (DL) • (LL) • (W) • 80% OF (E) • (S) IN BENDING • 100% OF (E) • (S) IN COMPRESSION  FOR OTHER PRIMARY BRACING MEMBERS: 100% OF (DL) • (LL) • (E) • (S) • (W)  ALL AT 120% OF ALLOWABLE UNIT STRESSES
SECONDARY BRACING MEMBERS (POSTS, LACING, ETC.)	WEIGHT OF SECONDARY BRACING MEMBER PLUS WEIGHT OF SUPPORTED PRIMARY BRACING MEMBER, WHERE APPLICABLE	AXIAL LOAD EQUAL TO 3% OF THE DESIGN AXIAL LOAD IN THE MORE HEAVILY LOADED ADJACENT PRIMARY BRACING MEMBER		120% OF ALLOWABLE UNIT STRESSES

#### LEGEND:

- D ..... TOE PENETRATION OF TEMPORARY EARTH SUPPORT WALL (FT)
- d ..... DEPTH OF GROUNDWATER BELOW BASE OF EXCAVATION (FT)
- DL ..... DEAD LOAD
- E ..... EARTH LOADS
- H ..... EXPOSED LENGTH OF RETAINING STRUCTURE (FT)
- h ..... HYDRAULIC HEAD; HEIGHT OF WATER LEVEL ABOVE BOTTOM OF EXCAVATION (FT)
- Pe ..... LATERAL EARTH PRESSURE (PSF)
- Ps ..... LATERAL SURCHARGE PRESSURE (PSF)
- Pw ..... LATERAL PRESSURE DUE TO WATER (PSF)
- T ..... WALL SUPPORT (BRACE, TIEBACK, STRUT)
- $\gamma$  ..... TOTAL UNIT WEIGHT (PCF)
- $\gamma_b$  ..... BOUYANT UNIT WEIGHT (PCF)
- $\gamma_w$  ..... UNIT WEIGHT OF WATER (PCF)
- $K_A$  ..... ACTIVE EARTH PRESSURE COEFFICIENT
- $K_p$  ..... PASSIVE EARTH PRESSURE COEFFICIENT

**FINAL DESIGN REVIEW**

REV. DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 10/13/2014	DESIGNER/DRAFTER: <b>B.A./S.F.C.</b>	CHECKED BY: <b>N.S.V.</b>	<p><b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b></p>	<p><b>VB TECHNOLOGIES CORPORATION</b> STRUCTURAL &amp; CIVIL ENGINEERS 2048 SILAS DEANE HIGHWAY, SUITE 112 ROCKY HILL, CT 06867</p>
				PROJECT TITLE: <b>RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET</b>		TOWN: <b>STAMFORD</b>	
				DRAWING TITLE: <b>DESIGN CRITERIA FOR EXCAVATION SUPPORT-1</b>		PROJECT NO. <b>135-301</b>	
						DRAWING NO. <b>S-22</b>	
						SHEET NO. <b>00.22</b>	

NOTES FOR ANALYSIS AND DESIGN OF EXCAVATION SUPPORT SYSTEMS

A. GENERAL

- FLEXIBLE WALL SYSTEMS ARE CONSIDERED TO BE SOLDIER PILE AND LAGGING WALLS, AND SIMILAR SYSTEMS.
- DESIGN OF EARTH SUPPORT SYSTEMS SHALL CONFORM TO GOOD ENGINEERING PRACTICE AND DESIGN OF THESE SYSTEMS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT STRUCTURAL MANUALS, CODES AND SPECIFICATIONS.
- ELEMENTS SUPPORTING VERTICAL LOADS AS WELL AS LATERAL PRESSURES SHALL BE ANALYZED AS STRUCTURES SUBJECTED TO COMBINED AXIAL LOAD AND BENDING.
- VERTICAL MEMBERS OF FLEXIBLE WALL SYSTEMS SHALL BE DESIGNED ASSUMING THE MEMBERS TO BE CONTINUOUS OVER ALL BRACING LEVELS, EXCEPT AT THE LOWEST BRACING LEVEL WHERE A HINGED CONNECTION SHALL BE ASSUMED.
- ALL COMPRESSION MEMBER CONNECTIONS, IN ADDITION TO BEING DESIGNED FOR THEIR COMPRESSIVE LOADS, SHALL BE DESIGNED FOR TENSION AND SHEAR EQUAL TO A MINIMUM OF 10 PERCENT OF THEIR COMPRESSIVE LOAD, UNLESS ACTUAL TENSION AND SHEAR LOADS ARE GREATER.
- STRESSES DUE TO TEMPERATURE VARIATIONS SHALL BE TAKEN INTO ACCOUNT IN THE DESIGN OF THE BRACING MEMBERS.
- SOLDIER PILES MAY BE CONSIDERED FULLY BRACED IN THE PLANE OF THE WALL.
- AT NO TIME SHALL THE VERTICAL DISTANCE FROM THE LOWEST INSTALLED BRACE TO THE BOTTOM OF THE EXCAVATION EXCEED 15 FT.
- INITIAL EXCAVATION SHALL NOT EXCEED A MAXIMUM OF 7 FT. DEPTH WITHOUT PLACING A TOP BRACE.
- THE MAXIMUM HEIGHT OF EXCAVATED FACE PRIOR TO INSTALLATION OF LAGGING SHALL NOT EXCEED 5 FEET. UNLAGGED EXCAVATION FACES SHALL NOT REMAIN OPEN OVERNIGHT.
- EXCAVATION SHALL NOT EXCEED 3 FT. BELOW EACH BRACING LEVEL PRIOR TO INSTALLATION AND PRESTRESSING OF THE BRACING.
- THE TOE OF EARTH SUPPORT SYSTEMS SHALL EXTEND A MINIMUM OF 10 FT. BELOW THE BOTTOM OF THE EXCAVATION UNLESS BEDROCK IS ENCOUNTERED BEFORE THIS. TOE PENETRATION REQUIREMENTS SHALL CONSIDER POTENTIAL FOR TOE KICK-IN, VERTICAL LOAD CAPACITY, BOTTOM INSTABILITY, AND HIGH SEEPAGE GRADIENTS WHICH COULD CAUSE "PIPING" IN THE BOTTOM OF THE EXCAVATION FOR SECTIONS NOT DEWATERED. REQUIRED DEPTH OF EMBEDMENT SHALL BE COMPUTED IN ACCORDANCE WITH ACCEPTED PRACTICE.
- THE CONTRACTOR MAY SUBMIT ALTERNATIVE EARTH SUPPORT STRUCTURES FOR REVIEW BY THE ENGINEER.
- LOADS FROM ADJACENT STRUCTURES ON THE WALLS SHALL BE DETERMINED BY THE CONTRACTOR AND REVIEWED BY THE ENGINEER.
- IF ANY LOADINGS OR SOIL CONDITIONS OCCUR WHICH ARE NOT DESCRIBED HEREON, ADEQUATE MEASURES MUST BE TAKEN FOR THE CONDITIONS SUBJECT TO REVIEW BY THE ENGINEER.
- OTHER SOIL PRESSURES MAY BE USED IF THE CONTRACTOR CAN DEMONSTRATE THAT ACTUAL IN-SITU CONDITIONS ARE AT VARIANCE WITH THOSE SHOWN.
- THE DESIGN OF THE EARTH RETAINING STRUCTURE SHALL INCLUDE THE EFFECTS OF LOADS OF STREET TRAFFIC, RAILROAD LOADS, CONSTRUCTION EQUIPMENT, SUPPORTED UTILITIES AND ADJACENT STRUCTURES AND ANY OTHER LOADS THAT MUST BE CARRIED BY THE WALL DURING THE SERVICE LIFE.
- TIMBER LAGGING, IF USED, SHALL BE OF A MINIMUM THICKNESS OF 3" FROM THE GROUND SURFACE TO A DEPTH OF 25 FEET AND 4" FOR DEPTHS BELOW 25 FEET FOR SOLDIER PILE SPACING OF 8 FEET CENTER TO CENTER OR LESS. IN THE CASE OF GREATER SOLDIER PILE SPACING GREATER THICKNESSES OF LAGGING MAY BE REQUIRED.
- THE DEPTH OF PENETRATION OF SOLDIER BEAM BELOW EXCAVATION SUBGRADE MUST BE ANALYZED FOR THE RESISTANCE NECESSARY TO PROVIDE A SUPPORT POINT BELOW SUBGRADE. THE MAXIMUM HORIZONTAL RESISTANCE ON THE FLANGE OF SOLDIER BEAMS SHALL BE TAKEN AS THREE TIMES THE ORDINARY PASSIVE PRESSURE COMPUTED FOR THE WIDTH OF THE FLANGE.
- THE CONTRACTOR MAY BE REQUIRED TO ADJUST CONSTRUCTION OPERATIONS IF THE ENGINEER CONSIDERS THAT BASED ON INSTRUMENTATION READINGS, EXCESSIVE SETTLEMENTS AND DEFLECTIONS MAY OCCUR.
- FOR SOLDIER PILES AND LAGGING EXCAVATION SUPPORT SYSTEM, THE PASSIVE PRESSURE COMPUTED ON SOLDIER PILE SHOULD NOT EXCEED 80% OF THE TOTAL PASSIVE PRESSURE THAT CAN BE MOBILIZED BETWEEN ADJACENT SOLDIER PILES.
- THE DESIGN OF EXCAVATION SUPPORTS IS PAID FOR UNDER ITEM "TEMPORARY SOLDIER PILE AND LAGGING".

B. LATERAL PRESSURES

- LATERAL SURCHARGE PRESSURES FROM VERTICAL LOADS SUPPORTED BY THE SOIL ABOVE THE FINAL EXCAVATION LEVEL MUST BE CONSIDERED IN THE DESIGN, WHERE APPLICABLE.
- TEMPORARY EARTH SUPPORT SYSTEMS MAY BE CONSIDERED NOT TO BE SUBJECTED TO LATERAL SURCHARGE PRESSURES FROM LOADS ASSOCIATED WITH ADJACENT STRUCTURES IF THE ADJACENT STRUCTURE IS LOCATED OUTSIDE A ZONE DEFINED BY A HORIZONTAL TO VERTICAL LINE DRAWN UPWARD AND OUTWARD TOWARD THE ADJACENT STRUCTURE FROM THE BOTTOM OF THE FINAL EXCAVATION LEVEL AT THE OUTSIDE FACE OF THE TEMPORARY EARTH SUPPORT SYSTEM. REFER TO THIS SHEET FOR CRITERIA FOR CALCULATION OF SURCHARGE PRESSURES.
- PASSIVE RESISTANCE PROVIDED BY SOIL INTERIOR OF THE EARTH RETAINING STRUCTURES MAY BE COMPUTED USING CONVENTIONAL EXPRESSIONS FOR PASSIVE PRESSURES. A SAFETY FACTOR OF 1.5 SHALL BE APPLIED FOR ALL CASES TO THE COMPUTED THEORETICAL PASSIVE RESISTANCE.
- FOR EVALUATION OF THE LATERAL PRESSURE UNDER A GIVEN SET OF CONDITIONS, LATERAL PRESSURE FROM SURCHARGE LOADS SHALL BE ADDED TO THE LATERAL PRESSURE FROM SOIL AND WATER (HYDROSTATIC PRESSURE).

C. BRACING MEMBERS

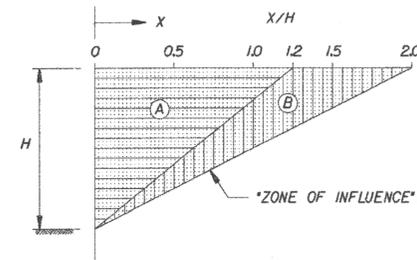
- DESIGN OF BRACING MEMBERS SHALL SATISFY THE MOST CRITICAL CONDITIONS ANTICIPATED DURING THE CONSTRUCTION SEQUENCE.
- BRACING MEMBERS SHALL BE STRUCTURAL STEEL.
- ALL BRACING AND TIE BACKS SHALL BE POST TENSIONED OR PRESTRESSED TO THE FOLLOWING LIMITS:  
A. CROSS-LOT BRACING - 50 PERCENT OF MAXIMUM DESIGN LOADS.  
B. TIE-BACKS - 80 PERCENT OF MAXIMUM DESIGN LOADS. NO WOOD SHIMS SHALL BE USED.
- TIEBACKS, WHERE USED, MUST DERIVE THEIR CAPACITY FROM A BONDED LENGTH LOCATED OUTSIDE A 1:H HORIZONTAL TO VERTICAL LINE DRAWN UPWARD FROM THE BOTTOM OF THE EARTH RETAINING STRUCTURES.

D. PASSIVE PRESSURES FOR TOE STABILITY

- TO DETERMINE THE EMBEDMENT LENGTH OR TOE PENETRATION D REQUIRED TO PROVIDE TOE STABILITY, SOLVE FOR D BY MOMENT EQUILIBRIUM ( $\Sigma M=0$ ) ABOUT THE LOWEST BRACING LEVEL. CONSIDER ONLY THE LATERAL PRESSURES ACTING ON THE WALL BELOW THE LOWEST BRACING LEVEL. LATERAL SURCHARGE PRESSURES MUST BE INCLUDED IF THE SURCHARGE PRESSURES ACT ON THE WALL BELOW THE LOWEST BRACING LEVEL. ASSUME A HINGE IN THE WALL AT THE LOWEST BRACING LEVEL.
- TOE PENETRATION SHOULD BE NOT LESS THAN 10 FEET BELOW BOTTOM OF EXCAVATION.
- A FACTOR OF SAFETY OF 1.5 WAS APPLIED TO THE COEFFICIENT OF PASSIVE EARTH PRESSURE FOR GRANULAR SOILS AND TO THE UNDRAINED SHEAR STRENGTH FOR COHESIVE SOILS.
- THE DEPTH TO GROUNDWATER BELOW THE BASE OF THE EXCAVATION (d) SHOULD BE DETERMINED BY THE CONTRACTOR BASED ON HIS DEWATERING METHODS.
- TOE PENETRATION REQUIREMENTS FOR EARTH SUPPORT WALLS SUPPORTING VERTICAL LOADS MAY BE MORE CRITICAL THAN TOE PENETRATION REQUIREMENTS TO PROVIDE TOE STABILITY AND MUST BE CONSIDERED IN THE ANALYSIS. IN ADDITION, IN SITUATIONS WHERE THE RETAINED SOIL IS NOT DEWATERED, THE DETERMINATION OF TOE PENETRATION MUST CONSIDER THE POTENTIAL FOR HIGH SEEPAGE GRADIENTS WHICH COULD CAUSE "PIPING" AT THE BOTTOM OF THE EXCAVATION.

E. CRITERIA FOR PROTECTION OF STRUCTURES

- STRUCTURES TO BE PROTECTED INCLUDE EXISTING BUILDINGS, UTILITIES, TRACKS, TUNNELS, PAVEMENTS AND OTHER FACILITIES.
- PROTECTION CRITERIA PRESENTED FOR FLEXIBLE WALL SYSTEMS ASSUME AVERAGE EXCAVATION AND BRACING PROCEDURES ARE UTILIZED.
- EVALUATION OF PROTECTION REQUIREMENTS FOR STRUCTURES IS DEPENDENT ON MANY FACTORS, WHICH INCLUDE IMPLEMENTED CONSTRUCTION PROCEDURES AND DETAILS, MAGNITUDE AND TYPES OF MOVEMENT ANTICIPATED, SUBSURFACE CONDITIONS, AND PROXIMITY OF STRUCTURES TO THE EXCAVATION. AT LOCATIONS WHERE STRUCTURES ARE FOUNDED WITHIN THE ZONE OF INFLUENCE, AN EVALUATION OF PROTECTION REQUIREMENTS SHOULD BE CONDUCTED BY THE CONTRACTOR ON A CASE BY CASE BASIS, CONSIDERING ALL RELEVANT FACTORS.
- POSITIVE MEANS OF PROTECTION ARE DEFINED AS MEASURES WHICH MAY BE TAKEN TO CONTROL GROUND MOVEMENTS TO WITHIN ACCEPTABLE LIMITS OR, MEASURES WHICH PROVIDE ADDITIONAL SUPPORT FOR AFFECTED STRUCTURES. EVALUATION OF PROTECTION REQUIREMENTS FOR STRUCTURES GENERALLY BEGINS WITH SELECTING AND IMPLEMENTING EARTH SUPPORT, EXCAVATION AND BRACING TECHNIQUES TO MINIMIZE GROUND MOVEMENTS. IF ANTICIPATED GROUND MOVEMENTS ARE STILL EXPECTED TO EXCEED ACCEPTABLE LIMITS, THEN INDIRECT OR DIRECT STRUCTURE PROTECTION MEASURES SHALL BE IMPLEMENTED BY THE CONTRACTOR ON A CASE BY CASE BASIS. INDIRECT PROTECTION MEASURES INCLUDE SUCH PROCEDURES AS PROVIDING A STIFFER RETAINING SYSTEM, COMPACTION GROUTING OR SLAB/FOOTING JACKING. DIRECT PROTECTION MEASURES INCLUDE SUCH PROCEDURES AS STANDARD UNDERPINNING PITS.
- THE CONTRACTOR SHALL CONSIDER THE EFFECTS OF VIBRATIONS ON ADJACENT STRUCTURES FROM INSTALLATION OF THE EARTH SUPPORT SYSTEM.



PROTECTION CRITERIA FOR FLEXIBLE WALL SYSTEMS

LEGEND

- ZONE OF INFLUENCE: DEFINES A ZONE WITHIN WHICH SOIL MOVEMENTS ARE EXPECTED TO OCCUR AS A RESULT OF CONSTRUCTION. PROTECTION OF STRUCTURES FOUNDED OR LOCATED WITHIN THIS ZONE MUST BE CONSIDERED BY THE CONTRACTOR.
- PROTECTION ZONE A: STRUCTURES WHICH ARE FOUNDED OR LOCATED WITHIN THIS ZONE GENERALLY WILL REQUIRE SOME POSITIVE MEANS OF PROTECTION. REFER TO NOTE 4 FOR DEFINITION OF POSITIVE MEANS OF PROTECTION.
- PROTECTION ZONE B: STRUCTURES WHICH ARE FOUNDED OR LOCATED WITHIN THIS ZONE, GENERALLY WILL NOT REQUIRE PROTECTION, UNLESS THE STRUCTURES ARE PARTICULARLY SENSITIVE TO MOVEMENTS.

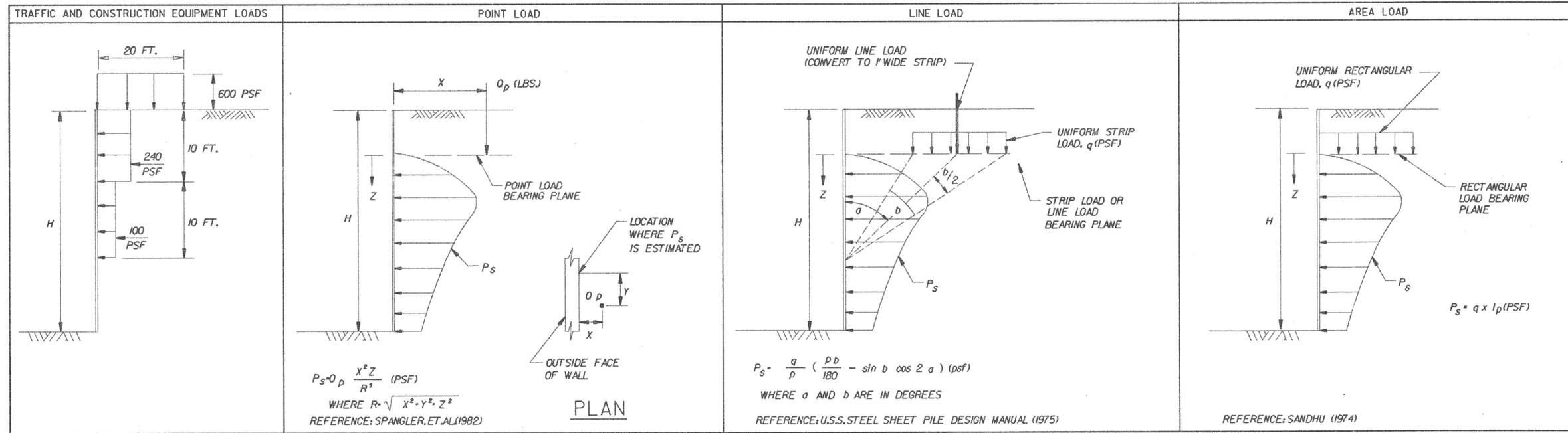
FINAL DESIGN REVIEW

DESIGNER/DRAWER: <b>B.A./S.F.C.</b>		 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION	SIGNATURE/ BLOCK:  <b>VB TECHNOLOGIES CORPORATION</b> STRUCTURAL & CIVIL ENGINEERS 2048 SILAS DEANE HIGHWAY, SUITE 110 ROCKY HILL, CT 06867	PROJECT TITLE:	TOWN:	PROJECT NO.
CHECKED BY: <b>N.S.V.</b>				<b>RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET</b>	<b>STAMFORD</b>	<b>135-301</b>
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	DRAWING TITLE:		SHEET NO.
				<b>DESIGN CRITERIA FOR EXCAVATION SUPPORT-2</b>		<b>00.23</b>

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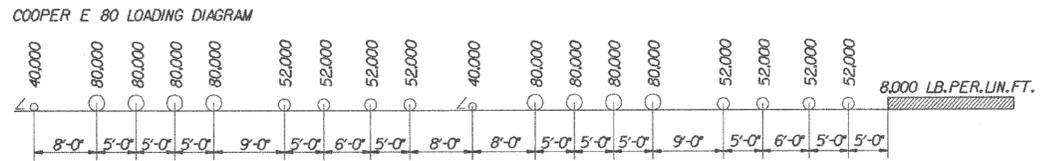
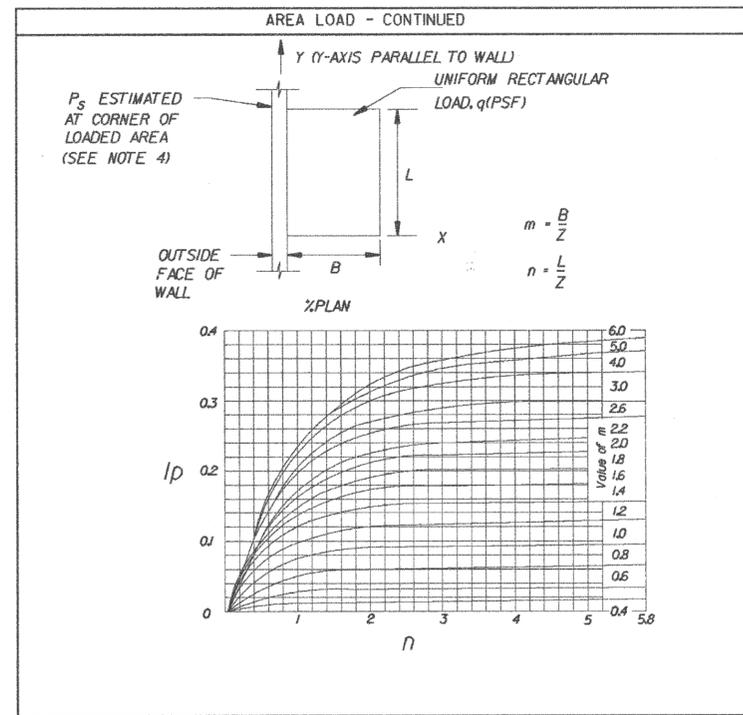
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Plotted Date: 10/13/2014



- NOTES:**
- SURCHARGE LOADS SHOWN ON THIS DRAWING MUST BE ADDED AS APPROPRIATE TO THE DESIGN LOADS RECOMMENDED ELSEWHERE FOR EARTH SUPPORT SYSTEMS.
  - LATERAL PRESSURES DUE TO TRAFFIC AND CONSTRUCTION EQUIPMENT LOADING ARE BASED ON AN ASSUMED SURFACE SURCHARGE OF 600 PSF ACTING OVER A 20 FT. WIDE INFLUENCE AREA. FOR MORE SEVERE TRAFFIC AND CONSTRUCTION AND EQUIPMENT LOADING, ADDITIONAL ANALYSES MUST BE MADE WHICH TAKE INTO ACCOUNT THE MORE CRITICAL LOADING. LATERAL PRESSURES DUE TO TRAFFIC AND CONSTRUCTION EQUIPMENT LOADING SHALL BE INCLUDED IN THE DESIGN OF ALL TEMPORARY EARTH SUPPORT SYSTEMS.
  - FOR LATERAL PRESSURES DUE TO A UNIFORM LINE LOAD, CONVERT LINE LOAD TO 1-FT. WIDE STRIP LOAD AND DETERMINE LATERAL PRESSURES FOR UNIFORM STRIP LOAD.
  - FOR UNIFORM RECTANGULAR LOADING, LATERAL PRESSURES ARE DETERMINED AT VARIOUS DEPTHS BELOW THE CORNER OF THE RECTANGULAR LOADED AREA. WHEN THE RECTANGULAR LOADED AREA IS LOCATED AT A DISTANCE BEHIND THE WALL, THE PRINCIPLE OF LOAD SUPERPOSITION SHOULD BE USED TO DETERMINE LATERAL PRESSURES AGAINST THE WALL. REFER TO "SOIL MECHANICS" BY LAMBE AND WHITMAN, P104, FOR EXAMPLE USING PRINCIPAL OF SUPERPOSITION OF LOADS.
  - RETAINING WALL SYSTEMS USING TIEBACKS SHALL BE CONSIDERED NON-YIELDING FOR THE PURPOSE OF SURCHARGE LOADING CALCULATIONS.

**RAILROAD LOADING**



THE RAILROAD LOADINGS MAY BE CONVERTED TO A UNIFORM STRIP LOAD

- LEGEND:**
- $P_s$  ..... LATERAL SURCHARGE PRESSURE (PSF)
  - $q$  ..... UNIFORM SURCHARGE PRESSURE (LBS)
  - $I_p$  ..... INFLUENCE FACTOR
  - $Q_p$  ..... POINT LOAD (LBS)

**FINAL DESIGN REVIEW**

		DESIGNER/DRAFTER: <b>B.A./S.F.C.</b> CHECKED BY: <b>N.S.V.</b>	<p><b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b></p>	SIGNATURE/ BLOCK: <p><b>VB TECHNOLOGIES CORPORATION</b> STRUCTURAL &amp; CIVIL ENGINEERS 2003 SILAS DEANE HIGHWAY, SUITE 1E ROCKY HILL, CT 06067</p>	PROJECT TITLE: <p style="text-align: center;"><b>RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET</b></p>	TOWN: <p style="text-align: center;"><b>STAMFORD</b></p>	PROJECT NO. <b>135-301</b> DRAWING NO. <b>S-24</b> SHEET NO. <b>00.24</b>
THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	Plotted Date: 10/13/2014	FILENAME: ... \SB_MSH_PLATFORM_0135_0301_S-24_PDF-3.dgn	<b>DESIGN CRITERIA FOR EXCAVATION SUPPORT-3</b>				
REV. DATE      REVISION DESCRIPTION      SHEET NO.							

### STRUCTURAL STEEL NOTES:

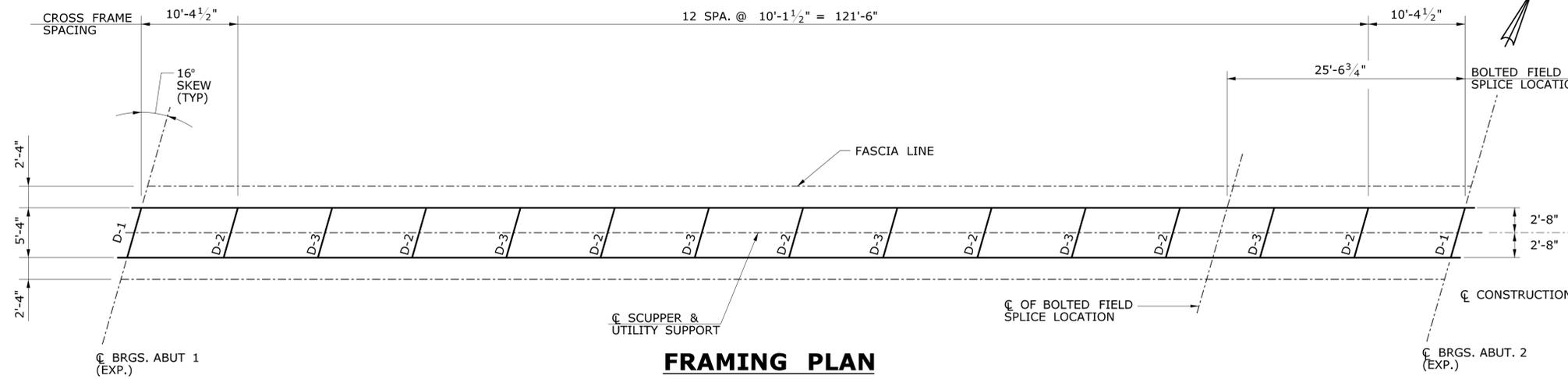
- STRUCTURAL STEEL (LOW ALLOY) SHALL CONFORM TO AASHTO M270, GRADE 50T2.
- ALL FABRICATED STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.
- WELDING DETAILS, PROCEDURES AND TESTING METHODS SHALL CONFORM TO THE ANSI/AASHTO/AWS D1.5: 2002 - BRIDGE WELDING CODE, UNLESS OTHERWISE NOTED ON THE PLANS.
- FIELD SPLICES WILL NOT BE ALLOWED EXCEPT WITH THE WRITTEN PERMISSION OF THE ENGINEER PRIOR TO THE SUBMISSION OF SHOP PLANS. IF ALLOWED, THESE SPLICES SHALL BE DESIGNED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE COST OF THESE SPLICES, INCLUDING THE COST OF DESIGN, SHALL BE AT NO EXTRA EXPENSE TO THE STATE.
- MULTIPLE PASS WELDS, INSPECTED BY THE MAGNETIC PARTICLE METHOD SHALL HAVE EACH PASS OR LAYER INSPECTED AND ACCEPTED BEFORE PROCEEDING TO THE NEXT PASS OR LAYER, AS DETERMINED BY THE ENGINEER.
- BEARING STIFFENERS AND THE ENDS OF GIRDERS SHALL BE VERTICAL AFTER THE APPLICATION OF FULL DEAD LOADS.
- ALL BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A325, TYPE 1, EXCEPT AS NOTED OTHERWISE. ALL NUTS SHALL MEET THE REQUIREMENTS OF ASTM A653 AND ALL WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F436. ALL BOLTS, NUTS AND WASHERS SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH ASTM B695, CLASS 50, TYPE 1 AND SHALL BE PAID FOR UNDER THE ITEM "STRUCTURAL STEEL (SITE NO. 1)".
- ALL CONTACT SURFACES ON BOLTED CONNECTIONS SHALL BE PREPARED IN ACCORDANCE WITH AASHTO SPECIFICATIONS FOR CLASS 'C' SLIP CRITICAL CONDITIONS.
- THE STRUCTURAL STEEL FABRICATORS SHALL BE CERTIFIED UNDER THE AISC QUALITY CONTROL PROGRAM AS "CATEGORY SBr - SIMPLE STEEL BRIDGES".
- THE CONTRACTOR SHALL TAKE THE PROPER PRECAUTIONS TO ENSURE THE STABILITY OF ALL STRUCTURAL ELEMENTS UNTIL THE TOTAL STRUCTURE IS IN BEING.

### FRAMING NOTES:

- ALL DIMENSIONS ARE HORIZONTAL AND MEASURED ALONG THE CENTERLINE OF THE WEB.
- BEARING AND STIFFENERS SHALL BE PROVIDED ON BOTH SIDES OF THE WEB.
- COST OF BEVELED SOLE PLATES SHALL BE PAID FOR UNDER THE ITEM "STRUCTURAL STEEL (SITE NO. 1)".
- END BEARING CROSS FRAME SHALL BE PARALLEL TO THE CENTERLINE OF BEARINGS.
- INTERMEDIATE CROSS FRAME SHALL BE PARALLEL TO THE CENTERLINE OF BEARING.
- NO ATTACHMENT SHALL BE FILLET WELDED, PLUG WELDED OR TACK WELDED TO THE TENSION ZONE.
- FOR CROSS FRAME DETAILS, SEE STEEL DETAILS SHEET.
- FOR LOCATION OF DIAPHRAGM CONNECTION PLATES, SEE STEEL DETAILS SHEET.
- FOR BEARING DETAILS, SEE BEARING DETAILS.
- FOR BEARING STIFFENER LAYOUT, SEE STEEL DETAILS SHEET.
- FOR DIMENSIONS OF BEVELED SOLE PLATE, SEE BEARING DETAILS.

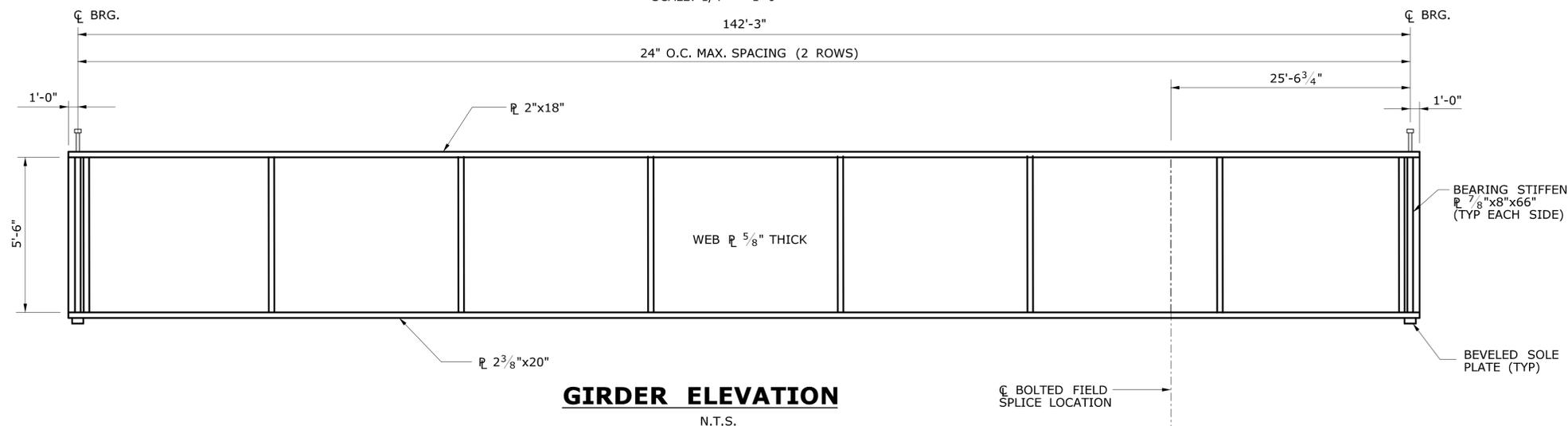
### CAMBER NOTES:

- STRUCTURAL STEEL DEAD LOAD DEFLECTION INCLUDES WEIGHT OF GIRDER AND CROSS FRAMES.
- ADDITIONAL DEAD LOAD DEFLECTION INCLUDES WEIGHT OF CONCRETE SLAB.
- COMPOSITE DEAD LOAD DEFLECTION INCLUDES CANOPY.
- TOTAL CAMBER APPLIES TO THE TOP OF THE WEB AND IS MEASURED FROM THE CAMBER REFERENCE LINE.
- THE CAMBER REFERENCE LINE IS THE STRAIGHT LINE CONNECTING THE TOP OF WEB AT THE CENTERLINES OF BEARINGS FROM ONE ABUTMENT TO THE OTHER.



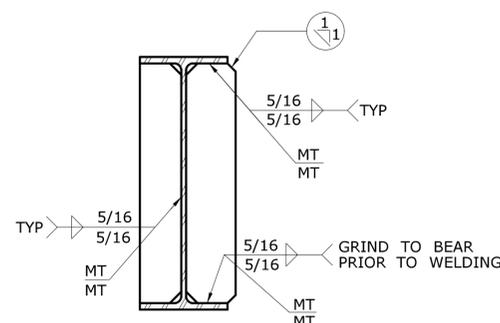
### FRAMING PLAN

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



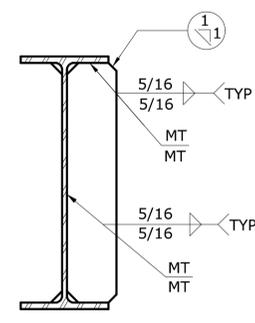
### GIRDER ELEVATION

N.T.S.



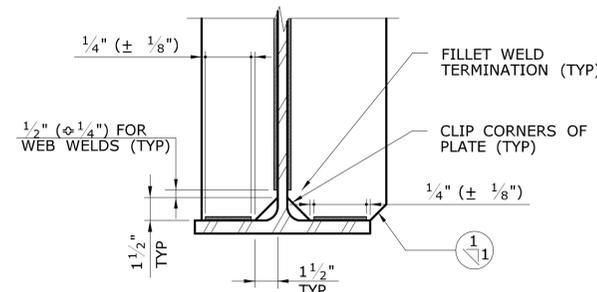
### CONNECTION PLATE

N.T.S.



### BEARING STIFFENER

N.T.S.



### CLIP AND WELD TERMINATION DETAIL

N.T.S.

DEAD LOAD DEFLECTION AND CAMBER TABLE							
STRINGER ID	DEAD LOAD DEFLECTION AT MIDSPAN (IN)			CAMBER AT C OF SPAN (IN)			
	STR STEEL	ADDITIONAL DL	COMPOSITE DL	TOTAL DL DEFLECTION	VERTICAL CURVE ORDINATE	EXTRA CAMBER	TOTAL
G1 & G2	X.XXX	X.XXX	X.XXX	X.XXX	X.XXX	X.XXX	X.XXX

### FINAL PLANS FOR REVIEW

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D. COSTELLO  
SCALE AS NOTED

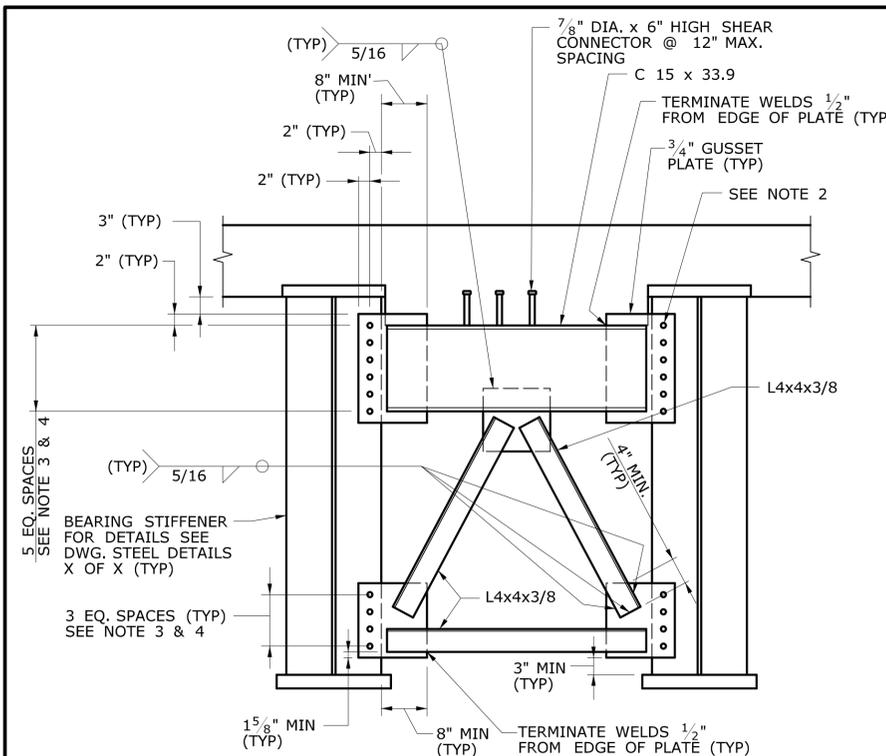


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PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

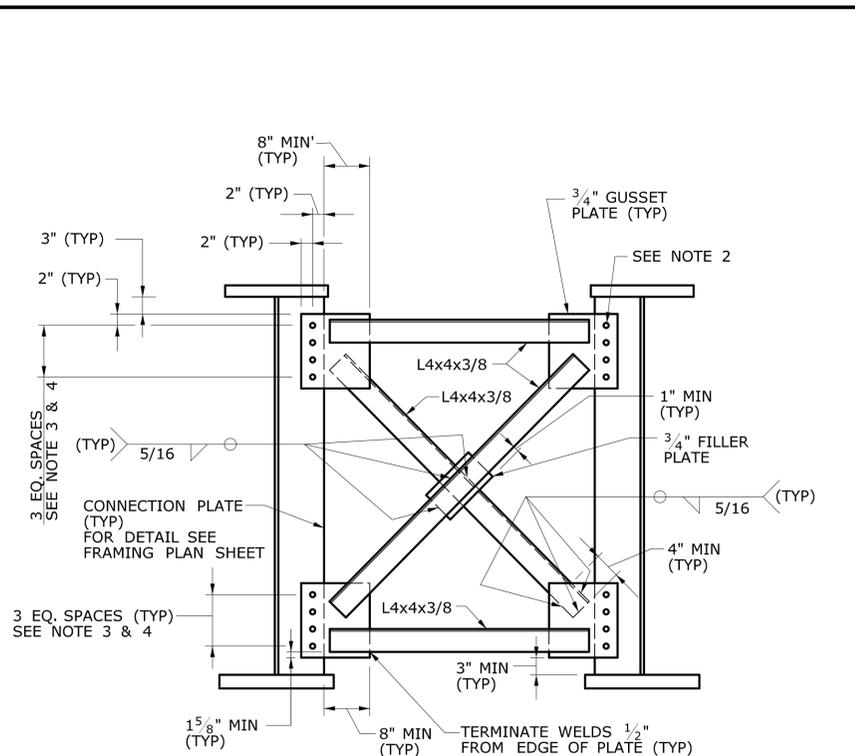
TOWN:  
**STAMFORD**  
DRAWING TITLE:  
**FRAMING**

PROJECT NO.  
**301-163**  
DRAWING NO.  
**S-XX**  
SHEET NO.  
**XX.XX.OXX**



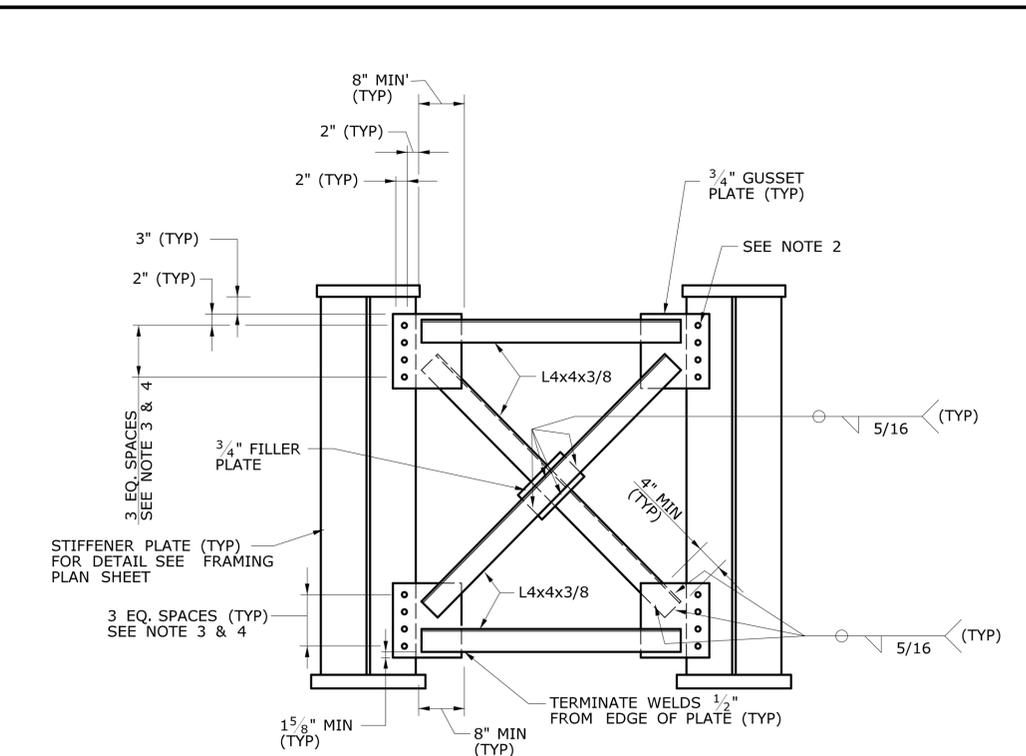
**DIAPHRAGM SECTION - TYPE D-1  
AT ABUTMENT**

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



**INTERMEDIATE DIAPHRAGM  
SECTION - TYPE D-2**

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

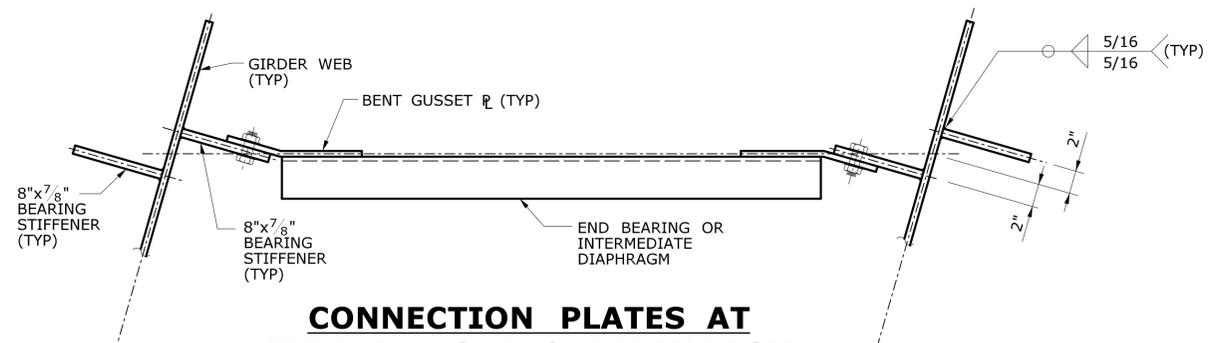


**INTERMEDIATE DIAPHRAGM  
SECTION - TYPE D-3**

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

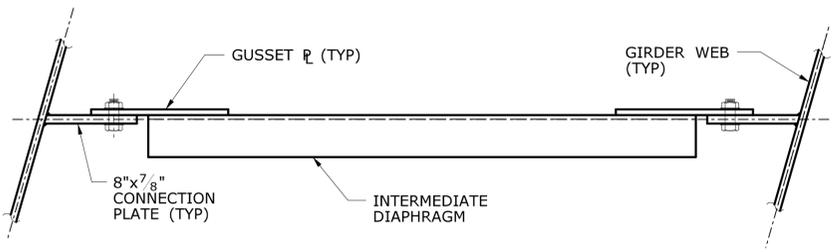
**NOTES:**

- FOR STRUCTURAL STEEL NOTES, SEE FRAMING PLAN SHEET.
- BOLT HOLES IN MEMBER OR GUSSET PLATES SHALL BE 1" DIAMETER (STANDARD) FOR A325 BOLTS. BOLT HOLES IN TRANSVERSE INTERMEDIATE STIFFENER, BEARING STIFFENER OR CONNECTION PLATES SHALL BE 1 1/8" DIAMETER (OVERSIZED).
- MINIMUM BOLT SPACING IS 3".
- VERTICAL BOLT SPACING AND GUSSET PLATE DIMENSIONS SHALL BE KEPT TO A MINIMUM, WHILE STILL SATISFYING THE GEOMETRIC REQUIREMENTS RESULTING FROM MEMBER ORIENTATION, MINIMUM WELD LENGTH AND NUMBER OF BOLTS REQUIRED.
- ALL DIAPHRAGMS ARE DETAILED IN THE WEB PLUMB POSITION AFTER ALL LOADS ARE APPLIED.



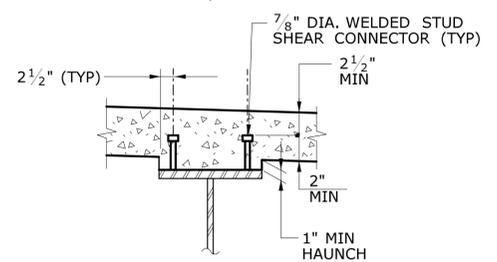
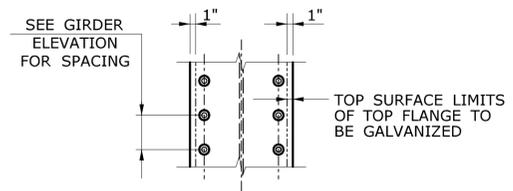
**CONNECTION PLATES AT  
TYPE D-1 & D-3 DIAPHRAGM**

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



**CONNECTION PLATES AT  
TYPE D-2 DIAPHRAGM**

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



**SHEAR STUD DETAILS**

N.T.S.

**SHEAR CONNECTOR NOTES:**

- FOR SHEAR STUD SPACING, SEE GIRDER ELEVATION, DWG. NO.
- USE STACKED STUDS WHEN REQUIRED STUD LENGTH EXCEEDS 8".
- PROVIDE HAUNCH REINFORCEMENT FOR HAUNCH DEPTHS GREATER THAN 4". FOR HAUNCH REINFORCEMENT DETAIL, SEE DWG. NO.

**FINAL PLANS FOR REVIEW**

11/13/2014 P:\500 CAD-CADD-GIS-Graphics\510 CADD\510.0.04 Struc.Bridge\VAL\SB\_MSH.Br08012R.0135.0301.DET3.dgn

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**D. COSTELLO**  
SCALE AS NOTED

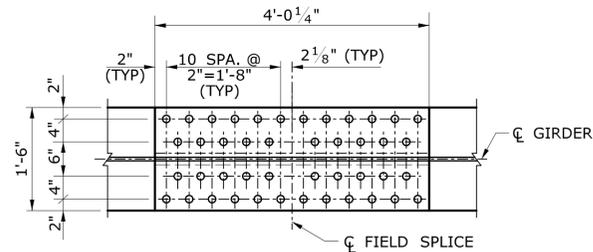


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**RECONSTRUCTION OF THE  
METRO-NORTH RAILROAD BRIDGE  
OVER ATLANTIC STREET**

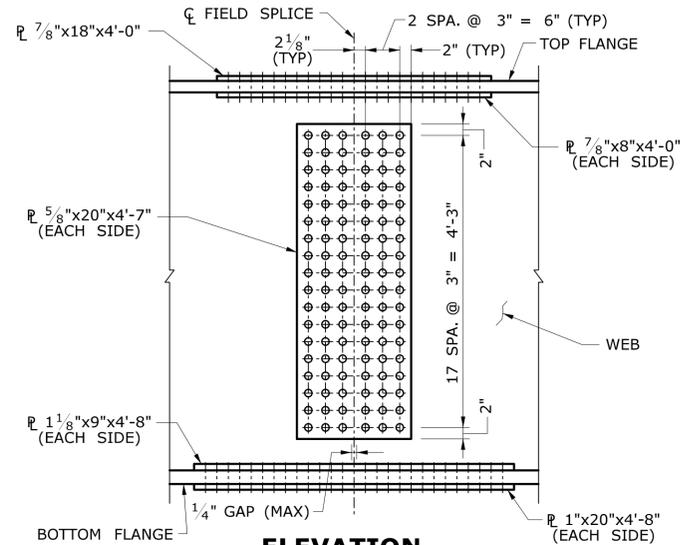
TOWN:  
**STAMFORD**  
DRAWING TITLE:  
**CROSS FRAME DETAILS**

PROJECT NO.  
**301-163**  
DRAWING NO.  
**S-XX**  
SHEET NO.  
**XX.XX.XXX**

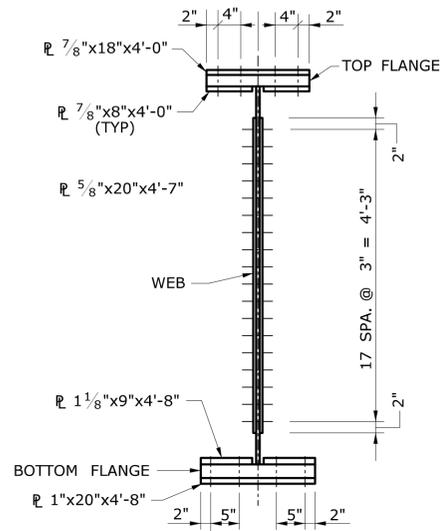


**PLAN - TOP FLANGE**

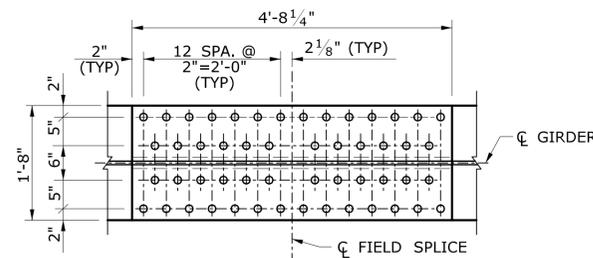
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**ELEVATION**



**SECTION**



**PLAN - BOTTOM FLANGE**

**FIELD SPLICE**

N.T.S.

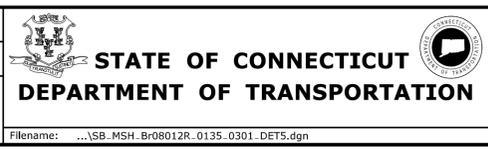
**FINAL PLANS FOR REVIEW**

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**D. COSTELLO**  
SCALE AS NOTED

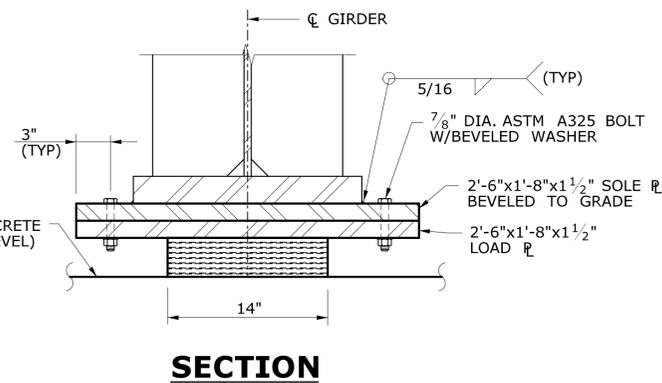
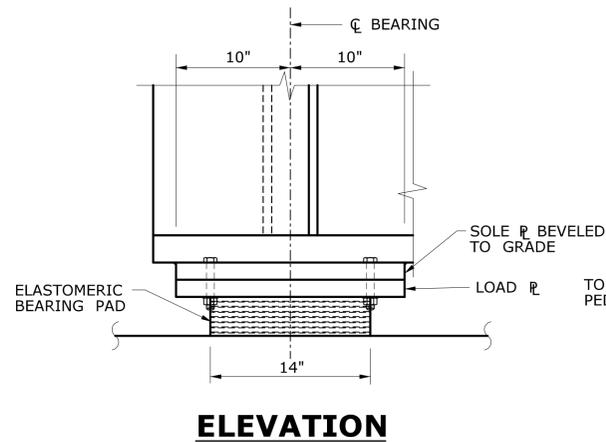
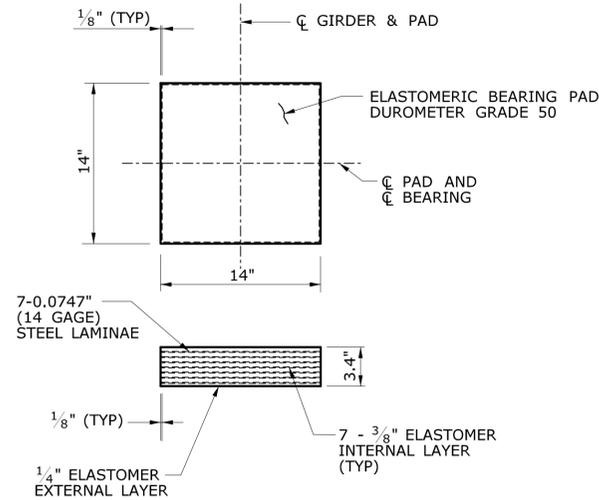
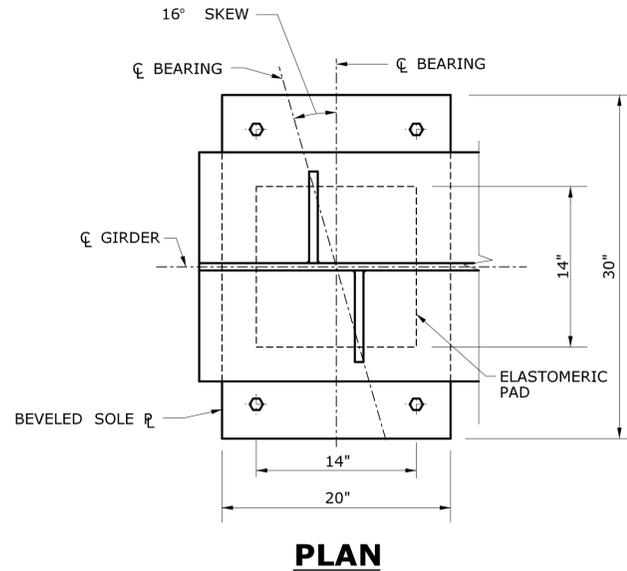


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**RECONSTRUCTION OF THE  
METRO-NORTH RAILROAD BRIDGE  
OVER ATLANTIC STREET**

TOWN:  
**STAMFORD**  
DRAWING TITLE:  
**FIELD SPLICE DETAILS**

PROJECT NO.  
**301-163**  
DRAWING NO.  
**S-XX**  
SHEET NO.  
**XX.XX.XXX**



### ELASTOMERIC BEARING NOTES:

1. THE ELASTOMER SHALL BE GRADE 3 WITH A SHORE "A" DURAMETER HARDNESS = 50 +/- 5 POINTS AND A SHEAR MODULULUS WITHIN THE RANGE OF 0.90 MPA TO 1.30 MPA.
2. THE STEEL LAMINATE USED IN THE ELASTOMERIC BEARING SHALL CONFORM TO ASTM A709M GRADE 250, AND SHALL BE PAID FOR UNDER THE ITEM "ELASTOMERIC BEARING PADS".
3. ANCHOR RODS SHALL BE ASTM A722-95 (Fu = 1034 MPa). THE COST OF ANCHOR RODS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE BEARINGS AND SHALL INCLUDE THEIR INSTALLATION AND GALVANIZED NUTS, COUPLERS AND WASHERS.
4. THE ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE PAID FOR UNDER THE ITEM "ELASTOMERIC BEARING PADS".
5. THE BOLTED CONNECTIONS SHALL BE "SLIP-CRITICAL" CONNECTIONS WITH CLASS 'B' SURFACE CONDITION.
6. WELDING DETAILS, PROCEDURES, AND TESTING METHODS SHALL CONFORM TO ANSI/AASHTO/AMS D1.5M/01.5-2002 BRIDGE WELDING CODE.
7. THE SOLE PLATES SHALL CONFORM TO ASTM A709, GRADE 50 AND SHALL BE BEVELED TO MATCH THE SLOPE OF THE STRINGER SO THAT THE BOTTOM SURFACE OF THE PLATE IS LEVEL AFTER THE APPLICATION OF FULL DEAD LOAD. THE SOLE PLATE SHALL BE INCLUDED IN THE ITEM "STRUCTURAL STEEL BRIDGE (SITE NO. 4)".
8. ELASTOMERIC BEARINGS SHALL BE INSTALLED AT THE AMBNTENT TEMPERATURE BETWEEN 0 DEGREE AND 27 DEGREES CELCIUS. CENTERLINE OF BEARING PAD AND SOLE PLATE TO BE INSTALLED AT CENTERLINE OF BEARING.
9. TOTAL BEARING DESIGN LOAD = 101 KN.
10. ALL SOLE PLATES SHALL BE BEVELED TO GRADE.

### REFERENCES:

1. THE LOCATIONS OF BEARINGS, SEE DWG. "BEARING LAYOUT".
2. FOR CONCRETE PEDESTAL DETAILS, SEE DWG. "ABUTMENT & WINGWALL/MISCELLANEOUS DETAILS 2".

### FINAL PLANS FOR REVIEW

REV.	DATE	REVISION DESCRIPTION	SHEET NO.
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DESIGNER/DRAFTER:  
**C. CHUANG**  
CHECKED BY:  
**D. COSTELLO**  
SCALE AS NOTED

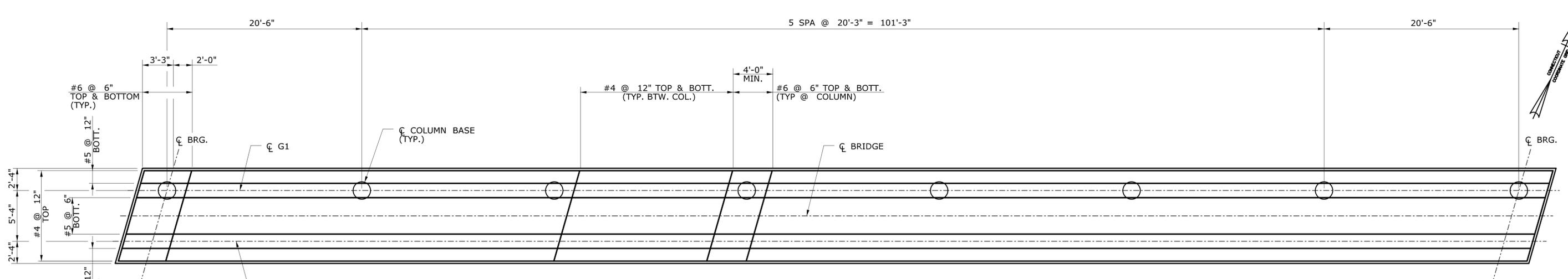


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PROJECT TITLE:  
**RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET**

TOWN:  
**STAMFORD**  
DRAWING TITLE:  
**BEARING DETAILS**

PROJECT NO.  
**301-163**  
DRAWING NO.  
**S-XX**  
SHEET NO.  
**XX.XX.OXX**

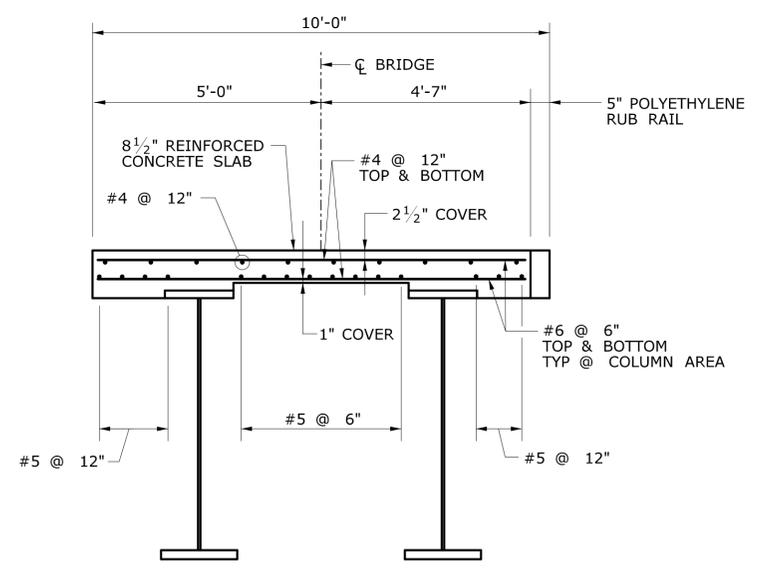


**PLATFORM PLAN**  
SCALE: 3/16" = 1'-0"

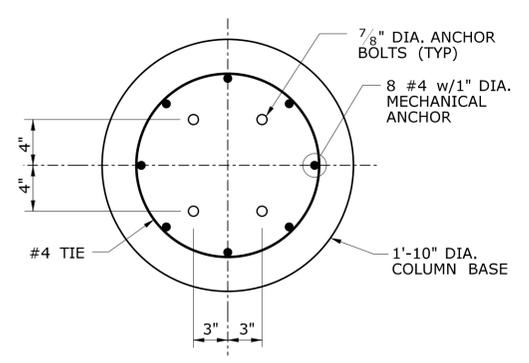
FINISHED DECK ELEVATIONS											
BEAM DESCRIPTION	ABUT. 1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	ABUT. 2
G1	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX
G2	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX	XXX.XX

**NOTES:**

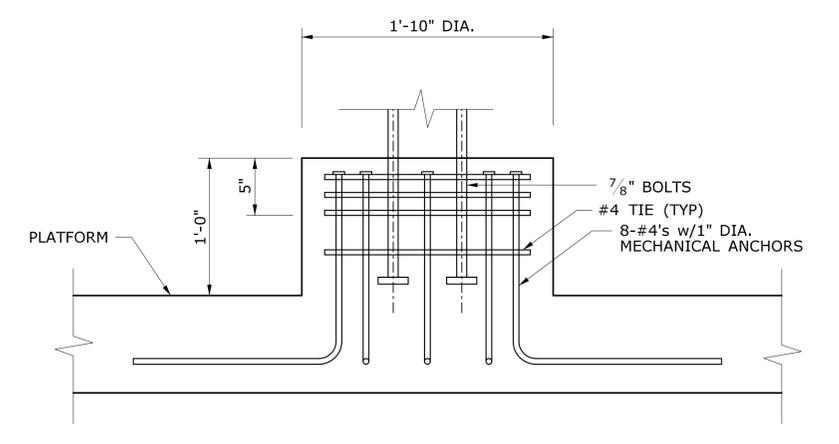
1. FINISHED PLATFORM ELEVATIONS SHOWN ON THE TABLE APPLY AT THE TOP OF THE CONCRETE PLATFORM.
2. CLASS "F" CONCRETE SHALL BE USED THROUGHOUT THE ENTIRE PLATFORM.
3. ALL REINFORCEMENT IN THE CONCRETE PLATFORM SHALL BE EPOXY COATED, UNLESS OTHERWISE NOTED, AND SHALL BE PAID FOR IN THE ITEM "DEFORMED STEEL BARS (EPOXY COATED)".
4. MAIN (TRANSVERSE) REINFORCEMENT SHALL BE PARALLEL TO THE CENTERLINE OF BEARINGS.



**PLATFORM SECTION**  
SCALE: 3/8" = 1'-0"



**PLAN**  
8 #4 w/1" DIA. MECHANICAL ANCHOR



**SECTION**

**CANOPY BASE DETAIL**  
SCALE: 1 1/2" = 1'-0"

**FINAL PLANS FOR REVIEW**

11/13/2014 P:\500 CAD-Drawings\510 CADD\510.04 Struc.Bridge\AL\SB_Br08012R_0135_0301_DET4.dgn	THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: CHECKED BY: D. COSTELLO	<p><b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b></p> <p>Signature/Block: _____</p>	PROJECT TITLE: <b>RECONSTRUCTION OF THE METRO-NORTH RAILROAD BRIDGE OVER ATLANTIC STREET</b>	TOWN: <b>STAMFORD</b>	PROJECT NO. <b>301-163</b>
	REV. DATE      REVISION DESCRIPTION      SHEET NO.	SCALE AS NOTED		FILENAME: ... \SB_MSH_Br08012R_0135_0301_DET4.dgn	DRAWING TITLE: <b>PLATFORM PLAN AND SECTION AND DETAILS</b>	SHEET NO. <b>XX.XX.OXX</b>